## The Lincoln Electric Company 22801 St. Clair Avenue Cleveland, Ohio 44117-1199

## **CERTIFICATE OF CONFORMANCE**



Electrode: Innershield® NR®-232

AWS D1.8:2021

Electrode Size .072" (1.8 mm) Specification:

February 28, 2025 Date:

This is to certify that the above listed product was manufactured to meet the Class T4 requirement of AWS A5.01 as required by clause 6.3.1.2 of AWS D1.8:2021.

It was manufactured and supplied according to a Quality System Program that meets the requirements of ISO9001 among others as documented on The Lincoln Electric web page (<http://www.lincolnelectric.com/en-us/company/Pages/certifications.aspx>).

Operating Settings	High Heat Input Requirements	Low Heat Input Requirements	High Heat Input Results	Low Heat Input Results
Electrode Lot			19063273	19063273
Base Material			ASTM A572 steel (Grade 50)	ASTM A572 steel (Grade 50)
Current Type/Polarity	(0.14)	(0.41)	DC-	DC-
Plate Thickness, mm (in)	(3/4)	(3/4)	19 (3/4)	19 (3/4)
Nominal Voltage, V			22.0	21.0
Wire Feed Speed, cm/min (in/min)			394 (155)	457 (180)
Nominal Current, A	Nat Connificat	Not Considied	250	286
Average Heat Input, kJ/mm (kJ/in)	Not Specified	Not Specified	3.1 (78.5)	1.1 (29.0)
Travel Speed, cm/min (in/min)			11 (4.2)	31 (12.4)
Contact Tip to Work Distance, mm (in)			25 (1.00) 8/5	25 (1.00) 20/7
Pass/Layers	(250 min )	(120 max.)		= :
Preheat Temperature, °C (°F) Interpass Temperature, °C (°F)	(250 min.) (450 min.)	(250 max.)	135 (275) 230 (450)	20 (70) 120 (250)
Postweld Heat Treatment	As-welded	As-welded	As-welded	As-welded
Weld Position	As-weided	As-weided	3G	1G
Mechanical properties of weld deposits			30	10
Tensile Strength, MPa (ksi)	(70 min.)	(70 min.)	560 (82)	600 (87)
Yield Strength, 0.2% Offset, MPa (ksi)	(58 min.)	(58 min.)	400 (58)	470 (68)
Elongation %	22 min.	`22 min.´	27	26
Average Impact Energy	(40 min.)	(40 min.)	86 (64)	75 (55)
Joules @ -18 °C (ft-lbs @ 0 °F)			78,90,91 (57,66,67)	71,71,83 (52,53,61)

- 1. This product satisfies the requirements of AWS D1.8:2021, Annex E, after exposure for 1 week at 80°F / 80% relative humidity.
- 2. The Charpy V-notch impact values reported at -18 °C (0 °F) are required when the Lowest Anticipated Service Temperature (LAST) is -29 °C (-20 °F).
- 3. Lot testing exemption as defined in AWS D1.8/D1.8M: 6.3.3 by testing a minimum of 3 lots for approval has been completed. For further questions please contact customer service. https://www.lincolnelectric.com/en/Ask-the-Experts/Contact-Us
- 4. The strength and elongation properties reported here were obtained from tensile specimens artificially aged at 105°C (220°F) for
- 5. Strength values in SI units are reported to the nearest 10 MPa converted from actual data. Preheat and interpass temperature values in SI units are reported to the nearest 5 degrees.

February 28, 2025

Daniel Gaul, Certification Supervisor

Date

February 28, 2025

Regis Geisler, Manager, Consumable Compliance

Date