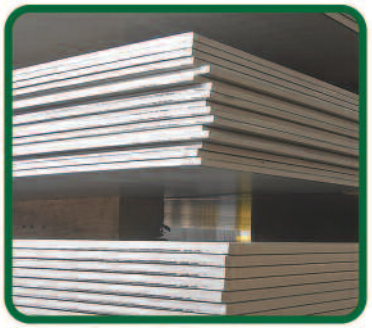
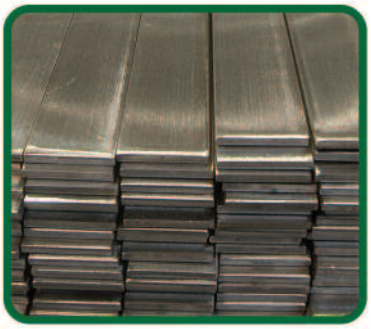
Alloy 317LMN Specifications: UNS S31726





ALLOY 317LMN (UNS S31726)

Penn Stainless inventory now includes Alloy 317LMN (UNS S31726) in sheet, sheet coil, plate, round bar, processed flat bar and tubular products.

GENERAL PROPERTIES

Alloy 317LMN is an austenitic, higher-molybdenum bearing stainless steel further alloyed with nitrogen that is particularly effective in enhancing resistance to pitting and crevice corrosion and also has excellent resistance to chemical attack. Its low carbon composition provides resistance to sensitization during welding and the additional nitrogen serves to increase its strength. Alloy 317LMN has the highest aqueous corrosion resistance of all standard stainless steels and also has higher creep, stress-to-rupture, and tensile strength at higher temperatures.

APPLICATIONS

Similar to alloy 317L, 317LMN is commonly used to handle sulfur, pulp liquor, acid dyestuffs, bleaching solutions, flue gasses, and many chemical compounds. Industries that frequently use alloy Alloy 317LMN include:

- Paper and pulp
- Textile
- Food processing
- Process equipment

STANDARDS ALLOY 317LMN

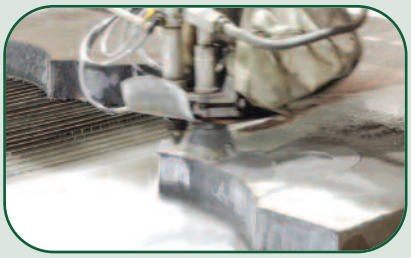
ASTM/ASME .....UNS S31726

EURONORM FeMi35Cr20Cu4Mo2

DIN 2.4660

Alloy 317LMN (UNS S31726) can be processed by Penn Stainless utilizing the following methods:

- Shear Cutting
- Plasma Cutting
- HQ Plasma Cutting
- Dynamic Water Jet Cutting
- Laser Cutting
- Saw Cutting
- Gauer Processing
- Machine Cutting



Product Offering:

- Plate
- S/E processed bar
- Tubular products
- Structurals

CORROSION RESISTANCE

- Alloy 317LMN, along with 317L, is considered more resistant to atmospheric and other mild type of corrosion, along with solutions of sulfuric acids, than conventional chromium-nickel stainless steels
- Resistant to sulfuric acid concentrations at temperatures as high as 129°F (49°C)
- High molybdenum and nickel content significantly improves chloride pitting and crevice corrosion
- Low carbon content provides sensitization to intergranualr corrosion during welding and other thermal processes
- Has the highest aqueous corrosion resistance of all standard stainless steels

OXIDATION RESISTANCE

- All chromium-nickel-molybdenum stainless steels have excellent resistance to oxidation
- Has a low rate of scaling in ordinary atmospheres at temperatures up to 1600 to 1650°F (871 to 899°C)

HEAT TREATMENT

- All common hot working processes are possible with this alloy
- Heat to 2100 to 230°F (1149 to 1260°C)
- Avoid working below 1700°F
- Should not be “stress relieved” by any heat treatment other than a full solution anneal
- Cannot be hardened by heat treatment

WELDING CHARACTERISTICS

- Weldable by all common methods
- Because of the low carbon restriction, carbide precipitation along welded boundaries will be minimized
- Use of an over-alloyed filler is suggested to maintain corrosion resistance in the as-welded condition

MACHINABILITY

- Substantially tougher than mild steel
- Requires heavy feeds and slow speeds to overcome its tendency towards work hardening

CHEMICAL PROPERTIES

Type	C	Mn	Si	Cr	Mo	P	S	N	Fe
317LMN	0.035 max	2.00 max	0.75 max	min: 17.0 max: 20.0	min: 4.0 max: 5.0	0.04 max	0.03 max	min: 0.10 max: 20.0	balance

MECHANICAL PROPERTIES

Grade	Tensile Strength ksi (MPa) min	Yield Strength 0.2% offset ksi (MPa) min	Elongation (% in 50mm) min	Hardness (Brinell) MAX	Hardness (Rockwell B) MAX
317LMN	80 (550)	35 (240)	40	223	96

PHYSICAL PROPERTIES

	Alloy 317LMN	
Density	lb_m/in^3	g/cm^3
at 68°F (20°C)	0.29	8.0
Coefficient of Thermal Expansion	**10^{-6}/°F (10^{-6}/°C)**	
77°F to: 212°F (25 -100°C)	9.2 (16.5)	
77°F to 932°F (25 -500°C)	10.1 (18.2)	
77°F to 1832°F (25 -1000°C)	10.8 (19.5)	
Thermal Conductivity	**Btu/ft^2-hr-°F-in**	**Watts/m- K**
68°F to 212°F (20°C to 100°C)	100.8	14.6
Specific Heat	**Btu/lb-°F**	**J/g-°K**
at 32 - 212°F (0 - 100°C)	0.11	0.46
Electrical Resistivity	**μ-ohm-in**	**μ-ohm-in**
	0.79	31.1

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