

EDRO UltraChem® ESR #16 Precipitation Hardening Stainless Mold Steel

Category : Metal , Ferrous Metal , Stainless Steel , Precipitation Hardening Stainless

Material Notes:

Ultrachem ESR® is a chromium-nickel precipitation-hardening stainless steel, a modified PH alloy grade, which is characterized by exceptional polishability, exceptional corrosion resistance, uniform hardness in all dimensions, excellent compressive strength, simple low temperature heat treatment with small dimensional change, good weldability, excellent toughness, and excellent EDM machinability.

Ultrachem ESR® is normally supplied in a fully heat treated condition, age hardened to 38 or 42 HRC. Ultrachem ESR®'s excellent corrosion resistance reduces both maintenance costs and production costs. Consistently high molding productivity is assured since cooling channels are not subjected to corrosion and loss of cooling efficiency. Ultrachem ESR® is particularly suitable for applications where high surface finishes are required. It is also recommended for use in long-life molds subjected to severe working conditions, including corrosive materials and atmospheres, high stresses and indentation experienced in today's fast cycling molding operations. Information provided by EDRO

Order this product through the following link:

http://www.lookpolymers.com/polymer_EDRO-UltraChem-ESR-16-Precipitation-Hardening-Stainless-Mold-Steel.php

Physical Properties	Metric	English	Comments
Density	7.75 g/cc	0.280 lb/in ³	Prehardened to 321 HB
	@Temperature 399 °C	@Temperature 750 °F	
	7.81 g/cc	0.282 lb/in ³	Prehardened to 321 HB
	@Temperature 199 °C	@Temperature 390 °F	
	7.86 g/cc	0.284 lb/in ³	Prehardened to 321 HB
	@Temperature 20.0 °C	@Temperature 68.0 °F	

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell C	38 - 42	38 - 42	
Tensile Strength, Ultimate	1310 MPa	190000 psi	Age hardened at 42 HRC
	@Temperature 20.0 °C	@Temperature 68.0 °F	
Tensile Strength, Yield	1210 MPa	175000 psi	Age hardened at 42 HRC
	@Temperature 20.0 °C	@Temperature 68.0 °F	
Elongation at Yield	14 %	14 %	in 2"
	@Temperature 20.0 °C	@Temperature 68.0 °F	
Reduction of Area	50 %	50 %	
	@Temperature 20.0 °C	@Temperature 68.0 °F	
Modulus of Elasticity	175 GPa	25400 ksi	

Mechanical Properties	@Temperature 399 °C Metric	@Temperature 750 °F English	Comments
	186 GPa	27000 ksi	
	@Temperature 199 °C	@Temperature 390 °F	
	197 GPa	28500 ksi	
	@Temperature 20.0 °C	@Temperature 68.0 °F	
Charpy Impact	33.9 J	25.0 ft-lb	Age hardened at 42 HRC
	@Temperature 20.0 °C	@Temperature 68.0 °F	

Thermal Properties	Metric	English	Comments
CTE, linear	10.8 µm/m-°C	6.00 µin/in-°F	
	@Temperature 20.0 - 199 °C	@Temperature 68.0 - 390 °F	
	11.7 µm/m-°C	6.50 µin/in-°F	
	@Temperature 20.0 - 399 °C	@Temperature 68.0 - 750 °F	
Specific Heat Capacity	0.460 J/g-°C	0.110 BTU/lb-°F	
	@Temperature 20.0 °C	@Temperature 68.0 °F	
Thermal Conductivity	16.1 W/m-K	112 BTU-in/hr-ft²-°F	
	@Temperature 20.0 °C	@Temperature 68.0 °F	
	18.6 W/m-K	129 BTU-in/hr-ft²-°F	
	@Temperature 199 °C	@Temperature 390 °F	
	21.5 W/m-K	149 BTU-in/hr-ft²-°F	
	@Temperature 399 °C	@Temperature 750 °F	

Component Elements Properties	Metric	English	Comments
Carbon, C	0.040 %	0.040 %	
Chromium, Cr	14.75 %	14.75 %	
Copper, Cu	3.2 %	3.2 %	
Iron, Fe	76.36 %	76.36 %	As Balance
Manganese, Mn	0.50 %	0.50 %	
Nickel, Ni	4.5 %	4.5 %	
Niobium, Nb (Columbium, Cb)	0.25 %	0.25 %	

Silicon Si	0.40 %	0.40 %	
Component Elements Properties	Metric	English	Comments
Descriptive Properties		Value	Comments
Color Code		Gold	

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