



DAIKOWS 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

EN ISO 18274	S Ni 4060	AWS A5.14	ERNiCu-7
Shielding	DAIKOFLUX 960-W	Positions	PA, PB, PC
Current	DC/AC	Packaging Type	K415 spool and drums.

ASME QUALIFICATIONS

F-No (QW432)	42
A-No (QW442)	-

CHEM. COMP. %	DEFAULT	MECHANICAL PROPERTIES	MIN. PER STANDARD	PRODUCT
C	0.03	Tensile strength R_m MPa	480*	720
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	WELDING PARAMETERS 2.4 mm		
Si	0.2	Ampere	300A - 410A	
Cu	29	Voltage	27V - 33V	
Fe	1	Packaging	Ø 1,6÷3,2mm	
Ti	2.2	Packaging Type	K415 spool and drums.	

NOTES

SAW mechanical properties depend on wire/flux combination, refer to flux TDS.



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Monel 400

DESCRIPTION

NICKEL ALLOYS

Monel 400

APPLICATION

The weld metal based on Monel 400 alloy is characterized by high levels of Mn and Ti, a crucial element in preventing hot cracking and porosity. It is suitable for welding the 400 alloy and similar base materials, as well as other components in the Ni-Cu alloy system, such as pure nickel and cupronickel. Although welds with the K500 alloy are satisfactory, they don't match the strength of the precipitation-hardened alloy. Additionally, 400 alloy castings with a Si content of 1.5% or higher may exhibit crack susceptibility in the heat-affected zone (HAZ). In dissimilar joints between the 400 alloy and other alloys or steels, dilution with Fe (20-30%) or Cr (3-6%) can reduce the ductility of the weld metal near the fusion zone boundary. Direct welds on mild or low-alloy steels are satisfactory if dilution is controlled; however, for stainless steels and alloys with higher chromium content, the use of ERNiCr-3 wire is preferable and sometimes necessary. The 400 alloy offers a favorable combination of mechanical strength, thermal conductivity, and corrosion resistance in marine environments, inorganic salts, sulfuric and hydrofluoric acids, hydrogen fluoride, and alkalis. Typical applications include **heat exchangers, piping, vessels, and evaporators** in offshore, marine, chemical, petrochemical, and power engineering sectors. No preheating is required, while interpass control is paramount.

ALLOY TYPE

Nickel-copper alloy based on alloy 400 with increased 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)

