

|                                |            |                  |
|--------------------------------|------------|------------------|
| <b>International Standards</b> | DIN 8573   | E NiFe-1 – BG 11 |
|                                | AWS A 5.15 | E NiFe-CI        |

**Approvals** DVS Guideline 1502, T1

**Typical applications and characteristics** Basic-graphite special coated electrode with a bimetallic ferro-nickel core wire which allows very fast fusion on direct current as well as on alternate current without any risk of overheating. Suitable for joining all types of grey cast iron and also for joining cast iron with steel, but especially for nodular cast iron.

The colour of the deposit is very similar to the base material, and corrosion will be identical to the base material later on.

This electrode excels by very high crack-resistance and high tensile-strength of the weld metal. Even in refined zones the seam is still machinable.

**Operating temperature** same as base material

**Welding instructions** Thoroughly clean the surface of the work-piece make sure it is exempt from grease (previous grinding). When welding cast iron, heat input should as low as possible (low amperage). The bead must not be wider than twice the core wire diameter and not be longer than ten times the core wire diameter. To limit internal stress of the base metal, hammering of the beads is recommended after each pass.

In some cases preheating to 300°C and slow cooling is recommended.

“CARBO NiFe 31” should be welded on DC + when quiet weld metal flow and good penetration are essential.

Welding on alternate current offers highest crack-resistance. The constant change of polarity favours a flat, smooth seam which is important for difficultly weldable castings.

Special hint:  
The bimetallic core gives very good resistance to overheating and high melt-off efficiency. The electrode can thus melt-off on its total length.

|   |   |  |                                       |                       |
|---|---|--|---------------------------------------|-----------------------|
| <b>Mechanical properties of all-weld metal</b><br>( typical values) | <b>Tensile strength</b><br>R <sub>m</sub> N/mm <sup>2</sup> | <b>Yield strength</b><br>R <sub>p0,2</sub> N/mm <sup>2</sup> | <b>Elongation</b><br>A <sub>5</sub> % | <b>Hardness</b><br>HB |
|   | 500   | 350  | 10                                    | approx. 190           |

|  |          |           |           |           |           |
|--|----------|-----------|-----------|-----------|-----------|
| <b>Weld metal analysis</b><br>(typical, wt. %) | <b>C</b> | <b>Si</b> | <b>Mn</b> | <b>Ni</b> | <b>Fe</b> |
|  | 1,1      | 1,2       | 0,75      | 54        | 42        |

**Current** = + / - , ~ / 50 V

**Welding positions** PA, PB, PC, PD, PE, PF, PG

**Rebaking** 1 h, 120 °C +/- 10 °C ( if required )

| Dia./Length | Amperage (A) | Pcs./packet | Pcs./carton | kg / 1000 | kg / packet | kg / carton |
|-------------|--------------|-------------|-------------|-----------|-------------|-------------|
| 2,5 x 300   | 60 - 80      | 314         | 1258        | 15,9      | 5,0         | 20,0        |
| 3,2 x 350   | 70 - 100     | 160         | 639         | 31,3      | 5,0         | 20,0        |
| 4,0 x 350   | 95 - 130     | 105         | 422         | 47,4      | 5,0         | 20,0        |
| 5,0 x 450   | 140 - 160    | 63          | 252         | 95,2      | 6,0         | 24,0        |