

## Schmolz + Bickenbach Thermotur® 2344 Magnum Hot Work Die Steel

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

### Material Notes:

**Description:** Thermotur® 2344 Magnum is an electro slag remelted (ESR) hot work die steel, designed to meet all die casting industry specification  
**Characteristics:** Excellent toughness; Excellent resistance to thermal shock and fatigue; Excellent hardenability; Good high-temperature strength; and Good polishability  
**Applications:** High pressure die cast dies, Hot forging dies, Hot extrusion tooling, Forming dies, Plastic molds 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-Thermotur-2344-Magnum-Hot-Work-Die-Steel.php](http://www.lookpolymers.com/polymer_Schmolz-Bickenbach-Thermotur-2344-Magnum-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	34	34	
	@Treatment Temp. 700.0 °C, Time 7200 sec	@Treatment Temp. 1292 °F, Time 2.00 hour	
	42	42	
	@Treatment Temp. 650.0 °C, Time 7200 sec	@Treatment Temp. 1202 °F, Time 2.00 hour	
	50	50	
	@Treatment Temp. 600.0 °C, Time 7200 sec	@Treatment Temp. 1112 °F, Time 2.00 hour	
Tensile Strength	54	54	
	@Treatment Temp. 400 °C, Time 7200 sec	@Treatment Temp. 752 °F, Time 2.00 hour	
	54	54	
	@Treatment Temp. 550.0 °C, Time 7200 sec	@Treatment Temp. 1022 °F, Time 2.00 hour	
	56	56	
	@Treatment Temp. 500 °C, Time 7200 sec	@Treatment Temp. 932 °F, Time 2.00 hour	
	1380 MPa	200000 psi	44 HRC
	1590 MPa	230000 psi	48 HRC

Mechanical Properties	Metric 1170 MPa	English 170000 psi	Comments 52 HRC
Tensile Strength, Yield	1170 MPa	170000 psi	44 HRC
	@Strain 0.200 %	@Strain 0.200 %	
	1310 MPa	190000 psi	48 HRC
	@Strain 0.200 %	@Strain 0.200 %	
	1520 MPa	220000 psi	52 HRC
	@Strain 0.200 %	@Strain 0.200 %	
Elongation at Yield	12 %	12 %	52 HRC
	13 %	13 %	48 HRC
	14 %	14 %	44 HRC
Reduction of Area	35 %	35 %	52 HRC
	38 %	38 %	48 HRC
	40 %	40 %	44 HRC

Thermal Properties	Metric	English	Comments
CTE, linear	10.8 $\mu\text{m/m}\cdot\text{Å}^\circ\text{C}$	6.00 $\mu\text{in/in}\cdot\text{Å}^\circ\text{F}$	
	@Temperature 21.1 - 93.3 $\text{Å}^\circ\text{C}$	@Temperature 70.0 - 200 $\text{Å}^\circ\text{F}$	
	11.9 $\mu\text{m/m}\cdot\text{Å}^\circ\text{C}$	6.60 $\mu\text{in/in}\cdot\text{Å}^\circ\text{F}$	
	@Temperature 21.1 - 204 $\text{Å}^\circ\text{C}$	@Temperature 70.0 - 400 $\text{Å}^\circ\text{F}$	
	12.6 $\mu\text{m/m}\cdot\text{Å}^\circ\text{C}$	7.00 $\mu\text{in/in}\cdot\text{Å}^\circ\text{F}$	
	@Temperature 21.1 - 399 $\text{Å}^\circ\text{C}$	@Temperature 70.0 - 750 $\text{Å}^\circ\text{F}$	
Thermal Conductivity	25.5 W/m-K	177 BTU-in/hr-ft $\text{Å}^2\cdot\text{Å}^\circ\text{F}$	
	@Temperature 21.1 $\text{Å}^\circ\text{C}$	@Temperature 70.0 $\text{Å}^\circ\text{F}$	
	27.5 W/m-K	191 BTU-in/hr-ft $\text{Å}^2\cdot\text{Å}^\circ\text{F}$	
	@Temperature 343 $\text{Å}^\circ\text{C}$	@Temperature 650 $\text{Å}^\circ\text{F}$	
	30.3 W/m-K	210 BTU-in/hr-ft $\text{Å}^2\cdot\text{Å}^\circ\text{F}$	
	@Temperature 704 $\text{Å}^\circ\text{C}$	@Temperature 1300 $\text{Å}^\circ\text{F}$	

Component Elements Properties	Metric	English	Comments
Carbon, C	0.40 %	0.40 %	
Chromium, Cr	5.3 %	5.3 %	
Iron, Fe	>= 90.897 %	>= 90.897 %	
Molybdenum, Mo	1.4 %	1.4 %	
Silicon, Si	1.0 %	1.0 %	
Sulfur, S	<= 0.0030 %	<= 0.0030 %	
Vanadium, V	1.0 %	1.0 %	

Processing Properties	Metric	English	Comments
Annealing Temperature	749 - 799 Å°C	1380 - 1470 Å°F	Soft; Cooling: Furnace 20Å°F/hour to 1200Å°F/ Then air cool; < 230 HB

## Contact Songhan Plastic Technology Co.,Ltd.

Website : [www.lookpolymers.com](http://www.lookpolymers.com)

Email : [sales@lookpolymers.com](mailto:sales@lookpolymers.com)

Tel : +86 021-51131842

Mobile : +86 13061808058

Skype : lookpolymers

Address : United North Road 215,Fengxian District, Shanghai City,China