

Bohler-Uddeholm UDDEHOLM HOTVAR® Hot Work Tool Steel

Category : Metal , Ferrous Metal , Alloy Steel , Tool Steel , Hot Work Steel

Material Notes:

Molybdenum-vanadium alloyed steel Hotvar® is a premium hot work steel developed by Uddeholm to provide very good performance in tooling up to 1200°F (650°C). The alloying elements in Hotvar® are balanced to give high hot wear resistance and good high temperature properties. Manufactured by special techniques, Hotvar® is suitable for applications where hot wear and/or plastic deformation are the dominating failure mechanisms. Hotvar is characterized by: High hot wear resistance Very good high temperature properties High resistance to thermal fatigue Very good temper resistance Very good thermal conductivity Applications: Uddeholm Hotvar is a hot-work tool steel suitable for applications where hot wear and/or plastic deformation are the dominating failure mechanisms. Applications and tools of especial interest: Warm forging, dies and punches Roll forging, rolling segments Rock orbital forging, punches and dies Upset forging, clamping tools Progressive forging, dies Axial closed die rolling, top and bottom dies Cross forming, segments Hot bending, tools Hot calibration, tools Zinc die casting, dies Al-tube extrusion

Order this product through the following link:

http://www.lookpolymers.com/polymer_Bohler-Uddeholm-UDDEHOLM-HOTVAR-Hot-Work-Tool-Steel.php

Physical Properties	Metric	English	Comments
Density	7.78 g/cc	0.281 lb/in ³	hardness of 56 HRC
	7.58 g/cc	0.274 lb/in ³	hardness of 56 HRC
	@Temperature 599 °C	@Temperature 1110 °F	
	7.67 g/cc	0.277 lb/in ³	hardness of 56 HRC
	@Temperature 399 °C	@Temperature 750 °F	

Mechanical Properties	Metric	English	Comments
Hardness, Brinell	210	210	Soft annealed
Hardness, Rockwell C	54 - 58	54 - 58	
Tensile Strength, Ultimate	2100 MPa	305000 psi	hardness of 54 HRC
	2210 MPa	320000 psi	hardness of 56 HRC
	2310 MPa	335000 psi	hardness of 58 HRC
Tensile Strength, Yield	1790 MPa	260000 psi	hardness of 52 HRC
	@Strain 0.200 %	@Strain 0.200 %	
	1830 MPa	265000 psi	hardness of 56 HRC
	@Strain 0.200 %	@Strain 0.200 %	
	1860 MPa	270000 psi	hardness of 58 HRC
	@Strain 0.200 %	@Strain 0.200 %	

Mechanical Properties	Metric	English	Comments
Modulus of Elasticity	210 GPa	30000 ksi	(hardness of 56 HRC)
	140 GPa	20300 ksi	hardness of 56 HRC
	@Temperature 599 °C	@Temperature 1110 °F	
	180 GPa	26100 ksi	hardness of 56 HRC
	@Temperature 399 °C	@Temperature 750 °F	
Charpy Impact	11.9 J	8.80 ft-lb	V-notch
	@Temperature 98.9 °C	@Temperature 210 °F	
	16.3 J	12.0 ft-lb	V-notch
	@Temperature 399 °C	@Temperature 750 °F	

Thermal Properties	Metric	English	Comments
CTE, linear	12.6 µm/m-°C	7.00 µin/in-°F	hardness of 56 HRC
	@Temperature 399 °C	@Temperature 750 °F	
	13.1 µm/m-°C	7.30 µin/in-°F	hardened to 56 HRC
	@Temperature 599 °C	@Temperature 1110 °F	
Thermal Conductivity	31.0 W/m-K	215 BTU-in/hr-ft ² -°F	hardness of 56 HRC
	33.0 W/m-K	229 BTU-in/hr-ft ² -°F	hardness of 56 HRC
	@Temperature 399 °C	@Temperature 750 °F	
	33.0 W/m-K	229 BTU-in/hr-ft ² -°F	hardness of 56 HRC
	@Temperature 599 °C	@Temperature 1110 °F	

Component Elements Properties	Metric	English	Comments
Carbon, C	0.55 %	0.55 %	
Chromium, Cr	2.6 %	2.6 %	
Manganese, Mn	0.75 %	0.75 %	
Molybdenum, Mo	2.25 %	2.25 %	
Silicon, Si	1.0 %	1.0 %	
Vanadium, V	0.85 %	0.85 %	

Processing Properties	Metric	English	Comments
Processing Temperature	1050 °C	1920 °F	hardening temperature, then quenched in air and tempered 2 + 2 h

Processing Properties	Metric	English	at 1070°F (hardness = 56 HRC) Comments
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