



# Product Data Sheet

E 'Manual metal-arc welding'

OK 61.80

Prepared by A-C Thorsson	Qualified by Tero Borg	Approved by Tapio Huhtala	Reg no EN007235	Cancelling EN007130	Reg date 2016-05-12	Page 1 (2)
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## REASON FOR ISSUE

Approvals revised. DNV amended to DNV-GL.

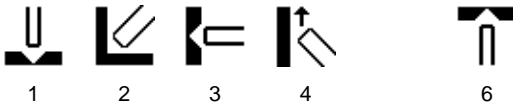
## GENERAL

Nb-stabilized MMA-electrode for welding Nb- or Ti-stabilized stainless steel of the 19Cr10Ni-type. The hotcracking resistance is quite good. The ferrite in the weld metal may transform to brittle phases at elevated temperatures. To avoid excessive embrittlement of the welds the maximum working temperature is limited to 400°C.

**Min AC OCV:** 50  
**Polarity:** DC+, AC

**Alloy Type:** Austenitic CrNi  
**Coating Type:** Acid Rutile  
**Ferrite Content:** FN 6-12

## WELDING POSITIONS



## CLASSIFICATIONS Electrode

EN ISO 3581-A    E 19 9 Nb R 1 2  
SFA/AWS A5.4    E347-17  
Werkstoffnummer    1.4551

## APPROVALS

CE                    EN 13479  
DNV-GL              VL 347  
NAKS/HAKC          3.2-5.0 mm  
VdTÜV                00638

## CHEMICAL COMPOSITION

### All Weld Metal (%)

	Min	Max	Nom
C		0.03	
Si	0.60	1.00	
Mn	0.50	1.20	
P		0.025	
S		0.020	
Cr	19.0	21.0	
Ni	9.0	11.0	
Mo		0.3	
Nb		0.60	
Cu		0.3	
N		0.12	
Nb+Ta		0.60	
Ferrite FN			7

Comments:  
%( Nb+Ta) > 8 x %C



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## MECHANICAL PROPERTIES OF WELD METAL

Properties	ISO		AWS
	Min	Typ	Min
Rp0.2 (MPa)	400	480	400
Rm (MPa)	550	620	550
A4 (%)			33
A5 (%)	30	40	
Z (%)		50	
Charpy V at 20°C (J)	40	60	
Charpy V at -60°C (J)	32	40	

### Comments:

Interpass temperature max. 150 °C.

## ECONOMICS & CURRENT DATA

Dimension (mm) Ø x Length	Current (A)		W	η	N	B	H	T	U	Welding Positions
	Min	Max								
2.5 x 300	50	90	1.9	103	0.56	97	1.0	38	26	1,2,3,4,6
3.2 x 350	70	130	3.6	103	0.56	50	1.4	53	28	1,2,3,4,6
4.0 x 350	90	180	5.5	103	0.56	33	2.0	55	30	1,2,3
5.0 x 350	140	250	8.4	103	0.56	21	2.9	60	31	1,2

- 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:

As welded condition, all weld metal, transverse cross section of ISO joint, measurements done along a horizontal- (5 indents) and vertical line (10 indents), 2 samples tested: 192 - 251 HV10, average 224 HV10

Redrying: 350 °C, 2h.