

HOBART

TRI-MARK

STRUCTURAL STEEL

Product Catalog





HOBART®

THE ONE TO CALL FOR YOUR STRUCTURAL STEEL NEEDS

WE OFFER THE MOST COMPLETE LINE
OF STRUCTURAL STEEL PRODUCTS
WITH OUR **HOBART®** AND **TRI-MARK** BRANDS.

WHY MAKE US THE FIRST CALL?

- PRODUCT
- DELIVERY
- TECHNICAL SUPPORT
- QUALITY

STRUCTURAL STEEL

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HOBART BROTHERS

1-800-532-2618

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

Much has changed in industry since 1917; Hobart 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 products of Hobart as well.

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 touched off that first spark over 90 years ago.

Hobart Brothers has served major metal fabrication markets as a top-quality manufacturer of flux-cored and metal-cored wires for over 50 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 shipbuilding, infrastructure construction, offshore oil, and heavy equipment industries.



ABOUT THIS MANUAL

About This Manual

Hobart Brothers has prepared this manual to make it easy for you to satisfy the latest AWS D1.8 requirements. Of course, we cannot address every new detail or change here. But we believe we have spotlighted the key components of the new provisions. We urge you to obtain your own copy of the AWS D1.8 document (available at www.awspubs.com) and review it carefully.

We also make reference frequently to specific AISC specifications throughout this guide. You may obtain any appropriate AISC document for free at www.AISC.org or purchase printed copies of your own.

You will notice that we have referenced the appropriate D1.8 provisions at the end of any section describing requirements.

Finally, you must still comply with any and all AWS D1.8 and AISC requirements. Any potential conflicts between those requirements and those outlined in this manual should be resolved by using the AWS or AISC guidelines as the final authority.



American Welding Society (AWS):

www.aws.org

American Institute of Steel Construction (AISC):

www.aisc.org

SUMMARY OF D1.8 “D” DESIGNATOR

Summary of D1.8

- Written by the AWS D1.8 subcommittee as a supplement to D1.1 Structural Code
- Written to address the welding of all Seismic, Demand Critical Welds in structural applications
- In existence since 2005, with 2nd revision published in 2009
- Prior to D1.8, FEMA 353 was written as a *guideline* for demand critical welds, not a *code*
- FEMA 353 is longer updated by FEMA with the adoption of D1.8 and AISC Seismic Provisions
- D1.8 exceeds FEMA 353 in filler metal requirements

Summary of the “D” Designator

- Optional designator developed for Seismic applications involving demand critical welds at a Lowest Allowable Service Temperature (LAST) of +50°F only.
- Optional “D” requirements outlined in AWS A5.20, but can be applied to filler metal specifications, such as in A5.18, A5.29, etc. if requirements are met
- Requirements include:
 - low heat input test of 30kJ/in or 44kJ/in depending on electrode diameter
 - high heat input test of 80kJ/in
- Filler metal at low and high heat inputs must pass/meet:
 - X-ray
 - 58,000psi minimum yield strength
 - 70,000psi minimum tensile strength
 - 80,000psi minimum tensile strength
 - 40ft/lbs @ +70°F impact toughness (LAST=+50°F)
 - 22% elongation
- To include the “D” designator to the AWS classification, one lot tested to a low and high heat input is required
- To be a pre-qualified filler metal, three separate manufacturing lots of the same diameter and shielding gas must be tested in accordance with AWS D1.8/D1.8M:2009 testing requirements. The requirements are specific to the diameter and shielding gas (if applicable). Under Section 6 of the AWS D1.8/D1.8M:2009 Code, these electrodes are commonly referred to as “pre-qualified” filler material, and may be used by the fabricator without additional testing.
- Does not need to meet “D” requirements to be used on demand critical if electrode mechanical properties can meet Annex A per AWS D1.8



SUMMARY OF D1.8 “D” DESIGNATOR

(CONT'D)

Differences Between Annex A and the “D” Designator:

Annex A	“D”
<ul style="list-style-type: none">• No X-ray required	<ul style="list-style-type: none">• Must pass X-ray
<ul style="list-style-type: none">• Recommended targeted heat inputs of 30kJ and 80kJ, but not mandatory	<ul style="list-style-type: none">• Mandatory heat inputs of 30kJ/44kJ and 80kJ required
<ul style="list-style-type: none">• “Pre-qualified” for demand critical welds per AWS D1.8	<ul style="list-style-type: none">• Considered “pre-qualified” for demand critical welds per AWS D1.8
<ul style="list-style-type: none">• Allows for testing for LAST other than +50°F	

NOTE: CVN test temperatures for both D1.8, Annex A and AWS A5.20, optional “D” designator is LAST plus +20°F. Examples: LAST of +50°F plus 20°F equals a test temperature of +70°F. LAST of 0°F, the test temperature is +20°F.



UNDERSTANDING THE MECHANICAL TESTING REQUIREMENTS

Yield Strength

- Point at which the elastic limit of a weld has been exceeded by outside stressors and it becomes permanently deformed.
- Measured in pounds per square inch (psi) or megapascals (MPa).

Tensile Strength

- The maximum tension the weldment can withstand before breaking.
- Measured in pounds per square inch (psi) or megapascals (MPa).

Reduction of Area (ROA)

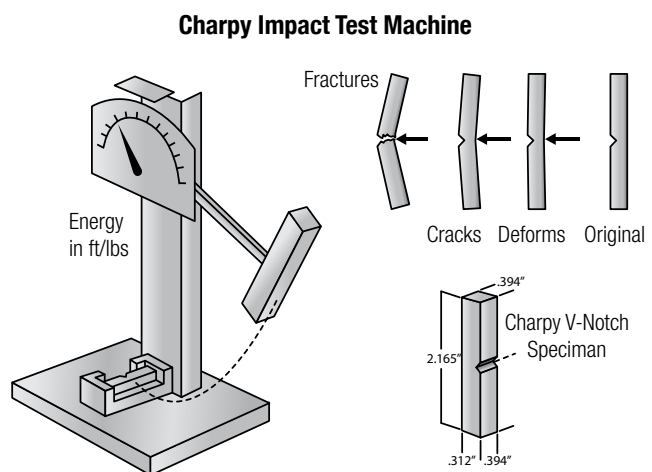
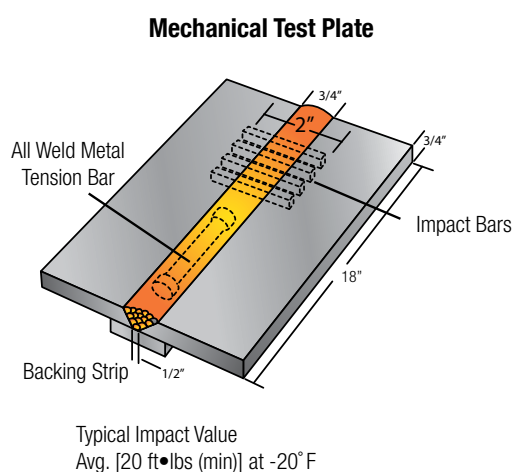
- The percentage difference in the area of the smallest cross section of a fractured specimen compared to its original cross section.
- Determined by fitting the ends of a fractured specimen together to measure the smallest cross section.

Charpy V-Notch

- Measurement of the relative toughness of a weld defined by the amount of energy required to break it.
- Expressed in ft.lbs (joules) for an average given temperature [e.g. 93 ft.lbs (126J) at -20 degrees Fahrenheit (-29 degrees Celsius)]

Ductility

- The amount a metal can stretch to the point of deformity without cracking or breaking.
- Determined by the measurement of reduction in area and elongation.



Storage and Handling: For additional information visit www.hobartbrothers.com

FILLER METALS

FOR DEMAND CRITICAL SEISMIC APPLICATIONS

The following filler metal products have been three lot tested in accordance with AWS D1.8/D1.8M:2009, testing requirements. The requirements are specific to the diameter and shielding gas (if applicable). Under Section 6 of the AWS D1.8/D1.8M :2009 Code, these electrodes are commonly referred to as a "pre-qualified" filler material, and may be used by the fabricator without additional testing.

Tubular Wire Products

Trade Name	Class	Diameters Tested	Shielding Gas
Hobart® FabCOR® 86R	E70C-6M H4	1/16"	75% Ar/25% CO ₂
Hobart® FabCO® RXR	E70T-1C, E70T-9C	1/16", 3/32"	100% CO ₂
Hobart® FabCO® TR-70	E70T-1C H8, E70T-9 H8	1/16", 5/64", 3/32"	100% CO ₂
Hobart® FabCO® Hornet	E71T-1C, E71T-9C E71T-1M, E71T-9M	.045", 1/16"	100% CO ₂ 75% Ar/25% CO ₂
Hobart® Excel-Arc™ 71	E71T-1C, E71T-9C E71T-1M, E71T-9M	.045", 1/16"	100% CO ₂ 75% Ar/25% CO ₂
Hobart® Fabshield® XLR-8	E71T-8JD H8	1/16", .072", 5/64"	N/A
Tri-Mark® Metalloy® 76	E70C-6M H4	1/16"	75% Ar/25% CO ₂
Tri-Mark® Metalloy® Vantage	E70C-6M H4	.052"	75% Ar/25% CO ₂
Tri-Mark® TM-RX7	E70T-1C, E70T-9C	1/16", 3/32"	100% CO ₂
Tri-Mark® TM-770	E71T-1M, E71T-12MJ H8	.052"	75% Ar/25% CO ₂
Tri-Mark® TM-811N1	E81T1-Ni1MJ H8	1/16"	75% Ar/25% CO ₂
Corex® Metal-Cor 6	E70C-6M H4	1/16"	75% Ar/25% CO ₂
Corex® Metal-Cor Maxim™	E70C-6M H4	.052"	75% Ar/25% CO ₂
Corex® Flux-Cor 7	E70T-1C, E70T-9C	1/16", 3/32"	100% CO ₂
Corex® Verti-Cor III	E71T-1C, E71T-9C E71T-1M, E71T-9M	.045", 1/16"	100% CO ₂ 75% Ar/25% CO ₂
Corex® Verti-Cor IINi1	E81T1-Ni1MJ H8	1/16"	75% Ar/25% CO ₂

Note: For further information, please contact Hobart Brothers Technical department at 1-800-532-2618, for international 1-937-332-5902.

For more information on D1.8 – Seismic approved products or Demand Critical updates, go to www.hobartbrothers.com/support and click on D1.8 Seismic Apps on left

TUBULAR PRODUCTS

GAS SHIELDED

FABCO® HORNET



**AWS A5.20, E71T-1C H8, E71T-1M H8,
E71T-9C H8, E71T-9M H8
All-Position**

Fabco Hornet is a tubular, gas shielded flux-cored wire designed for structural welding in all positions. The wire is designed to have outstanding operator appeal under either 100% CO₂ or 75% Ar/25% CO₂ shielding gas. It produces flat bead profiles, low spatter levels, and easy slag removal, all while producing welds with superior impact strengths, and is recommended for single and multiple pass applications. This low hydrogen product meets the optional H8 diffusible hydrogen requirements.

Typical applications:

- seismic structural fabrication
- general fabrication

Typical diffusible hydrogen (gas chromatography):

Less than 5.0ml/100g

Typical mechanical properties (AW):

Tensile Strength (psi)	82,500	90,000
	(569 MPa)	(621 MPa)
Yield Strength (psi)	79,000	79,500
	(545 MPa)	(548 MPa)
Elongation % in 2"	27%	26%

Typical Charpy V-Notch Impact Values (AW):

Avg. at -0°F (-18°C)	90 ft.lb.(122J)	80 ft.lb.(108J)
Avg. at -20°F (-29°C)	60 ft.lb.(81J)	50 ft.lb.(68J)

Shielding gas: 100% CO₂, 75% Ar/25% CO₂

Type of current: DCEP

PACKAGES

Diameter	33-lb (15kg) Spool
0.045" (1.2mm)	S246212-029 pre-qualified
1/16" (1.6mm)	S246219-029 pre-qualified

EXCEL-ARC 7 I



**AWS E71T-1C, E71T-1M, E71T-9C,
E71T-9M
All-Position**

A versatile, high-penetrating tubular wire, Excel-Arc 7 I is designed to be used with a 100% CO₂ or a 75% Ar/25% CO₂ gas mixture to make fabrication easier in any position. You'll see a low-hydrogen weld deposit in a spray-type transfer of weld metal, with less smoke, deep penetration and a high-deposition rate. With low spatter, clean-up is a snap and it's great for single- or multi-pass jobs. This wire exceeds the AWS impact strength requirement of 20 ft. lb. at both 0°F and -20°F.

Typical applications:

- low-alloy steels
- mild steels
- multi-pass applications
- single-pass applications

Typical diffusible hydrogen (gas chromatography):

Less than 7.0ml/100g

Typical mechanical properties (AW):

Tensile Strength (psi)	87,400	96,000
	(603 MPa)	(662 MPa)
Yield Strength (psi)	79,100	85,800
	(545 MPa)	(592 MPa)
Elongation % in 2"	27.6%	25.8%

Typical Charpy V-Notch Impact Values (AW):

Avg. at -0°F (-18°C)	70 ft.lb.(95J)	59 ft.lb.(80J)
Avg. at -20°F (-29°C)	51 ft.lb.(69J)	50 ft.lb.(68J)

Shielding gas: 100% CO₂, 75% Ar/25% CO₂

Type of current: DCEP

PACKAGES

Diameter	33-lb (15kg) Spool
0.035" (1.2mm)	S247108-029
0.045" (1.2mm)	S247112-029 pre-qualified
0.052" (1.2mm)	S247115-029
1/16" (1.6mm)	S247119-029 pre-qualified

FABCO® TR-70



**AWS E70T-1C H8, E70T-9C H8
Flat/Horizontal**

For a gas-shielded tubular wire with low smoke, low spatter and extremely smooth operator appeal, choose Fabco TR-70. Its deep-penetration, low-hydrogen weld deposit is tolerant to rust, mill scale and light oil. Its low-smoke properties make it ideal for light to heavy gauge mild steel and low alloy steels.

Typical applications:

- steel structures

Typical diffusible hydrogen (gas chromatography):

6.1ml/100g

Typical mechanical properties (AW):

Tensile Strength (psi)	85,800 (592 MPa)
Yield Strength (psi)	74,700 (515 MPa)
Elongation % in 2"	27%

Typical Charpy V-Notch Impact Values (AW):

Avg. at 0°F (-18°C)	36 ft.lb.(49J)
Avg. at -20°F (-29°C)	26 ft.lb.(35J)

Shielding gas: 100% CO₂

Type of current: DCEP

PACKAGES

Diameter	60-lb (27.2kg) Coil
1/16" (1.6mm)	S247019-029 pre-qualified
3/32" (2.4mm)	S247029-002 pre-qualified

TUBULAR PRODUCTS

GAS SHIELDED (CONT'D)

FABCO® RXR



AWS A5.20, E70T-9C, E70T-1C
Flat/Horizontal

When you're faced with welding through rust, mill scale or light oil, choose the wire specifically designed for the task: FabCO RXR. It's an E70T-1 gas-shielded flux-cored wire that performs beautifully when more deoxidizers are required. It can handle both mild and low alloy steels requiring single-or multi-pass welds. FabCO RXR has a spray-type transfer, low spatter and an easily removed moderate volume slag, which completely covers the weld bead. You'll get a weld with deep penetration, a low hydrogen deposit and excellent operator appeal! RXR is designed for use with CO₂ shielding gas only.

Typical applications:

- steel structures
- storage vessels
- single or multi-pass welding
- non-alloyed and fine grain steels
- heavy fabrication

Typical mechanical properties (AW):

Tensile Strength (psi)	86,000
	(592 MPa)
Yield Strength (psi)	75,000
	(518 MPa)
Elongation % in 2"	26%

Typical Charpy V-Notch Impact Values (AW):

Avg. at 0°F (-20°C)	28 ft.lb. (38J)
Avg. at -20°F (-30°C)	29 ft.lb. (40J)

Shielding gas: 100% CO₂

Type of current: DCEP

PACKAGES

Diameter	60-lb (27.2kg) Coil
1/16" (1.6mm)	S246519-002 pre-qualified
3/32" (2.4mm)	S246529-002 pre-qualified

TM-811N1



AWS A5.29, ASME
All Position

TM-811N1 is comparable in deposit composition and properties to E8018-C3 covered electrodes in deposit composition and properties. In many applications, TM-811N1 is more economical to use than stick electrodes. It is recommended for petro-chemical applications where deposit nickel must be kept low for weathering-steel fabrication where color match is not required. It is used for mining and earth moving equipment and other fabrication where good low temperature impact values are needed. TM-811N1 offers good welder appeal, with excellent arc stability, low spatter, fast-freezing slag to facilitate all-position welding, and very easy slag removal. It is recommended for single and multiple pass welding in all positions using either CO₂ or a 75% Ar/25% CO₂ gas mixture for shielding.

Typical applications:

- weathering steels
- steel structures
- bridge construction

Typical mechanical properties (AW):

Tensile Strength (psi)	84,000	89,000
	(579 MPa)	(614 MPa)
Yield Strength (psi)	75,000	78,000
	(517 MPa)	(538 MPa)
Elongation % in 2"	28%	23%

Typical Charpy V-Notch Impact Values (AW):

Avg. at -40°F (-40°C)	38 ft.lb. (52J)	54 ft.lb. (73J)
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Shielding gas: 100% CO₂, 75% Ar/25% CO₂

Type of current: DCEP

PACKAGES

Diameter	33-lb (15kg) Spool
0.045" (1.2mm)	S283612-K29
1/16" (1.6mm)	S283619-K29 pre-qualified
Diameter	60-lb (27.2kg) Coil
1/16" (1.6mm)	S283619-K02 pre-qualified

FABCOR® 86R



AWS A5.18, E70C-6M H4
Flat/Horizontal

FabCor 86R is a metal-cored gas shielded wire that gives you the high deposition rates of a flux-cored wire with the high efficiency of a solid wire. With its metal powered core and spray transfer, deposition rates in excess of 20 pounds per hour and deposition efficiencies of 95% and greater can be obtained. It is designed for single and multiple pass applications in the flat and horizontal positions.

Typical applications:

- seismic structural erection
- structural fabrication
- general fabrication

Typical mechanical properties (AW):

Tensile Strength (psi)	81,000	85,000	76,000
	(558 MPa)	(586 MPa)	(524 MPa)
Yield Strength (psi)	69,000	75,000	61,000
	(476 MPa)	(517 MPa)	(421 MPa)
Elongation % in 2"	30%	27%	30%

Typical Charpy V-Notch Impact Values (AW):

Avg. at -20°F (-30°C)	74 ft.lb. (101J)	50 ft.lb. (68J)	119 ft.lb. (161J)
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Shielding gas: 75-95% Ar/Balance CO₂, 95% Ar/5% O₂

Type of current: DCEP

PACKAGES

Diameter	33-lb (15kg) Spool
0.045" (1.2mm)	S249412-029
Diameter	60-lb (27.2kg) Coil
0.052" (1.4mm)	S249415-002
1/16" (1.6mm)	S249419-002 pre-qualified

For additional information, see Hobart data sheet 637-A.

TUBULAR PRODUCTS

METALLOY® VANTAGE™



AWS A5.18, E70C-6M H4
Flat/Horizontal
Gas Shielded

Metalloy Vantage is a metal-cored wire with fewer silicon islands than other metal-cored wires. Together with exceptionally low spatter rates, Metalloy Vantage will save time and money spent cleaning prior to painting, coating, or plating. This wire is recommended for single or multiple pass applications in flat or horizontal positions. The recommended shielding gas is a mixture of argon and carbon dioxide with the percentage being 75% to 95% argon. Arc characteristics improve with higher argon levels, while spatter and fumes levels decrease.

Typical applications:

- non-alloyed and fine grain steels
- steel structures

Typical mechanical properties (AW):

Tensile Strength (psi)	91,000	97,000
	(630 MPa)	(669 MPa)
Yield Strength (psi)	81,000	87,000
	(561 MPa)	(600 MPa)
Elongation % in 2"	25%	22%

Typical Charpy V-Notch Impact Values (AW):

Avg. at 0°F (-20°C)	50 ft.lb. (68J)	56 ft.lb. (76J)
Avg. at -20°F (-30°C)	38 ft.lb. (52J)	47 ft.lb. (64J)

Shielding gas: 75-95% Ar/Balance CO₂

Type of current: DCEP

PACKAGES

Diameter	33-lb (15kg) Spool
0.045" (1.2mm)	S279312-K29
0.052" (1.4mm)	S279315-K29 pre-qualified
1/16" (1.6mm)	S279319-K29



FABSHIELD® XLR-8



AWS E71T-8JD H8
All Position
Self Shielded

Fabshield XLR-8 has been specifically designed for the demanding application of structural steel erection. This self-shielded, flux cored wire is capable of producing a low hydrogen, X-ray quality weld and is especially well suited for producing vertical up welds at high currents for increased productivity. It is designed for single and multiple pass applications and is usable under AWS D1.8 and FEMA 353 for Demand Critical welds. Designed to be used with a constant voltage (CV) power source on DCEN.

Typical applications:

- seismic structural erection
- structural fabrication
- general fabrication

Typical Mechanical Properties (Aged 48 hr @ 200° F)

Tensile Strength (psi)	84,100 (580 MPa)
Yield Strength (psi)	67,600 (466 MPa)
Elongation % in 2"	25%

Typical Charpy V-Notch Impact Value (AW):

Avg. at -20°F (-29°C)	40 ft.lb. (54J)
Avg. at -40°F (-40°C)	31 ft.lb. (42J)

Shielding gas: None required

Type of current: DCEN

PACKAGES

Diameter	20-lb (9.7kg) Vacuum-Packed Spool
1/16" (1.6mm)	S225719-082 pre-qualified
.072" (1.8mm)	S225724-082 pre-qualified
5/64" (2.0mm)	S225725-082 pre-qualified
Diameter	33-lb (15kg) Vacuum-Packed Spool
1/16" (1.6mm)	S225719-053 pre-qualified
.072" (1.8mm)	S225724-053 pre-qualified
5/64" (2.0mm)	S275725-053 pre-qualified
Diameter	50-lb (22.7kg) Vacuum-Packed Spool
.072" (1.8mm)	S225724-014 pre-qualified
5/64" (2.0mm)	S225725-014 pre-qualified

FABSHIELD® XLNT-6



AWS E71T-8J T6
Flat/Horizontal
Self Shielded

Fabshield XLNT-6 is a high-deposition, self-shielded tubular wire that is designed for use on structural weldments where impact properties are required. Developed for flat and horizontal positions; it's capable of depositing up to 19 lbs. per hour and is great for welding outdoors or in windy conditions. It provides outstanding performance and can be used in either single or multi-pass applications. Designed to be used with a constant voltage (CV) power source on DCEP.

Typical applications:

- seismic structural fabrication
- general fabrication

Typical Mechanical Properties (Aged 48 hr @ 200° F)

Tensile Strength (psi)	87,200 (601 MPa)
Yield Strength (psi)	66,250 (457 MPa)
Elongation % in 2"	25.4%

Typical Charpy V-Notch Impact Value (AW):

Avg. at +70°F (+20°C)	45 ft.lb. (61J)
Avg. at -20°F (-29°C)	25 ft.lb. (34J)

Shielding gas: None required

Type of current: DCEP

PACKAGES

Diameter	25-lb (11.3kg) Vacuum-Packed Spool
3/32" (2.4mm)	S225629-H29
Diameter	50-lb (22.7kg) Vacuum-Packed Spool
3/32" (2.4mm)	S225629-014

For additional information, see Hobart data sheet 640-0.

TUBULAR PRODUCTS

SUBMERGED ARC

METALLOY EM13K-S



AWS A5.17/A5.17M
Flat/Horizontal

Metalloy EM13K-S is a composite metal cored electrode for submerged arc welding designed for similar applications as for the solid wire classification EM12K and EM13K. The richer levels of manganese and silicon give excellent bead tie-in and even ripple pattern at high speeds. Metalloy EM13K-S will tolerate higher levels of rust and mill scale and reduce the likelihood of porosity caused by excess rust and mill scale.

Typical applications:

- structural steel
- tank fabrication
- offshore fabrication
- bridge construction

Typical Mechanical Properties (AW):

Tensile Strength (psi) 84,100 (579 MPa)
Yield Strength (psi) 74,800 (517 MPa)
Elongation % in 2" 28%

Typical Charpy V-Notch Impact Values (AW):

Avg. at -40°F (-40°C) 31 ft.lb.(42J)
Avg. at -80°F (-62°C) 59 ft.lb.(80J)
Avg. at -100°F (-73°C) 86 ft.lb.(117J)

Type of current: DCEP, DCEN, or AC

PACKAGES

Diameter	60-lb (27.2kg) Coil
3/32" (2.4mm)	S280429-K02
1/8"(3.2mm)	S280443-K02

METALLOY N1-S



AWS A5.23/A5.23M
Flat/Horizontal

Metalloy N1-S is a metal cored electrode for submerged arc welding where a 1% nickel deposit is required. This composition improves low temperature toughness, while only raising the tensile strength slightly.

Typical applications:

- structural and weathering steels

Typical Mechanical Properties (AW):

Tensile Strength (psi) 73,000 (501 MPa)
Yield Strength (psi) 61,000 (423 MPa)
Elongation % in 2" 30%

Typical Charpy V-Notch Impact Values (AW):

Avg. at -80°F (-62°C) 190 ft.lb.(258J)
Avg. at -100°F (-73°C) 181 ft.lb.(245J)

Type of current: DCEP, DCEN, or AC

PACKAGES

Diameter	60-lb (27.2kg) Coil
3/32" (2.4mm)	S282229-K02
1/8"(3.2mm)	S282243-K02

For additional information, see Hobart data sheet 636-X.

METALLOY W-S



AWS A5.23/A5.23M
Flat/Horizontal

Metalloy W-S is a metal cored electrode for submerged arc welding designed to join weathering grade steels such as A242, A588, A709 Grades 50W and HPS 50W. The chemistry is balanced to create a protective oxide layer to match the base material when exposed to the environment and provide up to four times the corrosion resistance offered by carbon steel.

Typical applications:

- bridge construction

Typical Mechanical Properties (Aged 48 hr @ 200° F)

Tensile Strength (psi) 75,400 (520 MPa)
Yield Strength (psi) 64,800 (447 MPa)
Elongation % in 2" 26.3%

Typical Charpy V-Notch Impact Value (AW):

Avg. at -40°F (-40°C) 50 ft.lb.(68J)

Type of current: DCEP, DCEN, or AC

PACKAGES

Diameter	60-lb (27.2kg) Coil
3/32" (2.4mm)	S282329-K02
1/8"(3.2mm)	S282343-K02

For additional information, see Hobart data sheet 640-0.

(A5.17) TABLE FOR ELECTRODE/FLUX CLASSIFICATIONS

Tri-Mark Composite Wires	Hobart Flux	Electrode/Flux
Metalloy EM13K-S	HA-495	F7A4-EC1
Metalloy EM13K-S	HN-511	F7A10-EC1 F7P8-EC1
Metalloy EM13K-S	HN-590	F7A8-EC1 F7P8-EC1

(A5.23) TABLE FOR ELECTRODE/FLUX CLASSIFICATIONS

Tri-Mark Composite Wires	Hobart Flux	Electrode/Flux
Metalloy N1-S	HN-511	F7A8-ECNi1-Ni1 F6P10-ECNi1-Ni1
Metalloy N1-S	HN-590	F7A10-ECNi1-Ni1 F6P10-ECNi1-Ni1
Metalloy W-S	HN-590	F7A4-ECW-W

TUBULAR PRODUCTS

FLUXES

BASIC FLUXES

HN-590 is an agglomerated basic type flux producing weld deposits with good mechanical properties at low temperatures. HN-590 may be used in single and multiple pass applications with no limitations on weld metal thickness. HN-590 is suitable to use on both DC and AC polarities. Typical applications include structural steels, high strength low-alloy (HSLA), quenched and tempered and other low alloy steels.

HN-511 is a highly basic agglomerated flux producing excellent low temperature mechanical properties. The HN-511 has excellent weldability and slag removal common to most basic fluxes, good resistance to cracking and porosity and good bead appearance. HN-511 is suitable to use with both DC and AC polarities.

ACTIVE FLUXES

HA-495 is an agglomerated active type flux primarily for single and double pass fillet welds. The HA-495 may be used for fillet and butt welds on carbon steel limited to a maximum thickness of 1" (25mm). HA-495 has superior performance in single, tandem and other multiple electrode applications with electrical currents of DC and/or AC, as well as Variable Balance AC (VBAC) square-wave polarities. Typical applications include single pass fillets and butt welds in excess of 40 inches of travel speed over mill scale, thin wall pressure vessels and thin structural steel.



FLUX CHARACTERISTICS

Flux Type	Polarity	Maximum Current
HN-590	DC or AC	1000 Amps
HN-511	DC or AC	1000 Amps
HN-495	DC or AC	1000 Amps

SUBMERGED ARC FLUX CROSS REFERENCE

Hobart	Lincoln	ESAB
HA-495	761, 780	OK FLUX 231 OK FLUX 350
HN-511	880M, 8500	OK FLUX 10.62
HN-590	860	OK FLUX 429

STICK ELECTRODES

HOBART® 1139



AWS E6022
Flat/Horizontal

When you want to get a handle on roof decking, you can rely on Hobart 1139. It is a very fluid electrode designed for welding roof decking to support beams with burn-through spot welds. You can also rely on the 1139 for rapid downhill welding when joining light-gauge materials.

Typical applications:

- rapid downhill welding
- roof decking
- sheet metal

Typical mechanical properties:

Transverse tensile strength exceeds
60,000 psi (414 MPa)

Typical Charpy V-Notch Impact Values (AW):

Not required

Available diameter and

recommended operating ranges:

1/8" (3.2 mm)..... 110-150 amps
5/32"(4.0 mm)..... 150-180 amps

Type of current: DCEN, DCEP or AC

PACKAGES

Diameter	50-lb (22.7kg) Carton
1/8"(3.2mm)	S113244-031
5/32" (4.0mm)	S113244-031

HOBART® 335A



AWS E6011
All Position

The Hobart 335A offers a fine spray transfer that enhances operator appeal in all positions. Designed for use with AC power sources, this all-position, cellulose-based electrode provides stable arc characteristics and good penetration.

Typical applications:

- galvanized steel work
- general fabrication
- structural work

Typical mechanical properties (AW):

Tensile Strength (psi) 82,000 (563 MPa)
Yield Strength (psi) 69,000 (476 MPa)
Elongation % in 2" 25%

Typical Charpy V-Notch Impact Values (AW):

Avg. at -20°F (-29°C) 39 ft.lb. (53J)

Available diameter and

recommended operating ranges:

3/32"(2.4 mm)..... 60-90 amps
1/8" (3.2 mm)..... 80-125 amps
5/32"(4.0 mm)..... 130-160 amps
3/16"(4.8 mm)..... 160-190 amps

Type of current: AC, DCEP or DCEN

PACKAGES

Diameter	5-lb (2.3kg) PPak
3/32" (2.4mm)	S112232-045
1/8" (3.2mm)	S112244-045
5/32" (4.0mm)	S112251-045
10-lb (4.5kg) PPak	
3/32" (2.4mm)	S112232-089
1/8" (3.2mm)	S112244-089
5/32" (4.0mm)	S112251-089
50-lb (22.7kg) Carton	
3/32" (2.4mm)	S112232-031
1/8" (3.2mm)	S112244-031
5/32" (4.0mm)	S112251-031
3/16" (4.8mm)	S112258-031

HOBART® 418



AWS E7018 H4R/E7018-1 H4R
All Position

Hobart 418 gives you all the flexibility you need in a general-purpose, low-hydrogen, mild steel electrode. It also has good out-of-position welding capabilities and provides an X-ray quality deposit. And this unique electrode is ideal for tacking prior to finish welding with Fabshield self-shielded, tubular wire. That's because the construction of the Hobart 418 allows removal of all the slag from the self-shielded wire.

Typical applications:

- field erections, steel structures
- jobs where low-hydrogen weld metal in the tensile strength range of 70,000 psi is required
- low alloy structures
- low-, medium- and high-carbon steels

Typical mechanical properties (AW):

Tensile Strength (psi) 76,000 (527 MPa)
Yield Strength (psi) 64,000 (440 MPa)
Elongation % in 2" 33%

Typical Charpy V-Notch Impact Values (AW):

Avg. at -50°F (-46°C) 108 ft.lb. (147J)

Available diameter and

recommended operating ranges:

3/32"(2.4 mm)..... 80-100 amps
1/8" (3.2 mm)..... 90-150 amps
5/32"(4.0 mm)..... 110-230 amps
3/16"(4.8 mm)..... 150-300 amps
7/32"(5.6 mm)..... 220-350 amps
1/4" (6.4 mm)..... 270-380 amps

Type of current: DCEP or AC

PACKAGES

Diameter	5-lb (2.3kg) PPak
3/32" (2.4mm)	S119932-045
1/8" (3.2mm)	S119944-045
5/32" (4.0mm)	S119951-045
10-lb (4.5kg) PPak	
3/32" (2.4mm)	S119932-089
1/8" (3.2mm)	S119944-089
5/32" (4.0mm)	S119951-089
50-lb (22.7kg) Can	
3/32" (2.4mm)	S119932-035
1/8" (3.2mm)	S119944-035
5/32" (4.0mm)	S119951-035
3/16" (4.8mm)	S119958-035
1/4" (6.4mm)	S119981-035

For additional information,
see Hobart data sheet 612-G.

For additional information,
see Hobart data sheet 612-B.

For additional information,
see Hobart data sheet 612-L.

STICK ELECTRODES/ SOLID WIRE

HOBART® 718 MC



AWS E7018 H4R/E7018(M)-1 H4R
All Position

You can take control with the electrode that's formulated and manufactured to give you excellent moisture resistance, good out-of-position welding capabilities and an X-ray quality deposit. The 718MC meets the requirements of military spec. Mil-E-22200/10, including moisture absorption limits of 0.10% max. as opened and 0.20% max. after 9 hrs. at 80°F and 80% relative humidity.

Typical applications:

- barge offshore rigs, shipbuilding
- boiler code applications
- field erection, steel structures
- petrochemical plants, power plants
- railcar and locomotive construction
- welding of enameling steels; free machining steels; low alloy structurals; and low, medium or high carbon steels
- weldments in low-temperature environments where low-temperature impacts are important

Typical mechanical properties (AW):

Tensile Strength (psi) 76,000 (523 MPa)
Yield Strength (psi) 64,000 (441 MPa)
Elongation % in 2" 29%

Typical Charpy V-Notch Impact Values (AW):

Avg. at -50°F (-46°C) 198 ft.lb. (268J)

Available diameter and recommended operating ranges:

3/32" (2.4 mm) 70-110 amps
1/8" (3.2 mm) 90-165amps
5/32" (4.0 mm) 125-220 amps
3/16" (4.8 mm) 160-300 amps
7/32" (5.6 mm) 260-340 amps
1/4" (6.4 mm) 270-380 amps

Type of current: DCEP or AC

PACKAGES

Diameter	50-lb (22.7kg) Carton
3/32" (2.4mm)	S115932-035
1/8" (3.2mm)	S115944-035
5/32" (4.0mm)	S115951-035
3/16" (4.8mm)	S115958-035

HOBART® ROCKET 7024



AWS E7024
Flat/Horizontal

Hobart Rocket 7024 is a newly engineered E7024 electrode designed to provide the user with outstanding "best of class" features in several important areas. Rocket 7024 is engineered with a slag system to provide the easiest slag removal in its class and in most cases is self peeling. In addition the slag releases from the entire joint with no slag left in the toes of the joint. Spatter levels are extremely low, better than any other E7024. Rocket 7024 has a super smooth soft arc and is less harsh than other E7024 products. Rocket 7024 is more forgiving than other E7024 products when the material being welded is moderately rusty or isn't as clean as it should be. Rocket 7024 can be used with a drag welding technique and operates equally well on either AC or DC (electrode negative) power. It is exceptionally fast when used down hand in properly designed weld joints or in horizontal fillet welds and can be used in single or multipass applications.

Typical applications:

- plate fabrication
- tank fabrication

Typical mechanical properties (AW):

Tensile Strength (psi) 76,000 (527 MPa)
Yield Strength (psi) 68,000 (471 MPa)
Elongation % in 2" 24%

Typical Charpy V-Notch Impact Values (AW):

Not required

Available diameter and recommended operating ranges:

1/8" (3.2 mm) 130-170 amps
5/32" (4.0 mm) 180-245 amps
3/16" (4.8 mm) 200-300 amps
7/32" (5.6 mm) 250-340 amps
1/4" (6.4 mm) 300-380 amps

Type of current: DCEN, AC or DCEP

PACKAGES

Diameter	50-lb (22.7kg) Carton
1/8" (3.2mm)	S112944-031
5/32" (4.0mm)	S112951-031
3/16" (4.8mm)	S112959-031
7/32" (6.35mm)	S112970-031
1/4" (6.4mm)	S112981-031

HOBART® QUANTUM ARC 6



AWS A5.18/ER70S-6/A5.18M/ER48S-6
All Position

The Hobart Quantum Arc 6 is a small diameter solid wire designed for fabrication of hand rails and other general fab work. It is designed for single and multiple-pass applications in all positions.

Typical applications:

- ductwork
- hand rails
- steel stairs
- structural fabrication
- general fabrication

Typical mechanical properties (AW):

Tensile Strength (psi) 88,000 (607 MPa)
Yield Strength (psi) 73,000 (503 MPa)
Elongation % in 2" 28%

Typical Charpy V-Notch Impact Values (AW):

Avg. at 70°F (20°C) 140 ft.lb. (190J)
Avg. at 0°F (-20°C) 100 ft.lb. (136J)
Avg. at -20°F (-30°C) 88 ft.lb. (119J)

Available diameter and recommended operating ranges:

0.035" (0.9 mm) 70-235 amps
0.045" (1.2 mm) 175-350 amps

Type of current: DCEP

PACKAGES

Diameter	33-lb. (15kg) Steel Reel
0.035" (0.9mm)	S307608-033
0.045" (1.2mm)	S307612-033

CROSS REFERENCE GUIDE

CROSS REFERENCE GUIDE

TUBULAR WIRE

AWS Class	Hobart	Tri Mark	Lincoln	ESAB	Select Arc
E71T-1M, E71T-9M E71T-1C, E71T-9C	FabCO Hornet	TM-711M Triple 7	Outershield 71, 71M, Elite	Dual Shield 7000 Dual Shield 7100 Ultra Dual Shield 710X	Select 710
E71T-1M, E71T-9M E71T-1C, E71T-9C	Excel Arc 71	TM-711M Triple 7	Outershield 71, 71M, Elite, Ultracore 71C	Dual Shield 7000 Dual Shield 7100 Ultra Dual Shield 710X	Select 710
E70T-1C, E70T-9C	FabCO TR-70		Outershield HD70	Dual Shield R-70 Ultra	Select K70
E70T-1C, E70T-9C	FabCO RXR	TM-RX7	Outershield 70	Dual Shield 700X	
E71T-8J H8	Fabshield XLR-8		Innershield NR-232, NR-233	Coreshield 8	
E70T-6	Fabshield XLNT-6		Innershield NR-305	Coreshield 6	
E81T1-W2C H8		TM-811W		Dual Shield 800W	Select 810W
E70C-6M	FabCor 86R	Metalloy 76	Metalshield MC-6	Coreweld 70	
E70C-6M		Metalloy Vantage	Metalshield MC-706		

STICK ELECTRODES

AWS Class	Hobart	Lincoln	ESAB
E6022	1139	Fleetweld 22	
E6011	335-A	Fleetweld 35, 180	SW-14
E7018	418	Excalibur 7018 MPJ Jet Weld LH 70, Jet-LH-78 M12	Atom Arc 7018
E7018-1	418; 718MC		Atom Arc 7018-1
E7024	Rocket 7024, 24	Jetweld 3	Sureweld 7024
E7024-1	24	Jetweld 1	Sureweld 7024

SUBMERGED ARC

Composite Wire AWS Class	Solid Wire AWS Class	Tri Mark	Lincoln	ESAB
EC1	EM13K	Metalloy EM13K-S	L-50 L-61	Alloy Shield 70S SpoolArc 295 SpoolArc 81
ECNi1	ENi1	Metalloy N1-S	LA-75	SpoolArc 75
ECW	EW	Metalloy W-S		

PACKAGING

PRODUCT	DIAMETERS AND PACKAGES*			
Excel-Arc 71	Diameter	33-lb (15kg) Spool		
	0.035" (1.2mm)	S247108-029		
	0.045" (1.2mm)	S247112-029		
	0.052" (1.2mm)	S247115-029		
FabCO Hornet	1/16" (1.6mm)	S247119-029		
	Diameter	33-lb (15kg) Spool		
	0.045" (1.2mm)	S246212-029		
FabCO RXR	1/16" (1.6mm)	S246219-029		
	Diameter	60-lb (27.2kg) Coil		
	1/16" (1.6mm)	S246519-002		
FabCO TR-70	3/32" (2.4mm)	S246529-002		
	Diameter	60-lb (27.2kg) Coil		
	1/16" (1.6mm)	S247019-002		
TM-811N1	3/32" (2.4mm)	S247029-002		
	Diameter	33-lb (15kg) Spool	60-lb (27.2kg) Coil	
	0.045" (1.2mm)	S283612-K29	S283619-K02	
Fabshield XLR-8	1/16" (1.6mm)	S283619-K29		
	Diameter	20-lb (9.7kg) Vacuum-Packed Spool	33-lb (15kg) Vacuum-Packed Spool	50-lb (22.7kg) Coil
	1/16" (1.6mm)	S225719-082	S225719-053	
	.072" (1.8mm)	S225724-082	S225724-053	S225724-014
Fabshield XLNT-6	5/64" (2.0mm)	S225725-082	S275725-053	S225725-014
	Diameter	25-lb (11.3kg) Vacuum-Packed Spool	50-lb (22.7kg) Coil	
	3/32" (2.4mm)	S225629-H29	S225629-014	
FabCor 86R	Diameter	33-lb (15kg) Spool	60-lb (27.2kg) Coil	
	0.045" (1.2mm)	S249412-029		
	0.052" (1.4mm)		S249415-002	
	1/16" (1.6mm)		S249419-002	
Metalloy Vantage	Diameter	33-lb (15kg) Spool		
	0.045" (1.2mm)	S279312-K29		
	0.052" (1.4mm)	S279315-K29		
	1/16" (1.6mm)	S279319-K29		
Metalloy EM13K-S	Diameter	60-lb (27.2kg) Coil		
	3/32" (2.4mm)	S280429-K02		
	1/8" (3.2mm)	S280443-K02		
Quantum Arc 6	Diameter	33-lb (15kg) Steel Reel		
	0.035" (0.9mm)	S307608-033		
	0.045" (1.2mm)	S307612-033		

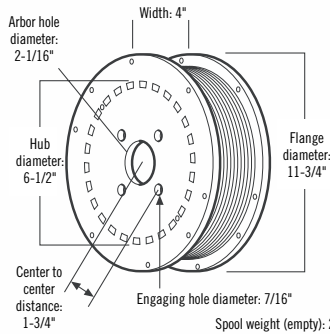
*NOTE: For additional package sizes, call our customer service team at 800-424-1543 or 937-332-5188.

PACKAGING

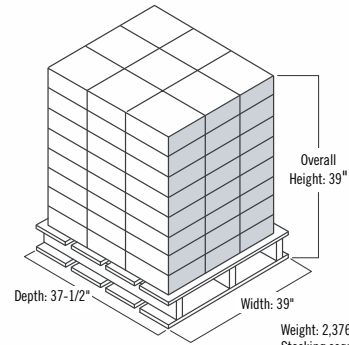
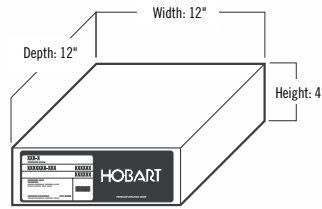
PRODUCT	DIAMETERS AND PACKAGES*			
Metalloy W-S	Diameter	60-lb (27.2kg) Coil		
	3/32" (2.4mm)	S282329-K02		
	1/8" (3.2mm)	S282343-K02		
Metalloy N1-S	Diameter	60-lb (27.2kg) Coil		
	3/32" (2.4mm)	S282229-K02		
	1/8" (3.2mm)	S282243-K02		
Hobart 335A	Diameter	5-lb (2.3kg) PPak	10-lb (4.5kg) PPak	50-lb (22.7kg) Carton
	3/32" (2.4mm)	S112232-045	S112232-089	S112232-031
	1/8" (3.2mm)	S112244-045	S112244-089	S112244-031
	5/32" (4.0mm)	S112251-045	S112251-089	S112251-031
	3/16" (4.8mm)			S112258-031
Hobart 418	Diameter	5-lb (2.3kg) PPak	10-lb (4.5kg) PPak	50-lb (22.7kg) Can
	3/32" (2.4mm)	S119932-045	S119932-089	S119932-035
	1/8" (3.2mm)	S119944-045	S119944-089	S119944-035
	5/32" (4.0mm)	S119951-045	S119951-089	S119951-035
	3/16" (4.8mm)			S119958-035
	1/4" (6.4mm)			S119981-035
Hobart 718MC	Diameter	50-lb (22.7kg) Can		
	3/32" (2.4mm)	S115932-035		
	1/8" (3.2mm)	S115944-035		
	5/32" (4.0mm)	S115951-035		
	3/16" (4.8mm)	S115958-035		
Hobart 7024	Diameter	50-lb (22.7kg) Carton		
	1/8" (3.2mm)	S112944-031		
	5/32" (4.0mm)	S112951-031		
	3/16" (4.8mm)	S112959-031		
	7/32" (6.35mm)	S112970-031		
	1/4" (6.4mm)	S112981-031		
Hobart 1139	Diameter	50-lb (22.7kg) Carton		
	1/8" (3.2mm)	S113244-031		
	5/32" (4.0mm)	S113244-031		

33-LB. FIBER SPOOL

- Uses standard spool hub – no special adapters required
- Durable – designed to withstand most kinds of everyday wear and tear
- Convenient, easy to change over



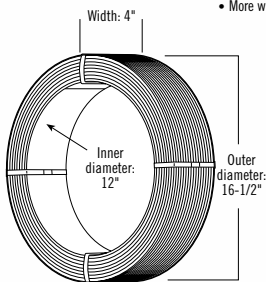
Spool weight (empty): 2.6 lbs.



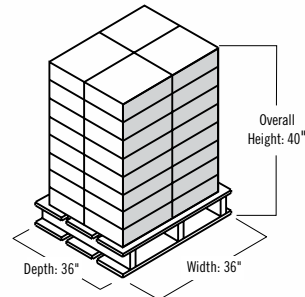
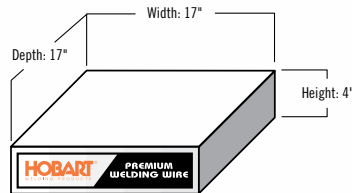
Weight: 2,376 lbs. net; 2,645 lbs. gross (est.)
Stacking sequence: 3 wide, 3 deep, 8 high
Spoils per pallet: 72

60-LB. COIL

- No spool to dispose of after wire is consumed
- Uses standard coil adapters
- More wire on coil means fewer changeovers



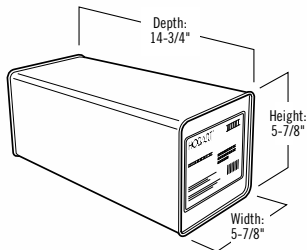
Coil weight (empty): 4 oz.



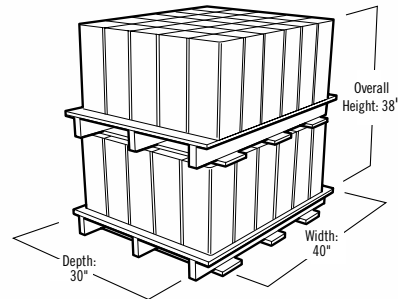
Weight: 1,920 lbs. net; 1,987 lbs. gross (est.)
Stacking sequence: 2 wide, 2 deep, 8 high
Coils per pallet: 32

50-LB. CAN 14" LENGTH

- Hermetically-sealed cans keep electrodes protected and ready for use when opened
- Pull-tab for safe, trouble-free opening
- Two separate pallets for convenient handling

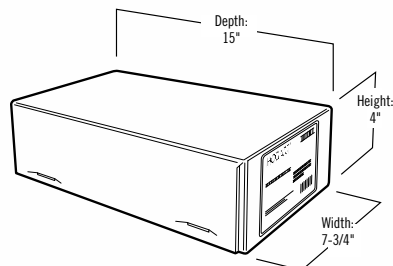


Weight: 3,000 lbs. net; 3,150 lbs. gross
Stacking sequence: 5 wide, 6 deep & 2 high
Cans per pallet: 60 cans

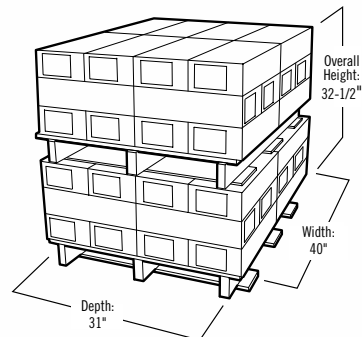


50-LB. CARTON

- Two separate pallets for convenient handling



Weight: 3,000 lbs. net; 3,090 lbs. gross
Stacking sequence: 4 wide, 4 deep, 2 high
Cartons per pallet: 48



History of **HOBART BROTHERS**

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

Much has changed in the industry since 1917. Since its founding, Hobart Brothers was there every step of the way. While staying abreast of new technologies and processes, the company continues to look for new and better ways to weld.

Hobart sets the standard.

As a world leader in the field of welding, Hobart offers the broadest selection of filler metals in the United States including:

HOBART **Δ TRI-MARK** **McKAY**

And introducing: **MAXAL** premium aluminum products.

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: quafire@hobartbrothers.com
www.hobartbrothers.com

Regional Office – Canada

ITW Welding North America
toll free: 888-489-9353
phone: 905-267-2171
fax: 905-820-4816
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: itwweld@satyam.net.in

Regional Office – South East Asia

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

Regional Office – China/Hong Kong

Beijing Miller Electric Mfg Co
phone: 861-087397080
fax: 861-087397600
email: lisa.li@millervelds.com

Regional Office – Australia

Welding Industries of Australia
phone: 61-8-83720609
fax: 61-8-82766327
email: intc@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: 7-812-336-9031
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 Welding Produtos para Soldagem
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: gregorio@itwwelding.com.mx
www.itwweldingmexico.com

Regional Offices for:

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

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

phone: 52-55-53687370
fax: 52-55-53667388
email: gregorio@itwwelding.com.mx

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

phone: 937-332-5188
fax: 937-332-5064
email: quafire@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



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937-332-5000



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