



DAIKOWM 320LR



SUPERAUSTENITIC STEELS
ALLOY 20

DESCRIPTION

Solid wire for matching Alloy 20

Solid wire rod matching Alloy 20 that results in a fully austenitic weld metal rich in Cu with high resistance to corrosion in sulphuric acid, mineral acids and organic acids. Alloy 20 is often chosen to solve stress corrosion cracking problems, which may occur with 316L stainless. Typical applications include tanks and vessels, piping, cast pumps, valves, heat exchanger and other components used in chemical processing, metal cleaning and pickling industries.

SPECIFICATIONS

EN ISO 14343-B	SS320LR	AWS A5.9	ER320LR
Shielding	M12, M13	Positions	PA, PB, PC, PD, PE, PF, PG
Current	DC+	Packaging Type	Drums, B300, D200 and D100 spools.

ASME QUALIFICATIONS

		PREN
F-No (QW432)	6	27.85
A-No (QW442)	-	

CHEM. COMP. %	DEFAULT	MECHANICAL PROPERTIES	MIN. PER STANDARD	PRODUCT	
C	0.02	Tensile strength R _m MPa	520	590	
Mn	1.6	Yield strength R _{p0.2} MPa	300	400	
Ni	34	Elongation A (L ₀ =5d ₀) %	25	35	
Cr	19.6	Impact Charpy ISO-V	-	100J @ 20°C	
Nb	0.25	Impact Charpy ISO-V	-	-	
P	0.007	WELDING PARAMETERS	1.0 mm	1.2 mm	
S	0.001		Ampere	160A - 220A	200A - 270A
Mo	2.5		Voltage	25V - 29V	26V - 30V
Si	0.05		Packaging	Ø 0,8÷1,6mm	Ø 0,8÷1,6mm
Cu	3.4		Packaging Type	Drums, B300, D200 and D100 spools.	Drums, B300, D200 and D100 spools.



The information contained in this technical data sheet is provided for information purposes only, based on data believed to be reliable at the date of publication, and does not constitute a warranty or contractual commitment. Actual performance may vary depending on operating and application conditions; it is the user's responsibility to verify the suitability of the product for the intended application. The manufacturer disclaims any liability for errors, omissions, or improper use. For the latest version, please refer to www.daikowelding.com.



ALLOY 20

DESCRIPTION

SUPERAUSTENITIC STEELS

ALLOY 20

APPLICATION

These consumables provide a fully austenitic weld metal, stabilized with niobium and enriched with molybdenum and copper, ensuring high resistance to corrosion in environments containing sulfuric acid, other mineral acids, organic acids, and their mixtures. Typically, the base material specifications pertain to castings. Typical applications include tanks, process piping, heat exchangers, agitators and rotors, as well as cast pumps and valves, particularly suited for use in chemical processing, metal cleaning and pickling. The 825 consumables are also highly alloyed products characterized by significant corrosion resistance and can be proposed as a technically compatible alternative for certain applications.

ALLOY TYPE

20%Cr-34%Ni-3.5%Cu-2.5%Mo (alloy 20) austenitic corrosion resistant alloy.

MICROSTRUCTURE

In the as-welded condition, the microstructure is fully austenitic.

MATERIALS

ASTM: A351, A744 gr. CN-7M

PROPRIETARY: Alloy 20, 20Cb, 20Cb-3 (Carpenter), Paramount P20 (Lake, Elliot), Langalloy 20V (Meighs)

WELDING & PWHT

No preheat is necessary; however, the interpass temperature must be carefully managed not to exceed 150 °C. Heat input must be strictly controlled, especially when using 4 mm diameter electrodes. Repairing Alloy 20 castings can result in specific issues in the HAZ zones, susceptible to cracking, and in the weld metal, with an increased predisposition to cracking caused by the presence of silicon during reheating. Problematic castings may require a buttering procedure with very low heat input using reduced diameter electrodes and minimal dilution. Welds are generally left in the 'as welded' condition, but castings that meet ASTM specifications may require a solution treatment at 1125 °C after significant repairs.

