

# RepTec Cast 31

SMAW

## CLASSIFICATION

AWS A5.15 ENiFe-CI  
ISO 1071 E C NiFe-CI 1

## GENERAL DESCRIPTION

Electrode for repair welding of cast iron, malleable cast iron and cast iron to steel  
The nickel-iron weld deposit is easily machineable  
Particularly applicable for nodular cast iron  
Hardness weld deposit ~ 180 HB  
Excellent current carrying capacity due to bi-metal core wire  
Welding on AC and DC- polarity  
Best choice welding DC -

## WELDING POSITIONS (ISO/ASME)



PA/1G



PB/2F



PC/2G



PF/3Gu



PG/3Gd



PE/4G



PH/5Gu



PJ/5Gd

## CURRENT TYPE

AC / DC -

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

| C   | Fe | Ni   |
|-----|----|------|
| 0.7 | 45 | bal. |

## MECHANICAL PROPERTIES, TYPICAL, ALL WELD METAL

| Condition          | 0.2% Proof strength (N/mm <sup>2</sup> ) | Tensile strength (N/mm <sup>2</sup> ) | Elongation (%) | Hardness HB10 |
|--------------------|--|---------------------------------------|----------------|---------------|
| Required: AWS A5.5 | 296-434                                  | 400-579                               | 6-18           | 165-218       |
| ISO 1071           | 250                                      | 350                                   | 6              |               |
| Typical values AW  | 300                                      | 460                                   | 10             | 180           |

## PACKAGING AND AVAILABLE SIZES

|           | Diameter (mm)        | 2.5 | 3.2 | 4.0 |
|-----------|----------------------|-----|-----|-----|
|           | Length (mm)          | 300 | 350 | 400 |
| PE-Tube   | Pieces / unit        | 154 | 82  | 47  |
|           | Net weight/unit (kg) | 2.5 | 2.5 | 2.5 |
| Linc Pack | Pieces / unit        | 62  | 33  | -   |
|           | Net weight/unit (kg) | 1.0 | 1.0 | -   |

Identification Imprint: REPTEC CAST 31 Tip Color: black

RepTec Cast 31: 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](http://www.lincolnelectric.eu) for any updated information.  
Fumes: Safety Data Sheets (SDS) are available on our website.

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## EXAMPLES OF MATERIALS TO BE WELDED

| Steel grades                  | DIN1691 | DIN 1692    | DIN 1693 |
|-------------------------------|---------|-------------|----------|
| <b>For welding and repair</b> |         |             |          |
|                               | GG-10   | GTS-35-10   | GGG-40   |
|                               | GG-15   | GTS-45-06   | GGG-50   |
|                               | GG-20   | GTS-55-4    | GGG-60   |
|                               | GG-25   | GTW-35-04   |          |
|                               | GG-30   | GTW-40-05   |          |
|                               | GG-35   | GTW-45-07   |          |
|                               |         | GTW-S-38-12 |          |

## CALCULATION DATA

| Sizes<br>Diam. x length<br>(mm) | Current range<br>(A) | Current<br>type | Arc time<br>- per electrode at max. current -<br>(S)* | Energy<br>E(kJ) | Dep. rate<br>H(kg/h) | Weight/<br>1000 pcs<br>(kg) | Electrodes/<br>kg weldmetal<br>B | kg electrodes/<br>kg weldmetal<br>1/N |
|---------------------------------|----------------------|-----------------|---|-----------------|----------------------|-----------------------------|----------------------------------|---------------------------------------|
| 2.5 x 300                       | 70-100               | DC-             | 124   | 211             | 0.32                 | 19.1                        | 91                               | 1.72                                  |
| 3.2 x 350                       | 90-150               | DC-             | 123   | 328             | 0.62                 | 29.4                        | 47                               | 1.37                                  |
| 4.0 x 400                       | 100-180              | DC              | 168   | 714             | 0.74                 | 55.7                        | 30                               | 1.45                                  |

\*Stub end 35mm

## WELDING PARAMETERS, OPTIMUM FILL PASSES

| Diameter<br>(mm) | Welding positions |       |       |         |       |
|------------------|-------------------|-------|-------|---------|-------|
|                  | PA/1G             | PB/2F | PC/2G | PF/3Gup | PE/4G |
| 2.5              | 80A               | 80A   | 80A   | 80A     | 80A   |
| 3.2              | 110A              | 110A  | 110A  | 110A    | 110A  |
| 4.0              | 150A              | 160A  | 160A  | 150A    | 150A  |

## REMARKS / APPLICATION ADVICE

Residual stresses are decreased by peening after each layer  
 Cold welding, interpass temperature (Ti<100°C)  
 Heavy parts preheat (to max. 300°C)

## COMPLEMENTARY PRODUCTS

LNM NiFe