



# 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

ISO 14343-B	SS320LR	AWS A5.9	ER320LR
DIN	-	Werkstoff Number	-
Certifications	-	Shielding	M12, M13
Positions	PA, PB, PC, PD, PE, PF, PG	Current	DC+

## ASME QUALIFICATIONS

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

## FERRITE

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## PREN

27.85
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## HARDNESS

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## CHEM. COMP. %

	DEFAULT
C	0.02
Mn	1.6
Ni	34
Cr	19.6
Nb	0.25
P	0.007
S	0.001
Mo	2.5
Si	0.05
Cu	3.4

## MECHANICAL PROPERTIES

	MIN	VARIANT
Tensile strength $R_m$ MPa	520	590
Yield strength $R_{p0.2}$ MPa	300	400
Elongation A ( $L_0=5d_0$ ) %	25	35
Impact Charpy ISO-V	-	100J @ 20°C
Impact Charpy ISO-V	-	-

## WELDING PARAMETERS

	1 mm	1.2 mm
Ampere	160A - 220A	200A - 270A
Voltage	25V - 29V	26V - 30V
Packaging	Ø 0,8÷1,6mm	Ø 0,8÷1,6mm
Packaging Type	Drums, B300, D200 and D100 spools.	Drums, B300, D200 and D100 spools.

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





# 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.

