UNITED PERFORMANCE METALS
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AN ONI COMPANY

304L Stainless Steel

AMS 5511 / AMS 5513

304L stainless steel (AMS 5511), is a variation of stainless steel 304 with a lower-carbon content. Type 304L maximum carbon content is 0.03%. It also has lower mechanical properties than 304. Type 304L materials can be used in the welded condition as opposed to the annealed condition and still maintain resistance to corrosion and lend themselves to many types of fabrication.

304 Chemical Composition

- **C** Carbon - 0.030% maximum
- **Mn** Manganese - 2.00% maximum
- **P** Phosphorus - 0.045% maximum
- **S** Sulfur - 0.03% maximum
- **Si** Silicon - 0.75% maximum
- **Cr** Chromium - 18.000 - 20.000%
- **Ni** Nickel - 8.000 - 12.000%
- **N** Nitrogen - 0.10% maximum
- **Fe** Iron - Balance

Percent by weight, maximum unless a range is listed.

Other industry standards we comply with

- W.NR 1.4307
- PWA-LCS
- GE Aircraft Engine (GT193)
- GE Aviation S-SPEC-35 AeDMS S-400
- RR SABRe Edition 2
- DFARS Compliant

Standard Inventory Specifications

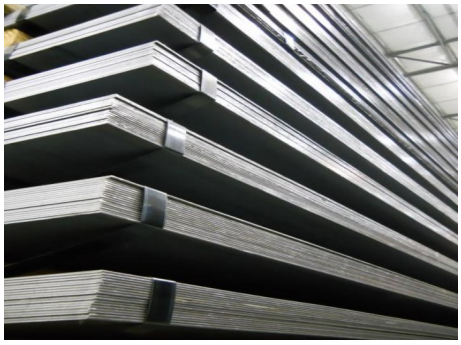
- UNS S30403
- AMS 5511
- AMS 5513
- ASTM A 240
- ASTM A 276
- ASTM A 479
- ASTM A 484
- ASME SA 240

Forms Stocked

- Coil - 0.010” - 0.125” thick
- Sheet - 0.010” - 0.125” thick
- Plate - 0.1875” - 2.000” thick
- Rolled Strip - 0.0008” - 0.012”

Applications

- Fasteners like nuts and bolts used in corrosive marine environments
- Textiles and acidic dyes
- Processing equipment where corrosion at welded joints is a concern
- Containers for chemicals or transport
- Food and beverage industry
- Heat exchangers
- Aerospace Structures



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Features

- Excellent corrosion resistance
- Good fabrication qualities
- Good strength and toughness at cryogenic temperatures
- Excellent formability

Resistance to Corrosion: Type 304L austenitic stainless steel provides useful resistance to corrosion on a wide range of moderately oxidizing to moderately reducing environments. This alloy is widely used in equipment and utensils for processing and handling of food, beverages and dairy products.

Physical Properties

- Density: 0.29 lb/in^3 (8.03 g/cm3)
- Modulus of Elasticity in Tension: 29 x 10^6 psi (200 GPa)

Linear Coefficient of Thermal Expansion

Temperature Range		Mean Coefficient of thermal Expansion	
°C	°F	cm/cm°C	in/in/°F
20-100	68-212	$16.6 \cdot 10^{-6}$	$9.2 \cdot 10^{-6}$
20-870	68-1600	$19.8 \cdot 10^{-6}$	$11 \cdot 10^{-6}$

Thermal Conductivity

Temperature Range		Coefficients	
°C	°F	W/m·K	Btu/(hr/ft^2/hr/°F/ft)
100	212	16.3	9.4
500	932	21.4	12.4

Specific Heat

Temperature Range		J/kg°K	Btu/lb/°F
°C	°F		
0-100	32-212	500	0.12

Magnetic Permeability

H/m annealed
1.02 Max @ 200 H

Electrical resistivity (Annealed Condition)

Temperature Range		microhm-cm	microhm-in
°C	°F		
20	68	72	28.3
100	212	78	30.7
200	392	86	33.8
400	752	100	39.4
600	1112	111	43.7
800	1472	121	47.6
900	1652	126	49.6

Mechanical Properties

Grade	Tensil Strength, Min.		0.2% Yield Strength, Min.		Elong. In 2” (50mm)	Hardness, Max.	
	psi	MPa	psi	MPa	%, Min.	Brinell	RB
304	25,000	170	70000	485	40	201	92