

OK Flux 10.71

OK Flux 10.71 is an agglomerated, basic flux for submerged arc welding. It is used for single and multi-run welding of all plate thicknesses. It can be combined with a wide range of solid wires and cored wires and thus it is suitable for all kinds of steels. OK Flux 10.71 combines good toughness values with excellent weldability. It is used for single and multiwire procedures such as tandem, twin-arc, tandem-twin welding and many more, for butt, overlap and fillet welds. It works equally well on DC and AC current. The good slag detachability and limited alloying of Si and Mn makes it well suited for multi-pass thick section welding. High welding speeds can be achieved producing a finely rippled weld metal, all this in combination with very good impact values. In general construction, OK Flux 10.71 is one of the most used SAW fluxes. Not just for structural steels and fine-grained steels, but also for weather resistant steels e.g. for bridges. Pressure vessels are welded with this flux, because it can be used for a wide range of steels including low temperature steels. This reduces the number of different fluxes a customer needs to have in stock. Wind tower production with plate thicknesses of greater than 50mm require not only excellent slag detachability, particularly in the first run, and high deposition rates in all following runs, but also excellent toughness values. Since OK Flux 10.71 offers all this it is well established in this market segment. Other applications are in shipbuilding with approvals or in the production of pipes with steels up to X70 strength level. OK Flux 10.71 can also be combined with a number of SAW cored wires in order to increase the productivity and the mechanical properties of the weld metal.

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|------------------------|---|
| Classifications | AWS A5.23 : F8A4-ENi1K-Ni1 AWS A5.17 : F7A2-EM14K AWS A5.17 : F7A4-EM12K AWS A5.17 : F7A4-EM13K AWS A5.17 : F7A5-EH12K AWS A5.17 : F7P4-EM14K AWS A5.17 : F7P5- EH12K |
| Approvals | CWB AWS A5.23 F8A4-ENi1K-Ni1-H8 CWB AWS A5.23 F9A6-ENi4-Ni4-H8 NAKS/HAKC RD 03-613-03 DB 51.039.05 CE EN 13479 CWB CSA W48 F49A4-EM12K-H8 |

Approvals are based on factory location. Please contact ESAB for more information.

| | |
|----------------------------|--|
| Diffusible Hydrogen | max 5 ml H/100g weld metal (Redried flux) |
| Slag Type | Aluminate-basic |
| Alloy Transfer | Slightly Silicon and moderately Manganese alloying |
| Density | nom 1.2 kg/dm ³ |
| Basicity Index | nom 1.5 |
| Grain Size | 0.2-1.6 mm (10x65 mesh) or 0.315 -2.0 mm (9x48 mesh) |

Flux Consumption

| Volts | kg Flux / kg Wire DC+ | kg Flux / kg Wire AC |
|-------|-----------------------|----------------------|
| 26 V | 0.7 kg | 0.6 kg |
| 30 V | 1.0 kg | 0.9 kg |
| 34 V | 1.3 kg | 1.2 kg |
| 38 V | 1.6 kg | 1.4 kg |

| Dimensions | Amps | Travel Speed |
|------------|-------|--------------|
| Ø 4.0 mm | 580 A | 55 cm/min |

Classifications

| Wire | AWS/EN | AWS - As Welded | AWS - PWHT |
|------------------|---|--------------------|--------------------|
| ESAB SA10K | A5.17:EH10K | A5.17: F7A4-EH10K | A5.17: F7P6-EH10K |
| OK Autrod 12.08L | A5.17:EL8/EL12/ 14171-A:S1 | A5.17: F6A2-EL8 | |
| OK Autrod 12.10 | A5.17:EL12/ 14171-A:S1 | A5.17: F6A4-EL12 | A5.17: F6P5-EL12 |
| OK Autrod 12.20 | A5.17:EM12/ 14171-A:S2 | A5.17: F7A4-EM12 | A5.17: F6P4-EM12 |
| OK Autrod 12.22 | A5.17:EM12K/ 14171-A:S2Si | A5.17: F7A5-EM12K | A5.17: F6P5-EM12K |
| OK Autrod 12.22L | A5.17:EM12K/ 14171-B:SU21 | A5.17: F7A4-EM12K | A5.17: F6P5-EM12K |
| OK Autrod 12.24 | A5.23:EA2/ 14171-A:S2Mo; 24598-A:S S Mo | A5.23: F8A2-EA2-A4 | A5.23: F7P0-EA2-A4 |
| OK Autrod 12.24L | A5.23:EA2/ 14171-B:SU2M3 | A5.23: F8A2-EA2-A4 | A5.23: F7P0-EA2-A4 |
| OK Autrod 12.30 | 14171-A:S3 | | |
| OK Autrod 12.32 | A5.17:EH12K/ 14171-A:S3Si | A5.17: F7A5-EH12K | A5.17: F7P5-EH12K |
| OK Autrod 12.33L | A5.23:EA3K | A5.23: F9A0-EA3K-G | A5.23: F8P0-EA3K-G |
| OK Autrod 12.34 | A5.23:EA4/ 14171-A:S3Mo; 24598-A:S S MnMo | A5.23: F8A4-EA4-A3 | A5.23: F8P2-EA4-A3 |
| OK Autrod 12.40L | A5.17:EH14/ 14171-B:SU41 | A5.17: F7A4-EH14 | A5.17: F7P5-EH14 |

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Classifications

| Wire | AWS/EN | AWS - As Welded | AWS - PWHT |
|-----------------|--------------------------------|----------------------|----------------------|
| OK Autrod 13.24 | A5.23:ENi6/ 14171-A:S3Ni1Mo0,2 | A5.23: F8A5-ENi6-Ni6 | A5.23: F8P4-ENi6-Ni6 |
| OK Autrod 13.27 | A5.23:ENi2/ 14171-A:S2Ni2 | A5.23: F8A6-ENi2-Ni2 | A5.23: F7P6-ENi2-Ni2 |
| OK Autrod 13.36 | A5.23:EG/ 14171-A:S2Ni1Cu | A5.23: F8A2-EG-G | |
| OK Autrod 13.62 | A5.23:EG/ 14171-A:SZ3TiB | | |
| OK Autrod 13.64 | A5.23:EA2TiB/ 14171-A:S2MoTiB | A5.23: F8TA6-EA2TiB | |

Approvals

| Combined with Wire | ABS | BV | DNV | GL | LR | DB | CE | PRS | RINA | RS | ClassNK | VdTÜV | IRS | IBR | M N Dastur |
|--------------------|-----|----|-----|----|----|----|----|-----|------|----|---------|-------|-----|-----|------------|
| OK Autrod 12.08L | • | - | - | - | - | - | - | - | - | - | - | - | • | - | - |
| OK Autrod 12.10 | • | • | • | • | • | • | • | • | - | • | - | • | - | - | - |
| OK Autrod 12.20 | • | • | • | • | • | • | • | • | • | • | - | • | - | - | - |
| OK Autrod 12.22 | • | • | • | • | • | • | • | - | - | • | • | • | - | - | - |
| OK Autrod 12.22L | - | - | - | - | • | - | - | - | - | - | - | - | - | - | - |
| OK Autrod 12.24 | • | • | • | • | • | • | • | • | • | • | • | • | - | - | - |
| OK Autrod 12.30 | - | - | - | - | - | • | • | - | - | - | - | • | - | - | - |
| OK Autrod 12.32 | - | - | - | - | - | • | • | - | - | - | - | • | - | - | - |
| OK Autrod 12.40L | - | - | • | - | • | - | - | - | - | - | - | - | • | • | • |
| OK Autrod 13.27 | - | - | - | - | - | - | - | - | - | - | - | • | - | - | - |
| OK Autrod 13.36 | - | - | - | - | - | - | • | - | - | - | - | - | - | - | - |

Typical Mechanical Properties

| Combined with Wire | Condition | Yield Strength | Tensile Strength | Elongation | Charpy V-Notch |
|--------------------|------------------------------------|------------------|------------------|------------|----------------------------------|
| Spoolarc 29S | As Welded () | 505 MPa (73 ksi) | 600 MPa (87 ksi) | 30 % | 41 J @ -40°C (30 ft-lb @ -40°F) |
| Spoolarc 53 | As Welded () | 530 MPa (77 ksi) | 625 MPa (91 ksi) | 28 % | 61 J @ -46°C (45 ft-lb @ -50°F) |
| Spoolarc 71 | As Welded () | 525 MPa (76 ksi) | 600 MPa (87 ksi) | 27 % | 67 J @ -29°C (48 ft-lb @ -20°F) |
| Spoolarc 75 | As Welded () | 540 MPa (78 ksi) | 625 MPa (91 ksi) | 28 % | 58 J @ -40°C (43 ft-lb @ -40°F) |
| Spoolarc 81 | As Welded () | 470 MPa (68 ksi) | 560 MPa (81 ksi) | 30 % | 60 J @ -40°C (44 ft-lb @ -40°F) |
| Spoolarc 71 | Stress Relieved 621C (1150F)1hr () | 510 MPa (74 ksi) | 635 MPa (92 ksi) | 30 % | 51 J @ -40°C (38 ft-lb @ -40°F) |
| Spoolarc 53 | Stress Relieved 621C (1150F)1hr () | 448 MPa (65 ksi) | 545 MPa (79 ksi) | 32 % | 108 J @ -46°C (80 ft-lb @ -50°F) |
| Spoolarc 71 | Stress Relieved 621C (1150F)8hr () | 510 MPa (74 ksi) | 625 MPa (91 ksi) | 30 % | 47 J @ -40°C (35 ft-lb @ -40°F) |

Typical Weld Metal Analysis %

| C | Mn | Si | S | P | Ni |
|---------------------|------|------|-------|-------|------|
| Spoolarc 29S | | | | | |
| 0.06 | 1.80 | 0.80 | 0.007 | 0.014 | - |
| Spoolarc 53 | | | | | |
| 0.07 | 1.80 | 0.50 | 0.010 | 0.022 | - |
| Spoolarc 71 | | | | | |
| 0.06 | 1.70 | 0.60 | 0.009 | 0.018 | - |
| Spoolarc 75 | | | | | |
| 0.07 | 1.70 | 0.70 | 0.012 | 0.016 | 0.90 |
| Spoolarc 81 | | | | | |
| 0.07 | 1.50 | 0.50 | 0.011 | 0.020 | - |