



## DESCRIPTION

Solid rod for welding 1%Ni steel

Wire rod designed for welding low-alloy steels with 1% Ni and fine grain steel as well as for 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.

## SPECIFICATIONS

ISO 14341-A	W 46 5 M21 3Ni1	AWS A5.28	ER80S-Ni1
DIN	-	Werkstoff Number	-
Certifications	-	Shielding	11
Positions	PA, PB, PC, PD, PE, PF	Current	DC-

ASME QUALIFICATIONS		FERRITE	PREN	HARDNESS
F-No (QW432)	6	-	-	-
A-No (QW442)	10			

CHEM. COMP. %	DEFAULT	MECHANICAL PROPERTIES	MIN	VARIANT
C	0.1	Tensile strength R <sub>m</sub> MPa	550	590
Mn	1.1	Yield strength R <sub>p0.2</sub> MPa	460	500
Ni	1	Elongation A (L <sub>0</sub> =5d <sub>0</sub> ) %	24	25
P	0.01	Impact Charpy ISO-V	47J @ -50°C	120J @ -50°C
S	0.01	Impact Charpy ISO-V	-	-
Mo	0.02			
Si	0.6			
Cu	0.12			
		WELDING PARAMETERS	1.6 mm	2.4 mm
		Ampere	95A - 135A	145A - 205A
		Voltage	-	-
		Packaging	Ø 1,2÷3,2mm	Ø 1,2÷3,2mm
		Packaging Type	5kg carton tube	5kg carton tube



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](http://www.daikowelding.com).

**1Ni**

DESCRIPTION

CRYOGENIC STEELS

1Ni

**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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