

# Innershield® NR®-208-H

AWS E91T8-G-H8 • Low Alloy, All Position

## Conformances

AWS A5.29/A5.29M: 2005 E91T8-G-H8  
 ASME SFA-A5.29: E91T8-G-H8

## Welding Positions

All, except vertical up

## Key Features

- ▶ Designed to create high strength weld deposits
- ▶ Recommended for API grade X80
- ▶ High deposition rates

## Typical Applications

- ▶ Standard cross-country pipelines
- ▶ Undermatched X80 grade pipe

## DIAMETERS / PACKAGING

| Diameter<br>in (mm) | 14 lb (6.4 kg) Coil<br>56 lb (25.4 kg) Hermetically Sealed Pail |
|---------------------|---|
| 5/64 (2.0)          | ED023366  |

## MECHANICAL PROPERTIES<sup>(1)</sup> – As Required per AWS A5.29/A5.29M: 2005

|  | Yield Strength <sup>(2)</sup><br>MPa (ksi) | Tensile Strength<br>MPa (ksi) | Elongation<br>% | Hardness<br>Rockwell B | Charpy V-Notch<br>J (ft•lbf)<br>@ -29°C (-20°F) |
|--|--|-------------------------------|-----------------|------------------------|---|
| Requirements - AWS E91T8-G-H8              | 540 (78) min.                              | 620-760 (90-110)              | 17 min.         | –                      | Not Specified                                   |
| Typical Results <sup>(3)</sup> - As-Welded | 555-600 (81-87)                            | 630-670 (91-97)               | 24-27           | 91-95                  | 54-129 (40-95)                                  |

## DEPOSIT COMPOSITION<sup>(1)</sup> – As Required per AWS A5.29/A5.29M: 2005

|                                | %C                 | %Mn                | %Si               | %S                 | %P  | %Ni <sup>(4)</sup> |
|--------------------------------|--------------------|--------------------|-------------------|--------------------|---|--------------------|
| Requirements - AWS E91T8-G-H8  | Not Specified      | 0.50 min.          | 1.00 max.         | 0.030 max.         | 0.030 max.                                  | 0.50 min.          |
| Typical Results <sup>(3)</sup> | 0.04-0.07          | 1.48-2.02          | 0.11-0.31         | ≤0.003             | 0.004-0.010                                 | 0.71-0.98          |
|                                | %Cr <sup>(4)</sup> | %Mo <sup>(4)</sup> | %V <sup>(4)</sup> | %Al <sup>(4)</sup> | Diffusible Hydrogen<br>(mL/100g weld metal) |                    |
| Requirements - AWS E91T8-G-H8  | 0.30 min.          | 0.20 max.          | 0.10 min.         | 1.8 min.           | 8.0 max.                                    |                    |
| Typical Results <sup>(3)</sup> | 0.02-0.03          | ≤0.04              | ≤0.01             | 0.9-1.2            | ≤8  |                    |

## TYPICAL OPERATING PROCEDURES

| Diameter,<br>Polarity    | CTWD<br>mm (in) | Wire Feed Speed<br>m/min (in/min) | Voltage<br>(volts) | Approx. Current<br>(amps) | Melt-Off Rate<br>kg/hr (lb/hr) | Deposition Rate<br>kg/hr (lb/hr) | Efficiency<br>(%) |
|--------------------------|-----------------|-----------------------------------|--------------------|---------------------------|--------------------------------|----------------------------------|-------------------|
| 5/64 in (2.0 mm),<br>DC- | 25 (1)          | 1.7 (70)                          | 16-17              | 195                       | 1.8 (4.0)                      | 1.4 (3.2)                        | 81                |
|                          |                 | 2.0 (80)                          | 17-18              | 220                       | 2.1 (4.6)                      | 1.7 (3.9)                        | 84                |
|                          |                 | 2.2 (90)                          | 18-19              | 235                       | 2.5 (5.4)                      | 2.0 (4.5)                        | 84                |
|                          |                 | 2.7 (110)                         | 19-20              | 270                       | 2.9 (6.5)                      | 2.4 (5.5)                        | 85                |
|                          |                 | 3.3 (130)                         | 19-20              | 295                       | 3.5 (7.6)                      | 2.9 (6.5)                        | 85                |

<sup>(1)</sup>Typical all weld metal. <sup>(2)</sup>Measured with 0.2% offset. <sup>(3)</sup>See test results disclaimer below. <sup>(4)</sup>In order to meet the alloy requirements of the G group, the weld deposit needs to have the minimum, as specified in the table, of only one of the elements marked.

Material Safety Data Sheets (MSDS) and Certificates of Conformance are available on our website at [www.lincolnelectric.com](http://www.lincolnelectric.com)

### TEST RESULTS

Test results for mechanical properties, deposit or electrode composition and diffusible hydrogen levels were obtained from a weld produced and tested according to prescribed standards, and should not be assumed to be the expected results in a particular application or weldment. Actual results will vary depending on many factors, including, but not limited to, weld procedure, plate chemistry and temperature, weldment design and fabrication methods. Users are cautioned to confirm by qualification testing, or other appropriate means, the suitability of any welding consumable and procedure before use in the intended application.

### CUSTOMER ASSISTANCE POLICY

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