

Wearshield® MM

CLASSIFICATION

DIN 8555 E2-UM-55-G*
EN 14700 E Fe2

* Nearest classification

GENERAL DESCRIPTION

An all position rutile/basic coated electrode that produces a non machinable martensitic deposit (only by grinding)
Designed for rolling, sliding and metal to metal wear resistance
Good restriking and low spatter
The electrode can be used with the drag or contact welding technique as well as out of position

WELDING POSITIONS (ISO/ASME)



PA/1G



PB/2F



PC/2G



PF/3Gu



PE/4G



PH/5Gu

CURRENT TYPE

AC / DC +

CHEMICAL COMPOSITION (W%), TYPICAL, ALL WELD METAL

C	Mn	Si	Cr	Mo	W
0.55	0.5	1.5	4.5	0.5	0.5

STRUCTURE

In the as welded condition the microstructure consists mainly of martensite with carbides.

MECHANICAL PROPERTIES, TYPICAL, ALL WELD METAL

Typical hardness values

1 Layer 45-55 HRc
2 Layers 52-57 HRc

Welded on Mild Steel Plate

PACKAGING AND AVAILABLE SIZES

	Diameter (mm)	3.2	4.0	5.0
	Length (mm)	350	350	450
PE-Tube	Pieces / unit	66	45	22
	Net weight/unit (kg)	2.5	2.5	2.5
Linc Pack	Pieces / unit	26	18	-
	Net weight/unit (kg)	1.0	1.0	-

Identification Imprint: WEARSHIELD MM Tip Color: purple

Wearshield®MM: rev. C-EN24-01/02/16

All information in this data sheet is accurate to the best of our knowledge at the time of printing. Please refer to www.lincolnelectric.eu for any updated information.
[Download Safety datasheets \(SDS\)](#)

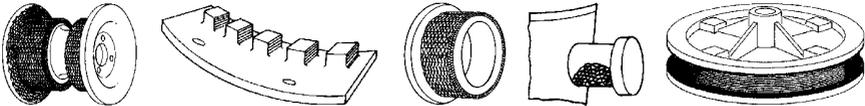
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APPLICATION

Wearshield MM produces a crack-free wear resistant deposit with a hardness of 55-57 Rc depending on dilution and number of layers. It is particularly suitable for applications involving sliding, rolling and metal to metal wear, combined with resistance to mild abrasion.

Typical applications include:

- Crane and mine car wheels
- Sprockets and gear teeth
- Skip guides
- Dredger buckets
- Scraper blades
- Transfer tables
- Cable sheaves



ADDITIONAL INFORMATION

When welding with Wearshield MM the bead width should be limited to 12 - 20mm for all electrode diameters when using a weaving technique. For edge and corner buildup narrow stringer beads are preferred. A preheat between 200-350°C is necessary to prevent cracking with interpass temperatures of up to 400°C in situations of high restraint and/or heavy thicknesses. After welding the component should be covered and slowly cooled.

The deposited weld metal is not machinable by conventional methods although the deposit can be shaped by grinding.

The deposit can be tempered at about 425°C to toughen the weld metal resulting in a hardness of approximately 50 HRC. Annealing at 760°C for several hours and slow cooling will reduce the hardness to approximately 30 HRC. This deposit can be readily machined. Rehardening is achieved by heating to about 950°C for several hours to dissolve all carbides and homogenise the structure, followed by either water or oil quench (thin sections may be air cooled). After quenching the component should be tempered.

Flame hardening is also possible after annealing, although full hardness may not be achieved due to the inability to homogenize the steel in the short heating cycle.

The build up is usually limited to 4 layers.

CALCULATION DATA

Sizes		Current range (A)	Current type	Arc time - per electrode at max. current - (S)*	Energy E(kJ)	Dep. rate H(kg/h)	Weight/ 1000 pcs (kg)	Electrodes/ kg weldmetal B	kg electrodes/ kg weldmetal 1/N
Diam. x length (mm)									
3.2 x 350	90-130	DC+	75	186	1.2	39.0	42	1.62	
4.0 x 350	140-180	DC+	87	343	1.4	55.8	30	1.65	
5.0 x 450	170-220	DC+	112	516	2.3	115.2	14	1.62	

COMPLEMENTARY PRODUCTS

Lincore® 55