Innershield® NR®-212

Low Alloy, All Position • AWS E71TG-G

Key Features

- Accommodates a wide range of mild steels
- Fast freeze characteristics accommodate poor fit-up
- Smooth arc performance
- Ease of use

Typical Applications

- Single or multiple pass welding on up to 19 mm (3/4 in) thicknesses
- General fabrication
- Robotics
- Truck bodies, tanks, hoppers, racks and scaffolding
- Welding on galvanized steel or zinc coated carbon steel

Conformances

AWS A5.29/A5.29M: 2005	E71TG-G
ASME SFA-A5.29:	E71TG-G
CWB/CSA W48-06:	E491TG-G-H16 (E71TG-G H16)

Welding Positions

All

Maximum Plate Thickness

Diameter - in (mm)	Maximum Plate Thickness - in (mm)
0.045 (1.1)	3/4 (19.1)
0.068 (1.7)	3/4 (19.1)
5/64 (2.0)	3/4 (19.1)

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(AWS E71TG-G)

DIAMETERS / PACKAGING

Diameter in (mm)	10 lb (4.5 kg) Plastic Spool	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
0.045 (1.1)	ED026090		ED030639	
0.068 (1.7)		ED027803	ED030642	
5/64 (2.0)		ED027794	ED030646	ED026858

MECHANICAL PROPERTIES[1] – *As Required per AWS A5.29/A5.29M: 2005*

	Yield Strength[2] MPa (ksi)	Tensile Strength MPa (ksi)	Elongation %	Hardness Rockwell B
Requirements - AWS E71TG-G	400 (58) min.	480-655 (70-95)	20 min.	–
Typical Results[3]	440-505 (64-74)	575-605 (84-88)	24-28	89-92

DEPOSIT COMPOSITION[1] – *As Required per AWS A5.29/A5.29M: 2005*

	%C	%Mn[4]	%Si	%S	%P
Requirements - AWS E71TG-G	Not Specified	0.50 min.	1.00 max.	0.030 max.	0.030 max.
Typical Results[3]	0.06-0.11	0.84-1.55	0.20-0.33	≤0.003	0.006-0.009
	%Ni[4]	**%Cr[4]**	**%Mo[4]**	**%V[4]**	**%Al**
Requirements - AWS E71TG-G	0.50 min.	0.30 min.	0.20 min.	0.10 min.	1.8 max.
Typical Results[3]	1.02-1.15	0.02-0.04	≤0.02	–	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 (%)
0.045 in (1.1 mm), DC-	16 (5/8)	1.4 (55)	14-15	75	0.5 (1.3)	0.5 (1.1)	84
		1.8 (70)	15-16	90	0.7 (1.6)	0.6 (1.4)	87
		2.3 (90)	16-17	115	1.0 (2.1)	0.8 (1.8)	85
		2.8 (110)	17-18	135	1.2 (2.6)	1.0 (2.2)	84
		3.3 (130)	18-19	155	1.4 (3.1)	1.2 (2.6)	83
		4.1 (160)	19-20	170	1.6 (3.5)	1.4 (3.0)	85
0.068 in (1.7 mm), DC-	25 (1)	1.5 (60)	16-17	145	1.4 (3.1)	1.1 (2.4)	77
		1.9 (75)	17-18	180	1.7 (3.8)	1.4 (3.2)	84
		2.3 (90)	18-19	200	2.0 (4.5)	1.7 (3.8)	84
		3.0 (120)	19-20	230	2.7 (6.0)	2.3 (5.2)	86
		3.8 (150)	20-21	255	3.3 (7.4)	2.9 (6.4)	86
		4.4 (175)	22-23	275	3.9 (8.7)	3.4 (7.5)	86
5/64 in (2.0 mm), DC-	25 (1)	1.5 (60)	16-17	200	1.7 (3.8)	1.5 (3.3)	86
		1.9 (75)	18-19	225	2.1 (4.7)	1.8 (4.1)	87
		2.3 (90)	19-20	245	2.6 (5.7)	2.3 (5.0)	87
		2.8 (110)	20-21	275	3.2 (7.1)	2.8 (6.2)	87
		3.3 (130)	21-23	300	3.7 (8.3)	3.3 (7.3)	87
		3.8 (150)	22-23	325	4.3 (9.6)	3.8 (8.4)	87

[1]Typical all weld metal. [2]Measured with 0.2% offset. [3]See test results disclaimer below. [4]In order to meet the alloy AWS requirements of the G group, the weld deposit needs to have the minimum, as specified in the table, of only one of these elements.

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.

CUSTOMER ASSISTANCE POLICY

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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 for any updated information.

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