

Innershield® NR®-211-MP

Mild Steel, All Position • AWS E71T-11

Key Features

- ▶ Versatile welding capability on a variety of base materials
- ▶ High operator appeal and good bead appearance
- ▶ Easy slag removal
- ▶ Fast freezing characteristics accommodate poor fit-up

Typical Applications

- ▶ Plate thicknesses in the range of 7.9 mm (5/16 in) to 12.7 mm (1/2 in)
- ▶ Applications with copper back-up
- ▶ Sheet or thin gauge metal
- ▶ Propane cylinders
- ▶ Robotics/hard automation
- ▶ Welding on galvanized or zinc coated carbon steel

Conformances

AWS A5.20/A5.20M: 2005	E71T-11
ASME SFA-A5.20:	E71T-11
ABS:	E71T-11*
CWB/CSA W48-06:	E491T-11-H16
DB:	EN 758 T42 Z S N 1
TUV:	EN 758 T42 Z S N 1

*Except 0.030 in (0.8 mm) and 0.035 in (0.9 mm) diameters

Welding Positions

All, except 3/32 in (2.4 mm) diameter

Maximum Plate Thickness

Diameter - in (mm)	Maximum Plate Thickness - in (mm)
0.030 (0.8)	5/16 (7.9)
0.035 (0.9)	5/16 (7.9)
0.045 (1.1)	5/16 (7.9)
0.068 (1.7)	1/2 (12.7)
5/64 (2.0)	1/2 (12.7)
3/32 (2.4)	1/2 (12.7)

DIAMETERS / PACKAGING

Diameter in (mm)	1 lb (0.5 kg) Plastic Spool 5 lb (2.3 kg) Master Carton	1 lb (0.5 kg) Plastic Spool 10 lb (4.5 kg) Master Carton	10 lb (4.5 kg) Plastic Spool
0.030 (0.8)	ED031448	ED027641	ED033130
0.035 (0.9)			ED016354
0.045 (1.1)			ED016363
0.068 (1.7)			
5/64 (2.0)			
3/32 (2.4)			
Diameter in (mm)	14 lb (6.4 kg) Coil 56 lb (25.4 kg) Master Carton	25 lb (11.3 kg) Steel Spool	50 lb (22.7 kg) Coil
0.030 (0.8)	ED012506 ED012508	ED030637 ED030638 ED030641 ED030645	ED012507
0.035 (0.9)			ED012509
0.045 (1.1)			ED013869
0.068 (1.7)			
5/64 (2.0)			
3/32 (2.4)			

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(AWS E71T-11)

MECHANICAL PROPERTIES⁽¹⁾ – As Required per AWS A5.20/A5.20M: 2005

	Yield Strength ⁽²⁾ MPa (ksi)	Tensile Strength MPa (ksi)	Elongation %	Hardness Rockwell B
Requirements - AWS E71T-11	400 (58) min.	480-655 (70-95)	20 min.	–
Typical Results ⁽³⁾	435-475 (63-69)	605-645 (88-94)	22-25	89-92

DEPOSIT COMPOSITION⁽¹⁾ – As Required per AWS A5.20/A5.20M: 2005

	%C	%Mn	%Si	%S	%P	%Al
Requirements - AWS E71T-11	0.30 max.	1.75 max.	0.60 max.	0.03 max.	0.03 max.	1.8 max.
Typical Results ⁽³⁾	0.23-0.26	0.57-0.66	0.17-0.26	≤0.01	≤0.01	1.3-1.6

TYPICAL OPERATING PROCEDURES

Diameter, Polarity	CTWD mm (in)	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 (%)
0.030 in (0.8 mm), DC-	13 (1/2)	1.3 (50)	13-14	30	0.2 (0.5)	0.2 (0.4)	81
		2.5 (100)	13-14	60	0.5 (1.1)	0.4 (0.8)	75
		3.8 (150)	14-15	80	0.7 (1.6)	0.6 (1.2)	78
		5.1 (200)	14-15	100	1.0 (2.1)	0.8 (1.7)	81
		6.4 (250)	15-16	130	1.2 (2.6)	1.0 (2.1)	80
		7.6 (300)	18-19	140	1.4 (3.2)	1.2 (2.6)	81
0.035 in (0.9 mm), DC-	13-16 (1/2-5/8)	1.3 (50)	14-15	30	0.4 (0.8)	0.3 (0.7)	81
		1.8 (70)	15-16	60	0.5 (1.2)	0.5 (1.0)	83
		2.8 (110)	16-17	115	0.7 (1.6)	0.6 (1.3)	78
		3.8 (150)	17-18	130	1.0 (2.2)	0.8 (1.7)	78
		5.1 (200)	18-19	155	1.4 (3.0)	1.1 (2.5)	84
		7.0 (275)	20-21	155	2.0 (4.4)	1.5 (3.4)	78
0.045 in (1.1 mm), DC-	16 (5/8)	1.8 (70)	15-16	120	0.7 (1.6)	0.5 (1.1)	69
		2.3 (90)	16-17	140	1.0 (2.2)	0.8 (1.7)	77
		2.8 (110)	17-18	160	1.2 (2.7)	1.0 (2.3)	85
		3.3 (130)	18-19	170	1.5 (3.2)	1.2 (2.7)	84
0.068 in (1.7 mm), DC-	19-32 (3/4-1 1/4)	1.0 (40)	15-16	125	1.0 (2.1)	0.8 (1.7)	81
		1.9 (75)	18-19	190	1.8 (4.0)	1.5 (3.4)	85
		3.3 (130)	20-21	270	3.2 (7.0)	2.8 (6.1)	88
		4.4 (175)	23-24	300	4.3 (9.4)	3.8 (8.4)	89
5/64 in (2.0 mm), DC-	19-32 (3/4-1 1/4)	1.3 (50)	16-17	180	1.6 (3.5)	1.3 (2.9)	83
		1.9 (75)	18-19	235	2.4 (5.3)	2.0 (4.5)	85
		3.0 (120)	20-21	290	3.8 (8.4)	3.4 (7.4)	88
		4.1 (160)	22-23	325	5.1 (11.2)	4.5 (10.0)	89
3/32 in (2.4 mm), DC-	19-32 (3/4-1 1/4)	1.3 (50)	16-17	245	2.3 (5.0)	1.9 (4.2)	84
		1.9 (75)	19-20	305	3.4 (7.5)	2.9 (6.4)	85
		2.5 (100)	20-21	365	4.5 (10.0)	3.9 (8.7)	87
		3.3 (130)	22-23	400	5.9 (12.9)	5.1 (11.3)	88

⁽¹⁾Typical all weld metal. ⁽²⁾Measured with 0.2% offset. ⁽³⁾See test results disclaimer below.

Material Safety Data Sheets (MSDS) and Certificates of Conformance are available on our website at 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.

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