

Bohler-Uddeholm ORVAR® 2M / AISI H13 Hot Work Tool Steel

Category : Metal , Ferrous Metal , Alloy Steel , Chrome-moly Steel , Tool Steel , Hot Work Steel

Material Notes:

Orvar 2 Microdized is a chromium-molybdenum-vanadium alloyed steel ORVAR® 2M / AISI H13 is a conventionally produced hot work tool steel with overall good ductility, toughness, wear resistance, hardenability and machinability. ORVAR 2 Microdized is characterized by:

Good resistance to abrasion at both low and high temperatures High level of toughness and ductility Uniform and high level of machinability and polishability Good high-temperature strength and resistance to thermal fatigue Very limited distortion during hardening. Applications: Tools for Extrusion-Dies, Backers, dieholders, liners, dummy blocks, stems; Plastic Molding Applications- Injection moulds, Compression/transfer moulds; and Sever cold punching, scrap shears, hot shearing, shrink rings(eg for cemented carbide dies), wear-resisting parts.

Order this product through the following link:

http://www.lookpolymers.com/polymer_Bohler-Uddeholm-ORVAR-2M-AISI-H13-Hot-Work-Tool-Steel.php

Physical Properties	Metric	English	Comments
Density	7.78 g/cc	0.281 lb/in ³	hardened to 45 HRC
	7.58 g/cc	0.274 lb/in ³	hardened to 45 HRC
	@Temperature 599 °C	@Temperature 1110 °F	
	7.67 g/cc	0.277 lb/in ³	hardened to 45 HRC
	@Temperature 399 °C	@Temperature 750 °F	

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell C	45 - 52	45 - 52	
Tensile Strength, Ultimate	1420 MPa	206000 psi	hardened to 45 HRC
	1810 MPa	263000 psi	hardened to 52 HRC
Tensile Strength, Yield	1280 MPa	185000 psi	hardened to 45 HRC
	@Strain 0.200 %	@Strain 0.200 %	
	1520 MPa	220000 psi	hardened to 52 HRC
	@Strain 0.200 %	@Strain 0.200 %	
Modulus of Elasticity	210 GPa	30500 ksi	hardened to 45 HRC
	140 GPa	20300 ksi	hardened to 45 HRC
	@Temperature 599 °C	@Temperature 1110 °F	
	180 GPa	26100 ksi	hardened to 45 HRC
	@Temperature 399 °C	@Temperature 750 °F	

Thermal Properties	Metric	English	Comments
CTE, linear	12.6 $\mu\text{m}/\text{m}\cdot^{\circ}\text{C}$	7.00 $\mu\text{in}/\text{in}\cdot^{\circ}\text{F}$	hardened to 45 HRC
	@Temperature 399 $^{\circ}\text{C}$	@Temperature 750 $^{\circ}\text{F}$	
	13.1 $\mu\text{m}/\text{m}\cdot^{\circ}\text{C}$	7.30 $\mu\text{in}/\text{in}\cdot^{\circ}\text{F}$	hardened to 45 HRC
	@Temperature 599 $^{\circ}\text{C}$	@Temperature 1110 $^{\circ}\text{F}$	
Thermal Conductivity	25.1 W/m-K	174 BTU-in/hr-ft ² - $^{\circ}\text{F}$	hardened to 45 HRC
	29.0 W/m-K	201 BTU-in/hr-ft ² - $^{\circ}\text{F}$	hardened to 45 HRC
	@Temperature 399 $^{\circ}\text{C}$	@Temperature 750 $^{\circ}\text{F}$	
	30.0 W/m-K	208 BTU-in/hr-ft ² - $^{\circ}\text{F}$	hardened to 45 HRC
	@Temperature 599 $^{\circ}\text{C}$	@Temperature 1110 $^{\circ}\text{F}$	

Component Elements Properties	Metric	English	Comments
Carbon, C	0.39 %	0.39 %	
Chromium, Cr	5.3 %	5.3 %	
Manganese, Mn	0.40 %	0.40 %	
Molybdenum, Mo	1.3 %	1.3 %	
Silicon, Si	1.0 %	1.0 %	
Vanadium, V	0.90 %	0.90 %	

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