

Bohler-Uddeholm UDDEHOLM VANADIS 23 (AISI M3:2) Hot Work Tool Steel

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

Material Notes:

Chromium-molybdenum-tungsten-vanadium alloyed PM steel Vanadis 23 is a high speed powder metallurgical steel, recommended for low temperature die casting applications and warm forging applications where wear resistance above that of an ORVAR 2M / AISI H13 is required. This material is available in limited sizes. Vanadis 23 is characterized by: High wear resistance (abrasive profile) High compressive strength Very good through-hardening properties Good toughness Very good dimensional stability on heat treatment Very good temper resistance Applications: Uddeholm Vanadis 23 is especially suitable for blanking and forming of thinner work materials where a mixed (abrasive–adhesive) or abrasive type of wear is encountered and where the risk for plastic deformation of the working surfaces of the tool is high, e.g.:

Order this product through the following link:

http://www.lookpolymers.com/polymer_Bohler-Uddeholm-UDDEHOLM-VANADIS-23-AISI-M32-Hot-Work-Tool-Steel.php

Physical Properties	Metric	English	Comments
Density	7.94 g/cc	0.287 lb/in ³	hardened and tempered
	7.78 g/cc	0.281 lb/in ³	hardened and tempered
	@Temperature 599 °C	@Temperature 1110 °F	
	7.83 g/cc	0.283 lb/in ³	hardened and tempered
	@Temperature 399 °C	@Temperature 750 °F	

Mechanical Properties	Metric	English	Comments
Hardness, Brinell	260	260	Soft annealed (Delivery condition)
Hardness, Rockwell C	57 - 66	57 - 66	Tempering: 3 x 1 h at 1040°F
Modulus of Elasticity	228 GPa	33000 ksi	(hardened and tempered)
	186 GPa	27000 ksi	hardened and tempered
	@Temperature 599 °C	@Temperature 1110 °F	
	207 GPa	30000 ksi	hardened and tempered
	@Temperature 399 °C	@Temperature 750 °F	
Flexural Strength	5000 MPa	725000 psi	(Fracture) @58HRC, Tempering: 3 x 1 h at 1040°F; Four-point bend
	5300 MPa	769000 psi	(Fracture) @62HRC, Tempering: 3 x 1 h at 1040°F; Four-point bend
Flexural Yield Strength	2700 MPa	392000 psi	@58HRC, Tempering: 3 x 1 h at 1040°F; Four-point bend
	3500 MPa	508000 psi	@64HRC, Tempering: 3 x 1 h at 1040°F; Four-point bend

Mechanical Properties	Metric	English	Comments
Impact Test	33.9 - 56.9 J	25.0 - 42.0 ft-lb	Comments, Tempering: 3 x 1 h at 1040°F

Thermal Properties	Metric	English	Comments
CTE, linear	12.1 $\mu\text{m}/\text{m}\cdot^{\circ}\text{C}$	6.70 $\mu\text{in}/\text{in}\cdot^{\circ}\text{F}$	hardened and tempered
	@Temperature 399 °C	@Temperature 750 °F	
	12.6 $\mu\text{m}/\text{m}\cdot^{\circ}\text{C}$	7.00 $\mu\text{in}/\text{in}\cdot^{\circ}\text{F}$	hardened and tempered
	@Temperature 599 °C	@Temperature 1110 °F	
Specific Heat Capacity	0.418 J/g-°C	0.100 BTU/lb-°F	hardened and tempered
	0.502 J/g-°C	0.120 BTU/lb-°F	hardened and tempered
	@Temperature 399 °C	@Temperature 750 °F	
	0.586 J/g-°C	0.140 BTU/lb-°F	hardened and tempered
	@Temperature 599 °C	@Temperature 1110 °F	
Thermal Conductivity	24.0 W/m-K	167 BTU-in/hr-ft ² -°F	hardened and tempered
	27.0 W/m-K	187 BTU-in/hr-ft ² -°F	hardened and tempered
	@Temperature 599 °C	@Temperature 1110 °F	
	28.0 W/m-K	194 BTU-in/hr-ft ² -°F	hardened and tempered
	@Temperature 399 °C	@Temperature 750 °F	
Shrinkage	-0.130 - -0.0300 %	-0.130 - -0.0300 %	Austenitizing and tempering

Component Elements Properties	Metric	English	Comments
Carbon, C	1.28 %	1.28 %	
Chromium, Cr	4.2 %	4.2 %	
Molybdenum, Mo	5.0 %	5.0 %	
Tungsten, W	6.4 %	6.4 %	
Vanadium, V	3.1 %	3.1 %	

Descriptive Properties	Value	Comments
Deflection, mm	2.1	@64HRC, Tempering: 3 x 1 h at 1040°F
	3.7	@58HRC, Tempering: 3 x 1 h at 1040°F

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