# Wearshield® 70

## Hardfacing electrode

SMAW

### Classification

DIN 8555-83 : E10-UM-65-GRZ

### General Description

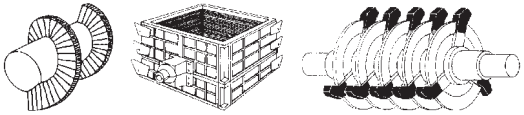
**A highly alloyed basic-graphite coated downhand hardfacing electrode that produces a "premium" carbide weld deposit. The electrode facilitates easy arc control whilst maintaining a long arc. Recovery 240%.**

### 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 applications 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, available sizes and identification

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

**Identification** Imprint: Wearshield 70 Tip colour: violet



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## 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 260°C for manganese steels.

The deposited weld metal is not machinable or forgeable.

The deposit thickness is 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 electr. +

## 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 | Current range | Current type | Arc time - per electrode at max. current' | Energy | Dep.rate | Weight/ 1000 pcs. | Elektrodes/ kg weldmetal | kg Elektrodes/ kg weldmetal |
|---|---|---|---|---|---|---|---|---|
| (mm) | (A) | | (s)* | E(kJ) | H(kg/h) | (kg) | B | 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 |

* stub end = 35 mm

## Complementary products

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

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