

OK Flux 10.90

Agglomerated aluminate-fluoride-basic flux for welding of 9 % Ni steels and other high alloyed steels with Ni based wires. The flux is manganese adding, which reduces the risk of hot cracking. Good slag detachability and nice bead appearance.

| | |
|------------------------|---------------------------------------|
| Classifications | EN ISO 14174 : S A AF 2 55 53 MnNi DC |
| Approvals | NAKS/HAKC : RD 03-613-03 |

| | |
|-----------------------|---|
| Slag Type | Fluoride basic CaF ₂ -Al ₂ O ₃ -SiO ₂ |
| Alloy Transfer | Chromium compensating. Nickel- and manganese alloying. |
| Density | nom: 1.0 kg/dm ³ |
| Basicity Index | nom: 1.7 |

Flux Consumption

| Volts | kg Flux / kg Wire DC+ |
|-------|-----------------------|
| 34 V | 0.8 kg |
| 30 V | 0.6 kg |
| 26 V | 0.5 kg |
| 38 V | 1.0 kg |

| Dimensions | Amps | Travel Speed |
|------------|-------|--------------|
| 4.0 mm | 580 A | 33 m/h |

Classifications

| Wire | SFA/AWS - EN ISO | AWS - As Welded |
|------------------------|--|-----------------------------|
| OK Autrod 310 | A5.9:ER310/ 14343-A:S 25 20 | |
| OK Autrod NiCr-3 | A5.14:ERNiCr-3/ 18274:S Ni 6082 (NiCr20Mn3Nb) | |
| OK Autrod NiCrMo-13 | A5.14:ERNiCrMo-13/ 18274:S Ni 6059 (NiCr23Mo16) | |
| OK Autrod NiCrMo-3 | A5.14:ERNiCrMo-3/ 18274:S Ni 6625 (NiCr22Mo9Nb) | A5.39: F100A32-ERNiCrMo-3/G |
| OK Autrod NiCrMo-3 | A5.14:ERNiCrMo-3/ 18274:S Ni 6625 (NiCr22Mo9Nb) | |
| OK Autrod NiCrMo-3 SAW | A5.14:ERNiCrMo-3/ 18274:S Ni 6625 (NiCr22Mo9Nb) | |
| OK Autrod NiCrMo-4 | A5.14:ERNiCrMo-4/ 18274:S Ni 6276 (NiCr15Mo16Fe6W4) | A5.39: F100A32-ERNiCrMo-4/G |
| OK Autrod NiCrMo-4 | A5.14:ERNiCrMo-4/ 18274:S Ni 6276 (NiCr15Mo16Fe6W4) | |

Approvals

| Wire | ABS | BV | CCS | ClassNK | DNV-GL | KR | RINA | DNV |
|------------------------|-----|----|-----|---------|--------|----|------|-----|
| OK Autrod NiCrMo-3 | - | - | - | - | • | - | - | - |
| OK Autrod NiCrMo-3 SAW | - | - | - | - | - | - | - | • |
| OK Autrod NiCrMo-4 | • | • | • | • | • | • | • | • |

Typical Mechanical Properties

| Wire | Condition | Yield Strength | Tensile Strength | Elongation | Charpy V-Notch |
|------------------|-------------------|----------------|------------------|------------|-----------------------------------|
| OK Autrod 310 | As Welded ISO DC+ | 390 MPa | 570 MPa | 34 % | 85 J @ 20 °C |
| OK Autrod NiCr-3 | As Welded ISO DC+ | 400 MPa | 600 MPa | 35 % | 145 J @ -80 °C 130 J @ -196 °C |

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Typical Mechanical Properties

| Wire | Condition | Yield Strength | Tensile Strength | Elongation | Charpy V-Notch |
|---------------------------|--|----------------|------------------|------------|-----------------|
| OK Autrod NiCrMo-13 | As Welded 350 A, HI 1.3-1.7 kJ/mm DC+ | 470 MPa | 675 MPa | 46 % | 70 J @ -196 °C |
| OK Autrod NiCrMo-3 | As Welded HI ~1.0-1.7 kJ/mm DC+ | 440 MPa | 720 MPa | 42 % | 100 J @ -196 °C |
| OK Autrod NiCrMo-3 SAW | As Welded HI ~1.0-1.7 kJ/mm DC+ | 440 MPa | 720 MPa | 42 % | 100 J @ -196 °C |
| OK Autrod NiCrMo-4 | As Welded DC+ | 480 MPa | 700 MPa | 40 % | 60 J @ -196 °C |

Typical Weld Metal Analysis %

| C | Mn | Si | S | P | Ni | Cr | Mo | V | Cu |
|--|-----|------|-------|-------|------|------|-------|------|-------|
| OK Autrod 310 | | | | | | | | | |
| 0.07 | 3.2 | 0.40 | 0.010 | 0.020 | 20.5 | 25.5 | 0.015 | - | 0.010 |
| OK Autrod NiCr-3 | | | | | | | | | |
| 0.004 | 4.4 | 0.35 | 0.007 | 0.005 | Bal | 19.3 | 0.1 | - | - |
| OK Autrod NiCrMo-13 Current Type: DC+ , 350A, 29V | | | | | | | | | |
| 0.01 | 2.8 | 0.2 | 0.001 | 0.01 | bal. | 22.0 | 15.0 | - | - |
| OK Autrod NiCrMo-3 DC+, 350A, 29V | | | | | | | | | |
| 0.01 | 1.7 | 0.2 | 0.01 | 0.01 | Bal. | 21.0 | 8.5 | - | - |
| OK Autrod NiCrMo-4 DC+, 350A, 29V | | | | | | | | | |
| 0.01 | 2.2 | 0.2 | 0.003 | 0.01 | Bal. | 15.0 | 15.5 | 0.04 | 0.01 |

Typical Weld Metal Analysis %

| Ti | Co | W | Fe | Nb+Ta |
|--|------|-----|-----|-------|
| OK Autrod 310 | | | | |
| - | - | - | - | - |
| OK Autrod NiCr-3 | | | | |
| 0.1 | - | - | 1.7 | 2.6 |
| OK Autrod NiCrMo-13 Current Type: DC+ , 350A, 29V | | | | |
| - | - | - | 1 | - |
| OK Autrod NiCrMo-3 DC+, 350A, 29V | | | | |
| - | - | - | 2.0 | 3.0 |
| OK Autrod NiCrMo-4 DC+, 350A, 29V | | | | |
| - | 0.15 | 3.4 | 6.0 | - |