DAIKOWM 99

GMAW

CAST IRON
Ni CI

DESCRIPTION

Pure nickel solid wire for cast iron

This wire rod is used for welding and repair grey cast iron, malleable cast iron and cast steel. Suitable to join these cast irons to steels, Monels, copper alloys, etc. Also suitable for buffer layer before welding with NiFe consumables.

SPECIFICATIONS

EN ISO 18274	S Ni 2061	**AWS A5.15**	ERNi-CI
Shielding	I1, M13	**Positions**	PA, PB, PC, PD, PE, PF, PG
Current	DC+	**Packaging Type**	Drums, B300, D200 and D100 spools.

HARDNESS

170HB

CHEM. COMP. %	DEFAULT
C	1
Mn	0.1
S	0.02
Si	0.2
Fe	1.8

MECHANICAL PROPERTIES	MIN. PER STANDARD	PRODUCT
Tensile strength R_m MPa	380	400
Yield strength $R_{p0.2}$ MPa	0	300
Elongation A (L_0=5d_0) %	0	15
Impact Charpy ISO-V	-	-
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WELDING PARAMETERS	1.0 mm	1.2 mm
Ampere	170A - 210A	180A - 220A
Voltage	24V - 28V	26V - 30V
Packaging	Ø 0,8÷1,6mm	Ø 0,8÷1,6mm
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APPLICATION

Pure nickel consumables are particularly suitable for welding and repairing standard-grade gray cast iron and malleable cast iron. They offer low strength deposits that lend themselves to easy machining, even when applied in thin layers. The resistance to work hardening of the diluted weld metal can be advantageous for buttering, before proceeding with filling using more economical NiFe consumables. These consumables are also suitable for joining cast iron to steel, Monel, copper, and similar components where high mechanical strength is not required. Typical components include mechanical cast iron castings such as machine bases, engine blocks, and gear housing, operating under reduced stresses.

ALLOY TYPE

Pure nickel type for welding cast iron.

MICROSTRUCTURE

Austenitic nickel with finely distributed graphite.

MATERIALS

Grey iron.
EN W.Nr.: 1561:2011 Grey cast irons+
ASTM: A159, A319, A126, A48

WELDING & PWHT

Welding of these materials is often performed without preheat; however, for multi-pass deposits or highly restrained joints, preheating up to 150 °C may be necessary. Prior to welding, carefully prepare the surfaces by gouging or grinding, using limited amounts of heat to avoid the propagation of cracks. The area to be welded should be as free as possible from sand, oil, grease, paint, or rust. Preheating can aid in removing impregnated oil from used castings subject to repairs. If proceeding without preheat, it is advisable to minimize the width of the heat-affected zone (HAZ) by using a low heat input and keeping the interpass temperature low. A staggered welding technique can be effective in achieving this result. For welding on thicker or heavily restrained sections, preheating up to 150 °C can be indispensable. A light peening to reduce contraction stresses can be beneficial, but it is important not to compromise the ductility of the weld metal. It is also recommended to butter the joint faces or the sides of the repair cavity before proceeding with filling, regardless of the use of preheat. Upon completion of the welding operations, it is essential to allow for slow cooling of the piece, resorting to insulation if necessary.