

Crucible Steel PEERLESS A Tool Steel, AISI H21

Category : Metal , Ferrous Metal , Tool Steel

Material Notes:

Peerless A is designed for tools which will run hot, at operating temperatures between about 600F and 1100F. The tools should not be water cooled in service, due to a high risk of thermal shock. Peerless A offers wear resistance approaching H19, with slightly better toughness at high temperature (over about 600F). It may be used at tool temperatures up to 1100F, with brief exposures to 1200/1250F. Information provided by Crucible Industries

Order this product through the following link:

http://www.lookpolymers.com/polymer_Crucible-Steel-PEERLESS-A-Tool-Steel-AISI-H21.php

Physical Properties	Metric	English	Comments
Density	8.28 g/cc	0.299 lb/in ³	

Mechanical Properties	Metric	English	Comments
Hardness, Brinell	207 - 241	207 - 241	
Hardness, Rockwell C	35	35	oil quenched from 2150°F then tempered
	@Tempering Temp. 677 °C	@Tempering Temp. 1250 °F	
	41	41	
	@Tempering Temp. 649 °C	@Tempering Temp. 1200 °F	
	45	45	
	@Tempering Temp. 621 °C	@Tempering Temp. 1150 °F	
	51	51	
@Tempering Temp. 538 °C	@Tempering Temp. 1000 °F		
Modulus of Elasticity	207 GPa	30000 ksi	
	6.78 J	5.00 ft-lb	50 HRC; V-notch
Charpy Impact	@Temperature 21.1 °C	@Temperature 70.0 °F	

Mechanical Properties	Metric	English	Comments
	10.8 J @Temperature 21.1 °C	8.00 ft-lb @Temperature 70.0 °F	50 HRC; V-notch
	16.3 J @Temperature 260 °C	12.0 ft-lb @Temperature 500 °F	50 HRC; V-notch
	21.7 J @Temperature 427 °C	16.0 ft-lb @Temperature 800 °F	50 HRC; V-notch
	43.4 J @Temperature 260 °C	32.0 ft-lb @Temperature 500 °F	38 HRC; V-notch
	47.5 J @Temperature 427 °C	35.0 ft-lb @Temperature 800 °F	38 HRC; V-notch

Thermal Properties	Metric	English	Comments
CTE, linear	10.3 µm/m-°C @Temperature 21.1 - 93.3 °C	5.70 µin/in-°F @Temperature 70.0 - 200 °F	
	11.0 µm/m-°C @Temperature 21.1 - 204 °C	6.10 µin/in-°F @Temperature 70.0 - 400 °F	
	12.2 µm/m-°C @Temperature 21.1 - 427 °C	6.80 µin/in-°F @Temperature 70.0 - 800 °F	
	13.1 µm/m-°C @Temperature 21.1 - 649 °C	7.30 µin/in-°F @Temperature 70.0 - 1200 °F	
	14.0 µm/m-°C @Temperature 260 - 649 °C	7.80 µin/in-°F @Temperature 500 - 1200 °F	
	14.6 µm/m-°C @Temperature 427 - 649 °C	8.10 µin/in-°F @Temperature 800 - 1200 °F	
	Thermal Conductivity	2.23 W/m-K @Temperature 93.3 °C	15.5 BTU-in/hr-ft²-°F @Temperature 200 °F
	2.45 W/m-K @Temperature 316 °C	17.0 BTU-in/hr-ft²-°F @Temperature 600 °F	

Component Elements Properties	Metric	English	Comments
Carbon, C	0.30 %	0.30 %	
Chromium, Cr	3.3 %	3.3 %	
Iron, Fe	86.5 %	86.5 %	as balance
Manganese, Mn	0.30 %	0.30 %	
Silicon, Si	0.34 %	0.34 %	
Tungsten, W	9.0 %	9.0 %	
Vanadium, V	0.25 %	0.25 %	

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