



DAIKOWT 385

GTAW

SUPERAUSTENITIC STEELS

904L

DESCRIPTION

Solid rod to match fully austenitic alloy 904L

Corrosion-resistant, chromium-nickel-molybdenum-copper solid wire rod for welding austenitic stainless alloys of the 20% Cr, 25% Ni, 5% Mo, 1.5% Cu, low C types. Its weld metal has good resistance to stress corrosion and intergranular corrosion and shows very good resistance to attack in non-oxidising acids. The resistance to crevice corrosion is better than that of ordinary 18% Cr, 8% Ni, Mo steels. The alloy is widely used in many applications related to the process industry.

SPECIFICATIONS

ISO 14343-A	W 20 25 5 Cu L	AWS A5.9	ER385
DIN	-	Werkstoff Number	-
Certifications	-	Shielding	11
Positions	PA, PB, PC, PD, PE, PF	Current	DC-

ASME QUALIFICATIONS

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

FERRITE

-

PREN

34.19

HARDNESS

-

CHEM. COMP. %

	DEFAULT
C	0.01
Mn	1.65
Ni	25
Cr	20
P	0.015
S	0.01
Mo	4.3
Si	0.35
Cu	1.45

MECHANICAL PROPERTIES

	MIN	VARIANT
Tensile strength R _m MPa	510	650
Yield strength R _{p0.2} MPa	320	490
Elongation A (L ₀ =5d ₀) %	25	35
Impact Charpy ISO-V	-	200J @ 20°C
Impact Charpy ISO-V	-	-

WELDING PARAMETERS

	1.6 mm	2.4 mm
Ampere	80A - 100A	110A - 160A
Voltage	-	-
Packaging	Ø 1,0÷4,0 mm	Ø 1,0÷4,0 mm
Packaging Type	5kg carton tube	5kg carton tube

V 01/2024



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

Known for delivering a fully austenitic, low-carbon weld metal enriched with Mo and Cu, these consumables exhibit exceptional resistance to corrosion in sulphuric, phosphoric, and various inorganic and organic acids. Not the typical choice for environments demanding resistance to concentrated nitric acid, they excel in scenarios involving severe chloride pitting media, where opting for overmatching nickel base weld metal, such as alloy 625, is recommended. Noteworthy as the preferred weld metal for certain lower alloy austenitics like Creusot UHB 34L and UHB 734L, especially in wet process phosphoric acid service, these consumables find versatile applications. Their usage spans tanks, process vessels, piping systems, agitators, rotors, and cast pumps and valves, catering to the needs of fertilizer, phosphoric, sulphuric, and acetic acid plants. Additionally, they prove invaluable in salt and seawater environments and are enlisted in select offshore applications, including overlays on mild and low alloy steels. The welding process mandates no preheat or post-weld heat treatment (PWHT), with interpass temperatures carefully regulated to a maximum of 150°C. It's crucial to exercise control over heat input, especially when utilizing larger diameter shielded metal arc welding (SMAW) electrodes.

ALLOY TYPE

904L is a nominally 20%Cr-25%Ni-5%Mo-2%Cu alloy with good corrosion resistance.

MICROSTRUCTURE

In the as-welded condition the weld metal microstructure is fully austenitic.

MATERIALS

Suitable for copper-free variants of the listed alloys and also to overmatch leaner alloys such as 317L, 317LN, 317LM, 317LMN, 1.4439, 1.4440 and S31726.

EN W.Nr.: 1.4505 (X4NiCrMoCuNb20-18-2), 1.4506 (X5NiCrMoCuTi 20-18), 1.4536 (GX2NiCrMoCuN25-20), 1.4539 (X1CrNiMoCuN25-20-5), 1.4585 (G-X7CrNiMoCuNb1818), 1.4500 (G-X7NiCrMoCuNb2520).

ASTM: N08904.

PROPRIETARY: Uddelholm 904L (voestalpine), 2RK65 (Sandvik), Cronifer 1925LC (VDM), 2545LX (Outokumpu), Uranus® B6, B6M (Industeel).

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