Covered electrodes, nickel-base

Brand Standard AWS Standard EN ISO	Chemical Composition (%) Typical Values	Mechanical Properties Typical Values	Ø x L (mm)	Approvals	Characteristics and Applications
THERMANIT NICRO 182 AWS A5.11: ENiCrFe-3 EN ISO 14172: E Ni 6182 (NiCr15Fe6Mn)	C: 0.025 Si: 0.4 Mn: 6.0 Cr: 16.0 Ni: bal. Nb: 2.2 Fe: 6.0	UTS: 650 MPa (≥ 550) YS: 420 MPa (≥360) El: 40% (≥27) CVN Impact: +20°C: 120J -196°C: 110J	2.5 x 300 3.2 x 300 4.0 x 350 5.0 x 400	TÜV (02073), TÜV (KTA 1408.1) (08128.00)	Basic coated nickel-base electrode of E Ni 6182 / ENiCrFe-3 type for welding of nickel-base alloys, creep resistant steels, heat resisting and cryogenic materials, dissimilar joints and low-alloyed steels with limited weldability. Dissimilar joining for service temperatures above 300 °C or applications where post-weld heat treatment is required. Well-suited for dissimilar welding of stainless and nickel alloys to mild steels. 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. Scaling resistant up to 950 °C and creep resistant up to 800 °C. Good toughness down to –196 °C. Resistant to embrittlement, hot cracking and thermal shock.
THERMANIT NICRO 82 AWS A5.11: ENiCrFe-3 (mod.) EN ISO 14172: E Ni 6082 (NiCr20Mn3Nb)	C: 0.025 Si: < 0.4 Mn: 5.0 Cr: 19.0 Mo: 1.5 Ni: bal. Nb: 2.2 Fe: 3.0	UTS: 680 MPa (≥600) YS: 440 MPa (≥360) El: 40% (≥22) CVN Impact: +20°C: 120J -196°C: 100J	2.5 x 300 3.2 x 300 4.0 x 350 5.0 x 400	TÜV, DNV CE	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. Temperature limits: 550 °C in S-containing atmospheres, max. 900 °C for fully loaded seams. Resistant to scaling up to 1000 °C. Well suited for mixed connections of stainless and nickel alloys to unalloyed steels.
THERMANIT 625 AWS A5.11: ENiCrMo-3 EN ISO 14172: E Ni 6625 (NiCr22Mo9Nb)	C: 0.03 Si: 0.4 Mn: 0.6 Cr: 22.0 Mo: 9.0 Ni: bal. Nb: 3.3 Fe: < 1.0	UTS: 790 MPa (≥760) YS: 520 MPa (≥420) El: 42% (≥27) CVN Impact: +20°C: 81J -196°C: 62J (≥32)	2.5 x 300 3.2 x 350 4.0 x 350 5.0 x 400	TÜV, DNV, CE	Basic coated nickel-base electrode of E Ni 6625 / ENiCrMo-3 type for welding the nickel-base alloys 625 and 825 as well as CrNiMo-steels with high molybdenum content (e.g. 6% Mo-steels). Also recommended for high temperature and creep resistant steels, heat resistant and cryogenic materials, dissimilar joints and low-alloyed problem steels. Suitable in pressure vessel fabrication for –196°C to 550°C, otherwise for service temperatures up to 1000°C. Resistant to scaling up to 1100°C (in sulfur-free atmosphere). Due to the weld metal embrittlement at 600 – 800°C, this temperature range should be avoided. Highly resistant to hot cracking and thermal shock. Extremely resistant to stress corrosion cracking and pitting.