

Ferrod 165A

High recovery rutile electrode

Classification

AWS A5.1-91 : E7024-1
EN 499-94 : E 42 2 RA 73

General description

Rutile coated electrode with brittle slag, for fillet welds and horizontal V- and X-welds
160% recovery, high welding speed
Good X-ray soundness
Even in narrow gaps and rusty materials easy slag release
Class 3 approved

Welding positions



ISO/ASME PA/1G PB/2F PC/2G

Current type

AC / DC electr. + / -

Approvals

| ABS | DNV | GL | LR | TÜV |
|------|-----|----|------|-----|
| 3,3Y | 3 | 3 | 3,3Y | + |

Chemical composition (w%), typical, all weld metal

| C | Mn | Si |
|------|------|-----|
| 0.07 | 0.95 | 0.3 |

Mechanical properties, all weld metal

| | Condition | Yield strength (N/mm ²) | Tensile strength (N/mm ²) | Elongation (%) | Impact ISO-V(J) | | |
|-----------------------|-----------|--|--|-------------------|-----------------|--------|---------|
| | | | | | -10°C | -18°C | -20°C |
| Required: AWS A5.1-91 | | min. 399 | min. 482 | min. 22 | | min.27 | |
| EN 499-94 | | min. 420 | 500-640 | min. 20 | | | min. 47 |
| Typical values | AW | 475 | 520 | 26 | 70 | | 67 |

Packaging, available sizes and identification

| | Diameter (mm) | Length (mm) | Available sizes | | | | | | Identification | | |
|-----------|-------------------------|-------------|-----------------|-----|-----|-----|-----|-----|----------------|-----|-----|
| | | | 3.2 | 4.0 | 4.0 | 4.5 | 5.0 | 5.0 | 5.6 | 6.0 | 6.0 |
| Unit: box | Pieces / unit (nominal) | | 99 | 60 | 65 | 50 | 41 | 40 | 28 | 28 | xx |
| | Net weight/unit (kg) | | 6.1 | 5.6 | 8.1 | 8.2 | 6.0 | 7.7 | 6.0 | 6.0 | xx |

Identification Imprint: 7024-1/Ferrod 165A

Tip colour: dark blue

Ferrod 165A: rev. EN 15

Ferrod 165A

Materials to be welded

| Steel | Code | Type |
|--------------------------------|------------|-----------------------------|
| General structural steel | EN 10025 | S185, S235, S275, S355 |
| Ship plates | ASTM A131 | Grade A, B, D, AH32 to DH36 |
| Cast steel | EN 10213-2 | G P 240R |
| Pipe material | EN 10208-1 | L210, L240, L290, L360 |
| | EN 10208-2 | L240, L290, L360. |
| | API 5LX | X42, X46, X52 |
| Boiler & pressure vessel steel | EN 10028-2 | P235, P265, P295 |
| Fine grained steel | EN 10113-2 | S275, S355, |
| | EN 10113-3 | S275, S355 |

Calculation data

| Sizes Diam. x length (mm) | Current range (A) | Current type | Arc time - per electrode at max. current - (s)* | Energy E(kJ) | Dep.rate H(kg/h) | Weight/ 1000 pcs. (kg) | Electrodes/ kg weldmetal B | kg Electrodes/ kg weldmetal 1/N |
|---------------------------------|-------------------------|-----------------|---|-----------------|---------------------|------------------------------|----------------------------------|---------------------------------------|
| 3.2 x 450 | 125 - 155 | AC | 75 | 326 | 1.9 | 62.9 | 25 | 1.39 |
| 4.0 x 450 | 140 - 235 | AC | 65 | 527 | 3.6 | 96.5 | 15 | 1.39 |
| 4.0 x 600 | 140 - 235 | | | | | | | |
| 4.5 x 600 | 190 - 250 | | | | | | | |
| 5.0 x 450 | 210 - 330 | AC | 68 | 853 | 5.3 | 144.9 | 10 | 1.39 |
| 5.0 x 600 | 210 - 330 | | | | | | | |
| 5.6 x 600 | 200 - 270 | | | | | | | |
| 6.0 x 450 | 280 - 430 | AC | 73 | 1271 | 7.0 | 209.8 | 7 | 1.35 |
| 6.0 x 600 | 280 - 430 | | | | | | | |

*stub end 35 mm

Welding parameters, optimum fill passes

| Welding position Diameters (mm) | PA/1G Current (A) | PB/2F | PC/2G |
|------------------------------------|----------------------|-------|-------|
| 3.2 | 160 | 150 | 150 |
| 4.0 | 220 | 200 | 195 |
| 5.0 | 310 | 290 | |
| 6.0 | 390 | 360 | |

Application advice

High yield strength steels such as S355, L360, P355 and X60 preheat according EN 1011-1