Product Data Sheet

E 'Manual metal-arc welding'

OK 310Mo-L

Prepared by	Qualified by	Approved by	Reg no	Cancelling	Reg date	Page
A-C Thorsson	Tero Borg	Tapio Huhtala	EN007124	EN006012	2016-02-25	1 (2)

REASON FOR ISSUE

Ferrite FN and N added under Chemical Composition. Hardness data provided under Other Data.

GENERAL

Basic electrode for joining and cladding of steel containing 25% Cr 22% Ni 2% Mo N type.

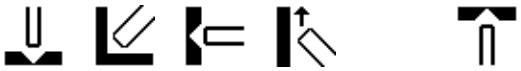
The weld metal has an excellent resistance to very agressive corrosive media, such as in urea plants.

The fully austenitic weld metal is insensitive to hot cracking. OK 310Mo-L is approved for construction and repair of urea plants using the stamicarbon process. The electrode is regularly used for routine repair works on AISI 316L in urea plants to gain superior resistance to corrosive attack.

Polarity: DC+

Alloy Type: 25Cr 22Ni 2Mo N
Coating Type: Rutile Basic
Ferrite Content: FN 0

WELDING POSITIONS



1 2 3 4 6

CLASSIFICATIONS Electrode

EN ISO 3581-A	E 25 22 2 N L R 1 2
SFA/AWS A5.4	(E310Mo-16)

APPROVALS

Snamprogetti	Ureaplants
Stamicarbon	Ureaplants

CHEMICAL COMPOSITION

All Weld Metal (%)

	Min	Max	Nom
C		0.040	
Si		0.5	
Mn	3.5	5.0	
P		0.020	
S		0.010	
Cr	24.0	26.0	
Ni	21.0	23.0	
Mo	2.0	2.4	
Cu		0.3	
N	0.12	0.18	
Ferrite FN			0

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MECHANICAL PROPERTIES OF WELD METAL

	ISO		AWS	
	As welded		As welded	
Properties	**Min**	**Typ**	**Min**	**Max**
Rp0.2 (MPa)	350	442	350	
Rm (MPa)	550	623	550	650
A4 (%)			30	
A5 (%)	27	34		
Charpy V at 20°C (J)		54	40	

Comments:

Welding advice: Use short arc.

Interpass temperature max. 150 °C.

ECONOMICS & CURRENT DATA

Dimension (mm)	Current (A)		W	η	N	B	H	T	U	Welding
Ø x Length	Min	Max								Positions
3.2 x 350	70	100	3.6	100	0.56	50	1.1	62	24	1,2,3,4,6
4.0 x 350	100	140	5.4	100	0.55	33	1.7	62	25	1,2,3,4

W = Weight (kg / 100 electrodes)

η = Efficiency (g weld metal x 100 / g core wire)

N = Effective value (kg weld metal / kg electrodes)

B = Changes (number of electrodes / kg weld metal)

H = Deposit rate at 90% of max current (kg weld metal / hour arc time)

T = Fusion time at 90% of max current (s / electrode)

U = Arc voltage (V)

OTHER DATA

Hardness data:

all weld metal, ISO joint, buttering, transverse cross section, measurements done along a horizontal- and vertical line, 9 indents along each line, two samples tested: 195 - 247 HV10, average 220 HV10

Intergranular corrosion test results:

ASTM A262, practice C;

- typical average corrosion rate of 0.06 -0.09mm/year (5x48hrs exposure)

- typical average corrosion rate of 0.11mm/year (10x48hrs exposure), results were stable, showed no tendency towards increased corrosion rates at the later cycles

ASTM A 262, practice E: Passed without any remarks

Selective attacks has never been observed.

Redrying: 200 °C, 2h