

## Schmolz + Bickenbach IMRE™ Stainless Steel Bar

Category : Metal , Ferrous Metal , Stainless Steel

### Material Notes:

Description: Ugine IMRE™ is a chromium stainless steel with improved magnetic properties used in solenoid valves. IMRE™ is at 18% chromium ferritic stainless steel with 2% Mo designed to withstand more corrosive environments than T430 stainless steel. The grade was developed for magnetic applications requiring a very low coercive magnetic field and a very high permeability. IMRE™ is chemically balanced to offer excellent magnetic properties and superior corrosion resistance with excellent machinability and delivers heat to heat consistency. Once an optimum machining setup has been established, machinists can take advantage of increased machining efficiency rates (run "lights-out" production)Application: Solenoid valves, fuel injectors, irrigation valves and electro-mechanical devices.Information provided by Schmolz + Bickenbach

Order this product through the following link:

[http://www.lookpolymers.com/polymer\\_Schmolz-Bickenbach-IMRE-Stainless-Steel-Bar.php](http://www.lookpolymers.com/polymer_Schmolz-Bickenbach-IMRE-Stainless-Steel-Bar.php)

Physical Properties	Metric	English	Comments
Density	7.72 g/cc	0.279 lb/in <sup>3</sup>	

Mechanical Properties	Metric	English	Comments
Hardness, Brinell	85 - 95	85 - 95	Cold Drawn Bars
	@Thickness <=25.4 mm	@Thickness <=1.00 in	
Tensile Strength	483 - 621 MPa	70000 - 90000 psi	Cold Drawn Bars
	@Thickness <=25.4 mm	@Thickness <=1.00 in	
Tensile Strength, Yield	345 - 517 MPa	50000 - 75000 psi	Cold Drawn Bars
	@Strain 0.200 %, Thickness <=25.4 mm	@Strain 0.200 %, Thickness <=1.00 in	
Elongation at Yield	>= 30 %	>= 30 %	Cold Drawn Bars
	@Thickness <=25.4 mm	@Thickness <=1.00 in	
Reduction of Area	>= 25 %	>= 25 %	Cold Drawn Bars
	@Thickness <=25.4 mm	@Thickness <=1.00 in	

Thermal Properties	Metric	English	Comments
CTE, linear	11.9 µm/m-°C	6.60 µin/in-°F	
	@Temperature 20.0 - 649 °C	@Temperature 68.0 - 1200 °F	

Component Elements Properties	Metric	English	Comments
Aluminum, Al	<= 0.025 %	<= 0.025 %	

Component Elements Properties	Metric	English	Comments
Chromium, Cr	17.5 - 18 %	17.5 - 18 %	
Iron, Fe	>= 77 %	>= 77 %	
Manganese, Mn	<= 1.0 %	<= 1.0 %	
Molybdenum, Mo	1.5 - 2.0 %	1.5 - 2.0 %	
Nickel, Ni	>= 0.50 %	>= 0.50 %	
Phosphorous, P	<= 0.045 %	<= 0.045 %	
Silicon, Si	1.2 - 1.6 %	1.2 - 1.6 %	
Sulfur, S	0.20 - 0.30 %	0.20 - 0.30 %	

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.0000760 ohm-cm	0.0000760 ohm-cm	
Magnetic Permeability	1100 - 2000	1100 - 2000	
Magnetic Coercive Force, Hc	1.25 - 2.5 Oe	1.25 - 2.5 Oe	
Magnetic Saturation Flux Density, Bmax	16000 Gauss	16000 Gauss	
Magnetic Remanence, Br	2500 - 8000 Gauss	2500 - 8000 Gauss	
Curie Temperature	660 °C	1220 °F	

Processing Properties	Metric	English	Comments
Annealing Temperature	700.0 - 800.0 °C @Time 3600 sec	1292 - 1472 °F @Time 1.00 hour	Soft; Air cool
Hot-Working Temperature	482 °C	900 °F	Flow Stress of 150 MP at 3.6s <sup>-1</sup>
	538 °C	1000 °F	Flow Stress of 95 MP at 3.6s <sup>-1</sup>
	593 °C	1100 °F	Flow Stress of 60 MP at 3.6s <sup>-1</sup>
	649 °C	1200 °F	Flow Stress of 40 MP at 3.6s <sup>-1</sup>
	750.0 - 1200 °C	1382 - 2192 °F	Uniformly heating

Descriptive Properties	Value	Comments
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Corrosion Resistance Descriptive Properties	Acetic Acid Value	2/4 Comments
	Humidity	4/4
	NaCl (Saline Mist)	4/4
	NaCl 0.2g/l	0.6% mass loss; 60°C; 500 hrs
	NaCl 0.4g/l	0.75% mass loss; 60°C; 500 hrs
	NaCl 0.6g/l	0.5% mass loss; 60°C; 500 hrs
	Nitric Acid	2/4
	Sodium Carbonate	2/4

## Contact Songhan Plastic Technology Co.,Ltd.

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