

## Bohler-Uddeholm COMPAX™ AISI S7 MOLD QUALITY Cold Work Steel

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

### Material Notes:

Chromium-molybdenum alloyed steel A versatile S7 grade recommended for applications demanding a high degree of toughness and moderate wear resistance. Successfully used for heavy-duty punching and shearing tools. Also for hardened back-up plates and punch die holders. Compax Supreme is characterized by: High toughness Good wear resistance High impact resistance Good through hardening properties Good machinability Excellent polishability Good dimensional stability during hardening Applications: MOLDS FOR PLASTICS- Compax Supreme has been developed as a mold quality steel, based on the widely used AISI S-7 grade. The steel is extremely clean and has a homogeneous microstructure. These features are achieved through strict processing control and maximum sulfur content of 0.005%. This quality level is verified by ultrasonic testing to high requirements. The result is a steel that machines consistently, is predictable in heat treatment and can be polished to extremely high surface finishes. Further, the toughness of the steel is enhanced, for greater performance security and increased tool life. By holding the carbon content to the high end of the carbon range a consistent hardness is assured, important in molds with larger cross-sections. Compax Supreme is manufactured in the form of hot rolled and forged bars with a machined, decarbfree finish, with plus tolerances to allow finishing at a nominal inch size, where required. TOOLS FOR METAL STAMPING-Compax Supreme is also suitable for a wide range of heavy duty blanking, shearing and forming tools, due to its excellent combination of toughness and wear resistance. Its relatively high carbon content makes the achievement of the maximum recommended working hardness of 58 HRC easier to achieve in larger cross sections. BLANKING AND SHEARING-Tools for: Blanking, punching, cropping, shearing, trimming, Shear blades(cold), Shredding knives, Shear blades(hot, Circular shears, and Trimming Tools for forgings FORMING-Coining dies(cold), Cold extrusion dies, punches, Tube and section forming rolls; plain rolls, Cold heading tools, and Master hobs for cold hobbing.

Order this product through the following link:

[http://www.lookpolymers.com/polymer\\_Bohler-Uddeholm-COMPAX-AISI-S7-MOLD-QUALITY-Cold-Work-Steel.php](http://www.lookpolymers.com/polymer_Bohler-Uddeholm-COMPAX-AISI-S7-MOLD-QUALITY-Cold-Work-Steel.php)

Physical Properties	Metric	English	Comments
Density	7.81 g/cc	0.282 lb/in <sup>3</sup>	hardened to 57 HRC
	7.70 g/cc	0.278 lb/in <sup>3</sup>	hardened to 57 HRC
	@Temperature 399 °C	@Temperature 750 °F	
Density	7.75 g/cc	0.280 lb/in <sup>3</sup>	hardened to 57 HRC
	@Temperature 199 °C	@Temperature 390 °F	

Mechanical Properties	Metric	English	Comments
Hardness, Brinell	200	200	Soft annealed (Delivery condition)
Modulus of Elasticity	200 GPa	29000 ksi	(hardened to 57 HRC)
	179 GPa	26000 ksi	hardened to 57 HRC
	@Temperature 399 °C	@Temperature 750 °F	
Modulus of Elasticity	193 GPa	28000 ksi	hardened to 57 HRC

Mechanical Properties	@Temperature 199 °C Metric	@Temperature 390 °F English	Comments
Compressive Yield Strength	1380 MPa	200000 psi	0.2%, hardened to 45 HRC
	1650 MPa	239000 psi	0.2%, hardened to 50 HRC
	2030 MPa	294000 psi	0.2%, hardened to 55 HRC
	2070 MPa	300000 psi	0.2%, hardened to 58 HRC
Charpy Impact	10.8 - 16.3 J	8.00 - 12.0 ft-lb	Austenitizing temp 1725°F, Tempering temp 400-1000°F

Thermal Properties	Metric	English	Comments
CTE, linear	12.1 $\mu\text{m}/\text{m}\cdot\text{°C}$	6.70 $\mu\text{in}/\text{in}\cdot\text{°F}$	hardened to 57 HRC
	@Temperature 199 °C	@Temperature 390 °F	
	12.4 $\mu\text{m}/\text{m}\cdot\text{°C}$	6.90 $\mu\text{in}/\text{in}\cdot\text{°F}$	hardened to 57 HRC
	@Temperature 399 °C	@Temperature 750 °F	
Specific Heat Capacity	0.460 J/g-°C	0.110 BTU/lb-°F	hardened to 57 HRC
	@Temperature 20.0 °C	@Temperature 68.0 °F	
Thermal Conductivity	28.9 W/m-K	201 BTU-in/hr-ft <sup>2</sup> -°F	hardened to 57 HRC
	@Temperature 20.0 °C	@Temperature 68.0 °F	
	30.0 W/m-K	208 BTU-in/hr-ft <sup>2</sup> -°F	hardened to 57 HRC
	@Temperature 199 °C	@Temperature 390 °F	
	31.0 W/m-K	215 BTU-in/hr-ft <sup>2</sup> -°F	hardened to 57 HRC
	@Temperature 399 °C	@Temperature 750 °F	

Component Elements Properties	Metric	English	Comments
Carbon, C	0.53 %	0.53 %	
Chromium, Cr	3.2 %	3.2 %	
Manganese, Mn	0.70 %	0.70 %	
Molybdenum, Mo	1.5 %	1.5 %	
Silicon, Si	0.30 %	0.30 %	
Sulfur, S	<= 0.0050 %	<= 0.0050 %	

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