MW Components

Stainless Steel 302 Fact Sheet

302 Stainless Steel, annealed bar

Subcategories: Heat Resisting; Stainless Steel; T 300 Series Stainless Steel

Close Analogs:

Key Words: T302, T 302, 302SS, 302 SS, UNS S30200, AMS 5515, AMS 5516, AMS 5636, AMS 5637, AMS 5688, ASME SA 240, ASME SA 479, ASTM A167, ASTM A240, ASTM A276, ASTM A313, ASTM A314, ASTM A368, ASTM A473, ASTM A478, ASTM A479, ASTM A492, ASTM A493, ASTM A511, ASTM A554, ASTM A666, FED QQ-S-763, FED QQ-S-766, FED QQ-W-423, MIL SPEC MIL-S-862, SAE J230, SAE J405 (30302), DIN 1.4300, X12CrNi188, B.S. 309S25, EN 58A, PN 86020 (Poland), 1H18N9, austenitic, ISO 4954 X10CrNi189E, ISO 683/13 12, ISO 6931 X9CrNi188, 18-8

Component	Weight %
C	Max 0.15
Cr	18
Fe	70
Mn	Max 2.0
Ni	9.0
P	Max 0.045
Si	Max 1.0
S	Max 0.030

Physical Properties	Metric	English	Comments	Cold Head	Hot Forge	Wire Form
Density	7.86 g/cc	0.284 lb/in³				

Mechanical Properties	Metric	English	Comments	Cold Head	Hot Forge	Wire Form
Hardness, Brinell	139	139	Converted from Rockwell B hardness.			
Hardness, Knoop	155	155	Converted from Rockwell B hardness.			
Hardness, Rockwell B	80	80				

Hardness, Vickers	139	139	Converted from Rockwell B hardness.			
Tensile Strength, Ultimate	585 MPa	84800 psi				
Tensile Strength, Yield	240 MPa	34800 psi				
	Strain 0.200 %	Strain 0.200 %				
Elongation at Break	60%	60%	in 50 mm			
Modulus of Elasticity	193 GPa	28000 ksi				
Poissons Ratio	0.25	0.25	Calculated			
Shear Modulus	77.2 GPa	11200 ksi				
Charpy Impact	43.0 - 46.0 J	31.7 - 33.9 ft-lb	welded			
	50.0 - 54.0 J	36.9 - 39.8 ft-lb				
Electrical Properties	**Metric**	**English**	**Comments**	**Cold Head**	**Hot Forge**	**Wire Form**
Electrical Resistivity	0.0000720 ohm-cm	0.0000720 ohm-cm				
	Temperature 20.0 °C	Temperature 68.0 °F				
	0.0000780 ohm-cm	0.0000780 ohm-cm				
	Temperature 100 °C	Temperature 212 °F				
	0.0000860 ohm-cm	0.0000860 ohm-cm				
	Temperature 200 °C	Temperature 392 °F				
	0.000100 ohm-cm	0.000100 ohm-cm				
	Temperature 400 °C	Temperature 752 °F				
Magnetic Permeability	1.008	1.008	at RT			
Thermal Properties	**Metric**	**English**	**Comments**	**Cold Head**	**Hot Forge**	**Wire Form**
CTE, linear	17.2 µm/m-°C	9.56 µin/in-°F				
	Temperature 0.000 - 100 °C	Temperature 32.0 - 212 °F				
	17.8 µm/m-°C	9.89 µin/in-°F				

	Temperature 0.000 - 315 °C	Temperature 32.0 - 599 °F	
	18.4 µm/m-°C	10.2 µin/in-°F	
	Temperature 0.000 - 540 °C	Temperature 32.0 - 1000 °F	
	18.7 µm/m-°C	10.4 µin/in-°F	
	Temperature 0.000 - 650 °C	Temperature 32.0 - 1200 °F	
Specific Heat Capacity	0.500 J/g-°C	0.120 BTU/lb-°F	
	Temperature 0.000 - 100 °C	Temperature 32.0 - 212 °F	
Thermal Conductivity	16.2 W/m-K	112 BTU-in/hr-ft²-°F	
	Temperature 100 °C	Temperature 212 °F	
	21.5 W/m-K	149 BTU-in/hr-ft²-°F	
	Temperature 500 °C	Temperature 932 °F	
Melting Point	1400 - 1420 °C	2550 - 2590 °F	
Solidus	1400 °C	2550 °F	
Liquidus	1420 °C	2590 °F	
Maximum Service Temperature, Air	870 °C	1600 °F	Intermittent Service
	925 °C	1700 °F	Continuous Service