

Product Type: HOBALLOY 8018C3
 Classification: E8018-C3H4
 Specifications: AWS A5.5/A5.5M:2006/EN 102043.1B
 Diameter Tested:
 Date Tested: 08/30/07
 Date Generated: 3/17/2008

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 dates 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 ISO 9000, ANSI/AWS A5.01, and other specification and Military requirements, as applicable.

Test Settings

Amps	Volts	Size	Polarity	Preheat	Interpass	Travel Speed
190	24	5/32X14in	AC	225F(107C)	250F(121C)	+1 in/min
235	26 1/2-25	3/16X14in	DCEP	225F(107C)	225F(107C)	+1 in/min
170	26	5/32X14in	DCEP	200F(93C)	200F(93C)	+1 in/min
225	26 1/2-25	3/16X14in	AC	225F(107C)	225F(107C)	+1 in/min

Mechanical Properties-Tensile

Size/Polarity	Ref.No.	Testing Conditions	Ult. Tensile Strength	Yield Strength	Elong. % in 2"
3/16X14in/AC	PA6054	As Welded	89,000psi(612Mpa)	72,000psi(497Mpa)	26
5/32X14in/AC	PA5421	As Welded	82,000psi(565Mpa)	69,000psi(478Mpa)	27
5/32X14in/DCEP	PA6043	As Welded	84,000psi(583Mpa)	75,000psi(517Mpa)	27
3/16X14in/DCEP	PA5665	As Welded	91,000psi(627Mpa)	76,000psi(523Mpa)	26

Mechanical Properties-Impact

Size/Polarity	Ref.No.	Testing Conditions	Test Temp.	Individuals	Average	Type
3/16X14in/AC	PA6054	As Welded	-40F(-40C)	72,72,92ft.lb	79ft.lb(107J)	Charpy-V-Notch
5/32X14in/AC	PA5421	As Welded	-40F(-40C)	105,114,114ft.lb	111ft.lb(150J)	Charpy-V-Notch
5/32X14in/DCEP	PA6043	As Welded	-40F(-40C)	114,116,117ft.lb	116ft.lb(157J)	Charpy-V-Notch
3/16X14in/DCEP	PA5665	As Welded	-40F(-40C)	118,109,110ft.lb	112ft.lb(152J)	Charpy-V-Notch

Size/Polarity	Ref.No.	Radiograph	Fillet Weld Test			
3/16X14in/AC	PA6054	Conforms	Horizontal: Conforms	Overhead:	Vertical:	
5/32X14in/AC	PA5421	Conforms	Horizontal:	Overhead: Conforms	Vertical: Conforms	
5/32X14in/DCEP	PA6043	Conforms	Horizontal:	Overhead: Conforms	Vertical: Conforms	
3/16X14in/DCEP	PA5665	Conforms	Horizontal: Conforms	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
5/32X14in/DCEP/CA51416	0.09	0.84	0.02	0.01	0.15		0.04	<.01	0.90	0.11													
3/16X14in/DCEP/CA53264	0.06	1.05	0.01	0.01	0.32		0.06	0.01	1.00	0.10													

Size: 5/32X14in	Total H2O Method: RC412-As Received	Total Coating Moisture: 0.129	Ref.No.: CA51416
Size: 3/16X14in	Total H2O Method: RC412-As Received	Total Coating Moisture: 0.069	Ref.No.: CA53264



Steve Knostman, Quality Engineer



Guo Hao, R&D Engineer

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").