Schmolz + Bickenbach UGIMA 304/304L® Stainless Steel Bar

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

Material Notes:

Description: 304/304L UGIMA® is the next generation of improved high machinability grades from Ugitech. The UGIMA® grades have redefined high machinability stainless steels, showing improvements over the original UGIMA® technology. 304/304L UGIMA® is identical in every way to the standard 304/304L, except with respect to Machinability. UGIMA® is a proprietary manufacturing process, developed by Ugitech, which has resulted in a product that increases productivity and tool life, and improves the surface finish on all types of machined parts. 304/304L UGIMA® meets all industry specifications for Type 304/304L. This grade is designed to minimize carbide precipitation during welding to ensure good corrosion resistance properties in many corrosive environments. Once an optimum setup has been established, machinists can take advantage of the increased efficiency rates, especially during “lights-out” production.Information provided by Schmolz + Bickenbach

Order this product through the following link:
http://www.lookpolymers.com/polymer_Schmolz-Bickenbach-UGIMA-304304L-Stainless-Steel-Bar.php

Physical Properties	Metric	English	Comments
Density	7.89 g/cc	0.285 lb/in³	

Mechanical Properties	Metric	English	Comments
Hardness, Brinell	160 - 180 @Thickness >=25.4 mm	160 - 180 @Thickness >=1.00 in	Turned Bars
	200 - 220 @Thickness <=25.4 mm	200 - 220 @Thickness <=1.00 in	Cold Drawn Bars
Tensile Strength	552 - 655 MPa @Thickness >=25.4 mm	80000 - 95000 psi @Thickness >=1.00 in	Turned Bars
	689 - 793 MPa @Thickness <=25.4 mm	100000 - 115000 psi @Thickness <=1.00 in	Cold Drawn Bars
Tensile Strength, Yield	241 - 379 MPa @Strain 0.200 %	35000 - 55000 psi @Strain 0.200 %	Turned Bars
	414 - 552 MPa @Strain 0.200 %	60000 - 80000 psi @Strain 0.200 %	Cold Drawn Bars
Elongation at Yield	>= 40 % @Thickness <=25.4 mm	>= 40 % @Thickness <=1.00 in	Cold Drawn Bars
	>= 50 % @Thickness >=25.4 mm	>= 50 % @Thickness >=1.00 in	Turned Bars

Mechanical Properties	Metric	English	Comments
Reduction of Area	>= 60 %	>= 60 %	Cold Drawn Bars
	@Thickness <=25.4 mm	@Thickness <=1.00 in	
	>= 70 %	>= 70 %	Turned Bars
	@Thickness >=25.4 mm	@Thickness >=1.00 in	
Modulus of Elasticity	200 GPa	29000 ksi	Tension
	@Temperature 20.0 °C	@Temperature 68.0 °F	
	200 GPa	29000 ksi	Tension
	@Temperature 100 °C	@Temperature 212 °F	
	200 GPa	29000 ksi	Tension
	@Temperature 200 °C	@Temperature 392 °F	
	200 GPa	29000 ksi	Tension
	@Temperature 300 °C	@Temperature 572 °F	
	200 GPa	29000 ksi	Tension
	@Temperature 400 °C	@Temperature 752 °F	
	200 GPa	29000 ksi	Tension
	@Temperature 500 °C	@Temperature 932 °F	

Thermal Properties	Metric	English	Comments
CTE, linear	2.88 µm/m-°C	1.60 µin/in-°F	
	@Temperature 20.0 - 100 °C	@Temperature 68.0 - 212 °F	
	2.97 µm/m-°C	1.65 µin/in-°F	
	@Temperature 20.0 - 200 °C	@Temperature 68.0 - 392 °F	
	3.06 µm/m-°C	1.70 µin/in-°F	
	@Temperature 20.0 - 300 °C	@Temperature 68.0 - 572 °F	
	3.24 µm/m-°C	1.80 µin/in-°F	
	@Temperature 20.0 - 400 °C	@Temperature 68.0 - 752 °F	
	3.24 µm/m-°C	1.80 µin/in-°F	
	@Temperature 20.0 - 500 °C	@Temperature 68.0 - 932 °F	
Thermal Conductivity	14.8 W/m-K	103 BTU-in/hr-ft²-°F	

Thermal Properties	@Temperature 20.0 °C Metric	@Temperature 68.0 °F English	Comments

Component Elements Properties	Metric	English	Comments
Carbon, C	<= 0.030 %	<= 0.030 %	
Chromium, Cr	18 - 20 %	18 - 20 %	
Copper, Cu	<= 1.0 %	<= 1.0 %	
Iron, Fe	>= 61.8 %	>= 61.8 %	
Manganese, Mn	<= 2.0 %	<= 2.0 %	
Molybdenum, Mo	2.0 - 3.0 %	2.0 - 3.0 %	
Nickel, Ni	8.0 - 11 %	8.0 - 11 %	
Nitrogen, N	<= 1.0 %	<= 1.0 %	
Phosphorous, P	<= 0.040 %	<= 0.040 %	
Silicon, Si	<= 1.0 %	<= 1.0 %	
Sulfur, S	<= 0.030 %	<= 0.030 %	

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.0000730 ohm-cm	0.0000730 ohm-cm	
Magnetic Permeability	<= 1.1	<= 1.1	at 10% cold work

Processing Properties	Metric	English	Comments
Annealing Temperature	1010 - 1090 °C	1850 - 2000 °F	followed by rapid cooling with forced air or water quenching
Hot-Working Temperature	>= 899 °C	>= 1650 °F	Forge
	1163 - 1260 °C	2125 - 2300 °F	Heat in range

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

Descriptive Properties	Value	Comments
	Sodium Carbonate	3/4
	Sulfuric Acid	2/4

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