



MATERIAL No.: ALLOY 625/ N06625/ 2.4856

DESCRIPTION

| | | | |
|--------------------------------|--------------|-----------------------------------|--|
| EN symbol (short) | NiCr22Mo9Nb | Density lb/in.³ | 0,303 |
| Alloy | 625 | Hardness HB | <=240) |
| UNS | N 06625 | Composition | Nickel Chrome Molybdenum alloy |
| AFNOR | NC 22DNb | Category | Heat resistant steels and alloys |
| Registered work's label | Inconel® 625 | Structure | |
| | | Corrosion | resistant to intergranular corrosion against crevice corrosion good resistance to tensile corrosion high resistance to corrosion in oxidizing and choric substances |
| | | Additional characteristics | good mechanical properties from low to high temperature ranges excellent resistance against chloride acidic substances |

Description excellent resistance against corrosion in various corrosive substances (phosphoric/nitric/sulfuric/hydrochloric acid)
also resistant to chloride induced tensile corrosion
resistant against alkalis and organic acids

CHEMICAL COMPOSITION

| | | C | Si | Mn | P | S | Cr | Mo | Ni | Cu | Nb | Ti | Fe | Co | Al | Cb+Ta |
|---------------|--------------|------|------|------|------|-------|-------|-------|-------|------|------|------|------|------|------|-------|
| 2.4856 | Min % | | | | | | 20,00 | 8,00 | 58,00 | | 3,15 | | | | | |
| | Max % | 0,10 | 0,50 | 0,50 | 0,02 | 0,015 | 23,00 | 10,00 | | 0,50 | 4,15 | 0,40 | 5,00 | 1,00 | 0,40 | |

(Key to Steel 2010)

| | | | | | | | | | | | | | | | | |
|------------------|--------------|------|------|------|-------|-------|-------|-------|-------|--|--|------|------|--|------|------|
| alloy 625 | Min % | | | | | | 20,00 | 8,00 | 58,00 | | | | | | | 3,15 |
| N 06625 | Max % | 0,10 | 0,50 | 0,50 | 0,015 | 0,015 | 23,00 | 10,00 | | | | 0,40 | 5,00 | | 0,40 | 4,15 |

PHYSICAL PROPERTIES

| Property | Value |
|----------|-------|
|----------|-------|

| | | | | | |
|------------------------------------|--|---|---|---|--|
| Density: lb/in.³ | 0,303 | | | | |
| Hardness: HB | <=240) | | | | |
| Permeability at 20°C/68°F | 1,003 | | | | |
| magnetizabe | paramagnetic | | | | |
| Temperature T °C/F (°C/F) | Specific heat J / kgK (Btu / lb °F) | Thermal conductivity W/mK (Btu-in / ft²·h·°F) | Electric resistance μΩ · cm (Ω circ mill / ft) | Modulus of elasticity kN/mm² (10³ ksi) | Expansion rate from 70°F bis T 10⁻⁶ / K (10⁻⁶ / °F) |
| 20 / 68 (93 / 200) | 415 (0,099) ((0,103) | 9,8 (68) (77) | 128 (770) (782) | 209 (30,3) (29,4) | (7,0) |
| 200 /392 (204 / 400) | 460 (0,110) | 12,8 (90) | 132 (794) | 195 (28,3) | 13,1 (7,7) |
| 400 / 752 (427 / 800) | 505 (0,122) | 16,3 (0,115) | 135 (815) | 185 (26,5) | 13,7 (7,6) |
| 600 /1112 (649 / 1200) | 550 (0,134) | 19,3 (139) | 136 (820) | 170 (24,1) | 14,6 (8,3) |
| 800 /1472 (871 / 1600) | 600 (0,147) | 22,6 (167) | 136 (815) | 153 (21,0) | 15,8 (9,0) |
| 1000 /1832 | 650 | 26,7 | 132 | 128 | 17,0 |

MECHANICAL PROPERTIES (20°C / 68°F)

| | |
|---|-----------|
| Density (lb/in.³) | 0,303 |
| Yield strength Rp0,2 (ksi) | 60-50 |
| Tensile strength MPa bei RT | 820 -1050 |
| Elongation A5 (68°F) (%) | >=30 |
| Impact energy ISO-V (J/cm²) | >= 125 |
| average at room temperature (J/cm²) | |
| Remarks | |

TEMPERATURE INFORMATION

| | |
|------------------------------|--------------------|
| Application area | |
| Operation temperature | °F to 1832 °F |
| Explanation report | max. in air |
| Soft annealing | |
| Working temperature | 1742 °F to 1922 °F |

| | |
|--------------------------------|----------------------------|
| Processing information | |
| Solution heat treatment | |
| Working temperature | 2102 °F to 1652 °F |
| Explanation report | quick water or air cooling |

STANDARDS / INFORMATION

| Standards | Description |
|--|---|
| ASTM B 443 | standard specification for nickel-Chromium-Molybdenum-Columbium Alloys (UNS N06625) Plate, Sheet, and Strip |
| ASTM B 444 | standard specification for Nickel-Chromium-Molybdenum-Columbium Alloys (UNS 06625) Pipe and Tube |
| ASTM B 564-06 | Standard Specification for Nickel Alloy Forging |
| ASTM B 704 | Standard Specification for Welded Alloy Tubes |
| ASTM B 705 | Standard Specification for Nickel-Alloy Welded Pipe |
| DIN 17744 (2002/09) | nickel-forgeable alloy with molybdenum and chrome |
| DIN 17750 (2002/09) | ribbons and sheet metal out of nickel with nickel-wrought alloy properties |
| DIN 17751 (2002/09) | tubes out of nickel with nickel-wrought alloy properties |
| DIN 17752 (2002/09) | rod made from nickel with nickel-wrought alloy properties |
| DIN 17753 (2002/09) | wire out of nickel with nickel-wrought alloy properties |
| DIN EN 10088-1 (09/2005) | Stainless steels Part 1: List of stainless steels |
| DIN EN 10095 (05/1999) | heat resistant steel and nickel alloy |

PROCESS INFORMATION

| | |
|--|--|
| Cold forming | material in annealed state, mind cold-work hardening modifications >10% require subsequent soft annealing |
| Chip removing process | preferably in annealed state, due to a tendency to cold-work hardening low cutting speed and sufficient rate of cut |
| Welding | |
| - Material classification acc. CEN ISO/TR 15608 | 43 |
| - Type | well weldable WIG plasma welding manual arc welding MIG/MAG submerged arc welding |

| | |
|-----------------------------------|--|
| - Add. material | 2.4621;2.4831 |
| MAIN FIELDS OF APPLICATION | |
| Details of application | for high-temperature application (1000°C/1832°F) solution annealed/higher carbon, otherwise annealed/lower carbon. |
| Certifications | pressure containers according to TÜV -196 - +450°C/-320 - +843°F in NACE MR 0175 included |
| Chemical Industry | |
| waste incineration plants | |
| Apparatus engineering | pressure tanks |
| Environmental technology | sewage works |
| offshore plants | Sea water desalination plant |

RANGE OF PRODUCTS

| Product type | Product |
|--------------------------------------|--|
| Processing / Construction | from bar steel (turning, milling) |
| Plates / Sheets | plates/sheets plate/sheet cuts |
| Rotating components | fittings from barsteel |
| Fittings | welded elbows welded reductions Welded T-pieces seamless elbows seamless reductions seamless T-pieces |
| Flanges / Collars / Flared tube ends | flared tube end various flanges (weld neck flange, blind flange etc.) |
| Pipes / Tubes | welded pipes/tubes welded square pipes/tubes seamless pipes/tubes |
| Bar steel | flat steel section steel round bar steel hexagon steel |

[Pipe/Tube/Fitting/Flange/Valve/Plate](#)

Stainless Steel/Nickel Alloy/Duplex

