Seamless Pipe Elbows

For industrial piping systems – from standard to special-alloy grades

Angles: 45°, 90° – custom angles 15° to 180° on request

Standards: EN 10253-2/-4 (types 2/3/5) · ASME B16.9 (LR/SR)

Materials: Carbon steel · low-temp steel · CrMo creep-resistant · P91/P92 · stainless 304L/316L/321/347/316Ti/904L/6Mo · duplex · super duplex · nickel-based · CuNi

Test certificates: EN 10204 type 3.1 / 3.2 · NDT on request · external inspection available

Certifications: ISO 9001 · AD 2000 · ISO 19443 (nuclear)

1 Applications

Our pipe elbows are used wherever media must be reliably routed under pressure and temperature – including demanding environments with elevated corrosion or safety requirements.

- ✓ **Power plants & energy**
  High-pressure / high-temperature systems, steam piping
- ✓ **Chemical industry & refineries**
  Corrosive media, aggressive process environments
- ✓ **Equipment & plant engineering**
  Project-specific custom dimensions & drawn parts
- ✓ **Nuclear**
  Qualified supply chain per ISO 19443

2 Typical Designs

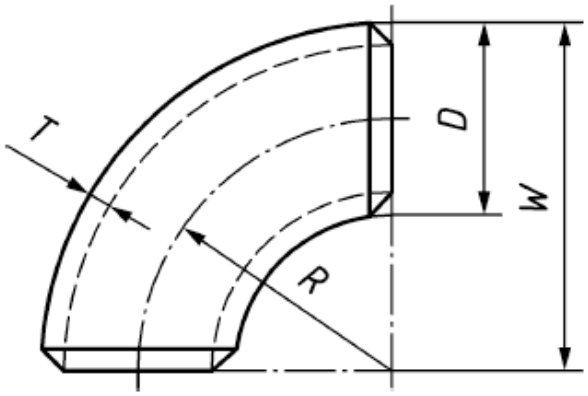
Per ASME B16.9

Type	Characteristic
LR (Long Radius)	Bend radius = 1.5 × DN – standard type for most piping systems
SR (Short Radius)	Bend radius = 1.0 × DN – for tight space conditions

Per EN 10253

Type	Characteristic
Type 2	Long-radius elbow, standard requirements
Type 3	Short-radius elbow, enhanced requirements
Type 5	Long-radius elbow, enhanced requirements

Custom angles (15°–180°) and project-specific radii on request.



3 Manufacturing & Quality Assurance

Our pipe elbows are manufactured from seamless or welded tubing and are hot- or cold-formed depending on material and requirements. Specifically designed pressing and forming processes ensure uniform wall thickness distribution and tight dimensional tolerances. Subsequent heat treatment and machining are performed in line with the material grade.

- ✓ **Reproducible dimensional accuracy**
  High roundness, low wall thickness variation
- ✓ **Process-controlled quality**
  Controlled manufacturing per ISO 9001
- ✓ **Full traceability**
  Continuous documentation, EN 10204 inspection certificates
- ✓ **Flexible custom production**
  Drawn parts, custom dimensions, customer specifications

4 Materials

We supply pipe elbows from a broad range of materials – matched to temperature, pressure, corrosion requirements and applicable standard. In addition to standard grades we specialise in demanding alloys that are not readily available through standard procurement channels.

EN materials	ASTM / ASME materials
P235GH (1.0345) · P265GH (1.0425)	A/SA 234 WPA · WPB · WPC
P355N (1.0562) · P355NH (1.0565)	A/SA 420 WPL6
L360NE (EN ISO 3183)	A/SA 420 WPL6 · API 5L L360
16Mo3 (1.5415)	A/SA 234 WP1
13CrMo4-5 (1.7335) · 10CrMo9-10 (1.7380)	A/SA 234 WP12 · WP22
X10CrMoVNb9-1 – P91 (1.4903)	A/SA 234 WP91
X11CrMoWVNb9-1-1 – P92 (1.4901)	A/SA 234 WP92
X2CrNi18-9 – 304L (1.4306 / 1.4307)	A/SA 403 WP304L

EN materials	ASTM / ASME materials
X2CrNiMo17-12-2 – 316L (1.4404)	A/SA 403 WP316L
X5CrNiMo17-12-2 – 316 (1.4401)	A/SA 403 WP316
X6CrNiTi18-10 – 321 (1.4541)	A/SA 403 WP321
X6CrNiNb18-10 – 347 (1.4550)	A/SA 403 WP347
X6CrNiMoTi17-12-2 – 316Ti (1.4571)	A/SA 403 WP316Ti
X1NiCrMoCu25-20-5 – 904L (1.4539)	A/SA 403 WP904L
X1NiCrMoCuN25-20-7 – 6Mo (1.4529)	A/SA 403 WP926 (6Mo)
X2CrNiMoN22-5-3 – Duplex 2205 (1.4462)	A/SA 815 S31803
X2CrNiMoN25-7-4 – Super Duplex 2507 (1.4410)	A/SA 815 S32750
NiCr22Mo9Nb – Alloy 625 (2.4856)	SB-366 WPN625
CuNi10Fe1Mn – CuNi 90/10 (2.0872)	SB-467 C70600

Special materials & high-performance alloys

- Super Duplex (e.g. 1.4410 / S32750)
- Nickel-based alloys: Inconel, Hastelloy, Monel
- Copper-nickel alloys (CuNi 90/10, 70/30)
- Further project-specific materials on request

5 Standards & Codes

EN 10253-2/-4: Butt-welding pipe fittings made of steel

ASME B16.9: Factory-Made Wrought Buttwelding Fittings

EEMUA 234: Pipe fittings made of nickel alloys

2014/68/EU (PED): Pressure Equipment Directive · AD 2000 code

Manufacturing in accordance with the AD 2000 code as well as project-specific specifications or technical drawings on request.

6 Quality & Documentation

Our quality management system is certified to DIN EN ISO 9001, AD 2000 and ISO 19443 (nuclear). Every delivery is inspected and fully documented.

Standard inspection

- Visual inspection
- Dimensional checks
- Material certificate 3.1

Extended inspection

- NDT (RT, UT, PT, MT)
- PMI analysis
- Material testing

External acceptance

- TÜV / SGS / DNV / Lloyd's
- Certificate EN 10204 type 3.2
- Customer-specific inspection

7 Nirotec as Project Supplier

Beyond our own elbow production we procure and supply further pipe fittings on a project basis: tees, reducers, caps and flanges – from the same material, to the same standards, with uniform documentation.

Your benefit: One contact for all pipe fittings within your project – no coordination effort between multiple suppliers.

8 Inquiry & Contact

For a project-specific inquiry we ideally require:

- Standard / type (e.g. ASME B16.9 LR or EN 10253 type 3)
- Material grade and, if applicable, heat restriction
- Dimension: DN / NPS, wall thickness or schedule
- Quantity and requested delivery date
- Required documentation (3.1 / 3.2, NDT, external inspection)

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