

Classifications

EN ISO 14172	AWS A5.11 / SFA-5.11
E Ni 6627 (NiCr21MoFeNb)	ENiCrMo-12

Characteristics and typical fields of application

Nickel-base covered electrode of Ni 6627 / ENiCrMo-12 type designed for welding "6Mo" steels such as 254 SMO (1.4547 / S31254) and similar grades. It can also be used for welding nickel-base alloys of type 625 and 825. In chloride containing environments, the electrode offers particularly high resistance to pitting, crevice corrosion and stress corrosion cracking. Good resistance in sulphuric and phosphoric acids contaminated by chlorides. Scaling resistance up to 1100°C (air).

Base materials

Suitable for high-quality weld joints of nickel-base alloys, joint welding of dissimilar steels and difficult-to-weld combinations including low-temperature steels up to 9% Ni, high-temperature and creep resistant materials, scaling resistant, unalloyed and high-alloyed Cr and CrNiMo stainless steels.

1.4529 X1NiCrMoCuN25-20-7, 1.4547 X1CrNiMoCuN20-18-7

Alloy 625, Alloy 825

UNS N06600, N07080, N0800, N0810, N08367, N08926, S31254

254 SMO®

Typical analysis


	C	Si	Mn	Cr	Ni	Mo	Nb	Fe
wt.-%	0.02	0.4	0.3	21.6	Bal.	9.1	2.4	2.2

Mechanical properties of all-weld metal - typical values (min. values)

Condition	Yield strength	Tensile strength R _m	Elongation A (L ₀ =5d ₀)	Impact energy ISO-V KV J			Hardness
	R _{p0.2}	MPa	%	20°C	-40°C	-196°C	
u	480 (≥ 400)	730 (≥ 650)	37 (≥ 35)	90	80	70 (≥ 32)	220

untreated, as-welded

Operating data

	Polarity	DC+	Dimension mm	Current A
	Electrode identification	P12-R basic	2.0 × 250	25 – 45
			2.5 × 250	40 – 70
			3.2 × 300	60 – 95
			4.0 × 350	90 – 135

To minimize the risk of hot cracking when welding fully austenitic stainless steels and nickel-base alloys, the heat input and interpass temperature must be low and there must be as little dilution as possible from the parent metal.

Suggested heat input max. 1.5 kJ/mm and interpass temperature max. 100°C.

Metal recovery approximately 104 – 108%.

Post-weld heat treatment generally not needed. In special cases solution annealing can be performed at 1150 – 1200°C followed by water quenching.

Approvals

TÜV (04435)