

Submittal Data

ASTM A106 Grades B & C

Scope

Covers seamless carbon steel Grades B & C pipe for high pressure and high temperature service.

Heat Treatment

Cold-drawn pipe shall be heat treated after the final cold draw pass at a temperature of 1200°F or higher.

Hydrostatic & Nondestructive Electric Testing

Standard testing is a nondestructive test in the form of eddy current or ultrasonic testing. When specified by the purchaser, hydrostatic inspection can be performed on 2" sizes and smaller. Test pressure is 2500 psi. Test pressure shall be maintained for a minimum of 5 seconds.

End Finish

Plain End: NPS 1-1/2 and smaller shall be either plain end square cut or plain end beveled at the option of the manufacturer. NPS 2 ends shall be beveled to angle 30° +5°, -0° with a root face of 1/16" x 1/32".

Threaded Pipe: Threads comply with ANSI Standard B 1.20.1

Couplings: Couplings comply with ASTM Standard A865

Available Coatings

ASTM A106 seamless pipe is available in three different coatings:

- Blue UV Coating
- Pickled and Oiled
- Bare

Tensile Requirements

Yield Strength, min 40,000 psi
Tensile Strength, min 70,000 psi
Elongation in 2" 30% Minimum

Bending Test (Cold) For NPS 2 and under

| | Degree Of Bend | Diameter of Mandrel |
|---------------|----------------|---------------------|
| Standard | 90° | 12 X pipe O.D. |
| Close Coiling | 180° | 8 X pipe O.D. |

Frequency of Tests

Tensile tests and flattening tests are required on one length of pipe from each lot of 400 lengths or a fraction thereof for each size.

Dimensions and Weights

The dimensions and weights furnished under this specification are in agreement with the standardized dimensions and weights specified in ASME ANSI B 36.10.

Chemical Requirements Composition, % Max

| Carbon ^A | Manganese | Phosphorus | Sulfur | Silicon |
|---------------------|---------------------|-----------------------|-------------------------|-----------------------|
| .30 | 0.29/1.06 | .035 | .035 | 0.10 Min |
| Copper ^B | Nickel ^B | Chromium ^B | Molybdenum ^B | Vanadium ^B |
| .40 | .40 | .40 | .15 | .08 |

^A For each reduction of 0.01% below the specified carbon maximum, an increase of 0.06% manganese above the specified maximum will be permitted up to a maximum of 1.65%

^B The combination of these five elements shall not exceed 1.00%



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Permissible Variations in Wall Thickness

Minimum wall thickness at any point shall not be more than 12.5% under nominal wall thickness specified.
Maximum wall thickness at any point shall not be greater than 20.0% over nominal wall thickness.

Workmanship

Visual imperfections such as scabs, seams, laps or tears shall not exceed 5% of the nominal wall thickness.

Permissible Variations in Outside Diameter

NPS 1-1/2 and under ± 1/64"
NPS 2 ± 1/32"

Permissible Variations in Weight per Foot

Pipe shall not vary more than 10% over and 3.5% under the standard specified.

Product Marking

Each length of pipe is continuously stenciled to show the manufacturer, specification (A106), size (O.D. & wall), "B & C" for Grades B & C, NDE or Hydro pressure, length and heat number.

Hot-Dipped Galvanized

Pipe is galvanized to the requirements of ASTM A 53. The average weight of zinc coating shall not be less than 1.8 ounces per square foot of surface (inside and outside). When galvanized pipe is bent or otherwise fabricated to a degree that causes the zinc coating to stretch or compress beyond the limit of elasticity, some flaking of the coating may occur.

Plain End Dimensions Schedules 40 & 80

| Nominal Size | O.D. Inches | Schedule 40 | | Schedule 80 | |
|--------------|-------------|-------------|---------------|-------------|---------------|
| | | Wall | Weight, Lb/Ft | Wall | Weight, Lb/Ft |
| 1/2 | 0.840 | .109 | .85 | .147 | 1.09 |
| 3/4 | 1.050 | .113 | 1.13 | .154 | 1.48 |
| 1 | 1.315 | .133 | 1.68 | .179 | 2.17 |
| 1-1/4 | 1.660 | .140 | 2.27 | .191 | 3.00 |
| 1-1/2 | 1.900 | .145 | 2.72 | .200 | 3.63 |
| 2 | 2.375 | .154 | 3.66 | .218 | 5.03 |
| 2 1/2 | 2.875 | .203 | 5.79 | .276 | 7.66 |
| 3 | 3.500 | .216 | 7.58 | .300 | 10.25 |
| 3 1/2 | 4.000 | .226 | 9.11 | .318 | 12.50 |
| 4 | 4.500 | .237 | 10.79 | .337 | 14.98 |

Plain End Dimensions Schedules 160 & XXS

| Nominal Size | O.D. Inches | Schedule 160 | | Schedule XXS | |
|--------------|-------------|--------------|---------------|--------------|---------------|
| | | Wall | Weight, Lb/Ft | Wall | Weight, Lb/Ft |
| 1/2 | 0.840 | .188 | 1.31 | .294 | 1.72 |
| 3/4 | 1.050 | .219 | 1.95 | .308 | 2.44 |
| 1 | 1.315 | .250 | 2.85 | .358 | 3.66 |
| 1-1/4 | 1.660 | .250 | 3.77 | .382 | 5.22 |
| 1-1/2 | 1.900 | .281 | 4.86 | .400 | 6.41 |
| 2 | 2.375 | .344 | 7.46 | .436 | 9.03 |
| 2 1/2 | 2.875 | .375 | 10.01 | .552 | 13.69 |
| 3 | 3.500 | .438 | 14.32 | .600 | 18.58 |
| 3 1/2 | 4.000 | N/A | N/A | .636 | 22.85 |
| 4 | 4.500 | .531 | 22.51 | .674 | 27.54 |

