

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. As a result, most products are dual certified as 304/304L.

Chemistry

	Ni	Cr	Mn	Si	C	S	P	N	Fe
Min	8.0	18.0	-	-	-	-	-	-	-
Max	11.0	20.0	2.0	0.75	0.03	0.03	0.045	0.10	bal

Per ASTM A240

Specifications

UNS: S30400, S30403

W. Nr./EN: 1.4301, 1.4307

ASTM: A240, A276, A312, A479

ASME: SA-240, SA-276, SA-312, SA-479

Physical Properties

Density	0.285 lb/in ³
Melting Range	2550-2590°F
Poisson Ratio	0.3
Electrical Resistivity	28.3 μΩ • in
Coefficient of Thermal Expansion (68°F - 212°F)	9.2 μin/(in • °F)
Thermal Conductivity (212°F)	9.4 BTU/(hr•ft•°F)
Modulus of Elasticity (68°F)	29 • 10 ⁶ psi

Mechanical Properties

Specification: A240

Ultimate Tensile Strength, ksi	70
0.2% Yield Strength, ksi	25
Elongation, %	40
Hardness MAX, Brinell	201

* Values are minimums for condition A unless otherwise stated

Specification: A276

Ultimate Tensile Strength, ksi	70
0.2% Yield Strength, ksi	25
Elongation, %	40
Hardness MAX, Brinell	-

* Values are minimums for condition A unless otherwise stated

Typical Low and Elevated Temperature Properties

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

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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
- Pharmaceutical equipment

