



Product: FabCO Excel-Arc 71
Diameter: .045"
Shielding Gas: C1 (100% CO2)
Current/Polarity: DCEP
Classification: E71T-1 H8, E71T-9 H8
Specification: AWS A5.20/A5.20M:2005
Test Completed: 6/23/2021

Certificate of Conformance

For AWS D1.8/D1.8M, Seismic Supplement

This is to certify that the product named herein is of the same classification, manufacturing process, and material requirements as the material used for the tests completed on the date shown, the results of which are recorded below. All tests required by the code or specifications were performed at that time and the material tested met all requirements. The product was manufactured and supplied by the Quality Management System of Hobart Brothers, which meets the requirements of ISO 9001:2015, ANSI/AWS A5.01, and other specification and Military requirements, as applicable.

Test Settings	High Heat Input	Low Heat Input	Lot-# F000852301	AWS D1.8 Requirements	High Heat Input	Low Heat Input
	84.4 kJ/in	26.7 kJ/in	Mechanical Properties		84.4 kJ/in	26.7 kJ/in
			Test Reference #		PE2544	PE2551
Voltage	25	26	Tensile Strength (psi)	70,000	80,400	93,100
Current (amps)	225	250	Yield Strength (psi)	58,000	69,900	87,000
WFS (ipm)	380	450	Elongation (%)	22	27	22
Travel Speed (ipm)	4	14.6	Average Charpy V-notch			
Stick Out	3/4"	3/4"	Impact Properties ft•lbs @ +70 °F	40	116	106
# of passes	8	20				
# of layers	4	7				
Preheat Temp. °F	300+/-25	RT				
Interpass Temp. °F	500+/-50	200+/-25				
Weld Position	3G	1G				

Test Settings	High Heat Input	Low Heat Input	Lot-# B611752703191	AWS D1.8 Requirements	High Heat Input	Low Heat Input
	80.4 kJ/in	27.9 kJ/in	Mechanical Properties		80.4 kJ/in	27.9 kJ/in
			Test Reference #		PD6265	P6266
Voltage	25	26	Tensile Strength (psi)	70,000	80,920	89,800
Current (amps)	225	250	Yield Strength (psi)	58,000	72,700	83,500
WFS (ipm)	385	450	Elongation (%)	22	28	23
Travel Speed (ipm)	4.2	14	Average Charpy V-notch			
Stick Out	3/4"	3/4"	Impact Properties ft•lbs @ +70 °F	40	122	109
# of passes	8	20				
# of layers	4	7				
Preheat Temp. °F	300+/-25	RT				
Interpass Temp. °F	500+/-50	200+/-25				
Weld Position	3G	1G				

Test Settings	High Heat Input	Low Heat Input	Lot-# S609122403191	AWS D1.8 Requirements	High Heat Input	Low Heat Input
	79.4 kJ/in	27.9 kJ/in	Mechanical Properties		79.4 kJ/in	27.9 kJ/in
			Test Reference #		PB6426	PB6175
Voltage	25	27	Tensile Strength (psi)	70,000	81,500	93,800
Current (amps)	225	250	Yield Strength (psi)	58,000	70,200	89,300
WFS (ipm)	385	450	Elongation (%)	22	29	24
Travel Speed (ipm)	4.25	14.5	Average Charpy V-notch			
Stick Out	1/2"-3/4"	1/2"-3/4"	Impact Properties ft•lbs @ +70 °F	40	121	105
# of passes	6	17				
# of layers	4	8				
Preheat Temp. °F	300+/-25	RT				
Interpass Temp. °F	500+/-50	200+/-25				
Weld Position	3G	1G				

Diffusible Hydrogen - Tested in accordance with AWS A5.20/A5.20M, Clause 16 & Extended Exposure - in accordance with AWS D1.8/D1.8M

Condition	Lot - #	Test Reference #	Average (ml/100g)
As Received	F000852301	HB4844	3.5 (ml/100g)
7 Day Exposure	F000852301	HB4861	7.8 (ml/100g)

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David A. Thomas, Quality Specialist



Product: FabCO Excel-Arc 71
Diameter: .045"
Shielding Gas: M21-ArC-25
Current/Polarity: DCEP
Classification: E71T-1M H8, E71T-9M H8
Specification: AWS A5.20/A5.20M:2005
Test Completed: 6/23/2021

Certificate of Conformance For AWS D1.8/D1.8M, Seismic Supplement

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Test Settings	High Heat Input	Low Heat Input	Lot-# F000852301	AWS D1.8 Requirements	High Heat Input	Low Heat Input
	82.3 kJ/in	26.8 kJ/in	Mechanical Properties		82.3 kJ/in	26.8 kJ/in
			Test Reference #		PE2546	PE2555
Voltage	25	25	Tensile Strength (psi)	70,000	82,500	98,900
Current (amps)	225	250	Yield Strength (psi)	58,000	72,000	95,500
WFS (ipm)	380	450	Elongation (%)	22	27	22
Travel Speed (ipm)	4.1	14	Average Charpy V-notch			
Stick Out	3/4"	3/4"	Impact Properties ft•lbs @	40	127	107
# of passes	8	20	+70 °F			
# of layers	4	7				
Preheat Temp. °F	300+/-25	RT				
Interpass Temp. °F	500+/-50	200+/-25				
Weld Position	3G	1G				

Test Settings	High Heat Input	Low Heat Input	Lot-# B614611305181	AWS D1.8 Requirements	High Heat Input	Low Heat Input
	80.4 kJ/in	28.4 kJ/in	Mechanical Properties		80.4 kJ/in	28.4 kJ/in
			Test Reference #		PD6466	PD6465
Voltage	25	26.5	Tensile Strength (psi)	70,000	90,500	99,400
Current (amps)	225	250	Yield Strength (psi)	58,000	79,000	93,900
WFS (ipm)	385	460	Elongation (%)	22	32	23
Travel Speed (ipm)	4.2	14	Average Charpy V-notch			
Stick Out	3/4"	3/4"	Impact Properties ft•lbs @	40	120	81
# of passes	8	18	+70 °F			
# of layers	4	8				
Preheat Temp. °F	300+/-25	RT				
Interpass Temp. °F	500+/-50	200+/-25				
Weld Position	3G	1G				

Test Settings	High Heat Input	Low Heat Input	Lot-# X613682106211	AWS D1.8 Requirements	High Heat Input	Low Heat Input
	82.3 kJ/in	27.8 kJ/in	Mechanical Properties		82.3 kJ/in	27.8 kJ/in
			Test Reference #		PC6755	PC6757
Voltage	25	26	Tensile Strength (psi)	70,000	90,400	104,000
Current (amps)	225	250	Yield Strength (psi)	58,000	75,700	98,200
WFS (ipm)	385	450	Elongation (%)	22	26	24
Travel Speed (ipm)	4.1	14	Average Charpy V-notch			
Stick Out	1/2"-3/4"	1/2"-3/4"	Impact Properties ft•lbs @	40	107	105
# of passes	6	17	+70 °F			
# of layers	3	6				
Preheat Temp. °F	300+/-25	RT				
Interpass Temp. °F	500+/-50	200+/-25				
Weld Position	3G	1G				

Diffusible Hydrogen - Tested in accordance with AWS A5.20/A5.20M, Clause 16 & Extended Exposure - in accordance with AWS D1.8/D1.8M

Condition	Lot - #	Test Reference #	Average (ml/100g)
As Received	F000852301	HB4843	5.9 (ml/100g)
7 Day Exposure	F000852301	HB4860	7.2 (ml/100g)

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David A. Thomas, Quality Specialist



Product: FabCO Excel-Arc 71
Diameter: .052"
Shielding Gas: M21-ArC-25
Current/Polarity: DCEP
Classification: E71T-1M; E71T-9M H8
Specification: AWS A5.20/A5.20M:2010
Test Completed: 3/16/2020

Certificate of Conformance

For AWS D1.8/D1.8M, Seismic Supplement

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Test Settings	High Heat Input	Low Heat Input	Lot- # D600272902291	AWS D1.8 Requirements	High Heat Input	Low Heat Input
	78.8 kJ/in	32.4 kJ/in	Mechanical Properties		78.8 kJ/in	32.4 kJ/in
			Test Reference #		PD9213	PD9216
Voltage	24.5	26	Tensile Strength (psi) Yield Strength (psi) Elongation (%) Average Charpy V-notch Impact Properties ft•lbs @ +70 °F	70,000 58,000 22 40	82,000 72,000 29 125	95,000 89,000 25 102
Current (amps)	225	260				
WFS (ipm)	240	330				
Travel Speed (ipm)	4.2	12.5				
Stick Out	3/4"	3/4"				
# of passes	8	19				
# of layers	4	7				
Preheat Temp. °F	300+/-25	RT				
Interpass Temp. °F	500+/-50	200+/-25				
Weld Position	3G	1G				

Test Settings	High Heat Input	Low Heat Input	Lot- # A602452905221	AWS D1.8 Requirements	High Heat Input	Low Heat Input
	81.0 kJ/in	29.0 kJ/in	Mechanical Properties		78.8 kJ/in	28.8 kJ/in
			Test Reference #		PC3161	PC3166
Voltage	24.5	26	Tensile Strength (psi) Yield Strength (psi) Elongation (%) Average Charpy V-notch Impact Properties ft•lbs @ +70 °F	70,000 58,000 22 40	88,000 77,000 25 122	104,000 99,000 22 74
Current (amps)	225	260				
WFS (ipm)	245	360				
Travel Speed (ipm)	4.1	14.1				
Stick Out	5/8"	3/4"				
# of passes	7	19				
# of layers	4	6				
Preheat Temp. °F	300+/-25	RT				
Interpass Temp. °F	500+/-50	200+/-25				
Weld Position	3G	1G				

Test Settings	High Heat Input	Low Heat Input	Lot- # W606483003182	AWS D1.8 Requirements	High Heat Input	Low Heat Input
	81.0 kJ/in	29.0 kJ/in	Mechanical Properties		81.0 kJ/in	29.0 kJ/in
			Test Reference #		PC3073	PC3032
Voltage	24.5	26	Tensile Strength (psi) Yield Strength (psi) Elongation (%) Average Charpy V-notch Impact Properties ft•lbs @ +70 °F	70,000 58,000 22 40	90,000 74,000 28 107	103,000 99,000 22 116
Current (amps)	225	260				
WFS (ipm)	245	365				
Travel Speed (ipm)	4.1	14				
Stick Out	5/8"	3/4"				
# of passes	7	18				
# of layers	4	6				
Preheat Temp. °F	300+/-25	RT				
Interpass Temp. °F	500+/-50	200+/-25				
Weld Position	3G	1G				

Diffusible Hydrogen - Tested in accordance with AWS A5.20/A5.20M, Clause 16 & Extended Exposure - in accordance with AWS D1.8/D1.8M

Condition	Lot - #	Test Reference #	Average (ml/100g)
As Received	D600272902291	HB4023	4.6 (ml/100g)
7 Day Exposure	D600272902291	HB4037	7.0 (ml/100g)

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David A. Thomas, Quality Assurance Representative



Product: FabCO Excel-Arc 71
Diameter: 1/16"
Shielding Gas: C1 (100% CO2)
Current/Polarity: DCEP
Classification: E71T-1 C/M, E71T-9 C/M H8
Specification: AWS A5.20/A5.20M:2005
Test Completed: 9/26/2022

Certificate of Conformance

For AWS D1.8/D1.8M, Seismic Supplement

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Test Settings	High Heat Input	Low Heat Input	Lot- # C604351904291	AWS D1.8 Requirements	High Heat Input	Low Heat Input
	78.8 kJ/in	31.0 kJ/in	Mechanical Properties		78.8 kJ/in	31.0 kJ/in
			Test Reference #		PD7581	PD7733
Voltage	24	26	Tensile Strength (psi) Yield Strength (psi) Elongation (%) Average Charpy V-notch Impact Properties ft•lbs @ +70 °F	70,000 58,000 22 40	83,000 73,000 26 144	86,000 82,000 25 111
Current (amps)	230	282				
WFS (ipm)	170	240				
Travel Speed (ipm)	4.2	13.9				
Stick Out	3/4"	3/4"				
# of passes	8	17				
# of layers	4	7				
Preheat Temp. °F	300+/-25	RT				
Interpass Temp. °F	500+/-50	200+/-25				
Weld Position	3G	1G				

Test Settings	High Heat Input	Low Heat Input	Lot- # Z601232203162	AWS D1.8 Requirements	High Heat Input	Low Heat Input
	82.5 kJ/in	31.0 kJ/in	Mechanical Properties		82.5 kJ/in	31.0 kJ/in
			Test Reference #		PD2034	PD2033
Voltage	28	27	Tensile Strength (psi) Yield Strength (psi) Elongation (%) Average Charpy V-notch Impact Properties ft•lbs @ +70 °F	70,000 58,000 22 40	72,600 63,400 31 197	83,100 76,200 25 134
Current (amps)	275	279				
WFS (ipm)	235	240				
Travel Speed (ipm)	4.0	15				
Stick Out	3/4"	3/4"				
# of passes	7	21				
# of layers	4	8				
Preheat Temp. °F	300+/-25	RT				
Interpass Temp. °F	500+/-50	200+/-25				
Weld Position	3G	1G				

Test Settings	High Heat Input	Low Heat Input	Lot- # F04119	AWS D1.8 Requirements	High Heat Input	Low Heat Input
	79.7 kJ/in	31.2 kJ/in	Mechanical Properties		79.7 kJ/in	31.2 kJ/in
			Test Reference #		PE4413	PE4416
Voltage	24	27	Tensile Strength (psi) Yield Strength (psi) Elongation (%) Average Charpy V-notch Impact Properties ft•lbs @ +70 °F	70,000 58,000 22 40	71,400 62,700 31 116	82,700 77,000 25 115
Current (amps)	220	290				
WFS (ipm)	170	245				
Travel Speed (ipm)	4.02	14.8				
Stick Out	5/8"	3/4"				
# of passes	7	17				
# of layers	4	7				
Preheat Temp. °F	300+/-25	RT				
Interpass Temp. °F	500+/-50	200+/-25				
Weld Position	3G	1G				

**Diffusible Hydrogen - Tested in accordance with AWS A5.20/A5.20M, Clause 16
& Extended Exposure - in accordance with AWS D1.8/D1.8M**

Condition	Lot - #	Test Reference #	Average (ml/100g)
As Received	C600301902292	HB6002	6.7 (ml/100g)
7 Day Exposure	C600301902292	HB6100	7.9 (ml/100g)

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James Owens, Quality Assurance Spec



Product: FabCO Excel-Arc 71
Diameter: 1/16"
Shielding Gas: M21-ArC-25
Current/Polarity: DCEP
Classification: E71T-1M H8, E71T-9M H8
Specification: AWS A5.20/A5.20M:2005
Test Completed: 9/27/2022

Certificate of Conformance

For AWS D1.8/D1.8M, Seismic Supplement

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Test Settings	High Heat Input	Low Heat Input	Lot- # C604351904291	AWS D1.8 Requirements	High Heat Input	Low Heat Input
	78.8 kJ/in	31.0 kJ/in	Mechanical Properties		78.8 kJ/in	31.0 kJ/in
			Test Reference #		PD7581	PD7733
Voltage	24	25.5	Tensile Strength (psi)	70,000	83,000	90,000
Current (amps)	230	282	Yield Strength (psi)	58,000	73,000	82,000
WFS (ipm)	170	240	Elongation (%)	22	26	24
Travel Speed (ipm)	4.2	13.9	Average Charpy V-notch			
Stick Out	3/4"	3/4"	Impact Properties ft•lbs @ +70 °F	40	144	126
# of passes	8	17				
# of layers	4	7				
Preheat Temp. °F	300+/-25	RT				
Interpass Temp. °F	500+/-50	200+/-25				
Weld Position	3G	1G				

Test Settings	High Heat Input	Low Heat Input	Lot- # Z601232203162	AWS D1.8 Requirements	High Heat Input	Low Heat Input
	79.2 kJ/in	31.0 kJ/in	Mechanical Properties		79.2 kJ/in	31.0 kJ/in
			Test Reference #		PD1878	PD1876
Voltage	24	25.5	Tensile Strength (psi)	70,000	84,000	94,000
Current (amps)	220	282	Yield Strength (psi)	58,000	72,000	84,000
WFS (ipm)	170	230	Elongation (%)	22	30	24
Travel Speed (ipm)	4.0	13.9	Average Charpy V-notch			
Stick Out	3/4"	3/4"	Impact Properties ft•lbs @ +70 °F	40	128	126
# of passes	8	19				
# of layers	4	8				
Preheat Temp. °F	300+/-25	RT				
Interpass Temp. °F	500+/-50	200+/-25				
Weld Position	3G	1G				

Test Settings	High Heat Input	Low Heat Input	Lot- # F04119	AWS D1.8 Requirements	High Heat Input	Low Heat Input
	79.4 kJ/in	30.6 kJ/in	Mechanical Properties		79.4 kJ/in	30.6 kJ/in
			Test Reference #		PE4417	PE4418
Voltage	24.5	25.6	Tensile Strength (psi)	70,000	78,100	89,000
Current (amps)	225	289	Yield Strength (psi)	58,000	66,900	84,100
WFS (ipm)	170	245	Elongation (%)	22	30	25
Travel Speed (ipm)	4.03	14.3	Average Charpy V-notch			
Stick Out	3/4"	3/4"	Impact Properties ft•lbs @ +70 °F	40	122	134
# of passes	8	17				
# of layers	4	7				
Preheat Temp. °F	300+/-25	RT				
Interpass Temp. °F	500+/-50	200+/-25				
Weld Position	3G	1G				

Diffusible Hydrogen - Tested in accordance with AWS A5.20/A5.20M, Clause 16 & Extended Exposure - in accordance with AWS D1.8/D1.8M

Condition	Lot - #	Test Reference #	Average (ml/100g)
As Received	F04119	HB6003	7.0 (ml/100g)
7 Day Exposure	F04119	HB6025	10.3 (ml/100g)

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James Owens, Quality Assurance Specialist