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: 670 MPa (≥600) YS: 400 MPa (≥360) El: 40% (≥30) CVN Impact: +20°C: 120J (≥90) -196°C: 80J (≥32)	2.5 x 300 3.2 x 300 4.0 x 350 5.0 x 400	TÜV, CE	Basic electrode, core wire alloyed, corresponding to AWS E NiCrFe-3 for high grade welding of nickel-base alloys, creep resistant steels, heat resisting and cryogenic materials, dissimilar joints and low-alloyed steels with difficult welding behaviour. Ferritic-austenitic joints for service temperatures above +300°C or applications where post weld heat treatment is required. Suitable for pressure vessels from -196°C up to 650°C. Scaling resistance up to 1200°C (S free atmosphere). Insusceptible to embrittlement, highly resistant to hot cracking, high resistance to porosity, thermal shock resistant, stainless, fully austenitic. Excellent welding characteristics in all welding positions, except vertical down, easy slag removal.
THERMANIT NICRO 82 AWS A5.11: ENiCrFe-3 (mod.) EN ISO 14172: E Ni 6082 (NiCr20Mn3Nb)	C: < 0.05 Si: < 0.4 Mn: 4.0 Cr: 19.5 Mo: 1.5 Ni: bal. Nb: 2.0 Fe: < 4.0	UTS: 620 MPa YS: 380 MPa El: 35% CVN Impact: +20°C: 90J -196°C: 70J -269°C: 50J	2.5 x 300 3.2 x 300 4.0 x 350 5.0 x 400	TÜV, DNV GL, CE	Stainless, heat resistant, high temperature resistant. Good toughness at subzero temperatures as low as –269°C (–452°F). Well suited for welding austenitic ferritic joints. No Cr-carbide zones that become brittle in the ferrite weld deposit transition zone, not even as a result of heat treatments above 300°C (572°F). Well suited for tough joints and surfacing on heat resistant Cr and CrNi steels and Ni alloys.
THERMANIT 625 AWS A5.11: ENiCrMo-3 EN ISO 14172: E Ni 6625 (NiCr22Mo9Nb)	C: < 0.04 Si: < 0.7 Mn: < 1.0 Cr: 21.5 Mo: 9.0 Ni: bal. Nb: 3.3 Fe: < 2.0	UTS: 760 MPa YS: 420 MPa El: 30% CVN Impact: +20°C: 75J -196°C: 60J	2.5 x 250 3.2 x 300 4.0 x 350 5.0 x 400	TÜV, CE, GL	High resistance to corrosive environments. Resistant to stress corrosion cracking. Resistant to scaling up to 1000°C (1832 °F). Temperature limit: 500°C (932°F) max. in sulphureous atmospheres. High temperature resistant up to 900°C (1652°F). Good toughness at subzero temperatures as low as –196°C (–321°F). For joining and surfacing work with matching / similar corrosion resistant materials as well as on matching and similar heat resistant, high temperature steels and alloys. For joining and surfacing work with cryogenic austenitic CrNi(N) steels / cast steel grades and on cryogenic Ni steels suitable for quenching and tempering.
UTP 6222 Mo AWS A5.11: E NiCrMo-3 EN ISO 14172: E Ni 6625 (NiCr22Mo9Nb)	C: 0.03 Si: 0.4 Mn: 0.6 Cr: 22.0 Ni: balance Mo: 9.0 Nb: 3.3 Fe < 1	UTS: > 760 MPa YS: > 450 MPa El: > 30% CVN Impact: +20°C: > 75J -196°C: 45J	2.5 x 250 3.2 x 300 4.0 x 350 5.0 x 400	TÜV, DNV, ABS, GL, BV	UTP 6222 Mo is particularly suited for joining and surfacing on nickel alloys, austenitic steels, low temperature nickel steels, austenitic ferritic joints and claddings of the same or similar nature, like 2.4856 (NiCr22Mo 9 Nb), 1.4876 (X30 NiCrAlTi 32 20), 1.4529 (X2 NiCrMoCu 25 20 5). The weld metal is heat resistant and suitable for operating temperatures up to 1000°C. It must be noted that a slight decrease in ductility will occur if prolonged heat treatment is given within the temperature range 600 - 800°C. Scale resisting in low sulphur atmosphere up to 1100°C. High creep strength.