



# Product Data Sheet

E 'Manual metal-arc welding'

OK 86.28

Signed by A-C Thorsson	Approved by Tapio Huhtala/Christos Skodras	Reg no EN005106	Cancelling EN004343	Reg date 2009-11-27	Page 1 (2)
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## REASON FOR ISSUE

Sepro approval updated.

## GENERAL

Austenitic manganese steel electrode with nickel for surfacing and building up manganese steel components exposed to severe impact and moderate abrasion. The weld metal is less prone to embrittlement and cracking compared to plain austenitic manganese steel weld metal.

Applications include: crusher plates and rolls, cones and mantels of rotary crushers, rail points.

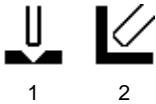
**Min AC OCV:** 70

**Alloy Type:** Austenitic Mn steel

**Polarity:** AC, DC +

**Coating Type:** Zircon Basic

## WELDING POSITIONS



## CLASSIFICATIONS Electrode

EN 14700 E Z Fe9

## APPROVALS

CE EN 13479  
DB 82.039.03  
Seproz UNA 272581

## CHEMICAL COMPOSITION

	All Weld Metal (%)	
	Min	Max
C	0.55	0.95
Si		0.3
Mn	12	16
P		0.03
S		0.02
Ni	2.8	4.2

## MECHANICAL PROPERTIES OF WELD METAL

Properties	All Weld Metal	
	ISO	As welded
		<b>Typ</b>
Rp0.2 (MPa)	440	
Rm (MPa)	690	
A5 (%)	30	
Z (%)	35	
Charpy V at 20°C (J)	100	
Charpy V at -20°C (J)	80	
Charpy V at -80°C (J)	45	
Charpy V at -120°C (J)	25	



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## ECONOMICS & CURRENT DATA

Dimension (mm) Ø x Length	Current (A)		W	η	N	B	H	T	U	Welding Positions
	Min	Max								
3.2 x 450	100	160	7.0	148	0.54	27	1.5	90	30	1,2
4.0 x 450	130	210	10.6	148	0.54	18	2.0	105	30	1,2
5.0 x 450	170	300	16.6	150	0.56	11	2.9	114	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)

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## OTHER DATA

Welding recommendations:

Austenitic manganese steels, in as cast condition or as weld metal, are sensitive to hot shortness and may crack if subjected to excessive heat. Welding should therefore be carried out without preheating the base material and by keeping the temperature between passes as low as possible. Accordingly, interpass temperatures above 200 °C should be avoided. Also, lowest possible current, shortest possible arc length and correct electrode size should be applied. To reduce residual stresses beads should be peened while still hot.

Weld metal hardness, (all weld metal):

As welded.... 160-180 HB (no preheat, interpass temperature 100-150 °C).

Work hardening data:...average 37 HRC (about 25% reduction); average 41 HRC (about 40% reduction).

Machinability: grinding is normally applied. Overheating must be avoided.

Redrying: 350 °C, 2 h.

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