

Bohler-Uddeholm UDDEHOLM ORVAR® SUPREME (Premium AISI H13) Hot Work Tool Steel

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

Material Notes:

Chromium-molybdenum-vanadium alloyed steel A premium Cr-Mo-V-alloyed hot work die steel with good resistance to thermal fatigue. The steel is produced by a special melting and refining technique in order to give mechanical properties with maximum isotropy and is certified to meet a minimum Charpy V-notch test result of 10 ft-lbs (13.6 J). Suitable for a wide variety of hot work applications, including tools for high pressure die casting, hot extrusion and press forging, ORVAR® SUPREME also meets or exceeds NADCA 207-97 specifications. Orvar Supreme is characterized by: High level of resistance to thermal shock and thermal fatigue Good high-temperature strength Excellent toughness and ductility in all directions Good machinability and polishability Excellent through-hardening properties Good dimensional stability during hardening Applications Tools for die casting - Dies, Fixed inserts cores, Sprue parts, Nozzles, Ejector pins (nitrided), Plunger, shot-sleeve (normal nitrided) Tool for extrusion - Dies, Backers, die-holders, liners, dummy blocks, stems Tools for forging - Aluminum, magnesium, Copper alloys, Steel

Order this product through the following link:

http://www.lookpolymers.com/polymer_Bohler-Uddeholm-UDDEHOLM-ORVAR-SUPREME-Premium-AISI-H13-Hot-Work-Tool-Steel.php

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

Mechanical Properties	Metric	English	Comments
Hardness, Brinell	180	180	Soft annealed
Tensile Strength, Ultimate	1420 MPa	206000 psi	hardness of 45 HRC
	1810 MPa	263000 psi	hardness of 52 HRC
Tensile Strength, Yield	1280 MPa	185000 psi	hardness of 45 HRC
	@Strain 0.200 %	@Strain 0.200 %	
	1520 MPa	220000 psi	hardness of 52 HRC
	@Strain 0.200 %	@Strain 0.200 %	
Modulus of Elasticity	210 GPa	30500 ksi	(hardness of 45 HRC)
	140 GPa	20300 ksi	hardness of 45 HRC
	@Temperature 599 °C	@Temperature 1110 °F	

Mechanical Properties	Metric	English	Comments
	@Temperature 399 °C	@Temperature 750 °F	hardness of 45 HRC
Charpy Impact	27.1 J	20.0 ft-lb	V-notch (hardness of 45 HRC)
	@Temperature 98.9 °C	@Temperature 210 °F	
	74.6 J	55.0 ft-lb	V-notch (hardness of 45 HRC)
	@Temperature 499 °C	@Temperature 930 °F	

Thermal Properties	Metric	English	Comments
CTE, linear	12.6 µm/m-°C	7.00 µin/in-°F	hardness of 45 HRC
	@Temperature 399 °C	@Temperature 750 °F	
	13.1 µm/m-°C	7.30 µin/in-°F	hardened to 45 HRC
	@Temperature 599 °C	@Temperature 1110 °F	
Thermal Conductivity	25.0 W/m-K	174 BTU-in/hr-ft ² -°F	hardness of 45 HRC
	@Temperature 20.0 °C	@Temperature 68.0 °F	
	29.0 W/m-K	201 BTU-in/hr-ft ² -°F	hardness of 45 HRC
	@Temperature 399 °C	@Temperature 750 °F	
	30.0 W/m-K	208 BTU-in/hr-ft ² -°F	hardness of 45 HRC
	@Temperature 599 °C	@Temperature 1110 °F	

Component Elements Properties	Metric	English	Comments
Carbon, C	0.39 %	0.39 %	
Chromium, Cr	5.2 %	5.2 %	
Manganese, Mn	0.40 %	0.40 %	
Molybdenum, Mo	1.4 %	1.4 %	
Silicon, Si	1.0 %	1.0 %	
Vanadium, V	0.90 %	0.90 %	

Processing Properties	Metric	English	Comments
Processing Temperature	1024 °C	1875 °F	heated for 30 min, then quenched in air and tempered 2 + 2 h at 1130°F (hardness = 45 HRC)

Contact Songhan Plastic Technology Co.,Ltd.

Website : www.lookpolymers.com

Email : sales@lookpolymers.com

Tel : +86 021-51131842

Mobile : +86 13061808058

Skype : lookpolymers

Address : United North Road 215, Fengxian District, Shanghai City, China