

# ASTM A234 WPB Elbow - Data Sheet

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## Supply range

Size range NPS 1/2 - NPS 48 (DN 15 - DN 1200), seamless or welded

Types 45 degree elbow, 90 degree elbow, 180 degree return bend

Radius Long radius R = 1.5 D, short radius R = 1.0 D, and 3D / 5D on request

Wall thickness SCH 10 - SCH XXS, matched to the connecting pipe schedule

Ends Beveled to ASME B16.25 for butt welding; plain end on request

Surface treatment Shot blasted, black painted, anti-rust oil, or with 3PE / FBE coating

Manufacturing process Seamless (hot formed from pipe) or welded (formed from plate and welded)

Heat treatment WPB supplied normalized, or in the as-formed condition when the forming temperature is above the upper critical temperature

Delivery standard ASTM A234 / ASME SA234, dimensions to ASME B16.9

## Inspection and documentation

Inspection Inspected by the producing mill's own inspection department, which is independent of production, against the delivery standard above. Third-party inspection - SGS, BV or TUV, or an inspector you send yourself - can be arranged at the mill or before shipment; give us the dates and the scope at the order stage.

Certificate A mill test certificate to EN 10204 3.1 showing the heat number, the chemical composition and the mechanical results is standard on every order. EN 10204 3.2, countersigned by the inspector you nominate, is available on request.

Documents with the goods The mill test certificate and the packing list travel with the shipment, and the heat number is traceable from cast through to the finished product.

Packing Sea-worthy export packing: bundled by size with end protection, corrosion protection on request, stencilled with the size, grade and heat number.

MOQ One bundle or one truckload; mixed sizes within a bundle accepted.

Lead time Counted from order confirmation, not from the enquiry. Stock sizes 7-15 days; mill run or non-stock 4-6 weeks. The delivery window is fixed on the quotation.

How we supply Sourced through partner mills; the producing mill is named on the quotation.

## Chemical composition

| Element           | WPB         | WPC         |
|-------------------|-------------|-------------|
| Carbon, C         | 0.30 max    | 0.35 max    |
| Manganese, Mn     | 0.29 - 1.06 | 0.29 - 1.06 |
| Phosphorus, P     | 0.050 max   | 0.050 max   |
| Sulphur, S        | 0.058 max   | 0.058 max   |
| Silicon, Si       | 0.10 min    | 0.10 min    |
| Chromium, Cr      | 0.40 max    | 0.40 max    |
| Molybdenum, Mo    | 0.15 max    | 0.15 max    |
| Nickel, Ni        | 0.40 max    | 0.40 max    |
| Copper, Cu        | 0.40 max    | 0.40 max    |
| Vanadium, V       | 0.08 max    | 0.08 max    |
| Carbon equivalent | 0.50 max    | 0.50 max    |

## Mechanical properties

| Grade | Tensile strength                    | Yield strength min   | Elongation min | Hardness max |
|-------|-------------------------------------|----------------------|----------------|--------------|
| WPB   | 415 - 585 MPa (60,000 - 85,000 psi) | 240 MPa (35,000 psi) | 22%            | 197 HBW      |
| WPC   | 485 - 655 MPa (70,000 - 95,000 psi) | 275 MPa (40,000 psi) | 22%            | 197 HBW      |

## Source

Source: chemical composition requirements of ASTM A234 / ASME SA234, Table 1. The standard is the governing document.

Source: tensile requirements of ASTM A234 / ASME SA234, Table 1. The standard is the governing document.

The radius fixes the centre to end dimension: long radius is 1.5 times the nominal size and short radius is 1.0, with ends bevelled to ASME B16.25. Source: this page's elbow geometry section.

Page: <https://mejorsteel.com/standards/astm-a234-wpb-elbow/> | The standard is the governing document. MOQ, lead time and price are confirmed on request.