

## Schmolz + Bickenbach Thermodur® 2714 Extra Fine Structure - Hot Work Die Steel

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

### Material Notes:

Description: Thermodur 2714 is an Extra Fine Structure (EFS) nickel based tool steel. Characteristics: Excellent high temperature strength; Good toughness; and Good resistance to thermal shock Applications: Forging dies, Die holders, Die rings, Hydroform tooling, Plastic tooling, and Wedge block Stress Relieving (Heat Treatment): 1000°F for 2 hours; Cooling: Cool slowly to 800°F in air; Hardness:

Order this product through the following link:

[http://www.lookpolymers.com/polymer\\_Schmolz-Bickenbach-Thermodur-2714-Extra-Fine-Structure-Hot-Work-Die-Steel.php](http://www.lookpolymers.com/polymer_Schmolz-Bickenbach-Thermodur-2714-Extra-Fine-Structure-Hot-Work-Die-Steel.php)

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

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell C	32	32	
	@Treatment Temp. 650.0 °C, Time 7200 sec	@Treatment Temp. 1202 °F, Time 2.00 hour	
	36	36	
	@Treatment Temp. 600.0 °C, Time 7200 sec	@Treatment Temp. 1112 °F, Time 2.00 hour	
	40	40	
	@Treatment Temp. 550.0 °C, Time 7200 sec	@Treatment Temp. 1022 °F, Time 2.00 hour	
	43	43	
@Treatment Temp. 500 °C, Time 7200 sec	@Treatment Temp. 932 °F, Time 2.00 hour		
45	45		
@Treatment Temp. 450 °C, Time 7200 sec	@Treatment Temp. 842 °F, Time 2.00 hour		
47	47		
@Treatment Temp. 400 °C, Time 7200 sec	@Treatment Temp. 752 °F, Time 2.00 hour		
Tensile Strength	1210 MPa	175000 psi	40-42 HRC
	1340 MPa	195000 psi	42-44 HRC

Mechanical Properties	Metric 1500 MPa	English 23000 psi	Comments 44-48 HRC
	503 MPa	73000 psi	
	@Temperature 600.0 Â°C	@Temperature 1112 Â°F	
	1170 MPa	170000 psi	
	@Temperature 400 Â°C	@Temperature 752 Â°F	
	1410 MPa	205000 psi	
	@Temperature 200 Â°C	@Temperature 392 Â°F	
Tensile Strength, Yield	296 MPa	43000 psi	
	@Temperature 1112 Â°C	@Temperature 2034 Â°F	
	965 MPa	140000 psi	
	@Temperature 752 Â°C	@Temperature 1390 Â°F	
	1210 MPa	175000 psi	
	@Temperature 392 Â°C	@Temperature 738 Â°F	
	1030 MPa	150000 psi	40-42 HRC
	@Strain 0.200 %	@Strain 0.200 %	
	1190 MPa	172000 psi	42-44 HRC
	@Strain 0.200 %	@Strain 0.200 %	
	1370 MPa	198000 psi	44-48 HRC
	@Strain 0.200 %	@Strain 0.200 %	
Elongation at Yield	13 %	13 %	44-48 HRC
	15 %	15 %	42-44 HRC
	16 %	16 %	40-42 HRC
Reduction of Area	38 %	38 %	44-48 HRC
	40 %	40 %	42-44 HRC
	45 %	45 %	40-42 HRC
	45 %	45 %	
	@Temperature 392 Â°C	@Temperature 738 Â°F	
	50 %	50 %	

Mechanical Properties	Metric	English	Comments
	85 %	85 %	
	@Temperature 752 Â°C	@Temperature 1390 Â°F	
	@Temperature 1112 Â°C	@Temperature 2034 Â°F	

Thermal Properties	Metric	English	Comments
CTE, linear	12.6 Âµm/m-Â°C	7.00 Âµin/in-Â°F	
	@Temperature 21.1 - 93.3 Â°C	@Temperature 70.0 - 200 Â°F	
	13.5 Âµm/m-Â°C	7.50 Âµin/in-Â°F	
	@Temperature 21.1 - 204 Â°C	@Temperature 70.0 - 400 Â°F	
	13.5 Âµm/m-Â°C	7.50 Âµin/in-Â°F	
	@Temperature 21.1 - 399 Â°C	@Temperature 70.0 - 750 Â°F	
Thermal Conductivity	36.6 W/m-K	254 BTU-in/hr-ftÂ²-Â°F	
	@Temperature 21.1 Â°C	@Temperature 70.0 Â°F	
	37.2 W/m-K	258 BTU-in/hr-ftÂ²-Â°F	
	@Temperature 204 Â°C	@Temperature 400 Â°F	
	37.5 W/m-K	260 BTU-in/hr-ftÂ²-Â°F	
	@Temperature 399 Â°C	@Temperature 750 Â°F	

Component Elements Properties	Metric	English	Comments
Carbon, C	0.56 %	0.56 %	
Chromium, Cr	1.1 %	1.1 %	
Iron, Fe	96.04 %	96.04 %	
Molybdenum, Mo	0.50 %	0.50 %	
Nickel, Ni	1.7 %	1.7 %	
Vanadium, V	0.10 %	0.10 %	

Processing Properties	Metric	English	Comments
Annealing Temperature	760 - 773.9 Â°C	1400 - 1425 Â°F	Soft; Cooling: 1 hr/in/max 6hrs; Cool to 1260Â°F and hold 4 hrs and let furnace cool to 800Â°F; < 250 HB

## **Contact Songhan Plastic Technology Co.,Ltd.**

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