AESTEIRON STEELS PVT. LTD.

AN ISO 9001-2008 COMPANY

SS 317LMN, Type 317LMN, WNR 1.4439, UNS S31726, AISI 317LMN, Grade 317LMN, ALLOY 317LMN, AFNOR Z3CND 18-14 05Az

Introduction :

317LMN stainless steel provides high corrosion resistance in acidic chloride-containing environments when compared to 316L and 317L stainless steel. It is a higher molybdenum austenitic stainless steel alloyed with nitrogen the higher molybdenum provides the alloy enhanced corrosion resistance, mainly in acidic chloride containing service. The mixture of nitrogen and molybdenum also improves the alloys resistance to pitting and crevice corrosion. Stainless steel 317LMN becomes non-magnetic annealed condition. As compared to other standard stainless steels it offers higher creep, stress-to-rupture, and tensile strengths at elevated temperatures. Alloy 317LMN is utilized in the as-welded condition free from chromium carbide precipitation on the grain boundaries & it is due to low carbon grade. 317LMN alloy is non-magnetic in the annealed condition. It can only be hardened by cold working, not by heat treatment. By standard shop fabrication practices this material can be easily welded and processed. In a wide range of chemicals 317LMN stainless steel provides excellent corrosion resistance. It resists attack in hydrochloric acid, sulfuric acid and phosphoric acid, acidic chlorine. It is useful for handling fatty acids and hot organic often present in pharmaceutical and food processing applications.

Chemical Composition

	SS 317LMN	WNR 1.4439	UNS S31726	AISI 317LMN	GRADE 317LMN	ALLOY 317LMN	AFNOR Z3CND 18-14 05Az
Carbon	0.030 max	0.030 max	0.030 max	0.030 max	0.030 max	0.030 max	0.030 max
Manganese	2.00 max	2.00 max	2.00 max	2.00 max	2.00 max	2.00 max	2.00 max
Phosphorus	0.045 max	0.045 max	0.045 max	0.045 max	0.045 max	0.045 max	0.045 max
Sulfur	0.030 max	0.030 max	0.030 max	0.030 max	0.030 max	0.030 max	0.030 max
Silicon	0.75 max	0.75 max	0.75 max	0.75 max	0.75 max	0.75 max	0.75 max
Chromium	17.0-20.0	17.0-20.0	17.0-20.0	17.0-20.0	17.0-20.0	17.0-20.0	17.0-20.0
Nickel	13.5-17.5	13.5-17.5	13.5-17.5	13.5-17.5	13.5-17.5	13.5-17.5	13.5-17.5
Nitrogen*	0.10-0.20	0.10-0.20	0.10-0.20	0.10-0.20	0.10-0.20	0.10-0.20	0.10-0.20
Molybdenum	4.0-5.0	4.0-5.0	4.0-5.0	4.0-5.0	4.0-5.0	4.0-5.0	4.0-5.0

Mechanical Properties

	SS 317LMN	WNR 1.4439	UNS S31726	AISI 317LMN	GRADE 317LMN	ALLOY 317LMN	AFNOR Z3CND 18-14 05Az
Tensile Strength ksi(Mpa) min	80(550)	80(550)	80(550)	80(550)	80(550)	80(550)	80(550)
Yield Strength 0.2% Offset ksi (Mpa)min	35(240)	35(240)	35(240)	35(240)	35(240)	35(240)	35(240)
Elongation(%in 50mm) min	40	40	40	40	40	40	40
Reduction in Area, %	-	-	-	-	-	-	-
Hardness, Rockwell B	96 max	96 max	96 max	96 max	96 max	96 max	96 max

Standard Available in forms :

ASTM A182/ ASME SA182 Stainlees Steel Pipe Fittings
ASTM A213 / ASME SA213 Seamless Stainless Steel Pipes
ASTM A240/ ASME SA240 Stainless Steels Sheets / Plates
ASTM A249/ ASME SA249 Stainless Steel Welded Tubes
ASTM A269/ ASME SA269 Stainless Steel Tubes
ASTM A270/ ASME SA270 Stainless Steel Sanitary Tubes
ASTM A312/ ASME SA312 Stainless Steel Pipes
ASTM A403/ ASME SA403 Stainless Steel Pipe Fittings
ASTM A554/ ASME SA554 Stainless Steel Welded Tubes
ASTM A731/ ASME SA731 Stainless Steel Pipes
ASTM A789/ ASME SA789 Stainless Steel Tubes
ASTM A790/ ASME SA790 Stainless Steel Pipes
ASTM A791/ ASME SA791 Stainless Steel Tubes

Products Available in forms :

- SS 317LMN, Type 317LMN, WNR 1.4439, UNS S31726, AISI 317LMN Plates
- SS 317LMN, Type 317LMN, WNR 1.4439, UNS S31726, AISI 317LMN Pipes
- SS 317LMN, Type 317LMN, WNR 1.4439, UNS S31726, AISI 317LMN Round Bar
- SS 317LMN, Type 317LMN, WNR 1.4439, UNS S31726, AISI 317LMN Tube
- SS 317LMN, Type 317LMN, WNR 1.4439, UNS S31726, AISI 317LMN Flanges
- SS 317LMN, Type 317LMN, WNR 1.4439, UNS S31726, AISI 317LMN Wire
- SS 317LMN, Type 317LMN, WNR 1.4439, UNS S31726, AISI 317LMN Fittings

Applications

The following are some of the major applications of Grade 317LMN stainless steel:

- Paper pulp industry
- Textile industry
- Food processing industry
- Process equipment industry.

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Manufacturing process

- The properties of 317LMN is similar to other conventional austenitic stainless steels, and can therefore be fabricated in a manner similar to alloys 304 and 306.
- The alloy is machined using heavy feeds and slow speeds and welded using all common methods.
- **The material is initially forged at temperatures ranging from 1150 to 1205°C (2100-2200°F).**
- It is then annealed at 1080 to1175°C (1975 to 2150°F) followed by air cooling or water quenching.
- The alloy can be hardened only by cold working.

Corrosion Resistance

- The combination of high molybdenum and nitrogen gives Type 317LMN excellent resistance to chloride pitting and crevice corrosion.
- It has been applied for many years in the bodies, structural members, and internals for scrubbers for flue gas desulfurization.
- It is also a versatile and cost effective material in a wide range of chemical processing applications requiring a stainless steel with corrosion resistance better thar that of 316L and 317L.

Heat Treatment

- Type 317LMN is solution annealed by heating to 1900°F minimum and followed by water quenching or rapidly cooling by other means.
- 317LMN should not be “stress relieved” by heat treatment other than a full solution anneal.
- 317LMN cannot be hardened by heat treatment

Workability

Cold Working

- Type 317LMN is readily formed and fabricated through the full range of cold working operations typically applied to the common austenitic stainless steels.
- It can be used in heading, drawing, bending, and upsetting.
- Because of its nitrogen content, 317LMN will be slightly stronger and work harden slightly faster than 316L.

Hot Working

- Type 317LMN can be hot formed in the 1700-2200°F range.
- For maximum corrosion resistance, parts that have been hot formed should be subsequently annealed at 1900°F minimum and water quenched or rapidly cooled by other means.

Welding

- Type 317LMN is readily welded by a full range of conventional welding procedures (except
- To produce a fusion zone with corrosion resistance similar to that of the base metal, filler metals of Alloy 625 or its lower carbon version, are commonly used with 317LMN.

Machinability

- Type 317LMN is a very tough austenitic stainless steel subject to work hardening during deformation and is resistant to chip breaking.
- The higher molybdenum and the nitrogen make the chip abrasive, increasing tool wear.
- The best machining results are achieved with slower speeds, heavier feeds, excellent lubrication, sharp tooling, and powerful, rigid equipment






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