

304 is the original "18-8" stainless. It is produced in greater quantity than any other austenitic stainless steel. 304 provides useful resistance to corrosion in many environments ranging from moderately reducing to moderately oxidizing. Through the controlled addition of nitrogen, it is common for 304L to meet the mechanical properties of 304 straight grade. As a result, most products are dual certified as 304 and 304/304L.

Specifications

UNS: S30400, S30403 W. Nr./EN: 1.4307, 1.4301 ASTM: A 240, A 276, A 312, A 479 ASME: SA-240, SA-312, SA-479

Chemical Composition, %

	Ni	Cr	Mn	Si	C	S	P	N	Fe
MIN	8.0	18.0	—	—	—	—	—	—	—
MAX	10.5	20.0	2.0	0.75	0.03	0.03	0.045	0.10	balance

Features

- Good general corrosion resistance
- Ease of cleaning
- Excellent strength and toughness at cryogenic temperatures
- Good formability
- Good weldability

Applications

- Food processing and handling
- Heat exchangers
- Chemical process vessels
- Conveyors
- Architectural

Physical Properties

Density: 0.285 lb/in³ Melting Range: 2550-2590°F Poisson's Ratio: 0.3 Electrical Resistivity: 433 Ohm-circ mil/ft

Temperature, °F	70	212	932
Coefficient* of Thermal Expansion, in/in°F x 10 ⁻⁶	—	9.2	—
Thermal Conductivity Btu • ft/ft ² • hr • °F	—	9.4	12.4
Modulus of Elasticity Dynamic, psi x 10 ⁶	29	—	—

* 70°F to indicated temperature.

Mechanical Properties

Representative Tensile Properties

Ultimate Tensile Strength, ksi	75
0.2% Yield Strength, ksi	30
Elongation, %	40
Hardness MAX, Brinell	201

Typical Tensile and Impact Properties

Temperature, °F	-425	-320	-100	70	400	800	1200	1500
Ultimate Tensile Strength, ksi	250	230	150	90	70	66	48	23
0.2 % Yield Strength, ksi	100	70	50	35	23	19	15.5	13
Charpy Impact V-notch, ft-lbs	85	85	—	150	—	—	—	—



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