

Innershield® NR-311



Innershield® NR-311 is designed for the welding with high deposition rates and fast travel speed. It is recommended for fillet, lap, and butt welds on 3.2 mm (1/8 in.) and thicker steel, including some low alloy steels in applications without impact strength requirements. It's also a good choice for crack resistant welding on high sulphur steels.

CONFORMANCE

AWS A5.20/A5.20M: 2005 E70T-7

ASME SFA-5.20: E70T-7

TYPICAL APPLICATIONS

- Horizontal butt welds, such as column-to-column structural connections not subject to seismic requirements.
- General fabrication and assembly welding.

WELDING POSITIONS



1G



2F

KEY FEATURES

- High deposition rates and fast travel speeds.
- Optimal toe wash-in – Great stackability.
- Deep penetration – For thick base material applications.
- High resistance to cracking – For welding high sulfur steels.

Innershield® NR-311**DIAMETERS / PACKAGING**

Diameter (mm)	Package Type (kg)	Pallet Weight (kg)
2.0	15kg Spool	1,080
2.0	24kg Carton (4 × 6kg Coil)	864
2.4	25kg Coill	900

MECHANICAL PROPERTIES⁽¹⁾ - As required per AWS A5.20M

	Yield Strength (Mpa)	Tensile Strength (Mpa)	Elongation (%)
AWS Requirements E70T-7	390Min.	490-670	22Min.
Typical Values	400-430	550-600	25.5-30.5

⁽¹⁾ The strength and elongation properties reported were obtained from a .505" tensile specimen artificially aged at 220°F (104°C) for 48 hours, as permitted by AWS A5.20-95. A naturally aged tensile specimen may take months to achieve the specified properties. See AWS A5.20-95, paragraph A8.3. The time required for the natural aging of weld deposits is dependent upon ambient conditions weldment geometry, the metallurgical structure of the weld deposit and other factors.

CHEMICAL COMPOSITION - As Required Per AWS A5.20/A5.20M

	C	Mn	Si	S	P	Al
AWS Requirements E70T-7 Max.	0.30	1.75	0.60	0.03	0.03	1.8
Typical Values	0.26-0.29	0.30-0.38	0.10-0.14	0.005-0.006	0.012-0.013	1.31-1.64

TYPICAL OPERATING PROCEDURES

Diameter Polarity CTWD	Wire Feed Speed m/min (in/min)	Voltage (Volts)	Approx.Current (Amps)	Melt-Off Rate Kg/hr (lb/hr)	Deposition Rate Kg/hr (lb/hr)	Efficiency (%)
2.0mm DC-38mm	2.5 (100)	20-23	190	2.9 (6.4)	2.3 (5.0)	78
	4.1 (160)	24-28	275	4.7 (10.3)	3.6 (8.0)	78
	6.1 (240)	25-29	355	7.0 (15.4)	5.6 (12.4)	80
	7.6 (300)	27-31	410	8.8 (19.3)	7.2 (15.8)	82
	1.9 (75)	20-23	200	3.2 (7.0)	2.5 (5.4)	77
2.4mm DC-45mm	3.4 (135)	23-26	300	5.9 (13.1)	4.6 (10.2)	78
	3.8 (150)	24-27	325	6.6 (14.6)	5.2 (11.4)	78
	5.3 (210)	26-28	400	9.3 (20.4)	7.5 (16.5)	81
	6.9 (270)	28-30	450	11.9 (26.2)	10.0 (22.0)	84

Customer Assistance Policy

The business of The Lincoln Electric Company is manufacturing and selling high quality welding equipment, consumables, and cutting equipment. Our challenge is to meet the needs of our customers and to exceed their expectations. On occasion, purchasers may ask Lincoln Electric for advice or information about their use of our products. We respond to our customers based on the best information in our possession at that time. Lincoln Electric is not in a position to warrant or guarantee such advice, and assumes no liability, with respect to such information or advice. We expressly disclaim any warranty of any kind, including any warranty of fitness for any customers particular purpose, with respect to such information or advice. As a matter of practical consideration, we also cannot assume any responsibility for updating or correcting any such information or advice once it has not been given, nor does the provision of information or advice create, expand or alter any warranty with respect to the sale of our products.

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Subject to change - This information is accurate to the best of our knowledge at the time of printing. Please refer to www.lincolnelectric.com.cn for any updated information.

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