

TRI-MARK[®]

METALLOY[®]
METAL-CORED WIRES

- **PRODUCTIVITY**
- **QUALITY**
- **PERFORMANCE**

TRUE EXCELLENCE IN METAL-CORED WIRES



METAL-CORED GAS-SHIELDED WIRES – CARBON STEEL

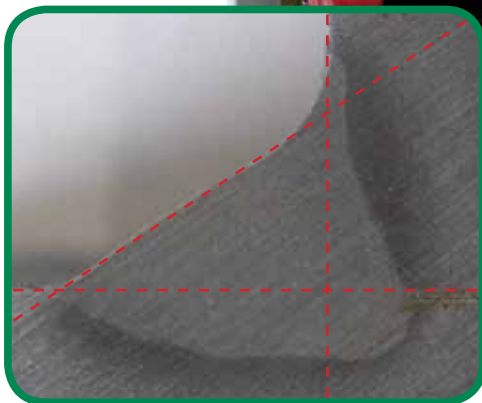
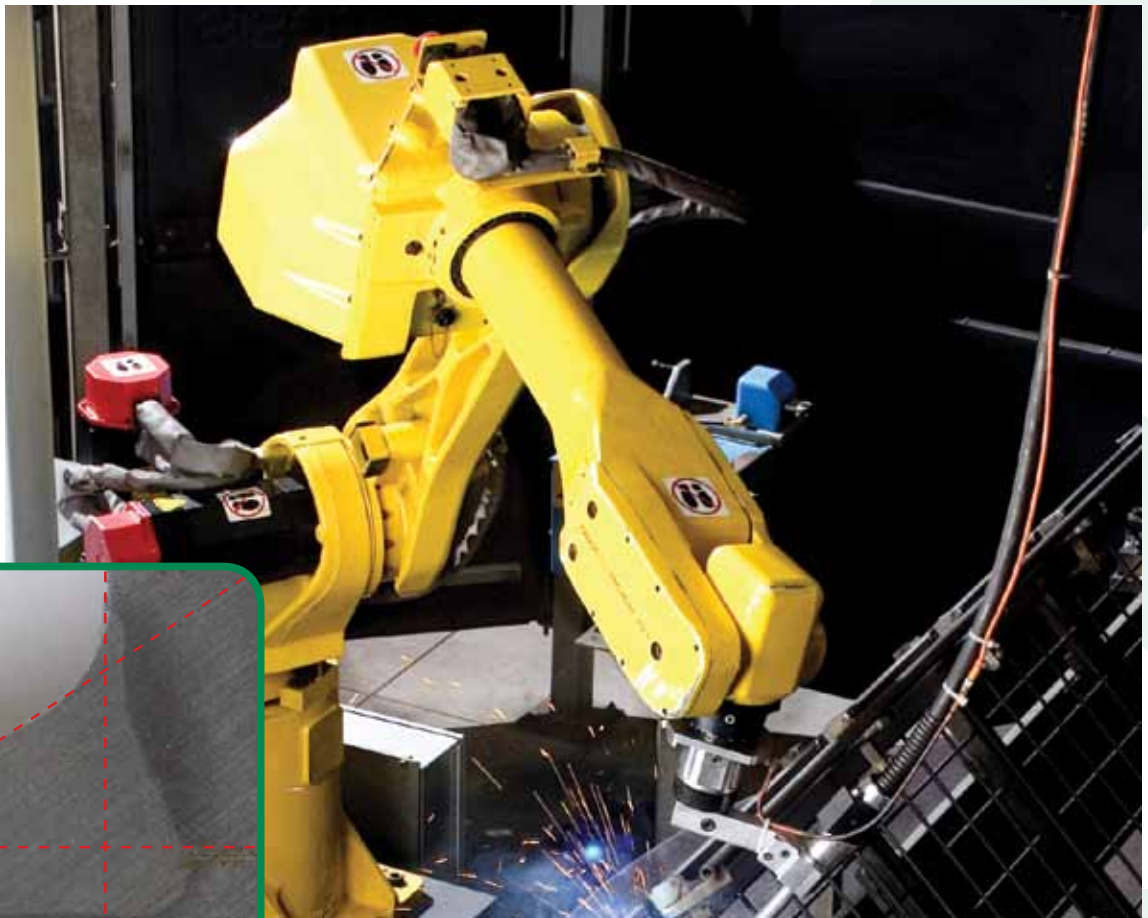
Our manufacturing process was designed from the ground up with consistency in mind. The result: Better feeding and more consistent arc starts than standard metalloy products.



Tri-Mark's metal-cored wires for carbon steels are designed to provide welders with what they look for most: excellent wetting of toes, low visible smoke, less silicon islands and superb bead appearance. Additional benefits include: deposition rate efficiencies of up to 97%, high arc stability, and excellent tie-in capabilities. Most of our wires are manufactured with a lap seam, leading to better feedability (which in turn leads to longer liner life) and arc starting, good penetration and outstanding fusing at the root. This produces a high quality, slag free, low spatter weld.

Tri-Mark metal-cored wires have a high current density which provides a wider projection area for increased deposition and a less turbulent weld pool. The result is a penetration pattern that is more uniform, with less chance of cold lap. Compared to the performance of solid wires, Tri-Mark metal-cored wires allow faster travel speeds and a higher quality weld bead. What does that mean to you? Increased productivity and reduced costs from labor (pre- and post-weld cleanup and rework), and more time spent by your welders doing what they do best: welding.

Our next generation metal-cored wire, Matrix, is specifically designed for robotic applications.

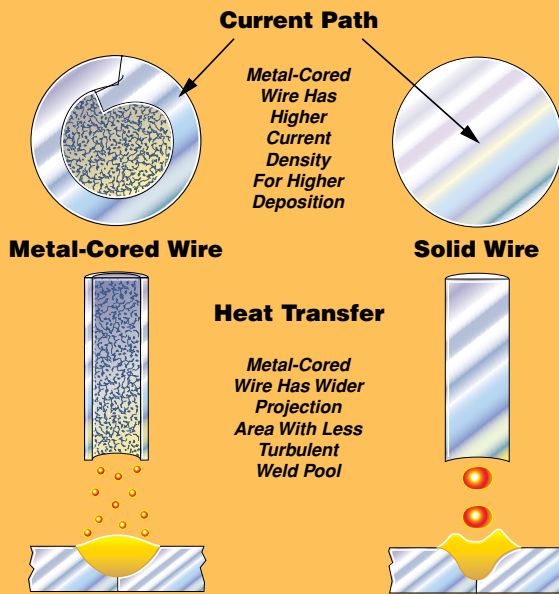


Matrix Weld Penetration

**Lower Spatter
Better Side Wall Fusion
Higher Deposition**

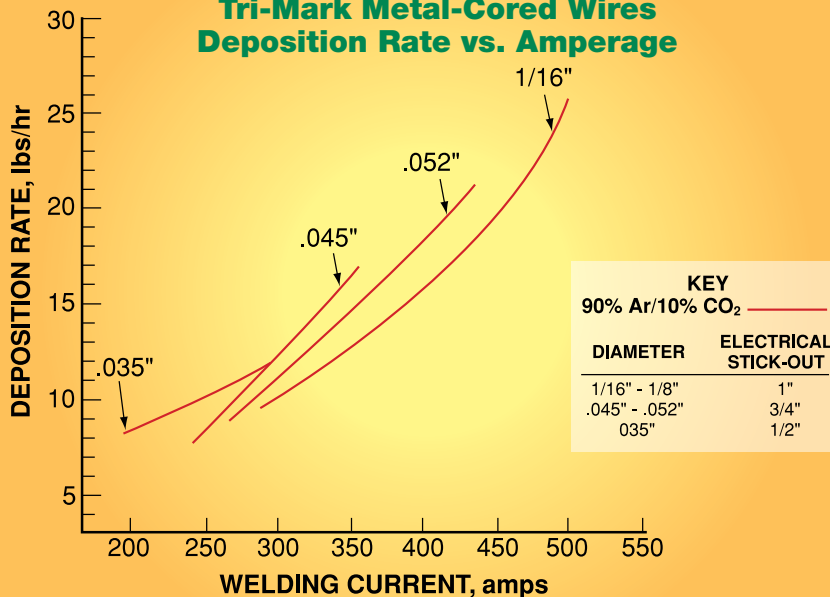
APPLICATIONS

Metal-Cored vs. Solid Wire



Wire comparison shows the advantage of metal-cored wire over solid wire.

Tri-Mark Metal-Cored Wires Deposition Rate vs. Amperage



High deposition rates and efficiencies, up to 27 lbs/hr and 97%, respectively, aid in reducing welding time and clean-up costs.

Tri-Mark's metal-cored welding wires are winning the attention of cost-conscious metal fabricators. Their excellent re-strike characteristics, low spatter levels and high deposition rates make Tri-Mark metal-cored wires ideal for semi-automatic, automatic and robotic applications.

Additional benefits of Tri-Mark's proprietary metal-cored wires include:

- Higher deposition rates compared to solid wire resulting from...
 - Higher wire feed speeds for a given arc current
 - Tubular wire cross section carrying most of the current, leading to higher current density in the wire sheath
 - Spray transfer occurring at a lower current than solid wire
- Wider penetration pattern provides better side wall fusion and reduces risk of cold lap
- Less spatter compared to flux-cored wires, in addition to no slag, making for easier post-weld cleanup

Don't miss out on the advantages of metal-cored wires! To find out how Tri-Mark's metal-cored wires can increase your productivity and save your company money, call your Tri-Mark representative today for a free Hobart Brothers Improvement Potential Methodology review/procedure today!

METAL-CORED GAS-SHIELDED WIRES – CARBON STEEL

POSITIONING

	Feeding	Arc Starting	Silicon Control	Wetting	Bead Appearance
Matrix	● ● ● ● ●	● ● ● ● ●	● ● ● ● ●	● ● ● ● ●	● ● ● ● ●
Vantage	● ● ●	● ● ●	● ● ● ● ●	● ● ● ●	● ● ● ● ●
Met 76	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●

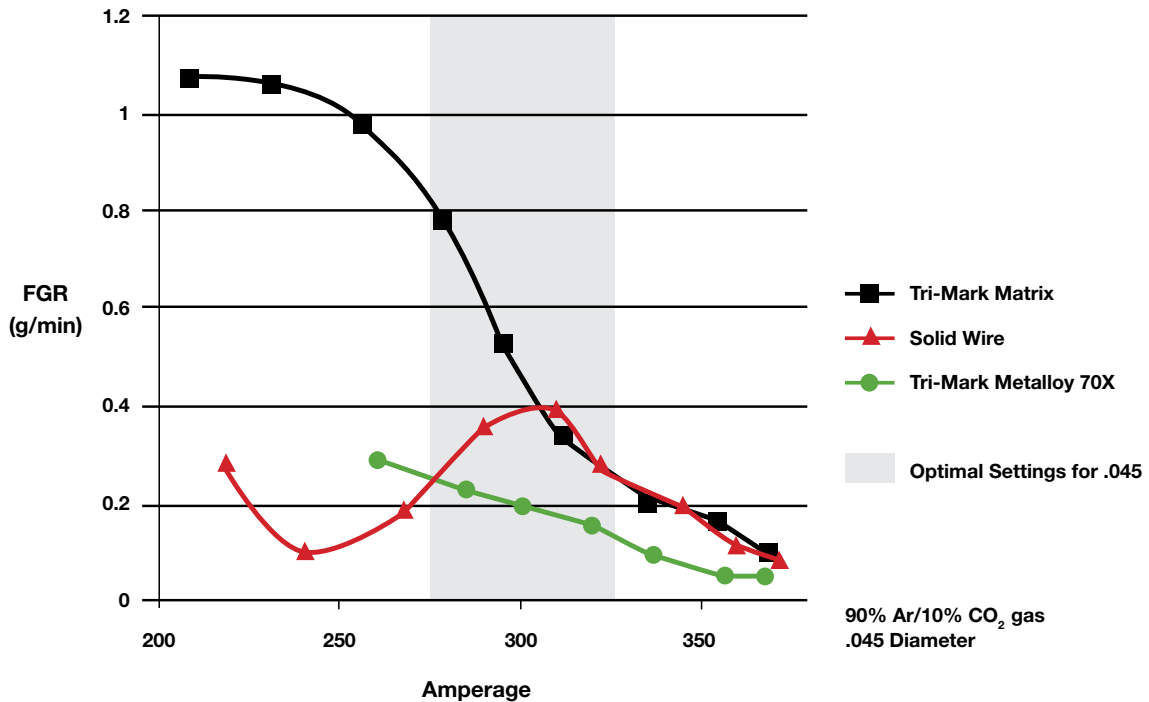
	Tolerance of Mill Scale	Tolerance of Torch Angles
Matrix	● ● ●	● ● ● ● ●
Vantage	● ● ●	● ● ● ●
Met 76	● ● ● ● ●	● ● ●

	Thin Gauge	Crack Resistance	Packaging	Pricing
Matrix	● ● ●	● ● ● ● ●	● ● ● ● ●	● ● ●
Vantage	● ● ● ● ●	● ● ●	● ● ● ●	● ● ● ●
Met 76	● ● ● ● ●	● ● ● ● ●	● ● ● ●	● ● ● ● ●

Met 70x produces lower emissions than any other metal cored wire

70X FGR Comparison

Amperage vs. FGR



METAL-CORED GAS-SHIELDED WIRES – LOW ALLOY

PRODUCT CHARACTERISTICS

Product	AWS Class	AWS Spec.	Tensile Strength (ksi)	Yield Strength (ksi)	Elongation %, in 2"	Impact Strength, CVN (ft•lbs @ °F)	C	Mn	Si	P	S	Ni	Shielding Gas
Metalloy® 70X	E70C-6M H4	A5.18	89.5	78.2	24.5	56 @ -20°F	.03	1.67	.80	.013	.012		90% Ar/10% CO ₂
Metalloy® 76	E70C-6M H4	A5.18	92.5	82.6	26	46 @ -20°F	.05	1.69	.78	.012	.013		90% Ar/10% CO ₂
Metalloy Vantage™	E70C-6M H14		97.0	87.0	22.5	47 @ -20°F	.05	1.50	.72	.010	.012	.42	90% Ar/10% CO ₂
Matrix	E70C-6MH4	A5.18	85.0	73.0	23	40 @ -20°F	.04	1.38	.63	.010	.023		90% Ar/10% CO ₂

Product	AWS Class	AWS Spec.	Tensile Strength (ksi)	Yield Strength (ksi)	Elongation %, in 2"	Impact Strength, CVN (ft•lbs @ °F)	C	Mn	Si	Ni	Cr	Mo	Cu	Shielding Gas
Metalloy Vantage Ni1	E80C-Ni1 H4	A5.28	92.0	81.0	25	44 @ -50°F	.05	1.38	.65	1.0	—	—	—	75% Ar/25% CO ₂
Metalloy® 80B2	E80C-B2	A5.28	96.9†	83.7	22.5	—	.07	.78	.42	—	1.25	.47	—	98% Ar/2% O ₂
			83.3	69.6	23	—	.06	.82	.29	—	1.36	.50	—	75% Ar/25% CO ₂
Metalloy® 80D2	E90C-D2	A5.28	105	97	20	48 @ -20°F	.08	1.34	.53	.02	—	.50	.06	95-98% Ar/Bal O ₂
			106	98.4	22.5	52 @ -20°F	.08	1.80	.66	.01	.50	.02	90% Ar/10% CO ₂	
Metalloy® 80N1	E80C-Ni1	A5.28	90.0	77.6	26	46 @ -50°F	.04	1.14	.40	.97	—	.12	—	95-98% Ar/Bal O ₂
			85.9	74.0	25	56 @ -50°F	.05	.86	.21	.97	—	.14	—	75% Ar/25% CO ₂
Metalloy® 80N2	E80C-Ni2	A5.28	90.0†	77.0	26	48 @ -80°F	.04	1.09	.34	2.26	—	—	—	98% Ar/2% O ₂
			78.2††	65.8	30	38 @ -50°F	.03	.77	.28	2.23	—	—	—	75% Ar/25% CO ₂
Metalloy® 90	E90C-K3	A5.28	97.0	91.0	23	41 @ -60°F	.03	1.27	.30	1.83	—	.38	—	75% Ar/25% CO ₂
Metalloy® 100	E100C-K3	A5.28	113.3	103.3	21	49 @ -60°F	.07	1.50	.38	1.58	—	.34	—	75% Ar/25% CO ₂
			112.2	105.6	21.3	49 @ -40°F	.07	1.52	.42	1.58	.02	.04	.01	90% Ar/10% CO ₂
Metalloy® 110	E110C-K4	A5.28	119.9	109.2	22	39 @ -60°F	.07	1.63	.48	2.22	.21	.59	—	75% Ar/25% CO ₂ *
			130.4	120.5	13.3	28 @ -60°F	.08	1.57	.52	1.78	.24	.46	.05	90% Ar/10% CO ₂

† Stress relieved 1 hr. @ 1150°F.
 †† Stress relieved 8 hrs. @ 1150°F.

††† Stress relieved 1 hr. @ 1275°F.
 * Other shielding gases may be used, but must be agreed upon by supplier and purchaser.

WELDING PARAMETERS

Diameter	Position	Voltage	Approximate Parameters		Wire Feed Speed (ipm)	Deposition Rate (lbs/hr)
			Amperage			
.035"	Flat & Horizontal	26	200		550	8.5
		28	250		760	12.0
		30	260		790	12.5
.045"	Flat & Horizontal	26	200		265	5.9
		27	250		383	9.2
		28	300		500	12.8
		30	350		632	16.4
		31	400		770	20.0
.052	Flat & Horizontal	27	250		258	7.9
		28	275		306	9.6
		30	300		340	11.2
		32	350		425	14.5
		33	400		500	18.1
1/16"	Flat & Horizontal	29	275		190	7.6
		29	300		232	10.0
		30	350		282	12.8
		32	400		341	16.0
		33	450		400	18.3

Bold: Optimum parameters for welder appeal using 90% Argon/10% CO₂

PRODUCT COMPARISON

Tri-Mark	AWS Classification	Hobart	Lincoln	ESAB	Select Arc
Metalloy® 70X	E70C-6M H4				Select 70C-7
Metalloy® 76	E70C-6M H4	FabCOR® 86R	MC-710XL; MC-706	Coreweld 70	Select 70C-6
Metalloy Vantage™	E70C-6M H4		MC-6	Coreweld C6	Select 70C-6LS
Matrix	E70C-6M H4				

History of **HOBART BROTHERS**

After 90 years in the business, Hobart Brothers is Welding. And Welding is Hobart Brothers.

Much has changed in industry since 1920; Hobart Brothers was there every step of the way. You might even say the company did more than simply keep up with new technologies and processes.

It helped forge them.

Hobart has become a world leader in the field. Today you can find the broadest selection of filler metals in the United States.

HOBART® & **TRI-MARK®** are well known brands of Hobart Brothers.

Training and expertise are key to Hobart Brothers.

Such a respectable past can only be built by knowledgeable people. That's why, whether you have a question on technique, materials or applications, you know who to call.

1-800-532-2618

The company who started that first spark over 90 years ago.

Hobart Brothers has served major metal fabrication markets as a top-quality manufacturer of stick, flux-cored and metal-cored wires for over 25 years. Throughout that time, we've consistently focused our



efforts on welding research and product development and, as a result, now offer one of the most complete product lines in the industry today. Recognized worldwide as the "specialists in flux-cored and metal-cored wires," Hobart Brothers features over 52 different products for welding carbon and low alloy steels, in addition to special formulations for applications in the ship-building, infrastructure construction, offshore oil, and heavy equipment industries.

Hobart Distributors

To locate your nearest Hobart distributor call 1-937-332-4000 or 1-937-332-5188 or visit our Web site www.hobartbrothers.com

Headquarters

Hobart Brothers 101 Trade Square East Troy, OH 45373 Phone: 937-332-4000 Fax: 937-332-5700

International Headquarters

Hobart Brothers Company
phone: 937-332-5188
fax: 937-332-5064
email: quafile@hobartbrothers.com
www.hobartbrothers.com

Regional Office – Canada

ITW Welding North America
toll free: 888-489-9353
phone: 905-267-2171
fax: 519-421-0480
email: markhca@hobartbrothers.com

Regional Office – Middle East

ITW Welding Products Group FZE
phone: 971-4299-6621
fax: 971-4299-6681
email: itwme@emirates.net.ae

Regional Office – India

ITW India Limited Welding Group
phone: 91-1243020607
fax: 91-124-3020603
email: itweldi@satyam.net.in

Regional Office – South East Asia

ITW Welding Singapore (PTE) Ltd
phone: 65-65521223
fax: 65-65521929
email: vianney.martawibawa@millerwelds.com

Regional Office – China/Hong Kong

Beijing Miller Electric Mfg Co
phone: 861-087397900
fax: 861-087397600
email: lisa.li@millerchina.com

Regional Office – Australia

Welding Industries of Australia
phone: 61-8-83720609
fax: 61-8-82766327
email: into@welding.com.au
www.welding.com.au

Regional Office – Italy

ITW Welding Products Italy SRL
phone: 39-02-9829-0218
fax: 39-02-9828-1552
email: millerit@itw-welding.it

Regional Office – Netherlands/UK/Africa

ITW Welding Products BV
phone: 31-186-641456
fax: 31-186-649020
email: info@itw-welding.nl
www.itw-welding.com

Regional Office – Spain

ITW Espana S.A. (Welding)
phone: 34-963935398
fax: 34-963629516
email: vcubero@itw-welding.es

Regional Office – France

ITW Welding S.A.S.
phone: 33-1-6004-1166
fax: 33-1-6004-8860
email: miller@itw-welding.fr
www.miller-france.com

Regional Office – Northern Europe

Elga AB
phone: 46-031-726-4600
fax: 46-031-726-4700
email: per.sunderg@elga.se
www.elga.se

Regional Office – Russia

ITW Welding Products Russia
phone: 7-812-9615481
email: infosvarka@itw-welding.ru
www.itw-welding.ru

Regional Office – New Zealand

Weldwell New Zealand
phone: 64-6-834-1600
fax: 64-6-835-4568
email: admin@weldwell.co.nz
www.weldwell.co.nz

Regional Office – Brazil

ITW Soldagem Brasil
phone: 55-11-5514-3366
fax: 55-11-5891-7679
email: itwsoldagem@osite.com.br
www.itwsoldagem.com.br

Regional Office – Mexico

phone: 52-55-5366-7370
fax: 52-55-5366-7376
email: gregorior@itw-welding.com.mx
www.itw-weldingmexico.com

Regional Offices for:

Ecuador, Peru Bolivia, Chile, Colombia
Argentina, Uruguay, Paraguay
phone: 920-968-7508
email: mferna@millerwelds.com

El Salvador, Honduras, Nicaragua
Costa Rica, Belize, Panama, Trinidad,
Venezuela

phone: 52-55-53687370
fax: 52-55-53667388
email: gregorior@itw-welding.com.mx

Bahamas, Barbados, Dominican Republic
Jamaica, Puerto Rico, Virgin Islands

phone: 937-332-5188
fax: 937-332-5064
email: quafile@hobartbrothers.com

Overseas Manufacturers:

Tien Tai Electrode Co., Ltd/Taiwan

Phone: 886-6-2663721
fax: 886-6-2664301
www.tientai.com

Tien Tai Electrode (Kun Shan) Co./China

phone: 86-61257446669
fax: 86-51257448416
email: fuhu.chen@tientai.com.cn
www.tientai.com

Elga AB/Sweden

phone: 46-031-726-4600
fax: 46-031-726-4700
www.elgawelding.com



www.MillerWelds.com | 800-4-A-MILLER
(800-426-4553)



www.smithequipment.com | 800-843-7912



www.bernardwelds.com | 800-946-2281



www.weldcraft.com | 800-752-7620



www.tempil.com | 800-757-8301



www.jetline.com | 949-951-1515



www.magnaflux.com | 847-657-5300



www.welding.org | 800-332-9448
937-332-5000



www.tregaskiss.com | 877-737-3111
519-737-3000