

Schmolz + Bickenbach Cryodur® 2357(S-7) Cold Work Die Steel

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

Material Notes:

Description: Cryodur 2357 is a shock resistant tool steel with excellent toughness and high strength; Suitable for cold and hot work applications up to 1000 °F; and Supplied in the annealed condition
Characteristics: Excellent toughness; Good wear resistance (abrasion); and Good polishability
Applications: Compression molds, Injection Molds, Blanking die, Tablet compression dies, Shears, and Punches
Stress Relieving (Heat Treatment): Annealed Parts: 1200°F-1250°F Hold time 2 hours, slowly cool to 930°F, then air cool
Hardened Parts: Heat to 25°F-50°F below the original tempering temperature, hold for 2 hours, then cool in air
Hardening (Heat Treatment): 1690°F-1775°F Hold at temperature for 30 minutes; **Cooling:** Furnace quench to 350°F, air cool to 120°F. Immediately temper; **Hardness:** 60-62 HRC
Quenched
 Information provided by Schmolz + Bickenbach

Order this product through the following link:

http://www.lookpolymers.com/polymer_Schmolz-Bickenbach-Cryodur-2357S-7-Cold-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	44	44	
	@Treatment Temp. 600.0 °C, Time 7200 sec	@Treatment Temp. 1112 °F, Time 2.00 hour	
	46	46	
	@Treatment Temp. 550.0 °C, Time 7200 sec	@Treatment Temp. 1022 °F, Time 2.00 hour	
	49	49	
	@Treatment Temp. 500 °C, Time 7200 sec	@Treatment Temp. 932 °F, Time 2.00 hour	
	54	54	
@Treatment Temp. 200 °C, Time 7200 sec	@Treatment Temp. 392 °F, Time 2.00 hour		
54	54		
@Treatment Temp. 100 °C, Time 7200 sec	@Treatment Temp. 212 °F, Time 2.00 hour		
55	55		
@Treatment Temp. 300 °C,	@Treatment Temp. 572 °F,		

Mechanical Properties	Time 7200 sec Metric	Time 2.00 hour English	Comments
	56	56	
	@Treatment Temp. 400 °C, Time 7200 sec	@Treatment Temp. 752 °F, Time 2.00 hour	
Compressive Strength	1620 MPa	235000 psi	55 HRC
	2000 MPa	290000 psi	60 HRC
	2070 MPa	300000 psi	62 HRC

Thermal Properties	Metric	English	Comments
CTE, linear	12.2 µm/m-°C	6.80 µin/in-°F	
	@Temperature 21.1 - 204 °C	@Temperature 70.0 - 400 °F	
	12.6 µm/m-°C	7.00 µin/in-°F	
	@Temperature 21.1 - 399 °C	@Temperature 70.0 - 750 °F	
Thermal Conductivity	28.8 W/m-K	200 BTU-in/hr-ft ² -°F	
	@Temperature 20.0 °C	@Temperature 68.0 °F	
	30.0 W/m-K	208 BTU-in/hr-ft ² -°F	
	@Temperature 204 °C	@Temperature 400 °F	
	31.0 W/m-K	215 BTU-in/hr-ft ² -°F	
	@Temperature 399 °C	@Temperature 750 °F	

Component Elements Properties	Metric	English	Comments
Carbon, C	0.50 %	0.50 %	
Chromium, Cr	3.35 %	3.35 %	
Iron, Fe	93.3 %	93.3 %	
Manganese, Mn	0.70 %	0.70 %	
Molybdenum, Mo	1.6 %	1.6 %	
Silicon, Si	0.30 %	0.30 %	
Vanadium, V	0.25 %	0.25 %	

Processing Properties	Metric	English	Comments
	610 - 649 °C	1130 - 1200 °F	Soft; Cooling: Furnace 20°F/hour to

Annealing Temperature Processing Properties	Metric	English	930°F then air cool; < 220 HB Comments
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