Mild Steel Gas-Shielded Flux Cored Electrodes (E70T-X)

Factors to Consider When Choosing a Wire

- **Impact toughness requirements & usability designator**

Designator	Min. Absorbed Energy	Notes
1	20 ft-lbs @ 0°F (27 J @ -20°C)	Wires whose classifications contain a "1" designator only (T-1) often exhibit the best arc performance and weldability.
2	Not specified	Wires designed for single pass welding on moderate rust and mill scale.
5	20 ft-lbs @ -20°F (27 J @ -30°C)	Wires having a chemically-basic slag system that provides optimum toughness, often much greater than be obtained by "T-1", "T-9" and "T-12" wires.
9	20 ft-lbs @ -20°F (27 J @ -30°C)	Wires whose classifications contain a "9" designator often exhibit very good arc performance and weldability. All "T-9" wires meet the requirements for "T-1" wires.
12	20 ft-lbs @ -20°F (27 J @ -30°C)	Wires which have tighter allowable chemical composition and tensile strength ranges than "T-9" wires. These wires often provide improved mechanical properties compared to "T-9" wires. Many "T-12" wires are designed to offer very low diffusible hydrogen levels (H4).
J	20 ft-lbs @ -40°F (27 J @ -40°C)	A "J" designator placed in an AWS classification indicates that a filler metal absorbs a minimum of 20 ft-lbs of energy at -40°F (27J @ -40°C).

- **Diffusible hydrogen**
  - Optional designators (H4, H8) added to an AWS classification shows the maximum allowable diffusible hydrogen that a filler metal provides (lower values indicate better values)
  - Using low-hydrogen filler metals may be beneficial or required when hydrogen-induced cracking is a concern
  - Low-hydrogen filler metals can—in some applications—help reduce or eliminate the need for preheat
- **Post-weld stress relieving** will affect the properties of weld deposits. Ensure a filler metal will maintain acceptable properties when post-weld heat treatment (PWHT) will be performed
- **Restrained joints** benefit from using filler metals with good ductility and toughness
- **Approvals** an up-to-date listing of product approvals (ex. ABS, CWB, etc.) is located on each product page at HobartBrothers.com

Best-Selling Wires for General Fabrication & Applications

FabCO® TR-70 (E70T-1C/9C H8)	**FabCO RXR** (E70T-1C/9C)
· Smoother arc characteristics than FabCO RXR · Provides low diffusible-hydrogen levels (H8) · More forgiving than FabCO RXR; less sensitive to variable changes	·Stiffer arc characteristics than FabCO TR-70; better suited to narrower joint configurations or joints requiring maximum penetration ·Better performance on rust and mill scale
√ABS √AWS D1.8 √CWB	√ABS √AWS D1.8 √CE √CWB √Military

Note: FabCO TR-70 and FabCO RXR have better availability and diameter/package selections than other E70T-X wires
Note: Larger wire diameters allow the use of increased currents/wire feed speeds for higher deposition rates and efficiency

Note: An up-to-date listing of product approvals (ex. ABS, CWB, etc.) is located on each product page at www.HobartBrothers.com

See reverse side for more applications & wires

Wires for Specific Applications & Conditions

Manganese-Emission-Compliance Concerns **FabCO Element™ 70C** (E70T1-GC H8; use w/ 100% CO^2) **FabCO Element™ 70M** (E70T1-GM H8; use w/ Ar/CO^2 blends)	
Reducing Overall Fume (and use with Ar/CO^2 Blends) **FabCO Element™ 70M** (E70T1-GM H8)	
Critical Applications (ex. High joint restraint and/or high toughness requirements) **FabCO 85** (E70T-5CMJ H4; offers increased toughness)	
Welding Deep Grooves **FabCO Super-Cor** (E70T-1C/9C H4)	
Hydrogen-Induced Cracking Concerns **FabCO Super-Cor** (E70T-1C/9C H4)	
Single Pass Welds over Rust & Scale **FabCO 73** (E70T-2C) 	Welding Over Primer **FabCO Premier 70** (E70T-1C/9C H8) 

Mild Steel Gas-Shielded Flux Cored Electrodes (E71T-X)

Factors to Consider When Choosing a Wire

- **Impact toughness requirements & usability designator**

Example Classification	Designator	Min. Absorbed Energy	Notes
E71TT-**1**C/M	**1**	20 ft-lbs @ 0°F (27 J @ -20°C)	Wires whose classifications contain a "1" designator only (T-1) often exhibit the best arc performance and weldability.
E71TT-**9**C/M	**9**	20 ft-lbs @ -20°F (27 J @ -30°C)	Wires whose classifications contain a "9" designator often exhibit very good arc performance and weldability. All "T-9" wires meet the requirements for "T-1" wires.
E71TT-**12**C	**12**	20 ft-lbs @ -20°F (27 J @ -30°C)	Wires which have tighter allowable chemical composition and tensile strength ranges than "T-9" wires. These wires often provide improved mechanical properties compared to "T-9" wires. Many "T-12" wires are designed to offer very low diffusible hydrogen levels (H4).
E71TT-**12**MJ	**J**	20 ft-lbs @ -40°F (27 J @ -40°C)	A "J" designator placed in an AWS classification indicates that a filler metal absorbs a minimum of 20 ft-lbs of energy at -40°F (27J @ -40°C).

- **Diffusible hydrogen**
  - Optional designators (H4, H8) added to an AWS classification shows the maximum allowable diffusible hydrogen that a filler metal provides (lower values indicate better values)
  - Using low-hydrogen filler metals may be beneficial or required when hydrogen-induced cracking is a concern
  - Low-hydrogen filler metals can—in some applications—help reduce or eliminate the need for preheat
- **Post-weld stress relieving** will affect the properties of weld deposits. Ensure a filler metal will maintain acceptable properties when post-weld heat treatment (PWHT) will be performed
- **Restrained joints** benefit from using filler metals with good ductility and toughness

Note: An up-to-date listing of product approvals (ex. ABS, CWB, etc.) is located on each product page at HobartBrothers.com

Best-Selling Wires for General Fabrication

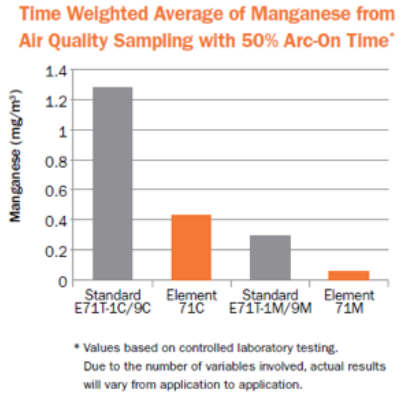
FabCO® Excel-Arc 71 (E71T-1CM/9CM H8)	**FabCO Triple 7** (E71T-1CM/9CM H8)
·High usability, flexible to changes in welding parameters and technique ·Wide range of product approvals ·Large selection of diameters/package options	
·Can be used with 100% CO_2 or mixed gas but excels with CO_2	·Can be used with 100% CO_2 or mixed gas but excels with mixed gas
✓ABS ✓AWS D1.8 ✓CE ✓CWB ✓DNV-GL ✓Lloyd's Register	✓ABS ✓CWB ✓DNV-GL ✓AWS D1.8 ✓CE

See reverse side for more applications & wires

Wires for Specific Applications & Conditions

Stiff/driving arc ideal for overhead welding		Formulated for use with high-argon mixed gases (>85% argon)	
FabCO 711M		**FabCO 910**	

Wires for Manganese-Emission-Compliance Concerns

100% Carbon Dioxide Shielding Gas	Argon/Carbon Dioxide Mixture Shielding Gas	
FabCO Element™ 71T1C FabCO Element 71C	FabCO Element 71T1M FabCO Element 71M	

Wires for Highly Restrained Joints & Demanding Applications

100% Carbon Dioxide Shielding Gas	Argon/Carbon Dioxide Mix Shielding Gas	
FabCO XL-550 • H4 Low Hydrogen **FabCO 712C** **FabCO Triple 8** **TM-771** **MEGAFIL 713R** • H4 Low-Hydrogen	**FabCO XL-525** **FabCO 712M** • H4 Low Hydrogen **MEGAFIL 713R**	

Wires for Post-Weld Stress Relief (PWHT)

100% Carbon Dioxide Shielding Gas	Argon/Carbon Dioxide Mix Shielding Gas	
FabCO XL-550 **FabCO 712C** **MEGAFIL 713R**	**FabCO 712M** **MEGAFIL 713R**	

Mild Steel Self-Shielded Flux Cored Electrodes

Factors to Consider When Choosing a Wire

- **Impact toughness requirements**
  - Not all self-shielded wires provide good impact toughness; consult the tables below to determine which classifications are suitable for use in applications where toughness is a concern
  - **Optional supplemental "J" designator:** placed in the filler metal classification and indicates that the filler metal absorbs a minimum of 20 ft-lbs of energy at -40°F (27J @ -40°C)
- **Diffusible hydrogen**
  - Optional designators added to the AWS classification show the maximum diffusible hydrogen that a filler metal provides (lower values indicate better values)
  - Using low-hydrogen filler metals (with an H8 or H4 designator) may be beneficial or required in applications where hydrogen-induced cracking is a concern
  - Low-hydrogen filler metals can—in some applications—help reduce or eliminate the need for preheat
- **Usability designator**
  - Indicates the general operating characteristics, and required polarity for a given electrode

Note: An up-to-date listing of product approvals (ex ABS, CWB, etc.) is located on each product page at HobartBrothers.com

Flat & Horizontal Position Wires

Usability Designators

Designator	Polarity	# of Passes	Min. Absorbed Energy	Notes
4	DCEP	Multi-	Not specified	Offers very high deposition rates—higher than "T-7" wires—but reduced ductility
6	DCEP	Multi-	Min. 20 ft-lbs @ -20°F (Min. 27J @ -30°C)	Robust mechanical properties. Provides a spray transfer. Suitable for applications where toughness is a concern
7	DCEN	Multi-	Not specified	Offers high deposition rates

Fabshield® 4 (E70T-4)	**Fabshield® XLNT-6** (E70T-6)	**Fabshield 7027** (E70T-7)
		
	✓AWS D1.8	✓ABS

See reverse side for more applications & wires

All-Position Wires

Usability Designators

Designator	Polarity	# of Passes	Min. Absorbed Energy	Notes
8	DCEN	Multi-	Min. 20 ft-lbs @ -20°F (Min. 27J @ -30°C)	Robust mechanical properties. Suitable for applications where toughness is a primary concern.
11	DCEN	Multi- (up to ¾")	Not specified	For general purpose welding where toughness is not a concern. Often used on coated materials.
14	DCEN	Single	Not specified	Typically used for coated materials that are less than 3/16" thick. Allows higher travel speeds than "T-11" wires.

Fabshield® 21B (E71T-11)	**Fabshield® XLR-8** (E71T-8JD H8)	**Fabshield 23®** (E71T-14)
		
✓ABS ✓CWB	✓ABS ✓AWS D1.8 ✓CWB ✓DNV-GL	✓CWB

Note: **Fabshield 23 is available in drum packaging only**

Mild Steel Shielded Metal Arc Welding Electrodes

Classification vs. Current & Coating

Classification	4th Digit	Current/Polarity	Description
E6010	0	DCEP	Offers deep penetration and a spray-like arc with thin, easily-removed slag.
E6011	1	AC or DCEP	Comparable to E6010, but primarily for AC. Offers shallower penetration on DCEP compared to E6010.
E6013	3	AC or DCEP or DCEN	Soft, smooth arc with easy slag removal. Designed for sheet metal applications.
E7014	4	AC or DCEP or DCEN	Arc is comparable to E6013, but offers higher tensile strength and—due to the addition of iron powder—improved deposition rates and amperage-carrying capacity.
E7018	8	DCEP or AC	Low-hydrogen, medium penetration, heavy slag, and additional iron.
E7024	4	DCEN or AC or DCEP	Coating is 50% iron powder, which improves deposition rates. Can be used in the flat and horizontal positions only.

Arc Characteristics

Soft Arc	Stiff Arc
Provides a **wide** arc cone that transfers the energy over a larger area, making it **less penetrating**. The arc is relatively quiet, and the transfer appears smooth and spray-like.	Provides a **narrow** arc cone that transfers the energy over a smaller area, making it **more penetrating**. The arc sounds harsher.

Best Selling Electrodes for General Fabrication & Applications

Note: An up-to-date listing of product approvals (ex. ABS, CWB, etc.) is located on each product page at www.HobartBrothers.com

Hobart® 7018 XLM (E7018-1 H4R)	**Hobart 418** (E7018-1 H4R)	**Hobart 718 MC** (E7018-1 H4R)
		
✓ABS ✓CWB	✓ABS ✓CWB ✓Lloyd's Register	✓ABS ✓Military

See reverse side for more applications & electrodes

Hobart 335A (E6011)	
Applications: General fabrication and repair (AKA “Farm Rod”)	
✓ABS ✓CWB ✓Lloyd’s Register	

Electrodes for Specific Applications & Conditions

Hobart 610 (E6010)	**Hobart Pipemaster® Pro** (E6010)
✓ABS ✓CWB ✓Lloyd’s Register	✓ABS ✓CWB
	

Hobart 14A (E7014)	**Hobart 24** (E7024/E7024-1)
Applications: General fabrication & repair; sheet metal **Characteristics:** Added iron powder increases deposition; all-position capability	**Applications:** General fabrication & repair **Characteristics:** Added iron powder increases deposition; flat and horizontal capability ONLY; improved toughness compared to Hobart 14A
✓ABS ✓CWB	✓ABS ✓CWB
	

Hobart 447A (E6013)	
Applications: General fabrication & repair; sheet metal	
✓ABS ✓CWB	

Mild Steel Metal Cored Electrodes for GMAW

Factors to Consider When Choosing a Wire

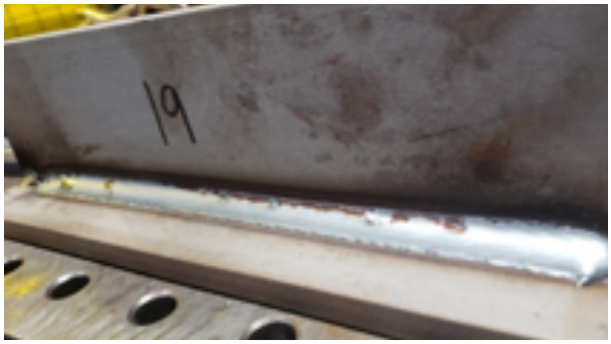
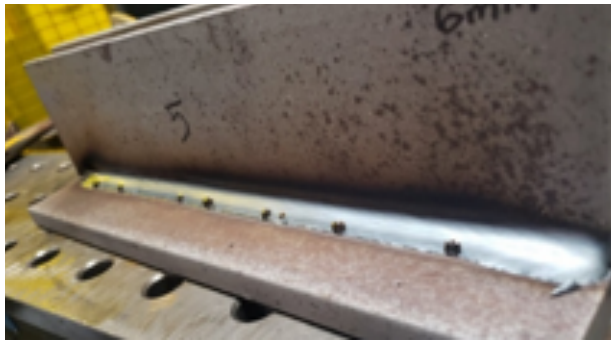
- **Impact toughness requirements**

Classification	Designator	CVN Min. Absorbed Energy	Notes
E70C-6M	6	20 ft-lbs @ -20°F (27 J @ -30°C)	Some wires are capable of providing improved toughness (absorbed energy) compared to the specified minimum values, and/or toughness at lower temperatures.

- **Post-weld stress relieving** will affect the properties of weld deposits. Ensure a filler metal maintains acceptable properties when post-weld heat treatment (PWHT) will be performed
- **Restrained joints** benefit from filler metals with good ductility and toughness are needed

Note: An up-to-date listing of product approvals (ex ABS, CWB, etc.) is located on each product page at HobartBrothers.com

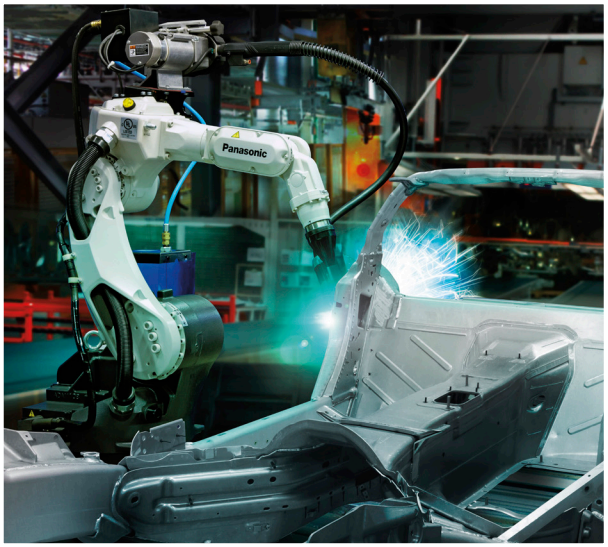
Best-Selling Wires for General Fabrication & "80" Applications

FabCOR® 86R (E70C-6M H4)	**FabCOR® Edge XP™** (E70C-6M H4)
• Excellent arc performance - Stifer arc characteristics than FabCOR Edge • General purpose metal-cored wire • Increased weld penetration • Enhanced performance when welding over moderate scale and rust	• Excellent arc performance - Softer arc characteristics than FabCOR 86R • Silicon control technology • Increased weld wetting action • Enhanced bead appearance
✓ABS ✓AWS D1.8 ✓BV ✓CE ✓CWB ✓DNV-GL ✓Lloyd's Register	✓ABS ✓AWS D1.8 ✓CE ✓CWB
	

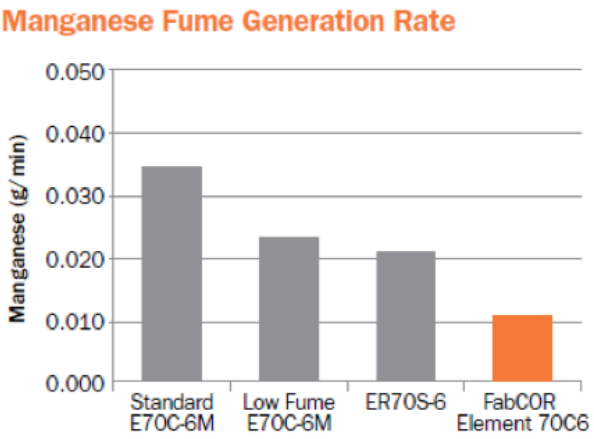
See reverse side for more applications & wires

Wires for Specific Applications & Conditions ("20" Applications)

High speed welding of galvanized steel
FabCOR F6 (E70C-GS)



Manganese-Emission-Compliance Concerns
FabCOR Element 70C6 (E70C-6M H4)



* Values based on controlled laboratory testing. Due to the number of variables involved, actual results will vary from application to application.

Low-temperature impact toughness requirements
[≤40°F (≤40°C)]

MEGAFIL 710M (E70C-6M H4)

Post Weld Heat Treatment (PWHT)
[1-10 Hrs. @ 1150°F (620°C)]

MEGAFIL 710M (E70C-6M H4)