

SS 302, Type 302, WNR 1.4319, UNS S30200, AISI 302, Grade 302, AFNOR Z 10 CN 18-09

Introduction :

Stainless steel 302 is a slightly higher carbon version than stainless steel 304. It is a standard specification for chromium and chromium-nickel stainless steel sheet, plate, and strip used for pressure vessels and for general applications. 302 stainless steel is also used to form springs, washers, screens and cables. And it is widely used in the stamping, spinning and wire forming industry. 302 Grade steel requires slow speeds, and high feeds will aid in overcoming this alloy's tendency to work harden. It is recommended to use resistance or shielded fusion methods for welding grade 302. When the chromium carbide needs to be dissolved so as to provide maximum resistance to inter-granular attack for post weld annealing. At 1149-1260°C (2100-2300°F) temperatures forging is ideally been performed. Below 927°C (1700°F) it is advisable not to forge. To maintain full corrosion resistance forgings should be fully annealed after all operations. Cold working helps to increase the hardness of this material while hot working requires uniform heating to 1149°C. SS 302 can be readily drawn, spun and upset and it is quite ductile. To gain magnetic properties cold working causes this alloy, and hence post-fabrication annealing is required to recover maximum corrosion resistance and a non-magnetic condition.

Chemical Composition

	SS 302	TYPE 302	WNR 1.4319	UNS S30200	AISI 302	GRADE 302	AFNOR Z 10 CN 18-09
Carbon	0.15 max	0.15 max	0.15 max	0.15 max	0.15 max	0.15 max	0.15 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	17.0-19.0	17.0-19.0	17.0-19.0	17.0-19.0	17.0-19.0	17.0-19.0	17.0-19.0
Nickel	8.0-10.0	8.0-10.0	8.0-10.0	8.0-10.0	8.0-10.0	8.0-10.0	8.0-10.0
Nitrogen*	0.10 max	0.10 max	0.10 max	0.10 max	0.10 max	0.10 max	0.10 max
Molybdenum	-	-	-	-	-	-	-
Copper	-	-	-	-	-	-	-

Mechanical Properties

	SS 302	TYPE 302	WNR 1.4319	UNS S30200	AISI 302	GRADE 302	AFNOR Z 10 CN 18-09
Ultimate Tensile Strength, ksi	75 min	75 min	75 min	75 min	75 min	75 min	75 min
0.2% Offset Yield Strength, ksi	30 min	30 min	30 min	30 min	30 min	30 min	30 min
Elongation in 2 inches, %	40 min	40 min	40 min	40 min	40 min	40 min	40 min
Reduction in Area, %	-	-	-	-	-	-	-
Hardness, Rockwell B	92 max	92 max	92 max	92 max	92 max	92 max	92 max

Standard Available in forms :

ASTM A182/ ASME SA182 Stainless 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 302, Type 302, WNR 1.4319, UNS S30200, AISI 302 Plates
- SS 302, Type 302, WNR 1.4319, UNS S30200, AISI 302 Pipes
- SS 302, Type 302, WNR 1.4319, UNS S30200, AISI 302 Round Bar
- SS 302, Type 302, WNR 1.4319, UNS S30200, AISI 302 Tube
- SS 302, Type 302, WNR 1.4319, UNS S30200, AISI 302 Flanges
- SS 302, Type 302, WNR 1.4319, UNS S30200, AISI 302 Wire
- SS 302, Type 302, WNR 1.4319, UNS S30200, AISI 302 Fittings

Manufacturing Process

- Grade 302 steel requires slow speeds, and high feeds will aid in overcoming this alloy's tendency to work harden.
- It is recommended that chip breakers are used on all tooling due to the occurrence of gummy chips.
- While welding grade 302, it is recommended that resistance or shielded fusion methods are used.
- The filler metals to be used are AWS E/ER308 or 312.
- Post weld annealing is performed when the chromium carbide needs to be dissolved so as to provide maximum resistance to inter-granular attack.
- Forging is ideally performed at these temperatures - 1149-1260°C (2100-2300°F).
- It is advisable not to forge below 927°C (1700°F).
- Forgings should be fully annealed after all operations so as to maintain full corrosion resistance.
- Hot working requires uniform heating to 1149°C (2100°F) while cold working helps to increase the hardness of this material.
- Grade 302 is quite ductile and can be readily drawn, spun and upset.
- Cold working causes this alloy to gain magnetic properties, and hence post-fabrication annealing is required to recover maximum corrosion resistance and a non-magnetic condition.
- Annealing is performed between 1010 and 1121°C (1850 and 2050°F) with fast cooling so as to avoid precipitation of chromium carbides.

© 2016-17. The content on this website is owned by Registrant of domain www.aesteiron.com , Do not copy any content (including images) without prior written consent. Manufacturer, Stockholder, Suppliers, Traders, Wholesaler, Dealer, Distributor, Importer, Exporter, Stockiest of Alloy Steel Pipe Tubes, Stainless Steel Pipe Tube & Carbon Steel Pipe Tube



Annealing

- Parts can be annealed at 1900°F - 2050°F held for minimum 60 inutes per inch of thickness and water quenched.
- Prolonged exposure between 800°F - 1500°F must be avoided to prevent embrittlement and loss of corrosion properties.
- This grade does not harden with heat treatment.

Machinability

- Like most other austenitic steels, this grade machines with rough and stringy chips.
- Therefore, chip curlers can be beneficial.

Weldability

- This grade is readily weldable by any conventional methods employed by austenitic stainless steels.
- Type 308L/308LSi stainless steel filler is generally recommended.
- For maximum corrosion resistance, annealing after welding is recommended.
- In hard condition, resistance welding is recommended to preveny softening.

Cold workability

- This grade cab be readily cold worked.
- This is high strain-hardening grade.
- Operations such as wire drawing, forging, upsetting and bending are common.
- Severe forging may require intermediate annealing.

Hot workability

- This grade can readily be hot worked.
- Heat initially to 2100°F-2300°F and can be finished as low as 1500°F.
- Severe reductions below 1700°F should be avoided.
- Parts should be water quenched after hot working for good corrosion resistance.
- For maximum corrosion resistance, parts should be annealed and water quenched.

Corrosion resistance

- This grade has good corrosion resistance in a wide variety of corrosive media, such as foodstuffs, sterilizing solutions, most organic chemicals and dyes, most petroleum products, steam and combustion gases.
- It resists nitric acid well, sulphuric acid moderately and halogen acids and halogen compounds poorly.
- For maximum corrosion resistance, material should be used in annealed condition and parts should be passivated.

Applications

- Grade 302 stainless steel is widely used in the stamping, spinning and wire forming industry.
- This alloy is also used to form springs, washers, screens and cables.



"Aesteiron House", 107, Kika Street, 4th Floor, Gulalwadi, Mumbai - 400 004, India.

info@aesteiron.com

www.aesteiron.com

© 2016-17. The content on this website is owned by Registrant of domain www.aesteiron.com , Do not copy any content (including images) without prior written consent. Manufacturer, Stockholder, Suppliers, Traders, Wholesaler, Dealer, Distributor, Importer, Exporter, Stockiest of Alloy Steel Pipe Tubes, Stainless Steel Pipe Tube & Carbon Steel Pipe Tube