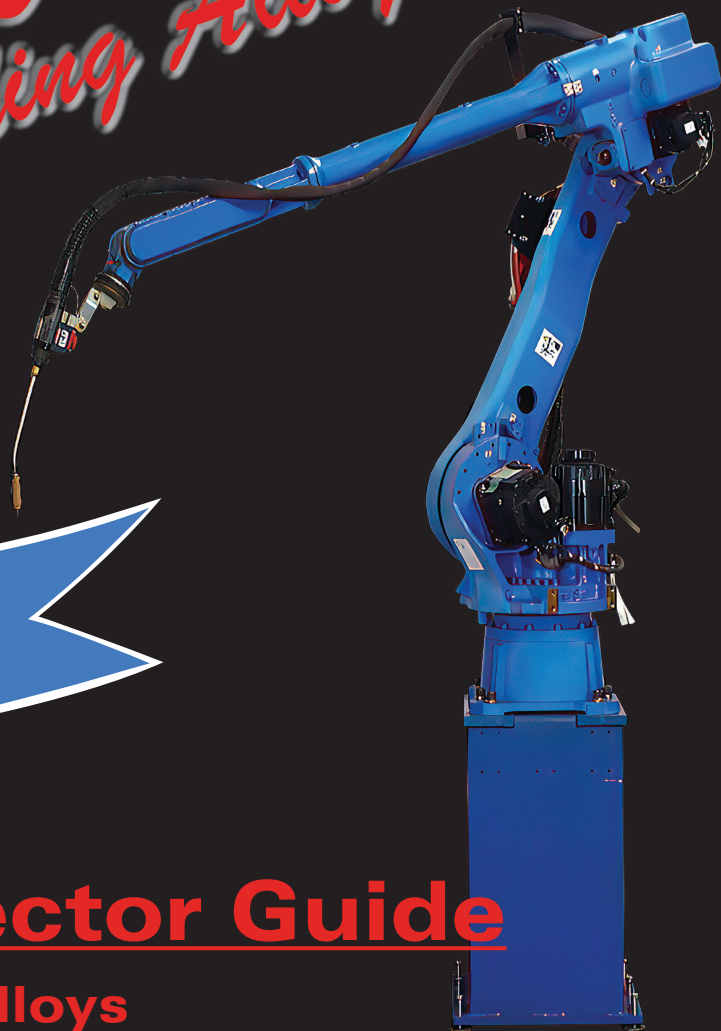


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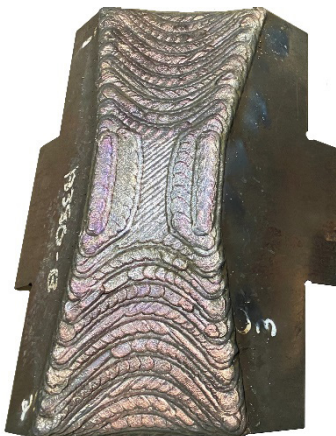


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- Reduces Weld Wire Usage
- Reduces Machining Times



- Increases Die Life
- Increases Welding Output
- Easily Operated
- Low Weld Stresses



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Low Alloy Steels

Eureka BU (AWS 80S-D2)

Applications: Eureka BU (Build Up) is a triple deoxidized filler metal that yields dense porous free weld deposits. It is used for high strength joining and fabrication of low alloy and mild steels. It also can be utilized as an underlay prior to the deposition of a hard facing alloy.

Typical Chemistry: C Mn Si Mo
.08 1.9 .60 .50

Tensile Strength: 95,000 psi

Yield Strength: 84,000 psi

Available Forms: Solid MIG Wire, TIG Rods and Micro Tig Rods **Elongation:** 22%

Eureka 26 (AWS E6013)

Applications: Eureka 26 is an all position AC/DC electrode. It has a stable spatter, free arc with self-detaching slag. Eureka 26 is a general purpose maintenance welding alloy for the joining and fabrication of low alloy steels and any other general maintenance joining operations. It is used on galvanized or zinc coated sheet metal as well as for close tolerance welds, jigs, fixtures, or other mechanical sections.

Typical Chemistry: C Mn Si
.08 .40 .40

Tensile Strength: 70,000 psi

Yield Strength: 63,000 psi

Available Forms: Stick Electrode

Elongation: 30%

Eureka 27 (AWS E7018 A1)

Applications: Eureka 27 is a premium quality AC/DC low hydrogen iron powder electrode. It is an all position welding alloy that exhibits outstanding arc stability with a rapid freezing slag system that is self-detaching. It is used in the general fabrication or joining of structural steels, pipes, plates and pressure vessels.

Typical Chemistry: C Mn Si Mo
.08 1.9 .60 .50

Tensile Strength: 85,000 psi

Yield Strength: 74,000 psi

Available Forms: Stick Electrode

Elongation: 28%

Eureka 28 (AWS E8018 C3)

Applications: Eureka 28 is a premium quality AC/DC, low hydrogen, iron powder electrode. It is an all position welding alloy that exhibits outstanding arc stability with a rapid freezing slag system that is self-detaching. It is used in the general fabrication or joining of structural steels, pipes, plates and pressure vessels.

Typical Chemistry: C Mn Si Ni
.08 .90 .70 1.0

Tensile Strength: 87,000 psi

Yield Strength: 77,000 psi

Available Forms: Stick Electrode

Elongation: 31%

Eureka 130 (A.I.S.I. Type 4130)

Applications: Eureka 130 is for welding 4100 or 4300 series steels such as stamping dies, cast steels, plastic molds and composite dies. It is also used for overlaying and build-up of certain types of rolls and other components that must be hardened.

Typical Chemistry:

C	Mn	Si	Cr	Mo
.30	.50	.25	1.0	.20

As Welded Hardness: 35-45 HRC

Fully Hardened: 50-55 HRC

Available Forms: Stick Electrode, Solid MIG Wire, TIG Rods, Metal Cored Wire and Micro Tig Rods

Tool Steels

Eureka Color Mold (Modified P-20)

Applications: Eureka Color Mold has carbon levels that are intentionally held low to obtain hardness values in the low 30 HRC range as welded. At this hardness level, the deposits have similar etching, graining and color match characteristics as P-20. Eureka Color Mold is used to repair all types of P-20 tools, whether they are die casting dies or any type of plastic molds where polishing, etching and color match characteristics are required. It can also be used to overlay working areas of lesser alloy steels in order to obtain more wear resistant surfaces. Eureka Color Mold can also be used to repair the higher alloy tool steels like H-11, H-12 and H-13 when machining is a prime requisite.

Typical Chemistry: C Mn Si Cr Mo
.08 .55 .55 1.35 .50

Tensile Strength: 90,000 psi

Yield Strength: 75,000 psi

As Welded Hardness: 25-35 HRC

Elongation: 23%

Available Forms: Solid MIG Wire, TIG Rods and Micro Tig Rods

Eureka P-20 (A.I.S.I. Type P-20)

Applications: Eureka P-20 is for the welding of P-20 tool steels. It is used on die casting dies and plastic injection molds when polishing, etching and color match characteristics are required. It is also used to overlay working areas of lesser alloy steels in order to obtain more wear-resistant surfaces.

Typical Chemistry: C Mn Si Cr Mo
.35 .30 .50 1.70 .40

As Welded Hardness: 35-45 HRC

Fully Hardened: 50-55 HRC

Available Forms: Solid MIG Wire, TIG Rods and Micro Tig Rods

Eureka 31 (A.I.S.I. Type H-13)

Applications: Eureka 31 is for the welding of H-11, H-12, and H-13 hot work tools and dies. It has very high resistance to thermal fatigue when subjected to alternate heating and cooling cycles. This alloy displays excellent retention of hardness at elevated temperatures, yielding excellent abrasion resistance. It is used on forging dies, die casting dies and plastic injection molds that are heat-checked or eroded. It can also be used on hot working punches and shear blades.

Typical Chemistry: C Mn Si Cr Mo V
.35 .80 .80 5.0 1.5 1.0

As Welded Hardness: 49-54 HRC

Available Forms: Stick Electrode, Solid MIG Wire, TIG Rods, Metal Cored Wire, Flux Cored Wire and Micro Tig Rods

Eureka 72 (A.I.S.I. Type H-12)

Applications: Eureka 72 is for the welding of H-12 hot work tools and dies. It has excellent hot hardness, wear resistance and displays reasonable impact resistance. It is used on hot and cold trim and shearing dies, punches, extrusion dies and die casting dies. It is an excellent choice for press forging dies where high heat and abrasion are encountered.

Typical Chemistry:	C	Mn	Si	Cr	Mo	W	V	As Welded Hardness:	50-55 HRC
	.35	.35	1.0	5.0	1.5	1.3	.30	Tensile Strength:	185,000 psi

Available Forms: Stick Electrode, Solid MIG Wire, TIG Rods, Metal Cored Wire, Flux Cored Wire and Micro Tig Rods

Eureka 74 (A.I.S.I. Type S-7)

Applications: Eureka 74 is for the welding of S-7 tool steels and other "S" series grades of tool steels. This alloy displays excellent toughness and shock resistance with moderate wear characteristics. It performs exceptionally well for trimming, cutting, shearing, slitting and punching operations.

Typical Chemistry:	C	Mn	Si	Cr	Mo	V	As Welded Hardness:	55-60 HRC
	.50	.50	.60	3.3	1.5	.25		

Available Forms: Stick Electrode, Solid MIG Wire, TIG Rods, Metal Cored Wire and Micro Tig Rods

Eureka 88 (A.I.S.I. Type H-19)

Applications: Eureka 88 is recommended for the welding of H-19 hot work tools and dies. It is a hot working tool steel that has high wear resistance, high hot hardness and good abrasion resistance. It is used in the repair, reclamation and composite fabrication of shallow press dies. It works well on hot punches and trim dies requiring the maximum in resistance to severe heat and abrasion.

Typical Chemistry: C Mn Si Cr Mo W V Co **As Welded Hardness:** 55-60 HRC
.40 .35 .30 4.5 .45 4.3 2.0 4.3

Available Forms: Stick Electrode, Metal Cored Wire and Flux Cored Wire

Eureka Marweld 250

Applications: Eureka Marweld 250 is for the welding of maraging steels. In the aluminum and zinc die casting industry it is used to weld gates and runners to resist liquid metal erosion. It is used on casting components, such as dies, cores and ejector pins. As well as for plastic and rubber molds, forging and extrusion dies, extrusion rams and dummy blocks. It is well suited for environments where heat checking and erosion resistance is a must.

Typical Chemistry: C Mn Si Ni Mo Co Ti Al **Welded Hardness:** 29-34 HRC
.02 .10 .10 18.5 4.8 7.5 .40 .10 **Aged Hardens To:** 48-53 HRC

Available Forms: Solid MIG Wire, TIG Rods and Micro Tig Rods

Eureka 1215 (A.I.S.I. Type A-2)

Applications: Eureka 1215 is for the welding of A-2 tool steels and other grades of air hardening tool steels. It can also be applied to many other grades of tool steels. This alloy can be used when annealing and re-hardening of A-2 and D-2 tool steels will be encountered. Typical applications are trim steels, piercing punches, flange and forming dies as well as some draw form operations.

Typical Chemistry: C Mn Si Cr Mo V **As Welded Hardness:** 55-60 HRC
1.0 .50 .25 5.0 1.2 .35

Available Forms: Stick Electrode, Solid MIG Wire, TIG Rods, Metal Cored Wire and Micro Tig Rods

Eureka 1216 (A.I.S.I. Type M-2)

Applications: Eureka 1216 is used for welding M2 high speed tool steels. This alloy is used in operating temperatures up to 1100° F without dropping any significant amount in terms of hardness. Eureka 1216 was specially designed to provide very hard but dependable cutting edges, draw beads and draw radii. It is utilized for the repair, reclamation or composite fabrication of draw dies, shear blades, stamping dies, forming rolls, large reamers, drills and in high wear areas.

Typical Chemistry: C Mn Si Cr Mo W V **As Welded Hardness:** 55-60 HRC
.85 .30 .30 4.3 5.0 6.2 2.0

Available Forms: Stick Electrode, Solid MIG Wire, TIG Rods, Metal Cored Wire, Flux Cored Wire and Micro Tig Rods

Forging Alloys

*All Forging Alloys Available in Specialized Formulations:
Tri-Cor Flux Cored Wire and Roboweld Metal Cored Wire*

Eureka N-2

Applications: Eureka N2 is formulated for the use in the forging industry for the repair and restoration of forging components such as rams, sow blocks, die shoes, dowel pockets, die holders, bolster plates, die shanks, columns and hammer bases. It is also great for use as an underlay where greater crack resistance is required as well as in the steel mill Industry for general machine parts such as arbors, shafts and gears.

Typical Chemistry: C Mn Si Mo Ni
.08 .55 .55 .60 3.0

Available Forms: Stick Electrode, Metal Cored Wire
and Flux Cored Wire

Tensile Strength: 157,000 psi

Elongation: 17%

Charpy "V": 42 Ft/lbs

As Welded Hardness: 18-23 HRC

Eureka N-3

Applications: Eureka N3 can be used in highly crack sensitive impressions. This alloy will outperform standard die block alloys and will reduce die block inventory. It is used on forge components such as rams, sows and die holders where additional hardness over that of Eureka N-2 is required.

Typical Chemistry: C Mn Si Mo Ni
.08 .55 .55 2.0 4.0

Available Forms: Stick Electrode, Metal Cored Wire and Flux Cored Wire

As Welded Hardness: 30-35HRC

Tempered at 1025°F: 35-40HRC

Eureka 12 Co

Applications: Eureka 12 Co is a martensitic stainless steel that work hardens up to 56 HRC. It is a high-performance economical alternative to Cobalt Base Alloys. It exhibits high wear resistance and high resistance to cracking.

Typical Chemistry: C Mn Si Cr Mo Co
.14 .45 .60 14.5 2.2 12

Available Forms: Metal Cored Wire, Flux Cored Wire

As Welded Hardness: 46-51 HRC

Work Hardens Up To: 56 HRC

Eureka 31 (A.I.S.I. H-13)

Applications: Eureka 31 is for the welding of H-11, H-12, and H-13 hot work tools and dies. It has very high resistance to thermal fatigue when subjected to alternate heating and cooling cycles. This alloy displays excellent retention of hardness at elevated temperatures, yielding excellent abrasion resistance. It is used on forging dies, die casting dies and plastic injection molds that are heat-checked or eroded. It can also be used on hot working punches and shear blades.

Typical Chemistry: C Mn Si Cr Mo V
.35 .80 .80 5.0 1.5 1.0

Available Forms: Stick Electrode, Solid MIG Wire, TIG Rods, Metal Cored Wire and Flux Cored Wire

As Welded Hardness: 49-54 HRC

Eureka 45 (AWS 80S-B6)

Applications: Eureka 45 is commonly used for the repair or reclamation of forging dies, die casting dies and extrusion dies. It is also used on H-12 and H-13 tool steels where lower as welded hardness is required.

Typical Chemistry	C	Mn	Si	Cr	Mo	As Welded Hardness: Solid MIG Wire: 33-38HRC	
of Tig Rods:	.10	.60	.50	5.0	.50	Stick Electrode and Flux Cored Wire: 38-43 HRC	

Available Forms: Stick Electrode, Solid MIG Wire, TIG Rods, Metal Cored Wire and Flux Cored Wire

Eureka 72 (A.I.S.I. H-12)

Applications: Eureka 72 is for the welding of H-12 hot work tools and dies. It has excellent hot hardness, wear resistance and displays reasonable impact resistance. It is used on hot and cold trim and shearing dies, punches, extrusion dies and die casting dies. It is an excellent choice for press forging type dies where high heat and abrasion are encountered.

Typical Chemistry:	C	Mn	Si	Cr	Mo	W	V	As Welded Hardness: 50-55 HRC
	.35	.35	1.0	5.0	1.5	1.3	.30	Tensile Strength: 185,000 psi

Available Forms: Stick Electrode, Solid MIG Wire, TIG Rods, Metal Cored Wire and Flux Cored Wire

Eureka LC 72 (Modified H-12)

Applications: Eureka LC 72 is an excellent choice for hammer and press forging type dies where high heat and abrasion are encountered. Typical applications would be shallow impressions such as automobile connecting rods, hand tools, sleeve yokes and camshafts.

Typical Chemistry:	C	Mn	Si	Cr	Mo	W	V	As Welded Hardness: 39-44 HRC
	.18	.50	.50	6.0	2.8	1.8	.50	

Available Forms: Stick Electrode, Metal Cored Wire and Flux Cored Wire

Eureka LC 72 Mod (Modified Type H-12)

Applications: Eureka LC 72 Mod is a modified LC 72 with higher hardness. It is an excellent choice for hammer and press forging type die where high heat and abrasion are encountered. Typical applications would be shallow impressions such as automobile connecting rods, hand tools, sleeve yokes and camshafts.

Typical Chemistry:	C	Mn	Si	Cr	Mo	W	V	As Welded Hardness: 43-48 HRC
	.22	.50	.50	6.0	2.8	1.8	.50	

Available Forms: Metal Cored Wire, Flux Cored Wire

Eureka 78 (Modified H-12)

Applications: Eureka 78 is typically used in press forging applications where high heat and abrasion are encountered. It is commonly used on connecting rods, crankshafts, sleeve yokes, hand tools and other shallow impressions.

Typical Chemistry: C Mn Si Cr Mo W V Ni **As Welded Hardness:** 51-56 HRC
.30 .60 .80 4.8 2.0 2.0 .30 .60

Available Forms: Metal Cored Wire and Flux Cored Wire

Eureka 88 (A.I.S.I. H-19)

Applications: Eureka 88 is recommended for the welding of H-19 hot work tools and dies. It is a hot working tool steel that has high wear resistance, high hot hardness and good abrasion resistance. It is used in the repair, reclamation and composite fabrication of shallow press dies. It works well on hot punches and trim dies requiring the maximum in resistance to severe heat and abrasion.

Typical Chemistry: C Mn Si Cr Mo W V Co **As Welded Hardness:** 55-60 HRC
.40 .35 .30 4.5 .45 4.3 2.0 4.3

Available Forms: Stick Electrode, Metal Cored Wire and Flux Cored Wire

Eureka 450

Applications: Eureka 450 is used for the welding of forging die impressions in both hammer and press forging dies requiring strength and toughness. In many cases it is used in the lower half of impressions which are then overlaid with a higher wear resistant alloy. Typical applications are crankshaft dies, connecting rods and yokes.

Typical Chemistry: C Mn Si Cr Mo Ni **As Welded Hardness:** 44-48 HRC
.15 .60 .40 10.5 2.0 1.8

Available Forms: Stick Electrode, Metal Cored Wire and Flux Cored Wire

Eureka 453

Applications: Eureka 453 is a modified 450 martensitic stainless steel with an added 2% Cobalt. The added Cobalt promotes greater hot hardness and wear resistance. Used for the welding of forging dies in both hammer and press applications requiring strength and toughness.

Typical Chemistry: C Mn Si Cr Mo Ni Co **As Welded Hardness:** 44-49 HRC
.15 .80 .70 10.5 2.0 1.8 2.0

Available Forms: Stick Electrode, Metal Cored Wire, Flux Cored Wire

Eureka 615

Applications: Eureka 615 was developed for use in the repair and restoration of rams, sow blocks, die holders, die shanks, hammer bases and columns. It is also used in the steel mill industry as a general maintenance alloy for steel gears, large arbors, shafts and in general machine parts.

Typical Chemistry:	C	Mn	Si	Cr	Mo	Ni	As Welded Hardness: 13-23 HRC
	.08	.70	.30	.70	.30	1.2	

Available Forms: Stick Electrode, Metal Cored Wire and Flux Cored Wire

Eureka 625

Applications: Eureka 625 was formulated for the use in the repair and restoration of forging components such as rams, sow blocks, die shoes, dowel pockets, die holders, bolster plates, die shanks, columns and hammer bases. It also is used as an underlay for hard facing alloys and in the steel mill industry for welding of general machine parts such as arbors, shafts and gears.

Typical Chemistry:	C	Mn	Si	Cr	Mo	Ni	As Welded Hardness: 23 -30HRC
	.08	1.4	.50	1.3	.60	2.2	

Available Forms: Stick Electrode, Metal Cored Wire and Flux Cored Wire

Eureka 635

Applications: Eureka 635 is generally used for the repair and restoration of forging dies as well as to reclaim obsolete impressions returning the die block to near original form. It is utilized in the repair of components such as rams, sow blocks and die holders where increased hardness and wear is required over that of the Eureka N-2 and Eureka 625. It exhibits similar wear characteristics of medium carbon low alloy base metals. The major micro constitute consists of bainite and displays high crack resistivity.

Typical Chemistry:	C	Mn	Si	Cr	Mo	Ni	Tensile Strength: 166,000 psi
	.08	1.2	.35	1.5	1.1	2.3	Elongation: 12%

As Welded Hardness: 35-40 HRC	Charpy "V": 35.3 Ft/lbs @450f
--------------------------------------	--------------------------------------

Available Forms: Stick Electrode, Metal Cored Wire and Flux Cored Wire

Eureka 640

Applications: Eureka 640 is generally used for the repair and restoration of forging dies as well as to reclaim obsolete impressions returning the die block to near original form. It is utilized in the repair of components such as rams, sow blocks and die holders where increased hardness and wear is required over that of the Eureka 635.

Typical Chemistry:	C	Mn	Si	Cr	Mo	Ni	As Welded Hardness: 38-43 HRC
	.12	1.20	.35	2.7	1.7	4.2	

Available Forms: Stick Electrode, Metal Cored Wire and Flux Cored Wire

Eureka 650

Applications: Eureka 650 is used for the welding of shallow hammer dies and many types of press dies. Recommended for connecting rods, crankshafts and yokes. It is good for intricate impressions that require high strength and good wear resistance. This alloy has good hot hardness and is resistant to heat checking. The high chromium content promotes good resistance to oxidation at elevated temperatures.

Typical Chemistry: C Mn Si Cr Mo Ni W V **As Welded Hardness:** 50-55 HRC
.30 .80 .40 9.0 2.0 2.0 .40 .30

Available Forms: Stick Electrode, Metal Cored Wire and Flux Cored Wire

Eureka 653

Applications: Eureka 653 is a modified 650 martensitic stainless steel with an added 2% Cobalt. The added Cobalt promotes greater hot hardness and wear resistance. Used for the welding of forging dies in both hammer and press applications requiring strength and toughness.

Typical Chemistry: C Mn Si Cr Mo Ni W V Co **As Welded Hardness:** 50-55 HRC
.30 .80 .40 9.0 2.0 2.0 .40 .30 2.0

Available Forms: Stick Electrode, Metal Cored Wire, Flux Cored Wire

Eureka 726 (Modified H-12)

Applications: Eureka 726 is mainly used for the welding of press forging dies where abrasion and high heats are encountered. Typical applications would be high volume shallow impression dies such as connecting rods and hand tools. This alloy has a dispersion of stable complex carbides in a matrix of martensite, which is extremely wear resistant at temperatures up to 1100°F.

Typical Chemistry: C Mn Si Cr Mo W V **As Welded Hardness:** 55-60 HRC
.30 .70 .50 5.5 2.5 3.0 .50

Available Forms: Stick Electrode, Metal Cored Wire and Flux Cored Wire

Stainless Steels

Eureka 308 (AWS 308 & 308L)

Applications: Eureka 308 stainless steel is used to weld base metals of similar composition such as 201, 202, 301, 304, 305 and 308. Common applications include the dairy industry, distillery equipment and restaurant equipment.

Typical Chemistry: C Mn Si Cr Ni
.02 1.5 .50 21.0 10.0

Typical Tensile Strength: 88,000 psi

Yield Strength: 57,000 psi

Elongation: 35%

Available Forms: Solid MIG Wire, TIG Rods, Micro TIG Rods, and Metal Cored Wire

Eureka 309 (AWS 309, 309L & 309LSi)

Applications: Eureka 309 is used for welding 308, 309, and 316 stainless steels. Eureka 309 is an austenitic stainless steel that resists scaling up to 1900° F. The weld deposits are extremely resistant to corrosive environments. It is excellent for the repair or joining of furnace parts, bearing surfaces, billet hooks, forging tongs, zinc die casting dies and drawing and forming dies.

Typical Chemistry: C Mn Si Cr Ni
.02 1.5 .50 24.0 13.0

Typical Tensile Strength: 84,000 psi

Yield Strength: 60,000 psi

Elongation: 34%

Available Forms: Solid MIG Wire, TIG Rods, Metal Cored Wire, and Micro Tig Rods

Eureka 310 (AWS 310)

Applications: Eureka 310 is for welding base metals of similar composition. The weld deposits exhibit good high temperature oxidation resistance and high temperature strength up to 1800° F. Eureka 310 is used for the repair or joining of heat resistant castings such as HC type.

Typical Chemistry: C Mn Si Cr Ni
.11 1.5 .50 26.0 21.0

Typical Tensile Strength: 84,000 psi

Yield Strength: 60,000 psi

Elongation: 34%

Available Forms: Solid MIG Wire, TIG Rods and Micro Tig Rods

Eureka Ultra Tech 505 (AWS 312)

Applications: Eureka Ultra Tech 505 is used for joining of all types of steels, tool steels, cast iron and any type of unknown steels. It has excellent strength, high impact resistance and high crack resistance. Eureka Ultra Tech 505 is a great general purpose maintenance alloy. It is ideal as an underlay weld deposit.

Typical Chemistry: C Mn Si Cr Ni
.11 1.5 .50 29.0 9.0

Typical Tensile Strength: 116,000 psi

Yield Strength: 80,000 psi

Elongation: 25%

Work Hardens Up To: 40 HRC

Available Forms: Stick Electrode, Solid MIG Wire, TIG Rods, Metal Cored Wire, Flux Cored Wire and Micro Tig Rods

Eureka 316L (AWS 316L)

Applications: Eureka 316L is for the welding of 304, 308, 309 and 316L stainless steels. Eureka 316L is commonly used in the textile, paper, cellulose and chemical equipment industries as well as for the general fabrication.

Typical Chemistry: C Mn Si Cr Ni Mo
.03 1.5 .50 18.5 12.5 2.0

Typical Tensile Strength: 88,000 psi

Yield Strength: 53,000 psi

Elongation: 40%

Available Forms: Solid MIG Wire, TIG Rods, Micro TIG Rods, and Metal Cored Wire

Eureka 330 (AWS 330)

Applications: Eureka 330 is used for the welding of cast and wrought metals of similar chemical composition. It has good high temperature oxidation resistance, and high temperature creep strength up to 1800° F. It is used on boilers, baskets, furnace parts, and high temperature castings of similar chemistry.

Typical Chemistry: C Mn Si Cr Ni
.20 1.5 .50 16.5 35.0

Typical Tensile Strength: 84,000 psi

Yield Strength: 56,000 psi

Elongation: 29%

Available Forms: Stick Electrode, Solid MIG Wire, TIG Rods and Micro Tig Rods

Eureka 350 (AWS 410NiMo)

Applications: Eureka 350 is for the welding of 410 and 410NiMo castings and wrought metals. It is used in the repair, reclamation and joining of die casting dies, forging dies, arbors and shafts. It can be used as an underlay material in crack sensitive areas when a harder alloy is to be used as an overlay. Deposits polish to a high luster with a medium resistance to abrasion and are highly crack resistant due to its high tensile strength.

Typical Chemistry: C Mn Si Cr Mo Ni
.06 .50 .40 11.5 .50 4.5

As Welded Hardness: 35-40 HRC

Typical Tensile Strength: 165,000 psi

Elongation: 23%

Available Forms: Stick Electrode, Solid MIG Wire, TIG Rods, Metal Cored Wire, Flux Cored Wire and Micro Tig Rods

Eureka 420 (AWS 420)

Applications: Eureka 420 is a martensitic stainless steel for welding 410 and 420 stainless steels. It has excellent abrasion resistance as well as moderate corrosion resistance. It is used on dental, surgical and cutlery instruments as well as on pump shafts, plastic molds and steel mill rolls.

Typical Chemistry: C Mn Si Cr
.25 .50 .40 13.0

As Welded Hardness: 50-55 HRC

Available Forms: Solid MIG Wire, TIG Rods and Micro Tig Rods

Eureka 15-5 PH

Applications: Eureka 15-5 PH is a martensitic, precipitation hardening stainless steel alloy that exhibits resistance to corrosion and excellent strength. It is used for the welding of similar stainless steel compositions. Used in the petrochemical and aerospace industries as well as plastic injection molding.

Typical Chemistry: C Mn Si Cr Ni
.07 1.0 1.0 15 5

Typical Tensile Strength: 160,000 psi

Yield Strength: 140,000 psi

Available Forms: Solid MIG Wire, TIG Rods and Micro Tig Rods **Elongation:** 7.6%

Eureka 17-4 PH (AWS 630)

Applications: Eureka 17-4 PH is for the welding of ASTM A 564, 17-4 PH and 15-5 PH martensitic precipitation hardening stainless steels. It is used in corrosion resistant and high temperature environments such as the petrochemical and aerospace industries. It can also be used in plastic injection molds.

Typical Chemistry: C Mn Si Cr Cu Ni Nb
.03 .50 .40 16.5 3.5 4.8 .20

Typical Tensile Strength: 150,000 psi

Yield Strength: 130,000 psi

Available Forms: Solid MIG Wire, TIG Rods and Micro Tig Rods **Elongation:** 10%

Alloys for Cast Iron

Eureka CI-H1

Applications: Eureka CI H-1 was designed to form a hard working surface directly on cast iron. This alloy is exceptionally strong and wear resistant which out performs cast iron. The weld deposits display moderate impact resistance. It is mainly applied on automotive cast irons for form, trim, flange or hem dies.

Typical Chemistry: C Mn Si Co Ni Cu
.13 3.2 .55 3.0 1.5 1.0

As Welded Hardness: 40-45 HRC

First Layer on Cast Iron: 55-60 HRC

Available Forms: Metal Cored Wire

Eureka EXP-10

Applications: Eureka EXP-10 is mainly used as an underlay on cast iron. The first layer of EXP-10 on cast iron is soft and crack free. This makes for a good base for a hard alloy overlay. Eureka EXP-10 is commonly used for the repair and reclamation of all grades of nodular and grey cast irons in any heat treated condition. Eureka EXP-10 is good for automotive cast iron draw dies, punches and binder rings.

Typical Chemistry: C Mn Si Cr Ni Mo
.10 1.0 .60 5.0 10.0 1.0

As Welded Hardness: 35-40 HRC

First Layer on Cast Iron: 20HRC

Available Forms: Stick Electrode and Metal Cored Wire

Eureka 60 Ni (AWS NiFe-C1)

Applications: Eureka 60 Ni is a nickel iron alloy for joining grey, malleable and ductile cast irons. It is used on many applications in the maintenance repair of cast iron gears, sprockets, motor housings, machine bases and cams.

Typical Chemistry: C Mn Si Ni
1.2 .30 .70 55.0

Available Forms: Stick Electrode and Metal Cored Wire

Eureka 100 (AWS ERNi-C1)

Applications: Eureka 100 is a commercially pure nickel welding alloy. It is somewhat lower in strength than the Eureka 60 Ni but higher in crack resistance. Eureka 100 is used to join or repair grey, nodular and malleable cast irons. Extremely effective on engine block walls, pump housings, and gears as well as for sprockets, motor housings, machine bases, cams, levers and draw dies. Do not use on automotive draw dies as an underlay, use Eureka EXP-10 instead.

Typical Chemistry: C Mn Si Ni
.01 .20 .10 99.0

Typical Tensile Strength: 66,000 psi

Elongation: 40%

Available Forms: Solid MIG Wire and TIG Rods

Eureka 5545 (AWS ERNiCu-7)

Applications: Eureka 5545 is used for welding of Monel 400 and Monel K500. Eureka 5545 is used to join or repair grey, nodular and malleable cast irons. When welding on cast iron it produces machinable weld deposits that have excellent color match.

Typical Chemistry:

C	Mn	Si	Ni	Cu	Ti
.01	2.0	1.0	65.0	BAL	2.0

Typical Tensile Strength: 66,000 psi

Elongation: 40%

Available Forms: Solid MIG Wire and TIG Rods

Nickel Base Alloys

Eureka CHD (AWS NiCrMo-4)

Applications: Eureka CHD alloy has outstanding strength and toughness up to 2000° F. Eureka CHD being nickel based has excellent fatigue strength, which resists heat checking from alternating heating and cooling cycles. Eureka CHD weld deposits perform excellent in many hot working hard facing applications and it can be used as an underlay material for other nickel based welds. In the steel mill industry, it is used on tongs, entry roll guides, hot shear applications and furnace parts. In the ring rolling industry, it has found great success on axial cones. In the forging and extrusion industry, it is used for hard facing die impressions.

Typical Chemistry: C Mn Si Cr Mo W
.01 .50 .50 15.5 16.0 3.7

As Welded Hardness: Up to 30 HRC

Work Hardens: Up To 40 HRC

Available Forms: Stick Electrode, Solid MIG Wire, TIG Rods, Flux Cored Wire and Micro Tig Rods

Eureka CWD Mod (Modified Waspalloy)

Applications: Eureka CWD Mod alloy has outstanding strength and wear resistance up to 2000° F. This is derived from its solid solution strengthening and work hardening affects. Eureka CWD Mod may stress relieve itself in the form of cracking. The weld deposits perform excellent in hot working hard facing applications such as rotary dies and flat open face dies.

Typical Chemistry: C Mn Si Cr Mo Co Ti Al Ni
.07 .40 .30 22.0 9.0 12.0 .40 1.0 Bal

As Welded Hardness: 25-30 HRC

Work Hardens: Up To 50 HRC

Available Forms: Flux Cored Wire, Solid Wire

Eureka 62 (AWS NiCrMo-3)

Applications: Eureka 62 is for welding 625, 600, and 800 type nickel base alloys. It is also used for making high strength welds on 9% nickel steels and for overlaying carbon steel. It has outstanding strength and toughness up to 2000° F. Eureka 62 weld deposits perform excellent in many hot working applications. In the steel mill industry it is used on tongs, entry roll guides, hot shear applications, and furnace parts. In the ring industry, it has found great success on axial cones and in the forging and extrusion industry, it is used for hard facing impressions and dummy blocks.

Typical Chemistry: C Mn Si Cr Mo Nb
.02 .50 .50 21.5 8.8 2.5

Typical Tensile Strength: 80,000 psi

Elongation: 40%

Available Forms: Stick Electrode, Solid MIG Wire, TIG Rods, Flux Cored Wire and Micro Tig Rods

Eureka 82 (AWS NiCr-3)

Applications: Eureka 82 is for welding 600 and 800 series nickel base alloys. It is used for joining many dissimilar nickel base alloys to themselves or to stainless steels or carbon steels. Commonly used in the chemical or petrochemical industries and also as a surfacing steel.

Typical Chemistry: C Mn Si Cr Nb
.02 3.0 .50 20.0 2.5

Typical Tensile Strength: 80,000 psi

Elongation: 30%

Available Forms: Flux Cored Wire, Tig Rods, Micro Tig Rods

Eureka 718 (AWS NiFeCr-2)

Applications: Eureka 718 is a nickel base alloy for welding 718 and similar base metals. It is a precipitation hardening alloy that displays exceptionally high tensile and creep-rupture properties at temperatures up to 1300° F. Eureka 718 is commonly used on dummy blocks and forging dies where high strength at elevated temperatures is required. Eureka 718 is also used as a surfacing alloy.

Typical Chemistry: C Mn Si Cr Mo Nb Ti Al
.05 1.0 .50 19.0 3.0 5.0 .90 .60

Typical Tensile Strength: 180,000 psi

Available Forms: Flux Cored Wire, Tig Rods, Micro Tig Rods

Cobalt Base Alloys

Eureka 1 (AWS ER CoCr-C)

Applications: Eureka 1 is a hardfacing alloy that has high abrasion and corrosion resistance at working temperatures up to 1500° F. It is commonly used for the repair or reclamation of pump sleeves, rotary seal rings, bearing sleeves, valves, valve seats, dummy blocks, mandrels and plastic extrusion screws. Eureka 1 is also used on hot trimming, shearing or punching dies associated with the forging and extrusion industries. The metal-to-metal wear is also outstanding due to the low coefficient of friction. The impact resistance and machinability of this alloy is generally considered poor.

Typical Chemistry:

C	Mn	Si	Cr	W
2.5	.30	1.0	29.0	12.5

As Welded Hardness: 50-55 HRC

Hardness at 1100°F: 48 HRC

Available Forms: Stick Electrode and TIG Rods

Eureka 6 (AWS ER CoCr-A)

Applications: Eureka 6 is a hardfacing alloy that has high abrasion and corrosion resistance at working temperatures up to 1500° F. It is commonly used for the repair or reclamation of pump sleeves, rotary seal rings, bearing sleeves, valves, valve seats, dummy blocks, mandrels and plastic extrusion screws. It is also used on hot trimming, shearing or punching dies associated with the forging and extrusion industries. The metal-to-metal wear is also outstanding due to the low coefficient of friction. The impact resistance and machinability of this alloy is generally considered poor.

Typical Chemistry:

C	Mn	Si	Cr	W
1.1	.30	1.0	29.0	4.5

As Welded Hardness: 40-45 HRC

Available Forms: Stick Electrode, TIG Rods and Metal Cored Wire

Eureka 12 (AWS ER CoCr-B)

Applications: Eureka 12 is a hardfacing alloy that has high abrasion and corrosion resistance at working temperatures up to 1500° F. Eureka 12 is commonly used for the repair or reclamation of pump sleeves, rotary seal rings, bearing sleeves, valves, valve seats, dummy blocks, mandrels and plastic extrusion screws. It is also used on hot trimming, shearing or punching dies associated with the forging and extrusion industries. The metal-to-metal wear is also outstanding due to the low coefficient of friction. The impact resistance and machinability of this alloy is generally considered poor.

Typical Chemistry:

C	Mn	Si	Cr	W
1.5	.30	1.0	29.0	8.5

As Welded Hardness: 43-48 HRC

Hardness at 1200°F: 37 HRC

Available Forms: Stick Electrode and TIG Rods

Eureka "X" (AWS ER CoCr-E) (21 Type)

Applications: Eureka "X" is a hardfacing alloy which is used to weld forging dies, hot trimming, punching and shearing dies, extrusion dies and dummy blocks. Eureka "X" is also used in high pressure and high temperature environments up to 1500° F. Eureka "X" has good abrasion resistance and thermal fatigue resistance as well as good resistance to chemical attack such as acids and salts.

Typical Chemistry: C Mn Si Cr Mo Ni
.25 .30 1.0 28.0 5.0 2.5

As Welded Hardness: 29-34 HRC

Work Hardens Up To: 48 HRC

Available Forms: Stick Electrode, TIG Rods and Metal Cored Wire

Eureka MF-201 (Modified Cobalt 21 Type)

Applications: Eureka MF-201 is a hardfacing alloy which is used in press forging dies, hot trimming dies, punching and shearing dies, extrusion dies and dummy blocks. Eureka MF-201 offers a combined resistance to impact, heat, abrasion, corrosion, scaling and thermal shock. Eureka MF-201 weld deposits are the toughest of the cobalt base alloys and will retain its hardness well at elevated temperatures.

Typical Chemistry: C Mn Si Cr Mo Ni Nb
.15 .30 1.0 28.0 5.5 4.5 .60

As Welded Hardness: 30-35 HRC

Work Hardens Up To: 55 HRC

Available Forms: Stick Electrode, TIG Rods and Metal Cored Wire

Eureka 706

Applications: Eureka 706 is a cobalt base hardfacing alloy that has improved corrosion, abrasion, hot hardness and fatigue resistance over Eureka 6. The metal-to-metal wear is also outstanding due to the low coefficient of friction because of its ability to take a high polish. The impact resistance and machinability of this alloy is generally considered good. Eureka 706 is recommended for the repair or reclamation of valves, cams, saw bars and chains, and crushers. Commonly used on shear knives, dummy blocks and shearing or punching dies and hot trim dies.

Typical Chemistry: C Mn Si Cr Mo Co
1.3 .30 1.0 30.0 4.5 Bal

As Welded Hardness: 40-45HRC

Available Forms: TIG Rods

Eureka 25

Applications: Eureka 25 is a cobalt base hardfacing alloy which is used in press dies, punching and shearing dies, extrusion dies and dummy blocks. Eureka 25 offers a combined resistance to impact, corrosion, scaling and thermal shock. Eureka 25 weld deposits have the highest resistance to thermal fatigue cracking of the Cobalt base alloys and will retain its hardness well at elevated temperatures.

Typical Chemistry: C Mn Si Cr W Ni
.10 1.0 .60 20.0 15.5 10.0

As Welded Hardness: 23-27 HRC

Work Hardens Up To: 44 HRC

Available Forms: Stick Electrode, TIG Rods and Metal Cored Wire

Eureka Ulti-Forge

Applications: Eureka Ulti-Forge is a Cobalt Base Alloy which exhibits the ultimate in both wear resistance and resistance to cracking. Can be used on open and closed dies, rotary dies, axial cones, mandrels, punch tooling etc.

Typical Chemistry: C Mn Si Cr Mo Ni W Fe Co
.08 .80 1.2 24.0 5.0 9.0 1.5 2.0 Balance

As Welded Hardness: 46-51 HRC

Work Hardens Up To: 56 HRC

Available Forms: Metal Cored Wire, Flux Cored Wire

Copper Base Alloys

Eureka 10 (AWS CuAl-A2)

Applications: Eureka 10 is an aluminum bronze alloy that is used for the joining of many ferrous and nonferrous metals and combinations of dissimilar metals. Eureka 10 can be used to weld and join many grades of cast iron, high and low carbon steels, copper, bronze and copper-nickel alloys. It is used for building up bearing surfaces, joining and fabricating copper alloys, overlaying for resistance to corrosion and erosion and general maintenance and repair welding.

Typical Chemistry: Al Cu
 10.0 BAL

As Welded Hardness: 120 BHN

Tensile Strength: 77,000 psi

Available Forms: Solid MIG Wire, TIG Rods and Micro Tig Rods

Eureka 150 (AWS CuAl-A3)

Applications: Eureka 150 is well suited for piston overlay applications and bearing surfaces where high strength and good ductility are required. Used on hydraulic pistons, impellers, press rams, mandrels, steel mill rolls, valve seat and parts and bearing overlays.

Typical Chemistry: Al Fe Cu
 10.5 4.0 BAL

As Welded Hardness: 190 BHN

Tensile Strength: 90,000 psi

Available Forms: TIG Rods and Micro Tig Rods

Eureka 250 (AWS CuAl-D)

Applications: Eureka 250 is typically used in overlay applications where its wear resistant qualities are required. Examples are high speed bearings, friction plates, draw dies, wire straightening rolls, aluminum bronze castings and gears.

Typical Chemistry: Al Fe Cu
 13.5 4.0 BAL

As Welded Hardness: 250 BHN

Tensile Strength: 80,000 psi

Available Forms: TIG Rods and Micro Tig Rods

Eureka Deoxidized Copper (ERCu)

Applications: Eureka Deoxidized Copper provides high quality deposits with relatively high electrical conductivity. Used for fabricating deoxidized copper, repair weld copper castings, weld galvanized steel and deoxidized copper to mild steel where high strength joints are not required. Used on billet molds, conductor molds, copper sculptures, steel mill electrode holders.

Typical Chemistry: Cu Mn Si Sn
 98 .50 .50 1.0

As Welded Hardness: 54 BHN

Tensile Strength: 29,000 psi

Available Forms: TIG Rods and Micro Tig Rods

Eureka Everdur 1010 (AWS CuSi-A)

Applications: Eureka Everdur 1010 silicon bronze is primarily used for the welding of copper, copper silicon and copper-zinc base metals. Eureka Everdur 1010 is a copper based filler metal containing 3.5% silicon and small amounts of manganese, tin and zinc.

Typical Chemistry: Si Cu
3.5 BAL

Available Forms: TIG Rods and Micro Tig Rods

Aluminum Base Alloys

Eureka 4043 (AWS 4043)

Applications: Eureka 4043 is for welding of 3003, 3004, 5052, 6061, 6063, and cast aluminum alloys. Eureka 4043 is less sensitive to weld cracking than other aluminum alloys. The higher silicon content is to reduce its melting point and increase fluidity. Eureka 4043 is used for many general purpose applications.

Typical Chemistry: Si Al
5.0 BAL

Typical Tensile Strength: 29,000 psi

Available Forms: Solid MIG Wire, TIG Rods and Micro Tig Rods

Eureka 5356 (AWS 5356)

Applications: Eureka 5356 is for welding 5050, 5052, 5083, 5356, 5454 and 5456. It has high strength, good feed ability and crack free weld deposits. Eureka 5356 is used where higher weld strength and greater ductility is required as compared to Eureka 4043. Typical uses would include the repair or fabrication of automotive panels, truck/trailer frames, cargo tanks, ship structures and architectural structures.

Typical Chemistry: Mn .10 Mg 5.0 Ti .10 Al BAL

Available Forms: Solid MIG Wire, TIG Rods and Micro Tig Rods

Important Terms as They Relate to Welding

PREHEAT: Heating a metal to a given temperature to compensate for thermal shock and shrinkage stresses, before arc air gouging and welding.

FILLING ARC CRATERS: Physically creating a convex area in arc crater to compensate for liquid shrinkage.

PEENING: Physical deformation of weld deposits creating a compressive load which offsets solid shrinkage tensile stresses.

POSTHEAT: The equalizing of temperature after welding to reduce thermal stresses.

SLOWCOOLING: Cool at a rate normally to 150 degrees F minimum, slow enough as not to create thermal stresses.

STRESS RELIEVE: Normally performed after welding to relieve shrinkage stresses (not tempering).

TEMPERING: Perforated after slow cooling when deposits have hardened which alleviates brittleness of weld deposits and heat affected zones.

Formulas Used To Determine Pounds of Filler Metal For A Given Area

SQUARES OR RECTANGLES.....LENGTH X WIDTH X DEPTH X .3 = POUNDS

OR.....(L) (W) (D) (.3) = POUNDS

ROUNDS.....[(3.14 X DIA. X DIA.) + 4] X DEPTH X .3 = POUNDS

OR.....(3.1416 DIA² / 4) (D) (.3) = POUNDS

Formulas Used to Determine How Many Pounds Per Foot of Solid Wire

D = DIAMETER OF WIRE.....1 / (3.1416 DIA² / 4) (12") (.3) = POUNDS

Typical Efficiency of Filler Metal Consumables

STICK ELECTRODE 60%

BARE TIG ROD 98%

SMALL DIA ACW 98%

LARGE DIA ACW 90%

Approximate Number of Tool Steel Welding Electrodes Per Pounds

3/32" 24 STICKS

1/8" 14 STICKS

5/32" 10 STICKS

3/16" 7 STICKS

1/4" 2.25 STICKS

Approximate Number of Tool Steel 36" Bare Rods Per Pound

.045" 60 RODS

1/16" 30 RODS

3/32" 13 RODS

1/8" 7 RODS

5/32" 5 RODS

Eureka Stick Electrodes

Size	Standard Unit Weight	Standard Shipping Package
3/32" x 9"	10 Lbs.	40 Lbs.
1/8" x 14"	10 Lbs.	40 Lbs.
5/32" x 14"	10 Lbs.	40 Lbs.
3/16" x 14"	10 Lbs.	40 Lbs.
1/4" x 14"	25 Lbs.	25 Lbs.
1/4" x 18"	25 Lbs.	25 Lbs.
5/16" x 24"	50 Lbs.	50 Lbs.
3/8" x 24"	50 Lbs.	50 Lbs.

Eureka Solid Bare Tig Rod

Size	Standard Unit Weight	Standard Shipping Package
.035" x 36"	5 Lbs. and 10 Lbs.	20 Lbs. and 40 Lbs.
.045" x 36"	10 Lbs.	40 Lbs.
1/16" x 36"	10 Lbs.	40 Lbs.
3/32" x 36"	10 Lbs.	40 Lbs.
1/8" x 36"	10 Lbs.	40 Lbs.
5/32" x 36"	10 Lbs.	40 Lbs.

Eureka Solid Spooled Mig Wire

Size	Standard Unit Weight	Standard Shipping Package
.035" x Spool	33 Lb. Spool *	33 Lbs.
.045" x Spool	33 Lb. Spool *	33 Lbs.
1/16" x Spool	33 Lb. Spool *	33 Lbs.
3/32" x Coil	60 Lb. Coil	60 Lbs.

Eureka Micro Tig Rod

Size	Standard Unit	Standard Shipping
.005 x 9"	By Piece	25 Per Package
.007 x 9"	By Piece	25 Per Package
.010 x 18"	By Piece	25 Per Package
.015 x 18"	By Piece	25 Per Package
.020 x 18"	By Piece	25 Per Package
.025 x 18"	By Piece	25 Per Package
.030 x 18"	By Piece	25 Per Package

Eureka Flux Cored and Metal Cored Wire

Size	Standard Unit	Standard Shipping
.045" x Spool	33 Lb. Spool	33 Lbs.
1/16" x Spool	33 Lb. Spool	33 Lbs.
3/32" x Coil	60 Lb. Coil	60 Lbs.
1/8" x Coil	60 Lb. Coil	60 Lbs.
1/16 x Drum	220 Lb. Drum	220 Lb. Drum
3/32 x Drum	250 Lb. Drum	250 Lb. Drum
1/8 x Drum	250 Lb. Drum	250 Lb. Drum

All Eureka products are shipped in moisture resistant packaging to ensure that the consumer consistently receives the highest quality tool steel product available.

Note: Other Eureka products not listed in the Tool Steel Filler Metal Selector Guide as being available can be furnished on special order. Please call for availability for an alloy.

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Personnel: The Eureka Group is comprised of well-educated, goal-oriented individuals. The commitment to our customers is unparalleled regarding service, quality, and innovation. Each department is dedicated to one another so that projects are carried out efficiently and of the highest quality.

Research and Development: Ultimate physical and mechanical properties, viable welding procedures and finished products of the highest quality are the goal of our research and development facility. On a daily basis our metallurgical laboratory is working with you and your industry to realize our goal.

Manufacturing: Eureka has been the manufacturing leader of tool and Die welding products since 1926. Products of the highest quality, consistency and on time delivery are a proud tradition. With the most stringent quality control standards in the industry and over 60,000 square feet manufacturing space, we can assure you that you will be pleased with your Eureka manufactured products.

Distribution: Our worldwide distribution network system ensures that each and every industry around the globe receives the technical support it requires. Each Eureka distributor is offered complete product training, technical support and encouraging discounts.

Eureka Welding Alloys products are available worldwide thanks to our Global Network of Vendors and Partners

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