MW Components

Carbon Steel Grade 1010 Data Sheet

AISI 1010 Steel, cold drawn

Subcategories: Carbon Steel; AISI 1000 Series Steel; Low Carbon Steel

Close Analogs:

Key Words: UNS G10100

Component	Weight %					
C	0.080-0.13					
Fe	99.18-99.62					
Mn	0.30-0.60					
P	Max 0.040					
S	Max 0.050					
Physical Properties	**Metric**	**English**	**Comments**	**Cold Head**	**Hot Forge**	**Wire Form**
Density	7.87 g/cc	0.284 lb/in³				
Mechanical Properties	**Metric**	**English**	**Comments**	**Cold Head**	**Hot Forge**	**Wire Form**
Hardness, Brinell	105	105				
Hardness, Knoop	123	123	Converted from Brinell hardness.			
Hardness, Rockwell B	60	60	Converted from Brinell hardness.			
Hardness, Vickers	108	108	Converted from Brinell hardness.			
Tensile Strength, Ultimate	365 MPa	52900 psi				
Tensile Strength, Yield	305 MPa	44200 psi				

Elongation at Break	20%	20%	In 50 mm			
Reduction of Area	40%	40%				
Modulus of Elasticity	205 GPa	29700 ksi	Typical for steel			
Bulk Modulus	160 GPa	23200 ksi	Typical for steel			
Poissons Ratio	0.29	0.29	Typical For Steel			
Machinability	55.00%	55.00%	Based on AISI 1212 steel. as 100% machinability. Group I bar, rod, and wire products machinability can be improved by cold drawing.			
Shear Modulus	80.0 GPa	11600 ksi	Typical for steel			
Electrical Properties	**Metric**	**English**	**Comments**	**Cold Head**	**Hot Forge**	**Wire Form**
Electrical Resistivity	0.0000143 ohm-cm	0.0000143 ohm-cm				
Thermal Properties	**Metric**	**English**	**Comments**	**Cold Head**	**Hot Forge**	**Wire Form**
CTE, linear	12.2 µm/m-°C	6.78 µin/in-°F				
	@Temperature 0.000 €“ 100 °C	@Temperature 32.0 €“ 212 °F				
	13.5 µm/m-°C	7.50 µin/in-°F				
	@Temperature 0.000 €“ 300 °C	@Temperature 32.0 €“ 572 °F				
	14.2 µm/m-°C	7.89 µin/in-°F				
	@Temperature 0.000 €“ 500 °C	@Temperature 32.0 €“ 932 °F				
Specific Heat Capacity	0.448 J/g-°C	0.107 BTU/lb-°F	condition unknown			
	@Temperature >=100 °C	@Temperature >=212 °F				
	0.498 J/g-°C	0.119 BTU/lb-°F				
	@Temperature 150 €“ 200 °C	@Temperature 302 €“ 392 °F				
	0.519 J/g-°C	0.124 BTU/lb-°F				
	@Temperature 200 €“ 250 °C	@Temperature 392 €“ 482 Â°F				
	0.536 J/g-°C	0.128 BTU/lb-°F				

	@Temperature 250 €“ 300°C	@Temperature 482 €“ 572 °F	
	0.565 J/g-°C	0.135 BTU/lb-°F	
	@Temperature 300 €“ 350 °C	@Temperature 572 €“ 662 °F	
	0.590 J/g-°C	0.141 BTU/lb-°F	
	@Temperature 350 €“ 400 °C	@Temperature 662 €“ 752 °F	
	0.649 J/g-°C	0.155 BTU/lb-°F	
	@Temperature 400 €“ 450 °C	@Temperature 752 €“ 842 °F	
	0.729 J/g-°C	0.174 BTU/lb-°F	
	@Temperature 550 €“ 600 °C	@Temperature 1020 €“ 1110°F	
	0.825 J/g-°C	0.197 BTU/lb-°F	
	@Temperature 650 €“ 700 °C	@Temperature 1200 €“ 1290°F	
Thermal Conductivity	49.8 W/m-K	346 BTU-in/hr-ft²-°F	Typical steel