

## Schmolz + Bickenbach UGIMA® 316/316L Stainless Steel Bar

Category : Metal , Ferrous Metal , Stainless Steel , T 300 Series Stainless Steel

### Material Notes:

Description: 316/316L UGIMA® is Ugitech's improved machining grade produced only by Ugitech. It is identical in every way to regular 316L, except with respect to machinability. 316/316L UGIMA® represents the latest generation of Ugitech's popular UGIMA® family of high machinability grades. Through the use of new and beneficial modifications to the steel-making process, 316/316L UGIMA® builds upon the proprietary UGIMA® manufacturing process to allow for excellent machinability across a wider range of operations and cutting conditions. When compared with older Ugima® versions, 316/316L UGIMA® is a technologically advanced product that will allow for superior machinability at both low and high speeds, in cam-driven and CNC machines, and with high-speed steel or carbide tooling. Machine shops using 316/316L UGIMA® have experienced consistent success regardless of machine, operation, tooling, or cutting conditions. From lot to lot, 316/316L3 UGIMA® is engineered to give the same high performance every time without surprise. Information provided by Schmolz + Bickenbach

Order this product through the following link:

[http://www.lookpolymers.com/polymer\\_Schmolz-Bickenbach-UGIMA-316316L-Stainless-Steel-Bar.php](http://www.lookpolymers.com/polymer_Schmolz-Bickenbach-UGIMA-316316L-Stainless-Steel-Bar.php)

Physical Properties	Metric	English	Comments
Density	8.03 g/cc	0.290 lb/in <sup>3</sup>	

Mechanical Properties	Metric	English	Comments
Hardness, Brinell	160 - 190	160 - 190	Turned Bars
	@Thickness >=25.4 mm	@Thickness >=1.00 in	
	190 - 220	190 - 220	Cold Drawn Bars
	@Thickness <=25.4 mm	@Thickness <=1.00 in	
Tensile Strength	517 - 655 MPa	75000 - 95000 psi	Turned Bars
	@Thickness >=25.4 mm	@Thickness >=1.00 in	
	621 - 793 MPa	90000 - 115000 psi	Cold Drawn Bars
	@Thickness <=25.4 mm	@Thickness <=1.00 in	
Tensile Strength, Yield	>= 207 MPa	>= 30000 psi	Turned Bars
	@Strain 0.200 %, Thickness >=25.4 mm	@Strain 0.200 %, Thickness >=1.00 in	
	345 - 655 MPa	50000 - 95000 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	

Mechanical Properties	Metric	English	Comments
	@Thickness >=25.4 mm	@Thickness >=1.00 in	
Reduction of Area	>= 50 % @Thickness <=25.4 mm	>= 50 % @Thickness <=1.00 in	Cold Drawn Bars
	>= 50 % @Thickness >=25.4 mm	>= 50 % @Thickness >=1.00 in	Turned Bars
Modulus of Elasticity	164 GPa @Temperature 100 Â°C	23800 ksi @Temperature 212 Â°F	Tension
	179 GPa @Temperature 300 Â°C	26000 ksi @Temperature 572 Â°F	Tension
	200 GPa @Temperature 20.0 Â°C	29000 ksi @Temperature 68.0 Â°F	Tension

Thermal Properties	Metric	English	Comments
CTE, linear	17.1 Âµm/m-Â°C @Temperature 20.0 - 200 Â°C	9.50 Âµin/in-Â°F @Temperature 68.0 - 392 Â°F	
Thermal Conductivity	15.3 W/m-K @Temperature 20.0 Â°C	106 BTU-in/hr-ftÂ²-Â°F @Temperature 68.0 Â°F	

Component Elements Properties	Metric	English	Comments
Carbon, C	<= 0.030 %	<= 0.030 %	
Chromium, Cr	16.5 - 18 %	16.5 - 18 %	
Iron, Fe	>= 63.545 %	>= 63.545 %	
Manganese, Mn	<= 2.0 %	<= 2.0 %	
Molybdenum, Mo	2.0 - 2.5 %	2.0 - 2.5 %	
Nickel, Ni	10.5 - 13 %	10.5 - 13 %	
Nitrogen, N	<= 0.10 %	<= 0.10 %	
Phosphorous, P	<= 0.045 %	<= 0.045 %	
Silicon, Si	<= 0.75 %	<= 0.75 %	
Sulfur, S	<= 0.030 %	<= 0.030 %	

Component Elements Properties	Metric	English	Comments
<b>Electrical Properties</b>	<b>Metric</b>	<b>English</b>	<b>Comments</b>
Electrical Resistivity	0.0000730 ohm-cm	0.0000730 ohm-cm	
Magnetic Permeability	<= 1.03	<= 1.03	at 23% cold work

Processing Properties	Metric	English	Comments
Annealing Temperature	1010 - 1090 Â°C	1850 - 2000 Â°F	followed by rapid cooling with forced air or water quenching
Hot-Working Temperature	>= 949 Â°C	>= 1740 Â°F	Forge
	999 - 1200 Â°C	1830 - 2190 Â°F	Forging range
	1150 - 1220 Â°C	2100 - 2230 Â°F	Heat in range
	<= 1224 Â°C	<= 2235 Â°F	Heat of core during fast forging

Descriptive Properties	Value	Comments
Corrosion Resistance	5% Sulphuric Acid at 106Â°F	0.19 mm/year
	Acetic Acid	3/4
	Boiling 50% Acetic 50% Formic Acids	0.25 mm/year
	Boiling Acetic Acid	0.1 mm/year
	Boiling Formic Acid	1.4 mm/year
	Boiling Nitric Acid	0.25 mm/year
	Boiling Phosphoric Acid	0.1 mm/year
	H <sub>2</sub> SO <sub>4</sub> 2M	25 ÂµA/cm<sup>2</sup>
	Humidity	4/4
	NaCl (Saline Mist)	3/4
	NaCl 0.86M, 131Â°F, pH=6.6	175 mV/ECS
	NaCl 0.86M, 131Â°F, pH=6.6	150 mV/ECS
	Nitric Acid	3/4
	Petroleum	2/4
	Petroleum	2/4
	Phosphoric Acid	2/4

Descriptive Properties	Value	Comments
	Sulfuric Acid	2/4

## Contact Songhan Plastic Technology Co.,Ltd.

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