

NICKEL ALLOY

ALLOY C22



Alloy C22 (UNS N06022)

Alloy C22, is a versatile austenitic nickel-chromium-molybdenumtungsten alloy with enhanced resistance to pitting, crevice corrosion and stress corrosion cracking. The high chromium content provides good resistance to oxidizing media while the molybdenum and tungsten content give good resistance to reducing media. This nickel alloy also has excellent resistance to oxidizing aqueous media including wet chlorine and mixtures containing nitric acid or oxidizing acids with chlorine ions.

Alloy C22 has resistance to oxidizing acid chlorides, wet chlorine, formic and acetic acids, ferric and cupric chlorides, sea water, brine and many mixed or contaminated chemical solutions, both organic and inorganic. This nickel alloy also offers optimum resistance to environments where reducing and oxidizing conditions are encountered in process streams. This is beneficial in multi-purpose plants where such "upset" conditions occur frequently.

AVAILABLE TUBE PRODUCT FORMS

- STRAIGHT
- COILED
- SEAMLESS
- SEAM WELDED AND COLD REDRAWN
- SEAM WELDED, COLD REDRAWN AND ANNEALED

TYPICAL MANUFACTURING SPECIFICATIONS

- ASTM B622
- ASTM B626
- Also individual customer specifications.

TYPICAL APPLICATIONS

- PROCESSING EQUIPMENT
- HEAT EXCHANGERS
- HYDRAULIC SYSTEMS
- VESSELS

INDUSTRIES PREDOMINANTLY USING THIS GRADE

- CHEMICAL PROCESSES
- OIL AND GAS



Technical Data

| MECHANICAL PROPERTIES | | |
|--------------------------|----------|-----------|
| Temper | Annealed | |
| Tensile Rm | 111 | ksi (min) |
| Tensile Rm | 765 | MPa (min) |
| R.p. 0.2% Yield | 52 | ksi (min) |
| R.p. 0.2% Yield | 359 | MPa (min) |
| Elongation (2" or 4D gl) | 25 | % (min) |

| PHYSICAL PROPERTIES (Room Temperature) | | |
|--|------|--------------------------------------|
| Specific Heat (0-100°C) | 414 | J.kg ⁻¹ .°K ⁻¹ |
| Thermal Conductivity | 10.2 | W.m ⁻¹ .°K ⁻¹ |
| Thermal Expansion | 6.9 | mm/m/°C |
| Modulus Elasticity | 206 | GPa |
| Electrical Resistivity | 4.48 | μohm/cm |
| Density | 8.69 | g/cm ³ |

| CHEMICAL COMPOSITION (% by weight) | | |
|---------------------------------------|------|-------|
| Element | Min | Max |
| C | 0.17 | 0.25 |
| Si | - | 0.4 |
| Mn | 0.40 | 0.7 |
| P | - | 0.045 |
| S | - | 0.045 |
| Cr | - | 0.4 |
| Cu | - | 0.5 |
| Mo | - | 0.1 |
| Ni | - | 0.4 |