



DAIKOFCW 1Ni



CRYOGENIC STEELS

1Ni

DESCRIPTION

Rutile all position flux cored wire

Rutile flux cored wire for welding and cladding in all positions thanks to the fast-freezing slag. It is designed for welding low-alloy steels with 1% Ni and fine grain steel as well as for -60°C low temperature applications. Suitable for the construction of offshore platforms, pressure vessels and pipelines and also for welding higher strength steel structures where PWHT is impracticable but toughness and crack resistance are required. The wire shows good wetting behaviour and a finely rippled surface pattern.

SPECIFICATIONS

ISO 17632-A	T 50 6 1Ni P M 1	AWS A5.36	E81T1 M21A8 Ni1 H4
DIN	-	Werkstoff Number	-
Certifications	-	Shielding	M21
Positions	PA, PB, PC, PD, PE, PF, PG	Current	DC+

ASME QUALIFICATIONS

F-No (QW432)	5
A-No (QW442)	10

FERRITE

-

PREN

-

HARDNESS

-

CHEM. COMP. %

DEFAULT

C	0.06
Mn	1.3
Ni	1
P	0.02
S	0.02
Mo	0.05
Si	0.45
Cu	0.15

MECHANICAL PROPERTIES

	MIN	VARIANT
Tensile strength R _m MPa	550	570
Yield strength R _{p0.2} MPa	500	500
Elongation A (L ₀ =5d ₀) %	17	22
Impact Charpy ISO-V	47J @ -60°C	50J @ -60°C
Impact Charpy ISO-V	-	-

WELDING PARAMETERS

	1.2 mm	1.6 mm
Ampere	100A - 300A	160A - 420A
Voltage	16V - 28V	31V - 35V
Packaging	Ø 1,2÷1,6mm	Ø 1,2÷1,6mm
Packaging Type	BS300 spool	BS300 spool

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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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APPLICATION

For welding higher-strength steel structures in situations where post-weld heat treatment (PWHT) is impractical, requiring welds with a suitable level of toughness and crack resistance. The addition of approximately 1% Ni contributes to microstructural refinement, enhancing tolerance to procedural variations compared to plain carbon-manganese (CMn) weld metal. Nickel also improves resistance to atmospheric weathering and enhances electrochemical balance between the weld and base metal, minimizing preferential corrosion in marine environments. In cases of offshore oilfield sour service, a maximum of 1.0% Ni is often required (NACE MR0175). This consumable is recommended for applications where design specifications mandate toughness testing of higher-strength low-alloy steel welds down to -50°C , such as in offshore construction, pipelines, and pressure vessels. Preheat requirements will depend on the grade and thickness of the base material.

ALLOY TYPE

Low alloy steel alloyed with nominally 1%Ni for improved toughness. Actual Ni content is kept below 1% to ensure conformance with NACE MR0175.

MICROSTRUCTURE

In the as-welded condition the microstructure is ferritic with a component of acicular ferrite for optimum toughness.

MATERIALS

Low temperature applications, fine-grained steels that contain 1 % Nickel.

EN W.Nr.: S460N (1.8901), S355N (1.0545), S460NL (1.8903), S460QL (1.8906).

ASTM: A333 & A334 gr. 6, A350 gr. LF2 & LF5, A352 gr. LCB & LCC (cast), A572 gr.50.

API: 5L X65.

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