

Crucible Steel CRUCIBLE A9 Tool Steel

Category : Metal , Ferrous Metal , Tool Steel , Air-Hardening Steel

Material Notes:

Crucible A9 is an air-hardening tool steel combining some of characteristics of the 5% chromium hot-work grades (such as H13) with the high attainable hardness and compressive yield strength of the cold-work grades such as A2). Crucible A9 is suitable for hot and cold work applications requiring high toughness, hardness, or heat check resistance, and moderate wear resistance. Information provided by Crucible Industries

Order this product through the following link:

http://www.lookpolymers.com/polymer_Crucible-Steel-CRUCIBLE-A9-Tool-Steel.php

Physical Properties	Metric	English	Comments
Density	7.78 g/cc	0.281 lb/in ³	

Mechanical Properties	Metric	English	Comments	
Hardness, Brinell	217 - 241	217 - 241		
Hardness, Rockwell C	47	47	hardened at 1800°F then tempered	
	@Tempering Temp. 593 °C	@Tempering Temp. 1100 °F		
	52.5	52.5		
Hardness, Rockwell C	@Tempering Temp. 566 °C	@Tempering Temp. 1050 °F	hardened at 1800°F then tempered	
	54.5	54.5		
	@Tempering Temp. 538 °C	@Tempering Temp. 1000 °F		
Hardness, Rockwell C	56	56	hardened at 1800°F then tempered	
	@Tempering Temp. 482 °C	@Tempering Temp. 900 °F		
	56.5	56.5		
Hardness, Rockwell C	@Tempering Temp. 510 °C	@Tempering Temp. 950 °F	hardened at 1800°F then tempered	
	Modulus of Elasticity	207 GPa		30000 ksi
	Charpy Impact	67.8 J		50.0 ft-lb
@Tempering Temp. 482 °C		@Tempering Temp. 900 °F		
67.8 J		50.0 ft-lb		
Charpy Impact	@Tempering Temp. 510 °C	@Tempering Temp. 950 °F	hardened at 1800°F then tempered; C-notch	

Mechanical Properties	Metric	English	Comments
	@Tempering Temp. 538 °C	@Tempering Temp. 1000 °F	hardened at 1800 °F then tempered; C-notch
	182 J	134 ft-lb	
	@Tempering Temp. 566 °C	@Tempering Temp. 1050 °F	hardened at 1800°F then tempered; C-notch
	205 J	151 ft-lb	
	@Tempering Temp. 593 °C	@Tempering Temp. 1100 °F	hardened at 1800°F then tempered; C-notch

Thermal Properties	Metric	English	Comments
CTE, linear	12.1 µm/m-°C	6.70 µin/in-°F	
	@Temperature 20.0 - 427 °C	@Temperature 68.0 - 800 °F	
	12.4 µm/m-°C	6.90 µin/in-°F	
	@Temperature 20.0 - 538 °C	@Temperature 68.0 - 1000 °F	
	12.6 µm/m-°C	7.00 µin/in-°F	
	@Temperature 20.0 - 649 °C	@Temperature 68.0 - 1200 °F	
Thermal Conductivity	25.8 W/m-K	179 BTU-in/hr-ft ² -°F	
	@Temperature 95.0 °C	@Temperature 203 °F	

Component Elements Properties	Metric	English	Comments
Carbon, C	0.50 %	0.50 %	
Chromium, Cr	5.2 %	5.2 %	
Iron, Fe	89.2 %	89.2 %	as balance
Manganese, Mn	0.30 %	0.30 %	
Molybdenum, Mo	1.4 %	1.4 %	
Nickel, Ni	1.4 %	1.4 %	
Silicon, Si	1.0 %	1.0 %	
Vanadium, V	1.0 %	1.0 %	

Chemical Properties	Metric	English	Comments
Critical Temperature			

Chemical Properties	804 °C Metric	1480 °F English	Comments
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