



THE HARRIS PRODUCTS GROUP

ALLOY CATALOG

**BRAZING, SOLDERING, WELDING,
FLUXES, & ACCESSORIES**





The Harris Products Group, A Lincoln Electric Company, is a world leader in the design, development and manufacture of cutting, welding, brazing, soldering equipment, consumables and gas distribution systems. Harris Products Group products are sold and used in over 85 countries. For more information about the Harris Products Group and its products and services, please visit our web site at www.harrisproductsgroup.com.



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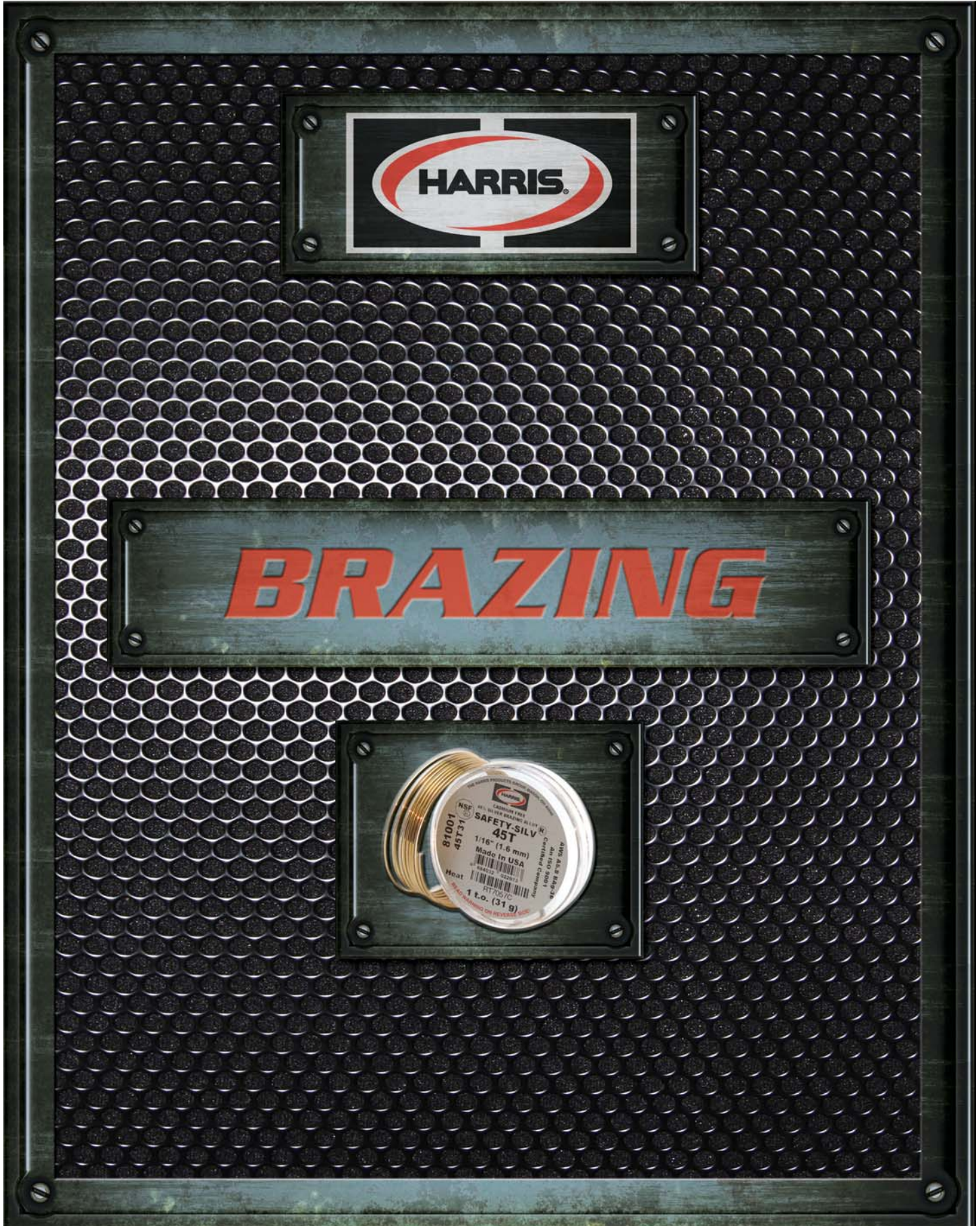
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POINT-OF-PURCHASE: 58- 67



PHOS COPPER



These brazing filler metals are primarily used to join copper to copper, copper to brass, and brass to brass. The phosphorus content serves as a "self-fluxing" agent in joining copper to copper. When brazing brass to copper or brass to brass, use Stay-Silv® White Brazing Flux. The phos/copper and silver/phos/copper filler metals are not recommended for brazing steel or nickel alloys. The amount of phosphorus in the phos/copper filler metals (AWS-BCuP series) is critical in determining precise melting range and performance. Proprietary computer based technology is used to accurately control the phosphorus content to exacting standards.

Each heat of metal is precisely checked before pouring to assure users a phosphorus content to within + or - 1/10 of a percent. Even more significant, a liquidus variation of no more than +or- 6°F. The advantages of this precise control is apparent in automated brazing operations, where even modest variations in flow temperatures can significantly increase the incidence of rejects. Equally important, manual operators no longer need to make adjustments in heating practice from one batch of filler metal to the next to achieve uniform results.

PART NO.	SIZE
D520R	3/32" DIA x 20" - 25# PKG
D536R	3/32" DIA x 36" - 25# PKG
D620F	.050" x 1/8" x 20" - 25# PKG
D620F1	.050" x 1/8" - 28 STICK TUBE
D636S	1/8" SQ x 36" - 25# PKG
D620FMPOP	.050" x 1/8" MINI PAK - 8 STICKS

DYNAFLOW®

HARRIS EXCLUSIVE

Dynaflow melts and flows at temperatures very close to Stay Silv 15, and provides comparable brazed mechanical properties. This makes Dynaflow an excellent cost effective alternative to the 15% silver alloys. This premium, medium range silver alloy has been meticulously formulated to even tighter specifications than our standard copper-to-copper alloys.



Chemical Composition	Solidus	Liquidus	Fluidity Rating*	Recommended Joint Clearance
Silver-6% Phosphorus-6.1% Copper-87.9	1190° F 643° C	1465° F 796° C	3	.003" / .006"

*The higher the fluidity rating, the faster the alloy flows within the melting range.

PART NO.	SIZE
BK220R	2MM DIA x 20" - 25# PKG
BK220R1	2MM DIA - 20 STICK TUBE
BK520R	3/32" DIA x 20" - 25# PKG
BK536R	3/32" DIA x 36" - 25# PKG
BK636R	1/8" DIA x 36" - 25# PKG
BKFC2500R1	2MM DIA x 500MM - 20 STICK TUBE

BLOCKADE®

HARRIS EXCLUSIVE

Blockade is a proprietary phosphorus-tin-silicon alloy engineered to provide a low cost alternative to silver bearing filler metals. It is self fluxing on copper and its lower melting temperature makes it an excellent choice for brass. Blockade flows rapidly but can be used to "cap" brazed joints.



Chemical Composition	Solidus	Liquidus	Fluidity Rating*	Recommended Joint Clearance	AWS A5.8 Class
Silver-0% Phosphorus-6% Copper-94%	1178° F 637° C	1247° F 674° C	***	.002" / .005"	BCuP-9

*The higher the fluidity rating, the faster the alloy flows within the melting range.

***Blockade has good fluidity, yet it has the unique ability to form a cap at the joint.

PART NO.	SIZE
0320R	1/16" DIA x 20" - 25# PKG
0320R1	1/16" DIA - 51 STICK TUBE
0336R	1/16" DIA x 36" - 25# PKG
0520R	3/32" DIA x 20" - 25# PKG
0520R1	3/32" DIA - 24 STICK TUBE
0536R	3/32" DIA x 36" - 25# PKG
0536S	3/32" SQ x 36" - 25# PKG
0620F	.050" x 1/8" x 20" - 25# PKG
0620F1	.050" x 1/8" - 28 STICK TUBE
0620FMPOP	.050" x 1/8" MINI PAK - 8 STICKS
0620R	1/8" DIA X 20" - 25# PKG
0620R1	1/8" DIA - 14 STICK TUBE
0620S	1/8" SQ x 20" - 25# PKG
0620S1	1/8" SQ - 11 STICK TUBE
0636F	.050" x 1/8" x 36" - 25# PKG
0636R	1/8" DIA x 36" - 25# PKG
0636S	1/8" SQ x 36" - 25# PKG
0936RK	1/4" DIA x 36" - 25# PKG BLANK



HARRIS O

This low cost alloy is suitable for most copper-to-copper or brass joints where good fit-up exists, and the assemblies are not subject to excessive vibration nor movement.

Chemical Composition	Solidus	Liquidus	Fluidity Rating*	Recommended Joint Clearance	AWS A5.8 Class
Silver-0% Copper- 92.9 Phosphorus-7.1%	1310° F 710° C	1475° F 802° C	5	.002" / .007"	BCuP-2

*The higher the fluidity rating, the faster the alloy flows within the melting range.





PHOS COPPER

STAY-SILV® 2

This economical, low silver alloy, is designed to broaden the melting range of Harris O, and has proven useful in some specific applications where mechanical properties are less critical.



PN: 2620F1
.050 x 1/8" - 28 STICKS



Chemical Composition	Solidus	Liquidus	Fluidity Rating*	Recommended Joint Clearance	AWS A5.8 Class
Silver-2% Phosphorus-7% Copper-91%	1190° F 643° C	1450° F 788° C	4	.003" / .005"	BCuP-6

*The higher the fluidity rating, the faster the alloy flows within the melting range.

PART NO.	SIZE
2520R	3/32" DIA x 20" - 25# PKG
2536R	3/32" DIA x 36" - 25# PKG
2620F	.050" x 1/8" x 20" - 25# PKG
2620F1	.050" x 1/8" - 28 STICK TUBE
2620R	1/8" DIA x 20" - 25# PKG
2636F	.050" x 1/8" x 36" - 25# PKG
2636R	1/8" DIA x 36" - 25# PKG

STAY-SILV® 5

This medium-range alloy is well suited where close fit-up cannot be maintained. This filler metal is somewhat more ductile than Harris O or Stay-Silv 2.



PN: 5620FMPOP
Stay-Silv 5
.050 x 1/8" MINI PAK - 8 STICKS



Chemical Composition	Solidus	Liquidus	Fluidity Rating*	Recommended Joint Clearance	AWS A5.8 Class
Silver-5% Phosphorus-6% Copper-89%	1190° F 643° C	1500° F 816° C	3	.003" / .006"	BCuP-3

*The higher the fluidity rating, the faster the alloy flows within the melting range.

PART NO.	SIZE
5320R	1/16" DIA x 20" - 25# PKG
5320R1	1/16" DIA - 51 STICK TUBE
5336R	1/16" DIA x 36" - 25# PKG
5520R	3/32" DIA x 20" - 25# PKG
5520R1	3/32" DIA - 24 STICK TUBE
5536R	3/32" DIA x 36" - 25# PKG
5536S	3/32" SQ x 36" - 25# PKG
5620F	.050" x 1/8" x 20" - 25# PKG
5620F1	.050" x 1/8" - 28 STICK TUBE
5620F5	.050" x 1/8" x 20" - 5# TUBE
5620R	1/8" DIA x 20" - 25# PKG
5620R1	1/8" DIA - 14 STICK TUBE
5636F	.050" x 1/8" x 36" - 25# PKG
5636R	1/8" DIA x 36" - 25# PKG
5636S	1/8" SQ x 36" - 25# PKG
5620FMPOP	.050" x 1/8" - 8 STICKS

STAY-SILV® 6

This medium-range alloy is well suited where close fit-up cannot necessarily be maintained. This filler metal is somewhat more ductile than Phos Copper or Stay-Silv 2.



PN: 6620F1
.050 x 1/8" - 28 STICKS

Chemical Composition	Solidus	Liquidus	Fluidity Rating*	Recommended Joint Clearance	AWS A5.8 Class
Silver-6% Phosphorus-6.5% Copper-87.5%	1190° F 643° C	1425° F 774° C	5	.002" / .005"	

*The higher the fluidity rating, the faster the alloy flows within the melting range.

PART NO.	SIZE
6536R	3/32" DIA x 36" - 25# PKG
6620F	.050" x 1/8 x 20" - 25# PKG
6620F1	.050" x 1/8 - 28 STICK TUBE
6636R	1/8" DIA x 36" - 25# PKG
6636S	1/8" SQ x 36" - 25# PKG
6836R	3/16" DIA x 36" - 25# PKG SPECIAL ORDER



STAY-SILV® 6HP

This is a higher phosphorus version of Stay-Silv 6. The increased phosphorus content lowers the liquidus temperature approximately 90° F. This provides a smooth flowing filler metal that is self fluxing on copper. The lower liquidus makes it an excellent choice for brass where lower temperatures are preferable.



PN: 6H336R
1/16" Dia. x 36" - 25# PKG

PART NO.	SIZE
6H336R	1/16" DIA x 36" - 25# PKG
6H536R	3/32" DIA x 36" - 25# PKG
6H636R	1/8" DIA x 36" - 25# PKG



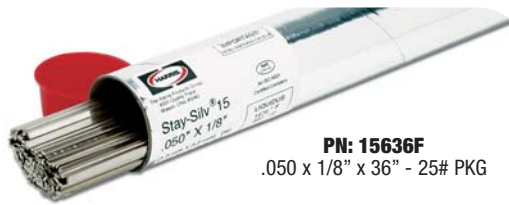
Chemical Composition	Solidus	Liquidus	Fluidity Rating*	Recommended Joint Clearance	AWS A5.8 Class
Silver-6% Phosphorus-7.2% Copper-86.8%	1190° F 643° C	1335° F 724° C	7	.001" / .004"	BCuP-4

*The higher the fluidity rating, the faster the alloy flows within the melting range.



STAY-SILV® 15

For many years the standard of the industry, the 15% silver alloy has proven its value. This filler metal is excellent for situations in which close fit-up does not exist, and where thermal expansion and service vibration are involved.



PN: 15636F
.050 x 1/8" x 36" - 25# PKG



PART NO.	SIZE
15320F	.050" x 1/16" x 20" - 25# PKG
15320F1	.050" x 1/16" x 20" - 51 STICK TUBE
15320R	1/16" DIA x 20" - 25# PKG
15320R1	1/16" DIA - 51 STICK TUBE
15336R	1/16" DIA x 36" - 25# PKG
15520R	3/32" DIA x 20" - 25# PKG
15520R1	3/32" DIA - 24 STICK TUBE
15520S	3/32" SQ x 20" - 25# PKG
15536R	3/32" DIA x 36" - 25# PKG
15536S	3/32" SQ x 36" - 25# PKG
15620F	.050" x 1/8" x 20" - 25# PKG
15620F1	.050" x 1/8" - 28 STICK TUBE
15620F5	.050" x 1/8" x 20" - 5# TUBE
15620R1	1/8" DIA - 14 STICK TUBE
15620S	1/8" SQ x 20" - 25# PKG
15620S1	1/8" SQ - 11 STICK TUBE
15636F	.050" x 1/8" x 36" - 25# PKG
15636R	1/8" DIA x 36" - 25# PKG
15636S	1/8" SQ x 36" - 25# PKG
15636S10	1/8" SQ x 36" - 10# TUBE
1520FMPOP	.050" x 1/8" - 8 STICKS

Chemical Composition	Solidus	Liquidus	Fluidity Rating*	Recommended Joint Clearance	AWS A5.8 Class**
Silver-15% Phosphorus-5% Copper-80%	1190° F 643° C	1480° F 804° C	3	.002" / .006"	BCuP-5

*The higher the fluidity rating, the faster the alloy flows within the melting range.

** Stay-Silv 15 also meets Fed. Spec. QQ-B-654A, Grade III.

RINGS & RETURN BENDS

A popular method of filler metal placement is by using brazing rings. Braze rings can be made in a variety of alloy compositions and are sized to fit your specific part. When heated, the brazing ring melts and flows into the capillary space to make a complete bond. Braze rings are often used with automated brazing equipment to ensure braze filler metal placement at the exact location. Since each size ring is designed for a specific part, there is no waste from excess filler metal applications. Rings can be located on the external surface, or "buried" inside and drawn out during heating. Our engineers can assist with ring size and application details. Our Autobraze ring division combines its unique control of chemistry with highly advanced manufacturing capabilities to fabricate precision brazing rings. This means brazing rings with exact dimensional tolerances and reliable flow characteristics.



HIGH SILVER

Harris silver brazing alloys are produced with precise wire size and chemical composition. Safety-Silv® brazing alloys are offered in coil, straight lengths, and bare or flux coated rods. To protect the health of operators the use of cadmium-bearing filler metals should be discontinued. Cadmium oxide fumes produced during brazing operations are highly toxic and a listed carcinogen. Harris offers no silver brazing alloys containing cadmium.

SAFETY-SILV® 25

A low cost, general purpose silver brazing alloy. Exhibits moderate ductility and slightly higher melting temperature than alloys containing higher percentages of silver and / or tin.



PART NO.	SIZE
25350	1/16" - 50 t.o. COIL
25550	3/32" - 50 t.o. COIL

Chemical Composition	Solidus	Liquidus	Fluidity Rating*
Silver-25% Copper-43% Zinc-30% Tin-2%	1270° F 688° C	1435° F 779° C	5

*The higher the fluidity rating, the faster the alloy flows within the melting range.





HIGH SILVER

SAFETY-SILV® 30

A moderate temperature filler metal with flow characteristics useful for wider gaps.

PN: 3031
1/16" - 1 t.o. PKG



PART NO.	SIZE
30250	3/64" - 50 t.o. COIL
3031	1/16" - 1 t.o. PKG SPECIAL ORDER
30318L	1/16" x 18" - 15 t.o. TUBE
30350	1/16" - 50 t.o. COIL
30650	1/8" - 50 t.o. COIL



Chemical Composition	Solidus	Liquidus	Fluidity Rating*	AWS A5.8 Class
Silver-30% Copper-38% Zinc-32%	1250° F 677° C	1410° F 766° C	6	BAg-20

*The higher the fluidity rating, the faster the alloy flows within the melting range.

SAFETY-SILV® 35

A good selection for replacing the cadmium alloys. Safety-Silv 35 joints are strong, ductile with brazing temperatures only slightly higher than cadmium-bearing 30 and 35 silver alloys.

PN: 3533
1/16" - 3 t.o. PKG



PART NO.	SIZE
3531	1/16" - 1 t.o. PKG
35318L	1/16" x 18" - 15 t.o. TUBE
35325	1/16" - 25 t.o. COIL
3533	1/16" - 3 t.o. PKG
3535	1/16" - 5 t.o. PKG
35350	1/16" - 50 t.o. COIL
3551	3/32" - 1 t.o. PKG
35518L	3/32" x 18" - 15 t.o. TUBE
35550	3/32" - 50 t.o. COIL
35618L	1/8" x 18" - 15 t.o. TUBE
35650	1/8" - 50 t.o. COIL



Chemical Composition	Solidus	Liquidus	Fluidity Rating*	AWS A5.8 Class
Silver-35% Copper-32% Zinc-33%	1250° F 677° C	1350° F 732° C	5	BAg-35

*The higher the fluidity rating, the faster the alloy flows within the melting range.

SAFETY-SILV® 38T

This tin-bearing alloy combines excellent fillet-forming characteristics with good flow properties. The addition of a small amount of tin provides qualities normally associated with alloys containing greater quantities of silver.

PN: 38T350
1/16" - 50 t.o. COIL



PART NO.	SIZE
38T336L	1/16" x 36 - 50 t.o. TUBE
38T350	1/16" - 50 t.o. COIL
38T550	3/32" - 50 t.o. COIL



Chemical Composition	Solidus	Liquidus	Fluidity Rating*	AWS A5.8 Class
Silver-38% Copper-32% Zinc-28% Tin-2%	1220° F 660° C	1325° F 718° C	7	BAg-34

*The higher the fluidity rating, the faster the alloy flows within the melting range.

SAFETY-SILV® 40

Ductile, free-flowing alloy that offers economy, good penetration into tight connections and medium temperature. Silver to light yellow color as in polished brass.

PN: 4033
1/16" - 3 TO PKG



PART NO.	SIZE
4031	1/16" - 1 t.o. PKG
4033	1/16" - 3 t.o. PKG
4035	1/16" - 5 t.o. PKG
40350H	1/16" - 50 t.o. COIL
40550H	3/32" - 50 t.o. COIL
40F3184	FC - 1/16" x 18" - 4 OZ TUBE



Chemical Composition	Solidus	Liquidus	Fluidity Rating*
Silver-40% Copper-30.5% Zinc-29.5%	1250° F 677° C	1350° F 732° C	5

*The higher the fluidity rating, the faster the alloy flows within the melting range.

SAFETY-SILV® 40T

Similar to 38T in its ability to form excellent fillets and maintain good mechanical properties.

PART NO.	SIZE
40T318L	1/16" x 18" - 15 t.o. TUBE
40T350	1/16" - 50 t.o. COIL
40T518L	3/32" x 18" - 15 t.o. TUBE
40T550	3/32" - 50 t.o. COIL



RoHS COMPLIANT

PN: 40T350
1/16" - 50 t.o. COIL



Chemical Composition	Solidus	Liquidus	Fluidity Rating*	AWS A5.8 Class
Silver-40% Copper-30% Zinc-28% Nickel%-2	1220° F 660° C	1310° F 710° C	6.5	BAG-28

*The higher the fluidity rating, the faster the alloy flows within the melting range.

SAFETY-SILV® 40NI2

For stainless steel, nickel alloy for corrosion resistance and strength, and a good choice for tungsten carbide tool tipping.

PART NO.	SIZE
40N250	3/64" - 50 t.o. COIL
40N318L	1/16" x 18" - 15 t.o. TUBE
40N325	1/16" - 25 t.o. COIL
40N350	1/16" - 50 t.o. COIL
40N518L	3/32" x 18" - 15 t.o. TUBE



RoHS COMPLIANT

PN: 40N325
1/16" - 25 t.o. COIL



Chemical Composition	Solidus	Liquidus	Fluidity Rating*	AWS A5.8 Class
Silver-40% Copper-30% Zinc-28% Nickel%-2	1220° F 660° C	1435° F 779° C	4.5	BAG-4

*The higher the fluidity rating, the faster the alloy flows within the melting range.

PART NO.	SIZE
4511	1/32" - 1 t.o. PKG
4513	1/32" - 3 t.o. PKG
4515	1/32" - 5 t.o. PKG
45150H	1/32" - 50 t.o. COIL
4521	3/64" - 1 t.o. PKG
4525	3/64" - 5 t.o. PKG
45250H	3/64" - 50 t.o. COIL
4531	1/16" - 1 t.o. PKG
45318L	1/16" x 18" - 15 t.o. TUBE
45318LMPOP	1/16" x 18" MINI PAK - 5 STICKS
45F318MPOP	1/16" x 18" FLUX CTD. MINI PAK - 3 STICKS
45325H	1/16" - 25 t.o. COIL
4533	1/16" - 3 t.o. PKG
45336L	1/16" x 36" - 50 t.o. TUBE
4535	1/16" - 5 t.o. PKG
45350H	1/16" - 50 t.o. COIL
4551	3/32" - 1 t.o. PKG
45518L	3/32" x 18" - 15 t.o. TUBE
45518LMPOP	3/32" x 18" MINI PAK - 3 STICKS
4553	3/32" - 3 t.o. PKG
45536L	3/32" x 36" - 50 t.o. TUBE
4555	3/32" - 5 t.o. PKG
45550H	3/32" - 50 t.o. COIL
45618L	1/8" x 18" - 15 t.o. TUBE
45650H	1/8" - 50 t.o. COIL
45F3184	1/16" x 18" - 4OZ 9 STICKS
45F318L	1/16" x 18" - (2) 1# BAG IN TUBE
45F5184	3/32" x 18" - 4 OZ TUBE
45F518L	3/32" x 18" - (2) 1# BAG IN TUBE
45F6184	1/8" x 18" - 4 OZ TUBE
45F618L	1/8" x 18" - (2) 1# BAG IN TUBE

SAFETY-SILV® 45

Excellent general purpose brazing alloy. Good ductility and capillary flow. Color is silver to light yellow.



RoHS COMPLIANT

AVAILABLE IN KIT WITH FLUX



PN: 45F3184
Safety-Silv® 45 1/16" x 18"
FLUX COATED - 9 STICKS



SAFETY-SILV® 45 MINI PAK

General purpose filler for steel and copper alloys. Melting range useful for wide clearances.



RoHS COMPLIANT



PN: 45318LMPOP
Safety-Silv® 45
1/16" x 18"
MINI PAK



PN: 45F318MPOP
Safety-Silv® 45 1/16" x 18"
FLUX COATED

Chemical Composition	Solidus	Liquidus	Fluidity Rating*	AWS A5.8 Class
Silver-45% Copper-30% Zinc-25%	1225° F 663° C	1370° F 743° C	6.5	BAG-5

*The higher the fluidity rating, the faster the alloy flows within the melting range.



HIGH SILVER

SAFETY-SILV® 45 BRAZING KIT

General purpose filler for steel and copper alloys. Melting range useful for wide clearances. Kit contains 1 oz. of braze wire and 1.75 oz. of Stay-Silv White Flux.

PART NO.	SIZE
45KPOP	1/16" BRAZING KIT

Chemical Composition	Solidus	Liquidus	Fluidity Rating*	AWS A5.8 Class
Silver-45% Copper-30% Zinc-25%	1225° F 663° C	1370° F 743° C	6.5	BAG-5

*The higher the fluidity rating, the faster the alloy flows within the melting range.



SAFETY-SILV® 45T



Performs like a 45% silver cadmium-bearing alloy but is cadmium-free. Lower melting temperature than Safety-Silv 45. Excellent fillet-forming qualities produces high-strength, ductile joints. NSF Certified to NSF 51.



PART NO.	SIZE
45T225SP	3/64" - 25# SPOOL
45T31	1/16" - 1 t.o. PKG
45T318L	1/16" x 18" - 15 t.o. TUBE
45T33	1/16" - 3 t.o. PKG
45T35	1/16" - 5 t.o. PKG
45T350	1/16" - 50 t.o. COIL
45TF3184	1/16" x 18" - 4 OZ TUBE
45TF318L	1/16" x 18" - (2) 1# BAG IN TUBE

Chemical Composition	Solidus	Liquidus	Fluidity Rating*	AWS A5.8 Class
Silver-45% Copper-27% Zinc-25% Tin-3%	1195° F 646° C	1265° F 685° C	7	BAG-36

*The higher the fluidity rating, the faster the alloy flows within the melting range.

PN: 45T31
Safety-Silv® 45T
1/16" - 1 t.o. PKG



SAFETY-SILV® 50

Useful in brazing electrical connections and as a cadmium-free replacement for 50% silver alloys. It has a wide melting range suitable for bridging gaps where poor fit-ups are encountered.



PART NO.	SIZE
5031	1/16" - 1 t.o. PKG
50318L	1/16" x 18" - 15 t.o. TUBE
5035	1/16" - 5 t.o. PKG
50350H	1/16" - 50 t.o. COIL
50550H	3/32" - 50 t.o. COIL
50650H	1/8" - 50 t.o. COIL

Chemical Composition	Solidus	Liquidus	Fluidity Rating*	AWS A5.8 Class
Silver-50% Copper-34% Zinc-16%	1270° F 688° C	1425° F 774° C	5.5	BAG-6

*The higher the fluidity rating, the faster the alloy flows within the melting range.

PN: 5031
Safety-Silv® 50
1/16" - 1 t.o. PKG



SAFETY-SILV® 50N

This 50% silver alloy is a good replacement for the 3% nickel, cadmium alloy (AWS BAg3). It is especially helpful where low brazing temperature must be maintained. It can be used to braze tungsten carbide, stainless steel, as well as other steel, copper, and nickel alloys.



PN: 50N250
3/64" - 50 t.o. COIL



PART NO.	SIZE
50N150	1/32" - 50 t.o. COIL
50N250	3/64" - 50 t.o. COIL
50N318L	1/16" x 18" - 15 t.o. TUBE
50N325	1/16" - 25 t.o. COIL
50N325SP	1/16" - 25# SPOOL SPECIAL ORDER
50N336L	1/16" x 36" - 50 t.o. TUBE
50N35	1/16" - 5 t.o. PKG
50N350	1/16" - 50 t.o. COIL
50N518L	3/32" x 18" - 15 t.o. TUBE
50N536L	3/32" x 36" - 50 t.o. TUBE
50N550	3/32" - 50 t.o. COIL

Chemical Composition	Solidus	Liquidus	Fluidity Rating*	AWS A5.8 Class
Silver-50% Copper-20% Zinc-28% Nickel-2%	1220° F 660° C	1305° F 707° C	7	BAG 24

*The higher the fluidity rating, the faster the alloy flows within the melting range.



SAFETY-SILV® 56



High silver content alloy; makes premium-quality brazes. Free-flowing with unsurpassed capillary attraction and deep penetration with high ductility. Suitable for use in the food processing industry. Silver color is excellent match for stainless steel and silverware applications. NSF Listed.



PN: 5631
1/6" DIA. - 1 TO PKG



SAFETY-SILV® 56 MINI PAK

For ferrous and nonferrous alloys. Often used to braze stainless steel for food service.



PN: 56318LMPOP
1/16" x 18" MINI PAK



PN: 56F318MPOP
1/16" x 18" MINI PAK
FLUX COATED

PART NO.	SIZE
5611	1/32" - 1 t.o. PKG
5615	1/32" - 5 t.o. PKG
56150	1/32" - 50 t.o. COIL
56225SP	3/64" - 25# SPOOL
5625	3/64" - 5 t.o. PKG
56250	3/64" - 50 t.o. COIL
5631	1/16" - 1 t.o. PKG
56318L	1/16" x 18" - 15 TO TUBE
56318LMPOP	1/16" x 18" MINI PAK - 5 STICKS
56F318MPOP	1/16" x 18" FLUX COATED MINI PAK - 3 STICKS
56325	1/16" - 25 t.o. COIL
5633	1/16" - 3 t.o. PKG
56336L	1/16" x 36" - 50 t.o. TUBE
5635	1/16" - 5 t.o. PKG
56350	1/16" - 50 t.o. COIL
56518L	3/32" x 18" - 15 t.o. TUBE
5653	3/32" - 3 t.o. PKG
5655	3/32" - 5 t.o. PKG
56550	3/32" - 50 t.o. COIL
56618L	1/8" x 18" - 15 t.o. TUBE
56650	1/8" - 50 t.o. COIL
56F3184	1/16" x 18" - 4 OZ TUBE
56F318L	1/16" x 18" - (2) 1# BAG IN TUBE
56F5184	3/32" x 18" - 4 OZ TUBE
56F518L	3/32" x 18" - (2) 1# BAG IN TUBE

Chemical Composition	Solidus	Liquidus	Fluidity Rating*	AWS A5.8 Class	NSF
Silver-56% Copper-22% Zinc-17% Sn-5%	1145° F 618° C	1205° F 652° C	8	BAg-7	51

*The higher the fluidity rating, the faster the alloy flows within the melting range.

SAFETY-SILV® 56 BRAZING KIT



Safety-Silv 56 in a convenient kit containing 1 oz. of braze wire and 1.75 oz. of Stay-Silv white flux.

PART NO.	SIZE
56KPPOP	BRAZING KIT WITH FLUX



Chemical Composition	Solidus	Liquidus	Fluidity Rating*	AWS A5.8 Class	NSF
Silver-56% Copper-22% Zinc-17% Sn-5%	1145° F 618° C	1205° F 652° C	8	BAG-7	51

*The higher the fluidity rating, the faster the alloy flows within the melting range.





ALUMINUM BRAZING

AL-BRAZE 1070

A superior brazing alloy for the joining of aluminum to aluminum. Al-Braze is free-flowing with unequalled capillary attraction, ductility and penetration. Not recommended for brazing Aluminum directly to non-Aluminum alloys as the joint may be brittle.

Procedure:

- Clean the braze area
- Remove all plating or anodized finish
- Heat the wire and dip into dry flux for extra coverage
- Mix powdered flux with water to form a paste
- Use a reducing flame
- Keep torch in constant motion
- Melt the alloy with the heat from the work piece not with the torch

Features:

- Tensile strength - Up to 35,000 PSI
- Solidus - 1070°F / 577°C
- Liquidus - 1080°F / 582°C
- Excellent corrosion resistance
- Specific gravity - 2.66



Description	Chemical Composition	Solidus	Liquidus	Typical Application
Al-Braze 1070 Aluminum Brazing Kit	88% Al 12% Si	1070° F 577° C	1080° F 582° C	Superior brazing alloy for joining aluminum to aluminum. Excellent capillary attraction.

PART NO.	SIZE
1070K	ALBRAZE 1070 KIT

ALCOR

A very easy to use aluminum alloy with non-corrosive flux inside the wire; no external flux is required with this product. Designed for the repair of heat exchangers, air conditioners, aluminum alloy condensers and other applications. Very good fluidity with good capillary attraction. Post-braze cleaning unnecessary. Better than tin-zinc and aluminum silicon alloys for aluminum coil repair.

Procedure:

- Clean the surface of the aluminum to be joined
- Use a stainless steel brush
- Heat the surface evenly, apply ALCOR

Features:

- Tensile strength - Up to 35,000 psi
- Melts at 824°F / 440°C



Description	Chemical Composition	Solidus	Liquidus	Typical Application
Alcor Flux-Cored Aluminum Alloy	Zn Al	824° F 440° C	824° F 440° C	A new approach to joining aluminum. A low temperature, free flowing, flux-cored solder for aluminum joining or repair.

PART NO.	SIZE
AL200RC	ALCOR-2MM DIA. - COIL

CORAL

Flux cored aluminum torch alloy which is able to produce either thin flowing of bead forming characteristics. Aluminum to aluminum; Not recommended for brazing aluminum directly to non-aluminum alloys.

CORAL is a tubular aluminum rod with an extremely active flux formulation inside the tube. The ratio of the flux to the filler material is precisely calibrated, assuring versatile performance. By adjustment of the temperature of the torch flame, it can be applied out-of-position with absolute control.

Procedure:

- Clean the braze area
- Remove all plating or anodized finish
- Leave a gap of 1/16" to 1/8"
- Bevel 60° to 70° for butt joints or cracks
- It is not necessary to melt the base metal
- Use a carburizing flame
- Keep the flame 1" to 3" from the surface
- Touch to the braze area under the flame until the filler metal flows
- Deposit small amounts of alloy & allow it to flow out on the braze area
- For build up work, reduce the heat play the flame on the filler rod above the workpiece
- Melt drops of the CORAL onto the workpiece and a stiff brush
- For greater flowability, use Al-Braze flux
- Remove the flux residue with warm water
- Crimp the end of the rod after use to seal in flux

Features:

- Tensile strength - Up to 30,000 PSI
- Solidus - 1055°F / 568°C
- Liquidus - 1155°F / 623°C
- Good color match (will darken if anodized)
- Good corrosion resistance
- Can be applied out-of-position



PART NO.	SIZE
CORAL60	CORAL 1/8" - 3# PKG



SOLDERING





LEAD FREE SOLDERS

STAY-BRITE® SILVER SOLDER - LEAD FREE NSF

Silver-bearing solders are often used throughout the refrigeration/air conditioning industry instead of brazing alloys. Both Stay-Brite and Stay-Brite 8 produce an overall component with greater strength than a brazed component whose base metals are weakened by annealment from high brazing heat. Stay-Brite solders bond with all of the ferrous and nonferrous alloys. Joints soldered with Stay-Brite solders exhibit considerably higher than necessary elongation for sound, dissimilar metal joints and vibration applications. Stay-Brite 8 is especially effective in filling loosely fitted couplings. Use for all metals with the exception of aluminum. This is a low temperature solder excellent for many HVAC connections.

Product	Chemical Composition	Specifications	Solidus	Liquidus
Stay-Brite 8	6% Ag 94% Sn	NSF 51	430°F 535°C	430°F 535°F

Product	Chemical Composition	Specifications	Solidus	Liquidus
Stay-Brite	4% Ag 96% Sn	ASTM B32 Sn96 NSF 51 • J-STD-006 Sn96Ag 04A	430°F 221°C	430°F 221°F

STAY-BRITE® KIT - LEAD FREE SOLDER

Use for all metals with the exception of aluminum. Low temperature solder excellent for many HVAC connections.

Chemical Composition	Specifications	Solidus	Liquidus
4% Ag 96% Sn	ASTM B32 Sn 96 NSF 51 • J-STD-006 Sn96 Ag 04A	430°F 221°C	430°F 221°C

BRIDGIT® NSF

Lead-free solder widely used in plumbing applications where lead-bearing solders are prohibited. Contains nickel, making joints tremendously strong. Wide range makes Bridgit an excellent alloy for large diameter fittings and ill-fitted or non-concentric pipes. Fills gaps and caps off easily and effectively.

Specifications	Solidus	Liquidus	ASTM B32
ASTM B32 HB • NSF to ANSI NSF61 Conforms to 1986 Safe Drinking Act	460°F 238°C	630°F 332°F	Alloy Grade HB

NICK® NSF

Nick is a lead-free plumbing solder having been specifically formulated as a replacement for the tin/lead solders. It has a wide melting range (291° F - 144° C) that allows operators to fill small tight fitting pipe connections and also to bridge gaps in large, loose fitting or non-concentric pipe. Its ease of application in all types of copper joints, makes it the preferred solder of experienced operators and is the most forgiving in the hands of the less experienced. Nick is a patented alloy which meets all Federal requirements for lead-free solders mandated by the Federal Safe Drinking Water Act Amendments of 1986. (Public Law 99-339)

Solidus	Liquidus	ASTM B32-89
438°F 225°C	729°F 387°C	Alloy Grade HN

PART NO. SB8	SIZE
SB811	1/32" DIA - 1# SPOOL SPECIAL ORDER
SB831	1/16" DIA - 1# SPOOL
SB855	3/32" DIA - 5# SPOOL
SB861	1/8" - 1# SPOOL
SBRC65	SBRC-1/8" DIA - 5# SPOOL
SB61/2POP	1/8" - 8 oz SPOOL

PART NO. STAY-BRITE	SIZE
SB11	1/32" - 1# SPOOL
SB31	1/16" - 1# SP
SB51	3/32" - 1# SPOOL
SB61	1/8" - 1# SPOOL
SB625	1/8" - 25# SPOOL
SB65	1/8" - 5# SPOOL



PN: SB861
Stay-Brite 8
1/8" - 1# SPOOL



RoHS COMPLIANT

PART NO.	SIZE
SBSKPOP	KIT WITH FLUX



RoHS COMPLIANT

PART NO.	SIZE
BRGT31	1/16" - 1# SPOOL SPECIAL ORDER
BRGT51	3/32" - 1# SPOOL
BRGT61	1/8" - 1# SPOOL
BRGT65	1/8" - 5# SPOOL
BRGT625	1/8" - 25# SPOOL
BRGT61/2POP	1/8" - 8 oz. SPOOL



RoHS COMPLIANT

PN: BRGT61
BRIDGIT SOLDER
1/8" - 1# SPOOL

PART NO.	SIZE
NICK61	1/8" - 1# SPOOL



RoHS COMPLIANT

PN: NICK61
1/8" - 1# SPOOL

LEAD FREE SOLDERS



SPEEDY®

Speedy has a faster melting range, which allows operators to fill small, tight-fitting pipe connections quickly. Speedy's low temperature, free following nature decreases cycle time while reducing setup time. Speedy can be used with Stay-Clean paste or liquid flux, as well as Bridgit paste flux. Speedy is a lead-free, low temperature alloy formulated for joining copper pipe in potable water systems. This tin-based alloy conforms to the 1986 Federal Safe Drinking Water Act Amendment.

Solidus	Liquidus
450°F 232°C	555°F 290°C



PART NO.	SIZE
SPDY61	1/8" - 1# SPOOL
SPDY625	1/8" - 25# SPOOL SPECIAL ORDER

PN: SPDY61
1/8" - 1# SPOOL



95/5

Tin-antimony solder well suited for applications where moderately elevated temperature is a factor. With higher electrical conductivity and high fluidity, 95/5 is recommended for lead free installation of small diameter, tight fitting connections. Not recommended for use on brass or HVAC connections.



PN: 95561/2POP
95/5
1/8" - 8 oz SPOOL



PART NO.	SIZE
95531	1/16" DIA - 1# SPOOL
95551	3/32" DIA - 1# SPOOL
95561	1/8" DIA - 1# SPOOL
95565	1/8" DIA - 5# SPOOL
95561/2POP	1/8" - 8 oz SPOOL

Chemical Composition	Solidus	Liquidus	ASTM B32
Sn-95% Sb-5%	452°F 233°C	464°F 240°C	Sb5, J-STD-006 Sn95, Sb05A

ALSOLDER 500 - ALUMINUM SOLDER

Solder alloy for torch or iron. Used to join all solderable aluminum alloys to each other and to dissimilar metals. Also for zinc die-cast. Forms excellent, corrosion resistant joints on the tough to solder aluminum alloys. Also beneficial as a high temperature solder on most other metals. Not recommended for magnesium.

Procedure:

- Clean the area to be soldered
- Apply Stay Clean aluminum flux
- If using an open flame, heat indirectly with the torch in motion (do not direct the torch on the flux)
- Heat until the flux becomes a nut brown color
- Apply the alloy
- Discontinue heat as soon as flow
- Allow to cool. Remove flux residue with wire brush and hot water

Features:

- Tensile strength - Up to 20,000 PSI
- Solidus - 391°F
- Liquidus - 482°F
- Good color match on aluminum and zinc die cast



PART NO.	SIZE
50061H	1/8" DIA - 1# SPOOL SPECIAL ORDER
500K	ALSOL500 ALUM KT(ORM-D) NO AIR

PN: 500K
KIT



Description	Chemical Composition	Solidus	Liquidus	Typical Application
Alsolder 500 Aluminum Solder Kit	15% Zn 85% Sn	391° F 199° C	482° F 250° C	Forms excellent corrosion-resistant joints on the tough-to-solder aluminum alloys. Use for copper to aluminum connections.

GAL VIZ

A special self-fluxing solder alloy for repairing damaged galvanized coatings. Gal Viz provides excellent corrosion resistance. It has a working temperature of about 600° F. Apply while base metal is hot. A clean wire brush will aid in tinning the surface with Gal Viz. It can also be tinned with a paddle or cloth. Do not direct flame on the alloy. Heat the base metal and rub the rod on the metal. When it melts, the temperature is correct.

PART NO.	SIZE
GLVIZ90	1/4" x 14" - 5# PKG





COMMON SOLDERS

40/60

With some exceptions, these tin-lead solders can be used to join copper and most copper alloys, lead, nickel alloys and steel. Tin-lead solders are not recommended for joints subject to high stress or vibration in the cooling industry due to lack of sufficient elongation properties. These solders are also available with rosin or acid core. **It is illegal to use lead solders in both public and private potable water systems.**

Chemical Composition	Solidus	Liquidus	ASTM B32
Sn-40%	360° F	460° F	Sn40A
Pb-60%	182° C	238° C	

PART NO.	SIZE
406061	1/8" - 1# SPOOL
40A61	ACID CORE 1/8" - 1# SPOOL
40A65	ACID CORE 1/8" - 5# SPOOL
40R61	ROSIN CORE 1/8" - 1# SPOOL



CAUTION:

Lead-bearing solders are not to be used in potable water systems.

60/40

With some exceptions, these tin-lead solders can be used to join copper and most copper alloys, lead, nickel alloys and steel. Tin-lead solders are not recommended for joints subject to high stress or vibration in the cooling industry due to lack of sufficient elongation properties. These solders are also available with rosin or acid core. Similar to 50/50 but flows faster due to narrow melting range. **It is illegal to use lead solders in both public and private potable water systems.**

Chemical Composition	Solidus	Liquidus	ASTM B32
Sn-60%	360° F	375° F	Sn60
Pb-40%	182° C	191° C	

PART NO.	SIZE
60401B	1# BAR
604031	1/16" - 1# SPOOL
604061	1/8" - 1# SPOOL
60R11	ROSIN CORE-1/32" - 1# SPOOL
60R31	ROSIN CORE-1/16" - 1# SPOOL
60R51	ROSIN CORE 3/32" - 1# SPOOL
60R61	ROSIN CORE-1/8" - 1# SPOOL
60R61/2POP	1/8" - 8 oz ROSIN CORE
60R31/2POP	1/16" - 8 oz. SPOOL ROSIN CORE



CAUTION:

Lead-bearing solders are not to be used in potable water systems.

PN: 60R61/2POP
60/40
1/8" - 8 oz. SPOOL



50/50

With some exceptions, these tin-lead solders can be used to join copper and most copper alloys, lead, nickel alloys and steel. Tin-lead solders are not recommended for joints subject to high stress or vibration in the cooling industry due to lack of sufficient elongation properties. These solders are also available with rosin or acid core. Note: It is illegal to use lead solders in both public and private potable water systems. **It is illegal to use lead solders in both public and private potable water systems.**

Chemical Composition	Solidus	Liquidus	ASTM B32
Sn-50%	360°F	420°F	Sn50, J-STD-006
Pb-50%	182°C	216°C	Sn50,Pb50a

PART NO.	SIZE
5050TB	TRI BAR - 1#
50501B	1# BAR
505061	1/8" DIA - 1# SPOOL
505065	1/8" DIA - 5# SPOOL
5050620	1/8" - 20# SPOOL
50R31	ROSIN CORE 1/16" - 1# SPOOL
50R51	ROSIN CORE 3/32" - 1# SPOOL
50R61	ROSIN CORE 1/8" - 1# SPOOL
505061/2POP	1/8" - 8 oz SPOOL POP
50A61	ACID CORE 1/8" - 1# SPOOL



CAUTION:

Lead-bearing solders are not to be used in potable water systems.

PN: 505061/2POP
50/50
1/8" - 8 oz. SPOOL







BRAZING FLUX

STAY-SILV® (WHITE FLUX)

An all purpose, low temperature flux for use in silver brazing. Use with most ferrous and non ferrous metals, not recommended on aluminum, magnesium, and titanium. The active temperature range is 1050°F/566°C - 1600°F /871°C

PART NO.	SIZE
SSWF1/4	1/4# JAR
SSWF1/2	1/2# JAR
SSWF7	6.5oz BTL
SSWF1	1# JAR
SSWF5	5# JAR
SSWF25	25# PAIL
SSWF60	60# PAIL
SSWF7POP	6.5oz BTL



PN: SSWF60
60# PAIL



Specification	Active Temperature	Typical Application
Meets Federal Spec. OF499, Type B AWS A5.31 Class FB3A AMS 3410	Below 1600°F	For use with silver brazing alloys on all metals other than aluminum, magnesium, or titanium.

DYNAFLOW® (WHITE FLUX)

A fluid-paste silver brazing flux for automated and manual brazing. The active temperature range is 1050°F/566°C - 1600°F /871°C. Good fluidity provides excellent joint penetration, it is nonflammable, has a long shelf life, good dispensing performance and is cosmetically superior. Use with copper, brass, and steel.

PART NO.	SIZE
DYNAW50	50# PAIL



STAY-SILV® (BLACK FLUX)

An all purpose, high temperature flux for use in silver brazing. Formulated for applications where the work is subjected to rapid, localized heating. Particularly useful in applications where large amounts of refractory oxides may form, such as with stainless steel alloys. Use with stainless steel, carbide, heavy parts, prolonged heating cycles. The active temperature range is 1050°F/566°C - 1800°F /982°C

Use Stay-Silv White Brazing Flux on applications requiring normal heat. Use Stay-Silv Black Flux on heavy parts, where localized overheating may occur, and where parts are heated over a prolonged period. Stay-Silv Black Flux is also suggested when brazing stainless steel.

PART NO.	SIZE
SSBF1/2	1/2# JAR
SSBF1	1# JAR
SSBF5	5# JAR
SSBF30	30#
SSBF60	60#

Conforms to J.C.
AWS Type FB3C and
AMS 3411 Specifications



PN: SSBF60
60#

AL-BRAZE FLUX

A powdered flux for use with aluminum brazing alloys. Use with Al-Braze 1070, 4047 (718) aluminum may be mixed with water or alcohol to form a paste.

PART NO.	SIZE
10701/2	1/2# - JAR



SPEED FLUX

Speed flux is a liquid brazing flux conducted to the braze joint via the fuel gas/oxygen flame. It is used with appropriate liquid flux dispensing applicators for use with silver, copper-phosphorus-silver, and bronze brazing. It is primarily used to braze copper, brass, and steel and protects the metal surface from oxidation and discoloration. Small assemblies can sometimes be brazed without a separate paste flux application. For larger parts, where there is a long overlap, or where full penetration is necessary, a separate paste flux application is often recommended.

PART NO.	SIZE
SPDFXOH	1GL (HAZMAT) NO AIR
SPDFXOJ	5GL (HAZMAT) TRUCK

NOTE:
Hazardous material SPDFXOH can not be shipped via air.

PN: SPDFXOH
1 GAL.





600 POWDER FLUX

The 600 Flux is a general purpose brazing flux. It is used with oxy-fuel braze welding using low fuming bronze and nickel silver rods on steel, copper and cast iron. It is applied to the rod by preheating the rod end and dipping the rod into the flux. The flux will adhere to the heated rod.

600 Powder flux has an active temperature range of 1400° F to 2200° F.



PART NO.	SIZE
600FX01	1# CAN
600FX50	50# PAIL

PN: 600FX01
1# CAN



700 POWDER FLUX

STAY-CLEAN® ALUMINUM FLUX

A liquid flux for use with aluminum soldering. Use with Al-Solder 500. Works to join aluminum to dissimilar metals.



STAY-CLEAN® PASTE FLUX

An active soldering flux formulated for use with tin-lead, tin-antimony, and tin-silver solders. Superior flux for most metals, copper, brass, bronze, steel, stainless steel, galvanized, Monel®, Not recommended for aluminum, magnesium, or titanium. Not recommended for electrical or electronic applications.



STAY-CLEAN® LIQUID FLUX

A general purpose zinc chloride flux for soldering with all soft solders use with tin-lead solder, tin-antimony solder, Stay-Brite solder, for soldering virtually all metals, except aluminum, magnesium or titanium. Not recommended for use in electrical or electronic applications.

Specification	Active Temperature	Typical Application
Meets Commercial Spec. A-A-51145C	Below 700°F	Excellent flux for joining copper to copper and copper to brass. Not recommended for electrical or electronic applications.

PART NO.	SIZE	
SCLF4	40Z BTL	LIQUID
SCLF16	160Z BTL	LIQUID
SCLF32	320Z BTL	LIQUID
SCLF1G	1GL	LIQUID
SCLF55	55GL	LIQUID
SCPF4	40Z JAR	PASTE
SCPF1	1# JAR	PASTE
SCPF4POP	40Z BTL	PASTE



PN: SCLF16
16oz



PN: SCPF4POP
4oz

BRIDGIT® FLUXES

PASTE FLUX: Designed for use with lead-free solders. Works extremely well with Bridgit lead-free solder in potable water systems and equally well with other solders. Meets all requirements of the Safe Drinking Water Act. Stays active to 800°F and will not burn at soldering temperature. This reduces black carbon formations that can result in voids and leaks.

WATER SOLUBLE FLUX: A water flushable paste that holds its shape and will not slump. Use with plumbing applications, copper and copper-alloy tubes, heating, air-conditioning, mechanical piping, and fire sprinklers. Water-soluble alternative to petroleum-based plumbing fluxes, begins cleaning metals at room temperature, excellent solderability with lead-free solders.

Specification	Active Temperature	Typical Application
Conforms to ASTM B813	Below 800°F	Designed for lead-free solders and well suited for use in larger connections where prolonged heating will cause other fluxes to burn.

PART NO.	SIZE	
BRPF4	40Z BTL	
BRPF1	1# BTL	
BRPF4WS	40Z BTL	WATER SOLUBLE
BRPF4POP	40Z BTL	WATER SOLUBLE



PN: BRPF4POP
4oz BOTTLE



PN: BRPF4
4oz BOTTLE



WELDING FLUX

SOLAR WELDING FLUX

Solar Flux is a complex chemical compound in the form of a very fine powder. Solar Flux is mixed with alcohol (methanol/methyl alcohol preferred) and brushed on the weld joint. It is formulated to shield the back of the weld joint from oxygen, dissipate heat and unwanted oxides, and to clean the surface of the metal. It will aid in the flow of filler metal over base metal and form a protective barrier to prevent re-oxidation and heat scale.

Type B for stainless steel, (except 309, 310), precipitation hardening steels, chrome-moly steels, other alloy steels with nickel content below 25%.

PART NO.	SIZE
SOFB01	1# CAN

PN: SOFB01
1# CAN





ALUMINUM ALLOY



Aluminum Cut Lengths and Spooled Wires are manufactured to meet the rigid requirements of AWS A5.10. Cleanliness, and wire temper are precisely controlled.

ALLOY 4043 (MIG)

Qualified to AWS A5.10 ER4043, ABS, ISO Designation AISi5. 4043 is an all position 5% silicon alloy used to weld heat treatable base alloys. It is most often used to weld the 6XXX series of alloys. The silicon addition improves puddle fluidity, producing an appealing bead profile. It is less crack sensitive on the 6XXX series than other welding alloys. Common applications are automotive parts, truck trailers, bicycles.



PN: 0404329
3/64" - 20# SPOOL



PN: 04043E1POP
.030 - 1# SPOOL

Chemical Composition			AWS
Mn-0.05%	Si-4.5-6.0%	Cr-	A5.10
Cu-0.30%	Fe-0.8%	Ti-0.20%	
Zn-0.10%	Al-Rem	Mg-0.05%	
Others-0.15%			

Single values shown are maximum percentages

**PRODUCTION
PAKS
AVAILABLE**

PART NO.	SIZE
04043D1	.025" - 1# SPOOL
04043E1	.030" - 1# SPOOL
04043E5	.030" - 5# SPOOL
04043E13	.030" - 13# SPOOL
04043F1	.035" - 1# SPOOL
04043F5	.035" - 5# SPOOL
04043F6	.035" - 16# SPOOL
04043F1D	.035" - 150# PROD PAK
0404321	3/64" - 1# SPOOL
0404327	3/64" - 16# SPOOL
0404329	3/64" - 20# SPOOL
0404321D	.045" - 150# PROD PAK
0404337	1/16" - 16# SPOOL
0404339	1/16" - 20# SPOOL
0404357	3/32" - 16# SPOOL
04043E1POP	.030" - 1# SPOOL
04043F1POP	.035" - 1# SPOOL
0404321POP	3/64" - 1# SPOOL
0404331POP	1/16" - 1# SPOOL

ALLOY 5356 (MIG)

Alloy 5356 is an all position non - heat treatable MIG wire used to weld the 5XXX series alloys when 40,000 psi tensile strength is not a requirement. 5356 is a very good all purpose wire. It is the most widely used of all aluminum fillers metals. Common applications are welding of boats / ships, bicycles, trucks, pressure vessels and automotive parts. Qualified to AWS A5.10 ER5356.



PN: 0535629
3/64" - 20# SPOOL



PN: 05356E1POP
.030 - 1# SPOOL

Chemical Composition			AWS
Mn-0.05-0.20%	Si-0.25%	Cr-0.05-0.20%	A5.10
Cu-.10%	Fe-0.40%	Ti-0.06-0.20%	
Zn-0.10%	Al-Rem	Mg-4.5-5.5%	
Others-0.15%			

Single values shown are maximum percentages

**PRODUCTION
PAKS
AVAILABLE**

PART NO.	SIZE
05356E1	.030" - 1# SPOOL
05356E5	.030" - 5# SPOOL
05356E6	.030" - 12# SPOOL
05356F1	.035" - 1# SPOOL
05356F5	.035" - 5# SPOOL
05356F6	.035" - 16# SPOOL
0535621	3/64" - 1# SPOOL
0535625	3/64" - 5# SPOOL
0535627	3/64" - 16# SPOOL
0535629	3/64" - 20# SPOOL
0535621D	3/64" - 150# PROD PAK
0535637	1/16" - 16# SPOOL
0535639	1/16" - 20# SPOOL
05356E1POP	.030" - 1# SPOOL
05356F1POP	.035" - 1# SPOOL
0535621POP	3/64" - 1# SPOOL
0535631POP	1/16" - 1# SPOOL

ALLOY 4043 (GTAW) (TIG)

Qualified to AWS A5.10 R4043, ABS, ISO Designation AISi5. 4043 is a 5% silicon alloy used to weld heat treatable base alloys. It is most often used to weld the 6XXX series of alloys. The silicon addition improves puddle fluidity, producing an appealing bead profile. It is less crack sensitive on the 6XXX series than other welding alloys. Common applications are automotive parts, truck trailers, bicycles. Also ideally suited for brazing thin aluminum sheet and tubing.

PN: 0404320
3/64" x 36"
10# PKG



Chemical Composition			AWS
Mn-0.05%	Si-4.5-6.0%	Cr-	A5.10
Cu-0.30%	Fe-0.8%	Ti-0.20%	
Zn-0.10%	Al-Rem	Mg-0.05%	
Others-0.15%			

Single values shown are maximum percentages



PART NO.	SIZE
0404320	3/64" x 36" - 10# PKG
0404330	1/16" x 36" - 10# PKG
0404350	3/32" x 36" - 10# PKG
A404350	3/32" x 36" - 50# PKG
0404360	1/8" x 36" - 10# PKG
A404360	1/8" x 36" - 50# PKG
0404370	5/32" x 36" - 10# PKG
0404380	3/16" x 36" - 10# PKG
40433011POP	1/16" x 36" - 1#PKG
40435011POP	3/32" x 36" - 1#PKG
40436011POP	1/8" x 36" - 1# PKG
40433033POP	1/16" x 36" - 3#PKG
40435033POP	3/32" x 36" - 3#PKG
40436033POP	1/8" x 36" - 3# PKG

WELDING PRODUCTS



ALUMINUM ALLOY

ALLOY 5356 (GTAW) (TIG)

Alloy 5356 is an all position non-heat treatable TIG wire used to weld the 5XXX series alloys when 40,000 psi tensile strength is not a requirement. 5356 is a very good all purpose wire so it is the most widely used of all aluminum fillers metals. Common applications are welding of boats / ships, bicycles, tanks pressure vessels and automotive parts. Qualified to AWS A5.10 R5356.



PN: 0535630
1/16" x 36" - 10# BOX



PART NO.	SIZE
0535620	3/64" x 36" - 10# PKG
0535630	1/16" x 36" - 10# BOX
0535650	3/32" x 36" - 10# BOX
0535670	5/32" x 36" - 10# BOX
A535650	3/32" x 36" - 50# PKG
0535660	1/8" x 36" - 10# BOX
53563011POP	1/16" x 36" - 1#PKG
53565011POP	3/32" x 36" - 1# PKG
53566011POP	1/8" x 36" - 1# PKG
53563033POP	1/16" x 36" - 3#PKG
53565033POP	3/32" x 36" - 3#PKG
53566033POP	1/8" x 36" - 3# PKG

Chemical Composition			AWS
Mn-0.05-0.20%	Si-0.25%	Cr-0.05-0.20%	A5.10
Cu-.10%	Fe-0.40%	Ti-0.06-0.20%	
Zn-0.10%	Al-Rem	Mg-4.5-5.5%	
Others-0.15%			

Single values shown are maximum percentages

RECOMMENDED WELDING PARAMETERS FOR ALUMINUM SPOOLED WIRES GMAW (MIG)

Spray Transfer: Shielding gas Argon is suggested for thicknesses up to 1". For thicknesses over 1", Argon / Helium mixtures should be considered.

Wire Diameter	Welding Current, Amperage	Arc Voltage	Wire Feed Speed, ipm
.025"	85 -180	20 -26	520 -750
.030"	95 -200	22 -28	470 -680
.035"	110 -220	22 - 28	350 -475
3/64"	130 -290	22 -28	235 -375
1/16"	160 -360	24 -30	180 -300

Settings based on Ar shielding gas

All aluminum containers have an identification label showing grade, size, weight and heat number. Conformance certifications can be furnished on request.

RECOMMENDED WELDING PARAMETERS FOR ALUMINUM CUT LENGTHS GTAW (TIG)

RECOMMENDED WELDING PARAMETERS FOR ALUMINUM CUT LENGTHS GTAW (TIG)

For manual AC welding, argon is generally preferred because the arc has good stability. On heavier sections, the addition of helium may be considered. Arc penetration will increase significantly, however, gas flow rates must be increased when helium is added.

Material Thickness	Tungsten, Pure or Zirconiated	Filler Diameter	Welding Current, Amperage	Arc Voltage, ACHF	Gas Cup	Argon
1/16"	1/16" - 3/32"	1/16" - 3/32"	70 - 100	15	3/8	20
1/8"	1/8" - 5/32"	1/18" - 5/32"	125 - 175	15	7/16	20
3/16"	5/32" - 3/16"	5/32" - 3/16"	170 - 225	15	7/16 - 1/2	25
1/4"	3/16" - 1/4"	3/16"	220 - 275	15	1/2	30
3/8"	1/4"	3/16" - 1/4"	330 - 380	15	5/8	35
1/2"	1/4"	1/4"	400 - 450	25	5/8	35

WELDING PARAMETERS COPPER WELDING ALLOY



GTAW (TIG) SUGGESTED WELD SETTINGS

Alloy	Material Thickness	Filler Diameter	Welding Current, (Amps DC)	Welding Current, (Amps AC)	Gas Cup	Argon, cfm	Tungsten
Aluminum Bronze A2	1/16"	1/16"	80-120	80-120	3/8" - 1/2"	15	1/16"
	3/32" - 1/8"	3/32"	145 - 205	145 - 195	7/16" - 1/2"	15	3/32"
	3/16"	3/32" - 1/8"	300 - 350	255 - 300	7/16" - 1/2"	20	1/8"
Deoxidized Copper	1/2"	1/8"	515 - 640	340 - 485	1/2"	25	3/16"
	1/16"	1/16"	70 - 150	70 - 150	3/8" - 1/2"	15	1/16"
	3/32" - 1/8"	3/32"	150 - 200	140 - 230	7/16" - 1/2"	15	3/32"
Phos Bronze	3/16" - 1/2"	3/32" - 1/8"	230 - 400	255 - 320	7/16" - 1/2"	20	1/8"
	1/16"	1/16"	100 - 120	100 - 120	3/8" - 1/2"	15	1/16"
	3/32" - 1/8"	3/32"	185 - 205	165 - 195	7/16" - 1/2"	15	3/32"
Silicon Bronze	3/16"	3/32" - 1/8"	300 - 350	255 - 300	7/16" - 1/2"	20	1/8"
	1/2"	1/8"	615 - 640	440 - 185	1/2"	25	3/16"
	1/16"	1/16"	70 - 150	70 - 150	3/8" - 1/2"	15	1/16"
Silicon Bronze	3/32" - 1/8"	3/32"	150 - 200	140 - 230	7/16" - 1/2"	15	3/32"
	3/16" - 1/2"	3/32" - 1/8"	230 - 400	225 - 320	7/16" - 1/2"	20	1/8"

GMAW (MIG) SUGGESTED WELD SETTINGS

Alloy	Wire Size	Welding Current, (Amps)	Arc Voltage	Wire Feed Speed
Aluminum Bronze A2	.035"	130 - 200	30	280 - 400
	.045"	185 - 245	30	200 - 300
	1/16"	250 - 400	40	150 - 210
Deoxidized Copper	.035"	145 - 185	30	400 - 440
	.045"	195 - 215	30	280 - 310
	1/16"	260 - 280	40	150 - 210
Phos Bronze	.030"	130 - 140	25	340 - 450
	.035"	140 - 160	30	280 - 400
	.045"	165 - 185	30	200 - 300
Silicon Bronze	1/16"	285 - 335	40	150 - 210
	.030"	130 - 150	25	460 - 500
	.035"	145 - 185	30	400 - 440
Silicon Bronze	.045"	195 - 215	30	280 - 310
	1/16"	260 - 280	40	150 - 210

COPPER WELDING ALLOY

HARRIS AMERICAN LOW FUMING BRONZE

Available Bare

Harris American Low Fuming Bronze is a copper/zinc alloy developed for braze welding steel, cast iron, and copper. Harris American LFB flows faster with less build up compared to #15 bronze. It can also be used for build up and overlay. Harris American Bronze flows easily with minimal fuming. Deposits can be machined and have excellent ductility. Harris bronze can be deposited using standard oxy-fuel torches, or with Harris Power Torch acetylene or Mapp® swirl tip equipment.

Flux - Use Harris 600 flux. Flux coated rods are pre-coated with a flexible, flux coating for convenience and deposition ease, (rods do not have to be continually dipped into the flux).

Procedure:

- Clean braze area. Heavy sections should be beveled
- Use a neutral flame, slightly preheat bare rod and dip it into the powder flux. Flux will adhere to the rod
- Use the flame to preheat the joint
- Harris American Bronze is applied with a "braze welding" technique. The process is similar to brazing as the base metal is not melted. Unlike brazing, the rod must be continually applied as you move down the joint
- Focus the flame on the part and heat until a dull red appears, then apply the rod, melting the rod with the flame to deposit a uniform bronze layer
- Remove flux residue with hot water and a wire brush

Features:

- Melting temperature: 1590° F - 1630° F

PART NO.	SIZE
HA01550	3/32" x 36" - 50# PKG
HA01560	1/8" x 36" - 50# PKG
HA01570	5/32" x 36" - 50# PKG SPECIAL ORDER
HA01580	3/16" x 36" - 50# PKG SPECIAL ORDER
HA01590	1/4" x 36" - 50# PKG SPECIAL ORDER
-	PRODUCTION PAKS SPECIAL ORDER



PN: HA01550
3/32" x 36" - 50# PKG

**PRODUCTION
PAKS
AVAILABLE**



WELDING PRODUCTS



COPPER WELDING ALLOY

LOW FUMING BRONZE (FLUX COATED)

A low fuming bronze alloy for torch brazing.

Procedure:

- Clean braze area
- Remove all rust, oil and grease
- Heavy sections should be beveled
- The alloy should be applied by a brazing technique with a neutral flame
- When applying the bare rod, use a neutral flame with Harris 600 flux
- Flux residue should be removed by wire brushing with hot water



PN: 015FC30
1/16" x 18" - 5# PKG



Features:

- Tensile strength - Up to 65,000 psi
- Brazing temperature range - 1670° F to 1750° F
- Flux coating provides excellent wetting action with no objectable fuming
- Porosity - free deposits
- Good machinability
- Color matches yellow brass

LOW FUMING BRONZE (BARE)

Procedure:

- Clean braze area
- Remove all rust, oil and grease
- Heavy sections should be beveled
- When applying the bare rod, use a neutral flame with Harris 600 flux
- The alloy should be applied by a brazing technique with a neutral flame
- Flux residue should be removed by wire brushing with hot water

Features:

- Tensile strength - Up to 65,000 psi
- Flux coating provides excellent wetting action with no objectable fuming
- Brazing temperature range - 1670° F to 1750° F
- Good machinability
- Porosity - free deposits
- Color matches yellow brass

Specifications: AWS A5.8 RBCuZn-C



PN: 00015310
1/16" x 36" - 10# PKG



FC PART NO.	SIZE
015FC30	1/16" x 18" WHITE - 5# PKG
015FC50	3/32" x 36" - 10# PKG
015FC50B	3/32" x 36" - BLUE - 10# PKG
015FC60	1/8" x 36" - 10# PKG
015FC60B	1/8" x 36" - BLUE
015FC70	5/32" x 36" - 10# PKG SPECIAL ORDER
015FC80	3/16" x 36" - 10# PKG
015FC90	1/4" x 36" - 10# PKG
POP PART NO.	SIZE
015FC500POP	3/32" x 36" - 1# PKG
015FC600POP	1/8" x 36" - 1# PKG
015FC503POP	3/32" x 36" - 3# PKG
015FC603POP	1/8" x 36" - 3# PKG
015FC505POP	3/32" x 36" - 5# PKG
015FC605POP	1/8" x 36" - 5# PKG

BARE PART NO.	SIZE
00015310	1/16" x 36" - 10# PKG
0001530	1/16" x 36" - 50# PKG
00015510	3/32" x 36" - 10# PKG
0001550	3/32" x 36" - 50# PKG
00015610	1/8" x 36" - 10# PKG
0001560	1/8" x 36" - 50# PKG
0001570	5/32" x 36" - 50# PKG
00015810	3/16" x 36" - 10# PKG
0001580	3/16" x 36" - 50# PKG
00015910	1/4" x 36" - 10# PKG
0001590	1/4" x 36" - 50# PKG
0001595	5/16" x 36" - 50# PKG
00015A0	3/8" x 36" - 50# PKG
POP PART NO.	SIZE
00015300POP	1/16" x 36" - 1#PKG
00015500POP	3/32" x 36" - 1#PKG
00015600POP	1/8" x 36" - 1#PKG
00015303POP	1/16" x 36" - 3#PKG
00015503POP	3/32" x 36" - 3#PKG
00015603POP	1/8" x 36" - 3#PKG
00015305POP	1/16" x 36" - 5#PKG
00015505POP	3/32" x 36" - 5#PKG
00015605POP	1/8" x 36" - 5#PKG
00015805POP	3/16" x 36" - 5#PKG
00015905POP	1/4" x 36" - 5#PKG

SILICON BRONZE (GMAW) (MIG)

This copper-silicon alloy is used to weld similar composition base metals, brass, and to weld these copper alloys to steel. Silicon bronze is also frequently used in GMAW "braze welding" of coated sheet steels.

Preheat: Silicon bronze base metals generally do not require preheat. Brass or copper base metals may require some preheat depending on copper content and thickness.

Shielding Gas: Argon

Specifications: AWS A5.7 ERCuSi-A

PN: 00SIB15
.025 - 10# SPOOL



Chemical Composition			AWS Class
Cu-Rem	Zn-1.0%	Sn-1.0%	ERCuSi-A
Mn-1.5%	Fe-0.5%	Si-2.8-4.0%	
P-	Al-0.01%	Pb-0.02%	
Others-0.05%			

*Single values shown are maximum percentages.

PRODUCTION PAKS AVAILABLE

PART NO.	SIZE
00SIB15	.025" - 10# SPOOL
00SIBE2	.030" - 2# SPOOL
00SIBE5	.030" - 10# SPOOL
00SIBE8	.030" - 30# SPOOL
00SIBF2	.035" - 2# SPOOL
00SIBF5	.035" - 10# SPOOL
00SIBF8	.035" - 30# SPOOL
00SIBF2D	.035" - 250# PROD PAK
00SIBF5D	.035" - 500# PROD PAK
00SIBH5	.045" - 500# PROD PAK
00SIBH8	.045" - 30# SPOOL
00SIBH2D	.045" - 250# PROD PAK
0SIBH5DP	.045" - 500# PROD PAK SPECIAL ORDER
00SIB38	1/16" - 30# SPOOL
00SIB35D	.062" - 500# PROD PAK SPECIAL ORDER



COPPER-BASED WELDING FILLER METAL SELECTION CHART

Base Metal	Copper	Phosphor Bronze	Red Brass	Yellow Brass	Nickel Silver	Aluminum Bronze	Silicon Bronze	Copper / Nickel
Carbon & Low Alloy Steels	ALB-A2 (1000)	PHB ALB-A2 (400)	ALB-A2 PHB (500-600)	ALB-A2 (500-600)	ALB-A2 (500-600)	ALB-A2 (300)	ALB-A2 SIB (150)	ALB-A2 (150)
Cast Iron	ALB-A2 (1000)	PHB (400)	ALB-A2 PHB (500-600)	ALB-A2 (500-600)	ALB-A2 (500-600)	ALB-A2 (300)	ALB-A2 SIB (300)	ALB-A2 (150)
Copper / Nickel	ALB-A2 (1000)	PHB SIB (150)	ALB-A2 (150)	ALB-A2 SIB (150)	ALB-A2 SIB (150)	ALB-A2 (150)	ALB-A2 (150)	* (150)
Silicon Bronze	PHB (1000)	PHB SIB (150)	ALB-A2 SIB (150)	ALB-A2 SIB (150)	ALB-A2 SIB (150)	ALB-A2 (150)	SIB (150)	
Aluminum Bronze	ALB-A2 (1000)	ALB-A2 PHB (300-400)	ALB-A2 (500-600)	ALB-A2 (500)	ALB-A2 (500)	ALB-A2 (500)		
Nickel / Silver	SIB PHB (1000)	PHB (500-600)	PHB (500-600)	ALB-A2 (500-600)	ALB-A2 (500-600)			
Yellow Brass	SIB PHB (1000)	PHB (500-600)	PHB (500-600)	ALB-A2 (500-600)				
Red Brass	PHB (1000)	PHB (500)	PHB (400)					
Phosphor Bronze	PHB (1000)	PHB (400)						
Copper	DOC (1000)							

*Copper/Nickel filler wire is available upon request.

Where more than one filler metal is shown, the preferential selection appears first, a possible alternative second.

3SIB (GTAW) (TIG)

This copper-silicon alloy is used to weld similar composition base metals, brass, and to weld these copper alloys to steel. Silicon bronze is also frequently used in GTAW "brass welding" of coated sheet steels.

Preheat: Silicon bronze base metals generally do not require preheat. Brass or copper base metals may require some preheat depending on copper content and thickness.

Shielding Gas: Argon

Specifications: AWS A5.7 ERCuSi-A

GTAW: Use DC+ or AC current and a 2% thoriated tungsten



PN: 03SIB603POP
1/8" x 36" - 3# PKG

CUT LENGTHS PART NO. SIZE

03SIBF0	.035" x 36" - 10# PKG
03SIBH0	.045" x 36" - 10# PKG
03SIB30	1/16" x 36" - 10# PKG
A3SIB30	1/16" x 36" - 50#PKG
03SIB50	3/32" x 36" - 10# PKG
A3SIB50	3/32" x 36" - 50#PKG
03SIB60	1/8" x 36" - 10# PKG
A3SIB60	1/8" x 36" - 50#PKG
03SIB70	5/32" x 36" - 10# PKG
03SIB80	3/16" x 36" - 10# PKGS
03SIB90	1/4" x 36" - 10# PKG

POP PART NO. SIZE

03SIB301POP	1/16" x 36" - 1# PKG
03SIB303POP	1/16" x 36" - 3# PKG
03SIB501POP	3/32" x 36" - 1# PKG
03SIB503POP	3/32" x 36" - 3# PKG
03SIB601POP	1/8" x 36" - 1# PKG
03SIB603POP	1/8" x 36" - 3# PKG

ALUMINUM BRONZE A2 (GMAW/GTAW)

This versatile filler metal is used for joining aluminum bronze base metals, welding brass, steel and a variety of dissimilar metal applications.

Preheat: Generally not required unless welding high copper content base metals.

Shielding Gas: Argon

Specification: AWS A5.7 ERCuAl-A2

GTAW: Use DC+ or AC current and a 2% thoriated tungsten

Brinell Hardness (3000 kg. load) 130-150

PART NO. SIZE

0ALB1F8	.035" - 30# SPOOL
0ALB1H8	.045" - 30# SPOOL
0ALB138	1/16" - 30# SPOOL
0ALB2F8	.035" - 30# SPOOL
0ALB2H8	.045" - 30# SPOOL
0ALB238	1/16" - 30# SPOOL
0ALB258	3/32" - 30# SPOOL SPECIAL ORDER
3ALB230	1/16" x 36" -10# PKG
3ALB250	3/32" x 36" -10# PKG
3ALB260	1/8" x 36 -10# PKG

ALUMINUM BRONZE A1 (GMAW) (3 ALB GTAW)

This wire is designed for weld overlays for bearing and wear resistant surfaces. It is iron-free and is often used to protect parts exposed to salt water and certain acidic conditions. A1 aluminum bronze is not recommended for joining.

Preheat: Generally not required.

Shielding Gas: Argon

Specification: AWS A5.7 ERCuAl-A1

GTAW: Use DC+ or AC current and a 2% thoriated tungsten

Brinell Hardness (500 kg. load) 80-110

PN: 0ALB1F8

.035 - 30# SPOOL



Product	Chemical Composition			AWS Class
Aluminum Bronze A1	Cu-Rem	Zn-0.20%	Sn-	ERCuAl-A1
	Mn-0.50%	Fe-	Si-0.10%	
	P-	Al-6.0-8.5%	Pb-0.02%	
	Others-0.50%			
Aluminum Bronze A2	Cu-Rem	Zn-0.20%	Sn-	ERCuAl-A1
	Mn-	Fe-1.5%	Si-0.10%	
	P-	Al-8.5-11.0%	Pb-0.02%	
	Others-0.50%			



COPPER WELDING ALLOY

PART NO.	SIZE
OPHBCF8	.035" - 30# SPOOL
OPHBC8	.045" - 30# SPOOL



PHOS BRONZE (GMAW) (MIG)

This copper-tin alloy is used to weld copper-tin composition base metals, and to weld copper alloys, including brass to steel.

Preheat: Generally not required unless welding high copper content base metals.

Shielding Gas: Argon

Specification: AWS A5.7 ERCuSn-C

PHOS BRONZE (GTAW) (TIG)

For GTAW Welding

Preheat: Generally not required unless welding high copper content base metals.

Shielding Gas: Argon

Specification: AWS A5.7 ERCuSn-C

GTAW: Use DC+ or AC current and a 2% thoriated tungsten.

PART NO.	SIZE
03PHB30	1/16" x 36" - 10# PKG
03PHB50	3/32" x 36" - 10# PKG
03PHB60	1/8" x 36" - 10# PKG SPECIAL ORDER



Chemical Composition					
Mn- Sn-7.0-9.0%	Si- Fe-	P-0.10-0.35% Al-0.01%	Cu- Pb-0.02%	Rem Others-0.05%	Zn-0.20%
*Single values shown are maximum percentages.					

PART NO.	SIZE
00DOCF8	.035" - 30# SPOOL
00DOCH8	.045" - 30# SPOOL
00DOC38	1/16" - 30# SPOOL
00DOC58	3/32" - 30# SPOOL



DEOX COPPER (GMAW) (MIG)

Designed for welding applications on high copper content base metals. This alloy produces trouble free welds that are a good color match to copper and have high electrical conductivity. Deox copper welding wire can also be used to weld copper to steel.

Preheat: Copper base metals have high thermal conductivity so current and shielding gas must be selected to provide the highest heat input. Preheat temperature range from 700° to 1000° F, depending on the base metal thickness.

Shielding Gas: Argon shielding gas is frequently used, with argon/helium and pure helium sometimes selected for increased heat input.

Specification: AWS A5.7 ERCu

DEOX COPPER (GTAW) (TIG)

Preheat: Copper base metals have high thermal conductivity so current and shielding gas must be selected to provide the highest heat input. Preheat temperature range from 700° to 1000° F, depending on the base metal thickness.

Shielding Gas: Argon shielding gas is frequently used, with argon/helium and pure helium sometimes selected for increased heat input.

Specification: AWS A5.7 ERCu

GTAW: Use DC+ or AC current and a 2% thoriated tungsten.

PART NO.	SIZE
03DOC30	1/16" x 36" - 10# PKG
03DOC50	3/32" x 36" - 10# PKG
03DOC60	1/8" x 36" - 10# PKG
03DOC70	5/32" x 36" - 10# PKG
03DOC80	3/16" x 36" - 10# PKG

Chemical Composition					AWS Class
Mn-0.50%	Si-0.50%	P-0.15%	Cu-98.0 min	Sn-1.0%	ERCu
Fe-	Al-0.01%	Pb-0.02%	Others-0.05%		
*Single values shown are maximum percentages.					



COPPER WELDING ALLOY MILD STEEL



ALLOY 170

Available bare or flux coated. Harris Alloy 170 is a copper/zinc/nickel alloy developed for braze welding steel, and cast iron. It can also be used for brazing tungsten carbide to steel where higher joining temperature is not objectionable. The nickel addition provides hardness and strength compared to the standard bronze alloys. This characteristic makes it ideal for build up and overlay. Harris 170 flows easily and deposits can be machined. Harris 170 can be deposited using oxy-fuel torches. Flux coated rods are pre-coated with a flexible, flux coating for convenience and deposition ease.

Procedure:

- The process is similar to brazing as the base metal is not melted
- Unlike brazing the rod must be continually applied as you move down the joint
- Focus the flame on the part and heat until a dull red appears, then apply the rod, melting the rod with the flame to deposit a uniform braze layer along joint
- Clean the area to be brazed
- Apply with a "braze welding" technique
- Bevel heavier sections approximately 15°
- Flux with bare No. 170 use Harris 17 paste flux
- Use a neutral flame preheat and preheat joint
- Remove flux residue by wire brushing with hot water

PART NO.	SIZE
0017030	1/16" x 36" - 50# PKG
0017050	3/32" x 36" - 50# PKG
0017060	1/8" x 36" - 50# PKG
0017090	1/4" x 36" - 50# PKG SPECIAL ORDER
0017095	5/16" x 36" - 50# PKG
170F618B	1/8" x 18" - BLUE FLUX - 5#
170FC60	1/8" x 36" - Yellow FLUX - 10#
170FC80	3/16" x 36" - Yellow FLUX - 10#

Features:

- Melting temperature - 1720° F to 1800° F

Application:

- Maintenance, repair and fabrication applications, steel, copper and copper alloys, nickel and nickel alloys. Well suited for close-fit, strong "sweat" joints, bicycle frames and tubular furniture.

Specifications: AWS A5.8 RBCuZn-D

PN: 0017030
1/16" x 36" - 50# PKG



Chemical Composition

Cu-46%-50%	Ni-9%-11%	Mn-1.5% Max	Fe-1.5% Max
Si-3.5% Max	Ag-5.8%-6.0	Sn-3% Max	Zn Rem

MILD STEEL

ER70S-3 (GMAW) MIG

A general purpose welding wire for fabrication of mild steel. Contains silicon and manganese as deoxidizers. Usually used with 75/25 (argon/CO2) shielding gas or with higher contents of argon, such as 90/10. Can also be used with 100% CO2. Qualified to AWS A5.18 ER70S-3

Chemical Composition

C-0.06-0.15%	Mn-0.90-1.40%	Si-0.45-0.75%	S-0.035%	P-0.025%
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PN: E70S3E8
.030" - 33# SPOOL

PART NO.	SIZE
E70S3E8	.030" - 33# SPOOL
E70S3F9	.035" - 44# SPOOL
E70S3H8	.045" - 33# SPOOL

ER70S-6 (GMAW) MIG

A general purpose welding wire for fabrication of mild steel. Contains more deoxidizers than ER70S-3. The additional deoxidizers also provide better wetting, giving a flatter bead shape and the capability of faster travel speeds. Usually used with 75/25 (argon/CO2) shielding gas or with higher contents of argon, such as 90/10. Can also be used with 100% CO2. Conforms to AWS A5.18 ER70S-6.

Chemical Composition

C-0.06-0.15%	Mn-1.40-1.85%	Si-0.80-1.15%	S-0.035%	P-0.025%
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*Single values shown are maximum percentages.



PN: E70S612POP
.023" - 2# SPOOL

**PRODUCTION
PAKS
AVAILABLE**

PART NO.	SIZE
E70S612	.023" - 2# SPOOL
E70S615	.023" - 11# SPOOL
E70S618	.023" - 33# SPOOL
E70S6E2	.030" - 2# SPOOL
E70S6E5	.030" - 11# SPOOL
E70S6E8	.030" - 33# SPOOL
E70S6E9	.030" - 44# SPOOL
E70S6E5D	.030"-500# PROD PAK SPECIAL ORDER
E70S6F2	.035" - 2# SPOOL
E70S6F5	.035" - 11# SPOOL
E70S6F8	.035" - 33# SPOOL
E70S6F9	.035" - 44# SPOOL
E70S6F5D	.035" - 550# PROD PAK
E70S6H5	.045" - 11# SPOOL
E70S6H8	.045" - 33# SPOOL
E70S6H9	.045" - 44# SPOOL
E70S6H6	.045" - 60# COIL
E70S6H5D	.045" - 550# PROD PAK
POP PART NO.	SIZE
E70S612POP	.023" - 2# MS SPOOL
E70S615POP	.023" - 11# MS SPOOL
E70S6E2POP	.030" - 2# MS SPOOL
E70S6E5POP	.030" - 11# MS SPOOL
E70S6F2POP	.035" - 2# MS SPOOL
E70S6F5POP	.035" - 11# MS SPOOL
E70S6H2POP	.045" - 2# MS SPOOL
E70S6H5POP	.045" - 11# MS SPOOL



MILD STEEL / LOW ALLOY

ER70S-2 (GTAW) TIG

A premium, multiple deoxidized, wire. Produces high quality welds in most grades of carbon steels. ER70S-2 is a triple deoxidized wire which provides defect free weld deposits when properly used on most carbon steels. It is used especially for pipe welding. ER70S-2 Conforms to AWS A5.18 ER70S-2



PN: E70S2605POP
1/8" x 36" - 5# PKG

Chemical Composition		
C-.15%	Mn-0.90-1.40%	Si-0.45-0.70%
S-0.035%	P-0.025%	Ti-0.05-0.15%
Zr-0.02-0.12%	Al-0.05-0.15%	

PART NO.	SIZE
E70S2F0	.035" x 36" - 10# PKG
E70S2H0	.045" x 36" - 10# PKG
E70S230	1/16" x 36" - 10# PKG
E70S250	3/32" x 36" - 10# PKG
E70S260	1/8" x 36" - 10# PKG
E70S270	5/32" x 36" - 10# PKG
E70S2300POP	1/16" x 36" - 1# PKG
E70S2303POP	1/16" x 36" - 3# PKG
E70S2305POP	1/16" x 36" - 5# PKG
E70S2500POP	3/32" x 36" - 1# PKG
E70S2503POP	3/32" x 36" - 3# PKG
E70S2505POP	3/32" x 36" - 5# PKG
E70S2600POP	1/8" x 36" - 1# PKG
E70S2603POP	1/8" x 36" - 3# PKG
E70S2605POP	1/8" x 36" - 5# PKG

ER70S-3 (GTAW) TIG

A general purpose welding wire for fabrication of mild steel. Contains silicon and manganese as deoxidizers. Conforms to AWS A5.18 ER70S-3



PN: E70S330
1/16" x 36" - 10# PKG

Chemical Composition		
C-0.06-0.15%	Mn-0.90-1.40%	Si-0.45-0.75%
S-0.035%	P-0.025%	

PART NO.	SIZE
E70S330	1/16" x 36" - 10# PKGS
E70S350	3/32" x 36" - 10# PKGS
E70S360	1/8" x 36" - 10# PKGS

ER70S-6 (GTAW) TIG

A general purpose welding wire for fabrication of mild steel. Contains more deoxidizers than ER70S-3. The additional deoxidizers also provide better wetting, giving a flatter bead shape and the capability of faster travel speeds. Conforms to AWS A5.18 ER70S-6



PN: E70S6F0
.035 x 36" - 10# PKG

Chemical Composition			
C-0.06-0.15%	Mn-1.40-1.85%	Si-0.80-1.15%	S-0.035%
P-0.025%			

*Single values shown are maximum percentages.

PART NO.	SIZE
E70S6F0	.035" x 36" - 10# PKG
E70S6H0	.045" x 36" - 10# PKG
E70S630	1/16" x 36" - 10# PKG
E70S650	3/32" x 36" - 10# PKG
E70S660	1/8" x 36" - 10# PKG
E70S670	5/32" x 36" - 10# PKG
E70S6303POP	1/16" x 36" - 3# PKG
E70S6503POP	3/32" x 36" - 3# PKG
E70S6603POP	1/8" x 36" - 3# PKG
E70S6E8LW	.030" - 33# MS LEVEL WOUND
E70S6F8LW	.035" - 33# MS LEVEL WOUND
E70S6H8LW	.045" - 33# MS LEVEL WOUND

ER80S-D2 (GMAW) MIG

LOW ALLOY CR-MO WIRES FOR GMAW (MIG). Contains a high level of deoxidizers (Mn and Si), also Molybdenum for increased strength. Suitable for single and multi-pass welding of a variety of carbon and low alloy steels.

Procedure:

- DC+ reverse polarity
- Shielding gas - Argon
- Tungsten - 2% Thoriated

Specifications: AWS 5.28, ER80S-D2



PN: 80SD2H8
.045 - 33# SPOOL

Chemical Composition			
C-0.07-0.12%	Mn-1.60-2.10%	Si-0.50-0.80%	S-0.025%
P-0.025%	Ni-0.15%	Mo-0.40-0.60%	

PART NO.	SIZE
80SD2F8	.035" - 30# SPOOL
80SD2H8	.045" - 33# SPOOL

MILD STEEL / LOW ALLOY WELDING PARAMETERS



GTAW (TIG)

Welding is normally done with DC Straight Polarity (AC is sometimes used). Argon shielding is most commonly used but for deeper penetration, especially on thick plate, argon/helium mixes can be used.

MATERIAL THICKNESS	FILLER DIA.	WELDING CURRENT (AMPS)	GAS CUP	ARGON, cfh	TUNGSTEN DIAMETER
1/16"	1/16"	100 - 140	3/8"	20	1/16"
3/32"	1/6"	100 - 160	3/8"	20	1/16"
1/8"	1/6"	125 - 200	7/16"	20	3/32"
3/16"	3/32"	150 - 250	7/16"	25	3/32"
1/4"	1/8"	150 - 250	1/2"	25	1/8"
3/8"	1/8"	150 - 275	1/2"	25	1/8"
1/2"	1/8"	150 - 300	1/2"	25	1/8"

GMAW (MIG)

CO₂ shielding yields a short-circuiting transfer, 90/10 (Argon/CO₂) can give a short circuit transfer but is usually used in spray transfer

Short Circuit Transfer: SOLID GMAW - Using CO₂

WIRE SIZE	WELDING CURRENT (AMPS)	ARC VOLTAGE	WIRE FEED SPEED, IP
.023"	30 - 90	14 - 19	200 - 400
.030"	40 - 145	15 - 21	160 - 380
.035"	50 - 180	16 - 22	150 - 340
.045"	75 - 250	17 - 22	100 - 220

Spray Transfer: Using 90/10 (Ar/CO₂)

WIRE SIZE	WELDING CURRENT (AMPS)	ARC VOLTAGE	WIRE FEED SPEED, IP
.030"	135 - 230	24 - 28	390 - 670
.035"	165 - 300	24 - 28	360 - 520
.045"	200 - 375	24 - 30	210 - 390
1/16"	275 - 500	24 - 32	150 - 360
3/32"	300 - 600	24 - 33	75 - 125

ER80S-D2 (GTAW) LOW ALLOY

Contains a high level of deoxidizers (Mn and Si), also Molybdenum for increased strength. Suitable for single and multi-pass welding of a variety of carbon and low alloy steels.

Procedure:

- DC- straight polarity
- Shielding gas - Argon
- Tungsten - 2% Thoriated

Specifications: AWS 5.28, ER80S-D2

Chemical Composition						
C-0.07-0.12%	Mn-1.60-2.10%	Si-0.50-0.80%	S-0.025%	P-0.025%	Ni-0.15%	Mo-0.40-0.60%

PART NO.	SIZE
80SD230	1/16" x 36" - 10# PKG
80SD250	3/32" x 36" - 10# PKG
80SD260	1/8" x 36" - 10# PKG



PN: 80SD230
1/16" x 36" - 10# PKG

ER80S-B2 (GTAW)

For welding 1/2 Cr-1/2 Mo, 1 Cr-1/2 Mo and 1 1/4 Cr-1/2 Mo steels for elevated temperatures and corrosive service; also used for joining dissimilar combinations of Cr-Mo and carbon steels.

Specifications: AWS 5.28, ER80S-B2

Chemical Composition						
C-0.07-0.12%	Mn-0.40-0.70%	Si-0.40-0.70%	S-0.025%	P-0.025%	Ni-0.20%	Cr-1.20-1.50
Mo-0.40-0.60%						

PART NO.	SIZE
80SB230	1/16" x 36" - 10# PKG
80SB250	3/32" x 36" - 10# PKG
80SB260	1/8" x 36" - 10# PKG
80SB270	5/32" x 36" - 10# PKG
80SB630	1/16" x 36" - 10# PKG
80SB650	3/32" x 36" - 10# PKG



PN: 80SB230
1/16" x 36" - 10# PKG



MILD STEEL / LOW ALLOY

ER90S-B3 (GTAW)

For welding 2-1/4" Cr - 1 Mo Steels used for high pressure piping and pressure vessels; also used for joining dissimilar combinations of Cr-Mo and carbon steels.

Procedure:

- DC- straight polarity
- Shielding gas - Argon
- Tungsten - 2% Thoriated

Specifications: AWS 5.28, ER90S-B3

Chemical Composition				
C-0.07-0.12%	Mn-0.40-0.70%	Si-0.40-0.70%	S-0.025%	P-0.025%
Cr-0.20%	Ni-2.30-2.70%	Mo-0.90-1.20%		

PART NO.	SIZE
90SB350	3/32" x 36" - 10# PKG
90SB360	1/8" x 36" - 10# PKG
90SB3F8	.035" - 33# SPOOL
90SB3H8	.045" - 33# SPOOL



PN: 90SB350
3/32" x 36" - 10# PKG

4130 CHROME MOLY

Formulated to reduce weld metal hot cracking with good ductility. Particularly suited to thin, highly stressed joints. Use S.A.E. 4130 procedure in heat treatment.



PN: 0413030
1/16" x 36" - 10# PKG

PART NO.	SIZE
0413030	1/16" x 36" - 10# PKG
0413050	3/32" x 36" - 10# PKG
0413060	1/8" x 36" - 10# PKG SPECIAL ORDER

W1060 (RG45) SOLID WIRE (GTAW) OXY FUEL

A copper coated, low carbon steel rod which is widely used on mild steel. It offers good ductility and machinability.

Procedure:

- Use a neutral flame; however a very slight excess of acetylene assures the absence of an oxidizing flame which adversely influences weld quality
- Flux is not needed but "puddling" of the molten weld metal will bring any scale or impurities to the surface

Specifications: AWS A5.2, R45



PN: W1060510
3/32" x 36" - 10# PKG

Chemical Composition				
C-0.08%	Mn-0.05%	Si-0.10%	S-0.040%	P-0.035%
Cr-0.20%	Ni-0.30%	Mo-0.20%	Cu-0.30%	Al-0.02%

PART NO.	SIZE
W106030	1/16" x 36" - 50# PKG
W1060310	1/16" x 36" - 10# PKG
W106050	3/32" x 36" - 50# PKG
W1060510	3/32" x 36" - 10# PKG
W106060	1/8" x 36" - 50# PKG
W1060610	1/8" x 36" - 10# PKG
W106070	5/32" x 36" - 50# PKG
W1060710	5/32" x 36" - 10# PKG
W106080	3/16" x 36" - 50# PKG SPECIAL ORDER
W106090	1/4" x 36" - 50# PKG SPECIAL ORDER
W1060300POP	1/16" x 36" - 1# PKG
W1060303POP	1/16" x 36" - 3# PKG
W1060305POP	1/16" x 36" - 5# PKG
W1060500POP	3/32" x 36" - 1# PKG
W1060503POP	3/32" x 36" - 3# PKG
W1060505POP	3/32" x 36" - 5# PKG
W1060600POP	1/8" x 36" - 1# PKG
W1060603POP	1/8" x 36" - 3# PKG
W1060605POP	1/8" x 36" - 5# PKG

W1200 (RG60) SOLID WIRE (GTAW) OXY FUEL

A high strength, bright finish, steel welding rod. Use where minimum tensile strength of the steel does not exceed 60psi

Procedure:

- Use a neutral flame; however a very slight excess of acetylene assures the absence of an oxidizing flame which adversely influences weld quality
- Flux is not needed but "puddling" of the molten weld metal will bring any scale or impurities to the surface

Specifications: AWS A5.2, R60



PN: W1200310
1/16" x 36" - 10# PKG

Chemical Composition			
C-0.15%	Mn-0.90-1.40%	Si-0.10-0.35%	S-0.035%
P-0.035%	Cr-0.20%	Ni-0.30%	Mo-0.20%
Cu-0.30%	Al-0.02%		

PART NO.	SIZE
W120030	1/16" x 36" - 50# PKG
W1200310	1/16" x 36" - 10# PKG
W120050	3/32" x 36" - 50# PKG
W1200510	3/32" x 36" - 10# PKG
W120060	1/8" x 36" - 50# PKG
W120070	5/32" x 36" - 50# PKG
W1200710	5/32" x 36" - 10# PKG
W120080	3/16" x 36" - 50# PKG
W1200810	3/16" x 36" - 10# PKG
W120090	1/4" x 36" - 50# PKG
W1200300POP	1/16" x 36" - 1# PKG
W1200303POP	1/16" x 36" - 3# PKG
W1200305POP	1/16" x 36" - 5# PKG
W1200500POP	3/32" x 36" - 1# PKG
W1200503POP	3/32" x 36" - 3# PKG
W1200505POP	3/32" x 36" - 5# PKG
W1200600POP	1/8" x 36" - 1# PKG
W1200603POP	1/8" x 36" - 3# PKG
W1200605POP	1/8" x 36" - 5# PKG

MILD STEEL



E71T-1 FLUX CORED

E71T-1 is formulated to deposit x-ray quality welds in flat, vertical up, horizontal, or overhead positions. E71T-1 is designed for welding low carbon and mild steel, structural and pressure vessel grades.

E71T-1 flux core ingredients produce a fast freezing slag that facilitates out of position welds. Bead contour is flat to slightly convex. Slag is easy to remove and low spatter provides easy post weld cleaning. Conforms to AWS A5.20 E71T-1/E71-T-1M

Shielding Gas:

100% CO₂ or 75% Argon / 25% CO₂ mixture. Argon / CO₂ produces a spray type transfer that helps control the weld puddle in out of position applications.

PART NO.	SIZE
P71T1H3SP	.045" - 33# SPOOL
P71T1H50SP	.045" - 50# SPOOL
P71T1H6	.045" - 60# COIL
P71T1H9	.045" - 500# PROD PAK
P71T1K3SP	.052" - 33# SPOOL
P71T133SP	1/16" - 33# SPOOL
P71T136	1/16" - 60# COIL
P71T139	1/16" - 500# PROD PAK
P71T1KS	.052" - 60# COIL

**PRODUCTION
PAKS
AVAILABLE**

PN: P71T133SP
1/16" - 33# SPOOL



Product	Typical Chemical Composition			Shielding Gas
E71T-1M	C-0.09% S-0.009%	Mn-1.41% P-0.013%	Si-0.55% Fe-Rem	75% Ar / 25% CO ₂
E71T-1	C-0.08% S-0.009%	Mn-1.22% P-0.013%	Si-0.55% Fe-Rem	100% CO ₂

TEN GAUGE™ SELF-SHIELDING

Ten Gauge is a self shielding (no shielding gas needed) welding wire with exceptional arc stability, low spatter and excellent operator appeal. It can be used in most carbon steel applications and welds especially well on galvanized sheet. Ten Gauge can be used in all positions. It is especially popular for home workshops. Conforms to AWS A5.20 E-71T-GS

PART NO.	SIZE
E71TGSE2	.030" - 2# SPOOL
E71TGSF2	.035" - 2# SPOOL
E71TGSF5	.035" - 10# SPOOL
E71TGSE5	.030" - 10# SPOOL
E71TGSE8	.030" - 25# SPOOL
E71TGSF8	.035" - 25# SPOOL
E71TGSF5	.035" - 25# SPOOL
E71TGSF8	.045" - 10# SPOOL
E71TGSF8	.045" - 25# SPOOL
E71TGSE2POP	.030" - 2# SPOOL
E71TGSE5POP	.030" - 10# SPOOL
E71TGSF2POP	.035" - 2# SPOOL
E71TGSF5POP	.035" - 10# SPOOL
E71TGSF8POP	.045" - 10# SPOOL



PN: E71TGSE2
.030" - 2# SPOOL



DC straight polarity (DC-), No shielding gas required

WIRE SIZE	WELDING CURRENT (AMPS)	ARC VOLTAGE
.030"	40 - 100	14 - 16
.035"	100 - 130	16 - 18
.045"	140 - 160	18 - 20

WELDING PRODUCTS



MILD STEEL

TWENTY GAUGE™ METAL CORE

Twenty gauge is a metal cored welding wire with added ingredients to make it especially suited for welding very thin carbon steel sheet. Twenty Gauge is a small diameter cored wire that is perfect for the home workshop or auto body repair. Twenty Gauge was designed with the users of 120V welders in mind. It will weld on galvanized and lightly rusted steel in a wide range of thicknesses. Twenty Gauge will not burn-through on thin sheet metal. Use 75/25 (Argon/CO₂) Shielding Gas.

Features:

- No burn-through on thin sheet metal
- No slag
- No splatter
- Wide weld range of steel thickness 28 gauge to 3/16"
- Better weld appearance
- Excellent wetting
- Good tie-in
- Welds vertical down
- No cold lap



PART NO.	SIZE	
TGE2	.030" - 2# SPOOL	SPECIAL ORDER
TGE3SP	.030" - 33# SPOOL	SPECIAL ORDER
TGE5	.030" - 10# SPOOL	



PN: TGE2
.030" - 2# SPOOL

DC reverse polarity (DC+), 75/25 shielding gas required

WIRE SIZE	WELDING CURRENT (AMPS)	ARC VOLTAGE
.030"	60 - 100	15 - 18

STICK ELECTRODES

6011 MILD STEEL ELECTRODES

A versatile, deep penetrating steel electrode with smooth, stable arc characteristics. It's used for the welding of mild steels, galvanized and some low alloy steels. The coating produces a forceful, spray-type arc, resulting in deep penetrating welds. The slag is thin and easily removable.

Applications:

Structural, ship building and repair, rail cars, piping, pressure vessel fittings, boilers, galvanized steel, general fabrication.

Features:

- Tensile strength - 72,900 psi
- Yield strength - up to 66,100
- Elongation in 2" - 29.6%
- All position
- Conforms to ANSI/AWS A5.1 & ASME SFA 5.1 E6011

DC reverse polarity (DC+), 75/25 shielding gas required

ELECTRODE DIAMETER	WELDING CURRENT (AMPS)	WELD POSITION
3/32"	50 - 80	FLAT
3/32"	40 - 70	VERTICAL UP & OVER HEAD
1/8"	70 - 110	FLAT
1/8"	60 - 100	VERTICAL UP & OVER HEAD
5/32"	110 - 160	FLAT
5/32"	90 - 140	VERTICAL UP & OVER HEAD

PART NO.	SIZE
60115010	3/32" x 12" - 10# PKG
6011505	3/32" x 12" - 5# PKG
60116010	1/8" x 14" - 10# PKG
6011605	1/8" x 14" - 5# PKG
60117010	5/32" - 10# PKG
6011705	5/32" - 5# PKG

Chemical Composition			
C-.08%	Mn-.45%	Si-.18%	S-0.015%
P-.014%	Fe-REM		
Single values are maximum			



PN: 6011705
5/32" - 5# PKG

6013 MILD STEEL ELECTRODES

A general purpose electrode for mild steel which produces a smooth, quiet, medium penetrating arc that is readily maintained with minimal spatter loss. The slag lifts easily, revealing a finely rippled bead contour. This quick freezing slag gives optimum performance in vertical-down welding. Ideally suited for general purpose welding, even with small AC power sources having low open-circuit voltage.

Applications:

Vehicles, ship building and repair, sheet metal, build-up of over machined and worn mild steel surfaces, general light fabrication.

Features:

- Tensile strength - up to 59,700 psi
- Yield strength - 67,700 psi
- Elongation in 2" - 25.6%
- All position
- Conforms to ANSI/AWS A5.1 & ASME SFA 5.1 E6013

ELECTRODE DIAMETER	WELDING CURRENT (AMPS)	WELD POSITION
3/32"	60 - 90	FLAT
3/32"	50 - 80	VERTICAL UP & OVER HEAD
1/8"	100 - 120	FLAT
1/8"	80 - 100	VERTICAL UP & OVER HEAD
5/32"	110 - 160	FLAT
5/32"	100 - 150	VERTICAL UP & OVER HEAD

PART NO.	SIZE	
60135010	3/32" - 10# PKG	
6013505	3/32" - 5# PKG	SPECIAL ORDER
60136010	1/8" - 10# PKG	
6013605	1/8" - 5# PKG	
60137010	5/32" - 10# PKG	SPECIAL ORDER
6013705	5/32" - 5# PKG	

Chemical Composition			
C-.08%	Mn-.45%	Si-.18%	S-0.012%
P-.014%	Fe-REM		
Single values are maximum			

PN: 6013705
5/32" - 5# PKG





7014 MILD STEEL ELECTRODES

An all position electrode for mild and low alloy steels with an iron powder covering. The iron powder yields a high deposition rate. The welds reflect smooth beads with fine ripples. It is particularly advantageous when poor fit-up exists. The slag is easily removed, often self-lifting.

Applications:

Heavy sheet metal, frames, shelving, general maintenance and fabrication.

Features:

- Tensile strength - up to 79,900 psi
- Yield strength - 67,700 psi
- Elongation in 2" - 29.4% minimum
- All position
- ANSI/AWS A5.1 & ASME SFA 5.1 E7014

Physical Properties

Density lbs/cu in .283

Chemical Composition			
C-.12%	Mn-.68%	Si-.33%	S-0.012%
P-0.21%	Cr-.041%	Ni-0.053%	Mo-.002%
Cu-.012%	V-.023%	Fe-REM	
Single values are maximum			

PART NO.	SIZE
70145010	3/32" - 10# PKG
7014505	3/32" - 5# PKG
70146010	1/8" - 10# PKG
7014605	1/8" - 5# PKG
7014705	5/32" - 5# PKG

PN: 7014505
3/32" - 5# PKG



ELECTRODE DIAMETER	WELDING CURRENT (AMPS)	WELD POSITION
3/32"	100 - 110	FLAT
3/32"	80 - 90	VERTICAL UP & OVER HEAD
1/8"	130 - 140	FLAT
1/8"	120 - 130	VERTICAL UP & OVER HEAD
5/32"	190 - 200	FLAT
5/32"	150 - 160	VERTICAL UP & OVER HEAD

7018 MILD STEEL ELECTRODES

A high deposition electrode for low and medium carbon steels. It is an efficient, iron powder, low hydrogen electrode with excellent mechanical properties; crack resistance; and X-ray quality welds. This electrode offers a quiet, stable, low penetration, spatter-free arc. The moderately heavy slag is easy to remove, revealing a bead with distinct ripples. Operator appeal is a plus factor.

Applications:

Ship hull construction, pressure vessels, boilers, piping, heavy duty equipment, general maintenance or production fabrication.

Features:

- Tensile strength - up to 79,900 psi
- Yield strength - 67,700 psi
- Elongation in 2" - 29.4% minimum
- All position
- Conforms to ANSI/AWS A5.1 & ASME SFA 5.1 E7018

Chemical Composition			
C-0.08%	Mn-1.00%	Si-.60%	S-.011%
P-.021%	Fe-REM		
Single values are maximum			

PART NO.	SIZE
70185010	3/32" x 12" - 10# PKG
7018505	3/32" x 12" - 5# PKG
70186010	1/8" x 12" - 10# PKG
7018605	1/8" x 14" - 5# PKG
70187010	5/32" - 10# PKG
7018705	5/32" - 5# PKG

PN: 7018505
3/32" x 12" - 5# PKG



ELECTRODE DIAMETER	WELDING CURRENT (AMPS)	WELD POSITION
3/32"	65 - 85	FLAT
3/32"	50 - 80	VERTICAL UP & OVER HEAD
1/8"	90 - 130	FLAT
1/8"	85 - 120	VERTICAL UP & OVER HEAD
5/32"	130 - 180	FLAT
5/32"	110 - 160	VERTICAL UP & OVER HEAD



WELDING PARAMETERS FOR CORED WIRE

ALLOY	WIRE SIZE	WELDING CURRENT (AMPS)	ARC VOLTAGE	WIRE FEED SPEED, ipm	WELD POSITION	SHIELDING GAS	WIRE STICKOUT
Flux Cored E71T-1 (C02) E71T-1M (75/25)	.035"	160	27	425	Vertical Up	C02	1/2"
	.035"	190	28	600	Horizontal	C02	1/2"
	.035"	150	26	320	Overhead	C02	1/2"
	.035"	150	25	320	Vertical Up	75 Ar / 25 C02	1/2"
	.035"	200	27	600	Horizontal	75 Ar / 25 C02	1/2"
	.035"	150	25	320	Overhead	75 Ar / 25 C02	1/2"
	.045"	210	26	300	Vertical Up	C02	5/8"
	.045"	240	29	380	Horizontal	C02	5/8"
	.045"	210	26	300	Overhead	C02	5/8"
	.045"	210	25	300	Vertical Up	75 Ar / 25 C02	5/8"
	.045"	275	27	430	Horizontal	75 Ar / 25 C02	5/8"
	.045"	210	25	300	Overhead	75 Ar / 25 C02	5/8"
	.052"	220	25	240	Vertical Up	C02	5/8"
	.052"	280	27	380	Horizontal	C02	5/8"
	.052"	215	26	240	Overhead	C02	5/8"
	.052"	210	24	240	Vertical Up	75 Ar / 25 C02	5/8"
	.052"	300	28	380	Horizontal	75 Ar / 25 C02	5/8"
	.052"	215	25	240	Overhead	75 Ar / 25 C02	5/8"
1/16"	210	26	150	Vertical Up	C02	1/2"	
1/16"	350	29	300	Horizontal	C02	1/2"	
1/16"	235	26	170	Overhead	C02	1/2"	
1/16"	240	25	170	Vertical Up	75 Ar / 25 C02	1/2"	
1/16"	350	28	300	Horizontal	75 Ar / 25 C02	1/2"	
1/16"	235	25	170	Overhead	75 Ar / 25 C02	1/2"	
Metal Cored E70C-6C E70C-6M	.035"	110	15.5 - 17	200	Vertical Up & Overhead	75 Ar / 25 C02	5/8"
	.035"	250	28	660	Horizontal	75 Ar / 25 C02	5/8"
	.045"	130	20	160	Vertical Up & Overhead	75 Ar / 25 C02	5/8"
	.045"	300	29	430	Horizontal	75 Ar / 25 C02	5/8"
	1/16"	150	17	100	Vertical Up & Overhead	75 Ar / 25 C02	3/4"
	1/16"	350	27	250	Horizontal	75 Ar / 25 C02	3/4"

STAINLESS STEEL GMAW (MIG)

Stainless Steel cut lengths and spooled wire are precisely produced to conform to the requirement of AWS A5.9. These products are subjected to rigid quality control throughout the manufacturing process with particular attention given to cleanliness, cast and helix of the finished product.

MIG 308

Most frequently used for base metals of similar composition. Used for welding metals of similar composition, especially 304.

Chemical Composition		
C-0.08%	Mn-1.0-2.5%	Si-0.30-0.65%
S-0.03%	P-0.03%	Cr-19.5-22.0%
Ni-9.0-11.0%	Mo-0.75%	Cu-0.75%
Fe-Rem		
Single values are maximum		



PN: 0030815
.025" - 10# SPOOL

PART NO.	SIZE
0030812	.025" - 2# SPOOL
0030815	.025" - 10# SPOOL
00308E2	.030" - 2# SPOOL
00308E5	.030" - 10# SPOOL
00308E8	.030" - 25# SPOOL
00308F2	.035" - 2# SPOOL
00308F5	.035" - 10# SPOOL
00308F8	.035" - 25# SPOOL
00308H8	.045" - 25# SPOOL



MIG 308L

Similar usage as 308, but the 0.03% maximum carbon content increases resistance to intergranular corrosion.

Chemical Composition		
C-0.03%	Mn-1.0-2.5%	Si-0.30-0.65%
S-0.03%	P-0.03%	Cr-19.5-22.0%
Ni-9.0-11.0%	Mo-0.75%	Cu-0.75%
Fe-Rem		
Single values are maximum		



PN: 308L15
.025" - 10# SPOOL

PART NO.	SIZE
0308L12	.025" - 2# SPOOL
0308L15	.025" - 10# SPOOL
0308L18	.025" - 25# SPOOL
0308LE2	.030" - 2# SPOOL
0308LE5	.030" - 10# SPOOL
0308LE8	.030" - 25# SPOOL
0308LF2	.035" - 2# SPOOL
0308LF5	.035" - 10# SPOOL
0308LF8	.035" - 25# SPOOL
0308LH8	.045" - 25# SPOOL
POP PART NO.	SIZE
0308L12POP	.025" - 2# S/S SPOOL
0308LE2POP	.030" - 2# S/S SPOOL
0308LF2POP	.035" - 2# S/S SPOOL
0308L15POP	.025" - 10# S/S SPOOL
0308LE5POP	.030" - 10# S/S SPOOL
0308LF5POP	.035" - 10# S/S SPOOL

MIG 308LSI

Similar usage as 308L, but the 0.65-1.00% silicon content improves wash and wetting behavior in the gas shielded welding processes.

Chemical Composition		
C-0.03%	Mn-1.0-2.5%	Si-0.65-1.00%
S-0.03%	P-0.03%	Cr-19.5-22.0%
Ni-9.0-11.0%	Mo-0.75%	Cu-0.75%
Fe-Rem		
Single values are maximum		



PN: 308LSE8
.030" - 25# SPOOL

PART NO.	SIZE
308LS12	.025" - 2# SPOOL
308LS15	.025" - 10# SPOOL
308LS18	.025" - 25# SPOOL
308LSE2	.030" - 2# SPOOL
308LSE5	.030" - 10# SPOOL
308LSE8	.030" - 25# SPOOL
308LSF2	.035" - 2# SPOOL
308LSF5	.035" - 10# SPOOL
308LSF8	.035" - 25# SPOOL
308LSH8	.045" - 25# SPOOL
308LS38	1/16" - 25# SPOOL

MIG 309

Used for welding similar alloys in wrought or cast form; occasionally used for welding 18-8 base metals when severe corrosion conditions exist, and, at times welding dissimilar steels.

Chemical Composition		
C-0.12%	Mn-1.0-2.5%	Si-0.30-0.65%
S-0.03%	P-0.03%	Cr-23.0-25.0%
Ni-12.0-14.0%	Mo-0.75%	Cu-0.75%
Fe-Rem		



PN: 00309F8
.035" - 25# SPOOL

PART NO.	SIZE
00309F8	.035" - 25# SPOOL
00309H8	.045" - 25# SPOOL

MIG 309L

Similar usage as 309, but the 0.03% maximum carbon content increases resistance to intergranular corrosion.

Used for welding similar alloys in wrought or cast form. Occasionally used for welding 18-8 base metals when severe corrosion conditions exist, and, at times, welding dissimilar steels. Packaged for portable welding machines.

Chemical Composition		
C-0.03%	Mn-1.0-2.5%	Si-0.30-0.65%
S-0.03%	P-0.03%	Cr-23.0-25.0%
Ni-12.0-14.0%	Mo-0.75%	Cu-0.75%
Fe-Rem		



PN: 0309LE5
.030" - 10# SPOOL

PART NO.	SIZE
0309LE2	.030" - 2# SPOOL
0309LE5	.030" - 10# SPOOL
0309LF2	.035" - 2# SPOOL
0309LF5	.035" - 10# SPOOL
0309LF8	.035" - 25# SPOOL
0309LH8	.045" - 25# SPOOL
POP PART NO.	SIZE
0309LE2POP	.030" - 2# S/S SPOOL
0309LF2POP	.035" - 2# S/S SPOOL
0309LE5POP	.030" - 10# S/S SPOOL
0309LF5POP	.035" - 10# S/S SPOOL



PN: 0309LE2POP
.030" - 2# SPOOL



STAINLESS STEEL GMAW (MIG)

MIG 309LSi

Similar usage as 309L, but the 0.65-1.00% silicon content improves wash and wetting behavior in the gas shielded welding processes.

Chemical Composition		
C-0.03%	Mn-1.0-2.5%	Si-0.65-1.00%
S-0.03%	P-0.03%	Cr-23.0-25.0%
Ni-12.0-14.0%	Mo-0.75%	Cu-0.75%
Fe-Rem		



PN: 309LSF8
.035" - 25# SPOOL

PART NO.	SIZE
309LSE8	.030" - 25# SPOOL
309LSF5	.035" - 10# SPOOL
309LSF8	.035" - 25# SPOOL
309LSH8	.045" - 25# SPOOL

MIG 310

For welding of base metals of similar composition.

Chemical Composition		
C-0.08-0.15%	Mn-1.0-2.5%	Si-0.30-0.65%
S-0.03%	P-0.03%	Cr-25.0-28.0%
Ni-20.2-22.5%	Mo-0.75%	Cu-0.75%
Fe-Rem		



PN: 00310F8
.035" - 25# SPOOL

PART NO.	SIZE
00310F8	.035" - 25# SPOOL
00310H8	.045" - 25# SPOOL

MIG 312

For welding of base metals of similar composition. Also used for welding dissimilar steel base metals.

Chemical Composition		
C-0.15%	Mn-1.0-2.5%	Si-0.30-0.65%
S-0.03%	P-0.03%	Cr-28.0-32.0%
Ni-8.0-10.5%	Mo-0.75%	Cu-0.75%
Fe-Rem		



PN: 00312H8
.045" - 25# SPOOL

PART NO.	SIZE
00312F8	.035" - 25# SPOOL
00312H8	.045" - 25# SPOOL

MIG 316

Usually used for welding similar alloys (containing about 2% molybdenum); also for high temperature service applications.

Chemical Composition		
C-0.08%	Mn-1.0-2.5%	Si-0.30-0.65%
S-0.03%	P-0.03%	Cr-18.0-20.0%
Ni-11.0-14.0%	Mo-2.0-3.0%	Cu-0.75%
Fe-Rem		



PN: 00316E5
.030" - 10# SPOOL

PART NO.	SIZE
00316E5	.030" - 10# SPOOL
00316F5	.035" - 10# SPOOL
00316F8	.035" - 25# SPOOL

MIG 316L

Similar usage as MIG 316 but the 0.03% maximum carbon increases resistance to intergranular corrosion. Used for welding steels alloyed with molybdenum. Packaged for portable welding machines.

Chemical Composition		
C-0.03%	Mn-1.0-2.5%	Si-0.30-0.65%
S-0.03%	P-0.03%	Cr-18.0-20.0%
Ni-11.0-14.0%	Mo-2.0-3.0%	Cu-0.75%
Fe-Rem		



PN: 0316L15
.025" - 10# SPOOL

PART NO.	SIZE
0316L12	.025" - 2# SPOOL
0316L15	.025" - 10# SPOOL
0316LE2	.030" - 2# SPOOL
0316LE5	.030" - 10# SPOOL
0316LE8	.030" - 25# SPOOL
0316LF2	.035" - 2# SPOOL
0316LF5	.035" - 10# SPOOL
0316LF8	.035" - 25# SPOOL
0316LH8	.045" - 25# SPOOL
0316L38	1/16" - 25# SPOOL



PN: 0316L12POP
.025" - 2# SPOOL

POP PART NO.	SIZE
0316L12POP	.025" - 2# S/S SPOOL
0316L2POP	.030" - 2# S/S SPOOL
0316LF2POP	.035" - 2# S/S SPOOL
0316L15POP	.025" - 10# S/S SPOOL
0316LE5POP	.030" - 10# S/S SPOOL
0316LF5POP	.035" - 10# S/S SPOOL



MIG 316LSI

Similar usage as 316L, but the 0.65-1.00% silicon content improves wash and wetting behavior in the gas shielded welding processes.

Chemical Composition		
C-0.03%	Mn-1.0-2.5%	Si-0.65-1.00%
S-0.03%	P-0.03%	Cr-18.0-20.0%
Ni-11.0-14.0%	Mo-2.0-3.0%	Cu-0.75%
Fe-Rem		



PN: 316LS15
.025" - 10# SPOOL

PART NO.	SIZE
316LS15	.025" - 10# SPOOL
316LS18	.025" - 25# SPOOL
316LSE2	.030" - 2# SPOOL
316LSE5	.030" - 10# SPOOL
316LSE8	.030" - 25# SPOOL
316LSF2	.035" - 2# SPOOL
316LSF5	.035" - 10# SPOOL
316LSF8	.035" - 25# SPOOL
316LSH8	.045" - 25# SPOOL
316LS38	1/16" - 25# SPOOL

MIG 317L

Similar to 316L but with increased molybdenum which increases creep resistance.

Chemical Composition		
C-0.03%	Mn-1.0-2.5%	Si-0.30-0.65%
S-0.03%	P-0.03%	Cr-18.5-20.5%
Ni-13.0-15.0%	Mo-3.0-4.0%	Cu-0.75%
Fe-Rem		



PN: 0317LF8
.035" - 25# SPOOL

PART NO.	SIZE
0317LF8	.035" - 25# SPOOL

MIG 347

A columbium (niobium) stabilized alloy. The columbium increases resistance to intergranular corrosion.

Chemical Composition		
C-0.08%	Mn-1.0-2.5%	Si-0.30-0.65%
S-0.03%	P-0.03%	Cr-19.0-21.5%
Ni-9.0-11.0%	Mo-0.75%	Nb&Ta-10xCmin-1.0max
Cu-0.75%		
Fe-Rem		



PN: 00347E8
.030" - 25# SPOOL

PART NO.	SIZE
00347E8	.030" - 25# SPOOL
00347F8	.035" - 25# SPOOL
00347H8	.045" - 25# SPOOL

MIG 410

Used for welding alloys of similar compositions; also for overlays on carbon steels to resist corrosion, erosion or abrasion. Usually requires preheat and postheat treatments.

Chemical Composition		
C-0.12%	Mn-0.6%	Si-0.5%
S-0.03%	P-0.03%	Cr-11.5-13.5%
Ni-0.6%	Mo-0.75%	Cu-0.75%
Fe-Rem		



PN: 00410F8
.035" - 25# SPOOL

PART NO.	SIZE
00410F8	.035" - 25# SPOOL
00410H8	.045" - 25# SPOOL



STAINLESS STEEL FLUX CORED

STAINLESS FLUXCORE

Harris Products Group's flux cored stainless wires are precisely formulated for all position versatility with a smooth arc, good wetting and overall operator appeal. Products conform to AWS Specification A5.22

E308LT1-1

Is most frequently used for base metals of similar composition such as AISI Types 301, 302, 304, 305 and 308.



PN: 308LFCH8
.045" - 25# SPOOL

PART NO.	SIZE
308LFCF5	.035" - 10# SPOOL
308LFCF8	.035" - 25# SPOOL
308LFCH8	.045" - 25# SPOOL
308LFC38	1/16" - 25# SPOOL

Product	Chemical Composition					
E308LT1-1	C-0.04%	Mn-0.5-2.5%	Si-1%	S-0.03%	P-0.04%	Cr-18.0-21.0%
	Ni-9.0-11.0%	Mo-0.5%	Cu-0.5%	Fe-Rem		

E309LT1-1

Is most frequently used for welding similar alloys in wrought or cast form; occasionally, to weld Type 304 base metals when severe corrosion conditions exist; and, at times, welding dissimilar steels.



PN: 309LFCF8
.035" - 25# SPOOL

PART NO.	SIZE
309LFCF8	.035" - 25# SPOOL
309LFCH8	.045" - 25# SPOOL
309LFC38	1/16" - 25# SPOOL

Product	Chemical Composition					
E309LT1-1	C-0.04%	Mn-0.5-2.5%	Si-1%	S-0.03%	P-0.04%	Cr-22.0-25.0%
	Ni-12.0-14.0%	Mo-0.5%	Cu-0.5%	Fe-Rem		

E316LT1-1

Is most frequently used for welding similar alloys (containing about 2% molybdenum); also for high temperature service applications (the presence of molybdenum provides increased creep resistance at elevated temperatures).



PN: 316LFCH8
.045" - 25# SPOOL

PART NO.	SIZE
316LFCF8	.035" - 25# SPOOL
316LFCH8	.045" - 25# SPOOL

Product	Chemical Composition					
E316LT1-1	C-0.04%	Mn-0.5-2.5%	Si-1%	S-0.03%	P-0.04%	Cr-17.0-20.0%
	Ni-11.0-14.0%	Mo-2.0-3.0%	Cu-0.5%	Fe-Rem		



TIG 308

Most frequently used for base metals of similar composition.

Chemical Composition		
C-0.08%	Mn-1.0-2.5%	Si-0.30-0.65%
S-0.03%	P-0.03%	Cr-19.5-22.0%
Ni-9.0-11.0%	Mo-0.75%	Cu-0.75%
Fe-Rem		



PN: 0308T30
1/16" x 36" - 10# PKG

PART NO.	SIZE
0308TE0	.030" x 36" - 10# PKG
0308TF0	.035" x 36" - 10# PKG
0308TH0	.045" x 36" - 10# PKG
0308T30	1/16" x 36" - 10# PKG
0308T50	3/32" x 36" - 10# PKG
0308T60	1/8" x 36" - 10# PKG
0308T70	5/32" x 36" - 10# PKG
0308T80	3/16" x 36" - 10# PKG
POP PART NO.	SIZE
0308T305POP	1/16" x 36" - 5# PKG

TIG 308L

Similar usage as 308, but the 0.03% maximum carbon content increases resistance to intergranular corrosion.

Chemical Composition		
C-0.03%	Mn-1.0-2.5%	Si-0.30-0.65%
S-0.03%	P-0.03%	Cr-19.5-22.0%
Ni-9.0-11.0%	Mo-0.75%	Cu-0.75%
Fe-Rem		



PN: 308LT30
.045" x 36" - 10# PKG

PART NO.	SIZE
308LTE0	.030" x 36" - 10# PKG
308LTF0	.035" x 36" - 10# PKG
308LTH0	.045" x 36" - 10# PKG
308LT30	1/16" x 36" - 10# PKG
308LT50	3/32" x 36" - 10# PKG
308LT60	1/8" x 36" - 10# PKG
308LT70	5/32" x 36" - 10# PKG
308LT80	3/16" x 36" - 10# PKG
POP PART NO.	SIZE
308LT300POP	1/16" x 36" - 1# PKG
308LT500POP	3/32" x 36" - 1# PKG
308LT600POP	1/8" x 36" - 1# PKG
308LT303POP	1/16" x 36" - 3# PKG
308LT503POP	3/32" x 36" - 3# PKG
308LT603POP	1/8" x 36" - 3# PKG
308LT505POP	3/32" x 36" - 5# PKG

TIG 308LSi

Similar usage as the above, but the 0.65-1.00% silicon content improves wash and wetting behavior in the GTAW welding process.

Chemical Composition		
C-0.03%	Mn-1.0-2.5%	Si-0.65-1.0%
S-0.03%	P-0.03%	Cr-19.5-22.0%
Ni-9.0-11.0%	Mo-0.75%	Cu-0.75%
Fe-Rem		



PN: 308ST50
3/32" x 36" - 10# PKG

PART NO.	SIZE
308ST30	1/16" x 36" - 10# PKG
308ST50	3/32" x 36" - 10# PKG
308ST60	1/8" x 36" - 10# PKGS
POP PART NO.	SIZE
308ST3011POP	1/16" x 36" S/S - 1# PKG
308ST5011POP	3/32" x 36" S/S - 1# PKG
308ST6011POP	1/8" x 36 S/S - 1# PKG

TIG 309

Used for welding similar alloys in wrought or cast form; occasionally used for welding 18-8 base metals when severe corrosion conditions exist; and, at times, welding dissimilar steels.

Chemical Composition		
C-0.12%	Mn-1.0-2.5%	Si-0.30-0.65%
S-0.03%	P-0.03%	Cr-23.0-25%
Ni-12.0-14.0%	Mo-0.75%	Cu-0.75%
Fe-Rem		



PN: 0309T50
3/32" x 36" - 10# PKG

PART NO.	SIZE
0309T30	1/16" x 36" - 10# PKG
0309T50	3/32" x 36" - 10# PKG
0309T60	1/8" x 36" - 10# PKG

TIG 309L

The 309L grade is similar to 309 except for the lower carbon content, (.03% maximum) which reduces the possibility of carbide precipitation which can cause weld corrosion.

Chemical Composition		
C-0.03%	Mn-1.0-2.5%	Si-0.30-0.65%
S-0.03%	P-0.03%	Cr-23.0-25.0%
Ni-12.0-14.0%	Mo-0.75%	Cu-0.75%
Fe-Rem		



PN: 309LT30
.045" x 36" - 10# PKG

PART NO.	SIZE
309LTH0	.045" X 36" - 10# PKG
309LT30	1/16" x 36" - 10# PKG
309LT50	3/32" x 36" - 10# PKG
309LT60	1/8" x 36" - 10# PKG
309LT70	5/32" x 36" - 10# PKG
POP PART NO.	SIZE
309LT303POP	1/16" x 36" - 3# PKG
309LT503POP	3/32" x 36" - 3# PKG
309LT603POP	1/8" x 36" - 3# PKG



STAINLESS STEEL GTAW (TIG)

TIG 310

Most frequently used to weld base metals of similar composition.

Chemical Composition		
C-.08-.15%	Mn-1.0-2.5%	Si-.30-.65%
S-.03%	P-.03%	Cr-25.0-28%
Ni-20.0-22.5%	Mo-.75%	Cu-.75%
Fe-Rem		



PN: 0310T30
1/16" x 36"

PART NO.	SIZE
0310T30	1/16" x 36" - 10# PKG
0310T50	3/32" x 36" - 10# PKG

TIG 312

Most frequently used to weld base metals of similar composition. Also good for welding dissimilar steels.

Chemical Composition		
C-.15%	Mn-1.0-2.5%	Si-.30-.65%
S-.03%	P-.03%	Cr-28.0-32%
Ni-8.0-10.5%	Mo-.75%	Cu-.75%
Fe-Rem		



PN: 0312T30
1/16" x 36" - 10# PKG

PART NO.	SIZE
0312T30	1/16" x 36" - 10# PKG
0312T50	3/32" x 36" - 10# PKG
0312T60	1/8" x 36" - 10# PKG
0312TH0	.045" x 36" - 10# PKG

TIG 316

Usually used for welding similar alloys (containing about 2% molybdenum); also for high temperature service applications.

Chemical Composition		
C-.08%	Mn-1.0-2.5%	Si-.30-.65%
S-.03%	P-.03%	Cr-18.0-20.0%
Ni-11.0-14.0%	Mo-.75%	Cu-.75%
Fe-Rem		



PN: 0316T30
1/16" x 36" - 10# PKG

PART NO.	SIZE
0316TH0	.045" x 36" - 10# PKG
0316T30	1/16" x 36" - 10# PKG
0316T50	3/32" x 36" - 10# PKG
0316T60	1/8" x 36" - 10# PKG

TIG 316L

Used principally for welding molybdenum-bearing austenitic alloys containing 0.03% maximum carbon.

Chemical Composition		
C-.03%	Mn-1.0-2.5%	Si-.30-.65%
S-.03%	P-.03%	Cr-18.0-20.0%
Ni-11.0-14.0%	Mo-2.0-3.0%	Cu-.75%
Fe-Rem		



PN: 316LTE0
.030" x 36"



PN: 316LT303POP
1/16" x 36" - 3# PKG

PART NO.	SIZE
316LTE0	.030" x 36" - 10# PKG
316LTF0	.035" x 36" - 10# PKG
316LTH0	.045" x 36" - 10# PKG
316LT30	1/16" x 36" - 10# PKG
316LT50	3/32" x 36" - 10# PKG
316LT60	1/8" x 36" - 10# PKG
316LT70	5/32" x 36" - 10# PKG
316LT80	3/16" x 36" - 10# PKG
POP PART NO.	SIZE
316LT303POP	1/16" x 36" - 3# PKG
316LT503POP	3/32" x 36" - 3# PKG
316LT603POP	1/8" x 36" - 3# PKG

TIG 316LSI

Similar usage as 316L, but the 0.65-1.00% silicon content improves wash and wetting behavior in the gas shielded welding processes.

Chemical Composition		
C-.03%	Mn-1.0-2.5%	Si-.65-1.0%
S-.03%	P-.03%	Cr-18.0-20.0%
Ni-11.0-14.0%	Mo-2.0-3.0%	Cu-.75%
Fe-Rem		



PN: 316ST50
3/32" x 36"

PART NO.	SIZE
316ST30	1/16" x 36" - 10# PKG
316ST50	3/32" x 36" - 10# PKG
316ST60	1/8" x 36" - 10# PKG
POP PART NO.	SIZE
316ST3011POP	1/16" x 36" S/S - 1# PKG
316ST5011POP	3/32" x 36" S/S - 1# PKG
316ST6011POP	1/8" x 36" S/S - 1# PKG

TIG 317L

The alloy content is somewhat higher than for ER316, particularly in molybdenum. The 0.03% maximum carbon content increases resistance to intergranular corrosion due to carbide precipitation. Severe corrosion resistance to sulfuric and sulfurous acids and their salts.

Chemical Composition		
C-.03%	Mn-1.0-2.5%	Si-.30-.65%
S-.03%	P-.03%	Cr-18.5-20.5%
Ni-13.0-15.0%	Mo-3.0-4.0%	Cu-.75%
Fe-Rem		



PN: 317LT70
5/32" x 36" - 10# PKG

PART NO.	SIZE
317LT30	1/16" x 36" - 10# PKG
317LT50	3/32" x 36" - 10# PKG
317LT60	1/8" x 36" - 10# PKG
317LT70	5/32" x 36" - 10# PKG



TIG 347

A niobium (columbium) stabilized alloy. The niobium increases resistance to intergranular corrosion.

Chemical Composition		
C-.08%	Mn-1.0-2.5%	Si-.30-.65%
S-.03%	P-.03%	Cr-19.0-21.5%
Ni-9.0-11.0%	Mo-.75%	Nb&Ta-10xCmin-1.0max
Cu-.75%	Fe-Rem	



PN: 0347TTH0
.045" x 36" - 10# PKG

PART NO.	SIZE
0347TF0	.035" x 36" - 10# PKG
0347TH0	.045" x 36" - 10# PKG
0347T30	1/16" x 36" - 10# PKG
0347T50	3/32" x 36" - 10# PKG
0347T60	1/8" x 36" - 10# PKG

TIG 410

Used for welding alloys of similar compositions; also for overlays on carbon steels to resist corrosion, erosion or abrasion. Usually requires preheat and postheat treatments.

Chemical Composition		
C-.12%	Mn-.6%	Si-.5%
S-.03%	P-.03%	Cr-11.5-13.5%
Ni-.6%	Mo-.75%	Cu-.75%
Fe-Rem		



PN: 0410T50
3/32" x 36" - 10# PKG

PART NO.	SIZE
0410T30	1/16" x 36" - 10# PKG
0410T50	3/32" x 36" - 10# PKG

ER630 (17-4PH)

The composition of this filler metal is designed primarily for welding ASTM A 564 Type 630 and some other precipitation - hardening stainless steels.

Chemical Composition		
C-.05%	Mn-.25-.75%	Si-.75%
S-.03%	P-.03%	Cr-16.0-16.75%
Ni-4.5-5.0%	Mo-.75%	Nb&Ta-.15-0.30
Cu-3.25-4.00%	Fe-Rem	



PN: 174PH30
1/16" x 36"

PART NO.	SIZE
174PH30	1/16" x 36" - 10# PKG
174PH50	3/32" x 36" - 10# PKG

STAINLESS STEEL ELECTRODES

308L STAINLESS ELECTRODES

Applications:

Similar usage as 308, but the 0.04% maximum carbon content increases resistance to intergranular corrosion. Conforms to AWS A5.4.

Chemical Composition		
C-.04%	Mn-.5-2.5%	Si-.9%
S-.03%	P-.04%	Cr-18.0-21.0%
Ni-9.0-11.0%	Mo-.75%	Cu-.75%
Fe-Rem		



PN: 308L630
1/16" x 10 - 5# PKG

PART NO.	SIZE
308L630	1/16" x 10" - 5# PKG
308L650	3/32" x 12" - 10# PKG
308L660	1/8" x 14" - 10# PKG
308L670	5/32" x 14" - 10# PKG
308L680	3/16" x 14" - 10# PKG

309 STAINLESS ELECTRODES

Applications:

Used for welding similar alloys in wrought or cast form; occasionally used for welding Type 304 and similar base metals when severe corrosion conditions exist; and, at times, welding dissimilar steels. Conforms to AWS A5.4.

Chemical Composition		
C-.15%	Mn-.5-2.5%	Si-.9%
S-.03%	P-.04%	Cr-22.0-25.0%
Ni-12.0-14.0%	Mo-.75%	Cu-.75%
Fe-Rem		



PN: 3091650
3/32" x 12" - 10# PKG

PART NO.	SIZE
3091650	3/32" x 12" - 10# PKG
3091660	1/8" x 14" - 10# PKG
3091670	5/32" x 14" - 10# PKG



STAINLESS STEEL ELECTRODES

309L STAINLESS ELECTRODES

Applications:

Similar usage as 309, but the 0.04% maximum carbon content increases resistance to intergranular corrosion. Conforms to AWS A5.4.

Chemical Composition		
C-.04%	Mn-.5-2.5%	Si-.9%
S-.03%	P-.04%	Cr-22.0-25.0%
Ni-12.0-14.0%	Mo-.75%	Cu-.75%
Fe-Rem		



PN: 309L650
3/32" x 12" - 10# PKG

PART NO.	SIZE
309L650	3/32" x 12" - 10# PKG
309L660	1/8" x 14" - 10# PKG
309L670	5/32" x 14" - 10# PKG

310 STAINLESS ELECTRODES

Applications:

Most frequently used to weld base metals of similar composition. Conforms to AWS A5.4.

Chemical Composition		
C-.08%	Mn-1.0-2.5%	Si-.75%
S-.03%	P-.04%	Cr-25.0-28.0%
Ni-20.0-22.5%	Mo-.75%	Cu-.75%
Fe-Rem		



PN: 3101660
1/8" x 14" - 10# PKG

PART NO.	SIZE
3101650	3/32" x 12" - 10# PKG
3101660	1/8" x 14" - 10# PKG
3101670	5/32" x 14" - 10# PKG
3101680	3/16" x 14" - 10# PKG

312 STAINLESS ELECTRODES

Applications:

Most frequently used to weld cast alloys of similar composition and to weld dissimilar steels. Conforms to AWS A5.4.

Chemical Composition		
C-.15%	Mn-.5-2.5%	Si-.9%
S-.03%	P-.04%	Cr-28.0-32.0%
Ni-8.0-10.5%	Mo-.75%	Cu-.75%
Fe-Rem		



PN: 3121650
3/32" x 12" - 10# PKG

PART NO.	SIZE
3121650	3/32" x 12" - 10# PKG
3121660	1/8" x 14" - 10# PKG
3121670	5/32" x 14" - 10# PKG

316L STAINLESS ELECTRODES

Applications:

Used principally for welding molybdenum - bearing austenitic alloys containing 0.03% maximum carbon. Conforms to AWS A5.4.

Chemical Composition		
C-.04%	Mn-.5-2.5%	Si-.9%
S-.03%	P-.04%	Cr-17.0-20.0%
Ni-11.0-14.0%	Mo-2.0-3.0%	Cu-.75%
Fe-Rem		



PN: 316L630
1/16" x 10" - 5# PKG

PART NO.	SIZE
316L630	1/16" x 10" - 5# PKG
316L650	3/32" x 12" - 10# PKG
316L660	1/8" x 14" - 10# PKG
316L670	5/32" x 14" - 10# PKG
316L680	3/16" x 14" - 10# PKG

347 STAINLESS ELECTRODES

Applications:

A stabilized 18-8, 19-9 alloy that is not subject to intergranular corrosion due to carbide precipitation. Conforms to AWS A5.4.

Chemical Composition		
C-.08%	Mn-.5-2.5%	Si-.90%
S-.03%	P-.04%	Cr-18.0-21.0%
Ni-9.0-11.0%	Mo-.75%	Cb&Ta-8xCmin-1.00max
Cu-.75%	Fe-Rem	



PART NO.	SIZE
3471650	3/32" x 12" - 10# PKG

410 STAINLESS ELECTRODES

Applications:

Used for welding alloys of similar compositions; also for surfacing of carbon steels to resist corrosion, erosion or abrasion. Usually requires preheat and postheat treatments. Conforms to AWS A5.4.

Chemical Composition		
C-.12%	Mn-1%	Si-.9%
S-.03%	P-.04%	Cr-11.0-13.5%
Ni-.7%	Mo-.75%	Cu-.75%
Fe-Rem		



PART NO.	SIZE
4101660	1/8" x 14" - 10# PKG

STAINLESS STEEL FILLER METAL SELECTOR GUIDE



BASE METAL GRADE	442	430F	430	501	416	403	321	317	316L	316	314	310	309	304L	303	201	MILD STEEL
	446	430 FSE	431	502	418 SE	405 410 420 414	348 347					310S	309S		303 303 SE	202 301 302 302B 304 305 308	
201-202-301 302-302B-304 305-308	310 312 309	310 312 309	310 312 309	310 312 309	309 310 312	309 310 312	308	308	308	308	308	308	308	308	308	308	312 310 309
303 303SE	310 309 312	310 309 312	310 309 312	310 309 312	309 310 312	309 310 312	308	308	308	308	308	308	308	308	312 308-15	308	312 310 309
304L	310 309 312	310 309 312	310 309 312	310 309 312	309 310 312	309 310 312	308	308	308L	308	308	308	308	308L	308	308	312 310 309
309 309S	310 309 312	310 309 312	310 309 312	310 309 312	309 310 312	309 310 312	308	317 316 309	316	316	309	309	308	308	308	308	309 310 312
310 310S	310 309 312	310 309 312	310 309 312	310 309 312	310 309 312	310 309 312	309	317 316 309	316	316	310	310	309 310	309	309	309	310 309 312
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316	310 309 312	310 309 312	310 309 312	310 309 312	309 310 312	309 310 312	308	316	316	316	309 310 316	310 309 316	309 310 316	309 316	309 316	309 316	309 310 312
316L	310 309 312	310 309 312	310 309 312	310 309 312	310 309 312	310 309 312	308	316 317 308	316L	316	309 310 316	310 309 316	316 309	308 316	308 316	308 316	308 310 312
317	310 309 312	310 309 312	310 309 312	310 309 312	309 310 312	309 310 312	308	317	316 308	316 308	309 310 317	317 316 309	317 316 309	308 316 317	308 316 317	308 316 317	309 310 312
321 348 347	310 309 312	310 309 312	310 309 312	310 309 312	309 310 312	309 310 312	347 308	308 347	347 308	347 308	309 310 347	347 308	347 308	347 308L	347 308	347 308	309 310 312
403-405 410-420 414	310 309 312	310 309 312	310 309 312	310 309 312	309 310	410* 309**	309 310	309 310	309 310	309 310	310 309	310 309	309 310	309 310	309 310	309 310	309 310 312
416 416SE	310 309	310 309	310 309	310	410* 309** 310**	309 310 310	309 310 312	309 310 312	309 310 312	309 310 312	309 310 312	310 309 312	309 310 312	309 310 312	309 310 312	309 310 312	309 310 312
501 502	310	310	310	502* 310**	310	310	310 309	310 309	310 309	310 309	310 309	310 309	310 309	310 309	310 309	310 309	310 312 309
430 431	310 309	310 309	430 310** 309**	310	310	310 309	310 309	310 309	310 309	310 309	310 309	310 309	310 309	310 309	310 309	310 309	310 309 312
430F 430FSE	310 309	410* 309	310 309	310 309	310 309 312	310 309 312	309 310 312	309 310 312	310 309 312	310 309 312	310 309 312	310 309 312	310 309 312	310 309 312	310 309 312	310 309 312	310 309 312
442 446	309 310	309 310 312	310 309 312	310 309 312	310 309 312	310 309 312	310 309 312	310 309 312	310 309 312	310 309 312	310 309 312	310 309 312	310 309 312	310 309 312	310 309 312	310 309 312	310 309 312

*Preheat

** No Preheat Necessary

The first numbers indicated first choice, subsequent numbers indicate second and third choice. This choice can vary with specific applications and individual job requirements.



WELDING PARAMETERS FOR STAINLESS STEEL

GTAW (TIG)

Argon is suggested for most GTAW (TIG) welding applications.

For Oxy-Acetylene welding, employ a neutral flame and use Stainflux

MATERIAL THICKNESS	WIRE SIZE	WELDING CURRENT (AMPS)	GAS CUP	ARGON, cfh	TUNGSTEN, THORIATED
1/16"	1/16"	80 - 120	3/8"	20	1/16"
3/32"	1/16"	100 - 130	3/8"	20	1/16"
1/8"	1/16"	120 - 150	7/16"	20	3/32"
3/16"	3/32"	150 - 250	7/16"	25	3/32"
1/4"	1/8"	200 - 350	1/2"	25	1/8"
1/2"	1/8"	235 - 375	1/2"	25	1/8"

GMAW (MIG), Short Circuit Transfer: 90% Helium + 7.5% Argon + 2.5% CO₂ has no effect on corrosion resistance; provides small heat-affected zone; no undercutting; and minimum distortion.

WIRE SIZE	WELDING CURRENT (AMPS)	ARC VOLTAGE	WIRE FEED SPEED, IPM
.030"	60-125	17-22	150-430
.035"	75-160	17-22	120-400
.045"	100-200	17-22	100-240

GMAW (MIG), Spray Transfer: 99% Argon - 1% Oxygen is predominantly used. This mixture improves arc stability; produces more fluid and controllable weld puddle with good bead contour. Undercutting is minimized on heavier sections. 98% Argon - 2% Oxygen provides better arc stability and welding speed than the 1% Oxygen mixture for thinner stainless steel materials.

WIRE SIZE	WELDING CURRENT (AMPS)	ARC VOLTAGE	WIRE FEED SPEED, IPM
.030"	160-225	24-28	440-650
.035"	180-300	24-29	430-500
.045"	200-450	24-30	220-400
1/16"	220-500	24-32	110-210
3/32"	250-600	24-32	50-80

FCAW

WIRE DIA.	WELD POSITION	TYPE OF JOINT	PLATE THICKNESS	AMPERAGE	VOLTAGE
.035"	Flat	Butt	1/8"	70-90	25-27
.035"	Flat	Butt	1/4"	120-130	26-29
.035"	Flat	Fillet	1/4"	110-130	26-29
.035"	Vertical Up	Butt & Fillet	3/8"	70-90	22-25
.035"	Horizontal	Butt	3/32"	100-120	24-27
.035"	Overhead	Fillet	3/8"	150-200	26-28
.045"	Flat	Butt	1/4"	180-200	29-32
.045"	Flat	Fillet	3/8"	170-200	28-32
.045"	Vertical Up	Butt & Fillet	3/8"	110-140	21-24
.045"	Horizontal	Butt	1/4"	150-180	26-30
.045"	Overhead	Fillet	3/8"	150-180	26-30
1/16"	Flat	Butt	1/4"	210-220	27-30
1/16"	Flat	Fillet	3/8"	220-250	27-31
1/16"	Vertical Up	Butt & Fillet	3/8"	130-160	21-24
1/16"	Horizontal	Butt	1/4"	150-200	27-30
1/16"	Overhead	Fillet	3/8"	150-200	27-30

Shielding gases for stainless steel flux cored welding wires:

HPG's flux cored stainless wires can be used with 100% CO₂ or a mixture of 75% Argon and 25% CO₂. Higher concentrations of Argon are sometimes used, but the wire has been qualified in 100% CO₂ and 75/25 only. If higher percentages of Argon are used, qualification would be required by the user. Argon mixtures offer a smoother arc and greater operator appeal.



NIC-L-WELD 59 ELECTRODES

Nickel-Iron alloy electrode (AC-DC). A general purpose, nickel-iron electrode for production, salvage and repair of all cast irons.

Procedure:

- Use AC or DC reverse polarity
- Vee out cracks
- Preheat heavy castings to approximately 400°F for best results
- Direct the arc upon deposited metal with the electrode at a slight angle in the direction of travel
- Lightly peen between passes and use a skip or back-step welding technique. Allow casting to cool slowly

Features:

- Conforms to AWS A5.15, ENiFeCl
- Close color match
- Good machinability

Classification	Chemical Composition							
ENi-Cl	C-2.0%	Mn-2.5%	Si-4.0%	S-0.03%	Ni-85min	Cu-2.5%	Al-1.0%	Fe-8.0%
ENi-Cl-A	C-2.0%	Mn-2.5%	Si-4.0%	S-0.03%	Ni-85min	Cu-2.5%	Al-1.0-3.0%	Fe-8.0%
ENiFe-Cl	C-2.0%	Mn-2.5%	Si-4.0%	S-0.03%	Ni-45-60%	Cu-2.5%	Al-1.0%	Fe-Rem

Application:

NIC-L-WELD 59 is suited to joining, filling and buildup of gray and alloyed cast irons. It can be used for fabrication and repair of pump housings, valves, castings, cast and malleable fittings, and for general repair of all cast irons. Deposits are machinable and have high strength.



PN: NLW5960
1/8" - 10# PKG

PART NO.	SIZE
NLW5950	3/32" - 10# PKG
NLW5960	1/8" - 10# PKG
NLW5970	5/32" - 10# PKG
NLW5980	3/16" - 10# PKG

WIRE SIZE	WELDING CURRENT (AMPS)
3/32"	50 - 80
1/8"	80 - 120
5/32"	110 - 140
3/16"	130 - 170

99 NICKEL (TIG)

GTAW alloy for cast iron. General purpose, high nickel alloy electrode for production and repair of cast iron.

Procedure:

- AC or DC reverse or straight polarity
- Hold a short arc
- Clean the weld area
- Run stringer beads
- Bevel breaks and cracks
- Skip or back-step weld
- Bevel deep enough so the first pass ties
- Peen to relieve stresses in the bottom of the crack
- Slow cool
- Preheating is typically not necessary
- Preheat heavy sections to approximately 400°F

Features:

- Excellent machinability
- All position
- Close color match

Chemical Composition				
C-3.00-3.50%	Mn-0.60-0.75%	Si-2.75-3.00%	S-0.10max%	
P-0.50-0.75	Ni-85min	Cu-2.5	Al-1.0	Other-1.0

Application:

Has excellent compatibility for cast iron. It yields clean, strong, ductile, easy machined deposits. The arc has the quiet stability provided by the inert gas process. 99 offers a smooth, even bead contour for joining, buildup and cladding. It can also be used for joining cast iron to steel.



PN: NI99T60
1/8" X 36" - 5# PKG

PART NO.	SIZE
NI99T30	1/16" x 36" - 5# PKG
NI99T50	3/32" x 36" - 5# PKG
NI99T60	1/8" x 36" - 5# PKG

WIRE SIZE	WELDING CURRENT (AMPS)
3/32"	30 - 70
1/8"	70 - 110

NIC-L-WELD 99 ELECTRODES (AC-DC)

A general purpose, high nickel electrode for production and repair of cast iron.

Procedure:

- Use AC or DC reverse or straight polarity. Clean the weld area
- Bevel breaks and cracks deep enough so the first pass ties in the bottom of the crack
- In most cases, preheating is not necessary, but heavy sections should be preheated to approximately 400°F
- Use a short arc. Stringer beads are recommended
- Skip or back-step weld and peen to relieve stresses. Allow the casting to cool slowly

Features:

- Conforms to AWS A5.15, ENiCl
- Close color match
- Excellent machinability

Chemical Composition				
C-2.0%	Mn-2.5%	Si-4.0%	S-0.03%	Fe-8.0

Application:

NIC-L-WELD 99 is for building up, joining, filling holes, breaks and cracks in all types of cast iron. It has very good out-of-position welding characteristics. Parts are frequently repaired without dismantling.



PN: NLW9960
1/8" - 10# PKG

PART NO.	SIZE
NLW9950	3/32" - 10# PKG
NLW9960	1/8" - 10# PKG
NLW9970	5/32" - 10# PKG
NLW9980	3/16" - 10# PKG

WIRE SIZE	WELDING CURRENT (AMPS)
3/32"	30 - 70
1/8"	70 - 110
5/32"	90 - 130
3/16"	110 - 160



SUPER MISSILEWELD

The ultimate electrode for welding steels with highest strength and maximum ductility (AC/DC) Assures non-cracking welds on "problem" steels such as high carbon steels; tool steels; stainless steels; spring steels; manganese steels; and dissimilar steels. Super Missileweld is particularly advantageous when the alloy content of the steel to be welded is known. This unique electrode is so versatile that its applications are virtually too multiple in number to specify. For years, it has been a maintenance and repair "stand-by" in every industry throughout the world.

Procedure:

- Use either AC or DC reverse polarity
- Clean weld area
- Bevel heavy sections
- For high carbon steels, a preheat of 400°F is recommended
- Hold a short arc
- Run stringer beads
- Peening will help relieve stresses
- Let each pass cool and slag will peel off easily

Features:

- Tensile strength - 108,000 psi
- Yield strength - 76,000 psi
- Reduction of area - 30%
- Charpy V notch - 75 ft/# @ room temperature
- Rockwell B hardness - 93 - 102 HRB
- Brinell hardness - 200 - 300 HB
- Elongation - 24%
- Frictional resistance - Excellent
- Abrasive resistance - Mild
- Will not respond to heat treatment

3SMW

A gas tungsten arc (TIG) form of Super Missileweld used for joining or overlay on a variety of ferrous metals.

PART NO.	SIZE
03SMW30	1/16" x 14" - 10# PKG
03SMW50	3/32" x 14" - 10# PKG
03SMW60	1/8" x 14" - 10# PKG
ULSMW60	1/8" x 14" - 10 PKG

WIRE SIZE	WELDING CURRENT (AMPS)
1/16"	800 - 120
3/32"	100 - 130
1/8"	120 - 150



PN: 03SMW30
1/16" x 14" - 10# PKG

PART NO.	SIZE
00SMW50	3/32" x 36" - 5# PKG
00SMW60	1/8" x 36" - 10# PKG
00SMW70	5/32" x 36" - 10# PKG



PN: 00SMW50
3/32" x 36" - 5# PKG

17 , 17FC

A high strength, thin flowing, Nickel silver brazing steel. Used in some cast iron, maintenance, and repair applications where close fitting joints are used. Used on drill bits and drill bit extensions, tubular steel, furniture repairs, milling cutters, and broaches. A substitute for silver braze alloys in high temperature applications.

Procedure:

- Clean braze area
- HARRIS 17 is usually used for a butt joint with little preparation except cleaning and grinding the surface
- Bevel heavier sections
- Use a neutral flame
- Hold the flame cone close to the joining area
- Use HARRIS 17 FLUX
- Remove flux residue with a wire brush and hot water

Features:

- Tensile strength - Up to 95,000 psi
- Solidus - 1690°F
- Liquidus - 1715°F
- Color - silvery

PART NO.	SIZE
0001730	1/16" x 18" - 5# PKG
017FC60	1/8" x 18" - 5# PKG



PN: 017FC60
1/8" x 18" - 5# PKG
17FC N/S Green



65 NICKEL IRON ELECTRODES

Premium nickel-iron alloy electrode (AC-DC). For gray and alloyed cast iron. 65 Nickel is for the repair of all types of cast iron. It yields dense, strong, yet totally machinable deposits. It is ideal for the repair of "Meehanite", "Ni-Resist", ductile iron and for the joining of cast iron to steel. Typical applications embody the repair of castings, housings, gear teeth, motor, machine bases, etc.

Procedure:

- Use AC or DC reverse polarity with a short arc. Prepare the weld joint by cleaning and beveling as required
- Use HARRIS CHAMFER ARC for grooving. Tack weld cracks and drill small holes at each end of cracks to stop further cracking
- Generally, preheating is not necessary, particularly on thin sections; however, preheat of 400°F - 500°F is suggested in the welding of heavier castings
- Stringer beads are preferred; however, slight weaving may be used
- Skip or back-step weld. Short deposits no longer than 1 1/2" are recommended
- Peen each bead while still hot to stress relieve. Allow casting to cool slowly

Features:

- Tensile strength - Up to 72,000 psi
- Spatter free, high-density, ductile deposits
- Good machinability - BHN 190-220
- Thin sections - Alternate choice
- Multiple passes - First choice
- Welding under restraint - First choice
- Close color match
- Ductility - First choice
- Thick sections - First choice
- Cast iron to steel - First choice

PART NO.	SIZE
0006550	3/32" - 5# PKG
0006560	1/8" - 5# PKG
0006570	5/32" - 5# PKG

WIRE SIZE	WELDING CURRENT (AMPS)
3/32"	30 - 70
1/8"	50 - 100
5/32"	75 - 125



PN: 0006550
3/32" - 5# PKG

Chemical Composition			
C-3.00-3.50%	Mn-0.60-0.75%	Si-2.75-3.00%	S-0.10max%
P-0.50-0.75	Ni-85min	Cu-2.5	Al-1.0
Other-1.0			

111 KASTWELD

A square oxy-fuel, high quality, low cost, cast iron welding rod. A precisely balanced ratio of silicon and carbon assures a fluid weld metal deposit with similar physical properties to gray cast iron. Kastweld deposits are easily machined and closely match the color of the base metal. It is excellent for cast iron fabrication; repairing foundry defects; and for filling in or building up new or worn castings. Conforms to AWS A5.15 grade RCI

Procedure:

- Adjust torch to a neutral flame
- Puddle the molten metal with flame to eliminate porosity
- Play the torch back over the welded area when finished to relieve strain
- Slow cool

Features:

- Fluid weld metal deposit
- Physical properties similar to gray cast iron
- Excellent machinability
- Color match

PART NO.	SIZE
0011180	3/16" - 50# SPECIAL ORDER
0011190	1/4" - 50#



PN: 0011190
1/4" RCI SPEC

Chemical Composition			
C-3.00-3.50%	Mn-0.60-0.75%	Si-2.75-3.00%	S-0.10max%
P-0.50-0.75	Ni-85min	Cu-2.5	Al-1.0
Other-1.0			

ALLOY 26

Alloy 26 features a precise combination of core wire and coating, providing high speed deposition of dense, machinable welds. Fabrication and repair of cast and wrought aluminum. Foundry defects, machining errors, and salvage work. It is widely used on sheets, tubes and extrusions. Also suited for torch applications.

Procedure:

- Clean weld area
- Bevel sections greater than 1/4"
- Preheat - 500° F is recommended on sections greater than 1/8"
- DC - reverse polarity
- Hold electrode in a vertical position
- Remove flux between passes
- Clean with hot water; add 10% sulfuric acid to water if additional cleaning is required

Features:

- Tensile strength - Up to 34,000 psi
- Good color match
- Good corrosion resistance
- Good electrical conductivity
- Machinable
- All position

PART NO.	SIZE
0002650	3/32" - 5# PKG
0002660	1/8" - 5# PKG
0002670	5/32" - 5# PKG

WIRE SIZE	WELDING CURRENT (AMPS)
3/32"	50 - 85
1/8"	85 - 135
5/32"	110 - 165



PN: 0002660
1/8" - 5# PKG



MAINTENANCE & REPAIR

TUF KUT

A composite rod which deposits hard carbide particles, providing the utmost resistance to abrasive wear.

Features:

- Maxtrix hardness - 220 BHN
- Carbide hardness - RA 88 to 91
- For best results, deposit on a thin layer of 17FC

PART NO.	SIZE
TFKUT90	3/16" x 14"



3AH

Harris 3AH tool steel is used to weld AISI A2 - A6 air hardening tool steels. Preheat the part to as high a temperature as is consistent with the final hardness requirements, preferably in the range of 300^o-1000^oF (250^o-538^oC). Post heat or temper the deposit as per the chart.

RC Hardness As Deposited	Preheat	Anneal	Harden	Post-Heat	Quench
48-52	300 ^o F to 1000 ^o F	1500 ^o F to 1600 ^o F	1750 ^o F to 1850 ^o F	300 ^o F to 1000 ^o F	Air

PART NO.	SIZE
003AH30	1/16" x 36" T/S TIG - 5# PKG



CUT ROD

Metal working electrode (AC-DC). For cutting and piercing any metal. Use with regular arc welding equipment. No air or oxygen required. Cut Rod cuts all metals and alloys including stainless steel, cast iron, aluminum, copper, brass & bronze. It is used for piercing holes, enlarging openings, trimming metals, removing frozen bolts, removing gates and risers, etc.

Procedure:

- Use AC or DC reverse polarity on regular welding machines
- For cutting, strike an arc at the point where cutting is to begin
- Once the arc is struck, maintain the electrode in contact with the work
- Use a continuous up and down "saw like" motion. Do not maintain an arc gap
- To pierce holes, hold the electrode vertical to the work. Once the arc is struck, push the electrode through the metal
- Rapidly remove the electrode once the hole is pierced. To enlarge the hole, move the electrode in a circular motion

Features:

- The special core wire in Cut Rod has a heat resistant coating which is nonconductive
- This enables you to operate the electrode at higher amps
- It creates a greater blasting action with faster cutting
- Economy is achieved by saving time, fuel and labor

PART NO.	SIZE
CTROD60	1/8" - 25# PKG
CTROD70	5/32" - 25# PKG
CTROD80	3/16" - 25# PKG

WIRE SIZE	WELDING CURRENT (AMPS)
3/32"	80 - 150
1/8"	170 - 300
5/32"	225 - 400
3/16"	250 - 450



PN: CTROD60
1/8" - 25# PKG

MAGNESIUM

Magnesium is welded using GTAW (TIG), welding processes. Harris offers TIG welding consumables in a variety of sizes. Since magnesium rapidly oxidizes when melted proper shielding gas coverage is important. Surfaces and edges adjacent to the weld should be cleaned prior to welding. Available in two grades, A261A and A292A. Conforms to AWS Specification A5.19.

PART NO.	SIZE
AZ61T30	1/16" x 36" - 3# PKG
AZ61T50	3/32" x 36" - 3# PKG
AZ61T60	1/8" x 36" - 3# PKG
AZ61T80	3/16" x 36" - 3# PKG
AZ92T30	1/16" x 36" - 3# PKG
AZ92T50	3/32" x 36" - 3# PKG
AZ92T60	1/8" x 36" - 3# PKG

PN: AZ61T30
1/16" X 36" - 3# PKG



Product	Chemical Composition									
AZ61A	Mn-0.15-.50%	Si-0.05%	Ni-0.005%	Cu-0.05%	Fe-0.005%	Mg-Rem	Zn-0.40-1.5%	Al-5.8-7.2%	Be-0.0002-0.0008%	Other-0.3%
AZ92A	Mn-0.15-.50%	Si-0.05%	Ni-0.005%	Cu-0.05%	Fe-0.005%	Mg-Rem	Zn-1.7-2.3%	Al-8.3-9.7%	Be-0.0002-0.0008%	Other-0.3%

GTAW (TIG) - For manual AC TIG welding, Argon is generally preferred because the arc has good stability. On welding heavier aluminum sections, the addition of Helium may be considered, and arc penetration will increase significantly; however, gas flow rates must be increased when Helium is added.

Filler Diameter	Direct Current (Amps, Straight Polarity, DCEN)	Direct Current (Amps, Reverse Polarity, DCEP)	Alternating Current (Amps, Unbalanced Wave)	Alternating Current (Amps, Balanced Wave)	Gas Cup
.010"	up to 15	-	up to 15	up to 15	1/4"
.020"	5 - 20	-	5 - 15	10 - 20	1/4"
.040"	15 - 80	-	10 - 60	20 - 30	3/8"
1/16"	70 - 150	10 - 20	50 - 100	30 - 80	3/8"
3/32"	150 - 250	15 - 30	100 - 160	60 - 130	1/2"
1/8"	250 - 400	25 - 40	150 - 210	100 - 180	1/2"
5/32"	400 - 500	40 - 55	200 - 275	160 - 240	1/2"
3/16"	500 - 750	55 - 80	250 - 350	190 - 300	5/8"







WELDING CABLE



PART NO.	SIZE
ESSEX CABLE	
5010030	#2 x 500 FT
5010040	#1 x 500 FT
5010050	1/0 x 500 FT
5010060	2/0 x 500 FT
FLEX CABLE	
5040010	#4 HW x 300 FT
5040030	#2 HW x 300 FT
5040040	#1 HW x 300 FT
5040050	1/0 HW x 300 FT
5040060	2/0 HW x 300 FT
5040080	4/0 HW x 300 FT

ROUND SOAPSTONE



PART NO.	SIZE
3011001	ROUND SOAPSTONE

SILVER STREAK HOLDER



PART NO.	SIZE
3011010	SILVER STREAK HOLDER

FLAT SOAPSTONE HOLDER

Flat aluminum holder with adjustable knob



PART NO.	SIZE
3011002	FLAT SOAPSTONE HOLDER

SILVER STREAK PEN HOLDER



PART NO.	SIZE
3021120	SILVER STREAK PEN HOLDER

CUTTING/WELDING TIP CLEANERS

Made of aluminum construction for lightweight use. Fits all tip sizes



PART NO.	SIZE
2010640	STD DELUXE TIP CLEANER
2010690	KING TIP CLEANER
201064PP	STD DELUXE TIP CLEANER
20106961	MET CAL KING TIP CLEANER
201072PP	HW TIP NIP SKPK

FLAT SOAPSTONE



PART NO.	SIZE
3011000	FLAT SOAPSTONE

SILVER STREAK REFILL TUBE



PART NO.	SIZE
3021130	SILVER STREAK REFILL TUBE

ROUND SOAPSTONE HOLDER

Round aluminum holder with a pocket clip. Adjustable tip



PART NO.	SIZE
3011011	ROUND SOAPSTONE HOLDER

SILVER STREAK



PART NO.	SIZE
3021025	SILVER STREAK 25PAK
3021100	SILVER STREAK 100PAK

TEMPILSTIK



PART NO.	SIZE
TPS0200	TEMPIL STIK 200F-93C
TPS0250	TEMPIL STIK 250F-121C
TPS0300	TEMPIL STIK 300F-149C
TPS0350	TEMPIL STIK 350F-177C
TPS0400	TEMPIL STIK 400F-204C



ACCESSORIES

GAUGES



PART NO.	SIZE
BG15100	1 1/2" - 100 PSI
BG1530R	1 1/2" - 30 PSI, RED ZONE
BG15400	1 1/2" - 400 PSI
BG154000	1 1/2" - 4000 PSI U.L.
BG2100	2" - 100 PSI
BG2200	2" - 200 PSI
BG230	2" - 30 PSI
BG230R	2" - 30 PSI, RED ZONE
BG2400	2" - 400 PSI
BG24000	2" - 4000 PSI U.L.
BG25200	2 1/2" - 200 PSI
BG2530R	2 1/2" - 30 PSI, RED ZONE
BG25400	2 1/2" - 400 PSI
BG254000	2 1/2" - 4000 PSI U.L.

WELD FILLET GAUGE



PART NO.	SIZE
MWFG	WELD FILLET GAUGE

GLOVES

Heat resistant, with gauntlet for added protection against sparks and grindings.



PART NO.	SIZE
3040015	COMFOFLEX WELDING GLOVE
3040040	ECONOMY WORK GLOVE SPECIAL ORDER

WELDING HELMETS

Lightweight, with extended lip to deflect spatter. Ratchet type headgear. Black in color.



PART NO.	SIZE
JWH600	PASSIVE BLK HELMET2X4 SH10
JWH602	PASSIVE BLK HELMET4X5 SH10
JWH605	ADF BLK HELMET2X4 FIX SH11
JWH90110	ADF BLK HELMET90X110 SH9-13
JWH90110G	ADF GRAPHIC HELMET 90X110

BRUSHES

An extremely heavy duty brush with hundreds of bristles imbedded in a wood handle in three rows.



PART NO.	SIZE
3041000	SHOE HANDLE BRUSH SS
3042000	LONG HANDLE BRUSH SS
3043000	TOOTH BRUSH STAINLESS ST

FLINTS & LIGHTERS

Economical and dependable. Most popular striker in the welding industry.



PART NO.	SIZE
3090011	3001x UNIV/SGL FLT RNWL 5/HLD
3090000	LIGHTNIN BUG TORCH LIGHT
3090010	3001 UNIV/RND FILE LTR 10/BOX

OXY-ACETYLENE HOSES

Kink proof, double hoses for safety and service. Rugged, flexible hose with neoprene cover. 100 PSI rating. Diameter 1/4", various lengths.



PART NO.	SIZE
6030105	1/4" x 25 BB PREMHOSE GRD R
6030106	1/4" x 50 BB PREMHOSE GRD R
6030122	1/4" BK PREM TWIN HOSE-R
6030134	1/4" BK GRN 2SP PREM HS-R 700FT

GOUGING CARBONS

Type D.C. Copper coated carbon electrodes.



PART NO.	SIZE
CARBON70	GOUGING CARBONS 5/32" x 12"
CARBON80	GOUGING CARBONS 3/16" x 12"
CARBON90	GOUGING CARBONS 1/4" x 12"
CARBON95	GOUGING CARBONS 5/16" x 12"
CARBONAO	GOUGING CARBONS 3/8" x 12"

CYLINDER CAPS

Cylinder caps for high pressure and acetylene. All cylinder caps have been sprayed with a primer to prevent rusting.



PART NO.	SIZE
8050010	ACET COARSE 31/2" - 8 CAP
8050020	ACET FINE 31/2" - 11 CAP
8050030	HP OXY COARSE 31/8" - 7 CAP
8050040	HP OXY FINE 31/8" - 11 CAP



TIP DRILL KIT



PART NO.	SIZE
2010800	TIP DRILL KIT

4-IN-ONE CUTTING ATTACHMENT



PART NO.	SIZE
3050010	4-IN-1 CUTTING ATTACHMENT

MIG NOZZLE REAMER

Retracting three-legged scraper for cleaning spatter from welding nozzles.



PART NO.	SIZE
3060030	MIG NOZZLE REAMER

10 WAY TANK WRENCH



PART NO.	SIZE
4705000	D-1013 10 WAY TANK WRENCH

MATADOR WELDERS PLIERS

Drop forged steel construction. Six function tool includes nozzle and tip installation grips, wire cutters, nozzle cleaner, slag hammer and long nose pliers. Fitted with spring loaded, fully insulated handles.



PART NO.	SIZE
4705008	MATADOR WELDERS PLIERS

MATADOR 12 FUNCTION TOOL



PART NO.	SIZE
4705012	MATADOR 12 FUNCTION TOOL

BM-C WRENCH



PART NO.	SIZE
4705020	BM-C WRENCH (5)

WELPER YS-50 PLIERS

Drop forged steel construction. Six function tool includes nozzle and tip installation grips, wire cutters, nozzle cleaner, slag hammer and long nose pliers. Fitted with spring loaded, fully insulated handles.



PART NO.	SIZE
WELPER	WELPER YS-50 PLIERS

HAMMERS

Steel construction



PART NO.	SIZE
4706000	CONE & CHISEL HAMMER
4706020	CROSS CHISEL HAMMER

WELDERS PIN

Striker holder, key holder, tool holder, holder for miscellaneous items, hooks through belts, straps, etc.



PART NO.	SIZE
3010060	WELDERS PIN W/RING HW

WIRE FEED PADS



PART NO.	SIZE
4707000	TREATED WIRE FEED PADS 6 PAK

CHEM SHARP TUNGSTEN HOLDER



PART NO.	SIZE
4707061	CHEM SHARP TUNG HOLDER

VP CARRING HANDLE



PART NO.	SIZE
8032010	VP CARRING HNDL 3.125/11
8032014	VP CARRY HDL ACET 3.500/11

ELECTRODE HOLDERS

Features and Benefits:

Selection or amperage ratings to cover a wide variety of applications from light to heavy duty applications. Light weight for convenient, efficient, fatigue free welding. Holders designed to fit the welders hand and tight spaces. fully insulated, glass tip insulators and upper level, fibre handle and spring protector. Copper alloy jaws and body for maximum conductivity and strength. Heavy duty spring for positive bite on electrode. Easy cable installation with large oval point screw. Component parts replaceable.



PART NO.	SIZE
9020050	TW 200 ELECTRODE HOLDER
9020052	TW 300 ELECTRODE HOLDER
9020063	40B SHORT STUB ELC. HDR.



ACCESSORIES

MULTI-PURPOSE MAGNET

Metal pieces can be held at angles of 45 degrees, 90 and 135. The strong magnetism that this magnet exhibits allows it to adhere to any ferrous metal object for a variety of purposes.



PART NO.	SIZE
MAGFXLG	MAGNETIC HOLDER LG
MAGFXMD	MAGNETIC HOLDER MED

CABLE CONNECTORS

Heavy wall precision machined brass alloy provides a rugged and dependable connection. Cable is Easily fitted to the body and a large dome screw holds the cable securely. brass body slides easily into insulator and its unique design requires no external screws, avoiding shock. Indento-end is a uniquely designed connector that permits coupling of each end to another length of cable, a machine adaptor, an electrode whip, or a ground connector lead. Indento-end slides together creating a positive connection for maximum conductivity, while the locking action prevents accidental connection separation.



PART NO.	SIZE
9010030	E102-M CONNECTOR

CONDUIT



PART NO.	SIZE
9050325	25' CONDUIT/TEFLON

CLEAR DOME / FEEDER FOR PRODUCTION PAKS



PART NO.	SIZE
9029000	20" CLEAR DOME - BULK
9030100	FEEDER/CONDUIT ADAPT DRUM PAK

STA KLEER (PLASTIC LENS)



PART NO.	SIZE
1010010	STA KLEER 2" x 4 1/4" HW
1010020	STA KLEER 2" x 4 1/4" GB
1010140	STA KLEER 4 1/2" x 5 1/4" HW
1010150	STA KLEER 4 1/2" x 5 1/4" GB
1010240	STA KLEER 3" x 5" 1/4 HW
1010280	STA KLEER 50MM HW

SAFETY PLUS

Safety Plus passes ANSI and Federal impact and penetration tests. Meets ANSI Z87.1-1989 Safety Plus which is used in the fixed portion of the flip-front helmet is designed to (protect) The Welders' eyes when the flip-front is lifted. Cover plate only protects the filter plate from damage during the welding operation. However, we do not recommend to use Safety Plus as a cover lens. Safety Plus is made of polycarbonate. This is not suitable as a cover lens, Sta Kleer and CR39 are more durable as a cover lens and last up to 4 or 5 times longer then polycarbonate.



PART NO.	SIZE
1020010	2" x 4 1/4"
1020010P	2" x 4 1/4" 10 EA POP
1020020	4 1/2" x 5 1/4"
1020020P	4 1/2" x 5 1/4" 5PK POP

FILTER PLATES



PART NO.	SIZE
1024030	#3 FP 2" x 4 1/4" HT HW
1024040	#4 FP 2" x 4 1/4" HT HW
1024050	#5 FP 2" x 4 1/4" HT HW
1024080	#8 FP 2" x 4 1/4" HT HW
1024090	#9 FP 2" x 4 1/4" HT HW
1024100	#10 FP 2" x 4 1/4" HT HW
1024110	#11 FP 2" x 4 1/4" HT HW
1024120	#12 FP 2" x 4 1/4" HT HW
1024130	#13 FP 2" x 4 1/4" HT HW
1024140	#14 FP 2" x 4 1/4" HT HW
1045080	#8 FP 4 1/2" x 5 1/4" HT HW
1045090	#9 FP 4 1/2" x 5 1/4" HT HW
1045100	#10 FP 4 1/2" x 5 1/4" HT HW
1045110	#11 FP 4 1/2" x 5 1/4" HT HW
1045120	#12 FP 4 1/2" x 5 1/4" HT HW
1045130	#13 FP 4 1/2" x 5 1/4" HT HW
1045140	#14 FP 4 1/2" x 5 1/4" HT HW
1050040	#4 FL 50MM HT HW
1050050	#5 FL 50MM HT HW
1024060	#6 FP 2" x 4 1/4" HT HW
1024070	#7 FP 2" x 4 1/4" HT HW
1045050	#5 FP 4 1/2" x 5 1/4" HT HW
1045060	#6 FP 4 1/2" x 5 1/4" HT HW
1045070	#7 FP 4 1/2" x 5 1/4" HT HW

OMNI VIEW GOLD LENSES



PART NO.	SIZE
1032408	#8 GOLD PLAS 2" x 4 1/4"
1032409	#9 GOLD PLAS 2" x 4 1/4"
1032410	#10 GOLD PLAS 2" x 4 1/4"
1032411	#11 GOLD PLAS 2" x 4 1/4"
1032412	#12 GOLD PLAS 2" x 4 1/4"
1034508	#8 GOLD PLAS 4 1/2" x 5 1/4"
1034509	#9 GOLD PLAS 4 1/2" x 5 1/4"
1034510	#10 GOLD PLAS 4 1/2" x 5 1/4"
1034511	#11 GOLD PLAS 4 1/2" x 5 1/4"
1034512	#12 GOLD PLAS 4 1/2" x 5 1/4"



OMNI PLASTIC MAG LENSES



PART NO.	SIZE
1080701	1.00 PLASTIC MAG 2" x 4 1/4"
1080702	1.25 PLASTIC MAG 2" x 4 1/4"
1080703	1.50 PLASTIC MAG 2" x 4 1/4"
1080704	1.75 PLASTIC MAG 2" x 4 1/4"
1080705	2.00 PLASTIC MAG 2" x 4 1/4"
1080706	2.25 PLASTIC MAG 2" x 4 1/4"
1080707	2.50 PLASTIC MAG 2" x 4 1/4"

FACE SHIELDS



PART NO.	SIZE
J3440RC	3440R CLR WINDOW
J4199C	4199 CLR WINDOW
J4199DG	4199 DK GRN WINDOW SPECIAL ORDER
J8040RC	8040R CLR WINDOW

GOLD MIRROR LENSES



PART NO.	SIZE
1093090	SH 9 GOLD MIR 2" x 4 1/4" HW
1093100	SH 10 GOLD MIR 2" x 4 1/4" HW
1093110	SH 11 GOLD MIR 2" x 4 1/4" HW
1093120	SH 12 GOLD MIR 2" x 4 1/4" HW
1094100	SH 10 GOLD MIR 4 1/2" x 5 1/4" HW
1094110	SH 11 GOLD MIR 4 1/2" x 5 1/4" HW
1094090	SH 9 GOLD MIR 4 1/2" x 5 1/4" HW
1094120	SH 12 GOLD MIR 4 1/2" x 5 1/4" HW

HORNELL LENS



PART NO.	SIZE
JH0L9	OUTSIDE LENS HORNELL 9000
JH1L1	INSIDE LENS HORNELL 9000F,V
JH1L2	INSIDE LENS HORNELL 9000X,XF

TUFF-SHIELD



PART NO.	SIZE
1020025	TUFF-SHIELD 4 1/2" x 5 1/4"

GOGGLES

Good general purpose goggles for industry, workshop, farming, sports, etc. Fits over regular eyeglasses. Perforated for good ventilation.



PART NO.	SIZE
3901100	202C PERF CL FR- CL LENS
3901110	206C CAPV4 CL FR-CL LENS

PLAIN GLASS



PART NO.	SIZE
1060010	PLAIN GLASS 2" x 4 1/4"
1060030	PLAIN GLASS 4 1/2" x 5 1/4"

OPTEL LENSES

JOSCOL

PC formed cover lens, with optrel stamping, heat resistance up to 279 F/ 137 C, applicable for both optrel solarmatic comfort and optrel twisty comfort welding helmets.

JOSCIL

Inside Cover lens, applicable for both optrel solarmatic comfort and optrel twisty comfort.



PART NO.	SIZE
JOSCOL	OSC OUTSIDE COVER LENS 10/PK
JOSC100	OS COMFORT 1.00 MAG LENS
JOSC125	OS COMFORT 1.25 MAG LENS
JOSC150	OS COMFORT 1.50 MAG LENS
JOSC175	OS COMFORT 1.75 MAG LENS
JOSC200	OS COMFORT 2.00 MAG LENS
JOSC225	OS COMFORT 2.25 MAG LENS
JOSC250	OS COMFORT 2.50 MAG LENS
JOSCIL	OS COMFORT INSIDE CVR LEN 5/PK

MAG GLASS LENSES



PART NO.	SIZE
1080020	1.00 GLASS MAG 2" x 4 1/4"
1080030	1.25 GLASS MAG 2" x 4 1/4"
1080040	1.50 GLASS MAG 2" x 4 1/4"
1080050	1.75 GLASS MAG 2" x 4 1/4"
1080060	2.00 GLASS MAG 2" x 4 1/4"
1080070	2.25 GLASS MAG 2" x 4 1/4"
1080080	2.50 GLASS MAG 2" x 4 1/4"
1080090	3.00 GLASS MAG 2" x 4 1/4"

COVER LENS & PLATES



PART NO.	SIZE
WID392X4	WID CR 39 2" x 4"
PLWHITE2X4	PLAIN WHITE COVER LENS 2" x 4"
PLWHITE4X5	PLAIN WHITE COVER LENS 4" x 5"



ACCESSORIES

TUNGSTEN



PART NO.	SIZE
2600703	3/32" x 7" - 1.5% LAN TGS
2600803	3/32" x 7" - 2% CERATED TGS
2600912	1/16" x 7" - 2% THOR TUNGSTEN GRD
2600913	3/32" x 7" - 2% THOR TUNGSTEN GRD
2600914	1/8" x 7" - 2% THOR TUNGSTEN GRD
2600930	1/16" x 7" GRND PURE TUNGSTEN 10PK
2600931	3/32" x 7" PURE GRND TUNGSTEN 10PK
2600932	1/8" x 7" PURE GRND TUNGSTEN 10PK
2600985	3/32" x 3" - 2% THOR TGS GR
2600986	1/8" x 3" - 2% THOR TGS GR

COMPOUND 302 (POSTWELD STAINLESS STEEL CLEANER)

Effectively removes heat-tint, weld-burn and discoloration and rust from all grades of stainless steel. It is a unique chemical formulation of paste-like consistency, with mineral acids, deoxidizers and penetrants. The active ingredients dissolve the hard-to-remove blue oxidation color and weld-burn. It clings to vertical, horizontal and intricate surfaces and can be applied by a cloth. Compound 302 can also be used as a general acid cleaner for copper, brass and bronze.



PART NO.	SIZE
ARCP302	CPD302SS CLEAN 28AV oz ORMD

WELD-O (PREWELD ALUMINUM CLEANER)

A ready to use X-ray quality welding prep for aluminum. It is an innovative chemical formulation, a blend of mineral acids, solvents, water conditioning agents and sequestering agents. It deoxidizes the base metal instantly and conditions surface for X-ray quality welding. Water rinsing is seldom required.



PART NO.	SIZE
ARWELDO	WELD-O ALUM. CLN. 32FL oz HAZMAT

SUPERWELD



PART NO.	SIZE
5350020	SUPERWELD 12 PAK 2 oz KT ORMD NO AIR

CHEMICAL SHARPENER FOR TUNGSTEN ELECTRODE

A 5 ounce jar of Chem Sharp provides as many as 500 sharpenings without having to leave the work area. Grinding is eliminated completely, a plus factor since grinding can cause scratching, chipping or splintering of the tungsten. Chem Sharp will not contaminate the electrode nor the weld area.



PART NO.	SIZE
4707060	5 oz REPL JAR

SUPER COLD-GALV

A cold zinc galvanizing system (NOT PAINT) A scientifically compound formula of 93% zinc dust, organic resin and other additives. Conforms to ASTM A780-80.

Super cold-galv may be used on any metal surface which is subjected to rust and/or corrosion. Applications include air-conditioning systems, fans, sumps, water tank exteriors, piping, autos, buses, trailers and trucks, livestock equipment, farm machinery, metal buildings, bridges, towers, tanks and weld areas. It is widely used to repair voids in new hot dipped galvanized tanks and sheets



PART NO.	SIZE
SUPCG0D	16oz (ORM-D) NOAIR

1620 NOZZLE SHIELD AND ANTI - SPATTER COMPOUND

A premium quality formula, Developed for protection against weld spatter. Use 1620 on MIG nozzles, cups, contact tips, cutting torches, fixtures and jigs, and on any part or surface where spatter form welding is objectionable. It does not contaminate paint systems. It is compatible with lacquer and enamel paints. It is noncombustible and nonmigratory and can be used on any metal.



PART NO.	SIZE
016200D	16oz (ORM-D) NOAIR
016200E	24oz (ORM-D) NOAIR

1630 SAFE T SPAT (biodegradable)

A non-solvent, nontoxic, nonflamable anti-spatter and nozzle shield. 1630 - Safe T Spat prevents weld spatter from adhering to nozzles, contact tips and related accessories. Also, it prevents the buildup of weld spatter when sprayed or painted on the welding area.



PART NO.	SIZE
016300D	1630 SAFE T SPA 16 oz ORMD NO AIR

KLEEN GREEN

Nozzle and cutting tip spatter replacement in paste form. Kleen Green can be applied to semi-automatic and automatic MIG gun nozzles and tips for protection against spatter buildup. It can be applied to weld fixtures and jigs for longer life and ease of cleaning.



PART NO.	SIZE
OKLGR0D	KLEEN GREEN 16 oz

HARRIS PRODUCTION PAK

Aluminum / Stainless Steel / Copper Base / Brazing Alloys

A wire pay-off system especially designed for automated welding systems or applications where wire flips are not acceptable, and accurate wire placement is an important factor. Now available: 150lb to 500lb capacity drums of the wire you need for fast, efficient, profitable automated welding and/or brazing. No more downtime changing spool after spool, just continuous wire feed for nonstop welding and brazing.

PRODUCTION PAK BENEFITS:

- The dispensing dome helps protect the wire from dirt and foreign debris from the welding environment.
- There are no expensive pay-off systems required for start up.
- The PRODUCTION PAK requires less floor space for storage.
- Reduces the recycling of plastic spools.
- INCREASES PRODUCTIVITY due to the bulk wire packaging. Decreases the number of down time due to wire spool changes.
- The PRODUCTION PAK provides a higher degree of accuracy in wire placement at arc starts.
- Due to a straighter wire, there will be less wear on the conduit, less resistance on the feed rolls and less drag on the feed motor.

PRODUCTION PAK = PROFITS:

Package Specifications

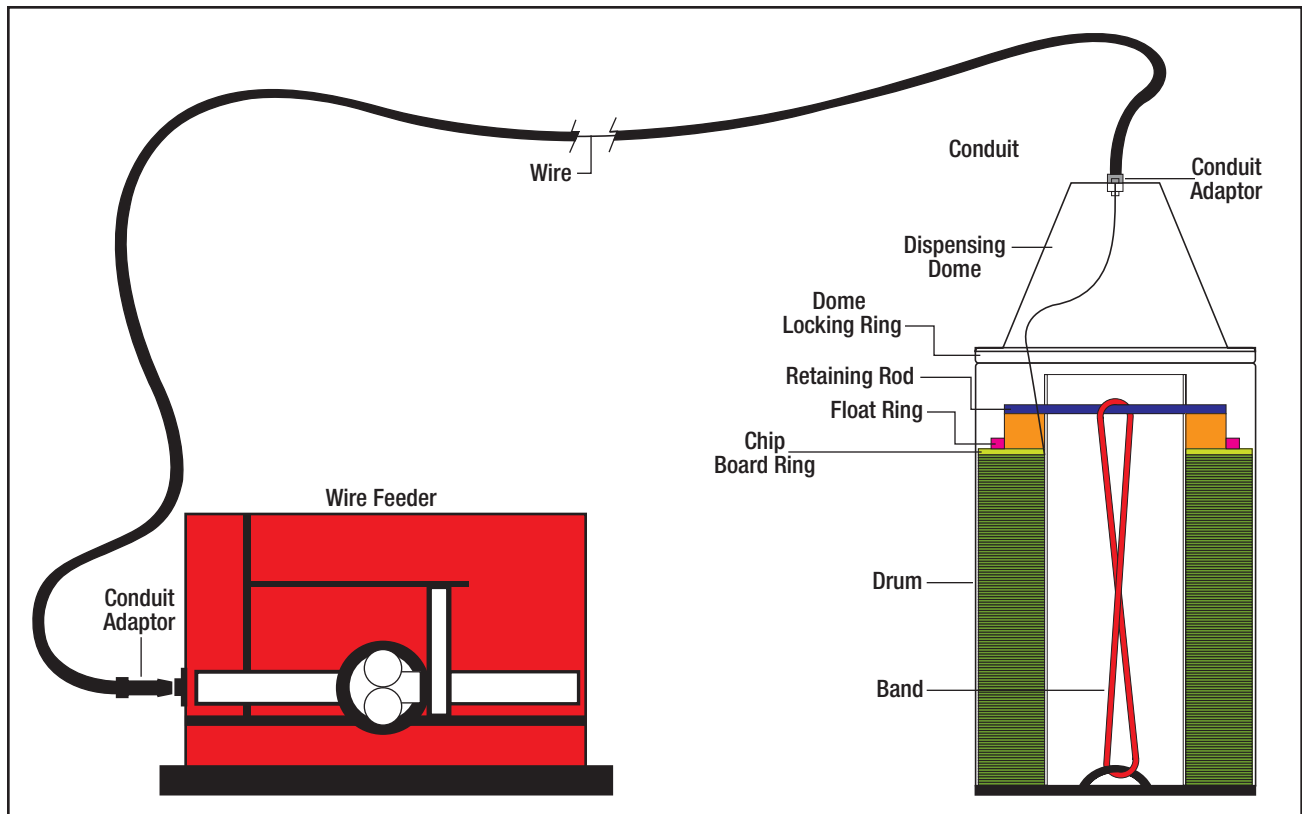
Wire diameters available are .035" through .062".

Stainless Steel, Copper-Base and Brazing Alloys are packed 150lb and 500lb per drum.

Aluminum is packed 150lb per drum.

Drum dimensions are 20- $\frac{1}{3}$ " diameter, 32- $\frac{1}{2}$ " drum height and 45- $\frac{3}{4}$ " total height.

PRODUCTION PAKS
AVAILABLE FOR MOST
ALLOYS
CALL CUSTOMER
SERVICE



HARRIS

POP PROGRAM

BRAZING & SOLDERING



BRAZING AND SOLDERING CONSUMABLES

POINT-OF-PURCHASE MERCHANDISING PROGRAM

Program includes:

Part No.	Description
9700013	Brazing and soldering rack
9700014	Brazing and soldering header cards
-	Peg hooks with price tabs

Rack can be used on peg board, slat wall or as a counter top display. Contact your Harris Products Group District Manager for details.



- Product sold in buy pack quantities only
- Brazing and Soldering Rack is for Harris Products Group product only

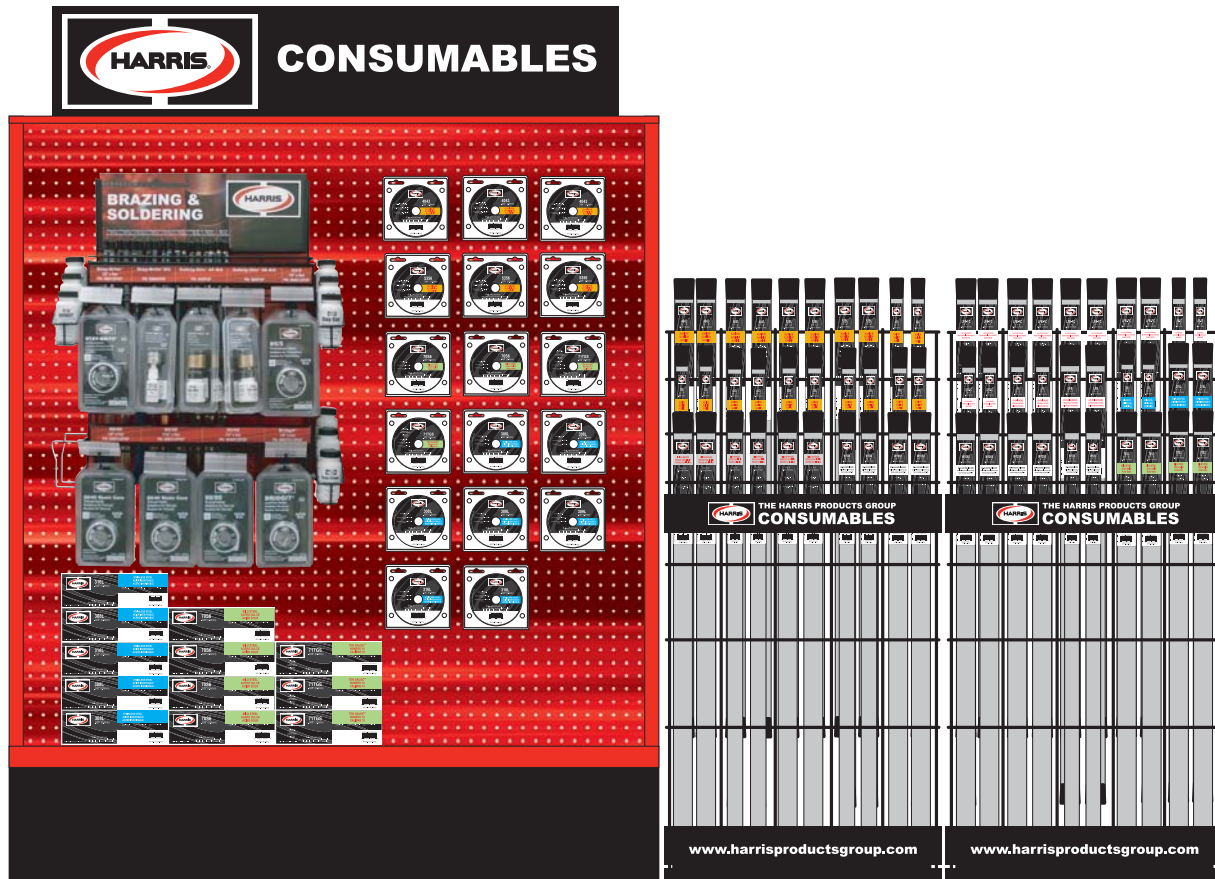
PART NO.	DESCRIPTION	SIZE
45318LMPOP	Safety-Silv® 45	1/16" x 18" Mini pak 5 sticks
45518LMPOP	Safety-Silv® 45	3/32" x 18" Mini pak 3 sticks
45F318MPPOP	Safety-Silv® 45	1/16" x 18" Flux coated Mini pak 3 sticks
45KPPOP	Safety-Silv® 45	Brazing Kit with Flux
56318LMPOP	Safety-Silv® 56	1/16" x 18" Mini pak 5 sticks
56F318MPPOP	Safety-Silv® 56	1/16" x 18" Flux coated Mini pak 3 sticks
56KPPOP	Safety-Silv® 56	Brazing Kit with Flux
1520FMPPOP	Stay-Silv® 15	.050" x 1/8" Mini pak 8 sticks
5620FMPPOP	Stay-Silv® 5	.050" x 1/8" Mini pak 8 sticks
D620FMPPOP	Dynaflow®	.050" x 1/8" Mini pak 8 sticks
0620FMPPOP	Phos Copper	.050" x 1/8" Mini pak 8 sticks
SB61/2POP	Solder Stay-Brite®	1/8" x 8 oz. Spool
BRGT61/2POP	Solder Bridgit®	1/8" x 8 oz. Spool
95561/2POP	Solder 95/5	1/8" x 8 oz. Spool
505061/2POP	Solder 50/50	1/8" x 8 oz. Spool
SBSKPOP	Solder Stay-Brite®	Kit with Flux
60R61/2POP	Solder 60/40	1/8" x 8 oz. Rosin Core
60R31/2POP	Solder 60/40	1/16" x 8 oz. Spool Rosin Core
SSWF7POP	Stay-Silv® White Brazing Flux	6.5 oz.
SCPF4POP	Stay Clean® Paste	4 oz.
BRPF4POP	Bridgit® Paste Flux	4 oz.

HARRIS POINT OF PURCHASE



COMPLETE CONSUMABLES

POINT-OF-PURCHASE MERCHANDISING PROGRAM



HARRIS POINT OF PURCHASE

- Product sold in buy pack quantities only
- Gondolas and racking are for Harris Products Group product only

Program includes:

Part No.	Description
9700004	Gondola
9700011	Red Gondola Template
9700012	Consumable Gondola Header
9700013	Brazing and Soldering Rack
9700014	Brazing and soldering Header Cards
9700010	Consumables Cut Length Rack (2)

Flexible layout design

Contact your Harris Products Group District Manager for details

POINT OF PURCHASE PROGRAMS



FILLER METALS

PART NO.	DESCRIPTION	SIZE
00015300POP	15 BARE	1/16" x 36"- 1# PKG
00015600POP	15 BARE	1/8" x 36"- 1# PKG
00015500POP	15 BARE	3/32" x 36"- 1# PKG
00015503POP	15 BARE	3/32" x 36"- 3# PKG
00015603POP	15 BARE	1/8" x 36"- 3# PKG
00015303POP	15 BARE	1/16" x 36"- 3# PKG
00015505POP	15 BARE	3/32" x 36"- 5# PKG
00015605POP	15 BARE	1/8" x 36"- 5# PKG
00015805POP	15 BARE	3/16" x 36"- 5# PKG
015FC500POP	15FC	3/32" x 36"- 1# PKG
015FC600POP	15FC	1/8" x 36"- 1# PKG
015FC503POP	15FC	3/32" x 36"- 3# PKG
015FC603POP	15FC	1/8" x 36"- 3# PKG
015FC505POP	15FC	3/32" x 36"- 5# PKG
015FC605POP	15FC	1/8" x 36"- 5# PKG
03SIB301POP	3SIB	1/16" x 36"- 1# PKG
03SIB503POP	3SIB	3/32" x 36"- 3# PKG
03SIB603POP	3SIB	1/8" x 36"- 3# PKG
W1060300POP	RG-45 W1060	1/16" x 36"- 1# PKG
W1060503POP	RG-45 W1060	3/32" x 36"- 3# PKG
W1060603POP	RG-45 W1060	1/8" x 36"- 3# PKG
W1200300POP	RG-60W1200	1/16" x 36"- 1# PKG
W1200503POP	RG-60W1200	3/32" x 36"- 3# PKG
W1200603POP	RG-60 W1200	1/8" x 36"- 3# PKG
E70S2300POP	ER70S-2	1/16" x 36"- 1# PKG
E70S2503POP	ER70S-2	3/32" x 36"- 3# PKG
E70S2603POP	ER70S-2	1/8" x 36"- 3# PKG
E70S2505POP	ER70S-2	3/32" x 36"- 5# PKG
E70S2605POP	ER70S-2	1/8" x 36"- 5# PKG
308LT300POP	E308L	1/16" x 36"- 1# PKG
308LT503POP	E308L	3/32" x 36"- 3# PKG
308LT603POP	E308L	1/8" x 36"- 3# PKG
316LT303POP	ER316L	1/16" x 36"- 3# PKG
316LT503POP	ER316L	3/32" x 36"- 3# PKG
316LT603POP	ER316L	1/8" x 36"- 3# PKG
40435011POP	R4043	3/32" x 36"- 1# PKG
40436011POP	R4043	1/8" x 36"- 1# PKG
0404321POP	4043	3/64" - 1# SPOOL
40433011POP	R4043	1/16" x 36"- 1# PKG
40435033POP	R4043	3/32" x 36"- 3# PKG
40436033POP	R4043	1/8" x 36"- 3# PKG
04043E1POP	ER4043	.030" - 1# SPOOL
04043F1POP	ER4043	.035" - 1# SPOOL
53565011POP	R5356	3/32" x 36"- 1# PKG
53566011POP	R5356	1/8" x 36"- 1# PKG
05356E1POP	ER5356	.030" - 1# SPOOL
05356F1POP	ER5356	.035" - 1# SPOOL
0535621POP	ER5356	3/64" - 1# SPOOL
53563011POP	R5356	1/16" x 36"- 1# PKG
53565033POP	R5356	3/32" x 36"- 3# PKG
53566033POP	R5356	1/8" x 36"- 3# PKG

MIG WIRE

PART NO.	DESCRIPTION	SIZE
0308LF2POP	ER308L	.035" - 2# S/S SPOOL
0308L15POP	ER308L	.025" - 10# S/S SPOOL
0308LE5POP	ER308L	.030" - 10# S/S SPOOL
0309LE2POP	ER309L	.030" - 2# S/S SPOOL
0309LF2POP	ER309L	.035" - 2# S/S SPOOL
0316LE5POP	ER316L	.030" - 10# S/S SPOOL
0308L12POP	ER308L	.025" - 2# S/S SPOOL
0308LE2POP	ER308L	.030" - 2# S/S SPOOL
0308LF5POP	ER308L	.035" - 10# S/S SPOOL
0316L12POP	ER316L	.025" - 2# S/S SPOOL
0316LE2POP	ER316L	.030" - 2# S/S SPOOL
0316LF5POP	ER316L	.035" - 10# S/S SPOOL
E70S612POP	ER70S-6	.023" - 2# MS SPOOL
E70S6E2POP	ER70S-6	.030" - 2# MS SPOOL
E70S615POP	ER70S-6	.023" - 11# MS SPOOL
E70S6E5POP	ER70S-6	.030" - 11# MS SPOOL
E70S6F5POP	ER70S-6	.035" - 11 # MS SPOOL
E70S6H5POP	ER70S-6	.045" - 11# MS SPOOL
E71TGS2POP	TEN GAUGE™	.030" - 2# SPOOL
E71TGSF2POP	TEN GAUGE™	.035" - 2# SPOOL
E71TGS5POP	TEN GAUGE™	.030" - 10# SPOOL
E71TGSF5POP	TEN GAUGE™	.035" - 10# SPOOL
E71TGS5POP	TEN GAUGE™	.045" - 10# SPOOL

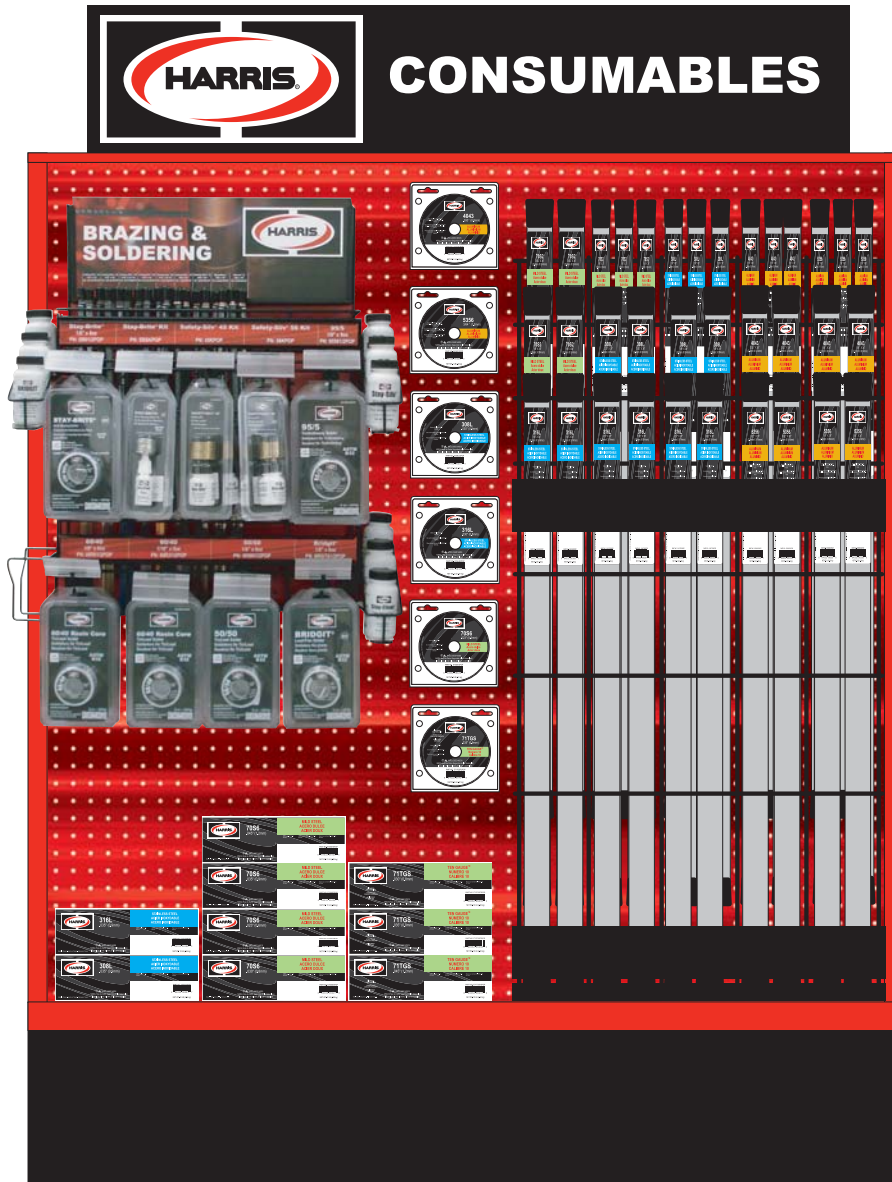
BRAZING & SOLDERING

PART NO.	DESCRIPTION	SIZE
45318LMPPOP	Safety-Silv® 45	1/16" x 18" Mini pak 5 sticks
45518LMPPOP	Safety-Silv® 45	3/32" x 18" Mini pak 3 sticks
45F318MPOP	Safety-Silv® 45	1/16" x 18" FC Mini 3 sticks
45KPOP	Safety-Silv® 45	Brazing Kit with Flux
56318LMPPOP	Safety-Silv® 56	1/16" x 18" Mini pak 5 sticks
56F318MPOP	Safety-Silv® 56	1/16" x 18" FC Mini 3 sticks
56KPOP	Safety-Silv® 56	Brazing Kit with Flux
1520FMPPOP	Stay-Silv® 15	.050" x 1/8" Mini pak 8 sticks
5620FMPPOP	Stay-Silv® 5	.050" x 1/8" Mini pak 8 sticks
D620FMPPOP	Dynaflow®	.050" x 1/8" Mini pak 8 sticks
0620FMPPOP	Phos Copper	.050" x 1/8" Mini pak 8 sticks
SB61/2POP	Solder Stay-Brite®	1/8" x 8 oz. spool
BRGT61/2POP	Solder Bridgit®	1/8" x 8 oz. spool
95561/2POP	Solder 95/5	1/8" x 8 oz. spool
505061/2POP	Solder 50/50	1/8" x 8 oz. spool
SBSKPOP	Solder Stay-Brite®	Kit with Flux
60R61/2POP	Solder 60/40	1/8" x 8 oz. Rosin Core
60R31/2POP	Solder 60/40	1/16" x 8 oz. Spool Rosin Core
SSWF7POP	Stay-Silv®	White Brazing Flux 6.5 oz
SCPF4POP	Stay Clean® Paste	4 oz
BRPF4POP	Bridgit® Paste Flux	4 oz.



CONSUMABLES

POINT-OF-PURCHASE MERCHANDISING PROGRAM



HARRIS POINT OF PURCHASE

Program includes:

Part No.	Description
9700004	Gondola
9700011	Red gondola template
9700012	Consumable gondola header card
9700013	Brazing and soldering rack
9700014	Brazing and soldering header cards
9700010	Consumable cut length rack

Flexible layout design

Contact your Harris Products Group District Manager for details

■ Product sold in buy pack quantities only

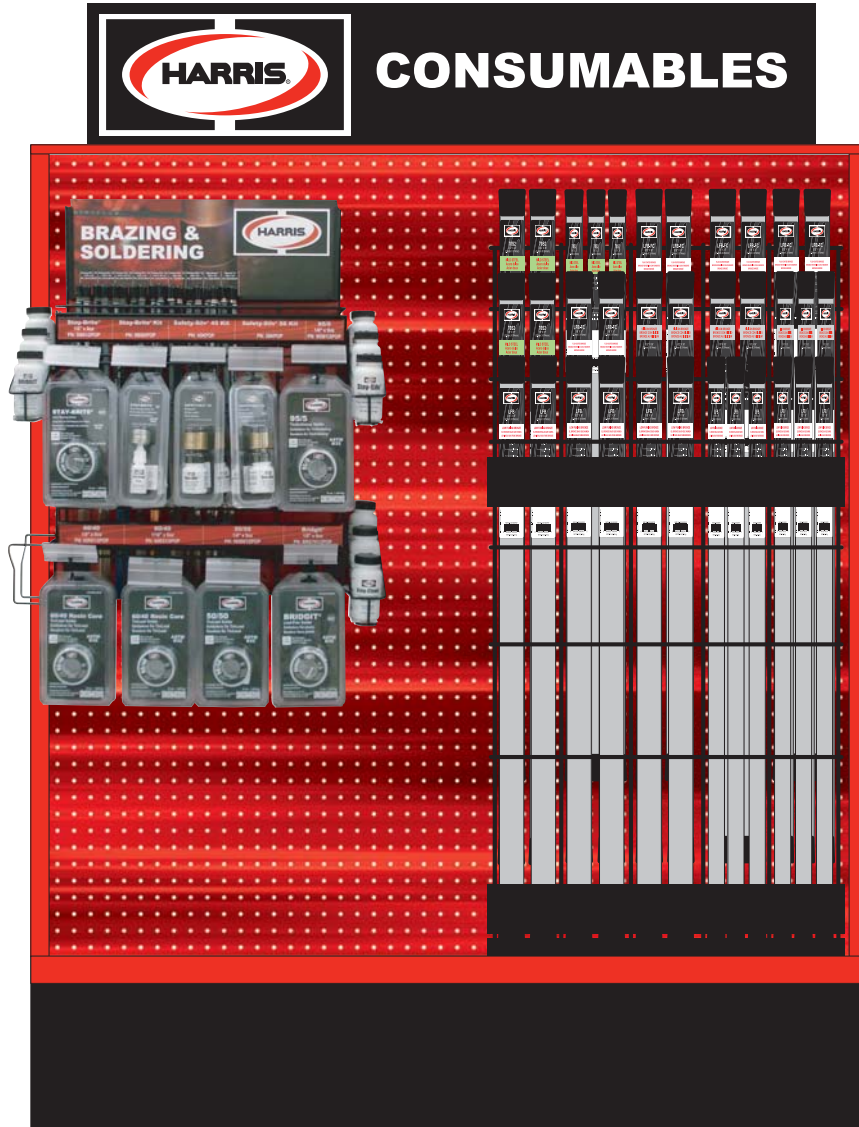
■ Gondolas and racking are for Harris Products Group product only



PART NO.	DESCRIPTION	SIZE
FILLER METALS		
53563011POP	R5356	1/16" x 36" - 1# PKG
53565033POP	R5356	3/32" x 36" - 3# PKG
53566033POP	R5356	1/8" x 36" - 3# PKG
40433011POP	R4043	1/16" x 36" - 1# PKG
40435033POP	R4043	3/32" x 36" - 3# PKG
40436033POP	R4043	1/8" x 36" - 3# PKG
308LT300POP	E308L	1/16" x 36" - 1# PKG
308LT503POP	E308L	3/32" x 36" - 3# PKG
308LT603POP	E308L	1/8" x 36" - 3# PKG
316LT303POP	ER316L	1/16" x 36" - 3# PKG
316LT503POP	ER316L	3/32" x 36" - 3# PKG
316LT603POP	ER316L	1/8" x 36" - 3# PKG
E70S2300POP	ER70S-2	1/16" x 36" - 1# PKG
E70S2503POP	ER70S-2	3/32" x 36" - 3# PKG
E70S2603POP	ER70S-2	1/8" x 36" - 3# PKG
MIG WIRE		
05356E1POP	ER5356	.030" - 1# SPOOL
05356F1POP	ER5356	.035" - 1# SPOOL
0535621POP	ER5356	3/64" - 1# SPOOL
0316L12POP	ER316L	.025" - 2# S/S SPOOL
0316LE2POP	ER316L	.030" - 2# S/S SPOOL
04043E1POP	ER4043	.030" - 1# SPOOL
04043F1POP	ER4043	.035" - 1# SPOOL
0404321POP	4043	3/64" - 1# SPOOL
0316LF5POP	ER316L	.035" - 10# S/S SPOOL
0308L12POP	ER308L	.025" - 2# S/S SPOOL
0308LE2POP	ER308L	.030" - 2# S/S SP POP
0308LF5POP	ER308L	.035" - 10# S/S SPOOL
E70S612POP	ER70S-6	.023" - 2# MS SPOOL
E70S6E2POP	ER70S-6	.030" - 2# MS SPOOL
E70S615POP	ER70S-6	.023" - 11# MS SPOOL
E70S6E5POP	ER70S-6	.030" - 11# MS SPOOL
E70S6F5POP	ER70S-6	.035" - 11 # MS SPOOL
E70S6H5POP	ER70S-6	.045" - 11# MS SPOOL
E71TGSE2POP	TEN GAUGE™	.030" - 2# SPOOL
E71TGSF2POP	TEN GAUGE™	.035" - 2# SPOOL
E71TGSE5POP	TEN GAUGE™	.030" - 10# SPOOL
E71TGSF5POP	TEN GAUGE™	.035" - 10# SPOOL
E71TGSH5POP	TEN GAUGE™	.045" - 10# SPOOL
BRAZING & SOLDERING		
45318LMPPOP	Safety-Silv® 45	1/16" x 18" Mini pak 5 sticks
45518LMPPOP	Safety-Silv® 45	3/32" x 18" Mini pak 3 sticks
45F318MPOP	Safety-Silv® 45	1/16" x 18" Flux coated Mini pak 3 sticks
45KPPOP	Safety-Silv® 45	Brazing Kit with Flux
56318LMPPOP	Safety-Silv® 56	1/16" x 18" Mini pak 5 sticks
56F318MPOP	Safety-Silv® 56	1/16" x 18" Flux coated Mini pak 3 sticks
56KPPOP	Safety-Silv® 56	Brazing Kit with Flux
1520FMPPOP	Stay-Silv® 15	.050" x 1/8" Mini pak 8 sticks
5620FMPPOP	Stay-Silv® 5	.050" x 1/8" Mini pak 8 sticks
D620FMPPOP	Dynaflow®	.050" x 1/8" Mini pak 8 sticks
0620FMPPOP	Phos Copper	.050" x 1/8" Mini pak 8 sticks
SB61/2POP	Solder Stay-Brite®	1/8" x 8 oz. spool
BRGT61/2POP	Solder Bridgit®	1/8" x 8 oz. spool
95561/2POP	Solder 95/5	1/8" x 8 oz. spool
505061/2POP	Solder 50/50	1/8" x 8 oz. spool
SBSKPOP	Solder Stay-Brite®	Kit with Flux
60R61/2POP	Solder 60/40	1/8" x 8 oz. Rosin Core
60R31/2POP	Solder 60/40	1/16" x 8 oz. Spool Rosin Core
SSWF7POP	Stay-Silv® White Brazing Flux	6.5 oz
SCPF4POP	Stay Clean® Paste	4 oz
BRPF4POP	Bridgit® Paste Flux	4 oz.



GAS WELDING CONSUMABLES POINT-OF-PURCHASE MERCHANDISING PROGRAM



HARRIS POINT OF PURCHASE

Program includes:

Part No.	Description
9700013	Brazing and soldering rack
9700014	Brazing and soldering header cards
9700010	Consumables Cut Length Rack
9700011	Red gondola template
9700012	Consumable gondola header card

- Product sold in buy pack quantities only
- Gondolas and racking are for Harris Products Group product only

Flexible design layout.

Contact your Harris Products Group District Manager for details.



PART NO.	DESCRIPTION	SIZE
FILLER METALS		
00015300POP	15 BARE	1/16" x 36" - 1# PKG
00015500POP	15 BARE	3/32" x 36" - 1# PKG
00015503POP	15 BARE	3/32" x 36" - 3# PKG
00015603POP	15 BARE	1/8" x 36" - 3# PKG
00015805POP	15 BARE	3/16" x 36" - 5# PKG
015FC503POP	15FC	3/32" x 36" - 3# PKG
015FC603POP	15FC	1/8" x 36" - 3# PKG
015FC505POP	15FC	3/32" x 36" - 5# PKG
015FC605POP	15FC	1/8" x 36" - 5# PKG
03SIB301POP	3SIB	1/16" x 36" - 1# PKG
03SIB503POP	3SIB	3/32" x 36" - 3# PKG
03SIB603POP	3SIB	1/8" x 36" - 3# PKG
W1060300POP	RG-45 W1060	1/16" x 36" - 1# PKG
W1060503POP	RG-45 W1060	3/32" x 36" - 3# PKG
W1060603POP	RG-45 W1060	1/8" x 36" - 3# PKG
E70S2300POP	ER70S-2	1/16" x 36" - 1# PKG
E70S2503POP	ER70S-2	3/32" x 36" - 3# PKG
E70S2603POP	ER70S-2	1/8" x 36" - 3# PKG
BRAZING & SOLDERING		
45318LMPOP	Safety-Silv [®] 45	1/16" x 18" Mini pak 5 sticks
45518LMPOP	Safety-Silv [®] 45	3/32" x 18" Mini pak 3 sticks
45F318MPPOP	Safety-Silv [®] 45	1/16" x 18" Flux coated Mini pak 3 sticks
45KPOP	Safety-Silv [®] 45	Brazing Kit with Flux
56318LMPOP	Safety-Silv [®] 56	1/16" x 18" Mini pak 5 sticks
56F318MPPOP	Safety-Silv [®] 56	1/16" x 18" Flux coated Mini pak 3 sticks
56KPOP	Safety-Silv [®] 56	Brazing Kit with Flux
1520FMPPOP	Stay-Silv [®] 15	.050" x 1/8" Mini pak 8 sticks
5620FMPPOP	Stay-Silv [®] 5	.050" x 1/8" Mini pak 8 sticks
D620FMPPOP	Dynaflow [®]	.050" x 1/8" Mini pak 8 sticks
0620FMPPOP	Phos Copper	.050" x 1/8" Mini pak 8 sticks
SB61/2POP	Solder Stay-Brite [®]	1/8" x 8 oz. Spool
BRGT61/2POP	Solder Bridgit [®]	1/8" x 8 oz. Spool
95561/2POP	Solder 95/5	1/8" x 8 oz. Spool
505061/2POP	Solder 50/50	1/8" x 8 oz. Spool
SBSKPOP	Solder Stay-Brite [®]	Kit with Flux
60R61/2POP	Solder 60/40	1/8" x 8 oz. Rosin Core
60R31/2POP	Solder 60/40	1/16" x 8 oz. Spool Rosin Core
SSWF7POP	Stay-Silv [®] White Brazing Flux	6.5 oz.
SCPF4POP	Stay Clean [®] Paste	4 oz.
BRPF4POP	Bridgit [®] Paste Flux	4 oz.





POWERTORCH®

POINT-OF-PURCHASE MERCHANDISING PROGRAM



Program includes:

Part No.	Description
9700004	Gondola
9700011	Red Gondola Template
9504100	Powertorch Header Card

Flexible layout design.
Contact your Harris Products Group District Manager for details.

- Product sold in buy pack quantities only
- Gondolas and racking are for Harris Products Group product only

HARRIS POINT OF PURCHASE



PART NO. DESCRIPTION

COMPLETE OUTFITS

AIR FUEL KITS

4400051	HQB4,H601LP,HT-4,HLP12
4400052	HQA4,HA3,HA11,H601-B,H12
4400053	HQA4,HA3,HA11,H601-MC,H12
4400054	HQA4,HA5,H601-B,H12
4400055	HQA4,HA5,H601-MC,H12
4400056	HQA4,HA5,HA14,H601-B,H12
4400057	HQA4,HA8,H601-B,H12
4400058	HAS-400,HS23,H601-B,H12
4400059	HAS-400,HS23,H601-MC,H12

OXY/ACETYLENE KITS

4400060	16601-200 P.A.T. L/CA POWERTORCH®
4400061	16601-200 L/CA POWER TORCH®
4400062	16601-520 POWERTORCH®
4400063	16601-520 L/CA POWERTORCH®
4400064	19601-200 POWERTORCH®
4400065	19601-200 POWERTORCH® L/CA
4400066	19601-520 POWERTORCH®
4400067	19601-520 POWERTORCH® L/CA
4401137	16601-200 P.A.T. POWERTORCH®
4401138	16601-200 POWERTORCH®
4401140	19601-200 POWERTORCH® P.A.T.
4401141	19601-200 POWERTORCH® P.A.T. L/CA
4401142	19601-200 POWERTORCH® P.A.T.W/ADAPT
4401668	16601-200 P.A.T.W/ADAPT POWER TORC

CUTTING ATTACHMENTS AND TORCH HANDLES

AIR FUEL TORCH HANDLES

1400080	AIR FUEL-HDL,HSLT-604 AIR FUEL
1400081	AIR FUEL-HDL,HTR-HT5 AIR FUEL
1400082	AIR FUEL-HDLE,HTR-HT6 AIR FUEL
1400083	AIR FUEL-HDL,HTR-HT2 AIR FUEL
1400084	AIR FUEL-HDL,HQA-4 AIR FUEL
1400085	AIR FUEL-HDL,HQB-4 AIR FUEL
1400086	AIR FUEL-HDL,HAS-400 AIR FUEL

OXY/ACETYLENE HANDLES AND CUTTING ATTACHMENTS

1401016	WELD-HDL,16
1401143	WELD-HDL,19-6 W/CV & ADAPT
1401585	WELD-HDL,50-9 ACETYLENE
1401590	WELD-HDL,50-10 PROPANE/PROPYLENE
1300400	CUT-ATT,71-3

REPLACEMENT TIPS

OXY/ACETYLENE CUTTING

1500820	6290-2/0
1500830	6290-0
1500840	6290-1
1500850	6290-2

OXY/ACETYLENE BRAZING & WELDING TIPS

1600020	1390-0
1600030	1390-1
1600040	1390-2
1600050	1390-3
1600060	1390-4
1600070	1390-5
1600080	1390-6
1600090	1390-7

OXY/ACETYLENE BRAZING & WELDING TIPS

1600840	23A90-0
1600850	23A90-1
1600860	23A90-2
1600870	23A90-3
1600880	23A90-4
1600890	23A90-5
1600900	23A90-6
1600910	23A90-7

PART NO. DESCRIPTION

OXY/ACETYLENE HEATING TIPS

1800025	1390-HA
4300416	J-63-1
4300417	J-63-2

AIR FUEL - ACETYLENE QUICK CONNECT TIPS

1601010	HA-3
1601011	HA-5
1601012	HA-8
1601013	HA-11
1601014	HA-14
1601015	HA-32

AIR FUEL - ACETYLENE SCREW CONNECT TIPS

1601020	HS-1
1601021	HS-2
1601022	HS-3
1601023	HS-4
1601024	HS-5
1601025	HS-6

AIR FUEL - PROPANE/MAPP® QUICK CONNECT TIPS

1601030	HT-2
1601031	HT-3
1601032	HT-4
1601033	HT-5

ACCESSORIES & SAFETY EQUIPMENT

SINGLE HOSE - 3/16" DIA.

4300775	12' ACETYLENE HOSE (A & A FITTINGS)
4300777	24' ACETYLENE HOSE (A & A FITTINGS)
4300774	12' PROPANE HOSE (B & B FITTINGS)
4300779	24' PROPANE HOSE (B & B FITTINGS)

TWIN HOSE - 3/16" DIA.

4300005	12' (A & B FITTINGS)
4300155	12' ACETYLENE (A & A FITTINGS)
4300556	12' L/BND
4300557	20' L/BN

ACCESSORIES

4300414	ARRESTOR,88-5SFBR/L POWERTORCH®
4300415	ARRESTOR,88-5SFBR/L POWERTORCH®
4300674	CYLINDERS,CASE OF 12 16 oz MAPP
4300675	CYLINDERS,CASE OF 12 14.1oz PROPANE
4300676	ADAPTOR,HTA QUICK CONNECT
4300677	CARRYING STAND,B ACET TANK
4300678	CARRYING STAND,MC ACET TANK
4300679	FLAME BARRIER,12 X 12
4300833	TIP CLEANER,POWERTORCH®
4300834	STRIKER,SINGLE FLINT POWERTORCH®
9003678	8593 TIP TUBE
4301600	ADAPTOR,16GA GAS/AIR
9004418	ADAPTOR,M/A TO F/B RH OXY
9004419	ADAPTOR,M/A TO F/B LH ACET/F.GAS
9004426	ADAPTOR,M/B TO F/A RH OXY
9004427	ADAPTOR,M/B TO F/A LH ACET/F.GAS
9100787	MIXER-ASY,H-16-2E
9100096	MIXER-ASY,H-16-E
9100379	D-50-C, TIP TUBE
9100872	D-50-CXL, TIP TUBE

PRESSURE REGULATORS

3000295	601-15-200 (B OUTLET)
3000296	601-80-540 (B OUTLET)
3000407	601-15-200 (A OUTLET)
3000408	601-15-520 (B OUTLET)
3000409	601-50-510P (B OUTLET)
3000411	601-15-520 (B OUTLET)
3000412	601-80-540 (A OUTLET)
3000615	25-500C-580 NITROGEN PURGING

THE HARRIS PRODUCTS GROUP FAMILY



MASON, OHIO
Headquarters

The Harris Products Group is an American manufacturer. Our global footprint and cooperation with Lincoln Electric's manufacturing facilities in 19 different countries enables world wide technical support.

NORTH AMERICA

EUROPE

ASIA

SOUTH AMERICA

The Harris Products Group formed out of a merger of J.W. Harris Company, Harris Calorific, and Autobraze, is a world leader in design, distribution and manufacture of cutting, welding, brazing, soldering consumables and equipment, gas distribution systems, and brazing rings. The Harris Products Group is wholly-owned subsidiary of the Lincoln Electric Company, a global leader in joining, equipment, consumables, accessories, fume extraction.

THE HARRIS DIFFERENCE:

- American Based Company
- Technical Expertise
- Strong Brands
- Superior Products
- Financial Strength

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