

## Assab Steels 618 Plastic Mold Material

Category : Metal , Ferrous Metal , Alloy Steel , Chrome-moly Steel

### Material Notes:

ASSAB 618 is a vacuum-degassed Cr-Ni-Mo-alloy steel which is supplied in the hardened and tempered condition. ASSAB 618 is manufactured to consistently high quality standards with a controlled sulfur content (max. 0.015%) giving a steel with the following characteristics: Good polishing and photo-etching properties Good machinability High purity and good homogeneity Uniform hardness in all dimensions Applications: Injection moulds for thermoplastics Extrusion dies for thermoplastics Blow moulds Forming tools, press-brake dies (possibly flame hardened or nitrided) Machine or structural components, shafts. AISI P20 modified, W.-Nr. 1.2738

Order this product through the following link:

[http://www.lookpolymers.com/polymer\\_Assab-Steels-618-Plastic-Mold-Material.php](http://www.lookpolymers.com/polymer_Assab-Steels-618-Plastic-Mold-Material.php)

Physical Properties	Metric	English	Comments
Density	7.81 g/cc	0.282 lb/in <sup>3</sup>	
	7.75 g/cc	0.280 lb/in <sup>3</sup>	
	@Temperature 200 °C	@Temperature 392 °F	

Mechanical Properties	Metric	English	Comments
Hardness, Brinell	290 - 330	290 - 330	hardness supplied.
	325	325	tempering at 600°C
	450	450	tempering at 400°C
	500	500	tempering at 200°C
	979 MPa	142000 psi	R <sub>m</sub> . Bar. 310 HB
Tensile Strength, Ultimate	@Thickness 25.4 mm, Temperature 200 °C	@Thickness 1.00 in, Temperature 392 °F	
	1080 MPa	156000 psi	R <sub>m</sub> . Bar. 310 HB
Tensile Strength, Yield	@Diameter 25.4 mm	@Diameter 1.00 in	
	827 MPa	120000 psi	R <sub>p0.2</sub> . bar. 310 HB
Elongation at Break	@Diameter 25.4 mm	@Diameter 1.00 in	
	986 MPa	143000 psi	R <sub>p0.2</sub> . bar. 310 HB
Elongation at Break	14 %	14 %	bar; 310 HB
	@Thickness 25.4 mm	@Thickness 1.00 in	
	15 %	15 %	bar; 310 HB

Mechanical Properties	Metric @Thickness 25.4 mm, Temperature 200 °C	English @Thickness 1.00 in, Temperature 392 °F	Comments
Reduction of Area	49 %	49 %	bar; 310 HB
	@Thickness 25.4 mm, Temperature 20.0 °C	@Thickness 1.00 in, Temperature 68.0 °F	
	51 %	51 %	bar; 310 HB
	@Thickness 25.4 mm, Temperature 200 °C	@Thickness 1.00 in, Temperature 392 °F	
Modulus of Elasticity	205 GPa	29700 ksi	
	200 GPa @Temperature 200 °C	29000 ksi @Temperature 392 °F	
Impact Test	25.0 J	18.4 ft-lb	310 HB
	@Diameter 25.4 mm, Temperature 20.0 °C	@Diameter 1.00 in, Temperature 68.0 °F	
	42.0 J	31.0 ft-lb	bar. 310 HB.
	@Diameter 25.4 mm, Temperature 100 °C	@Diameter 1.00 in, Temperature 212 °F	
	50.0 J	36.9 ft-lb	310 HB.
	@Diameter 25.4 mm, Temperature 150 °C	@Diameter 1.00 in, Temperature 302 °F	

Thermal Properties	Metric	English	Comments
CTE, linear	12.7 $\mu\text{m}/\text{m}\cdot\text{°C}$	7.06 $\mu\text{in}/\text{in}\cdot\text{°F}$	
	@Temperature 20.0 - 200 °C	@Temperature 68.0 - 392 °F	
Specific Heat Capacity	0.460 J/g-°C	0.110 BTU/lb-°F	
	@Temperature 20.0 °C	@Temperature 68.0 °F	
Thermal Conductivity	29.1 W/m-K	202 BTU-in/hr-ft <sup>2</sup> -°F	
	@Temperature 20.0 °C	@Temperature 68.0 °F	
	29.5 W/m-K	205 BTU-in/hr-ft <sup>2</sup> -°F	
	@Temperature 200 °C	@Temperature 392 °F	

Component Elements Properties	Metric	English	Comments
Carbon, C	0.37 %	0.37 %	
Chromium, Cr	2.0 %	2.0 %	
Iron, Fe			

Component Elements Properties	94.73 % Metric	94.73 % English	Comments
Manganese, Mn	1.4 %	1.4 %	
Molybdenum, Mo	0.20 %	0.20 %	
Nickel, Ni	1.0 %	1.0 %	
Silicon, Si	0.30 %	0.30 %	

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