

## Assab Steels VANADIS 4 Cold Work Steel

Category : Metal , Ferrous Metal , Chrome-moly Steel , Tool Steel , Cold Work Steel

### Material Notes:

VANADIS 4 is a chromium-molybdenum-vanadium alloyed steel which is characterized by: High wear resistance, High compressive strength, Very good through-hardening properties, Very good toughness, Excellent dimensional stability after hardening and tempering, Good resistance to tempering back. VANADIS 4 is especially suitable for applications where adhesive wear and/or chipping are the dominating problems, i.e. with soft/adherent materials such as austenitic stainless steel, mild steel, copper, aluminum, etc. as work material with thicker work material. Examples: blanking and forming, Fine blanking, Cold extrusion tooling, Powder pressing, Deep drawing, Knives.

Order this product through the following link:

[http://www.lookpolymers.com/polymer\\_Assab-Steels-VANADIS-4-Cold-Work-Steel.php](http://www.lookpolymers.com/polymer_Assab-Steels-VANADIS-4-Cold-Work-Steel.php)

Physical Properties	Metric	English	Comments
Density	7.56 g/cc	0.273 lb/in <sup>3</sup>	

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell C	55	55	980°C Austenitizing temperature, for tempering at 300°C
	56.5	56.5	1000°C Austenitizing temperature, for tempering at 300°C
	58	58	1020°C Austenitizing temperature, for tempering at 300°C
	58.5	58.5	980°C Austenitizing temperature, for tempering at 500°C
	59.5	59.5	At 1000°C Austenitizing temperature
	59.5	59.5	1060°C Austenitizing temperature, for tempering at 300°C
	59.5	59.5	1000°C Austenitizing temperature, for tempering at 500°C
	60	60	Hardened and tempered.
	61	61	1020°C Austenitizing temperature, for tempering at 500°C
	63	63	1060°C Austenitizing temperature, for tempering at 500°C
	63	63	At 1040°C Austenitizing temperature
	64	64	At 1080°C Austenitizing temperature
	Modulus of Elasticity	200 GPa	29000 ksi
170 GPa		24700 ksi	

Mechanical Properties	@Temperature 400 °C Metric	@Temperature 752 °F English	Comments
Impact Test	50.0 J	36.9 ft-lb	tempering temperature of 500°C. Specimen size: 7x10x55 mm unnotched. Hardened at 1020°C. Quenched in air. Tempered twice
	83.5 J	61.6 ft-lb	tempering temperature of 275°C. Specimen size: 7x10x55 mm unnotched. Hardened at 1020°C. Quenched in air. Tempered twice
	95.0 J	70.1 ft-lb	tempering temperature of 600°C. Specimen size: 7x10x55 mm unnotched. Hardened at 1020°C. Quenched in air. Tempered twice

Thermal Properties	Metric	English	Comments
CTE, linear	10.8 µm/m-°C	6.00 µin/in-°F	
	@Temperature 20.0 - 200 °C	@Temperature 68.0 - 392 °F	
	11.9 µm/m-°C	6.61 µin/in-°F	
	@Temperature 20.0 - 400 °C	@Temperature 68.0 - 752 °F	
Specific Heat Capacity	0.460 J/g-°C	0.110 BTU/lb-°F	
	@Temperature 20.0 °C	@Temperature 68.0 °F	
Thermal Conductivity	26.0 W/m-K	180 BTU-in/hr-ft²-°F	
	@Temperature 20.0 °C	@Temperature 68.0 °F	
	27.0 W/m-K	187 BTU-in/hr-ft²-°F	
	@Temperature 200 °C	@Temperature 392 °F	
	28.5 W/m-K	198 BTU-in/hr-ft²-°F	
	@Temperature 400 °C	@Temperature 752 °F	

Component Elements Properties	Metric	English	Comments
Carbon, C	1.5 %	1.5 %	
Chromium, Cr	8.0 %	8.0 %	
Iron, Fe	83.6 %	83.6 %	
Manganese, Mn	0.40 %	0.40 %	
Molybdenum, Mo	1.5 %	1.5 %	
Silicon, Si	1.0 %	1.0 %	

Vanadium V Component Elements Properties	4.0 % Metric	4.0 % English	Comments
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## Contact Songhan Plastic Technology Co.,Ltd.

Website : [www.lookpolymers.com](http://www.lookpolymers.com)

Email : [sales@lookpolymers.com](mailto:sales@lookpolymers.com)

Tel : +86 021-51131842

Mobile : +86 13061808058

Skype : lookpolymers

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