Lincoln Electric Europe BV – Buzau Plant

Aleea Industriilor, Nr. 1-1 BIS,
120068 Buzau - Romania

CERTIFIED MATERIAL TEST REPORT

Product: UltraCore® 360™ C71 diameter 1/16" - 1.6 mm
Lot Nr. : R1FC184030
Classification: ASME SFA-5.20: E71T-1C-JH4
ASME SFA-5.36: E71T1-C1A2-CS1-H4
Test Completed: December 21, 2018

This is to certify that the above listed product was manufactured to meet the Class T3 requirements of AWS A5.01 as required by clause 6.3.8 of AWS D1.8/D1.8M: 2009.

Test Conditions	AWS D1.8 requirements	High Heat Input Results	Low Heat Input Results
Electrode Size		1/16" - 1.6 mm	1/16" - 1.6 mm
Electrode Polarity		DC+	DC+
Wire Feed Speed m/min (inc/min)		3.5 (138)	5.8 (217)
Welding speed cm /min (inc/min)		8.5 (3.4)	42 (17)
Current (amps)		200	290
Arc Voltage (volts)		23	28
CTWD mm/(inch)		18 (0.71)	18 (0.71)
Preheat	**Low≤ 40°C High≥ 120°C**	**150** (302)	**23** (73)
Interpass Temp °C (°F)	**Low≤ 120°C High≥ 240°C**	260 (500)	110 - (230)
Heat Input Avg. **kJ/mm** (kJ/in.)	**Low ≤ 1.2, High ≥ 3.1**	**3.2** (81)	**1.16** (29.4)
Shielding Gas Used	C1	CO2	CO2
Weld position		3G (vertical up)	1G

Mechanical Properties	Actual Results of AWS D1.8 requirements	High Heat Input Results	Low Heat Input Results
Yield Strength, **MPa** (ksi) (0.2% offset method)	**400** (58 min.)	**456** (66)	**561** (81)
Tensile Strength **MPa** (ksi)	**480** (70 min)	**523** (76)	**608** (88)
Elongation %	22% min	27%	25%

Impact Properties	AWS D1.8 requirements		
Temperature	10 °C (20 °F)	**Tested @ 10°C (20° F)**	**Tested @ 10°C (20° F)**
Average **Joules** (ft-lbs)	**54 min** (40 min)	**168 (124)**	**175 (129)**
Individual Values **Joules**		167; 173; 163	179; 170; 176

This is to certify that the contents of this report are correct and accurate as contained in the records of The Lincoln Electric Company.

Societatea Comercială DUCTIL S.A. Reprezentant Management Buzău

Name, C. Dascalu
QC Manager Buzau Plant

21/12/2018
Date

Lincoln Electric Europe BV – Buzau Plant

Aleea Industriilor, Nr. 1-1 BIS,
120068 Buzau - Romania

CERTIFIED MATERIAL TEST REPORT

Product: UltraCore® 360™ C71 diameter 1/16" - 1.6 mm
Lot Nr. : 421822003
Classification: ASME SFA-5.20: E71T-1C-JH4
ASME SFA-5.36: E71T1-C1A2-CS1-H4
Test Completed: January 29, 2019

This is to certify that the above listed product was manufactured to meet the Class T3 requirements of AWS A5.01 as required by clause 6.3.8 of AWS D1.8/D1.8M: 2009.

Test Conditions	AWS D1.8 requirements	High Heat Input Results	Low Heat Input Results
Electrode Size		1/16" - 1.6 mm	1/16" - 1.6 mm
Electrode Polarity		DC+	DC+
Wire Feed Speed m/min (inc/min)		3.5 (138)	5.8 (217)
Welding speed cm /min (inc/min)		8.5 (3.4)	41.7 (16.4)
Current (amps)		200	290
Arc Voltage (volts)		23	28
CTWD mm/(inch)		18 (0.71)	18 (0.71)
Preheat	**Low≤ 40°C High≥ 120°C**	**150** (302)	**23** (73)
Interpass Temp °C (°F)	**Low≤ 120°C High≥ 240°C**	260 (500)	110 - (230)
Heat Input Avg. **kJ/mm** (kJ/in.)	**Low ≤ 1.2, High ≥ 3.1**	**3.2** (81)	**1.17** (29.7)
Shielding Gas Used	C1	CO2	CO2
Weld position		3G (vertical up)	1G

Mechanical Properties	Actual Results of AWS D1.8 requirements	High Heat Input Results	Low Heat Input Results
Yield Strength, **MPa** (ksi) (0.2% offset method)	**400** (58 min.)	**456** (66)	**568** (82)
Tensile Strength **MPa** (ksi)	**480** (70 min)	**534** (77)	**607** (88)
Elongation %	22% min	30%	25%

Impact Properties	AWS D1.8 requirements		
Temperature	10 °C (20 °F)	**Tested @ 10°C (20° F)**	**Tested @ 10°C (20° F)**
Average **Joules** (ft-lbs)	**54 min** (40 min)	**152 (112)**	**159 (117)**
Individual Values **Joules**		147; 152; 156	154; 158; 161

This is to certify that the contents of this report are correct and accurate as contained in the records of The Lincoln Electric Company.

Societatea Comercială DUCTIL S.A. Reprezentant Management Buzău

Name, C. Dascalu
QC Manager Buzau Plant

01/02/2019
Date

Lincoln Electric Europe BV – Buzau Plant

Aleea Industriilor, Nr. 1-1 BIS,
120068 Buzau - Romania

CERTIFIED MATERIAL TEST REPORT

Product: UltraCore® 360™ C71 diameter 1/16" - 1.6 mm
Lot Nr. : R1FC184016
Classification: ASME SFA-5.20: E71T-1C-JH4
ASME SFA-5.36: E71T1-C1A2-CS1-H4
Test Completed: March 16, 2019

This is to certify that the above listed product was manufactured to meet the Class T3 requirements of AWS A5.01 as required by clause 6.3.8 of AWS D1.8/D1.8M: 2009.

Test Conditions	AWS D1.8 requirements	High Heat Input Results	Low Heat Input Results
Electrode Size		1/16" - 1.6 mm	1/16" - 1.6 mm
Electrode Polarity		DC+	DC+
Wire Feed Speed m/min (inc/min)		3.5 (138)	5.8 (217)
Welding speed cm /min (inc/min)		8.6 (3.4)	42.5 (16.7)
Current (amps)		200	290
Arc Voltage (volts)		23	28
CTWD mm/(inch)		18 (0.71)	18 (0.71)
Preheat	**Low≤ 40°C High≥ 120°C**	**150** (302)	**23** (73)
Interpass Temp °C (°F)	**Low≤ 120°C High≥ 240°C**	260 (500)	110 - (230)
Heat Input Avg. **kJ/mm** (kJ/in.)	**Low ≤ 1.2, High ≥ 3.1**	**3.2** (81)	**1.15** (29.2)
Shielding Gas Used	C1	CO2	CO2
Weld position		3G (vertical up)	1G

Mechanical Properties	Actual Results of AWS D1.8 requirements	High Heat Input Results	Low Heat Input Results
Yield Strength, **MPa** (ksi) (0.2% offset method)	**400** (58 min.)	**472** (68)	**566** (82)
Tensile Strength **MPa** (ksi)	**480** (70 min)	**544** (79)	**602** (87)
Elongation %	22% min	31%	26%

Impact Properties	AWS D1.8 requirements		
Temperature	10 °C (20 °F)	**Tested @ 10°C (20° F)**	**Tested @ 10°C (20° F)**
Average **Joules** (ft-lbs)	**54 min** (40 min)	**181 (133)**	**196 (145)**
Individual Values **Joules**		179; 186; 179	195; 197; 195

This is to certify that the contents of this report are correct and accurate as contained in the records of The Lincoln Electric Company.

Societatea Comercială DUCTIL S.A. Reprezentant Management Buzău

Name, C. Dascalu
QC Manager Buzau Plant

18/03/2019
Date