Industeel SuperplastÂ® SP300 Prehardened Mold Steel

Category : Metal , Ferrous Metal , Tool Steel , Mold Steel

Material Notes:

SuperplastÂ® 300 (SP300) is a prehardened steel with a BHN 300 (32 HRC) to be used for plastic injection molds, extrusion dies, and compression molds offering improved performance for the mold maker as well as the mold user. For a similar level of mechanical properties (wear resistance), this grade provides an easier and more reliable machinability than conventional steels (P20/W1.2311).This improvement is the result of a new chemical balance (lower carbon content and micro alloy additions) and a better microstructure. The homogeneity of the plate or block is improved compared to conventional steels, such as P20/W1.2311 which may be subject to hard spots.SP300 is designed to provide an improved weldability and machinability compared to P20/W1.2311. It is more compatible with finishing operations such as polishing and chemical etching. SP300 may open some new opportunities through the possibility of weld repairs allowing for design changes during manufacturing or production.SP300 is designed for use at 300 HB. If hardness is lost during the mold making process (by heating the steel to a temperature above 525Â°C (977Â°F), the original mechanical properties can be recovered by following a full cycle heat treatment.SP300 is well adapted to machining, (drilling or milling), with high speed steel as well as carbide tools. Its machinability is better than that of conventional P20. It ranks between the machinability of DIN grades W1.2311 (low sulfur) and W1.2312 (resulfurized). It can be machined using the same parameters as P20 with a much longer tool life, or increased feeds and speeds will enable a significant increase in productivity.Composition notes: Typical values for a 100 mm (4") thick plate. Boron is also present.Information provided by BICO Akron, Inc., a subsidiary of Groupe Arcelor.

Order this product through the following link:
http://www.lookpolymers.com/polymer_Industeel-Superplast-SP300-Prehardened-Mold-Steel.php

Physical Properties	Metric	English	Comments
Density	7.85 g/cc	0.284 lb/inÂ³	

Mechanical Properties	Metric	English	Comments
Hardness, Brinell	290 - 320	290 - 320	Guaranteed in the range 290 - 320 HB for thickness 20 mm to 600 mm.
Hardness, Rockwell C	32	32	
Tensile Strength, Ultimate	1020 MPa	148000 psi	
Tensile Strength, Yield	920 MPa	133000 psi	
Elongation at Break	13.5 %	13.5 %	
Modulus of Elasticity	205 GPa	29700 ksi	Youngs Modulus

Thermal Properties	Metric	English	Comments
CTE, linear	11.9 Âµm/m-Â°C @Temperature 20.0 - 100 Â°C	6.61 Âµin/in-Â°F @Temperature 68.0 - 212 Â°F	

Thermal Properties	Metric	English	Comments
	12.4 Âµm/m-Â°C @Temperature 20.0 - 200 Â°C	6.89 Âµin/in-Â°F @Temperature 68.0 - 392 Â°F	
	12.8 Âµm/m-Â°C @Temperature 20.0 - 300 Â°C	7.11 Âµin/in-Â°F @Temperature 68.0 - 572 Â°F	
	13.1 Âµm/m-Â°C @Temperature 20.0 - 400 Â°C	7.28 Âµin/in-Â°F @Temperature 68.0 - 752 Â°F	
Thermal Conductivity	40.0 W/m-K @Temperature 20.0 Â°C	278 BTU-in/hr-ftÂ²-Â°F @Temperature 68.0 Â°F	

Component Elements Properties	Metric	English	Comments
Carbon, C	0.25 %	0.25 %	
Chromium, Cr	1.3 %	1.3 %	
Iron, Fe	97 %	97 %	As remainder
Manganese, Mn	1.3 %	1.3 %	
Molybdenum, Mo	0.40 %	0.40 %	
Phosphorous, P	<= 0.020 %	<= 0.020 %	
Sulfur, S	<= 0.020 %	<= 0.020 %	

Electrical Properties	Metric	English	Comments
Magnetic Coercive Force, Hc	-15.0 Oe	-15.0 Oe	

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