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

CERTIFICATE OF CONFORMANCE

Electrode: **Metalshield® MC-70 XLS®**
Electrode Size **1/16" (1.6 mm)**
Specification: **AWS D1.8:2021**
Date: **April 07, 2025**

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			19262947	19262947
Base Material			ASTM A36 steel	ASTM A36 steel
Current Type/Polarity			DC+	DC+
Plate Thickness, mm (in)	(3/4)	(3/4)	19 (3/4)	19 (3/4)
Shielding Gas	Not Specified	Not Specified	90% Ar, 10% CO2	90% Ar, 10% CO2
Nominal Voltage, V			27.0	28.0
Wire Feed Speed, cm/min (in/min)			762 (300)	673 (265)
Nominal Current, A			350	330
Average Heat Input, kJ/mm (kJ/in)	Not Specified	Not Specified	2.3 (59.4)	1.2 (30.2)
Travel Speed, cm/min (in/min)			24 (9.6)	47 (18.6)
Contact Tip to Work Distance, mm (in)			25 (1.00)	25 (1.00)
Pass/Layers			8/5	17/7
Preheat Temperature, °C (°F)	(250 min.)	(120 max.)	165 (325)	20 (70)
Interpass Temperature, °C (°F)	(450 min.)	(250 max.)	230 (450)	120 (250)
Postweld Heat Treatment	As-welded	As-welded	As-welded	As-welded
Weld Position			1G	1G

Mechanical properties of weld deposits

Tensile Strength, MPa (ksi)	(70 min.)	(70 min.)	540 (79)	600 (87)
Yield Strength, 0.2% Offset, MPa (ksi)	(58 min.)	(58 min.)	440 (64)	530 (76)
Elongation %	22 min.	22 min.	31	26
Average Impact Energy	(40 min.)	(40 min.)	88 (65)	110 (81)
Joules @ -18 °C (ft-lbs @ 0 °F)			60,100,105 (44,74,77)	108,111,112 (80,82,83)

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Operating Settings	High Heat Input Requirements	Low Heat Input Requirements	High Heat Input Results	Low Heat Input Results
Electrode Lot			19381529	19381529
Base Material			ASTM A36 steel	ASTM A36 steel
Current Type/Polarity			DC+	DC+
Plate Thickness, mm (in)	(3/4)	(3/4)	19 (3/4)	19 (3/4)
Shielding Gas	Not Specified	Not Specified	90% Ar, 10% CO2	90% Ar, 10% CO2
Nominal Voltage, V			27.0	28.0
Wire Feed Speed, cm/min (in/min)			762 (300)	673 (265)
Nominal Current, A			355	325
Average Heat Input, kJ/mm (kJ/in)	Not Specified	Not Specified	2.3 (57.4)	1.3 (32.8)
Travel Speed, cm/min (in/min)			25 (10.0)	42 (16.6)
Contact Tip to Work Distance, mm (in)			25 (1.00)	25 (1.00)
Pass/Layers			8/5	15/6
Preheat Temperature, °C (°F)	(250 min.)	(120 max.)	120 (250)	20 (72)
Interpass Temperature, °C (°F)	(450 min.)	(250 max.)	230 (450)	120 (250)
Postweld Heat Treatment	As-welded	As-welded	As-welded	As-welded
Weld Position			1G	1G

Mechanical properties of weld deposits

Tensile Strength, MPa (ksi)	(70 min.)	(70 min.)	570 (83)	610 (89)
Yield Strength, 0.2% Offset, MPa (ksi)	(58 min.)	(58 min.)	460 (67)	530 (77)
Elongation %	22 min.	22 min.	29	25
Average Impact Energy	(40 min.)	(40 min.)	70 (51)	99 (73)
Joules @ -18 °C (ft-lbs @ 0 °F)			58,71,80 (43,53,59)	93,98,104 (69,73,77)

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Operating Settings	High Heat Input Requirements	Low Heat Input Requirements	High Heat Input Results	Low Heat Input Results
Electrode Lot			19400680	19400680
Base Material			ASTM A36 steel	ASTM A36 steel
Current Type/Polarity			DC+	DC+
Plate Thickness, mm (in)	(3/4)	(3/4)	19 (3/4)	19 (3/4)
Shielding Gas	Not Specified	Not Specified	90% Ar, 10% CO2	90% Ar, 10% CO2
Nominal Voltage, V			27.0	28.0
Wire Feed Speed, cm/min (in/min)			762 (300)	673 (265)
Nominal Current, A			355	320
Average Heat Input, kJ/mm (kJ/in)	Not Specified	Not Specified	2.3 (57.4)	1.3 (32.8)
Travel Speed, cm/min (in/min)			25 (10.0)	42 (16.4)
Contact Tip to Work Distance, mm (in)			25 (1.00)	25 (1.00)
Pass/Layers			8/5	15/6
Preheat Temperature, °C (°F)	(250 min.)	(120 max.)	120 (250)	20 (72)
Interpass Temperature, °C (°F)	(450 min.)	(250 max.)	230 (450)	120 (250)
Postweld Heat Treatment	As-welded	As-welded	As-welded	As-welded
Weld Position			1G	1G

Mechanical properties of weld deposits

Tensile Strength, MPa (ksi)	(70 min.)	(70 min.)	590 (85)	620 (90)
Yield Strength, 0.2% Offset, MPa (ksi)	(58 min.)	(58 min.)	480 (69)	540 (78)
Elongation %	22 min.	22 min.	28	26
Average Impact Energy Joules @ -18 °C (ft-lbs @ 0 °F)	(40 min.)	(40 min.)	64 (47)	71 (53)
			54,67,70 (40,50,51)	65,73,76 (48,54,56)

1. This document meets the requirements of AWS A5.01M/A5.01 Schedule F. When a specific lot number is referenced it also meets requirements of EN10204, type 2.2. It does not meet the requirements of type 3.1.
2. This product satisfies the requirements of AWS D1.8:2021, Annex E, after exposure for 1 week at 80°F / 80% relative humidity.
3. The Charpy V-notch impact values reported at -18 °C (0 °F) are required when the Lowest Anticipated Service Temperature (LAST -29 °C (-20 °F).
4. The strength and elongation properties reported here were obtained from tensile specimens artificially aged at 105°C (220°F) for 48 hours.
5. Strength values in SI units are reported to the nearest 10 MPa converted from actual data. Preheat and interpass temperature valu SI units are reported to the nearest 5 degrees.



April 07, 2025
Daniel Gaul, Certification Supervisor — Date



April 07, 2025
Regis Geisler, Manager, Consumable Compliance — Date

Cert. No. 95617-4