EMR SAHARA®

# Conarc® 51

## Basic electrode

SMAW

### Classification

AWS A5.1-91 : E7016-1 H4R
EN 499-94 : E 42 4 B 12 H5

### General description

**Basic extremely low hydrogen electrode $H_{DM}$ < 3ml/100 g (SRP)**
**Reliable impact toughness at -40°C**
**Good CTOD at -10°C, meets offshore requirements**
**Excellent root pass electrode (diam. 2,5 en 3,2 mm)**
**Also available in vacuum sealed Sahara ReadyPack® (SRP) $H_{DM}$ <3 ml/100g**

### Welding positions

ISO/ASME PA/1G PC/2G PF/3G up PE/4G PF/5G up

### Current type

AC / DC electr. + / -

### Approvals

| ABS | BV | CTL | DB | DNV | FORCE | GL | LR | TÜV |
|---|---|---|---|---|---|---|---|---|
| 3H,3Y | 3,3YHH | + | + | 3YH5 | + | 3YH10 | 3,3YH5 | + |

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

| C | Mn | Si | P | S | $H_{DM}$ |
|---|---|---|---|---|---|
| 0.06 | 1.4 | 0.5 | 0.015 | 0.01 | 2 ml/100 g |

### Mechanical properties, all weld metal

| | Condition | Yield strength ($N/mm^2$) | Tensile strength ($N/mm^2$) | Elongation (%) | Impact ISO-V(J) -20°C | -40°C | -46°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 | 520 | 575 | 28 | 115 | | |

CTOD-values at -10°C: > 0.25mm

### Packaging, available sizes and identification

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Diameter (mm) | 2.5 | 3.2 | 3.2 | 4.0 | 4.0 | 5.0 |
| | Length (mm) | 350 | 350 | 450 | 350 | 450 | 450 |
| Unit: box | Pieces / unit (nominal) | 135 | 150 | 151 | 100 | 96 | 55 |
| | Net weight/unit (kg) | 2.7 | 4.7 | 6 | 4.6 | 6.0 | 5.8 |
| Unit: SRP | Pieces / unit | 70 | 56 | 56 | 30 | 30 | 23 |
| | Net weight/unit (kg) | 1.4 | 1.8 | 2.3 | 1.4 | 1.8 | 2.4 |

**Identification** Imprint: 7016-1/Conarc 51 Tip colour: gold



LINCOLN® ELECTRIC

# Conarc® 51



## 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 EH40 |
| Cast steel | EN 10213-2 | GP240R |
| Pipe material | EN 10208-1 | L210, L240, L290, L360 |
| | EN 10208-2 | L240, L290, L360, L415, L445 |
| | API 5LX | X42, X46, X52, X60 |
| | EN 10216-1/ | P235T1, P235T2, P275T1 |
| | EN 10217-1 | P275T2, P355N |
| Boiler & pressure vessel steel | EN 10028-2 | P235GH, P265GH, P295GH, P355GH |
| Fine grained steel | EN 10113-2 | S275, S275, S355, S420 |
| | EN 10113-3 | S275, S355, S420 |

## Calculation Data

| Sizes Diam. x length | Current range | Current type | Arc time - per electrode at max. current - | Energy - per electrode at max. current - | Dep.rate - per electrode at max. current - | Weight/ 1000 pcs. | Electrodes/ kg weldmetal | kg Electrodes/ kg weldmetal |
|---|---|---|---|---|---|---|---|---|
| (mm) | (A) | | (s)* | E(kJ) | H(kg/h) | (kg) | B | 1/N |
| 2.5 x 350 | 40 - 80 | DC+ | 53 | 123 | 0.8 | 19.6 | 86 | 1.68 |
| 3.2 x 350 | 70 - 120 | DC+ | 62 | 178 | 1.0 | 30.8 | 57 | 1.74 |
| 3.2 x 450 | 70 - 120 | | | | | | | |
| 4.0 x 350 | 100 - 160 | DC+ | 71 | 306 | 1.4 | 48.0 | 37 | 1.78 |
| 4.0 x 450 | 100 - 160 | | | | | | | |
| 5.0 x 450 | 180 - 240 | DC+ | 104 | 702 | 2.6 | 103.0 | 13 | 1.36 |

* stub end 35 mm

## Welding parameters, optimum fill passes

| Welding position Diameter (mm) | PA/1G Current (A) | PC/2G | PF/3G up | PE/4G | PF/5G up |
|---|---|---|---|---|---|
| 2.5 | 75 | 70 | 75 | 70 | 75 |
| 3.2 | 100 | 110 | 100 | 100 | 100 |
| 4.0 | 150 | 140 | 130 | 125 | 125 |
| 5.0 | 220 | 220 | 180 | | |

## Application Advice

Electrodes after removal from cardboard boxes redry 2-4h 350 ± 25°C

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