

Stainless Steel (inc. High Performance) - 1.4542 / 17.4 PH

Round Bar

Properties

Stock		Chemical Properties																																																																																							
Dia (in)	Weight/m (Kg)	Element				Chemical Composition %																																																																																			
1/2	0.98	Carbon (C)				0.00 - 0.07																																																																																			
5/8	1.54	Silicon (Si)				0.00 - 1.00																																																																																			
3/4	2.21	Manganese (Mn)				0.00 - 1.00																																																																																			
7/8	3.01	Nickel (Ni)				3.00 - 5.00																																																																																			
1	3.93	Chromium (Cr)				15.00 - 17.50																																																																																			
1 1/4	6.21	Copper (Cu)				3.00 - 5.00																																																																																			
1 1/2	8.94	Sulphur (S)				0.00 - 0.030																																																																																			
1 3/4	12.18	Phosphorous (P)				0.00 - 0.040																																																																																			
2	15.90	Columbium (Cb)				0.15 - 0.45																																																																																			
2 1/4	20.13	Heat Treatment & Mechanical Properties <table border="1"> <thead> <tr> <th>Condition</th> <th>Heat Treatment °C</th> <th>0.2% Proof Stress (Mpa min)</th> <th>UTS (Mpa min)</th> <th>Elongation (%)</th> <th>Reduction of Area % min</th> <th>Hardness Brinell (HB)</th> <th>Impact Toughness J min (Room temp)</th> </tr> </thead> <tbody> <tr><td>A</td><td>1040 cool to below 32</td><td>-</td><td>-</td><td>-</td><td>-</td><td>363 max</td><td>-</td></tr> <tr><td>H900</td><td>+480 1hr</td><td>1170</td><td>1310</td><td>10</td><td>40</td><td>388 min</td><td>-</td></tr> <tr><td>H925</td><td>+495 4hrs</td><td>1070</td><td>1170</td><td>10</td><td>44</td><td>373 min</td><td>6.8</td></tr> <tr><td>H1025</td><td>+550 4hrs</td><td>1000</td><td>1070</td><td>12</td><td>45</td><td>331 min</td><td>20</td></tr> <tr><td>H1075</td><td>+580 4hrs</td><td>860</td><td>1000</td><td>13</td><td>45</td><td>311 min</td><td>27</td></tr> <tr><td>H1100</td><td>+595 4hrs</td><td>795</td><td>965</td><td>14</td><td>45</td><td>302 min</td><td>34</td></tr> <tr><td>H1150</td><td>+620 4hrs</td><td>725</td><td>930</td><td>16</td><td>50</td><td>277 min</td><td>41</td></tr> <tr><td>H1150M</td><td>+760 2hrs / +620 4hrs</td><td>520</td><td>795</td><td>18</td><td>55</td><td>255 min</td><td>75</td></tr> <tr><td>H1150D</td><td>+620 4hrs</td><td>725</td><td>860</td><td>16</td><td>50</td><td>255 min - 311 max</td><td>41</td></tr> </tbody> </table>								Condition	Heat Treatment °C	0.2% Proof Stress (Mpa min)	UTS (Mpa min)	Elongation (%)	Reduction of Area % min	Hardness Brinell (HB)	Impact Toughness J min (Room temp)	A	1040 cool to below 32	-	-	-	-	363 max	-	H900	+480 1hr	1170	1310	10	40	388 min	-	H925	+495 4hrs	1070	1170	10	44	373 min	6.8	H1025	+550 4hrs	1000	1070	12	45	331 min	20	H1075	+580 4hrs	860	1000	13	45	311 min	27	H1100	+595 4hrs	795	965	14	45	302 min	34	H1150	+620 4hrs	725	930	16	50	277 min	41	H1150M	+760 2hrs / +620 4hrs	520	795	18	55	255 min	75	H1150D	+620 4hrs	725	860	16	50	255 min - 311 max	41
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Modulus of elasticity, GPa at

20 °C (68°F)	100 °C (210 °F)	200 °C (390 °F)	300 °C (570 °F)	400 °C (750 °F)
10.9 (6.1)	11.0 (6.1)	11.0 (6.1)	11.1 (6.2)	11.2 (6.2)

Physical Properties

Property	Value	Unit
Density at 20°C (68 °F)	7.80	kg/dm ³
Thermal Conductivity at 20°C (68 °F)	16.0	W/m.K
Specific Heat at 20°C (68°F)	500	J/kg.K
Elastic Resistivity at 20°C (68°F)	0.71	Ohm.mm ^{2/m}
Modulus of elasticity at 20°C (68°F)	200 x 10 ³	200 x 10 ³
Magnetic Properties		magnetic

Thermal Expansion Coefficient between 20degc (68 degf) and

temperature below 10⁻⁶/degc (10⁻⁶/degf)

100 °C (210 °F)	200 °C (390 °F)	300 °C (570 °F)	400 °C (750 °F)
10.9	-	11.1	-

Disclaimer

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