

Schmolz + Bickenbach 416RS Stainless Steel Bar

Category : Metal , Ferrous Metal , Martensitic , Stainless Steel , T 400 Series Stainless Steel

Material Notes:

Description: Ugitech's 416RS is a low sulfur pre-hardened chrome bearing martensitic stainless steel specifically designed for the precision rifle barrel industry. The 416RS chemistry is balanced to provide the optimum machining characteristics for gun barrel drilling and reaming - while also offering the optimal combination of high tensile strength and good toughness to withstand the typical chamber pressures when fired. Ugitech 416RS comes pre-hardened to HRc 26/32, but can be produced to the specific hardness requirements. The precision finished bars are properly stress relieved to provide the superb straightness necessary to avoid movement during processing, while also offering good corrosion resistance which will reduce fouling and provide a durable finish. Ugitech's 416RS is 100% ultrasonic tested. The mill's stringently controlled production will deliver heat to heat consistency. Every step is monitored from melt, rolling, heat treatment, cold finishing, final bar inspection, and Packaging.

Stress Relieving (Heat Treatment): Heat and hold for 50Â°F â€" 100Â°F (10Â°C to 40Â°C) below tempering temperature of 4-7 hours, slow cool

Hardening (Heat Treatment): Should be performed at 1750Â°F (950Â°C), followed by air or oil quenching.

Information provided by Schmolz + Bickenbach

Order this product through the following link:

http://www.lookpolymers.com/polymer_Schmolz-Bickenbach-416RS-Stainless-Steel-Bar.php

Physical Properties	Metric	English	Comments
Density	7.64 g/cc	0.276 lb/in ³	

Mechanical Properties	Metric	English	Comments
Hardness, Brinell	190 - 210	190 - 210	Turned Bars
	@Thickness <=25.4 mm	@Thickness <=1.00 in	
	264 - 294	264 - 294	Cold Drawn Bars
	@Thickness >=25.4 mm	@Thickness >=1.00 in	
Tensile Strength	621 - 758 MPa	90000 - 110000 psi	Turned Bars
	@Thickness <=25.4 mm	@Thickness <=1.00 in	
	889 - 986 MPa	129000 - 143000 psi	Cold Drawn Bars
	@Thickness >=25.4 mm	@Thickness >=1.00 in	
Tensile Strength, Yield	448 - 586 MPa	65000 - 85000 psi	Turned Bars
	@Strain 0.200 %, Thickness <=25.4 mm	@Strain 0.200 %, Thickness <=1.00 in	
	758 - 889 MPa	110000 - 129000 psi	Cold Drawn Bars
	@Strain 0.200 %, Thickness >=25.4 mm	@Strain 0.200 %, Thickness >=1.00 in	
Elongation at Yield	>= 2.0 %	>= 2.0 %	Turned Bars

Mechanical Properties	@Thickness <=25.4 mm Metric	@Thickness <=1.00 in English	Comments
	>= 4.0 %	>= 4.0 %	Cold Drawn Bars
	@Thickness >=25.4 mm	@Thickness >=1.00 in	
Reduction of Area	>= 5.0 %	>= 5.0 %	Cold Drawn Bars
	@Thickness >=25.4 mm	@Thickness >=1.00 in	
	>= 60 %	>= 60 %	Turned Bars
	@Thickness <=25.4 mm	@Thickness <=1.00 in	
Modulus of Elasticity	205 GPa	29700 ksi	Tension

Thermal Properties	Metric	English	Comments
CTE, linear	10.8 Âµm/m-Â°C	6.00 Âµin/in-Â°F	
	@Temperature 20.0 - 200 Â°C	@Temperature 68.0 - 392 Â°F	
Thermal Conductivity	25.1 W/m-K	174 BTU-in/hr-ftÂ²-Â°F	
	@Temperature 20.0 Â°C	@Temperature 68.0 Â°F	

Component Elements Properties	Metric	English	Comments
Carbon, C	<= 0.15 %	<= 0.15 %	
Chromium, Cr	12 - 14 %	12 - 14 %	
Iron, Fe	>= 82.89 %	>= 82.89 %	
Manganese, Mn	<= 1.25 %	<= 1.25 %	
Nickel, Ni	<= 0.50 %	<= 0.50 %	
Phosphorous, P	<= 0.060 %	<= 0.060 %	
Silicon, Si	<= 1.0 %	<= 1.0 %	
Sulfur, S	<= 0.15 %	<= 0.15 %	

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.0000559 ohm-cm	0.0000559 ohm-cm	

Processing Properties	Metric	English	Comments
Annealing Temperature	649 - 760 Â°C	1200 - 1400 Â°F	Sub-critical anneal
	899 Â°C	1650 Â°F	Softest properties

Processing Properties	Metric	English	Comments
Hot Working Temperature	1050-1180 Â°C	1920 - 2150 Â°F	Slow heating
	954 - 1180 Â°C	1750 - 2150 Â°F	Forging range
	1150 - 1180 Â°C	2100 - 2150 Â°F	Then more rapidly

Descriptive Properties	Value	Comments
Corrosion Resistance	Humidity	2/4
	Sodium Carbonate	2/4

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