

Hardfacing electrode

Classification

DIN 8555-83

:E2-UM- 55-G*

* Nearest classification

General Description

An all position rutile/basic coated electrode that produces a high carbon heat treatable martensitic deposit

Designed for operator appeal and weld quality

Excellent arc characteristics, good restriking and low spatter

The electrode can be used with drag or contact welding technique as well as out of position

Application

Elehard® 55-G produces a crack-free wear resistant deposit with a hardness of 55-57 HRC 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

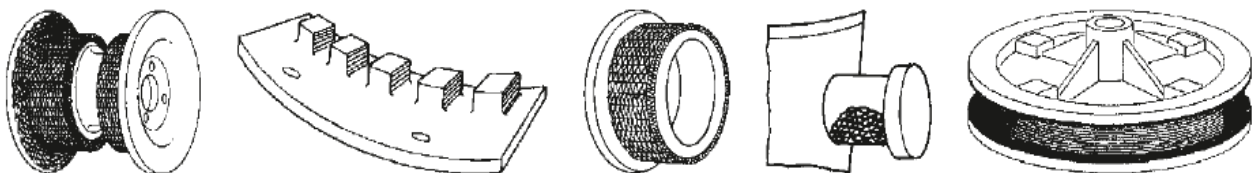
Skip guides

Dredger buckets

Scraper blades

Transfer tables

Cable sheaves



Mechanical properties, all weld metal

Typical hardness values

1 Layer	45-55 HRC
2 Layer	52-57 HRC

Welded on Mild Steel Plate

Packaging, available sizes and identification

	Diameter (mm)	3.2	4.0	5.0	6.0
	Length (mm)	350	350	450	450
Unit:	Pieces / unit (nominal)	66	45	22	-
Box	Net weight (kg)	2.5	2.5	2.5	2.5

Identification

Imprint: Elehard® 55-G:

Tip colour: violet

Elehard® 55-G: rev. EN 20

Additional information

When welding with Elehard® 55-G 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 should be limited to 4 layers.

Welding positions



ISO/ASME PA/1G PB/2F PC/2G PF/3G up PE/4G PF/5G up

Current type

AC/DC electr. +

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.

Calculation data

Sizes Diam.x length (mm)	Range of current (A)	Type of current	Arc time - per electrode at max. current - (s)*	Energy		Dep. rate H (kg/h)	Weight/ 1000 pcs. (kg)	Electrodes/ kg weldmetal (pcs)	kg Electrodes/ kg weldmetal (1/N)
				E (kJ)					
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
6.0 x 450	230-270	DC+							

*stub end = 35 mm

Complementary products

Flux cored wire Hard-Revishield® 55-GP