FOXcore 625-T1

Flux-cored wire, high-alloyed, nickel-base

Classifications

AWS A5.34 / SFA-5.34	EN ISO 12153
ENiCrMo3T1-4	T Ni 6625 P M21 2
ENiGT1-1	T Z Ni6625 P C1 2

Characteristics and typical fields of application

Nickel-base rutile flux-cored wire of Ni 6225 P / NiCrMo3-T1 type for welding of nickel-base alloys with high molybdenum content, e.g. Alloy 625 and Alloy 825, as well as superaustenitic stainless steels such as 254 SMO® (1.4547 / UNS S31254). With exceptional mechanical properties and low temperature ductility, this wire can be used for welding 9Ni-steels for cryogenic applications. Suitable for pressure vessel fabrication in the service temperature range from –196ºC to 550ºC, otherwise resistant to scaling up to 1100ºC (in S-free atmosphere). Can also be used for welding of dissimilar joints including low-alloyed "hard-to-weld" steels. High nickel content prevents C-diffusion at high service temperatures or during post-weld heat treatment of dissimilar steels. The weld metal has low coefficient of thermal expansion and is resistant to thermal shock. The weld metal is exceptionally resistant to general corrosion in various types of acids and to pitting, crevice corrosion and stress corrosion cracking in chloride containing environments. Meets the corrosion test requirements per ASTM G48 Methods A, B and E (50ºC). The fast freezing slag offers excellent weldability and slag control. The wire is optimized to minimize risk of forming porosity in all positions.
100%CO2 shielding gas can be used in all welding positions as using the shielding gas M21 except in overhead position.

Base materials

1.4529 X1NiCrMoCuN25-20-7, 1.4547 X1CrNiMoCuN20-18-7, 1.4580 X6CrNiMoNb17-12-2, 1.4583 X10CrNiMoNb18-12, 1.4876 X8NiCrAlTi32-21, 1.5662 X8Ni9, 2.4816 NiCr15Fe, 2.4817 LC-NiCr15Fe, 2.4641 NiCr 21Mo6Cu, 2.4856 NiCr 22Mo9Nb, 2.4858 NiCr 21 Mo
ASTM A 553 Gr.1, Alloy 600, Alloy 600 L, Alloy 625, Alloy 800 / 800H, Alloy 825
UNS N06600, N07080, N0800, N0810, N08367, N08926, S31254

Typical analysis

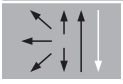
	Gas	C	Si	Mn	Cr	Ni	Mo	Nb	Fe
wt.-%	M21	0.02	0.5	0.3	20.7	Bal.	8.5	3.3	< 1.0

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

Condition	Yield strength $R_{p0.2}$	Tensile strength R_m	Elongation A (L_0=5d_0)	Impact energy ISO-V KV J		Lateral expansion mm
	MPa	MPa	%	20°C	–196°C	–196°C
u	475 (≥ 420)	750 (≥ 690)	42 (≥ 25)	83	72 (≥ 47)	1.07 (≥ 0.38)

u untreated, as welded – shielding gas M21 (Ar + 18% CO2)

Operating data



Polarity	DC +
Shielding gas (EN ISO 14175)	M21, C1

Dimension mm
1.2

Welding with standard GMAW power source on DC+. AC can be used to reach even higher toughness values when welding e.g. 9Ni-steels. No pulsing needed. Backhand (drag) technique preferred with a work angle of approximately 80°. Ar + 18 – 25% CO_2 as shielding gas offers the best weldability. The gas flow should be 15 – 18 l/min. The heat input should not exceed 1.5 kJ/mm, the interpass temperature be limited to max. 100ºC and the wire stick-out 15 – 20 mm. Slight weaving is recommended for all welding positions.

Approvals

TÜV (10991), ABS, BV, DNV