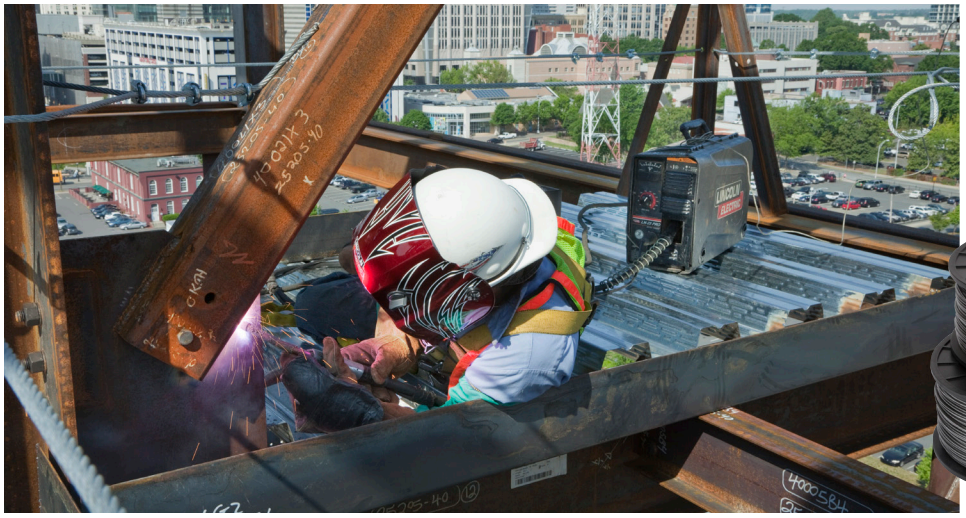
Innershield® NR-233

AWS E71T-8



Innershield® NR-233 is the choice for novice or experienced welders looking for an easy to operate self-shielded, flux-cored wire. The excellent arc control and accommodating weld puddle enable operators to make high quality weld deposits regardless of skill level. Designed for structural welding, Innershield® NR-233 is tested to meet the strict mechanical property requirements of AWS D1.8. For impact properties capable of exceeding 27J (20 ft•lbf) at -29°C (-20°F) and effortless performance, even when used out-of-position – choose Innershield® NR-233.

KEY FEATURES

NEW! **Enhanced Feedability –** New design increases wire stiffness to aid feedability and promotes smooth arc transfer.

- **Wire Snap-Off –** Easy to break off wire end without tools for better re-strike.
- **Impact Toughness Exceeds Requirements –** Capable of exceeding 27 J (20 ft•lbf) at -29°C (-20°F).
- **Meets AWS D1.8 requirements for Demand Critical Welds –** Three lot tests available at www.lincolnelectric.com/D1.8 to meet AWS D1.8 lot waiver requirements
- **Effortless Operability –** Welders of all skill levels benefit from the easy to control arc and forgiving weld puddle even out of position.

APPLICATIONS

- Seismic structural steel erection and fabrication
- General structural steel erection and fabrication
- Ship and barge fabrication
- Vertical up and overhead fillets and groove welds

NOTES

Innershield® K126 Gun Assembly requires one of the following gun tube assemblies for better wire feeding - KP2454-1 (62°, 7.5 in), KP2455-1 (45°, 6 in) & KP2456-1 (30°, 12 in)

WELDING POSITIONS

All

CONFORMANCES

AWS A5.20/A5.20M: 2005	E71T-8
ASME SFA-5.20	E71T-8
ABS	E71T-8
FEMA	All Diameters
AWS D1.8	All Diameters

DIAMETERS / PACKAGING

Diameter in (mm)	12.5 lb (5.7 kg) Plastic Spool 50 lb (22.6 kg) Master Carton
1/16 (1.6)	ED030933
Diameter in (mm)	**25 lb (11.3 kg) Plastic Spool**
1/16 (1.6)	ED030934
0.072 (1.8)	ED031030
5/64 (2.0)	ED033039
Diameter in (mm)	**Vacuum Sealed Foil Bag 25 lb (11.3 kg) Plastic Spool**
1/16 (1.6)	ED031576
0.072 (1.8)	ED031577
5/64 (2.0)	ED033024

FEMA 353 — Federal Emergency Management Agency

AWS D1.8 Structural Welding Code Seismic Supplement

LINCOLN ELECTRIC
THE WELDING EXPERTS®

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	Charpy V-Notch J (ft•lbf) @ -29°C (-20°F)
Requirements AWS E71T-8	400 (58) min.	480 - 655 (70 - 95)	22 min.	—	27 (20) min.
Typical Performance[3]	440 - 460 (63 - 66)	570 - 600 (83 - 86)	26 - 29	87 - 89	34 - 54 (25 - 40)

DEPOSIT COMPOSITION[1] – *As Required per AWS A5.20/A5.20M: 2005*

	%C	%Mn	%Si	%S	%P	%Al
Requirements AWS E71T-8	0.30 max.	1.75 max.	0.60 max.	0.03 max.	0.03 max.	1.8 max.
Typical Performance[3]	0.15 - 0.20	0.61 - 0.65	0.17 - 0.21	≤0.03	≤0.01	0.5 - 0.6

TYPICAL OPERATING PROCEDURES

Diameter Polarity	CTWD in (mm)	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 (%)
1/16 in. (1.6 mm) DC-	1 (25)	3.8 (150)	17-19	220	2.4 (5.3)	1.9 (4.2)	80
		5.1 (200)	19-21	245	3.2 (7.1)	2.5 (5.4)	76
		6.4 (250)	21-23	270	4.0 (8.9)	3.0 (6.6)	74
		7.6 (300)	23-25	295	4.7 (10.4)	3.5 (7.7)	75
		8.9 (350)	25-27	315	5.6 (12.3)	4.3 (9.4)	77
0.072 in. (1.8 mm) DC-	3/4 - 1 (19 - 25)[4]	2.5 (100)	17-18	184	2.0 (4.5)	1.6 (3.6)	80
		3.8 (150)	18-19	250	3.1 (6.7)	2.5 (5.4)	80
		5.1 (200)	20-21	295	4.0 (8.9)	3.2 (7.1)	81
		6.4 (250)	22-23	330	5.1 (11.2)	4.0 (8.9)	79
		7.6 (300)	23-24	355	6.1 (13.4)	4.8 (10.6)	79
5/64 in. (2.0 mm) DC-	3/4 - 1 (19 - 25)[4]	2.3 (90)	18-19	210	2.2 (4.9)	1.8 (4.1)	82
		3.2 (125)	19-20	260	3.2 (7.0)	2.6 (5.6)	81
		3.8 (150)	20-21	300	3.8 (8.4)	3.0 (6.7)	80
		5.1 (200)	21-22	340	5.1 (11.2)	4.1 (9.0)	81
		6.1 (240)	22-23	380	6.1 (13.3)	4.9 (10.8)	81

[1] Typical all weld metal. [2] Measured with 0.2% offset. [3] See test results disclaimer below. [4] CTWD for 0.072 in. (1.8 mm) and 5/64 in. (2.0 mm) for 200 ipm or greater is 1 in (25 mm).
NOTE: For horizontal welding, subtract 1 volt. NOTE: FEMA and AWS D1.8 structural steel seismic supplement test data can be found on this product at www.lincolnelectric.com/d1.8 (as listed on the front).

FEMA 353 & AWS D1.8

This electrode has been tested in accordance with FEMA 353 & AWS D1.8 - Structural Welding Code – Seismic Supplement and is capable of depositing weld metal that delivers minimum CVN properties of 40 ft•lbf at 70˚ F (54 Joules at 21˚ C) at low and high heat input levels. As required by the AWS classification, it meets a minimum CVN of 20 ft•lbf at -20˚ F (27 Joules at -29˚ C), when tested in accordance with AWS 5.20-05. This electrode will also deposit metal that will meet the requirements for H16 as tested according to AWS A4.3. FEMA and AWS D1.8 certificates are available upon request.

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

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 information or advice about their use of our products. Our employees respond to inquiries to the best of their ability based on information provided to them by the customers and the knowledge they may have concerning the application. Our employees, however, are not in a position to verify the information provided or to evaluate the engineering requirements for the particular weldment. Accordingly, Lincoln Electric does not warrant or guarantee or assume any liability with respect to such information or advice. Moreover, the provision of such information or advice does not create, expand, or alter any warranty on our products. Any express or implied warranty that might arise from the information or advice, including any implied warranty of merchantability or any warranty of fitness for any customers' particular purpose is specifically disclaimed.

Lincoln Electric is a responsive manufacturer, but the selection and use of specific products sold by Lincoln Electric is solely within the control of, and remains the sole responsibility of the customer. Many variables beyond the control of Lincoln Electric affect the results obtained in applying these types of fabrication methods and service requirements.

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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