

## Industeel SOLEIL A2 13% Cr High Strength Martensitic Stainless Steel (QT650 Heat Treatment)

Category : Metal , Ferrous Metal , Martensitic , Stainless Steel , T S40000 Series Stainless Steel

### Material Notes:

Description: Soleil A2 has combined Chromium (~13%) and Carbon ~0.10%) additions to provide an excellent combination of high mechanical properties and improved corrosion resistance properties. The grade has a martensitic microstructure. The final mechanical properties may be optimized by selecting an appropriate heat treatment. In the annealed conditions the alloy presents ductility and may be formed. Chromium additions (~13%) improve the corrosion resistance, particularly in wet conditions when compared to C-Mn steels. Slightly acidified and abrasion conditions are considered. The main applications concern mechanical industry, oil and gas industry, sugar industry and constructional components. Information provided by manufacturer.

Order this product through the following link:

[http://www.lookpolymers.com/polymer\\_Industeel-SOLEIL-A2-13-Cr-High-Strength-Martensitic-Stainless-Steel-QT650-Heat-Treatment.php](http://www.lookpolymers.com/polymer_Industeel-SOLEIL-A2-13-Cr-High-Strength-Martensitic-Stainless-Steel-QT650-Heat-Treatment.php)

Physical Properties	Metric	English	Comments
Density	7.70 g/cc	0.278 lb/in <sup>3</sup>	

Mechanical Properties	Metric	English	Comments
Hardness, Brinell	190	190	Typical
Tensile Strength, Ultimate	650 - 850 MPa	94300 - 123000 psi	Minimum Guaranteed
Tensile Strength, Yield	>= 450 MPa	>= 65300 psi	Minimum Guaranteed
Elongation at Break	>= 12 %	>= 12 %	
Modulus of Elasticity	212 GPa	30700 ksi	
Charpy Impact	70.0 J	51.6 ft-lb	Typical Toughness (long)

Thermal Properties	Metric	English	Comments
CTE, linear	10.5 µm/m-°C	5.83 µin/in-°F	
	@Temperature 20.0 - 100 °C	@Temperature 68.0 - 212 °F	
	11.0 µm/m-°C	6.11 µin/in-°F	
	@Temperature 20.0 - 200 °C	@Temperature 68.0 - 392 °F	
	11.5 µm/m-°C	6.39 µin/in-°F	
	@Temperature 20.0 - 300 °C	@Temperature 68.0 - 572 °F	
	12.0 µm/m-°C	6.67 µin/in-°F	

Thermal Properties	@Temperature 20.0 - Metric 300 °C	@Temperature 68.0 - English 530 °F	Comments
Specific Heat Capacity	0.460 J/g-°C @Temperature 20.0 °C	0.110 BTU/lb-°F @Temperature 68.0 °F	
Thermal Conductivity	25.0 W/m-K @Temperature 20.0 °C	174 BTU-in/hr-ft <sup>2</sup> -°F @Temperature 68.0 °F	

Component Elements Properties	Metric	English	Comments
Carbon, C	0.12 %	0.12 %	
Chromium, Cr	12.5 %	12.5 %	
Iron, Fe	86.48 %	86.48 %	As remainder
Manganese, Mn	0.50 %	0.50 %	
Silicon, Si	0.40 %	0.40 %	

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.0000600 ohm-cm @Temperature 20.0 °C	0.0000600 ohm-cm @Temperature 68.0 °F	

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