

Industeel SOLEIL C5 13% Cr 4 Ni Martensitic Stainless Steel with Improved Toughness

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

Material Notes:

Description: Soleil C5 is a 13% Cr 4 Ni 0.5 Mo martensitic stainless steel. Its nickel content, associated with low carbon ensures better weldability, ductility, impact resistance and fatigue resistance properties when compared to 13 Cr ferritic-martensitic grades (AISI 410-420/Euronorms 1.4000 X6 Cr 13). The alloy has good corrosion resistance to fresh water and performs well under erosion-corrosion phenomena. The alloy is specially designed for all applications requiring high mechanical properties combined with high toughness and may be used in medium corrosive conditions. Typical applications are shafts or compressor impellers, particularly for hydraulic applications. Information provided by manufacturer.

Order this product through the following link:

http://www.lookpolymers.com/polymer_Industeel-SOLEIL-C5-13-Cr-4-Ni-Martensitic-Stainless-Steel-with-Improved-Toughness.php

| Physical Properties | Metric | English | Comments |
|---------------------|-----------|--------------------------|----------|
| Density | 7.70 g/cc | 0.278 lb/in ³ | |

| Mechanical Properties | Metric | English | Comments |
|----------------------------|---------------------------|-----------------------|--------------------|
| Hardness, Brinell | 220 - 320 | 220 - 320 | Typical |
| Tensile Strength, Ultimate | 750 - 950 MPa | 109000 - 138000 psi | Minimum Guaranteed |
| Tensile Strength, Yield | >= 560 MPa | >= 81200 psi | Minimum Guaranteed |
| | >= 580 MPa | >= 84100 psi | |
| | @Strain 1.00 % | @Strain 1.00 % | |
| Elongation at Break | >= 18 % | >= 18 % | |
| Modulus of Elasticity | 206 GPa | 29900 ksi | |
| Poissons Ratio | 0.288 | 0.288 | Calculated |
| Shear Modulus | 80.0 GPa | 11600 ksi | |
| | @Temperature 20.0 Â°C | @Temperature 68.0 Â°F | |
| Charpy Impact | >= 80.0 J | >= 59.0 ft-lb | |
| | 100 J | 73.8 ft-lb | Typical |
| | >= 60.0 J | >= 44.3 ft-lb | |
| | @Temperature 0.000 Â°C | @Temperature 32.0 Â°F | |
| | 80.0 J | 59.0 ft-lb | |

| Mechanical Properties | Metric | English | Typical Comments |
|-----------------------|---------------------------|-----------------------|------------------|
| | @Temperature 0.000 Â°C | @Temperature 32.0 Â°F | |

| Thermal Properties | Metric | English | Comments |
|------------------------|---------------------------------|--------------------------------|----------|
| CTE, linear | 11.0 Âµm/m-Â°C | 6.11 Âµin/in-Â°F | |
| | @Temperature 0.000 - 100 Â°C | @Temperature 32.0 - 212 Â°F | |
| | 12.0 Âµm/m-Â°C | 6.67 Âµin/in-Â°F | |
| | @Temperature 0.000 - 400 Â°C | @Temperature 32.0 - 752 Â°F | |
| Specific Heat Capacity | 0.460 J/g-Â°C | 0.110 BTU/lb-Â°F | |
| | @Temperature 20.0 Â°C | @Temperature 68.0 Â°F | |
| Thermal Conductivity | 26.0 W/m-K | 180 BTU-in/hr-ftÂ²-Â°F | |
| | @Temperature 20.0 Â°C | @Temperature 68.0 Â°F | |

| Component Elements Properties | Metric | English | Comments |
|-------------------------------|----------|----------|--------------|
| Carbon, C | 0.040 % | 0.040 % | |
| Chromium, Cr | 13 % | 13 % | |
| Iron, Fe | 82.039 % | 82.039 % | As remainder |
| Molybdenum, Mo | 0.50 % | 0.50 % | |
| Nickel, Ni | 4.0 % | 4.0 % | |
| Phosphorous, P | 0.020 % | 0.020 % | |
| Silicon, Si | 0.40 % | 0.40 % | |
| Sulfur, S | 0.0010 % | 0.0010 % | |

| Electrical Properties | Metric | English | Comments |
|------------------------|--------------------------|-----------------------|----------|
| Electrical Resistivity | 0.0000800 ohm-cm | 0.0000800 ohm-cm | |
| | @Temperature 20.0 Â°C | @Temperature 68.0 Â°F | |

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