



Product Data Sheet

E 'Manual metal-arc welding'

OK 14MnNi

Former OK 86.28

Prepared by Tapio Huhtala	Qualified by Tero Borg	Approved by Tapio Huhtala	Reg no EN007067	Cancelling EN006246	Reg date 2016-02-16	Page 1 (2)
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REASON FOR ISSUE

General description and Other Data revised.

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. It workhardens under compressive stresses.

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

The interpass temperature should be kept as low as possible.

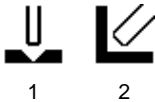
Min AC OCV: 65

Polarity: AC, DC+

Alloy Type: Austenitic Mn steel

Coating Type: Zircon Basic

WELDING POSITIONS



1

2

CLASSIFICATIONS Electrode

EN 14700

E Z Fe9

APPROVALS

CE

DB

82.039.08

CHEMICAL COMPOSITION

All Weld Metal (%)

	Min	Max
C	0.55	0.95
Si		0.3
Mn	12	16
P		0.03
S		0.02
Cr		0.3
Ni	2.8	4.2
Mo		0.1
V		0.1
Ti		0.1

MECHANICAL PROPERTIES OF WELD METAL

Properties	ISO
	As welded Typ
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)

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 (overheating must be avoided)

Impact resistance: Excellent

Redrying: 350 °C, 2 h.
