

Product: FabCOR 86R **Diameter:** .045"

Shielding Gas: M21-ArC-25 Current/Polarity: DCEP Classification: E70C-6M H4

Specification: AWS A5.18/A5.18M:2017

Test Completed: 10/18/2019

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

This is to certify that the product named is of the same classification, manufacturing process, and material requirements as the material, which was used for the test which was concluded on the date shown, the results of which are shown below. All test 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 System Program 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- # B624993101123	AWS D1.8	High Heat Input	Low Heat Input
	78.4 kJ/in	28.0 kJ/in	Mechanical Properties	Requirements	78.4 kJ/in	28.0 kJ/in
Voltage	28.5	28.5	Test Reference #		PD7072	PD7172
Current (amps)	275	275				
WFS (ipm)	420	420				
Travel Speed (ipm)	6	17.2	Tensile Strength (psi)	70,000	75,000	90,000
Stick Out	3/4"	1/2"	Yield Strength (psi)	58,000	60,000	81,000
# of passes	7	16	Elongation (%)	22	31	26
# of layers	4	6	Average Charpy V-notch			
Preheat Temp. ⁰F	300+/-25	RT	Impact Properties ft•lbs @	40	91	101
Interpass Temp. ⁰F	500+/-50	200+/-25	+70 °F			
Weld Position	1G	1G				

High Heat Input	Low Heat Input		Lot- # Z619202406111	AWS D1.8	High Heat Input	Low Heat Input
78.4 kJ/in	28.8 kJ/in		Mechanical Properties	Requirements	78.4 kJ/in	28.8 kJ/in
28.5	28.5		Test Reference #		PD2377	PD2372
275	280					
420	407					
6	16.6		Tensile Strength (psi)	70,000	76,000	91,000
5/8"	3/4"		Yield Strength (psi)	58,000	60,000	79,000
8	16		Elongation (%)	22	32	28
4	6		Average Charpy V-notch			
300+/-25	RT		Impact Properties ft•lbs @	40	110	108
500+/-50	200+/-25		+70 °F			
1G	1G					
	28.5 275 420 6 5/8" 8 4 300+/-25 500+/-50	28.5 28.5 275 280 420 407 6 16.6 5/8" 3/4" 8 16 4 6 300+/-25 RT 500+/-50 200+/-25	28.5 28.5 275 280 420 407 6 16.6 5/8" 3/4" 8 16 4 6 300+/-25 RT 500+/-50 200+/-25	28.5 28.5 Test Reference # 275 280 420 407 6 16.6 Tensile Strength (psi) 7 Yield Strength (psi) 8 16 Elongation (%) 4 6 Average Charpy V-notch Impact Properties ft•lbs @ 500+/-50 200+/-25 +70 °F	28.5 28.5 Test Reference # 275 280 420 407 6 16.6 Tensile Strength (psi) 70,000 5/8" 3/4" Yield Strength (psi) 58,000 8 16 Elongation (%) 22 4 6 Average Charpy V-notch 300+/-25 RT Impact Properties ft•lbs @ 40 500+/-50 200+/-25 +70 °F	28.5 28.5 Test Reference # PD2377 275 280 420 407 6 16.6 Tensile Strength (psi) 70,000 76,000 5/8" 3/4" Yield Strength (psi) 58,000 60,000 8 16 Elongation (%) 22 32 4 6 Average Charpy V-notch 300+/-25 RT Impact Properties ft•lbs @ 40 110 500+/-50 200+/-25 +70 °F

Test Settings	High Heat Input	Low Heat Input	Lot- # V621340618101	AWS D1.8	High Heat Input	Low Heat Input
	78.4 kJ/in	28.7 kJ/in	Mechanical Properties	Requirements	78.4 kJ/in	28.7 kJ/in
Voltage	28.5	28.5	Test Reference #		PC1473	PC1472
Current (amps)	275	275				
WFS (ipm)	415	415				
Travel Speed (ipm)	6	16.37	Tensile Strength (psi)	70,000	73,000	87,000
Stick Out	3/4"	3/4"	Yield Strength (psi)	58,000	58,000	77,000
# of passes	8	17	Elongation (%)	22	32	26
# of layers	4	6	Average Charpy V-notch			
Preheat Temp. ⁰F	300+/-25	RT	Impact Properties ft•lbs @	40	164	130
Interpass Temp. ⁰F	500+/-50	200+/-25	+70 °F			
Weld Position	1G	1G				

Diffusible Hydrogen - Tested in accordance with AWS A5.18/A5.18M, Clause 15 & Extended Exposure - in accordance with AWS D1.8/D1.8M									
Condition Lot - # Test Reference # Average (ml/100g)									
As Received	B624993101123	HB3056	2.6 (ml/100g)						
7 Day Exposure	B624993101123	HB3115	5.5 (ml/100g)						

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Sail A. Thomas



Product: FabCOR 86R **Diameter:** .052"

Shielding Gas: M20-ArC-15 **Current/Polarity:** DCEP **Classification:** E70C-6M H4

Specification: AWS A5.18/A5.18M:2017

Test Completed: 3/25/2020

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

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Test Settings	High Heat Input	Low Heat Input	Lot- # C624501101101	AWS D1.8	High Heat Input	Low Heat Input
	80.3 kJ/in	25.0 kJ/in	Mechanical Properties	Requirements	80.3 kJ/in	25.0 kJ/in
Voltage	31.5	25	Test Reference #		PD9352	PD9351
Current (amps) WFS (ipm) Travel Speed (ipm) Stick Out # of passes # of layers Preheat Temp. °F Interpass Temp. °F Weld Position	425 500 8 3/4" 8 4 300+/-25 500+/-50 1G	250 270 15 3/4" 20 7 RT 200+/-25 1G	Tensile Strength (psi) Yield Strength (psi) Elongation (%) Average Charpy V-notch Impact Properties ft•lbs @ +70 °F	70,000 58,000 22 40	78,000 65,000 32 101	90,000 80,000 27 85

Test Settings	High Heat Input	Low Heat Input	Lot- # A605481102171	AWS D1.8	High Heat Input	Low Heat Input
	80.3 kJ/in	25.0 kJ/in	Mechanical Properties	Requirements	80.3 kJ/in	25.0 kJ/in
Voltage	31.5	25	Test Reference #		PD3643	PD3644
Current (amps)	425	250				
WFS (ipm)	455	225				
Travel Speed (ipm)	10	15	Tensile Strength (psi)	70.000	74 000	07.400
Stick Out	3/4"	3/4"	Yield Strength (psi)	70,000	71,600	87,400
# of passes	8	20	Elongation (%)	58,000 22	60,800 27	77,800 29
# of layers	4	7	Average Charpy V-notch	22	21	29
Preheat Temp. °F	300+/-25	RT	Impact Properties ft•lbs @	40	143	134
nterpass Temp. ⁰F	500+/-50	200+/-25	+70 °F	40	143	134
Weld Position	1G	1G				

Test Settings	High Heat Input	Low Heat Input	Lot- # A605251116171	AWS D1.8	High Heat Input	Low Heat Input
	80.3 kJ/in	25.0 kJ/in	Mechanical Properties	Requirements	80.3 kJ/in	25.0 kJ/in
Voltage	31.5	25	Test Reference #		PD3643	PD3644
Current (amps)	425	250				
WFS (ipm)	455	225				
Travel Speed (ipm)	10	15	Tensile Strength (psi)	70.000	72.000	87,000
Stick Out	3/4"	3/4"	Yield Strength (psi)	58.000	61,000	78.000
# of passes	8	20	Elongation (%)	22	27	29
# of layers	4	7	Average Charpy V-notch	22	21	23
Preheat Temp. ⁰F	300+/-25	RT	Impact Properties ft•lbs @	40	143	134
Interpass Temp. ⁰F	500+/-50	200+/-25	+70 °F	40	140	104
Weld Position	1G	1G				

Diffusible Hydrogen - Tested in accordance with AWS A5.18/A5.18M, Clause 15 & Extended Exposure - in accordance with AWS D1.8/D1.8M											
Condition Lot - # Test Reference # Average (ml/100g)											
As Received	C624501101101	HB3969	2.5 (ml/100g)								
7 Day Exposure	7 Day Exposure C624501101101 HB3990 3.5 (ml/100g)										

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elail A. Thomas

David A. Thomas, Quality Assurance Representative



Product: FabCOR 86R **Diameter:** 1/16"

Shielding Gas: M20-ArC-15 Current/Polarity: DCEP Classification: E70C-6M H4 Specification: AWS A5.18/A5.18M

Test Completed: 6/5/2020

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

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Test Settings	High Heat Input	Low Heat Input	Lot- # D601162507302	AWS D1.8	High Heat Input	Low Heat Input
	81.2 kJ/in	30.1 kJ/in	Mechanical Properties	Requirements	81.2 kJ/in	30.1 kJ/in
Voltage	29	26	Test Reference #		PD9607	PD9578
Current (amps)	420	255				
WFS (ipm)	350	170				
Travel Speed (ipm)	9	12.8	Tensile Strength (psi)	70,000	72,100	83,700
Stick Out	3/4"	3/4"	Yield Strength (psi)	58,000	58,000	73,300
# of passes	5	19	Elongation (%)	22	31	27
# of layers	3	7	Average Charpy V-notch			
Preheat Temp. ⁰F	300+/-25	RT	Impact Properties ft•lbs @			
Interpass Temp. °F	500+/-50	200+/-25	+70 °F	40	115	111
Weld Position	1G	1G				

Test Settings	High Heat Input	Low Heat Input	Lot- # A608700107081	AWS D1.8	High Heat Input	Low Heat Input
	80.2 kJ/in	25.2 kJ/in	Mechanical Properties	Requirements	80.2 kJ/in	25.2 kJ/in
Voltage	28	25	Test Reference #		PD4032	PD4081
Current (amps)	420	260				
WFS (ipm)	315	160				
Travel Speed (ipm)	8.8	15.5	Tensile Strength (psi)	70,000	73,700	83,600
Stick Out	3/4"	3/4"	Yield Strength (psi)	58,000	59,200	71,600
# of passes	7	20	Elongation (%)	22	33	25
# of layers	4	7	Average Charpy V-notch			
Preheat Temp. ⁰F	300+/-25	RT	Impact Properties ft•lbs @			
Interpass Temp. ⁰F	500+/-50	200+/-25	+70 °F	40	57	102
Weld Position	1G	1G				

Test Settings	High Heat Input	Low Heat Input		Lot- # A6090801074021	AWS D1.8	High Heat Input	Low Heat Input
	80.2 kJ/in	25.2 kJ/in		Mechanical Properties	Requirements	80.2 kJ/in	25.2 kJ/in
Voltage	28	25	1	Test Reference #		PD4054	PD4055
Current (amps)	420	260					
WFS (ipm)	315	160					
Travel Speed (ipm)	8.8	15.5		Tensile Strength (psi)	70,000	76,500	87,100
Stick Out	3/4"	3/4"		Yield Strength (psi)	58,000	60,200	76,200
# of passes	7	20		Elongation (%)	22	30	25
# of layers	4	7		Average Charpy V-notch			
Preheat Temp. ⁰F	300+/-25	RT		Impact Properties ft•lbs @			
Interpass Temp. °F	500+/-50	200+/-25		+70 °F	40	94	109
Weld Position	1G	1G					

Diffusible Hydrogen - Tested in accordance with AWS A5.18/A5.18M, Clause 15 & Extended Exposure - in accordance with AWS D1.8/D1.8M									
Condition Lot - # Test Reference # Average (ml/100g)									
As Received	D601162507302	HB4213	3.4 (ml/100g)						
7 Day Exposure	D601162507302	HB4214	3.4 (ml/100g)						

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Sail A. Thomas



Product: FabCOR 86R **Diameter:** 1/16"

Shielding Gas: M21-ArC-25 Current/Polarity: DCEP Classification: E70C-6M H4

Specification: AWS A5.18/A5.18M:2005

Test Completed: 3/21/2019

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Test Settings	High Heat Input	Low Heat Input		Lot- # B602360101182	AWS D1.8	High Heat Input	Low Heat Input
	83.6 kJ/in	30.1 kJ/in	in	Mechanical Properties	Requirements	83.6 kJ/in	30.1 kJ/in
Voltage	29	26		Test Reference #		PD7158	PD7154
Current (amps)	420	255					
WFS (ipm)	350	170					
Travel Speed (ipm)	8.8	13		Tensile Strength (psi)	70,000	74,000	86,000
Stick Out	3/4"	3/4"		Yield Strength (psi)	58,000	58,000	74,000
# of passes	5	20		Elongation (%)	22	32	26
# of layers	3	7		Average Charpy V-notch			
Preheat Temp. ⁰F	300+/-25	RT		Impact Properties ft•lbs @	40	76	96
Interpass Temp. ⁰F	500+/-50	200+/-25		+70 °F			
Weld Position	1G	1G					

High Heat Input	Low Heat Input		Lot- # Z60121010221	AWS D1.8	High Heat Input	Low Heat Input
83.6 kJ/in	30.1 kJ/in		Mechanical Properties	Requirements	83.6 kJ/in	30.1 kJ/in
29	26		Test Reference #		PD0514	PD0525
420	265					
369	170					
8.8	13		Tensile Strength (psi)	70,000	83,000	86,000
3/4"	3/4"		Yield Strength (psi)	58,000	68,000	760500
6	20		Elongation (%)	22	29	28
3	7		Average Charpy V-notch			
300+/-25	RT		Impact Properties ft•lbs @	40	83	95
500+/-50	200+/-25		+70 °F			
1G	1G					
	83.6 kJ/in 29 420 369 8.8 3/4" 6 3 300+/-25 500+/-50	83.6 kJ/in 30.1 kJ/in 29 26 420 265 369 170 8.8 13 3/4" 3/4" 6 20 3 7 300+/-25 RT 500+/-50 200+/-25	83.6 kJ/in 29 26 420 265 369 170 8.8 13 3/4" 3/4" 6 20 3 7 300+/-25 RT 500+/-50 200+/-25	83.6 kJ/in 30.1 kJ/in Mechanical Properties 29 26 Test Reference # 420 265 Test Reference # 369 170 Tensile Strength (psi) 8.8 13 Yield Strength (psi) 6 20 Elongation (%) 3 7 Average Charpy V-notch Impact Properties ft•lbs @ 500+/-25 200+/-25 +70 °F	83.6 kJ/in 30.1 kJ/in Mechanical Properties Requirements 29 26 Test Reference # 420 265 70 369 170 70,000 8.8 13 Yield Strength (psi) 58,000 6 20 Elongation (%) 22 300+/-25 RT Impact Properties ft•lbs @ 40 500+/-50 200+/-25 +70 °F 40	83.6 kJ/in 30.1 kJ/in Mechanical Properties Requirements 83.6 kJ/in 29 26 Test Reference # PD0514 420 265 PD0514 369 170 70,000 83,000 8.8 13 Tensile Strength (psi) 58,000 68,000 6 20 Elongation (%) 22 29 300+/-25 RT Impact Properties ft•lbs @ 40 83 500+/-50 200+/-25 +70 °F 40 83

Test Settings	High Heat Input	Low Heat Input	Lot- # T624010109162	AWS D1.8 Requirements	High Heat Input	Low Heat Input
	78.6 kJ/in	30.6 kJ/in	Mechanical Properties		78.6 kJ/in	30.6 kJ/in
Voltage	29	26	Test Reference #		PB9025	PB8939
Current (amps)	420	255				
WFS (ipm)	329	175				
Travel Speed (ipm)	9.3	13	Tensile Strength (psi)	70,000	78,000	85,000
Stick Out	3/4"	3/4"	Yield Strength (psi)	58,000	62,000	75,000
# of passes	9	20	Elongation (%)	22	32	29
# of layers	4	7	Average Charpy V-notch			
Preheat Temp. ⁰F	300+/-25	RT	Impact Properties ft•lbs @	40	104	124
Interpass Temp. ⁰F	500+/-50	200+/-25	+70 °F			
Weld Position	1G	1G				

Diffusible Hydrogen - Tested in accordance with AWS A5.18/A5.18M, Clause 15 & Extended Exposure - in accordance with AWS D1.8/D1.8M								
Condition	Lot - #	Test Reference #	Average (ml/100g)					
As Received	B602360101182	HB2948	1.8 (ml/100g)					
7 Day Exposure	B602360101182	HB2985	3.0 (ml/100g)					

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