

Bohler-Uddeholm UDDEHOLM Vancron 40 nitrided powder tool steel

Category : Metal , Ferrous Metal , Tool Steel , Cold Work Steel

Material Notes:

Description: Uddeholm Vancron 40 is a nitrided powder tool steel, which means that a "surface coating" is already integrated into the finished tooling material. The result is a tool surface with very low friction that reduces galling or sticking of the material. Uddeholm Vancron 40 offers the possibility of eliminating time- and cost-consuming surface coatings like CVD, PVD or TD. This is achieved already in the manufacturing process of Uddeholm Vancron 40 by introducing an extra nitriding operation. Uddeholm Vancron 40 is characterized by: Very high adhesive wear resistance Very high galling resistance Good chipping and cracking resistance High compressive strength Good through hardening properties Good dimensional stability in hardening Very good resistance to tempering back Good WEDM properties

Applications: Uddeholm Vancron 40 is a cold work tool steel with an excellent galling/adhesive wear profile, which makes the steel ideal for severe production conditions and/or long run production in applications where surface coated tool steel is needed. The work materials in these applications are often soft/adherent materials such as austenitic and ferritic stainless steel, mild steel, copper, aluminium, etc.

Uddeholm Vancron 40 should be used in cold work applications where the predominant failure mechanisms are adhesive wear or galling.

Typical applications are: Blanking and forming; Cold extrusion; Deep drawing; and Powder pressing.

Order this product through the following link:

http://www.lookpolymers.com/polymer_Bohler-Uddeholm-UDDEHOLM-Vancron-40-nitrided-powder-tool-steel.php

Physical Properties	Metric	English	Comments
Density	7.70 g/cc	0.278 lb/in ³	

Mechanical Properties	Metric	English	Comments
Hardness, Brinell	300	300	Soft annealed
Hardness, Rockwell C	61	61	
Modulus of Elasticity	213 GPa	30900 ksi	
	@Temperature 400 °C	@Temperature 752 °F	
	227.0 GPa	32920 ksi	
	@Temperature 200 °C	@Temperature 392 °F	
	236 GPa	34200 ksi	
	@Temperature 20.0 °C	@Temperature 68.0 °F	
Compressive Strength	2200 MPa	319000 psi	Rc0.2; at HRC=58
	2500 MPa	363000 psi	Rc0.2; at HRC=60
	2700 MPa	392000 psi	Rc0.2; at HRC=62
	3000 MPa	435000 psi	Rc0.2; at HRC=64

Thermal Properties	Metric	English	Comments
CTE, linear	11.1 $\mu\text{m}/\text{m}\cdot^\circ\text{C}$	6.17 $\mu\text{in}/\text{in}\cdot^\circ\text{F}$	
	@Temperature 20.0 - 200 $^\circ\text{C}$	@Temperature 68.0 - 392 $^\circ\text{F}$	
	11.9 $\mu\text{m}/\text{m}\cdot^\circ\text{C}$	6.61 $\mu\text{in}/\text{in}\cdot^\circ\text{F}$	
	@Temperature 20.0 - 400 $^\circ\text{C}$	@Temperature 68.0 - 752 $^\circ\text{F}$	
Specific Heat Capacity	0.460 J/g- $^\circ\text{C}$	0.110 BTU/lb- $^\circ\text{F}$	
Thermal Conductivity	19.0 - 23.0 W/m-K	132 - 160 BTU-in/hr-ft $^2\cdot^\circ\text{F}$	
	@Temperature 200 $^\circ\text{C}$	@Temperature 392 $^\circ\text{F}$	
	24.5 - 25.5 W/m-K	170 - 177 BTU-in/hr-ft $^2\cdot^\circ\text{F}$	
	@Temperature 400 $^\circ\text{C}$	@Temperature 752 $^\circ\text{F}$	

Component Elements Properties	Metric	English	Comments
Carbon, C	1.1 %	1.1 %	
Chromium, Cr	4.5 %	4.5 %	
Iron, Fe	76.3 %	76.3 %	As Balance
Manganese, Mn	0.40 %	0.40 %	
Molybdenum, Mo	3.2 %	3.2 %	
Nitrogen, N	1.8 %	1.8 %	
Silicon, Si	0.50 %	0.50 %	
Tungsten, W	3.7 %	3.7 %	
Vanadium, V	8.5 %	8.5 %	

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