

Schmolz + Bickenbach UGIMA® 303 Stainless Steel Bar

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

Material Notes:

Description: 303 UGIMA® is Ugitech's improved machining grade produced only by Ugitech. It is identical in every way to regular 303, except with respect to machinability. 303 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, 303 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 versions, 303 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 303 UGIMA® have experienced consistent success regardless of machine, operation, tooling, or cutting conditions. From lot to lot, 303 UGIMA® is engineered to give the same high performance every time without surprises. Applications: Fasteners, Shafts, Valve Bodies, Valves, Valve Trim, Fittings, Machined parts, and Not recommended for vessels containing liquid or gasses at high pressures. Information provided by Schmolz + Bickenbach

Order this product through the following link:

http://www.lookpolymers.com/polymer_Schmolz-Bickenbach-UGIMA-303-Stainless-Steel-Bar.php

Physical Properties	Metric	English	Comments
Density	7.89 g/cc	0.285 lb/in ³	

Mechanical Properties	Metric	English	Comments
Hardness, Brinell	220 - 240	220 - 240	Escomatic Coils
	170 - 190	170 - 190	Turned Bars
	@Thickness >=25.4 mm	@Thickness >=1.00 in	
Tensile Strength	220 - 240	220 - 240	Cold Drawn Bars
	@Thickness <=25.4 mm	@Thickness <=1.00 in	
	655 - 827 MPa	95000 - 120000 psi	Escomatic Coils
Tensile Strength, Yield	586 - 689 MPa	85000 - 100000 psi	Turned Bars
	@Thickness >=25.4 mm	@Thickness >=1.00 in	
	655 - 827 MPa	95000 - 120000 psi	Cold Drawn Bars
Tensile Strength, Yield	483 - 689 MPa	70000 - 100000 psi	Escomatic Coils
	@Strain 0.200 %	@Strain 0.200 %	
	241 - 379 MPa	35000 - 55000 psi	Turned Bars
@Strain 0.200 %, Thickness >=25.4 mm	@Strain 0.200 %, Thickness >=1.00 in		

Mechanical Properties	Metric	English	Comments
	389 MPa	100000 psi	
	@Strain 0.200 %, Thickness <=25.4 mm	@Strain 0.200 %, Thickness <=1.00 in	Cold Drawn Bars
Elongation at Yield	>= 30 %	>= 30 %	Escomatic Coils
	>= 30 %	>= 30 %	
	@Thickness <=25.4 mm	@Thickness <=1.00 in	Cold Drawn Bars
	>= 50 %	>= 50 %	
	@Thickness >=25.4 mm	@Thickness >=1.00 in	Turned Bars
Reduction of Area	>= 45 %	>= 45 %	Escomatic Coils
	>= 45 %	>= 45 %	
	@Thickness <=25.4 mm	@Thickness <=1.00 in	Cold Drawn Bars
	>= 60 %	>= 60 %	
	@Thickness >=25.4 mm	@Thickness >=1.00 in	Turned Bars

Thermal Properties	Metric	English	Comments
CTE, linear	16.7 $\mu\text{m}/\text{m}\cdot\text{Å}^\circ\text{C}$	9.30 $\mu\text{in}/\text{in}\cdot\text{Å}^\circ\text{F}$	
	@Temperature 20.0 - 200 $\text{Å}^\circ\text{C}$	@Temperature 68.0 - 392 $\text{Å}^\circ\text{F}$	
Thermal Conductivity	15.3 W/m-K	106 BTU-in/hr-ft $\text{Å}^2\cdot\text{Å}^\circ\text{F}$	
	@Temperature 20.0 $\text{Å}^\circ\text{C}$	@Temperature 68.0 $\text{Å}^\circ\text{F}$	

Component Elements Properties	Metric	English	Comments
Carbon, C	<= 0.15 %	<= 0.15 %	
Chromium, Cr	17 - 19 %	17 - 19 %	
Copper, Cu	<= 1.0 %	<= 1.0 %	
Iron, Fe	65.9 - 69.9 %	65.9 - 69.9 %	
Manganese, Mn	<= 2.0 %	<= 2.0 %	
Molybdenum, Mo	<= 0.60 %	<= 0.60 %	
Nickel, Ni	8.0 - 10 %	8.0 - 10 %	
Phosphorous, P	<= 0.20 %	<= 0.20 %	
Silicon, Si	<= 1.0 %	<= 1.0 %	

Component Elements Properties	Metric	English	Comments
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Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.0000730 ohm-cm	0.0000730 ohm-cm	

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	954 - 1200 Â°C	1750 - 2200 Â°F	Forging range
	1180 - 1200 Â°C	2150 - 2200 Â°F	Heat in range

Descriptive Properties	Value	Comments
Corrosion Resistance	Acetic Acid	2/4
	Humidity	3/4
	NaCl (Saline Mist)	2/4
	Nitric Acid	3/4
	Phosphoric Acid	2/4
	Sodium Carbonate	2/4
	Sulfuric Acid	2/4

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