

Prodec 316L/4404

EN 1.4404, ASTM TYPE 316L / UNS S31603

General characteristics

Prodec 316L/4404 is a version of Supra 316L/4404 with improved machinability. Improves productivity with faster machining, longer tool life, better dimensional tolerances, superior machined surface quality, and improved yields compared to conventionally produced Supra 316L/4404.

Typical applications

- Fasteners
- Flanges
- Valves
- Pressure fittings

Products & dimensions

Quarto plate products, available dimensions (mm)

Surface finish		Coil / Strip		Plate / Sheet	
		Thickness	Width	Thickness	Width
1D	Hot rolled, heat treated, pickled			5.00-130.00	400-3200
1G	Ground			12.00-19.99	400-3200

Chemical composition

The typical chemical composition for this grade is given in the table below, together with composition limits given for the product according to different standards. The required standard will be fully met as specified on the order.

The chemical composition is given as % by mass.

	C	Mn	Cr	Ni	Mo	N	Other
Typical	0.02		17.2	10.1	2.1		
ASME II A SA-240	≤0.030	≤2.00	16.0-18.0	10.0-14.0	2.00-3.00	≤0.10	
ASTM A240	≤0.030	≤2.00	16.0-18.0	10.0-14.0	2.00-3.00	≤0.10	
ASTM A666	≤0.030	≤2.00	16.0-18.0	10.0-14.0	2.00-3.00	≤0.10	
EN 10028-7	≤0.030	≤2.00	16.5-18.5	10.0-13.0	2.00-2.50	≤0.10	

EN 10088-2	≤0.030	≤2.0	16.5-18.5	10.0-13.0	2.0-2.5	≤0.10	
EN 10088-3	≤0.030	≤2.00	16.5-18.5	10.0-13.0	2.0-2.5	≤0.10	
EN 10088-4	≤0.030	≤2.0	16.5-18.5	10.0-13.0	2.0-2.5	≤0.10	
IS 6911	≤0.030	≤2.00	16.0-18.0	10.0-14.0	2.00-3.00	≤0.10	
TECHNETICS M118 Rev A (Z2 CND)	≤0.030	≤2.0	16-19	10.0-14.0	2.0-2.5	≤0.11	

Corrosion resistance

Pitting corrosion resistance		Crevice corrosion resistance
PRE	CPT	CCT
24	20±2	<0

Pitting Resistance Equivalent (PRE) is calculated using the following formula: $PRE = \%Cr + 3.3 \times \%Mo + 16 \times \%N$

Corrosion Pitting Temperature (CPT) as measured in the Avesta Cell (ASTM G 150), in a 1M NaCl solution (35,000 ppm or mg/l chloride ions).

Critical Crevice Corrosion Temperature (CCT) is obtained by laboratory tests according to ASTM G 48 Method F

Mechanical properties

Cold rolled coil and sheet	R _{p0.2} MPa	R _{p1.0} MPa	R _m MPa	Elongation ¹⁾ %	Impact strength J	Rockwell	HB	HV
Typical (thickness 1 mm)	300	325	625	70				
ASME II A SA-240	≥ 170		≥ 485				≤ 217	
ASTM A240	≥ 170		≥ 485			≤ 95HRB	≤ 217	
EN 10028-7	≥ 240	≥ 270	530 - 680	≥ 40				
EN 10088-2	≥ 240	≥ 270	530 - 680	≥ 40				
EN 10088-4	≥ 240	≥ 270	530 - 680	≥ 40				
IS 6911	≥ 170		≥ 485			≤ 95HRB	≤ 217	
TECHNETICS M118 Rev A (Z2 CND)	≥ 240	≥ 270	530 - 680	≥ 40				

Hot rolled coil and sheet	R _{p0.2} MPa	R _{p1.0} MPa	R _m MPa	Elongation ¹⁾ %	Impact strength J	Rockwell	HB	HV
Typical (thickness 4 mm)	300	350	600	55			170	
ASME II A SA-240	≥ 170		≥ 485				≤ 217	
ASTM A240	≥ 170		≥ 485				≤ 217	
EN 10028-7	≥ 240	≥ 270	530 - 680	≥ 40				
EN 10088-2	≥ 240	≥ 270	530 - 680	≥ 40				
EN 10088-4	≥ 240	≥ 270	530 - 680	≥ 40				

IS 6911	≥ 170		≥ 485			≤ 95HRB	≤ 217	
TECHNETICS M118 Rev A (Z2 CND)	≥ 240	≥ 270	530 - 680	≥ 40				

Hot rolled quarto plate	R _{p0.2} MPa	R _{p1.0} MPa	R _m MPa	Elongation ¹⁾ %	Impact strength J	Rockwell	HB	HV
Typical (thickness 15 mm)	260	300	570	55				
ASME II A SA-240	≥ 170		≥ 485			≤ 95HRB	≤ 217	
ASTM A240	≥ 170		≥ 485			≤ 95HRB	≤ 217	
EN 10028-7	≥ 220	≥ 260	520 - 670	≥ 45				
EN 10088-2	≥ 220	≥ 260	520 - 670	≥ 45				
EN 10088-4	≥ 220	≥ 260	520 - 670	≥ 45				
IS 6911	≥ 170		≥ 485			≤ 95HRB	≤ 217	
TECHNETICS M118 Rev A (Z2 CND)	≥ 220	≥ 260	520 - 670	≥ 45				

Wire rod	R _{p0.2} MPa	R _{p1.0} MPa	R _m MPa	Elongation ¹⁾ %	Impact strength J	Rockwell	HB	HV
Typical	220	260	530	55				

¹⁾Elongation according to EN standard:

A₈₀ for thickness below 3 mm.

A for thickness = 3 mm.

Elongation according to ASTM standard A₂ or A₅₀.

Physical properties

Physical properties according to EN 10088 are shown below.

Density kg/dm ³	Modulus of elasticity GPa	Thermal exp. at 100 °C 10 ⁻⁶ /°C	Thermal conductivity W/m°C	Thermal capacity J/kg°C	Electrical resistance μΩm	Magnetizable
8.0	200	16,0	15	500	0.75	No

Fabrication

More detailed information concerning welding procedures can be obtained from the Outokumpu Welding Handbook, available from our sales offices.

Standards & approvals

The most commonly used international product standards are given in the table below.

Standard	Designation
ASME SA-240M Code Sect. II. Part A	TYPE 316L / UNS S31603
ASTM A240/A240M	TYPE 316L / UNS S31603
ASTM A666	TYPE 316L / UNS S31603
EN 10028-7, PED 2014/68/EU	1.4404
EN 10088-2	1.4404
EN 10088-3	1.4404
EN 10088-4	1.4404
IS 6911, AMENDMENT NO. 2	ISS 316 L
TECHNETICS M118 Rev A (Z2 CND 17-12 acc RCCM M3307) + JN 14-2016	1.4404

Contacts & Enquiries

Contact your nearest sales office

www.outokumpu.com/contacts

Working towards forever.

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