

Innershield® NR®-311

Self-shielded cored wire

Classification

AWS A5.20-95 : E70T-7

General description

Self shielded: easiest equipment arrangement
Good penetration, as in column butt welds and narrow gap welds
Fast travel speed
High deposition rates

Welding positions



ISO/ASME PA/1G PB/2F PC/2G PG/3G down

Current type

DC -

Approvals

Chemical composition (w%), typical, all weld metal

| C | Mn | Si | P | S | Al |
|------|------|------|-------|-------|-----|
| 0.27 | 0.40 | 0.08 | 0.007 | 0.005 | 1.5 |

Mechanical properties, all weld metal

| | Condition | Yield strength (N/mm ²) | Tensile strength (N/mm ²) | Elongation % | Impact ISO-V(J) |
|----------------|--------------|--|--|-----------------|-----------------|
| Required: | AWS A5.20-95 | min. 400 | 480 | 22 | not required |
| Typical values | AW | 430 | 590 | 24 | |

Packaging and available sizes

| Unit type | Net weight/unit (kg) | Diameter (mm) | |
|-----------|-------------------------|---------------|-----|
| | | 2.0 | 2.4 |
| Coils 14C | 6.35 | X | |
| Coils 50C | 22.68 | | X |

Innershield® NR®-311: rev. EN 15

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Suggestions for use

Horizontal butt welds such as column structural connections

Fillet and lap welds in the flat horizontal and downhill positions

Deep groove welds. The penetration and extremely easy slag removal permit using a narrow gap and small bevel angle to minimize the total amount of weld metal needed to fill the joint.

Materials to be welded

| Steel | Code | Type |
|--------------------------------|---------------------------|---|
| General structural steel | EN 10025 | S185, S235, S275, S355 |
| Ship plates | ASTM A131 | Grade A, B, D, AH32 to DH36 |
| Cast steel | EN 10213-2 | GP240R |
| Pipe material | EN 10208-1 | L210, L240, L290, L360 |
| | EN 10208-2 | L240, L290, L360, L415 |
| | API 5LX | X42, X46, X52, X60 |
| | EN 10216-1/ EN 10217-1 | P235T1, P235T2, P275T1 P275T2, P355N |
| Boiler & pressure vessel steel | EN 10028-2 | P235GH, P265GH, P295GH, P355GH |
| Fine grained steel | EN 10113-2 | S275, S355, S420 |

Calculation data at normal setting

| Diameter (mm) | Electrical Stick-out (mm) | Wire feed speed | | Current (approx. A) | Arc Voltage (V) | Deposition Rate (kg/h) | kg Wire/ kg Weldmetal |
|------------------|------------------------------|-----------------|--------|------------------------|--------------------|---------------------------|--------------------------|
| | | inch/min | cm/min | | | | |
| 2.0 | 32 | 100 | 255 | 190 | 21 | 2.2 | 1.28 |
| | | 160 | 405 | 275 | 25 | 3.6 | 1.28 |
| | | 300 | 760 | 4100 | 28 | 7.1 | 1.28 |

Welding parameters, optimum fill passes

| Diameter (mm) | Wire feed speed/ Current/ Voltage | Welding position | | | |
|------------------|---|------------------|-------|-------|------------|
| | | PA/1G | PB/2F | PC/2G | PG/3G down |
| 2.0 | (cm/min.) | 610 | 510 | 410 | 380 |
| | (A) | 355 | 320 | 280 | 260 |
| | (V) | 26 | 26 | 25 | 25 |

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