



Product Data Sheet

E 'Manual metal-arc welding'

OK 14MnNi

Former OK 86.28

Prepared by	Qualified by	Approved by	Reg no	Cancelling	Reg date	Page
Tapio Huhtala	Tero Borg	Tapio Huhtala	EN010035	EN007067	2022-06-14	1 (2)

REASON FOR ISSUE

CE approval removed

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

Alloy Type: Austenitic Mn steel

Polarity: AC, DC+

Coating Type: Zircon Basic

WELDING POSITIONS



CLASSIFICATIONS Electrode

EN 14700 E Z Fe9

APPROVALS

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

Standard	Condition	Rp0.2 [MPa/ksi]		Rm [MPa/ksi]			A5 [%]	
		Min	Typ	Min	Max	Typ	Min	Typ
ISO	As welded		440/64			690/100		30

Comments:

Standard	Condition	Temp [°C/°F]	Charpy V [J/ft-lb]	
			Min	Typ
ISO	As welded	20/68 -20/-4 -80/-112 -120/-184		100/74 80/59 45/33 25/19

Comments:



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ECONOMICS & CURRENT DATA

Dimension	Current (A)		W	η	N	B	H	T	U	Welding Positions
\varnothing x Length	Min	Max	Nom	Nom	Nom	Nom	Nom	Nom	Nom	
3.2 x 450 mm (1/8 x 17.7 in)	100	160	7.0	148	54	27	1.5 kg/h (3.3 lb/h)	90	30	1,2
4.0 x 450 mm (5/32 x 17.7 in)	130	210	10.6	148	54	18	2.0 kg/h (4.4 lb/h)	105	30	1,2
5.0 x 450 mm (0.197 x 17.7 in)	170	300	16.6	150	56	11	2.9 kg/h (6.4 lb/h)	114	31	1,2

- W** = Weight (kg / 100 electrodes)
 η = Filler metal efficiency (g weld metal x 100 / g wire)(%)
N = Deposition efficiency (g weld metal x 100 / g electrode)(%)
B = Changes (number of electrodes / kg weld metal)
H = Deposition 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.