

Bohler-Uddeholm UDDEHOLM VANADIS 4 EXTRA® Powder Metallurgically Produced Tool Steel

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

Material Notes:

Description: Uddeholm Vanadis 4 Extra is a chromiummolybdenum-vanadium alloyed steel Vanadis 4 Extra is characterized by: Very good ductility High abrasive-adhesive wear resistance High compressive strength Good dimensional stability during heat treatment and in service Very good through hardening properties Good temper back resistance Good machinability and grindability Applications: Uddeholm Vanadis 4 Extra is especially suitable for applications where adhesive wear and/or chipping are the dominating failure mechanisms, i.e. with soft/adherent materials such as austenitic stainless steel, mild steel, copper, aluminium, etc. as work material; with thicker work material and high strength work materials. Uddeholm Vanadis 4 Extra is however also very suitable for blanking and forming of Ultra High Strength Steel Sheet, these materials place high demands on the tool steel regarding abrasive wear resistance and ductility.

Order this product through the following link:

http://www.lookpolymers.com/polymer_Bohler-Uddeholm-UDDEHOLM-VANADIS-4-EXTRA-Powder-Metallurgically-Produced-Tool-Steel.php

Physical Properties	Metric	English	Comments
Density	7.70 g/cc	0.278 lb/in ³	hardened to 60 HRC

Mechanical Properties	Metric	English	Comments
Hardness, Brinell	230	230	Soft annealed
Modulus of Elasticity	205 GPa	29800 ksi	(hardened to 60 HRC)
	185 GPa	26800 ksi	hardened to 60 HRC
	@Temperature 399 °C	@Temperature 750 °F	
	200 GPa	29000 ksi	hardened to 60 HRC
	@Temperature 199 °C	@Temperature 390 °F	
Impact Test	37.0 J	27.3 ft-lb	HRC 65, unnotched
	47.0 J	34.7 ft-lb	HRC 63, unnotched
	57.0 J	42.0 ft-lb	HRC 61, unnotched
	67.0 J	49.4 ft-lb	HRC 59, unnotched
	77.0 J	56.8 ft-lb	HRC 57, unnotched
	97.0 J	71.5 ft-lb	HRC 55, unnotched

Thermal Properties	Metric	English	Comments
	10.8 µm/m-°C	6.00 µin/in-°F	

CTE linear Thermal Properties	Metric @ Temperature 199 °C	English @ Temperature 390 °F	hardened to 60 HRC Comments
	11.7 $\mu\text{m}/\text{m}\cdot^{\circ}\text{C}$ @Temperature 399 °C	6.50 $\mu\text{in}/\text{in}\cdot^{\circ}\text{F}$ @Temperature 750 °F	hardened to 60 HRC
Specific Heat Capacity	0.460 J/g-°C @Temperature 20.0 °C	0.110 BTU/lb-°F @Temperature 68.0 °F	hardened to 60 HRC
Thermal Conductivity	30.0 W/m-K @Temperature 199 °C	208 BTU-in/hr-ft ² -°F @Temperature 390 °F	hardened to 60 HRC
	30.0 W/m-K @Temperature 399 °C	208 BTU-in/hr-ft ² -°F @Temperature 750 °F	hardened to 60 HRC

Component Elements Properties	Metric	English	Comments
Carbon, C	1.4 %	1.4 %	
Chromium, Cr	4.7 %	4.7 %	
Manganese, Mn	0.40 %	0.40 %	
Molybdenum, Mo	3.5 %	3.5 %	
Silicon, Si	0.40 %	0.40 %	
Vanadium, V	3.7 %	3.7 %	

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