HOBART FILLER METALS

Certificate of Conformance to Requirements for Welding Electrode

Product Type:	**FABCO 85**
Classification:	**E70T-5CJ H4, E70T-5MJ H4**
Specifications:	**AWS A5.20-2005; ASME SFA5.20**
Diameter Tested:	**1/16"; 3/32"**
Date Tested:	**8/28/2019**
Date Generated:	**10/18/2019**

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 ISO 9001, ANSI/AWS A5.01, and other specification and Military requirements, as applicable. This document supplies actual test results of non-specific inspection in conformance with the requirements of EN 10204, type 2.2 certification.

THE STEEL USED IN THIS LOT OF MATERIAL WAS MELTED AND MANUFACTURED IN THE U.S.A.

Test Settings

Shielding Medium	Amps / Polarity	Volts	WFS in/min(m/min)	ESO in(mm)	Preheat F(C)	Interpass F(C)	Travel Speed in/min(cm/min)
M21-ArC-25	425 / DCEP	26	180 (4.6)	1 (25)	Room Temp	300(149)	12 (30.5)
C1 (100% CO2)	425 / DCEP	27	180 (4.6)	1 (25)	Room Temp	300(149)	12 (30.5)
M21-ArC-25	375 / DCEP	29	390 (9.9)	.75 (19)	Room Temp	300(149)	12 (30.5)
C1 (100% CO2)	375 / DCEP	30	375 (9.5)	.75 (19)	Room Temp	300(149)	12 (30.5)

Mechanical Properties - Tensile

Shielding Medium	Ref. No.	Testing Conditions	Ult. Tensile Strength psi (MPa)	Yield Strength psi (MPa)	Elong.% in 2"
M21-ArC-25	PD8439	Aged 48 Hrs 220F	90,000 (624)	78,000 (538)	28
C1 (100% CO2)	PD8442	Aged 48 Hrs 220F	85,000 (589)	74,000 (507)	30
M21-ArC-25	PD8199	Aged 48 Hrs 220F	81,000 (561)	78,000 (534)	27
C1 (100% CO2)	PD8202	Aged 48 Hrs 220F	77,000 (533)	63,000 (432)	29

Mechanical Properties - Impact

Shielding Medium	Ref. No.	Testing Conditions	Temp. F (C)	Individuals ft.lb.(J)	Avg. ft.lb.(J)	Type
M21-ArC-25	PD8199	As Welded	-40 (-40)	67,76,71 (91,103,96)	71 (97)	Charpy-V-Notch
C1 (100% CO2)	PD8202	As Welded	-40 (-40)	90,95,101 (122,129,137)	95 (129)	Charpy-V-Notch
M21-ArC-25	PD8439	As Welded	-40 (-40)	33,31,27 (45,42,37)	30 (41)	Charpy-V-Notch
C1 (100% CO2)	PD8442	As Welded	-40 (-40)	49,67,58 (66,91,79)	58 (79)	Charpy-V-Notch

Ref.No.	Radiographic Inspection	Fillet Weld Test					
PD8439	Conforms	Horizontal :	Conforms	Overhead :		Vertical :	
PD8442	Conforms	Horizontal :	Conforms	Overhead :		Vertical :	
PD8199	Conforms	Horizontal :	Conforms	Overhead :		Vertical :	
PD8202	Conforms	Horizontal :	Conforms	Overhead :		Vertical :	

Chemical Analysis

Shielding Medium / 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	Sb	As
M21-ArC-25 / CD53657	0.06	1.38	0.006	0.006	0.49	0.01	0.01	0.01	0.01	< .01	0.01	< .01	< .01												
C1 (100% CO2) / CD53672	0.04	1.23	0.005	0.005	0.38	0.01	0.01	0.01	0.01	< .01	0.01	< .01	< .01												
M21-ArC-25 / CD55269	0.07	1.50	0.006	0.005	0.89	0.03	0.04	0.01	0.01	< .01	0.01	0.03	< .01												
C1 (100% CO2) / CD55291	0.06	1.40	0.007	0.004	0.87	0.20	0.04	0.01	0.01	< .01	0.01	0.02	< .01												

Diffusible Hydrogen Collected per AWS A4.3

M21-ArC-25	1.6 ml/100g of weld metal for 3/32 in diameter 32% relative humidity
C1 (100% CO2)	1.3 ml/100g of weld metal for 3/32 in diameter 32% relative humidity
M21-ArC-25	2.5 ml/100g of weld metal for 1/16 in diameter 56% relative humidity
C1 (100% CO2)	2.3 ml/100g of weld metal for 1/16 in diameter 56% relative humidity

Dave Thomas, Quality Assurance Rep.

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.