# FREEZAL E Ni9

OERLIKON

**MMA Electrodes**
**Nickel and Copper alloys**

Basic coated MMA electrode with 140 % recovery for welding steels containing between 5 % and 9 % nickel. To reduce arc blow the special coating also allows welding with AC. Very high resistance to hot cracking and excellent toughness at low temperatures.

| Classification | |
|---|---|
| AWS | A5.11: E NiCrMo6 |
| EN ISO | 14172: E Ni6620 |

| Approvals | Grades |
|---|---|

## Analysis of all-weld metal (Typical values in %)

| C | Mn | Si | P | S | Cr | Ni | Mo | Nb | Fe | W | Cu |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.06 | 3.50 | 0.20 | ≤ 0.020 | ≤ 0.012 | 13.50 | Rem | 6 | 1.30 | 9.60 | - | - |

## All-weld metal Mechanical Properties

| Heat Treatment | Yield Strength N/mm$^2$ | Tensile Strength N/mm$^2$ | Elongation A5 (%) | Impact Energy ISO - V (J) - 196 °C | Hardness |
|---|---|---|---|---|---|
| As Welded | ≥ 430 | ≥ 690 | ≥ 35 | ≥ 75 | - |

## Materials

A 353-70, A 553-70

Steels with 5 - 9 % nickel

## Storage and redrying

Keep dry and avoid condensation.
Re-dry at 340-360 °C for 2 hours, 5 times max.

## Current condition and welding position

**DC+; AC**


## Packaging data

| Diameter (mm) | Length (mm) | Current (A) | Electrode average weight (g) | Weld metal weight per electrode (g) |
|---|---|---|---|---|
| 2,5 | 350 | 60-80 | 28,4 | 17,0 |
| 3,2 | 350 | 70-90 | 49,4 | 29,6 |
| 4,0 | 350 | 120-140 | 71,4 | 42,7 |
| 5,0 | 450 | 150-180 | 144,0 | 86,4 |