



DAIKOWT 99

GTAW

CAST IRON
Ni CI

DESCRIPTION

Pure nickel solid rod 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

ISO 18274	S Ni 2061	AWS A5.15	ERNi-CI
DIN	-	Werkstoff Number	-
Certifications	-	Shielding	I1
Positions	PA, PB, PC, PD, PE, PF	Current	DC-

ASME QUALIFICATIONS

F-NO	FERRITE	PREN	HARDNESS
F-No (QW432)	-	-	170HB
A-No (QW442)	-	-	

CHEM. COMP. %

DEFAULT

C	1
Mn	0.1
S	0.02
Si	0.2
Fe	1.8

MECHANICAL PROPERTIES

MIN

VARIANT

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	-	-
Impact Charpy ISO-V	-	-

WELDING PARAMETERS

1.6 mm

2.4 mm

Ampere	80A - 120A	130A - 160A
Voltage	10V - 13V	14V - 18V
Packaging	-	-
Packaging Type	5kg carton tube	5kg carton tube

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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

Pure nickel consumables serve a vital role in the welding and repair processes involving standard grades of grey cast irons and malleable cast irons. These consumables yield low-strength deposits, providing a distinct advantage as they can be easily machined, even when applied in thin layers. The inherent resistance to hardening in diluted weld metal enhances their utility, particularly for buttering applications prior to the use of more economically efficient NiFe consumables. Beyond their primary applications, pure nickel consumables demonstrate versatility by facilitating the joining of these cast irons with other materials, including steels, monels, copper, etc. This proves especially beneficial in scenarios where high strength is not the foremost requirement. Typical components that benefit from the application of pure nickel consumables include a wide array of general engineering castings. These encompass crucial elements such as machine bases, engine blocks, gear housings, and similar structures that operate under relatively low stresses. The adaptability and effectiveness of pure nickel consumables make them integral to the fabrication and maintenance of components in various engineering applications.

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 is commonly performed without preheat, although scenarios involving heavy multipass deposits or highly restrained joints may necessitate preheat, potentially reaching up to 150°C. Before initiating the welding process, it is crucial to prepare surfaces meticulously, employing careful gouging and/or grinding with limited heat application to prevent the propagation of cracks. The designated welding area should be cleaned diligently, removing contaminants such as sand, oil, grease, paint, or rust to the greatest extent possible. Preheating proves advantageous for eliminating impregnated oil on used castings undergoing repairs. In instances where welding is conducted without preheat, it is advisable to minimize the width of the Heat-Affected Zone (HAZ) by utilizing a low heat input and maintaining a low interpass temperature. The application of a skip welding technique can be beneficial in achieving this objective. For welds involving thicker sections or highly restrained conditions, preheat up to 150°C may become imperative. Light peening, aimed at reducing contraction stresses, can offer additional benefits, though caution is warranted to prevent the depletion of weld metal ductility. Buttering the joint faces or the sides of the repair cavity before the filling process can be a desirable practice, whether or not preheat is applied. Upon completion of the welding process, it is recommended to allow the workpiece to cool gradually, with the option of using insulation if deemed necessary for optimal results.

