Thermanit Nicro 82

Solid wire, high-alloyed, nickel-base

Classifications

AWS A5.14 / SFA-5.14	EN ISO 18274
ERNiCr-3	S Ni 6082 (NiCr20Mn3Nb)

Characteristics and typical fields of application

Solid wire of S Ni 6082 (NiCr20Mn3Nb) / ERNiCr-3 type for welding of many creep-resistant steels and nickel alloys. Provides high resistance to cracking and is well-suited for dissimilar welding of stainless and nickel-base alloys to mild steels. Heat and high temperature resistant – can be used for welding nickel-base alloys for use in high temperature applications. Can also be used as a buffer layer in many difficult-to-weld applications, where the high nickel content will minimize the carbon diffusion from the mild steel into the stainless material. Good toughness at subzero temperatures as low as -269ºC. Service temperature limit is max. 900ºC for fully stressed welds. High resistance to stress corrosion cracking, but also excellent resistance to intergranular corrosion due to the low carbon content and absence of secondary phases.

Base materials

Suitable for high-quality weld joints of nickel alloys, joint welding of dissimilar steels and difficult-to-weld combinations including low-temperature steels up to 5% Ni, high-temperature and creep resistant materials, scaling resistant, unalloyed and high-alloyed Cr and CrNiMo stainless steels. Dissimilar welding of 1.4583 X10CrNiMoNb18-12 and 1.4539 X2NiCrMoCu25-20 with ferritic pressure vessel boiler steels.
2.4816 NiCr15Fe, 2.4817 LC-NiCr15Fe, 1.4876 X10NiCrAlTi32-21
NiCr15Fe, X8Ni9, 10CrMo9-10
Alloy 600, 600L, 800, 800H,
UNS N06600, N07080, N0800, N08810

Typical analysis

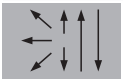
	C	Si	Mn	Cr	Ni	Nb	Fe	FN
wt.-%	0.02	0.2	2.8	19.5	> 67	2.5	< 2.0	0

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
	MPa	MPa	%	20°C
u	(≥ 380)	(≥ 620)	(≥ 35)	(≥ 90)

u untreated, as-welded – shielding gas Ar + 30% He + 2% H_2 + 0.1% CO_2

Operating data



Polarity	DC+
Shielding gas (EN ISO 14175)	I1 Ar+30% He+2% H2+0.1% CO_2

Dimension mm
0.8
1.0
1.2

Preheating and post-weld heat treatment according to the parent metal. Attention must be paid to resistance to intercrystalline corrosion and embrittlement in case of austenitic stainless steels. To minimize the risk of hot cracking when welding fully austenitic and nickel-base alloys, heat input and interpass temperature must be low and there must be as little dilution as possible from the parent metal.
Suggested heat input is max. 1.5 kJ/mm and interpass temperature max. 150ºC.
Creep rupture properties according to matching high temperature steels / alloys up to 900ºC.
For MIG welding: Polarity DC+. Shielding gas: Ar + 30% He + 2% H_2 + 0.1% CO_2 and pulsed arc. Gas flow: 15 – 20 l/min.
For automatic TIG welding: Polarity DC-. Shielding gas: Ar. Gas flow: 5 – 12 l/min.

Approvals

TÜV (03089), DNV