

NiCro 60/20

CLASSIFICATION

AWS A5.11/A5.11M : ENiCrMo-3
 ISO 14172 : E Ni 6625 (NiCr22Mo9Nb)

GENERAL DESCRIPTION

Fully basic Ni-base high CrMoNb alloyed austenitic all position electrode
Extreme high resistance to general and intergranular corrosion, pitting and crevice corrosion and stress corrosion cracking
Suitable for welding dissimilar joints; high resistance to hot cracking
High resistance to high temperature oxidation (max. 1200°C) and carburization
Good impact values at low temperatures (down to -196°C), suitable for 9% Ni steel

WELDING POSITIONS



CURRENT TYPE

DC +

APPROVALS

TÜV

+

CHEMICAL COMPOSITION (W%), TYPICAL, ALL WELD METAL

| C | Mn | Si | Cr | Ni | Mo | Nb | Fe |
|------|-----|------|------|------|-----|-----|-----|
| 0.03 | 0.5 | 0.35 | 22.0 | 62.0 | 9.0 | 3.4 | 0.9 |

MECHANICAL PROPERTIES, TYPICAL, ALL WELD METAL

| Condition | 0.2% Proof strength (N/mm ²) | Tensile strength (N/mm ²) | Elongation (%) | Impact ISO-V(J) |
|--|--|---------------------------------------|--------------------------|------------------------------------|
| | | | | -196°C |
| Required: AWS A5.11 ISO 14172 Typical values | not required min. 420 510 | min. 760 760 770 | min. 30 min. 27 44 | not required not required 92 |

PACKAGING AND AVAILABLE SIZES

| | | | | |
|---------------|----------------------|-----|-----|-----|
| Unit: PE tube | Diameter (mm) | 2.5 | 3.2 | 4.0 |
| | Length (mm) | 300 | 300 | 350 |
| Unit: PE tube | Pieces / unit | 94 | 61 | 45 |
| | Net weight/unit (kg) | 1.6 | 1.7 | 2.1 |

Identification Imprint: NiCrMo-3 / NICRO 60/20 Tip Color: green

NiCro 60/20: rev. EN 23

NiCr 60/20

MATERIALS TO BE WELDED

| Steel grades | DIN/EN | Mat. Nr | ASTM/ACI | UNS |
|--|--------------------|---------|--------------------|------------|
| NiCrMo-steel type alloy 625 and welding dissimilar high NiCrMo-steels for corrosion and heat resisting purposes | | | | |
| | X1NiCrMoCuN25-20-6 | 1,4529 | Alloy 925 | N08925 |
| | X1NiCrMoCu25-20-5 | 1,4539 | Alloy 904L | N08904 |
| | X1CrNiMoCuN20-18-7 | 1,4547 | Alloy 254 | S31254 |
| | X2NiCrAlTi32-20 | 1,4558 | Alloy 800L | N08800 |
| | G-X10NiCrNb32-20 | 1,4859 | | |
| | X10NiCrAlTi32-20 | 1,4876 | Alloy 800/800H | N08800/-10 |
| | NiCr22Mo6Cu | 2,4618 | Alloy G | N06007 |
| | NiCr22Mo7Cu | 2,4619 | Alloy G-3 | N06985 |
| | NiCr21Mo6Cu | 2,4641 | Alloy 825hMo | N08821 |
| | NiCr20CuMo | 2,4660 | Alloy 20 | N08020 |
| | NiCr15Fe | 2,4816 | B168-Alloy 600 | N06600 |
| | NiCr22Mo9Nb | 2,4856 | B443-Alloy 625 | N06625 |
| | NiCr21Mo | 2,4858 | B424-Alloy 825 | N08825 |
| | NiCr20Ti | 2,4951 | Alloy 75 | N06075 |
| | NiCr20TiAl | 2,4952 | Alloy 80A | N07080 |
| Low Alloyed steels | | | | |
| | 10Ni14 (3.5% Ni) | 1,5637 | ASTM A333 Grade 3 | - |
| | 12Ni19, X12Ni5 | 1,5680 | - | K41583 |
| 9% Ni steel for LNG storage tanks | | | | |
| | X8Ni9 (9% Ni) | 1,5662 | A353/A353M | - |
| | X8Ni9 (9% Ni) | 1,5662 | A553/A553M Type I | - |
| | (8% Ni) | | A553/A553M Type II | K71340 |

CALCULATION DATA

| Sizes Diam. x length (mm) | Current range (A) | Current type | Arc time | Energy | Dep. rate | Weight/ 1000 pcs (kg) | Electrodes/ kg weld- metal B | kg electrodes/ kg weldmetal 1/N |
|---------------------------------|----------------------|-----------------|---|--------|-----------|-----------------------------|---------------------------------------|---------------------------------------|
| | | | - per electrode at max. current - (S)* | E(kJ) | H(kg/h) | | | |
| 2.5 x 300 | 45-70 | DC+ | 44 | 80 | 0.95 | 17.2 | 87 | 1.51 |
| 3.2 x 300 | 70-100 | DC+ | 44 | 101 | 1.5 | 26.8 | 55 | 1.48 |
| 4.0 x 350 | 100-130 | DC+ | 53 | 215 | 2.2 | 46.4 | 30 | 1.41 |

*Stub end 35mm

WELDING PARAMETERS, OPTIMUM FILL PASSES

| Diameter (mm) | Welding positions | | | | | |
|------------------|-------------------|-------|-------|---------|-------|---------|
| | PA/1G | PB/2F | PC/2G | PF/3Gup | PE/4G | PF/5Gup |
| 2.5 | 60A | 55A | 60A | 60A | 60A | 60A |
| 3.2 | 90A | 80A | 85A | 80A | 80A | 80A |
| 4.0 | 120A | 120A | | | | |

REMARKS / APPLICATION ADVICE

Welding with Heat-Input max. 1.5 kJ/mm
Interpass temperature max. 150°C