



METALLOY[®]76

GAS-SHIELDED METAL-CORED WIRE
AWS E70C-6M H4
EN758, T46 4 M M 2 H5

070801 (replaces 061218)

Metalloy 76 has higher manganese and silicon levels than Metalloy 71 with slightly lower spatter and higher strength. The increased deoxidization level allows for more tolerance of mill scale, with fewer root pores than Metalloy 71. Metalloy 76 is recommended for single-pass and multi-pass welding in flat and horizontal positions with 75-95% Ar/CO₂. The wetting action is better than solid wire, minimizing cold lap on heavier sections of steel.

PRODUCT CHARACTERISTICS:

- Higher deoxidizer levels for improved performance on mill scaled plate
- Better wetting action than solid wire minimizes cold lap
- Superb operator appeal
- Good choice to use for short-circuit or pulse applications.

SPECIFICATIONS:

E70C-6M H4 per AWS A5.18, ASME SFA 5.18
Lloyd's Register of Shipping Grade 3Y40S H15
Germanischer Lloyd 3Y40H5S
DNV Grade III Y40MS

Bureau Veritas S3YM
CWB E491C-6M H4
ABS Grade 3SA, 3YSA
EN758, T46 4 M M 2 H5

SHIELDING GAS:

75-90% Ar/Bal CO₂, 35-50 cfh

WELDING POSITIONS:

CV Spray - flat, horizontal, vertical down
Pulse and short arc - all positions

STANDARD DIAMETERS:

.035", .045", .052", 1/16", 5/64"

WELD TEST PARAMETERS:

Metalloy 76 1/16" diameter electrode was welded using 75% Ar/25% CO₂ shielding gas with flow rate of 50 cfh, 350 amps (325 ipm), DCEP, and 30 volts, with 3/4" electrical stick-out and 300°±25°F interpass temperature. A total of six layers were welded, two passes for each Layers 1 through 6. The direction of travel was reversed for each layer.

TYPICAL UNDILUTED WELD METAL CHEMISTRY:

	C	Mn	Si	P	S
75% Ar/25% CO ₂	0.05	1.58	0.71	0.012	0.013
90% Ar/10% CO ₂	0.05	1.69	0.78	0.012	0.013

TYPICAL DIFFUSIBLE HYDROGEN: 2.10 ml/100gr (75% Ar/25% CO₂)
2.15 ml/100gr (90% Ar/10% CO₂)

TYPICAL MECHANICAL PROPERTIES:	75% Ar/25% CO ₂	90% Ar/10% CO ₂
Tensile Strength	88,700 psi (612 MPa)	92,500 psi (638 MPa)
Yield Strength	78,200 psi (539 MPa)	82,600 psi (570 MPa)
Elongation	27%	26%
CVN @ 0°F (-18°C)	72 ft•lbs.(98 J)	68 ft•lbs.(92 J)
CVN @ -20°F (-29°C)	53 ft•lbs.(72J)	46 ft•lbs.(62 J)
CVN @ -40°F (-40°C)	34 ft•lbs. (46J)	

*The information contained or otherwise referenced herein is presented only as "typical" without guarantee or warranty, and Hobart Brothers Company expressly disclaims any liability incurred from any reliance thereon. Typical data is obtained when welded and tested in accordance with AWS A5.18 specification. Other tests and procedures may produce different results. No data is to be construed as a recommendation for any welding condition or technique not controlled by Hobart Brothers Company.

www.hobartbrothers.com
400 Trade Square East
Troy, OH 45373
PH: 1-800-424-1543
FX: 1-800-541-6607



METALLOY[®]76

GAS-SHIELDED METAL-CORED WIRE
 AWS E70C-6M H4
 EN758, T46 4 MM 2 H5

RECOMMENDED OPERATING PARAMETERS:

The information below was determined by welding performed with 75% Ar/25% CO₂ shielding gas at a flow rate of 50 cfh.

Diameter, Electrical Stickout (ES) Position	Arc Voltage (volts)	Current DCEP (+) (amps)	Approx. Wire Feed Speed (in/min)	Deposition Rate (lbs/hr)
.035" 1/2 ± 1/8" Flat and Horizontal	26	200	550	8.47
	28	250	760	11.97
	30	260	791	12.54
.045" 5/8" ± 1/8" Flat and Horizontal	27	200	273	6.11
	29	250	395	9.42
	31	300	520	13.0
	34	350	645	16.51
.052" 5/8" ± 1/8" Flat and Horizontal	28	250	265	7.95
	30	300	355	11.64
	32	350	450	15.11
	34	400	640	16.51
1/16" 3/4" ± 1/4" Flat and Horizontal	30	275	185	7.66
	30	300	220	9.66
	31	350	270	12.44
	32	400	330	15.75
	36	450	381	18.21

Bold: Optimum parameters for welder appeal.

Notice:

Actual use of the product may produce varying results due to conditions and welding techniques over which Tri-Mark has no control, including, but not limited to, plate chemistry, weldment design, fabrication methods, electrode size, welding procedure, service requirements and environment. The purchaser is solely responsible for determining the suitability of Tri-Mark products for the purchaser's own use. Any prior representations shall not be binding. Tri-Mark disclaims any warranty of merchantability or fitness for any particular purpose with respect to its products.

Caution:

Consumers should be thoroughly familiar with the safety precautions shown on the Warning Label posted on each shipment in and in American National Standard Z49.1, "Safety in Welding and Cutting," published by the American Welding Society, 550 NW LeJeune Road, Miami, FL 33126, and OSHA Safety and Health Standards 29 CFR 1910, available from the U.S. Department of Labor, Washington, D.C. 20210.

Product Type: METALLOY 76
Classification: E70C-6M H4
Specifications: AWS A5.18-2005; ASME SFA5.18
Diameter Tested: .045"
Date Tested: 6/15/07
Date Generated: 8/31/2007

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

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)
SG-AC-25	250 / DCEP	28	386 (9.8)	3/4 (19)	60(16)	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"
SG-AC-25	PA4886	As Welded	88,000 (607)	77,000 (530)	28

Mechanical Properties - Impact

Shielding Medium	Ref. No.	Testing Conditions	Temp. F (C)	Individuals ft.lb.(J)	Avg. ft.lb.(J)	Type
SG-AC-25	PA4886	As Welded	-20 (-29)	54,52,54 (73,70,73)	53 (72)	Charpy-V-Notch

Ref.No.	Radiographic Inspection	Fillet Weld Test			
PA4886	Conforms	Horizontal :	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
SG-AC-25 / CA51762	0.06	1.60	0.013	0.014	0.87	0.06	0.04	0.01	0.03	0.04													

Diffusible Hydrogen Collected per AWS A4.3

SG-AC-25	2.3 ml/100g of weld metal for .045 in diameter
----------	--

32 - 40
60

J. H. O'Leary

Joe O'Leary, Manager, Quality Assurance

D. Duncan

Daryl Duncan, Development Engineer

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").