utp by voestalpine

Tailor-Made Protectivity™

Thermanit Nicro 82

Basic-coated NiCrFe electrode

Product features	User benefits
» Good strength » High ductility	» Reducing the risk of cracking during welding and service » Useful for repairing castings or components with elevated carbon content and high residual stresses
» Good corrosion resistance » Service temperature from -269°C up to 900°C	» Suitable for many different steels from mild steel to stainless incl. dissimilar joints » No embrittlement due to fluctuating temperature
» Weldable in all position except vertical down	» Good for on-site repairs where portability matters

Stainless, heat-resistant, creep resistant, low temperatures toughness down to –269°C, well suited for austenite-ferrite joints. Even with heat treatments above 300°C, there are no embrittling Cr carbide zones in the ferrite / weld metal transition. Good for joining and surfacing on heat-resistant Cr and CrNi steels and nickel alloys.

Maximum service temperature: 900 °C for fully stressed welds. Well suited for dissimilar joints of stainless and nickel alloys to unalloyed steels. It can also be applied as buffer layers in difficult applications, where the high nickel content effectively reduces carbon diffusion from mild steel into stainless materials.

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 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, N08800, N08810

Typical applications

» Welding of similar NiCr alloys in the chemical industry
» Welding of difficult weldable steels and cast steels
» Heterogeneous joints exposed to various environments and temperatures
» Repair of cracked general mechanical parts such as shafts of gear wheels
» Repair of broken tool steels
» Build-up layers prior to hardfacing

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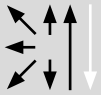
Classifications				
EN ISO 14172	**AWS A5.14**	**Welding positions**	**Polarity**	**Approvals**
E Ni 6082 (NiCr20Mn3Nb)	ENiCrFe-3 (mod.)		DC+	TÜV (01775), TÜV (KTA 1408.1), (08129), DNV

Typical chemical composition in wt-%							
C	**Si**	**Mn**	**Cr**	**Mo**	**Nb**	**Ni**	**Fe**
0.025	<0.4	5.0	19.0	1.5	2.2	balance	3.0

Mechanical properties					
Heat-treatment	**Yield strength $R_{p0,2}$**	**Tensile strength R_m**	**Elongation A**	**Impact strength K_V in J**	
	MPa	**MPa**	**%**	**20°C**	**-196°C**
As welded	440 (>360)	680 (>660)	40 (>22)	120	80

Recommended welding parameters	
Electrodes Ø x L [mm]	**Amperage [A]**
2.5 x 300	45-70
3.2 x 300	65-100
4.0 x 350	85-130

Packaging				
Metallic tins	**Electrodes Ø x L [mm]**	**Weight in kg**	**Pieces (approx.)**	**Item number**
	2.5 x 300	4.0	220	67842
	3.2 x 300	4.2	150	67862
	4.0 x 350	5.2	106	67876