MW Components

Alloy Steel Grade 5135 Fact Sheet

AISI 5135 Steel

Subcategories: Alloy Steel; AISI 5000 Series Steel; Low Alloy Steel; Carbon Steel; Medium Carbon Steel

Close Analogs:

Key Words: AFNOR 38 C 4 (Fr), ISO 683/VII 2a, ISO 683/VII 2b, ISO R683-7 2a, ISO R683-7 2b, B.S. 530 A 36, B.S. 530 H 36, B.S. Type 3, JIS SCr 3 H (Japan.), UNI 38 Cr 4 KB, UNS G51350, ASTM A322, ASTM A331, ASTM A519, SAE J404, SAE J412, SAE J770, DIN 1.7034

Component	Weight %
C	Max 0.38
Cr	0.75-1.0
Fe	97.445-98.17
Mn	0.60-0.80
P	Max 0.035
Si	0.15-0.30
S	Max 0.040

Physical Properties	Metric	English	Comments	Cold Head	Hot Forge	Wire Form
Density	7.85 g/cc	0.284 lb/in³				

Mechanical Properties	Metric	English	Comments	Cold Head	Hot Forge	Wire Form
Hardness, Brinell	179 - 217	179 - 217	annealed and cold drawn.			
Hardness, Knoop	220	220	Converted from Brinell hardness.			
Hardness, Rockwell B	92	92	Converted from Brinell hardness.			
Hardness, Rockwell C	13	13	Converted from Brinell hardness. Value below normal HRC range, for comparison purposes only.			
Hardness, Vickers	208	208	Converted from Brinell hardness.			

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	Calculated			
Machinability	70.00%	70.00%	annealed and cold drawn. Based on 100% machinability for AISI 1212 steel.			
Shear Modulus	80.0 GPa	11600 ksi	Typical for steel.			
Electrical Properties	**Metric**	**English**	**Comments**	**Cold Head**	**Hot Forge**	**Wire Form**
Electrical Resistivity	0.0000228 ohm-cm	0.0000228 ohm-cm				
	0.0000281 ohm-cm	0.0000281 ohm-cm				
	0.0000352 ohm-cm	0.0000352 ohm-cm				
	0.0000530 ohm-cm	0.0000530 ohm-cm				
Thermal Properties	**Metric**	**English**	**Comments**	**Cold Head**	**Hot Forge**	**Wire Form**
Specific Heat Capacity	0.494 J/g-°C	0.118 BTU/lb-°F	This value is an average of known heat capacities for 5000 series steels and is expected to be within 10% of the experimental value			
Thermal Conductivity	46.6 W/m-K	323 BTU-in/hr-ft²-°F	Typical steel			