Product Data Sheet

E 'Manual metal-arc welding'

OK 13Mn

Former OK 86.08

Prepared by	Qualified by	Approved by	Reg no	Cancelling	Reg date	Page
A-C Thorsson	Tero Borg	Tapio Huhtala	EN007066	EN006252	2016-02-16	1 (2)

REASON FOR ISSUE

Text under the sections General and Other Data revised.

GENERAL

OK 13Mn is an austenitic manganese steel electrode which work hardens under impact and compressive stresses. It is primarily used for surfacing and building up manganese steel components exposed to severe impact and moderate abrasion.

Typical applications include crusher plates and rolls, cones and mantles of rotary crushers etc.

The interpass temperature should be kept as low as possible.

Min AC OCV: 65

Polarity: AC, DC+

Alloy Type: Austenitic Mn steel

Coating Type: Lime Basic

WELDING POSITIONS

1 2 3 4 6

CLASSIFICATIONS Electrode

EN 14700 E Fe9

CHEMICAL COMPOSITION

All Weld Metal (%)

	Min	Max
C	0.6	1.2
Si	0.5	1.1
Mn	11.1	14.9
P		0.05
S		0.01
Cr		0.1
Ni		0.1
V		0.1
Nb		0.1

MECHANICAL PROPERTIES OF WELD METAL

	ISO
	As welded
Properties	**Typ**
Rp0.2 (MPa)	480
Rm (MPa)	780
A5 (%)	20
Z (%)	25
Charpy V at 20°C (J)	70
Charpy V at -20°C (J)	45
Charpy V at -40°C (J)	35
Charpy V at -60°C (J)	25

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ECONOMICS & CURRENT DATA

Dimension (mm)	Current (A)		W	η	N	B	H	T	U	Welding
Ø x Length	Min	Max								Positions
3.2 x 450	95	135	4.7	105	0.60	36	1.1	95	23	1,2,3,4,6
4.0 x 450	130	180	7.1	105	0.60	24	1.4	109	23	1,2,3,4
5.0 x 450	170	230	11.0	105	0.60	15	1.8	132	25	1,2,3

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

Recommendations for welding:

Austenitic manganese steels, in as cast condition or as weld metal, are sensitive to hot shortness and may crack if subjected to excessive heat.

Under normal conditions the base material should not be preheated. Interpass temperatures above 200 °C should be avoided. When welding outdoor in very cold weather, the base material should be preheated to 50-100 °C.

Weld metal hardness, (all weld metal):

As welded.....180-200 HB (no preheat, interpass temperature 100-150 °C)

Workhardened...44-48 HRC (about 25 % degree of reduction)

Machinability: Grinding (overheating must be avoided)

Impact resistance: Excellent

Metal to metal wear resistance: Very good

Redrying the electrodes: 200 °C, 2 h.