DAIKOFCW 1NiB

FCAW

CRYOGENIC STEELS
1Ni

DESCRIPTION

Basic flux cored wire for flat and horizontal position

Basic flux cored wire for welding low-alloy steels with 3,5% Ni and fine grain steel as well as for -100°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 excellent weldability in flat and horizontal position, smooth and bright bead, very low spatter losses, easy to remove slag and exceptional mechanical properties even at low temperatures.

SPECIFICATIONS

EN ISO 17632-A	T 46 6 1Ni B M 3	**AWS A5.29**	E80T5-Ni1
Shielding	M21	**Positions**	PA, PB, PC
Current	DC+	**Packaging Type**	BS300 spool

ASME QUALIFICATIONS

F-No (QW432)	6
A-No (QW442)	10

CHEM. COMP. %	DEFAULT
C	0.06
Mn	1.3
Ni	0.9
P	0.02
Mo	0.04
Si	0.5
Cu	0.1

MECHANICAL PROPERTIES	PRODUCT
Tensile strength R_m MPa	580
Yield strength $R_{p0.2}$ MPa	500
Elongation A (L_0=5d_0) %	22
Impact Charpy ISO-V	47J @ -50°C

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

DAIKO

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DESCRIPTION

APPLICATION

Designed for welding high-strength steel structures where post-weld heat treatment (PWHT) is not feasible, this material ensures a high level of toughness and crack resistance. The inclusion of approximately 1% Nickel (Ni) contributes to the refinement of the microstructure, offering better tolerance to procedural variations compared to unalloyed Carbon-Manganese (CM-N) welding metals. Additionally, Nickel enhances weather resistance and optimizes the electrochemical balance between the base metal and the weld metal, minimizing corrosion in the weld zone, particularly under marine conditions. In offshore oil field applications and acidic environments, a maximum content of 1.0% Ni is often required in accordance with the NACE MR0175 standard. This material is especially suitable when design specifications demand toughness tests on high-strength low-alloy steels at temperatures as low as -50°C, as in the case of offshore constructions, pipelines, and pressure vessels. The need for preheating varies depending 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