DAIKOWT 317L

GTAW

AUSTENITIC STAINLESS STEELS
317L

DESCRIPTION

Rod for austenitic stainless steels 317L

This rod is used for welding austenitic stainless steels 317/317L. The main applications include the maritime sector, paper industry, chemical processes, and food industry. It is also suitable for overlay welding on steels 316/316L. The higher content of chromium, nickel, and molybdenum compared to the standard 316L ensures superior resistance to general corrosion, pitting, and intergranular corrosion in chloride-containing environments. The microstructure is austenitic with 5-10% ferrite. For severe service conditions, for example in hot diluted acids, it is not recommended for structural uses above 400 °C nor for cryogenic applications.

SPECIFICATIONS

EN ISO 14343-A	W 18 15 3 L / 19 13 4 L	**AWS A5.9**	ER317L
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)	8

PREN

30.55

HARDNESS

80HRB

CHEM. COMP. %

	DEFAULT
C	0.015
Mn	1.5
Ni	14
Cr	19
P	0.02
S	0.01
Mo	3.5
Si	0.4
Cu	0.15

MECHANICAL PROPERTIES

	MIN. PER STANDARD	PRODUCT
Tensile strength R_m MPa	480	620
Yield strength $R_{p0.2}$ MPa	300	450
Elongation A (L_0=5d_0) %	25	35
Impact Charpy ISO-V	-	60J @ 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

317L

DESCRIPTION

APPLICATION

This consumable is specifically designed for welding 317/317L austenitic stainless steels. It proves ideal for situations of extreme corrosion, typical of the chemical sectors, flue gas desulfurization, seawater desalination, and in particular, the paper, pulp, and textile industries. It is also widely used in marine applications, paper production, chemical processes, and food processing. Additionally, it is suitable for joining 316/316L steels, with a significant advantage: the high molybdenum content in the weld metal enhances resistance to pitting and crevice corrosion in highly corrosive environments. The material offers outstanding resistance to stress corrosion cracking and high tolerance to pitting. The service temperature ranges from -120 °C to 300 °C. Welding these molybdenum-alloyed steels requires attention. Successive passes can cause the formation of secondary phase precipitates in the weld metal. Therefore, it is recommended to limit heat input to a maximum of 1.5 kJ/mm and to keep the interpass temperature below 150 °C. Generally, post-weld heat treatment is not required, but in particular circumstances, a solution anneal between 1080 °C and 1130 °C followed by water quenching may be performed.

ALLOY TYPE

The nominal composition (wt. %) of alloy is 19.5 Cr, 14 Ni, 3.5 Mo, similar but more alloyed than ER316.

MICROSTRUCTURE

The fillers are fully-austenitic and slightly over-alloyed.

MATERIALS

EN W.Nr.: 1.4436 (X3CrNiMo17-13-3), 1.4439 (X2CrNiMoN17-13-5), 1.4429 (X2CrNiMoN17-13-3), 1.4438 (X2CrNiMo18-15-4), 1.4583 (X10CrNiMoNb18-12)
ASTM: 316Cb, 316LN, 317LN, 317L, A351 CG8M, CG3M
UNS: S31726, J92999

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