ULTRACORE® 712C-H PLUS

Mild Steel, All Positions ▪ AWS E71T-12C-JH4, E71T1-C1A6-CS2-H4

KEY FEATURES

- Innovative design capable of superior toughness at -50°F in both the as-welded and stress-relieved conditions
- Designed for welding with 100% CO_2 shielding gas
- H4 diffusible hydrogen levels
- Q2 Lot® - Certificate showing actual deposit chemistry and mechanical properties per lot available online
- ProTech® foil bag packaging

CONFORMANCES

AWS A5.20/A5.20M:	E71T-12C-JH4
AWS A5.36/A5.36M:	E71T1-C1A6-CS2-H4, E71T1-C1P5-CS2-H4
ABS:	4YSA H5
Lloyds Register:	4YS H5
DNV Grade:	IV YMS H5
CWB/CSA W48-06:	E491T-12J H4

WELDING POSITIONS

All

SHIELDING GAS

100% CO_2
Flow Rate: 40-50 CFH

TYPICAL APPLICATIONS

- Offshore platforms & pipe systems
- Petrochemical pipelines
- Oil & gas pipelines
- Pressure vessels
- Bridge fabrication

DIAMETERS / PACKAGING

Diameter in (mm)	33 lb (15kg) Plastic Spool
0.045 (1.1)	ED034849
0.052 (1.3)	ED034848
1/16 (1.6)	ED034850

MECHANICAL PROPERTIES[1] - *As required per AWS A5.20/A5.20M & AWS A5.36/A5.36M*

	Yield Strength[2] MPa (ksi)	Tensile Strength MPa (ksi)	Elongation (%)	Charpy V-Notch J (ft•lbf) -40°C (40°F)	-46°C (-50°F)	@ -51°C (-60°F)
Requirements AWS A5.20: E71T-12C-JH4 As-Welded with 100% CO_2	400 (58) min	480-620 (70-90)	22 min	27 (20) min	-	-
AWS A5.36: E71T1-C1A6-CS2-H4 As-Welded with 100% CO_2	400 (58) min	480-655 (70-95)	22 min	-	-	27 (20) min
AWS A5.36: E71T1-C1P5-CS2-H4 Stress Relieved with 100% CO_2 for 1 hr @ 621°C (1150°F)	400 (58) min	480-655 (70-95)	22 min	-	27 (20) min	-
Typical Results[3] As-Welded with 100% CO_2	490-530 (71-77)	560-585 (81-85)	25-27	89-156 (66-115)	73-148 (54-109)	66-132 (49-97)
Stress Relieved with 100% CO_2 for 1 hr @ 621°C (1150°F)	420-470 (61-68)	530-565 (77-82)	29-34	115-178 (85-131)	95-148 (70-109)	-

[1] Typical all weld metal. [2] Measure with 0.2% offset. [3] See test results disclaimer

DEPOSIT COMPOSITION[1]

	%C	%Mn	%Si	%S
Requirements AWS A5.20: E71T-12C-JH4	0.12 max	1.60 max	0.90 max	0.03 max
AWS A5.36: E71T1-C1A6-CS2-H4, E71T1-C1P5-CS2-H4				0.030 max
Typical Results[3] with 100% CO_2	0.04-0.05	1.48-1.57	0.45-0.50	0.008

	%P	%Ni	Diffusible Hydrogen (mL/100g weld deposit)
Requirements AWS A5.20: E71T-12C-JH4	0.03 max	0.50 max	4.0 max
AWS A5.36: E71T1-C1A6-CS2-H4, E71T1-C1P5-CS2-H4	0.030 max		4 max
Typical Results[3] with 100% CO_2	0.013	0.02	2-4

TYPICAL OPERATING PROCEDURES

Diameter, Polarity Shielding Gas	CTWD[4] 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+ 100% CO_2							
Optimal Settings	22 (7/8)	11.2 (440)	29	220	1.8-6.1 (3.9-13.5)	1.5-5.1 (3.4-11.3)	83-88
Min - Max	19-25 (3/4-1)	4.4-13.3 (175-525)	23-32	115-245			
0.052 in (1.3 mm), DC+ 100% CO_2							
Optimal Settings	25 (1)	8.6 (340)	30	235	2.1-7.1 (4.7-15.6)	1.7-6.0 (3.8-13.3)	80-86
Min - Max	19-25 (3/4-1)	3.8-10.2 (150-400)	23-32	140-290			
1/16 in (1.6 mm), DC+ 100% CO_2							
Optimal Settings	25 (1)	7.6 (300)	28	295	2.9-6.7 (6.4-14.8)	2.4-5.8 (5.3-12.8)	82-87
Min - Max	19-25 (3/4-1)	3.8-8.9 (150-350)	22-31	200-360			

[1] Typical all weld metal. [3] See test results disclaimer [4] To estimate ESO, subtract 1/4 in (6.0 mm) from CTWD.

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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