

## Pipes

### Steel constructions

Heavy walled pipes  
Steel pipes, seamless, hot finished  
DIN EN 10210  
S 235 JRH  
S 355 J2H  
S 355 J2H +N

### Machine construction

DIN EN 10297  
E 235 +AR  
E 355 +AR  
E 355 +N

### Norm-pressurized applications

DIN EN 10216-3  
P 355 N  
Exterior diameter: 10,2 to 660 mm  
Wall thickness: 1,8 to 100 mm  
Product: APZ 3.1 compliant with EN 10204

### Normal wall thickness pipes

Steel pipes, seamless, hot finished, for pipeline construction and other pressurized applications:  
DIN EN 10216  
P 235 TR2  
Exterior diameter: 10,2 to 610 mm  
Wall thickness: 1,6 to 12,5 mm  
Product: APZ 3.1 under EN 10204

### Swivel pipes, steel pipe for machine construction

Steel pipe for work under pressure with guaranteed finished masses when rolled:  
DIN EN 10294-1  
E 355  
E 470 (20MnV6)

### Norms for normalised annealed or normalised rolled

DIN EN 10294-1  
E 355 J2  
E 420 J2 (20MnV6 N)

### Norms for case hardened

DIN EN 10294-1  
E 590 K2 (20MnV6 V)  
Exterior diameter: 30 to 250 mm  
Interior diameter: 15 to 120 mm  
Product: APZ 3.1 according to EN 10204

### Precision steel pipe, seamless, cold finished

DIN EN 10305-1  
E 235  
E 355

### Norms in the delivery conditions +C and +N

A Division of the Optimo Group

Exterior diameter: 4 to 380 mm  
Wall thickness: 0,5 to 24 mm  
Product: WZ 2.2 according to EN 10204  
APZ 3.1 according to EN 10204  
Welded, cold finished DIN EN 10305-2  
E 235  
E 355

**Norms in the delivery conditions +C and +N**

Exterior diameter: 10 to 210 mm  
Wall thickness: 1 to 10 mm  
Product: WZ 2.2 according to EN 10204  
APZ 3.1 according to EN 10204  
Welded with quadratic and square profile DIN EN 10305-5  
E 235  
E 355

**Norms in the delivery conditions: +CR1 / +CR2 and +N**

Side lengths up to 110 x 110 mm  
or 120 x 100 mm; wall thickness up to 8 mm  
Product: WZ 2.2 according to EN 10204  
APZ 3.1 according to EN 10204

**Piston tubes**

Hard chrome plated, ground and polished to the international standard:  
DIN EN 10305-1 / E 355  
Tolerance f7 chrome layer thickness: min. 20 µm  
Exterior diameter: 22 to 100 mm  
Product: APZ 3.1 according to EN 10204 piston rods  
Hard chrome plated, ground and polished to international standard materials: 20MnV6, Ck45, 42CrMo4V even in inductively hardened construction  
As well as in nickel-plated and chrome-plated construction tolerance: to Ø 16 mm f8, up to Ø 18 mm f7  
Chrome plate thickness: to Ø 18 mm min. 13 µm, to Ø 20 mm min. 20 µm Diameter: 5 to 240 mm, also dimensioned in inches  
Product: APZ 3.1 according to EN 10204

**Bearing tubes**

According to EN ISO 683-17  
Material: 100Cr6 (1.3505), 100CrMo7-3 (1.3536)

Cold finished +C delivery state: Semi-processed GKZ+K+GBZ  
Hardness in delivery state max. 250 HB  
Exterior diameter: 12 mm to 100 mm  
Wall thickness: 3 mm to 15 mm  
Product: APZ 3.1 according to EN 10204

Hot rolled delivery state: Semi-processed GKZ  
Hardness in delivery state max. 207 HB  
Exterior diameter: 100 mm to 245 mm  
Wall thickness: 15 mm to 34 mm  
Product: APZ 3.1 according to EN 10204

**Construction pipes / decorative pipes**

	<i>W.No.</i>	<i>USA AISI</i>	<i>Welded</i>	<i>Welded / polished</i>	<i>Welded/ heat treated/ground</i>	<i>welded</i>	<i>Welded/ ground</i>
Stainless	1.4301	304	10.0 x 1.5 – 168.3 x 2.0	10.0 x 1.5 – 114.3 x 4.0	26.9 x 2.0 – 48.3 x 2.6	10.0 x 10.0 x 1.0 – 250 x 150 x 5	15.0 x 15.0 x 1.5 – 120 x 60 x 4.0
	1.4404	316L		25.0 x 2.0 – 48.3 x 2.0		15.0 x 15.0 x 1.5 – 120 x 60 x 4.0	
	1.4571	316Ti		33.7 – 48.3 x 2.0	33.7 – 42.4 x 2.6	15.0 x 15.0 x 1.5 – 200 x 100 x 6.0	

**Conduit pipe**

	<i>W.No.</i>	<i>USA AISI</i>	<i>Seamless</i>	<i>Hydraulic pipes</i>	<i>Beverage lines</i>	<i>Welded</i>	<i>Welded/ heat treated</i>
Stainless	1.4301	304	4.0 x 1.0 – 323.9 x 12.7	6.0 x 1.0 – 42 x 2.0	18 x 1.5 – 154 x 2.0	8.0 x 1.0 – 508 x 4.0	6.0 x 1.0 – 114.3 x 3.0
	1.4306	304L	10.3 x 2.0 – 323.9 x 12.7				
	1.4307	304L	4.0 x 1.0 – 323.9 x 12.7	6.0 x 1.0 – 42 x 2.0	18 x 1.5 – 154 x 2.0	8.0 x 1.0 – 508 x 4.0	6.0 x 1.0 – 114.3 x 3.0
	1.4401	316	6.0 x 1.0 – 323.9 x 12.7				
	1.4404	316L	6.0 x 1.0 – 323.9 x 12.7		18 x 1.5 – 154 x 2.0	17.2 x 1.6 – 406.4 x 3.0	17.2 x 1.6 – 114.3 x 3.0
	1.4541	321	6.0 x 1.0 – 219.1 x 12.7			21.3 x 2.0 – 323.9 x 4.0	6.0 x 1.0 – 114.3 x 3.0
	1.4571	316Ti	4.0 x 1.0 – 323.9 x 12.7	6.0 x 1.0 – 42 x 2.0		10.0 x 1.0 – 609.6 x 4.0	6.0 x 1.0 – 114.3 x 3.0
Highly corrosion resistant	1.4539	904L				76.1 x 3.0 – 355.6 x 4.0	
Heat resistant	1.4841	314					
	1.4845	310S					
	1.4878	321H					
Duplex	1.4462	UNS531 803					
	1.4501	UNS532 760					

**Hollow steel**

	<i>W.No.</i>	<i>USA AISI</i>	<i>seamless</i>
Stainless	1.4301	304	32 x 16 – 420 x 300
Stainless	1.4306	304L	32 x 16 – 250 x 200
Stainless	1.4307	304L	32 x 16 – 420 x 300
Stainless	1.4401	316	32 x 16 – 420 x 300
Stainless	1.4404	316L	32 x 16 – 420 x 300
Stainless	1.4541	321	32 x 16 – 250 x 200
Stainless	1.4571	316Ti	32 x 16 – 250 x 200
Heat resistant	1.4878	321H	32 x 20 – 250 x 200
Duplex	1.4462	UNS531803	50 x 25 – 250 x 200