

Hardfacing electrode

Classification

DIN 8555 : E10-UM-65-GRZ
EN 14700 : E Fe16

General description

A highly alloyed basic-graphite coated downhand hardfacing electrode that produces a “premium” carbide weld deposit. The electrode facilitates easy arc control whilst maintaining a long arc. Recovery 240%.

Application

Wearshield 70 produces a “premium” carbide weld deposit with a hardness range of 68-70HRC.

The premium carbide microstructure makes Wearshield 70 ideally suitable for APLs of high stress abrasion (crushing of abrasive particles), severe abrasion and abrasion at elevated temperatures (>760°C)

Typical applications include:

Blast furnace bells (burden area)
Hoppers and screens
Sinter plants
Cement mill parts



Mechanical properties, all weld metal

Typical hardness values

1 Layer 68-70 HRC

Welded on Mild Steel Plate

Packaging and available sizes

	Diameter (mm)	3.2	4.0	5.0
	Length (mm)	350	350	350
Unit: Box	Pieces / unit	28	18	12
	Net weight/unit (kg)	2.5	2.5	2.5

Identification

Imprint: WEARSHIELD 70

Tip Color: violet

Wearshield® 70: rev. EN 22

Additional information

When welding with Wearshield 70 stringer beads are preferred, although weld widths up to 50mm by weaving are acceptable. A short welding arc is preferred and the drag technique is not recommended.

In the as welded condition readily check cracks and the spacings between the cracks are small even at slow travel speeds

Preheat is not necessary when surfacing austenitic substrates such as stainless steels and manganese steels, although the interpass temperature should be limited to about 260°C for manganese steels.

The deposited weld metal is not machinable or forgeable.

The deposit thickness is usually limited to 2 layers.

Optimum spalling resistance is achieved using austenitic substrates. For service conditions below 260°C an austenitic manganese substrate is preferred.

For high temperature applications >260°C, an austenitic stainless steel substrate should be used. F.I. RepTec 126.

Wearshield 70 will perform standard primary carbide electrodes (such as Wearshield 60) under either low stress or high temperature abrasion conditions.

Welding positions



ISO/ASME PA/1G PB/2F

Current type

AC / DC +

Chemical composition (w%), typical, all weld metal

C	Cr	Nb	Mo	W	Si
4.2	18	9	8.5	7	2.7

Structure

The microstructure consists mainly of primary chromium carbides with premium carbides of molybdenum, niobium, tungsten and vanadium in an austenite - carbide eutectic matrix

Calculation data

Sizes Diam. x length (mm)	Current range (A)	Current type	Arc time - per electrode at (s)*	Energy at max. current - E(kJ)	Dep.rate - H(kg/h)	Weight/ 1000 pcs. (kg)	Electrodes/ kg weldmetal B	kg Electrodes/ kg weldmetal 1/N
3.2 x 350	120 - 160	AC	156	699	1.28	67	18	1.21
4.0 x 350	180 - 220	AC	172	1011	1.50	100	14	1.40
5.0 x 350	230 - 300	AC	194	1630	2.06	155	9	1.39

Complementary products

Complementary products include flux cored wire Lincore® 65-O.