PRODEC 316/316L is an improved version of standard 316L for improved machinability and outstanding uniformity. The consistency and optimal machinability of PRODEC permits machining at higher speeds and feeds, producing superior quality parts for the lowest total cost. It should be considered for automatic screw machines where extensive machining is required.

PRODEC 316/L provides good resistance to pitting and crevice corrosion in environments containing chlorides and other halides. Although improvements in machinability in the past have been associated with reduced corrosion resistance, PRODEC 316/316L provides corrosion resistance consistent with standard 316L stainless steel. Commonly, PRODEC 316/316L is dual certified as PRODEC 316L and PRODEC 316 because the material meets both the lower carbon limit of 316L and the slightly higher strength of 316.

PRODEC 316/316L is readily welded by a full range of conventional welding procedures except oxyacetylene. AWS E316L/ER316L and other low carbon filler metals with molybdenum content higher than that of the base metal should be used with PRODEC 316/316L stainless steel.

Specifications

UNS: S31600, S31603 **W. Nr./EN:** 1.4401, 1.4404 **ASTM:** A 276, A 479 **AMS:** 5648, 5653

Chemical Composition, %

	Cr	Ni	C	Mn	P	S	Si	Mo	N	Fe
MIN	16.0	10.0	–	–	–	0.015	–	2.0	–	–
MAX	18.0	14.0	0.03	2.0	0.04	0.03	0.75	3.0	0.1	balance

Features

- Extended tooling life
- Reduced machining cost

Applications

- Chemical process equipment
- Food and beverage industry
- Fasteners

Physical Properties

Density: 0.285 lb/in^3 **Modulus of Elasticity:** 29 x 10^6 psi **Linear Expansion 60-212°F:** 9.4 x 10^{-6}/°F
Thermal Conductivity: 8.7 Btu/ft hr °F **Heat Capacity:** 0.12 Btu/lb °F **Electrical Resistivity:** 27.6 Ω in x 10^{-6}

Mechanical Properties

Typical Tensile Properties

Tensile Strength, ksi	Yield Strength, ksi	Elongation in 2 inches, %	Reduction of area, %	Hardness, HB
85	44	56	69	170

Minimum Tensile Properties (ASTM A 276)

Tensile Strength, ksi	Yield Strength, ksi	Elongation in 2 inches, %	Reduction of area, %
75	30	40	50

Turning

Feed, in/rev		< 0.012	0.012 - 0.02	0.02 - 0.04
Cutting Depth, in		0.08	0.08 - 0.2	0.2 - 0.4
Cutting Speed, sfm	C7	780	–	–
	C6	620	560	295
	C5	–	460	260
	HSS	95	80	50

Drilling

High Speed Steel Twist Drills

Drill Diameter, in	0.04	0.12	0.2	0.4	0.6	0.8	1.2
Speed, RPM	3200 - 3800	1600 - 1800	1080 - 1270	540 - 640	360 - 430	270 - 320	180 - 220
SFM	33-38	50-57	57 - 66	57 - 66	57 - 66	57 - 66	57 - 66
Feed, in/rev	0.002	0.004	0.008	0.012	0.014	0.016	0.018

Notes: 1. Cutting Fluid: Ample flow of 10% emulsion coolant., 2. With short NC drills, feeds can be increased about 40%., 3. When hole depth exceeds 4x diameter, clear chips from hole., 4. With TiN-Coated HSS drills, speed can be increased 10%.

Milling

	Face Milling	Side Milling	End Milling	End Milling
Speed, sfm	490 - 820	590 - 790	490 - 720	165 - 330
Cemented Carbide Feed	0.006 - 0.012	0.01 - 0.012	0.004 - 0.008	0.002 - 0.008
Type of Carbide	C7 - C6	C7 - C6	C7 - C6	C5
HSS Tool, sfm	80 - 100	80 - 100	80 - 100	–
HSS Feed, in/tooth	0.005 - 0.008	0.005 - 0.008	0.001 - 0.006	–