



DAIKOWT 320LR

GTAW

SUPERAUSTENITIC STEELS
ALLOY 20

DESCRIPTION

Solid rod 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

ISO 14343-B	SS320LR	AWS A5.9	ER320LR
DIN	-	Werkstoff Number	-
Certifications	-	Shielding	11
Positions	PA, PB, PC, PD, PE, PF	Current	DC-

ASME QUALIFICATIONS	FERRITE	PREN	HARDNESS
F-No (QW432) 6	-	27.85	-
A-No (QW442) -	-	-	-

CHEM. COMP. %	DEFAULT	MECHANICAL PROPERTIES	MIN	VARIANT	
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	1.6 mm	2.4 mm	
S	0.001		Ampere	80A - 100A	110A - 160A
Mo	2.5		Voltage	-	-
Si	0.05		Packaging	Ø 1,0÷4,0 mm	Ø 1,0÷4,0 mm
Cu	3.4		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.



V 01/2024



ALLOY 20

DESCRIPTION

SUPERAUSTENITIC STEELS

ALLOY 20

APPLICATION

These consumables are engineered to produce a fully austenitic weld metal, skillfully stabilized with niobium, and enriched with the alloying elements of molybdenum and copper. This meticulous formulation imparts a weld metal that exhibits exceptional resistance to corrosion across a spectrum of challenging environments, including sulphuric acid, various mineral acids, organic acids, and their intricate mixtures. Tailored primarily for castings, these consumables extend their application prowess to a wide array of scenarios, serving notably in tanks, process piping, heat exchangers, agitators, rotors, as well as cast pumps and valves. Their versatility finds a fitting niche in industries engaged in chemical processing, metal cleaning, and pickling. Furthermore, these consumables, bearing the designation 825, stand as akin to other high-alloy corrosion-resistant products. This similarity positions them as a technically compatible alternative in select applications, offering flexibility and adaptability to meet diverse corrosion-resistant needs across different industrial settings.

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 preheating is necessary, and it is imperative to control the interpass temperature, ensuring it does not exceed 150°C. Additionally, close scrutiny of heat input, especially when employing 4mm diameter electrodes, is crucial. Repairing alloy 20 castings may pose challenges, as Heat-Affected Zone (HAZ) regions are prone to fissuring, and weld metal becomes more susceptible to cracking if silicon pick-up occurs. Addressing problematic castings may involve buttering at extremely low heat input using small diameter electrodes to minimize dilution. Typically, welds are left in the as-welded condition. However, castings adhering to ASTM specifications might necessitate a solution treatment at 1125°C following significant repairs.

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