



# FITTINGS SUMMARY DATA SHEET

## ASTM A234 - WPB/WPC

CHEMICAL REQUIREMENTS (%)					
<b>Carbon</b>	<b>Magnanese</b>	<b>Phosphorous (max)</b>	<b>Sulfur (max)</b>	<b>Silicon</b>	<b>Chromium</b>
.30 max/ .35 max	.29-1.06	.050	.058	.10 min	.40 max
<b>Molybdenum</b>	<b>Nickel</b>	<b>Copper</b>	<b>Vanadium</b>		
.15 max	.40 max	.40 max	.08 max		
MECHANICAL REQUIREMENTS:					
Tensile Strength (min):	60,000/70,00 psi	Elongation:	-Longitudinal	22%	
Yield Strength (min):	35,000/40,000psi	(Std. Round Specimen)	-Transverse:	14%	

### SCOPE

This standard applies to wrought carbon steel fittings of seamless and welded construction which are manufactured to the dimensional specifications of ASME B16.9. These fittings are primarily for use in pressure piping and in pressure vessel fabrication for service at moderate and elevated temperatures.

### MATERIALS

The starting material for fittings shall consist of killed steel, forgings, bars, plates, seamless or fusion-welded tubular products with filler metal added and shall conform to the chemical requirements of ASTM A234. Unless otherwise specified, carbon steel plates may be either coarse grain or fine grain practice.

### MANUFACTURE

Forging or shaping operations are performed by hammering, pressing, piercing, extruding, upsetting, rolling, bending, machining, or by a combination of two or more of these operations. The forming process shall be applied so that it will not produce injurious imperfections in the fittings.

### HEAT TREATMENT

**Hot-formed:** WPB/WPC fittings, upon which the final forming operation is completed at a temperature above 1150°F and below 1800°F, need not be heat treated.

**Cold-formed:** WPB/WPC fittings, upon which the final forming operation is completed at a temperature below 1150°F, shall be normalized, or shall be stress relieved at 1100°F to 1275°F.

Note: All information contained in this document is derived from ASTM A403. Please refer to ASTM A403 for a complete description of all requirements. Data sheets are subject to change without notice.

### DIMENSIONS

Butt-welding fittings and butt-welding short radius elbows and returns purchased in accordance with this specification shall conform to the dimensions and tolerances given in the latest revision of ASME B16.9.

### CERTIFICATION

When requested by the purchaser, the manufacturer shall provide a certificate of compliance (material test report) to this specification. If requested to provide test reports, the manufacturer shall also provide the following where applicable:

- Chemical analysis results;
  - When the amount of an element is less than .02%, the analysis for that element is reported as "<0.02%."
- Tensile property results, report the yield strength and ultimate strength in ksi [or MPa] and elongation in percent;
- Hardness acceptable in accordance with ASTM A234, Section 10;
- Seamless or Welded;
- Type of Heat Treatment, if any;
- Starting material, specifically pipe, plate, etc.;
- Statement regarding radiographic or ultrasonic examination;
- Any supplemental testing required by the customer.

### PRODUCT MARKING

All fittings shall have the prescribed information stamped or stamped or otherwise suitable marked on each fitting in accordance with ASTM A234 / MSS SP-25. APP fittings are marked as follows:

- APP Name • Heat Identification Number
- Nominal Pipe Size • Wall Thickness • ASTM Spec
- Material Grade (WPB/WPC)