



DAIKOWM 418



NICKEL ALLOYS
Monel 400

DESCRIPTION

Solid wire for welding alloy 400 and similar materials

It is designed to match Monel alloy 400 with raised level of Mn and Ti to suppress hot cracking and porosity. It is suitable for welding Monel 400 to itself and to others Ni-Cu alloys, for example pure nickel and cupronickel. Normally buttering in dissimilar joints and buffer layer in cladding are made with pure nickel or with 625 alloy. Applications include offshore and marine construction, heat exchangers, piping, desalination plant, chemical, petrochemical and power engineering industries.

SPECIFICATIONS

| | | | |
|----------------|----------------------------|------------------|----------|
| ISO 18274 | S Ni 4060 | AWS A5.14 | ERNiCu-7 |
| DIN | - | Werkstoff Number | - |
| Certifications | - | Shielding | I1, I3 |
| Positions | PA, PB, PC, PD, PE, PF, PG | Current | DC+ |

| ASME QUALIFICATIONS | FERRITE | PREN | HARDNESS |
|---------------------|---------|------|----------|
| F-No (QW432) | 42 | - | - |
| A-No (QW442) | - | - | - |

| CHEM. COMP. % | DEFAULT | MECHANICAL PROPERTIES | MIN | VARIANT |
|---------------|---------|---|------|--------------|
| C | 0.03 | Tensile strength R _m MPa | 480* | 620 |
| Mn | 3.2 | Yield strength R _{p0.2} MPa | 0 | 450 |
| Ni | 64 | Elongation A (L ₀ =5d ₀) % | 0 | 45 |
| Al | 0.1 | Impact Charpy ISO-V | - | 60J @ -196°C |
| P | 0.005 | Impact Charpy ISO-V | - | - |
| S | 0.005 | | | |
| Si | 0.2 | | | |
| Cu | 29 | | | |
| Fe | 1 | | | |
| Ti | 2.2 | | | |

| WELDING PARAMETERS | 1 mm | 1.2 mm |
|--------------------|--|--|
| Ampere | 140A - 200A | 150A - 210A |
| Voltage | 23V - 27V | 25V - 29V |
| Packaging | Ø 0,8÷1,6mm | Ø 0,8÷1,6mm |
| Packaging Type | Drums, DIN 760 reel, B300, D200 and D100 spools. | Drums, DIN 760 reel, B300, D200 and D100 spools. |

V 01/2024



The information in this datasheet is the result of detailed research and is considered accurate as of the publication date. However, we cannot guarantee its complete accuracy, and it is subject to change without notice. Actual results may vary due to many factors like welding procedures, material composition, temperature conditions, bevel configuration, and specific manufacturing techniques. We accept no liability for any errors or omissions in this datasheet. For the most current information, please visit www.daikowelding.com.





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DESCRIPTION

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APPLICATION

Weld metal derived from Monel alloy 400, enhanced with elevated levels of Mn and Ti to counteract hot cracking and porosity, employed for welding alloy 400 and similar materials within the Ni-Cu alloy system, such as pure nickel and cupronickel. While welds in alloy K500 are acceptable, they fail to match the strength of this precipitation-hardened alloy. Castings of alloy 400 with 1.5% Si or higher are prone to HAZ cracking. In dissimilar joints involving alloy 400 and other alloys or steels, sensitivity to dilution by Fe (20-30%) or Cr (3-6%) can result in diminished ductility in the weld metal near the fusion boundary. Direct welds to mild or low alloy steels are satisfactory with dilution control, although ERNiCr-3 wire is preferable and necessary for stainless and higher chromium alloys. Alloy 400 boasts a beneficial combination of strength, thermal conductivity, and resistance to corrosion by seawater, inorganic salts, sulphuric and hydrofluoric acids, hydrogen fluoride, and alkalis. Its applications encompass heat exchangers, piping, vessels, and evaporators in the offshore, marine, chemical, petrochemical, and power engineering industries. No preheat is required, and a maximum interpass temperature should be maintained at 150°C

ALLOY TYPE

Nickel-copper alloy based on alloy 400 with raised levels of manganese and titanium to suppress hot cracking and porosity.

MICROSTRUCTURE

Solid solution, single phase alloy, slightly ferromagnetic near room temperature.

MATERIALS

EN W.Nr.: 2.4360, 2.4361, 2.4365.

ASTM: A494 M-35-1, A494 M-35-2.

UNS: N04400, N04405, N05500.

PROPRIETARY: Monel® Alloy 400, R405, K500 (Special Metals), Nicorros (VDM).

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