



# Certificate of Conformance to Requirements for Welding Electrode

Hobart

Product Type: 7018 XLM  
 Classification: E7018-1 H4R  
 Specifications: AWS A5.1/A5.1M:2012/ASME SFA 5.1  
 Diameter Tested:  
 Date Tested: 6/14/2017  
 Date Generated: 6/27/2017

This is to certify that the product named above and supplied on the referenced order number is of the same classification, manufacturing process, and material requirements as the material which was used for the test that was concluded on the date shown, the results of which are shown below. All tests required by the specifications shown for classification were performed at that time and the material tested met all requirements. It was manufactured and supplied by the Quality System Program of Hobart Brothers, which meets the requirements of ISO9000, ANSI/AWS A5.01, and other specification and Military requirements, as applicable.

### Test Settings

Amps	Volts	Size	Polarity	Preheat	Interpass	Travel Speed
190	25	5/32X14 in	AC	225 F (107 C)	300 F (149 C)	+/- 1 in/min
185	25	5/32X14 in	DCEP	225 F (107 C)	300 F (149 C)	+/- 1 in/min
330	26	1/4X18 in	AC	225 F (107 C)	300 F (149 C)	+/- 1 in/min
320	26	1/4X18 in	DCEP	225 F (107 C)	300 F (149 C)	+/- 1 in/min
240	29	3/16X14 in	AC	225 F (107 C)	300 F (149 C)	+/- 1 in/min
225	29	3/16X14 in	DCEP	225 F (107 C)	300 F (149 C)	+/- 1 in/min

### Mechanical Properties - Tensile

Size / Polarity	Ref. No.	Testing Conditions	Ult. Tensile Strength	Yield Strength	Elong.% in 2"
5/32X14 in / AC	PD3064	As Welded	80,000 psi ( 550 Mpa)	69,000 psi ( 473 Mpa)	29
5/32X14 in / DCEP	PD3065	As Welded	78,000 psi ( 539 Mpa)	65,000 psi ( 451 Mpa)	31
1/4X18 in / AC	PD3234	As Welded	83,000 psi ( 575 Mpa)	72,000 psi ( 493 Mpa)	30
1/4X18 in / DCEP	pd3235	As Welded	81,000 psi ( 556 Mpa)	68,000 psi ( 469 Mpa)	30
3/16X14 in / AC	PD4051	As Welded	86,000 psi ( 594 Mpa)	73,000 psi ( 502 Mpa)	24
3/16X14 in / DCEP	PD4052	As Welded	82,000 psi ( 565 Mpa)	68,000 psi ( 471 Mpa)	28

### Mechanical Properties - Impact

Size / Polarity	Ref. No.	Testing Conditions	Test Temp.	Individuals	Average	Type
5/32X14 in / AC	pd3064	As Welded	-50 F (-46 C)	94,98,105 ft.lb	99 ft.lb ( 134 J)	Charpy-V-Notch
5/32X14 in / DCEP	PD3065	As Welded	-50 F (-46 C)	116,71,139 ft.lb	109 ft.lb ( 147 J)	Charpy-V-Notch
1/4X18 in / AC	PD3234	As Welded	-50 F (-46 C)	35,25,19 ft.lb	26 ft.lb ( 36 J)	Charpy-V-Notch
1/4X18 in / DCEP	PD3235	As Welded	-50 F (-46 C)	62,41,25 ft.lb	43 ft.lb ( 58 J)	Charpy-V-Notch
3/16X14 in / AC	PD4051	As Welded	-50 F (-46 C)	31,64,82 ft.lb	59 ft.lb ( 80 J)	Charpy-V-Notch
3/16X14 in / DCEP	PD4052	As Welded	-50 F (-46 C)	87,73,94 ft.lb	85 ft.lb ( 115 J)	Charpy-V-Notch

Size / Polarity	Ref. No.	Radiograph	Fillet Weld Test			
5/32X14 in / AC	PD3064	Conforms	Horizontal :	Overhead :	Vertical :	Conforms
5/32X14 in / DCEP	PD3065	Conforms	Horizontal :	Overhead :	Vertical :	Conforms
1/4X18 in / AC	PD3234	Conforms	Horizontal :	Overhead :	Vertical :	
1/4X18 in / DCEP	PD3235	Conforms	Horizontal :	Overhead :	Vertical :	
3/16X14 in / AC	PD4051	Conforms	Horizontal :	Overhead :	Vertical :	
3/16X14 in / DCEP	PD4052	Conforms	Horizontal :	Overhead :	Vertical :	

### Chemical Analysis

Size / Polarity / Ref. No.	C	Mn	P	S	Si	Cu	Cr	V	Ni	Mo	Al	Ti	Nb	Co	B	W	Sn	Fe	Sb	N	Mg	Zn	Be
5/32X14 in / DCEP / CD23479	0.04	0.95	0.010	0.007	0.39		0.04	0.00	0.02	0.01													
1/4X18 in / DCEP / CD24425	0.06	1.00	0.009	0.017	0.40		0.05	0.01	0.07	0.12													
3/16X14 in / DCEP / CD25684	0.06	1.05	0.013	0.014	0.33		0.06	0.01	0.07	0.12													

Size: 5/32X14 in	Total H2O Method: RC412 - As Received	Total Coating Moisture: 0.105	Ref. No.: CD23479
Size: 1/4X18 in	Total H2O Method: RC412 - As Received	Total Coating Moisture: 0.045	Ref. No.: CD24425
Size: 3/16X14 in	Total H2O Method: RC412 - As Received	Total Coating Moisture: 0.037	Ref. No.: CD25684

### Diffusible Hydrogen Collected per AWS A4.3 - ml/100 g weld metal

n/a	2.7	ml/100g	For	5/32X14 in	dia
n/a	2.3	ml/100g	For	1/4X18 in	dia
n/a	2.3	ml/100g	For	3/16X14 in	dia

*David A. Thomas*

Dave Thomas , Quality Assurance Rep.

The information Certification and Limited Warranty - Data for the above supplied product are those obtained when welded and tested in accordance with the above specification. All tests for the above classification were satisfied. Other tests and procedures may produce different results. Hobart Brothers produces welding consumables under continuing quality assurance programs audited and approved by the American Bureau of Shipping ("ABS").