



# CROMAROD® DUPLEX

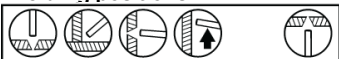
SMAW - (Stick) - MMA  
Stainless Steel

Date: 2024-08-21  
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## Description:

Cromarod Duplex is a rutile flux coated electrode which deposits a 24%Cr / 10%Ni / 3%Mo / 0.15%N austenitic-ferritic duplex stainless steel weld metal having a ferrite content of about FN 35. The electrode is easy to use and produces a smooth weld bead finish and good slag detachability. Cromarod Duplex is designed for welding similar composition duplex stainless steels which offer an excellent combination of high strength and very good resistance to chloride induced pitting and stress corrosion cracking. A heat input range of 0.5-2.5 KJ/mm is recommended to maintain a favourable phase balance. Applications include offshore platform pipework, pipelines transporting chloride bearing products or sour gas and process vessels for chloride environments. Where higher fracture toughness at -46 °C is required, use Cromarod Duplex B.

## Welding positions:



## Coating type:

Rutile

## Welding current:

DC+, AC OCV > 39V

## Ferrite content:

FN 35 (WRC-92)

## Corrosion resistance

Very good resistance to pitting corrosion and stress corrosion cracking in chloride and H<sub>2</sub>S environments. Good resistance to intergranular corrosion. Pitting resistance equivalent, PRE = 36  
Critical pitting temp. CPT = 30 °C (ASTM G48).

## Scaling temperature:

Approx. 850 °C in air.

## Redrying temperature:

350 °C, 2h

## Chemical composition, wt.%

|         | C     | Si  | Mn  | P     | S     | Cr   | Ni   |
|---------|-------|-----|-----|-------|-------|------|------|
| Min     |       | 0,6 | 0,5 |       |       | 21,0 | 8,5  |
| Typical | 0,02  | 0,9 | 0,7 | 0,02  | 0,02  | 23,2 | 9,5  |
| Max     | 0,040 | 1,0 | 2,0 | 0,030 | 0,025 | 23,5 | 10,5 |

|         | Mo  | Cu  | V   | Nb  | N    |
|---------|-----|-----|-----|-----|------|
| Min     | 2,5 |     |     |     | 0,13 |
| Typical | 3,0 |     |     |     | 0,16 |
| Max     | 4,0 | 0,5 | 0,1 | 0,1 | 0,20 |

## Mechanical properties

|                         | Specified       | Typical*      |
|-------------------------|-----------------|---------------|
| Yield strength, Rp0.2%: | ≥ 450 MPa       | 670 MPa       |
| Tensile Strength, Rm:   | ≥ 690 MPa       | 840 MPa       |
| Elongation, A5 ≥        | 20%             | 25%           |
| Impact energy, CV: -    | -46 °C • ≥ 27 J | -46 °C • 30 J |

## Product data:

| Diam.mm | Length mm | Current A | Voltage V | Kg weld metal/<br>kg electrodes | No. of<br>electrodes/<br>kg weld metal | Kg weld metal/<br>hour arc time | Burn-off time/<br>electrode (sec.) |
|---------|-----------|-----------|-----------|---------------------------------|----------------------------------------|---------------------------------|------------------------------------|
| 2,5     | 300       | 60-90     | 24        | 0,62                            | 92                                     | 1,1                             | 33                                 |
| 3,2     | 350       | 80-120    | 25        | 0,64                            | 45                                     | 1,4                             | 50                                 |
| 4,0     | 350       | 130-170   | 26        | 0,64                            | 30                                     | 2,0                             | 54                                 |

## Classification:

AWS A5.4 ~E 2209-17  
ISO 3581-A E 22 9 3 N L R 12

## Approvals:

TÜV  
DNV  
BV  
CE  
CWB

## Note

AWS: Slight difference in Cr.

Core wire:

P ≤ 0.020%

S ≤ 0.010%

0.14% ≤ N ≤ 0.17%

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