DAIKOWT 320LR

GTAW

SUPERAUSTENITIC STEELS
ALLOY 20

DESCRIPTION

Rod corresponding to alloy 20

Solid rod corresponding to alloy 20, a fully austenitic welding material with a high copper content, characterized by high resistance to sulfuric acid corrosion, mineral and organic acids. Alloy 20 is often chosen to address stress corrosion cracking issues that can occur with 316L stainless steel. Typical applications include tanks and vessels, piping, cast pumps, valves, heat exchangers, and other components used in chemical processing, metal cleaning, and pickling industries.

SPECIFICATIONS

EN ISO 14343-B	SS320LR	**AWS A5.9**	ER320LR
Shielding	I1	**Positions**	PA, PB, PC, PD, PE, PF
Current	DC-	**Packaging Type**	5kg carton tube

ASME QUALIFICATIONS

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

PREN

27.85

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. PER STANDARD	PRODUCT
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	1.6 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

DAIKO

ALLOY 20

DESCRIPTION

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.