"Apollo"® Valves

# commercial products



## catalog

aalberts-ips.us

customer service 704.841.6000

**CPCA9000**

aalberts integrated piping systems

"Apollo" Valves

Buy American Act (BAA)
Build America Buy America (BABA) Act
American Iron & Steel (AIS)

# certificate of compliance

The Apollo Valves products listed below are manufactured in the United States at our Pageland, SC and Conway, SC foundries, and are compliant with the Buy American Act (BAA), and the Build America, Buy America (BABA) Act. In addition, the iron and steel products are also compliant with the American Iron & Steel (AIS) Act.

**non-iron & steel products (requires ≥ 60% domestic materials)**

| product series* | product description |
|---|---|
| 4A, 4AN (DC, DCDA, RP) | Bronze Double Check, Detector, RP Backflow sizes 1/2" - 2" |
| 4A-500 (PVB) | Bronze Pressure Vacuum Breaker sizes 1/2" and 1-1/4" - 2" |
| 4A-900 (SVB) | Bronze Spill Proof Vacuum Breaker |
| 7K | Bronze Vented Ball Valves |
| 9A | Bronze Unibody Heavy Duty Ball Valves |
| 10 to 17 | Bronze and Brass ASME Pressure Relief Valves |
| 19 | Bronze ASME Pressure Relief Valves |
| 20, 21, 24, 25, 26 | Bronze and Brass Water Gauges & Gauge Cocks |
| 29 | Bronze ASME Pressure Relief Valve |
| 30 | Bronze Gate Valves |
| 31 | Bronze Boiler Drain Valves |
| 32 | Bronze 2-Piece Ball Valves |
| 33 | Bronze Globe Valves |
| 34 | Bronze and Brass Thermostatic Mixing Valves |
| 35 | Bronze Feedwater Pressure Regulator |
| 36 | Bronze Pressure Reducing Valves |
| 37 | Brass Vacuum Relief Valves |
| 38-100 (AVB1) | Bronze Atmospheric Vacuum Breakers |
| 41 to 45 | Brass Air / Steam Cocks |
| 50GB | Bronze 2-Piece Gas Ball Valves |
| 50 to 56 | Bronze Gas Cocks |
| 59 | Bronze Strainers |
| 61, 61Y | Bronze In-Line & Swing Check Valves |
| 70, 71 | Bronze 2-Piece Ball Valves |
| 74 | Nickel 2-Piece Ball Valves |
| 75 | Bronze 2-Piece Ball Valve Pad Locking |
| 77, 77C, 77D, 77F, 77G | Bronze / Brass 2-Piece Ball Valves |
| 77V, 77W | Bronze / Brass 2-Piece Press Ball Valves |
| 78 | Bronze Specialty Ball Valves |
| 78RV | Brass Thermal Relief Valves |
| 79 | Brass Refrigeration Valve, UL Listed |
| 80 | Bronze 2-Piece Ball Valves, UL listed |
| 82 | Bronze 3-Piece Ball Valves |
| 86C to 86F | Alloy 20, Hastelloy C, Monel & Nickel 3-piece Ball Valves |
| 87A | Alloy 20 Flanged End Ball Valves |
| 87F to 87R | Alloy 20, Hastelloy C, Monel, Nickel & AL6XN Flanged End Ball Valves |
| 90 | Bronze Unibody Ball Valves, UL Listed |
| 399 | Alloy 20 2-Piece Ball Valves |
| 510, 520 | Bronze ASME Pressure Relief Valves |

**iron & steel products - American iron & steel (AIS) compliant (requires ≥ 95% domestic materials)**

| product series* | product description |
|---|---|
| Alpha-Alpha (TEV) (-UA) | Top Entry Ball Valves |
| 7A (-UA) | Steel 2-Piece Ball Valves |
| 72, 73, 73A (-UA) | Steel 2-Piece Ball Valves |
| 76, 76AR, 76F (-UA) | Stainless Steel and High Alloy 2-Piece Ball Valves |
| 83B, 86B (-UA) | Steel & Stainless Steel 3-Piece Ball Valves |
| 87 (-UA) | Stainless Steel Flanged End Ball Valves |
| 88 (-UA) | Steel Flanged End Ball Valves |
| 89, 489 (-UA) | Steel 2-Piece Ball Valves |
| 92, 93, 96 (-UA) | Steel Unibody Ball Valves |

*compliant product series includes lead free (LF) models

**notes:

1.) requires Apollo "-UA" option to be specified at time of order

2.) not all options and configurations are compliant. contact factory prior to ordering to confirm BAA/BABA/AIS compliance and availability.

3.) Valves that are not predominantly made of iron or steel (>50% by material cost) such as brass, bronze, nickel, Inconel, Monel, Hastelloy C and Alloy 20 are not subject to the requirements of the American Iron & Steel Act.

We thank you for your continued support of "Apollo"® products.

Scott Weisman
Vice President, commercial Sales & Operations

**Aalberts integrated piping systems**
customer service 704.841.6000 (US)
**aalberts-ips.us**

aalberts integrated piping systems

PLEASE BE ADVISED!

Please remember our most up to date and current information can be found on our website at www.apollovalves.com. The online versions of all of our catalogs and brochures can be found in the catalogs section of our website aalberts-ips.us



PRODUCT CATALOG

# CONTENTS

THE MOST UP TO DATE INFORMATION CAN BE FOUND ON OUR WEBSITE: AALBERTS-IPS.US


ToC **3-4** SERIES NO. & MODEL NO.

**5** LEAD FREE PRODUCTS

New! **SECTION A** NEW PRODUCTS

**SECTION B** BALL VALVES

**SECTION C** BUTTERFLY VALVES

**SECTION D** ACTUATION

**SECTION E** PRESSURE RELIEF VALVES

**SECTION F** HYDRONIC & STEAM HEATING

**SECTION G** MIXING VALVES

**SECTION H** WATER PRESSURE REDUCING VALVES

**SECTION I** BACKFLOW PREVENTION

**SECTION J** GATE, GLOBE & CHECK VALVES

**SECTION K** STRAINERS

**SECTION L** LIQUID LEVEL GAUGES

**SECTION M** PLUMBING SPECIALTIES


LEADFREE CERTIFIED

LEADFREE OPTIONS

THROUGHOUT THIS CATALOG, PRODUCTS THAT ARE CERTIFIED LEAD FREE* OR HAVE A LEAD FREE* OPTION WILL BE IDENTIFIED WITH THESE LOGOS.

*LEAD FREE: The wetted surfaces of this product shall contain no more than 0.25% lead by weighted average. Complies with Federal Public Law 111-380. ANSI 3rd party approved and listed.

Aalberts integrated piping systems offer a wide range of Apollo products for potable and non-potable applications. When the use of lead free valves is required by code, specification or legislation, it is the sole responsibility of our customers to ensure that only lead free Apollo products are installed in systems intended for potable water service. Further information related to our product offering and the U.S. Safe Drinking Water Act (SDWA) is available at aalberts-ips.us or by contacting Aalberts integrated piping systems customer service.

** Imported products may be identified as “Apollo International™”

## TABLE OF CONTENTS BY SERIES NO.


| PART NUMBER | MODEL NUMBER | PAGE |
|---|---|---|
| 4A-100/4ALF-100 | DC4A | I-3 |
| 4ALF-100 (LBF) | DC4A | I-10 |
| 4A-200/4ALF | RP4A | I-5 |
| 4ALF-200(LBF) | RP4A | I-16 |
| 4A-400 | DCAP | I-21 |
| 4A-500 | PVB-4A | I-8 |
| 4ALF-600 | DCDA-4A | I-4, I-13 |
| 4ALF-700(LBF) | RPDA-4A | I-18 |
| 4ALF-700 | RPDA-4A | I-7 |
| 4A-ST | | I-4 |
| 4AnLF-100(LBF) | DC-4An | I-12 |
| 4AnLF-200 | RP-4An | I-17 |
| 4AnLF-600(LBF) | DCDA-4An | I-15 |
| 4AnLF-700(LBF) | RPDA-4An | I-19 |
| 4C-100 | CBBP | I-27 |
| 4FP3 | DUC-4FP | I-23 |
| 4ALF-300 | DUC-4A | I-22 |
| 4SGLF/4SG/4S | DC-4SG | I-11 |
| 4SGLF-600 | DCDA-4SG | I-14 |
| 4A-900/4ALF | SVB-4A | I-9 |
| 6GA | 610F, 620F | J-5 |
| 6GA | 611F, 621F | J-5 |
| 6GB | 711F, 721F | J-9 |
| 6PLF | | B-24 |
| 6SC | 910F | J-12 |
| 6SC | 910FLW | J-12 |
| 6SC | 920F | J-12 |
| 6WC | 910WB, 910 | J-14 |
| 7K-100 | | B-17 |
| 7K-SV | | B-18 |
| 9A-100 | | B-20 |
| 10 | | E-3 - E-4 |
| 10-322/10-512 | | E-5 - E6 |
| 10-600 | | E-7 - E-9 |
| 12-200 | | E-10, E-13 |
| 13 | | E-11, E-13 |
| 14-200 | | E-12 - E-13 |
| 14-400/500 | | E-14 - E-17 |
| 14-600 | | E-15, E-17 |
| 15-100 | | E-18 - E-19 |
| 16-200/16LF-200 | | E-20 |
| 16-500/16LF-500 | | E-21 |
| 17-400 | | E-22 |
| 18C-400 | | E-23 |
| 18C-500 | | E-24 |
| 19 | | E-25 - E29 |
| 20-100/20LF-100 | | L-6 - L-12 |
| 20-200 | | L-6 - L-12 |
| 20-300 | | L-6 - L-12 |
| 20-410 | | L-6 - L-12 |
| 20-600/800 | | L-6 - L-12 |
| 20-700/710 | | L-6 - L-12 |
| 21 | | L-6 - L-12 |
| 215 | HPBFV | C-16 |
| 230 | HPBFV | C-16 |
| 23-400/23-600 | | L-6 - L-12 |
| 24-300 | | L-6 - L-12 |
| 24-600 | | L-6 - L-12 |
| 25-600 | | L-6 - L-12 |
| 260 | | C-16 |
| 26-100/26-300/26-700 | | M-2 |
| 26-500 | | M-6 |
| 27-200 | | F-24 |
| 27-400 | | M-2 |
| 29 | | E-30 - E-34 |
| 30/30LF | 101S/101T | J-2 |
| 30/30LF | 102S | J-2 |
| 30 | 102T-K | J-3 |
| 30-30LF | 102T | J-3 |
| 30 | 103T | J-3 |

| PART NUMBER | MODEL NUMBER | PAGE |
|---|---|---|
| 30 | 106T/107T | J-4 |
| 30 | 111T/116T | J-4 |
| 31-200/400/500 | | M-6 |
| 31LF-200/400/500 | | M6 |
| 31-600/700 | | M-7 |
| 32-100 | | B-10 |
| 33/33LF | 120S/120T/121T | J-7 |
| 33 | 122T/127T/128T | J-8 |
| 34ALF | | G-4 - G-5 |
| 34BLF | | G-6 - G-7 |
| 34C/34CLF | | G-8 - G-9 |
| 34DLF-400 | | G-10 |
| 34ELF | | G-14 - G-15 |
| 34HL | | G-12 - G-13 |
| 34-200 | | G-11 |
| 35 | | F-5 |
| 35-200 | | M-6 |
| 35-300 | | M-7 |
| 35-603 | | F-5 |
| 36LF | | H-5 - H-7 |
| 36CLF | | H-8 - H-9 |
| 36ELF/36ELF-G | | H-10 - H-15 |
| 36HLF | | H-16 - H-18 |
| 37LF-200 | | F-4 |
| 38-100/38LF-100 | AVB1 | I-20 |
| 38-200 | AVB2 | I-20 |
| 38LF-300 | HBV2 | I-24 |
| 38-304, 38LF-304 | HBDUC | I-25 |
| 38LF-400 | HBVAF2 | I-24 |
| 38-502, 38LF-502 | LFDUC | I-25 |
| 40-000/40LF-000 | FPV | I-26 |
| 40-200-T2S | RP-40S | I-6 |
| 40-300/40LF-300 | DUC | I-23 |
| 4ALF-400 | DCAP | I-21 |
| 41 | | M-3 |
| 44-100 | | M-6 |
| 50 | | M-4 |
| 50GB | | B-28 |
| 51 | | M-5 |
| 51G | | B-27 |
| 52 | | M-5 |
| 58 | | F-7 |
| 58A | | F-6 |
| 58B | | F-7 |
| 59/59LF | | K-2 - K-3 |
| 59-300/59LF-300 | | K-3 |
| 59V | | K-4 |
| 61-100/61LF-100 | | J-22 |
| 61-200 | | J-22 |
| 61-500/61LF-500 | | J-24 |
| 61-600/61LF-500 | | J-24 |
| 61-700 | | J-26 |
| 61Y/61YLF | 161S | J-10 |
| 61Y/61YLF | 161T | J-10 |
| 61Y | 162T | J-10 |
| 61Y/61YLF | 163S | J-10 |
| 61Y/61YLF | 163T | J-10 |
| 61Y | 164T | J-11 |
| 61Y | 168T | J-11 |
| 61Y | 169T | J-11 |
| 62-100 | | J-23 |
| 62-500 | | J-25 |
| 70-100-BC | | J-27 |
| 70-100/200 | | B-5 |
| 70LF-100/200 | | B-6 |
| 70-200 | | B-5 |
| 70-300/400 | | B-8 |
| 70LF-300/400 | | B-8 |
| 70-600 | | B-9 |
| 70-800/70LF-800 | | B-9 |
| 70-900 | | B-10 |

| PART NUMBER | MODEL NUMBER | PAGE |
|---|---|---|
| 70B | | B-7 |
| 70-HC/70LF-HC | | B-7 |
| 71-100 | | B-13 |
| 71-500 | | B-13 |
| 73A-100 | | B-14 |
| 75-100-41 | | B-15 |
| 76F-100-A | | B-14 |
| 77F/77FLF | | B-30 |
| 77-100 | | B-15 |
| 77-200 | | B-16 |
| 77-900 | | B-16 |
| 77C-100/200-A | | B-3 |
| 77CLF-100/200-A | | B-4 |
| 77CLF-300-A | | B-8 |
| 77C-ULA | | B-3 |
| 77D | | B-17 |
| 77G-UL | | B-26 |
| 77V | | B-36 |
| 77VLF | | B-37 |
| 77WA/77WLF-A | | B-34 |
| 77W-HCA/77WLF-HCA | | B-35 |
| 77WCLF | | B-35 |
| 77WCLF-HC | | B-36 |
| 78-124/125 | | B-29 |
| 78-130 | | B-19 |
| 78-256 | | B-29 |
| 78-260/78LF-290 | | B-18 |
| 78-620 | | B-19 |
| 78-660/962 | | B-19 |
| 78-RV/78RV-P | | F-13 |
| 80-100 | | B-25 |
| 82-100/82LF-100 | | B-21 |
| 82-200/82LF-200 | | B-21 |
| 82-200/240 MedGas | | B-22-23 |
| 90-100-A | | B-25 |
| 94A | | B-31 |
| 94ALF-A | | B-32 |
| 94 MBV | | B-24 |
| 94VLF-A | | B-38 |
| 94XLF | | B-38 |
| 95ALF | | B-33 |
| 119 | | E-35 - E-39 |
| 500 | | E-41 - E-46 |
| 612 | YSS | K-4 |
| 612 | YCS/YCSW | K-4 |
| A127 | | H-19 - H-20 |
| Actuation Accessories | | D-4 |
| AD/AS | AD/AS | D-2 |
| AE | AE | D-3 |
| AGD | | I-28 |
| Ball Valve Options | | B-2, B-11 - B-12 |
| DPE | DPE | E-40 |
| ENC4AN1 | | I-12 |
| I-2733/2734 | | L-13 |
| LC149 | | C-12 |
| LD/WD 141 | | C-13 - C-14 |
| LD/WD 145 | | C-13 |
| Mixing Valve Accessories | | G-16 |
| TPK | TPK | H-13 |
| W279900 | | H-20 |
| W807800 | | H-20 |
| YCF/YCF-E | YCF | K-6 |
| YCT | YCT | K-5 |


New Product or Option

## TABLE OF CONTENTS BY MODEL NO.


| MODEL NUMBER | PART NUMBER | PAGE |
|---|---|---|
| 101S | 30/30LF | J-2 |
| 101T | 30/30LF | J-2 |
| 102S | 30/30LF | J-2 |
| 102T | 30/30LF | J-3 |
| 102T-K | 30 | J-3 |
| 103T | 30 | J-3 |
| 106T | 30 | J-4 |
| 107T | 30 | J-4 |
| 111T | 30 | J-4 |
| 116T | 30 | J-4 |
| 120S | 33/33LF | J-7 |
| 120T | 33/33LF | J-7 |
| 121T | 33/33LF | J-7 |
| 122T | 33 | J-8 |
| 127T | 33 | J-8 |
| 128T | 33 | J-8 |
| 161S | 61Y/61YLF | J-10 |
| 161T | 61Y/61YLF | J-10 |
| 162T | 61Y | J-10 |
| 163S | 61Y/61YLF | J-10 |
| 163T | 61Y/61YLF | J-11 |
| 164T | 61Y | J-11 |
| 168T | 61Y | J-11 |
| 169T | 61Y | J-11 |
| 610F | 6GA | J-5 |
| 611F | 6GA | J-6 |
| 620F | 6GA | J-5 |
| 621F | 6GA | J-6 |
| 711F/721F | 6GB | J-9 |
| 910F | 6SC | J-12 |
| 910FLW | 6SC | J-12 |
| 910WB | 6WC | J-12 |
| 910WE | 6WC | J-14 |
| 920F | 6SC | J-12 |
| AD/AS | AD/AS | D-2 |
| AE | AE | D-3 |
| AVB1 | 38-100 | I-20 |
| AVB1 | 38LF-100 | I-20 |
| AVB2 | 38-200 | I-20 |
| CBBP | 4C-100 | I-27 |
| DC-4An | 4AnLF-100(LBF) | I-12 |
| DC-4SG | 4SGLF/4SG/4S | I-11 |
| DC4A | 4ALF-100(LBF) | I-3 |
| DC4A | 4A-100 | I-3 |
| DC4A | 4ALF-100 | I-3 |

| MODEL NUMBER | PART NUMBER | PAGE |
|---|---|---|
| DCAP | 4A-400 | I-21 |
| DCDA-4A | 4ALF-600(LBF) | I-4, I-13 |
| DCDA-4An | 4AnLF-600(LBF) | I-15 |
| DCDA-4SG | 4SG-600 | I-14 |
| DPE | DPE | E-40 |
| DUC-4A | 4ALF-300 | I-22 |
| DUC-4FP | 4FP3 | I-23 |
| DUCLF-4A | 4ALF-300 | I-22 |
| FPV | 40-000/40LF-000 | I-26 |
| HBDUC | 38-304 | I-25 |
| HBV2 | 38LF-300 | I-24 |
| HBVAF2 | 38LF-400 | I-24 |
| HPBFV | 215 | C-16 |
| HPBFV | 230 | C-16 |
| LFDUC | 38-502 | I-25 |
| PVB-4A | 4A-500 | I-18 |
| RP-40S | 40-200-T2S | I-6 |
| RP-4An | 4AnLF-200 | I-17 |
| RP4A | 4ALF-200(LBF) | I-5 |
| RP4A | 4A-200 | I-5 |
| RP4ALF | 4A-200/4ALF | I-5 |
| RPDA-4A | 4ALF-700 | I-6 |
| RPDA-4An | 4AnLF-700 | I-19 |
| SVB-4A | 4A-900/4ALF | I-9 |
| YCF | YCF | K-6 |
| YCS/YCSW | 612 | K-5 |
| YCT | YCT | K-5 |
| YSS | 612 | K-4 |


New Product or Option

| | |
|---|---|
| ANSI | AMERICAN NATIONAL STANDARDS INSTITUTE |
| ASME | AMERICAN SOCIETY OF MECHANICAL ENGINEERS |
| ASSE | ASSE INTERNATIONAL |
| CE | CONFORMITÉ EUROPÉENE/PRESSURE EQUIPMENT DIRECTIVE |
| CSA C US | CSA INTERNATIONAL |
| FM APPROVED | FACTORY MUTUAL |
| IAPMO UPC | INTERNATIONAL ASSOCIATION OF PLUMBING AND MECHANICAL OFFICIALS<br>UNIFORM PLUMBING CODE |
| ICC ES | INTERNATIONAL CODE COUNCIL |
| MSS | MANUFACTURERS STANDARDIZATION SOCIETY |
| NB | NATIONAL BOARD OF BOILER & PRESSURE VESSEL INSPECTORS |
| NSF | NATIONAL SANITATION FOUNDATION |
| NSAI | NATIONAL STANDARDS AUTHORITY OF IRELAND |
| TL | TRUESDAIL LABORATORIES |
| TÜVRheinland | TÜV RHEINLAND |
| UL | UNDERWRITERS LABORATORY |

LEADFREE OPTIONS

## ANSI 3RD PARTY CERTIFIED PRODUCTS INCLUDE:

| SERIES | SIZES | DESCRIPTION | CONNECTIONS |
|---|---|---|---|
| 16LF | 1/2" - 3/4" | Pressure Relief Valve | NPT |
| 215/230 | 2" - 24" | High Performance Butterfly Valve | Lug, Wafer |
| 20LF-100 | 1/2" | Water Gauge | NPT |
| 30LF | 1/4" – 3" | Bronze Gate Valve | NPT, Solder, Press |
| 31LF | 1/2", 3/4" | Compression Bibb Faucet | NPT, Solder |
| 33LF | 1/4" – 2" | Bronze Globe Valve | NPT, Solder, Press |
| 34ALF | 1/2" - 1" | Mixing Valve | NPT, Solder, PEX, CPVC |
| 34BLF | 1/2" - 1" | Mixing Valve | NPT, Solder, PEX, CPVC |
| 34CLF | 3/4" - 2" | Mixing Valve | NPT |
| 34DLF | 3/8" | Mixing Valve | Compression |
| 36LF | 1/2" - 2" | Water Pressure Reducing Valve | NPT, Solder, PEX, CPVC |
| 36CLF | 1/2" - 1" | Water Pressure Reducing Valve | NPT, Solder, PEX, CPVC, Push, Press |
| 36ELF | 1/2" - 2" | Water Pressure Reducing Valve | NPT, Solder, PEX, CPVC, Push, Press |
| 36HLF | 1/2" - 3" | Water Pressure Reducing Valve | NPT, Flanged |
| 37LF | 1/2" - 3/4" | Vacuum Relief | NPT |
| 38LF-100 | 1/4" -2" | Atmospheric Vacuum Breaker | NPT |
| 40LF-000 | 1/8" | Freeze Protection Valve | NPT |
| 40LF-300 | 1/2" - 1" | Dual Check Valve | NPT, NPSM, BSPP |
| 40LF-400 | 1/2" - 3/4" | Dual Check with Atmospheric Port | NPT, Solder, BSPP |
| 40XT | 3/4" | Expansion Tanks, Potable | NPT |
| 4ALF-100 | 1/2" - 2" | Double Check Valve | NPT |
| 4ALF-100 | 2 1/2" - 12" | Double Check Valve | Flanged, Grooved |
| 4ALF-200 | 1/2" - 2" | Reduced Pressure Assembly | NPT |
| 4ALF-200 | 2-1/2" - 12" | Reduced Pressure Assembly | Flanged, Grooved |
| 4ANLF-100 | 2-1/2" - 12" | Double Check Valve | Flanged, Grooved |
| 4ANLF-200 | 2-1/2" - 12" | Reduced Pressure Assembly | Flanged, Grooved |
| 4C100 | 1/4" - 3/8" | Carbonated Beverage Backflow Preventer | NPT, Flare |
| 4FPLF300 | 1" - 1-1/4" | Residential Fire Protection Dual Check Valve | NPT, NPSM |
| 4NLF300 | 3/8" - 1" | Dual Check Valve | NPT, NPSM, BSPP |
| 4SG100 | 2-1/2" - 6" | Double Check Valve | Flanged, Grooved |
| 59LF | 1/8" - 4" | Strainer, Bronze | NPT, Push, Press |
| 6GA | 2" – 24" | Cast Iron Gate Valve | Flanged |
| 6GB | 2" – 10" | Cast Iron Globe Valve | Flanged |
| 6PLF | 2" – 10" | Cast Iron Ball Valve | Flanged |
| 6SC | 2" – 20" | Cast Iron Globe Check Valve | Flanged |
| 6WC | 2" – 24" | Cast Iron Check Valve | Wafer |
| 61LF100 | 1/4" - 3" | Check Valve, Bronze, Ball Cone | NPT, Push |
| 61LF500 | 3/8" - 3/4" | Check Valve, Bronze, Soft Seat | NPT |
| 61YLF | 1/4" – 2" | Swing Check, Bronze | NPT, Solder, Press |
| 70LF | 1/4" - 4" | Ball Valve, Bronze | NPT, Solder |
| 70LF-HC | 1/2" - 1" | Ball Valve, Bronze, Hose Cap & Chain | NPT, Solder |
| 76 | 1/4" - 3" | Ball Valve, SS Standard Port | NPT |
| 76F | 1/2" - 2" | Ball Valve, SS Full Port | NPT |
| 77CLF-A | 1/4" - 2-1/2" | Ball Valve, Bronze | NPT, Solder |
| 77FLF | 1/4" - 4" | Ball Valve, Brass | NPT, Solder |
| 77VLF | 1/2" - 4" | Ball Valve, Brass | Press |
| 77WLF-A | 1/2" - 2" | Ball Valve, Bronze | Press |
| 77WLF-HCA | 1/2" – 3/4" | Ball Valve, Bronze, Hose Cap & Chain | Press |
| 77WCLF | 1/2" - 2" | Ball Valve Bronze, Copper Ends | Press |
| 78-RV | 3/4" | Ball Valve, Thermal Expansion Relief | NPT, Solder, PEX, Push |
| 82LF | 1/4" - 2-1/2" | Ball Valve, Bronze, 3 Piece | NPT, Solder / Brazed |
| 86A | 1/4" - 2" | Ball Valve, SS 3 Piece 1500 CWP | NPT, Socket Weld, Butt Weld |
| 86B | 1/4" - 2" | Ball Valve, SS 3 Piece Class 600 | NPT, Socket Weld, Butt Weld |
| 87A-200 | 1/2" - 4" | Ball Valve, SS ASME 150# | Flanged |
| 94ALF-A | 1/4" - 4" | Ball Valve, Brass | NPT, Solder |
| 94VLF-A | 1/2" - 4" | Ball Valve, Brass | Press |
| 94XLF | 1/2" – 1" | Ball Valve, Lead Free Brass | PEX |
| 95ALF | 1/2" - 1" | Ball Valve, Brass, Stop and Waste | NPT, Solder |
| 540 | 1/2" - 2" | Pressure Relief Valve, Stainless Steel | NPT |
| LC149 | 2" - 12" | Butterfly Valve | Lug |
| LD/WD 141 | 2" - 24" | Butterfly Valve | Lug, Wafer |
| LD/WD 145 | 2" - 12" | Butterfly Valve | Lug, Wafer |
| YCT | 1/4" - 3" | Strainer, Cast Iron | NPT |
| YCF-E | 2" - 12" | Strainer, Cast Iron, Epoxy Coated | Flanged |



*List is not all inclusive; other lead free products available.
See individual product pages or submittals for lead free options.

# "Apollo" Valves

## The "Apollo" Advantage. Quality We Stand Behind.

- Industry Leading 5 Year Warranty
- 100% Factory Tested
- Wide Range of Customizable Stems and Handles

aalberts integrated piping systems design services

Free Services Include:
- Takeoffs
- Cost Comparisons
- Equipment Detail Packages

Learn More at:
**www.aipsdesignservices.com**



**77CLF-200A Series**
- Contractor Series Full Port Lead Free Cast Bronze Ball Valve with (-04) 2-1/4" Stem Extension

**70-100 Series**
- Heavy Pattern Cast Bronze Ball Valve

**77VLF-100 Series**
- APOLLOPRESS® Lead Free Forged Brass Ball Valve with (-27) Locking Lever Handle



aalberts-ips.us
704.841.6000

"Apollo" Valves | EPC | SHURJOINT® | aalberts integrated piping systems

"Apollo" Valves

New Product!




# 77WCLF Copper Retainer Bronze Press Ball Valve

Our proven 77WLF Series bronze press ball valves are now available with integral copper retainers to provide maximum corrosion protection in harsh environments. These patent pending valves are 100% factory tested, and carry a 5-year warranty.

**Integral Copper Retainers**
- Maximum Corrosion and Dezincification Resistance
- Compact Retainer Design for Shorter End-to-End Dimensions than Typical Press Ball Valve Adaptations

**Universal Lever Design & Options**
- Consolidated Lever Design Fewer Lever and Kit Options to Stock Across 77 Series Valves
- Popular Options Including SS Locking Lever, SS Trim, Stem Extension and More!

**Solid Plated Ball**
- Superior Protection from Corrosion and Microbial Growth
- Ensures High-flow characteristics
- Reduces Friction and Wearing of Seats

**Lead Free Cast Bronze Body**
- ASTM Grade DZR Bronze Castings

**Seats and Seals**
- Generously Sized RPTFE Seats and Stem Packing

**Leak Before Press®**
- Unpressed Connections Will Visibly Leak During Low Pressure Testing

New! ENHANCED DESIGN

**Higher Pressure Rating**
300 PSI Max @ 250°F

5 YEAR WARRANTY

LEADFREE CERTIFIED

"Apollo" Valves | EPC | SHURJOINT® | aalberts integrated piping systems

aalberts-ips.us
704.841.6000




Three state-of-the-art manufacturing facilities in the Carolinas, including two world-class foundries, allow us to manufacture dependable products using high-quality materials, including cast bronze, forged brass, cast steels and stainless, as well as other alloys.

Over 90% of the 30,000 valves we ship each day are made in the USA, and every valve produced in our foundries is 100% factory-tested and backed by a 5-year warranty. Our extensive distribution facility network gets you what you need, when you need it, no matter where you are. That's the Apollo advantage.

"Apollo"® Valves

new products




section A

## "Apollo"® SmartPress
**VSH** technology



**Launching Spring 2023!**

Apollo® SmartPress is an innovative press connection system designed for joining ½"-2" IPS ASTM A-312 schedule 5s and 10s stainless steel pipe (approved for use with both AISI type 304/304L or 316/316L stainless). The Apollo® SmartPress product range consists of V-profile IPS press fittings and valves produced from AISI 316L stainless steel alloy that are fitted with patented sealing elements for a guaranteed safe, leak-tight and lasting connection. The Apollo® SmartPress system offers end-users a complete solution with maximum coverage of commercial and industrial applications requiring HNBR, EPDM, or FKM sealing elements.

For each sealing element variation, available Apollo® SmartPress fitting configurations include: couplings, caps, elbows, thread adapters, tees, threaded tees, fitting reducers, flange adapters, van stone flange adapters, and unions; Apollo® SmartPress valve configurations include: 3-piece ball valves and optimized single-piece (laser welded) FullFlow ball valves.

### operating parameters

maximum pressure
- schedule 5s: 300 psi
- schedule 10s: 500 psi

temperature range
- EPDM: -31°F to 275°F (302°F intermittent)
- HNBR: -22°F to 212°F (230°F intermittent)
- FKM: -4°F to 392°F (446°F intermittent)

---

## 94A / 94ALF-A SERIES
EXPANDED LEVER OPTION KITS



New for 2022, we now offer an expanded range of lever option kits for our popular 94A / 94ALF-A ball valves. Available kits now include:

- 2-1/4" Stem Extensions with Memory Stops
- Tee Handles
- Latch-lock Levers
- Stainless Steel Lever and Nut
- Replacement Levers

Levers feature yellow or white grips for easy visual identification of standard or lead-free valves respectively. Refer to Page B-33 for more information.

---

## 82 / 82LF-PR
BRONZE 3-PIECE BALL VALVE WITH PRESS CONNECTIONS



The Apollo 82 series full-port 3-piece cast bronze ball valve is now available with direct-connect Press connections. Sizes 1/2" - 2", in both 82 series standard bronze and 82LF lead-free bronze models. Apollo-Press™ Press connections are rated 300 psi @ 250°F max. and feature Leak-Before-Press® technology. Proudly Made in the USA

## APOLLO POWERPRESS
CARBON STEEL PRESS VALVES & FITTINGS



Apollo PowerPress® is a press valve and fitting system designed for thick wall steel pipe as defined by ASTM A53, A106, A135, A795 (sch. 10 to 40) standards.

Apollo PowerPress® products are manufactured using advanced fully automated modern machinery. This ensures a consistent, safe, high quality product. 100% of welded components undergo a leak test ensuring issue free installations in the field. In addition, all straight connectors with threaded ends are made from a single piece, thus eliminating potential leaks.

The Apollo POWERPRESS system offers a complete solution with a wide range of flexibility. The system can be utilized on standard steel pipe and can be used with different brands of press tools.

- Size Range: 1/2" to 2"
- Simple, Fast Press Connections
- Compact Fittings for Recessed Work
- Visual Press Indicator (Visu-ControlTM Ring)
- Materials of Construction Clearly Identified
- Leak Before Press® Feature (Ensures Visible Leakage of Non-Pressed Fittings)
- Suitable for Heating, Cooling, Fire Sprinkler and Gas Installations
- Expanding Line of Integrated Valves (Eliminates the Need for Adapters and Minimizes Potential Leak Paths)
- Approvals Include: CSA, FM, IAPMO, CRN, UL, ULC/ORD, UPC, IPC, IFGC & National Plumbing Code of Canada

### OPERATING PARAMETERS

- Sealing Element: **EPDM**
- Operating Pressure: **230 PSI Max.**
- Operating Temperature: **-40°F to 304°F**

- Sealing Element: **HNBR**
- Operating Pressure: **125 PSI**
- Operating Temperature: **-40°F to 194°F**

## 77C-A / 77CLF-A SERIES
BALL VALVE

LEADFREE OPTIONS



The next generation Apollo 77C-A "Contractor Series" full port cast bronze ball valve incorporates all the popular features of the original 77C series while adding thicker seats, stronger lever handles, improved stem packing adjustment, strengthened retainer sealing and 150 SWP markings. Proudly Made in the USA. Sizes 1/4" - 2-1/2". Lead free models are Certified NSF/ANSI/CAN 61 and 372, and are IAPMO approved.

## THERMA-SEAL™



Our popular Therma-Seal™ tee handle option is now available in a white version to help identify and differentiate lead-free valves when installed in a piping system. These 2-1/4" extended polymer tees are ideal when piping systems will be insulated and a non-thermally conductive, vapor barrier tee is specified. Available both as a factory installed option (-11 suffix) or as a kit for field retrofit. Lead free valves are fitted with white Therma-Seal™ tees, while standard material valves not intended for potable water are built with the original yellow Therma-Seal™ tee. Both colors are UL 2043 listed for plenum installation.

## TPK
TAILPIECE KITS

LEADFREE CERTIFIED



Tailpiece kits to fit 36E and 36ELF water pressure reducing valves, sizes 1/2" - 2". Each kit comes with one union nut, tailpiece and washer. Available tailpieces are FNPT (threaded), solder, press, CPVC and PEX connections. Tailpiece kits allow for flexibility and customizing without the inventory investment of complete finished valves. New expanded TPK offerings now include Push-To-Connect and Pex F1960 Cold Expansion tailpieces

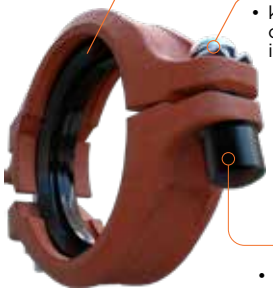
## SHURJOINT
### M07 QUICK INSTALL COUPLING

With our M07 rigid coupling, Shurjoint has expanded their grooved offerings into the ready-to-install coupling arena. The M07 is an improvement over existing ready-to-install couplings as it ensures uniform gasket support/stability with our patent-pending wedge design. Experience reduced installation time with our single bolt installation system.



**integrated wedge**
- properly supports the quick install gasket while being fully captured by the draw bolt

**draw bolt**
- new break away bolt. easily snap the draw bolt after installation which provides standard insulation clearance.



**quick install gasket**
- innovative design combined with our new EHM grade of EPDM formulated specifically for the M07
- ensures gasket-to-pipe contact from the moment you install
- maximum temperature range: -30°F (-34°C) to +250°F (121°C)

**hold open clip**
- keeps the M07 in an open configuration guaranteeing a quick installation

**nut cover**
- with our 1-bolt design there is no need to adjust the hinge bolt prior to installation

## BACKFLOW PREVENTION



PRESSURE DROP Calculator

The 4ALF and 4ANLF Series backflow preventers, 2-1/2" - 12", have received approvals from Truesdail Laboratories for being NSF/ANSI/CAN 61 certified. In addition to already being NSF/ANSI/CA 372 certified, product categories that now carry both certifications are Double Checks, Double Check Detectors, Reduced Pressure Principle, and Reduced Pressure Principle Detectors. **Certifications from the Foundation for Cross-Connection Control and Hydraulic Research at the University of Southern California (USC) now include approvals and listing of the Apollo 10" and 12" DCLF4A, DCLF4AN, DCDA2LF4AN, DCDA2LF4A, RPLF4A, RPLF4AN, RPDA2LF4A, and RPDA2LF4A backflow assemblies.**

Apollo Backflow Preventers are designed to provide positive protection against backflow while also producing the lowest possible pressure drop at all flow rates. Find accurate, 3rd party verified, pressure loss quickly & easily using the Apollo Backflow Pressure Drop Calculator at pdc.apollovalves.com.

## LD141 SERIES
### LARGE DIAMETER BUTTERFLY VALVE



The large diameter Apollo International™ LD141 Series Ductile Iron Butterfly Valves are ideal for use in Industrial and Commercial/HVAC/Mechanical applications. The LD141 Series is a lug style butterfly valve and is available in sizes 30" - 48".

- Compatible with ANSI 125# & 150# Flanges
- ISO 5211 Top Plate Allows Choice of Apollo Pneumatic Actuators and Gear Operators
- Conforms to MSS SP-67 & API 609

## 215 & 230 SERIES
### HIGH PERFORMANCE BUTTERFLY VALVES



LEADFREE OPTIONS

*stainless steel only

Apollo International™ 215 & 230 Series double offset high performance butterfly valves are available in wafer or lug body design. Series 215 (Class 150) 2"-30" and Series 230 (Class 300) 2"-24". Available materials include WCB carbon steel or NSF/ANSI/CAN 61 and NSF/ANSI 372 certified lead free CF8M stainless steel.

"Apollo"® Valves

# ball valves



## section B

# APOLLO BALL VALVE
## NUMBERING SYSTEM



### APOLLO NUMBERING SYSTEM FORMULA: 70 - 105 - 01

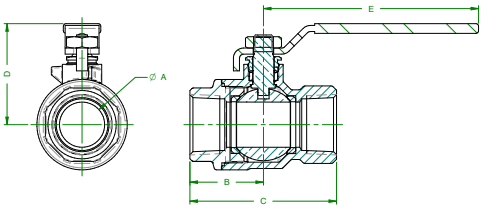
| XX - | X | X | X | - XX |
|---|---|---|---|---|
| SERIES | CONFIGURATION | VARIATIONS | SIZE* | OPTIONS |
| 32 BRONZE BALL VALVE, STD. PORT, NPT | 1 - FNPT | 0 - DEFAULT STANDARD | 1 - 1/4" | -01 - STANDARD |
| 50GB BRONZE GAS VALVE, CSA & UL LISTED | 2 - SOLDER | | 2 - 3/8" | -02 - GROUNDED |
| | 3 - UNION END NPT | 4 - 316 STAINLESS STEEL BALL & STEM | 3 - 1/2" | -04 - 2-1/4" STEM EXTENSION |
| 6PLF LEAD FREE** CAST IRON, BALL VALVE, FULL PORT, FLANGED, INTERNATIONAL | 6 - 3-WAY NPT | | 4 - 3/4" | -07 - TEE HANDLE |
| | 7 - FULL PORT REFRIGERATION VALVE | 9 - PINNED RETAINER | 5 - 1" | -08 - 90° REVERSED STEM |
| 70 BRONZE BALL VALVE | | | 6 - 1-1/4" | -10 - STAINLESS STEEL LEVER & NUT |
| 70HC BRONZE BALL VALVE W/ HOSE CAP | 8 - MALE X FNPT | | 7 - 1-1/2" | -11 - THERMA-SEAL™ INSULATING HANDLE |
| 70LF LEAD FREE** BRONZE BALL VALVE | 9 - 3-WAY SOLDER | | 8 - 2" | -12 - STAMPED "157 SWP" & BAGGED |
| 70LFHC LEAD FREE** BRONZE BALL VALVE W/ HOSE CAP | | | 9 - 2-1/2" | -13 - STAMPED "157 SWP" |
| 71 BRONZE BALL VALVE W/ PADS | | | 0 - 3" | -14 - SIDE VENTED BALL (UNI-DIRECTIONAL) |
| 75 BRONZE BALL VALVE, STD. PORT, PADLOCKING | | | A - 4" | -15 - ROUND HANDLE, STEEL |
| 77 BRONZE FULL-PORT BALL VALVE | | | | -16 - CHAIN LEVER - VERTICAL |
| 77C-A BRONZE BALL VALVE, FULL PORT, CONTRACTOR GRADE | | | | -17 - ROUGH CHROME PLATED |
| 77CLF -A LEAD FREE** BRONZE BALL VALVE, FULL PORT | | | | -18 - PLAIN YELLOW GRIP |
| 77C-ULA BRONZE BALL VALVE, FULL PORT, UL LISTED | | | | -19 - LOCK PLATE |
| 77D BRONZE BALL VALVE, FULL PORT, DIRECT MOUNT FOR ACTUATORS | | | | -20 - SLOT VENTED BALL (BI-DIRECTIONAL) |
| | | | | -21 - UHMWPE TRIM (NON-PTFE) |
| 77F BRASS BALL VALVE, FULL PORT, USA | | | | -24 - GRAPHITE PACKING |
| 77FLF LEAD FREE** BRASS BALL VALVE, FULL PORT | | | | -27 - STAINLESS STEEL LATCH-LOCK LEVER & NUT |
| 77G-UL BRONZE GAS SHUT-OFF VALVE, FULL PORT CSA/UL | | | | -30 - CAM-LOCK AND GROUNDED |
| 77V APOLLOPRESS® BRASS BALL VALVE | | | | -32 - STAINLESS STEEL TEE HANDLE & NUT |
| 77VLF LEAD FREE** APOLLOPRESS® BRASS BALL VALVE | | | | -35 - VTFE TRIM (PTFE) |
| 77W-A BRONZE BALL VALVE, FULL PORT, APOLLOPRESS® | | | | -36 - STAINLESS STEEL HI-RISE ROUND HANDLE, STAINLESS STEEL NUT |
| 77WLF -A LEAD FREE** BRONZE BV, FULL PORT, APOLLOPRESS® | | | | |
| 77WCLF LEAD FREE** BRONZE BV, FULL PORT, APOLLOPRESS®W. COPPER ENDS | | | | |
| 77W -HCA BRONZE BV, FP, APOLLOPRESS®, HOSE CAP | | | | -39 - SS HI-RISE LOCKING ROUND HANDLE, SS NUT |
| 77WLF-HCA LEAD FREE** BRONZE BV, FP, APOLLOPRESS®, HOSE CAP | | | | -40 - CYL-LOC AND GROUNDED |
| 78 SPECIALTY VALVE | | | | -41 - AUTOMATIC DRAIN |
| 7K BRONZE BALL VALVE, W/ DRAIN | | | | |
| 80 BRONZE BALL VALVE, UL LISTED | | | | -47 - SS OVAL LATCH-LOCK HANDLE & NUT |
| 82 BRONZE THREE-PIECE FULL PORT BALL VALVE | | | | -48 - SS OVAL HANDLE (NO LATCH) & NUT |
| 82LF LEAD FREE** BRONZE THREE-PIECE FULL PORT | | | | -49 - ASSEMBLED DRY |
| 89FV CARBON STEEL POWERPRESS BALL VALVE (SEE TPSISCA FOR DETAILS) | | | | -50 - 2-1/4" CARBON STEEL LOCKING STEM EXT. |
| | | | | -56 - MULTIFILL SEATS & PACKING |
| 9A BRONZE, UNIBODY, HEAVY PATTERN | | | | -57 - OXYGEN CLEANED AND BAGGED (CGA G-4.1) |
| 90-A BRONZE, UNIBODY, UL LISTED BALL VALVE | | | | -58 - CHAIN LEVER - HORIZONTAL |
| 94A BRASS, FULL PORT, UL LISTED, INT'L | | | | -59 - SS EXTERNAL TRIM: 3-PC & FLANGED VALVES |
| 94ALF-A LEAD FREE** BRASS, FULL PORT, INT'L | | | | -60 - GROUNDED BALL & STEM |
| 94MBV BRASS MINI-BALL VALVE, CSA LISTED, STD. PORT, INT'L | | | | -62 - BODY CENTER SECTION (82 SERIES) |
| 94XLF LEAD FREE** BRASS BALL VALVE, PEX, INT'L | | | | -63 - NPT X SOLDER (-100-63-NPT BODY / -200-63-SWEAT BODY) |
| 94VLF-A LEAD FREE** BRASS APOLLOPRESS® BALL VALVE, INT'L | | | | |
| 95ALF LEAD FREE** BRASS STOP & WASTE VALVE, INT'L | | | | -64 - 250 SWP |
| | | | | -65 - MULTIFILL SEATS & GRAPHITE PACKING |
| | | | | -72 - RTFE PACKING |
| | | | | -91 - LOCKING SS TEE (3/4" AND 1") |
| | | | | -92 - BALANCING STOP |
| | | | | -94 - -04 & BALANCING STOP |
| | | | | -BC - BALL CHECK |
| | | | | -HC - HOSE THREAD AND CAP OPTION |
| | | | | -SV - SAFETY VENT - 77-100/7K-100 SERIES (AUTO DRAIN) |
| | | | | -SW - LIMIT SWITCH MOUNTED |
| | | | | -TH - TESTED, HYDROSTATIC |
| | | | | -TC - TESTED, HYDROSTATIC, W/CERTIFICATION |
| | | | | -TW - TESTED, HYDROSTATIC, W/WITNESS & CERT. |

*BODY SIZE WHEN ENDS ARE MIXED
Note: Not all variations and features are available on same valve.
Consult customer service

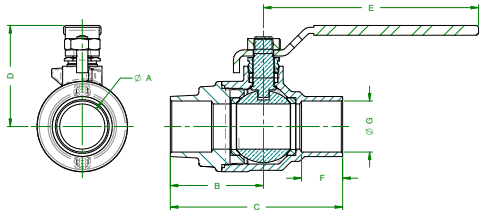
**LEAD FREE
The wetted surfaces of this product shall contain no more than 0.25% lead by weighted average. Complies with Federal Public Law 111-380. ANSI 3rd party approved and listed.

## 77C-100/200-A SERIES
CONTRACTOR SERIES FULL PORT BRONZE BALL VALVE WITH SOLID BALL








Apollo's solid ball design delivers true full-port performance with 100% American construction. The next generation mod -"A" adds a new beefier lever, simplified packing adjustment, wider seats and stem packing and a 150 SWP body marking.

### FEATURES
- ASTM Grade DZR Bronze Castings
- Solid Brass Ball, Plated
- 600 psig CWP, Non-Shock
- 150 SWP Steam Rating
- Generous RPTFE Seats and Stem Packing
- Adjustable Stem Packing
- Blowout-Proof Stem Design
- Vacuum Service to 29 in. Hg
- Full-Port Design Through 2-1/2"
- ANSI B16.18 Solder End Version Available as 77C-200 Series
- CSA B51- CRN OC10908.5C
- MSS SP-110 Ball Valves
- IAPMO/ANSI Z1157 Ball Valves
- **Proudly Made in USA**

### OPTIONS*
- (-01) Standard Lever and Trim
- (-04) 2-1/4" Stem Extension
- (-07) CS Tee Handle
- (-10) Stainless Steel Handle and Nut
- (-11) Therma-Seal™ Insulating Tee
- (-27) Locking Handle
- (-50) 2-1/4" Locking Stem Extension
- (-92) Balancing Stop
- (-94) 2-1/4" Stem Extension and Balancing Stop
- SS Vented Ball and Stem (77C140 and 77C240 Series)
- 77C-ULA (UL 258 - Fire Protection Trim & Drain, Guide VQGU) Option ***NEW!***
- Flammable Gas Listed (CSA & UL) Model 77G-UL (See Page B-26)
- Other Handle Options Available

Also Available in a Lead Free Version as the 77CLF-A Series

Lever option kits for the 77C-A models differ from the previous 77C model. Refer to the latest Apollo kit listing or contact Apollo Tech Support for assistance.

### DIMENSIONS

| PART NUMBER | SIZE (IN.) | DIMENSIONS (IN.) | | | | | | | $C_v$ | WT. * (LB.) |
|---|---|---|---|---|---|---|---|---|---|---|
| | | A | B | C | D | E | F | G | | |
| **NPT** | | | | | | | | | | |
| 77C-101-01A | 1/4" | 0.37 | 0.88 | 1.8 | 1.65 | 2.82 | - | - | 5 | 0.6 |
| 77C-102-01A | 3/8" | 0.37 | 0.94 | 1.86 | 1.65 | 2.82 | - | - | 7 | 0.6 |
| 77C-103-01A | 1/2" | 0.50 | 1.15 | 2.29 | 1.79 | 3.82 | - | - | 16 | 0.6 |
| 77C-104-01A | 3/4" | 0.75 | 1.34 | 2.67 | 1.91 | 3.82 | - | - | 36 | 1.0 |
| 77C-105-01A | 1" | 1.00 | 1.63 | 3.24 | 2.24 | 4.72 | - | - | 68 | 1.8 |
| 77C-106-01A | 1-1/4" | 1.25 | 1.9 | 3.75 | 2.46 | 4.72 | - | - | 125 | 4.2 |
| 77C-107-01A | 1-1/2" | 1.50 | 2.06 | 4.11 | 2.9 | 5.37 | - | - | 177 | 4.6 |
| 77C-108-01A | 2" | 2.00 | 2.43 | 4.85 | 3.68 | 7.72 | - | - | 389 | 7.9 |
| 77C-109-01A | 2-1/2" | 2.50 | 3.03 | 6.02 | 4.13 | 7.72 | - | - | 503 | 16.4 |
| **SOLDER** | | | | | | | | | | |
| 77C-202-01A | 3/8" | 0.37 | 1.24 | 2.17 | 1.65 | 2.82 | 0.41 | 0.50 | 7 | 0.6 |
| 77C-203-01A | 1/2" | 0.50 | 1.36 | 2.47 | 1.79 | 3.82 | 0.50 | 0.63 | 16 | 0.6 |
| 77C-204-01A | 3/4" | 0.75 | 1.73 | 3.20 | 1.91 | 3.82 | 0.75 | 0.88 | 36 | 1.0 |
| 77C-205-01A | 1" | 1.00 | 2.06 | 3.81 | 2.24 | 4.72 | 0.91 | 1.13 | 68 | 1.5 |
| 77C-206-01A | 1-1/4" | 1.25 | 2.22 | 4.21 | 2.46 | 4.72 | 0.97 | 1.38 | 125 | 3.9 |
| 77C-207-01A | 1-1/2" | 1.50 | 2.53 | 4.90 | 2.9 | 5.37 | 1.09 | 1.63 | 177 | 5.9 |
| 77C-208-01A | 2" | 2.00 | 3.15 | 6.07 | 3.68 | 7.72 | 1.34 | 2.13 | 389 | 7.5 |
| 77C-209-01A | 2-1/2" | 2.50 | 3.78 | 7.17 | 4.13 | 7.72 | 1.48 | 2.63 | 503 | 14.5 |

*Weights based on Standard Configuration*

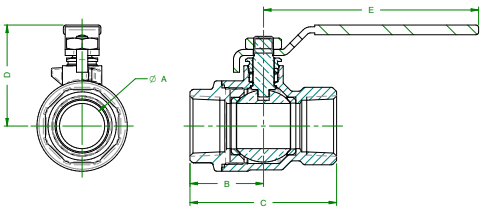
## 77CLF-100/200-A SERIES

CONTRACTOR SERIES FULL PORT BRONZE BALL VALVE WITH SOLID BALL

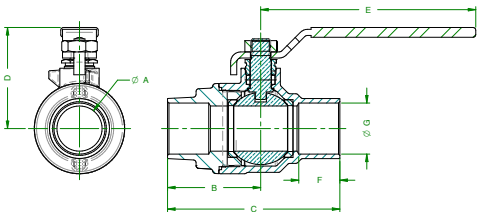
LEADFREE CERTIFIED










Apollo's solid ball design delivers true full-port performance with 100% American construction. The next generation mod -"A" adds a new beefier lever, simplified packing adjustment, wider seats and stem packing and a 150 SWP body marking. Ideal for a wide variety of HVAC and plumbing applications including potable water.

### FEATURES

- Lead Free DZR Bronze Castings
- Solid Brass Ball, Plated
- 600 psig CWP, Non-Shock
- 150 SWP Steam Rating
- Generous RPTFE Seats and Stem Packing
- Adjustable Stem Packing
- Blowout-Proof Stem Design
- EZ-Solder™ Lead Free Bronze
- Vacuum Service to 29 in. Hg
- Full-Port Design Through 2-1/2"
- ANSI B16.18 Solder End Version Available as 77CLF-200 Series
- MSS SP-110 Ball Valves
- IAPMO/ANSI Z1157 Ball Valves
- NSF/ANSI/CAN 61 Water Quality
- NSF/ANSI/CAN 372 Lead Free
- City of Los Angeles DBS
- CRN: 0C10908.5C
- EU Directive 2015/863 (RoHS 3) Compliant
- EU Regulation (EC) 1907/2006 (REACH) Compliant
- **Proudly Made in USA**

### OPTIONS*

- (-01) Standard Lever and Trim
- (-04) 2-1/4" Stem Extension
- (-07) CS Tee Handle
- (-10) Stainless Steel Handle and Nut
- (-11) Therma-Seal™ Insulating Tee
- (-27) Locking Handle
- (-50) 2-1/4" Locking Stem Extension
- (-92) Balancing Stop
- (-94) 2-1/4" Stem Extension and Balancing Stop
- SS Vented Ball and Stem (77CLF140 and 77CLF240 Series)
- 77C-ULA (UL 258 - Fire Protection Trim & Drain, Guide VQGU) Option ***NEW!***
- Flammable Gas Listed (CSA & UL) Model 77G-UL (See Page B-26)
- Other Handle Options Available
- Also Available in Standard Bronze as the 77C-A Series

Lever option kits for the 77CLF-A models differ from the previous 77CLF model. Refer to the latest Apollo kit listing or contact Apollo Tech Support for assistance.

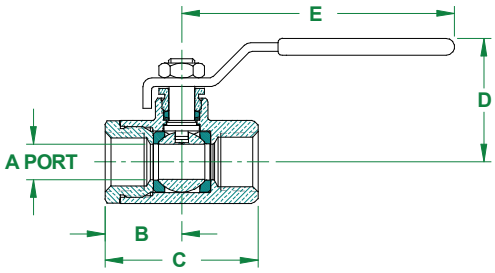
### DIMENSIONS

| PART NUMBER | SIZE (IN.) | DIMENSIONS (IN.) | | | | | | | $C_V$ | WT. * (LB.) |
|---|---|---|---|---|---|---|---|---|---|---|
| | | A | B | C | D | E | F | G | | |
| **NPT** | | | | | | | | | | |
| 77CLF-101-01A | 1/4" | 0.37 | 0.88 | 1.8 | 1.65 | 2.82 | - | - | 5 | 0.6 |
| 77CLF-102-01A | 3/8" | 0.37 | 0.94 | 1.86 | 1.65 | 2.82 | - | - | 7 | 0.6 |
| 77CLF-103-01A | 1/2" | 0.50 | 1.15 | 2.29 | 1.79 | 3.82 | - | - | 16 | 0.6 |
| 77CLF-104-01A | 3/4" | 0.75 | 1.34 | 2.67 | 1.91 | 3.82 | - | - | 36 | 1.0 |
| 77CLF-105-01A | 1" | 1.00 | 1.63 | 3.24 | 2.24 | 4.72 | - | - | 68 | 1.8 |
| 77CLF-106-01A | 1-1/4" | 1.25 | 1.9 | 3.75 | 2.46 | 4.72 | - | - | 125 | 4.2 |
| 77CLF-107-01A | 1-1/2" | 1.50 | 2.06 | 4.11 | 2.9 | 5.37 | - | - | 177 | 4.6 |
| 77CLF-108-01A | 2" | 2.00 | 2.43 | 4.85 | 3.68 | 7.72 | - | - | 389 | 7.9 |
| 77CLF-109-01A | 2-1/2" | 2.50 | 3.03 | 6.02 | 4.13 | 7.72 | - | - | 503 | 16.4 |
| **SOLDER** | | | | | | | | | | |
| 77CLF-202-01A | 3/8" | 0.37 | 1.24 | 2.17 | 1.65 | 2.82 | 0.41 | 0.50 | 7 | 0.6 |
| 77CLF-203-01A | 1/2" | 0.50 | 1.36 | 2.47 | 1.79 | 3.82 | 0.50 | 0.63 | 16 | 0.6 |
| 77CLF-204-01A | 3/4" | 0.75 | 1.73 | 3.20 | 1.91 | 3.82 | 0.75 | 0.88 | 36 | 1.0 |
| 77CLF-205-01A | 1" | 1.00 | 2.06 | 3.81 | 2.24 | 4.72 | 0.91 | 1.13 | 68 | 1.5 |
| 77CLF-206-01A | 1-1/4" | 1.25 | 2.22 | 4.21 | 2.46 | 4.72 | 0.97 | 1.38 | 125 | 3.9 |
| 77CLF-207-01A | 1-1/2" | 1.50 | 2.53 | 4.90 | 2.9 | 5.37 | 1.09 | 1.63 | 177 | 5.9 |
| 77CLF-208-01A | 2" | 2.00 | 3.15 | 6.07 | 3.68 | 7.72 | 1.34 | 2.13 | 389 | 7.5 |
| 77CLF-209-01A | 2-1/2" | 2.50 | 3.78 | 7.17 | 4.13 | 7.72 | 1.48 | 2.63 | 503 | 14.5 |

*Weights based on Standard Configuration*

## 70-100/200 SERIES
BRONZE BALL VALVE





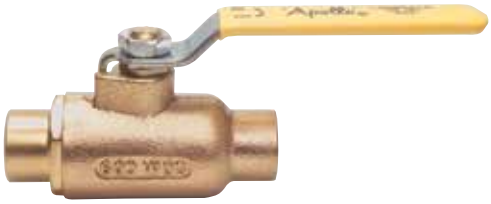

The Apollo 70 Series is the most widely used and trusted bronze ball valve in the industry. It features blowout-proof stem, RPTFE seats and stuffing box ring and plated brass ball.

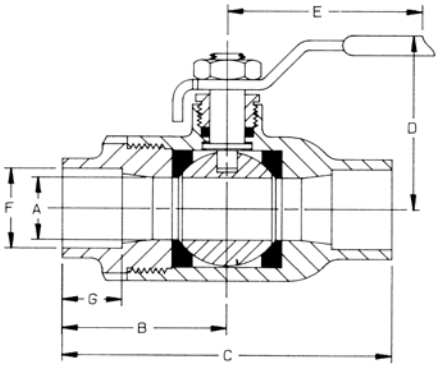
### FEATURES
- Heavy Pattern Construction
- ASTM Grade DZR Bronze
- Rated 600 psig CWP, Non-Shock
- 150 psig for Saturated Steam
- Optional 250 SWP Configuration
- NPT and Solder Connections
- Vacuum Service to 29 in. Hg
- Adjustable Packing Gland
- Multiple Options and Configurations Available
- Lead Free Option (70LF)
- 100% Factory Tested
- MSS SP-110 Ball Valves
- CRN: 0C10908.5C
- **Proudly Made in USA**

### DIMENSIONS - NPT

| PART NUMBER | SIZE (IN.) | DIMENSIONS (IN.) | | | | | WT. (LB.) |
|---|---|---|---|---|---|---|---|
| | | A | B | C | D | E | |
| 70-101-01 | 1/4" | 0.37 | 1.03 | 2.06 | 1.75 | 3.87 | 0.60 |
| 70-102-01 | 3/8" | 0.37 | 1.03 | 2.06 | 1.75 | 3.87 | 0.56 |
| 70-103-01 | 1/2" | 0.50 | 1.12 | 2.17 | 1.75 | 3.87 | 0.63 |
| 70-104-01 | 3/4" | 0.68 | 1.50 | 3.00 | 2.12 | 4.87 | 1.39 |
| 70-105-01 | 1" | 0.87 | 1.68 | 3.37 | 2.25 | 4.87 | 1.72 |
| 70-106-01 | 1-1/4" | 1.00 | 2.00 | 4.00 | 2.62 | 5.50 | 3.26 |
| 70-107-01 | 1-1/2" | 1.25 | 2.18 | 4.37 | 3.06 | 8.00 | 4.61 |
| 70-108-01 | 2" | 1.50 | 2.34 | 4.68 | 3.25 | 8.00 | 6.06 |
| 70-109-01A | 2-1/2" | 2.00 | 3.12 | 6.25 | 3.72 | 8.00 | 17.25 |
| 70-100-01 | 3" | 2.50 | 3.37 | 6.75 | 4.12 | 8.00 | 18.60 |
| 70-10A-01 | 4" | 3.12 | 3.68 | 7.37 | 5.25 | 10.00 | 25.50 |

*NOTE: 1/4", 3/8", and 1/2" are full port.*






### DIMENSIONS - SOLDER

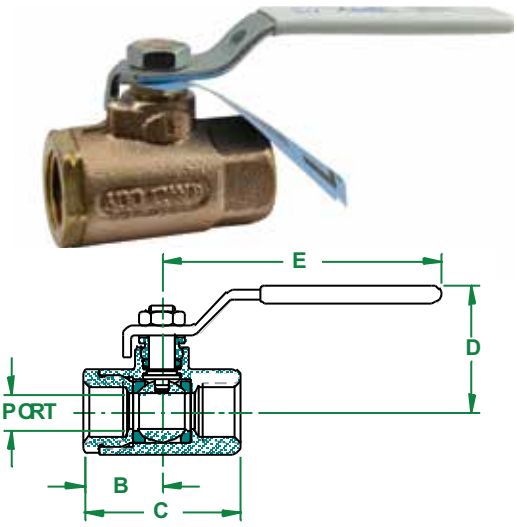
| PART NUMBER | SIZE (IN.) | DIMENSIONS (IN.)* | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | A | B | C | D | E | F | G |
| 70-202-01 | 3/8 | 0.37 | 1.28 | 2.56 | 1.75 | 3.87 | 0.505 | 0.37 |
| 70-203-01 | 1/2 | 0.50 | 1.43 | 2.87 | 1.75 | 3.87 | 0.63 | 0.50 |
| 70-204-01 | 3/4 | 0.68 | 1.93 | 3.87 | 2.12 | 4.87 | 0.88 | 0.75 |
| 70-205-01 | 1 | 0.87 | 2.25 | 4.50 | 2.25 | 4.87 | 1.13 | 0.90 |
| 70-206-01 | 1-1/4 | 1.00 | 2.31 | 4.62 | 2.62 | 5.50 | 1.38 | 0.96 |
| 70-207-01 | 1-1/2 | 1.25 | 2.62 | 5.25 | 3.06 | 8.00 | 1.63 | 1.09 |
| 70-208-01 | 2 | 1.50 | 3.18 | 6.37 | 3.25 | 8.00 | 2.13 | 1.34 |
| 70-209-01A | 2-1/2 | 2.00 | 3.74 | 7.51 | 3.72 | 8.00 | 2.63 | 1.48 |
| 70-200-01 | 3 | 2.50 | 4.12 | 8.25 | 4.12 | 8.00 | 3.13 | 1.67 |
| 70-20A-01 | 4 | 3.12 | 4.61 | 9.22 | 5.22 | 9.94 | 4.13 | 2.16 |

**Based on 70-200-01 – Dimensions may vary with options.*
*NOTE: 1/4", 3/8", and 1/2" are full port.*

***70-2xx intended for soft solder installation using solders with melting temperature of < 500°F.*

## 70LF-100/200 SERIES
BRONZE BALL VALVE

LEADFREE CERTIFIED



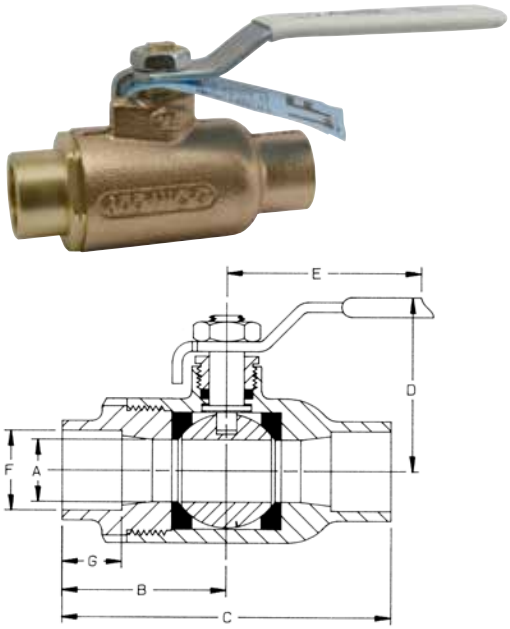

The Apollo 70LF series is the most widely used and trusted lead free bronze ball valve in the industry. It features a blowout-proof stem, RPTFE seats and stuffing box ring and plated brass ball.

### FEATURES
- Heavy Pattern Construction
- EZ-Solder™ Lead Free DZR Bronze
- Solders Just Like Standard Bronze
- Rated 600 psig CWP, Non-Shock
- 150 psig SWP for Saturated Steam
- 100% Factory Tested
- Vacuum Service to 29 in. Hg
- MSS SP-110 Ball Valves
- ANSI/ASME B1.20.7 Hose Thread
- NSF/ANSI/CAN 61 Water Quality
- NSF/ANSI/CAN 372 Lead Free
- CRN: 0C10908.5C
- Adjustable Packing Gland
- Multiple Options and Configurations Available
- **Proudly Made in USA**

### DIMENSIONS - NPT

| PART NUMBER | SIZE (IN.) | DIMENSIONS (IN.) | | | | | WT. (LB.) |
|---|---|---|---|---|---|---|---|
| | | A | B | C | D | E | |
| 70LF-101-01 | 1/4" | 0.37 | 1.03 | 2.06 | 1.75 | 3.87 | 0.60 |
| 70LF-102-01 | 3/8" | 0.37 | 1.03 | 2.06 | 1.75 | 3.87 | 0.56 |
| 70LF-103-01 | 1/2" | 0.50 | 1.12 | 2.25 | 1.75 | 3.87 | 0.63 |
| 70LF-104-01 | 3/4" | 0.68 | 1.50 | 3.00 | 2.12 | 4.87 | 1.39 |
| 70LF-105-01 | 1" | 0.87 | 1.68 | 3.37 | 2.25 | 4.87 | 1.72 |
| 70LF-106-01 | 1-1/4" | 1.00 | 2.00 | 4.00 | 2.62 | 5.50 | 3.26 |
| 70LF-107-01 | 1-1/2" | 1.25 | 2.18 | 4.37 | 3.06 | 8.00 | 4.61 |
| 70LF-108-01 | 2" | 1.50 | 2.34 | 4.68 | 3.25 | 8.00 | 6.06 |
| 70LF-109-01 | 2-1/2" | 2.00 | 3.12 | 6.25 | 3.72 | 8.00 | 13.96 |
| 70LF-100-01 | 3" | 2.50 | 3.37 | 6.75 | 4.12 | 8.00 | 18.60 |
| 70LF-10A-01 | 4" | 3.12 | 3.68 | 7.37 | 5.25 | 10.00 | 25.50 |

*NOTE: 1/4", 3/8", and 1/2" are full port.*



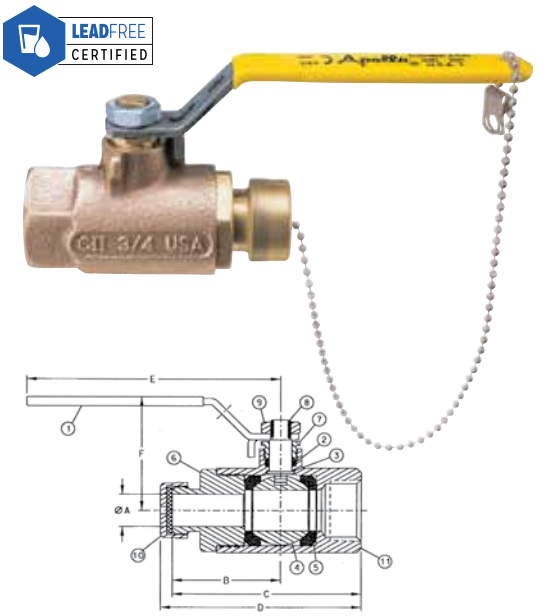

### DIMENSIONS - SOLDER

| PART NUMBER | SIZE (IN.) | DIMENSIONS (IN.)* | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | A | B | C | D | E | F | G |
| 70LF-202-01 | 3/8 | 0.37 | 1.28 | 2.56 | 1.75 | 3.87 | 0.505 | 0.37 |
| 70LF-203-01 | 1/2 | 0.50 | 1.43 | 2.87 | 1.75 | 3.87 | 0.63 | 0.50 |
| 70LF-204-01 | 3/4 | 0.68 | 1.93 | 3.87 | 2.12 | 4.87 | 0.88 | 0.75 |
| 70LF-205-01 | 1 | 0.87 | 2.25 | 4.50 | 2.25 | 4.87 | 1.13 | 0.90 |
| 70LF-206-01 | 1-1/4 | 1.00 | 2.31 | 4.62 | 2.62 | 5.50 | 1.38 | 0.96 |
| 70LF-207-01 | 1-1/2 | 1.25 | 2.62 | 5.25 | 3.06 | 8.00 | 1.63 | 1.09 |
| 70LF-208-01 | 2 | 1.50 | 3.18 | 6.37 | 3.25 | 8.00 | 2.13 | 1.34 |
| 70LF-209-01 | 2-1/2 | 2.00 | 3.74 | 7.51 | 3.72 | 8.00 | 2.63 | 1.48 |
| 70LF-200-01 | 3 | 2.50 | 4.12 | 8.25 | 4.12 | 8.00 | 3.13 | 1.67 |
| 70LF-20A-01 | 4 | 3.12 | 4.61 | 9.22 | 5.22 | 9.94 | 4.13 | 2.16 |

**Based on 70-200-01 – Dimensions may vary with options.*
*NOTE: 1/4", 3/8", and 1/2" are full port.*

***70LF-2xx intended for soft solder installation using solders with melting temperature of < 500°F.*

## 70-HC SERIES
HOSE CAP & CHAIN VALVE




### CAP & CHAIN VALVE WITH 3/4" HOSE CONNECTION, HEAVY BRASS CAP AND REVERSE HANDLE

Ideally suited for draining or sampling of HVAC or potable water systems, these valves allow direct connections to hoses. Valve features a securely attached cover (includes chain) which prevents damage to hose threads. -200 model designed for soft soldering into lines without disassembly.

### FEATURES

- Heavy Pattern Construction
- Reverse Lever is Standard for Easier Installation
- Stainless Steel Lever & Nut Standard
- NPT and Solder Connections
- EZ-Solder™ Lead free bronze
- ASTM B584 Bronze
- Blowout-Proof Stem Design
- RPTFE Seats and Stuffing Box Ring
- Adjustable Packing Gland
- Vacuum Service to 29 in. Hg
- Maximum Pressure: 600 psi CWP
- Temperature Rating: 200°F
- Full Pressure Rated Brass Hose Cap
- **Stronger Stainless Steel Ball Chain** ***NEW!***
- **Proudly Made in USA**

### OPTIONS

- (-11) Therma-Seal™ Insulating Tee
- Stainless Steel Ball and Stem (70-24x-HC/70LF-24X-HC)
- 70LF is NSF 61 and NSF 372 Certified Lead Free

### DIMENSIONS

| PART NUMBER | LF PART NUMBER | SIZE (IN.) | DIMENSIONS (IN.) | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | A | B | C | D | E | F |
| 70-103-HC | 70LF-103-HC | 1/2 NPT x 3/4 Hose | 0.50 | 1.68 | 2.81 | 2.97 | 3.87 | 1.75 |
| 70-104-HC | 70LF-104-HC | 3/4 NPT x 3/4 Hose | 0.68 | 1.96 | 3.50 | 3.67 | 4.87 | 2.12 |
| 70-105-HC | 70LF-105-HC | 1 NPT x 3/4 Hose | 0.87 | 2.24 | 3.92 | 4.16 | 5.28 | 2.43 |
| 70-203-HC | 70LF-203-HC | 1/2 Solder x 3/4 Hose | 0.50 | 1.68 | 3.14 | 3.28 | 3.89 | 1.75 |
| 70-204-HC | 70LF-204-HC | 3/4 Solder x 3/4 Hose | 0.68 | 1.96 | 3.94 | 4.09 | 4.89 | 2.12 |
| 70-205-HC | - | 1 Solder x 3/4 Hose | 0.87 | 2.24 | 4.49 | 4.73 | 5.28 | 2.43 |

## 70B-140 SERIES
STEAM BOILER/B31.1 POWER PIPING BRONZE BALL VALVE



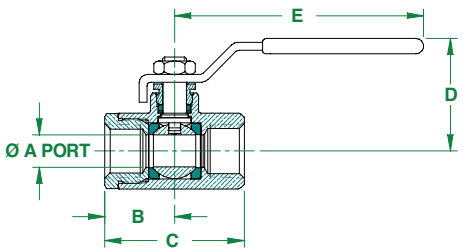
The Apollo 70B series has the same rugged features as the standard 70 Series valve but with ASTM B62 bronze shell components, vented stainless steel ball and upgraded seats and packing. The 70B has trusted performance along with a wide range of options to suit every application.

### FEATURES

- Stainless Steel Ball & Stem
- Blowout-Proof Stem Design
- Adjustable Packing Gland
- MPTFE Seats and Stuffing Box Ring
- 100% Factory Tested
- B62 C84400 bronze body and retainer
- **Proudly Made in USA**

### PERFORMANCE RATING

- Maximum Pressure: 600 psi CWP, 250 psi SWP
- Maximum Temperature: 500°F
- Vacuum Service to 29 in. Hg




### APPROVALS

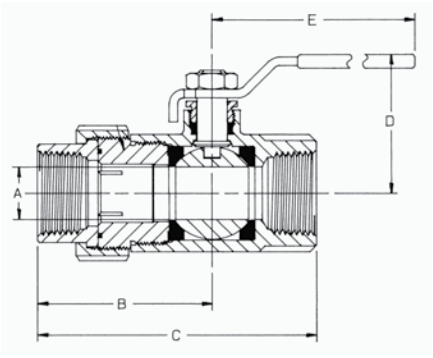
- MSS SP-110 - Ball Valves
- CRN: OC10908.5C
- ASME B31.1 - Power Piping

### DIMENSIONS - NPT

| PART NUMBER | SIZE (IN.) | DIMENSIONS | | | | | WT. (LB.) |
|---|---|---|---|---|---|---|---|
| | | A | B | C | D | E | |
| 70B-141-64 | 1/4" | 0.37 | 1.03 | 2.06 | 1.75 | 3.87 | 0.60 |
| 70B-142-64 | 3/8" | 0.37 | 1.03 | 2.06 | 1.75 | 3.87 | 0.56 |
| 70B-143-64 | 1/2" | 0.50 | 1.12 | 2.25 | 1.75 | 3.87 | 0.63 |
| 70B-144-64 | 3/4" | 0.68 | 1.50 | 3.00 | 2.12 | 4.87 | 1.39 |
| 70B-145-64 | 1" | 0.87 | 1.68 | 3.37 | 2.25 | 4.87 | 1.72 |
| 70B-146-64 | 1-1/4" | 1.00 | 2.00 | 4.00 | 2.62 | 5.50 | 3.26 |
| 70B-147-64 | 1-1/2" | 1.25 | 2.18 | 4.37 | 3.06 | 8.00 | 4.61 |
| 70B-148-64 | 2" | 1.50 | 2.34 | 4.68 | 3.25 | 8.00 | 6.06 |

## 70-300/400 SERIES
BALL VALVE WITH FNPT x UNION END






This valve combines a pipe union with ball valve shut-off; it saves time and labor by eliminating the need for extra connections. Viton O-ring sealed union requires light torque for proper seal.

### FEATURES
- ASTM B584 Bronze
- Blowout-Proof Stem Design
- Adjustable Packing Gland
- 600 psig CWP, Non-Shock
- NPT and Solder Union Connection
- Vacuum Service to 29 in. Hg
- 70LF-300/400 Feature EZ-Solder™ Lead Free Bronze
- **Proudly Made in USA**

### DIMENSIONS

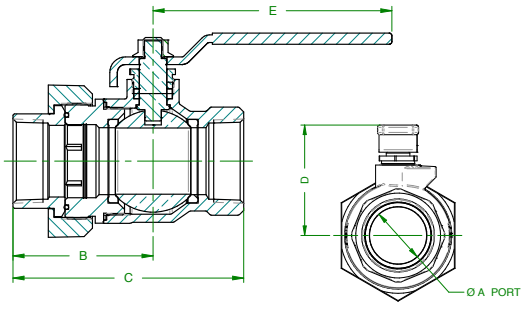
| PART NUMBER | LF PART NUMBER | SIZE (IN.) | DIMENSIONS (IN.) | | | | |
|---|---|---|---|---|---|---|---|
| | | | A | B | C | D | E |
| **NPT X NPT** | | | | | | | |
| 70-301-01 | – | 1/4 | 0.37 | 1.90 | 2.93 | 1.75 | 3.87 |
| 70-302-01 | – | 3/8 | 0.37 | 1.90 | 2.93 | 1.75 | 3.87 |
| 70-303-01 | 70LF-303-01 | 1/2 | 0.50 | 2.00 | 3.09 | 1.75 | 3.87 |
| 70-304-01 | 70LF-304-01 | 3/4 | 0.68 | 2.46 | 3.96 | 2.12 | 4.87 |
| 70-305-01 | 70LF-305-01A | 1 | 0.87 | 2.84 | 4.52 | 2.25 | 4.87 |
| 70-306-01 | 70LF-306-01 | 1-1/4 | 1.00 | 2.68 | 4.68 | 2.62 | 5.50 |
| 70-307-01 | 70LF-307-01 | 1-1/2 | 1.25 | 2.87 | 5.06 | 3.05 | 8.00 |
| 70-308-01 | 70LF-308-01 | 2 | 1.50 | 3.25 | 5.59 | 3.24 | 8.00 |
| **SOLDER X SOLDER** | | | | | | | |
| 70-403-01 | – | 1/2 | 0.50 | 2.00 | 3.43 | 1.75 | 3.87 |
| 70-404-01 | 70LF-404-01 | 3/4 | 0.68 | 2.62 | 4.56 | 2.06 | 4.78 |
| 70-405-01 | 70LF-405-01A | 1 | 0.87 | 2.87 | 5.66 | 2.25 | 4.78 |
| 70-406-01 | 70LF-406-01 | 1-1/4 | 1.00 | 2.87 | 5.18 | 2.62 | 5.50 |
| 70-407-01 | 70LF-407-01 | 1-1/2 | 1.25 | 2.92 | 5.53 | 3.10 | 8.00 |
| 70-408-01 | 70LF-408-01 | 2 | 1.50 | 3.50 | 6.75 | 3.24 | 8.00 |

*NOTE: 1/4", 3/8", and 1/2" are full port.*

---

## 77CLF-300-A SERIES
FULL PORT BALL VALVE WITH FNPT x UNION END






The Apollo 77CLF300 Series Union End Ball Valve features dezincification resistant lead free bronze body, generously sized RPTFE seats and stem packing, and a lead free "solid ball" design that delivers true full-port flow performance.

### FEATURES
- Lead Free Brass & Bronze Materials Easily Identifiable Blue "Lead Free" Hang Tag
- Reinforced RPTFE Seats & Seals
- **Proudly Made in USA**

### APPROVALS
- MSS SP-110 - Ball Valves
- NSF/ANSI/CAN 61 - Water Quality
- NSF/ANSI/CAN 372 - Lead Free
- CRN: OC10908.5C

### PERFORMANCE RATING
- Maximum Pressure: 600 psi CWP
- Maximum Temperature: 180°F
- Vacuum Service to 29 in. Hg

### OPTIONS
- (-01) Standard Lever(-04) 2-1/4" Stem Extension
- (-07) Tee Handle
- (-10) S.S. Handle and Nut
- (-11) Therma-Seal™ Insulating Tee Handle
- (-27) Locking Handle

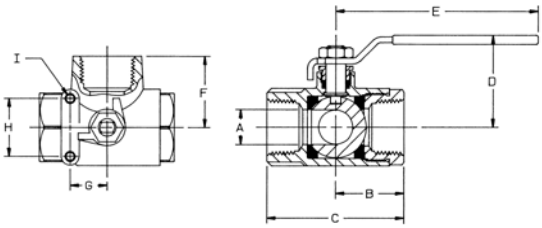
### DIMENSIONS

| PART NUMBER | SIZE (IN.) | DIMENSIONS (IN.) | | | | | WT (LB.) |
|---|---|---|---|---|---|---|---|
| | | A | B | C | D | E | |
| 70LF30301* | 1/2 | 0.50 | 2.00 | 3.09 | 1.75 | 3.87 | 0.99 |
| 77CLF30401A | 3/4 | 0.75 | 2.26 | 3.59 | 1.92 | 3.97 | 1.34 |
| 77CLF30501A | 1 | 1.00 | 2.55 | 4.17 | 2.24 | 4.76 | 2.36 |
| 77CLF30601A | 1-1/4 | 1.25 | 2.71 | 4.55 | 2.46 | 4.76 | 5.07 |
| 77CLF30701A | 1-1/2 | 1.50 | 3.17 | 5.23 | 2.90 | 5.41 | 4.96 |
| 77CLF30801A | 2 | 2.00 | 3.49 | 5.91 | 3.68 | 7.76 | 10.06 |

**½" size only is available as model 70LF300, full-port bronze construction.*

## 70-600 SERIES
THREADED 3-WAY DIVERTER BALL VALVE






Ideal for applications requiring flow diversion, this valve combines the features of two valves. Its large ports make tank selection and fluid transfers quicker and easier. Easy quarter-turn operation.

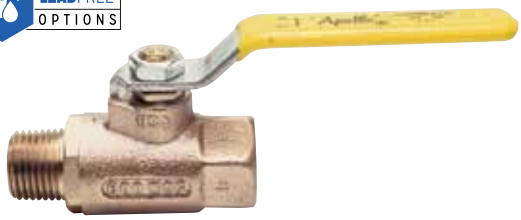
### FEATURES
- Simple Quarter-Turn Operation
- ASTM B584 Bronze
- 400 psig CWP, Non-Shock
- Blowout-Proof Stem
- Adjustable Stem Packing
- Vacuum Service to 29 in. Hg
- See 70-900 for Solder Version
- **Proudly Made in USA**

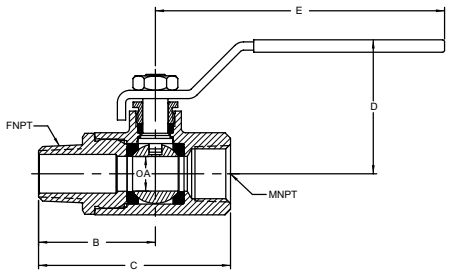
### DIMENSIONS

| PART NUMBER | SIZE (IN.) | DIMENSIONS (IN.) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | A | B | C | D | E | F | G | H | I |
| 70-601-01 | 1/4 | 0.37 | 1.12 | 2.32 | 1.80 | 3.88 | 1.18 | 0.875 | 1.37 | 10-24 |
| 70-602-01 | 3/8 | 0.37 | 1.12 | 2.32 | 1.80 | 3.88 | 1.18 | 0.875 | 1.37 | 10-24 |
| 70-603-01 | 1/2 | 0.50 | 1.09 | 2.25 | 1.75 | 3.87 | 1.18 | 0.87 | 1.37 | 10-24 |
| 70-604-01 | 3/4 | 0.68 | 1.50 | 3.00 | 2.12 | 4.87 | 1.62 | 0.87 | 1.37 | 10-24 |
| 70-605-01 | 1 | 0.81 | 1.59 | 3.18 | 2.25 | 4.87 | 1.71 | 0.87 | 1.37 | 10-24 |
| 70-606-01 | 1-1/4 | 1.00 | 1.97 | 3.95 | 2.69 | 5.50 | 2.01 | 0.93 | 1.50 | 1/4-20 |
| 70-607-01 | 1-1/2 | 1.25 | 2.21 | 4.40 | 2.87 | 5.50 | 2.38 | 0.94 | 1.50 | 1/4-20 |
| 70-608-01 | 2 | 1.50 | 2.34 | 4.69 | 3.00 | 5.50 | 2.50 | 0.94 | 1.50 | 1/4-20 |

## 70-800 SERIES
MALE x FEMALE NPT BALL VALVE

LEADFREE OPTIONS






Eliminates need for extra nipple when connecting to female connection to save time and labor. Ruggedly built for lasting performance with chromium-plated ball and blowout-proof stem.

### FEATURES
- 600 psig CWP, Non-Shock
- 150 SWP Steam Rating
- RPTFE Seats and Stuffing Box Ring
- Adjustable Stem Packing
- Vacuum Service to 29 in. Hg
- **Proudly Made in USA**

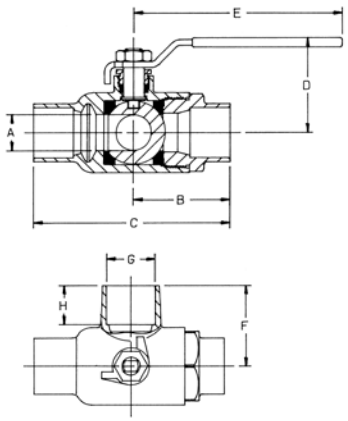
### DIMENSIONS

| PART NUMBER | LF PART NUMBER | SIZE (IN.) | DIMENSIONS (IN.) | | | | |
|---|---|---|---|---|---|---|---|
| | | | A | B | C | D | E |
| 70-801-01 | – | 1/4 | 0.37 | 1.40 | 2.43 | 1.75 | 3.87 |
| 70-802-01 | – | 3/8 | 0.37 | 1.46 | 2.50 | 1.75 | 3.87 |
| 70-803-01 | 70LF-803-01 | 1/2 | 0.50 | 1.68 | 2.81 | 1.81 | 3.87 |
| 70-804-01 | 70LF-804-01 | 3/4 | 0.68 | 2.00 | 3.50 | 2.12 | 4.87 |
| 70-805-01 | 70LF-805-01 | 1 | 0.87 | 2.31 | 4.00 | 2.25 | 4.87 |
| 70-806-01 | 70LF-806-01 | 1-1/4 | 1.00 | 2.31 | 4.31 | 2.62 | 5.50 |
| 70-807-01 | – | 1-1/2 | 1.25 | 3.00 | 5.18 | 3.06 | 8.00 |

*NOTE: 1/4", 3/8", and 1/2" are full port.*

## 70-900 SERIES
SOLDER 3-WAY DIVERTER BALL VALVE






Tank selection and fluid transfers are easier because of large port diameters. The valve is 100% air tested under water. Designed to be soft soldered without disassembly.

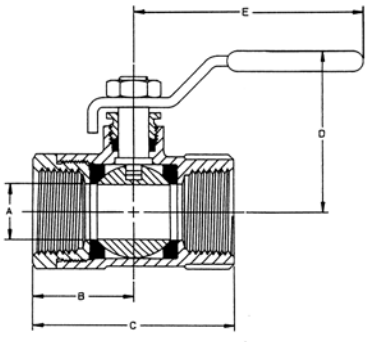
### FEATURES
- Simple Quarter-Turn Operation
- ASTM B584 Bronze
- 400 psig CWP, Non-Shock
- Blowout-Proof Stem
- Adjustable Packing
- See 70-600 for NPT Version
- **Proudly Made in USA**

### DIMENSIONS

| PART NUMBER | SIZE (IN.) | DIMENSIONS (IN.) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | A | B | C | D | E | F | G | H |
| 70-903-01 | 1/2 | 0.50 | 1.44 | 2.87 | 1.75 | 3.87 | 1.34 | 0.628 | 0.50 |
| 70-904-01 | 3/4 | 0.68 | 1.94 | 3.87 | 2.12 | 4.87 | 1.69 | 0.878 | 0.90 |
| 70-905-01 | 1 | 0.81 | 2.19 | 4.42 | 2.25 | 4.87 | 1.87 | 1.129 | 0.90 |

## 32-100 SERIES
REGULAR PORT, THREADED END, BRONZE BALL VALVE






NPT threaded ball valve rated to 400 psig CWP, non-shock and 125 psig for saturated steam. Blowout-proof stem design with adjustable packing gland.

### FEATURES
- ASTM B584 Bronze
- PTFE Seats and MPTFE Stuffing Box Ring
- **Proudly Made in USA**

### OPTIONS
- (-04) 2-1/4" Stem Extension
- (-07) CS Tee Handle
- (-15) Round Handle
- (-27) Locking Handle

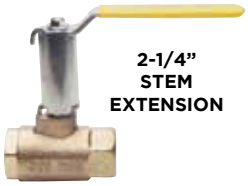
### DIMENSIONS

| PART NUMBER | SIZE (IN.) | DIMENSIONS (IN.) | | | | |
|---|---|---|---|---|---|---|
| | | A | B | C | D | E |
| 32-101-01 | 1/4 | 0.37 | 0.80 | 1.60 | 1.65 | 2.87 |
| 32-102-01 | 3/8 | 0.37 | 0.80 | 1.60 | 1.65 | 2.87 |
| 32-103-01 | 1/2 | 0.40 | 1.00 | 2.00 | 1.68 | 2.87 |
| 32-104-01 | 3/4 | 0.65 | 1.20 | 2.41 | 1.90 | 3.87 |
| 32-105-01 | 1 | 0.75 | 1.55 | 3.09 | 2.18 | 4.87 |
| 32-106-01 | 1-1/4 | 1.00 | 1.72 | 3.44 | 2.53 | 5.50 |
| 32-107-01 | 1-1/2 | 1.12 | 1.93 | 3.87 | 2.69 | 5.50 |
| 32-108-01 | 2 | 1.50 | 2.17 | 4.37 | 2.94 | 5.50 |

## COMMON BALL VALVE OPTIONS

Apollo offers these options on the 70 Series as well as many other valve series. Note: Not all options are available on all sizes and models. Review the latest submittal sheet or contact the factory to determine availability. Most available as a factory installed option or as a kit for field installation or retrofit.

**SUFFIX NO.**



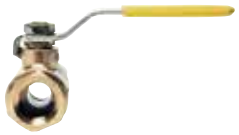

### -04 STANDARD BALL VALVE WITH STEM EXTENSION

A plated steel stem extension to accommodate 2" thick pipe insulation or to relocate handle position.



### -07 TEE HANDLE

Plated steel tee handle is ideal when space is limited and where safety is a consideration. Handle still provides visual indication of OPEN or CLOSED position.



### -08 90° REVERSED STEM

Used in applications when handle is required to be in a parallel position when closed.



### -10 STAINLESS STEEL LEVER AND NUT

Additional corrosion resistance for damp or marine installations.



### -11 THERMA-SEAL™ HANDLE (UL 2043 LISTED)

The Therma-Seal™ thermal insulating tee-handle is designed to be used in applications where vapor barrier piping insulation is required. Manufactured from high strength glass reinforced nylon, these handles are ideally suited for the toughest commercial and industrial applications. Handles are available as a factory installed option (-11 option suffix) or as a retrofit kit. UL 2043 listed for plenum installations. Features styrofoam plug for enhanced sealing. **NEW! Lead Free valves now standard with White handles.**



### -16/ -58 CHAIN LEVER BALL VALVES

Reliable quarter turn operation in overhead applications. A favorite for use in industrial environments.

- -16 for valve in vertical position
- -58 for valve in horizontal position



### -17 ROUGH CHROME PLATING

Use where a clean, bright finish is required or for matching up with other chrome-plated equipment.

## COMMON BALL VALVE OPTIONS



**-27**

### STAINLESS STEEL LATCH LOCK - LOCKING LEVER HANDLE

Sliding lock mechanism secures handle in open or closed position. Valve can also be padlocked open or closed.



**-32**

### STAINLESS STEEL TEE HANDLE AND NUT

Increased corrosion resistance versus the plated steel -07 option.

### BALL VALVE WITH AUTOMATIC DRAIN

When this valve is closed for maintenance of pneumatic tool, downstream pressure from valve to tool is automatically drained to atmosphere to prevent accidental operation of the tool, causing possible injury.



**-41**

- Conforms to certain OSHA requirements in pneumatic installations
- Easy, safe maintenance of pneumatic tools
- Cannot be used where drained media could cause damage
- Temperature range: 50°F to 200°F
- Rated 125 psig CWP, non-shock air or water
- Includes directional arrow for correct installation
- Available with latch lock option, specify -27 -41 suffix
- Available for the following series: 70, 71, 75, and 78



**-48**

### STAINLESS STEEL OVAL HANDLE

- Available for the following series: 70, 71, 73A, 76, 76F, 77, 82, 83, 85, 86, 89, 9A, 92 and 96
- Resistant to accidental operation



**-57**

### CLEANED AND BAGGED FOR OXYGEN SERVICE (CGA 4.1)



**-64**

### 250 SWP STEAM RATING

- Stainless steel stem
- Stainless steel vented ball
- Upgraded MPTFE seats and packing
- Yellow handle with red printing
- Available for the following series: 70, 71, 75, 77



**-92**

### MEMORY STOP HANDLE



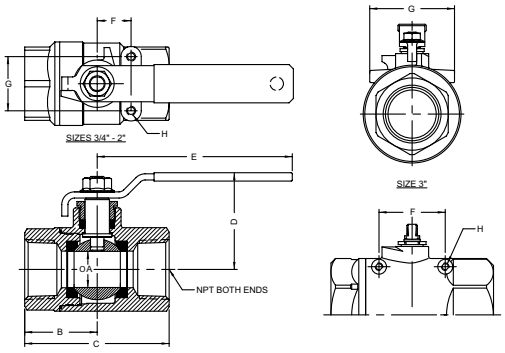
**-94**

### BALL VALVE WITH BALANCING STOP AND STEM EXTENSION

Ideal for HVAC systems. Stop plate and a 2-1/4" stem extension combination to accommodate insulation and handle repositioning. *Contact customer service for exact handle dimensions.*

## 71-100 SERIES
BALL VALVE WITH MOUNTING PAD






Designed to easily accommodate spring return handle, actuator or simple panel mounting. Threaded end connections with RPTFE seats and stuffing box ring.

### FEATURES
- 3/4" to 3" models
  (Use 77-100 Series for 1/4", 3/8" & 1/2")
- 600 CWP Non-Shock
- Blowout-Proof Stem
- ASTM B584 DZR Bronze
- Round Handle Option
- Adjustable Packing
- **Proudly Made in USA**

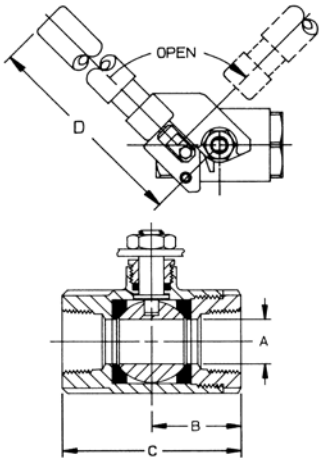
### DIMENSIONS

| PART NUMBER | SIZE (IN.) | DIMENSIONS (IN.) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | A | B | C | D | E | F | G | H |
| 77-101-01 | 1/4 | 0.43 | 1.09 | 2.18 | 1.77 | 3.87 | 0.50 | 1.12 | 10-24 NC |
| 77-102-01 | 3/8 | 0.50 | 1.09 | 2.18 | 1.77 | 3.87 | 0.50 | 1.12 | 10-24 NC |
| 77-103-01 | 1/2 | 0.50 | 1.09 | 2.18 | 1.77 | 3.87 | 0.50 | 1.12 | 10-24 NC |
| 71-104-01 | 3/4 | 0.68 | 1.50 | 3.00 | 2.12 | 4.87 | 0.87 | 1.37 | 10-24 NC |
| 71-105-01 | 1 | 0.87 | 1.68 | 3.37 | 2.25 | 4.87 | 0.87 | 1.37 | 10-24 NC |
| 71-106-01 | 1-1/4 | 1.00 | 2.00 | 4.00 | 2.62 | 5.50 | 0.93 | 1.50 | 1/4-20 NC |
| 71-107-01 | 1-1/2 | 1.25 | 2.18 | 4.37 | 2.87 | 8.00 | 0.93 | 1.50 | 1/4-20 NC |
| 71-108-01 | 2 | 1.50 | 2.34 | 4.68 | 3.06 | 8.00 | 0.93 | 1.50 | 1/4-20 NC |
| 71-100-01 | 3 | 2.50 | 3.37 | 6.75 | 4.12 | 8.00 | 3.37 | 2.75 | 1/4-20 NC |

***Actuation assistance available in Section D, with the Apollo Actuator Wizard located at actuatorwizard.apollovalves.com or by calling customer support at (704)841-6000.***

## 71-500 SERIES
CAST BRONZE BALL VALVE SPRING RETURN HANDLE





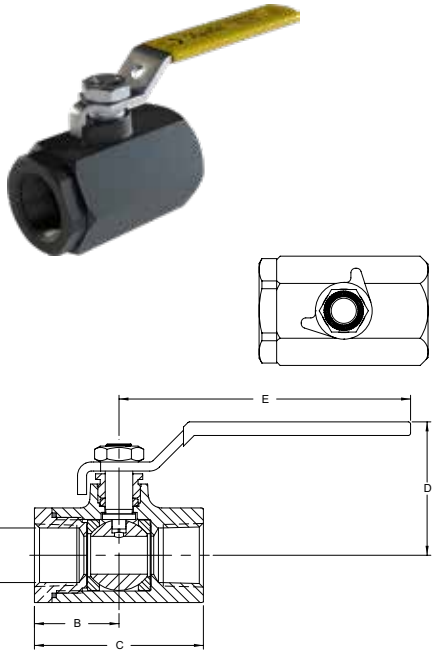

Ideal in applications where the valve must be in OFF position at all times such as sampling and feeding fuel lines. Can be used in reverse with 90° reverse stem option. Basic configuration: spring return to CLOSED. All lever components are stainless steel.

### FEATURES
- Rated 600 psig CWP, Non-Shock
- 150 psig for Saturated Steam
- (-08) Spring Return to OPEN
- **Proudly Made in USA**

### DIMENSIONS

| PART NUMBER | SIZE (IN.) | DIMENSIONS (IN.) | | | |
|---|---|---|---|---|---|
| | | A | B | C | D |
| 71-501-01 | 1/4 | 0.43 | 1.12 | 2.25 | 7.00 |
| 71-502-01 | 3/8 | 0.50 | 1.12 | 2.25 | 7.00 |
| 71-503-01 | 1/2 | 0.50 | 1.12 | 2.25 | 7.00 |
| 71-504-01 | 3/4 | 0.68 | 1.50 | 3.00 | 7.00 |
| 71-505-01 | 1 | 0.87 | 1.68 | 3.37 | 7.00 |
| 71-506-01 | 1-1/4 | 1.00 | 2.00 | 4.00 | 9.00 |
| 71-507-01 | 1-1/2 | 1.25 | 2.18 | 4.37 | 9.00 |
| 71-508-01 | 2 | 1.50 | 2.34 | 4.68 | 9.00 |

## 73A-100 SERIES
FORGED CARBON STEEL BALL VALVE




Threaded, 2 piece design, 1/4" to 1" 2000 psig CWP, 1-1/4" to 2" 1500 psig CWP Cold Non-Shock. 150 psig Saturated Steam.

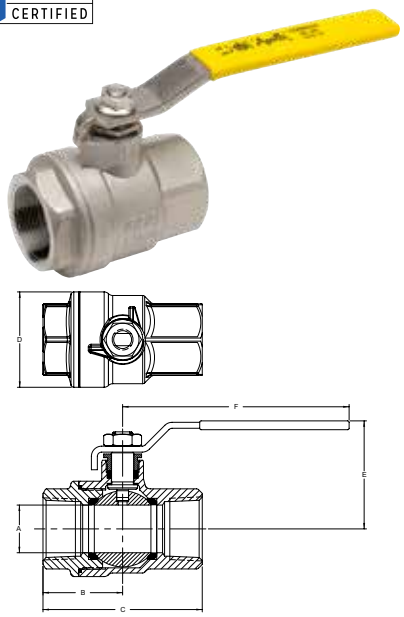
### FEATURES
- RPTFE Seats & Packing
- Forged Construction
- Raised Handle Stops
- Blowout-Proof Stem Design
- Adjustable Packing Gland
- Zinc Phosphate Corrosion Protection
- (-24) Fire Safe to API 607 6th Edition
- AAR Approval No. E119022
- Vacuum Service to 29 in. Hg
- **Proudly Made in USA**

### DIMENSIONS

| PART NUMBER | SIZE (IN.) | DIMENSIONS (IN.) | | | | |
|---|---|---|---|---|---|---|
| | | A | B | C | D | E |
| 73A-101-01A | 1/4" | .37 | 1.02 | 2.30 | 1.72 | 3.85 |
| 73A-102-01A | 3/8" | .37 | 1.08 | 2.37 | 1.72 | 3.85 |
| 73A-103-01A | 1/2" | .50 | 1.18 | 2.31 | 1.78 | 3.85 |
| 73A-104-01A | 3/4" | .68 | 1.57 | 3.07 | 2.07 | 4.75 |
| 73A-105-01A | 1" | .87 | 1.73 | 3.40 | 2.18 | 4.75 |
| 73A-106-01 | 1-1/4" | 1.00 | 1.98 | 3.97 | 2.72 | 5.50 |
| 73A-107-01 | 1-1/2" | 1.25 | 2.14 | 4.32 | 3.12 | 7.75 |
| 73A-108-01 | 2" | 1.50 | 2.73 | 5.44 | 3.27 | 7.75 |

## 76F-100-A SERIES
STAINLESS STEEL FULL PORT BALL VALVE

LEADFREE CERTIFIED




Threaded, 2 piece design, 1/4"-3" 1000 psig CWP Cold Non-Shock, 150 psig. Saturated Steam, Vacuum Service to 29 inches Hg.

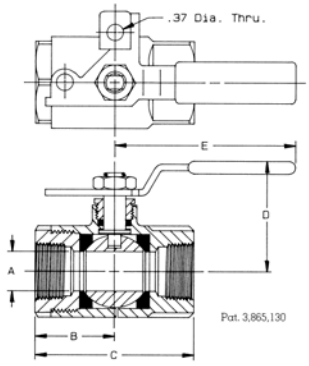
### FEATURES
- 316 SS Investment Cast Components
- RPTFE Seats
- Two-Piece Body
- Blowout-Proof Stem Design
- Adjustable Packing Gland
- Meets NACE MR-01-75-2000
- SS Lever and Nut
- (-11) Therma-Seal™ Insulating Tee
- (-24) Certified to API 607, 6th Edition
- (-27) Locking Handle
- NSF/ANSI/CAN 61 - Water Quality
- NSF/ANSI/CAN 372 - Lead Free
- **Proudly Made in USA**

### DIMENSIONS

| PART NUMBER | SIZE (IN.) | DIMENSIONS (IN.) | | | | | | WT. (LB.) |
|---|---|---|---|---|---|---|---|---|
| | | A | B | C | D | E | F | |
| 76F-101-01 | 1/4" | 0.37 | 0.95 | 1.91 | 1.12 | 1.60 | 3.85 | 0.47 |
| 76F-102-01 | 3/8" | 0.37 | 0.95 | 1.91 | 1.12 | 1.60 | 3.85 | 0.44 |
| 76F-103-01A | 1/2" | .50 | 1.21 | 2.35 | 1.27 | 1.73 | 3.85 | 0.57 |
| 76F-104-01A | 3/4" | .75 | 1.39 | 2.77 | 1.62 | 1.96 | 3.85 | 0.91 |
| 76F-105-01A | 1" | 1.00 | 1.67 | 3.34 | 2.00 | 2.27 | 4.75 | 1.38 |
| 76F-106-01A | 1-1/4" | 1.25 | 1.96 | 3.92 | 2.73 | 3.21 | 7.77 | 4.17 |
| 76F-107-01A | 1-1/2" | 1.50 | 2.05 | 4.10 | 2.92 | 3.31 | 7.77 | 4.69 |
| 76F-108-01A | 2" | 2.00 | 2.37 | 4.74 | 3.75 | 3.69 | 7.77 | 6.90 |
| 76F-100-01A | 3" | 3.00 | 3.70 | 7.40 | 5.68 | 5.23 | 10.03 | 22.4 |

## 75-100-41 SERIES
PADLOCKING BALL VALVE WITH AUTOMATIC DRAIN






Meets OSHA standards and provides for easy, safe maintenance of pneumatic tools. Valve drains downstream pressure for safety when lever is closed. Valve can be padlocked OPEN or CLOSED with same hardware.

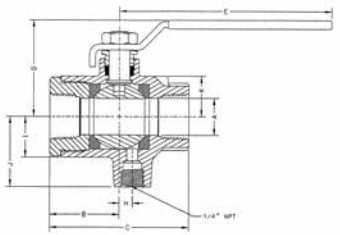
### FEATURES
- Blowout-proof Stem Design
- Adjustable Packing Gland
- ASTM B584 Bronze
- RPTFE Seats and Stuffing Box Ring
- Pad Lock Lever
- Rated to 600 psi CWP - 150 SWP
- Temperature Range: 50°F to 200°F
- Valve Without Drain Option (suffix -01)
- **Proudly Made in USA**

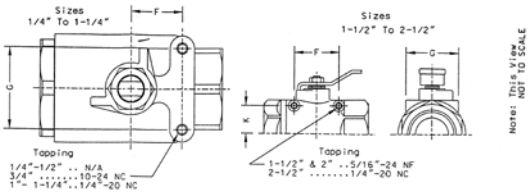
### DIMENSIONS

| PART NUMBER | SIZE (IN.) | DIMENSIONS (IN.) | | | | |
|---|---|---|---|---|---|---|
| | | A | B | C | D | E |
| 75-101-41 | 1/4 | 0.43 | 1.12 | 2.25 | 1.81 | 3.00 |
| 75-102-41 | 3/8 | 0.50 | 1.12 | 2.25 | 1.81 | 3.00 |
| 75-103-41 | 1/2 | 0.50 | 1.12 | 2.25 | 1.81 | 3.00 |
| 75-104-41 | 3/4 | 0.87 | 1.68 | 3.37 | 2.25 | 3.87 |
| 75-105-41 | 1 | 0.87 | 1.68 | 3.37 | 2.25 | 3.87 |
| 75-106-41 | 1-1/4 | 1.00 | 2.00 | 4.00 | 2.62 | 5.50 |
| 75-107-41 | 1-1/2 | 1.25 | 2.16 | 4.37 | 2.87 | 5.50 |
| 75-108-41 | 2 | 1.50 | 2.34 | 4.68 | 3.06 | 5.50 |

## 7K-100 SERIES
SAFETY EXHAUST VALVE W/ 1/4" NPT TAP FOR DRAIN








For use on pneumatic equipment. Furnished with a 1/4" NPT tapped drain to accommodate a muffler or to pipe the exhausted air to a safe location.

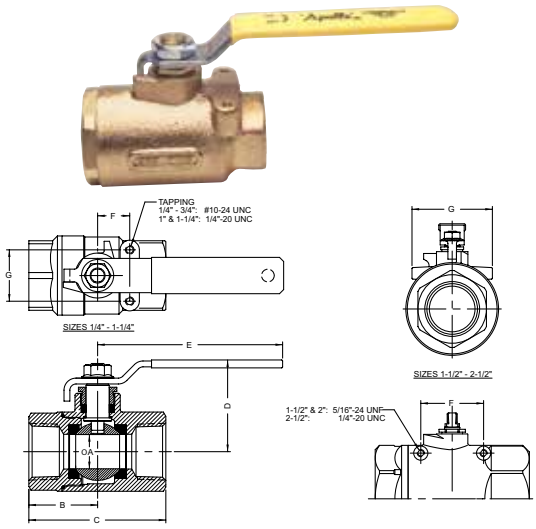
### FEATURES
- Safely Vents Compressed Air (or Other Non-Hazardous Gases) From Piping Downstream of the Closed Valve
- Sizes 1/4" - 2-1/2"
- FNPT Threads
- Rated 125 psig, suitable application with air only
- Temperature Range: +50°F to +200°F
- Optional Stainless Steel Latch Lock Handle that Locks in Closed Position Only, Specify Suffix (-46)
- **Proudly Made in USA**

### DIMENSIONS

| PART NUMBER | SIZE (IN.) | DIMENSIONS (IN.) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | A | B | C | D | E | F | G | H | I | J | K |
| 7K-101-01 | 1/4 | 0.37 | 1.03 | 2.06 | 1.75 | 3.87 | N/A | N/A | 0.09 | 0.53 | 1.18 | N/A |
| 7K-102-01 | 3/8 | 0.37 | 1.03 | 2.06 | 1.75 | 3.87 | N/A | N/A | 0.09 | 0.53 | 1.18 | N/A |
| 7K-103-01 | 1/2 | 0.50 | 1.10 | 2.19 | 1.75 | 3.87 | N/A | N/A | 0.12 | 0.59 | 1.25 | N/A |
| 7K-104-01 | 3/4 | 0.81 | 1.56 | 3.12 | 2.12 | 4.78 | 0.87 | 1.37 | 0.29 | 0.90 | 1.56 | 0.90 |
| 7K-105-01 | 1 | 1.00 | 1.80 | 3.61 | 2.62 | 5.50 | 0.93 | 1.50 | 0.31 | 1.12 | 1.78 | 1.12 |
| 7K-106-01 | 1-1/4 | 1.25 | 2.12 | 4.25 | 2.87 | 5.50 | 0.93 | 1.50 | 0.37 | 1.37 | 2.03 | 1.37 |
| 7K-107-01 | 1-1/2 | 1.50 | 2.37 | 4.74 | 3.30 | 7.78 | 2.08 | 3.06 | 0.50 | 1.56 | 2.21 | 1.28 |
| 7K-108-01 | 2 | 2.00 | 2.70 | 5.38 | 3.71 | 7.78 | 2.41 | 3.52 | 0.62 | 2.03 | 2.68 | 1.56 |
| 7K-109-01 | 2-1/2 | 2.50 | 3.25 | 6.50 | 4.05 | 7.78 | 2.75 | 3.37 | 1.09 | 2.34 | 3.00 | 2.00 |

*Also available in 70 & 77 Series as - 41 option (without tapped drain)*

## 77-100 SERIES
HEAVY DUTY FULL PORT NPT PANEL MOUNT BALL VALVE




Designed for easy actuator mounting or panel mounting where highest $C_v$ values are desired. RPTFE seats and stuffing box ring. Also available with 250 lb. steam trim option.

### FEATURES
- Mounting Pad
- ASTM B584 Bronze
- Blowout-Proof Stem Design
- Adjustable Packing Gland
- Full Flow, Minimum Pressure Drop
- 600 CWP, Non-Shock Pressure Rating
- 150 SWP Steam Rating
- Chain Lever Kits Available 3/4"- 2-1/2" (-16, -58)
- **Proudly Made in USA**

### OPTIONS
- (-27) Locking Handle
- (-92) Balance Stop

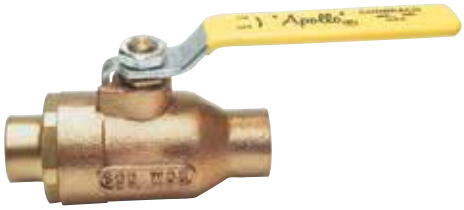
***Actuation assistance available in Section D, with the Apollo Actuator Wizard located at actuatorwizard.apollovalves.com or by calling customer support at (704)841-6000.***

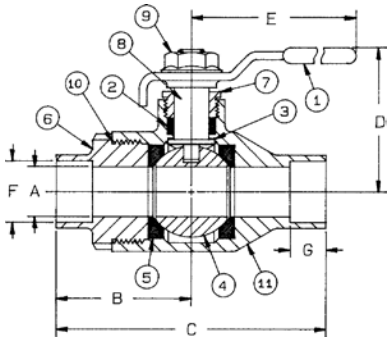
### DIMENSIONS

| PART NUMBER | SIZE (IN.) | DIMENSIONS (IN.) | | | | | | | CV* |
|---|---|---|---|---|---|---|---|---|---|
| | | A | B | C | D | E | F | G | |
| 77-101-01 | 1/4 | 0.43 | 1.12 | 2.25 | 1.81 | 3.87 | 0.50 | 1.12 | 8.1 |
| 77-102-01 | 3/8 | 0.50 | 1.12 | 2.25 | 1.81 | 3.87 | 0.50 | 1.12 | 15 |
| 77-103-01 | 1/2 | 0.50 | 1.12 | 2.25 | 1.81 | 3.87 | 0.50 | 1.12 | 15 |
| 77-104-01 | 3/4 | 0.81 | 1.56 | 3.12 | 2.12 | 4.87 | 0.87 | 1.37 | 51 |
| 77-105-01 | 1 | 1.00 | 1.81 | 3.62 | 2.62 | 5.50 | 0.93 | 1.50 | 68 |
| 77-106-01 | 1-1/4 | 1.25 | 2.12 | 4.25 | 2.87 | 5.50 | 0.93 | 1.50 | 125 |
| 77-107-01 | 1-1/2 | 1.50 | 2.37 | 4.75 | 3.34 | 8.00 | 2.08 | 3.06 | 177 |
| 77-108-01 | 2 | 2.00 | 2.65 | 5.37 | 3.71 | 8.00 | 2.41 | 3.52 | 389 |
| 77-109-01 | 2-1/2 | 2.50 | 3.25 | 6.50 | 4.12 | 8.00 | 2.75 | 3.37 | 503 |

*The Cv factor is the gallons of water per minute that the valve will pass with 1 psig pressure drop.*

## 77-200 SERIES
HEAVY DUTY FULL PORT SOLDER END BALL VALVE






Designed to be soldered into lines without disassembly. This allows a factory tested valve to be installed without disturbing the seats and seals. Designed for soft solder with melt points less than 500°F.

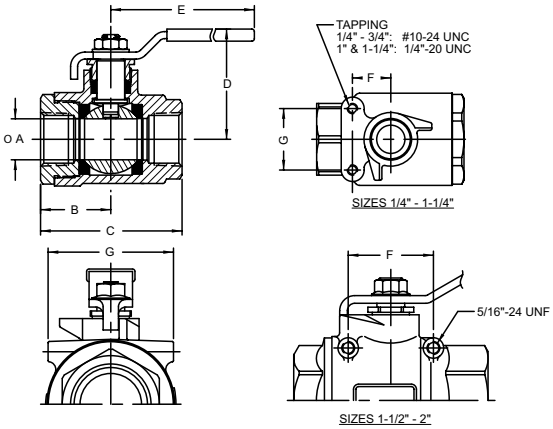
### FEATURES
- Heavy Duty Cast Bronze Body
- Chromium Plated Ball
- Blowout-Proof Stem Design
- Adjustable Packing Gland
- Full Flow, Minimum Pressure Drop
- 600 CWP, Non-Shock Pressure Rating
- **Proudly Made in USA**

### DIMENSIONS

| PART NUMBER | SIZE (IN.) | DIMENSIONS (IN.) | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | A | B | C | D | E | F | G |
| 77-204-01 | 3/4 | 0.81 | 2.12 | 4.12 | 2.12 | 4.87 | 0.88 | 0.75 |
| 77-205-01 | 1 | 1.00 | 2.33 | 4.60 | 2.62 | 5.50 | 1.13 | 0.90 |
| 77-206-01 | 1-1/4 | 1.25 | 2.60 | 5.15 | 2.87 | 5.50 | 1.38 | 0.96 |
| 77-207-01 | 1-1/2 | 1.50 | 3.00 | 6.00 | 3.34 | 8.00 | 1.63 | 1.09 |
| 77-208-01 | 2 | 2.00 | 3.62 | 7.24 | 3.71 | 8.00 | 2.13 | 1.34 |
| 77-209-01 | 2-1/2 | 2.50 | 3.93 | 7.87 | 4.12 | 8.00 | 2.63 | 1.48 |

## 77-900 SERIES
FULL PORT SAE STRAIGHT-THREAD BALL VALVE






Valve connections are designed for extended leak-free and energy saving performance in a broad range of applications, especially in manufacturing environments.

### FEATURES
- Mounting Pad for Easy Actuation
- 600 CWP Non-Shock
- 150 SWP
- ASTM B584 Bronze
- SAE J1926-1 (ISO 11926-1) Connections
- RPTFE Seats & Packing
- Blowout-Proof Stem and Lever Handle Standard
- Adjustable Packing Gland
- Full Port
- Straight Thread with O-Ring Boss Connection
- **Proudly Made in USA**

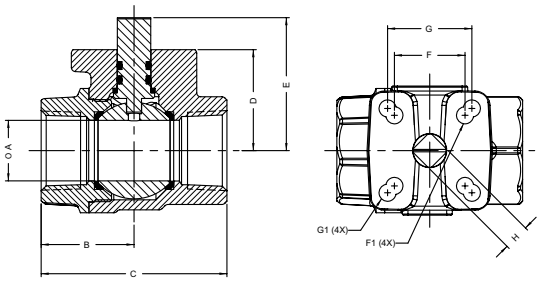
### DIMENSIONS

| PART NUMBER | NOM. TUBE O.D. (IN.) | SIZE (IN.) | DIMENSIONS (IN.) | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | A | B | C | D | E | F | G |
| 77-901-01 | 1/4 | 7/16-20 | 0.43 | 1.12 | 2.25 | 1.81 | 3.87 | 0.50 | 1.12 |
| 77-902-01 | 3/8 | 9/16-18 | 0.50 | 1.12 | 2.25 | 1.81 | 3.87 | 0.50 | 1.12 |
| 77-903-01 | 1/2 | 3/4-16 | 0.50 | 1.12 | 2.25 | 1.81 | 3.87 | 0.50 | 1.12 |
| 77-904-01 | 3/4 | 11/16-12 | 0.81 | 1.56 | 3.12 | 2.12 | 4.87 | 0.87 | 1.37 |
| 77-905-01 | 1 | 15/16-12 | 1.00 | 1.81 | 3.62 | 2.62 | 5.50 | 0.93 | 1.50 |
| 77-906-01 | 1-1/4 | 1-5/8-12 | 1.25 | 2.12 | 4.25 | 2.87 | 5.50 | 0.93 | 1.50 |
| 77-907-01 | 1-1/2 | 1-7/8-12 | 1.50 | 2.37 | 4.75 | 3.34 | 8.00 | 2.08 | 3.06 |
| 77-908-01 | 2 | 2-1/2-12 | 2.00 | 2.65 | 5.37 | 3.71 | 8.00 | 2.41 | 3.52 |

***Actuation assistance available in Section D, with the Apollo Actuator Wizard located at actuatorwizard.apollovalves.com or by calling customer support at (704)841-6000.***

## 77D SERIES
BRONZE BALL VALVE W/ DIRECT ISO MOUNTING PAD






Apollo's solid stainless steel ball design in a bronze valve with an integral ISO 5211 mounting pad with 100% American construction.

### FEATURES
- 600 CWP Pressure Rating
- Multi-Fill Seats and Stem Bearing
- Blowout-Proof Stem Design
- Vacuum Service to 29 in. Hg
- High Cycle Dual O-Ring Stem Seal Design
- EPDM is Standard. Most Liquids and Gases are Compatible with the O-Ring Seals
- Ball is Slot Vented to Equalize Cavity and Line Pressure
- MSS SP-110 Compliant
- Direct Mount Actuator Ready
- **Proudly Made in USA**

### SEATS

| SUFFIX | MATERIAL | TEMP RANGE | STEAM (MAX) |
|---|---|---|---|
| -01E (Standard) | EPDM | -20 to 400°F | 150 SWP @ 366°F |
| -01N | Nitrile | -20 to 250°F | 15 SWP @ 250°F |
| -01V | Viton | -20 to 400°F | 50 SWP @ 297°F |

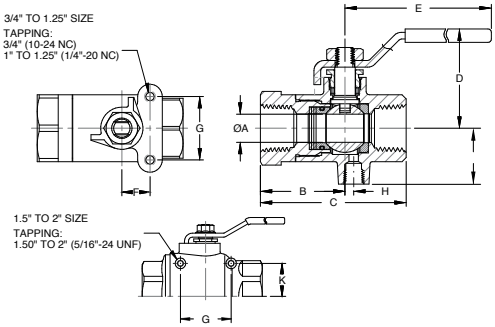
### DIMENSIONS

| PART NUMBER | SIZE (IN.) | DIMENSIONS (IN.) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | A | B | C | D | E | F | ØF1 | G | ØG1 | H |
| 77D-143-01E | 1/2 | 0.50 | 1.15 | 2.25 | 1.00 | 1.37 | 0.997 | 0.224 | 1.167 | 0.281 | 0.275 |
| 77D-144-01E | 3/4 | 0.75 | 1.33 | 2.65 | 1.38 | 1.79 | 1.167 | 0.281 | 1.392 | 0.281 | 0.275 |
| 77D-145-01E | 1 | 1.00 | 1.54 | 3.07 | 1.67 | 2.20 | 1.167 | 0.281 | 1.392 | 0.281 | 0.430 |
| 77D-147-01E | 1-1/2 | 1.50 | 2.12 | 4.23 | 2.31 | 3.05 | N/A | N/A | 1.949 | 0.344 | 0.551 |
| 77D-148-01E | 2 | 2.00 | 2.43 | 4.85 | 2.68 | 3.43 | N/A | N/A | 1.949 | 0.344 | 0.551 |

## 7K-SV SERIES
SECURE-VENT FEATURE (-SV)



(7K-SV SERIES SHOWN)




Available on the Apollo 77 and 7K full port bronze ball valves. Safely vents compressed air (or other non-hazardous gases) from piping downstream of the closed valve.

### FEATURES
- Reliable Shut-Off and Venting
- Pressure Rating: 200 psig CWP, Non-Shock
- Temperature Range: -20°F to 200°F
- Economical "No Leakage" Operation
- Belleville Spring Live-Loaded Active Upstream Seating
- Available with a Full Complement of Handles
- **Proudly Made in USA**

### DIMENSIONS

| PART NUMBER | SIZE | DIMENSIONS (IN.) | | | | | | | | | | WT. (LB.) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | A | B | C | D | E | F | G | H | J | K | |
| 7K-103-SV | 1/2" | 0.50 | 1.50 | 2.59 | 1.76 | 3.88 | 0.50 | 1.12 | 0.12 | 1.25 | - | 0.73 |
| 7K-104-SV | 3/4" | 0.81 | 1.82 | 3.37 | 2.16 | 4.78 | 0.87 | 1.37 | 0.29 | 1.56 | 0.901 | 1.93 |
| 7K-105-SV | 1" | 1.00 | 2.05 | 3.86 | 2.69 | 5.43 | 0.93 | 1.50 | 0.31 | 1.78 | 1.121 | 3.42 |
| 7K-106-SV | 1.25" | 1.25 | 2.37 | 4.50 | 2.91 | 5.43 | 0.93 | 1.50 | 0.37 | 2.03 | 1.371 | 5.15 |
| 7K-107-SV | 1.5" | 1.50 | 2.63 | 5.00 | 3.31 | 7.78 | 1.04 | 3.06 | 0.50 | 2.21 | 1.282 | 6.81 |
| 7K-108-SV | 2" | 2.00 | 3.00 | 5.69 | 3.73 | 7.78 | 1.20 | 3.52 | 0.62 | 2.68 | 1.562 | 11.85 |

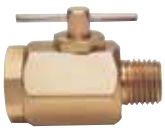
*1 To Top of Mounting Pad*
*2 To Centerline of Mounting Pad*

## 78-260/290 SERIES
INSTRUMENTATION BALL VALVES / TEST COCKS

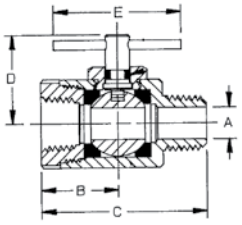
LEADFREE OPTIONS



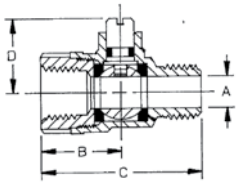
78LF-290: BRONZE



78-261: BRASS




BRONZE VALVES - TEE




BRONZE VALVES - SLOT

Brass and bronze instrumentation ball valves and backflow test cocks. Male x female threaded. 400 psig CWP, non-shock. Air and liquid service.

### FEATURES
- Micro-Finish Ball
- Blowout-Proof Stem Design
- PTFE Seats
- Nitrile Stem Seal
- Plated Steel Tee Handle
- Compact Design
- Optional Mixed End Fittings Available

### BRASS INSTRUMENTATION BALL VALVE - TEE HANDLE

| PART NUMBER | SIZE (IN.) | DIMENSIONS (IN.) | | | | | $C_v$* | WT. (LB.) |
|---|---|---|---|---|---|---|---|---|
| | | A | B | C | D | E | | |
| 78-261-05 | 1/4M x 1/4F | 0.31 | 0.43 | 1.43 | 0.87 | 1.25 | 5.50 | 0.19 |

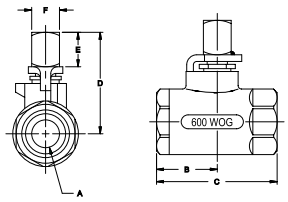
### BRONZE INSTRUMENTATION BALL VALVE (INTERNATIONAL) - SCREW SLOT - LEAD FREE

| PART NUMBER | SIZE (IN.) | DIMENSIONS (IN.) | | | | | $C_v$* | WT. (LB.) |
|---|---|---|---|---|---|---|---|---|
| | | A | B | C | D | E | | |
| 78LF-290-01 | 1/8M x 1/4F | 0.21 | 0.80 | 1.60 | 0.72 | N/A | 4.00 | 0.19 |
| 78LF-291-01 | 1/4M x 1/4F | 0.31 | 0.80 | 1.60 | 0.72 | N/A | 5.50 | 0.19 |
| 78LF-292-01 | 1/8 x 1/4 SAE | 0.21 | 0.80 | 1.60 | 0.72 | N/A | 4.00 | 0.19 |
| 78LF-293-01 | 1/4 x 1/4 SAE | 0.31 | 0.80 | 1.60 | 0.72 | N/A | 5.50 | 0.19 |

**The Cv factor is the gallons of water per minute that the valve will pass with a 1 psig pressure drop.*
**Also see 94MBV Instrumentation Ball Valve*

## 78-130 SERIES
FEMALE END IRRIGATION VALVE (UNDERGROUND SERVICE)






Ideal for underground or below grade applications. This series (3/8"-2" FNPT) features a square head nut welded to the stem to allow operations with a ground key from standard grade.

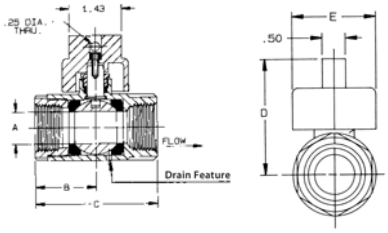
### OPTIONS
- (-41) Auto-Drain (Directional)

### DIMENSIONS

| PART NUMBER | SIZE (IN.) | DIMENSIONS (IN.) | | | | | |
|---|---|---|---|---|---|---|---|
| | | A | B | C | D | E | F |
| 78-132-01 | 3/8 | 0.37 | 1.03 | 2.06 | 1.75 | 0.62 | 0.50 |
| 78-133-01 | 1/2 | 0.50 | 1.09 | 2.18 | 1.83 | 0.62 | 0.50 |
| 78-134-01 | 3/4 | 0.68 | 1.50 | 3.00 | 2.12 | 0.62 | 0.62 |
| 78-135-01 | 1 | 0.87 | 1.68 | 3.37 | 2.25 | 0.62 | 0.62 |
| 78-136-01 | 1-1/4 | 1.00 | 2.00 | 4.00 | 2.88 | 0.75 | 0.75 |
| 78-137-01 | 1-1/2 | 1.25 | 2.18 | 4.38 | 3.06 | 0.75 | 0.75 |
| 78-138-01 | 2 | 1.50 | 2.34 | 4.68 | 3.25 | 0.75 | 0.75 |

## 78-620 SERIES
BRONZE NPT IRRIGATION VALVE WITH AUTO-DRAIN






Ideal for underground use or where drained media will not cause damage. Heavy pattern design features ASTM B584 bronze body.

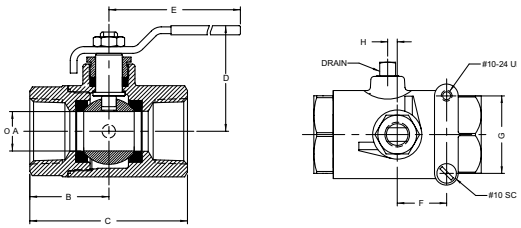
### FEATURES
- Auto-Drain Feature (When Valve is in Closed Position) is Standard
- Adjustable Packing Gland
- RPTFE Seats and Seals
- Stainless Steel Cover
- 200 psig Water, CWP, Non-Shock
- Temperature Range +50°F to 200°F
- **Proudly Made in USA**

### DIMENSIONS

| PART NUMBER | SIZE (IN.) | DIMENSIONS (IN.) | | | | |
|---|---|---|---|---|---|---|
| | | A | B | C | D | E |
| 78-621-01 | 3/4 | 0.68 | 1.47 | 2.96 | 2.40 | 1.81 |
| 78-622-01 | 1 | 0.87 | 1.66 | 3.34 | 2.53 | 1.81 |
| 78-623-01 | 1-1/4 | 1.00 | 1.98 | 3.97 | 3.00 | 2.50 |
| 78-624-01 | 1-1/2 | 1.25 | 2.12 | 4.28 | 3.18 | 2.50 |
| 78-625-01 | 2 | 1.50 | 2.35 | 4.67 | 3.37 | 2.50 |

## 78-660 & 962 SERIES
BRONZE PURGE & DRAIN BALL VALVE (CENTER DRAIN)






Center tap drain allows for winterization or purge and drain function. Features bronze body with built-in mounting pad for panel mounting or actuation. Ideal for hydronic heating and marine applications, downstream of the closed valve.

### FEATURES
- 1/8" NPT Side Tap and Plug
- RPTFE Seats and Stuffing Box Ring
- Stainless Steel Lever and Nut
- Blowout-Proof Stem
- 600 psig CWP, Non-Shock
- Adjustable Packing
- Drainable Ball Cavity to Prevent Freezing
- **Proudly Made in USA**

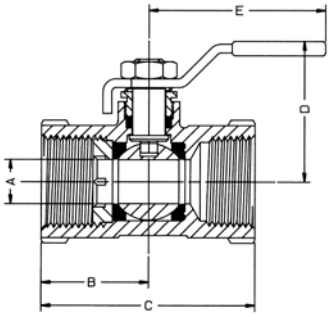
### DIMENSIONS

| PART NUMBER | SIZE (IN.) | DIMENSIONS (IN.) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | A | B | C | D | E | F | G | H |
| 78-664-01 | 3/4 | 0.68 | 1.50 | 3.00 | 2.12 | 4.87 | 0.87 | 1.37 | 0.17 |
| 78-665-01 | 1 | 0.87 | 1.68 | 3.37 | 2.25 | 4.87 | 0.87 | 1.37 | 0.21 |
| 78-667-01 | 1-1/2 | 1.25 | 2.18 | 4.37 | 3.05 | 8.00 | 0.93 | 1.50 | 0.40 |
| 78-962-01 | 2 | 1.50 | 2.34 | 4.68 | 3.24 | 8.00 | 0.93 | 1.50 | 0.45 |

***Actuation assistance available in Section D, with the Apollo Actuator Wizard located at actuatorwizard.apollovalves.com or by calling customer support at (704)841-6000.***

## 9A-100 SERIES
HEAVY PATTERN UNIBODY THREADED BALL VALVE






One piece bronze valve eliminates leak paths. Features static grounding devices and adjustable packing gland. Lever handle standard.

### FEATURES
- Cast DZR Bronze
- Rated 600 psig CWP, Non-Shock
- 150 SWP
- Blowout-Proof Stem Design
- **Proudly Made in USA**

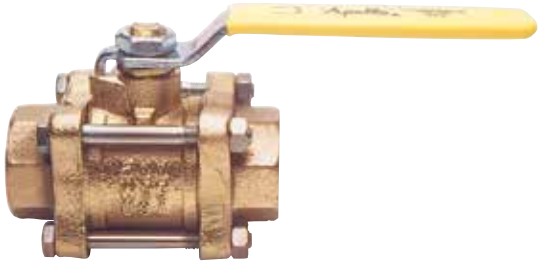
### OPTIONS
- (-30) Cam Lock
- (-15) Round Handle
- (-27) Latch Lock Handle
- (9A-14x) Stainless Steel Ball & Stem

### DIMENSIONS

| PART NUMBER | SIZE (IN.) | DIMENSIONS (IN.) | | | | |
|---|---|---|---|---|---|---|
| | | A | B | C | D | E |
| 9A-101-01 | 1/4 | 0.37 | 1.34 | 2.59 | 1.68 | 3.87 |
| 9A-102-01 | 3/8 | 0.37 | 1.34 | 2.59 | 1.68 | 3.87 |
| 9A-103-01 | 1/2 | 0.37 | 1.34 | 2.59 | 1.81 | 3.87 |
| 9A-104-01 | 3/4 | 0.50 | 1.44 | 2.84 | 1.84 | 3.87 |
| 9A-105-01 | 1 | 0.62 | 1.72 | 3.28 | 2.00 | 4.87 |
| 9A-106-01 | 1-1/4 | 0.81 | 1.94 | 3.84 | 2.18 | 4.87 |
| 9A-107-01 | 1-1/2 | 1.00 | 2.06 | 4.00 | 2.68 | 5.50 |
| 9A-108-01 | 2 | 1.25 | 2.29 | 4.56 | 2.87 | 5.50 |

## 82-100 SERIES
FULL PORT BRONZE THREE-PIECE VALVE

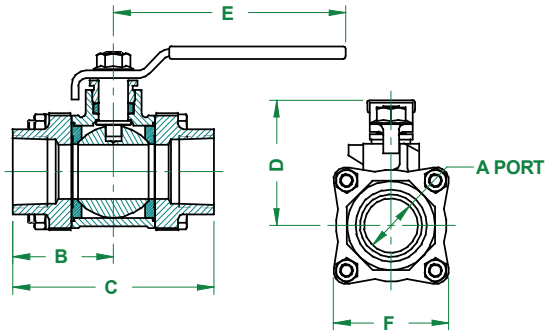
LEADFREE OPTIONS



This inline-repairable three-piece ball valve offers RPTFE seats and seals and a 600 CWP, non-shock rating.

### FEATURES
- ASTM B584 DZR Bronze Body and Ends
- Heavy Duty Body and Seals
- SAE Grade 8 Body Bolts
- Adjustable Packing Nut
- Full Port Flow
- 600 CWP, 150 SWP (3"-4" 400 CWP, 150 SWP)
- EZ-Solder™ Lead Free Bronze
- **Proudly Made in USA**
- MSS SP-110 BALL VALVES
- CRN: 0C10908.5C
- IAPMO/ANSI Z1157 BALL VALVES

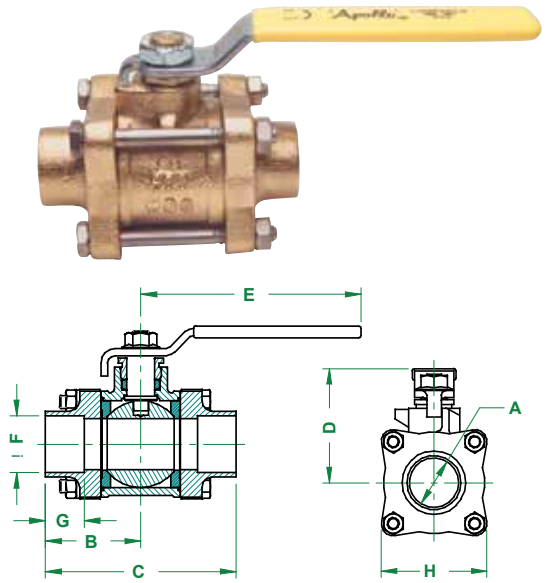
### OPTIONS
- 82-14x/24x w/ SS Ball and Stem Option
- 82LF (Lead Free):
  - NSF/ANSI/CAN 61 - Water Quality
  - NSF/ANSI/CAN 372 - Lead Free
  - Easily Identifiable White Handle Grip and Blue "Lead Free" Hang Tag




### DIMENSIONS - NPT

| PART NUMBER | LF PART NUMBER | SIZE (IN.) | DIMENSIONS (IN.) | | | | | | WT. (LB.) |
|---|---|---|---|---|---|---|---|---|---|
| | | | A | B | C | D | E | F | |
| 82-101-01 | 82LF-101-01 | 1/4" | 0.43 | 1.28 | 2.56 | 1.81 | 3.87 | 1.60 | 1.02 |
| 82-102-01 | 82LF-102-01 | 3/8" | 0.50 | 1.28 | 2.56 | 1.81 | 3.87 | 1.60 | 1.04 |
| 82-103-01 | 82LF-103-01 | 1/2" | 0.62 | 1.40 | 2.81 | 1.93 | 4.87 | 1.78 | 1.55 |
| 82-104-01 | 82LF-104-01 | 3/4" | 0.81 | 1.71 | 3.43 | 2.18 | 4.87 | 1.98 | 2.27 |
| 82-105-01 | 82LF-105-01 | 1" | 1.00 | 1.93 | 3.87 | 2.62 | 5.50 | 2.22 | 3.28 |
| 82-106-01 | 82LF-106-01 | 1.25" | 1.25 | 2.37 | 4.75 | 2.87 | 5.50 | 2.70 | 5.62 |
| 82-107-01 | 82LF-107-01 | 1.5" | 1.50 | 2.62 | 5.25 | 3.37 | 8.00 | 3.03 | 8.07 |
| 82-108-01 | 82LF-108-01 | 2" | 2.00 | 3.01 | 6.03 | 3.68 | 8.00 | 3.87 | 14.42 |
| 82-109-01 | 82LF-109-01 | 2.5" | 2.50 | 3.62 | 7.25 | 5.14 | 9.75 | 5.05 | 26.61 |
| 82A-140-01 | - | 3" | 3.00 | 4.18 | 8.37 | 8.10 | 19.13 | 5.82 | 43.00 |
| 82A-14A-01 | - | 4" | 4.00 | 5.43 | 10.86 | 8.88 | 19.13 | 7.77 | 106.00 |

**3" & 4" valves come standard with SS ball and stem (not optional) and adjustable length locking handles.*




Designed for soft soldering or brazed* installation. Includes RPTFE seats and seals.

### DIMENSIONS - SOLDER

| PART NUMBER | LF PART NUMBER | SIZE (IN.) | DIMENSIONS (IN.) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | A | B | C | D | E | F | G | H |
| 82-202-01 | 82LF-202-01 | 3/8 | 0.44 | 1.28 | 2.56 | 1.81 | 3.87 | 0.50 | 0.38 | 1.60 |
| 82-203-01 | 82LF-203-01 | 1/2 | 0.56 | 1.40 | 2.81 | 1.93 | 4.87 | 0.63 | 0.50 | 1.78 |
| 82-204-01 | 82LF-204-01 | 3/4 | 0.83 | 1.71 | 3.43 | 2.18 | 4.87 | 0.88 | 0.75 | 1.98 |
| 82-205-01 | 82LF-205-01 | 1 | 1.00 | 1.93 | 3.87 | 2.62 | 5.50 | 1.13 | 0.90 | 2.22 |
| 82-206-01 | 82LF-206-01 | 1-1/4 | 1.25 | 2.37 | 4.75 | 2.87 | 5.50 | 1.38 | 0.97 | 2.70 |
| 82-207-01 | 82LF-207-01 | 1-1/2 | 1.50 | 2.62 | 5.25 | 3.37 | 8.00 | 1.63 | 1.09 | 3.03 |
| 82-208-01 | 82LF-208-01 | 2 | 2.00 | 3.01 | 6.03 | 3.68 | 8.00 | 2.13 | 1.34 | 3.87 |
| 82-209-01 | 82LF-209-01 | 2-1/2 | 2.50 | 3.62 | 7.25 | 5.14 | 9.75 | 2.63 | 1.47 | 5.05 |
| 82A-240-01 | - | 3 | 3.00 | 4.18 | 8.37 | 8.10 | 19.13 | 3.13 | 1.66 | 5.82 |
| 82A-24A-01 | - | 4 | 4.00 | 5.43 | 10.86 | 8.88 | 19.13 | 4.13 | 2.16 | 7.77 |

**3" & 4" valves come standard with SS ball and stem (not optional) and adjustable length locking handles.*
**82LF-2xxA cannot be brazed and is intended for soft solder installation using solders with melting temperature of < 500°F.*

## 82-200/82-240 SERIES
THREE-PIECE FULL PORT VALVE WITH BRAZED TUBE EXTENSIONS

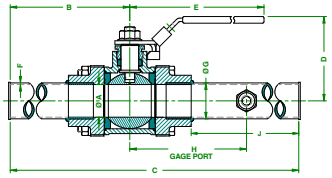
### "F1 - 1 GAUGE PORT", "F3 - 2 GAUGE PORTS", & "NO GAUGE PORT" CONFIGURATIONS

- Bronze Valve Body & End Caps
- RPTFE Seats and Stem Packing
- 600 psig CWP Non-Shock (3" & 4" 400 CWP)
- Vacuum Service to 29" Hg
- Full Port in All Sizes
- Blowout-Proof Stem Design
- Adjustable Packing Nut
- In-Line Repairable
- Latch Lock Handle
- Cleaned and Bagged for Oxygen
- Service per CGA G4.1 & NFPA 99
- Factory Brazed Extensions Allow Solder or Brazed Installation Without Disassembly
- Type K Copper Tubing Brazed Into Both End Caps
- **Proudly Made in USA**

### OUTSIDE THE ZONE BOX
NFPA 99 requires the valves to be secured in the open position. For medical gas applications that are Outside-the-Zone-Box, Apollo offers three standard configurations: "F1" (1 gauge port), "F3" (2 gauge ports) & no gauge ports (w/ locking handles).

## 82-200-F1/82-240-F1 SERIES
MALE EXTENSIONS - 1 GAUGE PORT





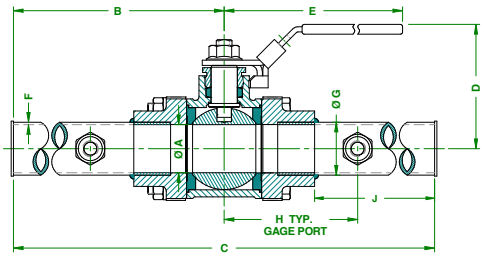

### DIMENSIONS

| OXYGEN CLEANED | | | | | SIZE (IN.) | DIMENSIONS (IN.) | | | | | | | | | | WT. (LB.) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BRASS TRIM PLATED PART NUMBER | 316SS BALL & STEM PART NUMBER | BRASS TRIM PLATED PART NUMBER | 316SS BALL & STEM PART NUMBER | 316SS BALL, STEM & EXT. TRIM PART NUMBER | | A | B | C | D | LOCKING | NON LOCKING | F | G | H | J | |
| W/ LOCKING HANDLE | | W/ NON-LOCKING HANDLE | | | | | | | | E | E | | | | | |
| 82-203-F1 | 82-243-F1 | 82-203-F2 | 82-243-F2 | | 1/2" | 0.62 | 6.91 | 17.41 | 2.23 | 5.31 | 4.75 | 0.049 | 0.625 | 7.15 | 9.10 | 1.7 |
| 82-204-F1 | 82-244-F1 | 82-204-F2 | 82-244-F2 | | 3/4" | 0.81 | 6.97 | 17.47 | 2.41 | 5.31 | 4.75 | 0.065 | 0.75 | 7.22 | 8.78 | 2.4 |
| 82-205-F1 | 82-245-F1 | 82-205-F2 | 82-245-F2 | | 1" | 1.00 | 7.03 | 17.62 | 3.01 | 6.29 | 5.56 | 0.065 | 1.25 | 7.28 | 5.09 | 3.4 |
| 82-206-F1 | 82-246-F1 | 82-206-F2 | 82-246-F2 | | 1-1/4" | 1.25 | 7.38 | 22.71 | 3.22 | 6.29 | 5.56 | 0.065 | 1.375 | 7.00 | 12.97 | 5.5 |
| 82-207-F1 | 82-247-F1 | 82-207-F2 | 82-247-F2 | | 1-1/2" | 1.50 | 7.50 | 22.57 | 4.04 | 8.93 | 7.75 | 0.072 | 1.625 | 6.74 | 12.48 | 8.5 |
| 82-208-F1 | 82-248-F1 | 82-208-F2 | 82-248-F2 | | 2" | 2.00 | 7.74 | 22.58 | 4.15 | 8.93 | 7.75 | 0.083 | 2.125 | 6.51 | 11.76 | 14.0 |
| 82-209-F1 | 82-249-F1 | 82-209-F2 | 82-249-F2 | | 2-1/2" | 2.50 | 11.75 | 23.50 | 5.31 | 10.06 | 9.92 | 0.095 | 2.50 | 6.38 | 8.13 | 26.8 |
| - | - | - | - | 82A-240-E9 | 3" | 3.00 | 11.94 | 23.87 | 8.10 | 18.00* | - | 0.0450 | 3.00 | 7.75 | 7.76 | 42.2 |
| - | - | - | - | 82A-24A-E9 | 4" | 4.00 | 12.68 | 25.37 | 8.88 | 18.00* | - | 0.0700 | 4.00 | 8.00 | 7.25 | 106.0 |

**3" & 4" valves come standard with SS ball and stem (not optional) and adjustable length locking handles.*

## 82-200-F3/82-240-F3 SERIES
MALE EXTENSIONS - 2 GAUGE PORTS





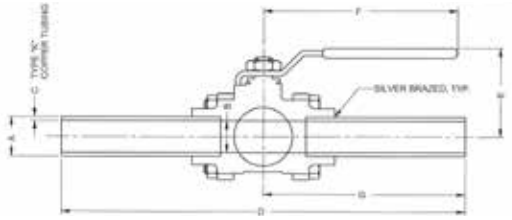

### DIMENSIONS

| OXYGEN CLEANED W/ LOCKING HANDLE | | SIZE (IN.) | DIMENSIONS (IN.) | | | | | | | | | WT. (LB.) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BRASS TRIM PLATED PART NUMBER | 316SS BALL & STEM PART NUMBER | | A | B | C | D | LOCKING | F | G | H | J | |
| | | | | | | | E | | | | | |
| 82-203-F3 | 82-243-F3 | 1/2" | 0.62 | 12.27 | 24.53 | 2.23 | 5.31 | 0.049 | 0.625 | 4.25 | 10.84 | 1.66 |
| 82-204-F3 | 82-244-F3 | 3/4" | 0.81 | 12.25 | 24.50 | 2.41 | 5.31 | 0.065 | 0.75 | 4.24 | 10.53 | 2.37 |
| 82-205-F3 | 82-245-F3 | 1" | 1.00 | 12.30 | 24.60 | 3.01 | 6.29 | 0.065 | 1.25 | 4.24 | 10.32 | 3.43 |
| 82-206-F3 | 82-246-F3 | 1-1/4" | 1.25 | 12.23 | 24.46 | 3.22 | 6.29 | 0.065 | 1.375 | 4.23 | 9.89 | 5.50 |
| 82-207-F3 | 82-247-F3 | 1-1/2" | 1.50 | 12.25 | 24.50 | 4.04 | 8.93 | 0.072 | 1.625 | 4.25 | 9.63 | 8.51 |
| 82-208-F3 | 82-248-F3 | 2" | 2.00 | 12.25 | 24.50 | 4.15 | 8.93 | 0.083 | 2.125 | 4.25 | 9.18 | 14.0 |
| 82-209-F3 | 82-249-F3 | 2-1/2" | 2.50 | 11.75 | 23.50 | 5.31 | 10.06 | 0.095 | 2.50 | 6.38 | 8.13 | 26.81 |
| - | 82A-240-F3 | 3" | 3.00 | 11.94 | 23.87 | 8.10 | 18* | .0450 | 3.00 | 7.75 | 7.78 | 42.24 |
| - | 82A-24A-F3 | 4" | 4.00 | 12.68 | 25.37 | 8.88 | 18* | .0700 | 4.00 | 8.00 | 7.25 | 106.0 |

**3" & 4" valves come standard with SS ball and stem (not optional) and adjustable length locking handles.*

## 82-200/82-240 SERIES
MALE EXTENSIONS - NO GAUGE PORTS





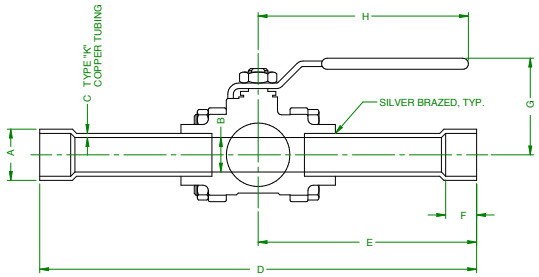

### DIMENSIONS

| STANDARD | | OXYGEN CLEANED | | | | | SIZE (IN.) | DIMENSIONS (IN.) | | | | | | | | | WT. (LB.) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BRASS TRIM PLATED PART NUMBER | 316SS BALL & STEM PART NUMBER | BRASS TRIM PLATED PART NUMBER | 316SS BALL & STEM PART NUMBER | 316SS BALL, STEM & EXT. TRIM PART NUMBER | BRASS TRIM PLATED PART NUMBER | 316SS BALL & STEM PART NUMBER | | A | B | C | D | E | LOCKING | NON LOCKING | G | H | |
| | | | | | | | | | | | | | F | F | | | |
| W/ NON-LOCKING HANDLE | | W/ NON-LOCKING HANDLE | | | W/ LOCKING HANDLE | | | | | | | | | | | | |
| 82-203-B8 | 82-243-A8 | 82-203-K1 | 82-243-K1 | 82-243-C4 | 82-203-G3 | 82-243-G3 | 1/2" | 5/8 | 0.62 | 0.049 | 13.81 | 2.00 | 4.87 | 5.28 | 6.00 | 5.50 | 1.7 |
| 82-204-A8 | 82-244-B3 | 82-204-K1 | 82-244-K1 | 82-244-C6 | 82-204-G3 | 82-244-G3 | 3/4" | 7/8 | 0.81 | 0.065 | 13.93 | 2.18 | 4.87 | 5.28 | 6.00 | 5.25 | 2.4 |
| 82-205-B7 | 82-245-B1 | 82-205-K1 | 82-245-K1 | 82-245-E3 | 82-205-G3 | 82-245-G3 | 1" | 1-1/8 | 1.00 | 0.065 | 14.04 | 2.62 | 5.50 | 6.25 | 6.00 | 5.09 | 3.4 |
| 82-206-B7 | 82-246-B0 | 82-206-K1 | 82-246-K1 | 82-246-C0 | 82-206-G3 | 82-246-G3 | 1-1/4" | 1-3/8 | 1.25 | 0.065 | 14.75 | 2.89 | 5.50 | 6.25 | 6.00 | 5.03 | 5.5 |
| 82-207-B2 | 82-247-B2 | 82-207-K1 | 82-247-K1 | 82-247-C6 | 82-207-G3 | 82-247-G3 | 1-1/2" | 1-5/8 | 1.50 | 0.072 | 15.07 | 3.37 | 8.00 | 8.92 | 6.00 | 4.91 | 8.5 |
| 82-208-B7 | 82-248-B2 | 82-208-K1 | 82-248-K1 | 82-248-C4 | 82-208-G3 | 82-248-G3 | 2" | 2-1/8 | 2.00 | 0.083 | 15.23 | 3.70 | 8.00 | 8.92 | 6.00 | 4.66 | 14.2 |
| 82-209-A2 | 82-249-A2 | 82-209-K1 | 82-249-K1 | - | 82-209-G3 | 82-249-G3 | 2-1/2" | 2-5/8 | 2.50 | 0.095 | 23.51 | 5.14 | 9.38 | 10.06 | 9.60 | 8.13 | 26.8 |
| - | 82A-240-A2 | - | 82A-240-K1 | - | - | - | 3" | 3-1/8 | 3.00 | 0.109 | 24.00 | 6.77 | 18.00* | - | 9.40 | 7.76 | 42.24 |
| - | 82A-24A-A0 | - | 82A-24A-K1 | | | | 4" | 4-1/8 | 4.00 | 0.134 | 25.50 | 8.26 | 18.00* | - | 9.41 | 7.25 | 106.0 |

**3" & 4" valves come standard with SS ball and stem (not optional) and adjustable length locking handles.*

## 82-200/82-240 SERIES
FEMALE EXTENSIONS - NO GAUGE PORTS






### DIMENSIONS

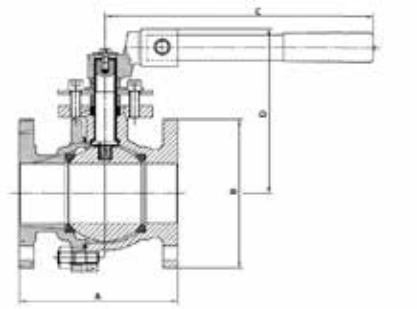
| STANDARD | | | | OXYGEN CLEANED | | | | SIZE (IN.) | DIMENSIONS (IN.) | | | | | | | | | WT. (LB.) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BRASS TRIM PLATED PART NUMBER | 316SS BALL & STEM PART NUMBER | BRASS TRIM PLATED PART NUMBER | 316SS BALL & STEM PART NUMBER | BRASS TRIM PLATED PART NUMBER | 316SS BALL & STEM PART NUMBER | BRASS TRIM PLATED PART NUMBER | 316SS BALL & STEM PART NUMBER | | A | B | C | D | E | F | G | LOCKING | NON LOCKING | |
| | | | | | | | | | | | | | | | | H | H | |
| W/ NON LOCKING HANDLE | | W/ LOCKING HANDLE | | W/ NON LOCKING HANDLE | | W/ LOCKING HANDLE | | | | | | | | | | | | |
| 82-203-C2 | 82-243-B8 | - | - | 82-203-K2 | 82-243-K2 | 82-203-E0 | 82-243-E0 | 1/2" | 5/8" | 0.62 | 0.049 | 14.80 | 7.40 | 0.50 | 2.00 | 4.87 | 5.28 | 1.7 |
| 82-204-C3 | 82-244-C1 | 82-204-F0 | - | 82-204-K2 | 82-244-K2 | 82-204-E0 | 82-244-C9 | 3/4" | 7/8" | 0.81 | 0.065 | 15.42 | 7.71 | 0.75 | 2.18 | 4.87 | 5.28 | 2.4 |
| 82-205-C2 | 82-245-C1 | 82-205-G4 | - | 82-205-K2 | 82-245-K2 | 82-205-E4 | 82-245-E0 | 1" | 1-1/8" | 1.00 | 0.065 | 15.84 | 7.92 | 0.90 | 2.62 | 5.50 | 6.25 | 3.5 |
| 82-206-C1 | 82-246-C1 | - | - | 82-206-K2 | 82-246-K2 | 82-206-C7 | 82-246-C2 | 1-1/4" | 1-3/8" | 1.25 | 0.065 | 16.69 | 8.34 | 0.96 | 2.87 | 5.50 | 6.25 | 5.6 |
| 82-207-B8 | 82-247-C5 | 82-207-E9 | - | 82-207-K2 | 82-247-K2 | 82-207-C5 | 82-247-E3 | 1-1/2" | 1-5/8" | 1.50 | 0.072 | 16.16 | 8.58 | 1.09 | 3.37 | 8.00 | 8.92 | 8.6 |
| 82-208-C1 | 82-248-C0 | 82-208-E4 | - | 82-208-K2 | 82-248-K2 | 82-208-C8 | 82-248-C7 | 2" | 2-1/8" | 2.00 | 0.083 | 18.12 | 9.06 | 1.34 | 3.70 | 8.00 | 8.92 | 14.3 |
| - | - | - | - | 82-209-K2 | 82-249-K2 | 82-209-A8 | 82-249-A8 | 2-1/2" | 2-5/8" | 2.50 | 0.095 | 23.50 | 9.62 | 1.47 | 5.14 | 9.38 | 10.06 | 26.8 |
| - | - | - | - | - | - | - | 82A-240-K2 | 3" | 3-1/8" | 3.00 | 0.109 | 23.87 | 10.25 | 1.66 | 6.77 | 18.00* | - | 42.25 |

**3" valves are equipped with adjustable length locking handles.*

## 6PLF SERIES
CAST IRON CLASS 125 FLANGED BALL VALVE - LEAD FREE

LEADFREE CERTIFIED





The cast iron/epoxy coated, Class 125 Apollo International™ 6PLF series lead free ball valves offer unobstructed turbulence-free flow that gate and butterfly valves can't match. Compact design and low profile handle for easy installation in tight areas. Ideal for both potable water and general HVAC applications.

### FEATURES
- A126 Class B Cast Iron Body with FDA Food-Grade Epoxy Powder Coat
- ANSI 125# Flanged Connections
- Stainless Steel Ball & Stem
- PTFE Seats and Packing
- 200 CWP / 125 SWP
- ISO 5211 Mounting Pad for Easy Actuation
- Adjustable Stem Packing
- Full Port Through 6"
- Vacuum Service to 29in Hg
- Lever Handles 2-6"; Gear Operators 8-10"
- NSF/ANSI/CAN 61 - Water Quality
- NSF/ANSI 372 - Lead Free
- ANSI B16.10 Face-to-Face Dimensions
- Allows Direct Replacement of Comparable Gate Valves

### DIMENSIONS

| LF PART NUMBER | SIZE (IN.) | DIMENSIONS (IN.) | | | | WT. (LB.) | ACTUATION KIT | DESCRIPTION |
|---|---|---|---|---|---|---|---|---|
| | | A | B | C | D | | | |
| 6PLF-208-01 | 2 | 7.00 | 6.00 | 12.20 | 6.50 | 22.70 | 78253001 | KIT, MTG, 6PLF208 TO A0150 |
| 6PLF-209-01 | 2-1/2 | 7.50 | 7.00 | 13.78 | 7.42 | 36.73 | 78253101 | KIT, MTG, 6PLF209 TO A0150 |
| 6PLF-200-01 | 3 | 8.00 | 7.50 | 13.78 | 8.17 | 46.63 | 78253201 | KIT, MTG, 6PLF200 TO A0150 |
| 6PLF-20A-01 | 4 | 9.00 | 9.00 | 15.75 | 9.00 | 71.83 | 78253301 | KIT, MTG, 6PLF20A TO A0350/0600 |
| 6PLF-20C-01 | 6 | 10.50 | 11.00 | 30.00 | 11.32 | 111.99 | 78253401 | KIT, MTG, 6PLF20C TO A0950 |
| 6PLF-20E-01* | 8 | 11.50 | 13.50 | 30.00 | 11.32 | 210.54 | 78253501 | KIT, MTG, 6PLF20E/20G TO A01600/A2500 |
| 6PLF-20G-01* | 10 | 13.00 | 16.00 | 33.00 | 13.05 | 294.10 | 78253501 | KIT, MTG, 6PLF20E/20G TO A01600/A2500 |

*Gear operator is standard*

---

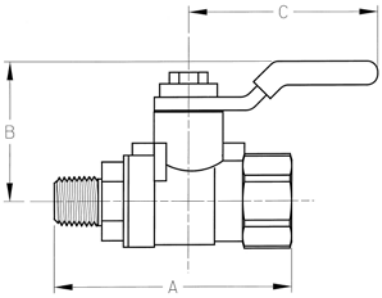
## 94 MBV SERIES
MINI BALL VALVE GAS RATED - APOLLO INTERNATIONAL™

C SA US



M x F

F x F




Designed for commercial and light industrial use. Full port, constructed of heavy-duty forged brass, PTFE seats and gland follower with double Viton o-rings to prevent stem leakage.

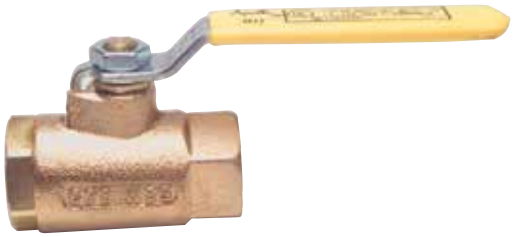
### FEATURES
- 600 CWP
- Reversible Handle
- Blowout-Proof Stem
- Double Viton O-Ring Stem Seals
- Large Raised Wrench Flats
- Chrome Plated Brass Ball
- Ideal for Use as a Gas or Gauge Cock
- Temperature Range: -40°F to 300°F

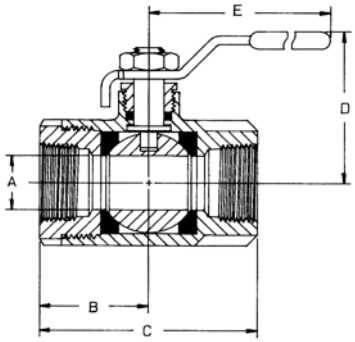
### CSA LISTED
- ANSI Z21.15-2009 / CSA 9.1-2009 (1/2 psi) - Manually Operated Gas Valves for Appliances
- ASME B16.44-2002 - Manually Operated Metallic Gas Valves for Use in Above Ground Piping Systems (2 and 5 psig)
- MSS SP-110 Compliant

### DIMENSIONS

| PART NUMBER | SIZE (IN.) | DIMENSIONS (IN.) | | | PORT (DIA.) | WT. (LB.) |
|---|---|---|---|---|---|---|
| | | A | B | C | | |
| 94-MBV-02 | 1/4 FNPT x 1/4 MNPT | 1.95 | 1.09 | 1.71 | 0.31 | 0.20 |
| 94-MBV-03 | 1/4 FNPT x 1/4 FNPT | 1.68 | 1.09 | 1.71 | 0.31 | 0.17 |
| 94-MBV-04 | 1/8 FNPT x 1/8 MNPT | 1.95 | 1.09 | 1.71 | 0.31 | 0.16 |
| 94-MBV-05 | 1/8 FNPT x 1/8 FNPT | 1.68 | 1.09 | 1.71 | 0.31 | 0.16 |

## 80 SERIES
UL LISTED GAS BRONZE SHUT-OFF VALVE






UL listed, heavy pattern, bronze shut-off valve for LP gas, natural gas, flammable liquids and heated oil. Features easy quarter-turn ON/OFF, a large port to reduce pressure drop and NPT connections.

### FEATURES
- RPTFE Seats and Seals
- Rated 600 psig CWP, Non-Shock
- 250 psig LP Gas
- **Proudly Made in USA**

### OPTIONS
- (-07) Tee Handle
- (-27) Latch Lock Handle
- (-57) Oxygen Cleaned
- 80-14x Series with 316 SS Ball & Stem

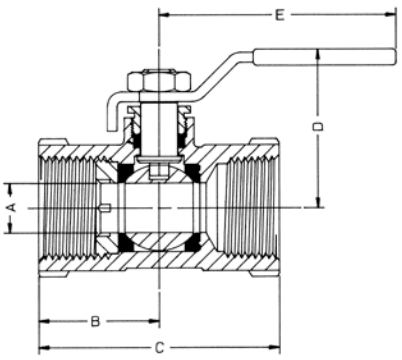
### UL LISTED
- UL 125 - Flow Control Valves for LP-Gas, Guide YSDT to 250 psi max
- UL 842 - Valves for Flammable Fluids, Guides YRBX, YRPV, and MHKZ to 250 psi max.
- UL 1477 - Compressed Gas Shutoff Valves, Guide YQNZ to 250 psi max

### DIMENSIONS

| PART NUMBER | SIZE (IN.) | DIMENSIONS (IN.) | | | | |
|---|---|---|---|---|---|---|
| | | A | B | C | D | E |
| 80-101-01 | 1/4 | 0.37 | 1.03 | 2.06 | 1.75 | 3.87 |
| 80-102-01 | 3/8 | 0.37 | 1.03 | 2.06 | 1.75 | 3.87 |
| 80-103-01 | 1/2 | 0.50 | 1.12 | 2.25 | 1.81 | 3.87 |
| 80-104-01 | 3/4 | 0.68 | 1.50 | 3.00 | 2.12 | 4.87 |
| 80-105-01 | 1 | 0.87 | 1.68 | 3.37 | 2.25 | 4.87 |
| 80-106-01 | 1-1/4 | 1.00 | 2.00 | 4.00 | 2.62 | 5.50 |
| 80-107-01 | 1-1/2 | 1.25 | 2.18 | 4.37 | 2.87 | 5.50 |
| 80-108-01 | 2 | 1.50 | 2.34 | 4.68 | 3.06 | 5.50 |
| 80-109-01 | 2-1/2 | 2.50 | 3.25 | 6.50 | 4.12 | 8.00 |
| 80-100-01 | 3 | 2.50 | 3.37 | 6.75 | 4.12 | 8.00 |

## 90-A SERIES
UL LISTED UNIBODY BRONZE THREADED BALL VALVE






A compact 400 psig CWP valve that's UL listed for fuel, inert gases and flammable liquids. Features ASTM grade DZR bronze body, RPTFE seats and seals.

### FEATURES
- Blowout-Proof Stem Design
- One Piece Bronze Body
- Reduced Port
- **Proudly Made in USA**

### OPTIONS
- 90-14x with 316 SS Ball & Stem
- (-02) Static Grounded
- (-04) 2-1/4" Stem Extension
- (-05) Plain Ball
- (-07) Steel Tee Handle
- (-15) Steel Wheel Handle
- (-27) Latch Lock Handle
- (-57) Oxygen Cleaned

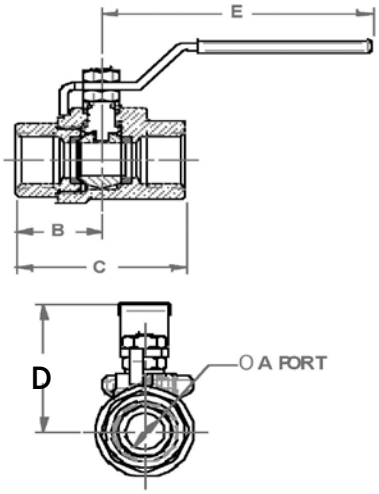
### UL LISTED
- UL 842 - Valves for Flammable Fluids, Guides YRBX, YRPV, and MHKZ to 250 psi max.
- UL 1477 - Compressed Gas Shutoff Valves, Guide YQNZ to 250 psi max

### DIMENSIONS

| PART NUMBER | SIZE (IN.) | DIMENSIONS (IN.) | | | | |
|---|---|---|---|---|---|---|
| | | A | B | C | D | E |
| 90-103-01A | 1/2 | 0.37 | 1.14 | 2.15 | 1.68 | 3.87 |
| 90-104-01A | 3/4 | 0.50 | 1.36 | 2.61 | 1.75 | 3.87 |
| 90-105-01A | 1 | 0.62 | 1.50 | 2.90 | 2.00 | 4.87 |
| 90-106-01A | 1-1/4 | 0.81 | 1.81 | 3.50 | 2.18 | 4.87 |
| 90-107-01A | 1-1/2 | 1.00 | 2.06 | 3.79 | 2.62 | 5.50 |
| 90-108-01A | 2 | 1.25 | 2.43 | 4.42 | 2.81 | 5.50 |

## 77G-UL SERIES
FULL PORT CSA/UL BRONZE GAS SHUT-OFF VALVE






UL and CSA listed fuel shut off valve that features a durable bronze body, premium "multi-fill" MPTFE seats and stem packing, and a "solid ball" design that delivers true full port flow performance.

### FEATURES
- Blowout-Proof Stem Design
- ASTM B584 Bronze
- Maximum Body Pressure: 600 psig CWP
- MSS SP-110 Ball Valves
- **Proudly Made in USA**

### CSA LISTED
- CSA Rating: 125 psig
- CSA Rating: -20°F to 150°F
- CSA to ASME B16.33, 125
- CGA 3.16-M88, 125

### UL LISTED
- UL 125 - Flow Control Valves for LP-Gas, Guide YSDT to 250 psi max
- UL 258 - Fire Protection Trim & Drain, Guide VQGU to 175psi max
- UL 842 - Valves for Flammable Fluids, Guides YRBX, YRPV, and MHKZ to 250 psi max.
- UL 1477 - Compressed Gas Shutoff Valves, Guide YQNZ to 250 psi max

### DIMENSIONS

| PART NUMBER | SIZE (IN.) | DIMENSIONS (IN.) | | | | | WT. (LB.) |
|---|---|---|---|---|---|---|---|
| | | A | B | C | D | E | |
| 77G-103-UL | 1/2 | 0.50 | 1.19 | 2.35 | 1.80 | 3.74 | 0.68 |
| 77G-104-UL | 3/4 | 0.75 | 1.42 | 2.74 | 1.98 | 4.78 | 1.26 |
| 77G-105-UL | 1 | 1.00 | 1.64 | 3.18 | 2.18 | 4.78 | 2.08 |

## GB-10 SERIES
CSA GAS SHUT-OFF VALVE - CAST BRONZE



GB-10 (51GB Series) is no longer offered.
Refer to the 77F series and GB-15 (51GF Series) for replacement options.



---

## 51GF SERIES
GAS APPLIANCE BALL VALVE



### CSA LISTED
- ANSI Z21.15 (Appliance & Hose)/CGA 9.1 (1/2 psi)
- ASME B16.44 (5 psi)

### UL LISTED
- UL 125 - Flow Control Valves for LP-Gas, Guide YSDT to 250 psi max
- UL 842 - Valves for Flammable Fluids, Guides YRBX, YRPV, and MHKZ to 250 psi max.

### DIMENSIONS

| PART NUMBER | SIZE & END CONNECTION (IN.) |
|---|---|
| 51GF301A | 1/2 FNPT x 1/2 FNPT |
| 51GF401A | 3/4 FNPT x 3/4 FNPT |

## 50GB SERIES
CSA GAS SHUT-OFF VALVE

Designed for "main burner" applications with cast-in single or dual pilot tap. ASTM B584 bronze body, chrome-plated ball, brass stem, retainer and gland screws for corrosion resistance. Single or double side taps for pilot light or pressure gauge connections.



50GB

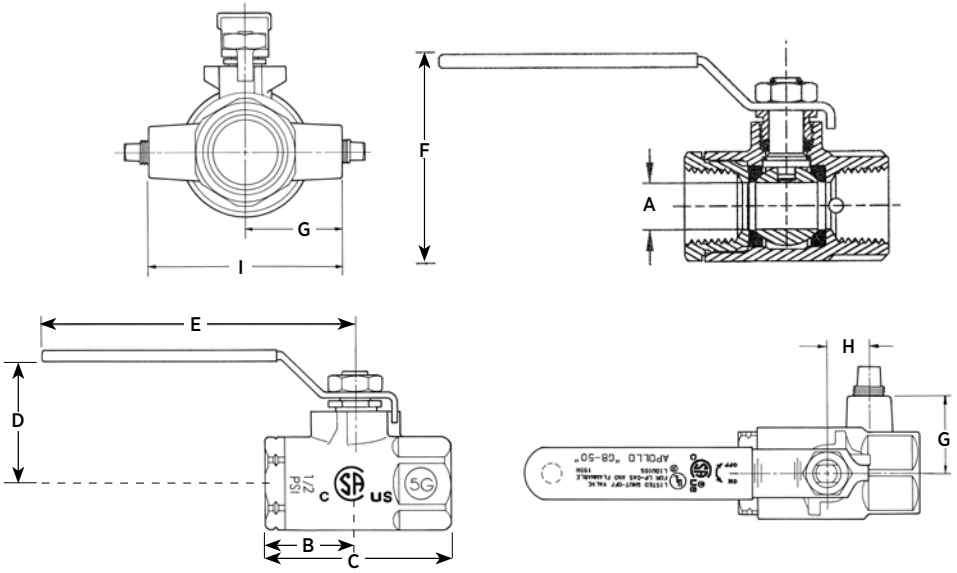


50GB-A

### FEATURES
- For Natural Gas, Manufactured and Mixed Gas, Liquefied Petroleum Gases and LP Gas-Air Mixtures
- Rated Pressures of 1/2 and 5 psig
- Standard Connection is FNPT x FNPT
- Pilot taps are supplied tapped & plugged
- High BTU Capacity
- Reversible Plated Steel Lever Handle
- (-07) Tee Handle Optional
- MSS SP-110
- **Proudly Made in USA**

### CSA LISTED
- ANSI Z21.15, CGA9.1
- ASME B16.44 (2 and 5 psig)

### UL LISTED
- UL 125 - Flow Control Valves for LP-Gas, Guide YSDT to 250 psi max
- UL 842 - Valves for Flammable Fluids, Guides YRBX, YRPV, and MHKZ to 250 psi max.




## DIMENSIONS

| MODEL NO. SINGLE TAPPED | MODEL NO. DUAL TAPPED | SIZE (IN.) | TAPPING | DIMENSIONS (IN.) | | | | | | | | | CAPACITY BTU/HR. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | A | B | C | D | E | F | G | H | I | |
| 50GB-301 | -- | 1/2 | 1/8 | 0.50 | 1.11 | 2.25 | 1.68 | 3.85 | 2.27 | 1.00 | 0.53 | - | 693,000 |
| | 50GB-401A | 3/4 | 1/8 | 0.75 | 1.26 | 2.67 | 1.93 | 3.85 | 2.72 | 1.12 | 0.75 | 2.24 | 1,258,000 |
| | 50GB-501A | 1 | 1/8 | 1.00 | 1.65 | 3.42 | 2.19 | 4.78 | 3.18 | 1.53 | 0.94 | 3.06 | 3,144,000 |
| | 50GB-601A | 1-1/4 | 1/8 | 1.25 | 1.87 | 3.86 | 2.37 | 4.78 | 3.56 | 1.62 | 1.15 | 3.24 | 6,441,000 |
| | 50GB-701A | 1-1/2 | 1/8 | 1.50 | 2.05 | 4.22 | 2.81 | 5.40 | 4.21 | 1.81 | 1.31 | 3.62 | 7,745,000 |
| | 50GB-801A | 2 | 1/8 | 2.00 | 2.48 | 5.02 | 3.18 | 5.40 | 4.93 | 2.18 | 1.68 | 4.36 | 14,741,000 |
| | 50GB-5A1A | 1 | 1/4 | 1.00 | 1.65 | 3.42 | 2.19 | 4.78 | 3.18 | 1.53 | 0.94 | 3.06 | 3,144,000 |
| | 50GB-6A1A | 1-1/4 | 1/4 | 1.25 | 1.87 | 3.86 | 2.37 | 4.78 | 3.56 | 1.62 | 1.15 | 3.24 | 6,441,000 |
| | 50GB-7A1A | 1-1/2 | 1/4 | 1.50 | 2.05 | 4.22 | 2.81 | 5.40 | 4.21 | 1.81 | 1.31 | 3.62 | 7,745,000 |
| | 50GB-8A1A | 2 | 1/4 | 2.00 | 2.48 | 5.02 | 3.18 | 5.40 | 4.93 | 2.18 | 1.68 | 4.36 | 14,741,000 |

**Note: Capacities based on 1000 BTU/cubic feet gas at 0.64 specific gravity, at a P.D. of 1" W.C.*

## 78-124/78-125 SERIES
5-PORT TANK SELECTOR

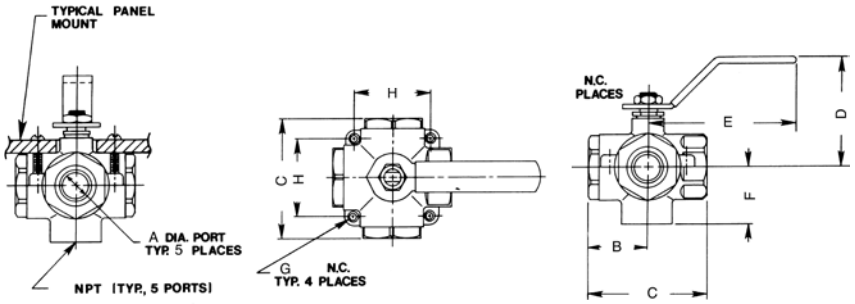
Unique ball design allows for higher flow capacities. Five port construction allows access to four tanks using only one valve.



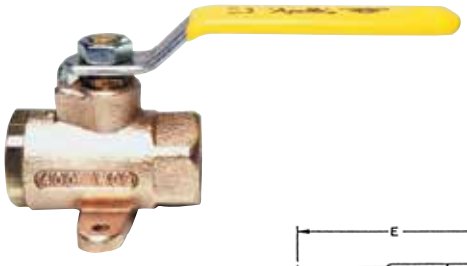
### FEATURES
- Five NPT Connections
- Bronze Ball Valve with Stainless Steel Lever and Nut
- PTFE Seats and RPTFE Stem Packing
- Stem Packing Adjustable for Wear
- Non-Lubricated
- 50 psig Pressure Rating
- Operation: Four Selected Inlets Feed One Common Outlet
- Pointer on Handle Indicates the Selected Inlet
- Easy Mounting Design
- **Proudly Made in USA**

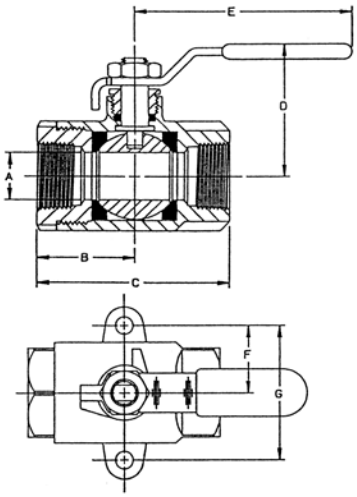
### DIMENSIONS

| PART NUMBER | SIZE (IN.) | DIMENSIONS (IN.) | | | | | | | | WT./100 (LB.) |
|---|---|---|---|---|---|---|---|---|---|---|
| | | A | B | C | D | E | F | G | H | |
| 78-124-01 | 1/2 | 0.50 | 1.26 | 2.52 | 2.27 | 3.53 | 1.12 | 10-24 | 1.40 | 106 |
| 78-125-01A | 3/4 | 0.75 | 1.56 | 3.12 | 2.93 | 3.87 | 1.53 | 1/4-20 | 1.98 | 264 |




## 78-256 SERIES
MULTI PURPOSE SHUT-OFF VALVE WITH MOUNTING EARS






Excellent for use with liquid fuels and often specified as a fuel tank shut-off valve in marine applications. All wetted parts are brass or cast bronze. Mounting ears for easy, positive installation.

### FEATURES
- Heavy Pattern DZR Bronze Body
- 400 psig CWP, Non-Shock
- Tested to 100 psig Air Under Water
- NPT Threaded, Both Ends
- RPTFE Seats and Seals
- (-07) Tee Handle Optional
- (-10) Stainless Steel Lever & Nut
- (-27) Stainless Steel Latch Lock Lever
- **Proudly Made in USA**

### DIMENSIONS

| PART NUMBER | SIZE (IN.) | DIMENSIONS (IN.) | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | A | B | C | D | E | F | G |
| 78-248-01 | 1/4 | 0.43 | 1.12 | 2.25 | 1.78 | 3.87 | 0.93 | 1.87 |
| 78-250-01 | 3/8 | 0.43 | 1.12 | 2.25 | 1.78 | 3.87 | 0.93 | 1.87 |
| 78-256-01 | 1/2 | 0.50 | 1.12 | 2.25 | 1.78 | 3.87 | 0.93 | 1.87 |
| 78-438-01 | 3/4 | 0.68 | 1.50 | 3.00 | 2.12 | 4.87 | 1.06 | 2.12 |

## 77F/77FLF SERIES
FULL PORT FORGED BRASS BALL VALVE



LARGE DIAMETER



LARGE DIAMETER

The Apollo 77F Series is a full port forged brass ball valve suitable for a wide range of plumbing and heating applications. These NPT threaded or solder, 2-piece valves combine reliable operation with maximum economy. Valves include most pertinent agency approvals. **Proudly Made in the USA.**

### 77F FEATURES
- Heavy Pattern Forged Design
- Full Port Flow
- Superior RPTFE Seats and Packing
- Adjustable Stem Packing
- Blowout-Proof Stem
- Corrosion Resistant Materials
- 100% Factory Tested
- Popular Lever Options and Stainless Steel Trim Available
- Silicone Free Assembly
- Made in USA, ARRA compliant
- Rating: 600 CWP (1/4" - 2")
- Rating: 400 CWP (2-1/2" - 4")
- **Steam Rating: 150 psi SWP**
- Vacuum Service to 29 in. Hg
- Large Diameter valves come standard with stainless steel trim.

### 77FLF FEATURES
- Easily Identifiable White Handle Grip and Blue "Lead Free" Hang Tag
- EZ-Solder™ Lead Free Brass
- Lead Free DZR Brass
- NSF/ANSI/CAN 61 - Water Quality
- NSF/ANSI/CAN 372 - Lead Free
- Rating: 600 CWP (1/4" - 2")
- Rating: 400 CWP (2-1/2" - 4")
- Steam Rating: 150 psi SWP
- Vacuum Service to 29 in. Hg
- Large Diameter valves come standard with stainless steel trim.

### APPROVALS
- MSS SP-110
- IAPMO/ANSI Z1157

### FM LISTED
- FM 1140 (<175 PSI) (1/4" – 2")

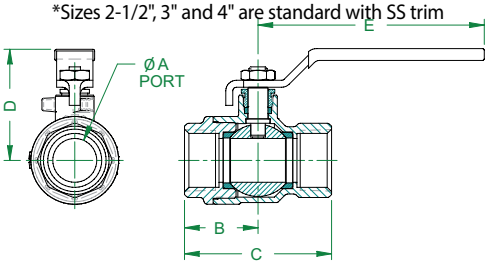
### CSA LISTED
- CGA CR91-002 (5 PSI)
- ANSI Z21.15/CSA 9.1 (1/2 PSI)
- ASME B16.44 (5 PSI)
- ASME B16.33 (125 PSI) (1/2" – 2")

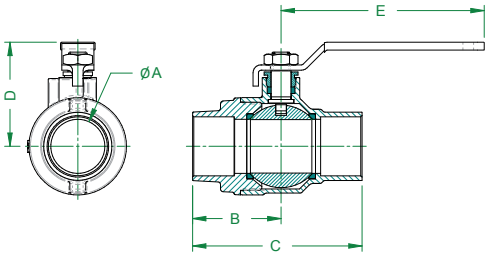
### UL LISTED
- UL 125 - Flow Control Valves for LP-Gas, Guide YSDT to 250 psi max
- UL 258 - Fire Protection Trim & Drain, Guide VQGU to 175psi max (1/4" – 2")
- UL 842 - Valves for Flammable Fluids, Guides YRBX, YRPV, and MHKZ to 250 psi max. (1/4" - 4" NPT only)
- UL 1477 - Compressed Gas Shutoff Valves, Guide YQNZ to 250 psi max (1/4" - 4" NPT only)

*Gas approvals apply to NPT models only

### OPTIONS
- (-01) Standard Lever and Trim
- (-04) 2-1/4" Stem Extension
- (-07) CS Tee Handle
- (-10) Stainless Steel Lever & Nut
- (-11) Therma-Seal™ Insulating Tee
- (-27) Stainless Steel Locking Handle
- (-50) 2-1/4" Locking Stem Extension
- 77Fx-140/240 Stainless Steel Ball & Stem*

*Sizes 2-1/2", 3" and 4" are standard with SS trim



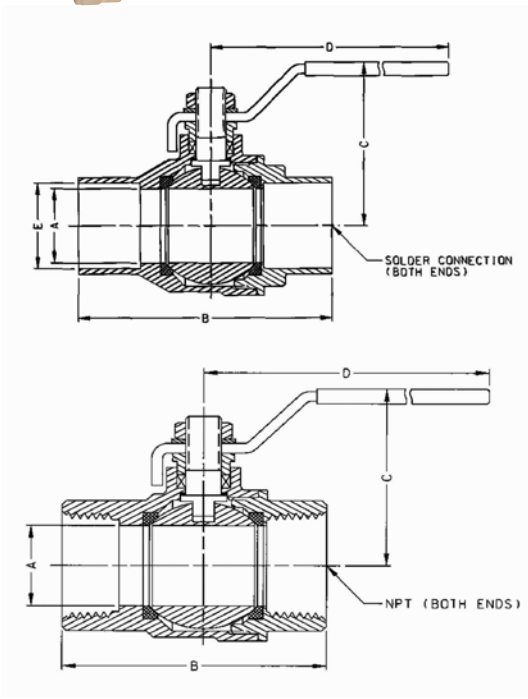




### DIMENSIONS

| PART NUMBER | LF PART NUMBER | SIZE (IN.) | DIMENSIONS (IN.) | | | | | WT. (LB.) |
|---|---|---|---|---|---|---|---|---|
| | | | A | B | C | D | E | |
| **NPT** | | | | | | | | |
| 77F-101-01 | 77FLF-101-01 | 1/4" | 0.38 | 0.81 | 1.62 | 1.61 | 2.85 | 0.3 |
| 77F-102-01 | 77FLF-102-01 | 3/8" | 0.38 | 0.85 | 1.70 | 1.61 | 2.85 | 0.3 |
| 77F-103-01 | 77FLF-103-01 | 1/2" | 0.50 | 1.14 | 2.25 | 1.66 | 2.85 | 0.5 |
| 77F-104-01 | 77FLF-104-01 | 3/4" | 0.75 | 1.29 | 2.57 | 1.91 | 3.86 | 0.8 |
| 77F-105-01 | 77FLF-105-01 | 1" | 1.00 | 1.60 | 3.20 | 2.11 | 3.86 | 1.3 |
| 77F-106-01 | 77FLF-106-01 | 1-1/4" | 1.25 | 1.73 | 3.46 | 2.44 | 4.75 | 2.1 |
| 77F-107-01 | 77FLF-107-01 | 1-1/2" | 1.50 | 2.00 | 4.00 | 2.91 | 5.42 | 3.2 |
| 77F-108-01 | 77FLF-108-01 | 2" | 2.00 | 2.37 | 4.74 | 3.69 | 7.77 | 5.6 |
| 77F-149-01 | 77FLF-149-01 | 2-1/2" | 2.50 | 2.99 | 5.98 | 4.14 | 7.77 | 12.8 |
| 77F-140-01 | 77FLF-140-01 | 3" | 3.00 | 3.52 | 7.05 | 5.03 | 9.92 | 19.7 |
| 77F-14A-01 | 77FLF-14A-01 | 4" | 4.00 | 3.83 | 7.65 | 5.70 | 14.78 | 25.5 |
| **SOLDER** | | | | | | | | |
| 77F-203-01 | 77FLF-203-01 | 1/2" | 0.50 | 1.37 | 2.37 | 1.66 | 2.85 | 0.4 |
| 77F-204-01 | 77FLF-204-01 | 3/4" | 0.75 | 1.72 | 3.13 | 1.91 | 3.86 | 0.9 |
| 77F-205-01 | 77FLF-205-01 | 1" | 1.00 | 2.01 | 3.73 | 2.11 | 3.86 | 1.3 |
| 77F-206-01 | 77FLF-206-01 | 1-1/4" | 1.25 | 2.07 | 3.97 | 2.44 | 4.75 | 2.0 |
| 77F-207-01 | 77FLF-207-01 | 1-1/2" | 1.50 | 2.42 | 4.69 | 2.91 | 5.42 | 3.3 |
| 77F-208-01 | 77FLF-208-01 | 2" | 2.00 | 2.91 | 5.82 | 3.69 | 7.77 | 5.6 |
| 77F-249-01 | 77FLF-249-01 | 2-1/2" | 2.50 | 3.68 | 7.05 | 4.14 | 7.77 | 11.6 |
| 77F-240-01 | 77FLF-240-01 | 3" | 3.00 | 4.26 | 8.15 | 5.03 | 9.92 | 19.3 |
| 77F-24A-01 | 77FLF-24A-01 | 4" | 4.00 | 4.82 | 9.57 | 5.70 | 14.78 | 25.6 |

## 94A SERIES
ECONOMY FULL PORT BALL VALVE - APOLLO INTERNATIONAL™






NEW/EXPANDED LEVER OPTIONS CAN BE FOUND ON PAGE B-33

These full port ball valves with forged brass body are UL listed and CSA approved. Ideal for general purpose non-potable applications including air, gas, HVAC, irrigation, fire protection, etc.

### FEATURES
- Adjustable Stem Packing Nut
- 600 CWP Non-Shock (1/4" - 2")
- 400 CWP Non-Shock (2-1/2" - 4")
- Temperature Range: -0°F to 400°F
- MSS SP-110 - Ball Valves
- Stem Seal O-Ring (Solder Ver. 1/2" - 2") ***NEW!***
- 2-1/4" Stem Ext w/ Memory Stop Kit Option
- 100% Factory Tested
- Lead Free Option (94ALF-A)

### CSA LISTED
(File # 226234) per the following standards:
- ANSI Z21.15 (1/2 psi) (CSA 9.1) (1/4" – 2")
- ASME B16.44 (5 psi) (CR91-002) (1/4" – 4")
- ASME B16.33 (125 psi) (CGA 3.16) (1/4" – 2")

### FM LISTED
- FM 1140 Fire Protection Quick Opening Valves

### UL LISTED
- UL 125 - Flow Control Valves for LP-Gas, Guide YSDT to 250 psi max
- UL 258 - Fire Protection Trim & Drain, Guide VQGU to 175psi max (1/4" – 2")
- UL 842 - Valves for Flammable Fluids, Guides YRBX, YRPV, and MHKZ to 250 psi max. (1/4" - 4" NPT only)
- UL 1477 - Compressed Gas Shutoff Valves, Guide YQNZ to 250 psi max (1/4" - 4" NPT only)

*Gas approvals apply to NPT models only

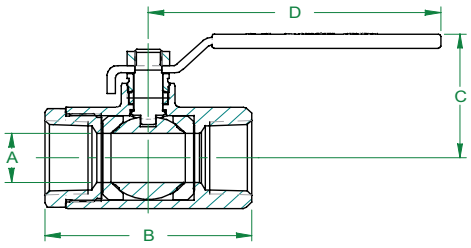
### DIMENSIONS

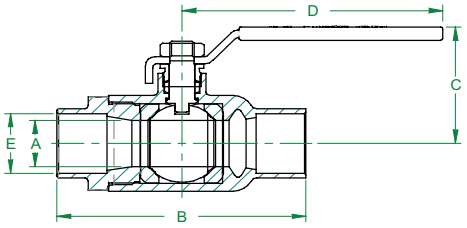
| PART NUMBER | SIZE (IN.) | DIMENSIONS (IN.) | | | | | WT. (LB.) |
|---|---|---|---|---|---|---|---|
| | | A | B | C | D | E | |
| **NPT** | | | | | | | |
| 94A-101-01 | 1/4" | 0.39 | 1.76 | 1.73 | 3.54 | - | 0.3 |
| 94A-102-01 | 3/8" | 0.39 | 1.76 | 1.73 | 3.54 | - | 0.3 |
| 94A-103-01 | 1/2" | 0.58 | 2.05 | 2.04 | 3.54 | - | 0.4 |
| 94A-104-01 | 3/4" | 0.75 | 2.36 | 2.26 | 3.78 | - | 0.7 |
| 94A-105-01 | 1" | 0.95 | 2.76 | 2.58 | 4.53 | - | 1.1 |
| 94A-106-01 | 1-1/4" | 1.26 | 3.31 | 3.05 | 4.53 | - | 1.6 |
| 94A-107-01 | 1-1/2" | 1.58 | 3.66 | 3.37 | 5.51 | - | 2.4 |
| 94A-108-01 | 2" | 1.97 | 4.18 | 3.70 | 6.30 | - | 3.4 |
| 94A-109-01 | 2-1/2" | 2.52 | 5.38 | 4.65 | 8.66 | - | 7.6 |
| 94A-100-01 | 3" | 2.95 | 6.04 | 4.97 | 8.66 | - | 9.3 |
| 94A-10A-01 | 4" | 3.95 | 7.39 | 6.13 | 11.02 | - | 16.9 |
| **SOLDER** | | | | | | | |
| 94A-203-01 | 1/2" | 0.58 | 2.05 | 1.84 | 3.54 | 0.63 | 0.4 |
| 94A-204-01 | 3/4" | 0.75 | 2.75 | 2.14 | 3.78 | 0.88 | 0.7 |
| 94A-205-01 | 1" | 0.95 | 3.31 | 2.45 | 4.53 | 1.13 | 1.1 |
| 94A-206-01 | 1-1/4" | 1.26 | 3.82 | 3.04 | 4.53 | 1.38 | 1.4 |
| 94A-207-01 | 1-1/2" | 1.58 | 4.43 | 3.17 | 5.51 | 1.63 | 2.2 |
| 94A-208-01 | 2" | 1.97 | 5.38 | 3.49 | 6.30 | 2.13 | 3.0 |
| 94A-209-01 | 2-1/2" | 2.52 | 6.28 | 4.66 | 8.66 | 2.63 | 6.4 |
| 94A-200-01 | 3" | 2.95 | 7.15 | 4.87 | 8.66 | 3.13 | 8.5 |
| 94A-20A-01 | 4" | 3.95 | 9.28 | 5.87 | 11.02 | 4.13 | 15.8 |

## 94ALF-A SERIES

ECONOMY FULL PORT BALL VALVE - APOLLO INTERNATIONAL™






NEW/EXPANDED LEVER OPTIONS CAN BE FOUND ON PAGE B-33

These lead free ball valves with forged DZR brass body are UL listed and CSA approved. Ideal for plumbing and heating, fuel gas, fire protection and other general purpose applications.

### FEATURES

- Lead Free* Materials and Certification
- EZ-Solder™ Lead Free Brass
- Solders Like Standard Brass
- Distinctive White "Lead Free" Handle Grip and Blue "Lead Free" Hang Tag
- 2-Piece, Full-Port Design
- Blowout-Proof Stem
- Adjustable Stem Packing Nut
- Multiple Agency Approvals
- MSS SP-110 - Ball Valves
- Stem Seal O-Ring (Solder Ver. 1/2" - 2") NEW!
- Valve Design Rating: 600 CWP – 1/4 to 2", 400 CWP – 2-1/2" to 4"
- Temperature Range: 0°F to 366°F
- 100% Factory Tested

### APPROVALS

- NSF/ANSI/CAN 61 - Water Quality
- NSF/ANSI/CAN 372 - Lead Free
- IAPMO/ANSI Z1157 Ball Valves

### CSA LISTED

(File # 226234) per the following standards:

- ANSI Z21.15 (1/2 psi) (CSA 9.1) (1/4" – 2")
- ASME B16.44 (5 psi) (CR91-002) (1/4" – 4")
- ASME B16.33 (125 psi) (CGA 3.16) (1/4" – 2")

### FM LISTED

- FM 1140 Fire Protection Quick Opening Valves

### UL LISTED

- UL 125 - Flow Control Valves for LP-Gas, Guide YSDT to 250 psi max
- UL 258 - Fire Protection Trim & Drain, Guide VQGU to 175psi max (1/4" – 2")
- UL 842 - Valves for Flammable Fluids, Guides YRBX, YRPV, and MHKZ to 250 psi max. (1/4" - 4" NPT only)
- UL 1477 - Compressed Gas Shutoff Valves, Guide YQNZ to 250 psi max (1/4" - 4" NPT only)

*Gas approvals apply to NPT models only

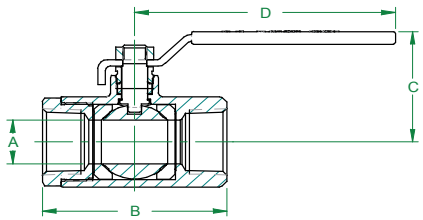
### DIMENSIONS

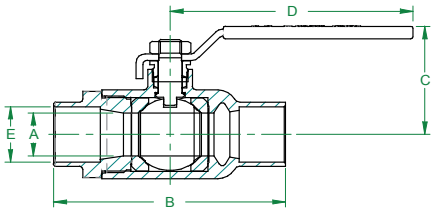
| PART NUMBER | SIZE (IN.) | DIMENSIONS (IN.) | | | | | WT. (LB.) |
|---|---|---|---|---|---|---|---|
| | | A | B | C | D | E | |
| **NPT** | | | | | | | |
| 94ALF-101-01A | 1/4" | 0.39 | 1.76 | 1.73 | 3.54 | - | 0.3 |
| 94ALF-102-01A | 3/8" | 0.39 | 1.76 | 1.73 | 3.54 | - | 0.3 |
| 94ALF-103-01A | 1/2" | 0.58 | 2.05 | 2.04 | 3.54 | - | 0.4 |
| 94ALF-104-01A | 3/4" | 0.75 | 2.36 | 2.26 | 3.78 | - | 0.7 |
| 94ALF-105-01A | 1" | 0.95 | 2.76 | 2.58 | 4.53 | - | 1.1 |
| 94ALF-106-01A | 1-1/4" | 1.26 | 3.31 | 3.05 | 4.53 | - | 1.6 |
| 94ALF-107-01A | 1-1/2" | 1.58 | 3.66 | 3.37 | 5.51 | - | 2.4 |
| 94ALF-108-01A | 2" | 1.97 | 4.18 | 3.70 | 6.30 | - | 3.4 |
| 94ALF-109-01A | 2-1/2" | 2.52 | 5.38 | 4.65 | 8.66 | - | 7.6 |
| 94ALF-100-01A | 3" | 2.95 | 6.04 | 4.97 | 8.66 | - | 9.3 |
| 94ALF-10A-01A | 4" | 3.95 | 7.39 | 6.13 | 11.02 | - | 16.9 |
| **SOLDER** | | | | | | | |
| 94ALF-203-01A | 1/2" | 0.58 | 2.05 | 1.84 | 3.54 | 0.63 | 0.4 |
| 94ALF-204-01A | 3/4" | 0.75 | 2.75 | 2.14 | 3.78 | 0.88 | 0.7 |
| 94ALF-205-01A | 1" | 0.95 | 3.31 | 2.45 | 4.53 | 1.13 | 1.1 |
| 94ALF-206-01A | 1-1/4" | 1.26 | 3.82 | 3.04 | 4.53 | 1.38 | 1.4 |
| 94ALF-207-01A | 1-1/2" | 1.58 | 4.43 | 3.17 | 5.51 | 1.63 | 2.2 |
| 94ALF-208-01A | 2" | 1.97 | 5.38 | 3.49 | 6.30 | 2.13 | 3.0 |
| 94ALF-209-01A | 2-1/2" | 2.52 | 6.28 | 4.66 | 8.66 | 2.63 | 6.4 |
| 94ALF-200-01A | 3" | 2.95 | 7.15 | 4.87 | 8.66 | 3.13 | 8.5 |
| 94ALF-20A-01A | 4" | 3.95 | 9.28 | 5.87 | 11.02 | 4.13 | 15.8 |

***94ALF-2xx-01A intended for soft solder installation using solders with melting temperature of < 500°F.*

## 95ALF SERIES
LEAD FREE FULL PORT STOP & WASTE BALL VALVE






The Apollo International™ 95ALF Lead Free forged DZR brass ball valves combine reliable operation with maximum economy. Ideal for plumbing or hydronic systems where draining is required. Valves are certified by IAPMO and ANSI 3rd party certified lead free.

### FEATURES
- Lead Free Materials and Certification
- Blowout-Proof Stem Design
- Adjustable Stem Packing Nut
- Drain Port with Finger Tight Shut-Off
- Convenient, Quarter-Turn Operation
- EZ-Solder™ Lead Free Brass Alloy
- Solders Like Standard Brass
- MSS SP-110 Ball Valves
- Valve Design Rating: 600 CWP
- Temperature Range: 32°F to 250°F
- IAPMO/ANSI Z1157 Ball Valves
- NSF/ANSI/CAN 61 - Water Quality
- NSF/ANSI/CAN 372 Lead Free



### DIMENSIONS

| LF PART NUMBER | SIZE (IN.) | DIMENSIONS (IN.) | | | | |
|---|---|---|---|---|---|---|
| | | A | B | C | D | E |
| **NPT** | | | | | | |
| 95ALF-103-01 | 1/2 | 0.59 | 2.24 | 1.78 | 3.74 | - |
| 95ALF-104-01 | 3/4 | 0.79 | 2.53 | 2.09 | 3.94 | - |
| 95ALF-105-01 | 1 | 0.98 | 3.15 | 2.36 | 4.33 | - |
| **SOLDER** | | | | | | |
| 95ALF-203-01 | 1/2 | 0.59 | 2.12 | 1.78 | 3.74 | 0.63 |
| 95ALF-204-01 | 3/4 | 0.79 | 2.87 | 1.94 | 3.94 | 0.88 |
| 95ALF-205-01 | 1 | 0.98 | 3.53 | 2.36 | 4.33 | 1.13 |

***95ALF-2xx-01 intended for soft solder installation using solders with melting temperature of < 500°F.*

### Lever Option Kits - 94A (Yellow Grips)

| SIZE | REPLACE-MENT LEVER & NUT | 2-1/4" STEM EXT. W./ MEMORY STOP | TEE HANDLE & NUT | SS LEVER & NUT | LATCH LOCK LEVER & NUT |
|---|---|---|---|---|---|
| 1/4" & 3/8" | W932400 | 78217101 | | W932400S | 78217202 |
| 1/2" | W932500 | 78217201 | W350312T | W932500S | 78217302 |
| 3/4" | W936000 | 78217301 | W350334T | W936000S | 78217402 |
| 1" | W932600 | 78217401 | W35031T | W932600S | 78217502 |
| 1-1/4" | W932700 | 78217501 | W3503114T | W932700S | 78217602 |
| 1-1/2" | W932800 | 78217601 | | W932800S | 78217702 |
| 2" | | | | | |
| 2-1/2" | W932900 | 78217701 | | W932900S | 78217802 |
| 3" | | | | | |
| 4" | W933000 | 78217801 | | | 78217902 |

### Lever Option Kits - 94ALF-A (White Grips)

| SIZE | REPLACE-MENT LEVER & NUT | 2-1/4" STEM EXT. W./ MEMORY STOP | TEE HANDLE & NUT | SS LEVER & NUT | LATCH LOCK LEVER & NUT |
|---|---|---|---|---|---|
| 1/4" & 3/8" | W234700 | 78217101 | | W234700S | 78217203 |
| 1/2" | W234800 | 78217201 | W350312TLF | W234800S | 78217303 |
| 3/4" | W234900 | 78217301 | W350334TLF | W234900S | 78217403 |
| 1" | W235000 | 78217401 | W35031TLF | W235000S | 78217503 |
| 1-1/4" | W235100 | 78217501 | W3503114TLF | W235100S | 78217603 |
| 1-1/2" | W235200 | 78217601 | | W235200S | 78217703 |
| 2" | | | | | |
| 2-1/2" | W235300 | 78217701 | | W235300S | 78217804 |
| 3" | | | | | |
| 4" | W273800 | 78217801 | | | 78217903 |

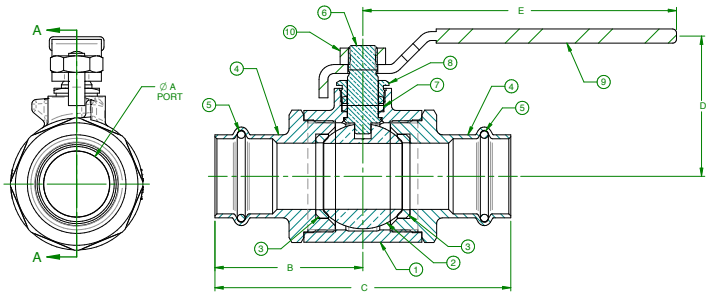
## 77W-A SERIES
APOLLOPRESS® BRONZE FULL PORT BALL VALVE

New! ENHANCED DESIGN



Apollo 77W-A Series APOLLOPRESS® ball valves install in seconds, but the valve and the connection are made to last. Ideal for mechanical and heating systems. Not for use with natural gas or potable water.

### FEATURES
- New Enhanced Design
- New Lever Options Available Including (-27) Locking Lever ***NEW!***
- Full Port
- 300 CWP, Non-Shock to 250°F max. ***NEW!***
- Leak Before Press® Technology
- MSS SP-110 Ball Valves
- Adjustable Stem Packing
- Excellent for Hydronic Heating (90% Glycol max)
- Popular Lever Options and Stainless Steel Trim Available
- Corrosion Resistant Materials
- IAPMO/ANSI Z1157 Ball Valves
- IAPMO PS-117 Press Connections
- **Made in the USA**




### DIMENSIONS

| PART NUMBER | SIZE (IN.) | DIMENSIONS (IN.) | | | | | WT. (LB.) |
|---|---|---|---|---|---|---|---|
| | | A | B | C | D | E | |
| 77W-10301-A | 1/2" | 0.5 | 1.5 | 3.01 | 1.71 | 3.86 | 0.62 |
| 77W-10401-A | 3/4" | 0.75 | 1.9 | 3.8 | 1.91 | 3.86 | 1.2 |
| 77W-10501-A | 1" | 1 | 2.25 | 4.49 | 2.13 | 4.76 | 2.04 |
| 77W-10601-A | 1-1/4" | 1.25 | 2.4 | 4.8 | 2.46 | 4.76 | 2.83 |
| 77W-10701-A | 1-1/2" | 1.5 | 2.86 | 5.72 | 2.9 | 5.41 | 4.54 |
| 77W-10801-A | 2" | 2 | 3.4 | 6.8 | 3.68 | 7.76 | 7.54 |

**-A levers and kits are not interchangeable with the previous design. Refer to the online kit listing for details.*

## 77WLF-A SERIES
APOLLOPRESS® LEAD FREE BRONZE FULL PORT BALL VALVE

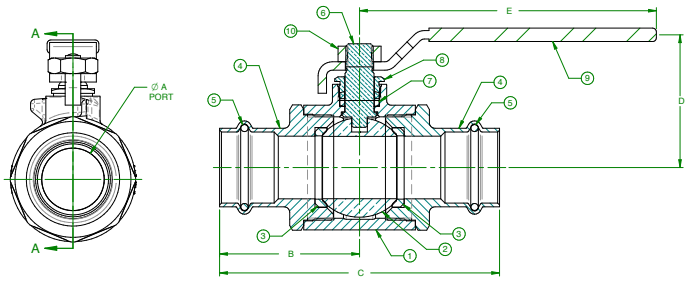
LEADFREE CERTIFIED

New! Higher Pressure Rating



Apollo 77WLF-A Series APOLLOPRESS® ball valves install in seconds, but the valve and the connection are made to last. Ideal for mechanical and heating systems. Not for use with natural gas.

### FEATURES
- Full Port
- Leak Before Press® Technology
- 300 CWP, Non-Shock to 250°F max. ***NEW!***
- MSS SP-110 Ball Valves
- NSF/ANSI/CAN 61 - Water Quality
- NSF/ANSI/CAN 372 - Lead Free
- Adjustable Stem Packing
- Excellent for Hydronic Heating (90% Glycol max)
- Popular Lever Options and SS Trim Available Including (-27) Locking Lever ***NEW!***
- IAPMO/ANSI Z1157 Ball Valves
- IAPMO PS-117 Press Connections
- **Proudly Made in USA**




### DIMENSIONS

| PART NUMBER | SIZE (IN.) | DIMENSIONS (IN.) | | | | | WT. (LB.) |
|---|---|---|---|---|---|---|---|
| | | A | B | C | D | E | |
| 77WLF-103-01A | 1/2" | 0.50 | 1.50 | 3.01 | 1.71 | 3.86 | 0.62 |
| 77WLF-104-01A | 3/4" | 0.75 | 1.90 | 3.80 | 1.91 | 3.86 | 1.20 |
| 77WLF-105-01A | 1" | 1.00 | 2.25 | 4.49 | 2.13 | 4.76 | 2.04 |
| 77WLF-106-01A | 1-1/4" | 1.25 | 2.40 | 4.80 | 2.46 | 4.76 | 2.83 |
| 77WLF-107-01A | 1-1/2" | 1.50 | 2.86 | 5.72 | 2.90 | 5.41 | 4.54 |
| 77WLF-108-01A | 2" | 2.00 | 3.40 | 6.8 | 3.68 | 7.76 | 7.54 |

## 77WCLF SERIES
APOLLOPRESS® COPPER PRESS END BRONZE BALL VALVE

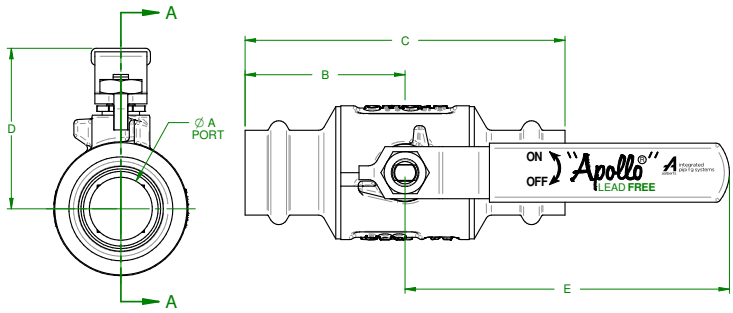
LEADFREE CERTIFIED

New!



The lead free APOLLOPRESS® 77WCLF Ball Valve is ideal for installation in potable water systems requiring NSF 61 or lead free approval. Includes Leak Before Press® feature and 300 psig maximum working pressure. The 77WCLF features copper retainers for maximum protection against corrosion and dezincification.

### FEATURES
- Lead Free/Corrosion Resistant Materials
- Easily Identifiable Blue Lead Free Hang Tag
- Full-Port Flow
- Adjustable Stem Packing
- Fast, Reliable, Economical Press Installation
- Leak Before Press® Technology
- 100% Factory Tested
- MSS SP-110 Ball Valves
- NSF/ANSI/CAN 61 - Water Quality
- NSF/ANSI/CAN 372 - Lead Free
- IAPMO PS-117 Press Connections
- IAPMO/ANSI/CAN Z1157
- Popular Lever Options and SS Trim Available Including (-27) Locking Lever ***NEW!***
- **Proudly Made in USA**




### DIMENSIONS

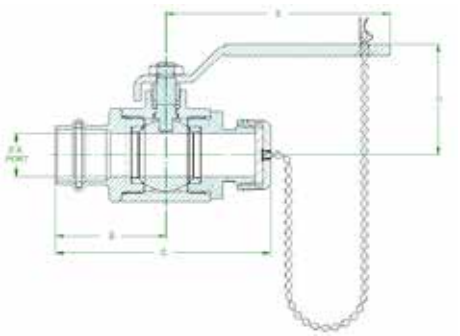
| PART NUMBER | SIZE (IN.) | DIMENSIONS (IN.) | | | | | WT. (LB.) |
|---|---|---|---|---|---|---|---|
| | | A | B | C | D | E | |
| 77WCLF-103-01 | 1/2" | 0.5 | 1.54 | 3.08 | 1.71 | 3.86 | 0.66 |
| 77WCLF-104-01 | 3/4" | 0.75 | 1.9 | 3.8 | 1.91 | 3.86 | 1.15 |
| 77WCLF-105-01 | 1" | 1 | 2.25 | 4.5 | 2.13 | 4.76 | 2.12 |
| 77WCLF-106-01 | 1-1/4" | 1.25 | 2.59 | 5.17 | 2.46 | 4.76 | 3.13 |
| 77WCLF-107-01 | 1-1/2" | 1.5 | 2.84 | 5.67 | 2.9 | 5.41 | 4.79 |
| 77WCLF-108-01 | 2" | 2 | 3.4 | 6.8 | 3.68 | 7.76 | 8.22 |

## 77W-HCA SERIES
APOLLOPRESS® BRONZE HOSE CAP & CHAIN BALL VALVE

LEADFREE OPTIONS

New! ENHANCED DESIGN





Designed for direct mechanical connection to ASTM B88-Type K, L, and M copper tubing in the hard drawn condition for sizes 1/2"-3/4". Valves feature a 3/4" hose thread connection with heavy brass cap to protect the threads and is full pressure rated. Not for use with natural gas.

### FEATURES
- Full Port
- Leak Before Press® Technology
- MSS SP-110 Ball Valves
- NSF/ANSI/CAN 61 - (77WLF-HC)
- Adjustable Stem Packing
- Excellent for Hydronic Heating (90% Glycol max
- Compatible with Most 77C Series Options
- Heavy Brass Dust Cover is Full Pressure Rated
- Popular Lever and Trim Options Available
- 300 CWP, Non-Shock to 250°F max. ***NEW!***
- Now with Stronger Stainless Steel Ball Chain ***NEW!***
- MSS SP-110 Ball Valves
- IAPMO/ANSI Z1157 Ball Valves
- IAPMO PS-117 Press Connections
- ANSI/ASME B1.20.7 Hose Thread
- **Proudly Made in USA**

### DIMENSIONS

| PART NUMBER | SIZE (IN.) | DIMENSIONS (IN.) | | | | | WT. (LB.). |
|---|---|---|---|---|---|---|---|
| | | A | B | C | D | E | |
| 77WLF-103-HCA | 1/2" | 0.50 | 1.50 | 3.11 | 1.71 | 3.86 | 0.62 |
| 77WLF-104-HCA | 3/4" | 0.75 | 1.90 | 3.70 | 1.91 | 3.86 | 1.20 |
| 77W-103-HCA | 1/2" | 0.50 | 1.50 | 3.11 | 1.71 | 3.86 | 0.62 |
| 77W-104-HCA | 3/4" | 0.75 | 1.90 | 3.70 | 1.91 | 3.86 | 1.20 |

**-A levers and kits are not interchangeable with the previous design. Refer to the online kit listing for details.*

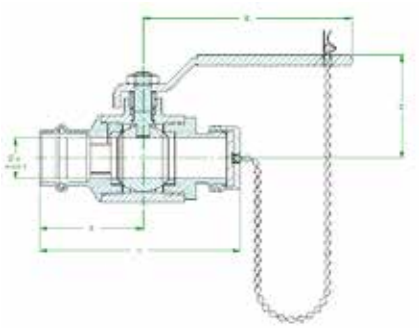
## 77WCLF-HC SERIES

APOLLOPRESS® COPPER PRESS END BRONZE HOSE CAP & CHAIN BALL VALVE

LEADFREE CERTIFIED

New!





Designed for direct mechanical connection to ASTM B88-Type K, L, and M copper tubing in the hard drawn condition for sizes 1/2"-3/4". Valves feature a 3/4" hose thread connection with heavy brass cap to protect the threads and is full pressure rated. Features copper retainers for maximum protection against corrosion and dezincification. Not for use with natural gas.

### FEATURES

- Lead Free/Corrosion Resistant Materials
- Easily Identifiable Blue Lead Free Hang Tag
- Full Port
- Leak Before Press® Technology
- Adjustable Stem Packing
- Excellent for Hydronic Heating (50% Glycol max)
- Heavy Brass Dust Cover is Full Pressure Rated
- MSS SP-110 Ball Valves
- NSF/ANSI/CAN 61 - Water Quality
- NSF/ANSI/CAN 372 - Lead Free
- IAPMO PS-117 Press Connections
- ANSI/ASME B1.20.7 Hose Thread
- Popular Lever Options and SS Trim Available Including (-27) Locking Lever ***NEW!***
- **Proudly Made in USA**

### DIMENSIONS

| PART NUMBER | SIZE (IN.) | DIMENSIONS (IN.) | | | | | WT. (LB.) |
|---|---|---|---|---|---|---|---|
| | | A | B | C | D | E | |
| 77WCLF103HC | 1/2" | 0.50 | 1.54 | 3.15 | 1.71 | 3.86 | 0.79 |
| 77WCLF104HC | 3/4" | 0.75 | 1.90 | 3.70 | 1.91 | 3.86 | 1.25 |

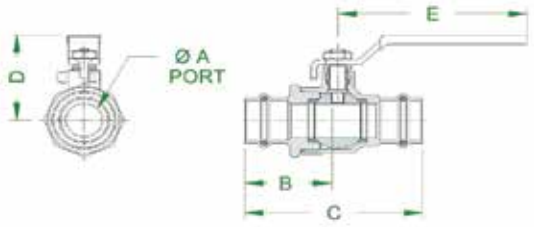
## 77V SERIES

APOLLOPRESS® BRASS BALL VALVE

ICC ES

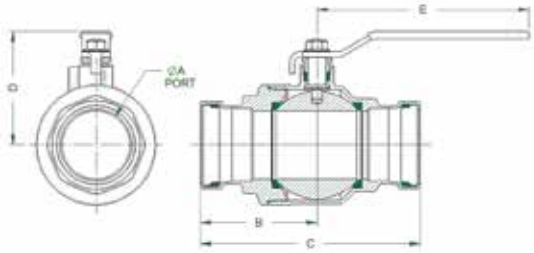
New! Higher Pressure Rating






LARGE DIAMETER






The APOLLOPRESS® 77V Series two-piece press ball valve is ideal for installation in most HVAC systems. Features Leak Before Press® technology and 300 psig maximum working pressure. Proudly Made in the USA.

### FEATURES

- 2 Piece, Heavy Pattern Forged Design
- Full Port Flow
- Max. Operating Pressure 300 psi ***NEW!***
- Temperature Range: 0°F to 250°F
- Superior RPTFE Seats and Packing
- Adjustable Stem Packing
- Blowout-Proof Stem
- Corrosion Resistant Materials
- 100% Factory Tested
- MSS SP-110 Ball Valves
- IAPMO/ANSI Z1157 Ball Valves
- IAPMO PS-117 Press Connections
- Directive 2011/65/CE (RoHS)
- Popular Lever Options and SS Trim Available
- Large Diameter valves come standard with stainless steel trim.
- **Proudly Made in USA**

### DIMENSIONS

| PART NUMBER | SIZE (IN.) | DIMENSIONS (IN.) | | | | | WT. (LB.) |
|---|---|---|---|---|---|---|---|
| | | A | B | C | D | E | |
| 77V-103-01 | 1/2" | 0.50 | 1.57 | 2.89 | 1.66 | 2.85 | 0.4 |
| 77V-104-01 | 3/4" | 0.75 | 1.90 | 3.63 | 1.91 | 3.86 | 0.9 |
| 77V-105-01 | 1" | 1.00 | 2.20 | 3.88 | 2.11 | 3.86 | 1.2 |
| 77V-106-01 | 1-1/4" | 1.25 | 2.23 | 4.22 | 2.44 | 4.75 | 2.3 |
| 77V-107-01 | 1-1/2" | 1.50 | 2.84 | 5.45 | 2.91 | 5.42 | 3.4 |
| 77V-108-01 | 2" | 2.00 | 3.40 | 6.57 | 3.69 | 7.77 | 6.0 |
| **LARGE DIAMETER** | | | | | | | |
| 77V-149-01 | 2-1/2" | 2.50 | 4.26 | 8.04 | 4.13 | 7.77 | 12.0 |
| 77V-140-01 | 3" | 3.00 | 5.10 | 9.45 | 5.03 | 9.92 | 19.5 |
| 77V-14A-01 | 4" | 4.00 | 5.20 | 10.35 | 5.70 | 14.78 | 26.0 |

## 77VLF SERIES
APOLLOPRESS® LEAD FREE BRASS BALL VALVE

LEADFREE CERTIFIED

ICC ES

New! Higher Pressure Rating



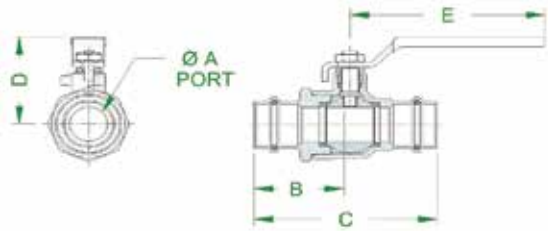
The APOLLOPRESS® 77VLF Series lead free two-piece press ball valve is ideal for installation in most plumbing and heating systems, including potable water. Features Leak Before Press® technology and 300 psig maximum working pressure. Proudly Made in the USA.

### FEATURES
- Lead Free, ANSI 3rd Party Certified
- 2 Piece, Heavy Pattern Forged Design
- Dezincification Resistant Materials
- Easily Identifiable White Handle Grip and Blue "Lead Free" Hang Tag
- Full Port Flow
- Superior RPTFE Seats and Packing ***NEW!***
- Adjustable Stem Packing
- Blowout-Proof Stem
- 100% Factory Tested
- Maximum Operating Pressure: 300 psi

***NEW!***
- Temperature Range: 0°F to 250°F
- MSS SP-110 Ball Valves
- IAPMO/ANSI Z1157 Ball Valves
- IAPMO PS-117 Press Connections
- NSF/ANSI/CAN 61 Water Quality
- NSF/ANSI/CAN 372 Lead Free
- Directive 2011/65/CE (RoHS)
- Popular Lever Options and SS Trim Available
- Large Diameter valves come standard with stainless steel trim.
- **Proudly Made in USA**

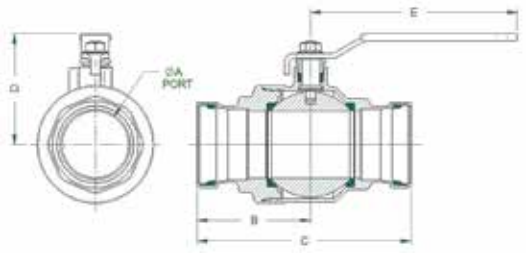
### OPTIONS
- (-01) Standard Lever and Trim
- (-04) 2-1/4" Stem Extension
- (-07) CS Tee Handle
- (-10) Stainless Steel Lever & Nut
- (-11) Therma-Seal™ Insulating Tee
- (-27) Stainless Steel Locking Handle
- 77V/77VLF-140 Stainless Steel Ball & Stem

*Sizes 2-1/2", 3" and 4" are standard with SS trim




**LARGE DIAMETER**






### DIMENSIONS

| PART NUMBER | SIZE (IN.) | DIMENSIONS (IN.) | | | | | WT. (LB.) |
|---|---|---|---|---|---|---|---|
| | | A | B | C | D | E | |
| 77VLF-103-01 | 1/2" | 0.50 | 1.57 | 2.89 | 1.66 | 2.85 | 0.4 |
| 77VLF-104-01 | 3/4" | 0.75 | 1.90 | 3.63 | 1.91 | 3.86 | 0.9 |
| 77VLF-105-01 | 1" | 1.00 | 2.20 | 3.88 | 2.11 | 3.86 | 1.2 |
| 77VLF-106-01 | 1-1/4" | 1.25 | 2.23 | 4.22 | 2.44 | 4.75 | 2.3 |
| 77VLF-107-01 | 1-1/2" | 1.50 | 2.84 | 5.45 | 2.91 | 5.42 | 3.4 |
| 77VLF-108-01 | 2" | 2.00 | 3.40 | 6.57 | 3.69 | 7.77 | 6.0 |
| **LARGE DIAMETER** | | | | | | | |
| 77VLF-149-01 | 2-1/2" | 2.50 | 4.26 | 8.04 | 4.13 | 7.77 | 12.0 |
| 77VLF-140-01 | 3" | 3.00 | 5.10 | 9.45 | 5.03 | 9.92 | 19.5 |
| 77VLF-14A-01 | 4" | 4.00 | 5.20 | 10.35 | 5.70 | 14.78 | 26.0 |

## 94VLF-A SERIES
APOLLOPRESS® LEAD FREE BALL VALVE

LEADFREE CERTIFIED



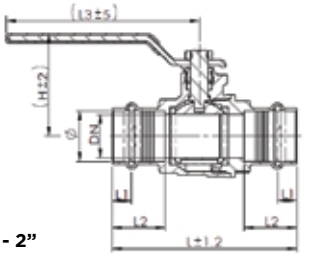
The Apollo-International™ 94VLF Series lead free two-piece press ball valve is ideal for installation in most plumbing and heating systems, including potable water.

### FEATURES
- Lead Free, ANSI 3rd Party Certified
- Full Port Flow
- PTFE Seats and Packing
- Adjustable Stem Packing
- Leak Before Press® Technology
- 304 SS ball standard 1-1/4" - 4"
- Corrosion Resistant Materials
- 100% Factory Tested
- 2 Year Warranty

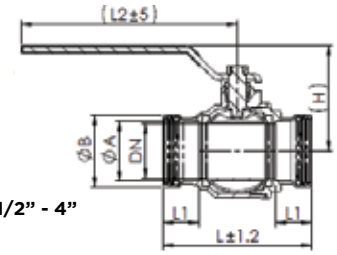
### APPROVALS
- MSS SP-110 Ball Valves
- IAPMO/ANSI Z1157 Ball Valves
- IAPMO PS-117 Press Connections
- NSF/ANSI/CAN 61 Water Quality
- NSF/ANSI/CAN 372 Lead Free

### PERFORMANCE RATING
- Maximum Operating Pressure: 250 psig
- Temperature Range: 0°F to 250°F

### APPROVED APPLICATIONS
- Water (Including Potable Water)
- Hydronic Heating (90% Glycol max)
- Not Suitable for Flammable Gas Service
- Designed for Direct Mechanical Connection to ASTM B88-Type K, L, and M Copper Tubing in the Hard Drawn Condition
- Not Compatible with Soft Annealed Copper Tubing




1/2" - 2"




2-1/2" - 4"

### DIMENSIONS

| PART NUMBER | SIZE (IN.) | DIMENSIONS (IN.) (MM) | | | | | | | | | 2-1/4" STEM EXT. KIT |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | DN | Ø | A | B | L | L1 | L2 | L3 | H | |
| 94VLF-103-01A | 1/2" | 14.5 | 0.63 (16.1) | - | - | 3.41 (86.6) | 0.43 (11) | 1.1 (28) | 3.82 (97) | 1.66 (42.2) | 78266101 |
| 94VLF-104-01A | 3/4" | 19 | 0.86 (22.5) | - | - | 3.85 (97.9) | 0.43 (11) | 1.18 (30) | 3.82 (97) | 1.92 (48.7) | 78266201 |
| 94VLF-105-01A | 1" | 25 | 1.13 (28.8) | - | - | 4.13 (105) | 0.43 (11) | 1.18 (30) | 4.41 (112) | 2.3 (58.5) | 78266301 |
| 94VLF-106-01A | 1-1/4" | 32 | 1.39 (35.2) | - | - | 4.59 (116.5) | 0.43 (11) | 1.18 (30) | 5.2 (132) | 2.73 (69.3) | 78266401 |
| 94VLF-107-01A | 1-1/2" | 39 | 1.63 (41.5) | - | - | 5.16 (131.1) | 0.51 (13) | 1.38 (35) | 5.2 (132) | 2.93 (74.5) | 78266501 |
| 94VLF-108-01A | 2" | 50 | 2.13 (54.2) | - | - | 6.00 (152.5) | 0.63 (16) | 1.57 (40) | 6.44 (163.5) | 3.46 (88) | 78266601 |
| 94VLF-109-01A | 2-1/2" | 61.5 | - | 2.64 (67) | 3.15 (80) | 6.5 (165) | 1.57 (40) | 9.45 (240) | - | 4.61 (117) | 78266701 |
| 94VLF-100-01A | 3" | 73.5 | - | 3.13 (79.6) | 3.66 (93) | 7.38 (187.5) | 1.77 (45) | 9.45 (240) | - | 4.96 (126) | 78266801 |
| 94VLF-10A-01A | 4" | 97.5 | - | 4.14 (105.1) | 4.69 (119) | 9.21 (234) | 2.13 (54) | 9.45 (240) | - | 5.91 (150) | 78266901 |

** ± tolerances shown apply only to mm, not inches*

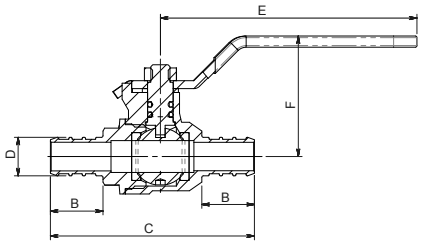
## 94XLF SERIES
PEX BALL VALVE

LEADFREE CERTIFIED



The Apollo International™ 94XLF Lead Free DZR forged brass ball valves combine reliable operation with maximum economy. Ideal for plumbing and heating applications including potable water. Valves are ANSI 3rd party lead free certified and listed to NSF 14, NSF 61 and NSF 372.

### FEATURES
- Lead Free DZR Brass Materials
- ASTM F1807 Crimp PEX Design
- Easily Identifiable "Lead Free" White Handle Grip
- Double O-Ring Stem Seal
- Blowout-Proof Stem Design
- Silicone Free Assembly




### DIMENSIONS

| PART NUMBER | SIZE (IN.) | DIMENSIONS (IN.) | | | | | WT. (LB.) |
|---|---|---|---|---|---|---|---|
| | | B | C | D | E | F | |
| 94XLF-103-01 | 1/2 | 0.65 | 2.52 | .47 | 3.17 | 1.49 | .25 |
| 94XLF-104-01 | 3/4 | 0.65 | 2.62 | .67 | 3.17 | 1.57 | .41 |
| 94XLF-105-01 | 1 | 0.80 | 2.91 | .86 | 3.17 | 1.57 | .57 |

"Apollo"® Valves

# butterfly valves


VALVE ACTUATION OPTIONS C-5

RESILIENT SEATED BUTTERFLY VALVES
DUCTILE IRON C-3 - C-15
CAST IRON C-3 - C-15

HIGH PERFORMANCE BUTTERFLY VALVES
CARBON STEEL C-16 - C-22
STAINLESS STEEL C-16 - C-22





section C



## LC149 SERIES

2" - 12"

APOLLO INTERNATIONAL™ - CONTRACTOR GRADE

- Cast Iron Body
- Lug Style
- Aluminum Bronze Disc
- EPDM Seat
- 200psi
- NSF/ANSI/CAN 372 - Lead Free
- NSF/ANSI/CAN 61 - Water Quality

**SEE PAGE C-12 FOR DETAILED INFORMATION**





## LD/WD 141

2" - 24"

APOLLO INTERNATIONAL™

- Ductile Iron Body
- Lug Style (2" - 24"), Wafer Style (2" - 12")
- Aluminum Bronze, Stainless Steel or Ductile Iron Disc
- EPDM or Buna-N Seat
- 200psi
- NSF/ANSI/CAN 372 - Lead Free
- NSF/ANSI/CAN 61 - Water Quality (Except w/ Ductile Iron Disc)

**SEE PAGE C-13 FOR DETAILED INFORMATION**



## LD/WD 145

2" - 12"

ASSEMBLED AND TESTED IN THE USE

- Ductile Iron Body
- Lug or Wafer Style
- Aluminum Bronze, Stainless Steel or Ductile Iron Disc
- EPDM, Viton or Buna-N Seat
- 200psi
- NSF/ANSI/CAN 372 Lead Free
- NSF/ANSI/CAN 61 - Water Quality (Except w/ Ductile Iron Disc)

**SEE PAGE C-13 FOR DETAILED INFORMATION**



## LD141 SERIES - LARGE DIAMETER

30" - 48"

APOLLO INTERNATIONAL™

- Ductile Iron Body
- Lug Style
- Stainless Steel or Ductile Iron Disc
- EPDM or Buna-N Seat
- 150psi

**SEE PAGE C-14 FOR DETAILED INFORMATION**



## 215 / 230 SERIES

2" - 36"

DOUBLE OFFSET HIGH PERFORMANCE

APOLLO INTERNATIONAL™

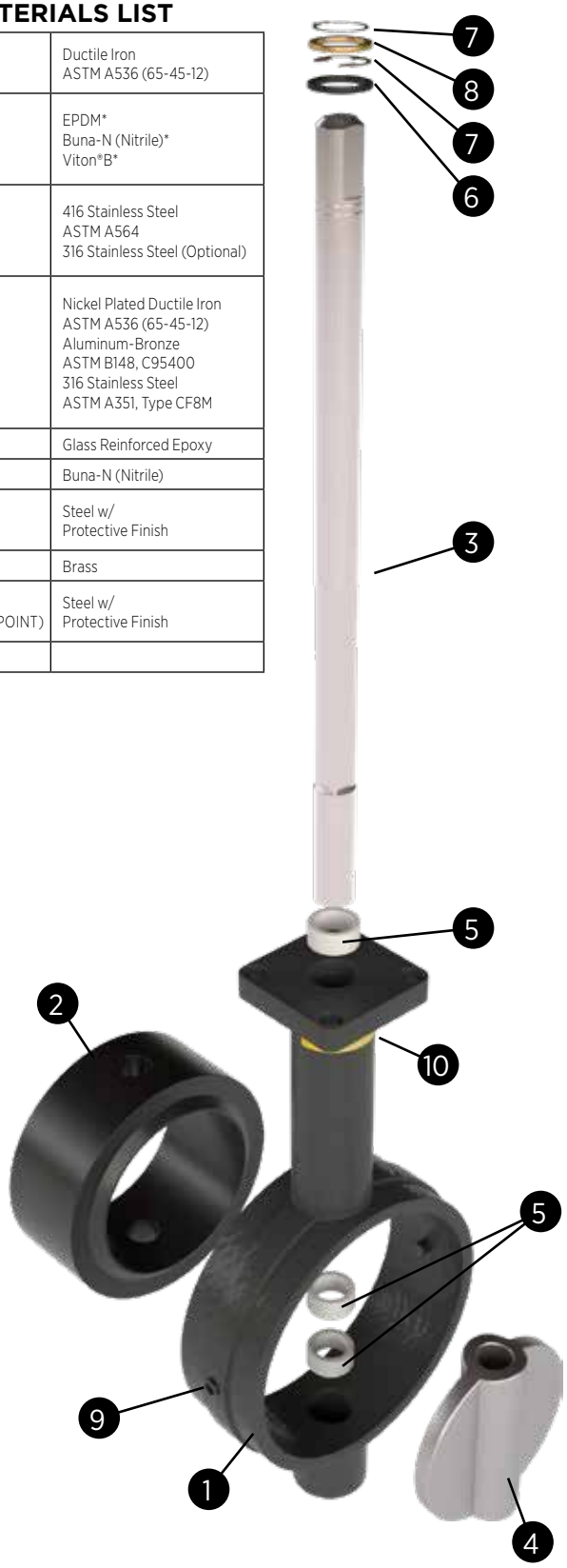
- Carbon Steel or Stainless Steel Body
- Lug or Wafer Style
- Class 150 or 300
- 316 Stainless Steel
- 17-4 PH Stainless Steel Shaft/Pin
- RTFM (TFM 1700 w/ Glass) Seat
- NSF/ANSI/CAN 61 - Water Quality
- NSF/ANSI/CAN 372 Lead Free (2" - 24", 215 & 230 Series with 316/CF8M Stainless Steel Body and Trim)

**SEE PAGE C-16 FOR DETAILED INFORMATION**

## STANDARD MATERIALS LIST

| | | |
|---|---|---|
| **1** | BODY | Ductile Iron<br>ASTM A536 (65-45-12) |
| **2** | SEAT | EPDM*<br>Buna-N (Nitrile)*<br>Viton®B* |
| **3** | SHAFT | 416 Stainless Steel<br>ASTM A564<br>316 Stainless Steel (Optional) |
| **4** | DISC | Nickel Plated Ductile Iron<br>ASTM A536 (65-45-12)<br>Aluminum-Bronze<br>ASTM B148, C95400<br>316 Stainless Steel<br>ASTM A351, Type CF8M |
| **5** | BUSHING | Glass Reinforced Epoxy |
| **6** | STEM SEAL | Buna-N (Nitrile) |
| **7** | RETAINER | Steel w/<br>Protective Finish |
| **8** | WASHER | Brass |
| **9** | SET SCREWS<br>(FLAT POINT or CONE POINT) | Steel w/<br>Protective Finish |
| **10** | NAMEPLATE | |

*WD141 – Wafer Design Shown*




**PRESSURE RATING**
- 2" - 12": 200 psi
- 14" - 24": 150 psi

**APOLLO INTERNATIONAL™**
- WD141: One-Piece Wafer-Style, Sizes 2" - 12"
- LD141: Lug Valves, Sizes 2" - 24"

**APOLLO ASSEMBLED & TESTED IN USA**
- WD145: One-Piece Wafer-Style, Sizes 2" - 12"
- LD145: Lug Valves, Sizes 2" - 12"

**CERTIFICATION**
- NSF/ANSI/CAN 61 - Water Quality*
- NSF/ANSI/CAN 372 - Lead Free
- Registered Under Canadian Registration Number CRN# 0C12102.8CL

*NSF 61 does not apply to ductile iron disc option

**BODY DESIGN**
- Ductile Iron ASTM A536
- WD Model: A One-Piece Wafer Design with Flange Locating Holes in Larger Sizes (8" to 12")
- LD Model: Valves are Full Lug with Tapped Lugs, to ANSI 125/150 Drilling. Face-to-Face Dimensions Meet Universal Interchangeability Standards Outlined in MSS SP-67 and API 609
- Models Come Equipped with an Extended Neck Providing at least 2" Clearance Between the Valve Top Plate and Pipe Flange to Allow Ease of Insulation Installation

**BLOWOUT-PROOF SEAT WITH MOLDED IN STIFFENER RING**
- Isolates Body from Process Media
- Valves are Equipped with a Stretch-Resistant, Non-Collapsible Blowout-Proof Seat
- Phenolic Stiffener Ring (2"-12")
- Aluminum Stiffener Ring (14"-24" LD141 Only)

**SEAT – NO GASKETS REQUIRED**
- Seat Design Eliminates the Need for Flange Gaskets
- Installs between standard ANSI 125/150 Flanges

**MOUNTING FLANGE FOR ACTUATOR**
- ISO 5211 Standard Cast in Top Plate
- Designed to Dimensions for Easy Mounting of Apollo Actuators and Manual Operators

**THROUGH SHAFT**
- Assures Positive Disc Positioning and Dependable Performance

**STEM SEAL**
- Shaft Equipped with Weather Seal to Prevent External Media from Entering the Shaft Bore

**SQUARE SHAFT-TO-DISC CONNECTION**
- Provides a Robust Shaft-to-Disc Connection Without Pins or Bolts
- Easy Maintenance

**THREE BUSHINGS**
- Supports Shaft at Three Locations to Enhance Shaft Alignment and Absorb Actuator Side Thrusts

**PROFILED DISC DESIGN**
- Precision Machined Disc Edge Creates Bubble Tight shutoff, Primary Seal
- Polished Disc Edge Ensures Long Seat Life, Minimal Torque

**SHAFT SEAL**
- The Shaft Diameter is Greater than the Diameter of the Seat's Shaft Hole Creating a Robust Shaft Seal
- The Stiffening Ring Molded into the Seat Guards Against Distortion, a Frequent Cause of Shaft Leakage

**END OF LINE SERVICE**
- All LD Model Valves are Equipped with Retainer Screws for Dead End service: 2"-12" to 200 psig | 14"-24" to 150 psig with -A

**TESTING**
- All Valves are 100% Factory Tested Before Shipping

## LD/WD 141 & LD/WD 145 SERIES
SPECIFICATIONS

### WD - DUCTILE IRON, WAFER BODY
### LD - DUCTILE IRON, SINGLE FLANGE, LUG BODY

- Designed to Fully Comply with **MSS SP-25, MSS SP-67,** and **API 609**
- Meets the Intent and Passed AWWA C-504 Section 5* Proof of Design Tests
- NSF/ANSI/CAN 372 "Lead Free"
- NSF/ANSI/CAN 61 "Water Quality" (Bronze and Stainless Steel Disc and EPDM and Buna-N (Nitrile) Seats Only)
- Extended Neck to Allow up to 2" of Insulation
- Dead-End Service: Lug Style Valves are Suitable for End of Line Service to their Rated Pressure Without the Use of a Downstream Flange (2" - 48" only with -A)
- Ideal for ON/OFF and Throttling Service
- Designed for Extended Service with Minimal Wear and Maintenance. No Regular Lubrication is Necessary
- Compatible with ASME Class 125 and Class 150 Weld Neck or Slip-On Flanges
- Epoxy Powder Coating:
  Resistant to Ultra-Violet Radiation Resists a Broad Range of Chemicals Including Dilute Acids, Alkalis, Solvents, Alcohols, Greases, and Oils. Resists Most Impacts Without Chipping or Cracking
- Cartridge Style Seat:
  Isolates Body and Stem from the Media Provides Mating Flange Seals Eliminating the Need for Separate Flange Gaskets Provides Positive Shut-Off of Line Media at Rated Pressures
- Profiled Disc Design Assures Bubble-Tight Shut-Off, Minimal Torque and Longer Seal Life
- Double-D Shaft Drive 2" to 14" (DN50 - DN350) Round and Keyed Shaft Drive 16" to 24" (DN400 - DN600)
- Blowout-Proof Shaft
- Upper and Lower Shaft Bearing Ensure Longer Seat Life and Lower Operating Torque
- Actuator Mounting Flange (top plate) Conforms to ISO 5211 Which Allows Choice of Lever Operators, Gears and Direct Mounting of Many Apollo Pneumatic and Electric Actuators

*Specification Applies to 3" - 24" Valves

### SIZE RANGE
- 141 Series: Apollo International™
- WD141 (Wafer Body Design): 2"-12" (DN50 - DN300)
- LD141 (Single Flange Body Design): 2"-24" (DN50 - DN600)
- LD141 (Single Flange Body Design): 30"-48" (DN750 - DN1200)

- 145 Series: Assembled & Tested in USA
- WD145 (Wafer Body Design): 2"-12" (DN50 - DN300)
- LD145 (Single Flange Body Design): 2"-12" (DN50 - DN300)

### PRESSURE-TEMPERATURE RATING AT 100°F (37.8°C)
- All Body, Disc, Seat Combinations

| | | |
|---|---|---|
| 2"-12" | (DN50 - DN300) | 200 psi (13.8 bar) |
| 14"-24" | (DN350 - DN600) | 150 psi (10.3 bar) |
| 30"-48" | (DN750 - DN1200) | 150 psi (10.3 bar) |

- All Sizes – Vacuum Rating 29 in. Hg (737 mm Hg)

### TEMPERATURE RATING - SEATS
- EPDM -20° F to 250° F Intermittent, 225° F Continuous (-29° C to 107° C)
- Buna-N (Nitrile) 10° F to 180° F (-12° C to 82° C)
- Viton® B -20° F to 300° F (-29° C to 149° C)

### FLANGE DRILLING
- ANSI 125/150 Drilling Standard
- WD - Wafer Body Design: 8"to 12" (DN200 to DN300) Include Two Alignment Holes

### TESTING
- Every LD and WD is fully tested prior to shipment. Testing includes a body shell test, a seat test, and a cycling test to insure proper functioning of moving parts. Additional testing is also available. Please let us know your requirements.

### SHUTOFF PERFORMANCE
- Zero Leakage. Bi-directional (Lug Only w/ -A (2" - 48"), Bubble Tight. All Sizes
- ANSI/FCI 70-2 establishes a series of six leakage classes for control valves and defines the test procedure. Class VI allows the least leakage. LD's and WD's are bubble tight, which exceeds Class VI requirements.

## OPTIONS

The following options are available factory installed on any of the LD or WD Series Apollo Butterfly Valves. The LC149 series are available either with the standard 10-position handle or with the optional gear operator on sizes 8" and larger. The other options may be purchased in kit form and installed by the user or distributor.

### BARE STEM (MODEL CODE SUFFIX 0)

Select this suffix to specify a butterfly valve without a handle, gear operator or actuator.

### TEN (10) POSITION HANDLE (SUFFIX 1)

The 10 position handle is the most common manual operator for valves 8" and smaller. (It can be specified on valves through 12" size.) The 10 position handle allows the valve to be set in any one of ten positions between fully open and fully closed (approximately 10 degree increments).



### GEAR OPERATOR (SUFFIX 2)

Although this option is available for any size of valve, it is commonly used on valves larger than 6", and is the only manual option offered for valves 14" and larger. All gear operators feature a self-locking design preventing back driving of the gear and drifting in the disc's position. All gear operators are weather resistant and permanently lubricated. They are equipped with position indicators and adjustable travel stops.



### INFINITE POSITION HANDLE W/ MEMORY STOPS (SUFFIX 3)

This option allows the valve to be set at any degree of open and is available for valves 2" through 12".

### LOCKING HANDLE WITH 10 POSITION PLATE (SUFFIX 4)

The option adds a locking device to "suffix 1".



### GEAR OPERATOR W/ CHAINWHEEL (SUFFIX 5)

A manual gear with chainwheel allows an overhead valve to be opened or closed from a location lower than the valve.



### LOCKING GEAR OPERATOR (SUFFIX 7)

A manual gear with lock-out option allows the manual gear to be locked with a padlock.

### LOCKING GEAR OPERATOR W/CHAINWHEEL (SUFFIX 8)

Combination of both chainwheel operator (suffix 5) and the locking device (suffix 7) are also available to work in conjunction with the gear operators described under "suffix 2".

### SELF LOCKING GEAR OPERATORS

Self locking manual gear operators are available for all Apollo WD and LD Series butterfly valves for heavy duty ON/OFF and throttling service. Gear operators are completely weatherproof and self-lubricating; they're equipped with position indicators and adjustable travel stops. Chainwheel operators are available. **2"-24" valves are equipped with 12" handwheels with 28" and larger valves having 15.7" handweels. All have gearing to keep rim pull at 50# or less.**

### HANDLE AND NOTCH PLATE KITS

Handle and notch plate kits are supplied for manual operation, ON/OFF and throttling service. Kit provides positive disc position indication for 2" to 12" WD and LD Series butterfly valves. Locking handle and infinite position handle are also available.

### APOLLO ACTUATORS

Apollo Actuators are available as double acting or as spring return and come with a wide variety of corrosion resistant coatings for use in most any application. Standard features include external travel stop adjustments, high temperature, low friction bearings and seals. Mounting kits are available for ease of installation.

Butterfly valves require pneumatic or electric actuators with dual (open & close) limit stops.



Apollo butterfly valves are designed for installation between ANSI Class 125/150 lb. weld-neck or slip-on flanges. While we suggest use of weld neck flanges, Apollo models are configured to also accept slip-on flanges that eliminate failures associated with conventional butterfly valves. Be sure to properly align flange and valve when using raised face flanges. Type C stub end flanges are not recommended.

Apollo butterfly valves can be used with schedule 40 and schedule 80 steel pipe. When the valve is properly centered between flanges, the disc of an open butterfly valve will not contact the inside diameter of schedule 40 or schedule 80 steel pipe.

Caution: Adjacent piping and components with reduced inside diameters (Lined pipe, Schedule 80 plastic pipe, As-cast rough fittings, etc) could cause disc-pipe contact which could damage the valve's disc and shaft.

## INSTALLING WD/LD SERIES VALVES

Begin by positioning the disc at partially open; maintain the disc within the body face-to-face. After positioning the valve body between flanges, install flange bolts.

**DO NOT USE FLANGE GASKETS.** Before tightening flange bolts, adjust disc to the full open position. This helps assure proper alignment and clearance between the outside diameter of the disc and the inside diameter of the pipe. Hand tighten the bolts and then wrench tighten in stages following the proper sequential bolt order for the flange. After tightening, rotate disc carefully to closed position to assure proper outside diameter clearance.

## MAINTENANCE

Apollo butterfly valves are designed for extended service with minimal wear and servicing. No regular lubrication is needed. In case of replacement, put disc in a near closed position and remove from line, spread flanges and support the valve while removing flange bolts.

Always depressurize a piping system when removing a manual or power actuator or performing valve maintenance.

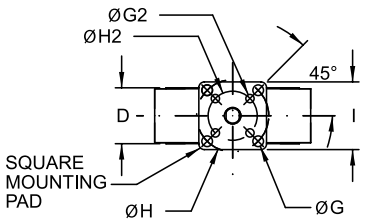
For additional details see appropriate Installation Operation & Maintenance Manual. (LD141 - I979900, LD145 - I981800, LC149 - I980700)



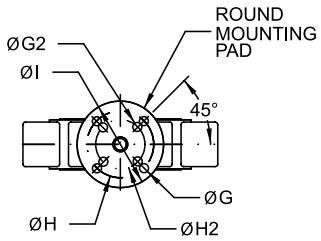
**CLOSED** **PARTIALLY OPEN** **OPEN**

**LD MODEL**
LUG

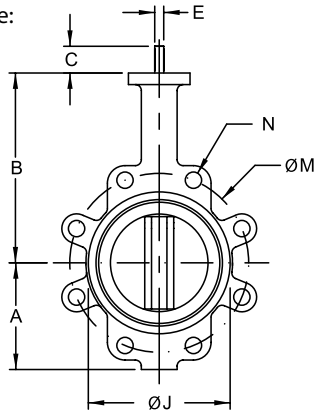
**2" - 12"**

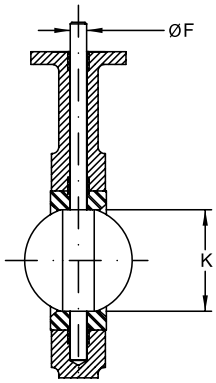



**14" - 24"**




Shaft Drive:
Double-D

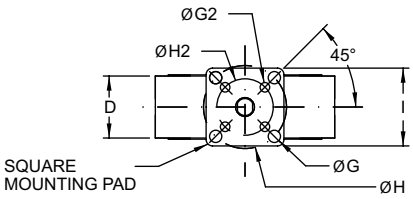


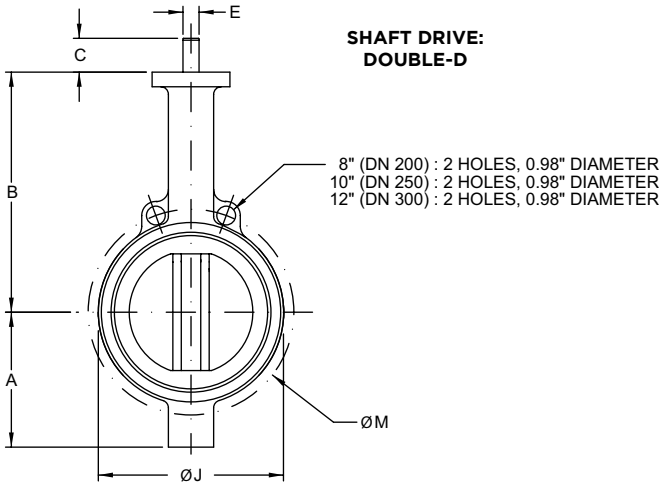




**SHAFT DRIVE:**
**DOUBLE-D (14")**
**ROUND & KEYED (16" & LARGER)**

**WD MODEL**
WAFER

**2" - 12"**




**SHAFT DRIVE:**
**DOUBLE-D**

## LD/WD 141 & LD/WD 145 SERIES DIMENSIONS

### DIMENSIONS

| SIZE INCHES | SIZE DN | DIMENSIONS IN INCHES - 141 & 145 SERIES | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | A | B | C | D* | E | ØF | ØG | ØG2 | KEY |
| 2 | 50 | 3.25 | 6.38 | 1.25 | 1.75 | 0.394 | 0.496 | 0.375 | -- | -- |
| 2-1/2 | 65 | 3.75 | 6.88 | 1.25 | 1.88 | 0.394 | 0.496 | 0.375 | -- | -- |
| 3 | 80 | 4.00 | 7.13 | 1.25 | 1.88 | 0.394 | 0.496 | 0.375 | -- | -- |
| 4 | 100 | 4.88 | 7.88 | 1.25 | 2.13 | 0.472 | 0.621 | 0.375 | -- | -- |
| 5 | 125 | 5.38 | 8.38 | 1.25 | 2.25 | 0.551 | 0.745 | 0.375 | -- | -- |
| 6 | 150 | 5.88 | 8.88 | 1.25 | 2.25 | 0.551 | 0.745 | 0.375 | -- | -- |
| 8 | 200 | 7.13 | 10.25 | 1.75 | 2.50 | 0.669 | 0.870 | 0.563 | 0.438 | -- |
| 10 | 250 | 8.25 | 11.50 | 1.88 | 2.75 | 0.866 | 1.120 | 0.563 | 0.438 | -- |
| 12 | 300 | 9.75 | 13.25 | 1.88 | 3.13 | 0.945 | 1.244 | 0.563 | -- | -- |
| 14 | 350 | 11.00 | 14.50 | 1.88 | 3.13 | 0.945 | 1.244 | 0.563 | -- | -- |
| 16 | 400 | 12.00 | 15.75 | 2.00 | 3.50 | | 1.313 | 0.563 | -- | .313 sq |
| 18 | 450 | 14.38 | 16.63 | 2.00 | 4.25 | | 1.500 | 0.813 | -- | .375 sq |
| 20 | 500 | 14.63 | 18.88 | 2.50 | 5.25 | | 1.625 | 0.813 | -- | .375 sq |
| 24 | 600 | 18.00 | 22.13 | 2.75 | 6.13 | | 2.000 | 0.813 | -- | .500 sq |

*"D" dimension includes both body and seat values.

### DIMENSIONS

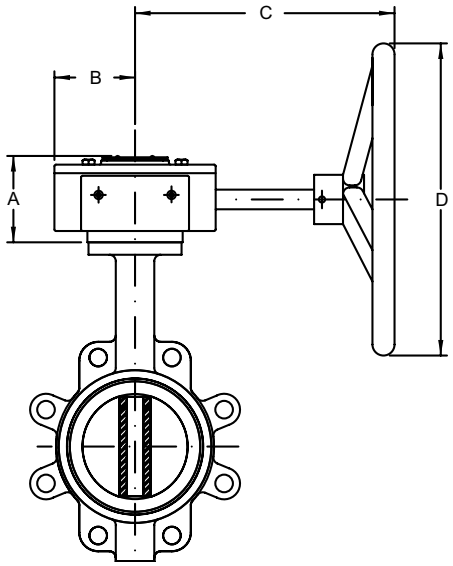
| SIZE INCHES | DIMENSIONS IN INCHES - 141 & 145 SERIES | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | ØH | ØH2 | ØI | ØJ | K | L | M | N (# HOLES) | N (TAP UNC) |
| 2 | 2.756 | -- | 2.70 | 4.00 | 2.09 | 1.113 | 4.75 | 4 | .625-11 |
| 2-1/2 | 2.756 | -- | 2.70 | 4.75 | 2.54 | 1.706 | 5.50 | 4 | .625-11 |
| 3 | 2.756 | -- | 2.70 | 5.13 | 3.09 | 2.450 | 6.00 | 4 | .625-11 |
| 4 | 2.756 | -- | 2.70 | 6.75 | 4.09 | 3.488 | 7.50 | 8 | .625-11 |
| 5 | 2.756 | -- | 2.70 | 7.75 | 4.85 | 4.296 | 8.50 | 8 | .750-10 |
| 6 | 2.756 | -- | 2.70 | 8.63 | 6.13 | 5.697 | 9.50 | 8 | .750-10 |
| 8 | 4.921 | 4.015 | 4.61 | 10.56 | 7.89 | 7.468 | 11.75 | 8 | .750-10 |
| 10 | 4.921 | 4.015 | 4.61 | 13.06 | 9.89 | 9.484 | 14.25 | 12 | .875-9 |
| 12 | 4.921 | -- | 4.61 | 16.00 | 11.89 | 11.456 | 17.00 | 12 | .875-9 |
| 14 | 4.921 | -- | ø5.91 | 17.13 | 13.38 | 13.000 | 18.75 | 12 | 1.00-8 |
| 16 | 4.921 | -- | ø5.91 | 20.00 | 15.38 | 14.970 | 21.25 | 16 | 1.00-8 |
| 18 | 6.496 | -- | ø8.27 | 21.38 | 17.38 | 16.847 | 22.75 | 16 | 1.125-7 |
| 20 | 6.496 | -- | ø8.27 | 23.31 | 19.38 | 18.650 | 25.00 | 20 | 1.125-7 |
| 24 | 6.496 | -- | ø8.27 | 27.88 | 23.38 | 22.558 | 29.50 | 20 | 1.125-7 |

### APPROXIMATE WEIGHT FOR BARE SHAFT VALVE

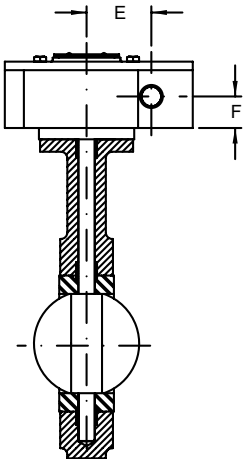
| VALVE SIZE | | WD MODEL LB (KG) | LD MODEL LB (KG) |
|---|---|---|---|
| INCHES | DN | | |
| 2 | 50 | 6 (2.7) | 8 (3.6) |
| 2.5 | 65 | 6 (2.7) | 10 (4.5) |
| 3 | 80 | 7(3.2) | 11 (5.0) |
| 4 | 100 | 11 (5.0) | 17 (7.7) |
| 5 | 125 | 13 (5.9) | 20 (9.1) |
| 6 | 150 | 16 (7.3) | 23 (10.4) |
| 8 | 200 | 29 (13.2) | 39 (17.7) |

| VALVE SIZE | | WD MODEL LB (KG) | LD MODEL LB (KG) |
|---|---|---|---|
| INCHES | DN | | |
| 10 | 250 | 44 (20.0) | 62 (28.1) |
| 12 | 300 | 70 (31.8) | 97 (44.0) |
| 14 | 350 | | 148 (67.1) |
| 16 | 400 | | 206 (93.4) |
| 18 | 450 | | 277 (125.6) |
| 20 | 500 | | 410 (186.0) |
| 24 | 600 | | 592 (268.5) |

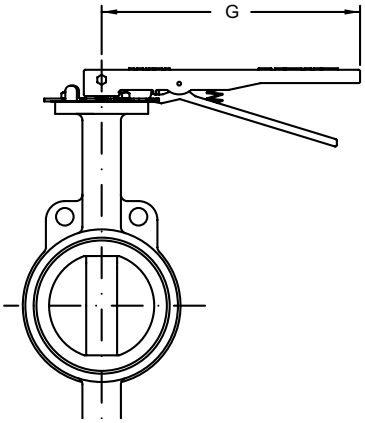
## 141 & 145 SERIES
HANDLE & GEAR DIMENSIONS




WITH MANUAL GEAR




WITH MANUAL GEAR




WITH HANDLE

***Most gear operators supplied with 12" diameter handwheels with gearing to provide rim pull at 50# or less***

## DIMENSIONS

| VALVE SIZE | | GEAR RATIO | DIMENSIONS (IN.) | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| INCHES | DN | | A | B | C | D | E | F | G |
| 2" | 50 | 30:1 | 3.4 | 3.0 | 9.2 | 11.5 | 2.5 | 1.5 | 10.5 |
| 2.5" | 65 | 30:1 | 3.4 | 3.0 | 9.2 | 11.5 | 2.5 | 1.5 | 10.5 |
| 3" | 80 | 30:1 | 3.4 | 3.0 | 9.2 | 11.5 | 2.5 | 1.5 | 10.5 |
| 4" | 100 | 30:1 | 3.4 | 3.0 | 9.2 | 11.5 | 2.5 | 1.5 | 10.5 |
| 5" | 125 | 30:1 | 3.4 | 3.0 | 9.2 | 11.5 | 2.5 | 1.5 | 10.5 |
| 6" | 150 | 30:1 | 3.4 | 3.1 | 9.2 | 11.5 | 2.5 | 1.5 | 10.5 |
| 8" | 200 | 50:1 | 3.4 | 3.3 | 8.9 | 11.5 | 3.0 | 1.6 | 14.0 |
| 10" | 250 | 50:1 | 3.4 | 3.3 | 8.9 | 11.5 | 3.0 | 1.6 | 14.3 |
| 12" | 300 | 50:1 | 3.4 | 3.3 | 8.9 | 11.5 | 3.0 | 1.6 | 14.3 |
| 14" * | 350* | 50:1 | 3.4 | 3.3 | 8.9 | 11.5 | 3.0 | 1.6 | -- |
| 16" * | 400* | 80:1 | 4.8 | 5.1 | 15.0 | 12.0 | 4.7 | 2.3 | -- |
| 18" * | 450* | 80:1 | 4.8 | 5.1 | 15.0 | 12.0 | 4.7 | 2.3 | -- |
| 20" * | 500* | 300:1 | 5.9 | 5.1 | 17.9 | 12.0 | 4.7 | 2.8 | -- |
| 24" * | 600* | 300:1 | 5.9 | 5.1 | 17.9 | 12.0 | 4.7 | 2.8 | -- |
| 30" * | 750* | 640:1 | 4.9 | 5.1 | 8.0 | 15.0 | 7.8 | 5.0 | -- |
| 36" * | 900* | 640:1 | 4.9 | 5.1 | 8.0 | 17.5 | 9.0 | 5.0 | -- |

** LD141 Series only*

## 141 / 145 & 149 SERIES
OPERATING TORQUE

All torque valves shown in the chart are for wet (water and other non-lubricating media) on-off service. For dry services (non-lubricating, dry gas media) multiply the values by 1.15. For lubricious services (clean, non-abrasive lubricating media) multiply values by 0.85.

Under certain conditions, hydrodynamic torque can meet or exceed seating and unseating torques. When designing valve systems, hydrodynamic torque must be considered to help ensure correct selection of actuation.

### TORQUE RATING (FT./LB.)

| VALVE SIZE | | FULL RATED PRESSURES (PSIG) | | | |
|---|---|---|---|---|---|
| INCHES | DN | ΔP 50 | ΔP 100 | ΔP 150 | ΔP 200 |
| 2 | 50 | 100 | 106 | 111 | 117 |
| 2.5 | 65 | 150 | 163 | 176 | 189 |
| 3 | 80 | 207 | 220 | 232 | 244 |
| 4 | 100 | 290 | 323 | 357 | 390 |
| 5 | 125 | 423 | 481 | 540 | 598 |
| 6 | 150 | 599 | 691 | 783 | 875 |
| 8 | 200 | 1060 | 1183 | 1307 | 1430 |
| 10 | 250 | 1671 | 1872 | 2074 | 2275 |
| 12 | 300 | 2568 | 2795 | 3023 | 3250 |
| 14* | 350* | 2640 | 3070 | 3500 | N/A |
| 16* | 400* | 4260 | 4880 | 5500 | N/A |
| 18* | 450* | 6287 | 7243 | 8200 | N/A |
| 20* | 500* | 8360 | 9180 | 10000 | N/A |
| 24* | 600* | 15427 | 16813 | 18200 | N/A |

** LD141 only*

## 141 / 145 & 149 SERIES
VELOCITY LIMITS

- For ON/OFF Services
- Non-Abrasive Liquids - 30 ft/sec (9 m/sec)
- Gases - 175 ft/sec (54 m/sec)

## 141 / 145 & 149 SERIES
CV DATA

Cv values (US gallons per minute) represent the flow of 60°F water through a 100% open valve at a pressure drop of 1 psi. The metric equivalent, Kv, is the flow of water at 16°C through the valve in cubic meters per hour at a pressure drop of 1 kg/cm². To convert Cv to Kv, multiply the Cv by 0.8569.

### RATED FLOW COEFFICIENT (CV)

| VALVE SIZE | | ANGLE OF DISC OPENING (DEGREES) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| INCHES | DN | 10˚ | 20˚ | 30˚ | 40˚ | 50˚ | 60˚ | 70˚ | 80˚ | 90˚ |
| 2 | 50 | 0.06 | 3 | 7 | 15 | 27 | 44 | 70 | 105 | 115 |
| 2.5 | 65 | 0.10 | 6 | 12 | 25 | 45 | 75 | 119 | 178 | 196 |
| 3 | 80 | 0.20 | 9 | 18 | 39 | 70 | 116 | 183 | 275 | 302 |
| 4 | 100 | 0.30 | 17 | 36 | 78 | 139 | 230 | 364 | 546 | 600 |
| 5 | 125 | 0.50 | 29 | 61 | 133 | 237 | 392 | 620 | 930 | 1022 |
| 6 | 150 | 0.80 | 45 | 95 | 205 | 366 | 605 | 958 | 1437 | 1579 |
| 8 | 200 | 2 | 89 | 188 | 408 | 727 | 1202 | 1903 | 2854 | 3136 |
| 10 | 250 | 3 | 151 | 320 | 694 | 1237 | 2047 | 3240 | 4859 | 5340 |
| 12 | 300 | 4 | 234 | 495 | 1072 | 1911 | 3162 | 5005 | 7507 | 8250 |
| 14* | 350* | 6 | 338 | 715 | 1549 | 2761 | 4568 | 7230 | 10844 | 11917 |
| 16* | 400* | 8 | 464 | 983 | 2130 | 3797 | 6282 | 9942 | 14913 | 16388 |
| 18* | 450* | 11 | 615 | 1302 | 2822 | 5028 | 8320 | 13168 | 19752 | 21705 |
| 20* | 500* | 14 | 791 | 1674 | 3628 | 6465 | 10698 | 16931 | 25396 | 27908 |
| 24* | 600* | 22 | 1222 | 2587 | 5605 | 9989 | 16528 | 26157 | 39236 | 43116 |

** LD141 only*

*This chart should be used as a general guide. For additional Cv information, consult the Engineering and Application Data Section. Cv = the volume of water in U.S. gallons per minute that will pass through a given valve opening with a pressure drop of 1 psig at room temperature.*

## PART NUMBER MATRIX (2" - 24")

| LD | 141 | 06 | B | E | 1 | 1 -A (LD141 ONLY) |
|---|---|---|---|---|---|---|
| MODEL | SERIES | SIZE (IN.) | DISC MATERIAL | SEAT MATERIAL | SHAFT | OPERATOR |
| LD - LUG BODY | 141 - APOLLO INTERNATIONAL™ (DUCTILE IRON) | 02 - 2" | B - ALUMINUM BRONZE (2" – 20") | E - BLACK EPDM -20° F TO 250° F -29° C TO 121° C | 1 - 416 SS (STANDARD) | 0 - BARE SHAFT ** |
| WD - WAFER BODY | 145 - ASSEMBLED & TESTED IN USA (DUCTILE IRON) | 25 - 2.5" | D - DUCTILE IRON A536 NICKEL PLATED | | | 1 - 10 POSITION HANDLE |
| | 145 - (2" - 12" ONLY) | 03 - 3" | | | 2 - 316 SS | 2 - GEAR OPERATOR - DIRECT MOUNT |
| | | 04 - 4" | S - STAINLESS STEEL, CF8M | N - BLACK BUNA-N 10° F TO 180° F -12° C TO 82° C | | 3 - INFINITE POSITION HANDLE |
| | | 05 - 5" | | | | 4 - LOCKING HANDLE |
| | | 06 - 6" | | | | 5 - GEAR OPERATOR W/ CHAINWHEEL |
| | | 08 - 8" | | V - BLACK VITON® B† -20° F TO 300° F -29° C TO 149° C (145 SERIES ONLY) | | 7 - LOCKING GEAR OPERATOR |
| | | 10 - 10" | | | | 8 - LOCKING GEAR OPERATOR W/CHAINWHEEL |
| | | 12 - 12" | | | | |
| | | 14 - 14" | | | | -SF - SILICONE FREE ASSEMBLY |
| | | 16 - 16" | | | | |
| | | 18 - 18" | | | | |
| | 141 - SIZES 14" - 24" | 20 - 20" | | | | |
| | LD141 LUG STYLE ONLY | 24 - 24" | | | | |
| EXAMPLE: WD141-06-BE-11 = 6" WD141 Series, Ductile Iron Wafer Body, Aluminum Bronze Disc, Black EPDM Seat, 416 SS Shaft with 10 Position Handle | | | | | | |

*Certification - Product complies with NSF/ANSI/CAN 372 and NSF/ANSI/CAN 61 lead content requirements.*
**NSF 61 does not apply to ductile iron disc*
***Sizes 2" - 8" order -11 (Wafer) or -11A (Lug) with 10 Position Handle*
*†Viton is primarily used for process applications, and has not been included in the scope of our lead free approvals*

## PART NUMBER MATRIX (30" - 48")

| LD | 141 | 28 | D | E | 1 | 2 |
|---|---|---|---|---|---|---|
| MODEL | SERIES | SIZE (IN.) | DISC MATERIAL | SEAT MATERIAL | SHAFT | OPERATOR |
| LD - LUG BODY | 141 - APOLLO INTERNATIONAL™ (DUCTILE IRON) | 30 - 30" | D - DUCTILE IRON A536 NICKEL PLATED | E - BLACK EPDM -20° F TO 250° F -29° C TO 121° C | 1 - 416 SS (STANDARD) | 0 - BARE SHAFT |
| | | | | | | 2 - GEAR OPERATOR - DIRECT MOUNT |
| | | 36 - 36" | S - STAINLESS STEEL, CF8M (STANDARD) | | 2 - 316 SS | 5 - GEAR OPERATOR W/ CHAINWHEEL |
| | | | | | | 7 - LOCKING GEAR OPERATOR |
| | | 42 - 42" | | N - BLACK BUNA-N 10° F TO 180° F -12° C TO 82° C | | 8 - LOCKING GEAR OPERATOR W/CHAINWHEEL |
| | | 48 - 48" | | | | |

## PART NUMBER MATRIX

| LC149 | 06 | 1 |
|---|---|---|
| SERIES | SIZE (IN.) | OPERATOR |
| LC149 - CAST IRON LUG BODY ALUMINUM BRONZE DISC 416 SS SHAFT BLACK EPDM SEAT | 02 - 2" | 1 - 10 POSITION HANDLE (2" - 12") |
| | 25 - 2.5" | 2 - GEAR OPERATOR (8" - 12" ONLY) |
| | 03 - 3" | |
| | 04 - 4" | |
| | 05 - 5" | |
| | 06 - 6" | |
| | 08 - 8" | |
| | 10 - 10" | |
| | 12 - 12" | |
| EXAMPLE: LC149-06-1: 6" LC149 Series, Cast Iron Body, Aluminum Bronze Disc, Black EPDM Seat, 416 SS Shaft with 10 Position Handle | | |

*Certification - Product complies with NSF/ANSI/CAN 372 and NSF/ANSI/CAN 61 lead content requirements.*
*†Viton is primarily used for process applications, and has not been included in the scope of our lead free approvals*

## PRICING

Pricing of valves and options may be accessed through published price llst CPPL9000 or by authorized Apollo Online users.

## LC149 SERIES
APOLLO INTERNATIONAL™ - CONTRACTOR GRADE

LEADFREE CERTIFIED



The LC149 Series Cast Iron Butterfly Valves are ideal for use in Industrial and HVAC/Plumbing/ Mechanical applications. The LC149 Series is a lug style valve designed to be economical yet full featured.

### PERFORMANCE RATING
- Max Operating Pressure: 200 psi (13.8 bar)
- Temperature Range: -20°F to 250°F Intermittent, 225°F Continuous

### APPROVALS
- NSF/ANSI/CAN 61 - Water Quality
- NSF/ANSI/CAN 372 - Lead Free
- Canadian Registration Number CRN# 0C12102.8CL

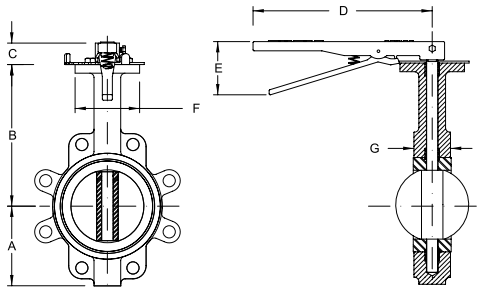
### STANDARD MATERIAL LIST

| | |
|---|---|
| **BODY** | Cast Iron, ASTM A126 Class B |
| **BUSHINGS** | PTFE |
| **STEM SEAL** | EPDM |
| **SHAFT** | Stainless Steel, ASTM A276, Type 416 |
| **SEAT** | Black EPDM with Phenolic Backing |
| **DISC** | Aluminum Bronze, ASTM B148-C95400 |

### DIMENSIONS - 149 SERIES
WITH HANDLE

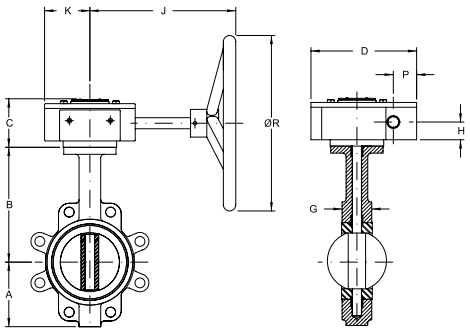
| SIZE (IN.) | DIMENSIONS (IN.) | | | | | | | WEIGHT (LB.) |
|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | E | F | G* | |
| 2 | 3.25 | 6.38 | 1.25 | 10.5 | 3.1 | 2.70 | 1.75 | 8 |
| 2-1/2 | 3.75 | 6.88 | 1.25 | 10.5 | 3.1 | 2.70 | 1.88 | 10 |
| 3 | 4.00 | 7.13 | 1.25 | 10.5 | 3.1 | 2.70 | 1.88 | 11 |
| 4 | 4.88 | 7.88 | 1.25 | 10.5 | 3.1 | 2.70 | 2.13 | 17 |
| 5 | 5.38 | 8.38 | 1.25 | 10.5 | 3.1 | 2.70 | 2.25 | 20 |
| 6 | 5.88 | 8.88 | 1.25 | 10.5 | 3.1 | 2.70 | 2.25 | 23 |
| 8 | 7.13 | 10.25 | 1.75 | 14.3 | 3.5 | 4.61 | 2.50 | 44 |
| 10 | 8.25 | 11.50 | 1.88 | 14.3 | 3.5 | 4.61 | 2.75 | 67 |
| 12 | 9.75 | 13.25 | 1.88 | 14.3 | 3.5 | 4.61 | 3.13 | 102 |

**"G" dimension includes both body and seat values.*




### DIMENSIONS - 149 SERIES
WITH OPTIONAL GEAR OPERATOR

| SIZE (IN.) | DIMENSIONS (IN.) | | | | | | | | | | WEIGHT (LB.) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | G | H | J | K | P | ØR | |
| 8 | 7.13 | 10.25 | 3.38 | 8.00 | 2.50 | 1.62 | 8.75 | 3.25 | 1.50 | 11.5 | 71 |
| 10 | 8.25 | 11.50 | 3.38 | 8.00 | 2.75 | 1.62 | 8.75 | 3.25 | 1.50 | 11.5 | 94 |
| 12 | 9.75 | 13.25 | 3.38 | 8.00 | 3.13 | 1.62 | 8.75 | 3.25 | 1.50 | 11.5 | 129 |



## LD/WD 141 & LD/WD 145 SERIES

### LD/WD 141
APOLLO INTERNATIONAL™

LEADFREE CERTIFIED



WD 141
WAFER
2" – 12"



LD 141
LUG
2" – 24"

### LD/WD 145
MADE IN USA

LEADFREE CERTIFIED



WD 145
WAFER
2" – 12"



LD 145
LUG
2" – 12"

The Apollo LD/WD Series ductile iron butterfly valves are ideal for use in industrial and HVAC/Plumbing/Mechanical applications. The WD Series is a wafer style valve and the LD Series is a lug style.

### FEATURES
- Compatible with ANSI 125# & 150# Flanges
- ISO 5211 Top Plate Allows Choice of Apollo Actuators and Manual Operators
- Conforms to MSS SP-67 & API 609
- LD141 and LD145 Series Suitable for End of Line Service to Rated Pressure (2" - 24")
- 3"-24" Meet Performance Requirements of AWWA C-504
- Certified NSF/ANSI/CAN 61 - Water Quality*
- Certified NSF/ANSI/CAN 372 - Lead Free
- Registered Under Canadian Registration Number CRN# 0C12102.8CL

*Applies to Bronze and Stainless Steel Disc Models

### OPTIONS
- 10 Position Handle
- Gear Operator
- Infinite Position Handle
- Locking Handle
- Gear Operator with Chain Wheel
- Locking Gear Operator
- Locking Gear Operator with Chain Wheel
- Pneumatic Actuation
- Electric Actuation
- (-SF) Silicone Free Assembly Option

### PRESSURE-TEMPERATURE RATING @ 100° F (37.8° C)
- All Body, Disc, Seat Combinations:
  2"-12" (DN50 - DN300) 200 psi (13.8 bar)
  14"-24" (DN350 - DN600) 150 psi (10.3 bar)
  All Sizes – Vacuum Rating: 29 in. Hg

### TORQUE RATING (IN./LB.)

| VALVE SIZE[1] | | FULL RATED PRESSURES (PSIG) | | | |
|---|---|---|---|---|---|
| INCHES | DN | ΔP50 | ΔP100 | ΔP150 | ΔP200 |
| 2 | 50 | 100 | 106 | 111 | 117 |
| 2.5 | 65 | 150 | 163 | 176 | 189 |
| 3 | 80 | 207 | 220 | 232 | 244 |
| 4 | 100 | 290 | 323 | 357 | 390 |
| 5 | 125 | 423 | 481 | 540 | 598 |
| 6 | 150 | 599 | 691 | 783 | 875 |
| 8 | 200 | 1060 | 1183 | 1307 | 1430 |
| 10 | 250 | 1671 | 1872 | 2074 | 2275 |
| 12 | 300 | 2568 | 2795 | 3023 | 3250 |
| 14 | 350 | 2640 | 3070 | 3500 | N/A |
| 16 | 400 | 4260 | 4880 | 5500 | N/A |
| 18 | 450 | 6287 | 7243 | 8200 | N/A |
| 20 | 500 | 8360 | 9180 | 10000 | N/A |
| 24 | 600 | 15427 | 16813 | 18200 | N/A |

[1] *LD (2"-24"); WD (2"-12"); LC (2"-12")*
*Sizes 30"-48": Contact factory for availability.*

***Actuation assistance available in Section D, with the Apollo Actuator Wizard located at actuatorwizard.apollovalves.com or by calling customer support at (704)841-6000.***

## LD141 SERIES
APOLLO INTERNATIONAL™

New!



The large diameter Apollo International™ LD141 Series Ductile Iron Butterfly Valves are ideal for use in Industrial and Commercial/HVAC/Mechanical applications. The LD141 Series is lug style butterfly valve. Available in sizes 30" - 48".

### FEATURES
- Compatible with ANSI 125# & 150# Flanges
- ISO 5211 Top Plate Allows Choice of Apollo Pneumatic Actuators and Gear Operators
- Conforms to MSS SP-67 & API 609
- Suitable for End of Line Service to Rated Pressure

### PERFORMANCE RATING
- Pressure Rating: 30" to 48": 150 psi

### MATERIAL OPTIONS
**Body**
- Ductile Iron ASTM A536, (65-45-12)

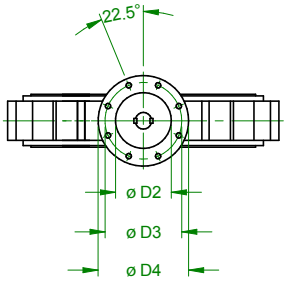
**Seat Material**
- EPDM: -20°F to 250°F Intermittent
  225°F Continuous
- BUNA-N: 10°F to 180°F

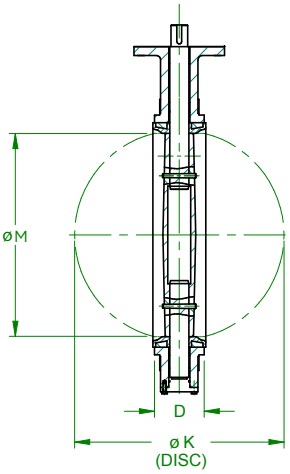
**Disc Material**
- Ductile Iron A536 Nickel Plated
- 316 Stainless Steel, CF8M (Standard)

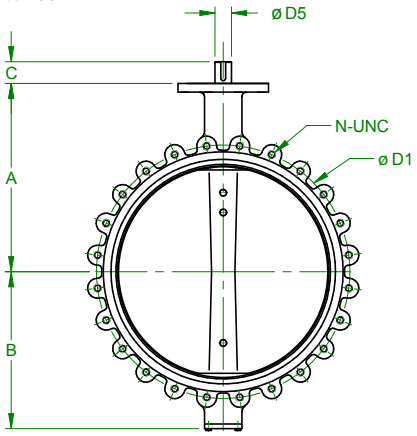
### OPERATOR
- (-0) None
- (-2) Gear Operator (15.7" Handwheels)
- (-5) Gear Operator w/ Chain Wheel
- (-7) Locking Gear Operator
- (-8) Locking Gear Operator w/ Chain Wheel

### STANDARD MATERIAL LIST

| | |
|---|---|
| **BODY** | Ductile Iron ASTM A536 |
| **BUSHINGS** | Bronze |
| **STEM SEAL** | Buna-N |
| **SHAFT** | 416 SS |
| **SEAT** | EPDM |
| | Buna-N (Nitrile) |
| **DISC** | Ductile Iron / A536 Nickel Plated |
| | 316 Stainless Steel / CF8M (Standard) |




### DIMENSIONS

| SIZE (IN.) | DIN | DIMENSIONS (IN.) | | | | | | | | | | | | | WEIGHT (LB.) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | A | B | C | D | ØD1 | ØD2 | ØD3 | ØD4 | ØD5 | K (DISC DIA.) | ØM (DISC CHORD) | N-UNC | N-ØD | |
| 30 | 750 | 26.57 | 22.05 | 2.60 | 6.61 | 36.00 | 7.87 | 10.00 | 11.81 | 2.49 | 29.29 | 28.53 | 24 - 1-1/4 -7 | 8 - 0.709 | 728 |
| 36 | 900 | 30.39 | 25.79 | 4.65 | 7.99 | 42.75 | 7.87 | 10.00 | 11.81 | 2.95 | 34.03 | 33.08 | 28 - 1-1/2 -6 | 8 - 0.709 | 1162 |
| 42 | 1050 | 33.78 | 30.59 | 5.91 | 9.88 | 49.50 | 7.87 | 10.00 | 11.81 | 3.74 | 40.53 | 39.30 | 32 - 1-1/2 -6 | 8 - 0.709 | 2138 |
| 48 | 1200 | 37.13 | 32.48 | 5.91 | 10.87 | 56.00 | 9.06 | 11.73 | 13.78 | 4.13 | 45.67 | 44.35 | 40 - 1-1/2 -6 | 8 - 0.866 | 2686 |

The Apollo LD/WD Series Ductile Iron Butterfly Valves offer reliable performance in a wide range of applications; on/off, throttling, control isolation, flow balancing and diversion. Ideal for use in Industrial and HVAC/Mechanical applications.

Service compatibility is dependant on several factors; the corrosion resistance of the disc and shaft and the chemical resistance of the seat (liner) and required temperature range. Erosion resistance also affects material selection when dealing with abrasive slurries.

| **EPDM CARTRIDGE STYLE SEAT<br>ETHYLENE PROPYLENE RUBBER** | **BUNA-N CARTRIDGE STYLE SEAT<br>NITRILE RUBBER<br>ALSO KNOWN AS NBR** | **VITON® B CARTRIDGE STYLE SEAT<br>FLUOROCARBON RUBBER** |
|---|---|---|
| TEMPERATURE RATED FROM<br>-20°F TO 250°F INTERMITTENT<br>225°F CONTINUOUS | TEMPERATURE RATED FROM<br>10°F TO 180°F | TEMPERATURE RATED FROM<br>-20°F TO 300°F |
| **TYPICAL APPLICATIONS:**<br>• Typically offered for general service and elevated temperatures<br>• Hot water<br>• Chilled water<br>• Glycols<br>• Detergents<br>• Phosphate esters<br>• Ketones<br>• Alcohols<br>• Low Pressure Steam<br>• Dilute acids<br>• Phosphate based hydraulic oils and fluids<br>• Silicone greases and oils<br>• Alkalies | **TYPICAL APPLICATIONS:**<br>• Good for most general services<br>• Water – ambient temperature<br>• Vacuum<br>• Compressed air<br>• Salt solutions<br>• Alkaline solutions<br>• Dilute acids<br>• Petroleum oils & fluids<br>• Silicone oils & greases<br>• Ethylene glycol | **TYPICAL APPLICATIONS:**<br>• A fluorocarbon rubber with a wide spectrum of chemical resistance (exceptional resistance to oils and chemicals at higher temperatures).<br>• A fluorocarbon rubber that typically has better chemical resistance than Buna-N.<br>• Hydrocarbons<br>• Mineral acids<br>• Alcohols |
|  <br>• EPDM is not recommended for any hydrocarbon-based oils, petroleum oils, hydrocarbon-based lubricants, or di-ester based lubricants, or air systems with hydrocarbons. |  <br>• Buna-N can swell in hot water applications, and increase operating torque.<br>• Buna-N is NOT recommended for strong oxidizing agents, nitrated hydrocarbons, Aromatic hydrocarbons (benzene, toluene, xylene), acetates, phenols, aldehydes, gasolines with additives, Automotive brake fluid, Halogen derivatives (carbon tetrachloride, trichloroethylene), Ketones (MEK, acetone), Phosphate ester hydraulic fluids (Skydrol®, Pydraul®), strong acids, ozone. |  <br>• Viton® can swell in higher temperature water applications.<br>• At low temperatures, Viton's flexibility decreases (hardens), which often increases operating torque.<br>• Viton® is not recommended for ketones, Skydrol fluids, amines, anhydrous ammonia, low molecular weight esters and ethers, hot hydrofluoric chlorosulfonic acids. |

## 215 / 230 SERIES
DOUBLE OFFSET HIGH PERFORMANCE




Apollo International™ 215 and 230 Series double offset high performance butterfly valves are available in wafer or lug body design. Stainless steel models are certified lead-free with stainless steel disc and 17-4PH stainless steel stem.

## FEATURES
- 215 Series Class 150# Carbon Steel (CWP 285) and 316 SS (CWP 275) 2" to 36"
- 230 Series Class 300# Carbon Steel (CWP 740) and 316 SS (CWP 720) 2" - 24"
- ISO 5211 mounting flange allows choice of Apollo actuators and manual operators
- Multi-bolt retainer holds and supports the seat. Standard valves are suitable for bi-directional dead-end service at the full pressure-temperature rating of the valve. Same material as the body
- Well-suited for a wide range of liquid and steam applications, defined in the high performance butterfly valve pressure-temperature charts
- Vacuum service to 29" Hg
- Soft seats made from TFM 1700



## APPROVALS AND CERTIFICATIONS
- NSF/ANSI/CAN 61 - Water Quality and NSF/ANSI/CAN 372 - Lead Free 2"- 24", 215 & 230 Series with 316/CF8M Stainless Steel Body and Trim
- Registered under Canadian Registration Number CRN# 0C17459.CL
- CE marking and documented valves that conform to the European Pressure Equipment Directive (PED) 2014/68/EU are available in ANSI Class 150/300 including soft seat configurations (sizes 2"-24" only)

## STANDARDS COMPLIANCE
- ASME B16.10 "Face to Face and End to End Dimensions of Valves"
- ASME B16.34 "Valves - Flanged, Threaded, and Welding End"
- ASME B16.5 "Pipe Flanges and Flanged Fittings"
- ANSI/FCI 70-2 "For Control Valve Seat Leakage"
- MSS SP-25 "Standard Marking System for Valves"
- MSS SP-44 "Steel Pipe Line Flanges"
- MSS SP-55 "Quality Standards for Steel Castings"
- MSS SP-61 "Pressure Testing of Steel Valves"
- MSS SP-68 "High Pressure Butterfly Valves with Offset Design"
- API 598 American Petroleum Institute - "Valve Inspection and Testing"
- API 609 American Petroleum Institute - "Butterfly Valves: Double Flanged, Lug and Wafer Type"
- NSF/ANSI/CAN 61 "Drinking Water System Components - Health Effects" (2" - 24", Stainless 215 & 230)
- NSF/ANSI/CAN 372 "Drinking Water System Components – Lead Content" (2" - 24", Stainless 215 & 230)

## SERVICES
### BIDIRECTIONAL
- Valves are suitable for flow in either direction.

### DEAD-END/END-OF-PIPE
- Valves are suitable for service at the end of a pipe, also known as "dead-end" service. Valve can be oriented in either direction.

### VACUUM
- Standard valves are rated for 29" Hg vacuum.

### STEAM
- Valves are well-suited for a wide range of steam applications. The following steam working pressure (SWP) ratings apply to 215/230 models with standard TFM 1700 soft seats.
  - 215 Series class 150# rated at 200 SWP
  - 230 Series class 300# rated at 250 SWP

# 215 / 230 SERIES
## ADVANTAGES



**SHAFT** (BLOWOUT PROOF)
17-4 PH stainless steel shaft with high strength and good corrosion resistance. Designed per API 609 standard.

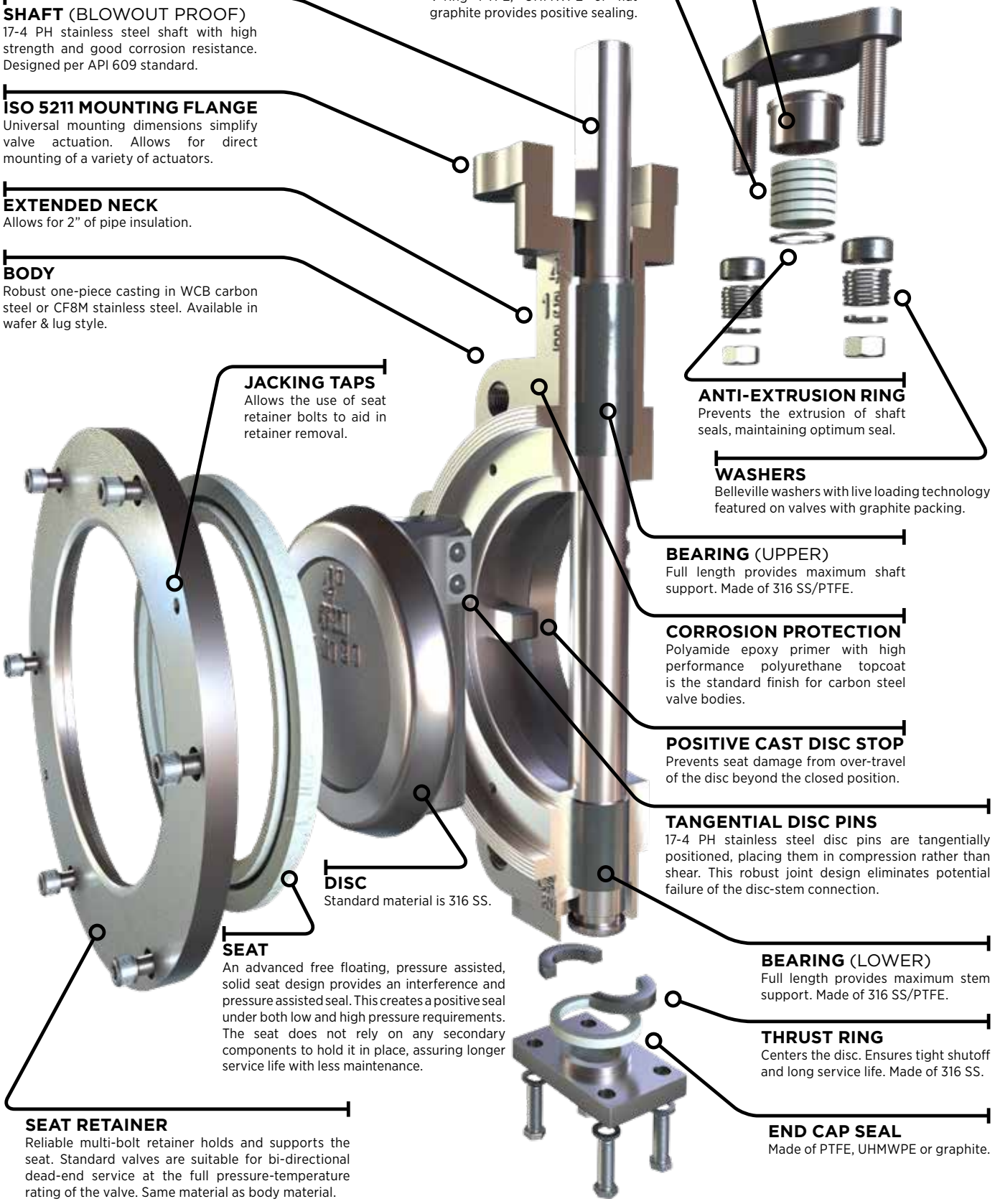
**ISO 5211 MOUNTING FLANGE**
Universal mounting dimensions simplify valve actuation. Allows for direct mounting of a variety of actuators.

**EXTENDED NECK**
Allows for 2" of pipe insulation.

**BODY**
Robust one-piece casting in WCB carbon steel or CF8M stainless steel. Available in wafer & lug style.

**SHAFT PACKING**
V-ring PTFE, UHMWPE or flat graphite provides positive sealing.

**ROCKER PACKING GLAND**
Shaped packing gland compensates for uneven adjustment of gland nuts.



**JACKING TAPS**
Allows the use of seat retainer bolts to aid in retainer removal.

**ANTI-EXTRUSION RING**
Prevents the extrusion of shaft seals, maintaining optimum seal.

**WASHERS**
Belleville washers with live loading technology featured on valves with graphite packing.

**BEARING** (UPPER)
Full length provides maximum shaft support. Made of 316 SS/PTFE.

**CORROSION PROTECTION**
Polyamide epoxy primer with high performance polyurethane topcoat is the standard finish for carbon steel valve bodies.

**POSITIVE CAST DISC STOP**
Prevents seat damage from over-travel of the disc beyond the closed position.

**TANGENTIAL DISC PINS**
17-4 PH stainless steel disc pins are tangentially positioned, placing them in compression rather than shear. This robust joint design eliminates potential failure of the disc-stem connection.

**DISC**
Standard material is 316 SS.

**SEAT**
An advanced free floating, pressure assisted, solid seat design provides an interference and pressure assisted seal. This creates a positive seal under both low and high pressure requirements. The seat does not rely on any secondary components to hold it in place, assuring longer service life with less maintenance.

**BEARING** (LOWER)
Full length provides maximum stem support. Made of 316 SS/PTFE.

**THRUST RING**
Centers the disc. Ensures tight shutoff and long service life. Made of 316 SS.

**SEAT RETAINER**
Reliable multi-bolt retainer holds and supports the seat. Standard valves are suitable for bi-directional dead-end service at the full pressure-temperature rating of the valve. Same material as body material.

**END CAP SEAL**
Made of PTFE, UHMWPE or graphite.

## 215 / 230 SERIES
HOW TO SPECIFY

| 2 | 15 | L | 06 | C | S | P | 8T | A | 0 |
|---|---|---|---|---|---|---|---|---|---|
| VALVE TYPE | CLASS | VALVE STYLE | SIZE | BODY MATERIAL | DISC MATERIAL | STEM & PIN MATERIAL | SEAT MATERIAL | SPECIAL SERVICE | OPERATOR |
| 2 - DOUBLE OFFSET | 15 (150) | L - LUG | 02 (2") | **CARBON STEEL** | **STAINLESS STEEL** | P - 17-4 PH SS | 8T - RTFM (TFM 1700 W/GLASS) | A - STANDARD APOLLO | 0 - BARE STEM |
| | 30 (300) | W - WAFER | 25 (2.5") | C - A216 WCB | S - A351 CF8M (316 SS) | | | | 1 - LEVER OPERATOR[2] |
| | | | 03 (3") | | | | | | 2 - WORM GEAR OPERATOR |
| | | | 04 (4") | **STAINLESS STEEL** | | | | | |
| | | | 05 (5") | S - 316 SS | | | | | 5 - WORM GEAR OPERATOR W/ CHAIN WHEEL |
| | | | 06 (6") | | | | | | |
| | | | 08 (8") | | | | | | |
| | | | 10 (10") | | | | | | 7 - LOCKING WORM GEAR OPERATOR |
| | | | 12 (12") | | | | | | |
| | | | 14 (14") | | | | | | 8 - LOCKING WORM GEAR OPERATOR W/ CHAIN WHEEL |
| | | | 16 (16") | | | | | | |
| | | | 18 (18") | | | | | | |
| | | | 20 (20") | | | | | | |
| | | | 24 (24") | | | | | | |
| | | | 30 (30")[1] | | | | | | |
| | | | 36 (36")[1] | | | | | | |

EXAMPLE: 215L06CSP8TA0 = 6" Class 150 Lug, Carbon Steel Body, SS Disc, 17-4 PH Stem, TFM 1700 Seats, Standard Service, Bare Stem

*( ) Represents close wrought equivalent*
*[1] 215L Only*
*[2] Standard handle can be locked in the full open or fully closed position.*
*Lever operators are available with 2"-12" class 150 valves (215), and 2"-10" class 300 valves (230)*
*See table for Lever Handle Availability & Maximum Differential Pressure*

***Safety Warning:***
*Gear operators are normally specified for larger high performance butterfly valves because the force of the pipeline flow on the disc can be too great to safely use a handle.*

## LEVER HANDLE AVAILABILITY & MAXIMUM DIFFERENTIAL PRESSURE

| | | | SOFT SEAT (CODES: 8T & 21) | |
|---|---|---|---|---|
| | | | PSI | BAR |
| Class 150 | 215 | 2"-6" | Full Rating | |
| | | 8" | 150 | 10.3 |
| | | 10"-12" | 50 | 3.4 |
| Class 300 | 230 | 2"-4" | Full Rating | |
| | | 6"-8" | 150 | 10.3 |
| | | 10" | 50 | 3.4 |

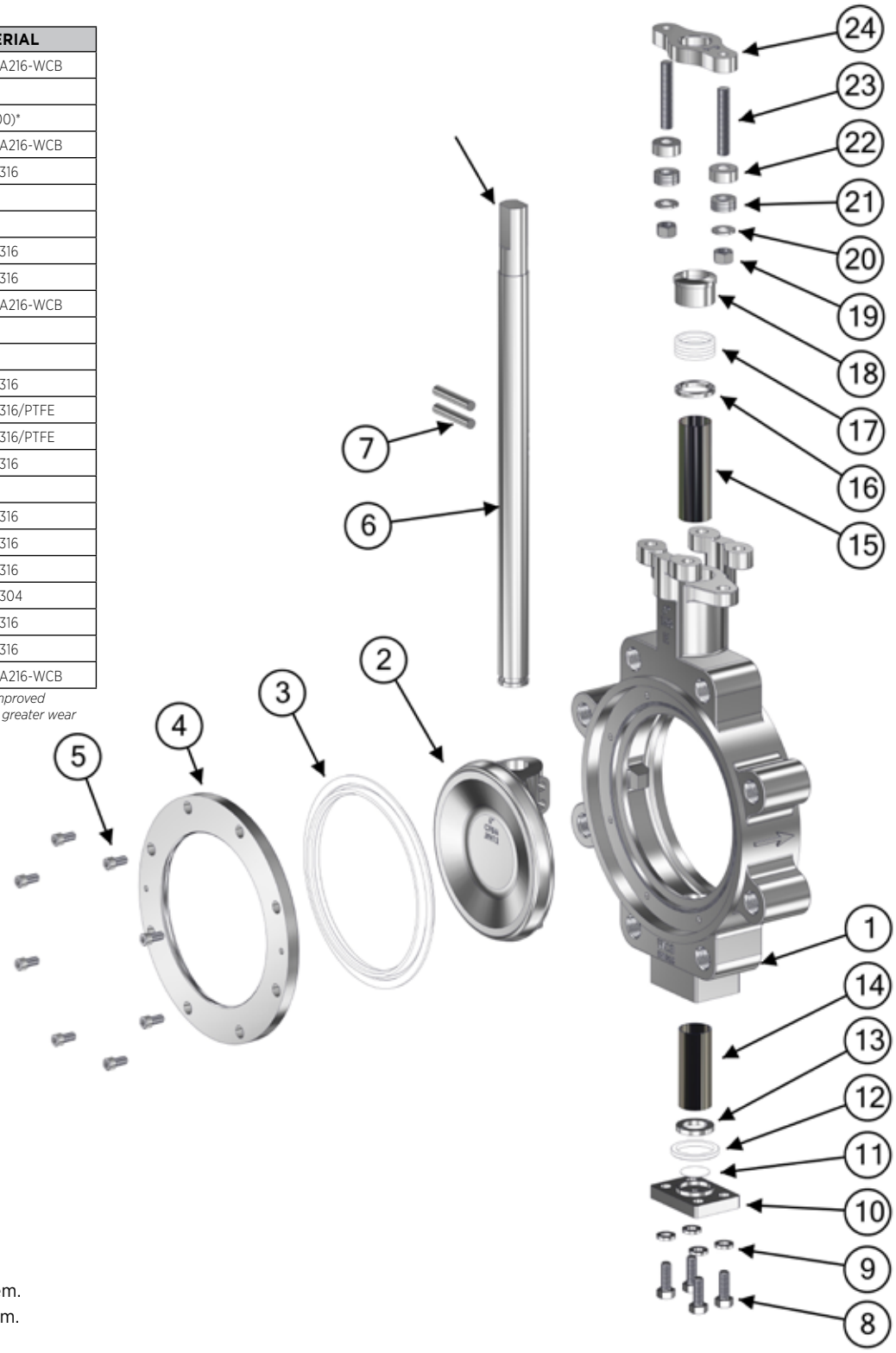
## 215 / 230 SERIES
RESILIENT SEAT

### CLASS 150 - 2" THRU 24", 30", 36" | CLASS 300 - 2" THRU 24"

### STANDARD MATERIAL LIST

| | PART | MATERIAL |
|---|---|---|
| 1 | Body | A351-CF8M or A216-WCB |
| 2 | Disc | A351-CF8M |
| 3 | Seat | RTFM (TFM 1700)* |
| 4 | Seat Retainer | A351-CF8M or A216-WCB |
| 5 | Seat Retainer Bolt | Stainless Steel 316 |
| 6 | Stem | 17-4PH |
| 7 | Disc Pin | 17-4PH |
| 8 | End Cap Bolt | Stainless Steel 316 |
| 9 | Washer | Stainless Steel 316 |
| 10 | End Cap | A351-CF8M or A216-WCB |
| 11 | Spacer | PTFE |
| 12 | End Cap Seal | PTFE |
| 13 | Thrust Ring | Stainless Steel 316 |
| 14 | Lower Bearing | Stainless Steel 316/PTFE |
| 15 | Upper Bearing | Stainless Steel 316/PTFE |
| 16 | Anti-Extrusion Ring | Stainless Steel 316 |
| 17 | Stem Packing | PTFE |
| 18 | Packing Gland | Stainless Steel 316 |
| 19 | Gland Nut | Stainless Steel 316 |
| 20 | Washer | Stainless Steel 316 |
| 21 | Disc Spring | Stainless Steel 304 |
| 22 | Disc Spring Retainer | Stainless Steel 316 |
| 23 | Gland Studs | Stainless Steel 316 |
| 24 | Gland Plate | A351-CF8M or A216-WCB |

** TFM 1700 modified PTFE is a next-generation PTFE with improved properties. Added glass further improves the seat providing greater wear resistance and a higher modulus.*

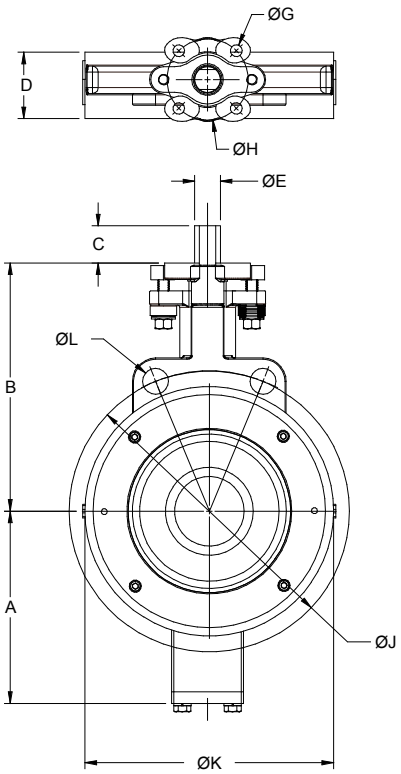



### EXPLODED VIEW
LUG DESIGN SHOWN

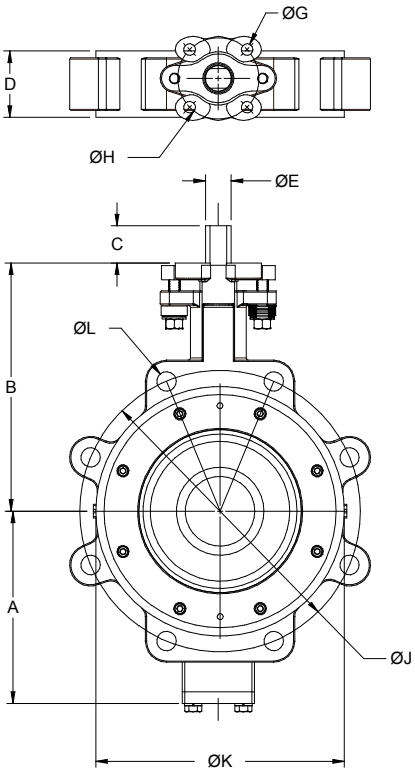
### NOTE
- Class 150 Size 10" & larger have keyed stem.
- Class 300 Size 8" & larger have keyed stem.

## 215L/215W SERIES
CLASS 150 - 2" THRU 36"

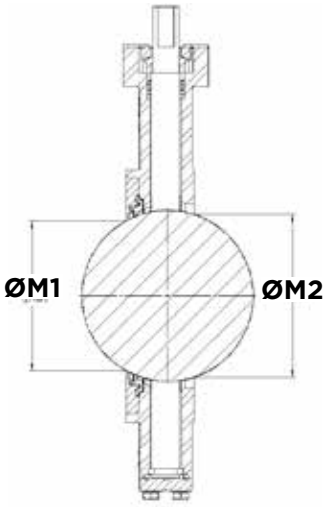
Four hole mounting pattern shown.
See table column "G" for number of mounting holes.




**WAFER**




**LUG**



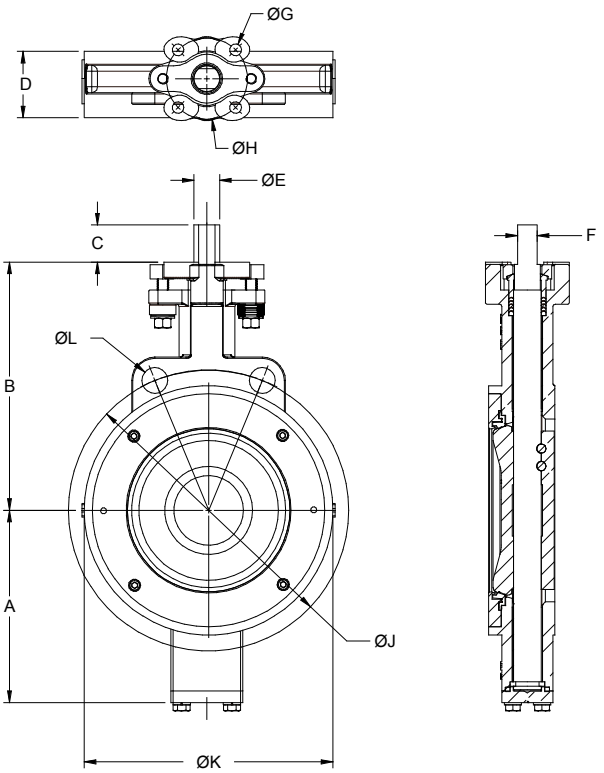

## 150 CLASS
DOUBLE-D AND KEYED STEM

| SIZE (IN.) | SIZE DN | DIMENSIONS (IN.) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | A | B | C | D | ØE | F | KEY | ØG | ØH** | ØJ | ØK | ØL WAFER | ØL LUG | ØM1 | ØM2 |
| 2 | 50 | 3.622 | 5.276 | 1.102 | 1.693 | 0.476 | 0.354 | -- | 4 x 0.394 | 2.756 (F07) | 4.75 | 4.09 | 2 x 0.669 | 4 x 5/8"-11UNC-2B | 0.50 | 1.64 |
| 2.5 | 65 | 4.016 | 5.787 | 1.102 | 1.850 | 0.555 | 0.433 | -- | 4 x 0.394 | 2.756 (F07) | 5.50 | 4.72 | 2 x 0.748 | 4 x 5/8"-11UNC-2B | 1.48 | 2.06 |
| 3 | 80 | 4.331 | 6.142 | 1.102 | 1.890 | 0.555 | 0.433 | -- | 4 x 0.394 | 2.756 (F07) | 6.00 | 4.92 | 2 x 0.748 | 4 x 5/8"-11UNC-2B | 1.67 | 2.58 |
| 4 | 100 | 4.764 | 7.008 | 1.260 | 2.126 | 0.713 | 0.551 | -- | 4 x 0.394 | 2.756 (F07) | 7.50 | 6.10 | 2 x 0.748 | 8 x 5/8"-11UNC-2B | 2.76 | 3.46 |
| 5 | 125 | 5.591 | 7.598 | 1.260 | 2.244 | 0.874 | 0.669 | -- | 4 x 0.394 | 2.756 (F07) | 8.50 | 7.24 | 2 x 0.874 | 8 x 3/4"-10UNC-2B | 3.94 | 4.49 |
| 6 | 150 | 6.496 | 8.386 | 1.259 | 2.244 | 0.874 | 0.669 | -- | 4 x 0.394 | 2.756 (F07) | 9.50 | 8.43 | 2 x 0.874 | 8 x 3/4"-10UNC-2B | 5.02 | 5.46 |
| 8 | 200 | 7.165 | 9.449 | 1.260 | 2.520 | 0.992 | 0.748 | -- | 4 x 0.551 | 4.921 (F12) | 11.75 | 10.55 | 2 x 0.874 | 8 x 3/4"-10UNC-2B | 6.95 | 7.26 |
| 10 | 250 | 8.386 | 10.827 | 2.165 | 2.795 | 1.102 | -- | 0.313 | 4 x 0.551 | 4.921 (F12) | 14.25 | 12.68 | 2 x 0.984 | 12 x 7/8"-9UNC-2B | 8.85 | 9.15 |
| 12 | 300 | 10.236 | 12.283 | 2.165 | 3.189 | 1.417 | -- | 0.375 | 4 x 0.551 | 4.921 (F12) | 17.00 | 14.92 | 2 x 0.984 | 12 x 7/8"-9UNC-2B | 10.37 | 10.70 |
| 14 | 350 | 11.811 | 13.307 | 2.559 | 3.622 | 1.654 | -- | 0.437 | 4 x 0.709 | 5.512 (F14) | 18.75 | 16.14 | 2 x 1.118 | 12 x 1"-8UNC-2B | 11.89 | 12.25 |
| 16 | 400 | 13.307 | 15.354 | 3.150 | 4.016 | 1.969 | -- | 0.500 | 4 x 0.866 | 6.496 (F16) | 21.25 | 18.43 | 2 x 1.118 | 16 x 1"-8UNC-2B | 13.59 | 13.94 |
| 18 | 450 | 14.803 | 16.732 | 3.149 | 4.488 | 1.969 | -- | 0.500 | 4 x 0.866 | 6.496 (F16) | 22.75 | 20.94 | 4 x 1.240 | 16 x1-1/8"-8UN-2B | 15.65 | 15.91 |
| 20 | 500 | 15.748 | 17.717 | 4.331 | 5.000 | 2.362 | -- | 0.625 | 4 x 0.866 | 6.496 (F16) | 25.00 | 22.99 | 4 x 1-1/8"-8UN-2B | 20 x 1-1/8"-8UN-2B | 17.50 | 17.72 |
| 24 | 600 | 18.622 | 20.787 | 4.331 | 6.063 | 2.559 | -- | 0.750 | 8 x 0.748 | 10.000 (F25) | 29.50 | 27.24 | 4 x 1-1/4"-8UN-2B | 20 x 1-1/4"-8UN-2B | 20.94 | 21.01 |
| *30 | 750 | 23.228 | 25.315 | 4.331 | 7.480 | 3.150 | -- | 0.875 | 8 x 0.748 | 10.000 (F25) | 36.00 | 36.42 | -- | 28 x 1-1/4"-8UN-2B | 26.22 | 26.28 |
| *36 | 850 | 26.575 | 28.740 | 4.331 | 7.992 | 3.150 | -- | 0.875 | 8 x 0.906 | 11.732 (F30) | 42.75 | 45.28 | -- | 32 x 1-1/2"-8UN-2B | 32.29 | 32.35 |

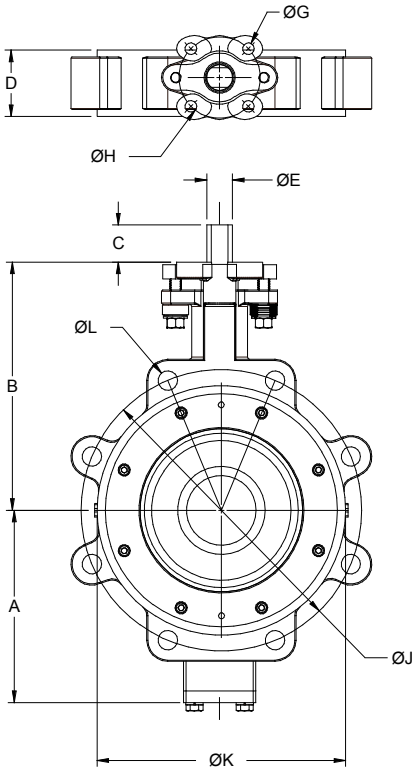
**30" & 36" are Class 150 Lug Style only.*
*** ISO 5211 mounting/drilling pattern (F size) shown in parentheses.*

## 230L/230W SERIES
CLASS 300 - 2" THRU 24"

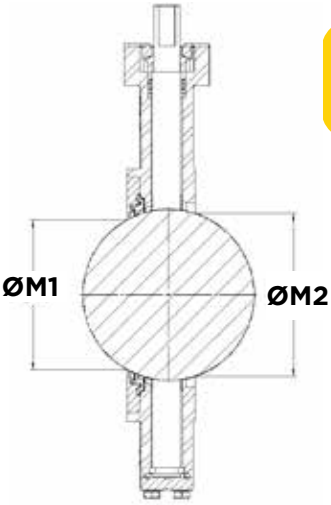
Four hole mounting pattern shown.
See table column "G" for number of mounting holes.




**WAFER**




**LUG**






## 300 CLASS
DOUBLE-D AND KEYED STEM

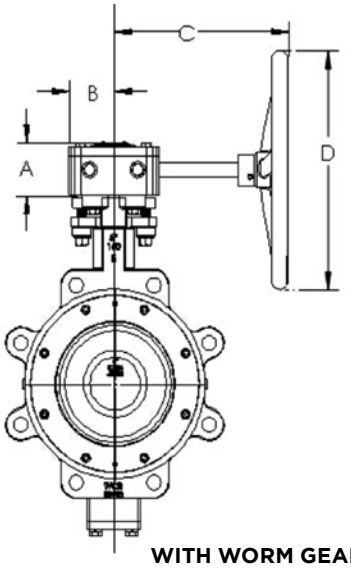
| SIZE (IN.) | SIZE DN | DIMENSIONS (IN.) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | A | B | C | D | ØE | F | KEY | ØG | ØH** | ØJ | ØK | ØL WAFER | ØL LUG | ØM1 | ØM2 |
| 2 | 50 | 3.622 | 5.276 | 1.102 | 1.693 | 0.476 | 0.354 | -- | 4 x 0.394 | 2.756 (F07) | 5.00 | 4.17 | 2 x 0.709 | 8 x 5/8"-11 UNC-2B | 0.50 | 1.64 |
| 2.5 | 65 | 4.016 | 5.787 | 1.102 | 1.850 | 0.555 | 0.433 | -- | 4 x 0.394 | 2.756 (F07) | 5.88 | 4.72 | 2 x 0.874 | 8 x 3/4"-10 UNC-2B | 1.48 | 2.06 |
| 3 | 80 | 4.331 | 6.142 | 1.102 | 1.890 | 0.555 | 0.433 | -- | 4 x 0.394 | 2.756 (F07) | 6.62 | 4.92 | 2 x 0.874 | 8 x 3/4"-10 UNC-2B | 1.67 | 2.58 |
| 4 | 100 | 4.764 | 7.008 | 1.260 | 2.126 | 0.713 | 0.551 | -- | 4 x 0.394 | 2.756 (F07) | 7.88 | 6.10 | 2 x 0.874 | 8 x 3/4"-10 UNC-2B | 2.76 | 3.46 |
| 5 | 125 | 5.591 | 7.598 | 1.260 | 2.244 | 0.874 | 0.669 | -- | 4 x 0.472 | 4.016 (F10) | 9.25 | 7.24 | 2 x 0.874 | 8 x 3/4"-10 UNC-2B | 3.94 | 4.49 |
| 6 | 150 | 6.496 | 8.386 | 1.259 | 2.323 | 0.874 | 0.669 | -- | 4 x 0.472 | 4.016 (F10) | 10.62 | 8.43 | 2 x 0.874 | 12 x 3/4"-10 UNC-2B | 4.93 | 5.46 |
| 8 | 200 | 8.268 | 10.157 | 2.165 | 2.874 | 1.102 | -- | 0.313 | 4 x 0.551 | 4.921 (F12) | 13.00 | 10.55 | 2 x 0.984 | 12 x 7/8"-9 UNC-2B | 6.73 | 7.19 |
| 10 | 250 | 9.449 | 11.417 | 2.165 | 3.268 | 1.417 | -- | 0.375 | 4 x 0.551 | 4.921 (F12) | 15.25 | 12.72 | 4 x 1"-8UNC-2B | 16 x 1"-8 UNC-2B | 8.44 | 8.85 |
| 12 | 300 | 10.63 | 12.795 | 2.559 | 3.662 | 1.654 | -- | 0.437 | 4 x 0.709 | 5.512 (F14) | 17.75 | 15.04 | 4 x 1-1/8"-8UN-2B | 16 x 1-1/8"-8 UN-2B | 10.17 | 10.62 |
| 14 | 350 | 12.756 | 14.764 | 3.150 | 4.606 | 1.969 | -- | 0.500 | 4 x 0.866 | 6.496 (F16) | 20.25 | 16.14 | 4 x 1-1/8"-8UN-2B | 20 x 1-1/8"-8 UN-2B | 11.55 | 11.89 |
| 16 | 400 | 14.37 | 16.732 | 3.149 | 5.236 | 1.969 | -- | 0.500 | 4 x 0.866 | 6.496 (F16) | 22.50 | 18.43 | 4 x 1-1/4"-8UN-2B | 20 x 1-1/4"-8 UN-2B | 13.21 | 13.55 |
| 18 | 450 | 16.043 | 18.209 | 4.331 | 5.866 | 2.362 | -- | 0.625 | 8 x 0.748 | 10.000 (F25) | 24.75 | 20.94 | 4 x 1-1/4"-8UN-2B | 24 x 1-1/4"-8 UN-2B | 15.36 | 15.54 |
| 20 | 500 | 17.795 | 19.882 | 4.331 | 6.260 | 2.835 | -- | 0.750 | 8 x 0.748 | 10.000 (F25) | 27.00 | 22.99 | 4 x 1-1/4"-8UN-2B | 24 x 1-1/4"-8 UN-2B | 16.93 | 17.27 |
| 24 | 600 | 20.315 | 22.835 | 4.331 | 7.126 | 3.150 | -- | 0.875 | 8 x 0.748 | 10.000 (F25) | 32.00 | 27.24 | 4 x 1-1/2"-8UN-2B | 24 x 1-1/2"-8 UN-2B | 20.57 | 20.57 |

*** ISO 5211 mounting/drilling pattern (F size) shown in parentheses.*

## RTFM & UHMWPE SEAT
HANDLE & GEAR DIMENSIONS

### CLASS 150
RTFM SEAT

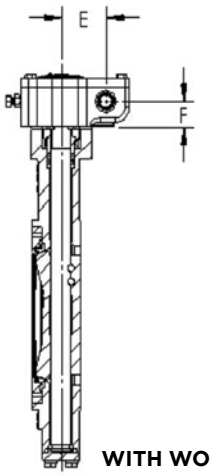
| VALVE SIZE | | GEAR RATIO | DIMENSIONS IN INCHES | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| INCHES | DN | | A | B | C | D | E | F | G |
| 2" | 50 | 37:1 | 2.24 | 2.11 | 7.87 | 5.9 | 2.09 | 1.14 | 8.82 |
| 2.5" | 65 | 37:1 | 2.24 | 2.11 | 7.87 | 5.9 | 2.09 | 1.14 | 8.82 |
| 3" | 80 | 37:1 | 2.24 | 2.11 | 7.87 | 5.9 | 2.09 | 1.14 | 8.82 |
| 4" | 100 | 37:1 | 2.24 | 2.11 | 7.87 | 5.9 | 2.09 | 1.14 | 12.82 |
| 5" | 125 | 37:1 | 2.24 | 2.11 | 7.87 | 5.9 | 2.09 | 1.14 | 12.82 |
| 6" | 150 | 37:1 | 2.24 | 2.11 | 7.87 | 5.9 | 2.09 | 1.14 | 12.82 |
| 8" | 200 | 37:1 | 2.76 | 2.11 | 10.94 | 11.81 | 2.09 | 1.50 | 22.00 |
| 10" | 250 | 37:1 | 2.76 | 2.11 | 10.94 | 11.81 | 2.09 | 1.50 | 22.00 |
| 12" | 300 | 34:1 | 3.43 | 2.50 | 12.87 | 11.81 | 2.80 | 1.59 | 22.00 |
| 14" | 350 | 55:1 | 4.06 | 4.39 | 13.07 | 15.75 | 4.11 | 1.93 | – |
| 16" | 400 | 55:1 | 4.06 | 4.39 | 13.07 | 15.75 | 4.11 | 1.93 | – |
| 18" | 450 | 55:1 | 4.06 | 4.39 | 13.07 | 15.75 | 4.11 | 1.93 | – |
| 20" | 500 | 55:1 | 4.06 | 4.39 | 13.07 | 15.75 | 4.11 | 1.93 | – |
| 24" | 600 | 52:1 | 4.96 | 4.92 | 13.11 | 15.75 | 5.12 | 2.40 | – |
| 30" | 750 | 280:1 | 6.65 | 7.48 | 18.90 | 24.00 | 7.00 | 3.54 | – |
| 36" | 850 | 360:1 | 8.15 | 9.06 | 20.90 | 24.00 | 8.26 | 4.29 | |




**WITH WORM GEAR**

### CLASS 300
RTFM SEAT

| VALVE SIZE | | GEAR RATIO | DIMENSIONS (IN.) | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| INCHES | DN | | A | B | C | D | E | F | G |
| 2" | 50 | 37:1 | 2.24 | 2.11 | 7.87 | 11.81 | 2.09 | 1.14 | 8.82 |
| 2.5" | 65 | 37:1 | 2.24 | 2.11 | 7.87 | 11.81 | 2.09 | 1.14 | 8.82 |
| 3" | 80 | 37:1 | 2.24 | 2.11 | 7.87 | 11.81 | 2.09 | 1.14 | 8.82 |
| 4" | 100 | 37:1 | 2.24 | 2.11 | 7.87 | 11.81 | 2.09 | 1.14 | 12.82 |
| 5" | 125 | 37:1 | 2.76 | 2.11 | 10.94 | 11.81 | 2.09 | 1.50 | 12.82 |
| 6" | 150 | 37:1 | 2.76 | 2.11 | 10.94 | 11.81 | 2.09 | 1.50 | 12.82 |
| 8" | 200 | 34:1 | 3.43 | 2.50 | 12.87 | 11.81 | 2.80 | 1.59 | 22.00 |
| 10" | 250 | 34:1 | 3.43 | 2.50 | 12.87 | 11.81 | 2.80 | 1.59 | 22.00 |
| 12" | 300 | 55:1 | 4.06 | 4.39 | 13.07 | 15.75 | 4.11 | 1.93 | – |
| 14" | 350 | 55:1 | 4.06 | 4.39 | 13.07 | 15.75 | 4.11 | 1.93 | – |
| 16" | 400 | 55:1 | 4.06 | 4.39 | 13.07 | 15.75 | 4.11 | 1.93 | – |
| 18" | 450 | 52:1 | 4.96 | 4.92 | 13.11 | 15.75 | 5.12 | 2.40 | – |
| 20" | 500 | 280:1 | 6.65 | 7.48 | 18.90 | 24.00 | 7.00 | 3.54 | – |
| 24" | 600 | 280:1 | 6.65 | 7.48 | 18.90 | 24.00 | 7.00 | 3.54 | – |




**WITH WORM GEAR**

"Apollo"® Valves

# actuation


**PNEUMATIC ACTUATORS**
**DOUBLE ACTING** D-2
**SPRING RETURN** D-2

**ELECTRIC ACTUATORS** D-3

**ACTUATION ACCESSORIES** D-4





section D

## PNEUMATIC RACK & PINION ACTUATORS

5 YEAR WARRANTY



### TORQUE RANGE
- Double-Acting: 119 to 38510 lbf-in (13.4 to 4338 Nm) at 80 psig (5.5 barg)
- Spring-Return: 41 to 15867 lbf-in (5 to 1793 Nm) spring end torque at maximum spring set.

### PRESSURE RANGE
- Double-Acting: 29 to 120 psig (0.2 to 8.3 barg)
- Spring-Return:
  87 to 120 psig (6 to 8.3 barg), with maximum spring set
  43.5 to 120 psig (3 to 8.3 barg), reduced spring quantity

### PRESSURE MEDIA
- Air, dry, or lubricated and inert gases
- Dew point at least 10K below ambient temperature
- For sub-zero applications, take appropriate measures
- Mentioned pressure levels are "gauge pressures". Gauge pressure is equal to absolute pressure minus atmospheric pressure..

### FINISH
- Body: Chromated and polyurethane powder coated
- End Caps: Chromated and polyurethane powder coated
- Pistons: Chromated
- Pinion: Hard anodized
- Fasteners: Stainless steel or Deltatone® coated

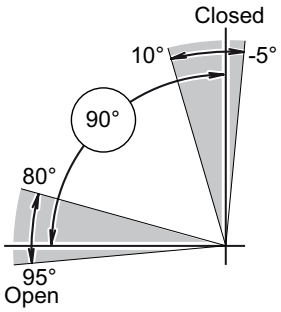
### LUBRICATION
- Castrol high temperature grease (or equivalent)

### CYCLE LIFE
- Normal working life is 500,000 cycles according to EN15714-3, where 1 cycle is 1 open stroke and 1 close stroke

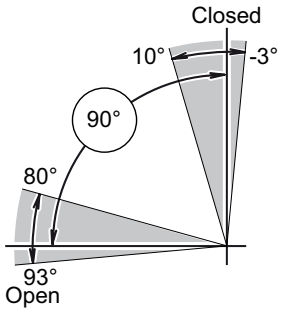
### TEMPERATURE RANGE
- Standard: -4°F to 176°F (-20°C to 80°C)
- Option:
  Low temperature: -40°F to 176°F (-40°C to 80°C)
  High temperature: +14°F to 250°F (-10°C to 120°C)

### ANGLE OF ROTATION
- Factory set at 90°
- Adjustable range:
  Size 0025 to 0600: -5° to +10° and +80° to 95°
  Size 0950 to 4000: -3° to +10° and +80° to 93°

Size 25 - 600




Size 950 - 4000




### COMPLIANCE TO INTERNATIONAL STANDARDS
- Valve flange: ISO 5211
- Solenoid flange: VDE/VDI 3845 (NAMUR)
- Accessory flange: VDE/VDI 3845 (NAMUR)
- European Directives: ATEX, PED, & Machinery Directive
- SIL 3 rated according to IEC 61508-1-7:2010
- EAC Custom Union: Compliance to Russian TR010 & TR012

### PART NUMBER MATRIX

| A | S | 0100 | N | 04 | A | C | A |
|---|---|---|---|---|---|---|---|
| PREFIX | ACTION | SIZE | SEAL OPTION | SPRING SET | INSERTS | FAIL POSITION | REVISION |
| A | D - DOUBLE ACTING | 0012 | N - NITRILE NORMAL TEMP RANGE: -4°F - 175°F | 00 (DA) | A - STANDARD SQUARE | C - FAIL CLOSED (FC) | A |
| | S - SPRING RETURN | 0025 | | 02 | B - WITHOUT INSERT | F - FAIL OPEN (FO) | |
| | K - KIT | 0040 | | 03 | | D - NO SPRING (DOUBLE ACTING FAIL LAST POSITION) | |
| | | 0065 | H - FLUOROCARBON HIGH TEMP RANGE: -4°F - 250°F | 04 | | | |
| | | 0100 | | 05 | | | |
| | | 0150 | | 06 | | | |
| | | 0200 | L - SILICONE LOW TEMP RANGE: -40°F - 175°F | | | | |
| | | 0350 | | | | | |
| | | 0600 | | | | | |
| | | 0950 | | | | | |
| | | 1600 | | EXAMPLE: AS0100N04ACA = Spring Return, 0100 Size, Nitrile Seals, 04 Spring Set, Standard Square Drive, Fail Closed | | | |
| | | 2500 | | | | | |
| | | 4000 | | | | | |

## AE SERIES
ELECTRIC ACTUATOR



Ruggedly built and designed for easy installation, new Apollo AE Series electric actuators deliver the most standard features and performance in their class. **Now CSA listed all sizes as standard.**

### FEATURES FIVE OUTPUT TORQUES, ONE HOUSING
- 200, 400, 600, 800 and 1,000 in-lb
- Long Service Life
- Anodized Die Cast Aluminum Housing
- Fiberglass Reinforced Nylon Cover Resists Corrosion
- Nitrile Gasket and Seals Cover all Penetration Points in Housing and Cover
- Precision Cut and Heat Treated Alloy Spur Gears
- Permanently Lubricated Enclosed Gear Train
- NEMA 4, 4X

### EASY TO USE
- Two Separate 1/2" NPT Conduit Entrances for Easier Wiring and Signal Separation
- 12-Position Pre-Wired Terminal Strip Includes Standard Connections for Remote open/closed position indicators; Lots of Room for Wiring Options
- Unrestricted Mounting Orientation
- Built-In Thermal Overload Protection in all AC Motor Actuators
- Limit Switches Have an 11 Amp Rating at 115 VAC
- High Visibility Valve Position Indicator Standard on all Models

### MANY STANDARD FEATURES
- Stainless Steel Push-and-Turn Manual Override Shaft, Position Indicator Shaft and Female Output
- ISO 5211 F07 Drive Output Reduces Inventory of Mounting Kits
- 115 AC & 220 AC Models Feature a 25% Duty Cycle Below 100˚F (24AC — 20% Duty Cycle Below 100˚F)
- 12 and 24 DC — All DC Voltage Models Provide 100% Duty Cycle for 1 Hour After Which DC Motor is Reduced to 80% Duty Cycle
- Reversible Rotation

### BROAD TEMPERATURE RANGE
- Operates From -40˚F (When Equipped with 15 Watt Heater and Thermostat) to 150˚F

### AVAILABLE OPTIONS
- Actuators can be Ordered with One, Two or Three Additional Limit Switches
- For Low Temperatures, Actuators Can Be Equipped With A Thermostatically Controlled Heater Element
- Motor Brake is Necessary When Mounting Actuator to a Butterfly Valve

### 4-20MA POSITIONER FEATURES (P - OPTION)

### ADVANCED PROTECTION FEATURES
- Stall Detection - Motor Will Not Burn Out from Stalling
- Fault Signal - Fault LED on DHC-100 front panel
- Duty Cycle Protection:
  - Allows Actuators Rated for 25% Duty or More, to be Safely Modulated
  - Activates Prior to Tripping of Thermal Overload Protector, which Prevents Long Shut Down Periods due to tripping Thermal Overload Protector; Allows the Actuator to Continue to Move to Set-Point at a 25% Duty Cycle Speed

### PERFORMANCE FEATURES
- High Resolution (± 0.1°) - 450 Points of Resolution on a 1/4 Turn Valve
- Dynamic Braking - Stops Motor Before Changing Actuator Direction and before Mechanical Brake Engages, which Reduces Brake Wear
- Adaptive Control - Designed to Maintain High Resolution and Accuracy by Continuously Monitoring and Compensating for Actuator Backlash, Motor Coast, and Load Changes to Eliminate Positioner Deadband

### 4-20MA POSITION TRANSMITTER FEATURES (T - OPTION)
- High Resolution Feedback Transmitter:
  Provides Voltage or mA Output that can be set for any Range 0 to 10 VDC in 0.0016 V steps or 0 to 20 mA in 0.0031 mA steps)
- Auto/Manual Station (Local Control Unit - LCU)
- Polarity Detection

| AE - | 400 - | 3 | BF |
|---|---|---|---|
| PREFIX | TORQUE (IN - LB) | VOLTAGE | OPTIONS |
| AE | 200 | 1 - 115 VAC | 0 - STANDARD |
| | 400 | 2 - 24 VAC | A - ONE EXTRA SWITCH & CAM* |
| | 600 | 3 - 220 VAC | B - TWO EXTRA SWITCHES & CAMS* |
| | 800 | 4 - 12 VDC | C - THREE EXTRA SWITCHES AND CAMS* |
| | 1000 | 5 - 24 VDC | D - HEATER AND THERMOSTAT (15 WATT) |
| | ENTER ALL DIGITS OF TORQUE VALUE | | F - MOTOR BRAKE (115 VAC & 24 VAC ONLY) |
| | | | H - TROPICAL HEATER (15 WATTS) |
| | | | P - POSITIONER 4-20 MA |
| | | | T - TRANSMITTER 4-20 MA |

*Note: AE will always be the first two characters of the part number, all digits from torque value must be entered into part number (i.e. 400, 1000, etc.) Only use one digit for voltage depiction (i.e. 1-5). For the options listing you may use more than one character, up to three, (i.e. O, AD or BD etc.)*

*1 Year warranty on positioner & positioner with transmitter*
*Transmitter available with (P) positioner option only*
*Positioner & transmitter are not CSA listed*
** Not available with "P" option*

EXAMPLE
**AE-400-2BF**:
400 in-lb.; 24 VAC; 2 extra switches and cams, motor brake

**AE-1000-1D:**
1000 in-lb.; 115 VAC; Heater and thermostat

## ACCESSORIES

### VALVE POSITION MONITORS

Here's the ultimate in valve monitoring: Position monitors feature a high visibility, color-coded indicator to display valve position. All monitors are designed to correspond to the latest NAMUR standard for actuator/position monitoring units. Plated steel or stainless steel mounting kits are available to provide a pre-engineered mounting solution for maximizing position monitor performance and direct mounting to actuators. Multiple brands available.






### SOLENOIDS

Apollo actuators can be supplied with solenoids manufactured by AVC (Automatic Valve Company). Our 3/4 way, field convertible, direct mount (NAMUR pattern) solenoid valves feature a variety of interchangeable integrated molded coils. They're compatible with both spring return and double acting actuators.



### POSITIONERS

Apollo valve positioners are excellent tools for increasing the gain of your valve package, often reducing your actuator size due to your increased ability to accurately control higher air deliveries, and the flexibility to add options and accessories to complete your control package's performance.

Their simple design makes PMV positioners (shown here) easy to understand, calibrate and repair. Rugged construction provides operation in a variety of tough applications. Compact size minimizes space requirements. A complete package means the user can select the right positioner for his application. A bright indicator makes it easy for operators to visually check the valve position. Spool valve design requires very little maintenance. The electro-pneumatic unit eliminates the need for an extra product and additional connections. PMV positioners are proven products recognized for providing years of reliable service. Other brands are also available from your Apollo distributor.

Apollo offers both pneumatic and electro-pneumatic positioners as standard. Pneumatic positioners may be used on either double acting or spring return actuators. The anodized aluminum housing provides excellent product integrity and good corrosion resistance. Options include special coatings, stainless steel housings and a variety of accessory items which can help you meet your most demanding control applications.



"Apollo"® Valves

# pressure relief valves



section E

## PRESSURE RELIEF VALVE SELECTION CHART

| MODEL | MATERIAL BODY / TRIM | INLET SIZES MIN / MAXIN. | INLET SIZES MIN / MAX MM | CONNECTIONS | | CE/PED AVAILABLE | SET PRESSURES MIN / MAX PSIG | SET PRESSURES MIN / MAX BARG | TEMPERATURE MAX °F | TEMPERATURE MAX °C |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | NPT | FLANGED | | | | | |
| **ASME SECTION I - STEAM POWER BOILERS** | | | | | | | | | | |
| 19M | Bronze / Brass | 1/2 - 2-1/2 | DN 15 - 65 | X | | X | 15 - 250 | 1.0 - 17.2 | 406°F | 207.7°C |
| 19K | Bronze / Brass | 1/2 - 2-1/2 | DN 15 - 65 | X | | X | 15 - 250 | 1.0 - 17.2 | 406°F | 207.7°C |
| 19L | Bronze / Stainless | 1/2 - 2-1/2 | DN 15 - 65 | X | | X | 15 - 250 | 1.0 - 17.2 | 406°F | 207.7°C |
| 19S | Bronze / Stainless | 1/2 - 2-1/2 | DN 15 - 65 | X | | X | 15 - 300 | 1.0 - 20.7 | 422°F | 216.7°C |
| 29 | Bronze / Brass | 3/8 - 11/4 | DN 10 - 32 | X | | X | 30 - 200 | 2.0 - 13.8 | 406°F | 207.7°C |
| 119 | Cast Iron / Stainless | 1-1/2 - 6 | DN 40 - 150 | X | X | X | 15 - 250 | 1.0 - 17.2 | 450°F | 232.2°C |
| **ASME SECTION IV - LOW PRESSURE STEAM HEATING BOILERS** | | | | | | | | | | |
| 12 | Bronze / Brass | 2 - 3 | DN 50 - 80 | X | | | 5 - 15 | 0.34 - 1.0 | 250°F | 121.1°C |
| 13-101 | Bronze / Brass | 3/4 | DN 20 | X | | | 5 - 15 | 0.34 - 1.0 | 250°F | 121.1°C |
| 13-202 | Bronze / Brass | 1 | DN 25 | X | | | 5 - 15 | 0.34 - 1.0 | 250°F | 121.1°C |
| 13-211 | Bronze / Brass | 3/4 | DN 20 | X | | | 5 - 15 | 0.34 - 1.0 | 250°F | 121.1°C |
| 13-213 | Bronze / Brass | 1-1/4 | DN 32 | X | | | 5 - 15 | 0.34 - 1.0 | 250°F | 121.1°C |
| 13-214 | Bronze / Brass | 1-1/2 | DN 40 | X | | | 5 - 15 | 0.34 - 1.0 | 250°F | 121.1°C |
| 13-510 | Bronze / Brass | 3/4 | DN 20 | X | | | 5 - 15 | 0.34 - 1.0 | 250°F | 121.1°C |
| 14-200 | Bronze / Brass | 2 - 3 | DN 50 - 80 | X | | | 5 - 15 | 0.34 - 1.0 | 250°F | 121.1°C |
| **ASME SECTION IV - HOT WATER HEATING & SUPPLY BOILERS** | | | | | | | | | | |
| 10-100 | Bronze / Brass | 3/4 | DN 20 | X | | | 20 - 65 | 1.4 - 4.5 | 250°F | 121.1°C |
| 10-300 | Bronze / Brass | 3/4 | DN 20 | X | | | 20 - 65 | 1.4 - 4.5 | 250°F | 121.1°C |
| 10-400 | Bronze / Brass | 3/4 | DN 20 | X | | | 30 | 2.0 | 250°F | 121.1°C |
| 10-410 | Bronze / Brass | 3/4 | DN 20 | X | | | 20 - 80 | 1.4 - 5.5 | 250°F | 121.1°C |
| 10-600, 10-610 | Bronze / Brass | 3/4 - 2 | DN 20 - 50 | X | | X | 15 - 160 | 1.0 - 11.0 | 250°F | 121.1°C |
| 10-624, 10-634 | Bronze / Brass | 3/4 | DN 20 | X | | | 30 - 150 | 2.0 - 10.3 | 250°F | 121.1°C |
| 17-401 | Bronze / Brass | 1/2 | DN 15 | X | | | 75 - 160 | 5.2 - 11.0 | 250°F | 121.1°C |
| 17-402 | Bronze / Brass | 3/4 | DN 20 | X | | | 75 - 150 | 5.2 - 10.3 | 250°F | 121.1°C |
| 18C-400 | Bronze / Brass | 1/2 - 3/4 | DN 15 - 20 | X | | | 125 - 175 | 8.61 - 12.1 | 210°F | 98.9°C |
| 18C-500 | Bronze / Stainless | 3/4 - 2 | DN 20 - 50 | X | | | 75 - 150 | 5.2 - 10.3 | 210°F | 98.9°C |
| **ASME SECTION VIII AIR / GASES** | | | | | | | | | | |
| 15 | Brass | 1/4 - 1 | DN 8 - 25 | X | | X | 15 - 250 | 1.0 - 17.2 | 325°F | 162.8°C |
| 19M | Bronze / Brass | 1/2 - 2-1/2 | DN 15 - 65 | X | | X | 8 - 300 | 0.55 - 20.7 | 406°F | 207.7°C |
| 19K | Bronze / Brass | 1/2 - 2-1/2 | DN 15 - 65 | X | | X | 15 - 300 | 1.0 - 20.7 | 406°F | 207.7°C |
| 19L | Bronze / Stainless | 1/2 - 2-1/2 | DN 15 - 65 | X | | X | 15 - 300 | 1.0 - 20.7 | 406°F | 207.7°C |
| 19S | Bronze / Stainless | 1/2 - 2-1/2 | DN 15 - 65 | X | | X | 8 - 300 | 0.55 - 20.7 | 422°F | 216.7°C |
| 29 | Bronze / Brass | 3/8 - 1-1/4 | DN 10 - 32 | X | | X | 30 - 200 | 2.0 - 13.8 | 406°F | 207.7°C |
| 119 | Cast Iron / Stainless | 1-1/2 - 6 | DN 40 - 150 | X | X | X | 8 - 250 | 0.55 - 17.2 | 450°F | 232.2°C |
| 510 | Bronze / Brass | 1/2 - 2 | DN 15 - 50 | X | | X | 8 - 300 | 0.55 - 20.7 | 406°F | 207.7°C |
| 520 | Bronze / Stainless | 1/2 - 2 | DN 15 - 50 | X | | X | 8 - 1200 | 0.55 - 82.7 | 422°F | 216.7°C |
| 530 | Steel / Stainless | 1/2 - 2 | DN 15 - 50 | X | X | X | 8 - 1200 | 0.55 - 82.7 | 800°F | 426.7°C |
| 540 | Stainless / Stainless | 1/2 - 2 | DN 15 - 50 | X | X | X | 8 - 1200 | 0.55 - 82.7 | 800°F | 426.7°C |
| **ASME SECTION VIII STEAM** | | | | | | | | | | |
| 10-322 | Brass | 3/4 | DN 20 | X | | X | 15 - 60 | 1.0 - 4.1 | 325°F | 162.8°C |
| 10-512 | Brass | 1/2 | DN 15 | X | | X | 9 - 60 | 0.62 - 4.1 | 325°F | 162.8°C |
| 19M | Bronze / Brass | 1/2 - 2-1/2 | DN 15 - 65 | X | | X | 8 - 250 | 0.55 - 17.2 | 406°F | 207.7°C |
| 19K | Bronze / Brass | 1/2 - 2-1/2 | DN 15 - 65 | X | | X | 15 - 250 | 1.0 - 17.2 | 406°F | 207.7°C |
| 19L | Bronze / Stainless | 1/2 - 2-1/2 | DN 15 - 65 | X | | X | 15 - 250 | 1.0 - 17.2 | 406°F | 207.7°C |
| 19S | Bronze / Stainless | 1/2 - 2-1/2 | DN 15 - 65 | X | | X | 8 - 300 | 0.55 - 20.7 | 422°F | 216.7°C |
| 29 | Bronze / Brass | 3/8 - 1-1/4 | DN 10 - 32 | X | | X | 30 - 200 | 2.0 - 13.8 | 406°F | 207.7°C |
| 119 | Cast Iron / Stainless | 1-1/2 - 6 | DN 40 - 150 | X | X | X | 8 - 250 | 0.55 - 17.2 | 450°F | 232.2°C |
| 510 | Bronze / Brass | 1/2 - 2 | DN 15 - 50 | X | | X | 8 - 250 | 0.55 - 17.2 | 406°F | 207.7°C |
| 520 | Bronze / Stainless | 1/2 - 2 | DN 15 - 50 | X | | X | 8 - 300 | 0.55 - 20.7 | 422°F | 216.7°C |
| 530 | Steel / Stainless | 1/2 - 2 | DN 15 - 50 | X | X | X | 8 - 900 | 0.55 - 62.1 | 800°F | 426.7°C |
| 540 | Stainless / Stainless | 1/2 - 2 | DN 15 - 50 | X | X | X | 8 - 900 | 0.55 - 62.1 | 800°F | 426.7°C |
| **ASME SECTION VIII LIQUID** | | | | | | | | | | |
| 510 | Bronze / Brass | 1/2 - 2 | DN 15 - 50 | X | | X | 8 - 300 | 0.55 - 20.7 | 406°F | 207.7°C |
| 520 | Bronze / Stainless | 1/2 - 2 | DN 15 - 50 | X | | X | 8 - 1200 | 0.55 - 82.7 | 422°F | 216.7°C |
| 530 | CS / Stainless | 1/2 - 2 | DN 15 - 50 | X | X | X | 8 - 1200 | 0.55 - 82.7 | 800°F | 426.7°C |
| 540 | Stainless / Stainless | 1/2 - 2 | DN 15 - 50 | X | X | X | 8 - 1200 | 0.55 - 82.7 | 800°F | 426.7°C |
| **NON-CODE, VACUUM & MISCELLANEOUS PRODUCTS** | | | | | | | | | | |
| 14-400, 14-500 | Low Pressure Air | 2 - 3 | DN 50 - 80 | X | | | 4 - 22 | 0.3 - 1.52 | 400°F | 204.4°C |
| 14-600 | Vacuum Relief | 2 - 3 | DN 50 - 80 | X | | | 8 - 30 HG | 203 - 762 MM HG | 400°F | 204.4°C |
| 16-200/16LF-200 | Liquids | 1/2 | DN 15 | X | | | 30 - 80 | 2.1 - 12.4 | 120°F | 48.9°C |
| 16-501 | Adj. Liquid Bypass | 1/2 | DN 15 | X | | | 50 - 600 | 0 - 41.4 | 200°F | 93.3°C |
| 16-503, 16-504/16LF | Calibrated Liquid Relief | 1/2 - 3/4 | DN 15 -20 | X | | | 50 - 175 | 3.4 - 12.1 | 200°F | 93.3°C |
| Drip Pan Elbows | Steam Discharge | 3/4 - 8 | DN 20 - 200 | X | X | | N/A | N/A | 450°F | 232.2°C |

## 10 SERIES
HOT WATER BOILER SAFETY RELIEF VALVES

HV



**10-102**
**10-303**



**10-104**
**10-301**



**10-408**
**10-418**



**10-407**
**10-417**



**10-624**
**10-634 OEM**

Brass/bronze pressure relief valves protect ASME Section IV hot water heating boilers and hydronic heating systems. High capacity design features corrosion resistant construction. Brass, satin or polished chrome finishes available.

### ASME SECTION IV
- Inlet Size 3/4" - Outlet - 3/4" & 1"
- Factory Set Pressure 20-150 psi
- Maximum Temperature Service: 250°F

### APPLICATIONS
- Ideal for Use With Hot Water Boilers and Hydronic Heating Systems

### FEATURES
- Pressures From 20 to 150 psig
- Registered in all Canadian Provinces and Territories, CRN #0G8547.5C
- Stainless Steel Springs Standard
- 10-624/634 are Ideal for Use in Various Plumbing Systems, Commercial Boiler Applications and Swimming Pool Heaters
- 10-418/417 are Ideal for Use in Swimming Pool Heater Applications
- **Proudly Made in USA**

### OPTIONS
- Models 10-104 and 10-301 are Available with Optional Satin Chrome Finish

### AVAILABLE CONFIGURATIONS

| PART NUMBER | SIZE(IN./MM) | | CERTIFIED PRESSURE RANGE PSIG | HEIGHT (IN./MM) | WT./100 (LB./KG) |
|---|---|---|---|---|---|
| | INLET NPT | OUTLET NPT | | | |
| 10-102 | 3/4F | 1F | 20-60 | 3.94 | 105 |
| | 20 F | 25 F | | 100 | 47.7 |
| 10-104 | 3/4 M | 1 F | 20-60 | 3.75 | 109 |
| | 20 M | 25 F | | 95 | 49.5 |
| 10-301 | 3/4 M | 3/4 F | 20-60 | 3.75 | 114 |
| | 20 M | 20 F | | 95 | 51.8 |
| 10-303 | 3/4 F | 3/4 F | 20-60 | 3.94 | 115 |
| | 20 F | 20 F | | 100 | 52.3 |
| 10-407 | 3/4 M | 3/4 F | 30 | 3 | 62 |
| | 20 M | 20 F | | 76 | 28.2 |
| 10-408 | 3/4 F | 3/4 F | 30 | 2.75 | 65 |
| | 20 F | 20 F | | 70 | 29.5 |
| 10-417 | 3/4 M | 3/4 F | 20-80 | 3 | 62 |
| | 20 M | 20 F | | 76 | 28.1 |
| 10-418 | 3/4 F | 3/4 F | 20-80 | 2.75 | 65 |
| | 20 F | 20 F | | 70 | 29.5 |
| 10-624 | 3/4 M | 3/4 F | 30-150 | 4.62 | 106 |
| | 20 M | 20 F | | 117 | 48.2 |
| 10-634 | 3/4 F | 3/4 F | 30-150 | 4.62 | 106 |
| | 20 F | 20 F | | 117 | 48.2 |

## 10 SERIES
HOT WATER BOILER SAFETY RELIEF VALVES

## ASME SECTION IV - HOT WATER
British thermal units per hour (kilocalories per hour) at 10% overpressure. National Board Certified. Ratings are 90% of actual.

### US CUSTOMARY UNITS BTU/HR.

| PART NO. | 10-102 10-104 | 10-301 10-303 | 10-407 10-408 | 10-417 10-418 | 10-624 10-634 |
|---|---|---|---|---|---|
| SET PRESSURE PSIG | | | | | |
| 5* | - | 225,000 | - | - | - |
| 10* | - | 295,000 | - | - | - |
| 15 | - | 365,000 | - | - | - |
| 20 | 545,000 | 420,000 | - | 377,000 | - |
| 25 | 625,000 | 485,000 | - | 427,000 | - |
| 30 | 710,000 | 550,000 | 535,000 | 477,000 | 689000 |
| 35 | 790,000 | 610,000 | - | 532,000 | 769000 |
| 40 | 870,000 | 675,000 | - | 587,000 | 848000 |
| 45 | 955,000 | 740,000 | - | 642,000 | 928,000 |
| 50 | 1,035,000 | 805,000 | - | 697,000 | 1,007,000 |
| 55 | 1,115,000 | 870,000 | - | 752,000 | 1,087,000 |
| 60 | 1,200,000 | 935,000 | - | 807,000 | 1,166,000 |
| 65 | - | - | - | 862,000 | 1,246,000 |
| 70 | - | - | - | 917,000 | 1,325,000 |
| 75 | - | - | - | 972,000 | 1,405,000 |
| 80 | - | - | - | 1,027,000 | 1,484,000 |
| 85 | - | - | - | - | 1,564,000 |
| 90 | - | - | - | - | 1,643,000 |
| 95 | - | - | - | - | 1,723,000 |
| 100 | - | - | - | - | 1,802,000 |
| 105 | - | - | - | - | 1,882,000 |
| 110 | - | - | - | - | 1,961,000 |
| 115 | - | - | - | - | 2,041,000 |
| 120 | - | - | - | - | 2,120,000 |
| 125 | - | - | - | - | 2,199,000 |
| 130 | - | - | - | - | 2,279,000 |
| 135 | - | - | - | - | 2,358,000 |
| 140 | - | - | - | - | 2,438,000 |
| 145 | - | - | - | - | 2,517,000 |
| 150 | - | - | - | - | 2,597,000 |

** Pressure settings below 15 psi are non-ASME Code.*

### METRIC UNITS Kcal/HR.

| PART NO. | 10-102 10-104 | 10-301 10-303 | 10-407 10-408 | 10-417 10-418 | 10-624 10-634 |
|---|---|---|---|---|---|
| SET PRESSURE BARG | | | | | |
| 0.34 | - | 57 | - | - | - |
| 0.69 | - | 74 | - | - | - |
| 1.03 | | 92 | - | - | - |
| 1.38 | 137 | 106 | - | 95 | - |
| 1.72 | 158 | 122 | - | 108 | - |
| 2.07 | 179 | 139 | 135 | 120 | 174 |
| 2.41 | 199 | 154 | - | 134 | 194 |
| 2.76 | 219 | 170 | - | 148 | 214 |
| 3.10 | 241 | 187 | - | 162 | 234 |
| 3.45 | 261 | 203 | - | 176 | 254 |
| 3.80 | 281 | 219 | - | 190 | 274 |
| 4.14 | 303 | 236 | - | 204 | 294 |
| 4.48 | - | - | - | 217 | 314 |
| 4.83 | - | - | - | 231 | 334 |
| 5.17 | - | - | - | 245 | 354 |
| 5.51 | - | - | - | 259 | 374 |
| 5.86 | - | - | - | - | 394 |
| 6.20 | - | - | - | - | 414 |
| 6.55 | - | - | - | - | 435 |
| 6.89 | - | - | - | - | 454 |
| 7.24 | - | - | - | - | 475 |
| 7.58 | - | - | - | - | 495 |
| 7.93 | - | - | - | - | 515 |
| 8.27 | - | - | - | - | 535 |
| 8.62 | - | - | - | - | 555 |
| 8.96 | - | - | - | - | 575 |
| 9.31 | - | - | - | - | 595 |
| 9.65 | - | - | - | - | 615 |
| 10.00 | - | - | - | - | 635 |
| 10.34 | - | - | - | - | 655 |

### P/N SUFFIX KEY

| SET PRESSURE PSIG | EXTERIOR FINISH | |
|---|---|---|
| | PLAIN BRASS | SATIN CHROME |
| 20 | -02 | -41 |
| 22 | -03 | -42 |
| 25 | -04 | -43 |
| 30 | -05 | -44 |
| 35 | -06 | -45 |
| 40 | -07 | -46 |
| 43 | -08 | -47 |
| 45 | -09 | -48 |
| 50 | -10 | -49 |
| 55 | -11 | -50 |
| 60 | -12 | -51 |
| 65 | -13 | |
| 70 | -14 | |
| 75 | -15 | |
| 80 | -16 | |

### ORDERING CODE
Use two-digit suffix number to indicate set pressure and body finish.
Suffix for 10-624 / 10-634 models is actual set pressure in psig.

EXAMPLE:
10-301-44 = 3/4" 10-301 set @ 30 psig, satin chrome finish.
10-624-125 = 3/4" 10-624 set @ 125 psig (plain bronze finish only)NOTE:
- All other models are furnished with plain bronze finish.
- Model 10-104 and 10-301 available with optional satin or polished chrome finish.

## 10-322 & 10-512 SERIES
OEM STYLE STEAM SAFETY VALVES

UV



10-512



10-322

National Board capacity-certified safety valves; brass body with optional satin or polished chrome finish. Protects against excess pressure from thermal expansion and steam caused by failure of BTU input controls.

### ASME SECTION VIII
- Sizes 1/2" and 3/4"
- Factory Set Pressures 15 to 60 psig @ 312˚F max
- National Board Certified Capacity

### APPLICATIONS
- Ideally suited for OEM applications such as steam carpet and jewelry cleaners, autoclaves, sterilizers, commercial pressure cookers, steam jacketed kettles, dental equipment, coffee makers and similar equipment.

### FEATURES
- Stainless Steel Springs
- Small Physical Size
- Discharge Capacities to 725 lb./hr.
- Soft Seating for Exceptional Seat Tightness
- Pressure Settings 15 to 60 psig
- 10-322 in Polished Chrome Only (10-322-P)
- CRN OG8547.5C, Registered in all Canadian Provinces and Territories
- **Proudly Made in USA**

### OPTIONS
- (Model 10-512 Only)
- Satin or Polished Chrome Finish
- Stainless Steel Wetted Trim
- BSP Pipe Connections
- CE/PED Compliance

### AVAILABLE CONFIGURATIONS

| PART NUMBER | SIZE (IN./MM) | | SET PRESSURE RANGE PSIG | HEIGHT (IN./MM) | WT./100 (LB./KG) |
|---|---|---|---|---|---|
| | INLET NPT | OUTLET NPT | | | |
| 10-322 | 3/4 M | 3/4 F | 20-60 | 3.75 | 128 |
| | 20 | 20 | | 95 | 58.2 |
| 10-512 | 1/2 M | 1/2 F | 15-60 | 2.62 | 58 |
| | 15 | 15 | | 67 | 26.4 |

### P/N SUFFIX KEY

| SET PRESSURE PSIG | *CERTIFIED CAPACITIES | |
|---|---|---|
| | 10.322 LB.HR | 15.512 LB.HR |
| 15 | - | 151 |
| 20 | 325 | 178 |
| 25 | 375 | 205 |
| 30 | 425 | 232 |
| 35 | 475 | 258 |
| 40 | 525 | 285 |
| 45 | 575 | 312 |
| 50 | 625 | 339 |
| 55 | 675 | 366 |
| 60 | 725 | 392 |

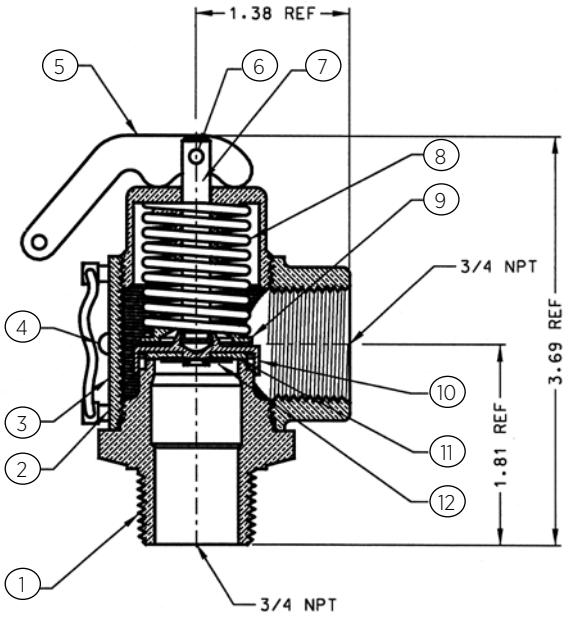
** ASME (UV) Rating – 90% of actual capacity at 10% accumulation. Capacity in lb. of saturated steam per hour.*

### PART NUMBER MATRIX

| 10-X | -X | -XX | -X |
|---|---|---|---|
| MODEL AND SIZE (IN.) | FINISH | SET PRESSURE | OPTIONS |
| 512 - 1/2 X 1/2 | B - PLAIN BRASS | SET PRESSURE IN PSIG (2 DIGITS) | B - BSPP CONNECTIONS |
| 322 - 3/4 X 3/4 | S - SATIN CHROME | | CE - PED/CE |
| | P - POLISHED CHROME | | S - STAINLESS STEEL TRIM |
| | | | V - VITON® SEAT |
| | | | X - BLANK OUTLET NOT THREADED |

EXAMPLE:
10-322-P-20 = 3/4" 10-322 set @ 20 psig, polished chrome finish.
NOTE:
- Model 10-322 available in polished chrome finish only.
- Valves may be set for any pressure between 15 and 60 psig.

## 10-322
OEM STYLE STEAM SAFETY VALVE

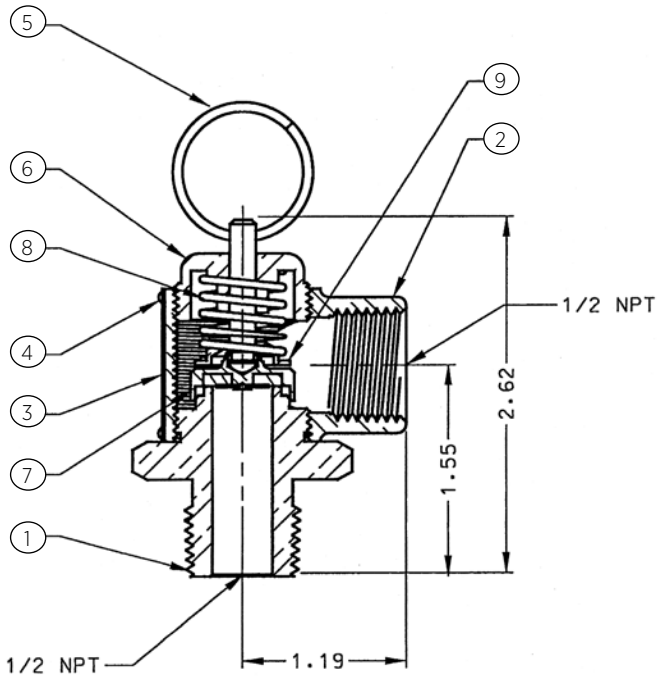



### STANDARD MATERIAL LIST

| | | |
|---|---|---|
| **1** | Nozzle | Brass, ASTM B-16 |
| **2** | Body | Brass, ASTM B-16 |
| **3** | Nameplate | Aluminum |
| **4** | Drive Screw | Steel, Zinc Plated |
| **5** | Handle | Steel, Zinc Plated |
| **6** | Cotter Pin | Steel, Zinc Plated |
| **7** | Stem | Brass, ASTM B-16 |
| **8** | Spring | Stainless Steel |
| **9** | Spring Washer | Brass, ASTM B-16 |
| **10** | Disc | Brass, ASTM B-16 |
| **11** | Seat | Teflon® Faced EPDM |
| **12** | Washer | Brass, ASTM B-16 |



## 10-512
OEM STYLE STEAM PRESSURE RELIEF




### STANDARD MATERIAL LIST

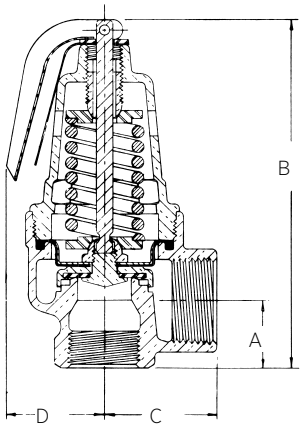
| | | |
|---|---|---|
| **1** | Nozzle | Brass, ASTM B-16 |
| **2** | Body | Brass, ASTM B-16 |
| **3** | Nameplate | Aluminum |
| **4** | Drive Screw | Steel, Zinc Plated |
| **5** | Pull Ring | Steel, Zinc Plated |
| **6** | Cap | Brass, ASTM B-16 |
| **7** | Disc Assembly | Brass, Silicone |
| **8** | Spring | Stainless Steel |
| **9** | Spring Washer | Brass, ASTM B-16 |

*Model 10-512 available with optional stainless steel wetted trim. Nozzle, disc holder and disc washer are type 316 stainless steel.*

## 10-600 SERIES
HIGH CAPACITY HOT WATER BOILER SAFETY RELIEF

HV






High-capacity heating system valves with female inlet and standard or expanded female outlet. Elevated seat for drainage of water away from seat area. Entire pressure range is National Board capacity certified.

### ASME SECTION IV
- Inlet Sizes 3/4" to 2"
- Factory Set Pressures from 15-160 psig
- Maximum Temperature Service 250°F

### APPLICATIONS
- Hot Water Heating Boilers and Hot Water Supply Systems
- Protects Against Excessive Water Pressure Due to Failure of Controls to Regulate BTU Input

### FEATURES
- High BTU Capacity Rating
- Silicone Seat
- Fabric Reinforced Molded Diaphragm Isolates Spring from Water at all Times
- Heavy Duty Cast Bronze Body and Spring Cage
- Registered in Canadian Provinces and Territories, CRN #0G8547.5C
- **Proudly Made in USA**

### AVAILABLE CONFIGURATIONS

| PART NUMBER | SIZE(IN./MM) | | CERTIFIED PRESSURE RANGE PSIG | WT./100 (LB./KG) | DIMENSIONS (IN./MM) | | | |
|---|---|---|---|---|---|---|---|---|
| | INLET NPT | OUTLET NPT | | | A | B | C | D |
| 10-604 | 3/4F | 3/4F | 15-160 | 232 | 1.03 | 5.25 | 1.62 | 1.56 |
| | 20 | 20 | | 105.2 | 26 | 133 | 41 | 39 |
| 10-605 | 1F | 1F | 15-160 | 410 | 1.25 | 6.69 | 2.00 | 2.00 |
| | 25 | 25 | | 185.9 | 31 | 169 | 50 | 50 |
| 10-606 | 1-1/4F | 1-1/4F | 15-160 | 795 | 1.25 | 8.37 | 2.47 | 2.62 |
| | 32 | 32 | | 360.5 | 31 | 212 | 63 | 67 |
| 10-607 | 1-1/2F | 1-1/2F | 15-160 | 1100 | 2.00 | 10.75 | 2.75 | 3.12 |
| | 40 | 40 | | 498.9 | 50 | 273 | 69 | 79 |
| 10-608 | 2F | 2F | 15-160 | 2375 | 2.19 | 14.00 | 3.69 | 3.50 |
| | 50 | 50 | | 1077.1 | 55 | 355 | 93 | 88 |
| 10-614 | 3/4F | 1 F | 15-160 | 226 | 1.03 | 5.25 | 1.72 | 1.56 |
| | 20 | 25 | | 102.5 | 26 | 133 | 43 | 39 |
| 10-615 | 1 F | 1-1/4F | 15-160 | 390 | 1.25 | 6.69 | 2.00 | 2.00 |
| | 25 | 32 | | 176.9 | 31 | 169 | 50 | 50 |
| 10-616 | 1-1/4F | 1-1/2F | 15-160 | 755 | 1.25 | 8.37 | 2.47 | 2.62 |
| | 32 | 40 | | 342.4 | 31 | 212 | 63 | 67 |
| 10-617 | 1-1/2F | 2F | 15-160 | 1145 | 2.00 | 10.75 | 2.75 | 3.12 |
| | 40 | 50 | | 519.3 | 50 | 273 | 69 | 79 |
| 10-618 | 2F | 2-1/2F | 15-160 | 2315 | 2.19 | 14.00 | 3.66 | 3.50 |
| | 50 | 65 | | 1049.9 | 55 | 355 | 92 | 88 |

### P/N SUFFIX KEY

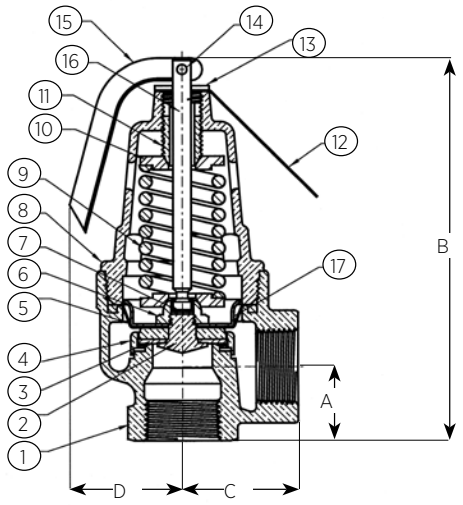
| SET PRESSURE PSIG | SUFFIX |
|---|---|
| 15 | -01 |
| 20 | -02 |
| 22 | -03 |
| 25 | -04 |
| 30 | -05 |
| 35 | -06 |
| 40 | -07 |
| 43 | -08 |
| 45 | -09 |
| 50 | -10 |
| 55 | -11 |
| 60 | -12 |
| 65 | -13 |
| 70 | -14 |
| 75 | -15 |
| 80 | -16 |

| SET PRESSURE PSIG | SUFFIX |
|---|---|
| 85 | -17 |
| 90 | -18 |
| 95 | -19 |
| 100 | -20 |
| 105 | -21 |
| 110 | -22 |
| 115 | -23 |
| 120 | -24 |
| 125 | -25 |
| 130 | -30 |
| 135 | -31 |
| 140 | -32 |
| 145 | -33 |
| 150 | -34 |
| 155 | -35 |
| 160 | -36 |

### ORDERING CODE
- Use two-digit suffix number to indicate Inlet x Outlet size and set pressure.

EXAMPLE:
10-615-12 = 1"x 1-1/4" 10-610 set 60 psig
10-608-05 = 2"x 2" 10-600 set 30 psig

## 10-600 SERIES
HIGH CAPACITY HOT WATER BOILER SAFETY RELIEF




## STANDARD MATERIAL LIST

| | | |
|---|---|---|
| **1** | Body | Bronze Alloy C84400 |
| **2** | Seat Insert | Brass, ASTM B-16 |
| **3** | Seat | Silicone |
| **4** | Disc | Brass ASTM B-16 |
| **5** | Diaphragm | Fabric Reinforce EPDM |
| **6** | Stem Nut | Steel, Plated |
| **7** | Spacer | Silicone |
| **8** | Cap | Bronze Alloy C84400 |
| **9** | Spring | Plated ASTM A228 |
| **10** | Spring Washer | AISI 12L14 Steel |
| **11** | Adj. Screw | Brass, ASTM B-16 |
| **12** | Nameplate | Aluminum |
| **13** | Lift Washer | Steel, Plated |
| **14** | Handle Rivet | Steel, Plated |
| **15** | Lift Handle | Steel, Plated |
| **16** | Stem Nut | Steel, Plated |
| **17** | Diaphragm Ret. | Steel, Plated |

## ASME SECTION IV HOT WATER

- British thermal units per hour (kilocalories per hour) at 10% overpressure. National Board Certified. Ratings are 90% of actual.



## US CUSTOMARY UNITS BTU/HR.

| PART NO. (IN.) | 10-604 3/4 X 3/4 | 10-605 1 X 1 | 10-606 1-1/4 X 1-1/4 | 10-607 1-1/2 X 1-1/2 | 10-608 2 X 2 |
|---|---|---|---|---|---|
| | | | SET PRESSURE PSIG | | |
| 15 | 541,000 | 876,000 | 1,515,000 | 2,061,000 | 3,397,000 |
| 20 | 636,000 | 1,030,000 | 1,782,000 | 2,424,000 | 3,996,000 |
| 25 | 732,000 | 1,185,000 | 2,049,000 | 2,788,000 | 4,595,000 |
| 30 | 827,000 | 1,339,000 | 2,316,000 | 3,151,000 | 5,193,000 |
| 35 | 923,000 | 1,493,000 | 2,583,000 | 3,514,000 | 5,792,000 |
| 40 | 1,018,000 | 1,648,000 | 2,850,000 | 3,878,000 | 6,391,000 |
| 45 | 1,113,000 | 1,802,000 | 3,117,000 | 4,241,000 | 6,990,000 |
| 50 | 1,209,000 | 1,956,000 | 3,384,000 | 4,604,000 | 7,589,000 |
| 55 | 1,304,000 | 2,111,000 | 3,651,000 | 4,968,000 | 8,188,000 |
| 60 | 1,399,000 | 2,265,000 | 3,918,000 | 5,331,000 | 8,786,000 |
| 65 | 1,495,000 | 2,420,000 | 4,185,000 | 5,694,000 | 9,385,000 |
| 70 | 1,590,000 | 2,574,000 | 4,453,000 | 6,058,000 | 9,984,000 |
| 75 | 1,686,000 | 2,728,000 | 4,720,000 | 6,421,000 | 10,583,000 |
| 80 | 1,781,000 | 2,883,000 | 4,987,000 | 6,784,000 | 11,182,000 |
| 85 | 1,876,000 | 3,037,000 | 5,254,000 | 7,148,000 | 11,780,000 |
| 90 | 1,972,000 | 3,192,000 | 5,521,000 | 7,511,000 | 12,379,000 |
| 95 | 2,067,000 | 3,346,000 | 5,788,000 | 7,874,000 | 12,978,000 |
| 100 | 2,162,000 | 3,500,000 | 6,055,000 | 8,238,000 | 13,577,000 |
| 105 | 2,258,000 | 3,655,000 | 6,322,000 | 8,601,000 | 14,176,000 |
| 110 | 2,353,000 | 3,809,000 | 6,589,000 | 8,964,000 | 14,775,000 |
| 115 | 2,449,000 | 3,963,000 | 6,856,000 | 9,327,000 | 15,373,000 |
| 120 | 2,544,000 | 4,118,000 | 7,123,000 | 9,691,000 | 15,972,000 |
| 125 | 2,639,000 | 4,272,000 | 7,390,000 | 10,054,000 | 16,571,000 |
| 130 | 2,735,000 | 4,427,000 | 7,657,000 | 10,417,000 | 17,170,000 |
| 135 | 2,830,000 | 4,581,000 | 7,924,000 | 10,781,000 | 17,769,000 |
| 140 | 2,925,000 | 4,735,000 | 8,191,000 | 11,144,000 | 18,368,000 |
| 145 | 3,021,000 | 4,890,000 | 8,458,000 | 11,507,000 | 18,966,000 |
| 150 | 3,116,000 | 5,044,000 | 8,725,000 | 11,871,000 | 19,565,000 |
| 155 | 3,212,000 | 5,199,000 | 8,992,000 | 12,234,000 | 20,164,000 |
| 160 | 3,307,000 | 5,353,000 | 9,260,000 | 12,597,000 | 20,763,000 |

## METRIC UNITS Kcal/HR.

| PART NO. (MM) | 10-604 20 X 20 | 10-605 25 X 25 | 10-606 32 X 32 | 10-607 40 X 40 | 10-608 50X 50 |
|---|---|---|---|---|---|
| | | | SET PRESSURE BARG | | |
| 1.03 | 136 | 221 | 382 | 520 | 857 |
| 1.38 | 160 | 260 | 449 | 611 | 1,008 |
| 1.72 | 185 | 299 | 517 | 703 | 1,159 |
| 2.07 | 209 | 351 | 584 | 795 | 1,310 |
| 2.41 | 233 | 377 | 651 | 886 | 1,461 |
| 2.76 | 257 | 416 | 719 | 978 | 1,612 |
| 3.10 | 281 | 454 | 786 | 1,070 | 1,763 |
| 3.45 | 305 | 493 | 853 | 1,161 | 1,914 |
| 3.79 | 329 | 532 | 921 | 1,253 | 2,065 |
| 4.14 | 353 | 571 | 988 | 1,344 | 2,219 |
| 4.48 | 377 | 610 | 1,055 | 1,436 | 2,367 |
| 4.83 | 401 | 649 | 1,123 | 1,528 | 2,518 |
| 5.17 | 425 | 688 | 1,190 | 1,619 | 2,669 |
| 5.51 | 449 | 727 | 1,258 | 1,711 | 2,820 |
| 5.86 | 473 | 766 | 1,325 | 1,803 | 2,971 |
| 6.20 | 497 | 805 | 1,393 | 1,894 | 3,122 |
| 6.55 | 521 | 844 | 1,560 | 1,986 | 3,273 |
| 6.89 | 545 | 883 | 1,527 | 2,076 | 3,424 |
| 7.24 | 569 | 922 | 1,594 | 2,169 | 3,575 |
| 7.58 | 593 | 961 | 1,662 | 2,261 | 3,726 |
| 7.93 | 618 | 999 | 1,729 | 2,352 | 3,877 |
| 8.27 | 642 | 1,039 | 1,796 | 2,444 | 4,028 |
| 8.62 | 666 | 1,077 | 1,864 | 2,536 | 4,179 |
| 8.96 | 690 | 1,116 | 1,931 | 2,627 | 4,330 |
| 9.31 | 714 | 1,155 | 1,998 | 2,719 | 4,481 |
| 9.65 | 738 | 1,194 | 2,066 | 2,811 | 4,632 |
| 10.00 | 762 | 1,233 | 2,133 | 2,902 | 4,783 |
| 10.34 | 786 | 1,272 | 2,200 | 2,994 | 4,934 |
| 10.69 | 810 | 1,311 | 2,268 | 3,085 | 5,085 |
| 11.03 | 834 | 1,350 | 2,335 | 3,177 | 5,236 |

## 10-610 SERIES
HIGH CAPACITY HOT WATER BOILER SAFETY RELIEF

## ASME SECTION IV - HOT WATER
- British thermal units per hour (kilocalories per hour) at 10% overpressure. National Board Certified. Ratings are 90% of actual.

### US CUSTOMARY UNITS BTU/HR.

| PART NO. (IN.) | 10-614 3/4 X 1 | 10-615 1 X 1-1/4 | 10-616 1-1/4 X 1-1/2 | 10-617 1-1/2 X 2 | 10-618 2 X 2-1/2 |
|---|---|---|---|---|---|
| SET PRESSURE PSIG | | | | | |
| 15 | 635,000 | 1,027,000 | 1,777,000 | 2,417,000 | 3,984,000 |
| 20 | 746,000 | 1,208,000 | 2,090,000 | 2,843,000 | 4,686,000 |
| 25 | 858,000 | 1,389,000 | 2,403,000 | 3,270,000 | 5,389,000 |
| 30 | 970,000 | 1,570,000 | 2,716,000 | 3,696,000 | 6,091,000 |
| 35 | 1,082,000 | 1,751,000 | 3,030,000 | 4,122,000 | 6,793,000 |
| 40 | 1,194,000 | 1,933,000 | 3,343,000 | 4,548,000 | 7,496,000 |
| 45 | 1,306,000 | 2,114,000 | 3,656,000 | 4,974,000 | 8,198,000 |
| 50 | 1,418,000 | 2,295,000 | 3,969,000 | 5,400,000 | 8,900,000 |
| 55 | 1,529,000 | 2,476,000 | 4,283,000 | 5,826,000 | 9,603,000 |
| 60 | 1,641,000 | 2,657,000 | 4,596,000 | 6,252,000 | 10,305,000 |
| 65 | 1,753,000 | 2,838,000 | 4,909,000 | 6,679,000 | 11,007,000 |
| 70 | 1,865,000 | 3,019,000 | 5,222,000 | 7,105,000 | 11,710,000 |
| 75 | 1,977,000 | 3,200,000 | 5,535,000 | 7,531,000 | 12,412,000 |
| 80 | 2,089,000 | 3,381,000 | 5,849,000 | 7,957,000 | 13,114,000 |
| 85 | 2,201,000 | 3,562,000 | 6,162,000 | 8,383,000 | 13,817,000 |
| 90 | 2,313,000 | 3,743,000 | 6,475,000 | 8,809,000 | 14,519,000 |
| 95 | 2,424,000 | 3,924,000 | 6,788,000 | 9,235,000 | 15,221,000 |
| 100 | 2,536,000 | 4,105,000 | 7,101,000 | 9,661,000 | 15,924,000 |
| 105 | 2,648,000 | 4,286,000 | 7,415,000 | 10,088,000 | 16,626,000 |
| 110 | 2,760,000 | 4,468,000 | 7,728,000 | 10,514,000 | 17,328,000 |
| 115 | 2,872,000 | 4,649,000 | 8,041,000 | 10,940,000 | 18,031,000 |
| 120 | 2,984,000 | 4,830,000 | 8,354,000 | 11,366,000 | 18,733,000 |
| 125 | 3,096,000 | 5,011,000 | 8,668,000 | 11,792,000 | 19,435,000 |
| 130 | 3,207,000 | 5,192,000 | 8,981,000 | 12,218,000 | 20,138,000 |
| 135 | 3,319,000 | 5,373,000 | 9,294,000 | 12,644,000 | 20,840,000 |
| 140 | 3,431,000 | 5,554,000 | 9,607,000 | 13,070,000 | 21,543,000 |
| 145 | 3,543,000 | 5,735,000 | 9,920,000 | 13,497,000 | 22,245,000 |
| 150 | 3,655,000 | 5,916,000 | 10,234,000 | 13,923,000 | 22,947,000 |
| 155 | 3,767,000 | 6,097,000 | 10,547,000 | 14,349,000 | 23,650,000 |
| 160 | 3,879,000 | 6,278,000 | 10,860,000 | 14,775,000 | 24,352,000 |

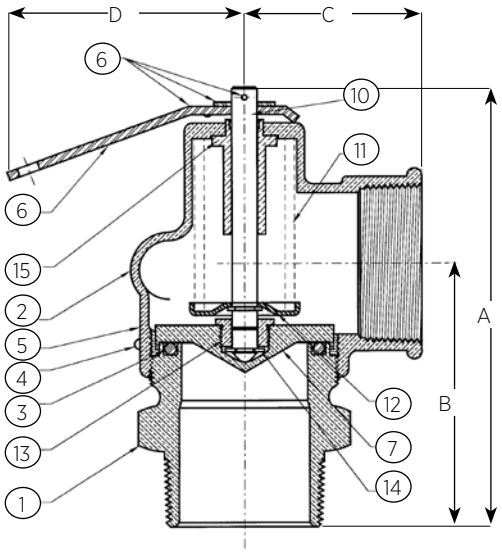
### METRIC UNITS Kcal/HR.

| PART NO. (MM) | 10-614 20 X 25 | 10-615 25 X 32 | 10-616 32 X 40 | 10-617 40 X 50 | 10-618 50 X 65 |
|---|---|---|---|---|---|
| SET PRESSURE BARG | | | | | |
| 1.03 | 160 | 259 | 448 | 610 | 1,005 |
| 1.38 | 188 | 305 | 527 | 717 | 1,182 |
| 1.72 | 216 | 350 | 606 | 825 | 1,359 |
| 2.07 | 245 | 396 | 645 | 932 | 1,536 |
| 2.41 | 273 | 442 | 765 | 1,040 | 1,713 |
| 2.76 | 301 | 488 | 843 | 1,147 | 1,890 |
| 3.10 | 329 | 533 | 922 | 1,254 | 2,067 |
| 3.45 | 358 | 579 | 932 | 1,362 | 2,244 |
| 3.79 | 386 | 624 | 1,080 | 1,469 | 2,422 |
| 4.14 | 414 | 670 | 1,159 | 1,577 | 2,599 |
| 4.48 | 442 | 716 | 1,238 | 1,684 | 2,776 |
| 4.83 | 470 | 761 | 1,317 | 1,792 | 2,953 |
| 5.17 | 498 | 807 | 1,396 | 1,899 | 3,130 |
| 5.51 | 527 | 827 | 1,475 | 2,007 | 3,307 |
| 5.86 | 555 | 898 | 1,554 | 2,114 | 3,485 |
| 6.20 | 583 | 944 | 1,633 | 2,222 | 3,662 |
| 6.55 | 611 | 990 | 1,712 | 2,329 | 3,839 |
| 6.89 | 640 | 1,035 | 1,791 | 2,437 | 4,016 |
| 7.24 | 668 | 1,081 | 1,870 | 2,544 | 4,193 |
| 7.58 | 696 | 1,127 | 1,949 | 2,652 | 4,370 |
| 7.93 | 724 | 1,172 | 2,028 | 2,759 | 4,547 |
| 8.27 | 752 | 1,218 | 2,107 | 2,866 | 4,724 |
| 8.62 | 781 | 1,264 | 2,186 | 2,974 | 4,901 |
| 8.96 | 809 | 1,309 | 2,265 | 3,081 | 5,079 |
| 9.31 | 837 | 1,355 | 2,344 | 3,189 | 5,256 |
| 9.65 | 865 | 1,401 | 2,423 | 3,296 | 5,433 |
| 10.00 | 893 | 1,446 | 2,502 | 3,404 | 5,610 |
| 10.34 | 922 | 1,492 | 2,581 | 3,511 | 5,787 |
| 10.69 | 950 | 1,538 | 2,660 | 3,619 | 5,964 |
| 11.03 | 978 | 1,583 | 2,739 | 3,726 | 6,141 |

## 12-200 SERIES
LOW PRESSURE STEAM HEATING BOILER SAFETY

HV






Medium capacity safety valves protect ASME Section IV low pressure steam heating boilers. Cast bronze, full nozzle design features PTFE faced elastomer soft seating for dependable operation. Ideal for OEM applications.

### ASME SECTION IV
- Sizes 2", 2-1/2" and 3"
- Factory Set Pressures 5-15 psi

### APPLICATIONS
- Medium and Large Commercial and Industrial Steam Heating and Processing Boilers

### FEATURES
- All Bronze Construction
- PTFE-Coated O-Ring Seat Seal
- 3/8" NPT Side Tapping for Drain
- Rust-Proofed Steel Spring
- Top Guided, High Capacity Design
- Registered in all Canadian Provinces and Territories, CRN #0G8547.5C
- National Board Certified at 15 psig
- **Proudly Made in USA**

### AVAILABLE CONFIGURATIONS

| PART NUMBER | SIZE (IN./MM) | | WT./EA. (LB./KG) | DIMENSIONS (IN./MM) | | | |
|---|---|---|---|---|---|---|---|
| | INLET NPT | OUTLET NPT | | A | B | C | D |
| 12-205 | 2M | 2F | 5.1 | 6.00 | 3.75 | 2.62 | 4.00 |
| | 50 | 50 | 2.3 | 152 | 95 | 67 | 102 |
| 12-206 | 2-1/2M | 2-1/2F | 8.4 | 8.50 | 5.25 | 3.06 | 4.00 |
| | 65 | 65 | 3.8 | 216 | 133 | 78 | 102 |
| 12-208 | 3M | 3F | 11.6 | 9.50 | 6.00 | 3.75 | 4.00 |
| | 80 | 80 | 5.3 | 241 | 152 | 95 | 102 |

### STANDARD MATERIAL LIST

| | | |
|---|---|---|
| **1** | Nozzle | Bronze, ASTM B584 |
| **2** | Body | Bronze, ASTM B584 |
| **3** | O-Ring | Teflon® Coated EPDM |
| **4** | Drive Screw | AISI 1010 Plated CR Steel |
| **5** | Nameplate | Aluminum |
| **6** | Handle Assembly | Steel, Plated |
| **7** | Disc | Brass, ASTM B-16 |
| **8** | Stem | Brass, ASTM B-16 |
| **9** | Spring | Stainless Steel |
| **10** | Spr. Washer | AISI 1010 Plated CR Steel |
| **11** | Stem Nut | Brass, ASTM B-16 |
| **12** | Retainer Ring | Brass, ASTM B-16 |
| **13** | Guide | Brass, ASTM B-16 |

### P/N SUFFIX KEY

| SET PRESSURE PSIG | SUFFIX |
|---|---|
| 5 | -03 |
| 6 | -04 |
| 8 | -05 |
| 10 | -06 |
| 12 | -07 |
| 15 | -08 |

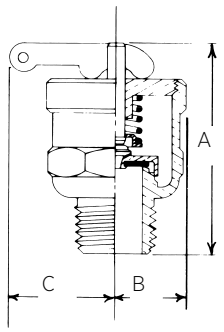
### ORDERING CODE
- Use two-digit suffix number to indicate set pressure and body finish.

EXAMPLE:
12-205-08 = 2" 12 Series set 15 psig

## 13 SERIES
LOW PRESSURE STEAM HEATING BOILER SAFETY VALVES

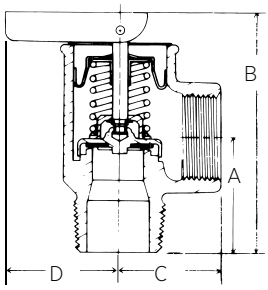
HV





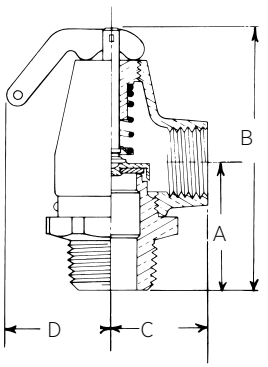

**13-101**






**13-511**






**13-200**

ASME Section IV bronze safety valves protect small to medium low pressure steam heating boilers. Three design configurations feature top guiding and raised seating area for extended service life. Available top and side discharge models.

### ASME SECTION IV
- Inlet Sizes 3/4" to 2"
- Factory Set Pressures from 5-15 psig

### APPLICATIONS
- Low Pressure Steam Heating and Supply Boilers

### FEATURES
- Flat Seat, PTFE Faced Disc for Positive Seal
- Standard Set Pressure of 15 psig
- Positive Drainage of Condensate from Seat Area
- No. 13-101 is Top Outlet Discharge
- Registered in all Canadian Provinces and Territories, CRN #0G8547.5C
- ASME and National Board Certified at 15 psig
- **Proudly Made in USA**

### OPTIONS
- Satin or Polished Chrome Finishes

### AVAILABLE CONFIGURATIONS

| PART NUMBER | SIZE (IN./MM) | | WT./100 (LB./KG) | DIMENSIONS (IN./MM) | | | |
|---|---|---|---|---|---|---|---|
| | INLET NPT | OUTLET NPT | | A | B | C | D |
| 13-101 | 3/4 M | Top | 64 | 2.87 | 0.94 | 1.25 | – |
| | 20 | | 29.0 | 73 | 23 | 31 | – |
| 13-211 | 3/4 M | 3/4 F | 107 | 1.81 | 3.69 | 1.44 | 1.41 |
| | 20 | 20 | 48.5 | 46 | 93 | 36 | 35 |
| 13-202 | 1 M | 1 F | 110 | 2.06 | 3.87 | 1.53 | 1.41 |
| | 25 | 25 | 49.9 | 52 | 98 | 39 | 35 |
| 13-213 | 1-1/4 M | 1-1/2 F | 218 | 2.53 | 4.50 | 1.87 | 1.50 |
| | 32 | 40 | 98.9 | 64 | 114 | 47 | 38 |
| 13-214 | 1-1/2 M | 2 F | 320 | 3 | 5.25 | 2.19 | 1.81 |
| | 40 | 50 | 145.1 | 76 | 133 | 55 | 46 |
| 13-511 | 3/4 M | 3/4 F | 62 | 1.69 | 3.25 | 1.19 | 1.25 |
| | 20 | 20 | 28.1 | 42 | 82 | 30 | 31 |
| 13-512 | 3/4 F | 3/4 F | 59 | 1.19 | 2.75 | 1.19 | 1.25 |
| | 20 | 20 | 26.8 | 30 | 69 | 30 | 31 |

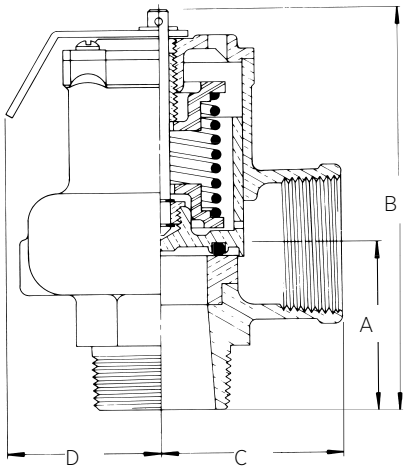
### PART NUMBER MATRIX

| 13-XXX | -X | -XX | -X |
|---|---|---|---|
| MODEL | FINISH | SET PRESSURE | OPTIONS |
| 101 - 3/4"M X TOP | B - PLAIN BRASS | SET PRESSURE IN PSIG | A - AIR SERVICE (NON-ASME) |
| 211 - 3/4"M X 3/4"F | S - SATIN CHROME* | (2 DIGITS) | |
| 202 - 1"M X 1"F | P - POLISHED CHROME* | | |
| 213 - 1-1/4"M X 1-1/2"F | *AVAILABLE ON SELECT MODELS | | |
| 214 - 1-1/2"M X 2"F | | | |
| 511 - 3/4"M X 3/4"F | | | |
| 512 - 3/4" F X 3/4"F | | | |
| EXAMPLE: 13-511-B15 = 3/4" 13-511 set at 15 psig | | | |

## 14-200 SERIES
LOW PRESSURE STEAM HEATING SAFETY VALVE

HV






### FEATURES
- One Piece Body, All Bronze Construction
- Rust-Proofed Steel Spring
- Chrome Plated Seat, PTFE Coated Disc
- PTFE Coated EPDM O-Ring for Positive Sseal
- 3/8" NPT Side Tapping for Drain Connection
- Valves are Capacity Certified by the National Board at 15 psig Only, in Accordance with ASME Boiler and Pressure Vessel Code Section IV
- Registered in all Canadian Provinces and Territories, CRN #0G8547.5C
- **Proudly Made in USA**

### ASME SECTION IV
- Sizes 2", 2-1/2" and 3"
- Factory Set Pressures 5-15 psi

### APPLICATIONS
- The 14 Series is an ASME Section IV High Capacity Steam Safety Valve for Use With Medium and Large Size Commercial and Industrial Heating Boilers

### OPTIONS
- (-G) Test Gag Available to Prevent the Valve from Opening During Hydrostatic Boiler Testing

### AVAILABLE CONFIGURATIONS

| PART NUMBER | SIZE (IN./MM) | | WT./EA. (LB./KG) | DIMENSIONS (IN./MM) | | | |
|---|---|---|---|---|---|---|---|
| | INLET NPT | OUTLET NPT | | A | B | C | D |
| 14-205 | 2M | 2F | 8.4 | 3.00 | 7.12 | 3.12 | 4.00 |
| | 50M | 50F | 3.8 | 76 | 181 | 79 | 101 |
| 14-206 | 2-1/2M | 2-1/2F | 13.0 | 3.50 | 8.25 | 3.50 | 4.00 |
| | 65M | 65F | 5.9 | 88 | 209 | 88 | 101 |
| 14-207 | 3M | 3F | 17.0 | 4.12 | 9.37 | 3.87 | 4.00 |
| | 80M | 80F | 7.7 | 104 | 238 | 98 | 101 |

### ORDERING CODE
- Use model number and two digit suffix number to indicate size and set pressure.

### P/N SUFFIX KEY

| SET PRESSURE PSIG | SUFFIX |
|---|---|
| 5 | -03 |
| 6 | -04 |
| 8 | -05 |
| 10 | -06 |
| 12 | -07 |
| 15 | -08 |

EXAMPLE:
14-206-08 = 2-1/2" valve set 15 psig
Note:
ASME IV and NB certified capacities at 15 psi only
Valves may be set for any pressure between 5 and 15 psi. Consult factory for set pressures not listed.
To specify test gag option add "G" to suffix.

## 12, 13 & 14 SERIES
LOW PRESSURE STEAM HEATING BOILER SAFETY VALVE

## ASME SECTION IV - STEAM
Pounds per hour (kilograms per hour) saturated steam at 33-1/3% overpressure. National Board Certified. Ratings are 90% of actual.

## US CUSTOMARY UNITS BTU/HR.

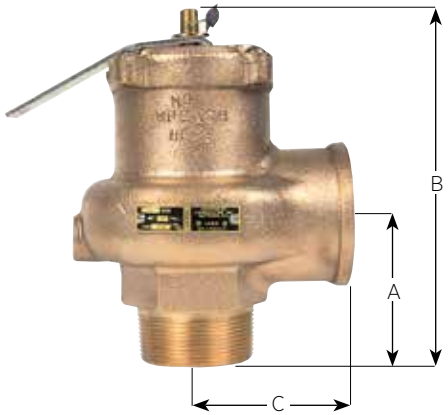
| PART NO. (IN.) | 12-205 2 X 2 | 12-206 2-1/2 X 2-1/2 | 12-208 3 X 3 | 13-101 3/4 | 13-202 1 X 1 | 13-211 3/4 X 3/4 | 13-213 1-1/4 X 1-1/2 | 13-214 1-1/2 X 2 | 13-511 13-512 3/4 X 3/4 | 14-205 2 X 2 | 14-206 2-1/2 X 2-1/2 | 14-207 3 X 3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SET PRESSURE PSIG | | | | | | | | | | | | |
| 5* | 1,439 | 2,043 | 2,855 | 333 | 374 | 290 | 699 | 1,106 | 213 | 1,815 | 2,695 | 3,944 |
| 10* | 1,969 | 2,786 | 3,478 | 372 | 509 | 383 | 950 | 1,503 | 310 | 2,483 | 3,686 | 5,394 |
| 15 | 2,500 | 3,529 | 4,100 | 410 | 643 | 475 | 1,200 | 1,900 | 407 | 3,150 | 4,676 | 6,843 |

## METRIC UNITS Kcal/HR.

| PART NO. (MM) | 12-205 50 X 50 | 12-206 65 X 65 | 12-208 80 X 80 | 13-101 20 | 13-202 25 X 25 | 13-211 20X20 | 13-213 32 X 40 | 13-214 40 X 50 | 13-511 13-512 20 X 20 | 14-205 50 X 50 | 14-206 65 X 65 | 14-207 80 X 80 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SET PRESSURE BARG | | | | | | | | | | | | |
| 0.34 | 653 | 927 | 1,295 | 151 | 170 | 131 | 317 | 502 | 97 | 823 | 1,222 | 1,789 |
| 0.69 | 893 | 1,264 | 1,577 | 169 | 231 | 174 | 431 | 682 | 141 | 1,126 | 1,672 | 2,447 |
| 1.03 | 1,134 | 1,601 | 1,860 | 186 | 292 | 215 | 544 | 862 | 185 | 1,429 | 2,121 | 3,103 |

**ASME Section IV and NB certified capacities at 15 psi only.*
*Valves may be set for any pressure between 5 and 15 psi. Consult factory for set pressures not listed.*

## 14-400 & 14-500 SERIES
LOW PRESSURE AIR RELIEF




**14-400**
**W/ LIFT LEVER**




**14-500**
**SEALED CAP**

High volume air relief valves designed for low pressure/high volume air and gas service. Rugged bronze construction features elastomer soft seating and TFE coated discs for dependable operation.

- Inlet Sizes 2", 2-1/2" and 3"
- Factory Set Pressures 4 to 22 psig @ 400˚F max.

### APPLICATIONS
- Non-ASME Code Air and Gas Service
- Low Pressure, High Volume Blowers and Compressors
- Bulk Hauling Tanks, Trailers and Rail Cars
- Powdered Solids / Bulk Handling
- Pneumatic Conveying Equipment

### FEATURES
- Vibration Resistant Soft Seat is Standard
- Stainless Steel Spring
- One Piece Corrosion Resistant Bronze Body Design
- High Flow "Top-Guided" Design

### OPTIONS
- Model 14-400 with Test Lever
- Model 14-500 with Plain Cap, Weather Resistant Sealed Body

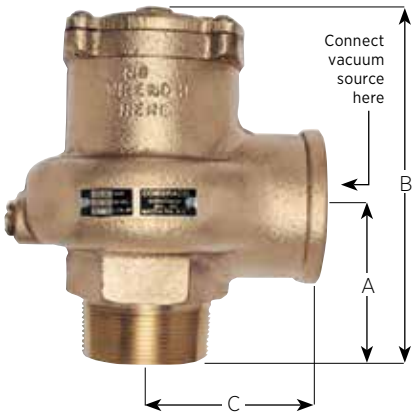
### AVAILABLE CONFIGURATIONS

| PART NUMBER | SIZE (IN./MM) | DIMENSIONS (IN./MM) | | | WT./EA. (LB./KG) |
|---|---|---|---|---|---|
| | | A | B | C | |
| 14-X05 | 2 x 2 | 3 | 6-1/2 | 3-1/8 | 8.4 |
| | 50M x 50F | 76 | 165 | 79 | 3.81 |
| 14-X06 | 2-1/2 x 2-1/2 | 3-1/2 | 7-5/8 | 3-1/2 | 12.5 |
| | 65M x 65F | 89 | 194 | 89 | 5.7 |
| 14-X07 | 3 x 3 | 4-1/8 | 8-3/4 | 3-7/8 | 17.0 |
| | 80M x 80F | 105 | 222 | 98 | 7.7 |

### PART NUMBER MATRIX

| 14 | -X | -XX | -X |
|---|---|---|---|
| SERIES NUMBER | BODY/CAP STYLE AND SERVICE | INLET CONNECTION | RELIEF PRESSURE |
| 14 - BASE PART NO. | 4 - AIR RELIEF, WITH TEST LEVER | 05 - 2" NPT | SET PRESSURE IN PSIG (2 DIGITS) |
| | 5 - AIR RELIEF, PLAIN CAP | 06 - 2-1/2" NPT | |
| | | 07 - 3" NPT | |
| EXAMPLES: 14-406 12 = 2-1/2" 14 Series air relief valve set at 12 psig, with lift lever | | | |

## 14-600 SERIES
VACUUM RELIEF




**14-600**

High flow vacuum relief valves feature one piece cast bronze bodies. Teflon coated discs and elastomer soft seating provide accurate and dependable operation.

- Connection Sizes 2", 2-1/2" and 3"
- Relief Settings 8" to 30" Hg @ 400˚F max.

## APPLICATIONS
- High Volume Vacuum Systems
- Bulk Hauling Tanks and Trailers
- Powdered Solids / Bulk Handling
- Pneumatic Conveying Equipment

## FEATURES
- Weather Resistant Construction
- Elastomer Soft Seat is Vibration Resistant
- Stainless Steel Spring
- One Piece Corrosion Resistant Bronze Body Design
- High Capacity "Top-Guided" Design
- TFE / Chrome Plated Internals

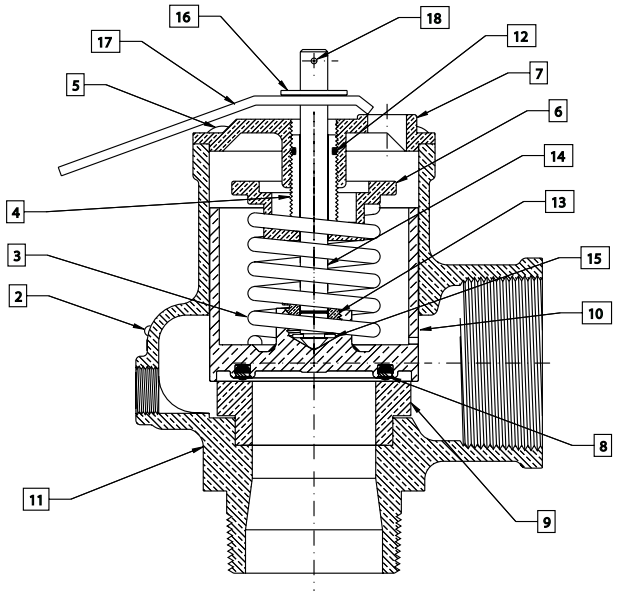
## AVAILABLE CONFIGURATIONS

| PART NUMBER | SIZE (IN./MM) | DIMENSIONS (IN./MM) | | | WT./EA. (LB./KG) |
|---|---|---|---|---|---|
| | | A | B | C | |
| 14-605 | 2 x 2 | 3 | 6-1/2 | 3-1/8 | 8.4 |
| | 50M x 50F | 76 | 165 | 79 | 3.81 |
| 14-606 | 2-1/2 x 2-1/2 | 3-1/2 | 7-5/8 | 3-1/2 | 11.8 |
| | 65M x 65F | 89 | 194 | 89 | 5.4 |
| 14-607 | 3 x 3 | 4-1/8 | 8-3/4 | 3-7/8 | 16.3 |
| | 80M x 80F | 105 | 222 | 98 | 7.4 |

## PART NUMBER MATRIX

| 14 | -6 | -0X | -VXX |
|---|---|---|---|
| SERIES NUMBER | BODY/CAP STYLE AND SERVICE | INLET CONNECTION | RELIEF PRESSURE |
| 14 - BASE PART NO. | 6 - VACUUM RELIEF | 05 - 2" NPT | VACUUM RELIEF SETTING, HG "V" PREFIX + INCHES MERCURY ("V" + 2 DIGITS) |
| | | 06 - 2-1/2" NPT | |
| | | 07 - 3" NPT | |
| EXAMPLE: 14-607-V14 = 3" vacuum relief valve set at 14 in. Hg | | | |

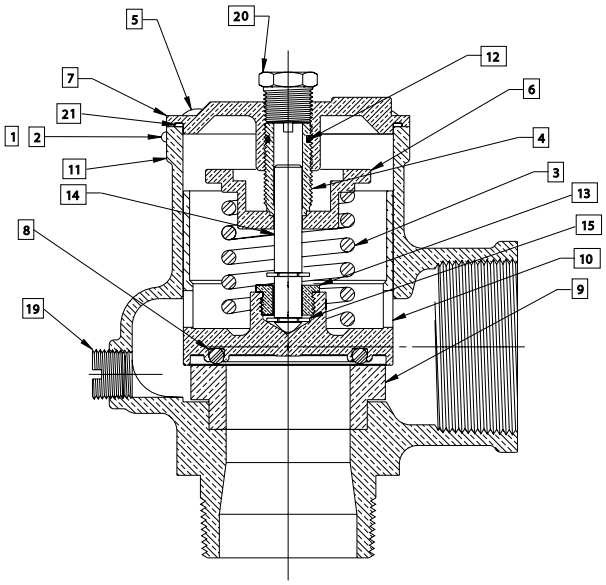
## 14-400 SERIES
LOW PRESSURE AIR RELIEF




### STANDARD MATERIAL LIST

| | | |
|---|---|---|
| 1 | Nameplate | Aluminum |
| 2 | Drive Screws (2) | Steel, Plated |
| 3 | Spring | Stainless Steel |
| 4 | Adjusting Screw | Brass, ASTM B-16 |
| 5 | Cap Screw (4) | Steel, Plated |
| 6 | Spring Washer | Brass, ASTM B-16 |
| 7 | Cap | Bronze, ASTM B-584 |
| 8 | Seat-O-Ring | Silicone |
| 9 | Seat Insert | Brass, ASTM B-16 |
| 10 | Disc | Bronze ,ASTM B-584 |
| 11 | Body | Bronze, ASTM B-584 |
| 12 | Friction Ring | EPDM |
| 13 | Stem Nut | Brass, ASTM B-16 |
| 14 | Stem | Brass, ASTM B-16 |
| 15 | Retaining Ring | Steel, Plated |
| 16 | Lift Washer | Steel, Plated |
| 17 | Lift Lever | Steel, Plated |
| 18 | Roll Pin | Steel, Plated |
| 19 | Plug | Brass, ASTM B-16 |
| 20 | Plug | Brass, ASTM B-16 |
| 21 | Cap Seal O-Ring | Silicone |

## 14-500 & 14-600 SERIES




### STANDARD MATERIAL LIST

| | | |
|---|---|---|
| 1 | Nameplate | Aluminum |
| 2 | Drive Screws (2) | Steel, Plated |
| 3 | Spring | Stainless Steel |
| 4 | Adjusting Screw | Brass, ASTM B-16 |
| 5 | Cap Screw (4) | Steel, Plated |
| 6 | Spring Washer | Brass, ASTM B-16 |
| 7 | Cap | Bronze, ASTM B-584 |
| 8 | Seat-O-Ring | Silicone |
| 9 | Seat Insert | Brass, ASTM B-16 |
| 10 | Disc | Bronze ,ASTM B-584 |
| 11 | Body | Bronze, ASTM B-584 |
| 12 | Friction Ring | EPDM |
| 13 | Stem Nut | Brass, ASTM B-16 |
| 14 | Stem | Brass, ASTM B-16 |
| 15 | Retaining Ring | Steel, Plated |
| 16 | Lift Washer | Steel, Plated |
| 17 | Lift Lever | Steel, Plated |
| 18 | Roll Pin | Steel, Plated |
| 19 | Plug | Brass, ASTM B-16 |
| 20 | Plug | Brass, ASTM B-16 |
| 21 | Cap Seal O-Ring | Silicone |

## 14-400 & 14-500 SERIES
LOW PRESSURE AIR RELIEF

## NON-CODE AIR RELIEF CAPACITIES
- Standard cubic feet per minute (normalized cubic meters per hour) of air at 10% overpressure.

### US CUSTOMARY UNITS SCFM AIR

| ORDERING SUFFIX | PART NO. SIZE (IN.) AREA (IN.²) | 14-405 14-505 2 X 2 2.238 | 14-406 14-506 2-1/2 X 2-1/2 3.339 | 14-407 14-507 3 X 3 5.155 |
|---|---|---|---|---|
| | SET PRESSURE PSIG | | | |
| -04 | 4 | 615 | 914 | 1338 |
| -05 | 5 | 651 | 967 | 1415 |
| -06 | 6 | 687 | 1020 | 1492 |
| -07 | 7 | 722 | 1072 | 1569 |
| -08 | 8 | 758 | 1125 | 1646 |
| -09 | 9 | 793 | 1178 | 1723 |
| -10 | 10 | 829 | 1231 | 1801 |
| -11 | 11 | 864 | 1283 | 1878 |
| -12 | 12 | 900 | 1336 | 1955 |
| -13 | 13 | 935 | 1389 | 2032 |
| -14 | 14 | 971 | 1441 | 2109 |
| -15 | 15 | 1006 | 1494 | 2186 |
| -16 | 16 | 1041 | 1547 | 2263 |
| -17 | 17 | 1076 | 1600 | 2340 |
| -18 | 18 | 1111 | 1653 | 2417 |
| -19 | 19 | 1146 | 1706 | 2494 |
| -20 | 20 | 1181 | 1756 | 2571 |
| -21 | 21 | 1216 | 1809 | 2648 |
| -22 | 22 | 1252 | 1861 | 2725 |

### METRIC UNITS NM3/HR. AIR

| PART NO. SIZE (MM) AREA (CM²) | 14-405 14-505 50 X 50 14.438 | 14-406 14-506 65 X 65 21.544 | 14-407 14-507 80 X 80 33.259 |
|---|---|---|---|
| SET PRESSURE BARG | | | |
| .28 | 988 | 1469 | 2151 |
| .34 | 1046 | 1554 | 2275 |
| .41 | 1104 | 1639 | 2398 |
| .48 | 1161 | 1724 | 2522 |
| .55 | 1218 | 1809 | 2646 |
| .62 | 1275 | 1893 | 2770 |
| .69 | 1332 | 1978 | 2894 |
| .76 | 1389 | 2063 | 3018 |
| .83 | 1446 | 2147 | 3142 |
| .90 | 1503 | 2232 | 3266 |
| .97 | 1560 | 2317 | 3390 |
| 1.03 | 1617 | 2402 | 3514 |
| 1.10 | 1673 | 2487 | 3638 |
| 1.17 | 1730 | 2572 | 3761 |
| 1.24 | 1786 | 2657 | 3885 |
| 1.31 | 1842 | 2742 | 4009 |
| 1.38 | 1899 | 2823 | 4133 |
| 1.45 | 1955 | 2907 | 4257 |
| 1.52 | 2012 | 2992 | 4381 |

## 14-600 SERIES
VACUUM RELIEF

## VACUUM AIR RELIEF CAPACITIES
- Standard cubic feet per minute (normalized cubic meters per hour) of air at 10% overpressure.

### US CUSTOMARY UNITS SCFM AIR

| ORDERING SUFFIX | PART NO. SIZE (IN.) AREA (IN.²) | 14-605 2 X 2 2.238 | 14-606 2-1/2 X 2-1/2 3.339 | 14-607 3 X 3 5.155 |
|---|---|---|---|---|
| | RELIEF SETTING (IN. HG) | | | |
| V08 | 8 | 395 | 600 | 865 |
| V09 | 9 | 405 | 618 | 890 |
| V10 | 10 | 415 | 635 | 915 |
| V11 | 11 | 421 | 642 | 927 |
| V12 | 12 | 426 | 649 | 939 |
| V13 | 13 | 430 | 653 | 943 |
| V14 | 14 | 430 | 653 | 943 |
| V15 | 15 | 430 | 653 | 943 |
| V20 | 20 | 430 | 653 | 943 |
| V25 | 25 | 430 | 653 | 943 |
| V30 | 30 | 430 | 653 | 943 |

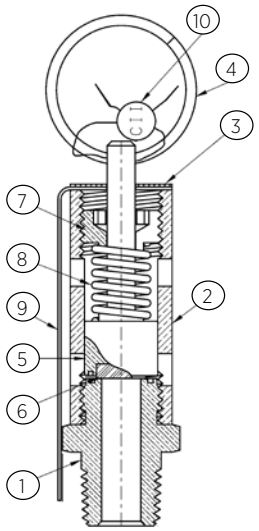
### METRIC UNITS Nm3/Hr. AIR

| PART NO. SIZE (MM) AREA (CM²) | 14-605 50 X 50 14.438 | 14-606 65 X 65 21.544 | 14-607 80 X 80 33.259 |
|---|---|---|---|
| RELIEF SETTING (MM HG) | | | |
| 203 | 635 | 964 | 1390 |
| 229 | 651 | 993 | 1431 |
| 254 | 667 | 1021 | 1471 |
| 279 | 676 | 1479 | 2132 |
| 305 | 685 | 1043 | 1509 |
| 330 | 691 | 1050 | 1516 |
| 356 | 691 | 1050 | 1516 |
| 381 | 691 | 1050 | 1516 |
| 508 | 691 | 1050 | 1516 |
| 635 | 691 | 1050 | 1516 |
| 762 | 691 | 1050 | 1516 |

## 15 SERIES
AIR RELIEF

UV




Rugged design 15 Series air relief valves provide dependable overpressure protection at an economical price. Top guided design features brass construction and resilient seating for superior performance. Widely used by OEM's and for aftermarket replacement.

### ASME SECTION VIII
- Sizes 1/4" through 1"
- Factory Set Pressures 15 to 250 psig
- Maximum Temperature: 325° F

### APPLICATIONS
- Ideal for a Wide Range of Air and Inert Gas Applications Including Compressors, Intercoolers, Dryers, Receivers, Control and Instrument Air Lines, and Pressurized Systems and Equipment

### FEATURES
- National Board Certified 15 psig thru 250 psig
- Viton O-Ring Seat
- Registered in all Canadian Provinces and Territories, CRN #0G8547.5C
- ASTM B16 Brass Body
- RoHS Compliant Materials
- European Pressure Equipment Directive Compliant Option (CE/PED)
- **Proudly Made in USA**

### AVAILABLE CONFIGURATIONS

| PART NUMBER | INLET SIZE (IN./MM) | DIMENSIONS (IN./MM) | | WT./100 (LB./KG) |
|---|---|---|---|---|
| | | A | B | |
| 15-112 | 1/4 NPT | 2.62 | 0.78 | 18.5 |
| | 8 | 66 | 20 | 8.4 |
| 15-115 | 3/8 NPT | 3.25 | 1.12 | 42.2 |
| | 10 | 82 | 28 | 19.2 |
| 15-117 | 1/2 NPT | 3.37 | 1.12 | 45.3 |
| | 15 | 85 | 28 | 20.6 |
| 15-118 | 3/4 NPT | 4.06 | 1.21 | 58 |
| | 20 | 105 | 30 | 26.4 |
| 15-119 | 1 NPT | 5.12 | 1.87 | 153 |
| | 25 | 130 | 47 | 69.5 |

### PART NUMBER MATRIX

| 15-XXX | -X | -XXX | -XX |
|---|---|---|---|
| MODEL AND SIZE (IN.) | FINISH | SET PRESSURE | OPTIONS |
| 112 - 1/4 NPT | B - PLAIN BRASS | SET PRESSURE IN PSIG | CE - PED/CE |
| 115 - 3/8 NPT | | | Q - PERFORMANCE (CALIBRATION) TEST REPORTS |
| 117 - 1/2 NPT | | | |
| 118 - 3/4 NPT | | | |
| 119 - 1 NPT | | | |
| EXAMPLE: 15 117 B 165 = 1/2" 15 Series set at 165 psig. | | | |

### STANDARD MATERIALS LIST

| | | |
|---|---|---|
| **1** | Nozzle | Brass, ASTM B-16 |
| **2** | Body | Brass, ASTM B-16 |
| **3** | Nameplate | Aluminum |
| **4** | Pull Ring | Pltd. AISI 1018 CRS |
| **5** | Disc/Stem | Brass, ASTM B-16 |
| **6** | Seat | Viton |
| **7** | Cap | Brass, ASTM B-16 |
| **8** | Spring | ASTM A-227 Steel |
| **9** | Inst. Tag | Paper |
| **10** | Lead Seal | Lead |

## 15 SERIES
AIR RELIEF

## ASME SECTION VIII - AIR
- Standard cubic feet per minute (normalized cubic meters per hour) of air at 10% overpressure. National Board Certified. Ratings are 90% of actual.

### US CUSTOMARY UNITS SCFM AIR

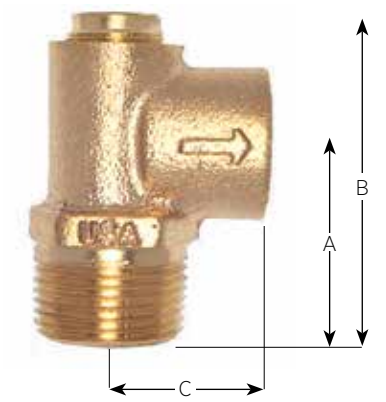
| PART NO. SIZE (IN.) | 15-112 1/4 | 15-115 & 117 3/8 & 1/2 | 15-118 3/4 | 15-119 1 |
|---|---|---|---|---|
| SET PRESSURE PSIG | | | | |
| 15 | 24 | 60 | 107 | 222 |
| 20 | 28 | 70 | 124 | 256 |
| 25 | 32 | 79 | 140 | 290 |
| 30 | 35 | 88 | 156 | 323 |
| 35 | 39 | 98 | 174 | 361 |
| 40 | 43 | 109 | 193 | 398 |
| 45 | 47 | 119 | 211 | 435 |
| 50 | 51 | 128 | 229 | 473 |
| 55 | 55 | 139 | 247 | 510 |
| 60 | 60 | 149 | 265 | 547 |
| 65 | 64 | 159 | 283 | 584 |
| 70 | 68 | 170 | 301 | 622 |
| 75 | 72 | 179 | 319 | 659 |
| 80 | 76 | 190 | 337 | 696 |
| 85 | 80 | 200 | 355 | 734 |
| 90 | 84 | 210 | 373 | 771 |
| 95 | 88 | 220 | 391 | 808 |
| 100 | 92 | 230 | 409 | 845 |
| 105 | 96 | 241 | 427 | 883 |
| 110 | 100 | 251 | 445 | 920 |
| 115 | 104 | 261 | 463 | 957 |
| 120 | 108 | 271 | 481 | 995 |
| 125 | 112 | 281 | 499 | 1,032 |
| 130 | 116 | 292 | 517 | 1,069 |
| 135 | 120 | 302 | 535 | 1,106 |
| 140 | 124 | 312 | 553 | 1,144 |
| 145 | 129 | 322 | 571 | 1,181 |
| 150 | 133 | 332 | 589 | 1,218 |
| 155 | 137 | 342 | 607 | 1,256 |
| 160 | 141 | 353 | 625 | 1,293 |
| 165 | 145 | 363 | 644 | 1,330 |
| 170 | 149 | 373 | 662 | 1,368 |
| 175 | 153 | 383 | 680 | 1,405 |
| 180 | 157 | 393 | 698 | 1,442 |
| 185 | 161 | 403 | 716 | 1,479 |
| 190 | 165 | 414 | 734 | 1,517 |
| 195 | 169 | 424 | 752 | 1,554 |
| 200 | 173 | 432 | 770 | 1,591 |
| 205 | 177 | 444 | 788 | 1,629 |
| 210 | 181 | 454 | 806 | 1,666 |
| 215 | 185 | 464 | 824 | 1,703 |
| 220 | 189 | 475 | 842 | 1,740 |
| 225 | 194 | 484 | 860 | 1,778 |
| 230 | 198 | 495 | 878 | 1,815 |
| 235 | 202 | 505 | 896 | 1,852 |
| 240 | 206 | 515 | 914 | 1,890 |
| 245 | 210 | 525 | 932 | 1,927 |
| 250 | 214 | 535 | 950 | 1,964 |

### METRIC UNITS Nm3/HR. AIR

| PART NO. SIZE (MM) | 15-112 8 | 15-115 & 117 10 & 15 | 15-118 20 | 15-119 25 |
|---|---|---|---|---|
| SET PRESSURE BARG | | | | |
| 1.03 | 39 | 96 | 172 | 357 |
| 1.38 | 45 | 112 | 199 | 411 |
| 1.72 | 51 | 127 | 225 | 466 |
| 2.07 | 57 | 141 | 251 | 519 |
| 2.41 | 63 | 157 | 280 | 580 |
| 2.76 | 69 | 175 | 310 | 640 |
| 3.10 | 75 | 191 | 339 | 699 |
| 3.45 | 82 | 206 | 368 | 760 |
| 3.79 | 88 | 223 | 397 | 820 |
| 4.14 | 96 | 239 | 426 | 879 |
| 4.48 | 103 | 255 | 455 | 939 |
| 4.83 | 109 | 273 | 484 | 1,000 |
| 5.17 | 116 | 288 | 513 | 1,059 |
| 5.51 | 122 | 305 | 542 | 1,119 |
| 5.86 | 129 | 321 | 571 | 1,180 |
| 6.20 | 135 | 337 | 600 | 1,239 |
| 6.55 | 141 | 354 | 628 | 1,299 |
| 6.89 | 148 | 370 | 657 | 1,358 |
| 7.24 | 154 | 387 | 686 | 1,419 |
| 7.58 | 161 | 403 | 715 | 1,479 |
| 7.93 | 167 | 419 | 744 | 1,538 |
| 8.27 | 174 | 436 | 773 | 1,599 |
| 8.62 | 180 | 452 | 802 | 1,659 |
| 8.96 | 186 | 469 | 831 | 1,718 |
| 9.31 | 193 | 485 | 860 | 1,778 |
| 9.65 | 199 | 501 | 889 | 1,839 |
| 10.00 | 207 | 518 | 918 | 1,898 |
| 10.34 | 214 | 534 | 947 | 1,958 |
| 10.69 | 220 | 550 | 976 | 2,019 |
| 11.03 | 227 | 567 | 1,005 | 2,078 |
| 11.38 | 233 | 583 | 1,035 | 2,138 |
| 11.72 | 239 | 600 | 1,064 | 2,199 |
| 12.06 | 246 | 616 | 1,093 | 2,258 |
| 12.41 | 252 | 632 | 1,122 | 2,318 |
| 12.75 | 259 | 648 | 1,151 | 2,377 |
| 13.10 | 265 | 665 | 1,180 | 2,439 |
| 13.44 | 272 | 681 | 1,209 | 2,498 |
| 13.79 | 278 | 694 | 1,238 | 2,557 |
| 14.13 | 285 | 714 | 1,267 | 2,619 |
| 14.48 | 291 | 730 | 1,296 | 2,678 |
| 14.82 | 298 | 746 | 1,325 | 2,738 |
| 15.17 | 305 | 763 | 1,353 | 2,797 |
| 15.51 | 311 | 778 | 1,382 | 2,858 |
| 15.86 | 318 | 796 | 1,411 | 2,918 |
| 16.20 | 324 | 812 | 1,440 | 2,977 |
| 16.55 | 331 | 828 | 1,469 | 3,038 |
| 16.89 | 337 | 844 | 1,498 | 3,098 |
| 17.24 | 344 | 860 | 1,527 | 3,157 |

## 16-200 SERIES
GENERAL PURPOSE PRESSURE RELIEF

LEADFREE OPTIONS




Pressure relief valves relieve excess pressure in cold water supply systems, storage tanks, well pumps. Also suitable for air, oil and other non-hazardous liquids.

## FEATURES
- Standard Pressure Settings from 50 to 175 psi
- Cast Bronze Body, Stainless Steel Pprings
- Silicone Soft Seat Ensures Seat Tightness, Extended Service Life
- All Valves are 100% Factory Tested
- Maximum Recommended Service Temperature: 120˚F
- Lead Free Option, Model 16LF is NSF/ANSI 372 Lead Free
- **Proudly Made in USA**

## AVAILABLE CONFIGURATIONS

| PART NUMBER | LF PART NUMBER | INLET SIZE (IN./MM) | DIMENSIONS (IN./MM) | | | WT./100 (LB./KG) |
|---|---|---|---|---|---|---|
| | | | A | B | C | |
| 16-202 | 16LF-202 | 1/2 M X 1/2 F | 1.41 | 2.12 | 1.00 | 33 |
| | | 15 M x 15 F | 36 | 54 | 25 | 15 |
| 16-203 | 16LF-203 | 3/4 M x 1/2 F | 1.41 | 2.50 | 1.00 | 37.5 |
| | | 20 M x 15 F | 36 | 63 | 25 | 17 |

## ORDERING CODE
- Use model number and two digit suffix number to indicate size and set pressure.

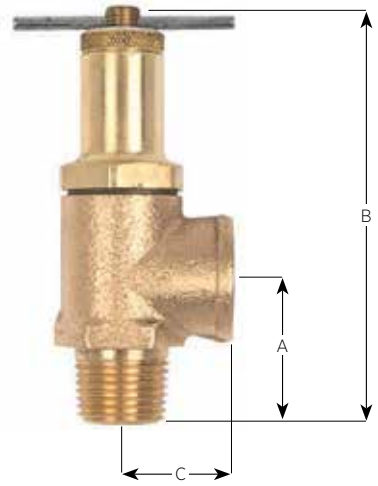
## P/N SUFFIX KEY

| SET PRESSURE PSIG | SUFFIX |
|---|---|
| 50 | -01 |
| 75 | -02 |
| 100 | -03 |
| 125 | -04 |
| 150 | -05 |
| 175 | -06 |

EXAMPLE:
16-202-03 = 1/2" model set at 100 psig
NOTE:
Valves may be set for any pressure between 30 and 180 psi. Consult factory for pressure settings not shown.

## 16-501 SERIES
GENERAL PURPOSE LIQUID RELIEF

LEADFREE OPTIONS




Adjustable relief valves protect equipment by providing low volume liquid relief or bypass control. Excess volume may be discharged back to the low pressure source. Ideal for agricultural sprayers and simple commercial or industrial pressurized systems.

### FEATURES
- Adjustable Relief Settings, in Two Ranges to 600 psi
- Cast Bronze Body, Stainless Steel Springs
- Choice of Nitrile (Buna) or PTFE Soft Seats
- Knurled Locknut Locks Pressure Adjustment
- Viton Stem Seal, Polypropylene Body Gasket
- Maximum Recommended Service Temperature: 200˚F
- **Proudly Made in USA**

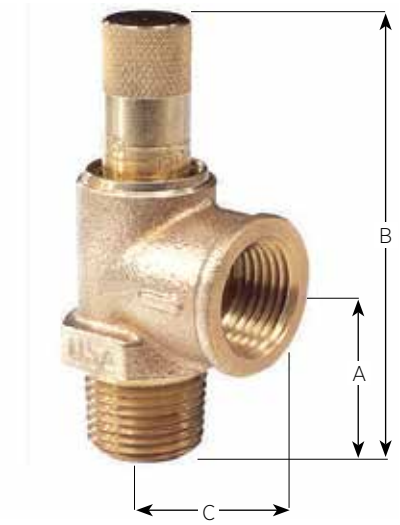
### AVAILABLE CONFIGURATIONS

| PART NUMBER | INLET SIZE (IN./MM) | RELIEF RANGE | SEAT MATERIAL | DIMENSIONS (IN./MM) | | | WT./100 (LB./KG) |
|---|---|---|---|---|---|---|---|
| | | | | A | B | C | |
| 16-501-01 | 1/2 M X 1/2 F 15 M x 15 F | 50 - 250 | Nitrile | 1.29 33 | 4.12 105 | 1.00 25 | 62 28 |
| 16-501-02 | | 250 - 600 | | | | | |
| 16-501-25 | | 50 - 250 | PTFE | | | | |
| 16-501-60 | | 250 - 600 | | | | | |

SAFETY RELIEF VALVES

## 16-503 & 16-504 SERIES
GENERAL PURPOSE LIQUID RELIEF

LEADFREE OPTIONS



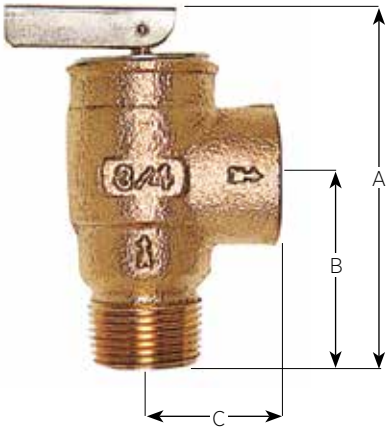

Calibrated pressure relief valve allows for in-line pressure adjustments without the need for a pressure gauge. Provides static overpressure protection for liquid filled systems such as well pumps, tanks, fire protection systems.

### FEATURES
- Choice of 1/2" or 3/4" Inlet Connection
- Factory Preset at 100 psi
- Pressure Range 50 to 175 psi, Calibrated in 25 psi Increments
- Cast Bronze Body, Stainless Steel Spring
- Silicone Soft Seat, EPDM Cap Seal
- Maximum Recommended Service Temperature: 200˚F
- Lead Free Option, Model 16LF is NSF/ANSI 372 Lead Free
- **Proudly Made in USA**

### AVAILABLE CONFIGURATIONS

| PART NUMBER | LF PART NUMBER | INLET SIZE (IN./MM) | DIMENSIONS (IN./MM) | | | WT./100 (LB./KG) |
|---|---|---|---|---|---|---|
| | | | A | B | C | |
| 16-503-01 | 16LF-503-01 | 1/2 M X 1/2 F 15 M x 15 F | 1.31 33 | 3.44 87 | 1.00 25 | 37 17 |
| 16-504-01 | 16LF-504-01 | 3/4 M X 1/2 F 20 M x 15 F | | | | |

## 17-400 SERIES
PRESSURE ONLY HOT WATER RELIEF




17-400 series pressure only relief valves are engineered to protect against excessive pressure buildup due to thermal expansion in hot water supply systems. Both models are CSA certified to ANSI Z21.22 "Relief Valves for Hot Water Supply Systems". In addition the 17-402 is design certified to ASME Section IV for hot water relief.

- Connection Sizes 1/2" (Model 17-401) and 3/4" (Model 17-402)
- CSA Verified to ANSI Z21.22
- Pressure Settings 75 thru 150 psi @ 250˚F max.
- ASME Section IV Hot Water, Model 17-402 Only

### APPLICATIONS
- **Model 17-401**: Overpressure Protection of Domestic Tankless Water Heaters (Instantaneous Water Heaters). Also Ideal for Protecting Plumbing and Well Systems, Small Liquid Filled Vessels and Similar Equipment from Thermal Expansion or Pressure Surges
- **Model 17-402:** In Addition to the Above, also Suitable for ASME Section IV Hot Water Heating and Supply Boilers and Storage Tanks

### FEATURES
- Cast Bronze Body, Stainless Steel Springs
- Soft Seat for Durability, Extended Service Life
- Conforms to HUD / FHA Requirements
- CSA Certified to ANSI Z21.22
- CSA B-51, CRN 0G8547.5C
- **Proudly Made in USA**

### AVAILABLE CONFIGURATIONS

| PART NUMBER | INLET SIZE (IN./MM) | CSA CAPACITY RATING | ASME CAPACITY RATING | DIMENSIONS (IN./MM) | | | WT./100 (LB./KG) |
|---|---|---|---|---|---|---|---|
| | | | | A | B | C | |
| 17-401 | 1/2 M X 1/2 F | 15,000 | – | 3.26 | 1.73 | 1.16 | 57 |
| | 15 M X 15 F | | | 83 | 44 | 29 | 26 |
| 17-402 | 3/4 M X 3/4 F | 200,000 | See table below | 3.14 | 1.62 | 1.13 | 53 |
| | 20 M X 20 F | | | 80 | 41 | 29 | 24 |

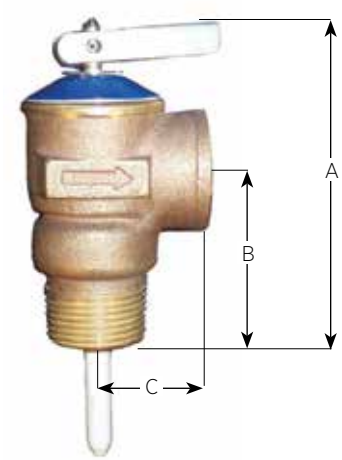
### ORDERING CODE
Use model number and two-digit suffix number to indicate size and set pressure.

### P/N SUFFIX KEY

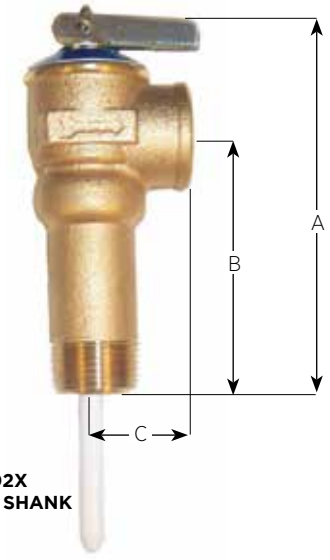
| SET PRESSURE PSIG | SUFFIX | BTU/HR. / ASME SEC. IV 17-402 |
|---|---|---|
| 75 | -01 | 505,000 |
| 100 | -02 | 648,000 |
| 125 | -03 | 791,000 |
| 150 | -04 | 934,000 |
| 160 | -05 | – |

EXAMPLE:
17-401-03 = 1/2" model 17 set @ 125 psig.
17-402-04 = 3/4" model 17 set @ 150 psig.
NOTE:
Valves may be set for any pressure between 70 and 175 psi.
Consult factory for pressure settings not shown.
ASME Section IV certified model 17-402 only, pressure settings 75 to 150 psig.

## 18C-400 & 18C-402X SERIES
WATER HEATER T&P RELIEF




18C-400




18C-402X
EXTENDED SHANK

Special statement regarding T&P Valves and compliance to the Lead Free requirements of the U.S. Safe Drinking Water Act.

Effective January 4th 2014 the SDWA requires that pipes, fittings or fixtures used to convey or dispense potable water must be lead free. Further clarification has been provided by the EPA in a document titled "Summary of the Reduction of Lead In Drinking Water Act and frequently Asked Questions". The latest document can be viewed on our website: www.apollovalves.com

FAQ #6 states that water heaters are covered by the Act and must comply. However most water heater OEM's are certifying their heaters as complete assemblies using non-Lead Free T&P valves due to their relatively small wetted surface area.

FAQ #23 acknowledges this and states that replacement parts (including T&P valves) need not be lead free as long as the entire water heater with all installed components overall device would meet the Lead Free requirements of the Act.

Automatic temperature and pressure relief valves feature unique non-metallic coating which protects the element against galvanic and electromechanical corrosion by isolating it from the heated water. This coating is electrostatically applied for uniform coverage, then thermo-bonded, resulting in optimum adhesion for extended service life.

- CSA Design Certified at all Settings to ANSI Z21.22
- ASME Section IV Rated at 125 and 150 psig Settings for 3/4 NPT Only

### APPLICATIONS
- Temperature and Pressure Protection for Hot Water Heaters and Storage Tanks

### FEATURES
- Meets HUD/FHA Requirements
- Cast Bronze Body, Stainless Steel Spring
- Rated @ 210°F Maximum
- CRN Registered in all Canadian Provinces and Territories
- ASME Capacity Certified to 500,000 BTU/hr.
- **Assembled in the USA**

### OPTIONS
- Model 18C-402X Features a Body Inlet Extended 2" for Insulated Vessels

### AVAILABLE CONFIGURATIONS

| PART NUMBER | SIZE (IN./MM) | ELEMENT LENGTH (IN./MM) | CSA CAPACITY RATING BTU/HR | DIMENSIONS (IN./MM) | | | WT./100 (LB./KG) |
|---|---|---|---|---|---|---|---|
| | | | | A | B | C | |
| 18C-401 | 1/2 M x 1/2 F | 1.44, 3 & 8" | 15,000 | 3.25 | 1.75 | 1.13 | 64 |
| | 15 M x 15 F | 37, 76 & 200 | | 83 | 44 | 29 | 29 |
| 18C-402 | 3/4 M x 3/4 F | 1.44" | 95,000 | 3.25 | 1.75 | 1.13 | 64 |
| | 20 M x 20 F | 37 | | 83 | 44 | 29 | 29 |
| 18C-402 | 3/4 M x 3/4 F | 3 & 8" | 105,000 | 3.25 | 1.75 | 1.13 | 64 |
| | 20 M x 20 F | 76 & 200 | | 83 | 44 | 29 | 29 |
| 18C-402X | 3/4 M x 3/4 F | 3" | 105,000 | 4.51 | 2.97 | 1.13 | 75 |
| | 20 M x 20 F | 76 | | 115 | 75 | 29 | 34 |

### ORDERING CODE
Use model number and two-digit suffix number to indicate size and set pressure.

### P/N SUFFIX KEY - MODEL 18C-401

| SET PRESSURE PSIG | COATED ELEMENT LENGTH (IN.) | |
|---|---|---|
| | 1.44" | 3" |
| 125 | -27 | -29 |
| 150 | -28 | -30 |

EXAMPLE:
18C-402X-38 = 3/4" model 18C-402X set @ 150 psig with 3" element.

18C-402-30 = 3/4" model 18C-402 set @ 150 psig with 3" element.

### P/N SUFFIX KEY - MODEL 18C-402

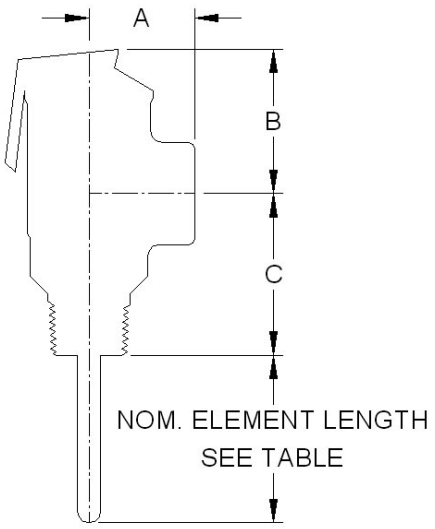
| SET PRESSURE PSIG | COATED ELEMENT LENGTH (IN.) | | |
|---|---|---|---|
| | 1.44" | 3" | 8" |
| 125 | -27 | -29 | -36 |
| 150 | -28 | -30 | -37 |
| 175 | | -24 | |

### P/N SUFFIX KEY - MODEL 18C-402X - EXTENDED

| SET PRESSURE PSIG | COATED ELEMENT LENGTH (IN.) |
|---|---|
| | 3" |
| 125 | -39 |
| 150 | -38 |

## 18C SERIES
BRONZE HIGH CAPACITY COMMERCIAL T&P






Special statement regarding T&P Valves and compliance to the Lead Free requirements of the U.S. Safe Drinking Water Act.

Effective January 4th 2014 the SDWA requires that pipes, fittings or fixtures used to convey or dispense potable water must be lead free. Further clarification has been provided by the EPA in a document titled "Summary of the Reduction of Lead In Drinking Water Act and frequently Asked Questions". The latest document can be viewed on our website www.apollovalves.com

FAQ #6 states that water heaters are covered by the Act and must comply. However most water heater OEM's are certifying their heaters as complete assemblies using non-Lead Free T&P valves due to their relatively small wetted surface area.

FAQ #23 acknowledges this and states that replacement parts (including T&P valves) need not be lead free as long as the entire water heater with all installed components overall device would meet the Lead Free requirements of the Act.

The Apollo 18C-500 Series bronze automatic temperature and pressure relief valves are used for protection of high capacity commercial hot water heaters and storage tanks.

## FEATURES
- ASME Section IV Certified Capacity
- 3/4" thru 2" NPT Connections
- CSA Listed and Certified to ANSI Z21.22
- 125 and 150 psig Set Pressures at 210°F max
- Coated Element Protects Against Corrosion
- SS Elements (1-1/2" and 2")
- ASME Section IV Heating Boilers
- Canadian Registration Number CSA- 0G1438.6C
- **Assembled in the USA**

## CAPACITY

| PART NUMBER | SIZE (IN.) | ELEMENT LENGTH (IN.) | INLET TYPE | CSA CAPACITY RATING BTU/HR | *ASME CAP. RATING BTU/HR |
|---|---|---|---|---|---|
| 18C5113125 | 3/4" | 2.69" | M | 185,000 | 1,619,000 |
| 18C5113150 | 3/4" | 2.69" | M | 185,000 | 1,912,000 |
| 18C5115125 | 3/4" | 4.38" | M | 205,000 | 1,619,000 |
| 18C5115150 | 3/4" | 4.38" | M | 205,000 | 1,912,000 |
| 18C5118125 | 3/4" | 7.56" | M | 205,000 | 1,619,000 |
| 18C5118150 | 3/4" | 7.56" | M | 205,000 | 1,912,000 |
| 18C5123125 | 3/4" | 2.88" | F | 185,000 | 1,619,000 |
| 18C5123150 | 3/4" | 2.88" | F | 185,000 | 1,912,000 |
| 18C5125125 | 3/4" | 4.56" | F | 205,000 | 1,619,000 |
| 18C5125150 | 3/4" | 4.56" | F | 205,000 | 1,912,000 |
| 18C5128125 | 3/4" | 7.75" | F | 205,000 | 1,619,000 |
| 18C5128150 | 3/4" | 7.75" | F | 205,000 | 1,912,000 |
| 18C5213125 | 1" | 3.06" | M | 500,000 | 1,825,000 |
| 18C5213150 | 1" | 3.06" | M | 500,000 | 2,155,000 |
| 18C5215125 | 1" | 4.75" | M | 500,000 | 1,825,000 |
| 18C5215150 | 1" | 4.75" | M | 500,000 | 2,155,000 |
| 18C5225125 | 1" | 4.75" | F | 750,000 | 3,070,000 |
| 18C5225150 | 1" | 4.75" | F | 750,000 | 3,625,000 |
| 18C5228125 | 1" | 8.13" | F | 750,000 | 3,070,000 |
| 18C5228150 | 1" | 8.13" | F | 750,000 | 3,625,000 |
| 18C5314125 | 1-1/4" x 1" | 3.97" | M | 750,000 | 3,070,000 |
| 18C5314150 | 1-1/4" x 1" | 3.97" | M | 750,000 | 3,625,000 |
| 18C5424125 | 1-1/2" | 4.13" | F | 1,200,000 | 5,125,000 |
| 18C5424150 | 1-1/2" | 4.13" | F | 1,200,000 | 6,050,000 |
| 18C5513125 | 2" x 1-1/2" | 3.25" | M | 1,200,000 | 5,125,000 |
| 18C5513150 | 2" x 1-1/2" | 3.25" | M | 1,200,000 | 6,050,000 |

** National Board certified capacity per ASME Section IV-Heating Boilers*

## AVAILABLE CONFIGURATIONS

| PART NUMBER | INLET SIZE (IN./MM) | DIMENSIONS (IN./MM) | | |
|---|---|---|---|---|
| | | A | B | C |
| 18C511 | 3/4" M x 3/4" FNPT | 1.50 | 3.47 | 2.53 |
| | (20) | (40) | (88) | (64) |
| 18C512 | 3/4" F x 3/4" FNPT | 1.50 | 3.47 | 2.35 |
| | (20) | (40) | (88) | (60) |
| 18C521 | 1" M x 1" FNPT | 1.56 | 3.47 | 2.38 |
| | (25) | (40) | (88) | (60) |
| 18C522 | 1" F x 1" FNPT | 1.56 | 3.47 | 2.13 |
| | (25) | (40) | (88) | (54) |
| 18C531 | 1-1/4" M x 1" FNPT | 1.75 | 4.34 | 1.91 |
| | (32) | (44) | (110) | (49) |
| 18C542 | 1-1/2" M x 1-1/2" FNPT | 2.47 | 5.84 | 1.71 |
| | (40) | (63) | (148) | (43) |
| 18C551 | 2" M x 1-1/2" FNPT | 2.47 | 5.84 | 259 |
| | (50) | (63) | (148) | (66) |

## 19 SERIES
BRONZE SAFETY VALVE

UV/V



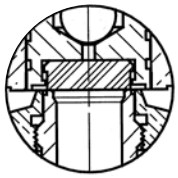
A dependable cast bronze high capacity safety valve ideal for use on all types of boilers, piping systems and unfired pressure vessels. This rugged design features top guided alignment for enhanced performance and reliability. Other features include optional metal seating, optional stainless steel wetted trim in all sizes, and a new, more descriptive model numbering system. Flow ratings are National Board certified in accordance with ASME sections I and VIII.

### ASME SECTIONS I AND VIII
- Sizes 1/2" thru 2-1/2"
- Factory Set Pressures 5 to 300 psig
- Maximum Temperature: 406°F (Model 19S: 422°F)

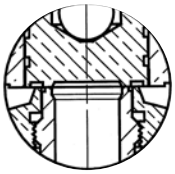
### APPLICATIONS
- Overpressure Protection of Steam Boilers, Sterilizers, Distillers, Cookers, and Pressure Reducing Stations.
- Pneumatic Conveying Equipment, Air Compressors, Receivers and Dryers. Steam, Air and Gas Accumulators, Pressure Vessels and Pressure Piping Systems.

### FEATURES
- Wide Wrenching Hex for Easier, Faster Installations
- Stainless Steel Springs are Standard
- Teflon® PFA Seat Resists Corrosive Boiler Chemicals and Excessive Vibration
- High-Capacity Full Nozzle Design Available in Six Orifice Sizes
- Two Control Rings for Maximum Performance and Adjustability
- Short "Tuned" Blow Down Minimizes Product Loss
- Tapped Body Drain Allows Piping of Condensate Safely Away From Equipment
- Reduced Repair Costs: Soft Seat Easily Replaced
- Registered in all Canadian Provinces Under CSA B51 CRN OG8547.5C
- **Proudly Made in USA**

**SEATS**



**SOFT SEAT**
**MODEL 19K - BRASS**
**MODEL 19L - STAINLESS**



**METAL-TO-METAL SEAT**
**MODEL 19M - BRASS**
**MODEL 19S - STAINLESS**

### OPTIONS
- Choice of Teflon® or Metal-to-Metal Seating
- Steam Set Pressures to 300 psi @ 422°F (Model 19S, Stainless Steel Trim)
- 316 Stainless Steel Wetted Trim Available for all Sizes
- Anti-Vibration Dampened Lifting Lever
- Oxygen Cleaned
- European Pressure Equipment Directive Compliant Option (CE/PED)

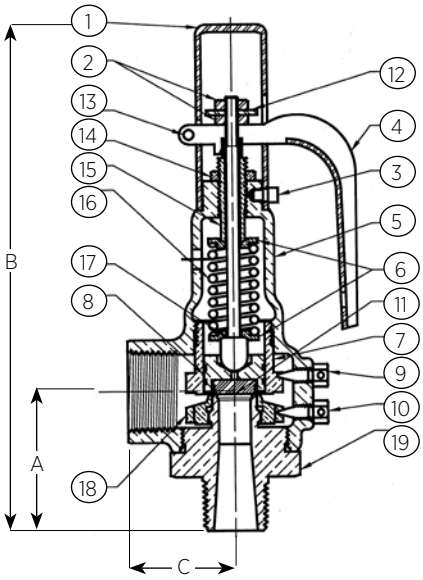
### TRIM STYLES

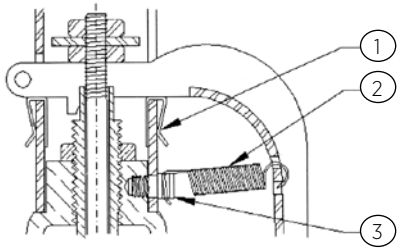
| SERIES | 19K | 19M | 19L | 19S |
|---|---|---|---|---|
| Trim | Brass | Brass | SS | SS |
| Seat | Teflon® | Metal to Metal | Teflon® | Metal to Metal |
| Max. Set - Steam | 250 | 250 | 250 | 300 |
| Max. Set - Air/Gas | 300 | 300 | 300 | 300 |
| Max. Temperature | 406°F | 406°F | 406°F | 422°F |

### PART NUMBER MATRIX

| 19M | D | C | K | 165 | A |
|---|---|---|---|---|---|
| BASE MODEL NUMBER | ORIFICE LETTER | INLET SIZE (IN.) NPT | ASME CODE AND SERVICE | SET PRESSURE IN PSI | SPECIAL OPTIONS |
| 19K - BRASS TRIM/ PFA TEFLON SEAT | D | C - 1/2 | A - SECT. I STEAM | | A - ANTI-VIBRATION TRIM |
| 19M - BRASS TRIM/METAL SEAT | E | D - 3/4 | K - SECT. VIII AIR | | CE - CE/PED COMPLIANT |
| 19L - STAINLESS TRIM/ PFA TEFLON SEAT | F | E - 1 | L - SECT. VIII STEAM | | Q - PERFORMANCE (CALIBRATION) TEST REPORT |
| 19S - STAINLESS TRIM/METAL SEAT | G | F - 1-1/4 | N - NON-CODE AIR | | |
| | H | G - 1-1/2 | P - NON-CODE STEAM | | X - OXYGEN CLEANING |
| | J | H - 2 | | | *OTHER SUFFIXES - FACTORY ISSUED |
| | | J - 2-1/2 | | | |
| EXAMPLE: 19K-DCL150 = 19 Series safety valve w/ PFA Teflon seat, D orifice, 1/2" x 3/4", Sect. VII Steam, set @ 150 psi, | | | | | |

## 19 SERIES
BRONZE SAFETY VALVE






## STANDARD MATERIAL LIST

| | | 19K, 19M | 19L, 19S |
|---|---|---|---|
| **1** | Cap | Brass | Brass |
| **2** | Stem Nut (2) | Steel, Plated | Steel, Plated |
| **3** | Cap Lock Screw | Brass | Brass |
| **4** | Lift Lever | Steel - Plated | Steel, Plated |
| **5** | Body | Bronze | Bronze |
| **6** | Spring Washer (2) | Brass | Brass |
| **7** | Guide Ring | Brass | Brass |
| **8** | Disc | Brass | Stainless Steel |
| **9** | Guide Ring Screw | Brass | Brass |
| **10** | Nozzle Ring Screw | Brass | Brass |
| **11** | Seat Insert-19K &19L | PFA Teflon® | PFA Teflon® |
| **12** | Lift Washer | Steel, Plated | Steel, Plated |
| **13** | Lever Pin | Steel, Plated | Steel, Plated |
| **14** | Adj. Screw Lock Nut | Steel, Plated | Steel, Plated |
| **15** | Adjusting Screw | Brass | Brass |
| **16** | Spring | Stainless Steel | Stainless Steel |
| **17** | Stem | Stainless Steel | Stainless Steel |
| **18** | Nozzle Ring | Brass | Brass |
| **19** | Nozzle | Brass | Stainless Steel |
| **-** | Nameplate | Stainless Steel | Stainless Steel |
| **-** | Seal And Wire | Lead/SS* | Lead/SS* |

** Alum/SS on CE models*

## 19 SERIES WITH OPTION "A" ANTI-VIBRATION TRIM

| | | |
|---|---|---|
| **1** | **FRICTION CLIP (4)** | Steel, Plated |
| **2** | **EXTENSION SPRING** | Stainless Steel |
| **3** | **CAP LOCK SCREW** | Stainless Steel |

*Note: Preparation includes threadlocking of all internal threaded connections.*

## AVAILABLE CONFIGURATIONS

| OLD PART NUMBER | NEW PART NUMBER | ORIFICE LETTER | SIZE (IN./MM) INLET X OUTLET | DIMENSIONS (IN./MM) A | B | C | WT./EA. (LB./KG) |
|---|---|---|---|---|---|---|---|
| 19-202 | 19*DC | D | 1/2 X 3/4 | 2.21 | 6.52 | 1.37 | 1.6 |
| | | | 15 x 20 | 56 | 166 | 35 | .73 |
| 19-301 | 19*DD | D | 3/4 X 3/4 | 2.21 | 6.52 | 1.37 | 1.6 |
| | | | 20 x 20 | 56 | 166 | 35 | .73 |
| 19-302 | 19*ED | E | 3/4 X 1 | 2.50 | 7.16 | 1.75 | 2.0 |
| | | | 20 x 25 | 64 | 182 | 44 | .91 |
| 19-401 | 19*EE | E | 1 X 1 | 2.64 | 7.30 | 1.75 | 2.2 |
| | | | 25 x 25 | 67 | 185 | 44 | 1.0 |
| 19-402 | 19*FE | F | 1 X 1-1/4 | 2.95 | 9.34 | 2.00 | 4.1 |
| | | | 25 x 32 | 75 | 237 | 51 | 1.9 |
| 19-501 | 19*FF | F | 1-1/4 X 1-1/4 | 2.95 | 9.34 | 2.00 | 4.3 |
| | | | 32 x 32 | 75 | 237 | 51 | 2.0 |
| 19-502 | 19*GF | G | 1-1/4 X 1-1/2 | 3.38 | 11.01 | 2.37 | 7.4 |
| | | | 32 x 40 | 86 | 280 | 60 | 3.4 |
| 19-601 | 19*GG | G | 1-1/2 X 1-1/2 | 3.38 | 11.01 | 2.37 | 7.6 |
| | | | 40 x 40 | 86 | 280 | 60 | 3.4 |
| 19-602 | 19*HG | H | 1-1/2 X 2 | 3.63 | 11.96 | 2.75 | 11.5 |
| | | | 40 x 50 | 92 | 304 | 70 | 5.2 |
| 19-701 | 19*HH | H | 2 X 2 | 3.63 | 11.96 | 2.75 | 11.6 |
| | | | 50 x 50 | 92 | 304 | 70 | 5.3 |
| | 19*JG[1] | J | 1-1/2F X 2-1/2 | 3.80 | 14.00 | 3.50 | 20.0 |
| | | | 40 x 65 | 97 | 356 | 89 | 9.1 |
| 19-702 | 19*JH | J | 2 X 2-1/2 | 4.06 | 14.25 | 3.50 | 19.9 |
| | | | 50 x 65 | 103 | 362 | 89 | 9.0 |
| 19-801 | 19*JJ | J | 2-1/2 X 2-1/2 | 4.50 | 14.68 | 3.50 | 20.8 |
| | | | 65 x 65 | 114 | 373 | 89 | 9.4 |

** Specify trim letter*
*1: Available in bronze trim only, Model 19KJG & 19MJG. Connections are 1-1/2" FNPT x 2-1/2" FNPT.*

## ASME SECTION I - STEAM

- Pounds per hour (kilograms per hour) saturated steam @ 3% overpressure. National Board Certified. Ratings are 90% of actual.

### US CUSTOMARY UNITS LB/HR.

| ORIFICE LETTER AREA IN.² | D 0.129 | E 0.230 | F 0.359 | G 0.589 | H 0.919 | J 1.509 |
|---|---|---|---|---|---|---|
| SET PRESSURE PSIG | | | | | | |
| 15 | 174 | 310 | 484 | 794 | 1,240 | 2,035 |
| 20 | 201 | 359 | 561 | 920 | 1,435 | 2,356 |
| 25 | 229 | 408 | 637 | 1,045 | 1,631 | 2,677 |
| 30 | 256 | 457 | 713 | 1,170 | 1,826 | 2,998 |
| 35 | 284 | 506 | 790 | 1,296 | 2,022 | 3,319 |
| 40 | 311 | 555 | 866 | 1,421 | 2,217 | 3,641 |
| 45 | 339 | 604 | 942 | 1,546 | 2,413 | 3,962 |
| 50 | 366 | 653 | 1,019 | 1,672 | 2,608 | 4,283 |
| 55 | 394 | 702 | 1,095 | 1,797 | 2,804 | 4,604 |
| 60 | 421 | 751 | 1,172 | 1,922 | 2,999 | 4,925 |
| 65 | 448 | 800 | 1,248 | 2,048 | 3,195 | 5,246 |
| 70 | 476 | 849 | 1,326 | 2,175 | 3,394 | 5,573 |
| 75 | 505 | 900 | 1,405 | 2,304 | 3,596 | 5,904 |
| 80 | 533 | 950 | 1,483 | 2,433 | 3,797 | 6,234 |
| 85 | 561 | 1,001 | 1,562 | 2,563 | 3,998 | 6,565 |
| 90 | 590 | 1,051 | 1,641 | 2,692 | 4,200 | 6,896 |
| 95 | 618 | 1,101 | 1,719 | 2,821 | 4,401 | 7,226 |
| 100 | 646 | 1,152 | 1,798 | 2,950 | 4,602 | 7,557 |
| 105 | 674 | 1,202 | 1,877 | 3,079 | 4,804 | 7,888 |
| 110 | 703 | 1,253 | 1,955 | 3,208 | 5,005 | 8,218 |
| 115 | 731 | 1,303 | 2034 | 3,337 | 5,207 | 8,549 |
| 120 | 759 | 1,353 | 2,113 | 3,466 | 5,408 | 8,880 |
| 125 | 787 | 1,404 | 2,191 | 3,595 | 5,609 | 9,210 |
| 130 | 816 | 1,454 | 2,270 | 3,724 | 5,811 | 9,541 |
| 135 | 844 | 1,505 | 2,349 | 3,853 | 6,012 | 9,872 |
| 140 | 872 | 1,555 | 2,427 | 3,982 | 6,213 | 10,202 |
| 145 | 900 | 1,605 | 2,506 | 4,111 | 6,415 | 10,533 |
| 150 | 929 | 1,656 | 2,585 | 4,240 | 6,616 | 10,864 |
| 160 | 985 | 1,757 | 2,742 | 4,499 | 7,019 | 11,525 |
| 170 | 1,042 | 1,857 | 2,899 | 4,757 | 7,422 | 12,186 |
| 180 | 1,098 | 1,958 | 3,057 | 5,015 | 7,824 | 12,848 |
| 190 | 1,155 | 2,059 | 3,214 | 5,273 | 8,227 | 13,509 |
| 200 | 1,211 | 2,160 | 3,371 | 5,531 | 8,630 | 14,170 |
| 210 | 1,268 | 2,261 | 3,529 | 5,789 | 9,033 | 14,832 |
| 220 | 1,324 | 2,361 | 3,686 | 6,047 | 9,436 | 15,493 |
| 230 | 1,381 | 2,462 | 3,843 | 6,305 | 9,838 | 16,154 |
| 240 | 1,438 | 2,563 | 4,001 | 6,564 | 10,241 | 16,816 |
| 250 | 1,494 | 2,664 | 4,158 | 6,822 | 10,644 | 17,477 |
| 255 | 1,522 | 2,714 | 4,237 | 6,951 | 10,845 | 17,808 |
| 260 | 1,551 | 2,765 | 4,315 | 7,080 | 11,047 | 18,138 |
| 265 | 1,579 | 2,815 | 4,394 | 7,209 | 11,248 | 18,469 |
| 270 | 1,607 | 2,865 | 4,473 | 7,338 | 11,449 | 18,800 |
| 275 | 1,635 | 2,916 | 4,551 | 7,467 | 11,651 | 19,130 |
| 280 | 1,664 | 2,966 | 4,630 | 7,596 | 11,852 | 19,461 |
| 285 | 1,692 | 3,017 | 4,709 | 7,725 | 12,053 | 19,792 |
| 290 | 1,720 | 3,067 | 4,787 | 7,854 | 12,255 | 20,122 |
| 295 | 1,748 | 3,117 | 4,866 | 7,983 | 12,456 | 20,453 |
| 300 | 1,777 | 3,168 | 4,945 | 8,112 | 12,658 | 20,784 |
| Approx. 1 psi increments | 5.7 | 10.0 | 15.6 | 25.8 | 40.2 | 66.0 |

### METRIC UNITS KG/HR.

| ORIFICE LETTER AREA CM.² | D 0.835 | E 1.483 | F 2.315 | G 3.800 | H 5.932 | J 9.733 |
|---|---|---|---|---|---|---|
| SET PRESSURE BARG | | | | | | |
| 0.34 | - | - | - | - | - | - |
| 0.69 | - | - | - | - | - | - |
| 1.1 | 81 | 145 | 226 | 371 | 579 | 951 |
| 1.5 | 96 | 171 | 266 | 437 | 682 | 1,120 |
| 2 | 114 | 203 | 317 | 519 | 811 | 1,331 |
| 2.5 | 132 | 235 | 367 | 602 | 940 | 1,542 |
| 3 | 150 | 267 | 417 | 684 | 1,068 | 1,753 |
| 3.5 | 168 | 299 | 467 | 767 | 1,197 | 1,964 |
| 4 | 186 | 331 | 517 | 849 | 1,326 | 2,175 |
| 4.5 | 204 | 364 | 568 | 932 | 1,454 | 2,386 |
| 5 | 222 | 397 | 619 | 1,016 | 1,586 | 2,602 |
| 5.5 | 241 | 430 | 671 | 1,101 | 1,719 | 2,820 |
| 6 | 259 | 463 | 723 | 1,186 | 1,851 | 3,037 |
| 6.5 | 278 | 496 | 774 | 1,271 | 1,984 | 3,255 |
| 7 | 296 | 529 | 826 | 1,356 | 2,116 | 3,472 |
| 7.5 | 315 | 562 | 878 | 1,440 | 2,249 | 3,690 |
| 8 | 334 | 595 | 929 | 1,525 | 2,381 | 3,907 |
| 8.5 | 352 | 628 | 981 | 1,610 | 2,514 | 4,125 |
| 9 | 371 | 662 | 1,033 | 1,695 | 2,646 | 4,342 |
| 9.5 | 389 | 695 | 1,085 | 1,780 | 2,779 | 4,559 |
| 10 | 408 | 728 | 1,136 | 1,865 | 2,911 | 4,777 |
| 10.5 | 426 | 761 | 1,188 | 1,950 | 3,044 | 4,994 |
| 11 | 445 | 794 | 1,240 | 2,035 | 3,176 | 5,212 |
| 11.5 | 464 | 827 | 1,292 | 2,120 | 3,309 | 5,429 |
| 12 | 482 | 860 | 1,343 | 2,204 | 3,441 | 5,647 |
| 12.5 | 501 | 893 | 1,395 | 2,289 | 3,574 | 5,864 |
| 13 | 519 | 927 | 1,447 | 2,374 | 3,706 | 6,082 |
| 13.5 | 538 | 960 | 1,498 | 2,459 | 3,839 | 6,299 |
| 14 | 556 | 993 | 1,550 | 2,544 | 3,971 | 6,517 |
| 15 | 594 | 1,059 | 1,654 | 2,714 | 4,236 | 6,951 |
| 16 | 631 | 1,125 | 1,757 | 2,884 | 4,501 | 7,386 |
| 17 | 668 | 1,192 | 1,861 | 3,053 | 4,767 | 7,821 |
| 18 | 705 | 1,258 | 1,964 | 3,223 | 5,032 | 8,256 |
| 19 | 742 | 1,324 | 2,067 | 3,393 | 5,297 | 8,691 |
| 20 | 779 | 1,390 | 2,171 | 3,563 | 5,562 | 9,126 |
| 20.7 | 805 | 1,437 | 2,243 | 3,682 | 5,747 | 9,430 |
| Approx. 0.1 barg increments | 3.7 | 6.6 | 10.3 | 17.0 | 26.5 | 43.5 |

*Note:*
*Specify model 19S with stainless steel wetted trim for steam settings beyond 250 psig / 17.2 barg.*

## 19 SERIES
BRONZE SAFETY VALVE

## ASME SECTION VIII - STEAM
- Pounds per hour (kilograms per hour) saturated steam at 10% overpressure. National Board Certified. Ratings are 90% of actual.

### US CUSTOMARY UNITS LB./HR.

| ORIFICE LETTER AREA IN.² | D 0.129 | E 0.230 | F 0.359 | G 0.589 | H 0.919 | J 1.509 |
|---|---|---|---|---|---|---|
| SET PRESSURE PSIG | | | | | | |
| 5* | 122 | 218 | 340 | 558 | 871 | 1,429 |
| 10* | 167 | 298 | 466 | 765 | 1,193 | 1,958 |
| 15 | 179 | 320 | 499 | 820 | 1,279 | 2,100 |
| 20 | 207 | 369 | 576 | 945 | 1,474 | 2,421 |
| 25 | 234 | 418 | 652 | 1,070 | 1,670 | 2,742 |
| 30 | 262 | 467 | 729 | 1,195 | 1,865 | 3,063 |
| 35 | 292 | 521 | 813 | 1,333 | 2,080 | 3,416 |
| 40 | 322 | 574 | 897 | 1,471 | 2,295 | 3,769 |
| 45 | 352 | 628 | 981 | 1,609 | 2,510 | 4,122 |
| 50 | 383 | 682 | 1,065 | 1,747 | 2,725 | 4,475 |
| 55 | 413 | 736 | 1,149 | 1,885 | 2,941 | 4,828 |
| 60 | 443 | 790 | 1,233 | 2,022 | 3,156 | 5,181 |
| 65 | 473 | 844 | 1,317 | 2,160 | 3,371 | 5,535 |
| 70 | 503 | 897 | 1,401 | 2,298 | 3,586 | 5,888 |
| 75 | 534 | 951 | 1,485 | 2,436 | 3,801 | 6,241 |
| 80 | 564 | 1,005 | 1,569 | 2,574 | 4,016 | 6,594 |
| 85 | 594 | 1,059 | 1,653 | 2,712 | 4,231 | 6,947 |
| 90 | 624 | 1,113 | 1,737 | 2,849 | 4,446 | 7,300 |
| 95 | 654 | 1,167 | 1,821 | 2,987 | 4,661 | 7,653 |
| 100 | 684 | 1,220 | 1,905 | 3,125 | 4,876 | 8,007 |
| 105 | 715 | 1,274 | 1,989 | 3,263 | 5,091 | 8,360 |
| 110 | 745 | 1,328 | 2,073 | 3,401 | 5,306 | 8,713 |
| 115 | 775 | 1,382 | 2,157 | 3,539 | 5,521 | 9,066 |
| 120 | 805 | 1,436 | 2,241 | 3677 | 5,736 | 9,419 |
| 125 | 835 | 1,489 | 2,325 | 3,814 | 5,951 | 9,772 |
| 130 | 866 | 1,543 | 2,409 | 3,952 | 6,167 | 10,125 |
| 135 | 896 | 1,597 | 2,493 | 4,090 | 6,382 | 10,479 |
| 140 | 926 | 1,651 | 2,577 | 4,228 | 6,597 | 10,832 |
| 145 | 956 | 1,705 | 2,661 | 4,366 | 6,812 | 11,185 |
| 150 | 986 | 1,759 | 2,745 | 4,504 | 7,027 | 11,538 |
| 155 | 1,017 | 1,812 | 2,829 | 4,641 | 7,242 | 11,891 |
| 160 | 1,047 | 1,866 | 2,913 | 4,779 | 7,457 | 12,244 |
| 165 | 1,077 | 1,920 | 2,997 | 4,917 | 7,672 | 12,597 |
| 170 | 1,107 | 1,974 | 3,081 | 5,055 | 7,887 | 12,951 |
| 180 | 1,167 | 2,082 | 3,249 | 5,331 | 8,317 | 13,657 |
| 190 | 1,228 | 2,189 | 3,417 | 5,606 | 8,747 | 14,363 |
| 200 | 1,288 | 2,297 | 3,585 | 5,882 | 9,177 | 15,069 |
| 210 | 1,349 | 2,405 | 3,753 | 6,158 | 9,608 | 15,776 |
| 220 | 1,409 | 2,512 | 3,921 | 6,433 | 10,038 | 16,482 |
| 230 | 1,469 | 2,620 | 4,089 | 6,709 | 10,468 | 17,188 |
| 240 | 1,530 | 2,727 | 4,257 | 6,985 | 10,898 | 17,894 |
| 250 | 1,590 | 2,835 | 4,425 | 7,260 | 11,328 | 18,601 |
| 255 | 1,620 | 2,889 | 4,509 | 7,398 | 11,543 | 18,954 |
| 260 | 1,651 | 2,943 | 4,593 | 7,536 | 11,758 | 19,307 |
| 265 | 1,681 | 2,997 | 4,677 | 7,674 | 11,973 | 19,660 |
| 270 | 1,711 | 3,050 | 4,761 | 7,812 | 12,188 | 20,013 |
| 275 | 1,741 | 3,104 | 4,845 | 7,950 | 12,403 | 20,366 |
| 280 | 1,771 | 3,158 | 4,929 | 8,087 | 12,618 | 20,720 |
| 285 | 1,801 | 3,212 | 5,013 | 8,225 | 12,834 | 21,073 |
| 290 | 1,832 | 3,266 | 5,097 | 8,363 | 13,049 | 21,426 |
| 295 | 1,862 | 3,320 | 5,181 | 8,501 | 13,264 | 21,779 |
| 300 | 1,892 | 3,373 | 5,265 | 8,639 | 13,479 | 22,132 |
| Approx. 1 psi increments | 6.0 | 10.8 | 16.8 | 27.6 | 43.0 | 70.6 |

### METRIC UNITS KG/HR.

| ORIFICE LETTER AREA CM.² | D 0.835 | E 1.483 | F 2.315 | G 3.800 | H 5.932 | J 9.733 |
|---|---|---|---|---|---|---|
| SET PRESSURE BARG | | | | | | |
| 0.34* | 55 | 99 | 154 | 253 | 395 | 648 |
| 0.69* | 76 | 135 | 211 | 347 | 541 | 888 |
| 1.1 | 84 | 149 | 233 | 382 | 597 | 980 |
| 1.5 | 98 | 175 | 273 | 448 | 700 | 1,149 |
| 2 | 116 | 207 | 323 | 531 | 829 | 1,360 |
| 2.5 | 136 | 242 | 378 | 620 | 968 | 1,589 |
| 3 | 156 | 277 | 433 | 711 | 1,110 | 1,821 |
| 3.5 | 175 | 313 | 489 | 802 | 1,251 | 2,054 |
| 4 | 195 | 348 | 544 | 892 | 1,393 | 2,286 |
| 4.5 | 215 | 384 | 599 | 983 | 1,535 | 2,518 |
| 5 | 235 | 419 | 654 | 1,074 | 1,676 | 2,750 |
| 5.5 | 255 | 454 | 709 | 1,164 | 1,818 | 2,982 |
| 6 | 274 | 490 | 765 | 1,255 | 1,959 | 3,215 |
| 6.5 | 294 | 525 | 820 | 1,346 | 2,101 | 3,447 |
| 7 | 314 | 561 | 875 | 1,436 | 2,242 | 3,679 |
| 7.5 | 334 | 596 | 930 | 1,527 | 2,384 | 3,911 |
| 8 | 354 | 631 | 986 | 1,618 | 2,525 | 4,144 |
| 8.5 | 374 | 667 | 1,041 | 1,708 | 2,667 | 4,376 |
| 9 | 393 | 702 | 1,096 | 1,799 | 2,808 | 4,608 |
| 9.5 | 413 | 737 | 1,151 | 1,890 | 2,950 | 4,840 |
| 10 | 433 | 773 | 1,207 | 1,980 | 3,091 | 5,072 |
| 10.5 | 453 | 808 | 1,262 | 2,071 | 3,233 | 5,305 |
| 11 | 473 | 844 | 1,317 | 2,162 | 3,374 | 5,537 |
| 11.5 | 493 | 879 | 1,372 | 2,252 | 3,516 | 5,769 |
| 12 | 512 | 914 | 1,428 | 2,343 | 3,657 | 6,001 |
| 12.5 | 532 | 950 | 1,483 | 2,434 | 3,799 | 6,234 |
| 13 | 552 | 985 | 1,538 | 2,524 | 3,941 | 6,466 |
| 13.5 | 572 | 1,021 | 1,593 | 2,615 | 4,082 | 6,698 |
| 14 | 592 | 1,056 | 1,649 | 2,706 | 4,224 | 6,930 |
| 15 | 631 | 1,127 | 1,759 | 2,887 | 4,507 | 7,395 |
| 16 | 671 | 1,197 | 1,870 | 3,068 | 4,790 | 7,859 |
| 17 | 711 | 1,268 | 1,980 | 3,250 | 5,073 | 8,324 |
| 18 | 750 | 1,339 | 2,091 | 3,431 | 5,356 | 8,788 |
| 19 | 790 | 1,410 | 2,201 | 3,612 | 5,639 | 9,253 |
| 20 | 830 | 1,480 | 2,312 | 3,794 | 5,922 | 9,717 |
| 20.7 | 857 | 1,530 | 2,389 | 3,920 | 6,120 | 10,042 |
| Approx. 0.1 barg increments | 4.0 | 7.1 | 11.5 | 18.1 | 28.3 | 46.4 |

*Note:*
*Specify model 19S with stainless steel wetted trim for steam settings beyond 250 psig / 17.2 barg.*
**Settings below 15 psi (1.1 barg) are non-ASME code.*

## 19 SERIES
BRONZE SAFETY VALVE

## ASME SECTION VIII - AIR
- Standard cubic feet per minute (normalized cubic meters per hour) of air at 10% overpressure. National Board Certified. Ratings are 90% of actual.

### US CUSTOMARY UNITS SCFM

| ORIFICE LETTER AREA IN.² | D 0.129 | E 0.230 | F 0.359 | G 0.589 | H 0.919 | J 1.509 |
|---|---|---|---|---|---|---|
| SET PRESSURE PSIG | | | | | | |
| 5* | 39 | 69 | 108 | 178 | 277 | 455 |
| 10* | 54 | 97 | 151 | 248 | 387 | 635 |
| 15 | 64 | 114 | 178 | 292 | 455 | 747 |
| 20 | 74 | 131 | 205 | 336 | 525 | 862 |
| 25 | 83 | 149 | 232 | 381 | 594 | 976 |
| 30 | 93 | 166 | 259 | 426 | 664 | 1,090 |
| 35 | 104 | 185 | 289 | 475 | 740 | 1,216 |
| 40 | 115 | 204 | 319 | 524 | 817 | 1,342 |
| 45 | 125 | 224 | 349 | 573 | 894 | 1,467 |
| 50 | 136 | 243 | 379 | 622 | 970 | 1,593 |
| 55 | 147 | 262 | 409 | 671 | 1,047 | 1,719 |
| 60 | 158 | 281 | 439 | 720 | 1,123 | 1,844 |
| 65 | 168 | 300 | 469 | 769 | 1,200 | 1,970 |
| 70 | 179 | 319 | 499 | 818 | 1,276 | 2,096 |
| 75 | 190 | 339 | 528 | 867 | 1,353 | 2,221 |
| 80 | 201 | 358 | 558 | 916 | 1,429 | 2,347 |
| 85 | 211 | 377 | 588 | 965 | 1,506 | 2,473 |
| 90 | 222 | 396 | 618 | 1,014 | 1,583 | 2,598 |
| 95 | 233 | 415 | 648 | 1,063 | 1,659 | 2,724 |
| 100 | 244 | 434 | 678 | 1,112 | 1,736 | 2,850 |
| 105 | 254 | 454 | 708 | 1,161 | 1,812 | 2,976 |
| 110 | 265 | 473 | 738 | 1,211 | 1,889 | 3,101 |
| 115 | 276 | 492 | 768 | 1,260 | 1,965 | 3,227 |
| 120 | 287 | 511 | 798 | 1,309 | 2,042 | 3,353 |
| 125 | 297 | 530 | 828 | 1,358 | 2,118 | 3,478 |
| 130 | 308 | 549 | 857 | 1,407 | 2,195 | 3,604 |
| 135 | 319 | 568 | 887 | 1,456 | 2,271 | 3,730 |
| 140 | 330 | 588 | 917 | 1,505 | 2,348 | 3,855 |
| 145 | 340 | 607 | 947 | 1,554 | 2,425 | 3,981 |
| 150 | 351 | 626 | 977 | 1,603 | 2,501 | 4,107 |
| 160 | 373 | 664 | 1,037 | 1,701 | 2,654 | 4,358 |
| 165 | 383 | 683 | 1,067 | 1,750 | 2,731 | 4,484 |
| 170 | 394 | 703 | 1,097 | 1,799 | 2,807 | 4,610 |
| 180 | 416 | 741 | 1,156 | 1,897 | 2,960 | 4,861 |
| 190 | 437 | 779 | 1,216 | 1,996 | 3,114 | 5,112 |
| 200 | 459 | 818 | 1,276 | 2,094 | 3,267 | 5,364 |
| 210 | 480 | 856 | 1,336 | 2,192 | 3,420 | 5,615 |
| 220 | 502 | 894 | 1,396 | 2,290 | 3,573 | 5,867 |
| 230 | 523 | 932 | 1,456 | 2,388 | 3,726 | 6,118 |
| 240 | 545 | 971 | 1,515 | 2,486 | 3,879 | 6,369 |
| 250 | 566 | 1,009 | 1,575 | 2,584 | 4,032 | 6,621 |
| 255 | 577 | 1,028 | 1,605 | 2,633 | 4,109 | 6,746 |
| 260 | 587 | 1,047 | 1,635 | 2,682 | 4,185 | 6,872 |
| 265 | 598 | 1,067 | 1,665 | 2,731 | 4,262 | 6,998 |
| 270 | 609 | 1,086 | 1,695 | 2,781 | 4,338 | 7,124 |
| 275 | 620 | 1,105 | 1,725 | 2,830 | 4,415 | 7,249 |
| 280 | 630 | 1,124 | 1,755 | 2,879 | 4,491 | 7,375 |
| 285 | 641 | 1,143 | 1,784 | 2,928 | 4,568 | 7,501 |
| 290 | 652 | 1,162 | 1,814 | 2,977 | 4,645 | 7,626 |
| 295 | 663 | 1,182 | 1,844 | 3,026 | 4,721 | 7,752 |
| 300 | 673 | 1,201 | 1,874 | 3,075 | 4,798 | 7,878 |
| Approx. 1 psi increments | 2.1 | 3.8 | 6.0 | 9.8 | 15.3 | 25.1 |

### METRIC UNITS Nm3/HR.

| ORIFICE LETTER AREA CM.² | D 0.835 | E 1.483 | F 2.315 | G 3.800 | H 5.932 | J 9.733 |
|---|---|---|---|---|---|---|
| SET PRESSURE BARG | | | | | | |
| 0.34* | 66 | 118 | 184 | 302 | 471 | 773 |
| 0.69* | 92 | 164 | 256 | 421 | 657 | 1,078 |
| 1.1 | 112 | 199 | 311 | 510 | 796 | 1,306 |
| 1.5 | 131 | 233 | 364 | 598 | 933 | 1,531 |
| 2 | 155 | 276 | 431 | 708 | 1,105 | 1,813 |
| 2.5 | 181 | 323 | 504 | 827 | 1,291 | 2,119 |
| 3 | 207 | 370 | 578 | 948 | 1,480 | 2,428 |
| 3.5 | 234 | 417 | 651 | 1,069 | 1,669 | 2,738 |
| 4 | 260 | 464 | 725 | 1,190 | 1,857 | 3,047 |
| 4.5 | 287 | 511 | 799 | 1,311 | 2,046 | 3,357 |
| 5 | 313 | 559 | 872 | 1,431 | 2,235 | 3,667 |
| 5.5 | 340 | 606 | 946 | 1,552 | 2,423 | 3,976 |
| 6 | 366 | 653 | 1,020 | 1,673 | 2,612 | 4,286 |
| 6.5 | 392 | 700 | 1,093 | 1,794 | 2,801 | 4,596 |
| 7 | 419 | 747 | 1,167 | 1,915 | 2,989 | 4,905 |
| 7.5 | 445 | 795 | 1,241 | 2,036 | 3,178 | 5,215 |
| 8 | 472 | 842 | 1,314 | 2,157 | 3,367 | 5,524 |
| 8.5 | 498 | 889 | 1,388 | 2,278 | 3,555 | 5,834 |
| 9 | 525 | 936 | 1,461 | 2,398 | 3,744 | 6,144 |
| 9.5 | 551 | 983 | 1,535 | 2,519 | 3,933 | 6,453 |
| 10 | 577 | 1,030 | 1,609 | 2,640 | 4,122 | 6,763 |
| 10.5 | 604 | 1,078 | 1,682 | 2,761 | 4,310 | 7,072 |
| 11 | 630 | 1,125 | 1,756 | 2,882 | 4,499 | 7,382 |
| 11.5 | 657 | 1,172 | 1,830 | 3,003 | 4,688 | 7,692 |
| 12 | 683 | 1,219 | 1,903 | 3,124 | 4,876 | 8,001 |
| 12.5 | 710 | 1,266 | 1,977 | 3,245 | 5,065 | 8,311 |
| 13 | 736 | 1,313 | 2,051 | 3,365 | 5,254 | 8,621 |
| 13.5 | 763 | 1,361 | 2,124 | 3,486 | 5,442 | 8,930 |
| 14 | 789 | 1,408 | 2,198 | 3,607 | 5,631 | 9,240 |
| 15 | 842 | 1,502 | 2,345 | 3,849 | 6,008 | 9,859 |
| 16 | 895 | 1,596 | 2,493 | 4,091 | 6,386 | 10,478 |
| 17 | 948 | 1,691 | 2,640 | 4,332 | 6,763 | 11,097 |
| 18 | 1,000 | 1,785 | 2,787 | 4,574 | 7,141 | 11,717 |
| 19 | 1,053 | 1,879 | 2,935 | 4,816 | 7,518 | 12,336 |
| 20 | 1,106 | 1,974 | 3,082 | 5,058 | 7,895 | 12,955 |
| 20.7 | 1,143 | 2,040 | 3,185 | 5,227 | 8,160 | 13,389 |
| Approx. 0.1 barg increments | 5.3 | 9.4 | 14.7 | 24.2 | 37.7 | 61.9 |

*Note:*
*To correct for temperature or specific gravities other than air (=1.0), multiply the SCFM from the capacity tables by factor Ksg*
**Settings below 15 psi (1.1 barg) are non-ASME code.*

## 29 SERIES
OEM STYLE BRONZE SAFETY VALVE

UV / V

Updated
Teflon®
Seat Design



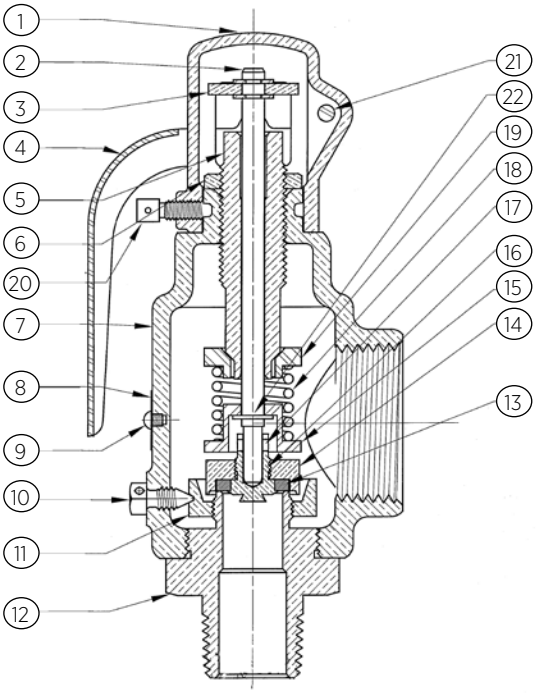
The Apollo 29 Series is ideally suited for OEM applications where compact size, dependable performance and maximum economy are required. These rugged safety valves feature a top guided design and patented Teflon® "soft-seat" for dramatically reduced seat leakage. Flow ratings are National Board certified.

### ASME SECTIONS I AND VIII
- Sizes 3/8" - 1-1/4" NPT
- Factory Set Pressures 30 to 200 psig
- Maximum Temperature: 406˚F

### APPLICATIONS
- Small to Medium Sized Steam Power Boilers, Sterilizers and Distillers, Air Compressors and Receivers, Pressure Vessels and Pressure Piping Systems

### FEATURES
- Stainless Steel Springs are Standard
- PFA Teflon® Seat Resists Corrosive Boiler Chemicals
- Rust-Proofed Steel Stem and Spring Washers
- Lower Control Ring Ensures Short, Consistent Blowdown
- Tapped Body Drain Allows Piping of Condensate Away from Equipment
- Reduced Repair Costs; Soft Seat Easily Replaced
- Registered in all Canadian Provinces Under CSA B51 CRN OG8547.5C
- **Proudly Made in USA**

### OPTIONS
- 316 Stainless Steel Wetted Trim (29-202 & 29-303 Sizes Only)
- Oxygen Cleaned
- European Pressure Equipment Directive Compliant Option (CE/PED)

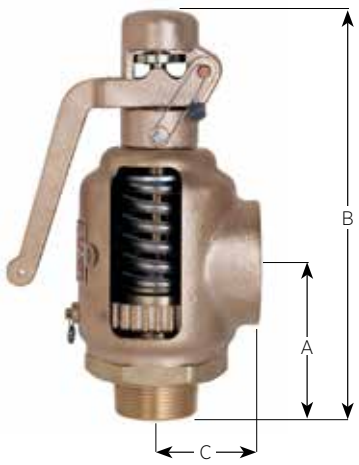



### STANDARD MATERIAL LIST

| | | |
|---|---|---|
| **1** | Cap | Bronze or Brass |
| **2** | Stem | Steel, Plated |
| **3** | Lift Washer | Steel, Plated |
| **4** | Lift Lever | Steel, Plated |
| **5** | Adjusting Screw | Brass |
| **6** | Lock Nut | Brass |
| **7** | Body | Bronze |
| **8** | Nameplate | Stainless Steel |
| **9** | Drive Screws | Stainless Steel |
| **10** | Set Screw | Brass |
| **11** | Blowdown Ring | Brass |
| **12** | Nozzle* | Brass/Stainless |
| **13** | Seat Insert | Teflon® PFA |
| **14** | Disc Holder | Brass |
| **15** | Lower Washer | Steel, Plated |
| **16** | Seat Retainer* | Brass/Stainless |
| **17** | Stem Pin | Stainless Steel |
| **18** | Spring | Stainless Steel |
| **19** | Upper Washer | Steel, Plated |
| **20** | Lock Screw | Steel, Plated |
| **21** | Lever Pin | Steel, Plated |
| **22** | Retaining Ring | Stainless Steel |
| **-** | Seal & Wire | Lead/Steel |

**Optional stainless steel wetted trim for models 29-202XXL and 29-302XXL. Items 12 & 16 are type 316 stainless steel.*

## 29 SERIES
OEM STYLE BRONZE SAFETY VALVE




### AVAILABLE CONFIGURATIONS

| PART NUMBER | SIZE (IN./MM) | | WT./EA. (LB./KG) | DIMENSIONS (IN./MM) | | |
|---|---|---|---|---|---|---|
| | INLET | OUTLET | | A | B | C |
| 29-102 | 3/8 | 1 | 1.30 | 2.12 | 5.40 | 1.25 |
| | 10 | 25 | .59 | 53 | 137 | 31 |
| 29-202 | 1/2 | 1 | 1.33 | 2.12 | 5.40 | 1.25 |
| | 15 | 25 | .60 | 53 | 137 | 31 |
| 29-302 | 3/4 | 1 | 1.90 | 2.12 | 5.40 | 1.25 |
| | 20 | 25 | .86 | 53 | 137 | 31 |
| 29-303 | 3/4 | 1-1/4 | 3.43 | 2.75 | 7.25 | 1.69 |
| | 20 | 32 | 1.55 | 69 | 184 | 42 |
| 29-402 | 1 | 1-1/4 | 3.43 | 2.75 | 7.25 | 1.69 |
| | 25 | 32 | 1.55 | 69 | 184 | 42 |
| 29-501 | 1-1/4 | 1-1/4 | 3.48 | 2.75 | 7.25 | 1.69 |
| | 32 | 32 | 1.58 | 69 | 184 | 42 |

### PART NUMBER MATRIX

| 29 | 202 | A | 100 | A |
|---|---|---|---|---|
| BASE MODEL NUMBER | INLET X OUTLET (NPT) | ASME CODE & SERVICE | SET PRESSURE (PSI) | SPECIAL OPTIONS |
| BRONZE WITH BRASS TRIM AND TEFLON® SOFT SEAT | 102 - 3/8 X 1 | A - SEC I STEAM | SET PRESSURE (PSIG) (RANGE 30-200 PSIG) | S - STAINLESS STEEL WETTED TRIM (MODELS 29-202 & 29-303 ONLY) |
| | 202 - 1/2 X 1 | K - SEC VIII AIR | | |
| | 302 - 3/4 X 1 | L - SEC VIII STEAM | | C - CE/PED |
| | 303 - 3/4 X 1-1/4 | | | Q - PERFORMANCE (CALIBRATION) TEST REPORTS |
| | 402 - 1 X 1-1/4 | | | |
| | 501 - 1-1/4 X 1-1/4 | | | *OTHER SUFFIXES - FACTORY ISSUED |

*Not all configurations available together*

EXAMPLE:
29 202 A100 = 1/2" x 1" 29 Series set @ 100 psig, ASME Section I "V" Steam
29 202 L40 = 1/2" x 1" 29 Series set @ 40 psig, ASME Section VIII "UV" Steam
29 303 K200 S = 3/4" x 1-1/4" 29 Series set @ 200 psig, ASME Section VIII "UV" Air, Stainless Steel Wetted Trim

## 29 SERIES
BRONZE SAFETY

## ASME SECTION I - STEAM
- Pounds per hour (kilograms per hour) saturated steam at 3% overpressure. National Board Certified. Ratings are 90% of actual.

### US CUSTOMARY UNITS LB./HR.

| PART NO.<br>SEAT DIA. (IN.) | 29-102, 29-202, 29-302<br>0.500 | 29-303, 29-402, 29-501<br>0.737 |
|---|---|---|
| SET PRESSURE PSIG | | |
| 30 | 164 | 330 |
| 35 | 182 | 367 |
| 40 | 201 | 405 |
| 45 | 220 | 442 |
| 50 | 238 | 479 |
| 55 | 257 | 517 |
| 60 | 275 | 554 |
| 65 | 294 | 591 |
| 70 | 312 | 628 |
| 75 | 331 | 664 |
| 80 | 349 | 702 |
| 85 | 368 | 739 |
| 90 | 386 | 777 |
| 95 | 405 | 814 |
| 100 | 423 | 851 |
| 105 | 442 | 888 |
| 110 | 460 | 925 |
| 115 | 479 | 963 |
| 120 | 497 | 1,000 |
| 125 | 516 | 1,036 |
| 130 | 534 | 1,074 |
| 135 | 553 | 1,112 |
| 140 | 571 | 1,149 |
| 145 | 590 | 1,186 |
| 150 | 608 | 1,223 |
| 155 | 627 | 1,261 |
| 160 | 645 | 1,298 |
| 165 | 664 | 1,335 |
| 170 | 683 | 1,372 |
| 175 | 701 | 1,409 |
| 180 | 720 | 1,447 |
| 185 | 738 | 1,484 |
| 190 | 757 | 1,521 |
| 195 | 775 | 1,558 |
| 200 | 794 | 1,596 |
| Approx. 1 psi increments | 3.7 | 7.4 |

### METRIC UNITS KG/HR.

| PART NO.<br>SEAT DIA. (MM) | 29-102, 29-202, 29-302<br>12.70 | 29-303, 29-402, 29-501<br>18.72 |
|---|---|---|
| SET PRESSURE BARG | | |
| 2.1 | 77 | 155 |
| 2.5 | 86 | 174 |
| 3 | 98 | 197 |
| 3.5 | 110 | 221 |
| 4 | 122 | 245 |
| 4.5 | 134 | 269 |
| 5 | 146 | 293 |
| 5.5 | 158 | 318 |
| 6 | 170 | 342 |
| 6.5 | 182 | 367 |
| 7 | 195 | 391 |
| 7.5 | 207 | 416 |
| 8 | 219 | 440 |
| 8.5 | 231 | 465 |
| 9 | 243 | 489 |
| 9.5 | 255 | 514 |
| 10 | 268 | 538 |
| 10.5 | 280 | 563 |
| 11 | 292 | 587 |
| 11.5 | 304 | 612 |
| 12 | 316 | 636 |
| 12.5 | 329 | 661 |
| 13 | 341 | 685 |
| 13.5 | 353 | 710 |
| 13.8 | 360 | 724 |
| Approx. 0.1 barg increments | 2.44 | 4.9 |

## 29 SERIES
BRONZE SAFETY

## ASME SECTION VIII - STEAM
- Pounds per hour (kilograms per hour) saturated steam at 10% overpressure. National Board Certified. Ratings are 90% of actual.

### US CUSTOMARY UNITS LB./HR.

| PART NO.<br>SEAT DIA. (IN.) | 29-102, 29-202, 29-302<br>0.500 | 29-303, 29-402, 29-501<br>0.737 |
|---|---|---|
| SET PRESSURE PSIG | | |
| 30 | 172 | 345 |
| 35 | 191 | 385 |
| 40 | 211 | 425 |
| 45 | 231 | 465 |
| 50 | 251 | 504 |
| 55 | 270 | 544 |
| 60 | 290 | 584 |
| 65 | 310 | 624 |
| 70 | 330 | 664 |
| 75 | 350 | 704 |
| 80 | 369 | 744 |
| 85 | 389 | 783 |
| 90 | 409 | 823 |
| 95 | 429 | 863 |
| 100 | 448 | 902 |
| 105 | 468 | 943 |
| 110 | 488 | 982 |
| 115 | 508 | 1022 |
| 120 | 528 | 1062 |
| 125 | 547 | 1102 |
| 130 | 567 | 1142 |
| 135 | 587 | 1182 |
| 140 | 607 | 1221 |
| 145 | 626 | 1261 |
| 150 | 646 | 1299 |
| 155 | 666 | 1341 |
| 160 | 686 | 1381 |
| 165 | 706 | 1420 |
| 170 | 725 | 1460 |
| 175 | 745 | 1500 |
| 180 | 765 | 1540 |
| 185 | 785 | 1580 |
| 190 | 804 | 1620 |
| 195 | 824 | 1659 |
| 200 | 844 | 1697 |
| Approx. 1 psi increments | 3.96 | 7.95 |

### METRIC UNITS KG/HR.

| PART NO.<br>SEAT DIA. (MM) | 29-102, 29-202, 29-302<br>12.70 | 29-303, 29-402, 29-501<br>18.72 |
|---|---|---|
| SET PRESSURE BARG | | |
| 2.1 | 79 | 158 |
| 2.5 | 89 | 179 |
| 3 | 102 | 205 |
| 3.5 | 115 | 231 |
| 4 | 128 | 257 |
| 4.5 | 141 | 284 |
| 5 | 154 | 310 |
| 5.5 | 167 | 336 |
| 6 | 180 | 362 |
| 6.5 | 193 | 388 |
| 7 | 206 | 414 |
| 7.5 | 219 | 441 |
| 8 | 232 | 467 |
| 8.5 | 245 | 493 |
| 9 | 258 | 519 |
| 9.5 | 271 | 545 |
| 10 | 284 | 571 |
| 10.5 | 297 | 598 |
| 11 | 310 | 624 |
| 11.5 | 323 | 650 |
| 12 | 336 | 676 |
| 12.5 | 349 | 702 |
| 13 | 362 | 728 |
| 13.5 | 375 | 755 |
| 13.8 | 383 | 770 |
| Approx. 0.1 barg increments | 2.6 | 5.22 |

## 29 SERIES
BRONZE SAFETY

## ASME SECTION VIII - AIR
- Standard cubic feet per minute (normalized cubic meters per hour) of air at 10% overpressure. National Board Certified. Ratings are 90% of actual.

### US CUSTOMARY UNITS SCFM

| PART NO.<br>SEAT DIA. (IN.) | 29-102, 29-202, 29-302<br>0.500 | 29-303, 29-402, 29-501<br>0.737 |
|---|---|---|
| SET PRESSURE PSIG | | |
| 30 | 61 | 123 |
| 35 | 68 | 137 |
| 40 | 75 | 151 |
| 45 | 82 | 165 |
| 50 | 89 | 180 |
| 55 | 96 | 193 |
| 60 | 103 | 208 |
| 65 | 110 | 222 |
| 70 | 117 | 236 |
| 75 | 124 | 250 |
| 80 | 131 | 264 |
| 85 | 138 | 278 |
| 90 | 145 | 292 |
| 95 | 152 | 307 |
| 100 | 159 | 321 |
| 105 | 166 | 335 |
| 110 | 173 | 349 |
| 115 | 180 | 363 |
| 120 | 187 | 378 |
| 125 | 194 | 392 |
| 130 | 201 | 406 |
| 135 | 208 | 420 |
| 140 | 215 | 434 |
| 145 | 222 | 448 |
| 150 | 229 | 463 |
| 155 | 236 | 477 |
| 160 | 243 | 491 |
| 165 | 250 | 505 |
| 170 | 257 | 519 |
| 175 | 265 | 533 |
| 180 | 272 | 547 |
| 185 | 279 | 562 |
| 190 | 286 | 576 |
| 195 | 293 | 590 |
| 200 | 300 | 604 |
| Approx. 1 psi increments | | |
| | 1.4 | 2.8 |

### METRIC UNITS Nm3./HR.

| PART NO.<br>SEAT DIA. (MM) | 29-102, 29-202, 29-302<br>12.70 | 29-303, 29-402, 29-501<br>18.72 |
|---|---|---|
| SET PRESSURE BARG | | |
| 2.1 | 105 | 210 |
| 2.5 | 118 | 238 |
| 3 | 136 | 273 |
| 3.5 | 153 | 308 |
| 4 | 170 | 342 |
| 4.5 | 188 | 377 |
| 5 | 205 | 412 |
| 5.5 | 222 | 447 |
| 6 | 240 | 482 |
| 6.5 | 257 | 516 |
| 7 | 274 | 551 |
| 7.5 | 291 | 586 |
| 8 | 309 | 621 |
| 8.5 | 326 | 655 |
| 9 | 343 | 690 |
| 9.5 | 361 | 725 |
| 10 | 378 | 760 |
| 10.5 | 395 | 795 |
| 11 | 413 | 829 |
| 11.5 | 430 | 864 |
| 12 | 447 | 899 |
| 12.5 | 464 | 934 |
| 13 | 482 | 969 |
| 13.5 | 499 | 1,003 |
| 13.8 | 509 | 1,024 |
| Approx. 0.1 barg increments | | |
| | 3.46 | 6.96 |

## 119 SERIES
CAST IRON FLANGED SAFETY VALVE

UV/V





These flanged, heavy duty and high capacity safety valves are ideal for use on all types of boilers, pressure vessels and pressure piping systems. These ruggedly built valves offer you a cost-saving alternative to conventional steel bodied valves — without compromising quality or performance. These valves feature a top guided design and two control rings to ensure seat tightness, repeatable performance and extended service life. Flow ratings are National Board certified.

### ASME SECTIONS I AND VIII
- Set Pressures to 250 psig @ 450°F max
- Flanged Inlet Sizes 1-1/2" thru 6" ANSI 250 lb.
- Threaded Inlet Sizes 2" thru 3" FNPT

### APPLICATIONS
- Overpressure Protection of Steam Boilers, Deaerators, Accumulators, Pressure Reducing Stations and Pressure Piping Systems
- Pneumatic Conveying Equipment, Air and Gas Compressors, Receivers and Dryers. Per ASME Code, Cast Iron pressure relief Valves Must Not be Used for Lethal or Flammable Fluid Service

### FEATURES
- Metal-to-Metal Seating, Lapped to Optical Flatness
- High-Capacity Semi-Nozzle Design Available in 8 Orifice Sizes
- Stainless Steel Wetted Trim is Standard
- Two Control Rings Assure Maximum Performance and Dependability
- Designed for New Installations and Replacement of Existing Valves (High Flow Rates and Face-to-Face Dimensions Enable Direct Replacement of Most Competitive Models)
- Designed for Ease of Service or Repair
- Ductile Iron Caps, Forks and Levers for Added Durability
- Registered in all Canadian Provinces Under CSA B51, CRN OG8547.5C
- **Complies with the Pennsylvania Steel Procurement Act**
- **Proudly Made in USA**

### OPTIONS
- Drip Pan Elbows for Discharge Piping
- European Pressure Equipment Directive Compliant Option (CE/PED)



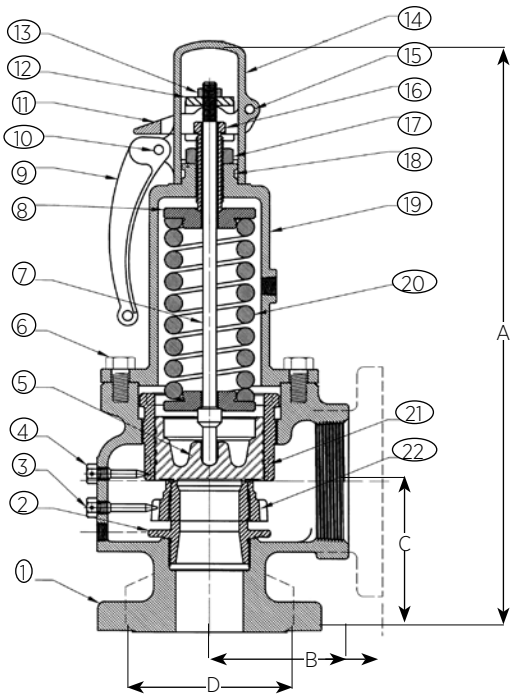
### PART NUMBER MATRIX

| 119 | K | H | C | A | MAA | 0150 | Q |
|---|---|---|---|---|---|---|---|
| SERIES NUMBER | ORIFICE LETTER | INLET (IN.) | CONNECTION | SERVICE | SPECIAL OPTIONS | SET PRESSURE | SUFFIX |
| 119 - STAINLESS STEEL WETTED TRIM | THE ORIFICE LETTER FROM THE CAPACITY CHART (E36-E-39) | G - 1-1/2 | A - FNPT X FNPT | A - SEC I STEAM | FACTORY ISSUED LETTERS/NUMBERS (MAA DEFAULT) | SET PRESSURE, PSIG (4 DIGITS) | Q - PERFORMANCE (CALIBRATION) TEST REPORTS |
| | | H - 2 | C - 250# X FNPT | K - SEC VIII AIR | | | |
| | | J - 2-1/2 | D - 250# X 125# | L - SEC VIII STEAM | | | |
| | | K - 3 | | N - NON CODE AIR | MCE - CE/PED | | |
| | | M - 4 | | P - NON CODE STEAM | | | |
| | | P - 6 | | | | | |

EXAMPLES:
119 KHC A MAA 0150 = 2" "K" 3" ASME Section I Steam, set @ 150 psig with flanged inlet
119 QPD L MAA 0025 = 6" "K" 8" ASME Section VIII Steam, set @ 25 psig with flanged inlet

*See page E-36 for a summary of available inlet/outlet configurations*

## 119 SERIES
CAST IRON FLANGED SAFETY VALVE




### STANDARD MATERIAL LIST

| | | |
|---|---|---|
| **1** | Body | Gray Iron |
| **2** | Nozzle | Stainless Steel |
| **3** | Nozzle Ring Screw | Brass |
| **4** | Guide Ring Screw | Brass |
| **5** | Disc | Stainless Steel |
| **6** | Bonnet Bolt | Steel, Plated |
| **7** | Stem | Steel, Plated |
| **8** | Spring Washer | Steel, Plated |
| **9** | Test Lever | Ductile Iron |
| **10** | Clevis Pin | Steel, Plated |
| **11** | Lifting Fork | Ductile Iron |
| **12** | Stem Nut | Steel, Plated |
| **13** | Stem Nut Lock Nut | Steel, Plated |
| **14** | Lifting Cap | Ductile Iron |
| **15** | Clevis Pin | Steel (Plated) |
| **16** | Adjusting Screw | Brass |
| **17** | Lock Nut | Steel, Plated |
| **18** | Lift Cap Lockscrew | Steel, Plated |
| **19** | Bonnet | Gray Iron |
| **20** | Spring | Steel, Plated or SS |
| **21** | Disc Guide | Brass or Bronze |
| **22** | Nozzle Ring | Brass or Bronze |
| **-** | Nameplate | Aluminum |
| **-** | Seal And Wire | Lead/Steel |
| **-** | Seal And Wire (Ce) | Aluminum/SS |

### AVAILABLE CONFIGURATIONS

| PART NUMBER | SIZE (IN./MM) INLET X OUTLET | ORIFICE SIZE | DIMENSIONS (IN./MM) | | | HEX FLAT D (IN./MM) | WEIGHT (LB./KG) |
|---|---|---|---|---|---|---|---|
| | | | A | B | C | | |
| 119 JGC | 1-1/2 250# X 2-1/2 FNPT | J | 15 | 4 | 4.31 | | 35 |
| | DN40 x DN65 | | 381 | 101 | 109 | | 15.8 |
| 119 KHC | 2 250# X 3 FNPT | K | 16 | 4 | 4.63 | | 36 |
| | DN50 x DN80 | | 406 | 101 | 109 | | 16.3 |
| 119 KHA | 2 FNPT X 3 FNPT | K | 16 | 4 | 4.63 | 3.75 | 37 |
| | DN50 x DN80 | | 406 | 101 | 109 | 95 | 16.7 |
| 119 KJC | 2-1/2 250# X 3 FNPT | K | 16 | 4 | 4.63 | | 41 |
| | DN65 x DN80 | | 406 | 101 | 109 | | 18.6 |
| 119 KKC | 3 250# X 3 FNPT | K | 16 | 4 | 4.63 | | 45 |
| | DN80 x DN80 | | 406 | 101 | 109 | | 20.5 |
| 119 LJC | 2-1/2 250# X 4 FNPT | L | 22 | 5.13 | 5.63 | | 84 |
| | DN65 x DN100 | | 558 | 130 | 143 | | 38.1 |
| 119 LJA | 2-1/2 FNPT X 4 FNPT | L | 22 | 5.13 | 5.63 | 5.38 | 81 |
| | DN65 x DN100 | | 558 | 130 | 143 | 136 | 36.7 |
| 119 LKC | 3 250# X 4 FNPT | L | 22 | 5.13 | 5.63 | | 85 |
| | DN80 x DN100 | | 558 | 130 | 143 | | 38.5 |
| 119 LMC | 4 250# X 4 FNPT | L | 22 | 5.13 | 5.63 | | 90 |
| | DN100 x DN100 | | 558 | 130 | 143 | | 40.9 |
| 119 MKA | 3 FNPT X 4 FNPT | M | 22 | 5.13 | 5.63 | 5.38 | 80 |
| | DN80 x DN100 | | 558 | 130 | 143 | 136 | 36.2 |
| 119 MKC | 3 250# X 4 FNPT | M | 22 | 5.13 | 5.63 | | 87 |
| | DN80 x DN100 | | 558 | 130 | 143 | | 39.4 |
| 119 MMC | 4 250# X 4 FNPT | M | 22 | 5.13 | 5.63 | | 95 |
| | DN100 x DN100 | | 558 | 130 | 143 | | 43.2 |
| 119 NMD | 4 250# X 6 125# | N | 28 | 7.25 | 6.75 | | 210 |
| | DN100 x DN150 | | 711 | 184 | 171 | | 95.2 |
| 119 PMD | 4 250# X 6 125# | P | 28 | 7.25 | 6.75 | | 215 |
| | DN100 x DN150 | | 711 | 184 | 171 | | 97.5 |
| 119 QPD | 6 250# X 8 125# | Q | 42 | 10 | 9.25 | | 530 |
| | DN150 x DN200 | | 1066 | 254 | 234 | | 240.4 |
| 119 RPD | 6 250# X 8 125# | R | 42 | 10 | 9.25 | | 530 |
| | DN150 x DN200 | | 1066 | 254 | 234 | | 240.4 |

## 119 SERIES
CAST IRON FLANGED SAFETY VALVE

## ASME SECTION I - STEAM
- Pounds per hour (kilograms per hour) saturated steam at 3% overpressure. National Board Certified. Ratings are 90% of actual.

### US CUSTOMARY UNITS LB./HR.

| ORIFICELETTER AREA IN.² | J 1.358 | K 1.926 | L 2.99 | M 3.774 | N 4.55 | P 6.692 | Q 11.593 | R 16.786 |
|---|---|---|---|---|---|---|---|---|
| SET PRESSURE PSIG | | | | | | | | |
| 15 | 1,947 | 2,761 | 4,286 | 5,410 | 6,522 | 9,592 | 16,617 | 24,061 |
| 20 | 2,254 | 3,196 | 4,962 | 6,263 | 7,551 | 11,105 | 19,238 | 27,856 |
| 25 | 2,561 | 3,632 | 5,638 | 7,116 | 8,579 | 12,618 | 21,859 | 31,651 |
| 30 | 2,868 | 4,067 | 6,314 | 7,969 | 9,608 | 14,131 | 24,480 | 35,446 |
| 35 | 3,175 | 4,502 | 6,990 | 8,823 | 10,637 | 15,644 | 27,101 | 39,241 |
| 40 | 3,482 | 4,938 | 7,666 | 9,676 | 11,665 | 17,157 | 29,722 | 43,036 |
| 45 | 3,789 | 5,373 | 8,342 | 10,529 | 12,694 | 18,670 | 32,343 | 46,831 |
| 50 | 4,096 | 5,809 | 9,018 | 11,382 | 13,723 | 20,183 | 34,964 | 50,626 |
| 55 | 4,403 | 6,244 | 9,694 | 12,236 | 14,751 | 21,696 | 37,585 | 54,421 |
| 60 | 4,710 | 6,680 | 10,370 | 13,089 | 15,780 | 23,209 | 40,206 | 58,216 |
| 65 | 5,017 | 7,115 | 11,046 | 13,942 | 16,809 | 24,722 | 42,827 | 62,011 |
| 70 | 5,330 | 7,559 | 11,735 | 14,812 | 17,858 | 26,265 | 45,501 | 65,882 |
| 75 | 5,646 | 8,008 | 12,432 | 15,691 | 18,918 | 27,823 | 48,200 | 69,791 |
| 80 | 5,962 | 8,456 | 13,128 | 16,570 | 19,977 | 29,382 | 50,900 | 73,700 |
| 85 | 6,279 | 8,905 | 13,824 | 17,449 | 21,037 | 30,940 | 53,600 | 77,609 |
| 90 | 6,595 | 9,353 | 14,520 | 18,328 | 22,096 | 32,498 | 56,299 | 81,518 |
| 95 | 6,911 | 9,802 | 15,217 | 19,207 | 23,156 | 34,057 | 58,999 | 85,427 |
| 100 | 7,227 | 10,250 | 15,913 | 20,085 | 24,215 | 35,615 | 61,698 | 89,336 |
| 105 | 7,544 | 10,699 | 16,609 | 20,964 | 25,275 | 37,173 | 64,398 | 93,245 |
| 110 | 7,860 | 11,147 | 17,305 | 21,843 | 26,334 | 38,732 | 67,098 | 97,154 |
| 115 | 8,176 | 11,596 | 18,002 | 22,722 | 27,394 | 40,290 | 69,797 | 101,063 |
| 120 | 8,492 | 12,044 | 18,698 | 23,601 | 28,453 | 41,848 | 72,497 | 104,971 |
| 125 | 8,809 | 12,493 | 19,394 | 24,480 | 29,513 | 43,407 | 75,197 | 108,880 |
| 130 | 9,125 | 12,941 | 20,091 | 25,358 | 30,573 | 44,965 | 77,896 | 112,789 |
| 135 | 9,441 | 13,390 | 20,787 | 26,237 | 31,632 | 46,524 | 80,596 | 116,698 |
| 140 | 9,757 | 13,838 | 21,483 | 27,116 | 32,692 | 48,082 | 83,295 | 120,607 |
| 145 | 10,073 | 14,287 | 22,179 | 27,995 | 33,751 | 49,640 | 85,995 | 124,516 |
| 150 | 10,390 | 14,735 | 22,876 | 28,874 | 34,811 | 51,199 | 88,695 | 128,425 |
| 155 | 10,706 | 15,184 | 23,572 | 29,753 | 35,870 | 52,757 | 91,394 | 132,334 |
| 160 | 11,022 | 15,632 | 24,268 | 30,631 | 36,930 | 54,315 | 94,094 | 136,243 |
| 165 | 11,338 | 16,081 | 24,964 | 31,510 | 37,989 | 55,874 | 96,794 | 140,152 |
| 170 | 11,655 | 16,529 | 25,661 | 32,389 | 39,049 | 57,432 | 99,493 | 144,061 |
| 175 | 11,971 | 16,978 | 26,357 | 33,268 | 40,108 | 58,990 | 102,193 | 147,969 |
| 180 | 12,287 | 17,426 | 27,053 | 34,147 | 41,168 | 60,549 | 104,893 | 151,878 |
| 185 | 12,603 | 17,875 | 27,750 | 35,026 | 42,228 | 62,107 | 107,592 | 155,787 |
| 190 | 12,920 | 18323 | 28,446 | 35,905 | 43,287 | 63,665 | 110,292 | 159,696 |
| 195 | 13,236 | 18772 | 29,142 | 36,783 | 44,347 | 65,224 | 112,991 | 163,605 |
| 200 | 13,552 | 19220 | 29,838 | 37,662 | 45,406 | 66,782 | 115,691 | 167,514 |
| 205 | 13,868 | 19669 | 30,535 | 38,541 | 46,466 | 68,340 | 118,391 | 171,423 |
| 210 | 14,184 | 20117 | 31,231 | 39,420 | 47,525 | 69,899 | 121,090 | 175,332 |
| 215 | 14,501 | 20566 | 31,927 | 40,299 | 48,585 | 71,457 | 123,790 | 179,241 |
| 220 | 14,817 | 21014 | 32,623 | 41,178 | 49,644 | 73,015 | 126,490 | 183,150 |
| 225 | 15,133 | 21463 | 33,320 | 42,056 | 50,704 | 74,574 | 129,189 | 187,059 |
| 230 | 15,449 | 21911 | 34,016 | 42,935 | 51,764 | 76,132 | 131,889 | 190,958 |
| 235 | 15,766 | 22360 | 34,712 | 43,814 | 52,823 | 77,691 | 134,589 | 194,876 |
| 240 | 16,082 | 22808 | 35,409 | 44,693 | 53,883 | 79,249 | 137,288 | 198,785 |
| 245 | 16,398 | 23257 | 36,105 | 45,572 | 54,942 | 80,807 | 139,988 | 202,694 |
| 250 | 16,714 | 23705 | 36,801 | 46,451 | 56,002 | 82,366 | 142,687 | 206,603 |
| Approx. 1 psi Increments | 63 | 90 | 139 | 176 | 212 | 312 | 540 | 782 |

### METRIC UNITS KG/HR.

| ORIFICE LETTER AREA CM.² | J 8.762 | K 12.426 | L 19.287 | M 24.347 | N 29.357 | P 43.174 | Q 74.795 | R 108.294 |
|---|---|---|---|---|---|---|---|---|
| SET PRESSURE BARG | | | | | | | | |
| 1.1 | 910 | 1,290 | 2,002 | 2,527 | 3,048 | 4,482 | 7,764 | 11,242 |
| 1.5 | 1,071 | 1,519 | 2,358 | 2,976 | 3,589 | 5,278 | 9,144 | 13,239 |
| 2 | 1,273 | 1,806 | 2,803 | 3,538 | 4,266 | 6,274 | 10,868 | 15,736 |
| 2.5 | 1,475 | 2,092 | 3,247 | 4,099 | 4,943 | 7,269 | 12,593 | 18,233 |
| 3 | 1,677 | 2,379 | 3,692 | 4,660 | 5,619 | 8,264 | 14,317 | 20,729 |
| 3.5 | 1,879 | 2,665 | 4,137 | 5,222 | 6,296 | 9,260 | 16,041 | 23,226 |
| 4 | 2,081 | 2,952 | 4,581 | 5,783 | 6,973 | 10,255 | 17,766 | 25,723 |
| 4.5 | 2,283 | 3,238 | 5,026 | 6,344 | 7,650 | 11,250 | 19,490 | 28,219 |
| 5 | 2,490 | 3,531 | 5,481 | 6,919 | 8,343 | 12,270 | 21,256 | 30,776 |
| 5.5 | 2,698 | 3,827 | 5,939 | 7,497 | 9,040 | 13,295 | 23,032 | 33,348 |
| 6 | 2,906 | 4,122 | 6,397 | 8,075 | 9,737 | 14,320 | 24,808 | 35,919 |
| 6.5 | 3,114 | 4,417 | 6,855 | 8,653 | 10,434 | 15,345 | 26,584 | 38,491 |
| 7 | 3,322 | 4,712 | 7,313 | 9,232 | 11,131 | 16,371 | 28,360 | 41,062 |
| 7.5 | 3,530 | 5,007 | 7,771 | 9,810 | 11,828 | 17,396 | 30,136 | 43,634 |
| 8 | 3,738 | 5,302 | 8,229 | 10,388 | 12,526 | 18,421 | 31,912 | 46,205 |
| 8.5 | 3,947 | 5,597 | 8,687 | 10,966 | 13,223 | 19,446 | 33,689 | 48,777 |
| 9 | 4,155 | 5,892 | 9,145 | 11,544 | 13,920 | 20,471 | 35,465 | 51,349 |
| 9.5 | 4,363 | 6,187 | 9,603 | 12,122 | 14,617 | 21,497 | 37,241 | 53,920 |
| 10 | 4,571 | 6,482 | 10,061 | 12,700 | 15,314 | 22,522 | 39,017 | 56,492 |
| 10.5 | 4,779 | 6,777 | 10,519 | 13,279 | 16,011 | 23,547 | 40,793 | 59,063 |
| 11 | 4,987 | 7,072 | 10,977 | 13,857 | 16,708 | 24,572 | 42,569 | 61,635 |
| 11.5 | 5,195 | 7,367 | 11,435 | 14,435 | 17,405 | 25,598 | 44,345 | 64,206 |
| 12 | 5,403 | 7,662 | 11,893 | 15,013 | 18,102 | 26,623 | 46,121 | 66,778 |
| 12.5 | 5,611 | 7,958 | 12,351 | 15,591 | 18,800 | 27,648 | 47,897 | 69,349 |
| 13 | 5,819 | 8,253 | 12,809 | 16,169 | 19,497 | 28,673 | 49,673 | 71,921 |
| 13.5 | 6,027 | 8,548 | 13,267 | 16,747 | 20,194 | 29,698 | 51,449 | 74,492 |
| 14 | 6,235 | 8,843 | 13,725 | 17,325 | 20,891 | 30,724 | 53,225 | 77,064 |
| 15 | 6,651 | 9,433 | 14,641 | 18,482 | 22,285 | 32,774 | 56,777 | 82,207 |
| 16 | 7,068 | 10,023 | 15,557 | 19,638 | 23,679 | 34,824 | 60,330 | 87,350 |
| 17 | 7,484 | 10,613 | 16,473 | 20,794 | 25,073 | 36,875 | 63,882 | 92,493 |
| Approx 0.1 barg Increments | 41.6 | 59.0 | 91.6 | 115.6 | 139.4 | 205.0 | 355.2 | 514.3 |

## 119 SERIES
CAST IRON FLANGED SAFETY

## ASME SECTION VIII - STEAM
- Pounds per hour (kilograms per hour) saturated steam at 10% overpressure. National Board Certified. Ratings are 90% of actual.

### US CUSTOMARY UNITS LB./HR.

| ORIFICE LETTER AREA IN.² | J 1.358 | K 1.926 | L 2.99 | M 3.774 | N 4.55 | P 6.692 | Q 11.593 | R 16.786 |
|---|---|---|---|---|---|---|---|---|
| SET PRESSURE PSIG | | | | | | | | |
| 5* | 1,312 | 1,860 | 2,888 | 3,645 | 4,395 | 6,464 | 11,198 | 16,213 |
| 10* | 1,798 | 2,550 | 3,957 | 4,995 | 6,023 | 8,859 | 15,346 | 22,220 |
| 15 | 2,008 | 2,848 | 4,421 | 5,580 | 6,728 | 9,895 | 17,141 | 24,820 |
| 20 | 2,315 | 3,283 | 5,097 | 6,433 | 7,756 | 11,408 | 19,762 | 28,615 |
| 25 | 2,622 | 3,719 | 5,773 | 7,287 | 8,785 | 12,921 | 22,383 | 32,410 |
| 30 | 2,929 | 4,154 | 6,449 | 8,140 | 9,814 | 14,434 | 25,004 | 36,205 |
| 35 | 3,267 | 4,633 | 7,193 | 9,079 | 10,945 | 16,098 | 27,887 | 40,379 |
| 40 | 3,604 | 5,112 | 7,936 | 10,017 | 12,077 | 17,762 | 30,771 | 44,554 |
| 45 | 3,942 | 5,591 | 8,680 | 10,956 | 13,208 | 19,426 | 33,654 | 48,729 |
| 50 | 4,280 | 6,070 | 9,423 | 11,894 | 14,340 | 21,091 | 36,537 | 52,903 |
| 55 | 4,618 | 6,549 | 10,167 | 12,833 | 15,471 | 22,755 | 39,420 | 57,078 |
| 60 | 4,955 | 7,028 | 10,911 | 13,771 | 16,603 | 24,419 | 42,303 | 61,252 |
| 65 | 5,293 | 7,507 | 11,654 | 14,710 | 17,735 | 26,083 | 45,186 | 65,427 |
| 70 | 5,631 | 7,986 | 12,398 | 15,649 | 18,866 | 27,748 | 48,069 | 69,601 |
| 75 | 5,969 | 8,465 | 13,141 | 16,587 | 19,998 | 29,412 | 50,952 | 73,776 |
| 80 | 6,306 | 8,944 | 13,885 | 17,526 | 21,129 | 31,076 | 53,835 | 77,951 |
| 85 | 6,644 | 9,423 | 14,629 | 18,464 | 22,261 | 32,740 | 56,719 | 82,125 |
| 90 | 6,982 | 9,902 | 15,372 | 19,403 | 23,392 | 34,405 | 59,602 | 86,300 |
| 95 | 7,319 | 10,381 | 16,116 | 20,341 | 24,524 | 36,069 | 62,485 | 90,474 |
| 100 | 7,657 | 10,860 | 16,859 | 21,280 | 25,655 | 37,733 | 65,368 | 94,649 |
| 105 | 7,995 | 11,339 | 17,603 | 22,218 | 26,787 | 39,397 | 68,251 | 98,823 |
| 110 | 8,333 | 11,818 | 18,346 | 23,157 | 27,919 | 41,062 | 71,134 | 102,998 |
| 115 | 8,670 | 12,297 | 19,090 | 24,096 | 29,050 | 42,726 | 74,017 | 107,173 |
| 120 | 9,008 | 12,776 | 19,834 | 25,034 | 30,182 | 44,390 | 76,900 | 111,347 |
| 125 | 9,346 | 13,255 | 20,577 | 25,973 | 31,313 | 46,055 | 79,783 | 115,522 |
| 130 | 9,684 | 13,734 | 21,321 | 26,911 | 32,445 | 47,719 | 82,666 | 119,696 |
| 135 | 10,021 | 14,213 | 22,064 | 27,850 | 33,576 | 49,383 | 85,550 | 123,871 |
| 140 | 10,359 | 14,692 | 22,808 | 28,788 | 34,708 | 51,047 | 88,433 | 128,045 |
| 145 | 10,697 | 15,171 | 23,552 | 29,727 | 35,839 | 52,712 | 91,316 | 132,220 |
| 150 | 11,034 | 15,650 | 24,295 | 30,666 | 36,971 | 54,376 | 94,199 | 136,395 |
| 155 | 11,372 | 16,129 | 25,039 | 31,604 | 38,103 | 56,040 | 97,082 | 140,569 |
| 160 | 11,710 | 16,608 | 25,782 | 32,543 | 39,234 | 57,704 | 99,965 | 144,744 |
| 165 | 12,048 | 17,087 | 26,526 | 33,481 | 40,366 | 59,369 | 102,848 | 148,918 |
| 170 | 12,385 | 17,566 | 27,270 | 34,420 | 41,497 | 61,033 | 105,731 | 153,093 |
| 175 | 12,723 | 18,045 | 28,013 | 35,358 | 42,629 | 62,697 | 108,614 | 157,267 |
| 180 | 13,061 | 18,524 | 28,757 | 36,297 | 43,760 | 64,361 | 111,497 | 161,442 |
| 185 | 13,399 | 19,003 | 29,500 | 37,236 | 44,892 | 66,026 | 114,381 | 165,617 |
| 190 | 13,736 | 19,482 | 30,244 | 38,174 | 46,023 | 67,690 | 117,264 | 169,791 |
| 195 | 14,074 | 19,961 | 30,988 | 39,113 | 47,155 | 69,354 | 120,147 | 173,966 |
| 200 | 14,412 | 20,440 | 31,731 | 40,051 | 48,287 | 71,018 | 123,030 | 178,140 |
| 205 | 14,749 | 20,919 | 32,475 | 40,990 | 49,418 | 72,683 | 125,913 | 182,315 |
| 210 | 15,087 | 21,398 | 33,218 | 41,928 | 50,550 | 74,347 | 128,796 | 186,489 |
| 215 | 15,425 | 21,876 | 33,962 | 42,867 | 51,681 | 76,011 | 131,679 | 190,664 |
| 220 | 15,763 | 22,355 | 34,706 | 43,806 | 52,813 | 77,675 | 134,562 | 194,839 |
| 225 | 16,100 | 22,834 | 35,449 | 44,744 | 53,944 | 79,340 | 137,445 | 199,013 |
| 230 | 16,438 | 23,313 | 36,193 | 45,683 | 55,076 | 81,004 | 140,329 | 203,188 |
| 235 | 16,776 | 23,792 | 36,936 | 46,621 | 56,207 | 82,668 | 143,212 | 207,362 |
| 240 | 17,113 | 24,271 | 37,680 | 47,560 | 57,339 | 84,332 | 146,095 | 211,537 |
| 245 | 17,451 | 24,750 | 38,424 | 48,498 | 58,471 | 85,997 | 148,978 | 215,711 |
| 250 | 17,789 | 25,229 | 39,167 | 49,437 | 59,602 | 87,661 | 151,861 | 219,886 |
| Approx. 1 psi Increment | 68 | 96 | 149 | 188 | 226 | 333 | 577 | 835 |

**Settings below 15 psi (1.1 barg) are non-ASME code.*

### METRIC UNITS KG/HR.

| ORIFICE LETTER AREA CM.² | J 8.762 | K 12.426 | L 19.287 | M 24.347 | N 29.357 | P 43.174 | Q 74.795 | R 108.294 |
|---|---|---|---|---|---|---|---|---|
| SET PRESSURE BARG | | | | | | | | |
| .34* | 590 | 836 | 1,298 | 1,639 | 1,976 | 2,906 | 5,034 | 7,289 |
| .69* | 822 | 1,165 | 1,809 | 2,283 | 2,753 | 4,049 | 7,014 | 10,155 |
| 1.1 | 937 | 1,329 | 2,064 | 2,605 | 3,141 | 4,619 | 8,002 | 11,586 |
| 1.5 | 1,099 | 1,559 | 2,419 | 3,054 | 3,682 | 5,415 | 9,382 | 13,584 |
| 2 | 1,301 | 1,845 | 2,864 | 3,615 | 4,359 | 6,411 | 11,106 | 16,080 |
| 2.5 | 1,520 | 2,156 | 3,347 | 4,225 | 5,094 | 7,492 | 12,979 | 18,792 |
| 3 | 1,743 | 2,471 | 3,836 | 4,842 | 5,839 | 8,587 | 14,876 | 21,539 |
| 3.5 | 1,965 | 2,787 | 4,325 | 5,460 | 6,583 | 9,682 | 16,773 | 24,285 |
| 4 | 2,187 | 3,102 | 4,814 | 6,077 | 7,328 | 10,777 | 18,670 | 27,031 |
| 4.5 | 2,409 | 3,417 | 5,303 | 6,695 | 8,072 | 11,872 | 20,566 | 29,778 |
| 5 | 2,632 | 3,732 | 5,793 | 7,312 | 8,817 | 12,967 | 22,463 | 32,524 |
| 5.5 | 2,854 | 4,047 | 6,282 | 7,929 | 9,561 | 14,061 | 24,360 | 35,270 |
| 6 | 3,076 | 4,362 | 6,771 | 8,547 | 10,306 | 15,156 | 26,257 | 38,017 |
| 6.5 | 3,298 | 4,677 | 7,260 | 9,164 | 11,050 | 16,251 | 28,153 | 40,763 |
| 7 | 3,520 | 4,992 | 7,749 | 9,782 | 11,795 | 17,346 | 30,050 | 43,509 |
| 7.5 | 3,743 | 5,308 | 8,238 | 10,399 | 12,539 | 18,441 | 31,947 | 46,255 |
| 8 | 3,965 | 5,623 | 8,727 | 11,017 | 13,284 | 19,536 | 33,844 | 49,002 |
| 8.5 | 4,187 | 5,938 | 9,216 | 11,634 | 14,028 | 20,631 | 35,741 | 51,748 |
| 9 | 4,409 | 6,253 | 9,706 | 12,251 | 14,773 | 21,726 | 37,637 | 54,494 |
| 9.5 | 4,631 | 6,568 | 10,195 | 12,869 | 15,517 | 22,820 | 39,534 | 57,241 |
| 10 | 4,854 | 6,883 | 10,684 | 13,486 | 16,262 | 23,915 | 41,431 | 59,987 |
| 10.5 | 5,076 | 7,198 | 11,173 | 14,104 | 17,006 | 25,010 | 43,328 | 62,733 |
| 11 | 5,298 | 7,513 | 11,662 | 14,721 | 17,750 | 26,105 | 45,224 | 65,480 |
| 11.5 | 5,520 | 7,829 | 12,151 | 15,338 | 18,495 | 27,200 | 47,121 | 68,226 |
| 12 | 5,742 | 8,144 | 12,640 | 15,956 | 19,239 | 28,295 | 49,018 | 70,972 |
| 12.5 | 5,965 | 8,459 | 13,129 | 16,573 | 19,984 | 29,390 | 50,915 | 73,718 |
| 13 | 6,187 | 8,774 | 13,618 | 17,191 | 20,728 | 30,485 | 52,811 | 76,465 |
| 13.5 | 6,409 | 9,089 | 14,108 | 17,808 | 21,473 | 31,580 | 54,708 | 79,211 |
| 14 | 6,631 | 9,404 | 14,597 | 18,426 | 22,217 | 32,674 | 56,605 | 81,957 |
| 15 | 7,076 | 10,034 | 15,575 | 19,660 | 23,706 | 34,864 | 60,399 | 87,450 |
| 16 | 7,520 | 10,665 | 16,553 | 20,895 | 25,195 | 37,054 | 64,192 | 92,943 |
| 17 | 7,964 | 11,295 | 17,531 | 22,130 | 26,684 | 39,244 | 67,986 | 98,435 |
| Approx. 0.1 barg Increment | 44.4 | 63.0 | 97.8 | 123.5 | 148.9 | 219.0 | 379.4 | 549.3 |

## 119 SERIES
CAST IRON FLANGED SAFETY

## ASME SECTION VIII - AIR
- Standard cubic feet per minute (normalized cubic meters per hour) of air at 10% overpressure. National Board Certified. Ratings are 90% of actual.

### US CUSTOMARY UNITS SCFM

| ORIFICE LETTER AREA IN.² | J 1.358 | K 1.926 | L 2.99 | M 3.774 | N 4.55 | P 6.692 | Q 11.593 | R 16.786 |
|---|---|---|---|---|---|---|---|---|
| SET PRESSURE PSIG | | | | | | | | |
| 5* | 418 | 592 | 919 | 1,160 | 1,399 | 2,058 | 3,565 | 5,161 |
| 10* | 583 | 826 | 1,282 | 1,619 | 1,952 | 2,870 | 4,973 | 7,200 |
| 15 | 715 | 1,014 | 1,574 | 1,986 | 2,395 | 3,522 | 6,101 | 8,834 |
| 20 | 824 | 1,169 | 1,814 | 2,290 | 2,761 | 4,060 | 7,034 | 10,185 |
| 25 | 933 | 1,324 | 2,055 | 2,594 | 3,127 | 4,599 | 7,967 | 11,536 |
| 30 | 1,043 | 1,479 | 2,295 | 2,897 | 3,493 | 5,138 | 8,900 | 12,887 |
| 35 | 1,163 | 1,649 | 2,560 | 3,231 | 3,896 | 5,730 | 9,926 | 14,373 |
| 40 | 1,283 | 1,820 | 2,825 | 3,566 | 4,299 | 6,322 | 10,953 | 15,859 |
| 45 | 1,403 | 1,990 | 3,089 | 3,900 | 4,701 | 6,915 | 11,979 | 17,345 |
| 50 | 1,523 | 2,161 | 3,354 | 4,234 | 5,104 | 7,507 | 13,005 | 18,830 |
| 55 | 1,644 | 2,331 | 3,619 | 4,568 | 5,507 | 8,099 | 14,031 | 20,316 |
| 60 | 1,764 | 2,502 | 3,884 | 4,902 | 5,910 | 8,692 | 15,057 | 21,802 |
| 65 | 1,884 | 2,672 | 4,148 | 5,236 | 6,312 | 9,284 | 16,084 | 23,288 |
| 70 | 2,004 | 2,843 | 4,413 | 5,570 | 6,715 | 9,877 | 17,110 | 24,774 |
| 75 | 2,124 | 3,013 | 4,678 | 5,904 | 7,118 | 10,469 | 18,136 | 26,260 |
| 80 | 2,245 | 3,184 | 4,942 | 6,238 | 7,521 | 11,061 | 19,162 | 27,746 |
| 85 | 2,365 | 3,354 | 5,207 | 6,572 | 7,924 | 11,654 | 20,188 | 29,232 |
| 90 | 2,485 | 3,524 | 5,472 | 6,906 | 8,326 | 12,246 | 21,215 | 30,718 |
| 95 | 2,605 | 3,695 | 5,736 | 7,240 | 8,729 | 12,838 | 22,241 | 32,204 |
| 100 | 2,726 | 3,865 | 6,001 | 7,574 | 9,132 | 13,431 | 23,267 | 33,689 |
| 105 | 2,846 | 4,036 | 6,266 | 7,908 | 9,535 | 14,023 | 24,293 | 35,175 |
| 110 | 2,966 | 4,206 | 6,530 | 8,243 | 9,937 | 14,616 | 25,320 | 36,661 |
| 115 | 3,086 | 4,377 | 6,795 | 8,577 | 10,340 | 15,208 | 26,346 | 38,147 |
| 120 | 3,206 | 4,547 | 7,060 | 8,911 | 10,743 | 15,800 | 27,372 | 39,633 |
| 125 | 3,327 | 4,718 | 7,324 | 9,245 | 11,146 | 16,393 | 28,398 | 41,119 |
| 130 | 3,447 | 4,888 | 7,589 | 9,579 | 11,548 | 16,985 | 29,424 | 42,605 |
| 135 | 3,567 | 5,059 | 7,854 | 9,913 | 11,951 | 17,577 | 30,451 | 44,091 |
| 140 | 3,687 | 5,229 | 8,118 | 10,247 | 12,354 | 18,170 | 31,477 | 45,577 |
| 145 | 3,807 | 5,400 | 8,383 | 10,581 | 12,757 | 18,762 | 32,503 | 47,063 |
| 150 | 3,928 | 5,570 | 8,648 | 10,915 | 13,160 | 19,355 | 33,529 | 48,549 |
| 155 | 4,048 | 5,741 | 8,912 | 11,249 | 13,562 | 19,947 | 34,556 | 50,034 |
| 160 | 4,168 | 5,911 | 9,177 | 11,583 | 13,965 | 20,539 | 35,582 | 51,520 |
| 165 | 4,288 | 6,082 | 9,442 | 11,917 | 14,368 | 21,132 | 36,608 | 53,006 |
| 170 | 4,408 | 6,252 | 9,706 | 12,251 | 14,771 | 21,724 | 37,634 | 54,492 |
| 175 | 4,529 | 6,423 | 9,971 | 12,586 | 15,173 | 22,317 | 38,660 | 55,978 |
| 180 | 4,649 | 6,593 | 10,236 | 12,920 | 15,576 | 22,909 | 39,687 | 57,464 |
| 185 | 4,769 | 6,764 | 10,500 | 13,254 | 15,979 | 23,501 | 40,713 | 58,950 |
| 190 | 4,889 | 6,934 | 10,765 | 13,588 | 16,382 | 24,094 | 41,739 | 60,436 |
| 195 | 5,010 | 7,105 | 11,030 | 13,922 | 16,784 | 24,686 | 42,765 | 61,922 |
| 200 | 5,130 | 7,275 | 11,294 | 14,256 | 17,187 | 25,278 | 43,791 | 63,408 |
| 205 | 5,250 | 7,446 | 11,559 | 14,590 | 17,590 | 25,871 | 44,818 | 64,893 |
| 210 | 5,370 | 7,616 | 11,824 | 14,924 | 17,993 | 26,463 | 45,844 | 66,379 |
| 215 | 5,490 | 7,787 | 12,088 | 15,258 | 18,396 | 27,056 | 46,870 | 67,865 |
| 220 | 5,611 | 7,957 | 12,353 | 15,592 | 18,798 | 27,648 | 47,896 | 69,351 |
| 225 | 5,731 | 8,128 | 12,618 | 15,926 | 19,201 | 28,240 | 48,923 | 70,837 |
| 230 | 5,851 | 8,298 | 12,883 | 16,260 | 19,604 | 28,833 | 49,949 | 72,323 |
| 235 | 5,971 | 8,469 | 13,147 | 16,594 | 20,007 | 29,425 | 50,975 | 73,809 |
| 240 | 6,091 | 8,639 | 13,412 | 16,929 | 20,409 | 30,017 | 52,001 | 75,295 |
| 245 | 6,212 | 8,810 | 13,677 | 17,263 | 20,812 | 30,610 | 53,027 | 76,781 |
| 250 | 6,332 | 8,980 | 13,941 | 17,597 | 21,215 | 31,202 | 54,054 | 78,267 |
| Approx. 1 psi Increment | 24 | 34 | 53 | 67 | 81 | 118 | 205 | 297 |

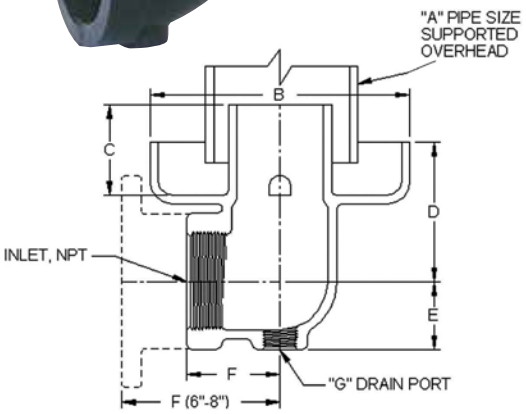
*Settings below 15 psi (1.1 barg) are non-ASME code.*

### METRIC UNITS Nm3/HR.

| ORIFICE LETTER AREA CM.² | J 8.762 | K 12.426 | L 19.287 | M 24.347 | N 29.357 | P 43.174 | Q 74.795 | R 108.294 |
|---|---|---|---|---|---|---|---|---|
| SET PRESSURE BARG | | | | | | | | |
| 0.4* | 722 | 1,024 | 1,589 | 2,006 | 2,418 | 3,557 | 6,161 | 8,921 |
| 0.8* | 1,005 | 1,425 | 2,212 | 2,793 | 3,367 | 4,952 | 8,579 | 12,422 |
| 1.1 | 1,182 | 1,677 | 2,603 | 3,286 | 3,961 | 5,826 | 10,093 | 14,615 |
| 1.5 | 1,386 | 1,996 | 3,052 | 3,852 | 4,644 | 6,831 | 11,833 | 17,134 |
| 2 | 1,641 | 2,327 | 3,613 | 4,560 | 5,498 | 8,086 | 14,008 | 20,283 |
| 2.5 | 1,918 | 2,720 | 4,222 | 5,329 | 6,425 | 9,449 | 16,370 | 23,703 |
| 3 | 2,198 | 3,117 | 4,839 | 6,108 | 7,364 | 10,830 | 18,762 | 27,166 |
| 3.5 | 2,478 | 3,514 | 5,456 | 6,887 | 8,303 | 12,211 | 21,154 | 30,630 |
| 4 | 2,758 | 3,912 | 6,073 | 7,665 | 9,241 | 13,592 | 23,546 | 34,094 |
| 4.5 | 3,038 | 4,309 | 6,690 | 8,444 | 10,180 | 14,973 | 25,938 | 37,557 |
| 5 | 3,319 | 4,707 | 7,307 | 9,223 | 11,119 | 16,354 | 28,331 | 41,021 |
| 5.5 | 3,599 | 5,104 | 7,924 | 10,002 | 12,058 | 17,735 | 30,723 | 44,485 |
| 6 | 3,879 | 5,502 | 8,541 | 10,780 | 12,997 | 19,115 | 33,115 | 47,948 |
| 6.5 | 4,159 | 5,899 | 9,158 | 11,559 | 13,936 | 20,496 | 35,507 | 51,412 |
| 7 | 4,439 | 6,296 | 9,775 | 12,338 | 14,875 | 21,877 | 37,899 | 54,876 |
| 7.5 | 4,720 | 6,694 | 10,392 | 13,116 | 15,813 | 23,258 | 40,291 | 58,339 |
| 8 | 5,000 | 7,091 | 11,009 | 13,895 | 16,752 | 24,639 | 42,683 | 61,803 |
| 8.5 | 5,280 | 7,489 | 11,626 | 14,674 | 17,691 | 26,020 | 45,076 | 65,267 |
| 9 | 5,560 | 7,886 | 12,243 | 15,453 | 18,630 | 27,400 | 47,468 | 68,730 |
| 9.5 | 5,841 | 8,283 | 12,860 | 16,231 | 19,569 | 28,781 | 49,860 | 72,194 |
| 10 | 6,121 | 8,681 | 13,477 | 17,010 | 20,508 | 30,162 | 52,252 | 75,658 |
| 10.5 | 6,401 | 9,078 | 14,093 | 17,789 | 21,447 | 31,543 | 54,644 | 79,121 |
| 11 | 6,681 | 9,476 | 14,710 | 18,568 | 22,385 | 32,924 | 57,036 | 82,585 |
| 11.5 | 6,961 | 9,873 | 15,327 | 19,346 | 23,234 | 34,305 | 59,428 | 86,049 |
| 12 | 7,242 | 10,271 | 15,944 | 20,125 | 24,263 | 35,686 | 61,820 | 89,512 |
| 12.5 | 7,522 | 10,668 | 16,561 | 20,904 | 25,202 | 37,066 | 64,213 | 91,976 |
| 13 | 7,802 | 11,065 | 17,178 | 21,683 | 26,141 | 38,447 | 66,605 | 96,440 |
| 13.5 | 8,082 | 11,463 | 17,795 | 22,461 | 27,080 | 39,828 | 68,997 | 99,903 |
| 14 | 8,362 | 11,860 | 18,412 | 23,240 | 28,019 | 41,209 | 71,389 | 103,367 |
| 15 | 8,923 | 12,655 | 19,646 | 27,798 | 29,896 | 43,971 | 76,173 | 110,294 |
| 16 | 9,483 | 13,450 | 20,880 | 26,355 | 31,774 | 46,732 | 80,958 | 117,222 |
| 17 | 10,444 | 14,245 | 22,114 | 27,912 | 33,652 | 49,494 | 85,742 | 124,149 |
| Approx. 0.1 barg Increment | 56.0 | 79.5 | 123.4 | 155.8 | 187.8 | 276.2 | 478.4 | 692.7 |

## DRIP PAN ELBOWS (DPE)






The use of an Apollo International™ drip pan elbow is highly recommended for steam safety valve installations. The drip pan elbow connects to the valve outlet to safely direct steam discharge away from the valve and into the discharge piping. Condensate is directed to drain. Drip pans offer ideal flow characteristics, and serve to isolate the valve from piping stresses that can adversely effect safety valve performance and longevity.

- Sizes 3/4" thru 8", Flanged and Threaded Models
- Material: Gray iron ASTM A126 Class B
- Finish: Black Phosphate or Black Paint Coating

### FEATURES

- Ideal Flow Characteristics
- Directs Condensate to Drain
- Isolates Safety Valve from Piping Stresses Caused by:
  - Weight of Discharge Piping
  - Thermal Expansion
  - Reaction Forces During Valve Discharge

### INSTALLATION

- Sizes 3/4" thru 4" feature FNPT Connections and Connect Directly to the Valve Outlet by Means of a Short Pipe Nipple or with an Appropriate Companion Flange and Nipple for Flanged Outlet Connections
- Sizes 6" and 8" Have Integral Cast ANSI 125# Flanges that Bolt Directly to the Valve Outlet

### SELECTION

- Select the Drip Pan to Match the Nominal Outlet Size of the Safety Valve

### DIMENSIONS

| PART NUMBER | SIZE (IN.) NPS/DN | INLET CONNECTION | DIMENSIONS (IN./MM) | | | | | | | WT./EA. (LB./KG) |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | A NPS/DN | B | C | D | E | F | G NPS/DN | |
| DPE 07 | 3/4 | FNPT | 1-1/2 | 3.75 | 1.63 | 2.25 | 1 | 1.5 | 1/4 | 2 |
| | 20 | FNPT | 40 | 95 | 41 | 57 | 25 | 40 | 8 | .9 |
| DPE 10 | 1 | FNPT | 1-1/2 | 3.75 | 1.63 | 2.25 | 1 | 1.5 | 1/4 | 2 |
| | 25 | FNPT | 40 | 95 | 41 | 57 | 25 | 40 | 8 | .9 |
| DPE 12 | 1-1/4 | FNPT | 2 | 5.5 | 2.13 | 3.38 | 1.5 | 2.13 | 3/8 | 5 |
| | 32 | FNPT | 50 | 127 | 54 | 86 | 40 | 54 | 10 | 2.1 |
| DPE 15 | 1-1/2 | FNPT | 2 | 5.5 | 2.13 | 3.38 | 1.5 | 2.13 | 3/8 | 5 |
| | 40 | FNPT | 50 | 127 | 54 | 86 | 40 | 54 | 10 | 2.1 |
| DPE 20 | 2 | FNPT | 3 | 6.25 | 2.25 | 3.63 | 1.63 | 2.25 | 1/2 | 7 |
| | 50 | FNPT | 80 | 159 | 57 | 92 | 41 | 57 | 15 | 3.2 |
| DPE 25 | 2-1/2 | FNPT | 4 | 7.38 | 3 | 4.38 | 1.88 | 2.75 | 3/4 | 11 |
| | 65 | FNPT | 100 | 187 | 80 | 111 | 48 | 70 | 20 | 5.0 |
| DPE 30 | 3 | FNPT | 4 | 8 | 3.5 | 4.88 | 2.13 | 3.13 | 3/4 | 17 |
| | 80 | FNPT | 100 | 200 | 89 | 124 | 54 | 80 | 20 | 7.7 |
| DPE 40 | 4 | 125# FLANGE | 6 | 9.63 | 4.5 | 5.75 | 2.63 | 3.75 | 3/4 | 30 |
| | 100 | 125# FLANGE | 150 | 245 | 114 | 146 | 67 | 95 | 20 | 13.6 |
| DPE 60 | 6 | 125# FLANGE | 8 | 12.75 | 6.63 | 7.63 | 3 | 8 | 3/4 | 84 |
| | 150 | 125# FLANGE | 200 | 324 | 168 | 194 | 80 | 200 | 20 | 38.1 |
| DPE 80 | 8 | 125# FLANGE | 10 | 16.5 | 7.5 | 8.63 | 4.13 | 10.75 | 1 | 151 |
| | 200 | 125# FLANGE | 250 | 419 | 191 | 219 | 105 | 273 | 25 | 68.5 |

## 500 SERIES
MULTI-PURPOSE SAFETY RELIEF

UV





Versatile Safety Relief valve available in bronze, carbon steel or all stainless steel construction, suitable for a wide range of steam, air, gas and liquid applications. High capacity full nozzle design is available with metal to metal, PCTFE or elastomer O-ring seating. Short tuned blowdown and backpressure tight body minimizes fugitive emissions and product losses in the event of valve operation.

### ASME SECTION VIII
- Sizes 1/2" thru 2" NPT
- Factory Set Pressure Range: 5-1200 psig @ 800°F max.
- (See Pressure/temperature Limit Chart Below for Specific Ratings for Each Model)

### APPLICATIONS
- Pressure Vessels and Pressure Piping Systems
- Pumps, Tanks and Hydraulic Systems
- Thermal Relief of Liquid Filled Vessels
- Chemical, Process and Other Industrial Plants
- Power Plant Auxiliary Systems
- Cryogenic and Industrial Gases
- Air and Gas Compressors and Dryers
- Vacuum Relief

### FEATURES
- Wide Range of Materials and Options
- One Trim Design is Suitable for Steam, Air / Gas and Liquid Service
- High Capacity Full Nozzle Design
- Stainless Steel Springs
- Integral Lift Stop
- Self-Aligning Pivoting Disc
- API 527 Seat Tightness, Standard for all Models
- Tuned Blowdown - Short and Adjustable, Reduces Product Losses
- Backpressure Tight Design Minimizes Fugitive Emissions
- NSF/ANSI/CAN 61 Water Quality (540 Series)
- CSA B51 CRN OG8547.5C
- **Proudly Made in USA**

### OPTIONS
- Screwed Cap Standard), Packed Lift Lever
- Test Gags
- Elastomer or PCTFE Soft Seat for Exceptional Seat Tightness
- High Temperature Alloy Springs for 550°F - 800°F Service
- Special Cleaning Available
- European Pressure Equipment Directive Compliant Option (CE/PED)

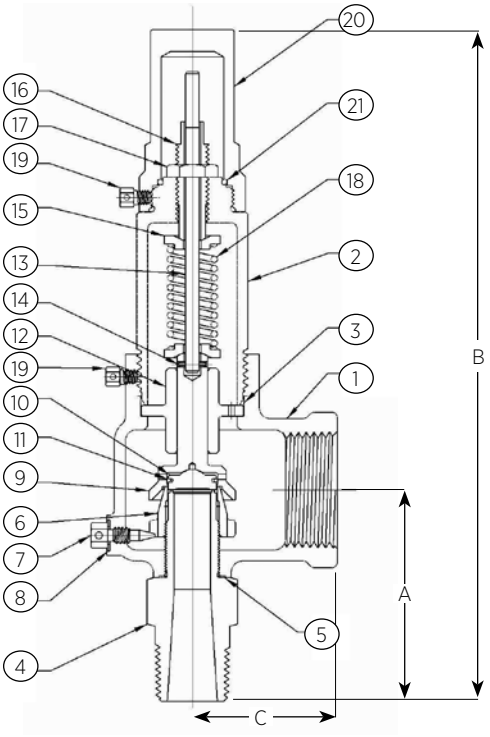


### PART NUMBER MATRIX

| 52 | 3 | J | H | B | K | M | AA | 0425 | Q |
|---|---|---|---|---|---|---|---|---|---|
| SERIES BODY/ TRIM MATERIAL | CAP | ORIFICE LETTER | INLET SIZE | CONNECTION | SERVICE | SEAT | SPECIAL OPTIONS | SET PRESSURE | SUFFIX |
| 51 - BRONZE/BRASS | 1 - SCREWED CAP | D | C - 1/2 | B - MNPT X NPT | J - SEC VIII LIQUID | M - METAL | FACTORY ISSUED LETTERS/NUMBERS FOR SPECIAL OPTIONS OR FEATURES | SET PRESSURE, PSIG (4 DIGITS) | Q - PERFORMANCE (CALIBRATION) TEST REPORTS |
| 52 - BRONZE/SS | 2 - SCREWED + GAG | E | D - 3/4 | D - 3/4 OUTLET (MODEL 510 & 520 D ORIFICE ONLY) | K - SEC VIII AIR/GAS | B - BUNA-N | | | |
| 53 - CARBON/SS | 3 - PACKED LEVER | F | E - 1 | | L - SEC VIII STEAM | E - EPR | | VACUUM "HG" PREFIX + 2 DIGITS | |
| 54 - ALL STAINLESS | 4 - PACKED + GAG | G | F - 1-1/4 | | M - NON CODE LIQUID | K - PCTFE | | | |
| | | H | G - 1-1/2 | | N - NON CODE AIR | N - NEOPRENE | "AA" - DEFAULT SETTING | | |
| | | J | H - 2 | | P - NON CODE STEAM | Z - KALREZ® | "CE" - CE/PED | | |
| | | | | | Q - VACUUM | S - SILICONE | "HT " - HIGH TEMP SPRING | | |
| | | | | | | V - VITON | "OX " - CLEANED FOR OXYGEN | | |

*Notes:*
*1. The ASME Code Section VIII requires a lift lever for the following services: air, steam, or hot water over 140°F*
*2. Maximum back pressure is 50 psig.*
*3. High temperature stainless steel alloy spring is required above 550°F / 288°C. Specify option "HT" (Minimum pressure setting with HT option = 276 psig)*
*4. Contact factory for pricing and availability.*

## 500 SERIES
MULTI-PURPOSE SAFETY RELIEF

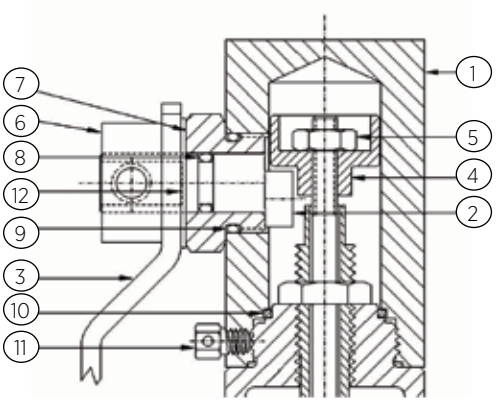



SCREWED CAP

## STANDARD MATERIAL LIST

| | | 510 SERIES | 520 SERIES | 530 SERIES | 540 SERIES |
|---|---|---|---|---|---|
| 1 | Body | Bronze, B-584-C844 | Bronze, B-584-C844 | Steel, SA-216 WCB | SS, SA-351-CF8M |
| 2 | Bonnet | Brass* | Brass* | Steel** | SS Type 316*** |
| 3 | Bonnet Seal | PTFE | PTFE | PTFE | PTFE |
| 4 | Nozzle | Brass B-16 | SS Type 316 | SS Type 316 | SS Type 316 |
| 5 | Nozzle Seal | PTFE | PTFE | PTFE | PTFE |
| 6 | Nozzle Ring | SS Type 316 | SS Type 316 | SS Type 316 | SS Type 316 |
| 7 | Set Screw | Brass | Brass | SS Type 316 | SS Type 316 |
| 8 | Set Screw Seal | PTFE | PTFE | PTFE | PTFE |
| 9 | Disc Holder | Brass | SS Type 316 | SS Type 316 | SS Type 316 |
| 10 | Disc | SS Type 316 | SS type 316 | SS Type 316 | SS Type 316 |
| 11 | Retaining Ring | Stainless Steel | Stainless Steel | Stainless Steel | Stainless Steel |
| 12 | Disc Guide | Brass | Brass | SS Type 316 | SS Type 316 |
| 13 | Stem | Stainless Steel | Stainless Steel | SS Type 316 | SS Type 316 |
| 14 | Spring Pin | Stainless Steel | Stainless Steel | Stainless Steel | Stainless Steel |
| 15 | Spring Washer | Brass | Brass | SS Type 316 | SS Type 316 |
| 16 | Adjusting Bolt | Brass | Brass | SS Type 316 | SS Type 316 |
| 17 | Lock Nut | Brass | Brass | SS Type 316 | SS Type 316 |
| 18 | Spring | Stainless Steel | Stainless Steel | Stainless Steel | Stainless Steel |
| | Spring, High Temp. | Inconel | Inconel | Inconel | Inconel |
| 19 | Lock Screw | Stainless Steel | Stainless Steel | Stainless Steel | Stainless Steel |
| 20 | Cap, Screwed | Brass | Brass | Steel | SS Type 316 |
| 21 | Seal, Cap | Viton | Viton | Viton | Viton |
| - | Nameplate | Stainless Steel | Stainless Steel | Stainless Steel | Stainless Steel |
| - | Drive Screw | Stainless Steel | Stainless Steel | Stainless Steel | Stainless Steel |
| - | Seal & Wire | Lead/SS | Lead/SS | Lead/SS | Lead/SS |
| - | Seal & Wire (Ce) | | | Aluminum/SS | Aluminum/SS |

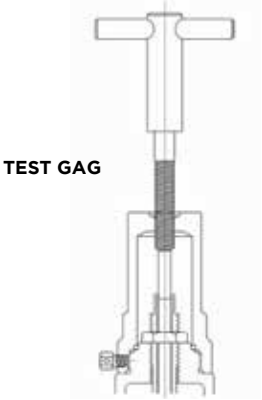
*Notes:*
* *Sizes G, H and J are Cast Bronze*
** *Sizes H and J are Cast Steel*
*** *Sizes H and J are Cast Stainless Steel Type 316*




PACKED LEVER

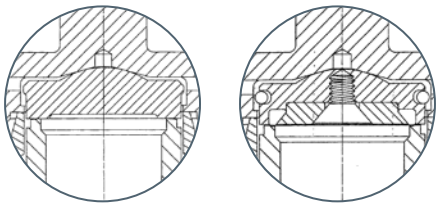
## LIFT LEVER OPTION

| | | 513/523 SERIES | 533 SERIES | 543 SERIES |
|---|---|---|---|---|
| 1 | Cap, Packed Lever | Brass | Steel | SS Type 316 |
| 2 | Cam Bushing | Stainless Steel | Stainless Steel | Stainless Steel |
| 3 | Lever | Stainless Steel | Stainless Steel | Stainless Steel |
| 4 | Lift Washer | Stainless Steel | Stainless Steel | Stainless Steel |
| 5 | Locknut | Stainless Steel | Stainless Steel | Stainless Steel |
| 6 | Collar | Stainless Steel | Stainless Steel | Stainless Steel |
| 7 | Cam Bushing | Brass | Stainless Steel | Stainless Steel |
| 8 | Cam O-Ring | Viton | Viton | Viton |
| 9 | Bushing O-Ring | Viton | Viton | Viton |
| 10 | Seal, Cap | Viton | Viton | Viton |
| 11 | Set Screw | Stainless Steel | Stainless Steel | Stainless Steel |
| 12 | Washer | PTFE | PTFE | PTFE |



TEST GAG

SEATS



PCTFE O-RING

## 500 SERIES
MULTI-PURPOSE SAFETY RELIEF

## SOFT SEAT PRESSURE & TEMPERATURE LIMITS* - 500 SERIES

| SEAT MATERIAL | SET PRESSURE | | TEMPERATURE | | SERVICE RECOMMENDATIONS** |
|---|---|---|---|---|---|
| | MIN. | MAX. | MIN. | MAX. | |
| Viton | 15 | 900 | -15°F | 400°F | Air, Benzene, Butane, Carbon Dioxide, Carbon Disulphide, Carbon Tetrachloride, Dowtherm A, Ethyl Alcohol, Ethyl Chloride, Ethylene, Ethylene Glycol, Fuel Oil, Gasoline, Hydraulic Fluid, JP-4 and -5 Fuel, Kerosene, Lube Oil, Natural Gas, Naphtha, Nitrogen, Propane, Propyl Alcohol, Propylene, Propylene Glycol, Sulphur Dioxide, Toluene, Trichlorethylene, Turpentine, Vinyl Chloride, Water |
| EPDM | 15 | 900 | -70°F | 250°F | Steam, Water, Hot Water, Acetone, Beer, Brake Fluid, Hydrogen Gas, Hydrogen Sulphide, Phosphate Ester Hydraulic Fluid, Sulphur Dioxide, Acids, Alkalis |
| Silicone | 15 | 900 | -60°F | 450°F | Air, Helium, Nitrogen, Oxygen (gaseous) |
| Neoprene | 15 | 900 | -35°F | 225°F | Air, Anhydrous Ammonia, Butane, Butyl Alcohol, Castor Oil, Denatured Alcohol, Ethanol, Ethyl Alcohol, Freon 12, 13, 14 & 22, Glycols, Natural Gas, Oxygen (gaseous), Silicate Esters |
| Nitrile / Buna-N | 15 | 900 | -30°F | 250°F | Air, Anhydrous Ammonia, Butane, Carbon Dioxide, Diesel Oil, Freon 11 & 12, Fuel Oil, Gasoline, Helium, Hydraulic Fluid (petroleum based), Hydrogen Sulphide, Hydrogen Gas, Kerosene, Lube Oil, Natural Gas, Nitrogen, Oxygen (gaseous), Propane, Propylene, Sulphur Dioxide, Vinyl Chloride |
| PCTFE | 15 | 500 | -320°F | 250°F | Cryogenic Service including Argon, Carbon Dioxide, Helium, Hydrogen, Nitrogen, Oxygen |

*Notes:*
** Subject to valve body material pressure / temperature limitations. See chart below.*
*** Service recommendations are provided for guidance only. Material suitability and selection should be determined by the end user based on their prior experience with the service and materials involved.*

## PRESSURE AND TEMPERATURE RATINGS

| SERIES BODY TRIM | 510 BRONZE BRASS | 520 BRONZE STAINLESS | 530 CARBON STEEL STAINLESS | 540 STAINLESS STEEL STAINLESS |
|---|---|---|---|---|
| Max. Set-Steam | 250 PSI | 300 PSI | 900 PSI (D/E)<br>600 PSI (F/G)<br>500 PSI (H/J) | 900 PSI (D/E)<br>600 PSI (F/G)<br>500 PSI (H/J) |
| Max. Set-Air/ Gas/Liquid | 300 PSI | 1200 PSI (D)[1]<br>900 PSI (E)<br>600 PSI (F/G)<br>500 PSI (H/J) | 1200 PSI (D)[1]<br>900 PSI (E)<br>600 PSI (F/G)<br>500 PSI (H/J) | 1200 PSI (D)[1]<br>900 PSI (E)<br>600 PSI (F/G)<br>500 PSI (H/J) |
| Temp. Limits* | -320/406˚F | -320/422˚F | -20/800˚F | -320/800˚F |

*[1]Max set pressure for liquids is 1000 psi.*

*Notes:*
*Limits based upon materials of construction and use of metal to metal seating. Refer to 500 series soft seat chart for limitations based upon elastomer.*

*Specify "HT" high temperature Inconel springs for service temperature beyond 550˚F. (Minimum pressure setting with HT option = 276 psi)*

*Models 510, 520 and 540 are suitable for cryogenic service to -320˚F, with choice of either "M" metal or "K" PCTFE seat options.*

## AVAILABLE CONFIGURATIONS

| PART NUMBER | ORIFICE LETTER | SIZE INLET X OUTLET | DIMENSIONS (IN./MM) | | | WEIGHT (LB./KG) |
|---|---|---|---|---|---|---|
| | | | A | B | C | |
| 5xxDC | D | 1/2 X 1 | 2.38 | 7.5 | 1.63 | 2 |
| | | | 60 | 191 | 41 | 0.9 |
| 5xxDCD* | D | 1/2 X 3/4 | 2.38 | 7.5 | 1.63 | 2 |
| | | | 60 | 191 | 41 | 0.9 |
| 5xxDD | D | 3/4 X 1 | 2.38 | 7.5 | 1.63 | 2 |
| | | | 60 | 191 | 41 | 0.9 |
| 5xxDDD* | D | 3/4 X 3/4 | 2.38 | 7.5 | 1.63 | 2 |
| | | | 60 | 191 | 41 | 0.9 |
| 5xxED | E | 3/4 X 1-1/4 | 2.63 | 9 | 2 | 3 |
| | | | 67 | 229 | 51 | 1.4 |
| 5xxEE | E | 1 X 1-1/4 | 2.63 | 9 | 2 | 3 |
| | | | 67 | 229 | 51 | 1.4 |
| 5xxFE | F | 1 X 1-1/2 | 2.83 | 10.25 | 2.38 | 5 |
| | | | 73 | 260 | 60 | 2.3 |
| 5xxFF | F | 1-1/4 X 1-1/2 | 2.83 | 10.25 | 2.38 | 5 |
| | | | 73 | 260 | 60 | 2.3 |
| 5xxGF | G | 1-1/4 X 2 | 3.25 | 13.25 | 2.63 | 9 |
| | | | 83 | 337 | 67 | 4.1 |
| 5xxGG | G | 1-1/2 X 2 | 3.25 | 13.25 | 2.68 | 9.5 |
| | | | 83 | 337 | 67 | 4.31 |
| 5xxHG | H | 1-1/2 X 2-1/2 | 3.5 | 15 | 2.75 | 15.5 |
| | | | 89 | 381 | 70 | 7.0 |
| 5xxHH | H | 2 X 2-1/2 | 3.5 | 15 | 2.75 | 16 |
| | | | 89 | 381 | 70 | 7.3 |
| 5xxJH | J | 2 X 3 | 4 | 17 | 3.25 | 24 |
| | | | 102 | 432 | 83 | 10.9 |

** 3/4" outlet option available with 510 and 520 bronze bodied models only.*

## 500 SERIES
MULTI-PURPOSE SAFETY RELIEF

## ASME SECTION VIII - STEAM
- Pounds per hour (kilograms per hour) saturated steam at 10% overpressure. National Board Certified. Ratings are 90% of actual.

### US CUSTOMARY UNITS LB/HR.

| ORIFICE LETTER AREA (IN.²) | D 0.1295 | E 0.2282 | F 0.3589 | G 0.5890 | H 0.9195 | J 1.5044 |
|---|---|---|---|---|---|---|
| SET PRESSURE PSIG | | | | | | |
| 5* | 122 | 216 | 339 | 557 | 869 | 1,422 |
| 10* | 168 | 295 | 465 | 762 | 1,190 | 1,947 |
| 15 | 188 | 331 | 520 | 853 | 1,332 | 2,180 |
| 20 | 216 | 381 | 600 | 984 | 1,536 | 2,513 |
| 25 | 245 | 432 | 679 | 1,114 | 1,740 | 2,846 |
| 30 | 274 | 482 | 759 | 1,245 | 1,943 | 3,180 |
| 35 | 305 | 538 | 846 | 1,388 | 2,168 | 3,546 |
| 40 | 337 | 593 | 934 | 1,532 | 2,392 | 3,913 |
| 45 | 368 | 649 | 1,021 | 1,676 | 2,616 | 4,280 |
| 50 | 400 | 705 | 1,108 | 1,819 | 2,840 | 4,646 |
| 55 | 431 | 760 | 1,196 | 1,963 | 3,064 | 5,013 |
| 60 | 463 | 816 | 1,283 | 2,106 | 3,288 | 5,380 |
| 65 | 494 | 872 | 1,371 | 2,250 | 3,512 | 5,746 |
| 70 | 526 | 927 | 1,458 | 2,393 | 3,736 | 6,113 |
| 75 | 558 | 983 | 1,546 | 2,537 | 3,960 | 6,479 |
| 80 | 589 | 1,038 | 1,633 | 2,680 | 4,184 | 6,846 |
| 85 | 621 | 1,094 | 1,721 | 2,824 | 4,408 | 7,213 |
| 90 | 652 | 1,150 | 1,808 | 2,968 | 4,632 | 7,579 |
| 95 | 684 | 1,205 | 1,896 | 3,111 | 4,857 | 7,946 |
| 100 | 715 | 1,261 | 1,983 | 3,255 | 5,081 | 8,313 |
| 125 | 873 | 1,539 | 2,421 | 3,972 | 6,201 | 10,146 |
| 150 | 1,031 | 1,817 | 2,858 | 4,690 | 7,322 | 11,979 |
| 175 | 1,189 | 2,095 | 3,295 | 5,408 | 8,442 | 13,812 |
| 200 | 1,346 | 2,373 | 3,733 | 6,126 | 9,562 | 15,645 |
| 225 | 1,504 | 2,651 | 4,170 | 6,843 | 10,683 | 17,478 |
| 250 | 1,662 | 2,929 | 4,607 | 7,561 | 11,803 | 19,312 |
| 275 | 1,820 | 3,207 | 5,045 | 8,279 | 12,924 | 21,145 |
| 300 | 1,977 | 3,485 | 5,482 | 8,997 | 14,044 | 22,978 |
| 325 | 2,135 | 3,763 | 5,919 | 9,714 | 15,165 | 24,811 |
| 350 | 2,293 | 4,041 | 6,357 | 10,432 | 16,285 | 26,644 |
| 375 | 2,451 | 4,319 | 6,794 | 11,150 | 17,405 | 28,477 |
| 400 | 2,608 | 4,597 | 7,231 | 11,867 | 18,526 | 30,311 |
| 425 | 2,766 | 4,875 | 7,669 | 12,585 | 19,646 | 32,144 |
| 450 | 2,924 | 5,153 | 8,106 | 13,303 | 20,767 | 33,977 |
| 475 | 3,082 | 5,431 | 8,543 | 14,021 | 21887 | 35,810 |
| 500 | 3,239 | 5,709 | 8,981 | 14,738 | 23,008 | 37,643 |
| 525 | 3,397 | 5,987 | 9,418 | 15,456 | - | - |
| 550 | 3,555 | 6,266 | 9,855 | 16,174 | - | - |
| 575 | 3,713 | 6,544 | 10,293 | 16,892 | - | - |
| 600 | 3,870 | 6,822 | 10,730 | 17,609 | - | - |
| 625 | 4,028 | 7,100 | - | - | - | - |
| 650 | 4,186 | 7,378 | - | - | - | - |
| 675 | 4,344 | 7,656 | - | - | - | - |
| 700 | 4,501 | 7,934 | - | - | - | - |
| 725 | 4,659 | 8,212 | - | - | - | - |
| 750 | 4,817 | 8,490 | - | - | - | - |
| 775 | 4,975 | 8,768 | - | - | - | - |
| 800 | 5,132 | 9,046 | - | - | - | - |
| 825 | 5,290 | 9,324 | - | - | - | - |
| 850 | 5,448 | 9,602 | - | - | - | - |
| 875 | 5,606 | 9,880 | - | - | - | - |
| 900 | 5,763 | 10,158 | - | - | - | - |
| Approx. 1 psi Increment | 6.3 | 11.1 | 17.5 | 28.7 | 44.8 | 73.3 |

### METRIC UNITS KG/HR.

| ORIFICE LETTER AREA (CM.²) | D 0.8352 | E 1.4721 | F 2.3155 | G 3.8001 | H 5.9321 | J 9.7058 |
|---|---|---|---|---|---|---|
| SET PRESSURE BARG | | | | | | |
| 0.4* | 60 | 105 | 165 | 271 | 423 | 692 |
| 0.8* | 82 | 145 | 228 | 374 | 583 | 955 |
| 1.1 | 88 | 154 | 243 | 398 | 622 | 1,018 |
| 2 | 122 | 214 | 337 | 553 | 863 | 1,412 |
| 3 | 163 | 287 | 451 | 741 | 1,156 | 1,892 |
| 4 | 204 | 360 | 566 | 930 | 1,451 | 2,374 |
| 5 | 246 | 433 | 681 | 1,118 | 1,746 | 2,857 |
| 6 | 287 | 506 | 797 | 1,307 | 2,041 | 3,339 |
| 7 | 329 | 580 | 912 | 1,496 | 2,336 | 3,821 |
| 8 | 370 | 653 | 1,027 | 1,685 | 2,630 | 4,304 |
| 9 | 412 | 726 | 1,142 | 1,874 | 2,925 | 4,786 |
| 10 | 453 | 799 | 1,257 | 2,063 | 3,220 | 5,269 |
| 12 | 536 | 945 | 1,487 | 2,441 | 3,810 | 6,233 |
| 14 | 619 | 1,092 | 1,717 | 2,818 | 4,400 | 7,198 |
| 16 | 702 | 1,238 | 1,947 | 3,196 | 4,989 | 8,163 |
| 18 | 786 | 1,384 | 2,178 | 3,574 | 5,579 | 9,128 |
| 20 | 869 | 1,531 | 2,408 | 3,952 | 6,169 | 10,093 |
| 22 | 952 | 1,677 | 2,638 | 4,329 | 6,758 | 11,058 |
| 24 | 1,035 | 1,823 | 2,868 | 4,707 | 7,348 | 12,022 |
| 26 | 1,118 | 1,970 | 3,098 | 5,085 | 7,938 | 12,987 |
| 28 | 1,201 | 2,116 | 3,329 | 5,463 | 8,527 | 13,952 |
| 30 | 1,284 | 2,262 | 3,559 | 5,840 | 9,117 | 14,917 |
| 32 | 1,367 | 2,409 | 3,789 | 6,218 | 9,707 | 15,882 |
| 34 | 1,450 | 2,555 | 4,019 | 6,596 | 10,297 | 16,846 |
| 36 | 1,533 | 2,701 | 4,249 | 6,974 | - | - |
| 38 | 1,616 | 2,848 | 4,479 | 7,351 | - | - |
| 40 | 1,699 | 2,994 | 4,710 | 7,729 | - | - |
| 42 | 1,782 | 3,140 | - | - | - | - |
| 44 | 1,865 | 3,287 | - | - | - | - |
| 46 | 1,948 | 3,433 | - | - | - | - |
| 48 | 2,031 | 3,579 | - | - | - | - |
| 50 | 2,114 | 3,726 | - | - | - | - |
| 52 | 2,197 | 3,872 | - | - | - | - |
| 54 | 2,280 | 4,019 | - | - | - | - |
| 58 | 2,446 | 4,311 | - | - | - | - |
| 62 | 2,612 | 4,604 | - | - | - | - |
| 65 | 2,736 | - | - | - | - | - |
| 69 | 2,902 | - | - | - | - | - |
| 72 | 3,026 | - | - | - | - | - |
| 76 | 3,192 | - | - | - | - | - |
| 79 | 3,316 | - | - | - | - | - |
| 82 | 3,441 | - | - | - | - | - |
| Approx. 0.1 bar Increment | 4.15 | 7.32 | 11.51 | 18.89 | 29.48 | 48.24 |

*Maximum Set Pressure Limits for Steam Service*
*510 Series - 250 psig/17.3 barg*
*520 Series - 300 psig/20.7 barg*
*530 Series - 900 psig/62.1 barg*
*540 Series - 900 psig/62.1 barg*
*Note: For steam service beyond 300 psig or 550˚F specify option "HT" high temperature stainless steel alloy spring.*
**Pressure settings below 15 psig/1.03 barg are non-ASME code.*

## 500 SERIES
MULTI-PURPOSE SAFETY RELIEF

## ASME SECTION VIII - AIR
Standard cubic feet per minute (normalized cubic meters per hour) of air at 10% overpressure. National Board Certified. Ratings are 90% of actual.

### US CUSTOMARY UNITS SCFM

| ORIFICE LETTER AREA (IN.²) | D 0.1295 | E 0.2282 | F 0.3589 | G 0.5890 | H 0.9195 | J 1.5044 |
|---|---|---|---|---|---|---|
| SET PRESSURE PSIG | | | | | | |
| 5* | 39 | 69 | 108 | 178 | 277 | 454 |
| 10* | 54 | 96 | 151 | 248 | 387 | 633 |
| 15 | 67 | 118 | 185 | 304 | 474 | 776 |
| 20 | 77 | 136 | 213 | 350 | 547 | 895 |
| 25 | 87 | 154 | 242 | 397 | 619 | 1,013 |
| 30 | 97 | 172 | 270 | 443 | 692 | 1,132 |
| 35 | 109 | 191 | 301 | 494 | 772 | 1,262 |
| 40 | 120 | 211 | 332 | 545 | 851 | 1,393 |
| 45 | 131 | 231 | 363 | 596 | 931 | 1,523 |
| 50 | 142 | 251 | 395 | 648 | 1,011 | 1,654 |
| 55 | 154 | 271 | 426 | 699 | 1,091 | 1,784 |
| 60 | 165 | 290 | 457 | 750 | 1,170 | 1,915 |
| 65 | 176 | 310 | 488 | 801 | 1,250 | 2,045 |
| 70 | 187 | 330 | 519 | 852 | 1,330 | 2,176 |
| 75 | 198 | 350 | 550 | 903 | 1,410 | 2,306 |
| 80 | 210 | 370 | 581 | 954 | 1,489 | 2,437 |
| 85 | 221 | 389 | 612 | 1,005 | 1,569 | 2,567 |
| 90 | 232 | 409 | 644 | 1,056 | 1,649 | 2,698 |
| 95 | 243 | 429 | 675 | 1,107 | 1,729 | 2,828 |
| 100 | 255 | 449 | 706 | 1,158 | 1,808 | 2,959 |
| 125 | 311 | 548 | 862 | 1,414 | 2,207 | 3,611 |
| 150 | 367 | 647 | 1,017 | 1,669 | 2,606 | 4,264 |
| 175 | 423 | 746 | 1,173 | 1,925 | 3,005 | 4,916 |
| 200 | 479 | 845 | 1,329 | 2,180 | 3,404 | 5,569 |
| 225 | 535 | 944 | 1,484 | 2,436 | 3,802 | 6,221 |
| 250 | 592 | 1,043 | 1,640 | 2,691 | 4,201 | 6,874 |
| 275 | 648 | 1,142 | 1,796 | 2,947 | 4,600 | 7,526 |
| 300 | 704 | 1,240 | 1,951 | 3,202 | 4,999 | 8,179 |
| 325 | 760 | 1,339 | 2,107 | 3,458 | 5,398 | 8,831 |
| 350 | 816 | 1,438 | 2,263 | 3,713 | 5,796 | 9,484 |
| 375 | 872 | 1,537 | 2,418 | 3,969 | 6,195 | 10,136 |
| 400 | 928 | 1,636 | 2,574 | 4,224 | 6,594 | 10,789 |
| 425 | 985 | 1,735 | 2,730 | 4,480 | 6,993 | 11,441 |
| 450 | 1,041 | 1,834 | 2,885 | 4,735 | 7,392 | 12,094 |
| 475 | 1,097 | 1,933 | 3,041 | 4,991 | 7,791 | 12,746 |
| 500 | 1,153 | 2,032 | 3,197 | 5,246 | 8,189 | 13,399 |
| 525 | 1,209 | 2,131 | 3,352 | 5,501 | - | - |
| 550 | 1,265 | 2,230 | 3,508 | 5,757 | - | - |
| 575 | 1,321 | 2,329 | 3,664 | 6,012 | - | - |
| 600 | 1,378 | 2,428 | 3,819 | 6,268 | - | - |
| 625 | 1,434 | 2,527 | - | - | - | - |
| 650 | 1,490 | 2,626 | - | - | - | - |
| 675 | 1,546 | 2,725 | - | - | - | - |
| 700 | 1,602 | 2,824 | - | - | - | - |
| 725 | 1,658 | 2,923 | - | - | - | - |
| 750 | 1,715 | 3,022 | - | - | - | - |
| 775 | 1,771 | 3,121 | - | - | - | - |
| 800 | 1,827 | 3,220 | - | - | - | - |
| 825 | 1,883 | 3,319 | - | - | - | - |
| 850 | 1,939 | 3,418 | - | - | - | - |
| 875 | 1,995 | 3,517 | - | - | - | - |
| 900 | 2,051 | 3,616 | | | | |
| 950 | 2,163 | - | - | - | - | - |
| 1000 | 2,276 | - | - | - | - | - |
| 1050 | 2,388 | - | - | - | - | - |
| 1100 | 2,501 | - | - | - | - | - |
| 1150 | 2,613 | - | - | - | - | - |
| 1200 | 2,725 | - | - | - | - | - |
| Approx.1 psi Increment | 2.2 | 4.0 | 6.2 | 10.2 | 16.0 | 26.1 |

### METRIC UNITS KG/HR.

| ORIFICE LETTER AREA (CM²) | D 0.8352 | E 1.4721 | F 2.3155 | G 3.8001 | H 5.9321 | J 9.7058 |
|---|---|---|---|---|---|---|
| SET PRESSURE BARG | | | | | | |
| 0.4* | 67 | 119 | 187 | 307 | 479 | 784 |
| 0.8* | 94 | 165 | 260 | 427 | 667 | 1,091 |
| 1.1 | 110 | 195 | 306 | 503 | 784 | 1,283 |
| 2 | 153 | 270 | 425 | 697 | 1,089 | 1,781 |
| 3 | 205 | 362 | 569 | 934 | 1,458 | 2,386 |
| 4 | 258 | 454 | 714 | 1,172 | 1,830 | 2,994 |
| 5 | 310 | 546 | 859 | 1,411 | 2,202 | 3,603 |
| 6 | 362 | 639 | 1,005 | 1,649 | 2,574 | 4,211 |
| 7 | 415 | 731 | 1,150 | 1,887 | 2,946 | 4,819 |
| 8 | 467 | 823 | 1,295 | 2,125 | 3,317 | 5,428 |
| 9 | 519 | 916 | 1,440 | 2,363 | 3,689 | 6,036 |
| 10 | 572 | 1,008 | 1,585 | 2,601 | 4,061 | 6,644 |
| 12 | 676 | 1,192 | 1,875 | 3,078 | 4,805 | 7,861 |
| 14 | 781 | 1,377 | 2,166 | 3,554 | 5,548 | 9,078 |
| 16 | 886 | 1,561 | 2,456 | 4,031 | 6,292 | 10,295 |
| 18 | 991 | 1,746 | 2,746 | 4,507 | 7,036 | 11,511 |
| 20 | 1,095 | 1,931 | 3,037 | 4,983 | 7,779 | 12,728 |
| 22 | 1,200 | 2,115 | 3,327 | 5,460 | 8,523 | 13,945 |
| 24 | 1,305 | 2,300 | 3,617 | 5,936 | 9,267 | 15,162 |
| 26 | 1,409 | 2,484 | 3,907 | 6,413 | 10,010 | 16,378 |
| 28 | 1,514 | 2,669 | 4,198 | 6,889 | 10,754 | 17,595 |
| 30 | 1,619 | 2,853 | 4,488 | 7,365 | 11,498 | 18,812 |
| 32 | 1,724 | 3,038 | 4,778 | 7,842 | 12,241 | 20,029 |
| 34 | 1,828 | 3,222 | 5,069 | 8,318 | 12,985 | 21,245 |
| 36 | 1,933 | 3,407 | 5,359 | 8,795 | - | - |
| 38 | 2,038 | 3,591 | 5,649 | 9,271 | - | - |
| 40 | 2,142 | 3,776 | 5,939 | 9,747 | - | - |
| 42 | 2,247 | 3,961 | - | - | - | - |
| 44 | 2,352 | 4,145 | - | - | - | - |
| 46 | 2,457 | 4,330 | - | - | - | - |
| 48 | 2,561 | 4,514 | - | - | - | - |
| 50 | 2,666 | 4,699 | - | - | - | - |
| 52 | 2,771 | 4,883 | - | - | - | - |
| 54 | 2,875 | 5,068 | - | - | - | - |
| 58 | 3,085 | 5,437 | - | - | - | - |
| 62 | 3,294 | 5,806 | - | - | - | - |
| 65 | 3,450 | - | - | - | - | - |
| 69 | 3,659 | - | - | - | - | - |
| 72 | 3,815 | - | - | - | - | - |
| 76 | 4,020 | - | - | - | - | - |
| 79 | 4,177 | - | - | - | - | - |
| 82 | 4,381 | - | - | - | - | - |
| Approx. 0.1 bar Increment | 5.24 | 9.23 | 14.51 | 23.82 | 37.18 | 60.84 |

*Maximum Set Pressure Limits for Air/Gas Service*
*510 Series - 300 psig/20.7 barg*
*520 Series - 1200 psig/82.7 barg*
*530 Series - 1200 psig/82.7 barg*
*540 Series - 1200 psig/82.7 barg*

## 500 SERIES
MULTI-PURPOSE SAFETY RELIEF

## ASME SECTION VIII - WATER
- U.S. gallons per minute (cubic meters per hour) of water at 10% over pressure. National Board Certified. Ratings are 90% of actual.

### US CUSTOMARY UNITS GPM

| ORIFICE LETTER AREA (IN.²) | D 0.1295 | E 0.2282 | F 0.3589 | G 0.5890 | H 0.9195 | J 1.5044 |
|---|---|---|---|---|---|---|
| SET PRESSURE PSIG | | | | | | |
| 5* | 13 | 24 | 37 | 61 | 95 | 156 |
| 10* | 14 | 24 | 38 | 63 | 98 | 161 |
| 15 | 14 | 25 | 40 | 65 | 102 | 167 |
| 20 | 16 | 29 | 45 | 74 | 115 | 189 |
| 25 | 18 | 32 | 50 | 82 | 127 | 208 |
| 30 | 19 | 34 | 54 | 89 | 138 | 226 |
| 35 | 21 | 37 | 58 | 96 | 149 | 244 |
| 40 | 22 | 40 | 62 | 102 | 160 | 261 |
| 45 | 24 | 42 | 66 | 108 | 169 | 277 |
| 50 | 25 | 44 | 70 | 114 | 178 | 292 |
| 55 | 26 | 46 | 73 | 120 | 187 | 306 |
| 60 | 28 | 48 | 76 | 125 | 195 | 320 |
| 65 | 29 | 50 | 79 | 130 | 203 | 333 |
| 70 | 30 | 52 | 82 | 135 | 211 | 345 |
| 75 | 31 | 54 | 85 | 140 | 218 | 357 |
| 80 | 32 | 56 | 88 | 145 | 226 | 369 |
| 85 | 33 | 58 | 91 | 149 | 233 | 381 |
| 90 | 34 | 59 | 93 | 153 | 239 | 392 |
| 95 | 35 | 61 | 96 | 158 | 246 | 402 |
| 100 | 36 | 63 | 98 | 162 | 252 | 413 |
| 125 | 40 | 70 | 110 | 181 | 282 | 462 |
| 150 | 44 | 77 | 121 | 198 | 309 | 506 |
| 175 | 47 | 83 | 130 | 214 | 334 | 546 |
| 200 | 50 | 89 | 139 | 229 | 357 | 584 |
| 225 | 53 | 94 | 148 | 242 | 378 | 619 |
| 250 | 56 | 99 | 156 | 256 | 399 | 653 |
| 275 | 59 | 104 | 163 | 268 | 418 | 685 |
| 300 | 62 | 108 | 171 | 280 | 437 | 715 |
| 325 | 64 | 113 | 178 | 291 | 455 | 744 |
| 350 | 66 | 117 | 184 | 302 | 472 | 772 |
| 375 | 69 | 121 | 191 | 313 | 489 | 799 |
| 400 | 71 | 125 | 197 | 323 | 505 | 826 |
| 425 | 73 | 129 | 203 | 333 | 520 | 851 |
| 450 | 75 | 133 | 209 | 343 | 535 | 876 |
| 475 | 77 | 136 | 215 | 352 | 550 | 900 |
| 500 | 79 | 140 | 220 | 361 | 564 | 923 |
| 525 | 81 | 143 | 226 | 370 | - | - |
| 550 | 83 | 147 | 231 | 379 | - | - |
| 575 | 85 | 150 | 236 | 388 | - | - |
| 600 | 87 | 153 | 241 | 396 | - | - |
| 625 | 89 | 157 | - | - | - | - |
| 650 | 91 | 160 | - | - | - | - |
| 675 | 92 | 163 | - | - | - | - |
| 700 | 94 | 166 | - | - | - | - |
| 725 | 96 | 169 | - | - | - | - |
| 750 | 97 | 171 | - | - | - | - |
| 775 | 99 | 174 | - | - | - | - |
| 800 | 100 | 177 | - | - | - | - |
| 825 | 102 | 180 | - | - | - | - |
| 850 | 104 | 183 | - | - | - | - |
| 875 | 105 | 185 | - | - | - | - |
| 900 | 107 | 188 | - | - | - | - |
| 950 | 109 | - | - | - | - | - |
| 1000 | 112 | - | - | - | - | - |

### METRIC UNITS M3/HR.

| ORIFICE LETTER AREA (CM²) | D 0.8352 | E 1.4721 | F 2.3155 | G 3.8001 | H 5.9321 | J 9.7058 |
|---|---|---|---|---|---|---|
| SET PRESSURE BARG | | | | | | |
| 0.4* | 2.0 | 3.6 | 5.6 | 9.2 | 14.4 | 23.6 |
| 0.8* | 2.9 | 5.1 | 8.0 | 13.1 | 20.4 | 33.3 |
| 1.1 | 3.3 | 5.9 | 9.3 | 15.2 | 23.8 | 38.9 |
| 2 | 4.4 | 7.7 | 12.1 | 19.8 | 30.9 | 50.6 |
| 3 | 5.3 | 9.4 | 14.8 | 24.2 | 37.8 | 61.8 |
| 4 | 6.1 | 10.8 | 17.0 | 28.0 | 43.6 | 71.4 |
| 5 | 6.9 | 12.1 | 19.0 | 31.3 | 48.8 | 79.8 |
| 6 | 7.5 | 13.3 | 20.9 | 34.2 | 53.4 | 87.4 |
| 7 | 8.1 | 14.3 | 22.5 | 37.0 | 57.7 | 94.5 |
| 8 | 8.7 | 15.3 | 24.1 | 39.5 | 61.7 | 101.0 |
| 9 | 9.2 | 16.2 | 25.6 | 41.9 | 65.5 | 107.1 |
| 10 | 9.7 | 17.1 | 26.9 | 44.2 | 69.0 | 112.9 |
| 12 | 10.6 | 18.8 | 29.5 | 48.4 | 75.6 | 123.7 |
| 14 | 11.5 | 20.3 | 31.9 | 52.3 | 81.6 | 133.6 |
| 16 | 12.3 | 21.7 | 34.1 | 55.9 | 87.3 | 142.8 |
| 18 | 13.0 | 23.0 | 36.1 | 59.3 | 92.6 | 151.5 |
| 20 | 13.7 | 24.2 | 38.1 | 62.5 | 97.6 | 159.7 |
| 22 | 14.4 | 25.4 | 39.9 | 65.6 | 102.3 | 167.5 |
| 24 | 15.1 | 26.5 | 41.7 | 68.5 | 106.9 | 174.9 |
| 26 | 15.7 | 27.6 | 43.4 | 71.3 | 111.3 | 182.0 |
| 28 | 16.3 | 28.7 | 45.1 | 74.0 | 115.5 | 188.9 |
| 30 | 16.8 | 29.7 | 46.7 | 76.6 | 119.5 | 195.5 |
| 32 | 17.4 | 30.6 | 48.2 | 79.1 | 123.4 | 202.0 |
| 34 | 17.9 | 31.6 | 49.7 | 81.5 | 127.2 | 208.2 |
| 36 | 18.4 | 32.5 | 51.1 | 83.9 | - | - |
| 38 | 18.9 | 33.4 | 52.5 | 86.2 | - | - |
| 40 | 19.4 | 34.2 | 53.9 | 88.4 | - | - |
| 42 | 19.9 | 35.1 | - | - | - | - |
| 44 | 20.4 | 35.9 | - | - | - | - |
| 46 | 20.8 | 36.7 | - | - | - | - |
| 48 | 21.3 | 37.5 | - | - | - | - |
| 50 | 21.7 | 38.3 | - | - | - | - |
| 52 | 22.2 | 39.0 | - | - | - | - |
| 54 | 22.6 | 39.8 | - | - | - | - |
| 58 | 23.4 | 41.2 | - | - | - | - |
| 62 | 24.2 | 42.6 | - | - | - | - |
| 65 | 24.8 | - | - | - | - | - |
| 69 | 25.6 | - | - | - | - | - |

*Maximum Set Pressure Limits for Liquid Service*
*510 Series - 300 psig/20.7 barg*
*520 Series - 1000 psig/68.9 barg*
*530 Series - 1000 psig/68.9 barg*
*540 Series - 1000 psig/68.9 barg*

*Note:*
*To determine water capacity at 25% overpressure, multiply the capacity at 10% by 1.066.*
**Pressure settings below 15 psig/1.03 barg are non-ASME code.*

## EQUIVALENTS AND CONVERSION FACTORS

| TO OBTAIN | MULTIPLY THIS | BY THIS |
|---|---|---|
| Atmospheres | Kilograms per sq. cm. | 0.9678 |
| Atmospheres | Pounds per sq. inch | 0.068 |
| Bar | Pounds per sq. inch | 0.06895 |
| Barrels | Cubic feet | 0.1781 |
| Bar | KiloPascals | 0.01 |
| Bar | Atmospheres | 1.013 |
| BTU/hr | Horsepower of boiler | 33,479 |
| BTU/hr | Kilowatts/hour | 3,412 |
| BTU/hr | MBH | 1,000 |
| BTU/hr | Pounds of steam/hour | 1,000 |
| BTU/hr | Watts/hour | 3.412 |
| Centimeters | Feet | 30.48 |
| Centimeters | Inches | 2.54 |
| Centimeters | Meters | 100 |
| Centipoise | SSU | 0.2205 x SG |
| Centistoke | SSU | 0.2162 |
| Cubic centimeters | Cubic inches | 16.39 |
| Cubic centimeters | Gallons (U.S.) | 3785 |
| Cubic centimeters | Liters | 1000 |
| Cubic feet | Gallons (U.S.) | 0.1337 |
| Cubic feet | Liters | 0.03531 |
| Cubic feet per minute | Cubic meters per minute | 35.31 |
| Cubic feet per second | Gallons per minute | 0.002228 |
| Cubic inches | Gallons (U.S.) | 231 |
| Cubic inches | Gallons (Imperial) | 277.4 |
| Cubic meters per minute | Cubic feet per minute | 0.02832 |
| Cubic yards | Cubic centimeters | 0.06102 |
| Feet | Centimeters | 0.03281 |
| Feet | Inches | 0.08333 |
| Feet | Meters | 3.281 |
| Feet of water | Atmospheres | 33.96 |
| Feet of water (68˚F) | Inches of mercury (0˚C) | 1.135 |
| Feet of water (68˚F) | Pounds per sq. inch | 2.311 |
| Gallons | Cubic feet | 7.481 |
| Gallons | Cubic inches | 0.004329 |
| Gallons | Cubic meters | 264.2 |
| Gallons | Liters | 0.2642 |
| Gallons (Imperial) | Gallons (U.S.) | 0.8327 |
| Gallons (U.S.) | Barrels | 42 |
| Gallons H20 @ 60˚F (US) | Pounds | 0.1199 |
| Gallons per minute | Cubic feet per second | 448.8 |
| Gallons per minute | Cubic meters per hour | 4.403 |
| Gallons per minute | Liters per hour | 0.004403 |
| Gallons per minute liquid | Pounds per hour liquid | 0.002/Sp.Gr. |
| Grams | Pounds | 453.6 |
| Inches | Centimeters | 0.3937 |
| Inches | Meters | 39.97 |
| Inches of mercury | Atmospheres | 29.92 |
| Inches of mercury | Kilograms per sq. cm | 28.96 |
| Inches of mercury (0˚ C) | Inches of water (68°F) | 0.07343 |
| Inches of mercury (0˚C) | Feet of water (68˚F) | 0.8812 |
| Inches of mercury (0˚C) | Pounds per sq. inch | 2.036 |
| Inches of water | Atmospheres | 407.5 |
| Inches of water (68˚F) | Pounds per sq. inch | 27.73 |
| Kilograms | Pounds | 0.4536 |
| Kilograms per hour | Pounds per hour | 0.4536 |
| Kilograms per hour | Gallons per minute (60˚F) | 227.0xSG |
| Kilograms per sq. cm | KiloPascals | 0.0102 |
| Kilograms per sq. cm | Inches of mercury (0˚C) | 0.03453 |
| Kilograms per sq. cm | Bars | 1.02 |
| Kilograms per sq. cm. | Atmospheres | 1.033 |
| Kilograms per sq. cm. | Pounds per sq. inch | 0.07031 |
| KiloPascals | Pounds per sq. inch | 6.895 |
| KiloPascals | Atmospheres | 101.3 |
| KiloPascals | Bars | 100 |
| Liters | Gallons (U.S.) | 3.785 |

| TO OBTAIN | MULTIPLY THIS | BY THIS |
|---|---|---|
| Liters per minute | Gallons per minute | 3.785 |
| Liters per second | Gallons per minute | 0.06309 |
| $M^3$/hr. | Gallons per minute | 0.2271 |
| Meters | Inches | 0.0254 |
| Meters | Centimeters | 0.01 |
| Meters | Feet | 0.3048 |
| Meters of water (68˚F) | Pounds per sq. inch | 0.7043 |
| Metric tons | Pounds | 0.0004536 |
| Millimeters of mercury | Atmospheres | 760 |
| Millimeters of mercury (0˚C) | Pounds per sq. inch | 51.71 |
| Molecular weight (of gas or vapors) | Specific gravity (of gas or vapors) | 28.97 |
| $Nm^3$/day. (0˚C, 1 Bara) | Standard cubic feet per min. | 39.11 |
| $Nm^3$/hr. (0˚C, 1 Bara) | Standard cubic feet per min. | 1.63 |
| $Nm^3$/min. (0˚C, 1 Bara) | Standard cubic feet per min. | 0.02716 |
| Ounces | Grams | 0.03527 |
| Ounces | Kilograms | 35.27 |
| Ounces | Pounds | 16 |
| Pounds | Gallons of water (60˚F) | 8.337 |
| Pounds | Kilograms | 2.205 |
| Pounds | Water (cubic feet @ 60F) | 62.37 |
| Pounds per cubic foot | Kilograms per cubic meter | 0.0624 |
| Pounds per hour | Kilograms per minute | 132.3 |
| Pounds per hour liquid | Gallons of liquid per minute | 500xSp. Gr. |
| Pounds per sq. in. | Inches of water (68°F) | 0.03607 |
| Pounds per sq. in. | Kilograms per sq. cm. | 14.22 |
| Pounds per sq. in. | KiloPascals | 0.145 |
| Pounds per square inch | Inches of mercury (0˚C) | 0.4912 |
| Pounds per square inch | Atmospheres | 14.7 |
| Pounds per square inch | Bars | 14.5 |
| Pounds per square inch | Feet of water (68˚F) | 0.4328 |
| PSI | MegaPascals | 145.038 |
| SCFM | Pounds per hour | 6.324/M.W. |
| Short tons (2000 lb.) | Kilograms | 0.001102 |
| Short tons (2000 lb.) | Pounds | 0.0005 |
| $Sm^3$/day. | Standard cubic feet per min. | 40.78 |
| $Sm^3$/hr. | Standard cubic feet per min. | 1.699 |
| $Sm^3$/min. | Standard cubic feet per min. | 0.02832 |
| Square centimeter | Square inch | 6.4516 |
| Square inch | Square centimeter | 0.155 |
| Square millimeter | Square inch | 645.16 |
| Standard cubic ft. per day | Standard cubic feet per min. | 1440 |
| Standard cubic ft. per hr | Standard cubic feet per min. | 60 |
| Yards | Centimeters | 0.01094 |
| Yards | Feet | 0.3333 |
| Yards | Inches | 0.02778 |
| Yards | Meters | 1.094 |
| Temperature: | | |
| Centigrade | = 5/9 (Fahrenheit – 32) | |
| Kelvin | = Centigrade + 273 | |
| Fahrenheit | = 9/5 (Centigrade) +32 | |
| Fahrenheit | = Rankine – 460 | |
| Fahrenheit | = (9/5 Kelvin) - 460 | |

## CORRECTION FACTORS

### AIR AND GAS TEMPERATURE

- To correct for temperatures other than 60˚F at the valve inlet, multiply the SCFM from the capacity tables by factor $K_t$.

| TEMP °F | $K_T$ |
|---|---|
| 0 | 1.063 |
| 10 | 1.052 |
| 20 | 1.041 |
| 30 | 1.030 |
| 40 | 1.020 |
| 50 | 1.010 |
| 60 | 1.000 |
| 70 | 0.991 |
| 80 | 0.981 |
| 90 | 0.972 |
| 100 | 0.964 |
| 120 | 0.947 |
| 140 | 0.931 |
| 160 | 0.916 |
| 180 | 0.901 |
| 200 | 0.888 |
| 220 | 0.874 |
| 240 | 0.862 |
| 260 | 0.850 |
| 280 | 0.838 |
| 300 | 0.827 |
| 320 | 0.816 |
| 340 | 0.806 |
| 360 | 0.796 |
| 380 | 0.787 |
| 400 | 0.778 |
| 420 | 0.769 |
| 440 | 0.760 |
| 460 | 0.752 |
| 480 | 0.744 |
| 500 | 0.737 |
| 550 | 0.718 |
| 600 | 0.701 |
| 650 | 0.685 |
| 700 | 0.669 |
| 750 | 0.656 |

### GAS AND LIQUID RELATIVE DENSITY

- To correct for a specific gravity other than air or water (=1.0) multiply the SCFM or GPM from the capacity tables by factor $K_{sg}$.

| SPECIFIC GRAVITY | $K_{SG}$ |
|---|---|
| 0.10 | 3.160 |
| 0.20 | 2.240 |
| 0.30 | 1.825 |
| 0.40 | 1.580 |
| 0.50 | 1.414 |
| 0.55 | 1.350 |
| 0.60 | 1.290 |
| 0.65 | 1.240 |
| 0.70 | 1.195 |
| 0.75 | 1.155 |
| 0.80 | 1.117 |
| 0.90 | 1.085 |
| 0.95 | 1.025 |
| 1.00 | 1.00 |
| 1.05 | 0.975 |
| 1.10 | 0.955 |
| 1.15 | 0.933 |
| 1.20 | 0.913 |
| 1.25 | 0.913 |
| 1.30 | 0.877 |
| 1.40 | 0.845 |
| 1.50 | 0.817 |
| 1.60 | 0.791 |
| 1.70 | 0.768 |
| 1.80 | 0.745 |
| 1.90 | 0.725 |
| 2.00 | 0.707 |
| 2.50 | 0.633 |
| 3.00 | 0.577 |
| 3.50 | 0.535 |
| 4.00 | 0.500 |
| 4.50 | 0.471 |

"Apollo"® Valves

# hydronic & steam heating



## section F


**RELIEF VALVES**

| | |
|---|---|
| 12-200 | F-3 |
| 13 | F-3 |
| 14-200 | F-3 |
| 17-400 | F-3 |
| 10 | F-4 |
| 10-600 | F-4 |
| 18C-400 | F-4 |
| 37LF-200 | F-4 |

**WATER PRESSURE REDUCING**

| | |
|---|---|
| 36ELF | F-5 |
| 35 | F-5 |
| 35-603-BF | F-5 |

**BALANCING VALVES**

| | |
|---|---|
| 58A | F-6 |
| 58B | F-7 |
| 58 | F-7 |

**THERMAL MIXING**

| | |
|---|---|
| 34-200 | F-8 |
| 34ALF | F-8 |
| 34CLF | F-8 |

**BRASS BALL VALVES**

| | |
|---|---|
| 77F | F-9 |
| 94A | F-11 |
| 95ALF | F-11 |
| 77V | F-12 |

**BRONZE BALL VALVES**

| | |
|---|---|
| 70 | F-10 |
| 70-HC | F-10 |
| 77C-A | F-11 |
| 77W - A | F-12 |
| 77W-HCA | F-12 |

**EXPANSION**

| | |
|---|---|
| 78RV | F-13 |
| 78RV-P | F-13 |
| 26-100/300 | F-17 |

**GAS SHUT-OFF**

| | |
|---|---|
| GB-10 | F-14 |
| GB-15 | F-14 |
| GB-50 | F-14 |
| GCB-50 | F-16 |
| GC-51 | F-16 |
| GC2-52 | F-16 |
| GCR-55 | F-17 |

**CHECK VALVES**

| | |
|---|---|
| 70-100-BC | F-15 |
| 61-500/600 | F-19 |
| 62-500 | F-19 |
| 161S/161SLF | F-21 |
| 161T/161TLF | F-21 |

**BOILER DRAIN VALVES**

| | |
|---|---|
| 31-200/500 | F-15 |
| 35-300 | F-15 |

**BACKFLOW**

| | |
|---|---|
| 4A | F-18 |
| AGD | F-18 |
| DCAP | F-18 |

**GATES/GLOBES**

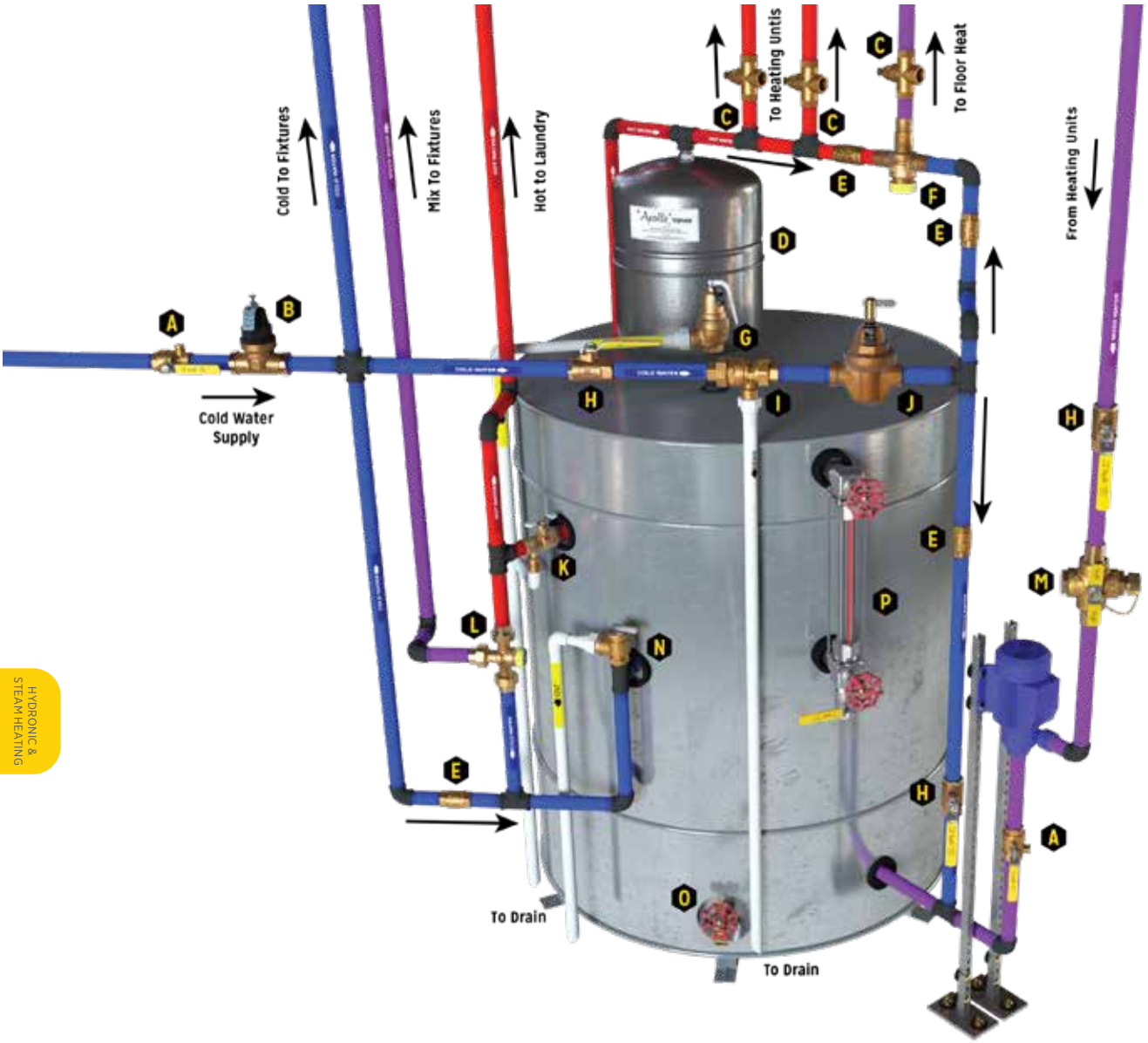
| | |
|---|---|
| 101S/101SLF | F-20 |
| 101T/101TLF | F-20 |
| 102S/102SLF | F-20 |
| 102T/102TLF | F-20 |

**STRAINERS**

| | |
|---|---|
| 59 | F-22 |
| 59-300 | F-22 |
| YCT | F-22 |

**MISCELLANEOUS**

| | |
|---|---|
| 27-400 | F-24 |
| 20-100 | F-24 |
| 27-200 | F-24 |






- **A** BALL VALVE (STOP & WASTE) - **95ALF SERIES**
- **B** WATER PRESSURE REDUCING VALVE - **36E SERIES**
- **C** HYDRONIC FLOW CHECK
- **D** HYDRONIC EXPANSION TANK - **16-XT**
- **E** CHECK VALVE - **61 SERIES**
- **F** TEMPERING VALVE - **34 SERIES**
- **G** SAFETY RELIEF VALVE - **10-600 SERIES**
- **H** BALL VALVE - **70 SERIES**
- **I** DUAL CHECK BACKFLOW - **DCAP SERIES**
- **J** WATER REGULATOR/FILL VALVE - **35 SERIES**
- **K** THERMAL EXPANSION CONTROL VALVE - **78-RV SERIES**
- **L** MIXING VALVE - **34ALF SERIES**
- **M** BALL VALVE (PURGE & BALANCE)
- **N** RELIEF VALVE - **17-400 SERIES**
- **O** BOILER DRAIN - **31 SERIES**
- **P** LIQUID LEVEL GAUGE - **20-100 SERIES**

## 12-200 SERIES
LOW PRESSURE STEAM HEATING BOILER SAFETY VALVE

HV



Medium capacity safety valves protect ASME Section IV low pressure steam heating boilers. Cast bronze, full nozzle design features PTFE faced elastomer soft seating for dependable operation. Ideal for OEM applications.

### FEATURES
- Sizes 2", 2-1/2" and 3"
- Factory Set Pressures 5-15 psi
- All Bronze Construction
- PTFE-Coated O-Ring Seat Seal
- 3/8" NPT Side Tapping for Drain
- Rust-Proofed Steel Spring
- Top Guided, High Capacity Design
- Registered in all Canadian Provinces and Territories, CRN #0G8547.5C
- National Board Certified at 15 psig
- **Proudly Made in USA**

**SEE PAGE E-10 FOR DETAILED INFORMATION**

## 13 SERIES
LOW PRESSURE STEAM HEATING BOILER SAFETY VALVE

HV



ASME Section IV bronze safety valves protect small to medium low pressure steam heating boilers. Three design configurations feature top guiding and raised seating area for extended service life. Available top and side discharge models.

**SEE PAGE E-11 FOR DETAILED INFORMATION**

## 14-200 SERIES
LOW PRESSURE STEAM HEATING SAFETY VALVE

HV



High capacity safety valves protect ASME Section IV low pressure steam heating boilers. Cast bronze, full nozzle design features PTFE faced elastomer soft seating for dependable operation. Ideal for OEM applications.

### FEATURES
- Sizes 2", 2-1/2" and 3"
- Factory Set Pressures 5-15 psi
- One Piece Body, All Bronze Construction
- Rust-Proofed Steel Spring
- Chrome Plated Seat, PTFE Coated Disc
- PTFE Coated EPDM O-Ring for Positive Seal
- 3/8" NPT Side Tapping for Drain Connection
- Valves are Capacity Certified by the National Board at 15 psig Only, in Accordance with ASME Boiler and Pressure Vessel Code Section IV
- Registered in all Canadian Provinces and Territories, CRN #0G8547.5C
- **Proudly Made in USA**

**SEE PAGE E-12 FOR DETAILED INFORMATION**

## 17-400 SERIES
PRESSURE-ONLY HOT WATER RELIEF VALVE

HV C US



17-400 series pressure-only relief valves are engineered to protect against excessive pressure buildup due to thermal expansion in hot water supply systems. Both models are CSA certified to ANSI Z21.22 "Relief Valves for Hot Water Supply Systems". In addition the 17-402 is design certified to ASME Section IV for hot water relief.

### FEATURES
- Connection Sizes 1/2" (17-401) and 3/4" (17-402)
- CSA Vertified to ANSI Z21.22
- Pressure Settings 75 thru 150 psi @ 250˚F max.
- ASME Section IV Hot Water, 17-402 Only
- Cast Bronze Body, Stainless Steel Springs
- Soft Seat for Durability, Extended Service Life
- Conforms to HUD / FHA Requirements
- CSA Certified to ANSI Z21.22
- CSA B-51, CRN 0G8547.5C
- **Proudly Made in USA**

**SEE PAGE E-22 FOR DETAILED INFORMATION**

## 10 SERIES
HOT WATER BOILER SAFETY RELIEF



Brass/bronze safety relief valves protect ASME Section IV hot water heating boilers and hydronic heating systems. High capacity design features corrosion resistant construction. Brass, satin or polished chrome finishes available.

### FEATURES
- Inlet Size 3/4" - Outlet - 3/4" & 1"
- Factory Set Pressure 20-150 psi
- Maximum Temperature Service: 250°F Pressures From 20 to 150 psig
- Registered in all Canadian Provinces and Territories, CRN #0G8547.5C
- Stainless Steel Springs Standard
- 10-624/634 are Ideal for Use in Various Plumbing Systems, Commercial Boiler Applications and Swimming Pool Heaters
- 10-418/417 are Ideal for Use in Swimming Pool Heater Applications
- **Proudly Made in USA**

**SEE PAGE E-3 FOR DETAILED INFORMATION**

## 10-600 SERIES
HIGH CAPACITY HOT WATER BOILER SAFETY RELIEF

ASSE
HV



High-capacity heating system valves with female inlet and standard or expanded female outlet. Elevated seat for drainage of water away from seat area. Entire pressure range is National Board capacity certified.

### FEATURES
- Inlet Sizes 3/4" to 2"
- Factory Set Pressures from 15-160 psig
- Maximum Temperature Service 250°F
- High BTU Capacity Rating
- Fabric Reinforced Molded Diaphragm Isolates Spring from Water at all Time Bronze Body and Spring Cage
- Silicone Seat
- Registered in Canadian Provinces and Territories, CRN #0G8547.5C
- Protects Against Excessive Water Pressure Due to Failure of Controls to Regulate BTU Input
- **Proudly Made in USA**

**SEE PAGE E-7 FOR DETAILED INFORMATION**

## 18C-400 & 18C-402X SERIES
WATER HEATER T&P RELIEF

ASSE
HV

C SP US



Automatic temperature and pressure relief valves feature unique non-metallic coating which protects the element against galvanic and electromechanical corrosion by isolating it from the heated water. This coating is electrostatically applied for uniform coverage, then thermobonded, resulting in optimum adhesion for extended service life.

### FEATURES
- Meets HUD/FHA Requirements
- Cast Bronze Body, Stainless Steel Spring
- Rated @ 210°F Maximum
- Registered in all Canadian Provinces and Territories
- ASME Capacity Certified to 500,000 BTU/hr.
- **Proudly Made in USA**

**SEE PAGE E-23 FOR DETAILED INFORMATION**

## 37LF SERIES
VACUUM RELIEF VALVE

LEADFREE OPTIONS

C SP US



Designed to protect water storage tanks from collapsing during water siphoning, resulting in negative pressure. Design certified by CSA in accordance with ANSI Z21.22. Also suitable for low pressure (15 psig max) steam service.

### FEATURES
- Maximum Temperature: 250°F
- Rated for Water Pressures to 200 psig
- Auto-Vacuum Relief at Less than 1" Hg
- NSF/ANSI/CAN 372 - Lead Free
- **Proudly Made in USA**

### OPTIONS
- Satin Brass Finish (-01)
- Heavy Spring (-B1)

| PART NUMBER | SIZE (IN.) | VENTING CAPACITY @ 2" HG | WT./100 (LB.) |
|---|---|---|---|
| 37LF-201-01 | 1/2 | 15 CFM | 30.4 |
| 37LF-202-01 | 3/4 | 16 CFM | 32.4 |

## 36ELF SERIES
WATER PRESSURE REDUCING VALVE



Designed for residential and commercial applications to protect water supplies from excessive pressure. Excellent flow performance at low pressure drop. The dezincification resistant bronze body and dielectric polymer cage provide maximum corrosion resistance. Designed for easy in-line servicing with simple cartridge removal. They meet ASSE 1003 and CSA B356 standards. They are listed with IAPMO and the city of Los Angeles.

### FEATURES
- Sizes 1/2" to 2"
- Balanced Piston Design
- Sealed Cage for Vault Installations
- Built-In Thermal Expansion Bypass
- PEX A F1960 Cold Expansion Connections ***NEW!***
- Modular Seat Disc and Strainer Cartridge
- Control Pressure Ranges: 15-75 psi and 75-150 psi
- Integral Stainless Steel Strainer
- NPT, Solder, PEX, CPVC and Press and Push Connections
- Maximum Supply Pressure: 400 psig
- Working Temperature Range: 33°F to 180°F
- **Proudly Made in USA**

### OPTIONS
- (-B) Bronze Cap ***NEW!***
- 36E Non-LF Materials for Non-Potable Service, such as Irrigation

### APPROVALS
- ASSE 1003
- CSA B356
- NSF/ANSI/CAN 372 - Lead Free
- NSF/ANSI/CAN 61 - Water Quality

**SEE PAGE H-10/11 FOR DETAILED INFORMATION**

## 35 SERIES
BRONZE FEED WATER PRESSURE REGULATOR



Available in 1/2" union threaded, threaded and solder union configurations. Purge lever/fast fill feature. Cartridge replaceable in-line.

### FEATURES
- No Cage Screws to Rust
- Individually Set at 15 psig - Adjustable 10 to 25 psig
- Temperatures to 210°F
- Heavy Pattern Bronze Body and Spring Cover
- High Capacity
- In-Line Stainless Steel Strainer Standard
- Choice of Inlet Connections
- **Proudly Made in USA**

| PART NUMBER | SIZE (IN.) | HEIGHT (IN.) | LENGTH (IN.) | WT./100 (LB.) |
|---|---|---|---|---|
| 35-503-01 | 1/2 Union Threaded | 5.25 | 4.31 | 255 |
| 35-603-01 | 1/2 Threaded | 5.25 | 3.50 | 225 |
| 35-703-01 | 1/2 Solder Union | 5.25 | 3.18 | 232 |
| 35-803-01 | 1/2 Press Union x NPT | 5.25 | 4.53 | 232 |

## 35-603-BF SERIES
COMBINATION BACKFLOW PREVENTER AND FEED REGULATOR



Positive protection against backflow when supply pressure falls below system pressure.

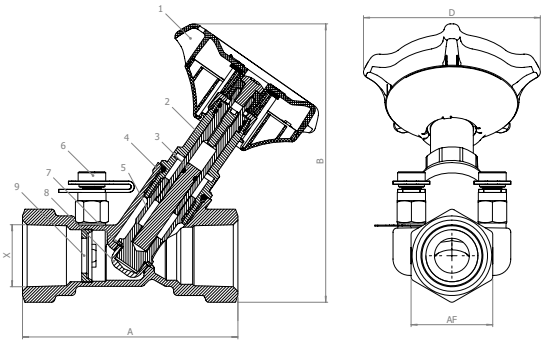
### FEATURES
- New Design Dual Check with Atmospheric Port (DCAP) Backflow Device
- Designed for Continuous Pressure, Hot or Cold Water Service
- Fast-Fill Lever on Regulator
- Built in Stainless Steel Strainer
- Maximum Supply Pressure: 100 Psig
- Maximum Temperature: 210°F
- Backflow Device is ASSE and CSA Listed

| PART NUMBER | SIZE (IN.) | HEIGHT (IN.) | LENGTH (IN.) | NET WT. (LB.) |
|---|---|---|---|---|
| 35603BFTT | 1/2 Union NPT x NPT | 7.90 | 5.25 | 3.85 |
| 35603BFST | 1/2 Solder Union x NPT | 7.90 | 5.25 | 3.85 |
| 35603BFTTC* | 1/2 Union NPT x NPT | 7.90 | 5.25 | 3.85 |
| 35603BFSTC* | 1/2 Solder Union x NPT | 7.90 | 5.25 | 3.85 |

** "C" Models for Canadian market - Discharge port not threaded.*

## 58A SERIES
BALANCING VALVE






Apollo 58A Series Balance Valves are precision engineered and manufactured valves which provide two position hydronic circuit isolation capability and multi-turn throttling adjustment as required for proportional balancing of hydronic systems. The unique integrated digital readout in the handle allows qualified technicians to easily adjust the valve to achieve a highly accurate flow. Valve pressure drop can be read through the valves integrated 1/4" measurement ports, and flow calculated from the flow coefficient associated with the numerical setting. The integrated fixed orifice offers greater accuracy than that of a variable orifice.

### FEATURES
- Forged DZR Brass
- P/T Plugs
- Compatible with All Flow Meters
- Easy Adjustment and Setpoint Indicator
- Isolated Flow Shut-off
- Non-Rising Stem
- Y Pattern Body
- Positive Shut Off

### APPROVALS
- WRAS

### OPTIONS
- NPT Connection
- Solder Connection
- Press Connection
- Push Connection
- PEX A Connection F1960
- PEX B/C Connection F1807

### PERFORMANCE RATING
- CWP: 300 PSI
  (200 CWP for Push Fittings)
- Temperature Range:
  15°F to 300°F (-10°C to 150°C)

### STANDARD MATERIALS LIST

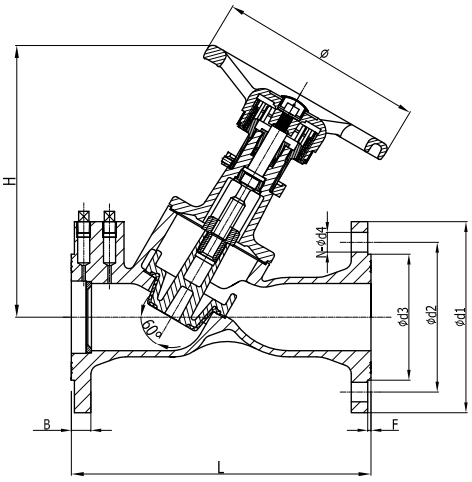
| | | |
|---|---|---|
| **1** | Handle | Glass Filled PA66 (Red) |
| **2** | Bonnet | HPb59-3 Brass |
| **3** | Seals | EPDM |
| **4** | Body | CC752S Brass (BS EN 1982) - DZR |
| **5** | Stem | HPb59-3 Brass |
| **6** | Test Points | Brass Body & EPDM Plug |
| **7** | Nose | CW602N Brass (BS EN 12164) - DZR |
| **8** | Orifice Plate | HPb59-3 Brass |

### DIMENSIONS

| PART NUMBER | SIZE | CONNECTION | DIMENSIONS (IN.) | | | | WEIGHT (LB.) |
|---|---|---|---|---|---|---|---|
| | | | A | B | D | AF | |
| 58A203T | 1/2" | FNPT | 3.11 | 4.22 | 3.54 | 1.08 | 1.17 |
| 58A204T | 3/4" | | 3.39 | 4.15 | | 1.26 | 1.3 |
| 58A205T | 1" | | 4.17 | 4.45 | | 1.57 | 1.98 |
| 58A206T | 1-1/4" | | 4.88 | 4.72 | | 1.97 | 2.84 |
| 58A207T | 1-1/2" | | 5.12 | 4.85 | | 2.17 | 3.7 |
| 58A208T | 2" | | 6.26 | 5.43 | | 2.76 | 6.53 |
| 58A203S | 1/2" | SOLDER | 4.35 | 4.22 | 3.54 | 1.08 | 1.3 |
| 58A204S | 3/4" | | 5.03 | 4.15 | | 1.26 | 1.54 |
| 58A205S | 1" | | 6.85 | 4.45 | | 1.57 | 2.32 |
| 58A206S | 1-1/4" | | 7.47 | 4.72 | | 1.97 | 3.47 |
| 58A207S | 1-1/2" | | 8.31 | 4.85 | | 2.17 | 4.62 |
| 58A208S | 2" | | 10 | 5.43 | | 2.76 | 7.88 |
| 58A203X | 1/2" | PEX B/C | 5.06 | 4.22 | 3.54 | 1.08 | 1.3 |
| 58A204X | 3/4" | | 5.76 | 4.15 | | 1.26 | 1.54 |
| 58A205X | 1" | | 7.01 | 4.45 | | 1.57 | 2.32 |
| 58A203X2 | 1/2" | PEX A | 5.11 | 4.22 | 3.54 | 1.08 | 1.3 |
| 58A204X2 | 3/4" | | 5.81 | 4.15 | | 1.26 | 1.54 |
| 58A205X2 | 1" | | 7.06 | 4.45 | | 1.57 | 2.32 |
| 58A203P | 1/2" | PUSH | 5.3 | 4.22 | 3.54 | 1.08 | 1.39 |
| 58A204P | 3/4" | | 5.75 | 4.15 | | 1.26 | 1.6 |
| 58A205P | 1" | | 6.89 | 4.45 | | 1.57 | 2.48 |
| 58A203PR | 1/2" | PRESS | 4.98 | 4.22 | 3.54 | 1.08 | 1.35 |
| 58A204PR | 3/4" | | 5.56 | 4.15 | | 1.26 | 1.62 |
| 58A205PR | 1" | | 6.43 | 4.45 | | 1.57 | 2.36 |
| 58A206PR | 1-1/4" | | 7.42 | 4.72 | | 1.97 | 3.42 |
| 58A207PR | 1-1/2" | | 8.38 | 4.85 | | 2.17 | 4.6 |
| 58A208PR | 2" | | 9.88 | 5.43 | | 2.76 | 7.75 |

## 58B SERIES
BALANCING VALVE






Apollo 58B Series Commercial Double Regulating Valve are intended for the isolation and regulation of sections of pipe work and equipment in HVAC applications and general commercial applications. Valve pressure drop can be read through the valves integrated 1/4" measurement ports, and flow calculated from the flow coefficient associated with the numerical setting on the side of the handle. The valves have non-rising stems that help reduce the amount of space needed. The integrated fixed orifice offers greater accuracy than that of a variable orifice.

### FEATURES
- Regulating and Isolating Functions
- Flanged End Connection Compatible with ANSI 125# & 150# Flanges
- Rugged Handwheel
- Grooved End Adapters Available

### PERFORMANCE RATING
- Max Working Pressure: 230 PSI
- Temperature Range: 15°F - 250°F
- Fusion Bonded Epoxy powder coating

### DIMENSIONS

| PART NUMBER | SIZE | DIMENSIONS (IN.) | | | | | | | | | WEIGHT (LB.) | FLOW RATES | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | L | H | B | Ø | ØD1 | ØD2 | ØD3 | F | N- ØD4 | | CV | CVS |
| 58B209F | 2-1/2" | 11.42 | 10.43 | 0.69 | 7.87 | 7.01 | 5.5 | 4.12 | 0.08 | 4-Ø 3/4" | 38.94 | 120.23 | 120.23 |
| 58B200F | 3" | 12.2 | 10.63 | 0.75 | 7.87 | 7.52 | 6 | 5 | 0.08 | 4-Ø 3/4" | 51.92 | 129.48 | 134.11 |
| 58B20AF | 4" | 13.78 | 12.2 | 0.94 | 9.45 | 9.02 | 7.5 | 6.19 | 0.08 | 8-Ø 3/4" | 66 | 187.29 | 246.25 |
| 58B20BF | 5" | 15.75 | 13.39 | 0.94 | 11.42 | 10 | 8.5 | 7.31 | 0.08 | 8-Ø 7/8" | 99 | 293.65 | 384.98 |
| 58B20CF | 6" | 18.9 | 13.39 | 1 | 11.42 | 10.98 | 9.5 | 8.5 | 0.08 | 8-Ø 7/8" | 114.4 | 387.29 | 550.3 |
| 58B20EF | 8" | 23.62 | 21.14 | 1.13 | 13.78 | 13.5 | 11.75 | 10.62 | 0.08 | 8-Ø 7/8" | 231 | 618.51 | 887.88 |
| 58B20GF | 10" | 28.74 | 22.44 | 1.19 | 16.54 | 15.98 | 14.25 | 12.75 | 0.08 | 12-Ø 1" | 407 | 1270.55 | 1332.98 |
| 58B20HF | 12" | 33.46 | 27.17 | 1.25 | 16.54 | 19.02 | 17 | 15 | 0.08 | 12-Ø 1" | 545.6 | 1835.89 | 2015.08 |

### STANDARD MATERIALS LIST

| | |
|---|---|
| **BODY** | Ductile Iron |
| **BONNET** | Ductile Iron |
| **DISC** | Ductile Iron, EPDM Coated |
| **DISC NAIL** | Brass |
| **"O" RING** | EPDM |

| | |
|---|---|
| **STEM** | Stainless Steel |
| **GASKET** | Graphite |
| **HANDWHEEL** | Carbon Steel (2-1/2" - 4")<br>Ductile Iron (5" - 12") |



## 58 SERIES
BALANCING VALVE



Provides dependable hydronic control; for use with 1/2" and 3/4" copper piping. Pressure rated to 150 psig.

### FEATURES
- ASTM B584 Bronze
- EPDM O-Ring Seal
- Screw Slot Flow Adjustment
- **Proudly Made in USA**

| PART NUMBER | SIZE (IN.) | CV | WT. (LB.) |
|---|---|---|---|
| 58-003-01 | 1/2 Solder | 4 | .30 |
| 58-004-01 | 3/4 Solder | 14 | .5 |

## 34-200 SERIES
MIXING VALVE



The Apollo 34-200 Series Thermostatic Mixing Valve provides non-ASSE extension of water heater capacity and hot water temperature control in hydronic heating systems. Available in low or high temperature options for floor or baseboard applications.

### FEATURES
- Stainless Steel Spring
- Corrosion Resistant Bronze Body
- Thermoplastic Shuttle Assembly
- Solder Connections are Standard
- In-Line Repairable
- Fingertip Temperature Control
- **Proudly Made in USA**

*Not intended for potable water

**SEE PAGE G-11 FOR DETAILED INFORMATION**

---

## 34ALF SERIES
MIXING VALVE

LEAD FREE CERTIFIED · C SA US · ASSE



Apollo 34A-LF Thermostatic Master Mixing Valves are designed for ASSE 1017 "point of source" applications. They provide reliable hot water temperature control of potable and hydronic hot water distribution systems.

### FEATURES
- Superior Thermostatic Element Technology For Optimal Performance, Reliability and Accuracy
- Integral Inlet Strainers and Check Valves are Standard to Protect Against Cross-Flow and Foreign Particles in the Piping System
- Thermostat Over-Temperature Control
- Maximum Temperature Limit Option
- Fingertip Temperature Control
- Cold or Hot Water Supply Failure Shut-Off Protection
- Multiple Connection Options to Fit Your Specific Needs
- High Temperature Version For Hydronic/ Radiant Heating Applications
- Standard Materials of Construction Meet the Requirements of the EPA Safe Drinking Water Act
- Lead Free Construction Certified: 0.25% Lead Max
- **Proudly Made in USA**

**SEE PAGE G-4 FOR DETAILED INFORMATION**

---

## 34C/34CLF SERIES
MIXING VALVE

LEAD FREE OPTIONS · ASSE



34C Series ASSE 1017 listed, high-capacity mixing valves are thermostatically controlled regulating valves designed for use in large commercial potable and non-potable hot water systems or "point of source" applications. Simple adjustment of water temperature from 90°-140°F or 130°-180°F.

### FEATURES
- Sizes: 3/4", 1", 1-1/4", 1-1/2", 2"
- Low Temperature Range: 90°-140°F
- High Temperature Range: 130°-180°F
- Threaded Connections
- Installs Easily on Heating Source
- Patented Design for Easy In-Line Maintenance
- Supply Pressures to 150 psig
- U.S. Patent No. 6,328,219
- CSA B125.01
- **Proudly Made in USA**

**SEE PAGE G-8 FOR DETAILED INFORMATION**

## 77F/77FLF SERIES
FULL PORT FORGED BRASS BALL VALVE



LARGE DIAMETER



LARGE DIAMETER

The Apollo 77F Series is a full port forged brass ball valve suitable for a wide range of plumbing and heating applications. These NPT threaded or solder, 2-piece valves combine reliable operation with maximum economy. Valves include most pertinent agency approvals. **Proudly Made in the USA.**

### 77F FEATURES
- Heavy Pattern Forged Design
- Full Port Flow
- Superior RPTFE Seats and Packing
- Adjustable Stem Packing
- Blowout-Proof Stem
- Corrosion Resistant Materials
- 100% Factory Tested
- Popular Lever Options and Stainless Steel Trim Available
- Silicone Free Assembly
- Rating: 600 CWP (1/4" - 2")
- Rating: 400 CWP (2-1/2" - 4")
- Steam Rating: 150 psi SWP
- Vacuum Service to 29 in. Hg
- **Proudly Made in USA**

### 77FLF FEATURES
- Easily Identifiable White Handle Grip and Blue "Lead Free" Hang Tag
- EZ-Solder™ Lead Free Brass
- Lead Free Dezincification Resistant Brass
- NSF/ANSI/CAN 61 - Water Quality
- NSF/ANSI/CAN 372 - Lead Free
- Rating: 600 CWP (1/4" - 2")
- Rating: 400 CWP (2-1/2" - 4")
- Steam Rating: 150 psi SWP
- Vacuum Service to 29 in. Hg

### APPROVALS
- MSS SP-110
- IAPMO/ANSI Z1157

### FM LISTED
- FM 1140 (<175 PSI) (1/4" – 2")

### CSA LISTED
- CGA 3.16 (125 PSI)
- CGA CR91-002 (5 PSI)
- ANSI Z21.15/CSA 9.1 (1/2 PSI)
- ASME B16.44 (5 PSI)
- ASME B16.33 (125 PSI) (1/2" – 2")

### UL LISTED
- UL 125 - Flow Control Valves for LP-Gas, Guide YSDT to 250 psi max
- UL 258 - Fire Protection Trim & Drain, Guide VQGU to 175psi max (1/4" – 2")
- UL 842 - Valves for Flammable Fluids, Guides YRBX, YRPV, and MHKZ to 250 psi max. (1/4" - 4" NPT only)
- UL 1477 - Compressed Gas Shutoff Valves, Guide YQNZ to 250 psi max (1/4" - 4" NPT only)

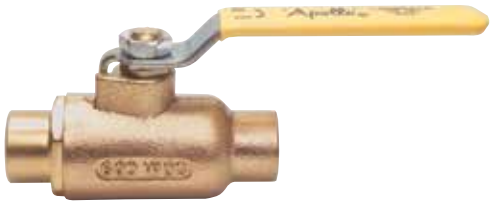
*Gas approvals apply to NPT models only

### OPTIONS
- (-01) Standard Lever and Trim
- (-04) 2-1/4" Stem Extension
- (-07) CS Tee Handle
- (-11) Therma-Seal™ Insulating Tee
- (-27) Stainless Steel Locking Handle
- (-50) 2-1/4" Locking Stem Extension
- Stainless Steel Ball & Stem

**SEE PAGE B-30 FOR DETAILED INFORMATION**

## 70-100/200 SERIES
BRONZE BALL VALVE





The Apollo 70 Series is the most widely used and trusted bronze ball valve in the industry. It features blowout-proof stem, RPTFE seats and stuffing box ring and plated brass ball.

### FEATURES
- Sizes 1/4" - 4"
- Heavy Pattern Construction
- Rated 600 psig CWP, Non-Shock
- 150 psig SWP for Saturated Steam
- Vacuum Service to 29 in. Hg
- Adjustable Packing Gland
- Multiple Options and Configurations Available
- Lead Free Option (70LF)
- 100% Tested
- NPT + Solder Connections
- **Proudly Made in USA**

**SEE PAGE B-5 FOR DETAILED INFORMATION**

## 70-HC SERIES
CAP & CHAIN VALVE





### CAP & CHAIN VALVE WITH 3/4" HOSE CONNECTION, HEAVY BRASS CAP AND REVERSE HANDLE

Ideally suited for draining or sampling of HVAC or potable water systems, these valves allow direct connections to hoses. Valve features a securely attached cover (includes chain) which prevents damage to hose threads. -200 model designed for soft soldering into lines without disassembly.

### FEATURES
- Sizes 1/2" - 1"
- Heavy Pattern Construction
- Reverse Lever is Standard for Easier Installation
- Stainless Steel Lever & Nut Standard
- NPT and Solder Connections
- EZ-Solder™ Lead Free Bronze
- ASTM B584 Bronze
- Blowout-Proof Stem Design
- RPTFE Seats and Stuffing Box Ring
- Adjustable Packing Gland
- Vacuum Service to 29 in. Hg
- Maximum Pressure: 600 psi CWP
- Temperature Rating: 200°F
- Full Pressure Rated Brass Hose Cap
- Heavy Duty Stainless Steel Ball Chain ***NEW!***
- **Proudly Made in USA**
- Lead free option - 70LF-HC

**SEE PAGE B-7 FOR DETAILED INFORMATION**

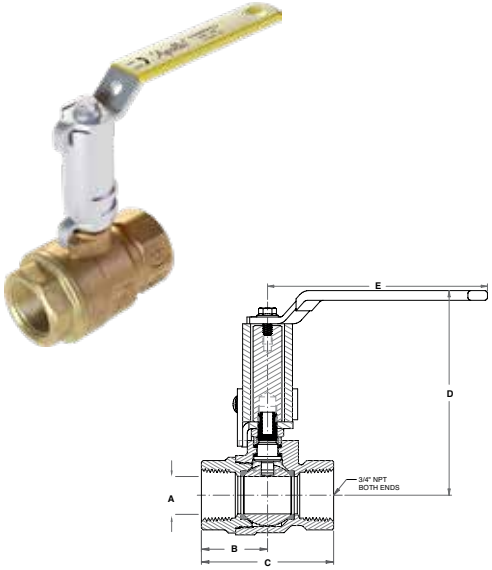
## 70-10X-92 SERIES
BALL VALVE WITH STANDARD BALANCING STOP PLATE



Ideal for hydronic applications, this valve comes with a simple memory stop plate that fits over its standard lever handle. Also available with tee or round handles.

### FEATURES
- Sizes 1/4" - 3"
- Chromium-Plated Ball
- RPTFE Seats and Stuffing Box Ring
- Blowout-Proof Stem
- Adjustable Packing Gland
- Rated 600 psig CWP, Non-Shock
- MSS-SP110
- CRN: 0C10908.5C
- 150 psig for Saturated Steam
- **Proudly Made in USA**

## 77C-100-94-A SERIES
BALL VALVE WITH BALANCING STOP AND STEM EXTENSION




Ideal for HVAC systems. Stop plate and a 2-1/4" stem extension combination to accommodate insulation and handle repositioning.

### FEATURES
- ASTM B584 Bronze
- MPTFE Seats and Stem Packing
- Blowout-Proof Stem Design
- Adjustable Packing Gland
- 600 psig CWP, Non-Shock
- Contact Customer Service for Exact Handle Dimensions and Availability.
- **Proudly Made in USA**

| PART NUMBER | LF PART NUMBER | SIZE (IN.) | DIMENSIONS (IN.) | | | | | NET WT. (LB.) |
|---|---|---|---|---|---|---|---|---|
| | | | A | B | C | D | E | |
| 77C-101-94-A | 77CLF-101-94-A | 1/4" | 0.37 | 1.07 | 2.09 | 3.84 | 3.74 | 0.83 |
| 77C-102-94-A | 77CLF-102-94-A | 3/8" | 0.37 | 1.07 | 2.09 | 3.84 | 3.74 | 0.79 |
| 77C-103-94-A | 77CLF-103-94-A | 1/2" | 0.50 | 1.15 | 2.25 | 3.87 | 3.74 | 0.87 |
| 77C-104-94-A | 77CLF-104-94-A | 3/4" | 0.75 | 1.32 | 2.65 | 4.10 | 4.78 | 1.99 |
| 77C-105-94-A | 77CLF-105-94-A | 1" | 1.00 | 1.53 | 3.07 | 4.29 | 4.78 | 2.16 |
| 77C-106-94-A | 77CLF-106-94-A | 1-1/4" | 1.25 | 2.04 | 4.08 | 5.24 | 7.06 | 4.63 |
| 77C-107-94-A | 77CLF-107-94-A | 1-1/2" | 1.50 | 2.21 | 4.43 | 5.40 | 7.06 | 5.03 |
| 77C-108-94-A | 77CLF-108-94-A | 2" | 2.00 | 2.76 | 5.29 | 5.93 | 7.06 | 8.33 |

## 94A SERIES
ECONOMY FULL PORT BALL VALVE - APOLLO INTERNATIONAL™

LEAD FREE OPTIONS · C SA US · UL · FM APPROVED



These full port ball valves with forged brass body are UL listed and CSA listed. Ideal for general purpose non-potable applications including air, gas, HVAC, irrigation, fire protection, etc.

### FEATURES
- Sizes 1/4" - 4"
- Adjustable Stem Packing Nut
- Meets MSS SP110 Requirements
- 600 CWP Non-Shock (1/4" - 2")
- 400 CWP Non-Shock (2-1/2" - 4")
- 2-1/4" Stem Extension with Memory Stop Option (Kit)
- 100% Factory Tested
- Lead Free Option (94ALF-A)
- NPT + Solder Connections

**SEE PAGE B-31 FOR DETAILED INFORMATION**



## 95ALF SERIES
STOP & WASTE VALVE - APOLLO INTERNATIONAL™

LEAD FREE CERTIFIED



The Apollo International™ 95ALF lead free forged brass stop and waste ball valves combine reliable operation with maximum economy. Ideal for plumbing or hydronic systems where draining is required. IAPMO listed and ANSI 3rd party certified Lead Free.

### FEATURES
- Lead Free Materials and Certification
- 2 Piece, Full-Port Design
- Blowout-Proof Stem Design
- Adjustable Atem Packing Nut
- Drain Port with finger tight shut-off
- Fast, Quarter-Turn Operation

### PERFORMANCE RATING
- Valve Design Rating: 600 CWP
- Temperature Range: 32°F to 250°F

### APPROVALS
- IAPMO/ANSI Z1157
- ANSI/NSF/CAN 61 - Water Quality
- ANSI/NSF 372 - Lead Free

### DIMENSIONS

| PART NUMBER | SIZE (IN.) | DIMENSIONS (IN.) | | | | |
|---|---|---|---|---|---|---|
| | | A | B | C | D | E |
| NPT | | | | | | |
| 95ALF-103-01 | 1/2 | 0.59 | 2.24 | 1.78 | 3.74 | - |
| 95ALF-104-01 | 3/4 | 0.79 | 2.53 | 2.09 | 3.94 | - |
| 95ALF-105-01 | 1 | 0.98 | 3.15 | 2.36 | 4.33 | - |

| PART NUMBER | SIZE (IN.) | DIMENSIONS (IN.) | | | | |
|---|---|---|---|---|---|---|
| | | A | B | C | D | E |
| SOLDER | | | | | | |
| 95ALF-203-01 | 1/2 | 0.59 | 2.12 | 1.78 | 3.74 | 0.63 |
| 95ALF-204-01 | 3/4 | 0.79 | 2.87 | 1.94 | 3.94 | 0.88 |
| 95ALF-205-01 | 1 | 0.98 | 3.53 | 2.36 | 4.33 | 1.13 |

**SEE PAGE B-33 FOR DETAILED INFORMATION**

## 77W-A SERIES
APOLLOPRESS® BRONZE FULL PORT BALL VALVE

LEADFREE OPTIONS



Apollo 77W-A Series APOLLOPRESS® ball valves install in seconds, but the valve and the connection are made to last. Ideal for mechanical and heating systems. Not for use with natural gas.

### FEATURES
- Sizes 1/2" - 2"
- New Enhanced Design
- New Lever Options Available Including (-27) Locking Lever ***NEW!***
- Full Port
- Ridgid® XL Press Tool Compatible
- 300 CWP, Non-Shock to 250°F max. ***NEW!***
- Leak Before Press® Technology
- MSS SP-110 Ball Valves
- Adjustable Stem Packing
- Excellent for Hydronic Heating (90% Glycol max)
- Popular Lever Options and Stainless Steel Trim Available
- Corrosion Resistant Materials
- IAPMO/ANSI Z1157
- **Made in the USA**

**SEE PAGE B-34 FOR DETAILED INFORMATION**

## 77W-HCA SERIES
APOLLOPRESS® HOSE CAP & CHAIN BALL VALVE

LEADFREE OPTIONS



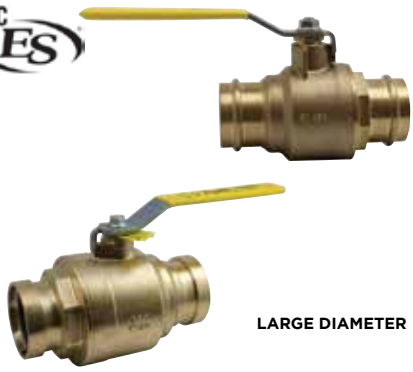
Designed for direct mechanical connection to ASTM B88-Type K, L, and M copper tubing in the hard drawn condition for sizes 1/2"-3/4". Valves feature a 3/4" hose thread connection with heavy brass cap to protect the threads and is full pressure rated. Not for use with natural gas.

### FEATURES
- Full Port
- Ridgid® "XL" Press Tool Compatible
- Leak Before Press® Technology
- MSS SP-110 Ball Valves
- NSF/ANSI/CAN 61 - (77WLF-HC)
- Adjustable Stem Packing
- 300 CWP, Non-Shock to 250°F max. ***NEW!***
- Excellent for Hydronic Heating (90% Glycol max)
- Compatible with Most 77C Series Options
- Heavy Brass Dust Cover is Full Pressure Rated
- Popular Lever and Trim Options Available
- Now with Stronger Stainless Steel Ball Chain ***NEW!***
- **Proudly Made in USA**

**SEE PAGE B-35 FOR DETAILED INFORMATION**

## 77V SERIES
APOLLOPRESS® BRASS BALL VALVE

ICC ES



LARGE DIAMETER

The APOLLOPRESS® 77V Series two-piece press ball valve is ideal for installation in most HVAC systems. Features Leak Before Press® technology and 250 psig maximum working pressure. Proudly Made in the USA.

### FEATURES
- Sizes 1/2" - 4"
- 2 Piece, Heavy Pattern Forged Design
- Full Port Flow
- Max. Operating Pressure 300 psi ***NEW!***
- Temperature Range: 0°F - 250°F
- Superior RPTFE Seats and Packing
- Adjustable Stem packing
- Blowout-Proof Stem
- Corrosion Resistant Materials
- Silicone Free Assembly
- 100% Factory Tested
- MSS SP-110 Ball Valves
- Directive 2011/65/CE (RoHS)
- Popular Lever Options and SS Trim Available
- **Proudly Made in USA**

**SEE PAGE B-35 FOR DETAILED INFORMATION**

## 78-RV SERIES
SHUT-OFF VALVE W/ THERMAL EXPANSION CONTROL



The Apollo 78RV combines thermal expansion protection and water heater shut-off in a single, simple installation. They're space saving and a less costly alternative to large expansion tanks. **Made in the USA,** featuring lead free dezincification resistant brass materials.

### FEATURES
- 3/4" Solder, NPT, and PEX Ball Valve Connections
- Corrosion Resistant, Heavy Pattern, Forged Brass, Materials
- Chrome-Plated Ball
- Thermal Relief Valve is Factory Preset and Sealed
- Relief Valve Features Soft Seat and Stainless Steel Spring
- Relief Valve Available with Hose Barb, 1/2" PEX, 3/8" Compression or 1/2" Combination Solder/Thread Fitting
- Multiple Relief Pressure Kit Options
- Easily Identifiable White Handle Grip and Blue "Lead Free" Hang Tag
- EZ-Solder™ Lead Free Brass

### PERFORMANCE RATING
- Maximum Temperature: 210°F

### APPROVALS
- IAPMO IGC 128-2008
- City of Los Angeles Registered
- CSA B125.1 & B125.3
- NSF/ANSI/CAN 372 - Lead Free

### PART NUMBER MATRIX

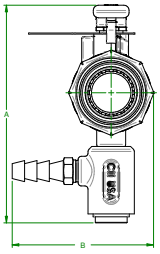
| 78RV | X | X | X | X | - XX |
|---|---|---|---|---|---|
| | END CONNECTION | END CONNECTION | RELIEF CONNECTION | PRESSURE (PSI) | OPTIONS** |
| | 1 - NPT | 1 - NPT | 4 - 3/8" HOSE BARB | 80 | X2 - PEX A (F1960) |
| | 2 - SOLDER | 2 - SOLDER | 5 - 1/2" PEX | 100 | |
| | 9 - PEX F1807 CRIMP | 9 - PEX F1807 CRIMP | 6 - 3/8" COMPRESSION | 125 | |
| | | | 7 - 1/2" NPT/SOLDER | | |

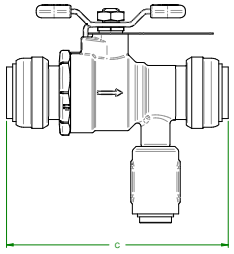
***If PEX A (F1960) is required, add -X2. Example: 78RV99580X2 – PEX A(F1960) Inlet, PEX A (F1960) Outlet, PEX A (F1960) Relief Connection, 80 PSI.*

HYDRONIC & STEAM HEATING

## 78-RV-P SERIES
PUSH SHUT-OFF VALVE W/ THERMAL EXPANSION CONTROL







The lead free Apollo 78-RV Series Combination Water Heater Isolation Valve/IAPMO approved Thermal Expansion Relief Device solves two code requirements while saving time, installation space and money! Features ApolloPush technology, with fast and simple "push to connect" installation. Ideal alternative to expansion tanks in residential plumbing systems. **Made in the USA**, featuring lead free dezincification resistant brass materials.

### PERFORMANCE RATING
- Ball Valve Maximum Pressure: 200 psi
- Relief Valve Factory Set and Sealed at 125 psi Maximum
- Relief Valve Set Pressures: 80, 100, 125 psi
- Maximum Temperature: 210°F

### APPROVALS
- IAPMO IGC 128-2008
- NSF/ANSI/CAN 372 - Lead Free
- CSA B125.3

### DIMENSIONS

| SIZE | APOLLO PART NUMBER | DIMENSIONS (IN.) | | | PORT DIA. (IN.) | RELIEF PRESSURE |
|---|---|---|---|---|---|---|
| | | A | B | C | | |
| 3/4" | 78RV88480 | 3.9 | 4.2 | 1.6 | .750 | 80 |
| 3/4" | 78RV884100 | 3.9 | 4.2 | 1.6 | .750 | 100 |
| 3/4" | 78RV884125 | 3.9 | 4.2 | 1.6 | .750 | 125 |

### PART NUMBER MATRIX

| 78RV | X | X | X | XXX |
|---|---|---|---|---|
| | INLET CONNECTION | OUTLET CONNECTION | RELIEF CONNECTION | RELIEF PRESSURE |
| | 8 - PUSH | 8 - PUSH | 4 - HOSE BARB 3/8" | 80 PSI |
| | | | | 100 PSI |
| | | | | 125 PSI |

### PUSH DEMOUNT TOOL

| SIZE | APOLLO PART NUMBER | EPC PART NUMBER |
|---|---|---|
| 3/4" | D514800 | 10165625 |



## 51GB SERIES
CSA GAS SHUT-OFF VALVE



**Note: GB-10 (51GB Series) is no longer offered.**
**Refer to the 77F Series and GB-15 (51GF Series) for replacement options.**

## GB-15 SERIES
GAS APPLIANCE BALL VALVE - APOLLO INTERNATIONAL™



Designed for natural gas, manufactured and mixed gas, liquefied petroleum gases and LP gas-air mixture applications.

### CSA LISTED
- ANSI Z21.15 (Appliance & Hose)/CGA9.1(1/2 psi)
- ASME B16.44 (5 psi)

### UL LISTED
- UL 125 - Flow Control Valves for LP-Gas, Guide YSDT to 250 psi max
- UL 842 - Valves for Flammable Fluids, Guides YRBX, YRPV, and MHKZ to 250 psi max.

**SEE PAGE B-27 FOR DETAILED INFORMATION**

## 50GB/50GB-A SERIES
CSA GAS SHUT-OFF VALVE



**50-GB**

**50GB-A**

Designed for "main burner" applications with cast-in single or dual pilot tap. ASTM B584 bronze body, chrome-plated ball, brass stem, retainer and gland screws for corrosion resistance.

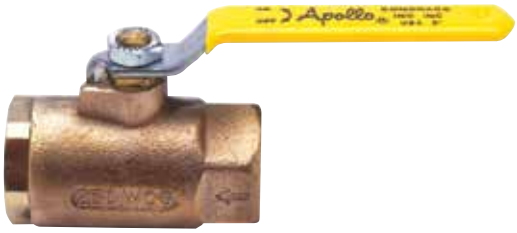
### FEATURES
- For Natural Gas, Manufactured and Mixed Gas, Liquefied Petroleum Gases and LP Gas-Air Mixtures
- Rated Pressures of 1/2 and 5 psig
- Standard Connection is FNPT x FNPT
- High BTU Capacity
- Reversible Plated Steel Lever Handle
- (-07) Tee Handle Optional
- MSS SP-110
- **Proudly Made in USA**

### CSA LISTED
- ANSI Z21.15, CGA9.1
- ASME B16.44 (2 and 5 psig)

### UL LISTED
- UL 125 - Flow Control Valves for LP-Gas, Guide YSDT to 250 psi max
- UL 842 - Valves for Flammable Fluids, Guides YRBX, YRPV, and MHKZ to 250 psi max.

**SEE PAGE B-28 FOR DETAILED INFORMATION**

## 70-100-BC SERIES
BALL VALVE WITH INTEGRAL CHECK



The 70-100-BC Series ball valve combines two functions in a single design: positive shut-off and bubble-tight check capabilities. The BC Series is a unidirectional version of the industry-standard Apollo 70 Series ball valve. An easy flow design and superior check valve make these valves a smart choice for water or air in mechanical systems or OEM applications. Rated at 250 psi CWP and maximum temperature of 200°F.

### FEATURES
- Blowout-Proof Stem
- RPTFE Seats and Stuffing Box Ring
- Adjustable Packing Gland
- Chrome-Plated Ball
- Positive Shut-Off and Bubble-Tight Check Capability
- **Proudly Made in USA**

**SEE PAGE J-27 FOR DETAILED INFORMATION**

## 31-200/31-500 SERIES
90° DRAIN VALVE

LEADFREE OPTIONS



For deluxe water heaters and low pressure boilers.

### FEATURES
- Maximum Rated Pressure: 200 psig
- Maximum Rated Temperature: 250°F
- Red Aluminum Wheel Handle
- 31-200 Series Heavy Pattern, 3/4" MNPT Inlet
- 31-500 Series Standard Pattern, 1/2" MNPT Inlet with I.D. of NPT Thread Machined for 1/2" Copper Pipe
- (-04P) Optional Plain Finish Handle
- **Proudly Made in USA**

**SEE PAGE M-6 FOR DETAILED INFORMATION**



## 35-300 SERIES
BIBB FAUCET BALL VALVE - APOLLO INTERNATIONAL™



Features heavy pattern with large opening. Ideal for boiler and water heater drains, general liquid dispensing and drainage. The new 45° spout design allows for easier hose connection access.

### FEATURES
- Chrome-Plated Finish
- Pressure Rating: 200 psig Liquid
- Maximum Temperature: 250°F
- Apollo International™

**SEE PAGE M-7 FOR DETAILED INFORMATION**

## 94XLF SERIES
PEX BALL VALVE

The Apollo International™ 94XLF Lead Free DZR forged brass ball valves combine reliable operation with maximum economy. Ideal for plumbing and heating applications including potable water. Valves are ANSI 3rd party lead free certified and listed to NSF 14, NSF 61 and NSF 372.

### FEATURES
- Lead Free DZR Brass Materials
- ASTM F1807 Crimp PEX Design
- Easily Identifiable "Lead Free" White Handle Grip
- Double O-Ring Stem Seal
- Blowout-Proof Stem Design
- Silicone Free Assembly

**SEE PAGE B-38 FOR DETAILED INFORMATION**

## 50 SERIES
MANUAL MAIN CONTROL VALVES



**Note: 50 Series is no longer offered.**
**Refer to the 50GB Series for replacement options.**

## 51 SERIES
GAS SERVICE COCKS



**Note: 51 Series is no longer offered.**
**Refer to the 77F Series for replacement options.**

## 52 SERIES
GAS SERVICE COCKS



**Note: 52 Series is no longer offered.**
**Refer to the 77F Series for replacement options.**

## 55 SERIES
GAS COCK WITH THROTTLE ADJUSTMENT

C US

**Note: 55 Series is no longer offered.**



---

## 26-100/26-300 SERIES
COMPRESSION GAUGE COCKS



**26-300**

For draining expansion tanks, other liquid storage vessels. For condensate only. Standard finish is satin brass.

### FEATURES
- 26-100: Rated up to 125 psig
- 26-300: Soft Metal Seat/Stuffing Box Rated up to 250 psig at 400°F
- 26-310: Stainless Steel Ball Seat/Stuffing Box Rated up to 250 psig at 400°F
- 26-700: TFE Seat, Rated up to 250 psig at 400°F
- **Proudly Made in USA**

**SEE PAGE M-2 FOR DETAILED INFORMATION**

## RP 4A SERIES
REDUCED PRESSURE PRINCIPLE



The Apollo Series RP 4A Reduced Pressure Principle Backflow Preventer is designed to give maximum protection against backflow caused by either back-pressure or back-siphonage from substances that are hazardous. The durable but economical device is easily maintained in the line with modular check cartridge assemblies that require no special tools. It consists of two independently acting spring-loaded check valves with an automatic differential relief valve located between the check valves. All testcocks are mounted at the top of the unit to assure easy access during repair and maintenance when unit is installed in tight places.

### FEATURES
- Maximum Protection Against Back-Pressure/Back-Siphonage
- Modular Check Valve Cartridges w/ Easily Replaced Parts
- Reversible/Removable Chloramine-Resistant Silicone Seat Discs
- Low Head Pressure Loss
- Top Mounted Test Cocks
- Threaded Testcock Protectors
- Internal Sensing Passage
- Modular Captured Spring Relief Valve
- ASSE 1013
- CSA B64.4
- Lead-Free Option
- NSF 61/8/G/372
- Federal Public Law 111-380
- AWWA C511
- UL, ULC Classified (T2ST Option or Less Shutoffs)
- Approved by the Foundation for Cross-Connection Control and Hydraulic Research at the University of Southern California
- Standard with Full Port Ball Valves with Stainless Steel Handles
- Corrosion Resistant
- Maximum Working Pressure: 175 psig
- Operating Temperature Range: 33°F-180°F
- Horizontal Installation Approvals on 1/2" through 2"
- 5 Year Warranty
- **Proudly Made in USA**

**SEE PAGE I-6 FOR DETAILED INFORMATION**



## AIR GAP DRAIN



For installation with all 4A, 4An, 4An, and RPS 40 Series Reduced Pressure Principle backflow preventers.

The Apollo Air Gap Drain (AGD) is designed to funnel minor relief valve discharges, due to line pressure fluctuations and /or minor check valve fouling, into the drainage system. Drain piping is easily attached to the drain's threaded bottom.

Note: The AGD is designed to collect expected minor discharges due to fouled checks or pressure fluctuations but not the full discharge capacity of the relief valve.

**SEE PAGE I-29 FOR DETAILED INFORMATION**

## DCAP SERIES
DUAL CHECK WITH ATMOSPHERIC PORT BACKFLOW PREVENTER



The Apollo International DCAP Series Backflow Preventer is designed to protect residential and commercial water supply lines from back-siphonage or back-pressure of non-potable (non-hazardous) substances. It has an intermediate atmospheric vent to insure protection from backflow conditions. It consists of two independently acting and spring-loaded check valves in a corrosion resistant material.

### FEATURES
- Corrosion Resistant
- Low Head Loss
- Independently Acting Check Valves
- Ease of Repair and Installation
- Economical
- Suitable for Hot or Cold Water Service
- Durable
- Lead Free Option
- Maximum Working Pressure: 175 psig
- ASSE 1012
- CSA B64.3
- Inlet Temperature Range: 33°F-210°F
- 5 Year Warranty
- Maximum Backflow Temperature: 250°F

**SEE PAGE I-22 FOR DETAILED INFORMATION**

## 61-500 & 61-600 SERIES
IN-LINE SOFT SEAT CHECK VALVE

LEADFREE OPTIONS



**61-500**
**FEMALE X FEMALE THREADED**
**1/4" THROUGH 2"**



**61-600**
**FEMALE X FEMALE SWEAT**
**1/2" THROUGH 2"**

The Apollo 61 Series check valve is ideally suited for hydronic heating and other low flow applications. The rugged bronze body and check provide reliable protection against reverse flow.

### FEATURES
- Female NPT Sizes: 1/4" to 2"
- Bubble-Tight Shut-Off, Ideally Suited for Gaseous Service
- NPT Threaded: 400 psig CWP Non-Shock @ 100°F
- EPDM Check Disc (61-500)
- Viton® Check Disc (62-500)
- Straight-Through Design Minimizes Pressure Loss
- 1/2 psi Cracking Pressure
- RoHS Compliant (61LF and 62 Series)
- **Proudly Made in USA**

**SEE PAGE J-24 FOR DETAILED INFORMATION**

---

## 62-500 SERIES
IN-LINE SOFT SEAT CHECK VALVE

LEADFREE OPTIONS



The Apollo 62-500 Series is ideal for fluid flow applications in tough industrial environments. The stainless steel body and check provide lasting protection against reverse flow.

### FEATURES
- Bubble-Tight Shut-Off, Ideally Suited for Gaseous Service
- 400 psig CWP Non-Shock
- Viton® Check Disc
- 1/2 psi Cracking Pressure
- RoHS Compliant
- CRN OC 11218.5C
- **Proudly Made in USA**

**SEE PAGE J-25 FOR DETAILED INFORMATION**

## MODEL 101S/101S-LF
SOLDER END RISING STEM GATE VALVE

LEADFREE OPTIONS



### FEATURES
- Threaded Bonnet
- Solid Bronze Disc
- 200 CWP
- Max. Temp: 406°F
- Lead Free Option (NSF 61/NSF 372)
- **Proudly Made in USA**

### STANDARDS
- MSS SP-80 Standard
- MSS SP-139 Lead Free Option (CWP only)
- ASTM B62 Bronze (ASTM B584-C89836 Lead Free)

**SEE PAGE J-2 FOR DETAILED INFORMATION**

---

## MODEL 101T/101T-LF
NPT END RISING STEM GATE VALVE

LEADFREE OPTIONS



### FEATURES
- Threaded Bonnet
- Solid Bronze Disc
- 200 CWP
- 125 SWP
- Max. Temp: 406°F
- Lead Free Option (NSF 61/NSF 372)
- **Proudly Made in USA**

### STANDARDS
- MSS SP-80 Standard
- MSS SP-139 Lead Free Option (CWP only)
- ASTM B62 Bronze (ASTM B584-C89836 Lead Free)

**SEE PAGE J-2 FOR DETAILED INFORMATION**



---

## MODEL 102S/102S-LF
SOLDER END RISING STEM GATE VALVE

LEADFREE OPTIONS



### FEATURES
- Threaded Bonnet
- Solid Bronze Disc
- 200 CWP
- Max. Temp: 406°F
- Lead Free Option (NSF 61/NSF 372)
- **Proudly Made in USA**

### STANDARDS
- MSS SP-80 Standard
- MSS SP-139 Lead Free Option (CWP only)
- ASTM B62 Bronze (ASTM B584-C89836 Lead Free)

**SEE PAGE J-2 FOR DETAILED INFORMATION**

---

## MODEL 102T/102T-LF
NPT END NON-RISING STEM GATE VALVE

LEADFREE OPTIONS



### FEATURES
- Threaded Bonnet
- Solid Bronze Disc
- 200 CWP
- 125 SWP
- Lead Free Option (NSF 61/NSF 372)
- **Proudly Made in USA**

### STANDARDS
- MSS SP-80 Standard
- MSS SP-139 Lead Free Option (CWP only)
- ASTM B62 Bronze (ASTM B584-C89836 Lead Free)

**SEE PAGE J-3 FOR DETAILED INFORMATION**

## MODEL 161S/161S-LF
BRONZE DISC SWING CHECK

LEADFREE OPTIONS



### FEATURES
- Y-Pattern
- Solder Ends
- Metal Seat
- 200 CWP
- Lead Free Option (NSF 61/NSF 372)
- **Proudly Made in USA**

### STANDARDS
- MSS SP-80 Standard
- MSS SP-139 Lead Free Option (CWP only)
- ASTM B62 Bronze
  ASTM B584-C89836 Lead Free)

**SEE PAGE J-10 FOR DETAILED INFORMATION**

---

## MODEL 161T/161T-LF
CLASS 125 BRONZE DISC SWING CHECK

LEADFREE OPTIONS



### FEATURES
- Y-Pattern
- NPT
- Metal Seat
- 200 CWP
- 125 SWP
- Lead Free Option (NSF 61/NSF 372)
- **Proudly Made in USA**

### STANDARDS
- MSS SP-80 Standard
- MSS SP-139 Lead Free Option (CWP only)
- ASTM B62 Bronze
  (ASTM B584-C89836 Lead Free)

**SEE PAGE J-10 FOR DETAILED INFORMATION**

## 59 SERIES
BRONZE WYE STRAINER

LEADFREE OPTIONS



Heavy pattern design with large area screens ensures excellent protection against foreign particles in your fluid system. Corrosion-resistant bronze body and stainless steel screens provide years of service.

### FEATURES
- Sizes 1/8" to 4" NPT
- Replaceable Self-Aligning Screen
- Large Net Flow Area for Longer Maintenance Intervals
- 59LF-400 Series is Female x Male NPT (3/4" & 1" Only)
- Blow-Off Ball Valve Option (3/4" - 2")
- Several Screen and Cap Options
- **Proudly Made in USA**

### PERFORMANCE RATING
- Working Pressure:
  CWP: 400 psi (up to 3")
  SWP: 125 psi
- Maximum Temperature: 350º F

### APPROVALS
- NSF/ANSI/CAN 372 - Lead Free (59LF)
- CRN-0E 8959.5

**SEE PAGE K-2 FOR DETAILED INFORMATION**

## 59-300 SERIES
BRONZE WYE STRAINER - SOLDER

LEADFREE OPTIONS



Heavy pattern design with large area screens ensures excellent protection against foreign particles in your fluid system. Corrosion-resistant bronze body and stainless steel screens provide years of service.

### FEATURES
- Sizes: 1/2" to 3" Copper Tube Size
- Optional Tapped Caps Available
- 59LF features EZ-Solder™ Bronze
- **Proudly Made in USA**

### PERFORMANCE RATING
- Working Pressure:
  CWP: 200 psi (up to 3")
  SWP: 125 psi
- Maximum Temperature: 350º F

### APPROVALS
- NSF/ANSI/CAN 372 - Lead Free (59LF)

**SEE PAGE K-3 FOR DETAILED INFORMATION**

## YCT SERIES
CAST IRON WYE STRAINER - APOLLO INTERNATIONAL™

LEADFREE CERTIFIED



Install these durable strainers upstream in almost any application to protect valves, regulators, solenoids and meters from rust, dirt and pipe scale.

### FEATURES
- 20 Mesh Screens Standard to 2"; .045 perf. 2-1/2" to 3", Others Available
- Graphite Gasketed Cover for Easy Screen Cleaning
- Standard Tapped Cap with Plug
- Sizes: 1/4" to 3"
- Connections are NPT to ASME/ANSI B1.20.1
- NSF Approved Epoxy Coating

### PERFORMANCE RATING
- Working Pressure:
  CWP: 500 psi
  SWP: 250 psi
- Maximum Temperature: 406º F

### APPROVALS
- NSF/ANSI/CAN 372 - Lead Free

**SEE PAGE K-5 FOR DETAILED INFORMATION**

## 27-400 SERIES
STEAM GAUGE SIPHON



27-401



27-402

For pressure gauge protection. Condensate trap protects dial pressure gauges from direct steam contact.

### FEATURES
- Heavy Gauge Seamless Brass Tubing
- 27-401 is 180˚ loop, 27-402 is 90˚ loop
- Service Rating: 250 psig Saturated Steam, 400 psig at 100˚F
- **Proudly Made in USA**

**SEE PAGE M-3 FOR DETAILED INFORMATION**

---

## 20-100 SERIES
STANDARD PATTERN BRONZE WATER GAUGES

LEADFREE OPTIONS



Use for all types of liquid level verification; available with 3/8" or 1/2" NPT male pipe connections. Aluminum or plastic composition hand wheels; EPDM gauge glass gaskets standard. Other glass gaskets available.

### FEATURES
- Ball Checks Standard on 20-150
- Equipped with Two Copper Guard Rods
- Standard 1/4" Needle Drain Valve in Lower Arm
- Rated: 125 psig @ 350°F, 300 psig @ 100°F
- CRN Registered
- **Proudly Made in USA**

**SEE PAGE L-10 FOR DETAILED INFORMATION**

---

## 27-200 SERIES
RADIATOR AIR VALVE - APOLLO INTERNATIONAL™




Manual air purge valves for hot water radiators/heating systems.

| PART NUMBER | SIZE | NET WT. (LB.) |
|---|---|---|
| 27-202-02 | 1/8 NPT | 2.0 |
| H-2404-00 | Key only | 0.9 |

## BASIC HEAT TRANSFER CALCULATION

$$q\left(\frac{Btu}{hr}\right) = \dot{m}\ c_P\ \Delta t$$

$$\frac{Btu}{hr} = \left|\frac{lb}{hr}\right|\left|\frac{Btu}{lb.\text{-}°F}\right|°F$$

$$q\left(\frac{Btu}{hr}\right) = Q\ 500\ c_P\ \Delta t$$

$$q\ \frac{Btu}{hr} = \left|\frac{Q\ Gal}{min}\right|\left|\frac{60\ min}{hr}\right|\left|\frac{8.34\ lb}{Gal}\right|\left|\frac{Btu}{lb.\text{-}°F}\right|°F$$

q = heat transfer (Btu/hr.)
Q = flow rate (gpm)
cP = specific heat of fluid
Δt = change in fluid temperature °F

## FLOW RATE CALCULATION BASED ON $C_v$

$$Q = C_V \sqrt{\frac{\Delta P}{SG}}$$

Q = flow rate (gpm)
CV = device flow coefficient
ΔP = change in fluid pressure across the device (psi)
SG = Specific Gravity of fluid

## SYSTEM CURVE (CIRCULATOR PERFORMANCE)

$$\left(\frac{Q_2}{Q_1}\right)^2 = \left(\frac{h_2}{h_1}\right)$$

$$\left(\frac{Q_2}{Q_1}\right)^3 = \left(\frac{P_2}{P_1}\right)$$

Q = flow rate at known or new condition (gpm)
h = change in fluid head (pressure) (psi or feet head)
P = work to move fluid (pumping horsepower)

## PRESSURE VS. HEAD CONVERSION

$$\frac{\text{Area}}{\rho}$$

$$\left|\frac{Ft^3}{62.4\ lb.}\right|\left|\frac{144\ in^2}{1\ Ft^2}\right| = 2.31\ \frac{ft}{psi}$$

Relationship of Water Pressure in Feet to PSI
ρ = fluid density (lb/ft3)
Head incorporates velocity and static pressure and is typically used for expressing pressure (and pump energy) on pump curves in hydronic systems

## POWER CURVE (CIRCULATOR PERFORMANCE)

$$P_{HP} = \frac{Q \times h}{3960 \times \eta_P}$$

$P_{HP}$ = pumping horsepower (work to move fluid)
Q = flow rate at operating condition (gpm)
h = fluid head (feet head)
$\eta_P$ = pump efficiency at operating point

Energy:
1 Watt hour = 3.413 btu
1 Kilowatt hour = 3,413 btu
1 Therm = 100,000 btu
1MMBtu = 1,000,000 btu

Power and Heat Flow:
1 Kilowatt = 3,413 btu/hr
1 Ton = 12,000 btu/hr
1 Horsepower = 0.746 kilowatt = 2546 btu/hr

Temperature:
°C = (°F - 32)/1.8
°F = (°C x 1.8) + 32

Weight and Volume:
1 Gal water = 8.34 lbs
1 Cubic foot water = 62.4 lbs
1 Cubic foot water = 7.482 gal

Steam Conversion Factors:
Boiler horsepower (BHP) x 34.5 = lb. of steam water per hr. (lb/hr)
Boiler horsepower (BHP) x 0.069 = Gal of water per minute (gpm)

Making or Melting Ice:
Latent Heat of Fusion – Requires 143.5 btu per lb. at 32°F

Heating or Cooling Liquid Water:
Sensible Heat – Requires 1 btu per lb. per °F

Vaporizing Water (Steam):
Latent Heat of Vaporization – Requires 970 btu per lb. at 14.7 psia

Heat from Combustion:
Natural Gas (Typical) – 1000 btu per cubic foot
Propane – 2550 per cubic foot
No. 2 Fuel Oil – 138,000 btu per gallon

| FRICTION | 0.85 FT/100 | 4.5 FT/100 | HEAT TRANSFER CAPACITY | | | |
|---|---|---|---|---|---|---|
| STEEL PIPE SIZE | MIN FLOW GPM | MAX FLOW GPM | BTU/HR 20° ΔT | BTU/HR 50° ΔT | BTU/HR 12° ΔT | TONS |
| ½" | 0.75 | 2 | 20,000 | 50,000 | 12,000 | 1.00 |
| ¾" | 1.5 | 4.25 | 42,500 | 106,250 | 25,500 | 2 |
| 1" | 4 | 8.5 | 85,000 | 212,500 | 51,000 | 4.25 |
| 1¼" | 7 | 17 | 170,000 | 425,000 | 102,000 | 8.5 |
| 1½" | 10.5 | 26 | 260,000 | 650,000 | 156,000 | 13 |
| 2" | 20 | 50 | 500,000 | 1,250,000 | 300,000 | 25 |
| 3" | 60 | 145 | 1,450,000 | 3,625,000 | 870,000 | 72.5 |
| 4" | 120 | 300 | 3,000,000 | 7,500,000 | 1,800,000 | 150 |
| 5" | 220 | 525 | 5,250,000 | 13,125,000 | 3,150,000 | 262.5 |
| 6" | 350 | 850 | 8,500,000 | 21,250,000 | 5,100,000 | 425 |
| 8" | 700 | 1800 | 18,000,000 | 45,000,000 | 10,800,000 | 900 |
| 10" | 1300 | 3300 | 33,000,000 | 82,500,000 | 19,800,000 | 1650 |
| 12" | 2100 | 5250 | 52,500,000 | 131,250,000 | 31,500,000 | 2625 |

"Apollo"® Valves

# mixing valves


| | |
|---|---|
| **34ALF-200** | G-4 |
| **34BLF-300** | G-6 |
| **34C/34CLF** | G-8 |
| **34DLF-400** | G-10 |
| **34-200** | G-11 |
| **34HL** | G-12 |
| **34E/34ELF** | G-14 |
| **ACCESSORIES** | G-15 |





## section G

## 34-200 SERIES



Apollo 34 Series Mixing Valves help extend hot water supply and enhance the life and accuracy of hydronic thermostats in residential and small commercial systems. These valves may be used to increase draw capacity of automatic storage water heaters. They save hot water and energy by automatically regulating the mix of hot water with cold. Water temperatures can be adjusted by simply turning the yellow knob to the desired setting.

- Sizes 1/2", 3/4"; Solder
- Corrosion Resistant Bronze Body and Stainless Steel Spring
- Easy Installation
- For Tankless Coils, Water Heaters, Boilers and Solar Energy Systems
- Outlet Temperatures from 120˚ to 130˚F (110˚ to 150˚F Optional)

## 34A-LF SERIES



Apollo 34A-LF Series Mixing Valves provide thermostat control of temperatures in residential, commercial and non-potable hot water systems. They are ASSE 1017 certified and designed for use with water heaters and boilers. During operation, the valve redistributes and extends safe hot water from the heater to various sections of a building's water system. 34A-LF Series mixing valves offer integral checks to prevent cross-connection of temperatures. They also enable the contractor to direct mount the unit to the heater or boiler instead of heat trapping the valve.

- Sizes 1/2", 3/4", 1"
- Highest Flow Capacity in its Class
- Maximum Rated Working Pressure of 125 psig
- Easy Temperature Control From 85˚ to 140˚F
- Corrosion Resistant Cast Bronze Body
- Integral Checks
- Union Tailpieces and Union Nuts Standard
- NPT, Solder, CPVC, Press, Push and PEX F1960* & PEX F1807 Connections
- Easily Accessible Internals Allow In-Line Servicing
- Glass-Filled Noryl® Shuttle

## 34ALF-H SERIES



Apollo 34ALF-H Series Mixing Valves are ideal for use with domestic and commercial boilers and all types of radiant systems. They are available in a variety of pipe end connections and are equipped with element over-travel protection. Also the 34ALF-H Series mixing valves offer integral checks to prevent cross-connection of temperatures.

- Sizes 1/2", 3/4", 1"
- Maximum Rated Working Pressure of 125 psig
- Mixed Temperature Range of 120˚ to 180˚F
- Corrosion Resistant Cast Bronze Body
- Union Tailpieces and Union Nuts, Standard
- Designed to Make Maintenance Fast and Easy
- Glass-Filled Noryl® Shuttle
- Easily Accessible Internals Allow In-Line Servicing

## 34B-LF SERIES

New!



Apollo 34B-LF Series thermostatic mixing valves are mixing valves are triple certified to ASSE 1017/1069/1070 for point-of-use or point-of-source applications and provide enough capacity to protect up to twelve separate fixtures while maintaining an accuracy of +/- 3˚F. They offer easy adjustment of water temperatures. In accordance with ASSE 1070 standards, Series 34B valves come with maximum set point control features.

- Sizes 1/2", 3/4", 1"
- Controlled Temperatures from Full Cold up to 120˚F.
- Corrosion Resistant Bronze Body
- Union Tailpieces and Nuts Standard
- NPT, Solder, Press, CPVC, Push, PEX F1960* & PEX F1807 Connections
- In-Line Repairable
- Glass-Filled Noryl® Shuttle
- Factory Equipped with Integral Checks and Strainers
- Locking Cap Feature

## 34C / 34CLF SERIES



Apollo 34C / 34CLF Series high capacity mixing valves are ASSE 1017 certified. Also available in a high temperature model, these large capacity valves are designed for use in large commercial and institutional hot water systems.

- Sizes 3/4"- 2"
- Industry Leading Flow Rates
- Corrosion Resistant Cast Bronze Body
- Stainless Steel and Thermoplastic Internals
- Maximum Rated Pressure of 150 psig
- All Replaceable Parts Accessible from Single Point
- Controlled Temperature Range of 90˚ to 140˚F (130˚ to 180˚F Optional - "H" Model non-ASSE)
- In-Line Repairable
- Glass-Filled Noryl® Shuttle
- Optional Non Lead Free for Non-Potable Water

## 34D-LF SERIES

New!



The Apollo 34DLF-400 Series Mini Thermostatic Mixing Valve is designed for the harmonized standard of ASSE1070/ASME112.1070/CSA B125.70 "Point of Use" single fixture temperature control applications, using proven ASTM grade lead free materials. These valves will provide control to a desired temperature within ± 3°F.

- Compact, Space Saving Design
- 3/8" x 3/8" Compression Connections
- Factory Equipped with Integral Screens/Checks
- Corrosion Resistant Forged DZR Lead Free Brass Body
- Stainless and Thermoplastic Internals
- Bypass Tee Option for Cold Water Connection
- Chrome Plating Option
- Flow Rates: 0.25 - 3.3 GPM

## 34E/34E-LF SERIES



Apollo 34E Emergency Mixing Valves are designed to control the cold and hot water temperature to deliver tepid water at a predetermined temperature to emergency eyewash/facewash fixtures. The device provides a precise temperature and flow control in the event of cold water, hot water and thermostatic element failures. Complies with ANSI Z358.1 & ASSE 1071.

- Hot and Cold Water Supply Failure Protection Patented Design (US Patent 6,926,20 B2)
- Tepid Water Temperature Limit Control and Adjustment
- Tepid Water Temperature Adjustment Handle with Locking Mechanism for Tamper-Resistant Protection and Inadvertent Adjustment
- Integral Inlet Check Valves and Strainers to Provide Protection Against Cross-Flow And Foreign Particles
- Superior Thermostatic Element Technology for Optimum Reliability, Dependability and Accuracy
- Thermostatic Element Failure and Over-Travel Protection
- High Efficiency and Positive Shut-Off Check Valves
- In-Line Accessibility and Serviceability of Failure Protection Module and Mixing Valve Internal Components
- Meets the Requirements of the EPA Safe Drinking Water Act
- Corrosion Resistant Components
- Single Cartridge Design of Failure Protection Module for Easy Service and Maintenance

## 34HL SERIES



Apollo 34HL High/Low Mixing Valve is a single assembly that controls mixed water temperatures to multiple-outlet shower and sink installations. It's the ideal choice in new construction or retrofits in nursing homes, prisons, hospitals, schools, gymnasiums, airports and other facilities where constant safe water temperature needs to be maintained at several outlets without the use of independent ASSE 1016 shower valves.

- Capable of Maintaining Safe, Consistent Temperature Control of Water at Low and High Flows to Within ± 3.6° F
- Provides Consistent Temperature Control at Flow Rates as High as 60 GPM and as Low as 1.5 GPM, Including Mid-Range Flow Between High and Low
- Does Not Require Recirculation Pumps Like Other Systems in Order to Achieve Low Flow Control
- Integral Strainers and Checks are Provided at the Hot and Cold Supply Inlets for Greater Reliability and Performance
- Units Can Be Mounted in Parallel for Extra Large Flow Requirements
- ASSE 1017/1069 Certified

## 34ALF SERIES
POINT OF SOURCE THERMOSTATIC MIXING VALVE

LEAD FREE CERTIFIED · C SA US · ASSE 1017



Apollo 34ALF Thermostatic Master Mixing Valves are designed for ASSE 1017 "point of source" applications. They provide reliable hot water temperature control of potable and hydronic hot water distribution systems.

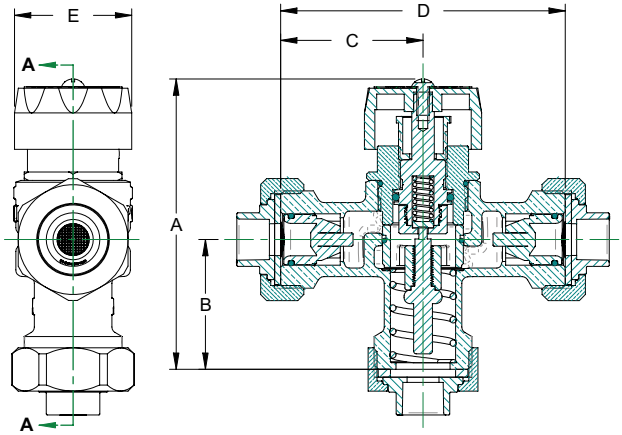
## FEATURES
- Superior Thermostatic Element Technology For Optimal Performance, Reliability and Accuracy
- Integral Inlet Strainers and Check Valves are Standard to Protect Against Cross-Flow and Foreign Particles in the Piping System
- Thermostat Over-Temperature Control
- Maximum Temperature Limit Option
- Fingertip Temperature Control
- Cold or Hot Water Supply Failure Shut-Off Protection
- Multiple Connection Options to Fit Your Specific Needs
- High Temperature Version For Hydronic/Radiant Heating Applications
- Lead Free Construction Certified: 0.25% Lead max
- **Proudly Made in the USA**

## OPTIONS
- PEX F1960* F1960 Tailpieces ***NEW!***
- (-B) Temperature Limit Stop (120° F max)
- High Temp Range (H) Radiant Heat Application 120°F - 180°F (Not ASSE Certified) See 34ALF-H Submittal Sheet

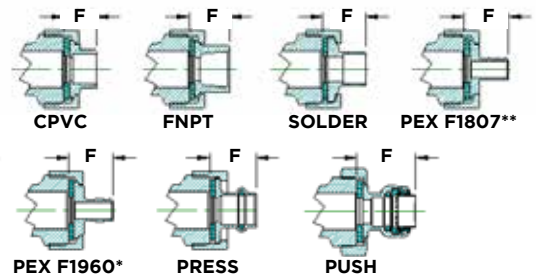
## APPROVALS
- ASSE 1017 - Temperature Actuated Mixing Valve for Hot Water Distribution Systems
- CSA B125.3 - Plumbing Supply Fittings
- NSF/ANSI/CAN 372 - Lead Free

## STANDARD MATERIAL LIST

| | |
|---|---|
| **BODY** | C89836 Lead Free Bronze |
| **SHUTTLE** | Noryl® Modified PPO (Polyphenylene Oxide) |
| **SENSOR** | Copper/Wax Filled |
| **O-RING** | Chloramine Resistant EPDM |
| **SPRING** | ASTM A313 Stainless Steel |
| **CAP** | ABS (Acrylonitrile Butadiene Styrene) |




**TAILPIECES**




## DIMENSIONS

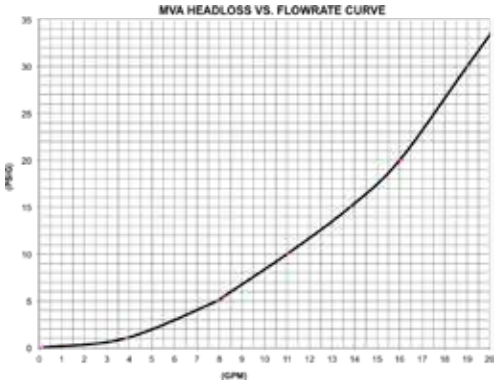
| SERIES NO. | CONNECTION | SIZE (IN.) | DIMENSIONS (IN.) | | | | | | UNIT WT. (LB.) |
|---|---|---|---|---|---|---|---|---|---|
| | | | A | B | C | D | E | F | |
| 34ALF213T | Thread - FNPT | 1/2 | 3.73 | 2.11 | 2.28 | 4.56 | 1.87 | 0.95 | 2.75 |
| 34ALF213S | Solder | | 3.73 | 2.11 | 2.28 | 4.56 | 1.87 | 0.93 | 2.54 |
| 34ALF213C | CPVC | | 3.73 | 2.11 | 2.28 | 4.56 | 1.87 | 0.70 | 2.39 |
| 34ALF213X2 | PEX F1960* | | 3.73 | 2.11 | 2.28 | 4.56 | 1.87 | 1.20 | 2.54 |
| 34ALF213X | PEX F1807** | | 3.73 | 2.11 | 2.28 | 4.56 | 1.87 | 1.02 | 2.54 |
| 34ALF213PR | Press | | 3.73 | 2.11 | 2.28 | 4.56 | 1.87 | 0.99 | 2.60 |
| 34ALF213P | Push | | 3.73 | 2.11 | 2.28 | 4.56 | 1.87 | 1.23 | 2.94 |
| 34ALF214T | Thread - FNPT | 3/4 | 3.73 | 2.11 | 2.28 | 4.56 | 1.87 | 0.93 | 2.84 |
| 34ALF214S | Solder | | 3.73 | 2.11 | 2.28 | 4.56 | 1.87 | 0.93 | 2.60 |
| 34ALF214C | CPVC | | 3.73 | 2.11 | 2.28 | 4.56 | 1.87 | 0.92 | 2.42 |
| 34ALF214X2 | PEX F1960* | | 3.73 | 2.11 | 2.28 | 4.56 | 1.87 | 1.20 | 2.60 |
| 34ALF214X | PEX F1807** | | 3.73 | 2.11 | 2.28 | 4.56 | 1.87 | 1.25 | 2.60 |
| 34ALF214PR | Press | | 3.73 | 2.11 | 2.28 | 4.56 | 1.87 | 1.14 | 2.65 |
| 34ALF214P | Push | | 3.73 | 2.11 | 2.28 | 4.56 | 1.87 | 1.78 | 3.08 |
| 34ALF215T | Thread - FNPT | 1 | 3.73 | 2.11 | 2.28 | 4.56 | 1.87 | 1.06 | 2.93 |
| 34ALF215S | Solder | | 3.73 | 2.11 | 2.28 | 4.56 | 1.87 | 1.06 | 2.66 |
| 34ALF215C | CPVC | | 3.73 | 2.11 | 2.28 | 4.56 | 1.87 | 1.16 | 2.45 |
| 34ALF215X2 | PEX F1960* | | 3.73 | 2.11 | 2.28 | 4.56 | 1.87 | 1.17 | 2.66 |
| 34ALF215X | PEX F1807** | | 3.73 | 2.11 | 2.28 | 4.56 | 1.87 | 1.55 | 2.66 |
| 34ALF215PR | Press | | 3.73 | 2.11 | 2.28 | 4.56 | 1.87 | 1.18 | 2.71 |
| 34ALF215P | Push | | 3.73 | 2.11 | 2.28 | 4.56 | 1.87 | 1.96 | 3.29 |

** PEX F1960* (ASTM F1960) Cold Expansion PEX*
*** PEX F1807** (ASTM F1807) Crimp PEX*

## 34ALF
POINT OF SOURCE THERMOSTATIC MIXING VALVE

### PERFORMANCE RATING

- Maximum Working Pressure: 150 psig (1034 kPa)
- Maximum Working Temperature: 210°F (99°C)
- Cold Water Inlet Temperature Range: 39°-80°F (4° - 27°C)
- Hot Water Inlet Temperature Range: 120° - 200°F (49° - 82°C)
- Minimum Flow Rate: 1/2 gpm (1.9 lpm)
- Mixed Water Temp. Range - Standard: 85° - 120°F
- Mixed Water Temp. Range - High: 120° - 180°F
- Mixed Water Temperature Tolerance: ±5°F (1.7°C)
- Flow Rate at 30 psig (138 kPA): 19 gpm (64 lpm)
- Maximum Pressure Differential Between Hot & Cold: 25%




| SIZE (IN.) | CONNECTION | PART NUMBER | | |
|---|---|---|---|---|
| | | STANDARD TEMP (85° - 140°F) | CAL. MAX. TEMP (120°F) | RADIANT HIGH TEMP (120° - 180°F)* |
| 1/2" | Solder inlets x Solder outlet | 34ALF213S | 34ALF213BS | 34ALF213HS |
| | FNPT inlets x FNPT outlet | 34ALF213T | 34ALF213BT | 34ALF213HT |
| | CPVC inlets x CPVC outlet | 34ALF213C | 34ALF213BC | - |
| | PEX F1960* inlets x PEX F1960* outlet | 34ALF213X2 | 34ALF213BX2 | |
| | PEX F1807** inlets x PEX F1807** outlet | 34ALF213X | 34ALF213BX | - |
| | PRESS inlets x PRESS outlet | 34ALF213PR | 34ALF213BPR | - |
| | PUSH inlets x PUSH outlet | 34ALF213P | - | - |
| 3/4" | Solder inlets x Solder outlet | 34ALF214S | 34ALF214BS | 34ALF214HS |
| | FNPT inlets x FNPT outlet | 34ALF214T | 34ALF214BT | 34ALF214HT |
| | CPVC inlets x CPVC outlet | 34ALF214C | 34ALF214BC | - |
| | PEX F1960* inlets x PEX F1960* outlet | 34ALF214X2 | 34ALF214BX2 | |
| | PEX F1807** inlets x PEX F1807** outlet | 34ALF214X | 34ALF214BX | - |
| | PRESS inlets x PRESS outlet | 34ALF214PR | 34ALF214BPR | - |
| | PUSH inlets x PUSH outlet | 34ALF214P | - | - |
| 1" | Solder inlets x Solder outlet | 34ALF215S | 34ALF215BS | 34ALF215HS |
| | FNPT inlets x FNPT outlet | 34ALF215T | 34ALF215BT | 34ALF215HT |
| | CPVC inlets x CPVC outlet | 34ALF215C | 34ALF215BC | - |
| | PEX F1960* inlets x PEX F1960* outlets | 34ALF215X2 | 34ALF215BX2 | - |
| | PEX F1807** inlets x PEX F1807** outlets | 34ALF215X | 34ALF215BX | - |
| | PRESS inlets x PRESS outlet | 34ALF215PR | 34ALF215BPR | - |
| | PUSH inlets x PUSH outlet | 34ALF215P | - | - |

** High temperature models are not ASSE certified.*
*** PEX F1960* (ASTM F1960) Cold Expansion PEX*
**** PEX F1807** (ASTM F1807) Crimp PEX*

## 34BLF SERIES
POINT OF USE THERMOSTATIC MIXING VALVE

LEADFREE CERTIFIED
C SP US ASSE 1017 1069 1070



Apollo 34B-LF Series Thermostatic Mixing Valves are designed to control and limit the volumes of cold and hot water required to deliver mixed water at a predetermined safe temperature either from the “point of source” or “point of use” application for single or multiple fixtures.

### FEATURES
- Now Triple Certified to Meet ASSE 1017/1069/1070 ***NEW!***
- Highest Capacity That Meets ASSE 1070
- Superior Thermostatic Element Technology for Optimum Reliability, Dependability and Accuracy
- Integral Strainers and Check Valves Provide Protection Against Cross-Flow and Foreign Particles
- Thermostat Over-Temperature Protection
- Tamper Resistant Locking Cap Feature
- Maximum Temperature Setting Adjustment
- Instantaneous Cold or Hot Water Supply Failure Shut-Off Protection
- Multiple Connection Options to Fit Your Specific Needs
- Lead Free Construction Certified: 0.25% Lead max
- PEX F1960* Tailpieces Available ***NEW!***
- **Proudly Made in the USA**

### STANDARD MATERIAL LIST

| | |
|---|---|
| **BODY** | C89836 Lead Free Bronze |
| **SHUTTLE** | Noryl® Modified PPO (Polyphenylene Oxide) |
| **SENSOR** | Copper/Wax Filled |
| **O-RING** | Chloramine Resistant EPDM |
| **SPRING** | ASTM A313 Stainless Steel |
| **CAP** | ABS (Acrylonitrile Butadiene Styrene) |

### APPROVALS
- ASSE 1017 - Temperature Actuated Mixing Valve for Hot Water Distribution Systems
- ASSE 1069 - Automatic Temperature Control Mixing Valves
- ASSE 1070/ASME A112.1070
- CSA B125.70-15
- NSF/ANSI/CAN 372 - Lead Free

### PERFORMANCE RATING
- Maximum Supply Pressure: 150 psig (1034 kPA)
- Maximum Working Temperature: 210°F (99°C)
- Cold Water Inlet Temperature Range: 39° - 80°F
- Hot Water Inlet Temperature Range: 120° - 180°F (49° - 82°C)
- Mixed Water Temperature Range: 80° - 120°F (27° - 49°C)
- Mixed Water Temperature Tolerance: ± 3°F (1.7°C)
- Minimum Flow Rate: 0.5 gpm (1.9 lpm) ***NEW!***
- Maximum Pressure Differential Between H/C: 25%
- Minimum Inlet/Outlet Temperature Differential: 10°F

| SIZE (IN.) | CONNECTION | SERIES NO. |
|---|---|---|
| 1/2" | Solder inlets x Solder outlet | 34BLF313S |
| | FNPT inlets x FNPT outlet | 34BLF313T |
| | CPVC inlets x CPVC outlet | 34BLF313C |
| | PEX F1960* inlets x PEX F1960* outlet | 34BLF313X2 |
| | PEX F1807** inlets x PEX F1807** outlet | 34BLF313X |
| | PRESS inlets x PRESS outlet | 34BLF313PR |
| | PUSH inlets x PUSH outlet | 34BLF313P |

| SIZE (IN.) | CONNECTION | SERIES NO. |
|---|---|---|
| 3/4" | Solder inlets x Solder outlet | 34BLF314S |
| | FNPT inlets x FNPT outlet | 34BLF314T |
| | CPVC inlets x CPVC outlet | 34BLF314C |
| | PEX F1960* inlets x PEX F1960* outlet | 34BLF314X2 |
| | PEX F1807** inlets x PEX F1807** outlet | 34BLF314X |
| | PRESS inlets x PRESS outlet | 34BLF314PR |
| | PUSH inlets x PUSH outlet | 34BLF314P |

| SIZE (IN.) | CONNECTION | SERIES NO. |
|---|---|---|
| 1" | Solder inlets x Solder outlet | 34BLF315S |
| | FNPT inlets x FNPT outlet | 34BLF315T |
| | PEX F1960* inlets x PEX F1960* outlets | 34BLF315X2 |
| | PEX F1807** inlets x PEX F1807** outlets | 34BLF315X |
| | PRESS inlets x PRESS outlet | 34BLF315PR |
| | PUSH inlets x PUSH outlet | 34BLF315P |

** PEX F1960* (ASTM F1960) Cold Expansion PEX*
*** PEX F1807** (ASTM F1807) Crimp PEX*

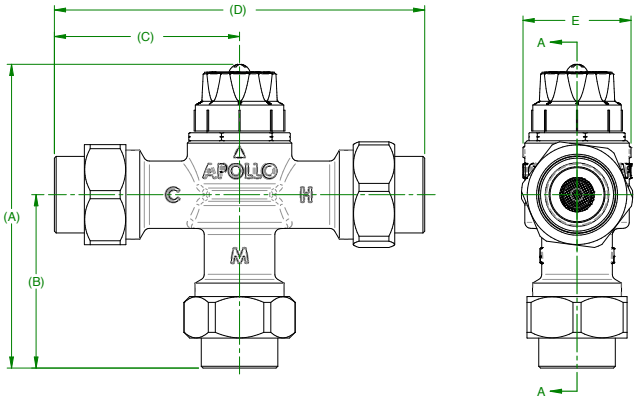
## 34BLF SERIES
POINT OF USE THERMOSTATIC MIXING VALVE

### DIMENSIONS

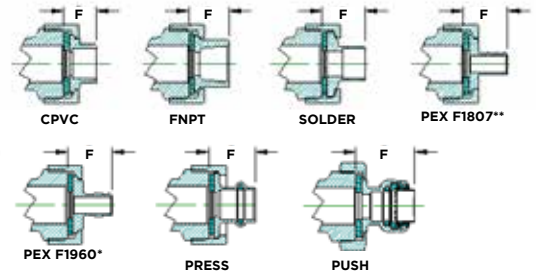
| SERIES NO. | CONNECTION | SIZE (IN.) | DIMENSIONS (IN.) | | | | | | WEIGHT (LB.) |
|---|---|---|---|---|---|---|---|---|---|
| | | | A | B | C | D | E | F | |
| 34BLF313T | Thread - FNPT | 1/2 | 5.04 | 2.85 | 3.05 | 6.09 | 1.87 | 0.95 | 2.70 |
| 34BLF313S | Solder | | 5.12 | 2.93 | 3.13 | 6.25 | 1.87 | 0.93 | 2.54 |
| 34BLF313C | CPVC | | 4.89 | 2.70 | 2.90 | 5.79 | 1.87 | 0.70 | 2.42 |
| 34BLF313X2 | PEX F1960* | | 5.14 | 4.24 | 4.44 | 8.87 | 1.87 | 1.20 | 2.60 |
| 34BLF313X | PEX F1807** | | 5.14 | 2.95 | 3.15 | 6.29 | 1.87 | 1.02 | 2.60 |
| 34BLF313PR | Press | | 5.19 | 2.99 | 3.19 | 6.37 | 1.87 | 0.99 | 2.65 |
| 34BLF313P | Push | | 6.43 | 4.24 | 4.44 | 8.87 | 1.87 | 1.23 | 3.45 |
| 34BLF314T | Thread - FNPT | 3/4 | 5.12 | 2.93 | 3.13 | 6.25 | 1.87 | 0.93 | 2.80 |
| 34BLF314S | Solder | | 5.12 | 2.93 | 3.13 | 6.25 | 1.87 | 0.93 | 2.60 |
| 34BLF314C | CPVC | | 5.18 | 2.99 | 3.18 | 6.37 | 1.87 | 0.92 | 2.40 |
| 34BLF314X2 | PEX F1960* | | 6.43 | 4.24 | 4.44 | 6.37 | 1.87 | 1.20 | 2.60 |
| 34BLF314X | PEX F1807** | | 5.14 | 2.95 | 3.15 | 6.29 | 1.87 | 1.25 | 2.60 |
| 34BLF314PR | Press | | 5.33 | 3.13 | 3.33 | 6.65 | 1.87 | 1.14 | 2.70 |
| 34BLF314P | Push | | 5.95 | 3.76 | 4.44 | 8.87 | 1.87 | 1.78 | 3.20 |
| 34BLF315T | Thread - FNPT | 1 | 5.25 | 3.02 | 3.22 | 6.43 | 2.12 | 1.06 | 3.58 |
| 34BLF315S | Solder | | 5.25 | 3.02 | 3.22 | 6.43 | 2.12 | 1.06 | 3.34 |
| 34BLF315C | CPVC | | 5.38 | 3.15 | 3.35 | 6.69 | 2.12 | 1.16 | 3.31 |
| 34BLF315X2 | PEX F1960* | | 5.75 | 3.55 | 3.75 | 7.48 | 2.12 | 1.17 | 3.70 |
| 34BLF315X | PEX F1807** | | 5.36 | 3.13 | 3.33 | 6.65 | 2.12 | 1.55 | 3.39 |
| 34BLF315PR | Press | | 5.37 | 3.14 | 3.37 | 6.74 | 2.12 | 1.18 | 3.31 |
| 34BLF315P | Push | | 6.05 | 3.85 | 4.05 | 8.09 | 2.12 | 1.96 | 4.50 |

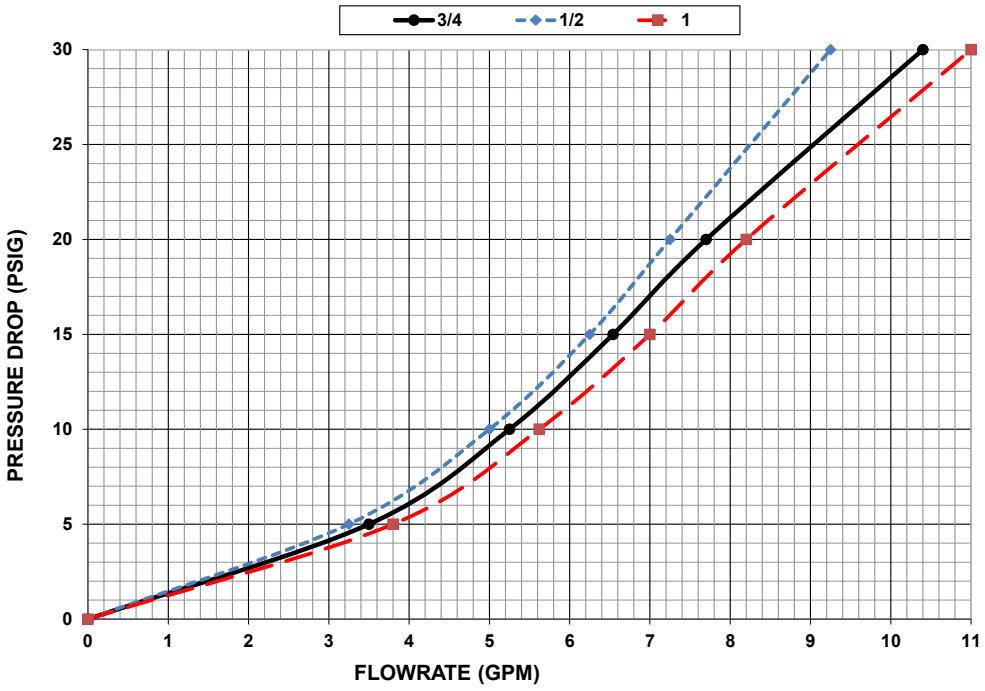
** PEX F1960* (ASTM F1960) Cold Expansion PEX*
*** PEX F1807** (ASTM F1807) Crimp PEX*

*34B-200/34BLF-200 available until depleted*




### TAILPIECES



## 34C/34CLF SERIES
HIGH CAPACITY THERMOSTATIC MIXING VALVE

LEADFREE OPTIONS · C SP US · ASSE 1017



3/4" - 1"

Apollo 34C-LF Series ASSE 1017 listed, High-Capacity Mixing Valves are thermostatically controlled regulating valves designed for use in large commercial and institutional "point of source" and hydronic hot water systems or applications. Simple adjustment of water temperature from 90°-140°F or 130°-180°F.

## SPECIAL FEATURES
Apollo 34CLF mixing valves feature a two-piece shuttle with integral over-travel spring so they're smaller and easier to install than other high-capacity valves. Plus, their patented snap-fit element retainer and shuttle with special finger-grip pads assure easy removal and servicing without the need for special tools.

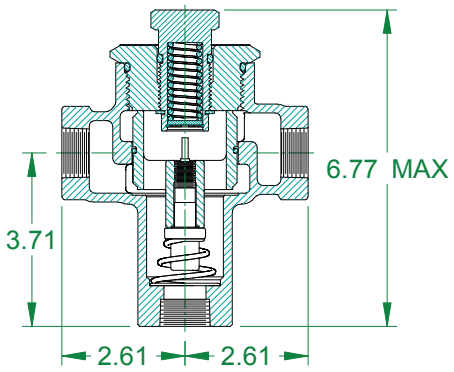
## FEATURES
- Standard Temperature Range 90°-140°F (-01 suffix)
- High Temperature Range 130°-180°F (use suffix "H1") for Hydronic/Radiant Heating Systems
- Highest Flow Rates in its Class, Up to 165 gpm
- Threaded Connections
- All-Bronze and Stainless Steel Construction
- Patented Design for Easy In-Line Maintenance
- Supply Pressures to 150 psig
- U.S. Patent #6,328,219
- Lead Free Construction Certified: 0.25% Lead Max
- **Proudly Made in the USA**

## STANDARD MATERIAL LIST

| | |
|---|---|
| **BODY** | C89836 Lead Free Bronze |
| **SHUTTLE** | Glass Filled Noryl® |
| **SENSOR** | Copper/Wax Filled |
| **STEM** | ASTM B16 C3600 Brass |
| **SPRING** | Stainless Steel |
| **RETAINER** | ASTM B16 C3600 Brass |

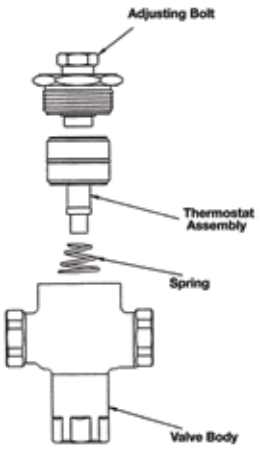
## OPTIONS
- (-01) Standard Temp 90˚ - 140˚F
- (-H1) Hydronic High Temps/Non-ASSE 130˚ - 180˚F
- Bronze Wye Strainer - See 59LF Series
- 34C Standard Bronze Construction for Radiant Applications

## APPROVALS
- ASSE 1017 - Temperature Actuated Mixing Valve for Hot Water Distribution Systems
- CSA B125.3 - Plumbing Supply Fittings
- NSF/ANSI/CAN 372 - Lead Free




| SIZE (IN.) | CONNECTION | PART NUMBER | |
|---|---|---|---|
| | | STANDARD TEMP (90° - 140°F) | HIGH TEMP (130° - 180°F)* |
| 3/4" | FNPT Inlets x FNPT Outlet | 34C10401 | 34C104H1 |
| | | 34CLF10401 | 34CLF104H1 |
| 1" | | 34C10501 | 34C105H1 |
| | | 34CLF10501 | 34CLF105H1 |

**High temperature models are not ASSE certified.*



## 34C/34CLF SERIES
HIGH CAPACITY THERMOSTATIC MIXING VALVE

LEADFREE OPTIONS

ASSE 1017

1-1/4" - 2"



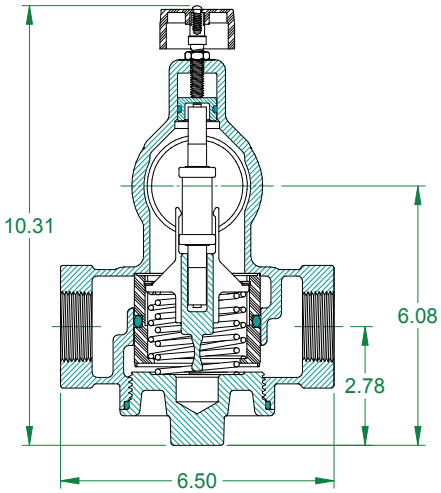
## PERFORMANCE RATING

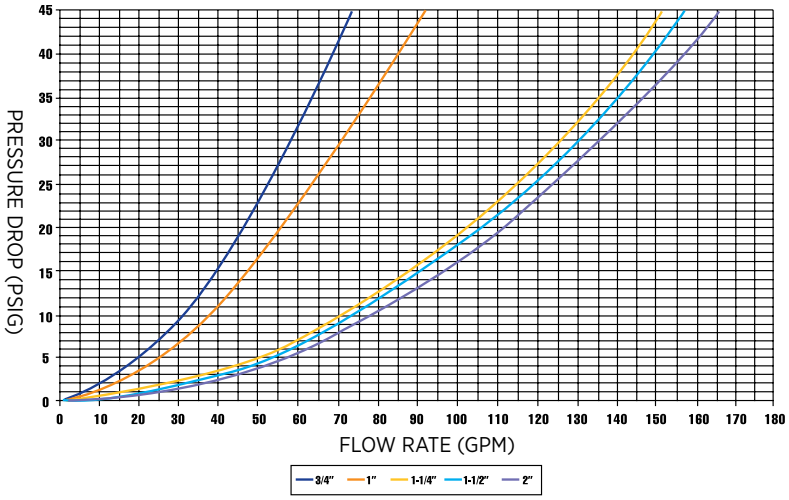
- Minimum Flow Rate: 1.0 gpm*
- Maximum Pressure: 150 psig
- Minimum Temperature: 200°F
- Cold Water Inlet Temperature Range: 39° - 80°F
- Hot Water Inlet Temperature Range: 120° - 200°F
- Mixed Water Temperature Range: 90° - 140°F
- Maximum Pressure Differential Between Hot & Cold: 25%

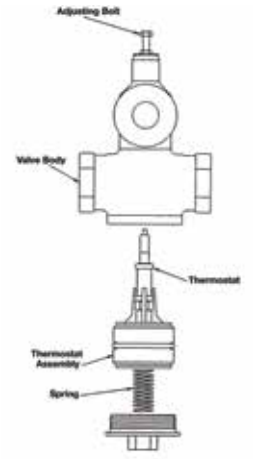
*when installed at/near hot water source w/ recirculated tempered water with a continuously operating pump*

| SIZE (IN.) | CONNECTION | PART NUMBER | |
|---|---|---|---|
| | | STANDARD TEMP (90° - 140°F) | HIGH TEMP (130° - 180°F)* |
| 1-1/4" | FNPT Inlets x FNPT Outlet | 34C10601 | 34C106H1 |
| | | 34CLF10601 | 34CLF106H1 |
| 1-1/2" | | 34C10701 | 34C107H1 |
| | | 34CLF10701 | 34CLF107H1 |
| 2" | | 34C10801 | 34C108H1 |
| | | 34CLF10801 | 34CLF108H1 |

*High temperature models are not ASSE certified.*




MIXING VALVES

## 34DLF SERIES
SINGLE FIXTURE THERMOSTATIC MIXING VALVE

LEADFREE CERTIFIED
C SP US ASSE 1070

New!



The Apollo 34DLF-400 Series Mini Thermostatic Mixing Valve is designed for the harmonized standard of ASSE1070-2015/ASME112.1070-2015/CSA B125.70-2015 "Point of Use" single fixture temperature control applications, using proven ASTM grade lead free materials. These valves will provide control to a desired temperature within ± 3°F.

## FEATURES
- New Updated Design
- Dezincification Resistant Forged Lead Free* Brass Body
- Locking Control Knob
- 120°F Temperature Limit Stop
- Integral Inlet Check Valves/Strainers
- 3/8" Compression Tube/Braided Hose Connection
- Cross-Flow Protection
- Cold Water Supply Failure Protection
- Integral Mounting Pad
- Single Outlet design for Sensor Faucets
- Bypass Fitting Option for Dual Control Faucets
- Satin Chrome Plating Option
- **Proudly Made in the USA**

## APPROVALS
- ASSE 1070/ASME A112.1070
- CSA B125.70-15
- NSF/ANSI/CAN 61 - Water Quality
- NSF/ANSI/CAN 372 - Lead Free

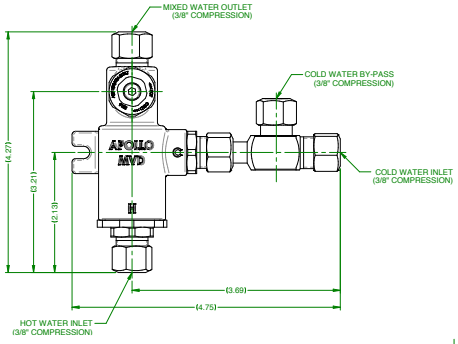
## STANDARD MATERIALS LIST

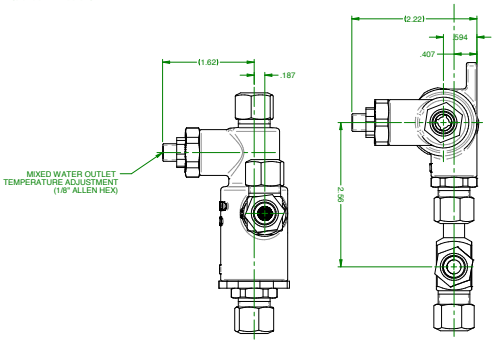
| | |
|---|---|
| **BODY** | LF DZR Brass |
| **SHUTTLE** | Modified PPO Noryl® |
| **O-RING** | Chloramine Resistant EPDM |
| **THERMOSTAT** | Copper/Wax Filled |
| **SPRING** | ASTM A313 Stainless Steel |

## DIMENSIONS

| PART NUMBER | DESCRIPTION | WEIGHT (LB.) |
|---|---|---|
| 34DLF-402-01 | 3/8" Single Out Bronze | 0.82 |
| 34DLF-402-17 | 3/8" Single Out Chrome | 0.82 |
| 34DLF-402-B1 | 3/8" Double Out Bronze | 1.0 |
| 34DLF-402-B17 | 3/8" Double Out Chrome | 1.0 |

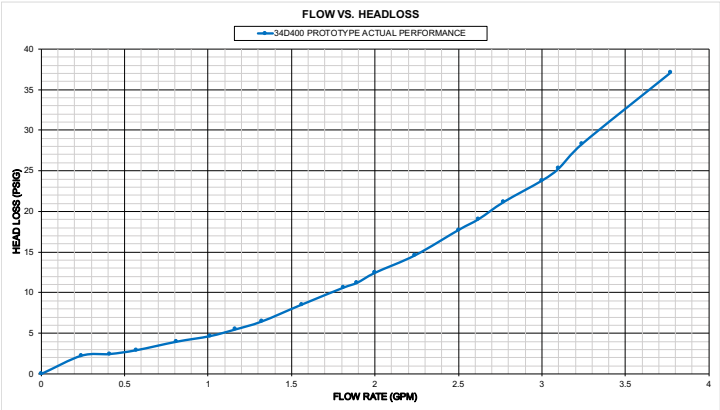
**34DLF-300 available until depleted*




## PERFORMANCE RATING

| | |
|---|---|
| Minimum Supply Pressure: | 20psi (138 kPa) |
| Minimum HW Inlet/Outlet Temp. Differential: | 10°F |
| Maximum HW/CW Pressure Differential: | 20% |
| Hot Inlet Temperature: | 120°-180°F (49°-82°C) |
| Cold Inlet Temperature: | 38°-80°F (3°-27°C) |
| Outlet Temperature Control: | 80°-120°F (27°-49°C) |
| Maximum Pressure: | 125psi (862 kPa) |
| Flow Rates: | 0.25 – 3.3 GPM |



## 34-200 SERIES
HYDRONIC MIXING VALVE



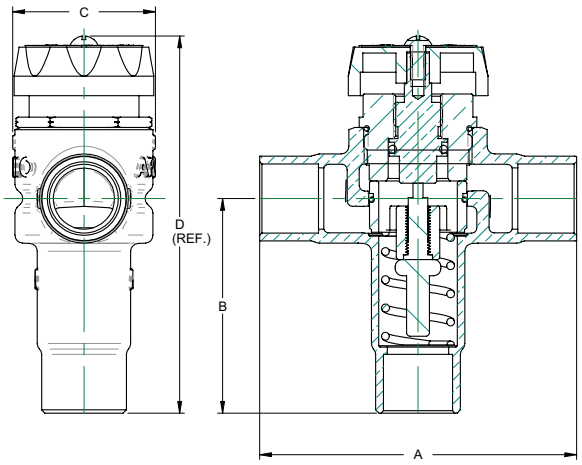
The Apollo 34-200 Series Thermostatic Mixing Valve provides non-ASSE extension of water heater capacity and hot water temperature control in hydronic heating systems. Available in low or high temperature options for floor or baseboard applications.

## FEATURES
- Stainless Steel Spring
- Corrosion Resistant Bronze Body
- Thermoplastic Shuttle Assembly
- Solder Connections are Standard
- In-Line Repairable
- Fingertip Temperature Control
- **Proudly Made in the USA**

*Not intended for potable water

## STANDARD MATERIAL LIST

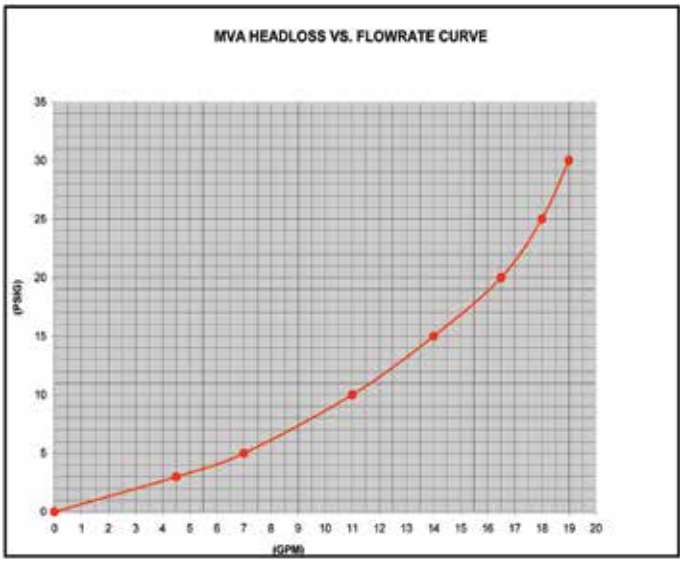
| | |
|---|---|
| **BODY** | C83600 Bronze |
| **SHUTTLE** | Scale Resistant Noryl® Polymer |
| **SENSOR** | Copper/Wax Filled |
| **O-RING** | Chloramine Resistant EPDM |
| **SPRING** | ASTM A313 Stainless Steel |
| **CAP** | ABS Thermoplastic |




## DIMENSIONS

| PART NUMBER | | CONNECTION | SIZE (IN.) | DIMENSIONS (IN.) | | WEIGHT (LB.) |
|---|---|---|---|---|---|---|
| LOW TEMP (85° - 120° F) | HIGH TEMP (120° - 180° F) | | | HEIGHT | WIDTH | |
| 34203L1 | 3420301 | Solder | 1/2 | 4.45 | 3.75 | 1.4 |
| 34204L1 | 3420401 | Solder | 3/4 | 4.47 | 4.00 | 1.46 |

## PERFORMANCE RATING
- Maximum Supply Pressure: 150 psi (1034 kpa)
- Minimum Inlet/Outlet Temperature Differential: 15°F
- Hot Inlet Temperature Range: 120° - 210°F (49° - 99°C)
- Cold Inlet temperature Range: 39° - 80°F (4° - 27°C)
- Outlet Temperature Control: 80° - 120°F (27° - 49°C)
- Outlet Temperature Control (Hydronic): 120° - 180°F
- Low Temperature (L1) Mix Range: 85° - 120°F (30° - 49°C)
- High Temperature (01) Mix Range: 120° - 180°F (49° - 82°C)
- Mixed Water Temperature Tolerance: +/- 7°F (1.7°C)



## 34HL SERIES US PATENT #6,929,188 B2
HIGH-LOW MIXING VALVE

ASSE 1017
1069



The 34HL Mixing Valve uses proven Apollo thermostatic control to produce a consistent mix of water from low through high flow range. This single assembly controls mixed water temperatures to multiple-outlet shower and sink installations. It's the ideal choice in new construction or retrofits in nursing homes, prisons, hospitals, schools, gymnasiums, airports and other facilities where constant safe water temperature needs to be maintained at several outlets without the use of independent ASSE 1016 shower valves.

Standard bronze construction. Not intended for potable water applications.

### FEATURES
- Capable of maintaining safe, consistent temperature control of water at low and high flows to within ± 3.6° F.
- Provides consistent temperature control at flow rates as high as 60 GPM and as low as 1.5 GPM, including mid-range flow between high and low.
- Does not require recirculation pumps like other systems for low flow control.
- Integral strainers and checks are provided at the hot and cold supply inlets for greater reliability and performance.
- **Proudly Made in the USA**

### OPERATION
- Patented design with a variable fluid flow assembly and dual thermal actuated controls for either low or high flow conditions.
- The passages are calibrated to control water temperature during all flow conditions without a "dead zone" between low and high flow.
- Provides fluid shutoff as required by ASSE 1069 in the case that either the hot or cold supply lines fail (or are shut off for any reason to prevent scalding.
- The valve can be tamper-resistant to limit the water temperature from exceeding safe conditions as required by ASSE 1069.
- The valve also meets the requirements of ASSE 1017 for Point of Source Applications.

### STANDARD APPROVALS
**ASSE 1069 - Automatic Temperature Control Mixing Valves**
- This device will control outlet water temperature to individual or multiple fixtures within 3.6°F to reduce the risk of scalding or thermal shock. This device is intended to be installed where the bather has no access to the temperature adjustment, and where no further mixing occurs downstream of the device. The Apollo 34HL ATC will meet the performance requirements of ASSE 1069 at flow as low as 1.5 GPM up through maximum flow rate.

**ASSE 1017 - Temperature Actuated Mixing Valves for Hot Water Distribution Systems**
- This device will control outlet set water temperature to hot water distribution systems near the hot water source within 3°F below 2 GPM and within 5°F above 5 GPM.

### OPTIONS
- 34HL10517 Nickel Plated Automatic Temperature Controller
- 34HLBOX02 Cabinet, Flush Mount, CS, Powder Coat
- 34HLBOX03 Cabinet, Wall Mount, SS
- 34HLBOX04 Cabinet, Wall Mount, CS, Powder Coat

### SPECIFICATIONS

| | |
|---|---|
| **MAXIMUM STATIC PRESSURE** | 150 psig (1034 kpa) |
| **MAXIMUM WATER TEMPERATURE** | 200° F (93° C) |
| **MINIMUM FLOW ASSE 1069 & 1017** | 1.5 gpm (5.7 lpm) |
| **TEMPERATURE ADJUSTMENT RANGE** | 90° - 140° F |
| **MAXIMUM INLET PRESSURE DIFFERENTIAL** | 30 psi (207kpa) |
| **INLET CONNECTION** | 1" NPT |
| **OUTLET CONNECTION** | 1-1/4" NPT |
| **TEMPERATURE GAUGE (1)** | 0-200°F |
| **PRESSURE GAUGE (3)** | 0-160 psi |
| **SHIPPING WEIGHT** | 36 lb |

This device will service end use fixture fittings, including but not limited to, gang showers and sitz baths, by supplying tempered water at a preset temperature through a single supply pipe and will meet ASSE standard 1069-2005. ASSE 1069 devices are designed to reduce the risk of scalding and thermal shock during changes in hot or cold water supply pressure or temperature, or loss of cold water supply.

**34HL SERIES**
HIGH-LOW MIXING VALVE

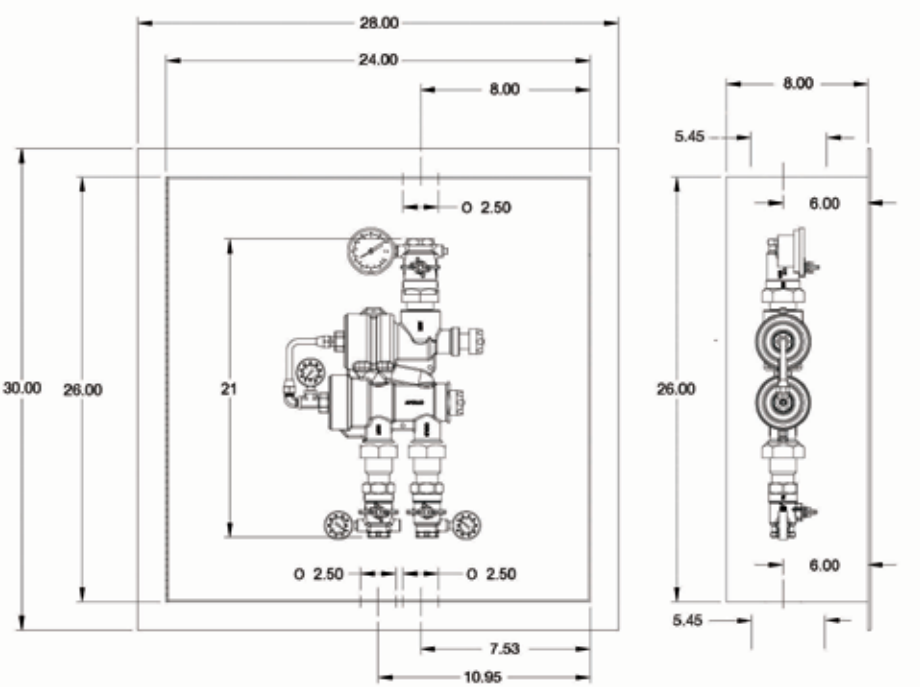



Figure 1: Typical Valve Dimensions with Stainless Steel Recessed Cabinet Option

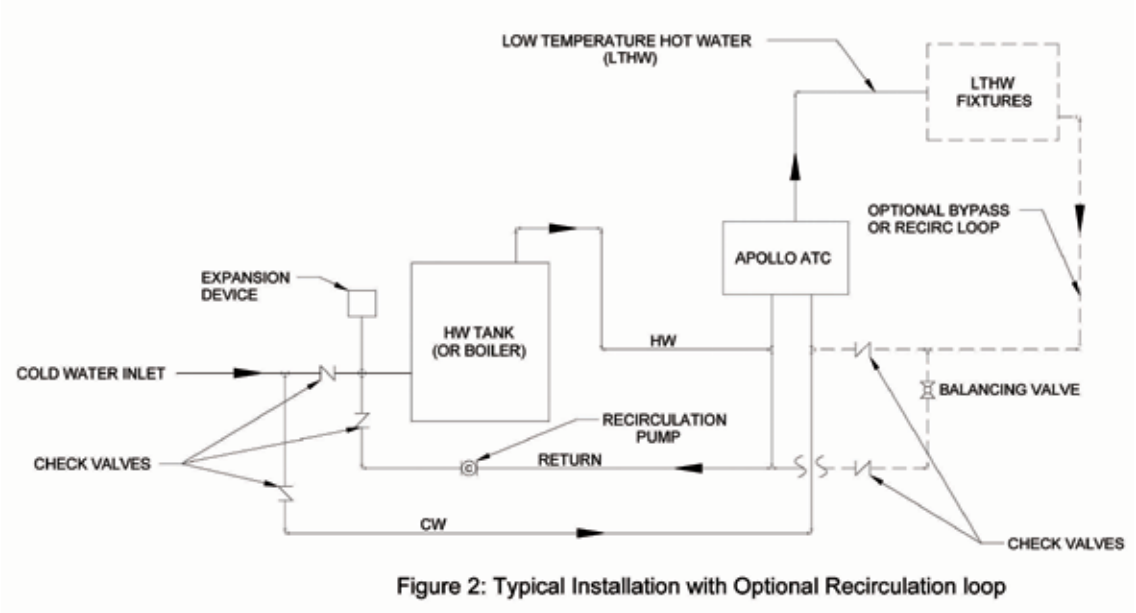


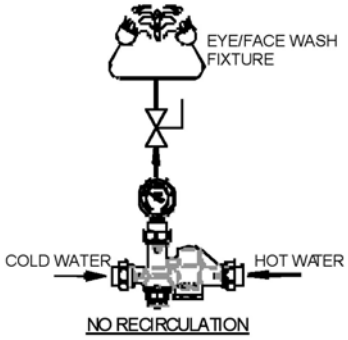

Figure 2: Typical Installation with Optional Recirculation loop

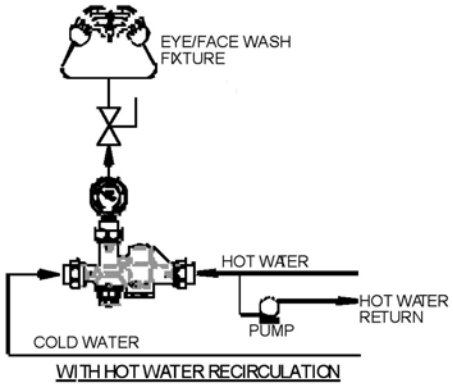
| PART NUMBER | MIN. FLOW TO ASSE 1069 | PRESSURE DROP ACROSS VALVE | | | |
|---|---|---|---|---|---|
| | | 10 PSI (69 KPA) | 20 PSI (138 KPA) | 30 PSI (207 KPA) | 45 PSI (310 KPA) |
| 34HL10501 | 1.5 gpm | 22 gpm | 42 gpm | 52 gpm | 60 gpm |
| | 6 lpm | 83 lpm | 159 lpm | 197 lpm | 227 lpm |

## 34E/34ELF SERIES
EMERGENCY EYE WASH MIXING VALVE

LEADFREE OPTIONS ASSE 1017






Apollo 34E Series Emergency Mixing Valves are designed to control the cold and hot water temperature to deliver tepid water at a predetermined temperature to emergency eyewash/facewash fixtures. The device provides a precise temperature and flow control in the event of cold water, hot water and thermostatic element failures.

### FEATURES
- Hot And Cold Water Supply Failure Protection Patented Design (US Patent 6,926,20 B2)
- Tepid Water Temperature Limit Control and Adjustment
- Tepid Water Temperature Adjustment Handle with Locking Mechanism for Tamper-Resistant Protection and Inadvertent Adjustment
- Integral Inlet Check Valves and Strainers to Provide Protection Against Cross-Flow and Foreign Particles
- Superior Thermostatic Element Technology for Optimum Reliability, Dependability and Accuracy
- Thermostatic Element Failure and Over-Travel Protection
- High Efficiency and Positive Shut-Off Check Valves
- In-Line Accessibility and Serviceability of Failure Protection Module and Mixing Valve Internal Components
- Meets the Requirements of the EPA Safe Drinking Water Act
- Corrosion Resistant Components
- Single Cartridge Design of Failure Protection Module for Easy Service and Maintenance
- Integral Hot Water Bypass
- Positive Shutoff of Hot Supply When Cold Supply is Lost
- Lead Free Construction Certified: 0.25% Lead Max - Specify 34ELF
- **Proudly Made in the USA**

### APPROVALS
- ASSE 1071 - Temperature Actuated Mixing Valves for Plumbed Emergency Equipment
- ANSI/ISEA Z358.1 Emergency Eyewash & Shower Equipment
- NSF/ANSI/CAN 61 - Water Quality (34ELF)
- NSF/ANSI/CAN 372 - Lead Free (34ELF)

### PERFORMANCE RATING

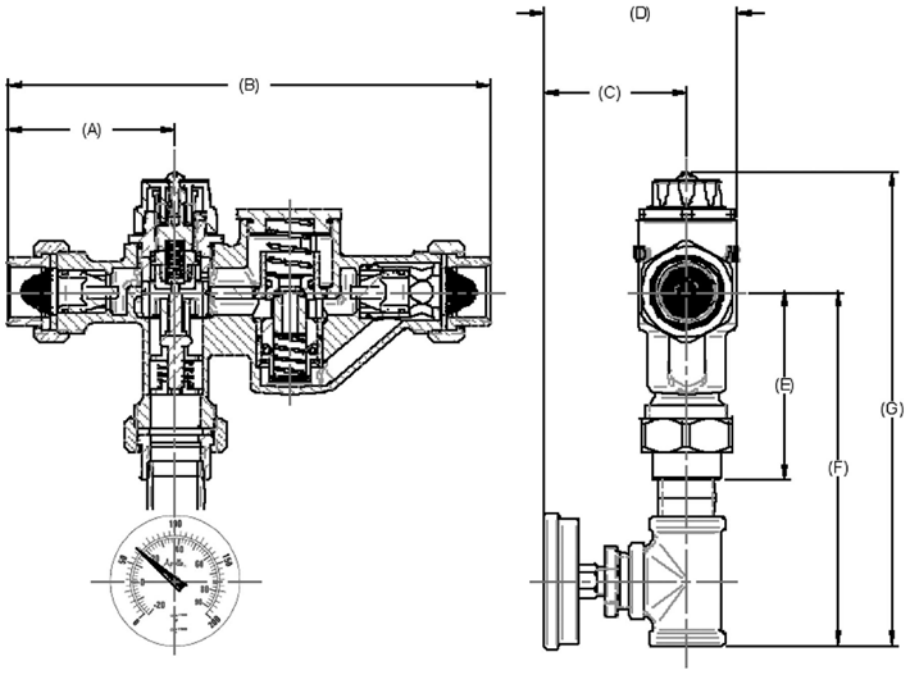
| | |
|---|---|
| • Maximum Working Pressure: | 150 psig (1034 kPA) |
| • Hot Water inlet Temperature Range: | 120° - 180°F (49° - 82°C) |
| • Cold Water inlet Temperature Range: | 40° - 70°F (4.4° - 21°C) |
| • Tepid Water Temperature Adjustment Range: | 65 °- 95°F (18.3° - 35°C) |
| • Mixed Water Temperature Tolerance: | ± 5°F (2.8°C) |
| • Flow Rate @ 30 psig (206.9 kPa) Differential: | 15 gpm (56.8 lpm) |
| • Cold Bypass @ 30 psi (207 kPa) Differential: | 13.5 gpm (51 lpm) |

Note: The cold water supply shall be at least 20°F (-6.7°C) lower than the outlet water temperature setting

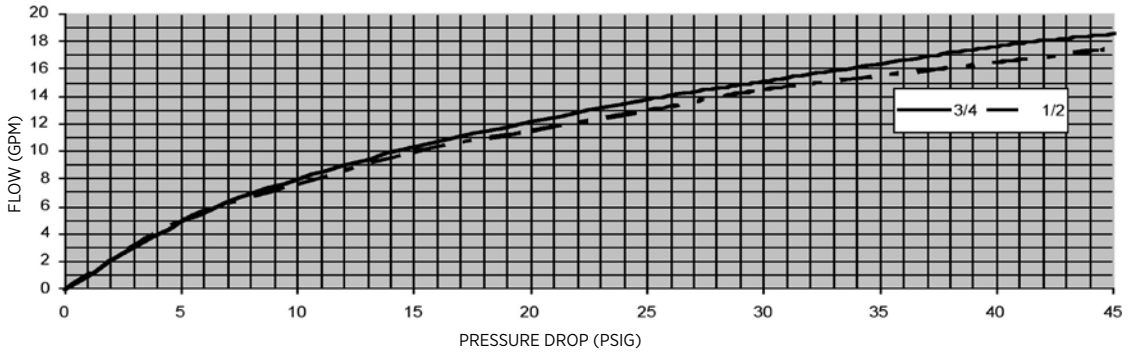
### TYPICAL INSTALLATIONS
- Piping and installation of the device must be in accordance to federal, state, and local plumbing codes.
- If the valve is some distance from the hot water source, recirculation is required to keep the hot water supply temperature within the required operational limits.

### OPTIONS
- 34ELF - Lead Free

## 34E SERIES
EMERGENCY EYE WASH MIXING VALVE




| CONNECTION SIZE | | 1/2" THREADED | 1/2" SOLDER | 3/4"THREADED | 3/4"SOLDER |
|---|---|---|---|---|---|
| INCLUDES OUTLET TEMPERATURE GAUGE | PART NUMBER | 34E113T | 34E113S | 34E114T | 34E114S |
| LEAD FREE BASIC VALVE | PART NUMBER | 34ELF103T | 34ELF103S | 34ELF104T | 34ELF104S |
| | DIMENSIONS (IN.) & WEIGHT (LB.) | | | | |
| | A | 3.09 | 3.22 | 3.09 | 3.10 |
| | B | 8.90 | 9.15 | 8.90 | 8.90 |
| | C | 2.66 | 2.66 | 2.67 | 2.67 |
| | D | 3.60 | 3.60 | 3.60 | 3.60 |
| | E | 3.45 | 3.45 | 3.45 | 3.45 |
| | F | 5.77 | 5.77 | 6.32 | 6.32 |
| | G | 7.83 | 7.83 | 8.39 | 8.39 |
| | Unit Wt. | 3.94 | 3.73 | 5.13 | 5.07 |



## TEMPERATURE GAUGE

New!



The Apollo Temperature Gauge accessory is used to easily measure the mixed water temperature from a mixing valve. The gauge can be used on the Apollo 34ALF & 34BLF Series Mixing Valves sizes 1/2" & 3/4", is lead free and complies with NSF/ANSI 372 requirements.

### PERFORMANCE RATING

- Maximum Working Pressure: 150 psig
- Gauge Temperature Range: 32° - 210°F

### PART NUMBERS

| PART NUMBER | SIZE |
|---|---|
| W339800 | 1/2" |
| W339900 | 3/4" |

### STANDARD MATERIAL LIST

| | |
|---|---|
| **BODY** | DZR Brass |
| **GAUGE SHELL** | Stainless Steel |
| **NUT** | DZR Brass |
| **WASHER** | EPDM |

"Apollo"® Valves

# water pressure reducing valves


| | |
|---|---|
| **36 - 36LF** | H-5 |
| **36C - 36CLF** | H-8 |
| **36E - 36ELF (1/2"-1")** | H-10 |
| **36ELF-G** | H-11 |
| **36E - 36ELF (1-1/4"-2")** | H-14 |
| **36H -36HLF** | H-16 |
| **A127** | H-19 |
| **ACCESSORIES** | H-20 |
| **TPK** | H-13 |




## section H

## WHY THE NEED FOR WATER PRESSURE REDUCING VALVES?

Municipal water is distributed at elevated pressures for efficiency, and supply pressures can exceed 150 psi. The greater the elevation changes in a region, the higher the supply pressures. Booster pump systems in high-rise buildings can even exceed 250 psi. Water pressure reducing valves are designed to automatically reduce such elevated supply pressures to a lower, safer and more manageable downstream pressure. In most plumbing code jurisdictions, pressure reducing valves are required to be installed whenever the water pressure supply exceeds 80 psi. Excessive pressures can waste tens of thousands of gallons of water in an average home every year.

## THE VALUE OF ECONOMIZING

Installing a water pressure reducing valve offers many benefits:

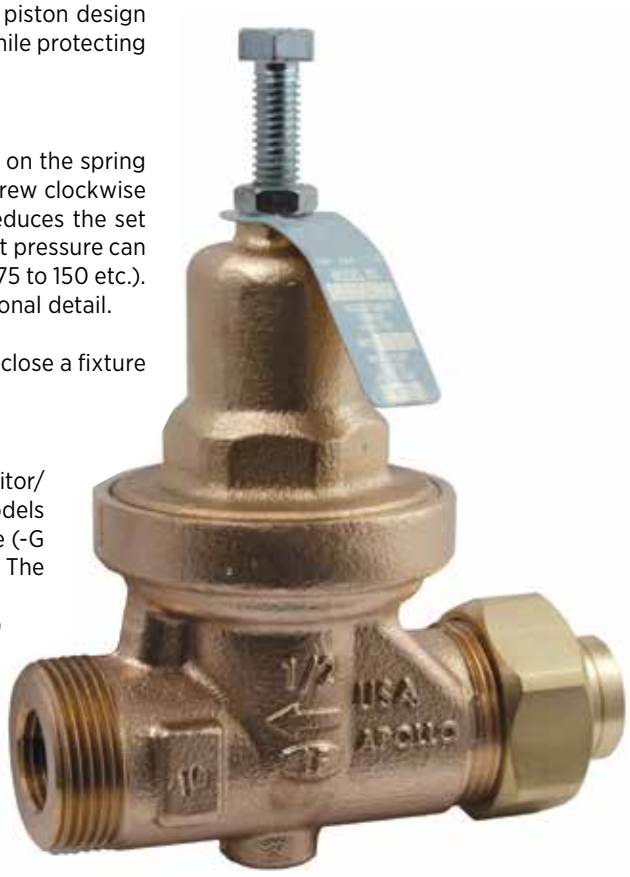
- Reduces water consumption.
- Reduces associated energy and utility costs.
- Protects piping systems and fixtures from excessive pressures that can reduce service life, cause water hammer, and other undesirable piping noises.
- Used to ensure compliance with local plumbing codes.

The use of a water pressure reducing valve also helps to protect the environment and conserves our precious natural resources.

## OPERATION

Apollo cast bronze water pressure reducing valves are “direct acting” devices, meaning no external pilots or sensing lines are required. Direct acting valves are “normally open”, meaning the internal seat is held open by the force of a compression spring. As water flows through the valve and the downstream pressure begins to build, this pressure acts on the relatively larger surface area of the diaphragm. As the downstream pressure continues to increase, eventually the force acting on the diaphragm overcomes the force of the spring and the valve seat is hydraulically closed. This is the static (non-flowing) set pressure and is factory preset at 50 to 60 psi, depending upon the model.

When downstream demand begins (such as a faucet being opened), the line pressure will drop and the force of the spring begins opening the valve seat. This allows higher pressure water to flow into the system until the static set pressure is once again reached and the valve seat closes. Apollo’s balanced piston design enables the valve to react smoothly and quickly to changing flow demands, while protecting against incoming supply pressure changes.



## ADJUSTMENT

The static set pressure of the valve can be adjusted by changing the preload on the spring by means of the adjusting screw. After loosening the lock nut, turning the screw clockwise (down) will increase the set point, while turning it counter-clockwise (up) reduces the set point. Tighten the locknut after adjustment to secure the setting. The static set pressure can be adjusted through the published range of the installed spring (eg. 25 to 75, 75 to 150 etc.). Refer to the Installation, Operation & Installation Instructions (IOM) for additional detail.

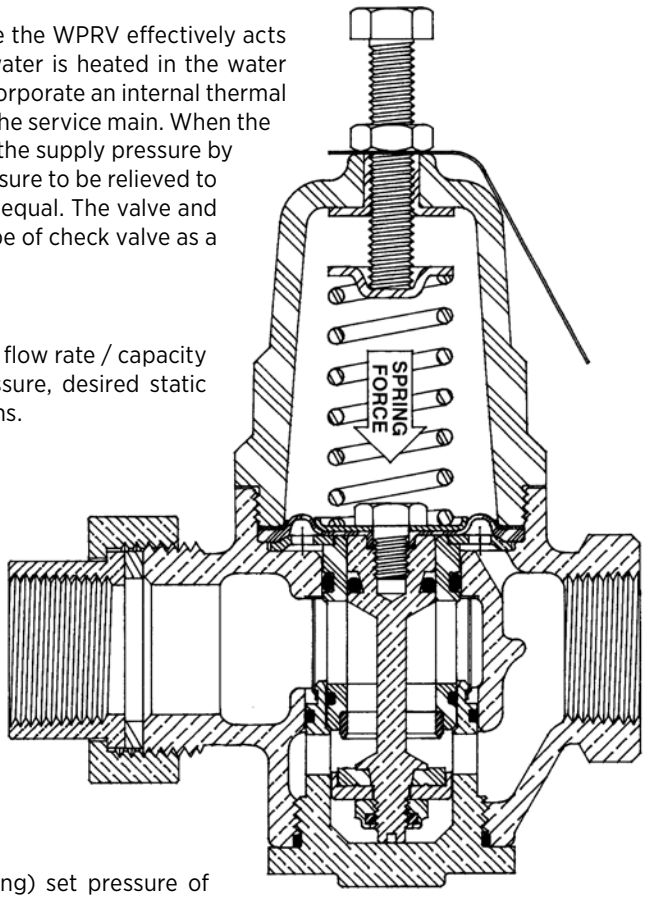
Note when reducing the set pressure it may be necessary to briefly open and close a fixture to let the downstream pressure adjust to the new setting.

## GAUGES

Dial pressure gauges may be used to measure the supply pressure and monitor/adjust the reduced pressure downstream of the valve. Some regulator models can be ordered with a 2” dial pressure gauge to display the reduced pressure (-G option); or select the “P” option which allows the installation of a gauge later. The “P” option adds a tapped and plugged, 1/4” NPT connection to the valve. Alternatively, a dial pressure gauge, with 3/4” hose thread (part no. W807800) can be connected to a hose bib or utility sink, to monitor pressure. This model features a 2-1/4” dial and maximum pressure indicator. Both types of gauges are available from your Apollo distributor.

## THERMAL EXPANSION CONSIDERATIONS

Installing a pressure reducing valve creates a closed water system, since the WPRV effectively acts as a check when the seat is closed. Thermal expansion occurs when water is heated in the water heater and pressure builds up. Apollo water pressure reducing valves incorporate an internal thermal expansion bypass feature that will bleed the increased pressure back to the service main. When the system pressure in a closed system increases to a pressure greater than the supply pressure by just one pound, the o-ring on the stem will flex and allow the excess pressure to be relieved to the supply side until pressures on both the system and supply sides are equal. The valve and the system then return to normal. The 36HLF features a ball and seat type of check valve as a thermal bypass but the principle is similar.




## SIZING & SELECTION

The size and model of pressure reducing valve you need depends on the flow rate / capacity required. It is therefore important to know the maximum supply pressure, desired static downstream pressure and required flow under normal demand conditions.
**Recommended bypass WPRV for lines 1-1/4" and larger.*

## FLOW / PERFORMANCE CURVES

Apollo publishes performance curves for all models of direct acting regulators. Flow curves plot the rate of flow against the reduced pressure fall-off based upon a specific differential pressure (see definitions below).

## DIFFERENTIAL PRESSURE (DP)

Differential pressure is the difference in PSI between the supply pressure and the adjusted static (non-flowing) set pressure of the valve. Example 100 psi supply pressure – 50 psi static set pressure = 50 psi differential pressure.

## REDUCED PRESSURE FALLOFF

"Falloff" is simply the difference in PSI between the static (non-flowing) set pressure of the valve and the reduced downstream pressure at a given flow rate. Falloff is inversely proportional to the flow: as flow increases and the seat opens wider the downstream pressure reduces (falls off). Fall-off is a normal operating characteristic for all direct acting regulators.

It is important to allow for adequate fall-off from the set pressure downstream during flow conditions. 10 to 20 psi falloff is considered ideal for most applications. Less falloff means the valve is only partially open, and extreme throttling can cause noise, vibration and premature wear. Sizing at 10-20 psi falloff will allow the valve to operate nearer the middle of its operating range for optimal performance and durability.

In the chart, zero (0) falloff indicates a no-flow condition. Figures below zero show the flow curves for each size of valve as the fall-off pressures increase.

Example: A ¾" PRC with an inlet pressure of 100 psi is set to an outlet pressure of 50 psi in the static, no-flow condition (50 psi differential pressure). At 10 psi falloff the flow is 8 gpm, and at 20 psi falloff the flow is 21 gpm. This valve would be ideal for flows ranging from 8 to 21 gpm. Although this chart shows curves at a 50 psi Pressure Differential, curves for other DP's are similar. The curve shifts slightly to the left for a smaller differential and to the right for a greater differential.

Do not select based solely on the maximum flow requirement!

Do not select a regulator based on pipe-size alone!

The two most common problems affecting water pressure reducing valves are: 1.) installing a larger valve than is needed for the volume of flow required. This is particularly true for valves larger than 1", and 2.) Excessive one-step pressure reduction / Turndown Ratio . In either case the water pressure reducing valve will operate in a nearly closed position potentially causing premature wear and undesirable noise.

## TURNDOWN RATIO

Optimal performance is achieved at a 2:1 Differential Pressure ratio. Example: 100 psi supply pressure, 50 psi static downstream pressure = 2:1 reduction. 50 psi is the default factory setting. Turndown ratios of 3:1 are usually ok and even 4:1 can work but factors such pressure, size, flow, velocity and falloff can result in noise or premature wear as the ratio increases.

## TWO-STAGE REDUCTION

Two valves installed in series should be used for large pressure drop requirements. Example: valve #1 200 psi to 100 psi reduction, valve #2 100 psi to 50 psi reduction.

## LOW FLOW BYPASS

When a large valve is called upon to provide small amounts of flow during off-peak hours, the valve seat is operating in a nearly closed position and undesirable noise and vibration may result. In this case a parallel low flow bypass line should installed with a smaller regulator. The smaller regulator is set 5 – 7 psi higher than the main regulator and will help prevent premature wear and noise.
**Recommended for lines 1-1/4" and larger.*

## SPECIALLY DESIGNED LOW AND HIGH PRESSURE MODELS

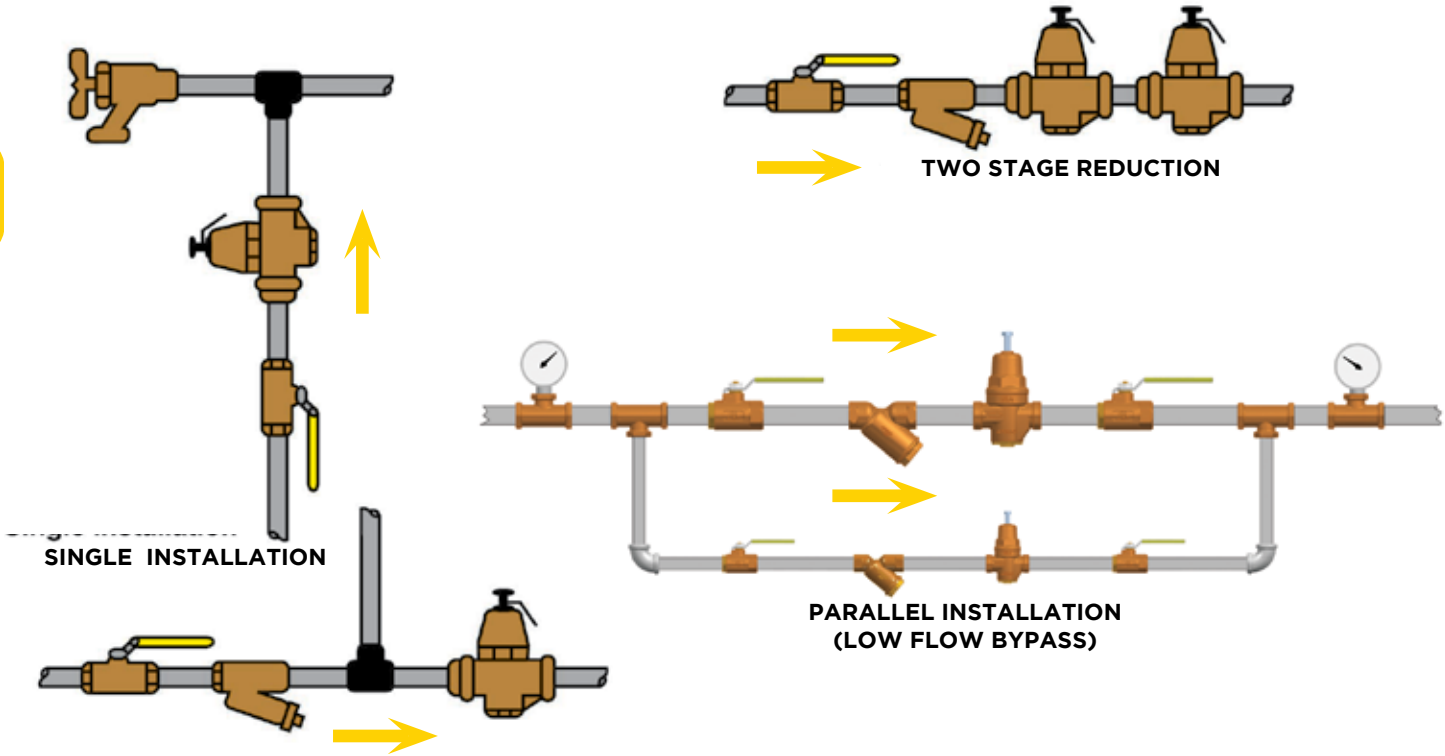
Apollo LP and HP models feature specially designed springs optimized for superior performance and flow. Beware competitors' that publish extreme pressure ranges such as 10 – 125 psi, as these valves lack sensitivity and tend to perform poorly, especially at the low and high ends of the pressure range.

## REPAIR KITS AVAILABLE

Apollo pressure reducing valves are engineered to provide years of reliable service. Over time, internals may be subject to wear or even damage caused by sand or debris. Convenient pre-packaged "major goods" repair kits are available for all Apollo pressure reducing valves. A "soft-goods" only kit is also available for the 36CLF and 36HLF models.

---

## INSTALLATION CONFIGURATIONS



## 36LF SERIES



Apollo 36LF Series pressure reducing valves provide automatic control of excessive water pressure and problem supply fluctuations. These models are designed to reduce pressures of up to 300 PSI to a more manageable range.

Factory set at 50 PSI, they adjust with a turn of a screw. They feature a built-in bypass and strainer, and comply with ASSE 1003 and CSA B356 standards. They are listed with IAPMO and the City of Los Angeles.

The 36LF Series valves are built for long, reliable service with an all-bronze body and cover and high-capacity stainless steel strainer. Available with or without optional pressure gauge on tapping.

### FEATURES

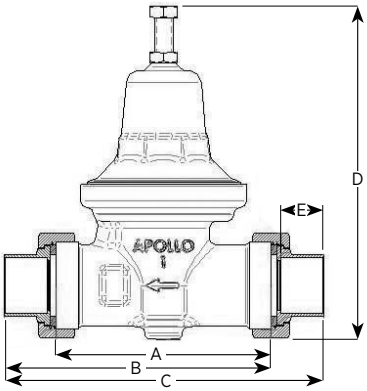
- All Bronze Body and Cover
- Suitable for Supply Pressures to 300 psi
- Every Valve is 100% Factory Set and Tested
- Standard Factory Setting: 50 psi
- High & Low Pressure Options
- Diaphragm Suitable for 33° - 180°F
- Solder, Threaded, PEX, CPVC, Press Connection Options
- Integral Thermal Expansion Bypass
- Integral Stainless Steel Strainer
- Single and Double Union Options
- In-Line Repairable
- **Proudly Made in USA**

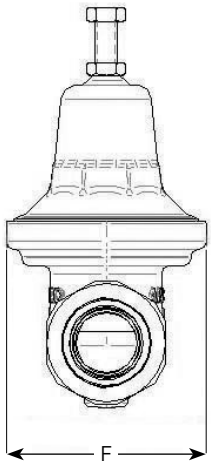
### OPTIONS

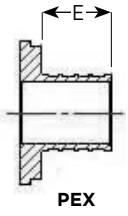
- (-P) Tapped & Plugged
- (-G) With Pressure Gauge
- (-S) Sealed Cage with SS Adjusting Screw for Vault Installation
- 36 Non-LF Materials for Non-Potable Service, Such as Irrigation

### APPROVALS

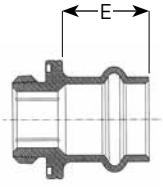
- ASSE 1003
- CSA B356
- NSF/ANSI/CAN 372 - Lead Free
- IAPMO




PEX




PRESS

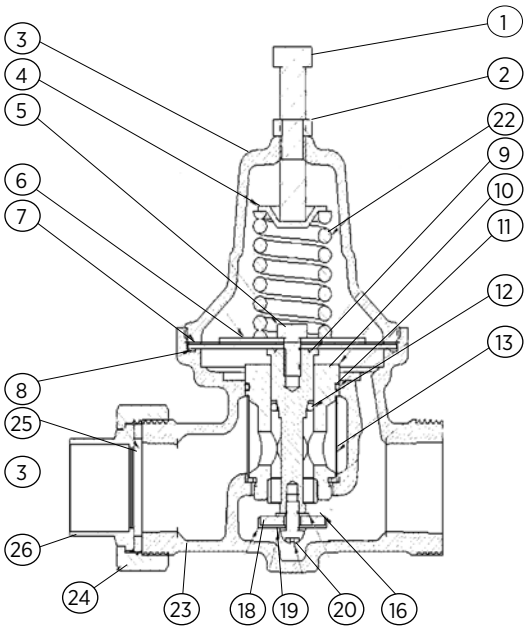
### DIMENSIONS

| PIPE THREAD UNION X FNPT | SOLDER JOINT UNION X FNPT | CPVC UNION X FNPT | SIZE (IN.) | DIMENSIONS (IN.) | | | WT./100 (LB.) |
|---|---|---|---|---|---|---|---|
| | | | | A | B | C | |
| 36LF-103-01 | 36LF-303-01 | - | 1/2 | 5.88 | 4.88 | 1.00 | 350 |
| 36LF-104-01 | 36LF-304-01 | 36LF-3C4-01 | 3/4 | 5.88 | 4.88 | 1.00 | 340 |
| 36LF-105-01 | 36LF-305-01 | 36LF-3C5-01 | 1 | 6.88 | 5.50 | 1.12 | 450 |
| 36LF-106-01 | 36LF-306-01 | - | 1-1/4 | 8.88 | 6.50/6.63 | 1.37 | 1020 |
| 36LF-107-01 | 36LF-307-01 | - | 1-1/2 | 8.88 | 6.63/6.75 | 1.37 | 1045 |
| 36LF-108-01 | 36LF-308-01 | - | 2 | 11.50 | 8.50/8.88 | 1.81 | 2250 |
| FNPT X FNPT (NO UNION) | | | | | | | |
| 36LF-203-01 | - | - | 1/2 | 5.88 | 4.00 | 1.00 | 311 |
| 36LF-204-01 | - | - | 3/4 | 5.88 | 3.88 | 1.00 | 305 |
| 36LF-205-01 | - | - | 1 | 6.88 | 4.38 | 1.12 | 415 |
| 36LF-206-01 | - | - | 1-1/4 | 8.88 | 5.38 | 1.37 | 910 |
| 36LF-207-01 | - | - | 1-1/2 | 8.88 | 5.38 | 1.37 | 909 |
| 36LF-208-01 | - | - | 2 | 11.50 | 7.12 | 1.81 | 1880 |

| DOUBLE UNION FNPT XFNPT | DOUBLE UNION SOLDER X SOLDER | DOUBLE UNION CPVC X CPVC | SIZE (IN.) | DIMENSIONS (IN.) | | | WT./100 (LB.) |
|---|---|---|---|---|---|---|---|
| | | | | A | B | C | |
| 36LF-403 -01 | 36LF-503-01 | - | 1/2 | 5.88 | 5.63 | 1.00 | 389 |
| 36LF-404-01 | 36LF-504-01 | 36LF-5C4-01 | 3/4 | 5.88 | 5.63 | 1.00 | 372 |
| 36LF-405-01 | 36LF-505-01 | - | 1 | 6.88 | 6.38 | 1.12 | 495 |
| 36LF-406-01 | 36LF-506-01 | - | 1-1/4 | 8.88 | 7.50/7.75 | 1.37 | 1090 |
| 36LF-407-01 | 36LF-507-01 | - | 1-1/2 | 8.88 | 7.88/8.00 | 1.37 | 1183 |
| 36LF-408-01 | 36LF-508-01 | - | 2 | 11.50 | 9.88/10.50 | 1.81 | 2472 |
| 36LF-904-01 | PEX x PEX | - | 3/4 | 6.12 | 5.81 | 1.00 | 372 |
| 36LF-9C4-01 | Union CPVC | PEX Union | 3/4 | 6.12 | 5.81 | 1.00 | 372 |

**36 Series for non-potable water available.*
*Example: 36-103-01*

## 36LF SERIES




## STANDARD MATERIALS LIST

| | |
|---|---|
| **1** | Adj. Screw (Zinc Plated Steel) |
| **2** | Hex Nut (Zinc Plated Steel) |
| **3** | Cap (Cast Bronze) |
| **4** | Spring Disc (Zinc Plated Steel) |
| **5** | Cartridge Bolt |
| **6** | Pressure Plate (Zinc Plated Steel) |
| **7** | Friction Ring (Zinc Plated Steel) |
| **8** | Diaphragm (FDA Nitrile) |
| **9** | Stem (Brass) |
| **10** | Cartridge Housing (LF Brass) |
| **11** | O-Ring (FDA Nitrile) |
| **12** | O-Ring (FDA Nitrile) |
| **13** | Screen (300 Series SS) |

| | |
|---|---|
| **14** | Seal, Cartridge (Polypropylene) |
| **15** | Seat Ring (300 Series SS) |
| **16** | Washer (LF Brass) |
| **17** | Seat Disc (FDA EPDM) |
| **18** | Seat Holder (LF Brass) |
| **19** | Washer (Polypropylene) |
| **20** | Seat Screw (300 Series SS) |
| **21** | Nameplate (Aluminum) |
| **22** | Spring (ASTM 228 Music Wire) |
| **23** | Body, Machined (Cast LF Bronze) |
| **24** | Union Nut (Cast Bronze) |
| **25** | Union Washer (FDA Nitrile) |
| **26** | Union Tail Piece (LF Brass) |

## PART NUMBER MATRIX

| **36LF 36** | **X** | **X** | **X** | **X** | **X** | **X** |
|---|---|---|---|---|---|---|
| SERIES | CONNECTION | OPTION | SIZE | GAUGE | PRESSURE RANGE | OPTION |
| 36LF (LEAD FREE) | 1 - SINGLE UNION NPT | 0 - NO OPTION | 3 - 1/2" | 0 - NO GAUGE | 1 - 25-75 PSIG | PR - PRESS |
| 36 - BRONZE | 2 - NO UNION NPT | C - CPVC TAILPIECE | 4 - 3/4" | P - W/ GAUGE PORT | 2 - 10-35 PSIG | (APPLIES TO MODELS 36-20X |
| | 3 - SINGLE UNION SOLDER X NPT | S - SEALED CAGE* | 5 - 1" | G - W/ GAUGE | 3 - 75-125 PSIG | AND 36LF20X ONLY) |
| | 4 - DOUBLE UNION NPT | X - PEX F1807 TAILPIECE | 6 - 1-1/4" | | | |
| | 5 - DOUBLE UNION SOLDER | | 7 - 1-1/2" | | | |
| | 6 - SINGLE UNION METER X NPT | | 8 - 2" | | | |
| | 8 - DOUBLE UNION CPVC | | | | | |
| | 9 - DOUBLE UNION PEX F1807 | | | | | |

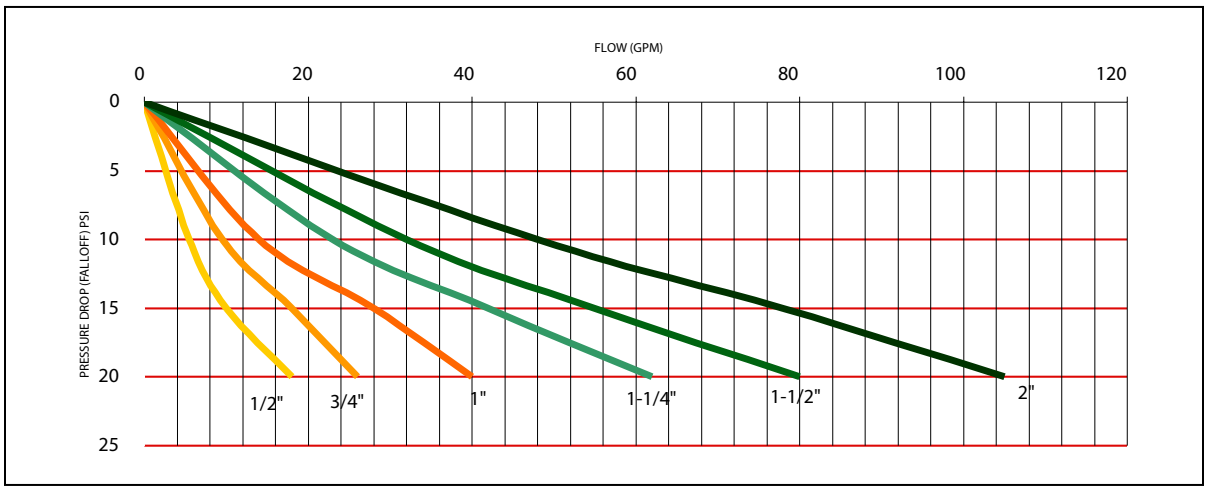
** S option = Sealed cage with stainless steel adjusting screw for vault installation.*

## 36LF SERIES

| | | PRESSURE DIFFERENTIAL (PSI) | | |
|---|---|---|---|---|
| | | 25 | 50 | 75 |
| PIPE SIZE | *FALLOFF (PSI) | WATER CAPACITY (GPM) | | |
| 1/2" | 5 | 1.7 | 2.0 | 2.3 |
| | 10 | 4.3 | 5.0 | 5.8 |
| | 15 | 8.5 | 10.0 | 11.5 |
| | 20 | 15.3 | 18.0 | 20.7 |
| 3/4" | 5 | 3.4 | 4.0 | 4.6 |
| | 10 | 7.7 | 9.0 | 10.4 |
| | 15 | 14.5 | 17.0 | 19.6 |
| | 20 | 22.1 | 26.0 | 29.9 |
| 1" | 5 | 5.1 | 6.0 | 6.9 |
| | 10 | 11.9 | 14.0 | 16.1 |
| | 15 | 22.1 | 26.0 | 29.9 |
| | 20 | 34.0 | 40.0 | 46.0 |
| 1 1/4" | 5 | 8.5 | 10.0 | 11.5 |
| | 10 | 19.6 | 23.0 | 26.5 |
| | 15 | 35.7 | 42.0 | 48.3 |
| | 20 | 52.7 | 62.0 | 71.3 |
| 1 1/2" | 5 | 11.9 | 14.0 | 16.1 |
| | 10 | 27.2 | 32.0 | 36.8 |
| | 15 | 47.6 | 56.0 | 64.4 |
| | 20 | 68.0 | 80.0 | 92.0 |
| 2" | 5 | 15.3 | 18.0 | 20.7 |
| | 10 | 39.1 | 46.0 | 52.9 |
| | 15 | 66.3 | 78.0 | 89.7 |
| | 20 | 93.5 | 110.0 | 126.5 |

**Falloff is the difference between the PRV's set pressure and the flowing pressure at any given demand*

## FLOW CURVE




***Pressure Differential*** *is the difference between the inlet supply pressure and the adjusted outlet pressure.*
***Pressure Falloff*** *is the reduction in downstream pressure from the static (set) pressure as the flow increases through the valve.*

## 36CLF SERIES



Versatile, all-purpose Apollo 36CLF Series pressure reducing valves handle pressures up to 400 PSI. Compact and with a built-in thermal expansion bypass, they're designed to protect residential and commercial water distribution systems from excessive pressures. The valves' integral thermoplastic cage helps protect the inner adjusting spring from galvanic corrosion. Built for reliable, long-term service, these valves offer an all-bronze body, stainless steel strainer and seat. They comply with ASSE 1003 and CSA B356 standards. They are listed with IAPMO and City of Los Angeles. Designed for easy in-line servicing, 36CLF models come standard with a clean-out plug on the housing's bottom. Both seat disc and strainer can be maintained via the clean-out plug using a 1-1/2" hex socket. Available with or without gauge tapping and gauge.

### FEATURES

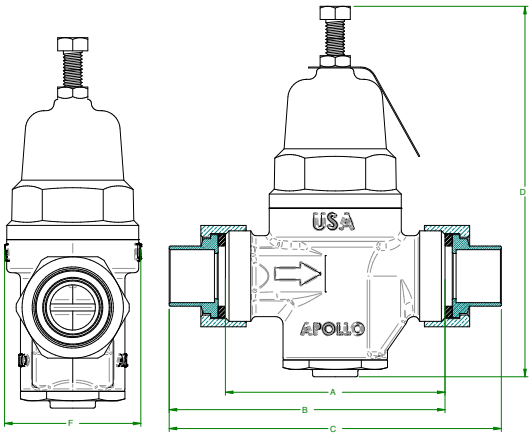
- Dependable Cast Bronze Body
- Suitable for Supply Pressures to 400 psi
- Every Valve is 100% Factory Set and Tested
- Standard Factory Setting is 50 psi
- High and Low Pressure Options
- Diaphragm Suitable for 33° - 180°F Solder, Threaded, PEX B/C F1807, CPVC, and Press Connection Options
- Sealed Cage with SS Adjusting Screw for Vault Installation
- Integral Thermal Expansion Bypass
- Integral Stainless Steel Strainer
- Single and Double Union Options
- In-Line Repairable, Bottom Access
- **Proudly Made in USA**

### OPTIONS

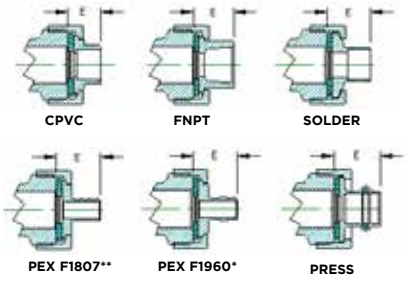
- (-P) Tapped 1/4" & Plugged
- (-G) With Pressure Gauge
- (-02) 10-35 psig
- (-03) 75-125 psig
- 36C Non-LF Materials for Non-Potable Service, such as Irrigation

### APPROVALS

- ASSE 1003
- CSA B356
- NSF/ANSI/CAN 372 - Lead Free
- City of Los Angeles
- IAPMO




### TAILPIECES

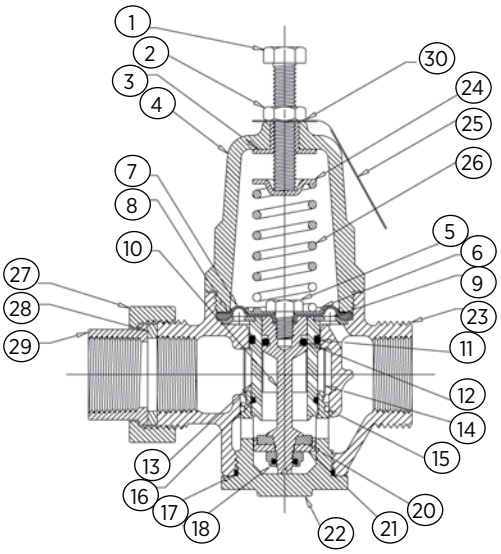



### DIMENSIONS

| LEAD FREE PART NUMBER | STANDARD BRONZE PART NUMBER | SIZE (IN.) | DIMENSIONS (IN.) | | WT./100 (LB.) |
|---|---|---|---|---|---|
| | | | A | OVERALL LENGTH | |
| **NO UNION - FNPT INLET X OUTLET** | | | | | |
| 36CLF20301 | 36C20301 | 1/2" | 3.63 | 3.63 | 2.00 |
| 36CLF20401 | 36C20401 | 3/4" | 3.63 | 3.63 | 2.00 |
| 36CLF20501 | 36C20501 | 1" | 3.89 | 3.89 | 2.50 |
| **SINGLE UNION - FNPT UNION INLET X FNPT OUTLET** | | | | | |
| 36CLF10301 | 36C10301 | 1/2" | 3.63 | 4.58 | 2.37 |
| 36CLF10401 | 36C10401 | 3/4" | 3.63 | 4.56 | 2.37 |
| 36CLF10501 | 36C10501 | 1" | 3.89 | 4.95 | 2.99 |
| **SINGLE UNION - SOLDER UNION INLET X FNPT OUTLET** | | | | | |
| 36CLF30301 | 36C30301 | 1/2" | 3.63 | 4.56 | 2.35 |
| 36CLF30401 | 36C30401 | 3/4" | 3.63 | 4.56 | 2.29 |
| 36CLF30501 | 36C30501 | 1" | 3.89 | 4.95 | 2.91 |
| **SINGLE UNION - CPVC UNION INLET X FNPT OUTLET** | | | | | |
| 36CLF30401C | 36C30401C | 3/4" | 3.63 | 4.55 | 2.21 |
| 36CLF30501C | 36C30501C | 1" | 3.89 | 5.05 | 2.99 |
| **DOUBLE UNION - THREADED INLET X THREADED OUTLET** | | | | | |
| 36CLF40301 | 36C40301 | 1/2" | 3.63 | 5.53 | 2.74 |
| 36CLF40401 | 36C40401 | 3/4" | 3.63 | 5.49 | 2.74 |
| 36CLF40501 | 36C40501 | 1" | 3.89 | 6.01 | 3.48 |
| **DOUBLE UNION - SOLDER INLET X SOLDER OUTLET** | | | | | |
| 36CLF50301 | 36C50301 | 1/2" | 3.63 | 5.49 | 2.70 |
| 36CLF50401 | 36C50401 | 3/4" | 3.63 | 5.49 | 2.58 |
| 36CLF50501 | 36C50501 | 1" | 3.89 | 6.01 | 3.32 |
| **DOUBLE UNION - CPVC INLET X CPVC OUTLET** | | | | | |
| 36CLF50401C | 36C50401C | 3/4" | 3.63 | 5.47 | 2.42 |
| 36CLF50501C | 36C50501C | 1" | 3.89 | 6.21 | 3.48 |
| **DOUBLE UNION - PEX F1807** INLET X PEX F1807**OUTLET** | | | | | |
| 36CLF90301 | 36C90301 | 1/2" | 3.63 | 5.67 | 2.58 |
| 36CLF90401 | 36C90401 | 3/4" | 3.63 | 6.13 | 2.58 |
| 36CLF90501 | 36C90501 | 1" | 3.89 | 6.99 | 3.36 |
| **DOUBLE UNION - PEX F1960 INLET X PEX F1960 OUTLET** | | | | | |
| 36CLF90301X2 | 36C90301X2 | 1/2" | 3.63 | 6.03 | 2.58 |
| 36CLF90401X2 | 36C90401X2 | 3/4" | 3.63 | 6.03 | 2.58 |
| 36CLF90501X2 | 36C90501X2 | 1" | 3.89 | 6.23 | 3.36 |

** PEX A (ASTM F1960) Cold Expansion PEX*
*** PEX B/C (ASTM F1807) Crimp PEX*

## 36CLF SERIES




## STANDARD MATERIALS LIST

| | |
|---|---|
| 1 | Adjusting Bolt (Stainless Steel) |
| 2 | Nut (Stainless Steel) |
| 3 | Tee Nut (Zinc Plated Steel) |
| 4 | Cap (Noryl™) |
| 5 | Hex Bolt (300 Series SS) |
| 6 | Pressure Plate (Brass) |
| 7 | Diaphragm (FDA EPDM w/Polyester) |
| 8 | Friction Ring (Brass) |
| 9 | Cartridge Ret. Washer (Brass) |
| 10 | Stem (LF Brass) |
| 11 | O-Ring (FDA Nitrile) |
| 12 | O-Ring (FDA Nitrile) |
| 13 | Cartridge Housing (G.F. Noryl) |
| 14 | Screen (300 Series SS) |
| 15 | O-Ring (FDA Nitrile) |

| | |
|---|---|
| 16 | O-Ring (FDA Nitrile) |
| 17 | O-Ring (FDA Nitrile) |
| 18 | Lock Nut (300 Series SS) |
| 19 | Seat Ring (300 Series SS) |
| 20 | Seat Disc (FDA EPDM) |
| 21 | Disc Holder (LF Brass) |
| 22 | Clean-Out Plug (LF Brass) |
| 23 | Body, Machined (LF Cast Bronze) |
| 24 | Spring Washer (Zinc Plated Steel) |
| 25 | Nameplate (Aluminum) |
| 26 | Spring (Zinc Plated Music Wire) |
| 27 | Union Nut (Brass) |
| 28 | Union Washer (FDA Nitrile) |
| 29 | Union Tail Piece (LF Brass) |
| 30 | Cage Seal (Stainless Steel) |

## PART NUMBER MATRIX

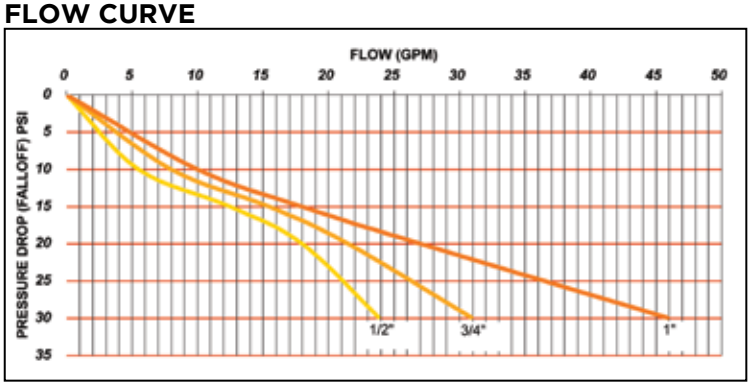
| 36CLF<br>36C | X | XX | X | X | X |
|---|---|---|---|---|---|
| SERIES | CONNECTION | SIZE | GAUGE | PRESSURE RANGE | OPTION |
| 36CLF (LEAD FREE) | 1 - SINGLE UNION NPT | 03 - 1/2" | 0 - WITHOUT GAUGE | 1 - 25 - 75 PSIG RANGE | C - CPVC TAILPIECE |
| 36C - BRONZE | 2 - NO UNION NPT | 04 - 3/4" | P - W/ GAUGE PORT PLUGGED | 2 - 10 - 35 PSIG RANGE | PR - PRESS** |
| | 3 - SINGLE UNION SOLDER X NPT | 05 - 1" | G - W/ GAUGE | 3 - 75 - 125 PSIG RANGE | X2 - PEX F1960 COLD EXPANSION |
| | 4 - DOUBLE UNION NPT | | | | |
| | 5 - DOUBLE UNION SOLDER | | | | |
| | 9 - DOUBLE UNION PEX F1807** | | | | |

*** Available in Direct Connection, and Double Union*

| | | PRESSURE DIFFERENTIAL (PSI) | | |
|---|---|---|---|---|
| | | 25 | 50 | 75 |
| PIPE SIZE | *FALLOFF (PSI) | WATER CAPACITY (GPM) | | |
| 1/2" | 5 | 1.3 | 1.5 | 1.7 |
| | 10 | 4.7 | 5.5 | 6.3 |
| | 15 | 10.6 | 12.5 | 14.4 |
| | 20 | 15.3 | 18.0 | 20.7 |
| | 30 | 20 | 24 | 27 |
| 3/4" | 5 | 2.1 | 2.5 | 2.9 |
| | 10 | 6.8 | 8.0 | 9.2 |
| | 15 | 13.2 | 15.5 | 17.8 |
| | 20 | 18.3 | 21.5 | 24.7 |
| | 30 | 27 | 31 | 35 |
| 1" | 5 | 2.8 | 3.3 | 3.7 |
| | 10 | 8.5 | 10.0 | 11.5 |
| | 15 | 15.3 | 18.0 | 20.7 |
| | 20 | 21.3 | 25.0 | 28.8 |
| | 30 | 40 | 46 | 51 |

**Falloff is the difference between the PRV's set pressure and the flowing pressure at any given demand*

## FLOW CURVE




***Pressure Differential*** *is the difference between the inlet supply pressure and the adjusted outlet pressure.*
***Pressure Falloff*** *is the reduction in downstream pressure from the static (set) pressure as the flow increases through the valve.*

## 36ELF SERIES



The Apollo 36ELF is designed for residential and commercial applications to protect water supplies from excessive pressure. Excellent flow performance at low pressure drop. The dezincification resistant bronze body and dielectric polymer cage provide maximum corrosion resistance. Designed for easy in-line servicing with simple cartridge removal. They meet ASSE 1003 and CSA B356 standards. They are listed with IAPMO and the city of Los Angeles.

### FEATURES

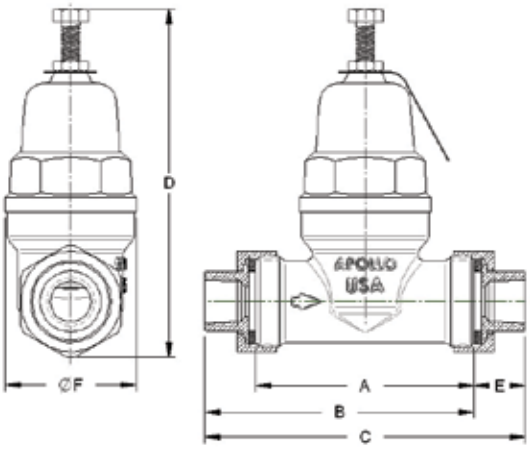
- Balanced Piston Design
- Sealed Cage for Vault Installations
- Built-In Thermal Expansion Bypass
- Integral Stainless Steel Strainer
- Modular Seat Disc and Strainer Cartridge
- Control Pressure Ranges: 15-75 psi and 75-150 psi
- NPT, Solder, PEX A, PEX B/C, CPVC and Press and Push Connections
- Single, Double & Less Union Configurations Available
- Maximum Supply Pressure: 400 psig
- Push & Press Max Supply Pressure: 200 psig
- Working Temperature Range: 33° - 180°F
- **Proudly Made in USA**

### OPTIONS

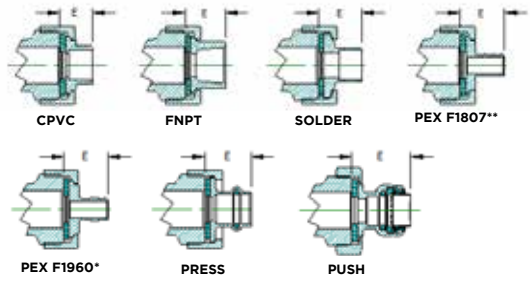
- (-B) Bronze Cap NEW!
- (-X2) PEX A (F1960) Cold Expansion ***NEW!***
- 36E Non-LF Materials for Non-Potable Service, Such as Irrigation

### APPROVALS

- ASSE 1003
- CSA B356
- NSF/ANSI/CAN 372 - Lead Free
- NSF/ANSI/CAN 61 - Water Quality
- IAPMO




### TAILPIECES




### DIMENSIONS

| CONNECTION TYPE | SIZE (IN.) | DIMENSIONS (IN.) | | | | | | WEIGHTS (LB.) | |
|---|---|---|---|---|---|---|---|---|---|
| | | A | B | C | D | E | F | SINGLE UNION | DOUBLE UNION |
| Thread - FNPT | 1/2 | 3.625 | 4.58 | 5.53 | 6 | 0.95 | 2.75 | 2.4 | 2.75 |
| Solder | | 3.625 | 4.56 | 5.49 | 6 | 0.93 | 2.75 | 2.4 | 2.75 |
| CPVC | | 3.625 | 4.33 | 5.03 | 6 | 0.70 | 2.75 | 2.4 | 2.75 |
| PEX F1960* | | 3.625 | 4.83 | 6.03 | 6 | 1.20 | 2.75 | 2.7 | 3.01 |
| PEX F1807** | | 3.625 | 4.65 | 5.67 | 6 | 1.02 | 2.75 | 2.7 | 2.99 |
| Push | | 3.625 | 4.86 | 6.09 | 6 | 1.23 | 2.75 | 2.9 | 3.02 |
| Push* | | 3.625 | 5.10 | 6.57 | 6 | 1.47 | 2.75 | 2.8 | 2.92 |
| Press | | 3.625 | 4.62 | 5.61 | 6 | 0.99 | 2.75 | 2.9 | 3.02 |
| Press* | | 3.625 | 4.97 | 6.31 | 6 | 1.34 | 2.75 | 2.4 | 2.75 |
| Thread - FNPT | 3/4 | 3.625 | 4.56 | 5.49 | 6 | 0.93 | 2.75 | 2.4 | 2.75 |
| Solder | | 3.625 | 4.56 | 5.49 | 6 | 0.93 | 2.75 | 2.4 | 2.75 |
| CPVC | | 3.625 | 4.55 | 5.47 | 6 | 0.92 | 2.75 | 2.4 | 2.75 |
| PEX F1960* | | 3.625 | 4.83 | 6.03 | 6 | 1.20 | 2.75 | 2.7 | 3.02 |
| PEX F1807** | | 3.625 | 4.88 | 6.13 | 6 | 1.25 | 2.75 | 2.7 | 2.98 |
| Push | | 3.625 | 5.41 | 7.19 | 6 | 1.78 | 2.75 | 2.9 | 3.02 |
| Push* | | 3.625 | 5.23 | 6.83 | 6 | 1.60 | 2.75 | 2.8 | 3.23 |
| Press | | 3.625 | 4.77 | 5.91 | 6 | 1.14 | 2.75 | 2.9 | 3.02 |
| Press* | | 3.625 | 5.13 | 6.63 | 6 | 1.50 | 2.75 | 2.4 | 2.75 |
| Thread - FNPT | 1 | 3.625 | 4.69 | 5.75 | 6 | 1.06 | 3.38 | 2.4 | 2.86 |
| Solder | | 3.625 | 4.69 | 5.75 | 6 | 1.06 | 3.38 | 2.4 | 2.86 |
| CPVC | | 3.625 | 4.79 | 5.95 | 6 | 1.16 | 3.38 | 2.4 | 2.86 |
| PEX F1960* | | 3.625 | 4.80 | 5.97 | 6 | 1.17 | 3.38 | 3.2 | 3.65 |
| PEX F1807** | | 3.625 | 5.18 | 6.73 | 6 | 1.55 | 3.38 | 3.1 | 3.56 |
| Push | | 3.625 | 5.59 | 7.55 | 6 | 1.96 | 3.38 | 3.2 | 3.65 |
| Push* | | 3.625 | 5.54 | 7.45 | 6 | 1.91 | 3.38 | 3.3 | 3.91 |
| Press | | 3.625 | 4.81 | 5.99 | 6 | 1.18 | 3.38 | 3.2 | 3.65 |
| Press* | | 3.625 | 5.25 | 6.87 | 6 | 1.62 | 3.38 | 2.4 | 2.86 |

*Direct Connect
*PEX A (ASTM F1960) - Cold Expansion PEX | PEX B/C (ASTM F1807) - Crimp Style PEX*

## 36ELF-G SERIES




The Apollo 36ELF-G is designed for residential and commercial applications to protect water supplies from excessive pressure. Excellent flow performance at low pressure drop. The 36ELF-G has a built in gauge that shows the downstream pressure. The dezincification resistant bronze body and dielectric polymer cage provide maximum corrosion resistance. Designed for easy in-line servicing with simple cartridge removal. They meet ASSE 1003 and CSA B356 standards. They are listed with IAPMO and the city of Los Angeles.

### FEATURES

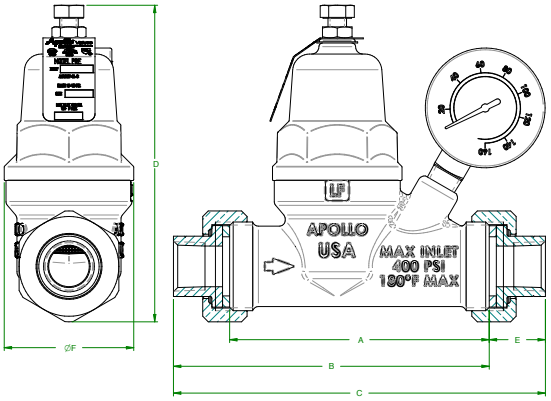
- Balanced Piston Design
- Sealed Cage for Vault Installations
- Built-In Thermal Expansion Bypass
- Integral Stainless Steel Strainer
- Modular Seat Disc and Strainer Cartridge
- Control Pressure Ranges: 15-75 psi and 75-150 psi
- NPT, Solder, PEX F1960*, PEX F1807**, CPVC and Press and Push Connections
- Single, Double & Less Union Configurations Available
- Maximum Supply Pressure: 400 psig
- Push & Press Max Supply Pressure: 200 psig
- Working Temperature Range: 33° - 180°F
- **Proudly Made in USA**

### OPTIONS

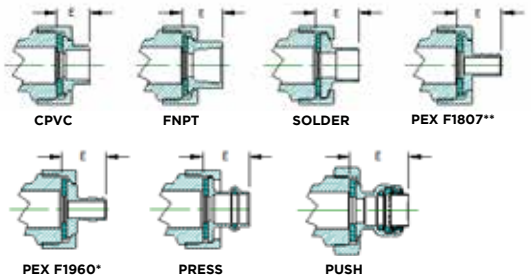
- (-B) Bronze Cap NEW!
- (-X2) PEX A (F1960) Cold Expansion ***NEW!***
- 36E Non-LF Materials for Non-Potable Service, Such as Irrigation
- Example: 36ELF114GIT

### APPROVALS

- ASSE 1003
- CSA B356
- NSF/ANS/CANI 372 - Lead Free
- NSF/ANSI/CAN 61 - Water Quality
- IAPMO




### TAILPIECES




### DIMENSIONS

| CONNECTION TYPE | SIZE (IN.) | DIMENSIONS (IN.) | | | | | | WEIGHTS (LB.) | |
|---|---|---|---|---|---|---|---|---|---|
| | | A | B | C | D | E | F | SINGLE UNION | DOUBLE UNION |
| Thread - FNPT | 1/2 | 4.39 | 5.34 | 6.29 | 6 | 0.95 | 2.75 | 2.6 | 2.9 |
| Solder | | 4.39 | 5.32 | 6.25 | 6 | 0.93 | 2.75 | 2.6 | 2.9 |
| CPVC | | 4.39 | 5.09 | 5.79 | 6 | 0.70 | 2.75 | 2.6 | 2.9 |
| PEX F1960* | | 4.39 | 5.59 | 6.79 | 6 | 1.20 | 2.75 | 2.9 | 3.2 |
| PEX F1807** | | 4.39 | 5.41 | 6.43 | 6 | 1.02 | 2.75 | 2.9 | 3.2 |
| Push | | 4.39 | 5.62 | 6.85 | 6 | 1.23 | 2.75 | 3.1 | 3.2 |
| Push* | | 4.39 | 5.86 | 7.33 | 6 | 1.47 | 2.75 | 3.0 | 3.1 |
| Press | | 4.39 | 5.38 | 6.37 | 6 | 0.99 | 2.75 | 3.1 | 3.2 |
| Press* | | 4.39 | 5.73 | 7.07 | 6 | 1.34 | 2.75 | 2.6 | 2.9 |
| Thread - FNPT | 3/4 | 4.39 | 5.32 | 6.25 | 6 | 0.93 | 2.75 | 2.6 | 2.9 |
| Solder | | 4.39 | 5.32 | 6.25 | 6 | 0.93 | 2.75 | 2.6 | 2.9 |
| CPVC | | 4.39 | 5.31 | 6.23 | 6 | 0.92 | 2.75 | 2.6 | 2.9 |
| PEX F1960* | | 4.39 | 5.59 | 6.79 | 6 | 1.20 | 2.75 | 2.9 | 3.2 |
| PEX F1807** | | 4.39 | 5.64 | 6.89 | 6 | 1.25 | 2.75 | 2.9 | 3.1 |
| Push | | 4.39 | 6.17 | 7.95 | 6 | 1.78 | 2.75 | 3.1 | 3.2 |
| Push* | | 4.39 | 5.99 | 7.59 | 6 | 1.60 | 2.75 | 3.0 | 3.4 |
| Press | | 4.39 | 5.53 | 6.67 | 6 | 1.14 | 2.75 | 3.1 | 3.2 |
| Press* | | 4.39 | 5.89 | 7.39 | 6 | 1.50 | 2.75 | 2.6 | 2.9 |
| Thread - FNPT | 1 | 3.64 | 4.70 | 5.76 | 6 | 1.06 | 3.38 | 2.4 | 2.9 |
| Solder | | 3.64 | 4.70 | 5.76 | 6 | 1.06 | 3.38 | 2.4 | 2.9 |
| CPVC | | 3.64 | 4.80 | 5.96 | 6 | 1.16 | 3.38 | 2.4 | 2.9 |
| PEX F1960* | | 3.64 | 4.81 | 5.98 | 6 | 1.17 | 3.38 | 3.2 | 3.7 |
| PEX F1807** | | 3.64 | 5.19 | 6.74 | 6 | 1.55 | 3.38 | 3.1 | 3.6 |
| Push | | 3.64 | 5.60 | 7.56 | 6 | 1.96 | 3.38 | 3.2 | 3.7 |
| Push* | | 3.64 | 5.55 | 7.46 | 6 | 1.91 | 3.38 | 3.3 | 3.9 |
| Press | | 3.64 | 4.82 | 6.00 | 6 | 1.18 | 3.38 | 3.2 | 3.7 |
| Press* | | 3.64 | 5.26 | 6.88 | 6 | 1.62 | 3.38 | 2.4 | 2.9 |

## 36ELF / 36ELF-G SERIES

### STANDARD MATERIALS LIST

| | |
|---|---|
| **BODY** | Bronze, ASTM B584 |
| | LF Bronze, UNS 89836 |
| **CAP** | Noryl™ |
| **SPRING** | Steel, ASTM 228 |
| **ADJUSTING SCREW/NUT** | Stainless Steel |
| **UNION NUT** | Brass, ASTM B16 |
| **TAILPIECE** | Brass, ASTM B16 |
| | LF Brass, UNS C27451 |
| **SCREEN** | Stainless Steel |
| **DIAPHRAGM** | NSF Grade EPDM |
| **SEAT DISC** | NSF Grade EPDM |
| **O-RINGS** | NSF Grade EPDM |

### PART NUMBER MATRIX

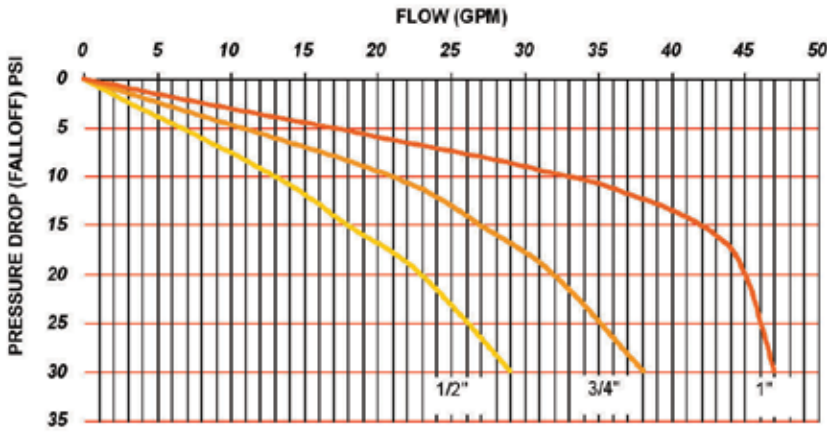
| **36ELF 36E** | **1** | **X** | **X** | **XX** | **X** | **X** |
|---|---|---|---|---|---|---|
| SERIES | STYLE | UNION | SIZE | PRESSURE RANGE | CONNECTION | OPTION |
| 36ELF (LEAD FREE) | 1 | 0 - NO UNION NPT | 3 - 1/2" | 01 - 15 - 75 PSIG RANGE | T - FNPT THREAD | B - BRONZE CAP |
| 36E - BRONZE | | 1 - SINGLE UNION | 4 - 3/4" | 03 - 75 - 150 PSIG RANGE | S - SOLDER | |
| | | 2 - DOUBLE UNION | 5 - 1" | **WITH GAUGE (LF ONLY)** | C - CPVC | |
| | | | | G1 - 15 - 75 PSIG RANGE | X - PEX F1807** | |
| | | | | G3 - 75 - 150 PSIG RANGE | P - PUSH* | |
| | | | | | PR - PRESS** | |
| | | | | | X2 - PEX F1960* | |

*PEX A (ASTM F1960) - Cold Expansion PEX*
*PEX B/C (ASTM F1807) - Crimp Style PEX*
** Available in Direct Connection, Single Union x NPT, and Double Union*
*** Available in Direct Connection, and Double Union*



### FLOW CURVE

| PIPE SIZE | *FALLOFF (PSI) | PRESSURE DIFFERENTIAL (PSI) | | |
|---|---|---|---|---|
| | | 25 | 50 | 75 |
| | | WATER CAPACITY (GPM) | | |
| 1/2" | 10 | 10 | 13 | 16 |
| | 15 | 13 | 18 | 22 |
| | 20 | 17 | 23 | 29 |
| | 30 | 22 | 29 | 36 |
| 3/4" | 10 | 16 | 21 | 26 |
| | 15 | 20 | 27 | 32 |
| | 20 | 24 | 32 | 40 |
| | 30 | 29 | 38 | 48 |
| 1" | 10 | 25 | 33 | 41 |
| | 15 | 30 | 42 | 52 |
| | 20 | 34 | 45 | 56 |
| | 30 | 35 | 47 | 59 |




***Falloff** is the difference between the PRV's set pressure and the flowing pressure at any given demand*
***Pressure Differential** is the difference between the inlet supply pressure and the adjusted outlet pressure.*
***Pressure Falloff** is the reduction in downstream pressure from the static (set) pressure as the flow increases through the valve.*

## 36 SERIES TAILPIECE KITS (TPK)

36/36LF, 36C/36CLF, 36E/36ELF

36 Series bodies are threaded to accept unions. TPK Tailpiece Kits allow for customization of the end connection configurations in the field. Union connections can easily be added and tailpieces can be mixed to match the requirements at the jobsite. NPT x Solder? PEX x Press? - no problem!

Each TPK includes one each tailpiece, union nut and washer.

| SIZE | LEAD FREE | STANDARD | CONNECTION |
|---|---|---|---|
| 1/2" | TPK12CLF | TPK12C | CPVC |
| 1/2" | TPK12PLF | TPK12P | PUSH |
| 1/2" | TPK12PRLF | TPK12PR | PRESS |
| 1/2" | TPK12SLF | TPK12S | SOLDER |
| 1/2" | TPK12TLF | TPK12T | NPT |
| 1/2" | TPK12X2LF | - | PEX F1960* |
| 1/2" | TPK12XLF | TPK12X | PEX F1807** |
| 3/4" | TPK34CLF | TPK34C | CPVC |
| 3/4" | TPK34PLF | TPK34P | PUSH |
| 3/4" | TPK34PRLF | TPK34PR | PRESS |
| 3/4" | TPK34SLF | TPK34S | SOLDER |
| 3/4" | TPK34TLF | TPK34T | NPT |
| 3/4" | TPK34X2LF | - | PEX F1960* |
| 3/4" | TPK34XLF | TPK34X | PEX F1807** |
| 1" | TPK1CLF | TPK1C | CPVC |

| SIZE | LEAD FREE | STANDARD | CONNECTION |
|---|---|---|---|
| 1" | TPK1PLF | TPK1P | PUSH |
| 1" | TPK1PRLF | TPK1PR | PRESS |
| 1" | TPK1SLF | TPK1S | SOLDER |
| 1" | TPK1TLF | TPK1T | NPT |
| 1" | TPK1X2LF | - | PEX F1960* |
| 1" | TPK1XLF | TPK1X | PEX F1807** |
| 1-1/4" | TPK114PRLF | TPK114PR | PRESS |
| 1-1/4" | TPK114SLF | TPK114S | SOLDER |
| 1-1/4" | TPK114TLF | TPK114T | NPT |
| 1-1/2" | TPK112PRLF | TPK112PR | PRESS |
| 1-1/2" | TPK112SLF | TPK112S | SOLDER |
| 1-1/2" | TPK112TLF | TPK112T | NPT |
| 2" | TPK2PRLF | TPK2PR | PRESS |
| 2" | TPK2SLF | TPK2S | SOLDER |
| 2" | TPK2TLF | TPK2T | NPT |





## 36ELF SPACER



### SPACERS DESIGNED TO ALLOW SYSTEM FLUSH PRIOR TO INSTALLING WPRV

36ESP1 - 1" Connections
36ESP114 - 1-1/4" Connections

## 36ELF SERIES
LARGE DIAMETER

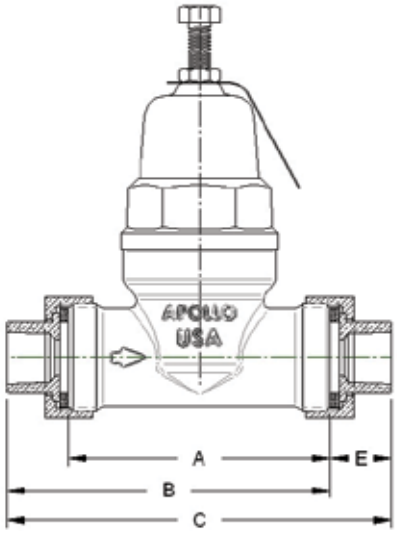


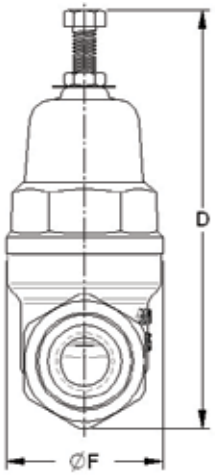
The new large diameter Apollo 36ELF Lead Free Pressure Reducing Valve is designed to conserve water and protect water distribution systems by automatically reducing elevated supply pressures. The dezincification resistant bronze body, stainless steel adjusting screw and dielectric polymer cage provide maximum corrosion resistance. Designed for easy in-line servicing with simple cartridge removal.

### FEATURES
- Balanced Piston Design
- SS Adjusting Screw & Nut
- Sealed Cage for Vault Installations
- Built-In Thermal Expansion Bypass
- Large Area Integral Stainless Steel Strainer
- Modular Seat Disc and Strainer Cartridge
  Control Pressure Ranges:
  15-75 psi and 75-150 psi
- High Flow / High Efficiency Design
- NPT and Solder Connections
- Union Press Connections:
  1-1/4" - 2" (Max 300 psi) ***NEW!***
- Factory Tested and Preset at 60 psi
- Single Union, Double Union and Less Union Configurations Available
- **Proudly Made in USA**

### OPTIONS
- (-B) Bronze Cap ***NEW!***
- (-P) Tapped 1/4" & Plugged
- (-G) With Pressure Gauge

### APPROVALS
- ASSE 1003
- CSA B356
- IAPMO/UPC
- NSF/ANSI/CAN 372 - Lead Free
- NSF/ANSI/CAN 61 - Water Quality

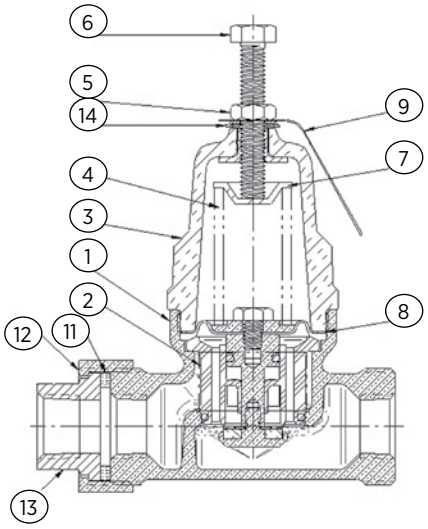



### DIMENSIONS

| SIZE (IN.) | DIMENSIONS (IN.) | | | | | | SINGLE UNION WT. (LB.) | DOUBLE UNION WT. (LB.) |
|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | E | F | | |
| **THREADED** | | | | | | | | |
| 1-1/4" | 5.5 | 6.62 | 7.74 | 10 | 1.12 | 3.38 | 7.22 | 8.34 |
| 1-1/2" | 5.5 | 6.8 | 8.1 | 10 | 1.3 | 3.38 | 7.61 | 8.92 |
| 2" | 5.5 | 6.93 | 8.36 | 10 | 1.43 | 3.38 | 9.2 | 11.6 |
| **SOLDER** | | | | | | | | |
| 1-1/4" | 5.5 | 6.62 | 7.74 | 10 | 1.12 | 3.38 | 7.22 | 8.34 |
| 1-1/2" | 5.5 | 6.8 | 8.1 | 10 | 1.3 | 3.38 | 7.61 | 8.92 |
| 2" | 5.5 | 6.93 | 8.36 | 10 | 1.43 | 3.38 | 9.2 | 11.6 |
| **PRESS (WITH UNIONS)** | | | | | | | | |
| 1-1/4" | 5.5 | 6.80 | 8.10 | 10 | 1.30 | 3.38 | 8.4 | 9.4 |
| 1-1/2" | 5.5 | 7.22 | 8.94 | 10 | 1.72 | 3.38 | 8.2 | 9.5 |
| 2" | 5.5 | 7.44 | 9.38 | 10 | 1.94 | 3.38 | 9.7 | 11.6 |
| **PRESS (DIRECT CONNECTORS)** | | | | | | | | |
| 1-1/4" | 5.5 | N/A | 7.98 | 10 | 1.24 | 3.38 | N/A | 9.4 |
| 1-1/2" | 5.5 | N/A | 8.72 | 10 | 1.61 | 3.38 | N/A | 9.5 |
| 2" | 5.5 | N/A | 9.12 | 10 | 1.81 | 3.38 | N/A | 11.6 |

## 36ELF SERIES
LARGE DIAMETER




## STANDARD MATERIALS LIST

| | |
|---|---|
| **1** | LF Body (Bronze, ASTM B584-C89836) |
| **2** | Assy, Cartridge (Noryl™/LF Brass/EPDM) includes Stainless Steel screen |
| **3** | Cap (Noryl™) |
| **4** | Spring (Music Wire ASTM A228) |
| **5** | Nut (Stainless Steel) |
| **6** | Bolt (Stainless Steel) |
| **7** | Washer, Spring (Steel Plated) |
| **8** | Friction Ring (Lead Free Brass) |
| **9** | Nameplate (Aluminum) |
| **11** | Washer (BUNA-N) |
| **12** | Nut, Union (Brass) |
| **13** | Tailpiece (Lead Free Brass) |
| **14** | Cage Seal (Nitrile) |

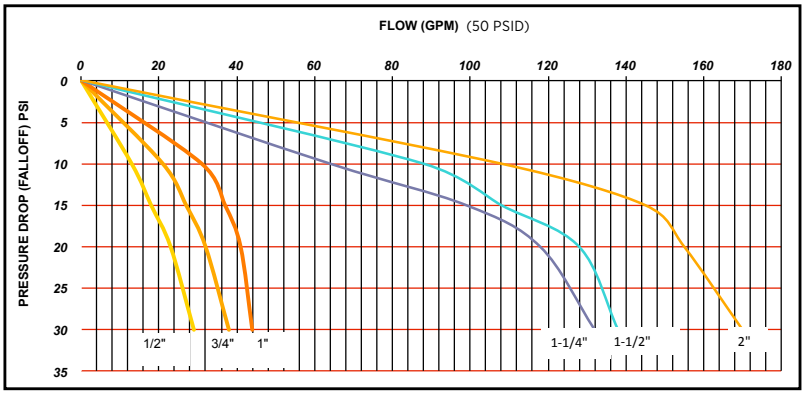
## PART NUMBER MATRIX

| 36ELF 36E | 1 | X | X | X | X | X | X |
|---|---|---|---|---|---|---|---|
| SERIES | STYLE | UNION | SIZE | OPTION | PRESSURE RANGE | CONNECTION | OPTION |
| 36ELF (LEAD FREE) | 1 | 0 - NO UNION (NPT) | 6 - 1-1/4" | 0 - NO GAUGE | 1 - 15-75 PSIG | T - FNPT THREAD | BLANK - STANDARD POLYMER CAP |
| 36E - BRONZE | | 1 - SINGLE UNION | 7 - 1-1/2" | P - TAPPED & PLUGGED | 3 - 75-150 PSIG | S - SOLDER | B - BRONZE CAP |
| | | 2 - DOUBLE UNION | 8 - 2" | G - W/ GAUGE | | PR - PRESS | Y - W/ WYE STRAINER |

| PIPE SIZE | FALL-OFF (PSI) | PRESSURE DIFFERENTIAL (PSI) | | |
|---|---|---|---|---|
| | | 25 | 50 | 75 |
| | | GPM | | |
| 1-1/4" | 10 | 35 | 47 | 59 |
| | 15 | 58 | 77 | 96 |
| | 20 | 85 | 113 | 141 |
| | 30 | 99 | 132 | 165 |
| 1-1/2" | 10 | 66 | 88 | 110 |
| | 15 | 81 | 108 | 135 |
| | 20 | 96 | 128 | 160 |
| | 30 | 104 | 138 | 172 |
| 2" | 10 | 81 | 108 | 135 |
| | 15 | 109 | 145 | 181 |
| | 20 | 116 | 155 | 194 |
| | 30 | 128 | 170 | 212 |

*Pressure Differential is the difference between the inlet supply pressure and the adjusted outlet pressure.*
*Pressure Falloff is the reduction in downstream pressure from the static (set) pressure as the flow increases through the valve.*

## FLOW CURVE



## 36HLF SERIES
HIGH CAPACITY



Apollo 36HLF Series pressure reducing valves offer high performance in heavy-duty applications. They're designed with a larger diaphragm and orifice area to yield the highest water flow water capacities in the industry.

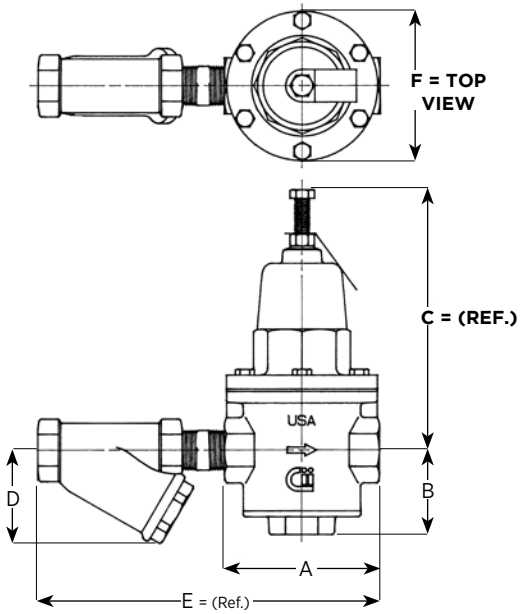
The 36HLF pressure reducing valves' integral bypass protects against thermal expansion. Built for extended service, these models include bronze body construction and stainless steel replaceable seat. They meet ASSE 1003 and CSA B356 standards. They are listed with IAMPO and city of Los Angeles.

These heavy-duty valves are available with optional in-line strainer and 150 lb. ANSI B16.24 integral bronze flange connections. (2-1/2" and 3" only)

### FEATURES
- Bronze Body and Spring Cage for Superior Corrosion Resistance and Dependability
- SS Fasteners, Spring, Seat, and Adjustment Screw
- Sealed Spring Cage for Vault Installations
- Standard Factory Setting is 50 psi
- Operating Temperature: 33° - 180°F Suitable for Supply Pressures to 400 psi
- Every Valve is 100% Factory Set and Tested
- Integral Thermal Expansion Bypass
- In-line Repairable, Bottom Access
- **Proudly Made in USA**

### OPTIONS
- (-02) Low Pressure 10-35 psi
- (-03) High Pressure 75-125 psi
- Bronze Strainer
- 36HLF700 Series w/ 150# ANSI Flanges

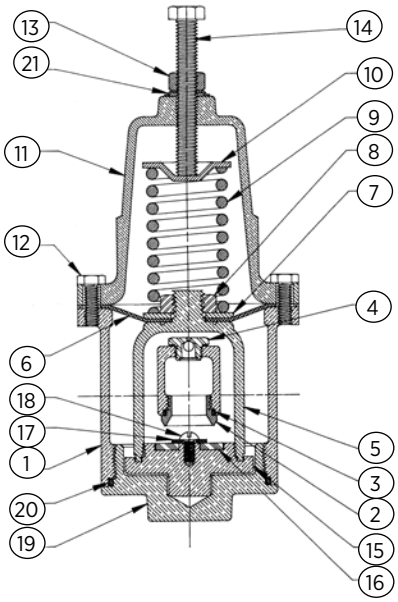
### APPROVALS
- ASSE 1003
- CSA B356
- NSF/ANSI/CAN 372 - Lead Free
- IAPMO




### DIMENSIONS

| SIZE (IN.) | DIMENSIONS (IN.) | | | | | | WEIGHT (LB.) | |
|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | E | F | W / STRAINER | W/O STRAINER |
| **THREADED** | | | | | | | | |
| 1/2" | 4.13 | 2.25 | 7.00 | 1.88 | 8.38 | 4.00 | 7.0 | 6.00 |
| 3/4" | 4.13 | 2.25 | 7.00 | 2.44 | 9.00 | 4.00 | 8.0 | 6.00 |
| 1" | 4.81 | 2.31 | 7.50 | 4.00 | 10.25 | 4.69 | 12.0 | 8.00 |
| 1-1/4" | 6.75 | 3.81 | 10.00 | 3.38 | 12.50 | 6.50 | 29.0 | 24.00 |
| 1-1/2" | 6.75 | 3.19 | 10.00 | 3.88 | 13.13 | 6.50 | 29.0 | 23.00 |
| 2" | 8.13 | 3.50 | 12.50 | 4.63 | 16.00 | 7.63 | 47.0 | 38.00 |
| 2-1/2" | 8.13 | 3.50 | 12.50 | 5.94 | 16.69 | 7.63 | 49.0 | 37.00 |
| 3" | 10.38 | 3.94 | 15.13 | 6.94 | 20.50 | 9.75 | 87.0 | 70.00 |
| **FLANGED** | | | | | | | | |
| 2-1/2" | 10.38 | 3.50 | 12.50 | 7.13 | 21.69 | 7.63 | 105.0 | 55.00 |
| 3" | 12.50 | 3.94 | 15.13 | 8.13 | 24.50 | 9.75 | 136.0 | 92.00 |

## 36HLF SERIES
HIGH CAPACITY




### STANDARD MATERIALS LIST

| | |
|---|---|
| **1** | Body (LF Bronze) |
| **2** | Seat (SS) |
| **3** | Seat O-Ring (Nitrile) |
| **4** | Bypass Assembly |
| **5** | Yoke (LF Bronze) |
| **6** | Diaphragm (Nitrile w/Nylon Reinforcement) |
| **7** | Diaphragm Washer (SS) |
| **8** | Diaphragm Nut (SS) |
| **9** | Spring (SS) |
| **10** | Spring Retainer (SS) |

| | |
|---|---|
| **11** | Cap (Bronze) |
| **12** | Cap Bolts (SS) |
| **13** | Lock Nut (SS) |
| **14** | Adjustment Screw (SS) |
| **15** | Seat Disc Holder (LF Bronze) |
| **16** | Seat Disc (EPDM) |
| **17** | Seat Disc Washer (SS) |
| **18** | Seat Screw (SS) |
| **19** | Bottom Cover (LF Bronze) |
| **20** | Bottom Cover O-Ring (Nitrile) |
| **21** | Cage-Sealing Washer (SS) |

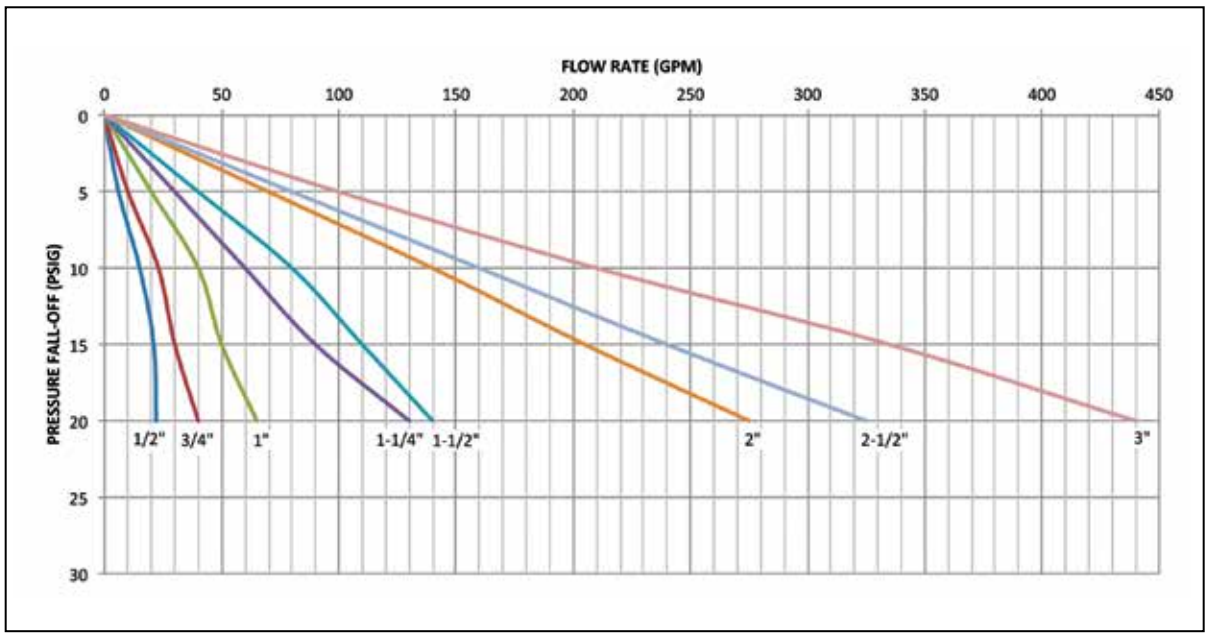
### PART NUMBER MATRIX

| **36HLF 36H** | **X** | **X** | **X** | **0X** |
|---|---|---|---|---|
| SERIES | END CONNECTIONS | OPTIONS | SIZE | PRESSURE RANGE |
| 36HLF (LEAD FREE) | 2 - FNPT X FNPT (STANDARD) | 0 - STANDARD | 3 - 1/2" | 01 - 25-75 |
| 36H - BRONZE | 7 - FLANGED (2-1/2" - 3" ONLY) | 1 - W/ Y-STRAINER | 4 - 3/4" | 02 - 10-35 |
| | | | 5 - 1" | 03 - 75-125 |
| | | | 6 - 1-1/4" | |
| | | | 7 - 1-1/2" | |
| | | | 8 - 2" | |
| | | | 9 - 2-1/2" | |
| | | | 0 - 3" | |

## 36HLF SERIES
HIGH CAPACITY

| | | PRESSURE DIFFERENTIAL (PSI) | | |
|---|---|---|---|---|
| | | 25 | 50 | 75 |
| PIPE SIZE | *FALLOFF (PSI) | WATER CAPACITY (GPM) | | |
| 1/2" | 5 | 8.5 | 10.0 | 11.5 |
| | 10 | 13.6 | 16.0 | 18.4 |
| | 15 | 17.9 | 21.0 | 24.2 |
| | 20 | 21.3 | 25.0 | 28.8 |
| 3/4" | 5 | 10.6 | 12.5 | 14.4 |
| | 10 | 20.4 | 24.0 | 27.6 |
| | 15 | 28.1 | 33.0 | 38.0 |
| | 20 | 34.0 | 40.0 | 46.0 |
| 1" | 5 | 17.0 | 20.0 | 23.0 |
| | 10 | 29.8 | 35.0 | 40.3 |
| | 15 | 40.8 | 48.0 | 55.2 |
| | 20 | 51.0 | 60.0 | 69.0 |
| 1-1/4" | 5 | 21.3 | 25.0 | 28.8 |
| | 10 | 51.9 | 61.0 | 70.2 |
| | 15 | 80.8 | 95.0 | 109.3 |
| | 20 | 113.1 | 125.0 | 143.8 |
| 1-1/2" | 5 | 29.8 | 35.0 | 40.3 |
| | 10 | 61.5 | 72.3 | 83.1 |
| | 15 | 90.1 | 106.0 | 121.0 |
| | 20 | 113.1 | 133.0 | 153.0 |
| 2" | 5 | 55.3 | 65.0 | 74.8 |
| | 10 | 126.7 | 149.0 | 171.4 |
| | 15 | 174.3 | 205.0 | 235.8 |
| | 20 | 231.20 | 272.0 | 312.80 |
| 2-1/2" | 5 | 58.7 | 69.0 | 79.4 |
| | 10 | 132.6 | 156.0 | 179.4 |
| | 15 | 200.6 | 236.0 | 271.40 |
| | 20 | 271.20 | 319.0 | 366.9 |
| 3" | 5 | 80.8 | 95.0 | 109.3 |
| | 10 | 176 | 207 | 238.1 |
| | 15 | 282.5 | 332.4 | 382.3 |
| | 20 | 365.5 | 430.0 | 494.5 |

## FLOW CURVE




***Pressure Differential*** *is the difference between the inlet supply pressure and the adjusted outlet pressure.*
***Pressure Falloff*** *is the reduction in downstream pressure from the static (set) pressure as the flow increases through the valve.*

## A127 SERIES
PILOT OPERATED AUTOMATIC CONTROL VALVE




Apollo pilot operated control valves are ideal for a wide range of commercial and industrial applications, wherever the supply pressure needs to be reduced to a lower constant pressure.

Hydraulically operated diaphragm main valve automatically controls non-corrosive, non-abrasive fluids by means of a wide range of pilots.

### FEATURES
- Ductile Iron Body & Bonnet, ASTM A536 Grade 65-45-12
- NSF Epoxy Coated
- Bronze / Stainless Steel Internals
- EPDM Elastomers 40°F - 180°F
- Lead Free Components Used Throughout
- Lead Free Wye Strainer Protects Pilot System from Debris
- Isolation Ball Valves Simplify Maintenance and Troubleshooting
- Each Valve is 100% Factory Tested and Can be Set to Your Requirements
- Wide Range of Control Pilots and Functions
- Opening Speed Control is Standard
- Automatically Reduces a Higher Upstream Pressure to a Constant Lower Downstream Pressure
- Constant Outlet Pressure Regardless of Variations in Upstream Pressure or Flow
- Pilot Operated Main Valve is Not Subject to Pressure Falloff
- Outlet Pressure is Adjustable with a Single Screw
- Optional Low-Flow Bypass A127-LF or A727-LF (when wide extremes in flow demand are anticipated)

### APPROVALS
- NSF/ANSI 372 - Lead Free
- NSF/ANSI/CAN 61 - Water Quality

### MATERIAL OPTIONS
- Body: Ductile Iron (NSF 61 Epoxy Coated), Cast Steel, Stainless Steel, Bronze
- Pilot/Fittings: Bronze/Brass, Stainless Steel
- Tubing: Copper, Stainless Steel
- Elastomers: EPDM, Buna N, Viton

*For use with potable water, use ductile iron (NSF 61 epoxy coated) body, lead free bronze/brass pilot and fittings, copper tubing and EPDM elastomers.

| VALVE SIZES | |
|---|---|
| Globe Flanged | 1-1/4" - 24" |
| Angle Flanged | 1-1/4" - 16" |
| Globe / Angle Threaded | 1-1/4" - 3" |
| Globe / Angle Grooved | 1-1/2" - 6"* |
| **SERVICE RATINGS - DUCTILE IRON** | |
| 150# Flanged | 250 psi MAWP |
| 300# Flanged | 640 psi MAWP |
| Threaded | 640 psi MAWP |
| Grooved | 300 psi MAWP |

**6" grooved globe style only*

### STANDARD MATERIALS LIST

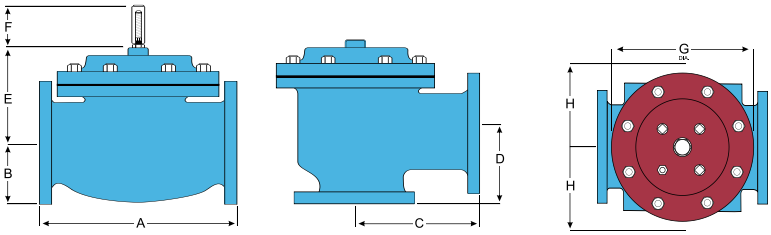
| | |
|---|---|
| **BODY** | Epoxy Coated Ductile Iron |
| **SEAT RING** | LF Bronze (Options Available) |
| **STEM** | Stainless Steel |
| **DIAPHRAGM** | EPDM (Options Available) |
| **PILOT(S)** | Stainless Steel |
| **TUBING** | Copper (Optional Stainless Steel) |
| **FITTINGS** | Brass (Optional Stainless Steel) |

### OTHER CONTROL FUNCTIONS

| | |
|---|---|
| **A94** | Diaphragm Check Valve |
| **A108-2** | Pressure Relief/Pressure Sustaining |
| **A110** | Differential Control |
| **A115-2** | Solenoid Control |
| **A115-4** | Solenoid Control/High Capacity Pilot |
| **A120** | Rate of Flow Control |
| **A127LF** | Pressure Reducing with Low Flow Bypass |
| **A727** | Pressure Reducing with Reduced Port |
| **A727LF** | Pressure Reducing with Reduced Port and Low Flow Bypass |
| **A800** | Float Controlled On/Off Service |
| **A810** | Float Controlled, Modulating |
| **A22 / A88** | Digital Electronic Control, Regulates Pressure, Flow or Level |

**Contact customer service for assistance with sizing, selection and model numbers*
***See brochure ACVBR9000 for additional information*

## A127 SERIES
PILOT OPERATED AUTOMATIC CONTROL VALVE




GLOBE STYLE ANGLE STYLE

## DIMENSIONS

| | END CONNECTIONS A | | | | END CONNECTIONS C | | | | END CONNECTIONS D | | | | E | H |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SIZE (IN.) | SCREWED | GROOVED | 150# FLANGED | 300# FLANGED | SCREWED | GROOVED | 150# FLANGED | 300# FLANGED | SCREWED | GROOVED | 150# FLANGED | 300# FLANGED | ALL | ALL |
| 1-1/4 - 1-1/2 | 8-3/4 | 8-3/4 | 8-1/2 | 8-3/4 | 4-3/8 | 4-3/8* | 4-1/4 | 4-3/8 | 3-1/8 | 3-1/8* | 3 | 3-1/8 | 6 | 10 |
| 2 | 9-7/8 | 9-7/8 | 9-3/8 | 9-7/8 | 4-3/4 | 4-3/4 | 4-3/4 | 5 | 3-7/8 | 3-7/8 | 3-7/8 | 4-1/8 | 6 | 11 |
| 2-1/2 | 10-1/2 | 10-1/2 | 10-1/2 | 11-1/8 | 6 | 6 | 6 | 6-3/8 | 4 | 4 | 4 | 4-3/8 | 7 | 11 |
| 3 | 13 | 13 | 12 | 12-3/4 | 6-1/2 | 6-1/2 | 6 | 6-3/8 | 4-1/2 | 4-1/2 | 4 | 4-3/8 | 6-1/2 | 11 |
| 4 | – | 15-1/4 | 15 | 15-5/8 | – | 7-5/8 | 7-1/2 | 7-13/16 | – | 5-5/8 | 5-1/2 | 5-13/16 | 8 | 12 |
| 6 | – | 20 | 17-3/4 | 18-5/8 | – | – | 10 | 10-1/2 | – | – | 6 | 6-1/2 | 10 | 13 |
| 8 | – | – | 25-3/8 | 26-3/8 | – | – | 12-11/16 | 13-3/16 | – | – | 8 | 8-1/2 | 11-7/8 | 14 |
| 10 | – | – | 29-3/4 | 31-1/8 | – | – | 14-7/8 | 15-9/16 | – | – | 11-3/8 | 12-1/16 | 15-3/8 | 17 |
| 12 | – | – | 34 | 35-1/2 | – | – | 17 | 17-3/4 | – | – | 11 | 11-3/4 | 17 | 18 |
| 14 | – | – | 39 | 40-1/2 | – | – | – | – | – | – | – | – | 18 | 20 |
| 16 | – | – | 40-3/8 | 42 | – | – | 20-13/16 | 21-5/8 | – | – | 15-11/16 | 16-1/2 | 19 | 20 |
| 24 | – | – | 62 | 63-3/4 | – | – | – | – | – | – | – | – | 27 | 28-1/2 |

**Grooved End Not Available in 1-1/4"*

## W-8078-00 SERIES

LEADFREE OPTIONS

These pressure gauges are used for testing water pressure.
Temp. Range: 50°-130° F - P/N W807800. Includes a high-pressure indicator.

| PART NUMBER | LF PART NUMBER | CONNECTION | PRESSURE RANGE | NET WT. (LB.) |
|---|---|---|---|---|
| W-8078-00 | – | 3/4" hose thread | 0-300 psig | .46 |
| – | W-2799-00 | 1/4" NPT | 0-160 psig | .70 |



W-8078-00



W-2799-00

"Apollo"® Valves

# backflow prevention


**DOUBLE CHECKS**

| | |
|---|---|
| 4A/4ALF-100 | I-3 |
| 4A/4ALF-600 | I-4 |

**REDUCED PRESSURE PRINCIPLE**

| | |
|---|---|
| 4A/4ALF-200 | I-5 |
| 40-200-S | I-6 |
| 4A/4ALF-700 | I-7 |

**PRESSURE VACUUM BREAKER**

| | |
|---|---|
| 4A/4ALF-500 | I-8 |
| 4A/4ALF-900 | I-9 |

**DOUBLE CHECKS (LBF)**

| | |
|---|---|
| 4ALF-100 | I-10 |
| 4S - 4SG - 4SGLF | I-11 |
| 4ANLF-100 | I-12 |
| 4ALF-600 | I-13 |
| 4S - 4SG - 600 | I-14 |
| 4ANLF-600 | I-15 |

**REDUCED PRESSURE PRINCIPLE (LBF)**

| | |
|---|---|
| 4ALF-200 | I-16 |
| 4ANLF-200 | I-17 |
| 4ALF-700 | I-18 |
| 4ANLF-700 | I- 19 |

**ATMOSPHERIC VACUUM BREAKERS**

| | |
|---|---|
| 38/38LF-100 | I-20 |
| 38-200 | I-20 |

**DCAP**

| | |
|---|---|
| 4A/4ALF - 400 | I-21 |

**DUAL CHECKS**

| | |
|---|---|
| 4ALF-300 | I-22 |
| 4FP-300 | I-23 |
| 40/40LF-300 | I-23 |

**HOSE CONNECTION VACUUM BREAKER**

| | |
|---|---|
| 38LF-314 | I-24 |
| 38LF-414 | I-24 |
| 38/38LF-304 | I-25 |
| 38-500/38LF-500 | I-25 |

**FREEZE PROTECTION**

| | |
|---|---|
| 40/40LF-000 | I-26 |

**CARBONATED BEVERAGE BACKFLOW** I-27

**AIR GAP DEVICES**

| | |
|---|---|
| AGD | I-28 |




section I

**WATERWORKS**
RP 4AN SERIES

**PLUMBING**
RP 4A SERIES

**FIRE PROTECTION**
DCDA 4A SERIES

**IRRIGATION**
PVB 4A SERIES

| | | APPLICATION | | | | |
|---|---|---|---|---|---|---|
| TYPE OF DEVICE | SERIES | BACK SIPHONAGE | BACK PRESSURE | CONTINUOUS PRESSURE | AESTHETIC HAZARD | HEALTH HAZARD |
| DOUBLE CHECK VALVE | DCLF 4A<br>DCLF 4AN<br>DCLF 4SG, DCLF 4S | X | X | X | X | |
| DOUBLE CHECK DETECTOR ASSEMBLY | DCDALF 4A<br>DCDALF 4AN<br>DCDA 4SG, DCDA 4S | X | X | X | X | |
| REDUCED PRESSURE PRINCIPLE | RPLF 4A | X | X | X | X | X |
| REDUCED PRESSURE PRINCIPLE (N & V Flow) | RPLF 4AN | X | X | X | X | X |
| REDUCED PRESSURE PRINCIPLE (Stainless Steel) | RPS 40 | X | X | X | X | X |
| REDUCED PRESSURE DETECTOR ASSEMBLY | RPDALF 4A<br>RPDALF 4AN | X | X | X | X | X |
| ATMOSPHERIC VACUUM BREAKER | AVB1, AVB1LF<br>AVB2 | X | | | X | X |
| PRESSURE VACUUM BREAKER | PVB 4A, PVBLF 4A | X | | X | X | X |
| SPILL RESISTANT PRESSURE VACUUM BREAKER | SVB 4A, SVB 4ALF | X | | X | X | X |
| DUAL CHECK | DUC 4ALF<br>DUC 4FP<br>DUC40, DUCLF40 | X | X | X | X | |
| DUAL CHECK W/ ATMOS. PORT | DCAP 4A, DCAP 4ALF | X | X | X | X | |
| CARBONATED BEVERAGE BACKFLOW PREVENTER | CBBP-A | X | X | X | X | |
| HOSE CONNECTION VACUUM BREAKER | HBV2, HBV2LF | X | X* | | X | X |
| ANTI FREEZE HOSE CONN. VACUUM BREAKER | HBVAF2, HBVAF2LF | X | X* | | X | X |
| HOSE CONNECTION BACKFLOW PREVENTER | HBDUC, HBDUCLF | X | X* | | X | X |
| LAB FAUCET VACUUM BREAKER | LFDUCLF | X | X | | X | |

** Limited back pressure to 10' head*
*** Check with local authorities having jurisdiction*

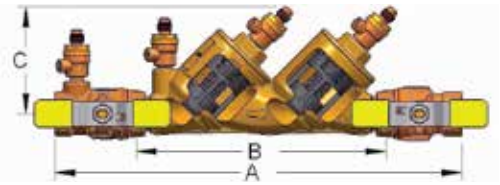
See **BFCA9000** for additional information including weights, dimensions and pressure loss curves.

## DC 4A / DCLF 4A SERIES
DOUBLE CHECK VALVE BACKFLOW PREVENTER ASSEMBLY












**SLOW CLOSE WITH MONITOR SWITCHES T2ST OPTION (1-1/2" AND 2" ONLY) SEE SS1396 FOR DIMENSIONS**

The Apollo Model DC 4A or DCLF 4A Double Check Valves are designed to prevent contamination of the potable water supply due to back-siphonage or backpressure from substances that are objectionable, but non-health hazards. The modular check valve captured spring cartridges have replaceable seats and reversible silicone seat discs. Ball valve shut-offs with stainless steel handles and nuts are standard.

### OPERATION
During normal flow conditions, the two check valves are held off their seats, supplying water downstream. Each check valve is designed to maintain a minimum of 1 psi across the valve during normal operation. Should the downstream pressure increase to within 1 psi of supply pressure, both check valves will close to prevent a backflow condition.

### FEATURES
- Low Pressure Loss
- Captured Spring Cartridge Check Valves
- Compact, Yet Easy to Maintain
- Ball Valve Shut-Offs w/ SS Handles & Nuts Standard
- Top Access for Fast Testing & Maintenance
- Threaded Testcock Protectors
- Corrosion Resistant
- No Special Tools Required
- 5 Year Warranty
- Lead-Free Option
- Chloramine-Resistant Elastomers
- **Proudly Made in USA**

### PERFORMANCE RATING
- Maximum Working Pressure: 175 psi
- Temperature Range: 33° to 180°F

### APPROVALS
- Horizontal and Vertical Up Approvals
- AWWA C510
- UL, ULC Classified (T2ST Option or Less Shutoffs)
- Approved by the Foundation for Cross-Connection Control and Hydraulic Research at the University of Southern California
- ASSE 1015
- IAPMO
- CSA
- NSF/ANSI/CAN 61 - Water Quality (4ALF only)
- NSF/ANSI 372 - Lead Free (4ALF only)

### STANDARD MATERIALS LIST

| | |
|---|---|
| **BODY, CAPS** | Bronze C84400/LF C89836 |
| **BV SHUT-OFFS TEST COCKS** | Bronze C84400 or LF C87800 |
| **CHECK VALVES** | Glass-Filled PPO |
| **SPRINGS** | 300 Series Stainless Steel |
| **SEAT DISCS** | Chloramine-Resistant Silicone |
| **O-RINGS** | Chloramine-Resistant EPDM |
| **BV HANDLES** | Stainless Steel |

### PART NUMBER MATRIX

| 4A X | 1 X | X | XX | X |
|---|---|---|---|---|
| | Y-STRAINER | SIZE | SHUT-OFF VALVES | OPTIONS (CAN BE COMBINED) |
| 4A - Standard | 0 - Standard | 3 - 1/2" | A2 - w/ Ball Valves (Standard) | F - SAE Threaded Test Cocks (Standard 1/2" -2") |
| 4ALF - Lead Free | 1 - w/ Y-strainer (Shipped Loose) | 4 - 3/4" | A4 - w/ Union Ball Valves (3/4" - 2") | LL - SS Locking Lever Handles |
| | | 5 - 1" | | PR - Press Connections (Factory Installed) |
| | | 6 - 1-1/4" | | P - Push Connections (Factory Installed) (3/4" -1") |
| | | 7 - 1-1/2" | | |
| | | 8 - 2" | | |
| EXAMPLE: 4A 104 A4LL = 3/4" double check valve assembly with union ball valves with locking lever handles | | | | |

### DIMENSIONS

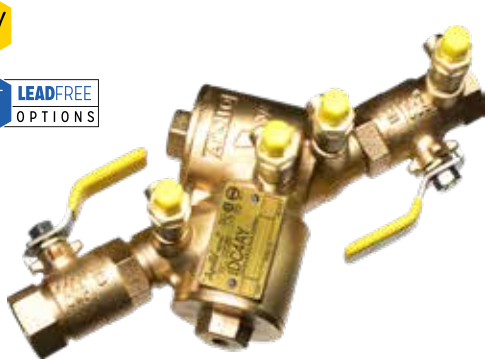
| MODEL NO. PART NO. SIZE | 4A 103 A2F DC 4A 12 1/2" | 4A 103 A2F DC 4A 12 15 MM. | 4A 104 A2F DC 4A 34 3/4" | 4A 104 A2F DC 4A 34 20 MM. | 4A 105 A2F DC 4A 1 1" | 4A 105 A2F DC 4A 1 25MM. | 4A 106 A2F DC 4A 114 1-1/4" | 4A 106 A2F DC 4A 114 32 MM. | 4A 107 A2F DC 4A 112 1-1/2" | 4A 107 A2F DC 4A 112 40 MM. | 4A 108 A2 DC 4A 2 2" | 4A 108 A2 DC 4A 2 50 MM. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A* | 10-7/8 | 276 | 12-5/8 | 321 | 14-5/8 | 371 | 17-1/2 | 445 | 18 | 457 | 20-1/8 | 511 |
| B | 7-3/8 | 187 | 8-1/2 | 215 | 9-1/2 | 241 | 11-3/4 | 298 | 11-5/8 | 295 | 12-3/4 | 324 |
| C | 3-1/4 | 83 | 3-1/2 | 89 | 4 | 100 | 4-1/2 | 114 | 4-1/2 | 114 | 5 | 127 |
| D | 2-1/2 | 64 | 3 | 76 | 3-1/4 | 83 | 4-3/4 | 121 | 4-3/4 | 121 | 5-3/8 | 136 |
| **WEIGHTS** | **LB.** | **KG.** | **LB.** | **KG.** | **LB.** | **KG.** | **LB.** | **KG.** | **LB.** | **KG.** | **LB.** | **KG.** |
| Net Wt. | 4.1 | 1.9 | 5.4 | 2.5 | 9.0 | 4.0 | 9.1 | 4.1 | 12.9 | 5.9 | 16.5 | 7.5 |

**For T2ST Option, Union Ball Valve, Press, and Push connection dimensions, see submittal sheets.*

## DC 4AY / DCLF 4AY SERIES
Y-PATTERN DOUBLE CHECK VALVE BACKFLOW PREVENTER ASSEMBLY

New!

LEADFREE OPTIONS



The Apollo Model DC 4AY Double Check Valves are designed to prevent contamination of the potable water supply due to back-siphonage or backpressure from substances that are objectionable to the potable water supply, but non-health hazards. The modular check valve cartridges provide captured springs, replaceable seats, and reversible silicone seat discs. This Made in America assembly features Apollo ball valves with stainless steel handles and nuts as standard and carries the five-year Apollo factory warranty.

### OPERATION
During normal flow conditions, the two check valves are held off their seats, supplying water downstream. Each check valve is designed to maintain a minimum of 1 psi across the valve during normal operation. Should the downstream pressure increase to within 1 psi of supply pressure, both check valves will close to prevent a backflow condition.

### FEATURES
- Low Pressure Loss
- Captured Stainless Steel Springs
- Compact Yet Easy to Maintain
- Ball Valve Shut-offs w/ SS Handles & Nuts Standard
- Threaded Testcock Protectors
- Corrosion Resistant
- No Special Tools Required
- Chloramine-Resistant Elastomers
- 5 Year Warranty
- Designed specifically for shorter lay length in irrigation meter box applications
- Installed with testcocks pointing up for ease of testing when installed in a meter box
- **Proudly Made in USA**
-

### PERFORMANCE RATING
- Maximum Working Pressure: 175 psi
- Temperature Range: 33° to 180°F

### APPROVALS
- Horizontal and Vertical Up Approvals
- Approved by the Foundation for CrossConnection Control and Hydraulic Research at the University of Southern California
- ASSE 1015
- IAPMO
- CSA
- NSF/ANSI/CAN 61 - Water Quality (4AYLF only)

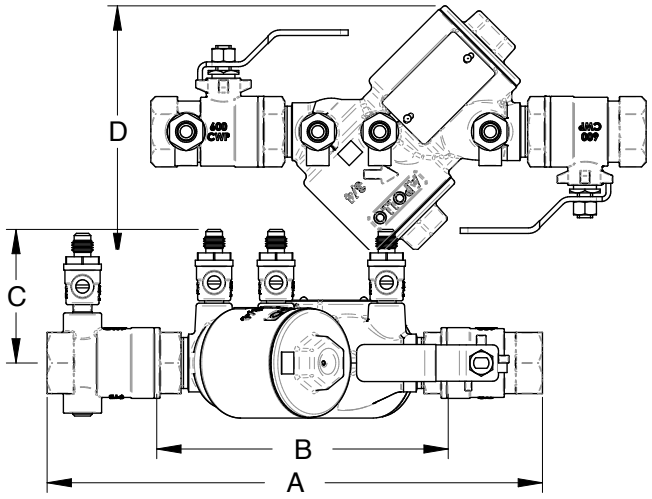
### STANDARD MATERIALS LIST

| | |
|---|---|
| **BODY, CAPS** | Bronze C84400 or C89836 Lead Free* |
| **BV SHUTOFFS, TEST COCKS** | Bronze C84400 or C87800 Lead Free* |
| **CHECK VALVE CARTRIDGES** | Glass-Filled PPO |
| **SPRINGS** | 300 Series Stainless Steel |
| **SEAT DISCS** | Chloramine-Resistant Silicone |

### DIMENSIONS

| PART NUMBER | SIZE | DIMENSIONS (IN.) | | | | WT. (LB.) |
|---|---|---|---|---|---|---|
| | | A | B | C | D | |
| 4AY104A2FB | 3/4" | 10.2 | 6 | 2.8 | 5.2 | 6.5 |
| 4AY105A2FB | 1" | 12.2 | 7.1 | 3 | 6.2 | 8.7 |

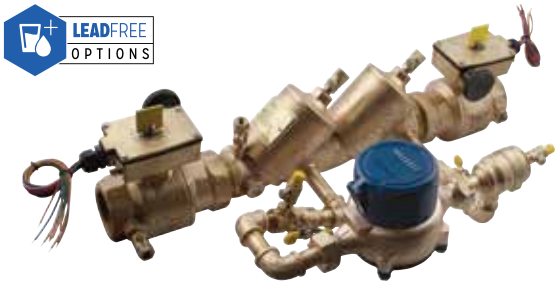





### PART NUMBER MATRIX

| 4A [X] | 1X | X | X X | X B |
|---|---|---|---|---|
| | Y-STRAINER | SIZE | SHUT-OFF VALVES | OPTIONS (CAN BE COMBINED) |
| 4AY - Standard | 0 - Standard | 4 - 3/4" | A2 - w/ Ball Valves (Standard) | F - SAE Threaded Test Cocks (Standard 1/2" -2") |
| 4AYLF - Lead Free | 1 - w/ Y-strainer (Shipped Loose) | 5 - 1" | A4 - w/ Union Ball Valves (3/4" - 2") | L - Lever Handle (Standard 3/4" & 1" Only) |
| | | | | PR - Press Connections (Factory Installed) |
| | | | | P - Push Connections (Factory Installed) (3/4" -1") |
| EXAMPLE: 4AY 105 A4FB = 1" Double Check Backflow Preventer, Union Ball Valves and Locking Lever Handles | | | | |

## DCDA2 4A/DCDA2LF 4A "SLO-CLOZ"
DOUBLE CHECK DETECTOR BACKFLOW PREVENTER ASSEMBLY




The Apollo Model DCDA2 4AST or DCDA2LF 4AST Lead Free* 1-1/2"– 2" Double Check Detector Assembly consists of a mainline double check valve with a Type 2 bypass consisting of a single check (SCV) and meter bypassing the mainline second check to prevent backflow while accurately measuring all flows up to 2 gpm while the mainline 2nd check remains closed. The pressure drop across the assembly shall be documented by independent approval agencies. The assembly shall prevent contamination of the potable water supply due to back-siphonage or backpressure from substances that are non-health hazards. This Made in America assembly features Apollo UL® Listed, slow-close, full open port, gear operated ball valves with integral tamper switches and carries the five-year Apollo factory warranty.

### STANDARD MATERIALS LIST

| | |
|---|---|
| **BODY, CAPS, BALL VALVE SHUTOFFS, TEST COCKS** | Bronze C84400 or C89836 or C87800 (Lead Free*) |
| **CHECK VALVE CARTRIDGES** | Glass-Filled PPO |
| **SPRINGS** | 300 Series Stainless Steel |
| **SEAT DISCS** | Chloramine-Resistant Silicone |
| **O-RINGS** | Chloramine-Resistant EPDM |

### FEATURES
- Low Pressure Loss Documented By Independent Approval Agencies
- Easily Removable Modular Check Valve Cartridges
- Captured Stainless Steel Springs
- Apollo UL® Listed, Slow-Close, Full Open Port, Gear Operated Ball Valves with Integral Tamper Switches
- Top-Mounted Test Cocks for Easy Testing
- No Special Tools Required
- Chloramine-Resistant Elastomers
- Short Lay-Length for Small Spaces
- Pre-Wired Tamper (Supervisory) Switches
- 5 Year Warranty
- **Proudly Made in USA**

### PERFORMANCE RATING
- Maximum Working Pressure: 175 psi
- Temperature Range: 33° to 140°F
- Hydrostatic Test Pressure: 350 psi

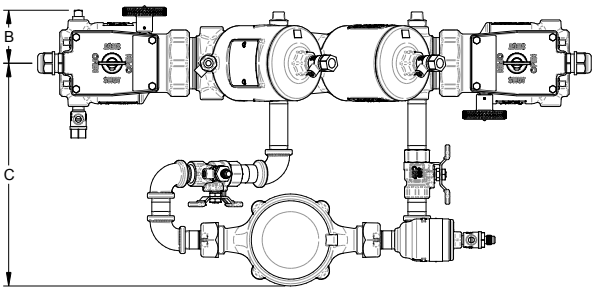
### APPROVALS
- ASSE 1048 (Horizontal & Vertical Up)
- UL® Classified (Horizontal & Vertical Up)
- C-UL® Classified (Horizontal & Vertical Up)
- Approved by the Foundation for Cross-Connection Control and Hydraulic Research at the University of Southern California. (Horizontal & Vertical Up)
- NSF/ANSI/CAN 61 - Water Quality (4ALF only)
- NSF/ANSI 372 - Lead Free (4ALF only)

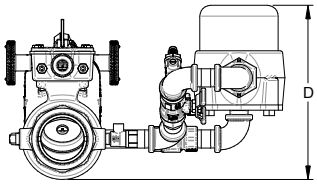
### DIMENSIONS

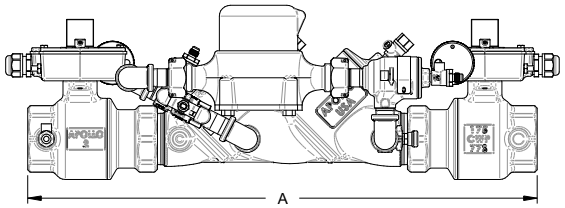
| SIZE (IN.) | DIMENSIONS (IN.) | | | | WT. (LB.) |
|---|---|---|---|---|---|
| | A | B | C | D | |
| 1-1/2" | 22-1/4 | 2-5/8 | 9-3/4 | 7-5/8 | 35.2 |
| 2" | 23-3/4 | 2-5/8 | 10 | 8 | 45.8 |

### PART NUMBER MATRIX

| 4A X | 6 X | X | X 2ST |
|---|---|---|---|
| | BYPASS SIDE | SIZE | METER OPTION |
| 4A - Standard | 2 - Bypass Line on Right Side (Standard - as Shown) | 7 - 1-1/2" | C - Cubic ft/min |
| 4ALF - Lead Free | | 8 - 2" | E - GPM |
| | 4 - Bypass Line on Left Side | | G - Mo Meter |
| EXAMPLE: 4A 62 8 E 2ST = 2" double check detector, right side bypass with GPM meter. | | | |

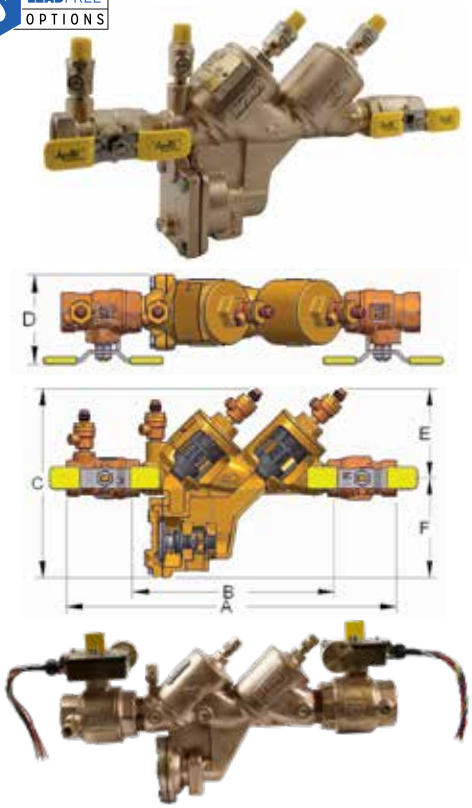


## RP 4A / RPLF 4A SERIES
REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTER ASSEMBLY

LEADFREE OPTIONS




**SLOW CLOSE WITH MONITOR SWITCHES T2ST OPTION (1-1/2" AND 2" ONLY) SEE SS1397 FOR DIMENSIONS**

The Apollo Series RP 4A or RPLF 4A Reduced Pressure Principle Backflow Preventer is designed to give maximum protection against backflow caused by either back-pressure or back-siphonage from substances that are hazardous. The durable but economical device is easily maintained in the line with modular check cartridge assemblies that require no special tools. It consists of two independently acting spring-loaded check valves with an automatic differential relief valve located between the check valves. All test cocks are mounted at the top of the unit to assure easy access during repair and maintenance when unit is installed in tight places.

### FEATURES
- Maximum Protection Against Back-Pressure/Back-Siphonage
- Modular Check Valve Cartridges w/ Easily Replaced Parts
- Reversible/Removable Chloramine-Resistant Silicone Seat Discs
- Low Head Pressure Loss
- Top Mounted Test Cocks
- Threaded Testcock Protectors
- Internal Sensing Passage
- Modular Captured Spring Relief Valve
- Lead Free Option
- Standard with Full Port Ball Valves with Stainless Steel Handles
- Corrosion Resistant
- Optional Air Gap Drain
- 5 Year Warranty
- **Proudly Made in USA**

### PERFORMANCE RATING
- Maximum Working Pressure: 175 psi
- Operating Temperature Range: 33° to 180°F

### APPROVALS
- ASSE 1013
- CSA B64.4
- Federal Public Law 111-380
- AWWA C511
- UL, ULC Classified (T2ST Option or Less Shutoffs)
- Approved by the Foundation for Cross-Connection Control and Hydraulic Research at the University of Southern California
- Horizontal Installation Approvals (1/2" thru 2")
- NSF/ANSI/CAN 61 - Water Quality (4ALF only)
- NSF/ANSI 372 - Lead Free (4ALF only)

### STANDARD MATERIALS LIST

| | | | |
|---|---|---|---|
| **BODY, CAPS** | Bronze (C84400/LF C89836) | **DIAPHRAGM** | Nitrile and Nylon |
| **BV SHUT-OFFS, TEST COCKS** | Bronze (C84400/LF C87800) | **CHECK MODULES** | Glass-Filled PPO |
| | | **O-RINGS** | Chloramine-Resistant EPDM |
| **SPRINGS** | 300 Series SS | **BALL VALVE HANDLES** | Stainless Steel |
| **SEAT DISCS** | Chloramine-Resistant Silicone | | |

*Contact local water authorities for installation/service requirements.*

### PART NUMBER MATRIX

| 4A X | 2 X | X | XX | X |
|---|---|---|---|---|
| | Y-STRAINER | SIZE | SHUT-OFF VALVES | OPTIONS (CAN BE COMBINED) |
| 4A - Standard | 0 - Standard | 3 - 1/2" | A2 - w/ Ball Valves (Standard) | F - SAE Threaded Test Cocks (Standard 1/2") |
| 4ALF - Lead Free | 1 - w/ Y-Strainer (Shipped Loose) | 4 - 3/4" | A4 - w/ Union Ball Valves (3/4" - 2") | L - Lever Handle (3/4" & 1" Only) |
| | | 5 - 1" | T2ST - Tamper Gear Operated Ball Valves (1-1/2"- 2") | LL - Locking Lever Handles |
| | | 6 - 1-1/4" | | P - Push Connection (Factory Installed) |
| | | 7 - 1-1/2" | | PR - Press Connection (Factory Installed) (3/4" & 1" Only) |
| | | 8 - 2" | | |
| EXAMPLE: 4A 215 A4LL = 1" reduced pressure backflow preventer with strainer, union ball valves and locking lever handles | | | | |

### DIMENSIONS

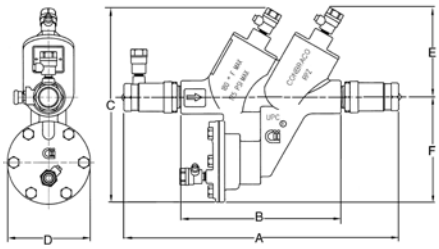
| MODEL NO. PART NO. SIZE | RP4A12 4A 203 A2F 1/2" | RP4A12 4A 203 A2F 15 MM. | RP4A34 4A 204 A2F 3/4" | RP4A34 4A 204 A2F 20 MM. | RP4A1 4A 205 A2F 1" | RP4A1 4A 205 A2F 25MM. | RP4A114 4A 206 A2F 1-1/4" | RP4A114 4A 206 A2F 32 MM. | RP4A112 4A 207 A2F 1-1/2" | RP4A112 4A 207 A2F 40 MM. | RP4A2 4A 208 A2F 2" | RP4A2 4A 208 A2F 50 MM. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A* | 10-7/8 | 276 | 12-5/8 | 321 | 14-5/8 | 371 | 17-1/2 | 445 | 18 | 457 | 20-1/8 | 511 |
| B | 7-3/8 | 187 | 8-1/2 | 216 | 9-1/2 | 241 | 11-3/4 | 298 | 11-5/8 | 295 | 12-3/4 | 324 |
| C | 7-1/8 | 181 | 7-3/8 | 187 | 8 | 203 | 9-7/8 | 251 | 9-7/8 | 251 | 11 | 279 |
| D | 2-7/8 | 73 | 3-1/8 | 79 | 3-1/4 | 83 | 5-1/8 | 130 | 5-1/8 | 130 | 5-7/8 | 149 |
| E | 3-1/4 | 83 | 3-1/2 | 89 | 4 | 100 | 4-1/2 | 114 | 4-1/2 | 114 | 5 | 127 |
| F | 3-7/8 | 98 | 3-7/8 | 98 | 4 | 100 | 5-3/8 | 137 | 5-3/8 | 137 | 6 | 150 |
| **WEIGHTS** | **LB.** | **KG.** | **LB.** | **KG.** | **LB.** | **KG.** | **LB.** | **KG.** | **LB.** | **KG.** | **LB.** | **KG.** |
| Net Wt. | 6.9 | 3.1 | 8.2 | 3.7 | 11.7 | 5.3 | 13.6 | 6.2 | 17.4 | 7.9 | 24.5 | 11.1 |

**For T2ST Option, Union Ball Valve, Press, and Push connection dimensions, see submittal sheets.*

## RPS 40 SERIES
STAINLESS STEEL REDUCED PRESSURE BACKFLOW PREVENTER ASSEMBLY

LEADFREE CERTIFIED






The Apollo Series RPS 40 Stainless Steel Reduced Pressure Principle Backflow Preventer is designed to give maximum protection against backflow caused by either backpressure or back-siphonage from a cross-connection wherein a contaminant hazard exists (i.e. a health hazard), or a pollutant hazard exists (i.e. a non-hazard). The assembly is composed of two spring-loaded poppet type check valves and a mechanically independent, hydraulically dependent pressure differential relief valve set in an integral stainless steel body. Three of the testcocks are mounted at the top to assure easy access during repair and maintenance when unit is installed in tight places.

### OPERATION
During normal flow conditions, the two check valves are held off their seats, supplying water downstream. The relief valve is held shut by supply pressure acting through the internal sensing passage, on the relief valve diaphragm. In the area between the check valves, called the zone, the pressure is maintained at approximately 7 psi lower than supply pressure. Should a back-pressure or back-siphonage condition occur, the second check valve will seal, prohibiting the backflow of water. Should the second check valve become fouled, the pressure in the zone will increase causing the differential relief valve to open to atmosphere. This will maintain the pressure in the zone at least 2 psi lower than supply pressure.

### FEATURES
- Stainless Steel Body and Covers
- Easy to Install and Repair
- Internal Sensing Passage
- Low Head Loss
- Reversible/Removable Seat Discs
- Replaceable Seats
- Comes Standard with Apollo Stainless Steel Full Fort Ball Valves with Stainless Steel Handles
- Lead Free Standard
- 5 Year Warranty
- Optional Air Gap Drain
- **Proudly Made in USA**

### PERFORMANCE RATING
- Maximum Working Pressure: 175 psi
- Temperature Range: 33° to 180°F

### APPROVALS
- Approved by the Foundation for Cross-Connection Control and Hydraulic Research at the University of Southern California
- ASSE 1013
- CSA

### STANDARD MATERIALS LIST

| | |
|---|---|
| **BODY, COVERS** | 316 Stainless Steel (CF8M) |
| **SPRINGS** | Stainless Steel |
| **FASTENERS** | Stainless Steel |
| **POPPETS** | Glass-Filled Celcon® |
| **SEAT DISCS** | Silicone Rubber |
| **DIAPHRAGM, O-RINGS** | FDA Fluorocarbon |
| **REPLACEABLE SEATS** | Glass-Filled PPO |
| **TEST COCKS & HANDLES** | Stainless Steel |

### PART NUMBER MATRIX

| 40 2 X | X | T X | S X |
|---|---|---|---|
| | SIZE | SHUT-OFF VALVES | OPTIONS (CAN BE COMBINED) |
| 0 - Standard | | 1 - Less Ball Valves (UL Classified - 3/4", 1") | LL - Locking Lever Handles |
| 1 - w/ SS Y-Strainer | 3 - 1/2" | 2 - w/ SS Ball Valves and SS Tee Handles (Standard) | |
| (Shipped Loose) | 4 - 3/4" | | |
| | 5 - 1" | | |
| EXAMPLE: 40 20 4 T2 SLL = 3/4" stainless steel reduced pressure backflow preventer, with stainless steel, locking lever ball valves | | | |

### DIMENSIONS (X = SHUT-OFF VALVE CONFIGURATION)

| MODEL NUMBER<br>PART NUMBER<br>SIZE | RP40S38<br>40 203 TXS<br>10 MM. | RP40S12<br>40 203 TXS<br>1/2" | RP40S12<br>40 203 TXS<br>12 MM. | RP40S34<br>40 204 TXS<br>3/4" | RP40S34<br>40 204 TXS<br>20 MM. | RP40S1<br>40 205 TXS<br>1" | RP40S1<br>40 205 TXS<br>25 MM. |
|---|---|---|---|---|---|---|---|
| A | 267 | 10-1/2 | 267 | 13-1/2 | 343 | 15-1/4 | 387 |
| B | 146 | 5-3/4 | 146 | 7-15/16 | 202 | 7-15/16 | 202 |
| C | 175 | 6-7/8 | 175 | 9 | 229 | 9 | 229 |
| D | 68 | 2-5/8 | 68 | 4-1/16 | 103 | 4-1/16 | 103 |
| E | 81 | 3-3/16 | 81 | 4-3/8 | 111 | 4-3/8 | 111 |
| F | 95 | 3-3/4 | 95 | 5-1/8 | 130 | 5-1/8 | 130 |
| Test Cocks | 1/8 x 1/4 NPT | 1/8 x 1/4 NPT | 1/8 x 1/4 NPT | 1/8 x 1/4 NPT | 1/8 x 1/4 NPT | 1/8 x 1/4 NPT | 1/8 x 1/4 NPT |
| **WEIGHTS** | **KG.** | **LB.** | **KG.** | **LB.** | **KG.** | **LB.** | **KG.** |
| Net Wt. (w/o Ball Valves) | 2.0 | 4.1 | 1.9 | 8.1 | 3.8 | 8.1 | 3.7 |
| Net Wt. (with Ball Valves) | 2.5 | 5.4 | 2.4 | 10.8 | 4.9 | 11 | 5.0 |
| Shipping. Wt. (w/o Ball Valves) | 2.3 | 5 | 2.3 | 9.8 | 4.4 | 9.6 | 4.3 |
| Shipping. Wt. (with Ball Valves) | 2.9 | 6.3 | 2.8 | 12.3 | 5.6 | 12.8 | 5.8 |

## RPDA2 / RPDA2LF 4A SERIES "SLO-CLOZ"

BRONZE REDUCED PRESSURE DETECTOR BACKFLOW PREVENTER ASSEMBLY

LEADFREE OPTIONS



The Apollo Model RPDA24A or RPDA2LF4A Lead Free* 1-1/2"– 2" Reduced Pressure Detector Assembly consists of a mainline reduced pressure principle backflow preventer (RP) with a Type 2 bypass consisting of a single check (SCV) and meter bypassing the mainline second check to prevent backflow while accurately measuring all flows up to 2 gpm while the mainline 2nd check remains closed. The pressure drop across the assembly shall be documented by independent approval agencies. The assembly shall prevent contamination of the potable water supply due to back-siphonage or backpressure from substances that are health and non-health hazards. This Made in America assembly features Apollo UL® Listed, slow-close, full open port, gear operated ball valves with integral tamper switches and carries the five-year Apollo factory warranty.

### FEATURES

- Low Pressure Loss Documented By Independent Approval Agencies
- Easily Removable Modular Check Valve Cartridges
- Captured Stainless Steel Springs
- Apollo UL® Listed, Slow-Close, Full Open Port, Gear Operated Ball Valves with Integral Tamper Switches
- Top-Mounted Test Cocks for Easy Testing
- No Special Tools Required
- Chloramine-Resistant Elastomers
- Short Lay-Length for Small Spaces
- Pre-Wired Tamper (Supervisory) Switches
- **Proudly Made in USA**

### PERFORMANCE RATING

- Maximum Working Pressure: 175 psi
- Temperature Range: 33° to 140°F
- Hydrostatic Test Pressure: 350 psi

### APPROVALS

- ASSE 1047 (Horizontal)
- UL Classified (Horizontal)
- C-UL Classified (Horizontal)
- Approved by the Foundation for Cross-Connection Control and Hydraulic Reasearch at the Univerity of Southern California. (Horizontal)
- NSF/ANSI/CAN 61 - Water Quality (4ALF only)
- NSF/ANSI 372 - Lead Free (4ALF only)

### STANDARD MATERIALS LIST

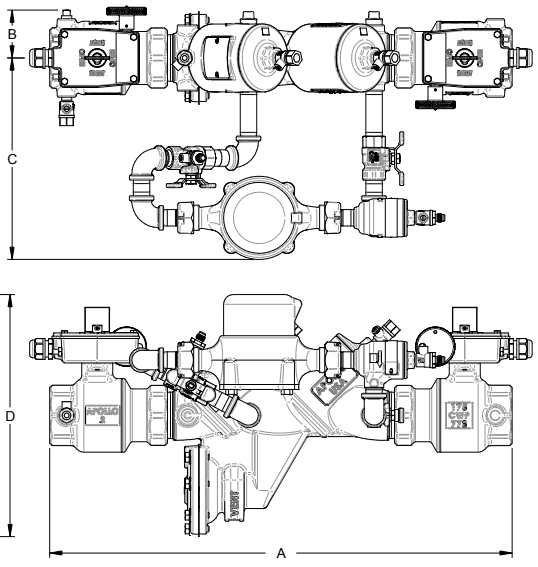
| | |
|---|---|
| **BODY, CAPS, BALL VALVE SHUTOFFS, TEST COCKS** | Bronze C84400 or C89836 or C87800 (Lead Free*) |
| **CHECK VALVE CARTRIDGES** | Glass-Filled PPO |
| **SPRINGS** | 300 Series Stainless Steel |
| **SEAT DISCS** | Chloramine-Resistant Silicone |
| **O-RINGS** | Chloramine-Resistant EPDM |

### DIMENSIONS

| SIZE (IN.) | DIMENSIONS (IN.) | | | | WT. (LB.) |
|---|---|---|---|---|---|
| | A | B | C | D | |
| 1-1/2" | 22-1/4 | 2-5/8 | 9-3/4 | 10-1/2 | 39.4 |
| 2" | 23-3/4 | 2-5/8 | 10 | 12-3/8 | 51.4 |

### PART NUMBER MATRIX

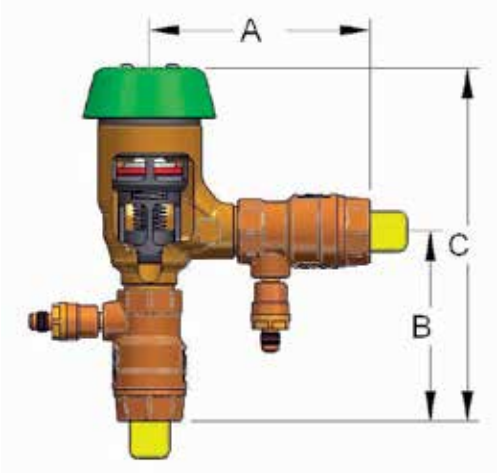
| 4A X | 7 X | X | X 2ST |
|---|---|---|---|
| | BYPASS SIDE | SIZE | METER OPTION |
| 4A - Standard | 2 - Bypass Line on Right Side (Standard - as Shown) | 7 - 1-1/2" | C - Cubic ft/min |
| 4ALF - Lead Free | 4 - Bypass Line on Left Side | 8 - 2" | E - GPM |
| | | | G - No Meter |
| EXAMPLE: 4A 72 8 E 2ST = 2" reduced pressure detector, right side bypass with GPM meter. | | | |



## PVB 4A / PVBLF 4A SERIES
FREEZE RESISTANT PRESSURE VACUUM BREAKER BACKFLOW PREVENTER

LEADFREE OPTIONS






The Apollo Model PVB 4A or PVBLF 4A Pressure Vacuum Breakers are designed to prevent contamination of potable water due to back-siphonage. An integral relief valve serves to reduce the possibility of damage due to intermittent freezing conditions. The modular check valve cartridge has a replaceable seat and a reversible silicone seat disc. Ball valves with stainless steel handles and nuts are standard.

### FEATURES
- Modular Captured Spring Cartridge Check Valve
- Low Pressure Loss
- Easy Maintenance
- **Built-In Freeze Resistant Relief Valve at no extra charge**
- Compact Yet Easy to Maintain
- Ball Valves w/SS Handles & Nuts Standard
- Testcocks Located for Easy Draining
- Threaded Testcock Protectors
- Corrosion Resistant
- 5 Year Warranty
- No Special Tools Required
- Lead Free Option (3/4" - 1")
- Flexible canopy helps protect the bonnet from impact breakage

### PERFORMANCE RATING
- Maximum Operating Pressure: 150 psi
- Design Pressure: 300 psi
- Temperature Range: 33° to 140°F

### APPROVALS
- ASSE 1020
- Approved by the Foundation for Cross-Connection Control and Hydraulic Research at the University of Southern California (1/2" - 2" Non Lead Free Only)
- CSA B64.1.2
- NSF/ANSI 372 - Lead Free (4ALF only)

### STANDARD MATERIALS LIST

| | |
|---|---|
| **BODY** | Bronze (C84400/LF C89836) |
| **BALL VALVES, TESTCOCKS** | Bronze (C84800/LF C87800) |
| **CANOPY** | UV Resistant ABS |
| **BONNET** | Glass-Filled PPO |
| **CHECK VALVE CARTRIDGE** | Glass-Filled PPO |
| **SPRINGS** | Stainless Steel |
| **SEAT DISCS** | Chloramine-Resistant Silicone |
| **FLOAT** | Glass-Filled Polypropylene |
| **O-RINGS** | Chloramine-Resistant EPDM |
| **BALL VALVE HANDLES** | Stainless Steel |

*Contact local water authorities for installation/service requirements.*

### DIMENSIONS

| PART NO. | MODEL NO. | DIMENSIONS (IN.) (MM) | | | | WEIGHT | |
|---|---|---|---|---|---|---|---|
| | | SIZE | A | B | C | LB. | KG. |
| 4A-503-A2 | PVB4A12 | 1/2" (15) | 4-1/2 (114) | 3-3/4 (95) | 7-1/4 (184) | 2.9 | 1.3 |
| 4A-504-A2 | PVB4A34 | 3/4" (20) | 4-3/4 (121) | 4-1/8 (105) | 7-5/8 (194) | 3.0 | 1.4 |
| 4A-505-A2 | PVB4A1 | 1" (25) | 5-3/8 (135) | 4-5/8 (194) | 8-3/8 (211) | 4.2 | 1.9 |
| 4A-506-A2 | PVB4A114 | 1-1/4" (32) | 7 (178) | 5-1/4 (133) | 9-7/8 (250) | 4.4 | 2.0 |
| 4A-507-A2 | PVB4A112 | 1-1/2" (40) | 7-1/4 (184) | 5-5/8 (143) | 10-1/8 (257) | 7.3 | 3.3 |
| 4A-508-A2 | PVB4A2 | 2" (50) | 8-1/2 (216) | 6-3/8 (161) | 11-1/2 (292) | 8.9 | 4.0 |

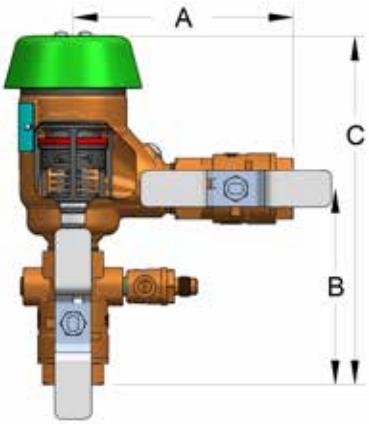
### PART NUMBER MATRIX

| 4A [X] | 50 X | A X | X |
|---|---|---|---|
| | SIZE | SHUT-OFF VALVES | OPTIONS (CAN BE COMBINED) |
| 4A - Standard | 3 - 1/2" | 2 - w/ Ball Valves (Standard) | F - SAE Threaded Test Cocks (Standard 1/2", 3/4",1") |
| 4ALF - Lead Free (3/4" - 1") | 4 - 3/4" | 4 - w/ Union Ball Valves | LL - Locking Lever Handles (3/4" - 2") |
| | 5 - 1" | (3/4" and 1" Only) | |
| | 6 - 1-1/4" | | |
| | 7 - 1-1/2" | | |
| | 8 - 2" | | |
| EXAMPLE: 4ALF 505 A4 LL = 1" pressure vacuum breaker with union ball valves and locking levers | | | |

## SVB 4A / SVBLF 4A SERIES "SLO-CLOZ"
SPILL RESISTANT VACUUM BREAKER BACKFLOW PREVENTER

LEADFREE OPTIONS






The Apollo Series SVB 4A or SVBLF 4A Spill Resistant Vacuum Breaker is designed to prevent contamination of the potable water supply due to back-siphonage. The SVB is ideally suited for continuous pressure, indoor applications where water spillage is undesirable. The device has a straight through flow path for minimal head loss. All components are easily accessible for easy repair and maintenance. All components are made of corrosion resistant materials for years of reliable service. Should be installed 12" above all downstream piping.

### FEATURES
- Modular Captured Spring Check Valve
- Shut-Off Valves w/ Stainless Steel Handles and Nuts
- Threaded Testcock Protectors
- Designed For Easy Maintenance
- Lead-Free Options
- Low Head Loss
- Corrosion Resistant
- 5 Year Warranty
- Flexible canopy helps protect the bonnet from impact breakage
- No Special Tools Required
- **Proudly Made in USA**

### PERFORMANCE RATING
- Maximum Operating Pressure: 150 psi
- Temperature Range: 33° to 180°F

### APPROVALS
- ASSE 1056

### STANDARD MATERIALS LIST

| | |
|---|---|
| **BODY** | Bronze C84400 or C89836 Lead Free* |
| **BALL VALVES, TEST COCKS** | Bronze C84400 or C87800 Lead Free* |
| **CANOPY** | UV-Resistant ABS |
| **BONNET** | Glass-Filled PPO |
| **CHECK VALVE CARTRIDGE** | Glass-Filled PPO |
| **SPRINGS** | Stainless Steel |
| **SEAT DISCS** | Chloramine-resistant Silicone |
| **FLOAT** | Glass-Filled PPO |
| **O-RINGS** | Chloramine-resistant EPDM |

### DIMENSIONS

| PART NO. | LEAD FREE PART NO. | MODEL NO. | LEAD FREE MODEL NO. | DIMENSIONS (IN.) (MM) | | | | WEIGHT | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | SIZE | A | B | C | LB. | KG. |
| 4A-904-A2F | 4ALF-904-A2F | SVB4A34 | SVBLF4A34 | 3/4" (20) | 4-1/2 (121) | 4 (105) | 7-1/4 (194) | 3.0 | 1.4 |
| 4A-905-A2F | 4ALF-905-A2F | SVB4A1 | SVBLF4A1 | 1" (25) | 5-3/8 (135) | 4-3/4 (194) | 8-1/8 (211) | 4.2 | 1.9 |

### PART NUMBER MATRIX

| 4A [XX] | 90 X | XX | X |
|---|---|---|---|
| | SIZE | SHUT-OFF VALVES | |
| 4A - Non-Lead Free | 4 - 3/4" | A2 - w/ Ball Valves (Standard) | F - SAE Threaded Test Cocks (Standard) |
| 4ALF - Lead Free* | 5 - 1" | A4 - w/ Union Ball Valves | LL - Locking Lever Handles |
| EXAMPLE: 4ALF 904 A4 LL = 3/4" spill resistant vacuum breaker with union ball valves and locking levers | | | |

## DCLF 4A SERIES
DOUBLE CHECK VALVE BACKFLOW PREVENTER ASSEMBLY

LEADFREE OPTIONS



TRIFORCE™ CHECK



The Apollo Model DCLF 4A Double Check Valves are designed to prevent contamination of the potable water supply due to back-siphonage or backpressure from substances that are objectionable, but non-health hazards. The TriForce™ center stem guided check valves feature replaceable and reversible silicone seat discs. The body is domestic stainless steel from 2-1/2" - 8" and FDA epoxy coated ductile iron in the 10" & 12". Available with a wide variety of shutoff valve options.

### OPERATION
During normal flow conditions, the two check valves are held off their seats, supplying water downstream. Each check valve is designed to maintain a minimum of 1 psi across the valve during normal operation. Should the downstream pressure increase to within 1 psi of supply pressure, both check valves will close to prevent a backflow condition.

### FEATURES
- Domestic Stainless Steel Body: 2-1/2"-8"
- FDA Epoxy coated Ductile Iron body: 10" & 12"
- Easy Maintenance: No Special Tools Required
- Snap-in Check Retainers: 2-1/2"-6"
- Bolted-in Checks: 8"-12"
- Low Pressure Loss as Documented by an Independent Approval Laboratory
- Center Stem Guided TriForce™ Check Valves
- Approved for Horizontal and Vertical Up Flow
- Chloramine-Resistant Elastomers
- Lead Free Standard
- US Patent Nos.: 6,443,184; 7,025,085; 7,533,699
- **Designed, Fabricated, Assembled and Tested in the USA**
- 5 Year Warranty

### PERFORMANCE RATING
- Maximum Working Pressure: 175 psi
- Temperature Range: 33° to 140°F, 180°F Intermittent

### APPROVALS
- ASSE 1015
- CSA B64.5
- Approved by the Foundation for Cross-Connection Control and Hydraulic Research at the University of Southern California (2-1/2" - 12")
- AWWA C-510 (2-1/2" - 12")
- IAPMO
- UL, ULC Classified
- FM Approved
- NSF/ANSI/CAN 61 - Water Quality
- NSF/ANSI 372 - Lead Free

### STANDARD MATERIALS LIST

| | |
|---|---|
| **BODY (2-1/2" - 8")** | 304 Stainless Steel |
| **BODY (10" & 12")** | FDA Epoxy Coated Ductile Iron |
| **COVERS (2-1/2" - 6")** | Glass Filled PPO/SS |
| **COVERS (8")** | 304 Stainless Steel |
| **COVERS (10" & 12")** | FDA Epoxy Coated Ductile Iron |
| **CHECK VALVES** | Bronze/Glass-Filled PPO/SS |
| **SPRINGS** | Stainless Steel |
| **SEAT DISCS** | Chloramine-Resistant Silicone |

### PART NUMBER MATRIX

| 4ALF | 1X | X | XX | X |
|---|---|---|---|---|
| | Y-STRAINER | SIZE | SHUT-OFF VALVES (INLET x OUTLET) | OPTIONS |
| 4ALF - Lead Free Standard | 0 - Standard | 9 - 2-1/2" | 01 - Less Shut-off Valves | D - Domestic Assembly |
| | 1 - w/ Y-strainer | 0 - 3" | 02 - NRS Flange x NRS Flange | |
| | (shipped loose) | A - 4" | 03 - OS&Y Flange x OS&Y Flange | |
| | | C - 6" | 04 - OS&Y Flange x Monitored (Mon.) Butterfly Valve Groove† | |
| | | E - 8" | 06 - OS&Y Flange x Post indicator Flange** | |
| | | G - 10" | 07 - OS&Y Flange x OS&Y Groove | |
| | | H - 12" | 08 - OS&Y Groove x OS&Y Groove | |
| | | | 09 - Mon. Butterfly Valve Groove x Mon. Butterfly Valve Groove† | |
| | | | 10 - OS&Y Flange x Post Indicator Groove** | |
| | | | 11 - NRS Groove x NRS Groove | |
| | | | 12 - NRS Flange x NRS Groove | |
| | | | 13 - Post Indicator Flange x Mon. Butterfly Valve Groove† | |
| | | | 14 - Post Indicator Flange x Post Indicator Flange | |
| | | | 16 - Mon Butterfly VALVE Groove x Post Indicator Flange† | |
| | | | 17 - Post Indicator Flange x OS&Y Groove | |
| | | | 18 - OS&Y Groove x Post Indicator Groove | |
| | | | 19 - Mon. Butterfly Valve Groove x Post Indicator Groove | |
| | | | 20 - Post Indicator Flange x OS&Y Flange | |
| | | | 21 - Post Indicator Groove x OS&Y Groove | |
| | | | 22 - Post Indicator Groove x Mon. Butterfly Valve Groove | |
| | | | 23 - Mon. Butterfly Valve Groove x OS&Y Flange | |

EXAMPLE: 4ALF 10A 03 = 4" size Lead Free Double Check Valve Assembly with OS&Y flanged inlet x OS&Y flanged outlet shut-off valves (shown above)

† *Butterfly valves not available in 12" size.*

## DC 4SGLF / 4SG / 4S SERIES
DOUBLE CHECK VALVE BACKFLOW PREVENTER ASSEMBLY

LEADFREE OPTIONS



The Apollo DC 4SGLF /4SG / 4S Series Double Check Valve is designed to prevent contamination of the potable water supply due to back-siphonage or backpressure from substances that are non-health hazards. The modular check valves have replaceable seats and reversible EPDM seat discs. Grooved connections on an epoxy-coated ductile iron body allow for easy connection to butterfly valves or gate valves (2-1/2" - 8"), flanged (10" only).

### FEATURES
- Lightweight
- Short Lay Length
- Low Pressure Loss
- Modular Check Valves
- Individual Access to Check Valves
- Reversible/Replaceable Seat Discs
- Approved for Vertical (Up) and Horizontal Installations
- Gate Valves Epoxy Coated (FDA)
- Lead-Free (2-1/2" - 6" only)
- Corrosion Resistant Epoxy-Coated Ductile Iron Body
- US Patents Nos.: 5,711,341 and 6,343,618
- 5 Year Warranty
- **Assembled and Tested in the USA**

### PERFORMANCE RATING
- Maximum Working Pressure: 175 psi
- Temperature Range: 33°F – 140°F
- Hydrostatic Test Pressure: 350 psi

### APPROVALS
- ASSE 1015
- CSA
- Approved by the Foundation for Cross-Connection Control and Hydraulic Research at the University of Southern California
  (2-1/2"-6" Lead Free / 8" & 10" Non-Lead Free Only)
- AWWA C-510
- UL Classified
- FM Approved
- NSF/ANSI 372 - Lead Free (4SGLF only)

### STANDARD MATERIALS LIST

| | |
|---|---|
| **BODY** | FDA Epoxy Coated Ductile Iron |
| **COVERS (2-1/2" - 6")** | FDA Epoxy Coated Steel |
| **COVERS (8" & 10")** | FDA Epoxy Coated Ductile Iron |
| **CHECK VALVES (2-1/2" - 6")** | Glass-Filled PPO |
| **CHECK VALVES (8" & 10")** | Bronze (C84400/LF C89836) |
| **SPRINGS** | Stainless Steel |
| **SEAT DISCS** | Chloramine-Resistant EPDM |
| **TEST COCK HANDLES** | Stainless Steel |

### PART NUMBER MATRIX

| 4S XXX | 1 X | X | XX | X |
|---|---|---|---|---|
| | Y-STRAINER | SIZE | SHUT-OFF VALVES (INLET x OUTLET) | OPTIONS |
| 4SG LF - Lead Free | 0 - None (Standard) | 9 - 2-1/2" | 01 - Less Shut-off Valves (grooved-end body) | D - Domestic Gate Valves |
| (2-1/2"-6" Only) | 1 - With Y-Strainer | 0 - 3" | 02 - NRS Flange x NRS Flange | |
| 4SG - 8" Only | (Flanged Only, Shipped Loose) | A - 4" | 03 - OS&Y Flange x OS&Y Flange | |
| 4S - 10" Only | | C - 6" | 04 - OS&Y Flange x Monitored Butterfly Valve Groove | |
| | | E - 8" | 06 - OS&Y Flange x Flange Post Indicator | |
| | | G - 10"* | 07 - OS&Y Flange x OS&Y Groove | |
| | | | 08 - OS&Y Groove x OS&Y Groove | |
| | | | 09 - Mon. Butterfly Valve Groove x Mon. Butterfly Valve Groove | |
| | | | 10 - OS&Y Flange x Groove Post Indicator | |
| EXAMPLE: 4SGLF 10A 07 = 4" size lead free double check valve assembly with OS&Y flanged inlet x OS&Y grooved outlet shut-off valves | | | | |

**10" body is flanged internal connections only (Model 4S)*

## DCLF 4AN SERIES
N STYLE DOUBLE CHECK DETECTOR BACKFLOW PREVENTER ASSEMBLY

LEADFREE OPTIONS

**n FLOW**



**OPTIONAL VALVE SETTER**



**TRIFORCE™ CHECK**



The Apollo® Model DCLF 4An Double Check Valves are designed to prevent contamination of the potable water supply due to back-siphonage or backpressure from substances that are objectionable, but non-health hazards. The TriForce™ center stem guided check valves feature replaceable and reversible silicone seat discs. The normally vertical up/vertical down oriented body incorporates an internal swivel connection providing the ability to pivot the second check. The n style flow body is domestic stainless steel from 2-1/2"-8" and FDA epoxy coated ductile iron in the 10" and 12". Available in a wide variety of shut-off valves.

### OPERATION
During normal flow conditions, the two check valves are held off their seats, supplying water downstream. Each check valve is designed to maintain a minimum of 1 psi across the valve during normal operation. Should the downstream pressure increase to within 1 psi of supply pressure, both check valves will close to prevent a backflow condition.

### FEATURES
- Domestic Stainless Steel Body: 2-1/2"-8"
- FDA Epoxy Coated Ductile Iron Body: 10" & 12"
- Easy Maintenance: No Special Tools Required
- Drop-In Check Retainers: 2-1/2"-6"
- Bolted-In Checks: 8"-12"
- Low Pressure Loss as Documented by an Independent Approval Laboratory
- Center Stem Guided TriForce™ Check Valves
- Lead-Free Standard
- Small Installation Space Required - Small Footprint
- Chloramine-Resistant Elastomers
- Optional Valve Setters Eliminate Need for Thrust Blocks
- US Patent Nos.: 6,443,184; 7,025,085; 7,533,699
- 5 year Warranty
- **Designed, Fabricated, Assembled and Tested in the USA**

### PERFORMANCE RATING
- Maximum Working Pressure: 175 psi
- Temperature Range: 33° to 140°F, 180°F Intermittent

### APPROVALS
- Approved by the Foundation for Cross-Connection Control and Hydraulic Research at the University of Southern California (2-1/2" - 12")
- ASSE 1015-2011
- AWWA C-510 (2-1/2" - 12")
- UL, ULC Classified
- FM Approved
- CSA B64.5
- NSF/ANSI/CAN - 61 Water Quality
- NSF/ANSI 372 - Lead Free

### STANDARD MATERIALS LIST

| | |
|---|---|
| **BODY (2-1/2" - 8")** | 304 Stainless Steel |
| **BODY (10" & 12")** | FDA Epoxy Coated Ductile Iron |
| **COVERS (2-1/2" - 6")** | Glass Filled PPO/SS |
| **COVERS (8")** | 304 Stainless Steel |
| **COVERS (10" & 12")** | FDA Epoxy Coated Ductile Iron |
| **CHECK VALVES** | Bronze/Glass-Filled PPO/SS |
| **SPRINGS** | Stainless Steel |
| **SEAT DISCS** | Chloramine-Resistant Silicone |

### PART NUMBER MATRIX

| 4ANLF | 1 X | X | XX | X |
|---|---|---|---|---|
| | Y-STRAINER | SIZE | SHUT-OFF VALVES (INLET x OUTLET) | OPTIONS |
| 4AnLF - Lead Free Standard | 0 - Standard | 9 - 2-1/2" | 01 - Less Shut-off Valves | D - Domestic Assembly |
| | 1 - w/ Y-strainer | 0 - 3" | 02 - NRS Flange x NRS Flange | |
| | (Shipped Loose) | A - 4" | 03 - OS&Y Flange x OS&Y Flange | |
| | | C - 6" | 04 - OS&Y Flange x Monitored (Mon.) Butterfly Valve Groove | |
| | | E - 8" | 06 - OS&Y Flange x Post indicator Flange | |
| | | G - 10" | 07 - OS&Y Flange x OS&Y Groove | |
| | | H - 12" | 08 - OS&Y Groove x OS&Y Groove | |
| | | | 09 - Mon. Butterfly Valve Groove x Mon. Butterfly Valve Groove | |
| | | | 10 - OS&Y Flange x Post Indicator Groove | |
| | | | 11 - NRS Groove x NRS Groove | |
| | | | 12 - NRS Flange x NRS Groove | |
| | | | 13 - Post Indicator Flange x Mon. Butterfly Valve Groove | |
| | | | 14 - Post Indicator Flange x Post Indicator Flange | |
| | | | 16 - Mon Butterfly VALVE Groove x Post Indicator Flange | |
| | | | 17 - Post Indicator Flange x OS&Y Groove | |
| | | | 18 - OS&Y Groove x Post Indicator Groove | |
| | | | 19 - Mon. Butterfly Valve Groove x Post Indicator Groove | |
| | | | 20 - Post Indicator Flange x OS&Y Flange | |
| | | | 21 - Post Indicator Groove x OS&Y Groove | |
| | | | 22 - Post Indicator Groove x Mon. Butterfly Valve Groove | |
| | | | 23 - Mon. Butterfly Valve Groove x OS&Y Flange | |

EXAMPLE: 4AnLF 10A 03 = 4" size lead free double check valve assembly with OS&Y flanged inlet x OS&Y flanged outlet shut-off valves (shown above)

*†Butterfly valves not available in 12" size.*

## DCDALF 4A / DCDA2LF 4A SERIES
DOUBLE CHECK DETECTOR BACKFLOW PREVENTER ASSEMBLY

LEADFREE OPTIONS



**TYPE 1 BYPASS**



**TRIFORCE™ CHECK**

The Apollo Model DCDALF 4A / DCDA2LF 4A Double Check Detector Assembly is designed to prevent contamination of the potable water supply due to back-siphonage or backpressure from substances that are objectionable, but non-health hazards. The TriForce™ center stem guided check valves feature replaceable and reversible silicone seat discs. The bypass assembly serves to measure accurate water use of up to 2 GPM. Available in a wide variety of shut-off options.

Available in both Type 1 and Type 2 bypass configurations. The Type 2 bypass uses the first check of the mainline assembly as the first check of the bypass. The second check of the bypass is a single check valve with a model number and serial number for test recording. This arrangement complies with the National Backflow Standards. The arrangement provides the same level of protection as the Type 1 bypass and the testing procedure is the same.

### FEATURES
- Domestic Stainless Steel Body: 2-1/2"-8"
- FDA Epoxy Coated Ductile Iron Body: 10" & 12"
- Easy Maintenance: No Special Tools Required
- Drop-In Check Retainers: 2-1/2"-6"
- Bolted-In Checks: 8"-12"
- Low Pressure Loss as Documented by an Independent Approval Laboratory
- Center Stem Guided Triforce™ Check Valves
- Approved for Horizontal and Vertical Up Flow
- Chloramine-Resistant Elastomers
- Lead-Free Standard
- US Patent Nos.: 6,443,184; 7,025,085; 7,533,699
- **Designed, Fabricated, Assembled and Tested in the USA**
- 5 Year Warranty
- Optional Mounting of Bypass on Either Side for Ease of Installation

### PERFORMANCE RATING
- Maximum Working Pressure: 175 psi
- Temperature Range: 33° to 140°F, 180°F Intermittent

### APPROVALS
- ASSE 1048*, CSA B64.5, FM, UL*, cUL*
- NSF/ANSI/CAN - 61 Water Quality
- NSF/ANSI 372 - Lead Free
- Approved by the Foundation for Cross-Connection Control and Hydraulic Research at the University of Southern California (2-1/2" - 8" Type 1 & Type 2, 10" - 12" type 2 only)

### PART NUMBER MATRIX

| 4ALF | 6 X | X | X | X X | X |
|---|---|---|---|---|---|
| | BYPASS SUB-ASSEMBLY OPTIONS | SIZE | METER OPTION | SHUT-OFF VALVES (INLET x OUTLET) | OPTIONS |
| 4ALF - Lead Free | 0 - Type 1 w/ 1/2" Double Check | 9 - 2-1/2" | C - Cubic ft/min | 01 - Less Shut-off Valves | D - Domestic Assembly |
| | 2 - Type 2 w/ 1/2" Single Check (STD) | 0 - 3" | E - Gallons/min | 03 - OS&Y Flange x OS&Y Flange | |
| | 3 - Type 1 w/ Bypass on Left* | A - 4" | G - Less Meter | 04 - OS&Y Flange x Monitored (Mon.) Butterfly Valve Groove† | |
| | 4 - Type 2 w/ Bypass on Left* | C - 6" | | 06 - OS&Y Flange x Post indicator Flange | |
| | | E - 8" | | 07 - OS&Y Flange x OS&Y Groove | |
| | | G - 10" | | 08 - OS&Y Groove x OS&Y Groove | |
| | | H - 12" | | 09 - Mon. Butterfly Valve Groove x Mon. Butterfly Valve Groove† | |
| | | | | 10 - OS&Y Flange x Post Indicator Groove | |
| | | | | 13 - Post Indicator Flange x Mon. Butterfly Valve Groove† | |
| | | | | 14 - Post Indicator Flange x Post Indicator Flange | |
| | | | | 16 - Mon Butterfly Valve Groove x Post Indicator Flange† | |
| | | | | 17 - Post Indicator Flange x OS&Y Groove | |
| | | | | 18 - OS&Y Groove x Post Indicator Groove | |
| | | | | 19 - Mon. Butterfly Valve Groove x Post Indicator Groove | |
| | | | | 20 - Post Indicator Flange x OS&Y Flange | |
| | | | | 21 - Post Indicator Groove x OS&Y Groove | |
| | | | | 22 - Post Indicator Groove x Mon. Butterfly Valve Groove† | |
| | | | | 23 - Mon. Butterfly Valve Groove x OS&Y Flange | |

EXAMPLE: 4ALF 60A E3 = 4" size lead free double check detector assembly with OS&Y flanged inlet x OS&Y flanged outlet shut-off valves w/ meter in gallons.

*Orientation of bypass looking downstream. Standard is right hand side. Left hand is on opposite side*
†Butterfly valves not available in 12" size.

## DCDA 4SG SERIES
DOUBLE CHECK DETECTOR BACKFLOW PREVENTER ASSEMBLY



The Apollo DCDA 4SG Series Double Check Detector Assembly is designed to prevent contamination of the potable water supply due to back-siphonage or backpressure from substances that are non-health hazards. The device consists of a mainline double check valve with resilient seated shut-off valves. The by-pass serves to measure water use of up to 3 gpm. Grooved connections on an epoxy-coated ductile iron body allow for easy connection to butterfly valves or gate valves. (2-1/2" - 8")

### FEATURES
- Lightweight
- Short Lay Length
- Low Pressure Loss
- Modular Check Valves
- Individual Access to Check Calves
- Reversible/Replaceable Seat Discs
- Approved for Vertical and Horizontal Installations
- Gate Valves Epoxy Coated (FDA)
- Corrosion Resistant FDA Epoxy Coated Ductile Iron Body
- US Patents Nos.: 5,711,341 and 6,343,618
- 5 Year Warranty
- **Assembled and Tested in the USA**

### PERFORMANCE RATING
- Maximum Working Pressure: 175 psi
- Temperature Range: 33°F – 140°F
- Hydrostatic Test Pressure: 350 psi

### APPROVALS
- UL Classified
- FM Approved
- Approved by the Foundation for Cross-Connection Control and Hydraulic Research at the University of Southern California (2-1/2" - 10" Non Lead Free Only)
- ASSE 1048 (with Meter)
- CSA

### STANDARD MATERIALS LIST

| | |
|---|---|
| **BODY (MAINLINE)** | FDA Epoxy Coated Ductile Iron |
| **BYPASS DC** | Bronze (C84400/LF C89836) |
| **COVERS (2-1/2" - 6")** | FDA Epoxy Coated Steel |
| **COVERS (8")** | FDA Epoxy Coated Ductile Iron |
| **CHECK VALVES (2-1/2" - 6")** | Glass-Filled PPO |
| **CHECK VALVES (8" - 10")** | Bronze (C8440) |
| **SPRINGS** | Stainless Steel |
| **SEAT DISCS** | Chloramine-Resistant EPDM |
| **TEST COCK HANDLES** | Stainless Steel |

### PART NUMBER MATRIX

| 4S X | 60 X | X | XX | X |
|---|---|---|---|---|
| | SIZE | METER OPTION | SHUT-OFF VALVES (INLET X OUTLET) | OPTION |
| 4SG - Standard (2-1/2" - 8" Only) | 9 - 2-1/2" | C - Cubic ft/min | 03 - OS&Y Flange x OS&Y Flange | D - Domestic Assembly |
| 4S - 10" Only | 0 - 3" | E - Gallons/min | 04 - OS&Y Flange x Monitored Butterfly Valve Groove | |
| | A - 4" | G - Less Meter | 06 - OS&Y Flange x Flange Post Indicator | |
| | C - 6" | | 07 - OS&Y Flange x OS&Y Groove | |
| | E - 8" | | 08 - OS&Y Groove x OS&Y Groove | |
| | G - 10"* | | 09 - Mon. Butterfly Valve Groove x Mon. Butterfly Valve Groove | |
| | | | 10 - OS&Y Flange x Groove Post Indicator | |
| EXAMPLE: 4SG 60A E7 = 4" size double check detector assembly with meter in GPM and OS&Y flanged inlet x OS&Y grooved outlet shut-off valves | | | | |

**10" body is flanged internal connections only (Model 4S)*

## DCDALF 4AN SERIES
N STYLE DOUBLE CHECK DETECTOR BACKFLOW PREVENTER

LEADFREE OPTIONS

**TYPE 2 BYPASS (STANDARD) SIZES 2-1/2"-12"**



**OPTIONAL VALVE SETTER**



**TRIFORCE™ CHECK**



The Apollo Model DCLF 4An Double Check Valves are designed to prevent contamination of the potable water supply due to back-siphonage or backpressure from substances that are objectionable, but non-health hazards. The TriForce™ center stem guided check valves feature replaceable and reversible silicone seat discs. The by-pass assembly serves to measure water use of up to 2 GPM. The normally vertical up/vertical down oriented body incorporates an internal swivel connection providing the ability to pivot the second check. The grooved connections on the bodies from 2-1/2" to 10" allow for easy connection to butterfly or gate shut-off valves. The 12" DCDA 4An has flanged connections for gate shut-off valves.

Available in both Type 1 and Type 2 bypass configurations. The Type 2 bypass uses the first check of the mainline assembly as the first check of the bypass. The second check of the bypass is a single check valve with a model number and serial number for test recording. This arrangement complies with the National Backflow Standards. The arrangement provides the same level of protection as the Type 1 bypass and the testing procedure is the same.

### FEATURES
- Domestic Stainless Steel Body: 2-1/2"-8"
- FDA Epoxy Coated Ductile Iron Body: 10" & 12"
- Easy Maintenance: No Special Tools Required
- Drop-In Check Retainers: 2-1/2"-6"
- Bolted-In Checks: 8"-12"
- Low Pressure Loss as Documented by an Independent Approval Laboratory
- Center Stem Guided TriForce™ Check Valves
- 5 Year Warranty
- Small Installation Space Required - Small Footprint
- Chloramine-Resistant Elastomers
- Lead Free Standard
- Optional Valve Setters Eliminate Need for Thrust Blocks Below Grade
- US Patent Nos.: 6,443,184; 7,025,085; 7,533,699
- **Designed, Fabricated, Assembled and Tested in the USA**
- Optional Mounting of Bypass on either Side for Ease of Installation

### PERFORMANCE RATING
- Maximum Working Pressure: 175 psi
- Temperature Range: 33° to 140°F, 180°F intermittent

### APPROVALS
- ASSE 1048 (with Meter)
- UL, ULC Classified
- CSA B64.5
- Approved by the Foundation for Cross-Connection Control and Hydraulic Research at the University of Southern California (2-1/2" - 8" Type 1 Bypass, 10" - 12" type2 only)
- FM Approved
- NSF/ANSI/CAN 61 - Water Quality
- NSF/ANSI 372 - Lead Free

### STANDARD MATERIALS LIST

| | |
|---|---|
| **BODY (2-1/2" - 8")** | 304 Stainless Steel |
| **BODY (10" & 12")** | FDA Epoxy Coated Ductile Iron |
| **COVERS (2-1/2" - 6")** | Glass Filled PPO/SS |
| **COVERS (8")** | 304 Stainless Steel |
| **COVERS (10" & 12")** | FDA Epoxy Coated Ductile Iron |
| **CHECK VALVES** | Bronze/Glass-Filled PPO/SS |
| **SPRINGS** | Stainless Steel |
| **SEAT DISCS** | Chloramine-Resistant Silicone |

### PART NUMBER MATRIX

| 4ANLF | 6 X | X | X | X [X] | X |
|---|---|---|---|---|---|
| | BYPASS SUB-ASSEMBLY OPTIONS | SIZE | METER OPTION | SHUT-OFF VALVES (INLET X OUTLET) | OPTIONS |
| 4AnLF - Lead Free | 0 - Type 1 w/ 1/2" Double Check | 9 - 2-1/2" | C - Cubic ft/min | 1 - Less Shut-off Valves | D - Domestic Assembly |
| | 2 - Type 2 w/ 1/2" Single Check (STD) | 0 - 3" | E - Gallons/min | 3 - OS&Y Flange x OS&Y Flange | |
| | 3 - Type 1 w/ Bypass on Left* | A - 4" | G - Less Meter | 4 - OS&Y Flange x Monitored (Mon.) Butterfly Valve Groove† | |
| | 4 - Type 2 w/ Bypass on Left* | C - 6" | | 6 - OS&Y Flange x Post indicator Flange | |
| | | E - 8" | | 7 - OS&Y Flange x OS&Y Groove | |
| | | G - 10" | | 8 - OS&Y Groove x OS&Y Groove | |
| | | H - 12" | | 9 - Mon. Butterfly Valve Groove x Mon. Butterfly Valve Groove† | |
| | | | | 10 - OS&Y Flange x Post Indicator Groove | |
| | | | | 13 - Post Indicator Flange x Mon. Butterfly Valve Groove† | |
| | | | | 14 - Post Indicator Flange x Post Indicator Flange | |
| | | | | 16 - Mon Butterfly Valve Groove x Post Indicator Flange† | |
| | | | | 17 - Post Indicator Flange x OS&Y Groove | |
| | | | | 18 - OS&Y Groove x Post Indicator Groove | |
| | | | | 19 - Mon. Butterfly Valve Groove x Post Indicator Groove | |
| | | | | 20 - Post Indicator Flange x OS&Y Flange | |
| | | | | 21 - Post Indicator Groove x OS&Y Groove | |
| | | | | 22 - Post Indicator Groove x Mon. Butterfly Valve Groove† | |
| | | | | 23 - Mon. Butterfly Valve Groove x OS&Y Flange | |

EXAMPLE: 4AnLF 62A E7 = 4" size Lead Free Double Check Detector Assembly with OS&Y flanged inlet x OS&Y grooved outlet shut-off valves with Type 2 bypass w/ meter in GPM

**Orientation of bypass looking downstream. Standard is right hand side. Left hand is on opposite side*
*†Butterfly valves not available in 12" size.*

## RPLF 4A SERIES
REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTER ASSEMBLY

LEADFREE OPTIONS





**TRIFORCE™ CHECK**

The Apollo Model RPLF 4A Reduced Pressure Principle Backflow Preventers consist of two independently acting, TriForce™ center stem guided check valves with a differential pressure relief valve located between the check valves. The unit is designed to give maximum protection against backflow of health or non-health hazard fluids by either back-pressure or back-siphonage. The durable domestic stainless steel units (2-1/2" - 8") and the FDA epoxy coated ductile iron units (10" & 12") are easily maintained in the line without any special tools. The TriForce™ check valves operate with a spring assist in the flowing condition to provide excellent flow rates which are documented by an independent laboratory.

### OPERATION
During normal flow conditions, the two check valves are held off their seats, supplying water downstream. The relief valve is held shut by supply pressure acting through the sensing tube on the relief valve diaphragm. In the area between the check valves, called the zone, the pressure is maintained approximately 7 psi lower than supply pressure. Should a back-pressure or back-siphonage condition occur, the second check valve will seal, prohibiting the backflow of water. Should the second check become fouled, the pressure in the zone will increase causing the differential relief valve to open to atmosphere. This will maintain the pressure in the zone at least 2 psi lower than supply pressure.

### FEATURES
- Domestic Stainless Steel Body: 2-1/2"-8"
- FDA Epoxy Coated Ductile Iron Body: 10" & 12"
- Easy Maintenance: No Special Tools Required
- Snap-In Check Retainers: 2-1/2"-6"
- Bolted-in Checks: 8"-12"
- Modular Captured Spring Relief Valve
- Low Pressure Loss as Documented by an Independent Approval Laboratory
- Center Stem Guided TriForce™ Check Valves
- Chloramine-Resistant Elastomers
- **Designed, Fabricated, Assembled and Tested in the USA**
- Lead Free Standard
- Optional Air Gap Drains
- 5 Year Warranty
- US Patent Nos.: 6,443,184; 7,025,085; 7,533,699

### PERFORMANCE RATING
- Maximum Working Pressure: 175 psi
- Temperature Range: 33° to 140°F, 180°F Intermittent

### APPROVALS
- AWWA C511 (2-1/2" – 12")
- ASSE 1013-2011, CSA B64.4, FM, IAPMO, UL*, cUL
- NSF/ANSI/CAN 61 - Water Quality
- NSF/ANSI 372 - Lead Free
- Approved by the Foundation for Cross-Connection Control and Hydraulic Research at the University of Southern California (2-1/2" - 12")

### STANDARD MATERIALS LIST

| | |
|---|---|
| **BODY (2-1/2" - 8")** | 304 Stainless Steel |
| **BODY (10" & 12")** | FDA Epoxy Coated Ductile Iron |
| **COVERS (2-1/2" - 6")** | Glass Filled PPO/SS |
| **COVERS (8")** | 304 Stainless Steel |
| **COVERS (10" & 12")** | FDA Epoxy Coated Ductile Iron |
| **RELIEF VALVE** | LF C89836 |
| **CHECK VALVES** | Bronze/Glass-filled PPO/SS |
| **SPRINGS** | Stainless Steel |
| **SEAT DISCS** | Chloramine-Resistant Silicone |

### PART NUMBER MATRIX

| 4ALF | 2 X | X | XX | XX |
|---|---|---|---|---|
| | Y-STRAINER | SIZE | SHUT-OFF VALVES (INLET x OUTLET) | OPTIONS |
| 4ALF - Lead Free (Standard) | 0 - Standard | 9 - 2-1/2" | 01 - Less Shut-off Valves | D - Domestic Assembly |
| | 1 - w/ Y-Strainer | 0 - 3" | 02 - NRS Flange x NRS Flange | |
| | (Shipped Loose) | A - 4" | 03 - OS&Y Flange x OS&Y Flange | |
| | | C - 6" | 04 - OS&Y Flange x Monitored (Mon.) Butterfly Valve Groove† | |
| | | E - 8" | 06 - OS&Y Flange x Post indicator Flange | |
| | | G - 10" | 07 - OS&Y Flange x OS&Y Groove | |
| | | H - 12" | 08 - OS&Y Groove x OS&Y Groove | |
| | | | 09 - Mon. Butterfly Valve Groove x Mon. Butterfly Valve Groove† | |
| | | | 10 - OS&Y Flange x Post Indicator Groove | |
| | | | 11 - NRS Groove x NRS Groove | |
| | | | 12 - NRS Flange x NRS Groove | |
| | | | 13 - Post Indicator Flange x Mon. Butterfly Valve Groove† | |
| | | | 14 - Post Indicator Flange x Post Indicator Flange | |
| | | | 16 - Mon Butterfly Valve Groove x Post Indicator Flange† | |
| | | | 17 - Post Indicator Flange x OS&Y Groove | |
| | | | 18 - OS&Y Groove x Post Indicator Groove | |
| | | | 19 - Mon. Butterfly Valve Groove x Post Indicator Groove | |
| | | | 20 - Post Indicator Flange x OS&Y Flange | |
| | | | 21 - Post Indicator Groove x OS&Y Groove | |
| | | | 22 - Post Indicator Groove x Mon. Butterfly Valve Groove† | |
| | | | 23 - Mon. Butterfly Valve Groove x OS&Y Flange | |

EXAMPLE: 4ALF 20A 07 = 4" size lead free reduced pressure assembly with OS&Y flanged inlet x OS&Y grooved outlet shut-off valves.

† *Butterfly valves not available in 10" or 12" size.*

## RPLF 4AN SERIES

N STYLE REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTER ASSEMBLY

LEADFREE OPTIONS

**N FLOW**



**VERTICAL UP FLOW**





**OPTIONAL VALVE SETTER**



**TRIFORCE™ CHECK**

The Apollo RPLF 4AN Reduced Pressure Principle Backflow Preventer consists of two independently acting, TriForce™ center stem guided check valves with a differential pressure relief valve located between the check valves. The unit is designed to give maximum protection against backflow of health or non-health hazard fluids by either back-pressure or back-siphonage. The normally vertical up/vertical down oriented body incorporates an internal swivel connection providing the ability to pivot the second check 180° to a vertical up/vertical up flow. The durable domestic stainless steel units (2-1/2" to 8") and the FDA epoxy coated ductile iron units (10" and 12") are easily maintained in the line without any special tools. The TriForce™ check valves operate with a spring assist in the flowing condition to provide excellent flow rates which are documented by an independent laboratory.

## OPERATION

During normal flow conditions, the two check valves are held off their seats, supplying water downstream. The relief valve is held shut by supply pressure acting through the sensing tube on the relief valve diaphragm. In the area between the check valves, called the zone, the pressure is maintained approximately 7 psi lower than supply pressure. Should a back-pressure or back-siphonage condition occur, the second check valve will seal, prohibiting the backflow of water. Should the second check become fouled, the pressure in the zone will increase causing the differential relief valve to open to atmosphere. This will maintain the pressure in the zone at least 2 psi lower than supply pressure.

## FEATURES

- Domestic Stainless Steel Body: 2-1/2"-8"
- FDA Epoxy Coated Ductile Iron Body: 10" & 12"
- Easy Maintenance: No Special Tools Required
- Drop-In Check Retainers: 2-1/2"-6"
- Bolted-In Checks: 8"-12"
- Low Pressure Loss as Documented by an Independent Approval Laboratory
- Center Stem Guided TriForce™ Check Valves
- Modular Captured Spring Relief Valve
- Optional Air Gap Drains
- Small Installation Space Required/Footprint
- Approved for n-Flow and Vertical Up Flow
- Chloramine-Resistant Elastomers
- Lead Free Standard
- Optional Valve Setters
- US Patent Nos.: 6,443,184; 7,025,085; 7,533,699
- **Designed, Fabricated, Assembled and Tested in the USA**
- 5 Year Warranty

## PERFORMANCE RATING

- Maximum Working Pressure; 175 psi
- Temperature Range; 33° to 140°F, 180°F Intermittent

## APPROVALS

- AWWA C511 (2-1/2" – 12")
- ASSE 1013-2011, CSA B64.4, FM, IAPMO, UL*, cUL
- NSF/ANSI 61 Lead Free
- NSF/ANSI 372 Water Quality
- Approved by the Foundation for Cross-Connection Control and Hydraulic Research at the University of Southern California (2-1/2" - 12")

## STANDARD MATERIALS LIST

| | | | |
|---|---|---|---|
| **BODY (2-1/2" - 8")** | 304 Stainless Steel | **RELIEF VALVE** | Bronze (C84400/LF C89836) |
| **BODY (10" & 12")** | FDA Epoxy Coated Ductile Iron | **CHECK VALVES** | Bronze/Glass-Filled PPO/SS |
| **COVERS (2-1/2" - 6")** | Glass Filled PPO/SS | **SPRINGS** | Stainless Steel |
| **COVERS (8")** | 304 Stainless Steel | **SEAT DISCS** | Chloramine-Resistant Silicone |
| **COVERS (10" & 12")** | FDA Epoxy Coated Ductile Iron | | |

## PART NUMBER MATRIX

| 4ANLF | 2 X | X | XX | X |
|---|---|---|---|---|
| | Y-STRAINER | SIZE | SHUT-OFF VALVES (INLET x OUTLET) | OPTIONS |
| 4AnLF - Lead Free | 0 - Standard | 9 - 2-1/2" | 01 - Less Shut-off Valves | D - Domestic Assembly |
| | 1 - w/ Y-Strainer (Shipped Loose) | 0 - 3" | 02 - NRS Flange x NRS Flange | |
| | | A - 4" | 03 - OS&Y Flange x OS&Y Flange | |
| | | C - 6" | 04 - OS&Y Flange x Monitored (Mon.) Butterfly Valve Groove† | |
| | | E - 8" | 06 - OS&Y Flange x Post indicator Flange | |
| | | G - 10" | 07 - OS&Y Flange x OS&Y Groove | |
| | | H - 12" | 08 - OS&Y Groove x OS&Y Groove | |
| | | | 09 - Mon. Butterfly Valve Groove x Mon. Butterfly Valve Groove† | |
| | | | 10 - OS&Y Flange x Post Indicator Groove | |
| | | | 11 - NRS Groove x NRS Groove | |
| | | | 12 - NRS Flange x NRS Groove | |
| | | | 13 - Post Indicator Flange x Mon. Butterfly Valve Groove† | |
| | | | 14 - Post Indicator Flange x Post Indicator Flange | |
| | | | 16 - Mon Butterfly Valve Groove x Post Indicator Flange† | |
| | | | 17 - Post Indicator Flange x OS&Y Groove | |
| | | | 18 - OS&Y Groove x Post Indicator Groove | |
| | | | 19 - Mon. Butterfly Valve Groove x Post Indicator Groove | |
| | | | 20 - Post Indicator Flange x OS&Y Flange | |
| | | | 21 - Post Indicator Groove x OS&Y Groove | |
| | | | 22 - Post Indicator Groove x Mon. Butterfly Valve Groove† | |
| | | | 23 - Mon. Butterfly Valve Groove x OS&Y Flange | |

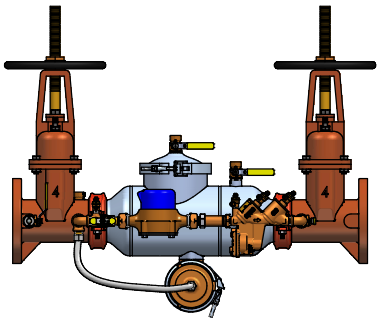
EXAMPLE: 4ALF 20A 07 = 4" size lead free reduced pressure assembly with OS&Y flanged inlet x OS&Y grooved outlet shut-off valves.

† *Butterfly valves not available in 12" size.*

## RPDALF 4A / RPDA2LF SERIES
REDUCED PRESSURE DETECTOR BACKFLOW PREVENTER ASSEMBLY

LEADFREE OPTIONS

**TYPE 1 BYPASS**



**TRIFORCE™ CHECK**



The Apollo Model RPDALF 4A / RPDA2LF 4A Reduced Pressure Detector Assembly consists of two independently acting, TriForce™ center stem guided check valves with a differential pressure relief valve located between the check valves. The unit is designed to give maximum protection against backflow of health or non-health hazard fluids by either back-pressure or back-siphonage and at the same time detect leakage or unauthorized use of water from fire or automatic sprinkler systems. The durable domestic stainless steel units (2-1/2" - 8") and the FDA epoxy coated ductile iron units (10" & 12") are easily maintained in line without any special tools. The TriForce™ check valves operate with a spring assist in the flowing condition to provide low flow rates which are documented by an independent laboratory.

Available in both Type 1 and Type 2 bypass configurations. The Type 2 bypass uses the first check of the mainline assembly as the first check of the bypass. The second check of the bypass is a single check valve with a model number and serial number for test recording. This arrangement complies with the National Backflow Standards. The arrangement provides the same level of protection as the Type 1 bypass and the testing procedure is the same.

### FEATURES
- Domestic Stainless Steel Body: 2-1/2"-8"
- FDA Epoxy Coated Ductile Iron Body: 10" & 12"
- Easy Maintenance: No Special Tools Required
- Snap-In Check Retainers: 2-1/2"-6"
- Bolted-In Checks: 8"-12"
- Low Pressure Loss as Documented by an Independent Approval Laboratory
- Center Stem Guided TriForce™ Check Valves
- Modular Captured Spring Relief Valve
- Optional Air Gap Drain
- Lead-Free Standard
  US Patent Nos.: 6,443,184; 7,025,085;7,533,699
- **Designed, Fabricated, Assembled and Tested in the USA**
- 5 Year Warranty
- Optional Mounting of Bypass on Either Side for Ease of Installation

### PERFORMANCE RATING
- Maximum Working Pressure: 175 psi
- Temperature Range: 33° to 140°F, 180°F Intermittent

### APPROVALS
- ASSE 1047 (with Meter)
- CSA B64.4
- NSF/ANSI/CAN 61 - Water Quality
- NSF/ANSI 372 - Lead Free
- Approved by the Foundation for Cross-Connection Control and Hydraulic Research at the University of Southern California
  (2-1/2" - 8" Types 1 & 2, 10" - 12" type 2)
- UL, ULC Classified
- FM Approved

### STANDARD MATERIALS LIST

| | | | |
|---|---|---|---|
| **BODY (2-1/2" - 8")** | 304 Stainless Steel | **COVERS (10" & 12")** | FDA Epoxy Coated Ductile Iron |
| **BODY (10" & 12")** | FDA Epoxy Coated Ductile Iron | **CHECK VALVES** | Bronze/Glass-Filled PPO/SS |
| **COVERS (2-1/2" - 6")** | Glass Filled PPO/SS | **SPRINGS** | Stainless Steel |
| **COVERS (8")** | 304 Stainless Steel | **SEAT DISCS** | Chloramine-Resistant Silicone |

### PART NUMBER MATRIX

| 4ALF | 7 X | X | X | XX | XX |
|---|---|---|---|---|---|
| | BYPASS SUB-ASSEMBLY OPTIONS | SIZE | METER OPTION | SHUT-OFF VALVES (INLET x OUTLET) | OPTIONS |
| 4ALF - Lead Free (Standard) | 0 - Type 1 w/ 1/2" Reduced Pressure | 9 - 2-1/2" | C - Cubic ft/min | 01 - Less Shut-off Valves | D - Domestic Assembly |
| | 2 - Type 2 w/1/2" Single Check | 0 - 3" | E - Gallons/min | 03 - OS&Y FLANGE x OS&Y FLANGE | |
| | 3 - Type 1 w/ Bypass on Left* | A - 4" | G - Less Meter | 04 - OS&Y FLANGE x Monitored (Mon.) Butterfly VALVE Groove† | |
| | 4 - Type 2 w/ Bypass on Left* | C - 6" | | 06 - OS&Y FLANGE x Post indicator FLANGE | |
| | | E - 8" | | 07 - OS&Y FLANGE x OS&Y Groove | |
| | | G - 10" | | 08 - OS&Y Groove x OS&Y Groove | |
| | | H - 12" | | 09 - Mon. Butterfly Valve Groove x Mon. Butterfly Valve Groove† | |
| | | | | 10 - OS&Y FLANGE x Post Indicator Groove | |
| | | | | 13 - Post Indicator FLANGE x Mon. Butterfly Valve Groove† | |
| | | | | 14 - Post Indicator FLANGE x Post Indicator FLANGE | |
| | | | | 16 - Mon Butterfly VALVE Groove x Post Indicator FLANGE† | |
| | | | | 17 - Post Indicator FLANGE x OS&Y Groove | |
| | | | | 18 - OS&Y Groove x Post Indicator Groove | |
| | | | | 19 - Mon. Butterfly Valve Groove x Post Indicator Groove | |
| | | | | 20 - Post Indicator FLANGE x OS&Y FLANGE | |
| | | | | 21 - Post Indicator Groove x OS&Y Groove | |
| | | | | 22 - Post Indicator Groove x Mon. Butterfly Valve Groove† | |
| | | | | 23 - Mon. Butterfly Valve Groove x OS&Y FLANGE | |

EXAMPLE: 4ALF 72A E3 = 4" size lead free reduced pressure detector assembly with OS&Y flanged inlet x OS&Y flanged outlet shut-off valves Type 2 Bypass w/ meter in gallons

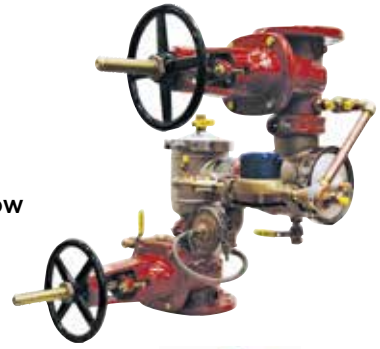
*Orientation of bypass looking downstream. Standard is right hand side. Left hand is on opposite side*
*†Butterfly valves not available in sizes 10"-12" .*

## RPDALF 4AN SERIES
N STYLE REDUCED PRESSURE DETECTOR BACKFLOW PREVENTER ASSEMBLY

LEADFREE OPTIONS



**N FLOW**
**TYPE 2 BYPASS**



**TYPE 2 BYPASS**
**VERTICAL UP FLOW**



**OPTIONAL VALVE SETTER**



**TRIFORCE™ CHECK**

The Apollo Model RPDALF 4AN Reduced Pressure Detector Assembly consists of two independently acting, TriForce™ center stem guided check valves with a differential pressure relief valve located between the check valves. The unit is designed to give maximum protection against backflow of health or non-health hazard fluids by either back-pressure or back-siphonage and at the same time detect leakage or unauthorized use of water from fire or automatic sprinkler systems. The normally vertical up/vertical down oriented body incorporates an internal swivel connection providing the ability to pivot the second check 180° to a vertical up/vertical up flow. The durable domestic stainless steel units (2-1/2" to 8") and the FDA epoxy coated ductile iron units (10" and 12") are easily maintained in the line without any special tools. The TriForce™ check valves operate with a spring assist in the flowing condition to provide low flow rates which are documented by an independent laboratory.

Available in both Type 1 and Type 2 bypass configurations. The Type 2 bypass uses the first check of the mainline assembly as the first check of the bypass. The second check of the bypass is a single check valve with a model number and serial number for test recording. This arrangement complies with the National Backflow Standards. The arrangement provides the same level of protection as the Type 1 bypass and the testing procedure is the same.

### FEATURES
- Domestic Stainless Steel Body: 2-1/2"-8"
- FDA Epoxy Coated Ductile Iron Body: 10" & 12"
- Easy Maintenance: No Special Tools Required
- Drop-In Check Retainers: 2-1/2"-6"
- Bolted-In Checks: 8"-12"
- Low Pressure Loss as Documented by an Independent Approval Laboratory
- Center Stem Guided TriForce™ Check Valves
- Modular Captured Spring Relief Valve
- Optional Air Gap Drains
- Small Installation Space Required - Small Footprint
- Approved for n-Flow and Vertical Up Flow
- Chloramine-Resistant Elastomers
- **Designed, Fabricated, Assembled and Tested in the USA**
- Lead Free Standard
- Optional Valve Setters Eliminate Need for Thrust Blocks Below Grade
- US Patent Nos.: 6,443,184; 7,025,085;7,533,699
- 5 Year Warranty
- Optional Mounting of Bypass on Either Side for Ease of Installation

### PERFORMANCE RATING
- Maximum Working Pressure: 175 psi
- Temperature Range: 33° to 140°F, 180°F intermittent

### APPROVALS
- CSA B64.4
- Approved by the Foundation for Cross-Connection Control and Hydraulic Research at the University of Southern California (2-1/2"-8" Type 1 Bypass, 10" - 12" Type 2 only)
- ASSE 1047 (with Meter)
- UL, ULC Classified
- FM Approved
- NSF/ANSI/CAN 61 - Water Quality
- NSF/ANSI 372 - Lead Free

### STANDARD MATERIALS LIST

| | |
|---|---|
| **BODY (2-1/2"-8")** | 304 Stainless Steel |
| **BODY (10 & 12")** | FDA Epoxy Coated Ductile Iron |
| **COVERS (2-1/2"-6")** | Glass Filled PPO/SS |
| **COVERS (8")** | 304 Stainless Steel |
| **COVERS (10" & 12")** | FDA Epoxy Coated Ductile Iron |
| **RELIEF VALVE** | Bronze (LF C89836) |
| **CHECK VALVES** | Bronze/Glass-Filled PPO/SS |
| **SPRINGS** | Stainless Steel |
| **SEAT DISCS** | Chloramine-Resistant Silicone |

### PART NUMBER MATRIX

| 4ANLF | 7 X | X | X | X X | X |
|---|---|---|---|---|---|
| | BYPASS SUB-ASSEMBLY OPTIONS | SIZE | METER OPTION | SHUT-OFF VALVES (INLET x OUTLET) | OPTIONS |
| 4AnLF - Lead Free (Standard) | 0 - Type 1 w/ 1/2" Reduced Pressure | 9 - 2-1/2" | C - Cubic ft/min | 01 - Less Shut-off Valves | D - Domestic Assembly |
| | 2 - Type 2 w/1/2" Single Check | 0 - 3" | E - Gallons/min | 03 - OS&Y Flange x OS&Y Flange | |
| | 3 - Type 1 w/ Bypass on Left* | A - 4" | G - Less Meter | 04 - OS&Y Flange x Monitored (Mon.) Butterfly Valve Groove† | |
| | 4 - Type 2 w/ Bypass on Left* | C - 6" | | 06 - OS&Y Flange x Post indicator Flange | |
| | | E - 8" | | 07 - OS&Y Flange x OS&Y Groove | |
| | | G - 10" | | 08 - OS&Y Groove x OS&Y Groove | |
| | | H - 12" | | 09 - Mon. Butterfly Valve Groove x Mon. Butterfly Valve Groove† | |
| | | | | 10 - OS&Y Flange x Post Indicator Groove | |
| | | | | 13 - Post Indicator Flange x Mon. Butterfly Valve Groove† | |
| | | | | 14 - Post Indicator Flange x Post Indicator Flange | |
| | | | | 16 - Mon Butterfly Valve Groove x Post Indicator Flange† | |
| | | | | 17 - Post Indicator Flange x OS&Y Groove | |
| | | | | 18 - OS&Y Groove x Post Indicator Groove | |

EXAMPLE: 4ANLF 70A E3 = 4" size lead free reduced pressure detector assembly with meter in GPM and OS&Y flanged inlet x OS&Y flanged outlet shut-off valves.

*Orientation of bypass looking downstream. Standard is right hand side. Left hand is on opposite side*
†Butterfly valves not available in 12" size.

## AVB1/AVB2 SERIES
ATMOSPHERIC TYPE VACUUM BREAKERS

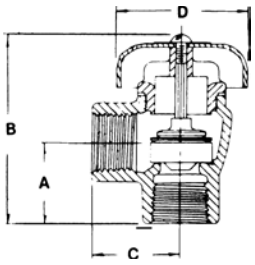
LEADFREE OPTIONS



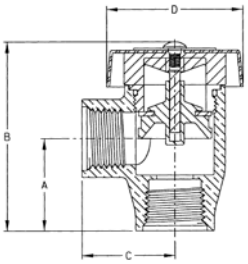
**AVB1**



**AVB2 (APOLLO INTERNATIONAL™)**
**SIZES 1/4", 3/8, 1/2", 3/4"**
(OPTIONAL POLISHED CHROME FINISH SHOWN)




**AVB1**
**38/38LF-10X**




**AVB2**
**38-20X**

## STANDARD MATERIALS LIST

| | |
|---|---|
| **VALVE BODY (AVB1)** | Cast Bronze (LF C89836) |
| **VALVE BODY (AVB2)** | Forged Brass |
| **SEAT DISC** | Silicone |
| **FLOAT & GASKET** | Polypropylene |
| **CANOPY** | Powder Coated Steel |
| **SCREW** | Zinc-plated Steel |

*Contact local water authorities for installation/service requirements.*

The Apollo Series Atmospheric Type Vacuum Breakers are designed to prevent back-siphonage of polluted water into a potable water system. They should only be installed in areas where spillage of water could not cause damage and where it can be accessible for periodic maintenance. These devices are not designed for continuous pressure application (maximum 12 hours in any 24 hour period). Should be installed a minimum of 6" above all downstream piping with no downstream shutoffs.

## OPERATION
During flow conditions, the flow of water lifts the float disc and seals the atmospheric vent at all rates of flow, preventing leakage. When a negative pressure is created at the supply line or when the water supply valve upstream of the device is closed, the float disc will fall, thus opening the atmospheric vent. This prevents back-siphonage and creation of vacuum at the discharge line.

## FEATURES
- Corrosion Resistant
- Bronze Body (AVB1)
- Forged Body (AVB2)
- Lead Free Option (100 Series)
- Heat Resistant Silicone Seat Disc
- Rough Brass, Rough Chrome or Polished Chrome Finish
- Easy to Maintain
- Compact and Lightweight
- Durable

## PERFORMANCE RATING
- Suitable for Hot or Cold Water Service:
  (up to 212°F at 125 psig) for up to 1"
  (up to 180°F at 125 psig) for 1-1/4" thru 2"

## APPROVALS
- ASSE 1001
- NSF/ANSI 372 - Lead Free (38LF only)

## PART NUMBER MATRIX

| 38(LF) X | 0X | 0X |
|---|---|---|
| | SIZE | FINISH |
| 1 – Bronze | 1 – 1/4" | 1 – Rough Brass |
| 2 – Forged Brass (Not Available in LF) | 2 – 3/8" | 3 – Rough Chrome (1/4" - 1" Only) |
| | 3 – 1/2" | 6 – Polished Chrome (AVB2 Only) |
| | 4 – 3/4" | |
| | 5 – 1" | |
| | 6 – 1-1/4" | |
| | 7 – 1-1/2" | |
| | 8 – 2" | |

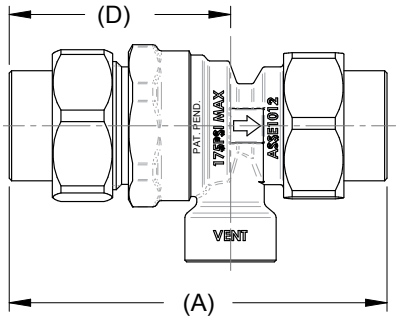
## DIMENSIONS

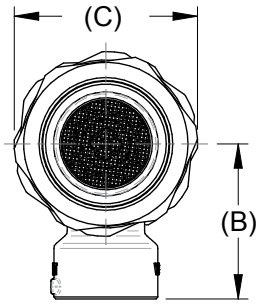
| PART NO. | MODEL NO. | SIZE (IN.) (MM.) | DIMENSIONS (IN.) (MM.) | | | | WEIGHT (LB.) (KG.) |
|---|---|---|---|---|---|---|---|
| | | | A | B | C | D | |
| 38(LF)-101 | AVB114 | 1/4 (6) | 29/32 (23) | 2-3/8 (60) | 1-1/32 (26) | 1-13/16 (46) | 50.96 (23) |
| 38(LF)-102 | AVB138 | 3/8 (10) | 29/32 (23) | 2-3/8 (60) | 1-1/32 (26) | 1-13/16 (46) | 47.7 (22) |
| 38-103 | AVB112 | 1/2 (15) | 1-3/32 (28) | 2-1/2 (65) | 1-3/16 (30) | 1-3/16 (30) | 54.7 (25) |
| 38-104 | AVB134 | 3/4 (20) | 1-5/16 (33) | 3-1/16 (78) | 1-15/32 (37) | 2-1/8 (54) | 79.7 (36) |
| 38-105 | AVB11 | 1 (25) | 1-3/4 (45) | 4-1/16 (103) | 1-7/8 (48) | 2-7/8 (73) | 174 (79) |
| 38-106 | AVB1114 | 1-1/4 (32) | 2 (50) | 4-3/8 (111) | 2 (50) | 3-3/4 (95) | 316 (143) |
| 38-107 | AVB1112 | 1-1/2 (40) | 2 (50) | 4-3/8 (111) | 2 (50) | 3-3/4 (95) | 289 (131) |
| 38-108 | AVB12 | 2 (50) | 2-1/8 (54) | 4-1/2 (114) | 2-1/4 (57) | 3-3/4 (95) | 369 (167) |
| 38-201 | AVB214 | 1/4 (6) | 1-3/32 (28) | 2-5/16 (59) | 1-1/32 (26) | 21/32 (17) | 50.6 (23) |
| 38-202 | AVB238 | 3/8 (10) | 1-3/32 (28) | 2-5/16 (59) | 1-1/32 (26) | 21/32 (17) | 47.7 (22) |
| 38-203 | AVB212 | 1/2 (15) | 1-9/32 (33) | 2-5/8 (67) | 1-9/32 (33) | 1-7/8 (48) | 54.7 (25) |
| 38-204 | AVB234 | 3/4 (20) | 1-15/32 (37) | 3 (80) | 1-15/32 (37) | 2 (50) | 63.1 (29) |

## DCAP SERIES
DUAL CHECK WITH ATMOSPHERIC PORT BACKFLOW PREVENTER

LEADFREE OPTIONS






The Apollo International™ DCAP Series Backflow Preventer is designed to protect residential and commercial water supply lines from back-siphonage or back-pressure of non-potable (non-hazardous) substances. It has an intermediate atmospheric vent to insure protection from backflow conditions. It consists of two independently acting and spring-loaded check valves in a corrosion resistant material.

### OPERATION
During normal flow operation, the vent valve is closed, and the two check valves are open allowing flow of water through the unit. Each check valve is designed to hold at least 1 psi in the direction of flow. When a back-siphonage condition occurs, both check valves close and the atmospheric vent opens to permit air to enter the intermediate zone. In the event of back-pressure and if the second check valve is prevented from closing tightly, leakage will be vented to the atmosphere through the vent port.

### FEATURES
- Corrosion Resistant
- Low Head Loss
- Independently Acting Check Valves
- Ease of Repair and Installation
- Economical
- Suitable for Hot or Cold Water Service
- Durable
- Lead-Free Option
- 5 Year Warranty

### PERFORMANCE RATING
- Maximum Working Pressure: 175 psig
- Inlet Temperature Range: 33° to 210°F
- Maximum backflow temperature: 250°F

### APPROVALS
- ASSE 1012
- CSA B64.3
- NSF/ANSI 372 - Lead Free (4ALF only)

### STANDARD MATERIALS LIST

| | |
|---|---|
| **BODY** | Forged Brass C87800 |
| **UNION NUT & TAILPIECES** | Forged Brass C87800 |
| **SEAT DISCS** | EPDM (FDA/NSF 61) |
| **SEAT STEM & RETAINER** | Forged Brass C46500 |
| **SPRINGS** | Stainless Steel |

### DIMENSIONS

| PART NUMBER | DIMENSIONS (IN.) | | | | WT. (LB.) |
|---|---|---|---|---|---|
| | A | B | C | D | |
| 4ALF4A33A, 4ALF4A33AC | 4.1 | 1.6 | 1.9 | 2.4 | 1.31 |
| 4ALF4H33H, 4ALF4H33HC | 3.9 | 1.6 | 1.9 | 2.3 | 1.24 |
| 4ALF4A44A, 4ALF4A44AC | 4.3 | 1.6 | 1.9 | 2.5 | 1.32 |
| 4ALF4H44H, 4ALF4A44HC | 4.4 | 1.6 | 1.9 | 2.6 | 1.29 |

### PART NUMBER MATRIX

| 4A [X] | 4 X | X - X | X | X |
|---|---|---|---|---|
| | UNION INLET CONNECTION | INLET AND OUTLET SIZE | UNION OUTLET CONNECTION | OPTION |
| 4A - Standard | A - FNPT | 3 - 1/2" | A - FNPT | C - Canadian (discharge port not threaded) |
| 4ALF - Lead Free | H - Solder joint | 4 - 3/4" | B - MNPT | |
| | | | H - Solder joint | |

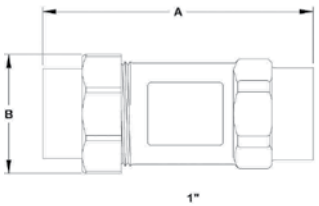
## DUCLF 4ALF SERIES
DUAL CHECK VALVE BACKFLOW PREVENTER

LEADFREE CERTIFIED

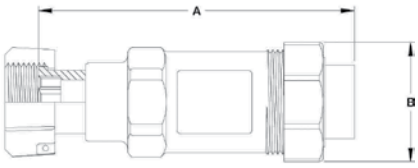


The Apollo DUCLF-4ALF Series Dual Check Valve Backflow Preventer is designed to prevent cross-connections of non-potable water (non-hazardous) into safe drinking water systems. It is a compact and economical device that consists of two independently-acting, spring-loaded check valves in a corrosion-resistant material.

## OPERATION
Each of the two spring-loaded check valves is designed to open at 1 psi differential in the direction of flow. The check valves will remain tightly closed until there is a demand for water downstream. If the downstream pressure of the device increases above the supply pressure or there is a reverse direction of flow, the check valves will close to prevent backflow. If the second check valve is prevented from closing tightly, the first check will close to provide protection from a backflow condition.




**UNION X NPT**




**METER SWIVEL X NPT**

## FEATURES
- Low Head Loss
- Independently-Acting Captured Spring Check Valves
- Compact and Lightweight
- Corrosion Resistant
- Replaceable Check Modules
- Industry Lay Lengths
- Available in Standard and Swivel Types
- 5 Year Warranty

## PERFORMANCE RATING
- Maximum Working Pressure: 175 psi
- Operating Temperature Range: 33° to 180°F

## APPROVALS
- ASSE 1024
- CSA B64.6
- NSF/ANSI 372 - Lead Free (4ALF only)

## STANDARD MATERIALS LIST

| | |
|---|---|
| **BODY** | Lead Free Bronze C87800 |
| **TAILPIECE** | Lead Free Brass C46500 |
| **UNION NUT** | Brass C36000 |
| **CHECK MODULES** | Acetal (3/4"-1") |
| **SPRINGS** | Stainless Steel |
| **SEAT DISCS** | Buna-N (3/4"-1") |

*Contact local water authorities for installation/service requirements.*

## DIMENSIONS

| SIZE (IN.) | DIMENSIONS (IN.) | | WT. (LB.) |
|---|---|---|---|
| | A | B | |
| 1/2" | 4.38 | 2.00 | 1.40 |
| 3/4" | 4.38 | 2.00 | 1.40 |
| 3/4" Meter Swivel | 4.75 | 2.00 | 1.60 |
| 1" | 4.38 | 2.00 | 1.40 |
| 1" Meter Swivel | 4.75 | 2.00 | 1.75 |

## METER THREAD SIZING

| | |
|---|---|
| **5/8" METER** | 3/4" |
| **3/4" METER** | 1" |
| **1" METER** | 1-1/4" |

## PART NUMBER MATRIX

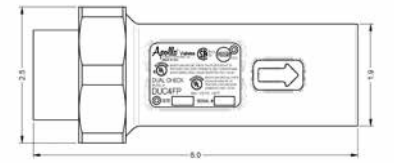
| 4ALF [X] | 3 X | X X | X | X |
|---|---|---|---|---|
| | UNION INLET CONNECTION[1,2] | INLET AND OUTLET SIZE | OUTLET CONNECTION[1,2] | FINISH |
| 4ALF - Lead Free | A - FNPT | 3 - 1/2" | A - FNPT | Blank - Satin Brass |
| | B - MNPT | 4 - 3/4" | B - MNPT | |
| | C - Female Meter Thread | 5 - 1" | | |
| | S - Female Meter Swivel | 6 - 1-1/4" (Meter Thread sizing for 1" meter swivel) | | |
| | | | | |
| EXAMPLE: 4ALF 3S54A = Lead Free Dual Check with Female Swivel 1" Inlet (for 3/4" meter connection x 3/4" FNPT outlet) | | | | |

[1] *For meter threads, order one size larger than meter size. (i.e.- 4ALF3S54A = 1" Female Meter Swivel Inlet (for connection to 3/4" meter) x 3/4" FNPT outlet*
[2] *Not all inlet and outlet combinations are available. Please contact Apollo Customer Service for availability.*

## DUC 4FP SERIES
DUAL CHECK VALVE BACKFLOW PREVENTER

LEADFREE OPTIONS





The Apollo DUC 4FP Series Dual Check Backflow Preventer for Residential Fire Sprinkler Systems prevents backflow by either backpressure or backsiphonage from a cross-connection between potable water lines and substances that are objectionable, but not health-hazards.

### FEATURES
- Low Pressure Loss
- Corrosion Resistant
- Replaceable Check Modules
- Pressure Drop at 30 gpm is Less than 6 psi
- Complies With NFPA Standard 13D
- 5 Year Warranty
- **Made in the USA**

### PERFORMANCE RATING
- Maximum Operating Pressure: 175 psi
- Temperature Range: 33° to 180°F

### APPROVALS
- ASSE 1024
- UL Classified
- CSA B64.6
- NSF/ANSI 372 - Lead Free (4FPLF only)

### STANDARD MATERIALS LIST

| | | | |
|---|---|---|---|
| **BODY** | Bronze (C84400) | **SPACER** | Glass-Filled Noryl® |
| **UNION NUT & TAILPIECES** | Brass | **O-RING** | Stainless Steel |
| **CHECK MODULES** | Acetal/Nitrile/Stainless Steel | | |

*Contact local water authorities for installation/service requirements.*

### PART NUMBER MATRIX

| 4FP [XX] | 3 X | X | X | X |
|---|---|---|---|---|
| | INLET CONNECTION[1] | INLET SIZE | OUTLET SIZE | OUTLET CONNECTION[1] |
| 4FP - Standard | A - FNPT | 5 - 1" | 5 - 1" | A - FNPT |
| 4FPLF - Lead Free | C - Female Meter Thread | 6 - 1-1/4" | 6 - 1-1/4" | B - MNPT |
| | | (Meter Thread Sizing for 1" Meter) | (Meter Thread Sizing for 1" Meter) | E - Male Meter Thread |
| EXAMPLE: 4FP3A55A = 1" Dual Check FNPT Inlet x 1" FNPT outlet | | | | |

[1] *Not all inlet and outlet combinations are available. Please contact Customer Service for availability.*

## HBV SERIES
3/4" HOSE CONNECTION VACUUM BREAKER BACKFLOW PREVENTER

LEADFREE CERTIFIED



**3/4"**
**APOLLO INTERNATIONAL™**
(OPTIONAL SATIN CHROME FINISH SHOWN)

The Apollo International™ HBV Hose Connection Vacuum Breakers are designed to prevent cross-connection caused by back-siphonage. They consist of a single check valve with atmospheric vacuum breaker vent. They feature a break-away set-screw for tamper-proof protection. They are not suitable for continuous pressure applications.

### OPERATION
At no flow situations, the check disc seats against the diaphragm with the atmospheric vent open. This prevents back-siphonage or backflow of water. At flow conditions, the spring-loaded check disc opens, thus allowing flow of water through the device and at the same time the diaphragm seals the atmospheric vent.

### INSTALLATION
It should only be installed in areas where spillage of water could not cause damage. For permanent installation, screw device directly into faucet, firmly hand tighten and turn set-screw in until head breaks off.

### PERFORMANCE RATING
- Maximum Working Pressure: 125 psig
- Maximum Temperature: 180° F

### APPROVALS
- ASSE 1011
- CSA B64.2
- IAPMO

### DIMENSIONS

| PART NO. | MODEL NO. | FINISH | WT./EA |
|---|---|---|---|
| 38LF-314-AS | HBVLF234 | Satin Brass | .17 |
| 38LF-314-CS | HBVLFC234 | Satin Chrome | .17 |

*38LF-314 shipped in 12 pcs./box*

---

## HBVB SERIES
3/4" FREEZE RESISTANT HOSE CONNECTION VACUUM BREAKER

LEADFREE CERTIFIED




**3/4"**
**APOLLO INTERNATIONAL™**

The Apollo International™ Series HBVB Freeze Resistant Hose Connection Vacuum Breaker is especially designed to prevent back-siphonage on wall and yard hydrants. It features a break-away set-screw for tamper-proof protection and automatic drain for protection against freezing conditions when hose is removed. It is not suitable for continuous pressure applications.

### OPERATION
The principle of operation is similar to the HCVB Series except it has an automatic draining feature. When the hose is removed, the internal mechanism opens to drain water from the unit and the hose bibb to help prevent water from freezing inside the unit.

### INSTALLATION
It should only be installed in areas where spillage of water could not cause damage. For permanent installation, screw device directly into faucet, firmly hand tighten and turn set-screw in until head breaks off.

### PERFORMANCE RATING
- Maximum Working Pressure: 125 psig
- Maximum Temperature: 180° F

### APPROVALS
- ASSE 1011

### DIMENSIONS

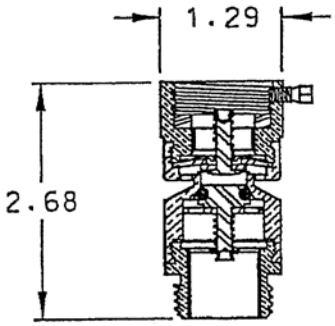
| PART NO. | MODEL NO. | FINISH | WT./EA |
|---|---|---|---|
| 38LF-414-AS | HBVBLF2 | Satin Brass | .37 |

## HBDUC SERIES
3/4" HOSE CONNECTION/LAB FAUCET DUAL CHECK BACKFLOW PREVENTER

LEADFREE OPTIONS



**38-304-02**
**SIZE 3/4"**




The Apollo Series HBDUC is designed to provide an in-line testable hose connection that will prevent backflow due to back-siphonage or low head back-pressure. Each device consists of two independent checks, forced loaded in the closed position with an atmospheric vent between the checks. The device is threaded for hose connection at both the inlet and outlet with a break-away set screw on the inlet for tamper proof installations. These devices are not suitable for continuous pressure applications.

### OPERATION
During initial pressurization, the inlet check shuttles forward to close the atmospheric vent. As flow is established, both the inlet and outlet check open to allow flow through the device. If a backflow condition is present, then both checks will close and the atmospheric vent opens to introduce air and break the siphon.

### FEATURES
- Corrosion Resistant Body and Checks
- Low Head Loss
- Easy to Install With Break-Away Set Screw
- Protects Against Back Siphonage and Low Head Back Pressure

### STANDARD MATERIALS LIST

| | |
|---|---|
| **BODY** | Brass |
| **SEATS** | EPDM |
| **CHECK COMPONENTS** | Stainless Steel |
| **CHECK GUIDE** | Acetal |

Contact local water authorities for installation/service requirements.

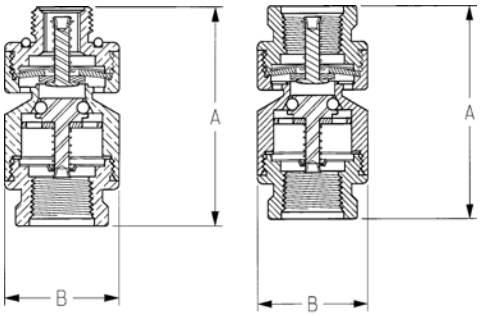
### DIMENSIONS

| PART NO. | MODEL NO. | WT./EA |
|---|---|---|
| 38-304-02 | HBDUC34 | .46 |
| 38LF-304-02 | HBDUCLF34 | .46 |

## LFDUC SERIES
LAB FAUCET DUAL CHECK BACKFLOW PREVENTER

LEADFREE OPTIONS






The Apollo Series LFDUC is designed to provide protection against back-siphonage wherever a hose is connected to a faucet. The device consists of two independently acting checks with an intermediate relief port or vent. It is suitable for supply pressure up to 150 psig and a temperature range of 33°F-212°F. Not suitable for constant pressure conditions.

### OPERATION
During normal flow conditions, the two checks are held off their seats, supplying water downstream. The vent is held shut by supply pressure acting on the diaphragm. If the supply pressure should fall below atmospheric, the second check will close due to internal spring pressure and the vent will open to introduce air into the supply line and break the siphon.
Note: This device should only be installed where spillage of water could not cause water damage.

### FEATURES
- Corrosion Resistant
- Suitable for Hot or Cold Water Service up to 212° F and 125 psi
- Lead Free Option
- Polished (-CP2 and -CP3 are Rough Brass Only)
- Easy to Maintain
- Compact and Lightweight

### APPROVALS
- ASSE 1035
- NSF/ANSI 372 - Lead Free

### DIMENSIONS

| PART NO. | LEAD FREE PART NO. | INLET | OUTLET | A (IN.) | B (IN.) | WT./EA |
|---|---|---|---|---|---|---|
| 38-502-01 | 38LF-502-01 | 3/8" MNPSM* | 3/8" FNPT | 2.33 | 1.24 | .50 |
| 38-502-02 | 38LF-502-02 | 3/8" FNPT | 3/8" FNPT | 2.34 | 1.24 | .50 |
| 38-502-03 | 38LF-502-03 | 3/8" FNPT | 3/8" MNPSM | 2.33 | 1.24 | .50 |
| 38-502-CP2** | 38LF-502-CP2** | 1/4" FNPT | 1/4" FNPT | 2.34 | 1.24 | .50 |
| 38-502-CP3** | 38LF-502-CP3** | 3/8" FNPT | 3/8" FNPT | 2.34 | 1.24 | .50 |

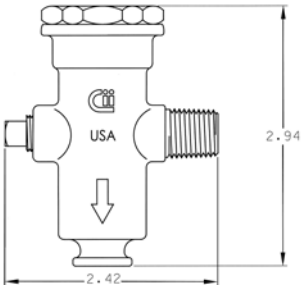
**American National Standard straight pipe thread for free-fitting mechanical joints (male)*
***-CP2 and -CP3 are non-approved devices with a rough brass finish for continuous pressure applications*

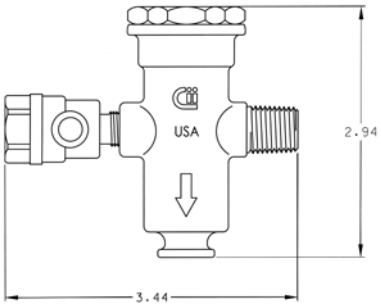
## FPV SERIES
FREEZE PROTECTION VALVE

LEADFREE OPTIONS








The Apollo Series FPV Freeze Protection Valve protects backflow preventers from freezing when installed in accordance with manufacturer's instructions. All internal parts of the Freeze Protection Valve are replaceable.

### OPERATION
During flow conditions, the Freeze Protection Valve shall be drip-tight during above-freezing normal operating conditions. The Freeze Protection Valve shall be suitable for normal operating pressures of 20 to 175 psig.

### FEATURES
- Installs Easily on All Backflow Preventers
- Ease of Repair with Available Repair Kit
- Corrosion Resistant
- 1/4" Male Pipe Thread Inlet Port
- Available With 1/8"M x 1/4"F Testcock
- Discharge Port Accommodates 5/8" I.D. Hose
- Lead-Free Option
- Mechanical Operating Principle
- Compact Design
- IAPMO listed
- 5 Year Warranty
- **Made in the USA**

### PERFORMANCE RATING
- Nominal Start to Open Temperature of 35°F
- Maximum Operating Pressure: 175 psig
- Maximum Temperature of 180°F

### APPROVALS
- NSF/ANSI 372 - Lead Free (40LF only)

### STANDARD MATERIALS LIST

| | |
|---|---|
| **BODY** | Bronze (C84400/LF C89836) |
| **CAP** | Brass |
| **SPRING GUIDE** | Brass |
| **SPRING** | Stainless Steel |
| **CAP O-RING** | Buna-N |
| **GUIDE O-RING** | Buna-N |
| **THERMAL ELEMENT** | Copper/Stainless Steel/EPDM |

*Contact local water authorities for installation/service requirements.*

### WEIGHTS

| MODEL NO. | NET WEIGHT (LB.) |
|---|---|
| 40-000-FPV1 | .70 |
| 40-000-FPV2 | .77 |

### MODEL NUMBERS

| MODEL NO. |
|---|
| 40-000-FPV1 |
| 40-000-FPV2 – w/test cock |
| 40LF-000-FPV1 |
| 40LF-000-FPV2F – w/SAE testcock |

### PART NUMBER MATRIX

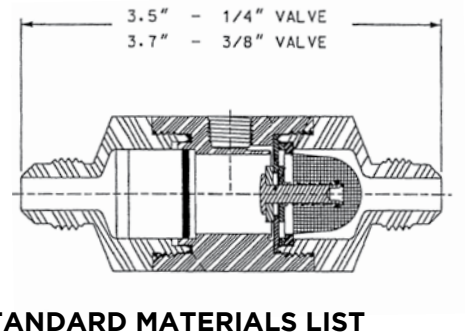
| 40 [X] 000 | FPV X |
|---|---|
| | OPTIONS |
| 40 - Standard | 1 - w/1/8" NPT plug |
| 40LF - Lead Free | 2 - w/1/8" male x 1/4" female test cock |
| | 2F - SAE test cock |
| | R - Repair kit* for FPV1 and FPV2 |

** Repair kit includes: Thermal element, spring, spring guide, two o-rings (all internal parts)*

## CBBP-A SERIES
CARBONATED BEVERAGE BACKFLOW PREVENTER

LEADFREE CERTIFIED






The Apollo CBBP-A Series Carbonated Beverage Backflow Preventer (CBBP) is designed to prevent the contamination of the potable water supply due to backflow when installed on water distribution lines serving beverage dispensing equipment. The device consists of two independently acting check valves biased to a normally closed position. A normally open atmospheric port is located between the check valves. During backflow conditions, the port vents gases and/or liquids. Additionally, the CBBP is equipped with a 100 mesh integral strainer screen at the inlet. All wetted areas of the device are non-toxic, corrosion resistant, and approved for use with potable water. The CBBP is suitable for supply pressures to 150 psig and water temperatures from 33˚ to 130˚ F.

### OPERATION
Under static (non-flowing) conditions, the check valves remain in the closed position. When a valve is opened downstream (i.e. a beverage is delivered from the beverage dispensing unit), the check valves open and permit the flow of water. Under backflow conditions, the diaphragm seat on the first check lifts and permits flow through the atmospheric port located between the two check valves. The strainer insures debris does not enter the backflow preventer.

### FEATURES
- Compact Design
- Lowest Head Loss
- Atmospheric Vent Provides Indication of Problems
- Integral Strainer for Equipment Protection
- Lead Free
- 5 Year Warranty
- Available in SAE & NPT Connections
- Repairable Check Assemblies
- Non-Metallic Body for Corrosion Resistance

### APPROVALS
- CSA
- NSF/ANSI/CAN 61 - Water Quality
- ASSE 1022
- IAPMO® Listed

### STANDARD MATERIALS LIST

| | |
|---|---|
| **END CAP** | Noryl/GFN2 |
| **STRAINER** | PVC/Stainless Steel |
| **O-RING** | EPDM |
| **UPSTREAM CHECK** | EPDM/Stainless Steel |
| **DOWNSTREAM CHECK** | EPDM/Stainless Steel, Acetal |
| **VALVE BODY** | Noryl/GFN2 |
| **VENT TUBE** | Polyethylene |

*Contact local water authorities for installation/service requirements.*

### PART NUMBER MATRIX

| **4C10 X** | **XX A** |
|---|---|
| SIZE | INLET AND OUTLET CONNECTION |
| 1 - 1/4" | 01 - Flare |
| 2 - 3/8" | 02 - MNPT (3/8" only) |

### DIMENSIONS

| SIZE | CONNECTION SIZING | | WT./EA |
|---|---|---|---|
| 1/4" | 7/16"-20 UNF | SAE Flare | .19 |
| 3/8" | 5/8"-18 UNF | SAE Flare | .19 |
| 3/8" | 3/8" NPT | Male NPT | .19 |

## 4A, 4AN AND RPS 40 SERIES
AIR GAP DRAIN



For installation with all 4A, 4An and RPS 40 Series Reduced Pressure Principle backflow preventers.

The Apollo Air Gap Drain (AGD) is designed to funnel minor relief valve discharges, due to line pressure fluctuations and /or minor check valve fouling, into the drainage system. Drain piping is easily attached to the drain's threaded bottom.

Note: The AGD is designed to collect expected minor discharges due to fouled checks or pressure fluctuations but not the full discharge capacity of the relief valve.

### AGD4A1 / AGD4A112 / AGD4A2 / AGD4A6 (1/2" - 6")

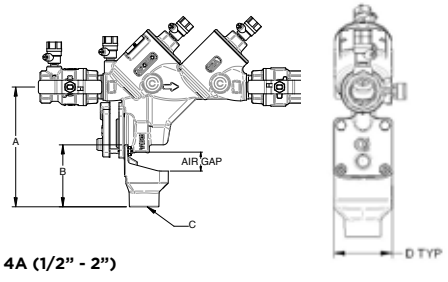
| RP SIZE | AIR GAP PART NUMBER | DIMENSIONS (IN.) | | | | OUTLET CONNECTION (FNPT) | WT. (LB.) |
|---|---|---|---|---|---|---|---|
| | | A | B | C | D | | |
| 1/2" | AGD4A1 | 6-1/2 | 3-3/8 | 1" FNPT | 2-5/8 | 1-1/4" | 0.1 |
| 3/4" | AGD4A1 | 6-1/2 | 3-3/8 | 1" FNPT | 2-5/8 | 1-1/4" | 0.1 |
| 1" | AGD4A1 | 6-5/8 | 3-3/8 | 1" FNPT | 2-5/8 | 1-1/4" | 0.1 |
| 1-1/4" & 1-1/2" | AGD4A112 | 8-1/2 | 4-1/8 | 1-1/2" FNPT | 3-1/2 | 2" | 0.2 |
| 2" | AGD4A2 | 10 | 5-3/8 | 2" FNPT | 4-1/4 | 2-1/2" | 0.35 |
| **RP4A** | | | | | | | |
| 2-1/2" | AGD4A6 | 11.28 | - | 2.63 | 3.13 | 2" | 0.7 |
| 3" | AGD4A6 | 11.28 | - | 2.63 | 3.13 | 2" | 0.7 |
| 4" | AGD4A6 | 12.02 | - | 2.63 | 3.13 | 2" | 0.7 |
| 6" | AGD4A6 | 13.32 | - | 2.63 | 3.13 | 2" | 0.7 |
| **RP4AN** | | | | | | | |
| 2-1/2" | AGD4A6 | - | 10.87 | 2.63 | 3.13 | 2" | 0.7 |
| 3" | AGD4A6 | - | 10.87 | 2.63 | 3.13 | 2" | 0.7 |
| 4" | AGD4A6 | - | 10.51 | 2.63 | 3.13 | 2" | 0.7 |
| 6" | AGD4A6 | - | 11.76 | 2.63 | 3.13 | 2" | 0.7 |

### AGD4A8 & AGDA12IN (8" & 12")

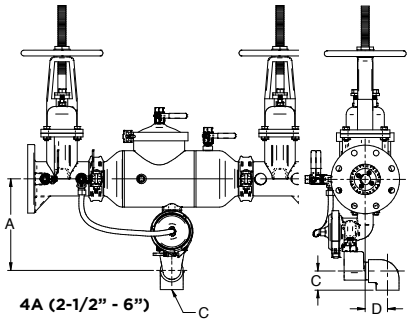
| RP STYLE | AIR GAP PART NUMBER | DIMENSIONS (IN.) | | OUTLET PIPE SIZE | OUTLET CONNECTION (FNPT) | WT. (LB.) |
|---|---|---|---|---|---|---|
| | | A | B | C | | |
| RPLF4A | AGD4A8 | 21.3 | 9.1 | 3" | 2-1/2" | 1.5 |
| RPLF4AN | AGD4A8 | 19.8 | 9.1 | 3" | 2-1/2" | 1.5 |
| RPLF4A | AGD4A12IN | 26.3 | 7.7 | 4" | 3" | 5 |
| RPLF4AN | AGD4A12IN | 23.4 | 7.7 | 4" | 3" | 5 |

### AGD4A012 / AGD4A01 (3/8" - 1")

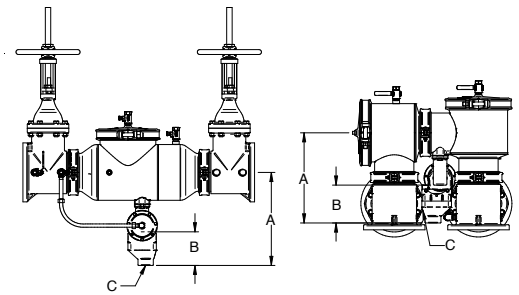
| RPS SIZE | AIR GAP PART NUMBER | DIMENSIONS (IN.) | | | | OUTLET CONNECTION (FNPT) | WT. (LB.) |
|---|---|---|---|---|---|---|---|
| | | A | B | C | D | | |
| 3/8", 1/2" | AGD4012 | 6-1/2 | 3-3/8 | 1" FNPT | 2-5/8 | 1-1/4" | 0.1 |
| 3/4" & 1" | AGD401 | 8-1/4 | 4 -1/8 | 1-1/2" FNPT | 3-1/2 | 2" | 0.2 |



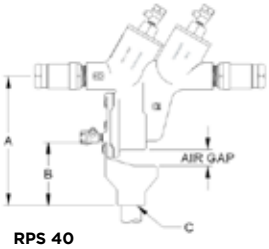

4A (1/2" - 2")



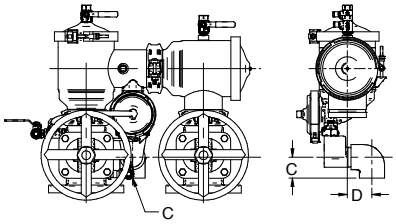

4A (2-1/2" - 6")



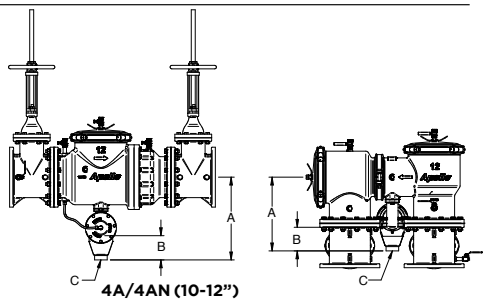

4A/4AN (8")




RPS 40




4AN (2-1/2" - 6")




4A/4AN (10-12")

BACKFLOW PREVENTION

"Apollo"® Valves

# gate, globe & check valves




**BRONZE GATE VALVES**
101S, 101S-LF J2
101T, 101T-LF J2
102S, 102S-LF J2
102T, 102T-LF J3
102T-K J3
103T J3
106T J4
107T J4
111T J4
116T J4

**CAST IRON GATE VALVES**
610F J-5
620F J-5
611F J-6
621F J-6

**BRONZE GLOBE VALVES**
120S, 120S-LF J-7
120T, 120T-LF J-7
121T, 121T-LF J-7
122T J-8
127T J-8
128T J-8

**CAST IRON GLOBE VALVES**
711F J-9
721F J-9

**BRONZE SWING CHECKS**
161S, 161S-LF J-10
161T, 161T-LF J-10
162T J-10
163S, 163S-LF J-10
163T, 163T-LF J-11
164T J-11
168T J-11
169T J-11

**CAST IRON SWING CHECKS**
910F J-12
910FLW J-12
920F J-13

**CAST IRON WAFER CHECKS**
910WB J-14
910WE J-14

**BRONZE IN-LINE CHECKS**
61-100/200 J-22
61LF-100 J-22
61-500/600 J-24
61LF-500/600 J-24
70-100-BC J-27

**STAINLESS STEEL IN-LINE CHECKS**
62-100 J-23
62-500 J-25

**BRASS IN-LINE CHECKS**
61-700 J-26

**IN-LINE CHECK REPAIR KITS** J-28


# section J

## MODEL 101S/101S-LF
SOLDER END RISING STEM GATE VALVE

LEADFREE OPTIONS

### FEATURES
- Threaded Bonnet
- Solid Bronze Disc
- 200 CWP
- Max. Temp: 406°F
- Lead Free Option (NSF/ANSI/CAN 61 & NSF/ANSI/CAN 372)

### STANDARDS
- MSS SP-80 Standard
- MSS SP-139 Lead Free Option (CWP only)
- ASTM B62 Bronze (ASTM B584-C89836 Lead Free)

### APPROVALS
- CRN 0C14667



| PART NUMBER | LF PART NUMBER | NPS | LENGTH (IN.) | HEIGHT (IN.) | WEIGHT (LB.) |
|---|---|---|---|---|---|
| 30-083-01 | 30LF-083-01 | 1/2 | 1.88 | 4.85 | 1.00 |
| 30-084-01 | 30LF-084-01 | 3/4 | 2.43 | 5.71 | 1.30 |
| 30-085-01 | 30LF-085-01 | 1 | 2.96 | 6.71 | 2.20 |
| 30-086-01 | 30LF-086-01 | 1-1/4 | 3.14 | 8.10 | 3.20 |
| 30-087-01 | 30LF-087-01 | 1-1/2 | 3.44 | 9.08 | 4.40 |
| 30-088-01 | 30LF-088-01 | 2 | 4.11 | 11.28 | 7.00 |
| 30-089-01 | 30LF-089-01 | 2-1/2 | 4.79 | 14.58 | 13.80 |
| 30-080-01 | 30LF-080-01 | 3 | 5.43 | 19.07 | 17.70 |

*Length is measured from end-to-end.*
*Height is measured from centerline to top of wheel in full open position.*

## MODEL 101T/101T-LF
NPT END RISING STEM GATE VALVE

LEADFREE OPTIONS

### FEATURES
- Threaded Bonnet
- Solid Bronze Disc
- 200 CWP
- 125 SWP
- Max. Temp: 406°F
- Lead Free Option (NSF/ANSI/CAN 61 & NSF/ANSI/CAN 372)

### STANDARDS
- MSS SP-80 Standard
- MSS SP-139 Lead Free Option (CWP only)
- ASTM B62 Bronze (ASTM B584-C89836 Lead Free)

### APPROVALS
- CRN 0C14667



| PART NUMBER | LF PART NUMBER | NPS | LENGTH (IN.) | HEIGHT (IN.) | WEIGHT (LB.) |
|---|---|---|---|---|---|
| 30-001-01 | 30LF-001-01 | 1/4 | 1.76 | 4.57 | 0.80 |
| 30-002-01 | 30LF-002-01 | 3/8 | 1.76 | 4.51 | 0.77 |
| 30-003-01 | 30LF-003-01 | 1/2 | 2.03 | 4.85 | 1.00 |
| 30-004-01 | 30LF-004-01 | 3/4 | 2.07 | 5.71 | 1.30 |
| 30-005-01 | 30LF-005-01 | 1 | 2.45 | 6.71 | 2.16 |
| 30-006-01 | 30LF-006-01 | 1-1/4 | 2.63 | 8.10 | 3.20 |
| 30-007-01 | 30LF-007-01 | 1-1/2 | 2.88 | 9.08 | 4.36 |
| 30-008-01 | 30LF-008-01 | 2 | 3.06 | 11.28 | 7.01 |
| 30-009-01 | 30LF-009-01 | 2-1/2 | 4.13 | 14.58 | 13.79 |
| 30-000-01 | 30LF-000-01 | 3 | 4.48 | 19.07 | 17.70 |

*Length is measured from end-to-end.*
*Height is measured from centerline to top of wheel in full open position.*

## MODEL 102S/102S-LF
SOLDER END-NON RISING STEM GATE VALVE

LEADFREE OPTIONS

### FEATURES
- Threaded Bonnet
- Solid Bronze Disc
- 200 CWP
- Max. Temp: 406°F
- Lead Free Option (NSF/ANSI/CAN 61 & NSF/ANSI/CAN 372)

### STANDARDS
- MSS SP-80 Standard
- MSS SP-139 Lead Free Option (CWP only)
- ASTM B62 Bronze (ASTM B584-C89836 Lead Free)

### APPROVALS
- CRN 0C14667



| PART NUMBER | LF PART NUMBER | NPS | LENGTH (IN.) | HEIGHT (IN.) | WEIGHT (LB.) |
|---|---|---|---|---|---|
| 30-043-01 | 30LF-043-01 | 1/2 | 1.88 | 3.56 | 0.85 |
| 30-044-01 | 30LF-044-01 | 3/4 | 2.43 | 4.05 | 1.19 |
| 30-045-01 | 30LF-045-01 | 1 | 2.96 | 4.55 | 1.98 |
| 30-046-01 | 30LF-046-01 | 1-1/4 | 3.14 | 5.14 | 2.80 |
| 30-047-01 | 30LF-047-01 | 1-1/2 | 3.44 | 6.02 | 3.95 |
| 30-048-01 | 30LF-048-01 | 2 | 4.11 | 7.09 | 5.88 |
| 30-049-01 | 30LF-049-01 | 2-1/2 | 4.79 | 9.11 | 12.19 |
| 30-040-01 | 30LF-040-01 | 3 | 5.43 | 12.61 | 16.84 |

*Length is measured from end-to-end. Height is measured from centerline to top of wheel in full open position.*

## MODEL 102T/102T-LF
NPT END NON-RISING STEM GATE VALVE

LEADFREE OPTIONS



### FEATURES
- Threaded Bonnet
- Solid Bronze Disc
- 200 CWP
- 125 SWP
- Max Temp: 406°F
- Lead Free Option (NSF/ANSI/CAN 61 & NSF/ANSI/CAN 372)

### STANDARDS
- MSS SP-80 Standard
- MSS SP-139 Lead Free Option (CWP only)
- ASTM B62 Bronze (ASTM B584-C89836 Lead Free)

### APPROVALS
- CRN 0C14667

| PART NUMBER | LF PART NUMBER | NPS | LENGTH (IN.) | HEIGHT (IN.) | WEIGHT (LB.) |
|---|---|---|---|---|---|
| 30-031-01 | 30LF-031-01 | 1/4 | 1.76 | 3.29 | 0.74 |
| 30-032-01 | 30LF-032-01 | 3/8 | 1.76 | 3.29 | 0.71 |
| 30-033-01 | 30LF-033-01 | 1/2 | 2.03 | 3.56 | 0.85 |
| 30-034-01 | 30LF-034-01 | 3/4 | 2.07 | 4.05 | 1.19 |
| 30-035-01 | 30LF-035-01 | 1 | 2.45 | 4.55 | 1.98 |
| 30-036-01 | 30LF-036-01 | 1-1/4 | 2.63 | 5.14 | 2.80 |
| 30-037-01 | 30LF-037-01 | 1-1/2 | 2.88 | 6.02 | 3.95 |
| 30-038-01 | 30LF-038-01 | 2 | 3.06 | 7.09 | 5.88 |
| 30-039-01 | 30LF-039-01 | 2-1/2 | 4.13 | 9.11 | 12.19 |
| 30-030-01 | 30LF-030-01 | 3 | 4.48 | 12.61 | 16.84 |

*Length is measured from end-to-end.*
*Height is measured from centerline to top of wheel in full open position.*

---

## MODEL 102T-K
NPT END NON-RISING STEM IRRIGATION GATE VALVE

### FEATURES
- Threaded Bonnet
- Solid Bronze Disc
- Bronze Cross-Handle (Irrigation)
- 200 CWP
- 125 SWP
- Max Temp: 406°F
- SS Stem Nut

### STANDARDS
- MSS SP-80 Standard
- ASTM B62 Bronze

### APPROVALS
- CRN 0C14667



| PART NUMBER | NPS | LENGTH (IN.) | HEIGHT (IN.) | WEIGHT (LB.) |
|---|---|---|---|---|
| 30-033-01K | 1/2 | 2.03 | 3.56 | 0.85 |
| 30-034-01K | 3/4 | 2.07 | 4.05 | 1.19 |
| 30-035-01K | 1 | 2.45 | 4.55 | 1.98 |
| 30-036-01K | 1-1/4 | 2.63 | 5.14 | 2.80 |
| 30-037-01K | 1-1/2 | 2.88 | 6.02 | 3.95 |
| 30-038-01K | 2 | 3.06 | 7.09 | 5.88 |
| 30-039-01K | 2-1/2 | 4.13 | 9.11 | 12.19 |
| 30-030-01K | 3 | 4.48 | 12.61 | 16.84 |

*Length is measured from end-to-end.*
*Height is measured from centerline to top of wheel in full open position.*
*30LF-03X-01K available upon request.*

---

## MODEL 103T
NPT END RISING STEM GATE VALVE

### FEATURES
- Threaded Bonnet
- Solid Bronze Disc
- 200 CWP
- 125 SWP
- Max. Temp: 406°F

### STANDARDS
- MSS SP-80 Standard
- ASTM B62 Bronze

### APPROVALS
- CRN 0C14667



| PART NUMBER | NPS | LENGTH (IN.) | HEIGHT (IN.) | WEIGHT (LB.) |
|---|---|---|---|---|
| 30-051-01 | 1/4 | 1.76 | 4.57 | 0.90 |
| 30-052-01 | 3/8 | 1.76 | 4.51 | 0.86 |
| 30-053-01 | 1/2 | 2.03 | 4.85 | 1.07 |
| 30-054-01 | 3/4 | 2.07 | 5.71 | 1.43 |
| 30-055-01 | 1 | 2.45 | 6.71 | 2.44 |
| 30-056-01 | 1-1/4 | 2.63 | 8.10 | 3.71 |
| 30-057-01 | 1-1/2 | 2.88 | 9.08 | 4.89 |
| 30-058-01 | 2 | 3.06 | 11.28 | 7.53 |
| 30-059-01 | 2-1/2 | 4.96 | 14.58 | 15.33 |
| 30-050-01 | 3 | 4.48 | 19.07 | 19.56 |

*Length is measured from end-to-end.*
*Height is measured from centerline to top of wheel in full open position.*

## MODEL 106T
CLASS 150 NPT NON-RISING STEM GATE VALVE

### FEATURES
- Threaded Bonnet
- Solid Bronze Disc
- 300 CWP
- 150 SWP
- Max. Temp: 406°F

### STANDARDS
- Meets MSS SP-80 Standard
- ASTM B62 Bronze Materials

### APPROVALS
- CRN 0C14667



| PART NUMBER | NPS | LENGTH (IN.) | HEIGHT (IN.) | WEIGHT (LB.) |
|---|---|---|---|---|
| 30-281-01 | 1/4 | 1.76 | 3.29 | 0.74 |
| 30-282-01 | 3/8 | 1.76 | 3.29 | 0.71 |
| 30-283-01 | 1/2 | 2.03 | 3.56 | 0.98 |
| 30-284-01 | 3/4 | 2.07 | 4.05 | 1.21 |
| 30-285-01 | 1 | 2.45 | 4.55 | 1.98 |
| 30-286-01 | 1-1/4 | 2.63 | 5.14 | 2.80 |
| 30-287-01 | 1-1/2 | 2.88 | 6.02 | 4.06 |
| 30-288-01 | 2 | 3.06 | 7.09 | 5.88 |
| 30-289-01 | 2-1/2 | 4.13 | 9.11 | 12.19 |
| 30-280-01 | 3 | 4.48 | 12.61 | 16.90 |

*Length is measured from end-to-end.*
*Height is measured from centerline to top of wheel in full open position.*

## MODEL 107T
CLASS 150 NPT RISING STEM GATE VALVE

### FEATURES
- Union Bonnet
- Solid Bronze Disc
- 300 CWP
- 150 SWP
- Max. Temp: 406°F

### STANDARDS
- Meets MSS SP-80 Standard
- ASTM B62 Bronze Materials

### APPROVALS
- CRN 0C14667



| PART NUMBER | NPS | LENGTH (IN.) | HEIGHT (IN.) | WEIGHT (LB.) |
|---|---|---|---|---|
| 30-201-01 | 1/4 | 1.76 | 4.57 | 0.90 |
| 30-202-01 | 3/8 | 1.76 | 4.51 | 0.86 |
| 30-203-01 | 1/2 | 2.03 | 4.85 | 1.07 |
| 30-204-01 | 3/4 | 2.07 | 5.71 | 1.43 |
| 30-205-01 | 1 | 2.45 | 6.71 | 2.50 |
| 30-206-01 | 1-1/4 | 2.63 | 8.10 | 3.69 |
| 30-207-01 | 1-1/2 | 2.88 | 9.13 | 5.01 |
| 30-208-01 | 2 | 3.06 | 11.28 | 7.53 |
| 30-209-01 | 2-1/2 | 4.13 | 14.58 | 15.33 |
| 30-200-01 | 3 | 4.48 | 16.90 | 19.56 |

*Length is measured from end-to-end.*
*Height is measured from centerline to top of wheel in full open position.*

## MODEL 111T/116T
CLASS 300 NPT RISING STEM GATE VALVE

### FEATURES
- Union Bonnet
- Solid Bronze Disc
- Model 116T has Type 316 SS Seats
- 1000 CWP
- 300 SWP
- Max. Temp: 422°F

### STANDARDS
- Meets MSS SP-80 Standard
- ASTM B61 Bronze Materials

### APPROVALS
- CRN 0C14667



| PART NUMBER | SS SEAT PART NUMBER | NPS | LENGTH (IN.) | HEIGHT (IN.) | WEIGHT (LB.) |
|---|---|---|---|---|---|
| 30-443-01 | 30-453-01 | 1/2 | 2.31 | 4.97 | 1.40 |
| 30-444-01 | 30-454-01 | 3/4 | 2.56 | 6.22 | 2.30 |
| 30-445-01 | 30-455-01 | 1 | 2.89 | 6.94 | 3.50 |
| 30-446-01 | 30-456-01 | 1-1/4 | 3.01 | 8.29 | 5.10 |
| 30-447-01 | 30-457-01 | 1-1/2 | 3.05 | 9.28 | 6.80 |
| 30-448-01 | 30-458-01 | 2 | 3.08 | 11.37 | 9.60 |

*Length is measured from end-to-end.*
*Height is measured from centerline to top of wheel in full open position.*

## MODEL 610F
CLASS 125 FLANGED GATE VALVE

LEADFREE OPTIONS

New!



### PERFORMANCE RATING (-LFA) MODEL
- Saturated Steam:
  125 psi (8.6 Bar) at 353° F (2"-12")
- Cold Working Pressure:
  200 psi (13.8 Bar) at 100° F (2"-12")
- Temperature Range: -20° to 406° F max

### STANDARD MODEL
- Cold Working Pressure:
  200 psi (13.8 Bar) at 100° F (2"-12")
- Temperature Range: -20° to 180° F max

### FEATURES
- Compatible with ANSI 125# & 150# Flanges
- Full Port
- Bronze Mounted Seat Rings/Trim
- Solid Wedge
- Adjustable Graphite Stem Packing
- Non-Rising Stem
- Bolted Bonnet
- Rugged Iron Hand Wheel
- Back Seat Protection
- Apollo International™

### STANDARDS
- MSS SP-70 - Gray Iron Gate Valves Flanged and Threaded - Type 1
- ASME B16.10 - Face-to-Face and End-to-End Dimensions of Valves

### APPROVALS (LEAD FREE ONLY)
- NSF/ANSI/CAN 61 - Water Quality
- NSF/ANSI/CAN 372 - Lead Free

| STANDARD PART NO. (NOT FOR STEAM) | -LFA PART NO. (STEAM RATED) | NPS | LENGTH (IN.) | HEIGHT (IN.) | WEIGHT (LB.) |
|---|---|---|---|---|---|
| | 6GA-108-B1-LFA | 2 | 7.00 | 14.57 | 36.0 |
| 6GA-109-B1 | 6GA-109-B1-LFA | 2-1/2 | 7.50 | 16.34 | 48.0 |
| - | 6GA-100-B1-LFA | 3 | 8.00 | 18.90 | 59.0 |
| | 6GA-10A-B1-LFA | 4 | 9.00 | 20.67 | 104 |
| 6GA-10B-B1 | 6GA-10B-B1-LFA | 5 | 10.00 | 24.61 | 150 |
| - | 6GA-10C-B1-LFA | 6 | 10.50 | 28.74 | 192 |
| | 6GA-10E-B1-LFA | 8 | 11.50 | 32.48 | 260 |
| | 6GA-10G-B1-LFA | 10 | 13.00 | 37.40 | 434 |
| 6GA-10H-B1 | 6GA-10H-B1-LFA | 12 | 14.00 | 43.31 | 606 |

*Length is measured from end-to-end. Height is measured from centerline to top of wheel in full open position.*
*NOTE: Flat face mating flanges and full face gaskets must be installed to avoid damage to the cast iron body.*

---

## MODEL 620F
CLASS 250 FLANGED GATE VALVE

LEADFREE OPTIONS

New!



### PERFORMANCE RATING (-LFA) MODEL
- Saturated Steam:
  250 psi (17.2 Bar) at 406° F (2"-12")
- Cold Working Pressure:
  500 psi (34.4 Bar) at 100° F (2"-12")
- Temperature Range: -20° to 406° F max

### STANDARD AND (-LF) MODEL
- Cold Working Pressure:
  500 psi (34.4 Bar) at 100° F (2"-12")
- Temperature Range: -20° to 180° F max

### FEATURES
- Compatible with ANSI 250# & 300# Flanges
- Full Port
- Bronze Mounted Seat Rings/Trim
- Solid Wedge
- Adjustable Graphite Stem Packing
- Non-Rising Stem
- Bolted Bonnet
- Rugged Iron Hand Wheel
- Back Seat Protection
- Apollo International™

### STANDARDS
- MSS SP-70 - Gray Iron Gate Valves Flanged and Threaded - Type 1
- ASME B16.10 - Face-to-Face and End-to-End Dimensions of Valves

### APPROVALS (LEAD FREE ONLY)
- NSF/ANSI/CAN 61 - Water Quality
- NSF/ANSI/CAN 372 - Lead Free

| STANDARD PART NO. (NOT FOR STEAM) | -LF PART NO. (NOT FOR STEAM) | -LFA PART NO. (STEAM RATED) | *NPS | LENGTH (IN.) | HEIGHT (IN.) | WEIGHT (LB.) |
|---|---|---|---|---|---|---|
| 6GA-208-B1 | - | 6GA-208-B1-LFA | 2 | 8.50 | 11.28 | 42.0 |
| 6GA-209-B1 | 6GA-209-B1-LF | 6GA-209-B1-LFA | 2-1/2 | 9.50 | 12.72 | 55.0 |
| - | 6GA-200-B1-LF | 6GA-200-B1-LFA | 3 | 11.00 | 13.31 | 66.0 |
| 6GA-20A-B1 | 6GA-20A-B1-LF | 6GA-20A-B1-LFA | 4 | 12.00 | 16.18 | 115 |
| - | - | 6GA-20C-B1-LFA | 6 | 16.00 | 22.00 | 205 |
| 6GA-20E-B1 | - | 6GA-20E-B1-LFA | 8 | 16.50 | 25.59 | 278 |
| - | - | 6GA-20G-B1-LFA | 10 | 18.00 | 30.31 | 456 |
| - | - | 6GA-20H-B1-LFA | 12 | 19.75 | 33.90 | 633 |

*Length is measured from end-to-end. Height is measured from centerline to top of wheel in full open position.*
*NOTE: Class 250 flanges and flanged fittings have a 0.06 inch raised face in accordance with MSS SP-6.*

## MODEL 611F
CLASS 125 FLANGED OS&Y GATE VALVE

LEADFREE OPTIONS

New!



### PERFORMANCE RATING (-LFA) MODEL
- Saturated Steam:
  125 psi (8.6 Bar) at 353° F (2"-12")
  100 psi (6.9 Bar) at 338° F (14")
- Cold Working Pressure:
  200 psi (13.8 Bar) at 100° F (2"-12")
  150 psi (10.3 Bar) at 100° F (14")
- Temperature Range: -20° to 406° F max

### STANDARD AND (-LF) MODELS
- Cold Working Pressure:
  200 psi (13.8 Bar) at 100° F (2"-12")
- Temperature Range: -20° to 180° F max

### FEATURES
- Compatible with ANSI 125# & 150# Flanges
- Full Port
- Bronze Mounted Seat Rings/Trim
- Solid Wedge
- Adjustable Graphite Stem Packing
- Outside Screw & Yoke
- Bolted Bonnet
- Rugged Iron Hand Wheel
- Back Seat Protection
- Apollo International™

### STANDARDS
- MSS SP-70 - Gray Iron Gate Valves Flanged and Threaded - Type 1
- ASME B16.10 - Face-to-Face and End-to-End Dimensions of Valves

### APPROVALS (LEAD FREE ONLY)
- NSF/ANSI/CAN 61 - Water Quality
- NSF/ANSI/CAN 372 - Lead Free

| STANDARD PART NO. (NOT FOR STEAM) | -LF PART NO. (NOT FOR STEAM) | -LFA PART NO. (STEAM RATED) | NPS | LENGTH (IN.) | HEIGHT (IN.) | WEIGHT (LB.) |
|---|---|---|---|---|---|---|
| | 6GA-118-B1-LF | 6GA-118-B1-LFA | 2 | 7.00 | 14.96 | 38.0 |
| - | 6GA-119-B1-LF | 6GA-119-B1-LFA | 2-1/2 | 7.50 | 16.93 | 51.0 |
| - | - | 6GA-110-B1-LFA | 3 | 8.00 | 19.09 | 62.0 |
| | - | 6GA-11A-B1-LFA | 4 | 9.00 | 24.21 | 110 |
| | | 6GA-11B-B1-LFA | 5 | 10.00 | 27.56 | 154 |
| - | - | 6GA-11C-B1-LFA | 6 | 10.50 | 32.87 | 203 |
| - | - | 6GA-11E-B1-LFA | 8 | 11.50 | 37.76 | 284 |
| - | - | 6GA-11G-B1-LFA | 10 | 13.00 | 48.03 | 459 |
| 6GA-11H-B1 | 6GA-11H-B1-LF | 6GA-11H-B1-LFA | 12 | 14.00 | 56.50 | 637 |
| - | - | 6GA-11J-B1-LFA | 14 | 15.00 | 65.16 | 966 |

*Length is measured from end-to-end. Height is measured from centerline to top of wheel in full open position.*
*NOTE: Flat face mating flanges and full face gaskets must be installed to avoid damage to the cast iron body.*

## MODEL 621F
CLASS 250 FLANGED OS&Y GATE VALVE

LEADFREE OPTIONS

New!



### PERFORMANCE RATING (-LFA) MODEL
- Saturated Steam:
  250 psi (17.2 Bar) at 406° F (2"-10")
- Cold Working Pressure:
  500 psi (34.4 Bar) at 100° F
- Temperature Range: -20° to 406° F max

### STANDARD AND (-LF) MODELS
- Cold Working Pressure:
  500 psi (34.4 Bar) at 100° F (2"-10")
- Temperature Range: -20° to 180° F max

### FEATURES
- Compatible with ANSI 250# & 300# Flanges
- Full Port
- Bronze Mounted Seat Rings/Trim
- Solid Wedge
- Adjustable Graphite Stem Packing
- Outside Screw & Yoke
- Bolted Bonnet
- Rugged Iron Hand Wheel
- Back Seat Protection
- Apollo International™

### STANDARDS
- MSS SP-70 - Gray Iron Gate Valves Flanged and Threaded - Type 1
- ASME B16.10 - Face-to-Face and End-to-End Dimensions of Valves

### APPROVALS (LEAD FREE ONLY)
- NSF/ANSI/CAN 61 - Water Quality
- NSF/ANSI/CAN 372 - Lead Free

| STANDARD PART NO. (NOT FOR STEAM) | -LF PART NO. (NOT FOR STEAM) | -LFA PART NO. (STEAM RATED) | NPS | LENGTH (IN.) | HEIGHT (IN.) | WEIGHT (LB.) |
|---|---|---|---|---|---|---|
| - | 6GA-218-B1-LF | 6GA-218-B1-LFA | 2 | 8.50 | 14.96 | 44.0 |
| 6GA-219-B1 | 6GA-219-B1-LF | 6GA-219-B1-LFA | 2-1/2 | 9.50 | 16.93 | 57.0 |
| 6GA-219-B1 | - | 6GA-210-B1-LFA | 3 | 11.12 | 19.09 | 71.0 |
| - | 6GA-21A-B1-LF | 6GA-21A-B1-LFA | 4 | 12.00 | 24.21 | 121 |
| - | - | 6GA-21B-B1-LFA | 5 | 15.00 | 27.56 | 165 |
| - | - | 6GA-21C-B1-LFA | 6 | 15.88 | 32.87 | 216 |
| - | 6GA-21E-B1-LF | 6GA-21E-B1-LFA | 8 | 16.50 | 39.76 | 302 |
| 6GA-21G-B1 | - | 6GA-21G-B1-LFA | 10 | 18.00 | 48.03 | 481 |

*Length is measured from end-to-end. Height is measured from centerline to top of wheel in full open position.*
*NOTE: Class 250 flanges and flanged fittings have a 0.06 inch raised face in accordance with MSS SP-6.*

## MODEL 120S/120S-LF
SOLDER END GLOBE VALVE

LEADFREE OPTIONS

### FEATURES
- Threaded Bonnet
- PTFE Disc
- 200 CWP
- Max. Temp: 406°F
- Lead Free Option (NSF/ANSI/CAN 61 & NSF/ANSI/CAN 372)

### STANDARDS
- MSS SP-80 Standard
- ASTM B62 Bronze (ASTM B584-C89836 Lead Free)

### APPROVALS
- CRN 0C14667



| PART NUMBER | LF PART NUMBER | NPS | LENGTH (IN.) | HEIGHT (IN.) | WEIGHT (LB.) |
|---|---|---|---|---|---|
| 33-143-01 | 33LF-143-01 | 1/2 | 2.97 | 3.47 | 1.00 |
| 33-144-01 | 33LF-144-01 | 3/4 | 3.83 | 4.75 | 1.90 |
| 33-145-01 | 33LF-145-01 | 1 | 4.57 | 5.40 | 2.80 |
| 33-146-01 | 33LF-146-01 | 1-1/4 | 5.95 | 7.80 | 7.30 |
| 33-147-01 | 33LF-147-01 | 1-1/2 | 5.95 | 7.80 | 6.80 |
| 33-148-01 | 33LF-148-01 | 2 | 7.18 | 8.43 | 10.60 |

*Length is measured from end-to-end.*
*Height is measured from centerline to top of wheel in full open position.*

## MODEL 120T/120T-LF
CLASS 125 NPT GLOBE VALVE

LEADFREE OPTIONS

### FEATURES
- Threaded Bonnet
- PTFE Disc
- 200 CWP
- 125 SWP
- Max. Temp: 406°F
- Lead Free Option (NSF/ANSI/CAN 61 & NSF/ANSI/CAN 372)

### STANDARDS
- SS SP-80 Standard
- ASTM B62 Bronze (ASTM B584-C89836 Lead Free)

### APPROVALS
- CRN 0C14667



| PART NUMBER | LF PART NUMBER | NPS | LENGTH (IN.) | HEIGHT (IN.) | WEIGHT (LB.) |
|---|---|---|---|---|---|
| 33-132-01 | 33LF-132-01 | 3/8 | 2.39 | 3.37 | 1.00 |
| 33-133-01 | 33LF-133-01 | 1/2 | 2.70 | 3.47 | 1.10 |
| 33-134-01 | 33LF-134-01 | 3/4 | 3.20 | 4.75 | 1.90 |
| 33-135-01 | 33LF-135-01 | 1 | 3.75 | 5.40 | 3.00 |
| 33-136-01 | 33LF-136-01 | 1-1/4 | 4.74 | 7.78 | 7.30 |
| 33-137-01 | 33LF-137-01 | 1-1/2 | 4.74 | 7.78 | 7.00 |
| 33-138-01 | 33LF-138-01 | 2 | 5.72 | 8.43 | 10.70 |

*Length is measured from end-to-end.*
*Height is measured from centerline to top of wheel in full open position.*

## MODEL 121T/121T-LF
CLASS 125 NPT GLOBE VALVE

LEADFREE OPTIONS

### FEATURES
- Threaded Bonnet
- Solid Bronze Disc
- 200 CWP
- 125 SWP
- Max. Temp: 406°F
- Lead Free Option (NSF/ANSI/CAN 61 & NSF/ANSI/CAN 372)

### STANDARDS
- MSS SP-80 Standard
- MSS SP-139 Lead Free Option (CWP only)
- ASTM B62 Bronze (ASTM B584-C89836 Lead Free)

### APPROVALS
- CRN 0C14667



| PART NUMBER | LF PART NUMBER | NPS | LENGTH (IN.) | HEIGHT (IN.) | WEIGHT (LB.) |
|---|---|---|---|---|---|
| 33-161-01 | 33LF-161-01 | 1/4 | 2.39 | 3.46 | 1.00 |
| 33-162-01 | 33LF-162-01 | 3/8 | 2.39 | 3.46 | 1.00 |
| 33-163-01 | 33LF-163-01 | 1/2 | 2.70 | 3.56 | 1.10 |
| 33-164-01 | 33LF-164-01 | 3/4 | 3.20 | 4.75 | 1.90 |
| 33-165-01 | 33LF-165-01 | 1 | 3.75 | 5.40 | 3.00 |
| 33-166-01 | 33LF-166-01 | 1-1/4 | 4.74 | 7.78 | 7.30 |
| 33-167-01 | 33LF-167-01 | 1-1/2 | 4.74 | 7.78 | 7.00 |
| 33-168-01 | 33LF-168-01 | 2 | 5.72 | 8.43 | 11.00 |

*Length is measured from end-to-end.*
*Height is measured from centerline to top of wheel in full open position.*

## MODEL 122T
CLASS 150 NPT GLOBE VALVE

### FEATURES
- Union Bonnet
- PTFE Disc
- 300 CWP
- 150 SWP
- Max. Temp: 406°F

### STANDARDS
- Meets MSS SP-80 Standard
- ASTM B62 Bronze Materials

### APPROVALS
- CRN 0C14667



| PART NUMBER | NPS | LENGTH (IN.) | HEIGHT (IN.) | WEIGHT (LB.) |
|---|---|---|---|---|
| 33-221-01 | 1/4 | 2.39 | 4.23 | 1.40 |
| 33-222-01 | 3/8 | 2.39 | 4.23 | 1.40 |
| 33-223-01 | 1/2 | 2.70 | 4.31 | 1.40 |
| 33-224-01 | 3/4 | 3.20 | 4.89 | 2.20 |
| 33-225-01 | 1 | 3.75 | 5.40 | 3.50 |
| 33-226-01 | 1-1/4 | 4.74 | 7.79 | 7.70 |
| 33-227-01 | 1-1/2 | 4.74 | 7.79 | 7.40 |
| 33-228-01 | 2 | 5.20 | 8.76 | 12.40 |
| 33-229-01 | 2-1/2 | 6.60 | 10.07 | 18.80 |
| 33-220-01 | 3 | 7.74 | 11.39 | 25.50 |

*Length is measured from end-to-end.*
*Height is measured from centerline to top of wheel in full open position.*

## MODEL 127T
CLASS 300 NPT GLOBE VALVE

### FEATURES
- Union Bonnet
- Bronze Disc and Seat
- 1000 CWP
- 300 SWP
- Max. Temp: 422°F

### STANDARDS
- Meets MSS SP-80 Standard
- ASTM B61 Bronze Materials

### APPROVALS
- CRN 0C14667



| PART NUMBER | NPS | LENGTH (IN.) | HEIGHT (IN.) | WEIGHT (LB.) |
|---|---|---|---|---|
| 33-663-01 | 1/2 | 2.70 | 5.40 | 1.78 |
| 33-664-01 | 3/4 | 3.20 | 5.86 | 2.28 |
| 33-665-01 | 1 | 4.00 | 6.71 | 4.22 |
| 33-666-01 | 1-1/4 | 5.25 | 8.50 | 8.30 |
| 33-667-01 | 1-1/2 | 5.25 | 8.50 | 8.10 |
| 33-668-01 | 2 | 6.25 | 9.75 | 13.00 |

*Length is measured from end-to-end.*
*Height is measured from centerline to top of wheel in full open position.*

## MODEL 128T
CLASS 300 GLOBE VALVE

### FEATURES
- Union Bonnet
- Type 420 Stainless Steel Disc and Seat Ring
- 1000 CWP
- 300 SWP
- Max. Temp: 422°F

### STANDARDS
- Meets MSS SP-80 Standard
- ASTM B61 Bronze Materials

### APPROVALS
- CRN 0C14667



| PART NUMBER | NPS | LENGTH (IN.) | HEIGHT (IN.) | WEIGHT (LB.) |
|---|---|---|---|---|
| 33-743-01 | 1/2 | 2.70 | 5.40 | 1.78 |
| 33-744-01 | 3/4 | 3.20 | 5.86 | 2.28 |
| 33-745-01 | 1 | 4.00 | 6.71 | 4.22 |
| 33-746-01 | 1-1/4 | 5.25 | 8.50 | 8.30 |
| 33-747-01 | 1-1/2 | 5.25 | 8.50 | 8.10 |
| 33-748-01 | 2 | 6.25 | 9.75 | 13.00 |

*Length is measured from end-to-end.*
*Height is measured from centerline to top of wheel in full open position.*

## MODEL 711F
CLASS 125 FLANGED GLOBE VALVE

LEADFREE OPTIONS

New!



### FEATURES
- Compatible with ANSI 125# & 150# Flanges
- Full Port
- Bronze Mounted Seat Rings
- Positive Shut-Off
- Throttling Capabilities
- Adjustable Graphite Stem Packing
- Outside Screw and Yoke
- Bolted Bonnet
- Back Seat Protection
- Apollo International™

### STANDARDS
- MSS SP-85 - Gray Iron Globe and Angle Valves Flanged and Threaded Ends
- ASME B16.10 - Face-to-Face and End-to-End Dimensions of Valves

### APPROVALS (LEAD FREE ONLY)
- NSF/ANSI/CAN 61 - Water Quality
- NSF/ANSI/CAN 372 - Lead Free

### PERFORMANCE RATING (-LFA) MODEL
- Saturated Steam:
  125 psi (8.6 Bar) at 353° F (2"-10")
- Cold Working Pressure:
  200 psi (13.8 Bar) at 100° F (2"-10")
- Temperature Range: -20° to 406° F max

### STANDARD AND (-LF) MODELS
- Cold Working Pressure:
  200 psi (13.8 Bar) at 100° F (2"-10")
- Temperature Range: -20° to 180° F max

| STANDARD PART NO. (NOT FOR STEAM) | -LF PART NO. (NOT FOR STEAM) | -LFA PART NO. (STEAM RATED) | NPS | LENGTH (IN.) | HEIGHT (IN.) | WEIGHT (LB.) |
|---|---|---|---|---|---|---|
| - | - | 6GB-118-B1-LFA | 2 | 8.00 | 11.61 | 36.0 |
| - | 6GB-119-B1-LF | 6GB-119-B1-LFA | 2-1/2 | 8.50 | 12.99 | 49.0 |
| - | - | 6GB-110-B1-LFA | 3 | 9.50 | 14.37 | 64.0 |
| - | - | 6GB-11A-B1-LFA | 4 | 11.50 | 15.75 | 94.0 |
| - | - | 6GB-11B-B1-LFA | 5 | 13.00 | 17.72 | 137 |
| 6GB-11C-B1 | - | 6GB-11C-B1-LFA | 6 | 14.00 | 20.67 | 195 |
| - | - | 6GB-11E-B1-LFA | 8 | 19.50 | 23.43 | 315 |
| - | - | 6GB-11G-B1-LFA | 10 | 24.50 | 26.97 | 485 |

*Length is measured from end-to-end. Height is measured from centerline to top of wheel in full open position.*
*NOTE: Flat face mating flanges and full face gaskets must be installed to avoid damage to the cast iron body.*

---

## MODEL 721F
CLASS 250 FLANGED GLOBE VALVE

LEADFREE OPTIONS

New!



### FEATURES
- Compatible with ANSI 250# & 300# Flanges
- Full Port
- Bronze Mounted Seat Rings
- Positive Shut-Off
- Throttling Capabilities
- Adjustable Graphite Stem Packing
- Outside Screw and Yoke
- Flanged Connection
- Bolted Bonnet
- Rugged Iron Hand Wheel
- Back Seat Protection
- Apollo International™

### STANDARDS
- MSS SP-85 - Gray Iron Globe and Angle Valves Flanged and Threaded Ends
- ASME B16.10 - Face-to-Face and End-to-End Dimensions of Valves

### APPROVALS (LEAD FREE ONLY)
- NSF/ANSI/CAN 61 - Water Quality
- NSF/ANSI/CAN 372 - Lead Free

### PERFORMANCE RATING (-LFA) MODEL
- Saturated Steam:
  250 psi (17.2 Bar) at 406° F (2"-8")
- Cold Working Pressure:
  500 psi (34.4 Bar) at 100° F (2"-8")
- Temperature Range: -20° to 406° F max

### STANDARD MODELS
- Cold Working Pressure:
  500 psi (34.4 Bar) at 100° F (2"-8")
- Temperature Range: -20° to 180° F max

| STANDARD PART NO. (NOT FOR STEAM) | -LFA PART NO. (STEAM RATED) | NPS | LENGTH (IN.) | HEIGHT (IN.) | WEIGHT (LB.) |
|---|---|---|---|---|---|
| - | 6GB-218-B1-LFA | 2 | 10.50 | 14.17 | 40.8 |
| 6GB-219-B1 | 6GB-219-B1-LFA | 2-1/2 | 11.50 | 15.75 | 52.9 |
| 6GB-210-B1 | 6GB-210-B1-LFA | 3 | 12.50 | 16.93 | 70.5 |
| 6GB-21A-B1 | 6GB-21A-B1-LFA | 4 | 14.00 | 18.90 | 99.2 |
| 6GB-21C-B1 | 6GB-21C-B1-LFA | 6 | 17.50 | 23.62 | 203 |
| - | 6GB-21E-B1-LFA | 8 | 21.00 | 27.56 | 333 |

*Length is measured from end-to-end. Height is measured from centerline to top of wheel in full open position.*
*NOTE: Class 250 flanges and flanged fittings have a 0.06 inch raised face in accordance with MSS SP-6.*

## MODEL 161S/161S-LF
BRONZE DISC SWING CHECK

LEADFREE OPTIONS

### FEATURES
- Y-Pattern
- Solder Ends
- Bronze Seat
- 200 CWP
- Lead Free Option (NSF/ANSI/CAN 372)

### STANDARDS
- MSS SP-80 Standard
- MSS SP-139 Lead Free Option (CWP only)
- ASTM B62 Bronze (ASTM B584-C89836 Lead Free)

### APPROVALS
- CRN 0C14667



| PART NUMBER | LF PART NUMBER | NPS | LENGTH (IN.) | HEIGHT (IN.) | WEIGHT (LB.) |
|---|---|---|---|---|---|
| 61Y-093-01 | 61YLF-093-01 | 1/2 | 2.53 | 1.65 | 0.62 |
| 61Y-094-01 | 61YLF-094-01 | 3/4 | 3.36 | 1.90 | 0.91 |
| 61Y-095-01 | 61YLF-095-01 | 1 | 4.07 | 2.26 | 1.70 |
| 61Y-096-01 | 61YLF-096-01 | 1-1/4 | 4.68 | 2.65 | 2.00 |
| 61Y-097-01 | 61YLF-097-01 | 1-1/2 | 5.28 | 2.99 | 2.70 |
| 61Y-098-01 | 61YLF-098-01 | 2 | 6.50 | 3.74 | 4.90 |
| 61Y-099-01 | – | 2-1/2 | 8.30 | 5.11 | 9.70 |
| 61Y-090-01 | – | 3 | 9.58 | 6.05 | 15.00 |

*Height is measured from centerline to top of unit.*

## MODEL 161T/161T-LF
CLASS 125 BRONZE DISC SWING CHECK

LEADFREE OPTIONS

### FEATURES
- Y-Pattern
- NPT
- Bronze Seat
- 200 CWP
- 125 SWP
- Lead Free Option (NSF/ANSI/CAN 372)

### STANDARDS
- MSS SP-80 Standard
- MSS SP-139 Lead Free Option (CWP only)
- ASTM B62 Bronze (ASTM B584-C89836 Lead Free)

### APPROVALS
- CRN 0C14667



| PART NUMBER | LF PART NUMBER | NPS | LENGTH (IN.) | HEIGHT (IN.) | WEIGHT (LB.) |
|---|---|---|---|---|---|
| 61Y-191-01 | 61YLF-191-01 | 1/4 | 2.14 | 1.51 | 0.64 |
| 61Y-192-01 | 61YLF-192-01 | 3/8 | 2.14 | 1.51 | 0.62 |
| 61Y-193-01 | 61YLF-193-01 | 1/2 | 2.48 | 1.65 | 0.73 |
| 61Y-194-01 | 61YLF-194-01 | 3/4 | 2.94 | 1.90 | 1.06 |
| 61Y-195-01 | 61YLF-195-01 | 1 | 3.57 | 2.26 | 1.70 |
| 61Y-196-01 | 61YLF-196-01 | 1-1/4 | 4.50 | 2.99 | 3.30 |
| 61Y-197-01 | 61YLF-197-01 | 1-1/2 | 4.50 | 2.99 | 3.10 |
| 61Y-198-01 | 61YLF-198-01 | 2 | 5.25 | 3.74 | 5.50 |
| 61Y-199-01 | – | 2-1/2 | 8.00 | 5.11 | 11.70 |
| 61Y-190-01 | – | 3 | 9.24 | 6.05 | 17.80 |

*Height is measured from centerline to top of unit.*

## MODEL 162T
VITON® DISC SWING CHECK

### FEATURES
- Y-Pattern
- NPT
- Viton Elastomer Seat
- 200 CWP
- 125 SWP

### STANDARDS
- MSS SP-80 Standard
- ASTM B62 Bronze

### APPROVALS
- CRN 0C14667



| PART NUMBER | NPS | LENGTH (IN.) | HEIGHT (IN.) | WEIGHT (LB.) |
|---|---|---|---|---|
| 61Y-201-V1 | 1/4 | 2.14 | 1.51 | 0.64 |
| 61Y-202-V1 | 3/8 | 2.14 | 1.51 | 0.62 |
| 61Y-203-V1 | 1/2 | 2.48 | 1.65 | 0.73 |
| 61Y-204-V1 | 3/4 | 2.94 | 1.90 | 1.06 |
| 61Y-205-V1 | 1 | 3.57 | 2.26 | 1.70 |
| 61Y-206-V1 | 1-1/4 | 4.50 | 2.99 | 3.30 |
| 61Y-207-V1 | 1-1/2 | 4.50 | 2.99 | 3.10 |
| 61Y-208-V1 | 2 | 5.25 | 3.74 | 5.40 |

*Height is measured from centerline to top of unit.*

## MODEL 163S/163S-LF
200 CWP PTFE DISC SWING CHECK

LEADFREE OPTIONS

### FEATURES
- Y-Pattern
- Solder
- PTFE Soft Seat
- 200 CWP
- Lead Free Option (NSF/ANSI/CAN 372)

### STANDARDS
- MSS SP-80 Standard
- MSS SP-139 Lead Free Option (CWP only)
- ASTM B62 Bronze (ASTM B584-C89836 Lead Free)

### APPROVALS
- CRN 0C14667



| PART NUMBER | LF PART NUMBER | NPS | LENGTH (IN.) | HEIGHT (IN.) | WEIGHT (LB.) |
|---|---|---|---|---|---|
| 61Y-103-T1 | 61YLF-103-T1 | 1/2 | 2.53 | 1.65 | 0.62 |
| 61Y-104-T1 | 61YLF-104-T1 | 3/4 | 3.36 | 1.90 | 0.91 |
| 61Y-105-T1 | 61YLF-105-T1 | 1 | 4.07 | 2.26 | 1.70 |
| 61Y-106-T1 | 61YLF-106-T1 | 1-1/4 | 5.28 | 2.99 | 3.20 |
| 61Y-107-T1 | 61YLF-107-T1 | 1-1/2 | 5.28 | 2.99 | 2.70 |
| 61Y-108-T1 | 61YLF-108-T1 | 2 | 6.50 | 3.74 | 4.90 |

*Height is measured from centerline to top of unit.*

## MODEL 163T/163T-LF
CLASS 125 PFTE DISC SWING CHECK

LEADFREE OPTIONS

### FEATURES
- Y-Pattern
- NPT
- PTFE Soft Seat
- 200 CWP
- 125 SWP
- Lead Free Option (NSF/ANSI/CAN 372)

### STANDARDS
- MSS SP-80 Standard
- MSS SP-139 Lead Free Option (CWP only)
- ASTM B62 Bronze (ASTM B584-C89836 Lead Free)

### APPROVALS
- CRN 0C14667



| PART NUMBER | LF PART NUMBER | NPS | LENGTH (IN.) | HEIGHT (IN.) | WEIGHT (LB.) |
|---|---|---|---|---|---|
| 61Y-203-T1 | 61YLF-203-T1 | 1/2 | 2.48 | 1.65 | 0.73 |
| 61Y-204-T1 | 61YLF-204-T1 | 3/4 | 2.94 | 1.90 | 1.06 |
| 61Y-205-T1 | 61YLF-205-T1 | 1 | 3.57 | 2.26 | 1.70 |
| 61Y-206-T1 | 61YLF-206-T1 | 1-1/4 | 4.50 | 2.99 | 3.30 |
| 61Y-207-T1 | 61YLF-207-T1 | 1-1/2 | 4.50 | 2.99 | 3.10 |
| 61Y-208-T1 | 61YLF-208-T1 | 2 | 5.25 | 3.74 | 5.40 |

*Height is measured from centerline to top of unit.*

## MODEL 164T
CLASS 150 BRONZE DISC SWING CHECK

### FEATURES
- Y-Pattern
- NPT
- Bronze Seat
- 300 CWP
- 150 SWP

### STANDARDS
- MSS SP-80 Standard
- ASTM B62 Bronze

### APPROVALS
- CRN 0C14667



| PART NUMBER | NPS | LENGTH (IN.) | HEIGHT (IN.) | WEIGHT (LB.) |
|---|---|---|---|---|
| 61Y-211-01 | 1/4 | 2.14 | 1.51 | 0.64 |
| 61Y-212-01 | 3/8 | 2.14 | 1.51 | 0.62 |
| 61Y-213-01 | 1/2 | 2.48 | 1.65 | 0.73 |
| 61Y-214-01 | 3/4 | 2.94 | 1.90 | 1.06 |
| 61Y-215-01 | 1 | 3.57 | 2.26 | 1.70 |
| 61Y-216-01 | 1-1/4 | 4.50 | 2.99 | 3.30 |
| 61Y-217-01 | 1-1/2 | 4.50 | 2.99 | 3.10 |
| 61Y-218-01 | 2 | 5.25 | 3.74 | 5.50 |
| 61Y-219-01 | 2-1/2 | 8.00 | 5.11 | 11.70 |
| 61Y-210-01 | 3 | 9.24 | 6.05 | 17.80 |

*Height is measured from centerline to top of unit.*

## MODEL 168T
CLASS 300 BRONZE DISC SWING CHECK

### FEATURES
- Y-Pattern
- NPT
- Bronze Seat
- 600 CWP
- 300 SWP

### STANDARDS
- MSS SP-80 Standard
- ASTM B61 Bronze

### APPROVALS
- CRN 0C14667



| PART NUMBER | NPS | LENGTH (IN.) | HEIGHT (IN.) | WEIGHT (LB.) |
|---|---|---|---|---|
| 61Y-753-01 | 1/2 | 2.50 | 1.65 | .75 |
| 61Y-754-01 | 3/4 | 2.95 | 1.90 | 1.20 |
| 61Y-755-01 | 1 | 3.57 | 2.27 | 1.80 |
| 61Y-756-01 | 1-1/4 | 4.50 | 3.00 | 3.50 |
| 61Y-757-01 | 1-1/2 | 4.50 | 3.00 | 3.20 |
| 61Y-758-01 | 2 | 5.25 | 3.75 | 5.60 |

*Height is measured from centerline to top of unit.*

## MODEL 169T
CLASS 300 PTFE DISC SWING CHECK

### FEATURES
- Y-Pattern
- NPT
- PFTE Soft Seat
- 600 CWP
- 300 SWP

### STANDARDS
- MSS SP-80 Standard
- ASTM B61 Bronze

### APPROVALS
- CRN 0C14667



| PART NUMBER | NPS | LENGTH (IN.) | HEIGHT (IN.) | WEIGHT (LB.) |
|---|---|---|---|---|
| 61Y-753-T1 | 1/2 | 2.5 | 1.65 | .75 |
| 61Y-754-T1 | 3/4 | 2.95 | 1.90 | 1.20 |
| 61Y-755-T1 | 1 | 3.57 | 2.27 | 1.80 |
| 61Y-756-T1 | 1-1/4 | 4.50 | 3.00 | 3.50 |
| 61Y-757-T1 | 1-1/2 | 4.50 | 3.00 | 3.20 |
| 61Y-758-T1 | 2 | 5.25 | 3.75 | 5.60 |

*Height is measured from centerline to top of unit.*

## MODEL 910F
CLASS 125 FLANGED SWING CHECK

LEADFREE OPTIONS



### PERFORMANCE RATING (-LFA) MODEL
- Saturated Steam:
  125 psi (8.6 Bar) at 353° F (2"-12")
  100 psi (6.9 Bar) at 338° F (14"-20")
- Cold Working Pressure:
  200 psi (13.8 Bar) at 100° F (2"-12")
  150 psi (10.3 Bar) at 100° F (14"-20")
- Temperature Range: -20° to 406° F max

### STANDARD AND (-LF) MODELS
- Cold Working Pressure:
  200 psi (13.8 Bar) at 100° F (2"-12")
  150 psi (10.3 Bar) at 100° F (14"-20")
- Temperature Range: -20° to– 180° F max

### FEATURES
- Compatible with ANSI 125# & 150# Flanges
- Full Port
- Minimal Pressure Drop
- Flanged Connection
- Bolted Bonnet
- Integral Bronze Seat
- Apollo International™

### STANDARDS
- MSS SP-71 - Gray Iron Swing Check Valves Flanged and Threaded Ends
- ASME B16.10 - Face-to-Face and End-to-End Dimensions of Valves

### APPROVALS (LEAD FREE ONLY)
- NSF/ANSI/CAN 61 - Water Quality
- NSF/ANSI/CAN 372 - Lead Free

| STANDARD PART NO. (NOT FOR STEAM) | -LF PART NO. (NOT FOR STEAM) | -LFA PART NO. (STEAM RATED) | NPS | LENGTH (IN.) | HEIGHT (IN.) | WEIGHT (LB.) |
|---|---|---|---|---|---|---|
| - | - | 6SC-108-B1-LFA | 2 | 8.00 | 4.41 | 26.0 |
| - | 6SC-109-B1-LF | 6SC-109-B1-LFA | 2-1/2 | 8.50 | 5.24 | 39.0 |
| - | - | 6SC-100-B1-LFA | 3 | 9.50 | 5.67 | 47.0 |
| - | - | 6SC-10A-B1-LFA | 4 | 11.50 | 6.61 | 82.0 |
| 6SC-10B-B1 | - | 6SC-10B-B1-LFA | 5 | 13.00 | 7.80 | 124 |
| - | - | 6SC-10C-B1-LFA | 6 | 14.00 | 8.54 | 160 |
| - | - | 6SC-10E-B1-LFA | 8 | 19.50 | 10.28 | 271 |
| 6SC-10G-01 | - | 6SC-10G-B1-LFA | 10 | 24.50 | 11.30 | 437 |
| 6SC-10H-01 | - | 6SC-10H-B1-LFA | 12 | 27.50 | 12.56 | 644 |
| - | - | 6SC-10J-01-LFA | 14 | 31.00 | 17.50 | 950 |
| - | - | 6SC-10K-01-LFA | 16 | 36.00 | 23.45 | 1160 |
| 6SC-10N-01 | - | - | 20 | 40.00 | 29.25 | 2094 |

*Height is measured from centerline to top of unit.*

## MODEL 910FLW
CLASS 125 FLANGED SWING CHECK

LEADFREE OPTIONS



### PERFORMANCE RATING (-LFA) MODEL
- Saturated Steam:
  125 psi (8.6 Bar) at 353° F (2"-12")
- Cold Working Pressure:
  200 psi (13.8 Bar) at 100° F (2"-12")
- Temperature Range: -20° to 406° F max

### STANDARD AND (-LF) MODELS
- Cold Working Pressure:
  200 psi (13.8 Bar) at 100° F (2"-12")
- Temperature Range: -20° to 180° F max

### FEATURES
- Compatible with ANSI 125# & 150# Flanges
- Full Port
- Minimal Pressure Drop
- Flanged Connection
- Bolted Bonnet
- Integral Seat
- Lever & Weight Design
- Apollo International™

### STANDARDS
- MSS SP-71 - Gray Iron Swing Check Valves Flanged and Threaded Ends
- ASME B16.10 - Face-to-Face and End-to-End Dimensions of Valves

### APPROVALS (LEAD FREE ONLY)
- NSF/ANSI/CAN 61 - Water Quality
- NSF/ANSI/CAN 372 - Lead Free

| STANDARD PART NO. (NOT FOR STEAM) | -LF PART NO. (NOT FOR STEAM) | -LFA PART NO. (STEAM RATED) | NPS | LENGTH (IN.) | HEIGHT (IN.) | WEIGHT (LB.) |
|---|---|---|---|---|---|---|
| - | - | 6SC-108-B1L-LFA | 2 | 8.00 | 4.41 | 38.8 |
| 6SC-109-B1L | - | 6SC-109-B1L-LFA | 2-1/2 | 8.50 | 5.24 | 45.2 |
| - | 6SC-100-B1L-LF | 6SC-100-B1L-LFA | 3 | 9.50 | 5.67 | 61.7 |
| - | - | 6SC-10A-B1L-LFA | 4 | 11.50 | 6.61 | 99.2 |
| - | - | 6SC-10B-B1L-LFA | 5 | 13.00 | 7.80 | 132 |
| - | - | 6SC-10C-B1L-LFA | 6 | 14.00 | 8.54 | 170 |
| - | - | 6SC-10E-B1L-LFA | 8 | 19.50 | 10.28 | 282 |
| - | - | 6SC-10G-B1L-LFA | 10 | 24.50 | 11.30 | 439 |
| - | - | 6SC-10H-B1L-LFA | 12 | 27.50 | 12.56 | 672 |

*Height is measured from centerline to top of unit.*
*NOTE: Flat face mating flanges and full face gaskets must be installed to avoid damage to the cast iron body.*

## MODEL 920F
CLASS 250 FLANGED SWING CHECK

LEADFREE OPTIONS



### PERFORMANCE RATING (-LFA) MODEL
- Saturated Steam:
  250 psi (17.6 Bar) at 406° F (2"-8")
- Cold Working Pressure:
  500 psi (34.4 Bar) at 100° F (2"-8")
- Temperature Range: -20° to 406° F max

### STANDARD MODEL
- Cold Working Pressure:
  500 psi (34.4 Bar) at 100° F (2"-8")
- Temperature Range: -20° to 180° F max

### FEATURES
- Compatible with ANSI 250# & 300# Flanges
- Full Port
- Minimal Pressure Drop
- Flanged Connection
- Bolted Bonnet
- Integral Seat
- Apollo International™

### STANDARDS
- MSS SP-71 - Gray Iron Swing Check Valves Flanged and Threaded Ends
- ASME B16.10 - Face-to-Face and End-to-End Dimensions of Valves
- ASME B1.1 - Unified Inch Screw Threads

### APPROVALS (LEAD FREE ONLY)
- NSF/ANSI/CAN 61 - Water Quality
- NSF/ANSI/CAN 372 - Lead Free

| STANDARD PART NO. (NOT FOR STEAM) | -LFA PART NO. (STEAM RATED) | NPS | LENGTH (IN.) | HEIGHT (IN.) | WEIGHT (LB.) |
|---|---|---|---|---|---|
| 6SC-208-B1 | 6SC-208-B1-LFA | 2 | 10.51 | 4.41 | 30.0 |
| - | 6SC-209-B1-LFA | 2-1/2 | 11.50 | 5.24 | 44.0 |
| 6SC-200-B1 | 6SC-200-B1-LFA | 3 | 12.50 | 5.67 | 55.0 |
| – | 6SC-20A-B1-LFA | 4 | 14.00 | 6.61 | 90.0 |
| - | 6SC-20C-B1-LFA | 6 | 17.50 | 8.54 | 172 |
| 6SC-20E-01 | 6SC-20E-01-LFA | 8 | 21.00 | 10.28 | 289 |

*Height is measured from centerline to top of unit.*
*NOTE: Class 250 flanges and flanged fittings have a 0.06 inch raised face in accordance with MSS SP-6.*

## MODEL 910WB
CLASS 125 WAFER CHECK - NITRILE (BUNA-N)

LEADFREE OPTIONS



### FEATURES
- Compatible with ANSI 125# & 150# Flanges
- Full Port
- Minimal Pressure Drop
- Light Weight
- Spring Assisted Closing for Quicker Response
- Apollo International™

### PERFORMANCE RATING
- 250 psi (17.2 Bar) Non-Shock Cold Working Pressure
  Maximum Temperature to 180°F (82°C)
- **Not For Steam Use**

### APPROVALS (LEAD FREE ONLY)
- NSF/ANSI/CAN 61 - Water Quality
- NSF/ANSI/CAN 372 - Lead Free

| PART NUMBER | LF PART NUMBER | NPS | LENGTH (IN.) | HEIGHT (IN.) | WEIGHT (LB.) |
|---|---|---|---|---|---|
| 6WC-108-N1 | 6WC-108-N1-LF | 2 | 2.12 | 4.00 | 5.0 |
| – | 6WC-109-N1-LF | 2-1/2 | 2.38 | 4.75 | 7.0 |
| – | 6WC-100-N1-LF | 3 | 2.62 | 5.25 | 10.0 |
| - | 6WC-10A-N1-LF | 4 | 2.62 | 6.75 | 12.0 |
| – | 6WC-10B-N1-LF | 5 | 3.25 | 7.50 | 15.0 |
| – | 6WC-10C-N1-LF | 6 | 3.75 | 8.50 | 22.0 |
| – | 6WC-10E-N1-LF | 8 | 5.00 | 11.00 | 35.0 |
| 6WC-10G-N1 | 6WC-10G-N1-LF | 10 | 5.50 | 13.25 | 66.0 |
| - | 6WC-10H-N1-LF | 12 | 7.12 | 16.00 | 108 |

## MODEL 910WE
CLASS 125 WAFER CHECK - EPDM

LEADFREE OPTIONS



### FEATURES
- Compatible with ANSI 125# & 150# Flanges
- Full Port
- Minimal Pressure Drop
- Light Weight
- Spring Assisted Closing for Quicker Response
- Apollo International™

### PERFORMANCE RATING
- Cold Working Pressure:
  200 psi (13.8 Bar) at 100°F
- Temperature Range: -20°F to 180°F
- **Not For Steam Use**

### APPROVALS
- CSA B51

### APPROVALS (LEAD FREE ONLY)
- NSF/ANSI/CAN 61 - Water Quality
- NSF/ANSI/CAN 372 - Lead Free

| PART NUMBER | LF PART NUMBER | NPS | LENGTH (IN.) | HEIGHT (IN.) | WEIGHT (LB.) |
|---|---|---|---|---|---|
| 6WC-108-E1 | 6WC-108-E1-LF | 2 | 2.12 | 4.00 | 5.0 |
| – | 6WC-109-E1-LF | 2-1/2 | 2.38 | 4.75 | 7.0 |
| - | 6WC-100-E1-LF | 3 | 2.62 | 5.25 | 10.0 |
| – | 6WC-10A-E1-LF | 4 | 2.62 | 6.75 | 12.0 |
| 6WC-10B-E1 | 6WC-10B-E1-LF | 5 | 3.25 | 7.50 | 15.0 |
| – | 6WC-10C-E1-LF | 6 | 3.75 | 8.50 | 22.0 |
| – | 6WC-10E-E1-LF | 8 | 5.00 | 11.00 | 35.0 |
| - | 6WC-10G-E1-LF | 10 | 5.50 | 13.25 | 66.0 |
| – | 6WC-10H-E1-LF | 12 | 7.12 | 16.00 | 108 |

## CV COEFFICIENTS
FOR FLOW ESTIMATION ONLY

| SIZE | BRONZE GATE | BRONZE GLOBE | BRONZE SWING CHECK | CI GATE | CI GLOBE | CI SWING CHECK | CI WAFER CHECK |
|---|---|---|---|---|---|---|---|
| 1/4 | 3.0 | 1.4 | 2.6 | - | - | - | |
| 3/8 | 6.0 | 2.6 | 4.5 | - | - | - | - |
| 1/2 | 12.5 | 4.4 | 7.0 | - | - | - | - |
| 3/4 | 24.0 | 7.4 | 12.0 | - | - | - | - |
| 1 | 72.3 | 12.1 | 28.6 | - | - | - | - |
| 1-1/4 | 80 | 29 | 39 | - | - | - | - |
| 1-1/2 | 119 | 30 | 56 | - | - | | - |
| 2 | 338 | 49 | 152 | 328 | 52 | 132 | 75 |
| 2-1/2 | 395 | 74 | 198 | 482 | 76 | 192 | 95 |
| 3 | 435 | 112 | 242 | 744 | 116 | 298 | 191 |
| 4 | - | - | - | 1316 | 204 | 526 | 377 |
| 5 | - | - | - | 2130 | 328 | 852 | 483 |
| 6 | - | - | - | 3176 | 488 | 1272 | 821 |
| 8 | - | - | - | 5692 | 874 | 2278 | 1590 |
| 10 | - | - | - | 8972 | 1376 | 3588 | 2920 |
| 12 | - | - | - | 13352 | - | 5342 | 4470 |
| 14 | - | - | - | 16278 | - | 6512 | |
| 16 | - | - | - | 21564 | - | 8626 | |
| 18 | - | - | | 28716 | - | 11488 | |
| 20 | - | - | - | 35762 | - | 14304 | |
| 24 | - | - | - | 52166 | - | - | |

## BRONZE GATE VALVE
CROSS REFERENCE CHART

| APOLLO MODEL | 101S | 101S-LF | 101T | 101T-LF | 102S | 102S-LF |
|---|---|---|---|---|---|---|
| APOLLO P/N | 30-08X-01 | 30LF-08X-01 | 30-00X-01 | 30LF-00X-01 | 30-04X-01 | 30LF-04X-01 |
| SIZE RANGE | 1/2" TO 3" | 1/2" TO 3" | 1/4" TO 3" | 1/4" TO 3" | 1/2" TO 3" | 1/2" TO 3" |
| DESCRIPTION | 200 CWP<br>Gate Valve<br>Bronze<br>Threaded Bonnet<br>Solid Disc<br>Rising Stem<br>Solder Ends | 200 CWP<br>Gate Valve<br>LF-Bronze<br>Threaded Bonnet<br>Solid Disc<br>Rising Stem<br>Solder Ends | Class 125<br>(200 CWP,<br>125 SWP)<br>Gate Valve<br>Bronze<br>Threaded Bonnet<br>Solid Disc<br>Rising Stem<br>NPT | Class 125<br>(200 CWP,<br>125 SWP)<br>Gate Valve<br>LF-Bronze<br>Threaded Bonnet<br>Solid Disc<br>Rising Stem<br>NPT | 200 CWP<br>Gate Valve<br>Bronze<br>Threaded Bonnet<br>Solid Disc<br>NRS<br>Solder Ends | 200 CWP<br>Gate Valve<br>LF-Bronze<br>Threaded Bonnet<br>Solid Disc<br>NRS<br>Solder Ends |
| DESIGN STANDARD | MSS SP-80 | MSS SP-139<br>MSS SP-80 | MSS SP-80 | MSS SP-139<br>MSS SP-80 | MSS SP-80 | MSS SP-139<br>MSS SP-80 |
| CRANE MODEL | 1334 | | 428 | | 1320 | |
| HAMMOND MODEL | IB635 | | IB640 | UP640 | IB647 | |
| KITZ MODEL | 444 | | 24 | | 41 | |
| MILWAUKEE MODEL | 149 | UP149 | 148 | UP148 | 115 | UP115 |
| NIBCO MODEL | S111 | | T111 | | S113 | S113-LF |
| STOCKHAM MODEL | B108K | | B100K | | B104K | |
| WALWORTH MODEL | 55SJ | | 55 | | 4SJ | |

| APOLLO MODEL | 102T | 102T-LF | 102T-K | 103T | 106T | 107T | 111T | 116T |
|---|---|---|---|---|---|---|---|---|
| APOLLO P/N | 30-03X-01 | 30LF-03X-01 | 30-03X-01K | 30-05X-01 | 30-28X-01 | 30-20X-01 | 30-44X-01 | 30-45X-01 |
| SIZE RANGE | 1/4" TO 3" | 1/4" TO 3" | 1/4" TO 3" | 1/4" TO 3" | 1/4" TO 3" | 1/4" TO 3" | 1/2" TO 2" | 1/2" TO 2" |
| DESCRIPTION | Class 125<br>(200 CWP,<br>125 SWP)<br>Gate Valve<br>Bronze<br>Threaded Bonnet<br>Solid Disc<br>NRS<br>NPT | Class 125<br>(200 CWP,<br>125 SWP)<br>Gate Valve<br>LF-Bronze<br>Threaded Bonnet<br>Solid Disc<br>NRS<br>NPT | Class 125<br>(200 CWP,<br>125 SWP)<br>Gate Valve<br>Bronze<br>Threaded Bonnet<br>Solid Disc<br>NRS<br>NPT | Class 125<br>(200 CWP,<br>125 SWP)<br>Gate Valve<br>Bronze<br>Union Bonnet<br>Solid Disc<br>Rising Stem<br>NPT | Class 150<br>(300 CWP,<br>150 SWP)<br>Gate Valve<br>Bronze<br>Threaded Bonnet<br>Solid Disc<br>NRS<br>NPT | Class 150<br>(300 CWP,<br>150 SWP)<br>Gate Valve<br>Bronze<br>Union Bonnet<br>Solid Disc<br>Rising Stem<br>NPT | Class 300<br>(1000 CWP,<br>300 SWP)<br>Gate Valve<br>Bronze<br>Union Bonnet<br>Solid Disc<br>Rising Stem<br>NPT | Class 300<br>(1000 CWP,<br>300 SWP)<br>Gate Valve<br>Bronze<br>Union Bonnet<br>Solid Disc, SS Seats<br>Rising Stem<br>NPT |
| DESIGN STANDARD | MSS SP-80 | MSS SP-139<br>MSS SP-80 | MSS SP-80 | MSS SP-80 | MSS SP-80 | MSS SP-80 | MSS SP-80 | MSS SP-80 |
| CRANE MODEL | 438 | | | 428UB | 437 | 431UB | 622E | 634E |
| HAMMOND MODEL | IB645 | | | IB617 | IB646 | IB629 | IB652 | IB654 |
| KITZ MODEL | 40 | | | | 46 | 42 | 37 | |
| MILWAUKEE MODEL | 105 | UP105 | | 1152 | 1140 | 1151 | 1182 | 1184 |
| NIBCO MODEL | T113 | T113-LF | T113-K | T124 | T133 | T134 | T174A | T174SS |
| STOCKHAM MODEL | B103K | | | B105K | B128K | B120K | B144K | B145K |
| WALWORTH MODEL | 4 | | | 2 | 14 | 11 | 3048 | |

## BRONZE CHECK VALVE
CROSS REFERENCE CHART

| APOLLO MODEL | 161S | 161S-LF | 161T | 161T-LF | 162T |
|---|---|---|---|---|---|
| APOLLO P/N | 61Y-09X-01 | 61YLF-09X-01 | 61Y-19X-01 | 61YLF-19X-01 | 61Y-20X-VI |
| `SIZE RANGE | 1/2" to 3" | 1/2" to 2" | 1/4" to 3" | 1/4" to 2" | 1/4" to 2" |
| DESCRIPTION | 200 CWP<br>Swing Check<br>Bronze<br>Y-Pattern<br>Bronze Disc<br>Solder Ends | 200 CWP<br>Swing Check<br>LF-Bronze<br>Y-Pattern<br>Bronze Disc<br>Solder Ends | Class 125<br>(200 CWP,<br>125 SWP)<br>Swing Check<br>Bronze<br>Y-Pattern<br>Bronze Disc<br>NPT | Class 125<br>(200 CWP,<br>125 SWP)<br>Swing Check<br>LF-Bronze<br>Y-Pattern<br>Bronze Disc<br>NPT | Class 125<br>(200 CWP,<br>125 SWP)<br>Swing Check<br>Bronze<br>Y-Pattern<br>Viton® Disc<br>NPT |
| DESIGN STANDARD | MSS SP-80 | MSS SP-139 | MSS SP-80 | MSS SP-139 | MSS SP-80 |
| CRANE MODEL | 1340 | | 37 | | |
| HAMMOND MODEL | IB912 | | IB904 | | |
| KITZ MODEL | | | 22 | | |
| MILWAUKEE MODEL | 1509 | UP1509 | 509 | UP509 | |
| NIBCO MODEL | S413B | | T413B | | T413V |
| STOCKHAM MODEL | B309YK | | B319YK | | B320BYK |
| WALWORTH MODEL | 3406SJ | | 3406 | | |

| APOLLO MODEL | 163S | 163S-LF | 163T | 163T-LF | 164T | 168T | 169T |
|---|---|---|---|---|---|---|---|
| APOLLO P/N | 61Y-10X-T1 | 61YLF-10X-T1 | 61Y-20X-T1 | 61YLF-20X-T1 | 61Y-21X-01 | 61Y-75X-01 | 61Y-75X-T1 |
| `SIZE RANGE | 1/2" to 2" | 1/2" to 2" | 1/2" to 2" | 1/2" to 2" | 1/4" to 3" | 1/2" to 2" | 1/2" to 2" |
| DESCRIPTION | 200 CWP<br>Swing Check<br>Bronze<br>Y-Pattern<br>PTFE Disc<br>Solder Ends | 200 CWP<br>Swing Check<br>LF-Bronze<br>Y-Pattern<br>PTFE Disc<br>Solder Ends | Class 125<br>(200 CWP,<br>125 SWP)<br>Swing Check<br>Bronze<br>Y-Pattern<br>PTFE Disc<br>NPT | Class 125<br>(200 CWP,<br>125 SWP)<br>Swing Check<br>LF-Bronze<br>Y-Pattern<br>PTFE Disc<br>NPT | Class 150<br>(300 CWP,<br>150 SWP)<br>Swing Check<br>Bronze<br>Y-Pattern<br>Bronze Disc<br>NPT | Class 300<br>(600 CWP,<br>300 SWP)<br>Swing Check<br>Bronze<br>Y-Pattern<br>Bronze Disc<br>NPT | Class 300<br>(600 CWP,<br>300 SWP)<br>Swing Check<br>Bronze<br>Y-Pattern<br>PTFE Disc<br>NPT |
| DESIGN STANDARD | MSS SP-80 | MSS SP-139 | MSS SP-80 | MSS SP-139 | MSS SP-80 | MSS SP-80 | MSS SP-80 |
| CRANE MODEL | | | 41TF | | 137 | 76E | |
| HAMMOND MODEL | IB423 | | IB940 | | | IB949 | |
| KITZ MODEL | 23T | 823T | 22T | 822T | 29 | 19 | |
| MILWAUKEE MODEL | 1509T | | 509T | | 510 | 507 | |
| NIBCO MODEL | S413Y | S413Y-LF | T413Y | T413Y-LF | T433b | T473B | T473Y |
| STOCKHAM MODEL | B310TY | | B320TYK | | B321K | B375K | |
| WALWORTH MODEL | 3095SJ | | | | | 3428 | |

## BRONZE GLOBE VALVE
CROSS REFERENCE CHART

| APOLLO MODEL | 120S | 120S-LF | 120T | 120T-LF | 121T | 121T-LF | 122T | 127T | 128T |
|---|---|---|---|---|---|---|---|---|---|
| APOLLO P/N | 33-14X-01 | 33LF-14X-01 | 33-13X-01 | 33LF-13X-01 | 33-16X-01 | 33LF-16X-01 | 33-22X-01 | 33-66X-01 | 33-74X-01 |
| SIZE RANGE | 1/2" to 2" | 1/2" to 2" | 3/8" to 2" | 3/8" to 2" | 1/4" to 2" | 1/4" to 2" | 1/4" to 3" | 1/2" to 2" | 1/2" to 2" |
| DESCRIPTION | 200 CWP Globe Valve Bronze Threaded Bonnet PTFE Disc Solder Ends | 200 CWP Globe Valve LF-Bronze Threaded Bonnet PTFE Disc Solder Ends | Class 125 (200 CWP, 125 SWP) Globe Valve Bronze Threaded Bonnet PTFE Disc NPT | Class 125 (200 CWP, 125 SWP) Globe Valve LF-Bronze Threaded Bonnet PTFE Disc NPT | Class 125 (200 CWP, 125 SWP) Globe Valve Bronze Threaded Bonnet Bronze Disc NPT | Class 125 (200 CWP, 125 SWP) Globe Valve LF-Bronze Threaded Bonnet Bronze Disc NPT | Class 150 (300 CWP, 150 SWP) Globe Valve Bronze Union Bonnet PTFE Disc NPT | Class 300 (1000 CWP, 300 SWP) Globe Valve Bronze Union Bonnet Bronze Disc NPT | Class 300 (1000 CWP, 300 SWP) Globe Valve Bronze Union Bonnet SS Disc NPT |
| DESIGN STANDARD | MSS SP-80 | MSS SP-80 | MSS SP-80 | MSS SP-139 | MSS SP-80 | MSS SP-139 MSS SP-80 | MSS SP-80 | MSS SP-80 | MSS SP-80 |
| CRANE MODEL | | | 5TF | | 1 | | 7TF | | 382P |
| HAMMOND MODEL | | | | | IB440 | | IB413T | IB412 | IB444 |
| KITZ MODEL | | | | | 11 | | 9 | 17 | 17S |
| MILWAUKEE MODEL | | UP1502 | | | 502 | UP502 | 590T | 572 | 593A |
| NIBCO MODEL | S211Y | | T211Y | | T211b | | T235Y | T275B | T276-AP |
| STOCKHAM MODEL | B14TK | | B13TK | | B16K | | B22TK | B66K | B74K |
| WALWORTH MODEL | 3095SJ | | | | 3058 | | 3095 | 3205 | |

## IRON GLOBE VALVE
CROSS REFERENCE CHART

| APOLLO MODEL | 711F | 721F |
|---|---|---|
| APOLLO P/N | 6GB-11X-B1 | 6GB-21X-B1 |
| SIZE RANGE | 2" to 10" | 2" to 8" |
| DESCRIPTION | Class 125 Flanged Globe Valve Cast Iron OS&Y IBBM | Class 250 Flanged Globe Valve Cast Iron OS&Y IBBM |
| DESIGN STANDARD | MSS SP-85 | MSS SP-85 |
| CRANE MODEL | 351 | 21E |
| HAMMOND MODEL | IR116 | IR313 |
| KITZ MODEL | | |
| MILWAUKEE MODEL | 2981M | 2983M |
| NIBCO MODEL | F718B | F768B |
| STOCKHAM MODEL | G512 | F532 |
| WALWORTH MODEL | W906F | W955F |

## IRON GATE VALVE
CROSS REFERENCE CHART

| APOLLO MODEL | 610F | 620F | 611F | 621F |
|---|---|---|---|---|
| APOLLO P/N | 6GA-10X-B1 | 6GA-20X-B1 | 6GA-11X-B1 | 6GA-21X-B1 |
| SIZE RANGE | 2" to 12" | 2" to 12" | 2" to 14" | 2" to 10" |
| DESCRIPTION | Class 125<br>Flanged<br>Gate Valve<br>Cast Iron<br>NRS<br>IBBM | Class 250<br>Flanged<br>Gate Valve<br>Cast Iron<br>NRS<br>IBBM | Class 125<br>Flanged<br>Gate Valve<br>Cast Iron<br>OS&Y<br>IBBM | Class 250<br>Flanged<br>Gate Valve<br>Cast Iron<br>OS&Y<br>IBBM |
| DESIGN STANDARD | MSS SP-70 | MSS SP-70 | MSS SP-70 | MSS SP-70 |
| CRANE MODEL | 461 | | 465 1/2 | 7 1/2E |
| HAMMOND MODEL | IR1138 | | IR1140 | IR330 |
| KITZ MODEL | | | | |
| MILWAUKEE MODEL | 2882M | | 2885M | 2894M |
| NIBCO MODEL | F619 | F669 | F617-0 | F667-0 |
| STOCKHAM MODEL | G612 | F661 | G623 | F667 |
| WALWORTH MODEL | W719F | | W726F | W786F |

## IRON CHECK VALVE
CROSS REFERENCE CHART

| APOLLO MODEL | 910F | 910FLW | 920F | 910WB | 910WE |
|---|---|---|---|---|---|
| APOLLO P/N | 6SC-10X-B1 | 6SC-10X-B1L | 6SC-20X-B1 | 6WC-10X-N1 | 6WC-10X-E1 |
| SIZE RANGE | 2" to 20" | 2" to 12" | 2" to 8" | 2" to 12" | 2" to 12" |
| DESCRIPTION | Class 125<br>Flanged<br>Swing Check<br>Cast Iron<br>IBBM | Class 125<br>Flanged<br>Swing Check<br>Cast Iron<br>IBBM w/ lever<br>& weight | Class 250<br>Flanged<br>Swing Check<br>Cast Iron<br>IBBM | Class 125<br>Wafer Check<br>Nitrile<br>Cast Iron | Class 125<br>Wafer Check<br>EPDM<br>Cast Iron |
| DESIGN STANDARD | MSS SP-71 | MSS SP-71 | MSS SP-71 | | |
| CRANE MODEL | 373 | 383 | 39E | | |
| HAMMOND MODEL | IR1124 | | IR322 | IR9253 | |
| KITZ MODEL | | | | | |
| MILWAUKEE MODEL | 2974M | C2974MLW | 2970M | 1400 | |
| NIBCO MODEL | F918B | F918BLW | F968B | W910B | |
| STOCKHAM MODEL | G931 | G931W | F947 | WG970 | WG961 |
| WALWORTH MODEL | W928F | | W8970F | | |

## STANDARDS (GATE, GLOBE, SWING & WAFER CHECKS ONLY)

### BRONZE STANDARDS COMPLIANCE:

ASME B1.20.1 - Pipe Threads, General Purpose (Inch)
ASME B16.18 - Cast Copper Solder Joint Pressure Fittings
ASTM B61 - Standard Specification for Steam or Valve Bronze Castings
ASTM B62 - Composition Bronze or Ounce Metal Castings
ASTM B371 - Standard Specification for Copper-Zinc-Silicon Alloy Rod
ASTM B584 - Standard Specification for Copper Alloy Sand Castings for General Applications*
MSS SP-25 - Standard Marking System for Valves, Fittings and Flanges
MSS SP-80 - Bronze Gate, Globe, Angle and Check Valves
MSS SP-139 - Copper Alloy Gate, Globe, Angle, and Check Valves for Low Pressure/Low Temperature Plumbing Applications*
CRN-0C14467.5C (gates and globes) and CRN-0C11218.5C (swing checks) (see www.apollovalves.com for specific provinces)
Canadian Registration Number in accordance with CSA B51 Boiler, Pressure Vessel and Pressure Piping Code
NSF/ANSI/CAN 61 - Water Quality, 3rd party certified (lead free versions only)
NSF/ANSI/CAN 372 - Lead Free, 3rd party certified (lead free versions only)

### CAST IRON STANDARDS COMPLIANCE:

ASME B16.1 - Cast Iron Pipe Flanges and Flanged Fittings (Class 125 - flat faced flanged, Class 250 - 0.06 inch raised faced in accordance with MSS SP-6)
ASME B16.10 - Face-to-Face and End-to-End Dimensions of Valves
ASTM A126 - Specification for Gray Iron Castings for Valves, Flanges and Pipe Fittings
ASTM A307 - Specification for Carbon Steel Bolts and Studs, 60000 psi Tensile Strength
MSS SP-25 - Standard Marking System for Valves, Fittings and Flanges and Unions
MSS SP-70 - Gray Iron Gate Valves Flanged and Threaded Ends
MSS SP-71 - Gray Iron Swing Check Valves Flanged and Threaded Ends
MSS SP-85 - Gray Iron Globe and Angle Valves Flanged and Threaded Ends
CRN-0C14467.xx (see www.apollovalves.com for specific provinces)
Canadian Registration Number in accordance with CSA B51 Boiler, Pressure Vessel and Pressure Piping Code.
NSF/ANSI/CAN 61 - Water Quality, 3rd party certified (lead free versions only)
NSF/ANSI/CAN 372 - Lead Free, 3rd party certified (lead free versions only)

### CAUTIONS:

Bubble tight shut-off should not be expected on metal seated check valves. MSS Standards for Bronze (MSS SP-80) and for Cast Iron (MSS SP-71) define acceptable leakage rates as 40 ml of water per hour per inch of Nominal Pipe Size (NPS) for valves 1" and larger or 0.4 Standard Cubic Foot (SCF) air per hour per inch of NPS. For valves smaller than 1" the allowable leak rate is 40 ml of water per hour or 0.4 SCF of air per hour.

Bubble tight shut-off should not be expected on metal to metal seated gate or globe valves. MSS Standards for Bronze (MSS SP-80) and for Cast Iron (MSS SP-70 and MSS SP-85) define acceptable leakage rates as 10 ml of water per hour per inch of Nominal Pipe Size (NPS) for valves 1" and larger or 0.1 SCF of air per hour per inch of NPS. For valves smaller than 1" the allowable leak rate is 10 ml of water per hour or 0.1 SCF of air per hour.

Gate valves are not recommended for throttling service and should only be used in the fully open or fully closed positions to minimize vibration and chatter which may damage the seat or wedge. For throttling applications refer to Apollo's globe valve offering.

Safe working pressures and temperatures for solder end valve depends not only on the valve and tubing strength, but also on the composition of the solder used to produce the joints. It is the responsibility of the user to choose a solder that is compatible with the service conditions.

Properly sized swing check valves frequently are smaller than the pipe in which they are used. This practice keeps velocities up so the valve operates near full open, minimizing noise and vibration while maximizing valve life.

## IN-LINE CHECK VALVES

Series 61 and lead free (61LF) check valves feature bronze body construction and are available in sizes 1/4" to 3" for use with water, steam, oil, air and inert gases. Series 62 model in stainless steel with investment cast body are sized from 1/4" to 2" for use in more severe applications and corrosive environments.

61 and 62 Series check valves are available with either RPTFE ball cone or elastomer soft seats. They come equipped with 316 stainless steel springs. All wetted parts are bronze/brass (61 Series) or stainless steel (62 Series).

## SPRING ASSISTED CLOSING

Apollo's 61 and 62 Series feature short check travel and spring assisted closing. This ensures the valve closes quickly, before reversal of flow, helping to eliminate water hammer, its associated noise, and damage to piping and machinery.

## LOW CRACKING PRESSURE

Apollo's standard 61 and 62 Series checks operate at a low 1/2 psi cracking pressure. An extra-light-spring version of the valve is available as an option. A 5-pound or 10-pound cracking pressure spring is also available on models through 1".

## TIGHT...OR BUBBLE TIGHT

Patented Apollo Ball Cone® check valves (61-100, 61-200 and 62-100) feature a tight-sealing RPTFE ball-shaped check which seats against the conical interior face of the valve's metal retainer. This simple design provides exceptional resistance to wear and corrosion. But, where even tighter sealing is required, choose the 61-500 or 61-600, featuring EPDM (elastomer) seat or 62-500, featuring a Fluorocarbon (Viton®) seat, for a bubble-tight seal. A Nitrile seat is optional.

## CHECK VALVES EXTEND SYSTEM LIFE

In any liquid or gas system where reverse flow cannot be tolerated, a quick-responding check valve is a necessity. Check valves that close slowly permit flow reversal to occur in the line which can cause severe mechanical shock. As the valve finally seats, high peak pressure pulses and shock waves are generated on the downstream side due to the media being forced to a sudden stop. Upstream, the momentum is not restricted which can create voids in the flow, filling with air or vapor to cause additional, lower frequency shock waves. These shock waves added together are known as water hammer. It can cause extensive damage or failure to pipelines, gaskets, supports, hardware and equipment. The result can be expensive, troublesome; even dangerous.

With Apollo check valves, the potential for water hammer is greatly reduced since the check returns to its seat before flow velocity reaches zero. Apollo's check valves set the standard for compact, economical protection against reverse flow. They provide reliable service in liquids or gases at various temperature and pressure combinations. Because of their simple design, they're versatile and easy to maintain.

## USE IN ANY POSITION

Horizontal, vertical or upside down; liquid, air and gases; Apollo's in-line checks operate in any orientation. Where frequent opening and closing cycles occur, vertical orientation with upward flow is best. This saves time and money, eliminating the need to stock separate vertical and horizontal-operating valves. It also makes new or replacement installation less of a headache.
*Not recommended for use with reciprocating pumps and similar applications. Low flows may result in undesirable noise and premature valve failure.

## BROAD RANGE OF APPLICATIONS

Apollo check valves are at home in applications from residential boilers to tough process systems, including:

Industries where Apollo's check valves are used include Pulp & Paper, Chemical Processing, Agrichemical, Rubber, Petroleum, Primary Metals, Mining, Power Generation, Textiles, Food and Beverage, Building Construction and Maintenance.

- Evaporators
- Boiler Feed
- Water Lines
- Steam Lines
- Cookers
- Chiller Systems
- Steam Tracer Lines
- Salt Water Injection
- Rubber/Plastic Presses
- Autoclaves
- Sterilizers
- Air and Gas Lines
- Metering Pumps
- Casing Vents
- Condensate Return Lines
- Chemical Lines

## 61-100 & 61-200 SERIES
IN-LINE BALL CONE® CHECK VALVE

LEADFREE OPTIONS



**61-100**
**FEMALE X FEMALE THREADED**
**1/4" THROUGH 3"**



**61-200**
**MALE X FEMALE THREADED**
**1/4" THROUGH 2"**

The Apollo 61 Series check valve with rugged bronze body and patented design (U.S. Pat. No. 4,172,465) RPTFE ball-cone check provides reliable protection against reverse flow. It is spring-loaded for fast seating and center guided for optimum alignment.

## FEATURES
- Standard 1/2 psi Cracking Pressure
- Tight Shut-Off with Liquid Media
- Male and Female NPT Inlet Options
- 400 psig CWP @ 100°F
- 125 psig Steam Rating @ 350°F max
- Straight-Through Flow Minimizes Pressure Loss
- ASTM B584 Bronze
- Lead Free Option 61LF (NSF/ANSI/CAN 61 & NSF/ANSI/CAN 372)
- **Proudly Made in USA**

## STANDARD MATERIALS LIST

| | |
|---|---|
| **BODY** | Bronze, ASTM B584, UNS C84400 or Lead Free Bronze, C89836 |
| **RETAINER** | (1/4" - 1-1/4") Brass, ASTM B16 or C27451<br>(1-1/2" - 3") Bronze, ASTM B584 or C89836 |
| **BALL CHECK** | RPTFE |
| **GUIDE** | Brass, ASTM B16 or LF Brass, C27451 |
| **SPRING** | Stainless Steel |

## FLOW RATE ($C_V$)

| SIZE | GPM |
|---|---|
| 1/4" | 0.85 |
| 3/8" | 1.21 |
| 1/2" | 1.4 |
| 3/4" | 3.53 |
| 1" | 6 |
| 1-1/4" | 44 |
| 1-1/2" | 65 |
| 2" | 81 |
| 2-1/2" | 175 |
| 3" | 265 |

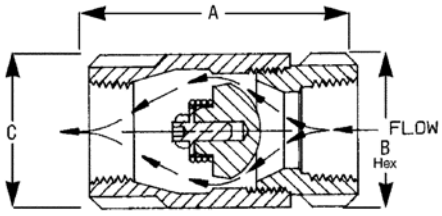
*GPM=gallons per minute at 1 psi pressure differential*

## PRESSURE TEMPERATURE RATING

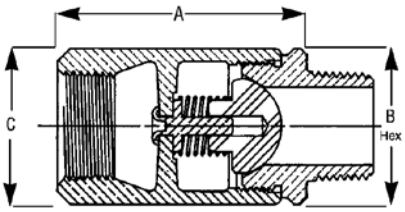
| DEGREE (F) | PSIG |
|---|---|
| -20 TO 100 | 400 |
| 200 | 200 |
| 250 | 160 |
| 275 | 150 |
| 300 | 140 |
| 325 | 130 |
| 353 | 125 |

## DIMENSIONS

| BRONZE FNPT X FNPT | LF BRONZE FNPT X FNPT | BRONZE MNPT X FNPT | SIZE | DIMENSIONS (IN.) A | B | C | 61-100 SERIES WT./100 | 61-200 SERIES WT./100 |
|---|---|---|---|---|---|---|---|---|
| 61-101-01 | 61LF-101-01 | 61-201-01 | 1/4" | 2.06 | 1.12 | 1.12 | 38 | 38 |
| 61-102-01 | 61LF-102-01 | 61-202-01 | 3/8" | 2.12 | 1.12 | 1.12 | 37 | 37 |
| 61-103-01 | 61LF-103-01 | 61-203-01 | 1/2" | 2.31 | 1.12 | 1.12 | 36 | 36 |
| 61-104-01 | 61LF-104-01 | 61-204-01 | 3/4" | 2.87 | 1.37 | 1.50 | 75 | 76 |
| 61-105-01 | 61LF-105-01 | 61-205-01 | 1" | 3.50 | 1.75 | 1.93 | 145 | 145 |
| 61-106-01 | 61LF-106-01 | 61-206-01 | 1-1/4" | 4.18 | 2.12 | 2.37 | 275 | 237 |
| 61-107-01 | 61LF-107-01 | 61-207-01 | 1-1/2" | 4.93 | 2.50 | 2.81 | 394 | 381 |
| 61-108-01 | 61LF-108-01 | 61-208-01 | 2" | 6.00 | 3.00 | 3.68 | 630 | 636 |
| 61-109-01 | 61LF-109-01 | - | 2-1/2" | 7.00 | 3.50 | 4.50 | 1400 | - |
| 61-100-01 | 61LF-100-01 | - | 3" | 8.12 | 4.12 | 5.31 | 1665 | - |




61-100




61-200

***NOTE: Not recommended for use with reciprocating pumps and similar applications. Low flows may result in undesirable noise and premature valve wear.***

## PART NO. MATRIX

| 61 x x | - X | X | X | - XX |
|---|---|---|---|---|
| TYPE | CHECK | SPRING TYPE | SIZE (IN.) | OPTIONS |
| 61 - BRONZE | 1 - BALL CONE (NPT-F X F) | 0 - .5 PSIG CRACKING PRESSURE | 1 - 1/4" | 01 - STANDARD |
| 61LF- LEAD FREE BRONZE | 2 - BALL CONE (NPT-M X F) | 2 - .2 PSIG CRACKING PRESSURE | 2 - 3/8" | PO1 - BSPP THREAD** (STD. MATERIALS ONLY) |
| | 0 - BALL CONE REPAIR KIT | | 3 - 1/2" | TO1 - BSPT THREAD** (STD. MATERIALS ONLY) |
| | | | 4 - 3/4" | 17 - SATIN CHROME PLATED |
| | | | 5 - 1" | 57 - OXYGEN CLEANED |
| | | | 6 - 1-1/4" | A1 - LESS SPRING |
| | | | 7 - 1-1/2" | B1 - NITRILE SEAT (BUNA N) |
| | | | 8 - 2" | E05 - 5 PSIG OPENING PRESSURE* |
| | | | 9 - 2-1/2" | E10 - 10 PSIG OPENING PRESSURE* |
| | | | 0 - 3" | |

**Available in 1/4" through 1" only. | **Minimums apply*
*(Note: Not all combinations are available. Contact Customer Service for verification.)*

## 62-100 SERIES
STAINLESS STEEL BALL CONE® CHECK VALVE



**62-100**
**FEMALE X FEMALE THREADED**
**1/4" THROUGH 2"**

The Apollo 62-100 Series is uniquely suited for applications in corrosive environments, including chemical processing, pulp and paper and other process industries. The rugged stainless steel body and RPTFE ball cone check provide reliable, patented protection against reverse flow.

### FEATURES
- Standard 1/2 psi Cracking Pressure
- Unique Design (U.S. Patent # 4,172,465)
- Spring-Loaded For Fast Seating Action
- Center Guided; Radial Alignment Never Needed
- Straight-Through Flow Minimizes Pressure Loss
- 400 psig CWP Non-Shock @ 100°F
- 125 psig SWP @ 350°F
- RoHS and REACH Compliant
- ASTM A351, CF8M
- **Proudly Made in USA**

### STANDARD MATERIALS LIST

| | |
|---|---|
| **BODY** | SS, ASTM A351, CF8M |
| **RETAINER** | SS, ASTM A276, 316 (1/4" - 1")<br>SS, ASTM A351, CF8M (1-1/4" - 2") |
| **BALL CHECK** | RPTFE |
| **GUIDE** | SS, ASTM A276, 316 |
| **SPRING** | Stainless Steel |

### FLOW RATE ($C_V$)

| SIZE | GPM |
|---|---|
| 1/4" | 0.85 |
| 3/8" | 1.21 |
| 1/2" | 1.4 |
| 3/4" | 3.53 |
| 1" | 6 |
| 1-1/4" | 44 |
| 1-1/2" | 65 |
| 2" | 81 |

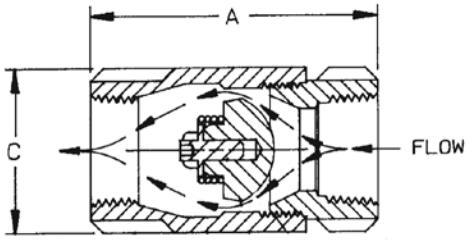
*GPM=gallons per minute at 1 psi pressure differential*

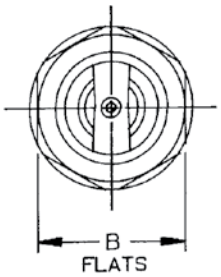
### PRESSURE TEMPERATURE RATING

| DEGREE (F) | PSIG |
|---|---|
| -20 TO 100 | 400 |
| 200 | 200 |
| 250 | 160 |
| 275 | 150 |
| 300 | 140 |
| 325 | 130 |
| 353 | 125 |

### DIMENSIONS

| PART NO. FNPT X FNPT | SIZE | DIMENSIONS (IN.) | | | WT./100 |
|---|---|---|---|---|---|
| | | A | B | C | |
| 62-101-01 | 1/4" | 2.06 | 1.12 | 1.12 | 38 |
| 62-102-01 | 3/8" | 2.12 | 1.12 | 1.12 | 37 |
| 62-103-01 | 1/2" | 2.31 | 1.12 | 1.12 | 36 |
| 62-104-01 | 3/4" | 2.87 | 1.37 | 1.50 | 75 |
| 62-105-01 | 1" | 3.50 | 1.75 | 1.93 | 145 |
| 62-106-01 | 1-1/4" | 4.18 | 2.12 | 2.37 | 237 |
| 62-107-01 | 1-1/2" | 4.93 | 2.50 | 2.81 | 381 |
| 62-108-01 | 2" | 6.00 | 3.00 | 3.68 | 636 |




***NOTE: Not recommended for use with reciprocating pumps and similar applications. Low flows may result in undesirable noise and premature valve wear.***

### PART NO. MATRIX

| 62 | - X | X | X | - XX |
|---|---|---|---|---|
| TYPE | CHECK | SPRING TYPE | SIZE (IN.) | OPTIONS |
| 62 - STAINLESS STEEL (316) | 1 - BALL CONE (NPT-F X F) | 0 - .5 PSIG CRACKING PRESSURE | 1 - 1/4" | 01 - STANDARD |
| | 0 - BALL CONE REPAIR KIT | 2 - .2 PSIG CRACKING PRESSURE | 2 - 3/8" | PO1 - BSPP THREAD** |
| | | | 3 - 1/2" | TO1 - BSPT THREAD** |
| | | | 4 - 3/4" | 17 - SATIN CHROME PLATED |
| | | | 5 - 1" | 57 - OXYGEN CLEANED |
| | | | 6 - 1-1/4" | A1 - LESS SPRING |
| | | | 7 - 1-1/2" | E05 - 5 PSIG OPENING PRESSURE* |
| | | | 8 - 2" | E10 - 10 PSIG OPENING PRESSURE* |

**Available in 1/4" through 1" only.*
***Minimums apply*
*(Note: Not all combinations are available. Contact Customer Service for verification.)*

## 61-500 & 61-600 SERIES
IN-LINE SOFT SEAT CHECK VALVE

LEADFREE OPTIONS



**61-500**
**FEMALE X FEMALE THREADED**
**1/4" THROUGH 2"**



**61-600**
**FEMALE X FEMALE SWEAT**
**1/2" THROUGH 2"**

The Apollo 61 Series check valve is ideally suited for hydronic heating and other low flow applications. The rugged bronze body and check provide reliable protection against reverse flow.

## FEATURES
- Female NPT Sizes: 1/4" to 2"
- Solder Sizes: 1/2" to 1"
- Bubble-Tight Shut-Off, Ideally Suited for Gaseous Service
- NPT Threaded; 400 psig CWP Non-Shock @ 100°F
- EPDM Check Disc (61-500)
- Straight-Through Flow Minimizes Pressure Loss
- 1/2 psi Cracking Pressure
- RoHS Compliant (61LF and 62 Series)
- NSF/ANSI/CAN 61 - Water Quality (LF Models)
- NSF/ANSI/CAN 372 - Lead Free (LF Models)
- **Proudly Made in USA**

## STANDARD MATERIALS LIST

| | |
|---|---|
| **BODY** | Bronze, ASTM B584, UNS C84400 or Lead Free Bronze, C89836 |
| **RETAINER** | (1/4" - 1-1/4") Brass, ASTM B16 or LF Brass, ASTM (1-1/2" - 3") Bronze, ASTM B584 or C89836 |
| **SEAT** | EPDM |
| **GUIDE PIN** | Stainless Steel |
| **SPRING** | Stainless Steel |
| **CHECK** | Brass, ASTM B16 or Lead Free Brass, ASTM 27451 |
| **GUIDE** | Brass, ASTM B16 or Lead Free Brass, ASTM 27451 |

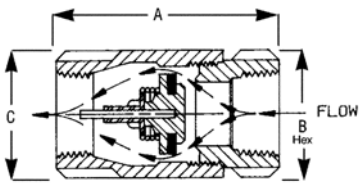
## FLOW RATE ($C_v$)

| SIZE | GPM | |
|---|---|---|
| | 61-500 | 61-600 |
| 1/4" | 0.85 | - |
| 3/8" | 1.21 | - |
| 1/2" | 1.4 | 2.20 |
| 3/4" | 3.53 | 4.78 |
| 1" | 6 | 6 |
| 1-1/4" | 44 | 44 |
| 1-1/2" | 65 | 65 |
| 2" | 81 | 81 |

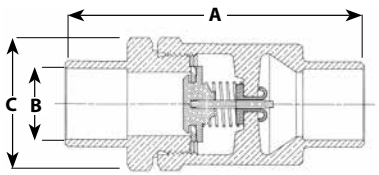
*GPM=gallons per minute at 1 psi pressure differential*

## DIMENSIONS

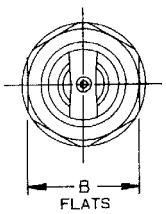
| PART NO. | LF PART NO. | SIZE | DIMENSIONS (IN.) | | | WT./100 |
|---|---|---|---|---|---|---|
| | | | A | B | C | |
| **61-500 (FNPT)** | | | | | | |
| 61-501-01 | 61LF-501-01 | 1/4" | 2.31 | 1.12 | 1.12 | 38 |
| 61-502-01 | 61LF-502-01 | 3/8" | 2.31 | 1.12 | 1.12 | 37 |
| 61-503-01 | 61LF-503-01 | 1/2" | 2.31 | 1.12 | 1.12 | 36 |
| 61-504-01 | 61LF-504-01 | 3/4" | 2.87 | 1.37 | 1.50 | 75 |
| 61-505-01 | 61LF-505-01 | 1" | 3.50 | 1.75 | 1.93 | 145 |
| 61-506-01 | 61LF-506-01 | 1-1/4" | 4.18 | 2.12 | 2.37 | 275 |
| 61-507-01 | 61LF-507-01 | 1-1/2" | 4.93 | 2.50 | 2.81 | 394 |
| 61-508-01 | 61LF-508-01 | 2" | 6.00 | 3.00 | 3.68 | 630 |
| **61-600 (SOLDER)** | | | | | | |
| 61-603-01 | 61LF-603-01 | 1/2" | 2.75 | 1.12 | 1.25 | 38 |
| 61-604-01 | 61LF-604-01 | 3/4" | 3.68 | 1.50 | 1.62 | 75 |
| 61-605-01 | 61LF-605-01 | 1" | 4.50 | 1.93 | 2.12 | 145 |
| 61-606-01 | 61LF-606-01 | 1-1/4" | 6.11 | 2.13 | 2.38 | 330 |
| 61-607-01 | 61LF-607-01 | 1-1/2" | 6.87 | 2.50 | 2.81 | 610 |
| 61-608-01 | 61LF-608-01 | 2" | 7.46 | 3.38 | 3.75 | 1010 |



61-500



61-600




***NOTE: Not recommended for use with reciprocating pumps and similar applications. Low flows may result in undesirable noise and premature valve wear.***

## PART NO. MATRIX

| 61 x x | - X | X | X | - XX |
|---|---|---|---|---|
| TYPE | CHECK | SPRING TYPE | SIZE (IN.) | OPTIONS |
| 61 - BRONZE | 5 - SOFT SEAT (NPT-F X F) | 0 - .5 PSIG CRACKING PRESSURE | 1 - 1/4" | 01 - STANDARD (EPDM SEAT) |
| 61LF - LEAD FREE BRONZE | 6 - SOFT SEAT (SOLDER) | 2 - .2 PSIG CRACKING PRESSURE | 2 - 3/8" | PO1 - BSPP THREAD (ISO 228)** (STD. MATERIALS ONLY) |
| | 9 - SOFT SEAT REPAIR KIT | | 3 - 1/2" | TO1 - BSPT THREAD (EN 10226)** (STD. MATERIALS ONLY) |
| | (EPR ONLY) | | 4 - 3/4" | 17 - SATIN CHROME PLATED |
| | | | 5 - 1" | 57 - OXYGEN CLEANED |
| | | | 6 - 1-1/4" | A1 - LESS SPRING |
| | | | 7 - 1-1/2" | B1 - NITRILE SEAT (BUNA N) |
| | | | 8 - 2" | V1 - VITON SEAT |
| | | | | E05 - 5 PSIG OPENING PRESSURE* |
| | | | | E10 - 10 PSIG OPENING PRESSURE* |

**Available in 1/4" through 1" only. | **Minimums apply*
*(Note: Not all combinations are available. Contact Customer Service for verification.)*

## 62-500 SERIES
IN-LINE SOFT SEAT CHECK VALVE

LEADFREE OPTIONS



**62-500**
**FEMALE X FEMALE THREADED**
**1/4" THROUGH 1"**

The Apollo 62-500 Series is ideal for fluid flow applications in tough industrial environments. The stainless steel body and check provide lasting protection against reverse flow.

### FEATURES
- Bubble-Tight Shut-Off, Ideally Suited for Gaseous Service
- 400 psig CWP non-shock
- Viton® Check Disc
- 1/2 psi Cracking Pressure
- RoHS and REACH Compliant
- CRN OC 11218.5C
- **Proudly Made in USA**

### STANDARD MATERIALS LIST

| | |
|---|---|
| **BODY** | Stainless Steel, ASTM A351,CF8M |
| **RETAINER** | Stainless Steel, ASTM A276, 316 |
| **SEAT** | Viton® |
| **SPRING** | Stainless Steel, 316 |
| **CHECK** | Stainless Steel, ASTM A276, 316 |

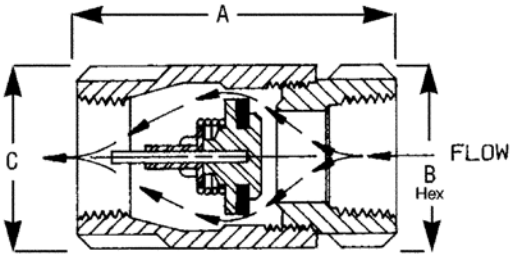
### FLOW RATE ($C_v$)

| SIZE | GPM |
|---|---|
| 1/4" | 0.47 |
| 3/8" | 1.57 |
| 1/2" | 2.20 |
| 3/4" | 4.78 |
| 1" | 6 |

*GPM=gallons per minute at 1 psi pressure differential*

### DIMENSIONS

| PART NO. FNPT X FNPT | SIZE | DIMENSIONS (IN.) | | | WT./100 |
|---|---|---|---|---|---|
| | | A | B | C | |
| 62-501-01 | 1/4" | 2.312 | 1.125 | 1.125 | 38 |
| 62-502-01 | 3/8" | 2.312 | 1.125 | 1.125 | 37 |
| 62-503-01 | 1/2" | 2.312 | 1.125 | 1.125 | 36 |
| 62-504-01 | 3/4" | 2.875 | 1.375 | 1.500 | 75 |
| 62-505-01 | 1" | 3.500 | 1.750 | 1.937 | 150 |




***NOTE: Not recommended for use with reciprocating pumps and similar applications. Low flows may result in undesirable noise and premature valve wear.***

### PART NO. MATRIX

| 62 | - X | X | X | - XX |
|---|---|---|---|---|
| TYPE | CHECK | SPRING TYPE | SIZE (IN.) | OPTIONS |
| 62 - STAINLESS STEEL (316) | 5 - SOFT SEAT (NPT-F X F) | 0 - .5 PSIG CRACKING PRESSURE | 1 - 1/4" | 01 - STANDARD (VITON SEAT) |
| | 9 - SOFT SEAT REPAIR KIT | 2 - .2 PSIG CRACKING PRESSURE | 2 - 3/8" | PO1 - BSPP THREAD (ISO 228)** |
| | (VITON ONLY) | | 3 - 1/2" | TO1 - BSPT THREAD (EN 10226)** |
| | | | 4 - 3/4" | 57 - OXYGEN CLEANED |
| | | | 5 - 1" | A1 - LESS SPRING |
| | | | | B1 - NITRILE SEAT (BUNA N) |
| | | | | F1 - EPDM SEAT |
| | | | | E05 - 5 PSIG OPENING PRESSURE* |
| | | | | E10 - 10 PSIG OPENING PRESSURE* |

**Available in 1/4" through 1" only.*
***Minimums apply*
*(Note: Not all combinations are available. Contact Customer Service for verification.)*

## 61-700 SERIES
MINI CHECK VALVE



**61-700**
**FEMALE X FEMALE PIPE THREAD**
**1/4" THROUGH 1"**

The Apollo 61-700 Series check valve is ideally suited for cold water, and air applications for prevention of reverse flow. The modular check cartridge provides superior leak-tight performance with low pressure loss. It is rated at 230 PSIG with a maximum temperature of 200°F.

## FEATURES
- Sizes: 1/4" to 1"
- FNPT x FNPT
- Acetyl Check Valve Body
- Nitrile (Buna-N) Check Seals
- ASTM B16 Brass Housing
- 1/2 psi Cracking Pressure
- **Proudly Made in USA**

## STANDARD MATERIALS LIST

| | |
|---|---|
| **BODY** | Brass, ASTM B16" |
| **CHECK** | Acetal/Brass/Silicone/Buna-N |
| **SPRING** | Stainless Steel 302 |

**Not intended for use in potable water applications.*

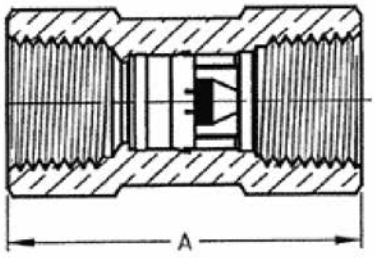
## FLOW RATE ($C_v$)

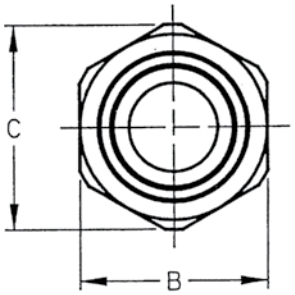
| SIZE | GPM |
|---|---|
| 1/4" | 0.78 |
| 3/8" | 1.81 |
| 1/2" | 6.00 |
| 3/4" | 11.50 |
| 1" | 17.50 |

*GPM=gallons per minute at 1 psi pressure differential*

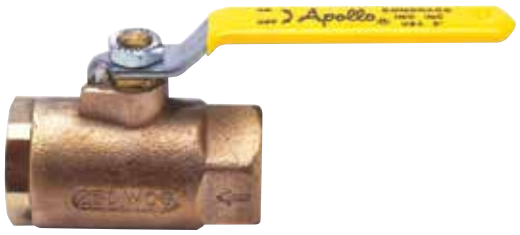
## DIMENSIONS

| PART NUMBER | SIZE | DIMENSIONS (IN.) | | | WT./100 |
|---|---|---|---|---|---|
| | | A | B | C | |
| 61-701-01 | 1/4" | 1.72 | 0.81 | 0.92 | 22 |
| 61-702-01 | 3/8" | 1.79 | 0.93 | 1.05 | 29 |
| 61-703-01 | 1/2" | 2.02 | 1.06 | 1.17 | 38 |
| 61-704-01 | 3/4" | 2.50 | 1.25 | 1.40 | 54 |
| 61-705-01 | 1" | 2.95 | 1.62 | 1.76 | 110 |



## 70-100-BC SERIES
BALL VALVE WITH INTEGRAL CHECK



**70-100-BC**
**FEMALE X FEMALE THREADED**
**1/2" THROUGH 2"**

The 70-100-BC Series ball valve combines two functions in a single design: positive shut-off and bubble-tight check capabilities. The BC Series is a unidirectional version of the industry-standard Apollo 70 Series ball valve. An easy flow design and superior check valve make these valves a smart choice for water or air in mechanical systems or OEM applications. Rated at 250 psi CWP and maximum temperature of 200°F.

### FEATURES
- Blowout-Proof Stem
- RPTFE Seats and Stuffing Box Ring
- Adjustable Packing Gland
- Chromium-Plated Ball
- Positive Shut-Off and Bubble-Tight Check Capability
- 1/2 psi Cracking Pressure
- **Proudly Made in USA**

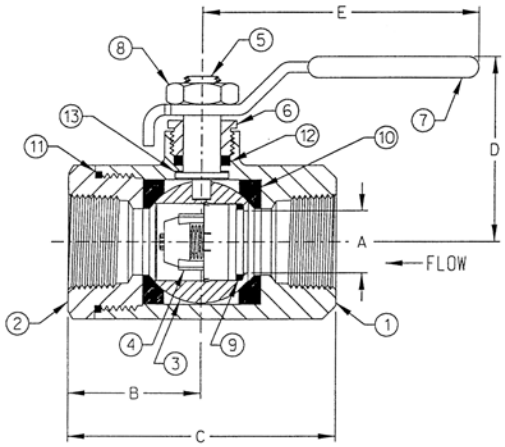
### STANDARD MATERIALS LIST

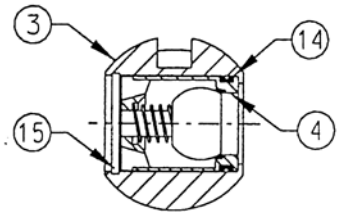
| | | |
|---|---|---|
| **1** | BODY | B584-C84400 |
| **2** | RETAINER | B16 (1/2" - 1")<br>B584-C84400 (1-1/4" - 2") |
| **3** | BALL | Brass, B16 (Chrome Plated) |
| **4** | CHECK INSERT | Acetal |
| **5** | STEM | Brass, B16 |
| **6** | GLAND NUT | Brass, B16 |
| **7** | LEVER/GRIP | Steel, Zinc-Plated w/ Vinyl |
| **8** | LEVER NUT | Steel, Zinc-Plated |
| **9** | O-RING | Buna-N |
| **10** | SEATS | RPTFE |
| **11** | BODY SEAL | TFE (1-1/4" - 2") |
| **12** | STEM PACKING | RPTFE |
| **13** | STEM BEARING | RPTFE |
| **14** | SEAL | EPDM (1/2") |
| **15** | RETAINING RING | Spring Steel (1/2") |

**Not intended for use in potable water applications.*

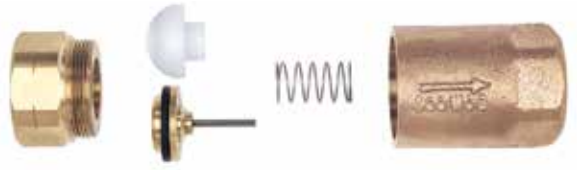
### DIMENSIONS

| PART NUMBER | SIZE | DIMENSIONS (IN.) | | | | | WT./100 |
|---|---|---|---|---|---|---|---|
| | | A | B | C | D | E | |
| 70-103-BC | 1/2" | 0.50 | 1.12 | 2.25 | 1.80 | 3.87 | 0.63 |
| 70-104-BC | 3/4" | 0.68 | 4.50 | 3.00 | 2.12 | 4.87 | 1.33 |
| 70-105-BC | 1" | 0.87 | 1.68 | 3.37 | 2.25 | 4.87 | 1.77 |
| 70-106-BC | 1-1/4" | 1.00 | 2.00 | 4.00 | 2.73 | 5.50 | 3.29 |
| 70-107-BC | 1-1/2" | 1.25 | 2.18 | 4.37 | 3.09 | 8.00 | 4.63 |
| 70-108-BC | 2" | 1.50 | 2.34 | 4.68 | 3.28 | 8.00 | 6.01 |



## REPAIR KITS
IN-LINE CHECK VALVES





### 61-100/61LF-100 REPAIR KITS INCLUDE:
SPRING, BALL CONE CHECK & INSTRUCTIONS

| SIZE (IN.) | CHECK VALVE PART NO. | LF CHECK VALVE PART NO. | STANDARD (LEAD FREE) REPAIR KIT PART NO. |
|---|---|---|---|
| 1/4" | 61-101-01 | 61LF-101-01 | 61-001-01 |
| 3/8" | 61-102-01 | 61LF-102-01 | 61-002-01 |
| 1/2" | 61-103-01 | 61LF-103-01 | 61-003-01 |
| 3/4" | 61-104-01 | 61LF-104-01 | 61-004-01 |
| 1" | 61-105-01 | 61LF-105-01 | 61-005-01 |
| 1-1/4" | 61-106-01 | 61LF-106-01 | 61-006-01 |
| 1-1/2" | 61-107-01 | 61LF-107-01 | 61-007-01 |
| 2" | 61-108-01 | 61LF-108-01 | 61-008-01 |
| 2-1/2" | 61-109-01 | 61LF-109-01 | 61-009-01 |
| 3" | 61-100-01 | 61LF-100-01 | 61-010-01 |

### 61-200 REPAIR KITS INCLUDE:
SPRING, BALL CONE CHECK & INSTRUCTIONS

| SIZE (IN.) | CHECK VALVE PART NO. | STANDARD (LEAD FREE) REPAIR KIT PART NO. |
|---|---|---|
| 1/4" | 61-201-01 | 61-001-01 |
| 3/8" | 61-202-01 | 61-002-01 |
| 1/2" | 61-203-01 | 61-003-01 |
| 3/4" | 61-204-01 | 61-004-01 |
| 1" | 61-205-01 | 61-005-01 |
| 1-1/4" | 61-206-01 | 61-006-01 |
| 1-1/2" | 61-207-01 | 61-007-01 |
| 2" | 61-208-01 | 61-008-01 |

### 61-500/61LF-500 REPAIR KITS INCLUDE:
SPRING, CHECK ASSEMBLY & INSTRUCTIONS

| SIZE (IN.) | CHECK VALVE PART NO. | LF CHECK VALVE PART NO. | STANDARD (LEAD FREE) REPAIR KIT PART NO. |
|---|---|---|---|
| 1/4" | 61-501-01 | 61LF-501-01 | 61-901-01 |
| 3/8" | 61-502-01 | 61LF-502-01 | 61-902-01 |
| 1/2" | 61-503-01 | 61LF-503-01 | 61-903-01 |
| 3/4" | 61-504-01 | 61LF-504-01 | 61-904-01 |
| 1" | 61-505-01 | 61LF-505-01 | 61-905-01 |
| 1-1/4" | 61-506-01 | - | 61-906-01 |
| 1-1/2" | 61-507-01 | - | 61-907-01 |
| 2" | 61-508-01 | - | 61-908-01 |

### 61-600 REPAIR KITS INCLUDE:
SPRING, CHECK ASSEMBLY & INSTRUCTIONS

| SIZE (IN.) | CHECK VALVE PART NO. | REPAIR KIT ART NO. |
|---|---|---|
| 1/2" | 61-603-01 | 61-903-01 |
| 3/4" | 61-604-01 | 61-904-01 |
| 1" | 61-605-01 | 61-905-01 |
| 1-1/4" | 61-606-01 | 61-906-01 |
| 1-1/2" | 61-607-01 | 61-907-01 |
| 2" | 61-608-01 | 61-908-01 |

### 62-100 REPAIR KITS INCLUDE:
SPRING, BALL CONE CHECK & INSTRUCTIONS

| SIZE (IN.) | CHECK VALVE PART NO. | REPAIR KIT PART NO. |
|---|---|---|
| 1/4" | 62-101-01 | 62-001-01 |
| 3/8" | 62-102-01 | 62-002-01 |
| 1/2" | 62-103-01 | 62-003-01 |
| 3/4" | 62-104-01 | 62-004-01 |
| 1" | 62-105-01 | 62-005-01 |
| 1-1/4" | 62-106-01 | 62-006-01 |
| 1-1/2" | 62-107-01 | 62-007-01 |
| 2" | 62-108-01 | 62-008-01 |

### 62-500 REPAIR KITS INCLUDE:
SPRING, CHECK ASSEMBLY & INSTRUCTIONS

| SIZE (IN.) | CHECK VALVE PART NO. | REPAIR KIT PART NO. |
|---|---|---|
| 1/4" | 62-501-01 | 62-901-01 |
| 3/8" | 62-502-01 | 62-902-01 |
| 1/2" | 62-503-01 | 62-903-01 |
| 3/4" | 62-504-01 | 62-904-01 |
| 1" | 62-505-01 | 62-905-01 |

## CV COEFFICIENTS
FOR FLOW ESTIMATION ONLY

### FLOW OF LIQUID

$$Q = \sqrt{\frac{\Delta P}{SG}}$$

$$\text{or } \Delta P = \frac{(Q)^2\,(SG)}{(Cv)^2}$$

**WHERE:**
- Q = flow rate (gpm)
- Cv = device flow coefficient
- ΔP = change in fluid pressure across the device (psi)
- SG = Specific Gravity of fluid

### FLOW OF GAS

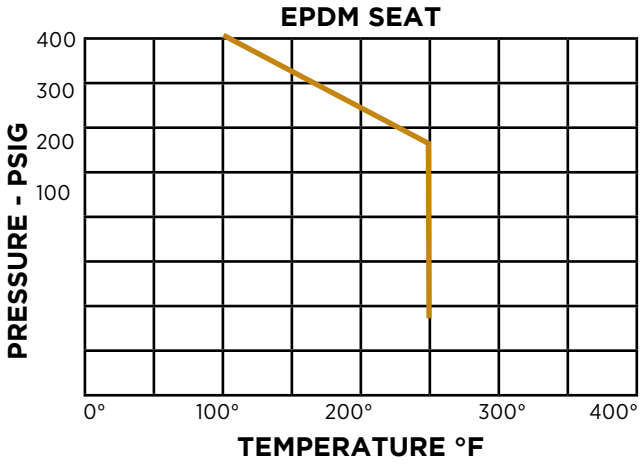
$$Q = 1360\ Cv \sqrt{\frac{\Delta P\,(P_2)}{(SG)\,(T)}}$$

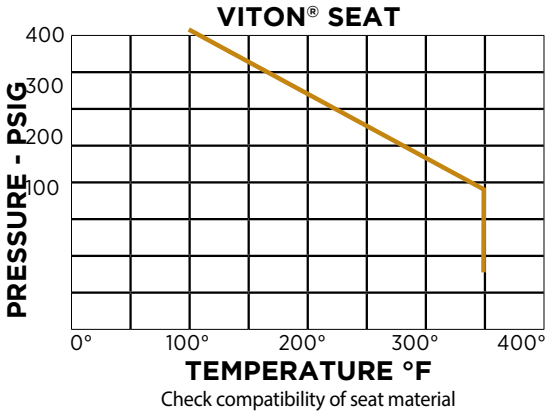
$$\text{or } \Delta P = \frac{5.4 \times 10^{-7}\,(SG)\,(T)\,(Q)^2}{(Cv)^2\,(P_2)}$$

**WHERE:**
- Q = flow rate (SCFH)
- ΔP = change in fluid pressure across the device (psi)
- SG = Specific Gravity (Air - 1.0)
- $P_2$ = outlet pressure - psia (psig + 14.7)
- T = (temp. °F + 460)
- Cv = valve constant

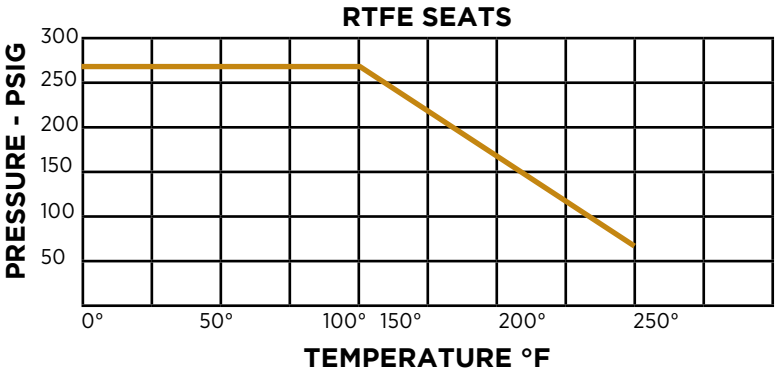
*Note: The Cv (Valve Constant) is the gallons of water per minute that the valve will pass with a 1 PSIG pressure drop across the valve.*

***NOTE:***
***Not recommended for use with reciprocating pumps and similar applications which may induce repetitious vibrations. Low flow rates which do not fully open the valve, may result in undesirable noise and premature valve failure. Upstream flow disturbances, which create turbulence, may also result in rapid wear. Therefore, it is recommended that a minimum of 10 diameters of straight pipe be provided between the check valve and any upstream flow disturbances such as pumps, control valves, elbows, etc.***



Check compatibility of seat material



## GLOSSARY

### BRONZE VALVE TYPES:

Apollo offers cast bronze alloy gate, globe, swing check and in-line check valves in a variety of configurations and sizes. Select models are also available with lead free materials suitable for potable water applications.

**GATE VALVES:** Apollo gate valves are all fully guided solid wedge style available in Type 1A, "Non-Rising Stem and External Stuffing Box" and Type 2, "Rising Stem, Inside Screw, External Stuffing Box" designs.

**GLOBE VALVES:** Apollo globe valves are available in Type 1, "Metallic Disc, Integral Seat" and Type 2, "Non-Metallic Disc, Integral Seat", and Type 3, "Metallic Disc, Replaceable/Renewable Seat" designs.

**CHECK VALVES:** Apollo swing check valves are available in Type 3, "Metal to Metal Seated", and Type 4, "Non-Metallic Disc, Metal Seat" designs.

**IN-LINE CHECK VALVES:** Apollo in-line check valves are available 1/4" - 3".

### CAST IRON VALVE TYPES:

Apollo offers ANSI Class 125 and 250 flanged cast iron gate, globe and swing check valves; ASME B16.10 ANSI Face-to-Face and End-to-End Dimensions of Valves; ASME B16.1

**GATE VALVES:** Flanged cast iron gate valves are solid wedge design (Type I) with bronze mounted seat rings and are available in both non-rising stem and OS&Y configurations.

**GLOBE VALVES:** Flanged cast iron globe valves are offered in Type I (in line metal to metal seated) with bronze mounted seat rings. All feature OS&Y stem designs.

**SWING CHECK VALVES:** Flanged cast iron swing check valves are all Type I (full waterway, metal to metal seated) with bronze mounted seat rings.

**WAFER CHECK VALVES:** Resilient seated, dual disc, spring-return design intended for installation between Class 125 or Class 150 flanges.

### PRESSURE RATINGS:

**SWP:** "Steam Working Pressure" is defined as the maximum allowable working pressure for saturated steam service.

**CWP:** The initials for "Cold Working Pressure" and is the allowable working pressure for the device in the temperature range of -20°F to 100°F (-29°C to 38°C)

The CWP for Apollo ANSI Class valves is as follows:
**Class 125:** 200 psig
**Class 150:** 300 psig
**Class 250:** 300 psig
**Class 300:** 1000 psig (600 psig for swing checks)

**200 CWP:** Commonly applied to bronze solder-end valves and equates to 200 psig.

Unless otherwise specified herein, the SWP for Apollo ANSI Class Metal-to-Metal seated valves is as follows:
**125 SWP:** Class 125 is 125 psig.* (353° F)
**150 SWP:** Class 150 is 150 psig.* (366° F)
**300 SWP:** Class 300 is 300 psig.* (421° F)
*The maximum saturated steam working pressure (SWP) for soft seated valves is determined by the limits of the non-metallic materials.

### TEMPERATURE RATINGS:

Maximum temperature ratings for valves with non-metallic seating (such as is offered in some globe and check valves) are dependant upon the composition of the sealing element. It is the responsibility of the user to specify the service conditions and verify that the valves selected are suitable for their intended use.

### END CONNECTIONS:

**FLANGED ENDS:** All iron valves (with the exception of wafer checks) are supplied with flanged ends which comply with ASME B.16.1 and B16.10. End to end dimensions conform to ANSI B16.10. Class 125, flat faced flanges & Class 250, 0.06 inch raised faced and MSS SP-6 finishes.

**THREADED ENDS:** Bronze valves supplied with threaded ends comply with ASME B1.20.1.

**SOLDER ENDS:** Bronze valves supplied with solder joint ends comply with ASME B16.18.

## STEM TYPES:

**RISING STEM:** Rising stem, inside screw is the most common stem design used in bronze gate and globe valves, while the larger cast iron valves use an OS&Y (outside screw and yoke) design. In the fully open, back seated position the stem threads are isolated from the media. The rising stem also give a clearly visible indication as to whether the valve is open or closed. Because the stem and handle rise above the valve during operation, adequate clearance must be provided.

**NON-RISING STEM:** Applicable only to gate valves. Valves with non-rising stems have a lower profile but the stem threads are exposed to the media leaving them subject to damage from erosion, corrosions or deposits. There is no visual open-closed indication.

## BONNET OPTIONS:

**THREADED BONNET:** This is the most cost effective method for assembling the bonnet of gate and globe valves.

**UNION BONNET:** Union bonnets are intended to simplify inspection of the interior of the valve.
All Apollo cast iron gate, globe and swing check valves utilize bolted bonnet construction.

**BOLTED BONNET:** All Apollo cast iron gate, globe and swing check valves utilize bolted bonnet construction.

## MATERIALS OF CONSTRUCTION - BRONZE VALVES:

**STANDARD VALVES:** All materials of construction comply with the requirements of MSS SP-80. Class 125, Class 150 and 200 CWP bodies and bonnets or covers are produced from ASTM B62 cast bronze containing a nominal 85% copper. Class 300 bodies and bonnets or covers are produced from ASTM B61 cast bronze containing a nominal 88% copper. Stems are produced from ASTM B371 silicon bronze.

**LEAD FREE VALVES:** Bodies and bonnets or covers are produced from ASTM B584-C89836 cast bronze containing a nominal 89% copper and no more than 0.25% lead. Stems are produced from ASTM B371 silicon bronze.

## MATERIALS OF CONSTRUCTION - CAST IRON VALVES:

All materials of construction comply with the requirements of the governing MSS specification. Cast iron body and bonnet material is ASTM A126 Class B. All bolting is equal to or better than ASTM A307 B.

**BRONZE & CAST IRON STEM PACKING:**
All Apollo gate and globe valves are factory equipped with die-formed graphite stem packing which ensures an effective seal under a wide range of service conditions.

**BRONZE MARKING:**
All Apollo bronze gate, globe and swing check valves are marked in compliance with MSS SP-80, MSS SP-139 and MSS SP-25. Swing check valves include a cast flow direction arrow. Lead free valves feature a cast “LF” symbol where space permits.

**CAST IRON MARKING:**
All Apollo gate, globe and check valves are marked in compliance with MSS SP-25 and the governing MSS product standard.

**BRONZE TESTING:**
All Apollo bronze gate, globe and swing check valves are tested in compliance with MSS SP-80 and MSS SP-139. 61 and 62 Series in-line check valves are tested in accordance with Apollo specifications

**CAST IRON TESTING:**
Each Apollo iron gate, globe and check valve is tested in compliance with MSS SP-70, SP-71 or SP-85 as applicable.


APOLLO
1/2
USA
M
MADE
IN USA
CLASS 300

"Apollo"® Valves

# strainers


**BRONZE WYE STRAINERS**

| | |
|---|---|
| **59, 59LF** | K-2 |
| **59/59LF-PR** | K-3 |
| **59/59LF-300** | K-3 |

**BRONZE MINI-STRAINER**

| | |
|---|---|
| **59V** | K-4 |

**STAINLESS STEEL WYE STRAINER**

| | |
|---|---|
| **YSS/612** | K-4 |

**CAST IRON WYE STRAINER**

| | |
|---|---|
| **YCT** | K-5 |
| **YCF** | K-6 |

**CARBON STEEL WYE STRAINER**

| | |
|---|---|
| **YCS/612** | K-5 |




section K

## 59 SERIES
BRONZE WYE STRAINER

LEADFREE OPTIONS



59-000 SERIES

Heavy pattern design with large area screens ensures excellent protection against foreign particles in your fluid system. Corrosion-resistant bronze body and stainless steel screens provide years of service.

### FEATURES
- Blow-Off Ball Valve Option (3/4" - 2")
- Replaceable Self-Aligning Screen
- Large Net Flow Area for Longer Maintenance Intervals
- 59LF-400 Series is Female x Male NPT (3/4" & 1" Only)
- Several Screen and Cap Options
- **Proudly Made in USA**

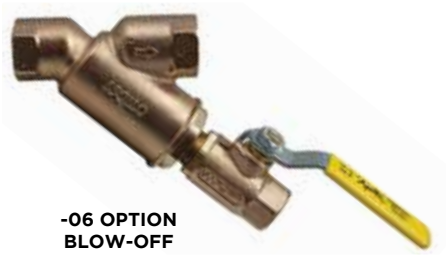
### PERFORMANCE RATING
- Working Pressure:
  CWP: 400 psi
  SWP: 125 psi
- Maximum Temperature: 350° F

### APPROVALS
- NSF/ANSI 372 - Lead Free (59LF)
- CRN-0E 8959.5

New!



59LF-400 SERIES
FEMALE x MALE NPT



-06 OPTION
BLOW-OFF
BALL VALVE

### STANDARD SCREEN

| SIZE (IN.) | SCREEN |
|---|---|
| 1/8" - 1/2" | 50 Mesh |
| 3/4" - 3" | 20 Mesh |
| 4" | .125 Perforation |

### OPTIONS

| SUFFIX | OPTION |
|---|---|
| -01 | Plain Cap |
| -02 | Blow-Off Tap |
| -P2 | Blow-Off with Plug |
| -06 | Ball Valve |
| -E1 | 20 Mesh |
| -B1 | 60 Mesh |
| -C1 | 80 Mesh |
| -H1 | 100 Mesh |

### DIMENSIONS

| PART NUMBER | LF PART NUMBER | SIZE (IN.) | DIMENSIONS (IN.) | | CAP TAPPING SUFFIX -02 | WT./EA. LB. | NET SCREEN AREA (IN.)² |
|---|---|---|---|---|---|---|---|
| | | | A | B | | | |
| **FNPT x FNPT** | | | | | | | |
| 59-000-01 | 59LF-000-01 | 1/8 NPT | 2.00 | 1.44 | 1/8 NPT | .4 | 2.3 |
| 59-001-01 | 59LF-001-01 | 1/4 NPT | 2.00 | 1.46 | 1/8 NPT | .4 | 2.3 |
| 59-002-01 | 59LF-002-01 | 3/8 NPT | 2.69 | 1.79 | 1/4 NPT | .8 | 3.2 |
| 59-003-01 | 59LF-003-01 | 1/2 NPT | 2.69 | 1.91 | 1/4 NPT | .8 | 3.2 |
| 59-004-01 | 59LF-004-01 | 3/4 NPT | 4.25 | 2.88 | 1/2 NPT | 1.9 | 6.7 |
| 59-005-01 | 59LF-005-01 | 1 NPT | 4.75 | 3.42 | 3/4 NPT | 2.8 | 10.8 |
| 59-006-01 | 59LF-006-01 | 1-1/4 NPT | 5.13 | 3.70 | 3/4 NPT | 3.6 | 13.5 |
| 59-007-01 | 59LF-007-01 | 1-1/2 NPT | 5.75 | 4.42 | 1 NPT | 5.4 | 19.0 |
| 59-008-01 | 59LF-008-01 | 2 NPT | 6.66 | 4.91 | 1-1/4 NPT | 7.5 | 27.6 |
| 59-009-01 | 59LF-009-01 | 2-1/2 NPT | 8.24 | 5.67 | 1-1/4 NPT | 9.2 | 41.0 |
| 59-010-01 | 59LF-010-01 | 3 NPT | 9 | 6.71 | 1-1/2 NPT | 12.1 | 56.0 |
| 59-011-01 | 59LF-011-01 | 4 NPT | 11.92 | 9.43 | 1-1/2 NPT | 31.0 | 98 |
| **FNPT x MNPT** | | | | | | | |
| | 59LF-404-01 | 3/4 F x MNPT | 5.34 | 2.88 | 1/2 NPT | 2.0 | 6.7 |
| | 59LF-405-01 | 1 F x MNPT | 5.79 | 3.42 | 3/4 NPT | 3.0 | 10.8 |

## 59 SERIES
BRONZE WYE STRAINER - PRESS

LEADFREE OPTIONS



The ApolloPress 59LF Series Strainers with quick press connections are designed to protect potable piping systems from unwanted foreign particles with minimum pressure loss. The valves are built for long reliable service with proven ASTM grade materials including a lead free bronze body and stainless steel strainer.

### FEATURES
- Lead Free Bronze Construction
- Fast, Reliable, Economical Press Installation
- Leak Before Press® Technology
- Self-Aligning SS Screen Design
- Blow-Off Ball Valve Option
- **Proudly Made in USA**

### PERFORMANCE RATING
- Maximum Pressure: 300 psi
- Maximum Temperature: 250°F

### APPROVALS
- NSF/ANSI/CAN 372 Lead Free (59LF)
- CRN 0E8959.5C

### OPTIONS

| SUFFIX | OPTION |
|---|---|
| -01 | 50 Mesh (Std 1/2") |
| -01 | 20 Mesh (Std 3/4" - 2") |
| -02 | Tapped Cap |
| -P2 | Tapped Cap with Plug |
| -06 | Tapped Cap with Ball Valve |
| -E1 | 20 Mesh (for 1/2") |
| -B1 | 60 Mesh |
| -C1 | 80 Mesh |
| -H1 | 100 Mesh |
| -59PR | ApolloPress |

### DIMENSIONS

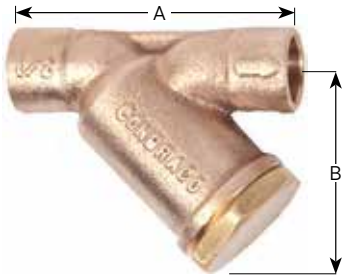
| PART NUMBER | LF PART NUMBER | SIZE (IN.) | LENGTH (IN.) | CV | WT. (LB.) |
|---|---|---|---|---|---|
| 59-003-01PR | 59LF-003-01PR | 1/2" | 4.75" | 5 | 1.0 |
| 59-004-01PR | 59LF-004-01PR | 3/4" | 6.1" | 15 | 2.0 |
| 59-005-01PR | 59LF-005-01PR | 1" | 7.25" | 28 | 3.0 |
| 59-006-01PR | 59LF-006-01PR | 1-1/4" | 7.62" | 55 | 3.8 |
| 59-007-01PR | 59LF-007-01PR | 1-1/2" | 8.25 | 70 | 5.7 |
| 59-008-01PR | 59LF-008-01PR | 2" | 10.39 | 99 | 7.7 |

*For liquids the flow coefficient - Cv - expresses the flow capacity in gallons per minute (GPM) of 60°F water with a pressure drop of 1 psi (lb/in²).*

---

## 59-300 SERIES
BRONZE WYE STRAINER

LEADFREE OPTIONS




Heavy pattern design with large area screens ensures excellent protection against foreign particles in your fluid system. Corrosion-resistant bronze body and stainless steel screens provide years of service.

### FEATURES
- Sizes: 1/2" to 3" Copper Tube Size
- Optional Tapped Caps Available
- 59LF features EZ-Solder™ Bronze
- **Proudly Made in USA**

### PERFORMANCE RATING
- Working Pressure:
  CWP: 400 psi
  SWP: 125 psi
- Maximum Temperature: 350° F

### APPROVALS
- NSF/ANSI/CAN 372 - Lead Free (59LF)

### STANDARD SCREENS

| SIZE (IN.) | STANDARD SCREEN |
|---|---|
| 1/2 | 50 Mesh |
| 3/4 to 3 | 20 Mesh |

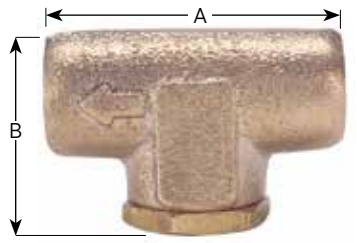
### OPTIONS

| SUFFIX | OPTION |
|---|---|
| -01 | Solid cap (standard) |
| -02 | Blow-Off Tap |
| -P2 | Blow-Off with pipe plug |

### DIMENSIONS

| PART NUMBER | LF PART NUMBER | SIZE (IN.) | DIMENSIONS (IN.) | | CAP TAPPING SUFFIX -02 | WT. | NET SCREEN AREA (IN.²) |
|---|---|---|---|---|---|---|---|
| | | | A | B | | | |
| 59-303-01 | 59LF-303-01 | 1/2 | 2.75 | 2.0 | 1/4 NPT | .50 | 3.19 |
| 59-304-01 | 59LF-304-01 | 3/4 | 4.00 | 3.0 | 1/2 NPT | 1.21 | 6.7 |
| 59-305-01 | 59LF-305-01 | 1 | 4.75 | 3.5 | 3/4 NPT | 1.89 | 10.8 |
| 59-306-01 | 59LF-306-01 | 1-1/4 | 5.25 | 4.0 | 3/4 NPT | 2.80 | 13.5 |
| 59-307-01 | 59LF-307-01 | 1-1/2 | 6.00 | 4.4 | 1 NPT | 4.26 | 19.0 |
| 59-308-01 | 59LF-308-01 | 2 | 7.25 | 5.1 | 1-1/4 NPT | 6.27 | 27.6 |
| 59-309-01 | 59LF-309-01 | 2-1/2 | 9.50 | 5.6 | 1-1/2 NPT | 11.00 | 41.0 |
| 59-310-01 | 59LF-310-01 | 3 | 10.50 | 6.7 | 1-1/2 NPT | 15.0 | 56.0 |

## 59V SERIES
"MINI" STRAINER




The body of the 59-V is corrosion-resistant solid cast bronze, ASTM B-584. The removable clean-out cap is solid brass, ASTM B-16. Standard screens are made of 304 stainless steel. NOT INTENDED FOR POTABLE WATER

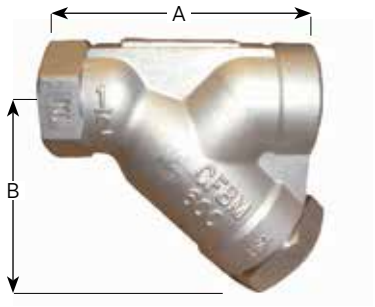
### FEATURES
- $C_v$ Factor 1.42 GPM
- **Proudly Made in USA**

### PERFORMANCE RATING
- Working Pressure:
  CWP: 400 psi
  SWP: 125 psi
- Maximum Temperature: 350° F

### DIMENSIONS

| PART NUMBER | SIZE (IN.) | DIMENSIONS (IN.) | | WT./100 | SCREEN MESH |
|---|---|---|---|---|---|
| | | A | B | | |
| 59V-001-01 | 1/4 NPT | 2.00 | 1.31 | 29.7 | 50 |
| 59V-001-H1 | 1/4 NPT | 2.00 | 1.31 | 29.7 | 100 |

## YSS (612) SERIES
STAINLESS STEEL WYE STRAINER




Sturdy and compact with corrosion-resistant stainless steel bodies and stainless steel screens.

### FEATURES
- Body is ASTM 316 Stainless Steel Grade CF8M
- 20 Mesh Screen
- Gasket 304 SS/Graphite
- Screen cover is NPT tapped for Customer Supplied Plug or Blow-Off Valve
- **Proudly Made in USA**

### PERFORMANCE RATING
- Working Pressure:
  CWP: 1480 psi
  SWP: 600 psi
- Maximum Temperature: 488° F

### DIMENSIONS

| PART NUMBER | SIZE (IN.) | DIMENSIONS (IN.) | | BLOW-OFF NPT | WT. (LB.) | NET SCREEN AREA ($IN.^2$) |
|---|---|---|---|---|---|---|
| | | A | B | | | |
| 612-033-A1 | 1/2 | 3.38 | 2.75 | 3/8 | 2 | 5.4 |
| 612-034-A1 | 3/4 | 4.44 | 3.63 | 3/8 | 3.75 | 8.7 |
| 612-035-A1 | 1 | 4.88 | 3.75 | 1/2 | 4 | 12.7 |

## YCT SERIES
CAST IRON WYE STRAINER - APOLLO INTERNATIONAL™

LEADFREE CERTIFIED

New!

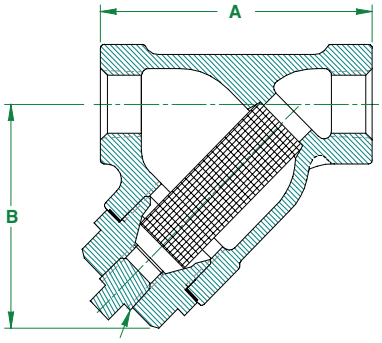


Install these durable strainers upstream in almost any application to protect valves, regulators, solenoids and meters from rust, dirt and pipe scale.

### FEATURES
- 20 Mesh Screens Standard to 2"; .045 perf. 2-1/2" to 3", Others Available
- Graphite Gasketed Cover for Easy Screen Cleaning
- Standard Tapped Cap with Plug
- Sizes: 1/4" to 3"
- Connections are NPT to ASME/ANSI B1.20.1
- NSF Approved Epoxy Coating

### PERFORMANCE RATING
- Working Pressure:
  CWP: 500 psi
  SWP: 250 psi
- Maximum Temperature: 406° F

### APPROVALS
- NSF/ANSI/CAN 372 - Lead Free




### DIMENSIONS

| PART NUMBER | SIZE (IN.) | DIMENSIONS (IN.) | | BLOW-OFF NPT | WT. (LB.) | NET SCREEN AREA (IN.²) |
|---|---|---|---|---|---|---|
| | | A | B | | | |
| YCT01M20 | 1/4 | 3.19 ± .04 | 2.17 | 1/4" | .44 | 2.8 |
| YCT02M20 | 3/8 | 3.19 ± .04 | 2.24 | 1/4" | .57 | 2.8 |
| YCT03M20 | 1/2 | 3.19 ± .04 | 2.76 | 3/8" | .75 | 2.8 |
| YCT04M20 | 3/4 | 3.74 ± .06 | 2.83 | 3/8" | 1.10 | 4.7 |
| YCT05M20 | 1 | 4.02 ± .07 | 3.07 | 1/2" | 1.90 | 7.0 |
| YCT06M20 | 1-1/4 | 5.00 ± .07 | 3.62 | 1/2" | 3.20 | 12.1 |
| YCT07M20 | 1-1/2 | 5.75 ± .08 | 4.61 | 1/2" | 4.59 | 16.4 |
| YCT08M20 | 2 | 6.97 ± .08 | 4.69 | 1/2" | 7.39 | 23.1 |
| YCT09P045 | 2-1/2 | 9.21 ± .10 | 5.35 | 3/4" | 10.56 | 55.0 |
| YCT00P045 | 3 | 10.00 ± .10 | 5.91 | 3/4" | 13.29 | 78.4 |

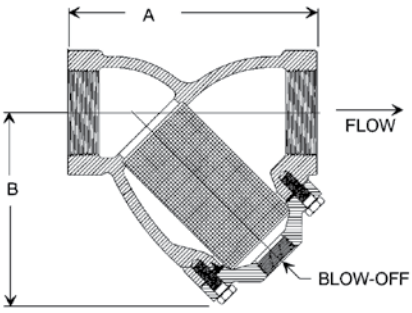
## YCS & YCSW (612) SERIES
CARBON STEEL WYE STRAINER - APOLLO INTERNATIONAL™



Large volume area screen, reliable construction.

### FEATURES
- Body is ASTM A216 Carbon Steel Grade WCB
- 20 Mesh Screen
- Copper Gasket 1/2" to 1-1/2", 304 SS/Graphite on 2"
- Screen Cover is NPT Tapped for Customer Supplied Plug or Blow-Off Valve

### PERFORMANCE RATING
- Working Pressure:
  CWP: 1440 psi
  SWP: 600 psi
- Maximum Temperature: 488° F




### DIMENSIONS

| SERIES NUMBER | | SIZE (IN.) | DIMENSIONS (IN.) | | BLOW-OFF NPT | WT. (LB.) | NET SCREEN AREA (IN.²) |
|---|---|---|---|---|---|---|---|
| THREADED NPT | SOCKET WELD | | A | B | | | |
| 612023A1 | 612123A1 | 1/2 | 3.38 | 2.75 | 3/8 | 2 | 5.4 |
| 612024A1 | 612124A1 | 3/4 | 4.44 | 3.63 | 3/8 | 3.75 | 8.7 |
| 612025A1 | 612125A1 | 1 | 4.88 | 3.75 | 1/2 | 4 | 12.7 |
| 612027A1 | 612127A1 | 1-1/2 | 6.38 | 5.13 | 3/4 | 8.75 | 25.3 |
| 612028A1 | 612128A1 | 2 | 7.50 | 6.00 | 1 | 12 | 39.2 |

## YCF / YCF-E SERIES
CLASS 125 CAST IRON WYE STRAINER

LEADFREE OPTIONS



YCF-E LEAD FREE



YCF STEAM RATED

The Apollo International™ YCF Strainers are designed to protect piping systems and process equipment from unwanted foreign particles with minimum pressure loss.

### FEATURES
- Iron Strainer with Flat Face Flanges Conforms to ASME/ANSI/CAN 16.1 Class 125
- One Piece Cast Body Meets ASME Standard
- Epoxy Coated Models conform to FDA CFR21, Section 175.300 and NSF/ANSI/CAN 372 - Lead Free
- Equipped with Bolted Cover Employing Flat Gasket Seal
- Upper and Lower Machined Seats for Screen for Self-Aligning Screen Design
- 304 SS Perforated Screens are Standard (P045 STD 2"-3", P125 STD 4"-12")
- Tapped Blow Off Connection with Plug
- 100% Factory Pressure Tested

### PERFORMANCE RATING (LEAD FREE)
- Working Pressure:
  CWP: 200 psi @ 180° F Max.

***not for steam service.**

### PERFORMANCE RATING (STEAM RATED)
- Working Pressure:
  CWP 200 PSIG
  SWP 125 PSIG @ 353°F

### STANDARD MATERIALS LIST

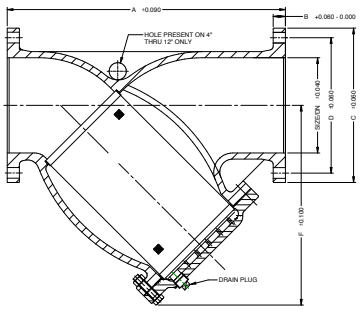
| | |
|---|---|
| **BODY** | Cast Iron, ASTM A126-B |
| **CAP/COVER** | Cast Iron, ASTM A126-B |
| **PLUG** | Carbon Steel, ASTM A307 |
| **BOLT/STUD/NUT** | Carbon Steel, ASTM A307 |
| **SCREEN** | 304 Stainless Steel |
| **GASKET** | Graphite |
| **COATING (LEAD FREE ONLY)** | Epoxy, FDA Approved |

### DIMENSIONS

| PART NUMBER STEAM RATED | PART NUMBER LEAD FREE | SIZE/DN | | A | | B | | C | | D | | E | | F | | DRAIN PLUG | | WEIGHT | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | IN | MM | IN | MM | IN | MM | IN | MM | IN | MM | IN | MM | IN | MM | IN | MM | LB. | KG. |
| YCF02P045 | YCF02P045E | 2" | 50 | 8.86 | 255 | 0.63 | 16 | 5.98 | 152 | 4.75 | 121 | 0.75 | 19 | 6.30 | 160 | 1/2" | 4 | 23 | 11 |
| YCF25P045 | YCF25P045E | 2-1/2" | 65 | 10.75 | 273 | 0.69 | 18 | 7.01 | 178 | 5.50 | 140 | 0.75 | 19 | 7.64 | 194 | 1" | 4 | 34 | 15 |
| YCF03P045 | YCF03P045E | 3" | 80 | 11.50 | 292 | 0.75 | 19 | 7.48 | 190 | 6.00 | 153 | 0.75 | 19 | 8.86 | 225 | 1" | 4 | 47 | 21 |
| YCF04P125 | YCF04P125E | 4" | 100 | 13.86 | 352 | 0.94 | 24 | 8.98 | 228 | 7.50 | 191 | 0.75 | 19 | 10.63 | 270 | 1-1/4" | 8 | 72 | 33 |
| - | YCF05P125E | 5" | 125 | 16.38 | 416 | 0.94 | 24 | 10.00 | 254 | 8.50 | 216 | 0.88 | 22 | 12.60 | 320 | 1-1/4" | 8 | 111 | 50 |
| YCF06P125 | YCF06P125E | 6" | 150 | 18.50 | 470 | 1.00 | 25 | 10.98 | 279 | 9.50 | 242 | 0.88 | 22 | 14.69 | 373 | 1-1/2" | 8 | 150 | 68 |
| YCF08P125 | YCF08P125E | 8" | 200 | 21.38 | 543 | 1.12 | 29 | 13.46 | 342 | 11.75 | 299 | 0.88 | 22 | 17.72 | 450 | 1-1/2" | 8 | 235 | 107 |
| - | YCF10P125E | 10" | 250 | 25.98 | 660 | 1.18 | 30 | 15.98 | 406 | 14.25 | 362 | 1.00 | 25 | 20.67 | 525 | 2" | 12 | 369 | 168 |
| - | YCF12P125E | 12" | 300 | 30.00 | 762 | 1.25 | 32 | 19.02 | 483 | 17.00 | 432 | 1.00 | 25 | 23.94 | 608 | 2" | 12 | 552 | 250 |

### PART NUMBER MATRIX

| YCF | XX | XXX[X] | | X |
|---|---|---|---|---|
| | CONNECTION SIZE | SCREEN TYPE | | OPTION |
| | | STANDARD | OPTIONAL | |
| YCF (FLAT FACE) | 02 - FLANGED 2" | | M20 - 20 MESH | E - EPOXY COATING, FDA APPROVED |
| | 25 - FLANGED 2.5" | | M40 - 40 MESH | LEAD FREE ONLY, NOT FOR STEAM |
| | 03 - FLANGED 3" | | M80 - 80 MESH | |
| | 04 - FLANGED 4" | | M100 - 100 MESH | |
| | 05 - FLANGED 5" | P045 - .045" PERF (2"-3") | | |
| | 06 - FLANGED 6" | P125 - .125" PERF (4"-12") | | |
| | 08 - FLANGED 8" | | | |
| | 10 - FLANGED 10" (LF ONLY) | | | |
| | 12 - FLANGED 12" (LF ONLY) | | | |




*All mesh screens include liner:
.045" Perf on 3" and smaller
.125" Perf on 4" and larger
**All screens not available for all sizes.
***Limited screen options available for non-lead free steam rated version.

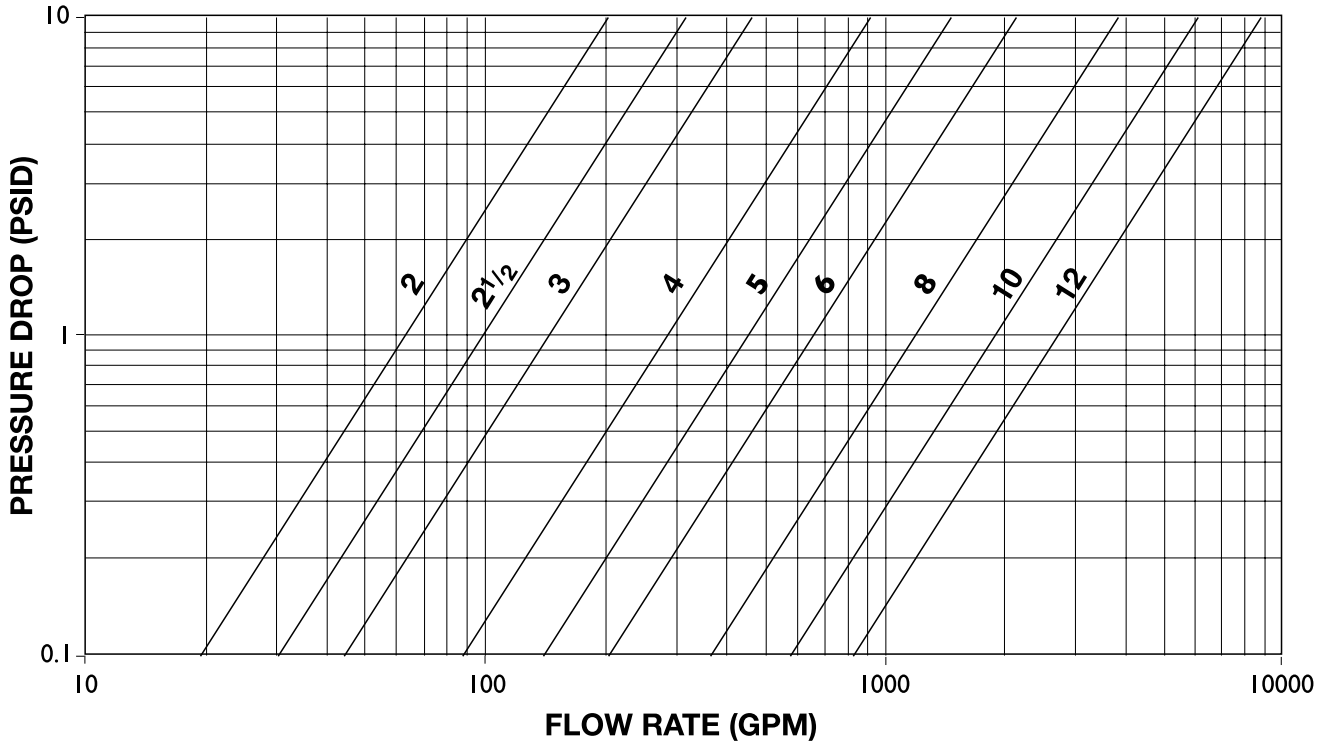
## ENGINEERING DATA
PRESSURE DROP (LIQUIDS)

The following optional features are available for most Apollo Y-Strainers. Please consult factory if required feature not shown.

| FEATURE | DESCRIPTION OF AVAILABILITY |
|---|---|
| Screen Openings | Range 150 micron to 1/4" perf. |
| Screen Materials | Stainless Steel (304) |
| Screen Construction | Perforated Plate/Mesh Wir. |
| Gaskets | Graphite |
| Standard coating | FDA Epoxy Coating |

*Strainer size may effect the ability to apply certain coatings and linings.

**Y-STRAINER PRESSURE DROP - (SIZES 2" - 12")** **FIGURE 1**




*Pressure drop curves are based on water flow with standard screens.*
*See next page for correction factors to be used with other fluids and/or screen openings.*

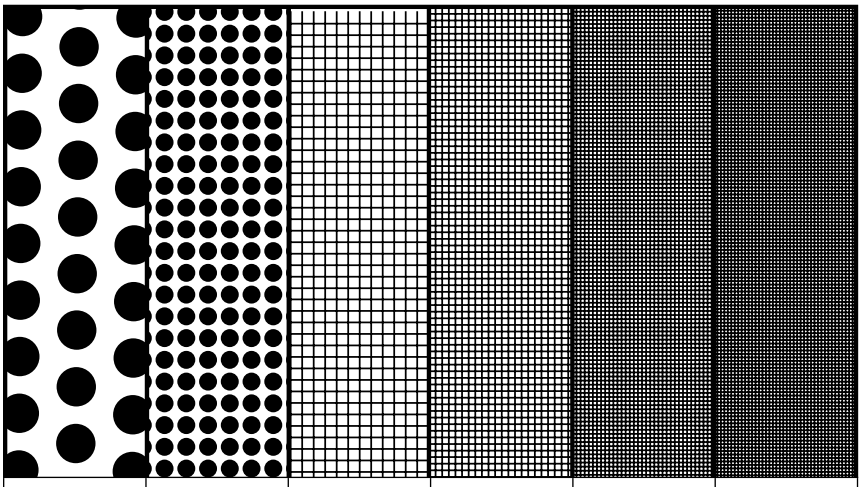
## ENGINEERING DATA
SCREEN OPENINGS

### PURPOSE
If the strainer is being used for protection rather than direct filtration, Apollo's standard screens will suffice in most applications.

### SERVICE
With services that require extremely sturdy screens, such as high pressure/ temperature applications or services with high viscosities, Apollo recommends that perforated screens without mesh liners be used. If mesh is required to obtain a certain level of filtration, then Apollo recommends a trapped perf./ mesh/perf. combination.

### FILTRATION LEVEL
When choosing a perf. or a mesh/perf. combination attention should be given to ensure overstraining does not occur. As a general rule the specified level of filtration should be no smaller than half the size of the particle to be removed. If too fine a filtration is specified the pressure drop through the strainer will increase very rapidly, possibly causing damage to the basket.

### SCREEN TYPES & DIMENSIONS



| 1/8" Dia. - 40% O.A. (P125) | 1/16" Dia. - 37% O.A. (P045) | 20 Mesh - 49% O.A. 0.035" Openings | 40 Mesh - 41% O.A. 0.016" Openings | 80 Mesh - 36% O.A. 0.008" Openings | 100 Mesh - 30% O.A. 0.006" Openings |
|---|---|---|---|---|---|

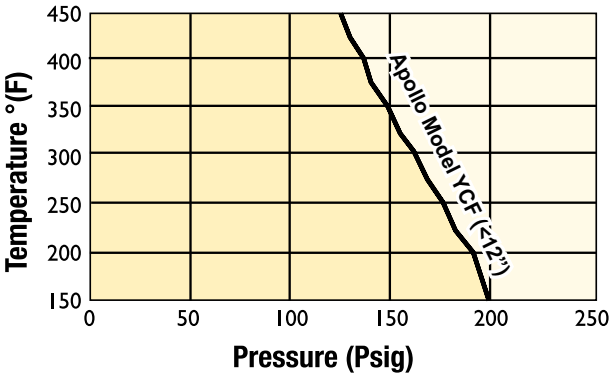
### STANDARD SCREENS

| SIZE RANGE | OPENING |
|---|---|
| 2" - 3" | 0.045 in. |
| 50mm - 80mm | 1.2mm |
| 4" and larger | 0.125 in. |
| 100mm and larger | 3.2mm |

*All screens not available for all sizes*
*All mesh screens include liner:*
*.045 Perf 3" and smaller*
*.125 Perf 4" and larger*

## ENGINEERING DATA
EFFECTIVE SCREEN AREA

| PIPE SIZE (IN.) | STD. OPENING (IN.) | NOMINAL AREA OF PIPE FITTING (SQ. IN.) | GROSS SCREEN AREA (SQ. IN.) | FREE AREA (SQ. IN.) | RATIO FREE AREA TO PIPE AREA |
|---|---|---|---|---|---|
| 2 | 0.045 | 3.14 | 30.07 | 10.82 | 3.45 |
| 2-1/2 | 0.045 | 4.91 | 44.33 | 15.96 | 3.25 |
| 3 | 0.045 | 7.07 | 56.45 | 20.32 | 2.88 |
| 4 | 0.125 | 12.57 | 98.91 | 39.56 | 3.15 |
| 5 | 0.125 | 19.63 | 147.11 | 58.85 | 3.00 |
| 6 | 0.125 | 28.27 | 179.19 | 71.68 | 2.54 |
| 8 | 0.125 | 50.27 | 334.38 | 133.75 | 2.66 |
| 10 | 0.125 | 78.54 | 505.21 | 202.08 | 2.57 |
| 12 | 0.125 | 113.10 | 665.77 | 266.31 | 2.35 |



## ENGINEERING DATA
SCREEN CORRECTION FACTOR CHART

### CHART 1

| SCREEN OPENINGS | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| SIZE RANGE | PERFORATED PLATE % SCREEN MATERIAL OPEN AREA | | | | | MESH LINED STANDARD SCREENS % SCREEN MATERIAL OPEN AREA | | |
| | 60% | 50% | 40% | 30% | 20% | 50% | 40% | 30% |
| 2" - 12" | 0.65 | 0.8 | 1 | 1.4 | 2.15 | 1.05 | 1.05 | 1.2 |

** Multiply values obtained from figure 1 thru 4 by the appropriate values shown below*

*See perforated plate open areas chart*
*Standard screens for sizes 2" and larger is approximately a 40% open area screen media.*
*All mesh screens include liner:*
*.045 Perf 3" and smaller*
*.125 Perf 4" and larger*

EXAMPLE:
Strainer Size: 2"
Filtration: 100 mesh lined
Flow Rate: 65 GPM
Service: Water

Using Figure 1 the pressure drop is determined to be 1.0 psid with Apollo's standard screen.
See perforated plate open areas chart to find that the % open area of 100 mesh is 30%.
Using Chart 1 we read the correction factor to be 1.2 for 100 mesh lined .045" perf
Total pressure drop equals 1.0 x 1.2 = 1.2 psid clean.

## VISCOSITY AND DENSITY CORRECTION FACTOR CHART

### CHART 2

| SIZE RANGE | COMPONENT FACTOR (CF) |
|---|---|
| 2" - 12" | 0.35 |

### CHART 3

| VISCOSITY CP | BODY LOSS FACTOR (BF) | SCREEN LOSS FACTOR | | | |
|---|---|---|---|---|---|
| | | PERF ALONE (PF) | 20 MESH LINED (MF) | 40 MESH LINED (MF) | 60 TO 100 MESH LINED (MF) |
| 10 | 1 | 1.15 | 1.3 | 1.4 | 1.5 |
| 25 | 1.2 | 1.25 | 2 | 2.2 | 2.5 |
| 100 | 1.6 | 1.4 | 3 | 4 | 6.5 |
| 200 | 2.2 | 1.5 | 4.5 | 7 | 11.5 |
| 500 | 4.4 | 1.6 | 10 | 15 | 25 |
| 1000 | 8 | 1.7 | 15 | 30 | 50 |
| 2000 | 15.2 | 1.9 | 30 | 60 | 100 |

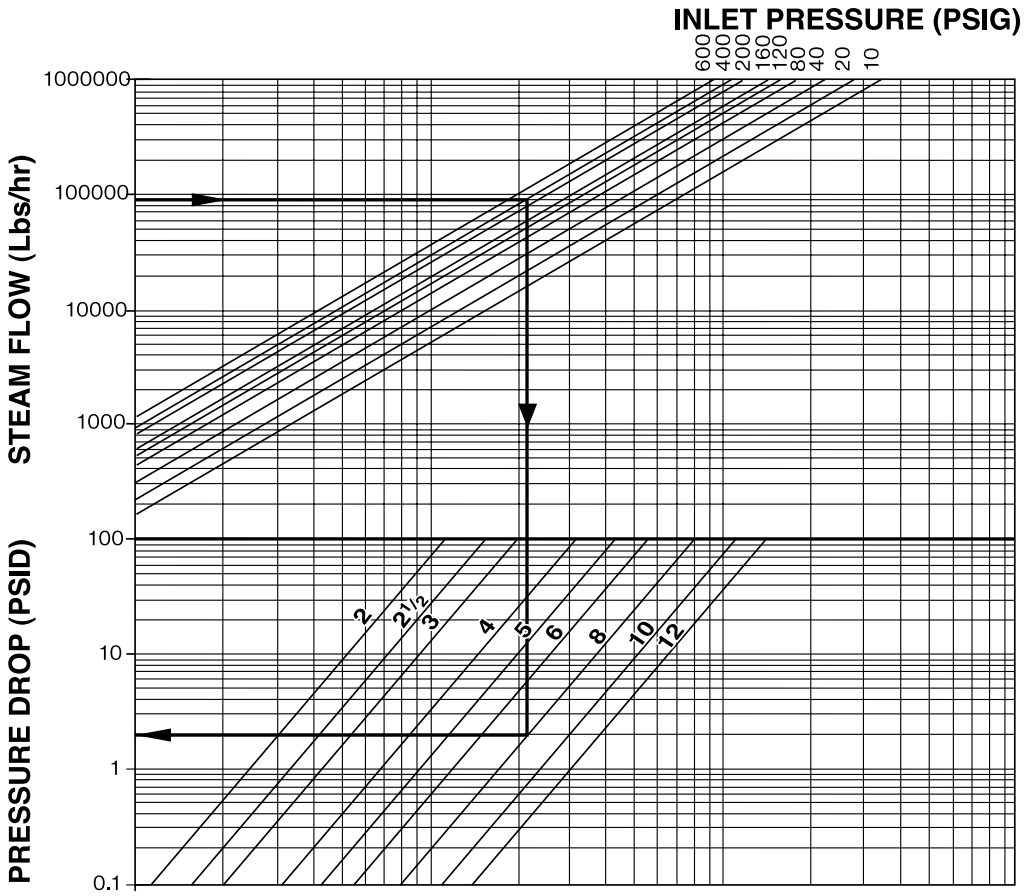
### HOW TO USE
1. Using Figure 1, determine the pressure drop (P1) through the strainer with water flow and standard screens.
2. If non-standard screens (i.e. 40 mesh, etc.) are being used apply factors in
3. Use Chart 1 to determine corrected pressure drop (P2).
4. Multiply P1 or P2 (is used) by the specific gravity of the fluid actually flowing through the strainer to get P3.
5. Using Chart 2 multiply P3 by the appropriate Component Factor (CF) to get P4.
6. Let P5 = P3 - P4.
7. Multiply P4 by the appropriate Body Loss Factor (BF) in Chart 3 to get P6.
8. Multiply P5 by the appropriate Screen Loss factor (PF or MF) in Chart 3 to get P7.
9. Total pressure drop P8 = P6 + P7.

EXAMPLE:
Strainer Size: 2"
Filtration: 100 mesh lined
Specific Gravity: 1
Viscosity: 25 cP

As shown in the above example, the corrected pressure drop (P2) = 1.2 psid
Since S.G. = 1, P3 = P2 = 1.2 psid
Using Chart 2, P4 = 0.35 x P3 = 0.42 psid
P5 = 1.2 - 0.4 = 0.8 psid
Using Chart 3, P6 = 0.4 x 1.2 = 0.48 psid
Again using Chart 3 P7 = 0.8 x 2.5 = 2.0 psid
Total pressure drop P8 = 0.48 + 2.0 = 2.48 psid

## ENGINEERING DATA
PRESSURE DROP (SATURATED STEAM)

**SIZES 2" - 12"**




Pressure drop curve is based on saturated steam flow with standard screens. See page 5 for correction factors to be used with other screen openings.
Chart can be used for air and gas by using the following formula:

$$Qs = 0.138\ Qg\ \sqrt{\frac{(460+t)\ s.g.}{DP}} \quad \left\{ \frac{DP}{P_2} < 1.0 \right\}$$

FOR NON-CRITICAL FLOW

**WHERE**
Qs - Equivalent Steam Flow, Lbs./Hr.
Qg - Air or gas flow, SCFM.
t - Temperature, °F.
s.g. - Specific gravity (s.g. - 1 for air.)
DP - Pressure Drop, psid
P2 - Outlet Pressure

EXAMPLE:
Service: Saturated Steam
Pressure: 400 psig
Steam Flow: 90,000 Lb./Hr.
Size: 8"

Locate steam flow.
Follow horizontal line to required pressure.
Follow vertical line downwards to required strainer size.
Follow horizontal line to read pressure drop
Pressure drop equals 2.0 psid.

## CHECKLIST AND SUGGESTED SPECIFICATIONS

### STRAINER CHECKLIST

When selecting a strainer, please take the factors listed below into account. This will assist us when recommending a strainer to suit your specific requirements.

Fluid to be Strained: _____
Flow Rate: _____
Density of Fluid: _____
Viscosity of Fluid: _____
Fluid Working Pressure: _____
Maximum Pressure: _____
Fluid Working Temp.: _____
Maximum Temp.: _____
Preferred Strainer Material: _____
Present Pipeline Size & Material: _____
Nature of Solids to be Strained Out: _____
Size of Solids to be Strained Out: _____
Size of Mesh or Perf. Req.: _____
Clearance Limitation: Above:_____Below:_____
Left Side Facing Inlet: _____
Right Side Facing Inlet: _____
Max Pressure Drop with Clean Screen: _____
Expected Cleaning Frequency: _____
Any Other Relevant Information: _____

### SUGGESTED SPECIFICATIONS

The strainer shall be a Y-Type and have _____ (size) inlet/outlet connections. The end connections shall be flanged and the body shall be complete with a bolted cover assembly. The strainer shall be suitable for _____ PSIG operating pressure at _____°F operating temperature. The body shall be constructed of _____(body material) while the screen shall be constructed of _____ (screen material). A mesh lining of _____ (size of mesh) is required, allowing a maximum pressure drop of _____ psig. The strainer shall be equipped with a _____ (gasket material) gasket and the strainer screen shall be able to withstand _____ psig differential pressure without any deformation.

Strainers shall be Apollo Model #_____ or approved equivalent.

Name _____
Company _____
Address _____
City _____
State _____ Zip Code_____
Telephone ( _____ )_____
Fax ( _____ )_____

## INSTALLATION & MAINTENANCE INSTRUCTIONS

### STRAINER INSTALLATION INSTRUCTIONS

1. Ensure all machined surfaces are free of defects and that the inside of the strainer is free of foreign objects.
2. WYE Strainers can be installed horizontally or vertically as long as the filter leg is pointing down. This guarantees that strained (filtered) materials do not interfere with the main flow.
3. For flanged end strainers, the flange bolting should be tightened gradually in a back and forth clockwise motion.
4. Once installed, increase line pressure gradually and check for leakage around joints.
5. If the strainer is supplied with a start-up screen, monitor pressure drop carefully.

NOTE: Flat face mating flanges and full face gaskets must be used with YCF series flanged strainers to avoid damage to the cast iron body.

**IMPORTANT**
**Ultimate responsibility for strainer and material selection rests with the customer, as only the customer knows the particular use to which the strainer will be put and the exact operating parameters to which it will be subjected.**

### STRAINER REMOVAL INSTRUCTIONS

1. Drain piping.
2. Vent line to relieve pressure.
3. Secure necessary lifting equipment to strainer assembly.
4. Loosen flange bolts (Pipe flanges only).
5. Remove inlet/outlet flange bolts and carefully remove strainer.

**CAUTION SHOULD BE TAKEN DUE TO POSSIBLE EMISSION OF PROCESS MATERIAL FROM PIPING. ALWAYS ENSURE NO LINE PRESSURE EXISTS WHEN OPENING COVER.**

### MAINTENANCE INSTRUCTIONS

For maximum efficiency, determine the length of time it takes for the pressure drop to double that in the clean condition. Once the pressure drop reaches an unacceptable value, shut down line and follow the “Screen Replacement Instructions”. A pressure gauge installed before and after the strainer in-line will indicate pressure loss due to clogging and may be used to determine when cleaning is required.

### SCREEN REPLACEMENT

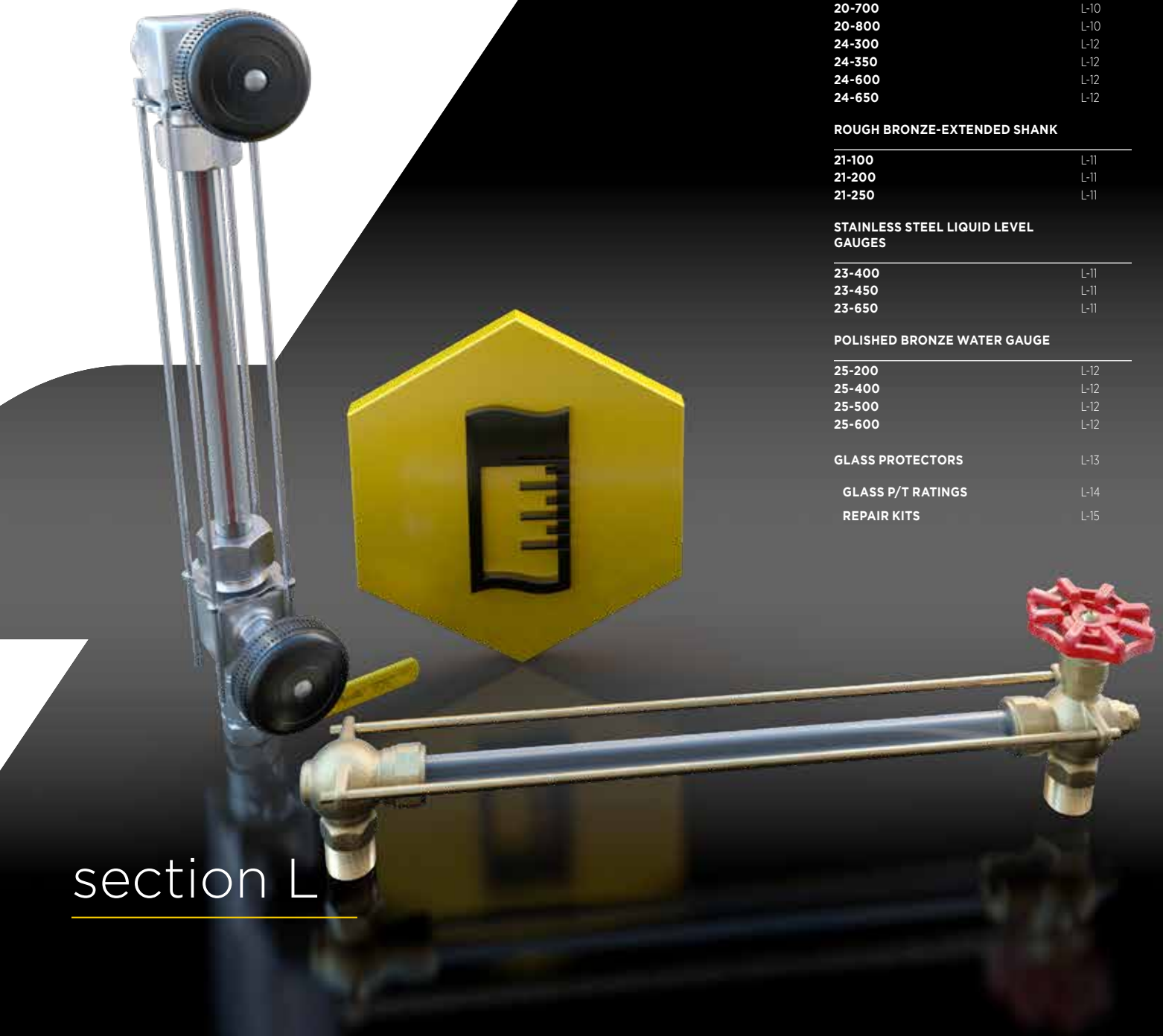
It is recommend that the system and strainer be depressurized before attempting any repair work. After removing all pressure, the system should be drained, any connections to the blow-off plug should be removed, and the following procedure should be used to replace the screen.

1. Attach cable or chain to strainer cover (1) and apply sufficient tension to prevent cover from dropping.
2. Remove bolts from cover.
3. Remove cover, clean and inspect gasket surface of cover.
4. Remove and discard old gasket.
5. Remove and clean or discard old screen.
6. Clean and inspect gasket surface of body. If gasket surface of cover or body is damaged, the damaged component must be replaced.
7. Push clean screen into position in body.
8. Position new gasket in place on body.
9. Line up screen and put cover in place on body.
10. Be sure gasket, bolt holes, and screen are properly aligned.
11. Put in bolts and nuts as required.
12. Tighten bolts, using “star” pattern to prevent damaging parts. Alternate tightening 180° apart. Tighten bolts sufficiently to stop leakage under test and service conditions.

"Apollo"® Valves

# liquid level gauges


| | |
|---|---|
| **LIQUID LEVEL GAUGE SELECTIONS** | L-6, L-7 |
| **LIQUID LEVEL GAUGE DIMENSIONS** | L-8, L-9 |
| **ROUGH BRONZE WATER GAUGES** | |
| **20-100** | L-10 |
| **20LF-100** | L-10 |
| **20-150** | L-10 |
| **20-200** | L-10 |
| **20-250** | L-10 |
| **20-300** | L-10 |
| **20-350** | L-10 |
| **20-600** | L-10 |
| **20-700** | L-10 |
| **20-800** | L-10 |
| **24-300** | L-12 |
| **24-350** | L-12 |
| **24-600** | L-12 |
| **24-650** | L-12 |
| **ROUGH BRONZE-EXTENDED SHANK** | |
| **21-100** | L-11 |
| **21-200** | L-11 |
| **21-250** | L-11 |
| **STAINLESS STEEL LIQUID LEVEL GAUGES** | |
| **23-400** | L-11 |
| **23-450** | L-11 |
| **23-650** | L-11 |
| **POLISHED BRONZE WATER GAUGE** | |
| **25-200** | L-12 |
| **25-400** | L-12 |
| **25-500** | L-12 |
| **25-600** | L-12 |
| **GLASS PROTECTORS** | L-13 |
| **GLASS P/T RATINGS** | L-14 |
| **REPAIR KITS** | L-15 |

section L

## GLOSSARY

**AUTOMATIC / ASME AUTOMATIC / NON-AUTOMATIC WATER GAUGES:**
An automatic water gauge is one that is equipped with ball checks in the valve body. In the event of glass breakage, these ball checks move horizontally, automatically seat to close the valves, shut off the flow of fluid, and help reduce the risk of property damage and/or personal injury from released fluid. An ASME automatic water gauge has a ball check in the bottom valve body that rises vertically to seat, and has a ball check in the top valve body that moves horizontally to seat.

**BALL VALVE:**
A bronze or stainless steel on-off valve utilizing a cored chrome-plated brass or stainless steel ball and Teflon seals. Easier to use than plug drains, petcocks, or needle drains.

**CENTER TO CENTER:**
The distance between the centers of the two NPT tapped holes in the vessel where the water gauge is to be attached.

**CHAIN LEVER:**
A lever handle activated by pulling a chain. Use for high, hard to reach installations.

**EPDM:**
Ethylene propylene rubber gauge glass packing, for temperatures -20˚F to 350˚F. Recommended for water, steam, silicone oils, ketones (MEK, acetone, etc...), alcohol, and brake fluid. Unsuitable for petroleum oils.

**FRICTION WASHER:**
The thin metal washer used to separate a packing from a metal surface to reduce friction. This in turn reduces the risk of inducing damaging torsional stress in the packing or gauge glass (torsional stress may reduce the useful life of the packing and gauge glass.)

**GAUGE GLASS:**
The transparent part of a water gauge assembly connected directly to a boiler, below and above the waterline, to indicate the level of water in the boiler.

**GLASS PACKING:**
The larger soft rubber-like or plastic ring, when compressed, provides a seal between the gauge glass and the valve body.

**GLASS PACKING NUT:**
The metal nut that the tubular gauge glass passes through. Tighten this nut to effect a seal between the glass packing and the gauge glass.

**GRAPHITE:**
Gaskets formed using graphite yarn. Suitable for temperatures up to 1200˚F. Use when necessary for extended service at elevated temperatures.

**GUARD RODS:**
Guard rods are metal rods, mounted to the valve bodies or guard rod flange, that rise vertically to help protect the gauge glass from accidental breakage.

**HANDWHEEL:**
The aluminum or plastic (composition) handle. Also see chain lever.

**HYPALON®:**
TFE (an endless Tetrofluorethylene Aramid) gauge glass packing ring w/ Hypalon as a binder, suitable for temperatures from -20˚F to 450˚F. More difficult to seal than softer EPDM or Viton™ Rubbers. Use only when needed for superior acid resistance.

**NEEDLE DRAIN:**
A two piece drain (requires a wrench) that allows fluid to flow through an axial outlet.

**PACKING GLAND:**
The shouldered metal ring used in some models to supply extra compression to the gauge glass packing.

**PETCOCK:**
A brass or bronze tapered plug, metal seated on-off valve.

**PLUG DRAIN:**
A tapped opening (together with a threaded plug and drain seal) in the bottom of the lower valve body, to allow fluid to drain from the water gauge. This type drain requires a wrench for installation/removal. This type drain is not recommended for hazardous fluids (the fluid may come into contact with the operator).

**SEAT WASHER:**
The small white Teflon™ plastic ring sometimes used to seal the metal valve seat.

**STEM PACKING:**
The smaller soft rubber-like or plastic ring, when compressed, provides a seal between the valve stem and the valve body.

**STEM PACKING NUT:**
The metal nut that the valve stem passes through. Tighten this nut to effect a seal between the stem packing and the stem.

**STEM PACKING WASHER:**
The thin metal washer on the stem that serves as a friction washer and protects against extrusion of the packing.

**TEFLON®:**
Virgin PTFE fluoropolymer gauge glass packing or seat washer, for temperatures up to 450˚F. More difficult to seal than Hypalon™. Use only when needed for more chemical resistance than Viton™ at elevated temperatures. Not recommended for hot fluorine, oxygen difluoride, or chlorine triflouride.

**TUBULAR GAUGE GLASS PROTECTOR:**
A metal or impact-resistant plastic tube that fits over the gauge glass, to protect the glass from accidental breakage, and to help minimize the risk of personal injury and/or property damage. The use of a glass protector, where available, is recommended for all water gauge applications.

**VITON™:**
Fluorocarbon rubber (FKM) gauge glass packing, for temperatures -15˚F to 400˚F (up to 600˚F for short periods.) Use for superior resistance at elevated temperatures. Recommended for petroleum oils, silicone oils, halogenated hydrocarbons (carbon tetrachloride, trichloroethylene), acids. Unsuitable for ketones (MEK, acetone), amines, anhydrous ammonia, hot hydrofluoric or chlorosulfonic acid.
* Not recommended for use with steam.

**WATER GAUGE:**
The gauge glass and its fittings for attachment.

## WHAT IS A WATER GAUGE?

A water gauge is a device that allows the liquid level in a vessel to be visually inspected. Water gauges are required by the ASME Boiler and Pressure Code on steam boilers, and are also useful in many other applications, such as monitoring the amount of oil in an oil tank.

## THINGS TO REMEMBER

Care must be taken to ensure the proper selection of a water gauge. Special attention must be given to temperature/pressure requirements and to the service media (i.e. water, steam, oils, chemical agents, etc.). Some items to keep in mind:

- PRESSURE RATINGS may be influenced by limitations of the valve body, gauge glass, and gauge glass gasket. As temperatures increase, pressure ratings decrease. The larger the glass diameter and the longer the glass length, the lower the pressure rating. Refer to the GAUGE GLASS PRESSURE AND TEMPERATURE TABLE for detailed information.
- TEMPERATURE RATINGS may also be influenced by limitations of the valve body, gauge glass, & gauge glass gasket.
- Use GUARD RODS and TUBULAR GAUGE GLASS PROTECTORS to help protect glass from accidental breakage. Some applications require glass protectors
- Use REDLINE gauge glass where pressures permit to allow for easy reading of the gauge. Use large diameter (3/4") glass for increased visibility.
- Use AUTOMATIC BALL CHECKS to help minimize the risk of property damage or personal injury in the event of gauge glass breakage. Vertically rising automatic ball checks conforming to ASME requirements are also available.
- Boilers operating above 400 psig require two water gauges.
- All water gauges on all steam boilers must be 1/2" NPT or larger.

## A SPECIAL NOTE ABOUT CORROSION

Most problems with water gauge performance are associated with corrosion. Excessive corrosion may result in leakage, glass breakage, and premature valve failure. There are several things to watch for:

- Be sure all components (valve body, seals and packings, etc.) of the water gauge are constructed with materials compatible with the service medium. Non-standard packings for special applications may be ordered in our WATER GAUGE REPAIR KITS. See the "Compass Corrosion Guide" or equivalent publication for additional information.
- Elevated temperatures and pressures accelerate corrosion. You may need a stainless steel water gauge instead of bronze, or high pressure glass instead of standard, in order to ensure an acceptable service life.

  ***Caution**: exposure to highly concentrated caustic / corrosive chemicals is to be avoided, especially when combined with exposure to elevated temperatures. Applications such as Boiler Boil-off, chemical injection, chemical disinfection or sterilization treatments etc. may cause accelerated corrosion of the glass and metals, and damage to the elastomer seats and seals. Depending upon the severity and duration of the exposure it may be necessary to remove the water gauge assemblies entirely. If removal is not practical then the glass and seals should be replaced prior to returning to normal service.*

- Operation and maintenance - check gauges daily for leaks, corrosion, and gauge glass clarity. Water gauges should be well illuminated and kept clean. Leaks may result in false waterline readings, may damage the gauge, and accelerate corrosion. The appearance of rust in the gauge glass is an indication of improper water treatment. See the WATER GAUGE INSTALLATION INSTRUCTION (I-5387-00) or the appropriate sections of the ASME Boiler and Pressure Vessel Code for additional information.
- Gauge Glass Corrosion - Gauge glass is attacked and dissolved in service by the fluid media, resulting in thinning of the wall and premature failure or replacement. Two factors determine the rate of attack: alkalinity and temperature. High alkalinity (high pH values) increases the rate of attack (a pH of 11.5 attacks glass at a rate of 30 times greater than a pH of 8.5). High temperatures increase the rate of attack (500°F water attacks glass 100 times faster than 265°F water). There is nothing that may be done to reduce the effects of temperature, but the effects of pH may be reduced by maintaining proper pH balance in the boiler water with chemical agents. Glass corrosion may also be decreased by avoiding exposure to water spray and drafts.

## HOW TO SELECT A WATER GAUGE

**1. SELECT A VALVE SERIES BASED UPON THE APPLICATION:**

- Use 20-410 series for 90° handles or when working in close quarters.
- Use 20-600, 24-600, or 25-600 series (chain levers) where the water gauge is located beyond reach from the floor.
- Use 20-604/605 (bronze) or 23-650 (stainless steel) series expansion tank gauges when a shut-off is not required in the top valve (NEVER USE AN EXPANSION TANK GAUGE ON A BOILER!).
- Use 20-800 (bronze) or 23-450 (stainless steel) series expansion tank gauges to mount a pressure gauge or other instrument directly to the water gauge.
- Use 20-700 series expansion tank gauge for easier gauge glass replacement.
- Use 23-450 series stainless steel for superior corrosion resistance.
- Use polished gauges for a more elegant appearance.
- Use heavy pattern water gauges (such as 20-200/250, 24-300/350) for higher pressures. Be sure to verify gauge glass will withstand pressure by consulting the "Gauge Glass Service Rating Table".
- Use longer shank on NPT end when extra shank length is needed to penetrate an outer jacket or insulation (available on 21 series). Otherwise use a standard water gauge.

**2. SELECT NON-AUTOMATIC, AUTOMATIC, OR ASME AUTOMATIC:**

- Use automatic (horizontally seating) or ASME automatic (vertically rising to seat in lower valve body) ball checks where available to minimize the risk of personal injury and/or property damage in the event of gauge glass breakage. The sudden rush of steam and water seats the balls, thereby shutting off the escape of steam and water. There will however be slight leakage as required by certain codes.

**3. SELECT A HANDWHEEL STYLE:**

- Use aluminum handwheels for durability.
- Use plastic (composition) handwheels for reduced heat transfer.
- Use chain levers (not available on all models) when the water gauge is located beyond reach from the floor.

**4. SELECT A GAUGE GLASS SIZE (DIAMETER):**

- Use larger (3/4") diameter gauge glass where available for increased visibility.

**5. SELECT A GAUGE GLASS TYPE** (BASED ON PRESSURE REQUIREMENTS):

- Use redline glass for increased fluid level visibility.
- Use high pressure glass for high pressure applications.
- For economy use standard glass for low pressure applications.
- Replace the two digit suffix in the part number of the water gauge with -10 when selecting Redline or high pressure gauge glass (23 and 24 series have high pressure glass as standard).

*Please call Customer Service when non-standard (-10) devices are required.

**6. SELECT GAUGE GLASS LENGTH:**

- Select a default gauge glass length when possible (pages 8-9).
- Select a non-standard gauge glass length as needed, and replace the two digit suffix in the part number of the water gauge with -10. The longer the gauge glass, the lower the allowable pressure and temperature. Be sure to consult the "Gauge Glass Service Rating Table" for pressure and temperature limits. When selecting non-standard gauge glass lengths, the gauge glass length is determined by subtracting the GL code from the desired "L" length for the valve series number according to the tables on pages 8 and 9.
- For gauge glass longer than 72" it is necessary to use two or more water gauges of shorter length in an overlapped staggered tandem (i.e. for 100" of needed coverage, use two gauges of about 55" and install them parallel and staggered so as to overlap their individual coverage of 55" to get 100" total coverage).

* Please call Customer Service when non-standard (-10) devices are required.

**7. SELECT TUBULAR GAUGE GLASS PROTECTOR:**

- For 5/8" diameter gauge glass, use I-2733-05
- For 3/4" diameter gauge glass, use I-2734-05
- Maximum protector length is 50"
- Protector not available on 23-300, 23-650, and 24-600 series.
- Available in brass only

**8. SELECT DRAIN TYPE:**

- Plug drain is standard on 23-600 series. Ball valve drain is standard on 23-400/450 and 24-300/350 series. Needle drain is standard on all others. Ball valve drain or petcock drain available on most models upon request.

**9. SELECT A GAUGE GLASS PACKING MATERIAL:**

- Use EPDM for most general applications, including steam service, for temperatures -20˚F to 350˚F. Recommended for water, steam, silicone oils, ketones (MEK, acetone, etc...), alcohol, and brake fluid. Unsuitable for petroleum oils. Comes standard on most models. EPDM is most economical.
- Use Viton® for superior resistance at elevated temperatures -15˚F to 400˚F (up to 600˚F for short periods.) Recommended for petroleum oils, silicone oils, halogenated hydrocarbons (carbon tetrachloride, trichloroethylene), acids. Unsuitable for ketones (MEK, acetone), amines, anhydrous ammonia, hot hydrofluoric or chlorosulfonic acid. Viton® is about ten times more expensive than EPDM. * Not recommended for use with steam.
- Use Hypalon® for superior acid resistance at temperatures -20˚F to 450˚F. Has a shorter service life than EPDM and Viton® in standard, non-acid applications. More difficult to seal than softer EPDM or Viton®. Comes standard on 23 and 24 series. Hypalon® is equivalent to EPDM in cost.
- Use Teflon® for best chemical resistance, for temperatures up to 450˚F. More difficult to seal than Hypalon®, Viton®, or EPDM. Use only when needed for more chemical resistance than Viton® at elevated temperatures. Not recommended for hot fluorine, oxygen difluride, or chlorine triflouride. Teflon® is about three times as expensive as EPDM.
- Use Graphite for superior service at elevated temperatures. More difficult to seal than EPDM or Viton® but has more universal application. Graphite is about ten times more expensive than EPDM.Remember, chemical resistance decreases as temperature increases. Consult "Compass Corrosion Guide" or equivalent.
- To order non-standard gauge glass packing, order the water gauge normally, then also order a "Water Gauge Repair Kit" ("Standard All" for EPDM, Hypalon® and Teflon®; "Viton® Gaskets Only" for Viton®, and "Graphite Gaskets Only" for graphite). Remove the pre-installed packing, and install the desired packing material

## WATER GAUGE DO'S AND DON'TS

**DO NOTS**
- DO NOT use glass if it contains any scratches, chips, or any other visible signs of damage.
- DO NOT reuse any tubular glass or glass packings.
- DO NOT subject gauge glass to bending or torsional stresses.
- DO NOT over tighten glass packing nuts.
- DO NOT allow glass to touch any metal parts.
- DO NOT exceed the recommended pressure of the gauge or gauge glass.
- DO NOT clean the gauge or gauge glass while pressurized or in operation.

**DO'S**
- DO verify proper gauge has been supplied.
- DO examine gauge glass and packings carefully for damage before installation.
- DO install protective guards and utilize automatic ball checks where necessary to help prevent injury in case of glass breakage.
- DO inspect the gauge glass daily, keep maintenance records, and conduct routine replacements.
- DO protect glass from sudden changes in temperatures such as drafts, water spray, etc.

**MAINTENANCE**
- Examine the gauge glass regularly for any signs of clouding, scratching, erosion, or corrosion. The glass should be inspected daily until the need for replacement becomes apparent. This will help establish the routine inspection and routine replacement schedules.

**CLEANING**
- Use commercial non-abrasive glass cleaners to keep glass clean. Use diluted acids such as Hydrochloric (muriatic) acid when regular cleaners do not seem to work. Do not use wire brushes or any other abrasive materials which could scratch the glass.

**INSPECTION**
- Examine the surface of the glass for scratches, corrosion, chips, cracks, surface flaws, or nicks. To do this, aim a very bright concentrated light at an angle of about 45 degrees. A defective glass will glisten as the light strikes imperfections. Glass which appears cloudy or roughened, and will not respond to cleaning, should be replaced.

**STORING**
- Keep gauge glass in original packaging until ready to install.

## INSTALLATION

**Only properly trained personnel should install and maintain water gauge glass and connections. Remember to wear safety gloves and glasses during installation. Before installing, make sure all parts are free of chips and debris.**

1. Apply Teflon® tape or pipe dope to pipe threads. Install top gauge fitting (fitting without a drain valve) into the upper most tapping. Wrench tighten the fitting until it is snug and the glass outlet is pointing at five o'clock (about 1/8 turn from its final, downward vertical, position).

2. Install the bottom gauge fitting (the fitting with a drain valve) until it is snug and the glass outlet is pointing directly upward. Verify top and bottom fittings are threaded into the tappings the same number of turns (distance A= distance B).

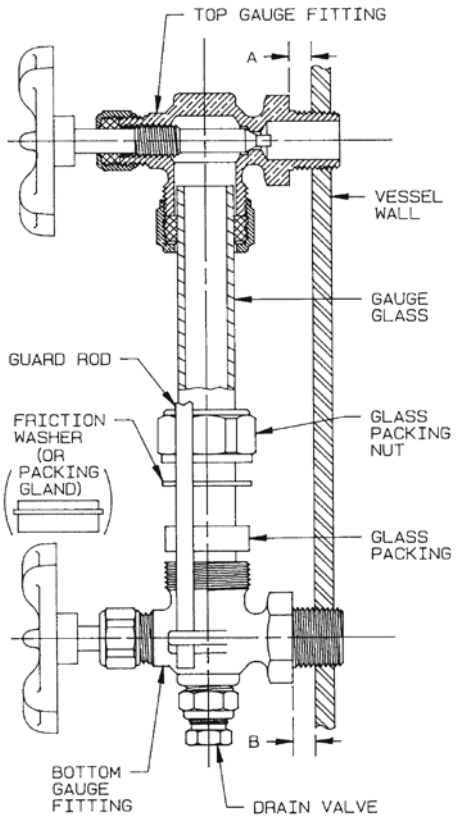
3. Remove glass packing nut, friction washer (or packing gland and retaining ring, depending upon the model), and glass packing from the fittings, and place them, in the same order, on to both ends of the gauge glass. Push both packings about an inch up the gauge glass.

4. Gently insert one end of the glass into the top gauge fitting. Keeping the glass inside the top fitting, gently rotate the top gauge fitting clockwise, using wrench on valve wrench flats, until vertically aligned with the bottom gauge fitting, then insert glass into bottom fitting until glass bottoms out on the shoulder inside the bottom fitting.

5. Carefully raise glass about 1/16" and slide lower glass packing down until the glass packing contacts the lower gauge fitting. DO NOT allow the glass to remain in contact with any metal!

6. Carefully slide upper glass packing up as far as possible.

7. Hand tighten both glass packing nuts, then tighten 1/2 turn more by wrench. Tighten only enough to prevent leakage. DO NOT OVER TIGHTEN! If any leakage should occur, tighten slightly, a quarter turn at a time, checking for leakage after each turn.



**20-100 SERIES**
STANDARD PATTERN

LEADFREE OPTIONS



**20-150 SERIES**
PATTERN AUTOMATIC



**20-200 SERIES**
HEAVY PATTERN



**20-250 SERIES**
PATTERN AUTOMATIC



**20-300 SERIES**



**20-350 SERIES**
AUTOMATIC



**20-601 SERIES**
**20-602 SERIES**



**20-604 SERIES**
**20-605 SERIES**



**20-700 SERIES**



**20-800 SERIES**



**23-450 SERIES**
ASME AUTOMATIC
STAINLESS STEEL



**23-600 SERIES**
STAINLESS STEEL



**24-300 SERIES**
**24-350 SERIES**
ASME AUTOMATIC



**24-600 SERIES**
**24-650 SERIES**
ASME AUTOMATIC



**25-200 SERIES**
HEAVY PATTERN



**25-400 SERIES**



**25-500 SERIES**
AUTOMATIC



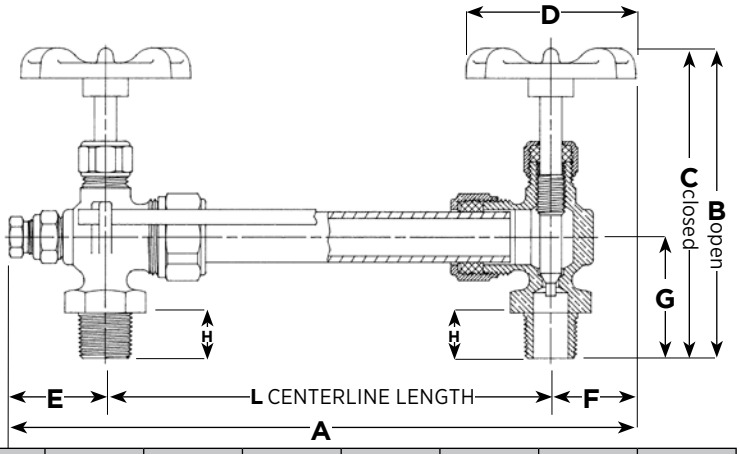
**25-600 SERIES**



## DIMENSIONS

A - Overall length is found by adding this to dimension "L"
B - Valve open total depth
C - Valve closed total depth
D - Handle diameter
E - Maximum extension below lower arm centerline
F - Maximum extension above upper arm centerline
G - End of arm NPT to centerline of glass
H - End of arm NPT to hex shoulder
L - Centerline Length

Glass Length is "L" minus GL code
Rod Length is glass length plus RL code




| VALVE | PIPE SIZE | A | B | C | D | E | F | G | H | DEFAULT L | DEFAULT GLASS LENGTH | GL CODE | RL CODE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 20-101 | 3/8 | 2.3 | 4.1 | 3.8 | 2.1 | 1.25 | 1.07 | 1.50 | 0.56 | 11.25 | 10 | 1.25 | 2 |
| 20-102 | 3/8 | 2.3 | 4.3 | 4.1 | 2.0 | 1.25 | 1.00 | 1.50 | 0.56 | 11.25 | 10 | 1.25 | 2 |
| 20-104 | 1/2 | 2.3 | 4.2 | 3.9 | 2.1 | 1.25 | 1.07 | 1.63 | 0.69 | 13.25 | 12 | 1.25 | 2 |
| 20LF-104 | 1/2 | 2.3 | 4.2 | 3.9 | 2.1 | 1.25 | 1.07 | 1.63 | 0.69 | 13.25 | 12 | 1.25 | 2 |
| 20-105 | 1/2 | 2.3 | 4.4 | 4.2 | 2.0 | 1.25 | 1.00 | 1.63 | 0.69 | 13.25 | 12 | 1.25 | 2 |
| 20LF-105 | 1/2 | 2.3 | 4.4 | 4.2 | 2.0 | 1.25 | 1.00 | 1.63 | 0.69 | 13.25 | 12 | 1.25 | 2 |
| 20-150* | 1/2 | 2.3 | 4.2 | 3.9 | 2.1 | 1.25 | 1.07 | 1.63 | 0.69 | 13.25 | 12 | 1.25 | 2 |
| 20-151* | 1/2 | 2.3 | 4.4 | 4.2 | 2.0 | 1.25 | 1.00 | 1.63 | 0.69 | 13.25 | 12 | 1.25 | 2 |
| 20-201 | 3/8 | 2.4 | 4.4 | 4.2 | 2.1 | 1.38 | 1.07 | 1.69 | 0.56 | 11.25 | 10 | 1.25 | 2 |
| 20-202 | 3/8 | 2.4 | 4.4 | 4.1 | 2.0 | 1.38 | 1.00 | 1.69 | 0.56 | 11.25 | 10 | 1.25 | 2 |
| 20-204 | 1/2 | 2.4 | 4.6 | 4.3 | 2.1 | 1.38 | 1.07 | 1.81 | 0.69 | 13.25 | 12 | 1.25 | 2 |
| 20-205 | 1/2 | 2.4 | 4.5 | 4.3 | 2.0 | 1.38 | 1.00 | 1.81 | 0.69 | 13.25 | 12 | 1.25 | 2 |
| 20-207 | 3/4 | 2.4 | 4.9 | 4.6 | 2.1 | 1.38 | 1.07 | 2.05 | 0.75 | 17.50 | 16 | 1.50 | 2.25 |
| 20-208 | 3/4 | 2.4 | 5.1 | 4.8 | 2.0 | 1.38 | 1.00 | 2.05 | 0.75 | 17.5 | 16 | 1.50 | 2.25 |
| 20-250 | 1/2 | 2.4 | 4.6 | 4.3 | 2.1 | 1.38 | 1.07 | 1.81 | 0.69 | 13.25 | 12 | 1.25 | 2 |
| 20-251* | 1/2 | 2.4 | 4.5 | 4.3 | 2.0 | 1.38 | 1.00 | 1.81 | 0.69 | 13.25 | 12 | 1.25 | 2 |
| 20-253* | 3/4 | 2.4 | 4.9 | 4.6 | 2.1 | 1.38 | 1.07 | 2.05 | 0.75 | 17.50 | 16 | 1.50 | 2.25 |
| 20-254* | 3/4 | 2.4 | 5.1 | 4.8 | 2.0 | 1.38 | 1.00 | 2.05 | 0.75 | 17.50 | 16 | 1.50 | 2.25 |
| 20-304 | 1/2 | 2.3 | 5.3 | 5.1 | 2.1 | 1.25 | 1.07 | 2.20 | 0.69 | 14 | 12 | 2.00 | 1.25 |
| 20-305 | 1/2 | 2.3 | 5.5 | 5.3 | 2.0 | 1.25 | 1.00 | 2.20 | 0.69 | 14 | 12 | 2.00 | 1.25 |
| 20-307 | 3/4 | 2.3 | 5.0 | 5.4 | 2.1 | 1.25 | 1.07 | 2.06 | 0.69 | 18 | 16 | 2.00 | 1.25 |
| 20-308 | 3/4 | 2.3 | 5.4 | 5.0 | 2.0 | 1.25 | 1.00 | 2.06 | 0.69 | 18 | 16 | 2.00 | 1.25 |
| 20-350* | 1/2 | 2.3 | 5.3 | 5.1 | 2.1 | 1.25 | 1.07 | 2.20 | 0.69 | 14 | 12 | 2.00 | 1.25 |
| 20-351* | 1/2 | 2.3 | 5.5 | 5.3 | 2.0 | 1.25 | 1.00 | 2.20 | 0.69 | 14 | 12 | 2.00 | 1.25 |
| 20-353* | 3/4 | 2.3 | 5.0 | 5.4 | 2.1 | 1.25 | 1.07 | 2.06 | 0.69 | 18 | 16 | 2.00 | 1.25 |
| 20-354* | 3/4 | 2.3 | 5.4 | 5.0 | 2.0 | 1.25 | 1.00 | 2.06 | 0.69 | 18 | 16 | 2.00 | 1.25 |
| 20-601 | 1/2 | 4.2 | 5.3 | 4.8 | 5.9 | 1.25 | 2.94 | 2.09 | 0.69 | 14 | 12 | 2.00 | 1.25 |
| 20-602 | 3/4 | 4.2 | 5.3 | 4.8 | 5.9 | 1.25 | 2.94 | 2.09 | 0.69 | 18 | 16 | 2.00 | 1.25 |
| 20-604* | 1/2 | 2.1 | 4.6 | 4.3 | 2.1 | 1.38 | 0.69 | 1.81 | 0.69 | 13.25 | 12 | 1.25 | 2 |
| 20-605* | 1/2 | 2.1 | 4.5 | 4.3 | 2.0 | 1.38 | 0.69 | 1.81 | 0.69 | 13.25 | 12 | 1.25 | 2 |
| 20-703 | 3/8 | 1.8 | NA | NA | NA | 1.25 | 0.53 | 1.50 | 0.56 | 11.25 | 10 | 1.25 | 2 |
| 20-704 | 1/2 | 1.8 | NA | NA | NA | 1.25 | 0.53 | 1.63 | 0.69 | 13.25 | 12 | 1.25 | 2 |
| 20-713 | 3/8 | 2.6 | NA | NA | NA | 1.25 | 1.36 | 1.5 | 0.56 | 11.25 | 10 | 1.25 | 2 |
| 20-714 | 1/2 | 2.6 | NA | NA | NA | 1.25 | 1.36 | 1.63 | 0.69 | 0.69 | 12 | 1.25 | 2 |
| 20-804* | 1/2 | 2.1 | 4.6 | 4.3 | 2.1 | 1.38 | 0.75 | 1.81 | 0.69 | 13.25 | 12 | 1.25 | 2 |
| 20-805* | 1/2 | 2.1 | 4.5 | 4.3 | 2.0 | 1.38 | 0.75 | 1.81 | 0.69 | 13.25 | 12 | 1.25 | 2 |
| 21-104 | 1/2 | 2.3 | 5.3 | 5.1 | 2.1 | 1.25 | 1.07 | 2.69 | 1.75 | 13.25 | 12 | 1.25 | 2 |

| VALVE | PIPE SIZE | A | B | C | D | E | F | G | H | DEFAULT L | DEFAULT GLASS LENGTH | GL CODE | RL CODE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 21-105 | 1/2 | 2.3 | 5.5 | 5.3 | 2.0 | 1.25 | 1.00 | 2.69 | 1.75 | 13.25 | 12 | 1.25 | 2 |
| 21-150* | 1/2 | 2.3 | 5.0 | 4.8 | 2.1 | 1.25 | 1.07 | 2.69 | 1.75 | 13.25 | 12 | 1.25 | 2 |
| 21-151* | 1/2 | 2.3 | 5.5 | 5.3 | 2.0 | 1.25 | 1.00 | 2.69 | 1.75 | 13.25 | 12 | 1.25 | 2 |
| 21-204 | 1/2 | 2.4 | 5.6 | 5.4 | 2.1 | 1.38 | 1.07 | 2.88 | 1.75 | 13.25 | 12 | 1.25 | 2 |
| 21-205 | 1/2 | 2.4 | 5.6 | 5.3 | 2.0 | 1.38 | 1.00 | 2.88 | 1.75 | 13.25 | 12 | 1.25 | 2 |
| 21-250* | 1/2 | 2.4 | 5.6 | 5.4 | 2.1 | 1.38 | 1.07 | 2.88 | 1.75 | 13.25 | 12 | 1.25 | 2 |
| 21-251* | 1/2 | 2.4 | 5.6 | 5.4 | 2.0 | 1.38 | 1.00 | 2.88 | 1.75 | 13.25 | 12 | 1.25 | 2 |
| 23-401 | 1/2 | 4.1 | 5.6 | 5.6 | 2.1 | 3 | 1.07 | 2.13 | 0.69 | 14 | 12 | 2 | 3.25 |
| 23-402 | 1/2 | 4.0 | 5.6 | 5.6 | 2.0 | 3 | 1.00 | 2.13 | 0.69 | 14 | 12 | 2 | 3.25 |
| 23-404 | 3/4 | 4.1 | 5.6 | 5.1 | 2.1 | 3 | 1.07 | 2.09 | 0.75 | 18 | 16 | 2 | 3.25 |
| 23-405 | 3/4 | 4.0 | 5.6 | 5.1 | 2.0 | 3 | 1.00 | 2.09 | 0.75 | 18 | 16 | 2 | 3.25 |
| 23-450** | 1/2 | 4.1 | 5.6 | 5.1 | 2.1 | 3 | 1.07 | 2.13 | 0.69 | 14 | 12 | 2 | 3.25 |
| 23-451** | 1/2 | 4.0 | 5.6 | 5.1 | 2.0 | 3 | 1.00 | 2.13 | 0.69 | 14 | 12 | 2 | 3.25 |
| 23-453** | 3/4 | 4.1 | 5.6 | 5.1 | 2.1 | 3 | 1.07 | 2.09 | 0.75 | 18 | 16 | 2 | 3.25 |
| 23-454** | 3/4 | 4.0 | 5.6 | 5.1 | 2.0 | 3 | 1.00 | 2.09 | 0.75 | 18 | 16 | 2 | 3.25 |
| 23-651 | 1/2 | 1.8 | 4.6 | 4.4 | 2.1 | 1.065 | 0.69 | 2.50 | 0.69 | 14 | 12 | 2 | 1.25 |
| 23-654 | 3/4 | 1.8 | 4.6 | 4.4 | 2.1 | 1.065 | 0.69 | 2.50 | 0.75 | 14 | 12 | 2 | 1.25 |
| 24-301 | 1/2 | 4.1 | 5.8 | 5.3 | 2.1 | 3 | 1.07 | 2.09 | 0.69 | 14 | 12 | 2 | 1.25 |
| 24-302 | 1/2 | 4.0 | 5.8 | 5.3 | 2.0 | 3 | 1.00 | 2.09 | 0.69 | 14 | 12 | 2 | 1.25 |
| 24-304 | 3/4 | 4.1 | 5.8 | 5.3 | 2.1 | 3 | 1.07 | 2.09 | 0.69 | 18 | 16 | 2 | 1.25 |
| 24-305 | 3/4 | 4.0 | 5.6 | 5.1 | 2.0 | 3 | 1.00 | 2.09 | 0.69 | 18 | 16 | 2 | 1.25 |
| 24-350** | 1/2 | 4.1 | 5.8 | 5.3 | 2.1 | 3 | 1.07 | 2.09 | 0.69 | 14 | 12 | 2 | 1.25 |
| 24-351** | 1/2 | 4.0 | 5.6 | 5.1 | 2.0 | 3 | 1.00 | 2.09 | 0.69 | 14 | 12 | 2 | 1.25 |
| 24-353** | 3/4 | 4.1 | 5.8 | 5.3 | 2.1 | 3 | 1.07 | 2.09 | 0.69 | 18 | 16 | 2 | 1.25 |
| 24-354** | 3/4 | 4.0 | 5.6 | 5.1 | 2.0 | 3 | 1.00 | 2.09 | 0.69 | 18 | 16 | 2 | 1.25 |
| 24-601 | 1/2 | 5.9 | 5.3 | 4.8 | 5.8 | 3 | 2.88 | 2.09 | 0.69 | 14 | 12 | 2 | 0.875 |
| 24-602 | 3/4 | 5.9 | 5.3 | 4.8 | 5.8 | 3 | 2.88 | 2.09 | 0.69 | 18 | 16 | 2 | 0.875 |
| 24-651** | 1/2 | 5.9 | 5.3 | 4.8 | 5.8 | 3 | 2.88 | 2.09 | 0.69 | 14 | 12 | 2 | 0.875 |
| 24-652** | 3/4 | 5.9 | 5.3 | 4.8 | 5.8 | 3 | 2.88 | 2.09 | 0.69 | 18 | 16 | 2 | 0.875 |
| 25-201 | 3/8 | 2.4 | 4.4 | 4.2 | 2.1 | 1.38 | 1.07 | 1.69 | 0.56 | 11.25 | 10 | 1.25 | 2 |
| 25-202 | 3/8 | 2.4 | 4.4 | 4.1 | 2.0 | 1.38 | 1.00 | 1.69 | 0.56 | 11.25 | 10 | 1.25 | 2 |
| 25-204 | 1/2 | 2.4 | 4.6 | 4.3 | 2.1 | 1.38 | 1.07 | 1.81 | 0.69 | 13.25 | 12 | 1.25 | 2 |
| 25-205 | 1/2 | 2.4 | 4.5 | 4.3 | 2.0 | 1.38 | 1.00 | 1.81 | 0.69 | 13.25 | 12 | 1.25 | 2 |
| 25-207 | 3/4 | 2.4 | 4.9 | 4.6 | 2.1 | 1.38 | 1.07 | 2.05 | 0.75 | 17.25 | 16 | 1.25 | 2 |
| 25-208 | 3/4 | 2.4 | 5.1 | 4.8 | 2.0 | 1.38 | 1.00 | 2.05 | 0.75 | 17.25 | 16 | 1.25 | 2 |
| 25-404 | 1/2 | 2.3 | 5.3 | 5.1 | 2.1 | 1.25 | 1.07 | 2.20 | 0.69 | 14 | 12 | 2 | 1.25 |
| 25-405 | 1/2 | 2.3 | 5.5 | 5.3 | 2.0 | 1.25 | 1.00 | 2.20 | 0.69 | 14 | 12 | 2 | 1.25 |
| 25-407 | 3/4 | 2.3 | 5.4 | 5.0 | 2.1 | 1.25 | 1.07 | 2.06 | 0.69 | 18 | 16 | 2 | 1.25 |
| 25-408 | 3/4 | 2.3 | 5.4 | 5.0 | 2.0 | 1.25 | 1.00 | 2.06 | 0.69 | 18 | 16 | 2 | 1.25 |
| 25-501* | 1/2 | 2.3 | 5.3 | 5.1 | 2.1 | 1.25 | 1.07 | 2.20 | 0.69 | 14 | 12 | 2 | 1.25 |
| 25-502* | 1/2 | 2.3 | 5.5 | 5.3 | 2.0 | 1.25 | 1.00 | 2.20 | 0.69 | 14 | 12 | 2 | 1.25 |
| 25-504* | 3/4 | 2.3 | 5.4 | 5.0 | 2.1 | 1.25 | 1.07 | 2.06 | 0.69 | 18 | 16 | 2 | 1.25 |
| 25-505* | 3/4 | 2.3 | 5.4 | 5.0 | 2.0 | 1.25 | 1.00 | 2.06 | 0.69 | 18 | 16 | 2 | 1.25 |
| 25-601 | 1/2 | 5.9 | 5.3 | 4.8 | 5.9 | 2.94 | 2.94 | 2.09 | 0.69 | 14 | 12 | 2 | 1.25 |
| 25-602 | 3/4 | 5.9 | 5.3 | 4.8 | 5.9 | 2.94 | 2.94 | 2.09 | 0.69 | 18 | 16 | 2 | 1.25 |

** Automatic*
*** Conforms to ASME Check Requirements*
*NSF/ANSI/CAN 372 - Lead Free*

***Suffix Key***
***-00 Standard set includes top & bottom valves, glass and rods***
***-01 Top valve only***
***-02 Bottom valve only***
***-03 Top & Bottom valves only (no glass or rods)***
***-10 For special gauges with non-standard glass, rods, and/or gaskets.***

## ROUGH BRONZE WATER GAUGE

LEADFREE OPTIONS



| SERIES NO. | RATING (SUBJECT TO LIMITATION OF GAUGE GLASS) |
|---|---|
| 20-100/20LF-100 | 125 psig @ 350°F, 300 psig @ 100°F |
| 20-150 | 125 psig @ 350°F, 300 psig @ 100°F |
| 20-200 | 200 psig @ 400°F, 400 psig @ 100°F |
| 20-250 | 200 psig @ 400°F, 400 psig @ 100°F |
| 20-300 | 200 psig @ 400°F, 400 psig @ 100°F |
| 20-350 | 200 psig @ 400°F, 400 psig @ 100°F |
| 20-601, 602 | 250 psig @ 400°F, 500 psig @ 100°F |
| 20-604, 605 | 200 psig @ 400°F, 400 psig @ 100°F |
| 20-700 | 125 psig @ 350°F, 300 psig @ 100°F |
| 20-800 | 200 psig @ 400°F, 400 psig @ 100°F |

| SERIES NO. | PIPE SIZE | STANDARD GLASS O.D. & LENGTH | GLASS SEAL | STEM PACKING | STANDARD GLASS TYPE | HANDLE | WT./100 |
|---|---|---|---|---|---|---|---|
| 20-101-00 | 3/8 | 5/8 x 10 | EPDM Rubber | Teflon® | Regular | Aluminum | 145 |
| 20-102-00 | 3/8 | 5/8 x 10 | EPDM Rubber | Teflon® | Regular | Composite | 145 |
| 20-104-00 | 1/2 | 5/8 x 12 | EPDM Rubber | Teflon® | Regular | Aluminum | 160 |
| 20LF-104-00 | 1/2 | 5/8 x 12 | EPDM Rubber | Teflon® | Regular | Aluminum | 160 |
| 20-105-00 | 1/2 | 5/8 x 12 | EPDM Rubber | Teflon® | Regular | Composite | 160 |
| 20LF-105-00 | 1/2 | 5/8 x 12 | EPDM Rubber | Teflon® | Regular | Composite | 160 |
| 20-150-00* | 1/2 | 5/8 x 12 | EPDM Rubber | Teflon® | Regular | Aluminum | 160 |
| 20-151-00* | 1/2 | 5/8 x 12 | EPDM Rubber | Teflon® | Regular | Composite | 160 |
| 20-201-00 | 3/8 | 5/8 x 10 | EPDM Rubber | Teflon® | Regular | Aluminum | 185 |
| 20-202-00 | 3/8 | 5/8 x 10 | EPDM Rubber | Teflon® | Regular | Composite | 189 |
| 20-204-00 | 1/2 | 5/8 x 12 | EPDM Rubber | Teflon® | Regular | Aluminum | 205 |
| 20-205-00 | 1/2 | 5/8 x 12 | EPDM Rubber | Teflon® | Regular | Composite | 205 |
| 20-207-00 | 3/4 | 3/4 x 16 | EPDM Rubber | Teflon® | Regular | Aluminum | 270 |
| 20-208-00 | 3/4 | 3/4 x 16 | EPDM Rubber | Teflon® | Regular | Composite | 270 |
| 20-250-00* | 1/2 | 5/8 x 12 | EPDM Rubber | Teflon® | Regular | Aluminum | 195 |
| 20-251-00* | 1/2 | 5/8 x 12 | EPDM Rubber | Teflon® | Regular | Composite | 200 |
| 20-253-00* | 3/4 | 3/4 x 16 | EPDM Rubber | Teflon® | Regular | Aluminum | 355 |
| 20-254-00* | 3/4 | 3/4 x 16 | EPDM Rubber | Teflon® | Regular | Composite | 360 |
| 20-304-00 | 1/2 | 5/8 x 12 | EPDM Rubber | Teflon® | Regular | Aluminum | 260 |
| 20-305-00 | 1/2 | 5/8 x 12 | EPDM Rubber | Teflon® | Regular | Composite | 270 |
| 20-307-00 | 3/4 | 3/4 x 16 | EPDM Rubber | Teflon® | Regular | Aluminum | 345 |
| 20-308-00 | 3/4 | 3/4 x 16 | EPDM Rubber | Teflon® | Regular | Composite | 365 |
| 20-350-00* | 1/2 | 5/8 x 12 | EPDM Rubber | Teflon® | Regular | Aluminum | 265 |
| 20-351-00* | 1/2 | 5/8 x 12 | EPDM Rubber | Teflon® | Regular | Composite | 265 |
| 20-353-00* | 3/4 | 3/4 x 16 | EPDM Rubber | Teflon® | Regular | Aluminum | 360 |
| 20-354-00* | 3/4 | 3/4 x 16 | EPDM Rubber | Teflon® | Regular | Composite | 365 |
| 20-601-00 | 1/2 | 5/8 x 12 | EPDM Rubber | Teflon® | Regular | Chain | 370 |
| 20-602-00 | 3/4 | 3/4 x 16 | EPDM Rubber | Teflon® | Regular | Chain | 435 |
| 20-604-00* | 1/2 | 5/8 x 12 | EPDM Rubber | Teflon® | Regular | Aluminum | 155 |
| 20-605-00* | 1/2 | 5/8 x 12 | EPDM Rubber | Teflon® | Regular | Composite | 175 |
| 20-703-00 | 3/8 | 5/8 x 10 | EPDM Rubber | N/A | Regular | N/A | 120 |
| 20-704-00 | 1/2 | 5/8 x 12 | EPDM Rubber | N/A | Regular | N/A | 135 |
| 20-713-00 | 3.8 | 5/8 x 12 | EPDM Rubber | N/A | Regular | N/A | 135 |
| 20-714-00 | 1/2 | 5/8 x 10 | EPDM Rubber | N/A | Regular | N/A | 135 |
| 20-804-00* | 1/2 | 5/8 x 12 | EPDM Rubber | Teflon® | Regular | Aluminum | 160 |
| 20-805-00* | 1/2 | 5/8 x 12 | EPDM Rubber | Teflon® | Regular | Composite | 160 |

** Automatic*

*NSF/ANSI/CAN 372 - Lead Free*

## ROUGH BRONZE WATER GAUGE WITH EXTENDED SHANK



| SERIES NO. | RATING (SUBJECT TO LIMITATION OF GAUGE GLASS) |
|---|---|
| 21-100 | 125 psig @ 350°F, 300 psig @ 100°F |
| 21-150 | 125 psig @ 350°F, 300 psig @ 100°F |
| 21-200 | 200 psig @ 400°F, 400 psig @ 100°F |
| 21-250 | 200 psig @ 400°F, 400 psig @ 100°F |

| SERIES NO. | PIPE SIZE | STANDARD GLASS O.D. & LENGTH | GLASS SEAL | STEM PACKING | HANDLE | STANDARD GLASS TYPE | WT./100 | SHANK LENGTH |
|---|---|---|---|---|---|---|---|---|
| 21-104 | 1/2 | 5/8 x 12 | EPDM Rubber | Teflon® | Aluminum | Regular | 185 | 1-3/4 |
| 21-105 | 1/2 | 5/8 x 12 | EPDM Rubber | Teflon® | Composite | Regular | 197 | 1-3/4 |
| 21-150* | 1/2 | 5/8 x 12 | EPDM Rubber | Teflon® | Aluminum | Regular | 195 | 1-3/4 |
| 21-151* | 1/2 | 5/8 x 12 | EPDM Rubber | Teflon® | Composite | Regular | 207 | 1-3/4 |
| 21-204 | 1/2 | 5/8 x 12 | EPDM Rubber | Teflon® | Aluminum | Regular | 215 | 1-3/4 |
| 21-205 | 1/2 | 5/8 x 12 | EPDM Rubber | Teflon® | Composite | Regular | 219 | 1-3/4 |
| 21-250* | 1/2 | 5/8 x 12 | EPDM Rubber | Teflon® | Aluminum | Regular | 215 | 1-3/4 |
| 21-251* | 1/2 | 5/8 x 12 | EPDM Rubber | Teflon® | Composite | Regular | 215 | 1-3/4 |

** Automatic*

## STAINLESS STEEL LIQUID LEVEL GAUGE

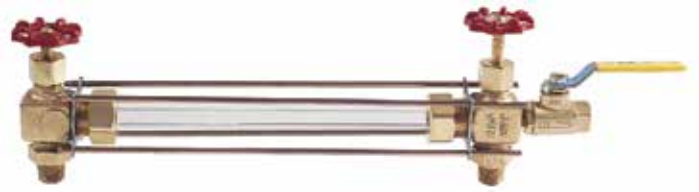


| SERIES NO. | RATING (SUBJECT TO LIMITATION OF GAUGE GLASS) |
|---|---|
| 23-401 | 500 psig @ 450°F |
| 23-450 | 500 psig @ 450°F |
| 23-650 | 250 psig @ 406°F |

| SERIES NO. | PIPE SIZE | STANDARD GLASS O.D. & LENGTH | GLASS SEAL | STEM PACKING | HANDLE | STANDARD GLASS TYPE | WT./100 |
|---|---|---|---|---|---|---|---|
| 23-401 | 1/2 | 5/8 x 12 | PTFE w/Hypalon® | Braided PTFE w/Aramid | Aluminum | High Pressure | 385 |
| 23-402 | 1/2 | 5/8 x 12 | PTFE w/Hypalon® | Braided PTFE w/Aramid | Composition | High Pressure | 385 |
| 23-404 | 3/4 | 3/4 x 16 | PTFE w/Hypalon® | Braided PTFE w/Aramid | Aluminum | High Pressure | 450 |
| 23-405 | 3/4 | 3/4 x 16 | PTFE w/Hypalon® | Braided PTFE w/Aramid | Composition | High Pressure | 450 |
| 23-450** | 1/2 | 5/8 x 12 | PTFE w/Hypalon® | Braided PTFE w/Aramid | Aluminum | High Pressure | 390 |
| 23-451** | 1/2 | 5/8 x 12 | PTFE w/Hypalon® | Braided PTFE w/Aramid | Composition | High Pressure | 390 |
| 23-453** | 3/4 | 3/4 x 16 | PTFE w/Hypalon® | Braided PTFE w/Aramid | Aluminum | High Pressure | 455 |
| 23-454** | 3/4 | 3/4 x 16 | PTFE w/Hypalon® | Braided PTFE w/Aramid | Composition | High Pressure | 455 |
| 23-651 | 1/2 | 5/8 x 12 | PTFE w/Hypalon® | Teflon® | Aluminum | High Pressure | 225 |
| 23-654 | 3/4 | 5/8 x 12 | PTFE w/Hypalon® | Teflon® | Aluminum | High Pressure | 225 |

*** Conforms to ASME Check Requirements*

## ROUGH BRONZE LIQUID LEVEL GAUGE



| SERIES NO. | RATING (SUBJECT TO LIMITATION OF GAUGE GLASS) |
|---|---|
| 24-300 | 250 psig @ 400°F, 500 psig @ 100°F |
| 24-350 | 250 psig @ 400°F, 500 psig @ 100°F |
| 24-600 | 250 psig @ 400°F, 500 psig @ 100°F |
| 24-650 | 250 psig @ 400°F, 500 psig @ 100°F |

| SERIES NO. | PIPE SIZE | STANDARD GLASS O.D. & LENGTH | GLASS SEAL | STEM PACKING | HANDLE | STANDARD GLASS TYPE | WT./100 |
|---|---|---|---|---|---|---|---|
| 24-301 | 1/2 | 5/8 x 12 | PTFE w/Hypalon® | Braided PTFE w/Aramid | Aluminum | High Pressure | 425 |
| 24-302 | 1/2 | 5/8 x 12 | PTFE w/Hypalon® | Braided PTFE w/Aramid | Composition | High Pressure | 425 |
| 24-304 | 3/4 | 3/4 x 16 | PTFE w/Hypalon® | Braided PTFE w/Aramid | Aluminum | High Pressure | 490 |
| 24-305 | 3/4 | 3/4 x 16 | PTFE w/Hypalon® | Braided PTFE w/Aramid | Composition | High Pressure | 490 |
| 24-350** | 1/2 | 5/8 x 12 | PTFE w/Hypalon® | Braided PTFE w/Aramid | Aluminum | High Pressure | 425 |
| 24-351** | 1/2 | 5/8 x 12 | PTFE w/Hypalon® | Braided PTFE w/Aramid | Composition | High Pressure | 425 |
| 24-353** | 3/4 | 3/4 x 16 | PTFE w/Hypalon® | Braided PTFE w/Aramid | Aluminum | High Pressure | 490 |
| 24-354** | 3/4 | 3/4 x 16 | PTFE w/Hypalon® | Braided PTFE w/Aramid | Composition | High Pressure | 490 |
| 24-601 | 1/2 | 5/8 x 12 | PTFE w/Hypalon® | Braided PTFE w/Aramid | Chain | High Pressure | 515 |
| 24-602 | 3/4 | 3/4 x 16 | PTFE w/Hypalon® | Braided PTFE w/Aramid | Chain | High Pressure | 580 |
| 24-651** | 1/2 | 5/8 x 12 | PTFE w/Hypalon® | Braided PTFE w/Aramid | Chain | High Pressure | 515 |
| 24-652** | 3/4 | 3/4 x 16 | PTFE w/Hypalon® | Braided PTFE w/Aramid | Chain | High Pressure | 580 |

*** Conforms to ASME Check Requirements*

## POLISHED BRONZE WATER GAUGE



| SERIES NO. | RATING (SUBJECT TO LIMITATION OF GAUGE GLASS) |
|---|---|
| 25-200 | 200 psig @ 400°F, 400 psig @ 100°F |
| 25-400 | 125 psig @ 350°F, 300 psig @ 100°F |
| 25-500 | 200 psig @ 400°F, 400 psig @ 100°F |
| 25-600 | 250 psig @ 400°F, 500 psig @ 100°F |

| SERIES NO. | PIPE SIZE | STANDARD GLASS O.D. & LENGTH | GLASS SEAL | STEM PACKING | HANDLE | STANDARD GLASS TYPE | WT./100 |
|---|---|---|---|---|---|---|---|
| 25-201 | 3/8 | 5/8 x 10 | EPDM rubber | PTFE w/Hypalon® | Aluminum | Regular | 180 |
| 25-202 | 3/8 | 5/8 x 10 | EPDM rubber | PTFE w/Hypalon® | Composition | Regular | 185 |
| 25-204 | 1/2 | 5/8 x 12 | EPDM rubber | PTFE w/Hypalon® | Aluminum | Regular | 190 |
| 25-205 | 1/2 | 5/8 x 12 | EPDM rubber | PTFE w/Hypalon® | Composition | Regular | 190 |
| 25-207 | 3/4 | 3/4 x 16 | EPDM rubber | PTFE w/Hypalon® | Aluminum | Regular | 290 |
| 25-208 | 3/4 | 3/4 x 16 | EPDM rubber | PTFE w/Hypalon® | Composition | Regular | 295 |
| 25-404# | 1/2 | 5/8 x 12 | EPDM rubber | PTFE w/Hypalon® | Aluminum | Regular | 285 |
| 25-405# | 1/2 | 5/8 x 12 | EPDM rubber | PTFE w/Hypalon® | Composition | Regular | 285 |
| 25-407 | 3/4 | 3/4 x 16 | EPDM rubber | PTFE w/Hypalon® | Aluminum | Regular | 350 |
| 25-408 | 3/4 | 3/4 x 16 | EPDM rubber | PTFE w/Hypalon® | Composition | Regular | 350 |
| 25-501* | 1/2 | 5/8 x 12 | EPDM rubber | PTFE w/Hypalon® | Aluminum | Regular | 290 |
| 25-502* | 1/2 | 5/8 x 12 | EPDM rubber | PTFE w/Hypalon® | Composition | Regular | 290 |
| 25-504* | 3/4 | 3/4 x 16 | EPDM rubber | PTFE w/Hypalon® | Aluminum | Regular | 355 |
| 25-505* | 3/4 | 3/4 x 16 | EPDM rubber | PTFE w/Hypalon® | Composition | Regular | 355 |
| 25-601 | 1/2 | 5/8 x 12 | EPDM rubber | Graphite w/Aramid | Chain | Regular | 335 |
| 25-602 | 3/4 | 3/4 x 16 | EPDM rubber | Graphite w/Aramid | Chain | Regular | 350 |

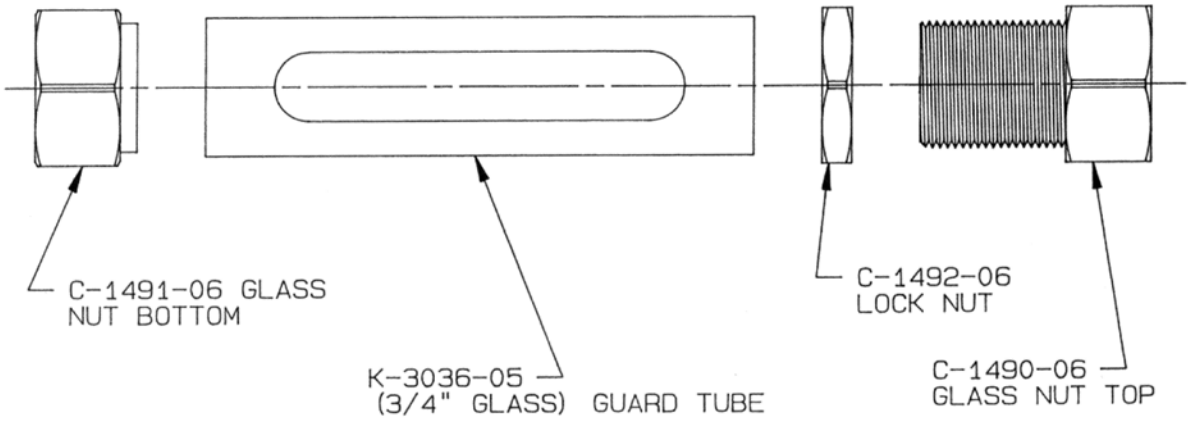
** Automatic*
*# Valve bodies made from brass bar stock.*

## TUBULAR GAUGE GLASS PROTECTOR

- Reduces the risk of injury and damage from broken exploding glass.
- Made to fit most water gauges.
- Priced according to length and application.
- Maximum protector length of 50".
- Tubular gauge glass protector not available on the 23-400, 23-450, 23-600, 23-650, 24-300, 24-600 and 24-650 series.
- Maximum of 50" length.
  Give series number and centerline distance "L" when ordering.

## STANDARD GLASS PROTECTOR LENGTHS

| PART NUMBER | SIZE | LENGTH |
|---|---|---|
| I273305L12 | PROTECTOR,ASSY,5/8"GAUGE GLS, | L=12",CU |
| I273305L24 | PROTECTOR,ASSY,5/8"GAUGE GLS, | L=24",CU |
| I273305L36 | PROTECTOR,ASSY,5/8"GAUGE GLS, | L=36",CU |
| I273305L48 | PROTECTOR,ASSY,5/8"GAUGE GLS, | L=48",CU |
| I273305L50 | PROTECTOR,ASSY,5/8"GAUGE GLS, | L=50",CU |
| I273405L12 | PROTECTOR,ASSY,3/4"GAUGE GLS, | L=12",CU |
| I273405L24 | PROTECTOR,ASSY,3/4"GAUGE GLS, | L=24",CU |
| I273405L36 | PROTECTOR,ASSY,3/4"GAUGE GLS, | L=36",CU |
| I273405L48 | PROTECTOR,ASSY,3/4"GAUGE GLS, | L=48",CU |
| I273405L50 | PROTECTOR,ASSY,3/4"GAUGE GLS, | L=50",CU |



## GAUGE PRESSURE-TEMPERATURE RATINGS



### REGULAR/STANDARD GLASS

*Example: 9858R12 = 5/8" OD x 12" L Regular Glass*




### HIGH PRESSURE GLASS

*Example: 9834I16 = 3/4" OD x 16" L High Pressure Glass*



### REDLINE GLASS

*Example: 9834P14 = 3/4" OD x 14" L Redline Glass*

## MAXIMUM RECOMMENDED WORKING PRESSURE (PSI)

| TYPE | OD SIZE | TOL. | WALL | TOL. | LENGTH | TEMP. TO 150°F, NO CORROSION | STEAM BOILER SERVICE TO 450°F |
|---|---|---|---|---|---|---|---|
| Standard | 5/8 | +0, -3/64 | 5/64 | +1/64 | 8 | 210 | 100 |
| Standard | 5/8 | +0, -3/64 | 5/64 | +1/64 | 10 | 210 | 100 |
| Standard | 5/8 | +0, -3/64 | 5/64 | +1/64 | 12 | 205 | 100 |
| Standard | 5/8 | +0, -3/64 | 5/64 | +1/64 | 14 | 200 | 100 |
| Standard | 5/8 | +0, -3/64 | 5/64 | +1/64 | 16 | 195 | 100 |
| Standard | 5/8 | +0, -3/64 | 5/64 | +1/64 | 18 | 190 | 100 |
| Standard | 5/8 | +0, -3/64 | 5/64 | +1/64 | 24 | 180 | 100 |
| Standard | 5/8 | +0, -3/64 | 5/64 | +1/64 | 30 | 175 | ** |
| Standard | 5/8 | +0, -3/64 | 5/64 | +1/64 | 36 | 165 | ** |
| Standard | 5/8 | +0, -3/64 | 5/64 | +1/64 | 48 | 140 | ** |
| Standard | 5/8 | +0, -3/64 | 5/64 | +1/64 | 60 | 120 | ** |
| Standard | 5/8 | +0, -3/64 | 5/64 | +1/64 | 72 | 100 | ** |
| Standard | 3/4 | +0, -3/64 | 3/32 | +1/64 | 8 | 210 | 100 |
| Standard | 3/4 | +0, -3/64 | 3/32 | +1/64 | 10 | 210 | 100 |
| Standard | 3/4 | +0, -3/64 | 3/32 | +1/64 | 12 | 205 | 100 |
| Standard | 3/4 | +0, -3/64 | 3/32 | +1/64 | 14 | 200 | 100 |
| Standard | 3/4 | +0, -3/64 | 3/32 | +1/64 | 16 | 195 | 100 |
| Standard | 3/4 | +0, -3/64 | 3/32 | +1/64 | 18 | 190 | 100 |
| Standard | 3/4 | +0, -3/64 | 3/32 | +1/64 | 24 | 180 | 100 |
| Standard | 3/4 | +0, -3/64 | 3/32 | +1/64 | 30 | 175 | ** |
| Standard | 3/4 | +0, -3/64 | 3/32 | +1/64 | 36 | 165 | ** |
| Standard | 3/4 | +0, -3/64 | 3/32 | +1/64 | 48 | 140 | ** |
| Standard | 3/4 | +0, -3/64 | 3/32 | +1/64 | 60 | 120 | ** |
| Standard | 3/4 | +0, -3/64 | 3/32 | +1/64 | 72 | 100 | ** |
| High Pressure | 5/8 | +0, -1/32 | 3/32 | +1/64 | 8 | 435 | 320 |
| High Pressure | 5/8 | +0, -1/32 | 3/32 | +1/64 | 10 | 420 | 315 |
| High Pressure | 5/8 | +0, -1/32 | 3/32 | +1/64 | 12 | 410 | 305 |
| High Pressure | 5/8 | +0, -1/32 | 3/32 | +1/64 | 14 | 390 | 295 |
| High Pressure | 5/8 | +0, -1/32 | 3/32 | +1/64 | 16 | 375 | 285 |
| High Pressure | 5/8 | +0, -1/32 | 3/32 | +1/64 | 18 | 360 | 280 |
| High Pressure | 5/8 | +0, -1/32 | 3/32 | +1/64 | 20 | 350 | 270 |
| High Pressure | 5/8 | +0, -1/32 | 3/32 | +1/64 | 24 | 320 | 255 |
| High Pressure | 5/8 | +0, -1/32 | 3/32 | +1/64 | 30 | 280 | ** |
| High Pressure | 5/8 | +0, -1/32 | 3/32 | +1/64 | 36 | 245 | ** |
| High Pressure | 5/8 | +0, -1/32 | 3/32 | +1/64 | 48 | 195 | ** |
| High Pressure | 5/8 | +0, -1/32 | 3/32 | +1/64 | 60 | 150 | ** |
| High Pressure | 5/8 | +0, -1/32 | 3/32 | +1/64 | 72 | 100 | ** |
| High Pressure | 3/4 | +0, -1/32 | 3/32 | +1/64 | 8 | 425 | 315 |
| High Pressure | 3/4 | +0, -1/32 | 3/32 | +1/64 | 10 | 410 | 310 |
| High Pressure | 3/4 | +0, -1/32 | 3/32 | +1/64 | 12 | 400 | 300 |
| High Pressure | 3/4 | +0, -1/32 | 3/32 | +1/64 | 14 | 385 | 290 |
| High Pressure | 3/4 | +0, -1/32 | 3/32 | +1/64 | 16 | 370 | 280 |
| High Pressure | 3/4 | +0, -1/32 | 3/32 | +1/64 | 18 | 355 | 275 |
| High Pressure | 3/4 | +0, -1/32 | 3/32 | +1/64 | 20 | 345 | 265 |
| High Pressure | 3/4 | +0, -1/32 | 3/32 | +1/64 | 24 | 315 | 250 |
| High Pressure | 3/4 | +0, -1/32 | 3/32 | +1/64 | 30 | 275 | ** |
| High Pressure | 3/4 | +0, -1/32 | 3/32 | +1/64 | 36 | 240 | ** |
| High Pressure | 3/4 | +0, -1/32 | 3/32 | +1/64 | 48 | 190 | ** |
| High Pressure | 3/4 | +0, -1/32 | 3/32 | +1/64 | 60 | 145 | ** |
| High Pressure | 3/4 | +0, -1/32 | 3/32 | +1/64 | 72 | 100 | ** |
| Redline | 5/8 | +0, -1/32 | 3/32 | +1/64 | 8 | 370 | 285 |
| Redline | 5/8 | +0, -1/32 | 3/32 | +1/64 | 10 | 345 | 280 |
| Redline | 5/8 | +0, -1/32 | 3/32 | +1/64 | 12 | 335 | 280 |
| Redline | 5/8 | +0, -1/32 | 3/32 | +1/64 | 14 | 325 | 275 |
| Redline | 5/8 | +0, -1/32 | 3/32 | +1/64 | 16 | 315 | 270 |
| Redline | 5/8 | +0, -1/32 | 3/32 | +1/64 | 18 | 305 | 265 |
| Redline | 5/8 | +0, -1/32 | 3/32 | +1/64 | 20 | 290 | 265 |
| Redline | 5/8 | +0, -1/32 | 3/32 | +1/64 | 24 | 265 | 255 |
| Redline | 5/8 | +0, -1/32 | 3/32 | +1/64 | 30 | 235 | ** |
| Redline | 5/8 | +0, -1/32 | 3/32 | +1/64 | 36 | 205 | ** |
| Redline | 5/8 | +0, -1/32 | 3/32 | +1/64 | 48 | 165 | ** |
| Redline | 5/8 | +0, -1/32 | 3/32 | +1/64 | 60 | 125 | ** |
| Redline | 5/8 | +0, -1/32 | 3/32 | +1/64 | 72 | 90 | ** |
| Redline | 3/4 | +0, -1/32 | 3/32 | +1/64 | 8 | 360 | 280 |
| Redline | 3/4 | +0, -1/32 | 3/32 | +1/64 | 10 | 340 | 275 |
| Redline | 3/4 | +0, -1/32 | 3/32 | +1/64 | 12 | 330 | 275 |
| Redline | 3/4 | +0, -1/32 | 3/32 | +1/64 | 14 | 320 | 270 |
| Redline | 3/4 | +0, -1/32 | 3/32 | +1/64 | 16 | 310 | 265 |
| Redline | 3/4 | +0, -1/32 | 3/32 | +1/64 | 18 | 300 | 260 |
| Redline | 3/4 | +0, -1/32 | 3/32 | +1/64 | 20 | 285 | 260 |
| Redline | 3/4 | +0, -1/32 | 3/32 | +1/64 | 24 | 260 | 250 |
| Redline | 3/4 | +0, -1/32 | 3/32 | +1/64 | 30 | 230 | ** |
| Redline | 3/4 | +0, -1/32 | 3/32 | +1/64 | 36 | 200 | ** |
| Redline | 3/4 | +0, -1/32 | 3/32 | +1/64 | 48 | 160 | ** |
| Redline | 3/4 | +0, -1/32 | 3/32 | +1/64 | 60 | 125 | ** |
| Redline | 3/4 | +0, -1/32 | 3/32 | +1/64 | 72 | 90 | ** |

*** Maximum recommended length in this service is 24."*

## REPAIR KITS

The standard* repair kits contain glass packing, stem packing, friction washers, seat washers, and drain washer applicable to the particular valve. Three types of glass packing, EPDM rubber, Hypalon®, and Virgin Teflon®, are included in the standard repair kit. For oil related service, Fluorelastomer (Viton®) glass gasket sets are available. For severe applications, graphite glass gaskets and stem packing sets are available for each model.

## REPAIR KIT ORDERING INFORMATION

| 20 - | 00X - | 0X |
|---|---|---|
| DESIGNATION | KIT TYPE | KIT NUMBER |
| 20-00 - WATER GAUGE REPAIR KIT | 1 - STANDARD ALL | |
| | 2 - VITON GASKETS ONLY | |
| | 3 - GRAPHITE GASKETS ONLY | |

***EXAMPLE:***
****20-001-01 = Standard Kit described above***
***20-002-01 = Viton Glass Gaskets Only***
***20-003-01 = Graphite Glass Gaskets Only***

## REPAIR KIT APPLICATIONS

| KIT | APPLICATIONS - WATER GAUGE SERIES |
|---|---|
| 20-001-01<br>20-003-01 | 20-101, 20-102, 20-104, 20-105, 20-150, 20-151, 20-405, 20-406, 20-407, 20-408, 20-410, 21-101, 21-102, 21-104, 21-105, 21-150, 21-151, |
| 20-001-02<br>20-003-02 | 20-201, 20-202, 20-204, 20-205, 20-250, 20-251, 20-304, 20-305, 20-350, 20-351, 20-604, 20-605, 20-804, 20-805, 21-204, 21-205, 21-250, 21-251, 25-201, 25-202, 25-204, 25-205, 25-404, 25-405, 25-501, 25-502 |
| 20-001-03<br>20-003-03 | 20-207, 20-208, 20-253, 20-254, 20-307, 20-308, 20-353, 20-354, 25-207, 25-208, 25-407, 25-408, 25-504, 25-505 |
| 20-001-04<br>20-003-04 | 20-601, 25-601 |
| 20-001-05<br>20-003-05 | 20-602, 25-602 |
| 20-001-06<br>20-003-06 | 20-703, 20-704, 20-713, 20-714 |
| 20-001-07<br>20-003-07 | 23-401, 23-402, 23-450, 23-451 |
| 20-001-08<br>20-003-08 | 20-405, 20-406, 20-407, 20-408 |
| 20-001-09<br>20-003-09 | 23-404, 23-405, 23-453, 23-454 |
| 20-001-10<br>20-003-10 | 23-651, 23-654 |
| 20-001-11<br>20-003-11 | 24-301, 24-302, 24-350, 24-351, 24-450, 24-451 |
| 20-001-12<br>20-003-12 | 24-304, 24-305, 24-353, 24-354, 24-453, 24-454 |
| 20-001-13<br>20-003-13 | 24-601, 24-651, 24-751, 24-851 |
| 20-001-14<br>20-003-14 | 24-602, 24-652, 24-752, 24-852 |
| 20-002-01 | 20-101, 20-102, 20-104, 20-105, 20-150, 20-151, 20-201, 20-202, 20-204, 20-205, 20-250, 20-251, 20-304, 20-305, 20-350, 20-351, 20-405, 20-406, 20-407, 20-408, 20-410, 20-601, 20-604, 20-605, 20-703, 20-704, 20-713, 20-714, 20-804, 20-805, 21-101, 21-102, 21-104, 21-105, 21-150, 21-151, 21-204, 21-205, 21-250, 21-251, 23-651, 23-654, 25-201, 25-202, 25-204, 25-205, 25-404, 25-405, 25-501, 25-502, 25-601 |
| 20-002-02 | 20-207, 20-208, 20-253, 20-254, 20-307, 20-308, 20-353, 20-354, 25-207, 25-208, 25-407, 25-408, 25-504, 25-505, 20-602, 25-602 |
| 20-002-03 | 23-401, 23-402, 23-450, 23-451, 24-301, 24-302, 24-350, 24-351, 24-450, 24-451, 24-601, 24-651, 24-751, 24-851 |
| 20-002-04 | 23-404, 23-405, 23-453, 23-454, 24-304, 24-305, 24-353, 24-354, 24-453, 24-454, 24-602, 24-652, 24-752, 24-852 |

## REPAIR KITS

### SELECTION INSTRUCTIONS

It is helpful to determine the following information when ordering a repair kit.

- Model number (if not available describe gauge, i.e. material, # guard rods, NPT size, etc.)
- Glass O.D. and type
- Handle type
- Service media, temperature, and pressure

If you know the model number just examine the "Repair Kit Applications" chart to select kit number for your valve. To order the standard kit, or Viton®, or graphite gaskets, assemble the ordering matrix for the desired kit number.

If you are unable to determine model number please determine the above information and call customer service for assistance.

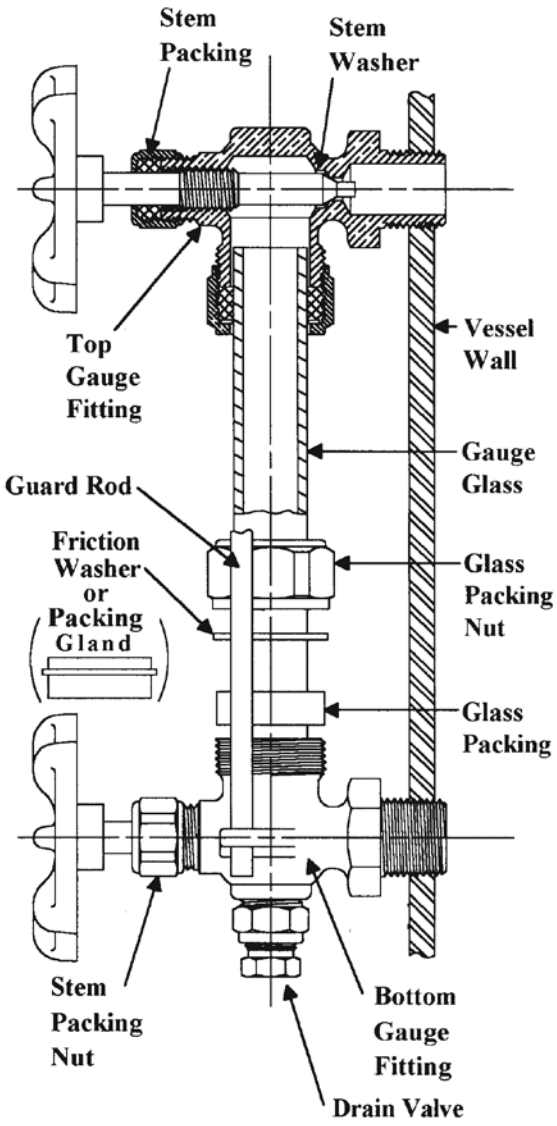
For replacement glass please determine the above information in addition to the "L" dimension and call customer service. "L" dimension (center to center height of water gauge inlets).

### WATER GAUGE & GAUGE GLASS REPAIR KIT INSTRUCTIONS

Only properly trained personnel should install, maintain and repair water gauge glass and connections. Remember to wear safety gloves and glasses during installation/repair. Before installing, make sure all parts are free of chips and debris.

### DISASSEMBLY/ASSEMBLY

1. Close water gauge valves. If necessary drain vessel to eliminate leakage during repair. Drain gauge glass using drain valve or plug.
2. Completely loosen both glass packing nuts.
3. Gently raise gauge glass until bottom of gauge glass clears lower fitting.
4. Using a wrench attached to the hex flats on the upper fitting, lift glass and packing nut then rotate the fitting and glass 1/8 turn counterclockwise.
5. Carefully remove the gauge glass from the upper fitting. Remove all glass packing, packing nuts, washers and packing glands, noting their positions on the glass.
6. Clean and inspect gauge glass and fittings for any wear, erosion, cracks or debris. Any damaged components must be replaced.
7. If it is desired, the stem packing can be replaced by removing the handle(s) then the stem packing nut. Remove old packing and stem packing washer if applicable. Install new packing in stem packing nut and reuse stem packing washer as applicable.
8. To replace seat washers (where applicable) the system must be drained. After removing the stem packing nut reinstall handle and remove stem by opening valve. Cut off old seat washer and install new seat washer using appropriate size tube driver.
9. Install stem until it seats. Remove handle and install stem packing nut with packing inside. Tighten stem packing nut until snug using wrench
10. Place glass packing nut, friction washer (or packing gland and retaining ring, depending upon the model), and new glass packing, in the same order as found, on to both ends of the gauge glass. Push both packings about an inch up the gauge glass.
11. Gently insert one end of the glass into the top gauge fitting. Keeping the glass inside the top fitting, gently rotate the top gauge fitting clockwise, using wrench on valve hex flats, until vertically aligned with the bottom gauge fitting. Insert glass into bottom fitting until glass bottoms out on the shoulder inside the bottom fitting.
12. Carefully raise glass about 1/16" and slide lower glass packing down until the glass packing bottoms out. DO NOT allow the glass to remain in contact with any metal!
13. Carefully slide upper glass packing up as far as possible.
14. Hand tighten both glass packing nuts, then tighten 1/2 turn more by wrench. Tighten only enough to prevent leakage. DO NOT OVER TIGHTEN! If any leakage should occur, tighten slightly, a quarter turn at a time, checking for leakage after each turn.



"Apollo"® Valves

# Plumbing Specialties


**PLUMBING SPECIALTIES**

| | |
|---|---|
| **26-100/300/700** | M-2 |
| **27-400** | M-2 |

**AIR COCKS**

| | |
|---|---|
| **41** | M-3 |

**HEAVY/EXTRA HEAVY AIR & STEAM COCKS**

| | |
|---|---|
| **41-100/41-650** | M-3 |

**GAS VALVES/COCKS**

| | |
|---|---|
| **50-200** | M-4 |
| **50-400** | M-4 |
| **50-500** | M-4 |
| **50-600** | M-4 |
| **50-700** | M-4 |
| **50-800** | M-4 |
| **51-100** | M-5 |
| **52-100** | M-5 |
| **52-200** | M-5 |

**DRAIN VALVES**

| | |
|---|---|
| **35-200** | M-6 |
| **31-200** | M-6 |
| **31LF-200** | M-6 |
| **31-500** | M-6 |
| **31LF-500** | M-6 |
| **31-400** | M-6 |
| **31LF-400** | M-6 |
| **31-600** | M-7 |
| **31-700** | M-7 |
| **35-300** | M-7 |




section M

## 26-100/26-300 SERIES
COMPRESSION GAUGE COCKS



26-300

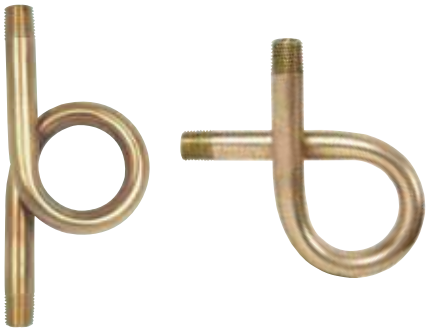
For draining expansion tanks, other liquid storage vessels. For condensate only. Standard finish is satin brass.

### FEATURES
- 26-100: Rated up to 125 psig
- 26-300: Soft Metal Seat/Stuffing Box Rated up to 250 psig at 400°F
- 26-310: Stainless Steel Ball Seat/Stuffing Box Rated up to 250 psig at 400°F
- 26-700: TFE Seat, Rated up to 250 psig at 400°F

| PART NUMBER | PIPE SIZE (IN.) | WT./100 (LB.) | WHEEL TYPE |
|---|---|---|---|
| 26-104-01 | 1/2 | 28.3 | Aluminum |
| 26-105-01 | 1/2 | 30.0 | Composition |
| 26-304-01 | 1/2 | 40.0 | Aluminum |
| 26-305-01 | 1/2 | 44.0 | Composition |
| 26-307-01 | 3/4 | 49.0 | Aluminum |
| 26-308-01 | 3/4 | 51.7 | Composition |
| 26-314-01 | 1/2 | 40.0 | Aluminum |
| 26-315-01 | 1/2 | 44.0 | Composition |
| 26-704-01 | 1/2 | 78.0 | Aluminum |
| 26-705-01 | 1/2 | 82.0 | Composition |

**26-100 series is not available with packing nut*
*Specify the following suffix for finish: Polished Brass -28 (example: 26-304-28)*

## 27-400 SERIES
STEAM GAUGE SIPHON



27-401 27-402

For pressure gauge protection. Condensate trap protects dial pressure gauges from direct steam contact.

### FEATURES
- Heavy Gauge Seamless Brass Tubing
- 27-401 is 180˚ loop, 27-402 is 90˚ loop
- Service Rating: 250 psig Saturated Steam, 400 psig at 100˚F

| PART NUMBER | PIPE SIZE (IN.) | WT./100 (LB.) |
|---|---|---|
| 27-401-01 | 1/4 | 44.0 |
| 27-402-01 | 1/4 | 40.0 |

## 41 SERIES
AIR COCKS

**NOTE: This product is being discontinued. Availability is limited to existing inventory & subject to prior sale. Once depleted, replacement options are available for most items. Contact your local Apollo sales representative for details.**

An economical way to shut-off air lines. Standard spring bottom (-01) with 5/32" port are tested at 80 psig. Optional nut bottom (-04) with 1/8" port are suitable for pressures to 200 psig. Various handle configurations available.

### FEATURES
- Standard Apring Bottom (5/32" Port)
- Air Cocks Tested at 80 psi
- Optional Nut Bottom (1/8" port) Suitable to 200 psig
- Standard Satin Brass Finish
- Maximum temperature is 500° F

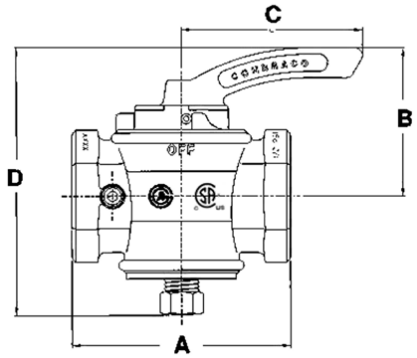
### OPTIONS
- (-01) Standard Spring Bottom
- (-04) Nut Bottom

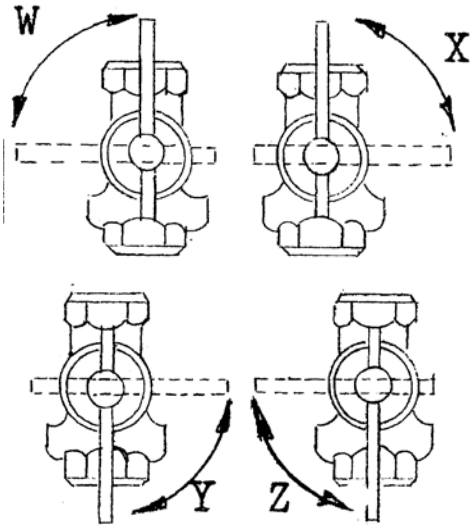
| | PART NUMBER | SIZE (IN.) | WT./100 (LB.) |
|---|---|---|---|
|  | **TEE HANDLE ROUND SHOULDER** | | |
| | 41-060 | 1/8 | 12.8 |
| | 41-070 | 1/4 | 13.0 |
|  | **TEE HANDLE HEXAGON SHOULDER** | | |
| | 41-080 | 3/8 | 17.0 |
| | 41-090 | 1/2 | 20.0 |
|  | **LEVER HANDLE ROUND SHOULDER** | | |
| | 41-120 | 1/8 | 13.1 |
| | 41-130 | 1/4 | 14.2 |
|  | **LEVER HANDLE HEXAGON SHOULDER** | | |
| | 41-140 | 3/8 | 17.0 |
| | 41-150 | 1/2 | 22.9 |
|  | **TEE HANDLE DOUBLE MALE THREAD** | | |
| | 41-180 | 1/8 | 14.0 |
| | 41-190 | 1/4 | 17.9 |
| | 41-203 | 3/8 | 20.0 |
|  | **LEVER HANDLE DOUBLE MALE THREAD** | | |
| | 41-220 | 1/8 | 14.0 |
| | 41-230 | 1/4 | 18.5 |
| | 41-240 | 3/8 | 19.1 |
| | 41-251 | 1/2 | 31.3 |
|  | **TEE HANDLE BIBB NOSE** | | |
| | 41-260 | 1/8 | 14.5 |
| | 41-270 | 1/4 | 16.3 |
| | 41-330 | 1/2 | 36.0 |
|  | **LEVER HANDLE BIBB NOSE** | | |
| | 41-290 | 1/8 | 16.5 |
| | 41-300 | 1/4 | 15.0 |
| | 41-310 | 3/8 | 32.1 |
| | 41-320 | 1/2 | 36.0 |
|  | **TEE HANDLE DOUBLE FEMALE** | | |
| | 41-370 | 1/8 | 13.0 |
| | 41-380 | 1/4 | 14.0 |
| | 41-390 | 3/8 | 26.0 |
| | 41-391 | 1/2 | 27.0 |
|  | **TEE HANDLE MALE & FEMALE** | | |
| | 41-400 | 1/8 | 13.0 |
| | 41-410 | 1/4 | 14.0 |
| | 41-420 | 3/8 | 21.0 |
| | 41-421 | 1/2 | 26.0 |

| | PART NUMBER | SIZE (IN.) | WT./100 (LB.) |
|---|---|---|---|
|  | **LEVER HANDLE DOUBLE FEMALE** | | |
| | 41-430 | 1/8 | 14.8 |
| | 41-440 | 1/4 | 13.0 |
| | 41-450 | 3/8 | 23.0 |
|  | **LEVER HANDLE MALE & FEMALE** | | |
| | 41-460 | 1/8 | 15.2 |
| | 41-470 | 1/4 | 15.0 |
| | 41-480 | 3/8 | 23.0 |
| | 41-481 | 1/2 | 27.0 |
|  | **TEE HANDLE MALE & FEMALE HEX SHOULDER** | | |
| | 41-490 | 1/8 | 17.0 |
| | 41-500 | 1/4 | 15.0 |
| | 41-511 | 1/2 | 25.0 |
|  | **LEVER HANDLE MALE & FEMALE HEX SHOULDER** | | |
| | 41-520 | 1/8 | 14.0 |
| | 41-530 | 1/4 | 15.0 |
| | 41-540 | 3/8 | 22.1 |
| | 41-541 | 1/2 | 27.0 |
|  | **TEE HANDLE DOUBLE FEMALE HEX SHOULDER** | | |
| | 41-550 | 1/8 | 17.0 |
| | 41-560 | 1/4 | 17.0 |
| | 41-571 | 1/2 | 28.3 |
|  | **LEVER HANDLE DOUBLE FEMALE HEX SHOULDER** | | |
| | 41-580 | 1/8 | 15.0 |
| | 41-590 | 1/4 | 18.2 |
| | 41-600 | 3/8 | 24.0 |
|  | **TEE HANDLE STRAIGHT NOSE HEX SHOULDER** | | |
| | 41-630 | 1/8 | 15.7 |
| | 41-640 | 1/4 | 15.0 |
|  | **LEVER HANDLE STRAIGHT NOSE HEX SHOULDER** | | |
| | 41-650 | 1/8 | 14.0 |
| | 41-660 | 1/4 | 15.0 |

## 50 SERIES
MANUAL MAIN CONTROL VALVES






**NOTE: This product is being discontinued. Availability is limited to existing inventory & subject to prior sale. Once depleted, replacement options are available for most items. Contact your local Apollo sales representative for details.**

CSA design certified for 1/2 psig and temperatures from 32° to 125°F. Complies to ANSI Z 21.15, CSA 9.1

### FEATURES
- 100% Factory Tested at 10 psig
- Bronze Construction, Stainless Steel Springs
- Capacities to 7.8 Million BTU/Hour
- Equal Female Inlet/Outlet
- Bosses on Both Sides are Drilled and Tapped. Only One Side is Plugged

| PART NUMBER | SIZE (IN.) | BTU/HR. | WT./100 (LB.) | DIMENSIONS (IN.) | | | |
|---|---|---|---|---|---|---|---|
| | | | | A | B | C | D |
| 50-203* | 1/2 | 800,000 | 88 | 2.50 | 1.44 | 1.72 | 2.75 |
| 50-303 | 3/4 | 1,310,000 | 156 | 2.94 | 1.69 | 2.06 | 3.50 |
| 50-403 | 1 | 2,100,000 | 197 | 3.94 | 2.19 | 2.87 | 3.87 |
| 50-503 | 1-1/4 | 3,250,000 | 300 | 3.66 | 2.75 | 3.16 | 4.69 |
| 50-603 | 1-1/2 | 3,700,000 | 478 | 4.37 | 3.31 | 3.50 | 5.75 |
| 50-703 | 2 | 7,300,000 | 845 | 5.44 | 3.72 | 4.50 | 6.75 |
| 50-803 | 2-1/2 | 7,800,000 | 1000 | 5.87 | 3.72 | 4.50 | 6.75 |

** 1/2" size is not CSA certified*

### HANDLE SUFFIX POSITION

| SIZE PILOT (IN.) | W | X | Y | Z |
|---|---|---|---|---|
| 1/8 NPT | 01 | 02 | 03 | 04 |
| 1/4 NPT | 05 | 06 | 07 | 08 |

*All main burner valves furnished with 1/8" NPT pilot tapping. Valves 1" and larger can be furnished with 1/4" NPT pilot tapping.*

## 51 SERIES
GAS SERVICE COCKS

**NOTE: This product is being discontinued. Availability is limited to existing inventory & subject to prior sale. Once depleted, replacement options are available for most items. Contact your local Apollo sales representative for details.**




Tee or lever handle cocks; CSA design certified. In sizes 1/4" to 3/4".

### FEATURES
- Capacities: 117,000 to 749,000 BTU/Hour
- Certified to ANSI Z21.15 and CSA 9.1 (1/2 psig at Temperatures from 32°F to 125°F)
- Accepted for Use by City of New York Department of Buildings MEA 45-90-M

| PART NUMBER | PIPE SIZE (IN.) | WT./100 (LB.) | CAPACITY (BTU/HR.) |
|---|---|---|---|
| **T-HANDLE W/STOP** | | | |
| 51-103-01 | 1/4 | 35 | 117,000 |
| 51-104-01 | 3/8 | 47 | 274,600 |
| 51-105-01 | 1/2 | 54 | 274,000 |
| **LEVER HANDLE W/STOP** | | | |
| 51-107-01 | 3/8 | 50 | 274,600 |

## 52 SERIES
GAS SERVICE COCKS

**NOTE: This product is being discontinued. Availability is limited to existing inventory & subject to prior sale. Once depleted, replacement options are available for most items. Contact your local Apollo sales representative for details.**



Available with tee head, flat head, square head or lever head in sizes from 1/4" to 1". Wrench operated and tested at 125 psig.

### FEATURES
- High Pressure Rating
- Capacities: 117,000 to 749,000 BTU/Hour
- Accepted for Use by City of New York Department of Buildings MEA 45-90-M
- Maximum Temperature: 500°F

| PART NUMBER | SIZE (IN.) | WT./100 (LB.) | SERIES NUMBER | SIZE (IN.) | WT./100 (LB.) |
|---|---|---|---|---|---|
| **T-HEAD** | | | **SQUARE HEAD** | | |
| 52-101-01 | 1/4 | 32.0 | 52-301-01 | 1/4 | 31.0 |
| 52-102-01 | 3/8 | 29.0 | 52-302-01 | 3/8 | 28.0 |
| 52-103-01 | 1/2 | 45.0 | 52-303-01 | 1/2 | 43.0 |
| 52-104-01 | 3/4 | 65.8 | 52-304-01 | 3/4 | 62.7 |
| 52-105-01 | 1 | 92.9 | 52-305-01 | 1 | 90.0 |
| **FLAT HEAD** | | | **LEVER HEAD** | | |
| 52-201-01 | 1/4 | 30.0 | 52-401-01 | 1/4 | 34.3 |
| 52-202-01 | 3/8 | 28.0 | 52-402-01 | 3/8 | 31.0 |
| 52-203-01 | 1/2 | 43.0 | 52-403-01 | 1/2 | 46.0 |
| 52-204-01 | 3/4 | 57.0 | 52-404-01 | 3/4 | 66.7 |
| 52-205-01 | 1 | 90.6 | 52-405-01 | 1 | 97.0 |

## 35-200 SERIES
COMPRESSION BIBB FAUCET



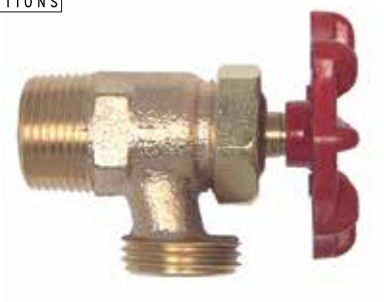
Features heavy pattern with large flow path.

### FEATURES
- Solid Bronze Construction
- 3/4" Hose Connection
- Aluminum Handwheel
- Made in USA

| PART NUMBER | PIPE SIZE (IN.) | WT./100 (LB.) |
|---|---|---|
| 35-201-01 | 1/2 | 58.3 |
| 35-202-01 | 3/4 | 57.0 |

## 31-200/31-500 SERIES
90° DRAIN VALVE

LEADFREE OPTIONS



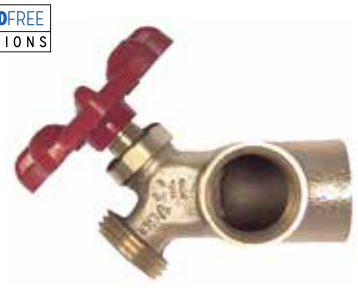
For deluxe water heaters and low pressure boilers.

### FEATURES
- Maximum Rated Pressure: 200 psig
- Maximum Rated Temperature: 250°F
- Red Aluminum Wheel Handle
- 31-200 Series Heavy Pattern, 3/4" MNPT Inlet
- 31-500 Series Standard Pattern, 1/2" MNPT Inlet with I.D. of NPT Thread Machined for 1/2" Copper Pipe
- (-04P) Optional Plain Finish Handle
- Made in USA

| PART NUMBER | LF PART NUMBER | WT./100 (LB.) | SHANK LENGTH (IN.) | INLET (IN.) |
|---|---|---|---|---|
| 31-202-04 | 31LF-202-04 | 43.00 | 5/8 | 3/4 MNPT |
| 31-212-04 | 31LF-212-04 | 46.50 | 15/16 | 3/4 MNPT |
| 31-501-04 | 31LF-501-04 | 31.00 | 5/8 | 1/2 MNPT/1/2 Sweat |

## 31-400 SERIES
COMBINATION TEE & DRAIN VALVE

LEADFREE OPTIONS



Permits supplying and draining of water through a single tank tapping and meets CSA requirements.

### FEATURES
- All Cast Bronze Body
- Aluminum Handwheel
- No Handle: Screwdriver Slot Stem Option
- Maximum Rated Pressure: 200 psig
- Maximum Rated Temperature: 250˚F
- 3/4" FNPT inlet x 3/4" Male Hose End x 3/4" FNPT Side Outlet
- Made in USA

| PART NUMBER | LF PART NUMBER | WT./100 (LB.) | HANDLE |
|---|---|---|---|
| 31-401-04 | 31LF-401-04 | 62.00 | Aluminum Wheel - Red |
| 31-401-04P | 31LF-401-04P | 62.00 | Aluminum Wheel - Plain |
| 31-401-13 | 31LF-401-13 | 62.00 | Slotted Stem |

## 31-600/31-700 SERIES
ANGLED BODY WATER HEATER DRAIN



**31-600**
**MALE NPT**



**31-700**
**FEMALE NPT**

All drains are equipped with Conbraco packing seal assuring easy turning stem and leak proof drain. Various shank lengths available. Meets CSA requirements.

### FEATURES
- All Cast Bronze Body
- Maximum Rated Pressure: 200 psig
- Maximum Rated Temperature: 250˚ F
- 31-600: 3/4" MNPT Inlet
- 31-700: 1/2" or 3/4" FNPT Inlet
- Made in USA

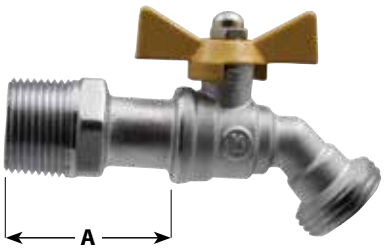
### HANDLE SUFFIX

| | |
|---|---|
| **-04** | Aluminum Wheel - Red |
| **-04P** | Aluminum Wheel - Plain |
| **-13** | Slotted Stem |

**Not all variations available in all sizes. Contact customer service.*

| PART NUMBER | SHANK LENGTH (IN.) | INLET (IN.) | WT./100 (LB.) |
|---|---|---|---|
| 31-600 | 5/8" | 3/4" MNPT | 27.3 |
| 31-601 | 3/4" | 3/4" MNPT | 36.0 |
| 31-602 | 1" | 3/4" MNPT | 35.0 |
| 31-606 | 1-1/2" | 3/4" MNPT | 49.5 |
| 31-607 | 1-3/4" | 3/4" MNPT | 48.0 |
| 31-608 | 2 | 3/4" MNPT | 52.0 |
| 31-609 | 2-1/4" | 3/4" MNPT | 52.0 |
| 31-610 | 2-1/2" | 3/4" MNPT | 57.2 |
| 31-611 | 2-3/4" | 3/4" MNPT | 60.0 |
| 31-612 | 3" | 3/4" MNPT | 66.3 |
| 31-700 | | 1/2" FNPT | 39.0 |
| 31-701 | | 3/4" FNPT | 37.0 |

## 35-300 SERIES
BIBB FAUCET BALL VALVE




Features heavy pattern with large opening. Ideal for boiler and water heater drains, general liquid dispensing and drainage. The new 45° spout design allows for easier hose connection access.

### FEATURES
- Chrome Plated Finish
- Pressure Rating: 200 psig liquid
- Maximum Temperature: 250°F
- Apollo International™

### DIMENSIONS

| PART NUMBER | SIZE (IN.) | A (IN.) | INLET (IN.) | OUTLET (IN.) | WT./100 (LB.) |
|---|---|---|---|---|---|
| 35-301-03 | 1/2 | 1-1/2 | 1/2 Sweat/Thread Connector | 0.75-11.5 NHR hose | 38.4 |
| 35-302-03 | 3/4 | 1-3/4 | 3/4 Thread Connector | 0.75-11.5 NHR hose | 44.5 |

notes

notes

notes

notes

# notes




Aalberts integrated piping systems warrants, to its initial purchaser only, that its products which are delivered to this initial purchaser will be of the kind described in the order or price list and will be free of defects in workmanship or material for a period of FIVE years from the date of delivery to you, our initial purchaser. This warranty applies to Apollo brand product with "Made in the USA" markings only.

Should any failure to conform to this warranty appear within **FIVE** years after the date of the initial delivery to our initial purchaser, Aalberts integrated piping systems will, upon written notification thereof and substantiation that the goods have been stored, installed, maintained and operated in accordance with Aalberts integrated piping systems' recommendations and standard industry practice, correct such defects by suitable repair or replacement at Aalberts integrated piping systems' own expense.

APOLLO INTERNATIONAL PRODUCTS: Aalberts integrated piping systems warrants its International products, to its initial purchaser only, that its international products which are delivered to this initial purchaser will be of the kind described in the order or price list and will be free of defects in workmanship or material for a period of TWO years from the date of delivery to you, our initial purchaser.

THIS WARRANTY IS EXCLUSIVE AND IS IN LIEU OF ANY IMPLIED WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OTHER WARRANTY OF QUALITY, WHETHER EXPRESSED OR IMPLIED, EXCEPT THE WARRANTY OF TITLE AND AGAINST PATENT INFRINGEMENT. Correction of non-conformities, in the manner and for the period of time provided above, shall constitute fulfillment of all liabilities of Aalberts integrated piping systems to our initial purchaser, with respect to the goods, whether based on contract, negligence, strict tort or otherwise. It is the intention of Aalberts integrated piping systems that no warranty of any kind, whether expressed or implied shall pass through our initial purchaser to any other person or corporation.

LIMITATION OF LIABILITY: AALBERTS INTEGRATED PIPING SYSTEMS SHALL NOT UNDER ANY CIRCUMSTANCES BE LIABLE FOR SPECIAL OR CONSEQUENTIAL DAMAGES SUCH AS, BUT NOT LIMITED TO, DAMAGES OR TO LOSS OF OTHER PROPERTY OR EQUIPMENT, LOSS OF PROFITS OR REVENUE, COST OF CAPITAL, COST OF PURCHASED OR REPLACEMENT GOODS, OR CLAIMS OF CUSTOMERS OF OUR INITIAL PURCHASER. THE REMEDIES OF OUR INITIAL PURCHASER, AND ALL OTHERS, SET FORTH HEREIN, ARE EXCLUSIVE, AND THE LIABILITY OF AALBERTS INTEGRATED PIPING SYSTEMS WITH RESPECT TO SAME SHALL NOT, EXCEPT AS EXPRESSLY PROVIDED HEREIN, EXCEED THE PRICE OF THE GOODS UPON WHICH SUCH LIABILITY IS BASED.

* It is the end user's responsibility to confirm that items intended for use satisfy local codes and standards.

## TERMS AND CONDITIONS OF SALE

- Payment: Net 30 days.
- All prices F.O.B. shipping point with freight allowed on shipments of $6,000 net minimum to all shipping points within the United States, excluding Alaska and Hawaii. No freight allowed on Air Freight or Parcel Post shipments. Claims for shortages must be made within 10 days of receipt of material. Our responsibility ends when a receipt is furnished us by the carrier.
- No invoice rendered for less than $50.00.
- No freight will be allowed on Air Freight, Air Express, Parcel Post or U.P.S. shipments.
- All Aalberts integrated piping systems products may be combined to make sufficient weight for full freight allowance.
- Phone order quoted prices are subject to correction. Prices and designs are subject to change without notice.
- Orders for material or special design or specification are made to customer's order and are not subject to cancellation or return.
- All goods returned to us will not be accepted unless a full explanation has been made and our written authorized permission obtained in advance. All goods returned – if accepted – will be credited at invoice price, less 30% for service and rehandling charges, plus shipping expenses.
- We reserve the right to adjust orders to box quantities.

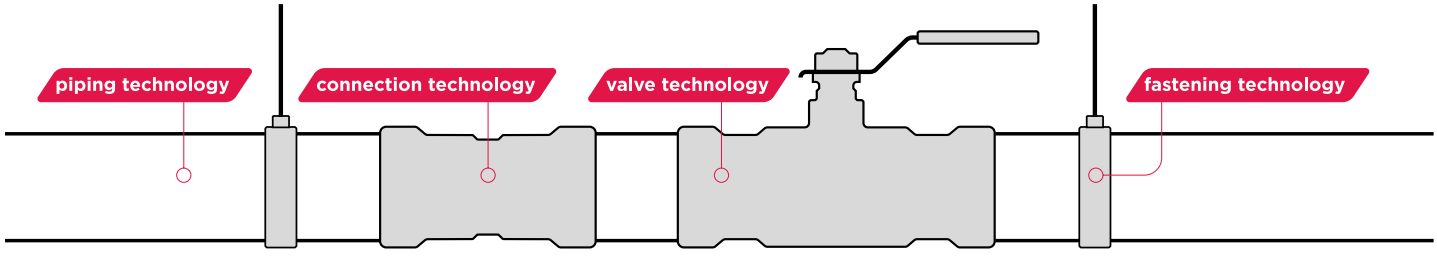
"Apollo" Valves

Since the inception in 1975, Aalberts is where technology matters and real progress can be made - humanly, financially and environmentally. At Aalberts, we create mission-critical products surrounding valve and connection technology supporting our brand, “Apollo”.

The manufacturing of Consolidated Brass Company (later called Conbraco) began in 1928, in Detroit, Michigan with a focus on ball cocks, air cocks and similar products. In 1955, the manufacturing operation moved to the Carolinas spanning North and South Carolina with 3 facilities. In 2010, Aalberts, a global Dutch company, purchased Conbraco. Today the “Apollo” brand is manufactured under the company name, Aalberts integrated piping systems, in 3 locations throughout South Carolina. Over the last 90 years the product portfolio has continued to grow to encompass ball valves, butterfly valves, safety relief valves, control valves, mixing valves and backflow preventors.

These systems are applicable for key verticals such as residential, commercial, industrial, and utility. Our products are designed and developed by our team of innovators and engineers. Our design services team can assist in helping you determine the best techniques for your application with our products. We are the only company that truly offers customers a complete solution every time that is made and sourced from the same organization.

**Don’t just buy products, buy solutions.**




**Aalberts integrated piping systems**
10715 Sikes Place Suite 200 / Charlotte / NC / 28277
aalberts-ips.us

aalberts

CPCA9000 06/23