

Schmolz + Bickenbach Thermodur® 2343 EFS Extra Fine Structure (H-11)- Hot Work Die Steel

Category : Metal , Ferrous Metal , Tool Steel , Hot Work Steel

Material Notes:

Description: Thermodur® 2343 is a single melt Extra Fine Structure (EFS) hot work die steel and Supplied in the annealed condition
 Characteristics: Good toughness; Moderate high-temperature strength; and Moderate heat-check resistance
 Applications: Hot extrusion tooling, Die inserts, Forging Die and Shot sleeve.
 Stress Relieving (Heat Treatment): 1200°F for 2 hours; Cooling: Cool slowly to 930°F in air; Hardness:

Order this product through the following link:

http://www.lookpolymers.com/polymer_Schmolz-Bickenbach-Thermodur-2343-EFS-Extra-Fine-Structure-H-11-Hot-Work-Die-Steel.php

Physical Properties	Metric	English	Comments
Density	7.75 g/cc	0.280 lb/in ³	

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell C	31	31	
	@Treatment Temp. 700.0 °C, Time 7200 sec	@Treatment Temp. 1292 °F, Time 2.00 hour	
	38	38	
	@Treatment Temp. 650.0 °C, Time 7200 sec	@Treatment Temp. 1202 °F, Time 2.00 hour	
	48	48	
	@Treatment Temp. 600.0 °C, Time 7200 sec	@Treatment Temp. 1112 °F, Time 2.00 hour	
	52	52	
@Treatment Temp. 400 °C, Time 7200 sec	@Treatment Temp. 752 °F, Time 2.00 hour		
52	52		
@Treatment Temp. 550.0 °C, Time 7200 sec	@Treatment Temp. 1022 °F, Time 2.00 hour		
54	54		
@Treatment Temp. 500 °C, Time 7200 sec	@Treatment Temp. 932 °F, Time 2.00 hour		
Tensile Strength	1200 MPa	174000 psi	31 HRC

Mechanical Properties	Metric MPa	English psi	Comments
	1790 MPa	259000 psi	52 HRC
Modulus of Elasticity	207 GPa	30000 ksi	
Charpy Impact	13.6 - 16.3 J	10.0 - 12.0 ft-lb	Notched; 44 HRC

Thermal Properties	Metric	English	Comments
CTE, linear	11.9 $\mu\text{m}/\text{m}\cdot\text{°C}$	6.60 $\mu\text{in}/\text{in}\cdot\text{°F}$	
	@Temperature 21.1 - 93.3 °C	@Temperature 70.0 - 200 °F	
	12.4 $\mu\text{m}/\text{m}\cdot\text{°C}$	6.90 $\mu\text{in}/\text{in}\cdot\text{°F}$	
	@Temperature 21.1 - 204 °C	@Temperature 70.0 - 400 °F	
	12.8 $\mu\text{m}/\text{m}\cdot\text{°C}$	7.10 $\mu\text{in}/\text{in}\cdot\text{°F}$	
	@Temperature 21.1 - 399 °C	@Temperature 70.0 - 750 °F	
Thermal Conductivity	26.7 W/m-K	185 BTU-in/hr-ft ² -°F	
	@Temperature 21.1 °C	@Temperature 70.0 °F	
	27.2 W/m-K	189 BTU-in/hr-ft ² -°F	
	@Temperature 343 °C	@Temperature 650 °F	
	30.3 W/m-K	210 BTU-in/hr-ft ² -°F	
	@Temperature 704 °C	@Temperature 1300 °F	

Component Elements Properties	Metric	English	Comments
Carbon, C	0.38 %	0.38 %	
Chromium, Cr	5.3 %	5.3 %	
Iron, Fe	91.62 %	91.62 %	
Molybdenum, Mo	1.3 %	1.3 %	
Silicon, Si	1.0 %	1.0 %	
Vanadium, V	0.40 %	0.40 %	

Processing Properties	Metric	English	Comments
Annealing Temperature	750.0 - 799 °C	1382 - 1470 °F	Soft; Cooling: Furnace 20°F/hour to 1200°F/ Then air cool; < 230 HB

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