

Carbon Steel Solid Wires for MIG/MAG

ER70S-3:

A silicon and manganese deoxidized wire used for mild and low alloy steel general purpose fabrication. Silicon and manganese serve as deoxidizers. Good for out-of-position welding using short circuiting transfer with 75% Ar + 25% CO₂ or CO₂ shielding gases. Good performance over mill scale and rust.

ER70S-6:

Highest combination of manganese and silicon deoxidizers, for stronger deoxidizing power where stringent cleaning procedures are not possible. The high silicon content increases the fluidity of the weld pool, creating a smoother bead appearance and resulting in minimal post-weld grinding.

AWS Classification	Size (INCH)	Part No. 2 lb Spool	Part No. 11 lb Spool	Part No. 33 lb Spool
ER70S-3	.030	S3-030-2		
	.035	S3-035-2		
	.045	S3-045-2		
ER70S-6	.023	S6-023-2	S6-023-11	
	.030	S6-030-2	S6-030-11	S6-030-33
	.035	S6-035-2	S6-035-11	S6-035-33
	.045	S6-045-2	S6-045-11	S6-045-33



HELPFUL HINT:

An increase in wire feed speed will increase your amperage.

Typical Mechanical Properties

TS (PSI)	YS (PSI)	ELONG %	FT LBS @-20°F
78,000	63,000	25	32
84,000	71,000	26	43

Chemical Compositions (Percentages)

AWS Classification	C	Mn	Si	P	S
ER70S-3	0.06 to 0.15	0.90 to 1.40	0.45 to 0.70	0.025	0.035
ER70S-6	0.07 to 0.15	1.40 to 1.85	0.80 to 1.15	0.025	0.035

NOTE:
Single values shown are maximum. Ni, Cr, Mo and V may be present but are not intentionally added. The maximum weight of copper due to any coating plus the residual copper content in the steel shall be .50.

Self-Shielded Flux Cored Wires



AWS Classification	Size (INCH)	2 lb. Spool Part No.	10 lb. Spool Part No.	25 lb. Spool Part No.
E71T-GS	.030	71-030-2	71-030-10	71-030-25
	.035	71-035-2	71-035-10	71-035-25
	.045	71-045-2	71-045-10	71-045-25

This flux cored wire is for single pass welding of mild and low alloy steels in all positions. Travel speed is rapid and weld edges are smooth.

HELPFUL HINTS:

Use DC-Polarity; minimizes the risk of burn through.
50-90 amps for .030 size, 110-130 amps for .035 size.



Universal Welding Wire Spool Adapter

The universal welding wire spool adapter quickly adapts most wirefeeders and integrated MIG machines to use a 4" (1lb. or 2 lb.) spool without removing or altering the standardized 2 inch spindle assembly. It locates the small spool close to the wire inlet of the wirefeeder which promotes a smoother feed of wire.

Part No. OUSA

Welding Wire

Aluminum Solid Wires

ER4043:

5% Si bare Aluminum welding wire, flows freely at 1155°F. Recommended for welding 3003, 3004, 5052, 6061, 6063, casting alloys 43, 355, 356, 214.

ER5356:

5356, 5% Mg bare Aluminum welding wire, flows freely at 1180°F. Recommended for joining 5050, 5052, 5083, 5454, and 5456.



Spools

AWS Classification	Size (INCH)	Part No. 1 lb Spool	Part No. 12 lb Spool	Part No. 16 lb Spool
ER4043	.030	4043-030-1	4043-030-12	
	.035	4043-035-1		4043-035-16
	3/64	4043-364-1		4043-364-16
	1/16	4043-116-1		4043-116-16
ER5356	.030	5356-030-1	5356-030-12	
	.035	5356-035-1		5356-035-16
	3/64	5356-364-1		5356-364-16
	1/16	5356-116-1		5356-116-16

Cut Lengths

AWS Classification	Size (INCH)	10 lb. TB 40 lb. Box	1 lb. TB
ER4043	1/16	4043-116-36	4043-116-36-1
	3/32	4043-332-36	4043-332-36-1
	1/8	4043-18-36	4043-18-36-1
ER5356	1/16	5356-116-36	5356-116-36-1
	3/32	5356-332-36	5356-332-36-1
	1/8	5356-18-36	5356-18-36-1

Chemical Compositions (Percentages)

AWS Class.	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Others	Al
ER4043	4.5-6.0	0.80	0.30	0.05	0.05	--	0.10	0.20	0.15	Rem
ER5356	0.25	0.50	0.10	0.05-0.20	4.5-5.5	0.05-0.20	0.10	0.06-0.20	0.15	Rem

Single values shown are maximum percentages, unless otherwise specified.

Gas Welding Rods

RG45: This is a copper coated, iron based low alloy steel rod, predominately used for torch welding mild steel alloys. This alloy offers very good machinability and ductility for ordinary purposes, where a minimum tensile strength is often used for gas fusion welding of plate, sheet, structural shapes, pipe and castings.

RG60: This is a steel rod used for torch welding of various carbon steels. These rods consistently produce medium to high quality welds.

SILICON BRONZE: A copper silicon manganese alloy, suitable for welding copper and other copper alloys, and for many sheet metal applications employing plain and galvanized steel. Melting point 1866°F.

LOW FUMING BRONZE: A low-fuming oxy-acetylene brazing rod extensively used for joining of steels and overlaying of cast iron. The fuming qualities and good mechanical properties make this a widely used general purpose rod. Melting point 1620°F.

AWS Classification	Size (INCH)	50 lb. Box	1 lb. TB	5 lb. TB
R45 (RG45)	1/16	45-116-36	45-116-36-1	45-116-36-5
	3/32	45-332-36	45-332-36-1	45-332-36-5
	1/8	45-18-36	45-18-36-1	45-18-36-5
	5/32	45-532-36		
	3/16	45-316-36		
R60 (RG60)	1/16	60-116-36	60-116-36-1	
	3/32	60-332-36	60-332-36-1	
	1/8	60-18-36	60-18-36-1	
	5/32	60-532-36		
	3/16	60-316-36		

Description	Size	Part No.	1 lb. TB	5 lb. TB
Silicon Bronze	1/16"	10 lb. TB 656-116-36		
	3/32"	40 lb. Box 656-332-36		
	1/8"	656-18-36		
Low Fume Bronze Bare	1/16"	681-116-36	681-116-36-1	681-116-36-5
	3/32"	681-332-36	681-332-36-1	681-332-36-5
	1/8"	50 lb. Bulk 681-18-36	681-18-36-1	681-18-36-5
	5/32"	681-532-36		
	3/16"	681-316-36		
Low Fume Bronze (Flux Coated)	3/32"	10 lb. TB 681C-332-36	681C-332-36-1	
	1/8"	50 lb. Box 681C-18-36	681C-18-36-1	
	1/16"	681C-116-36-1		

Chemical Compositions (Percentages)

AWS Class	C	Cu	Zn	Sn	Mn	Fe	Si	P	Al	Pb
RG45	.08	.30	-	.04	.50	Rem	0.10	0.035	0.02	-
RG60	.16	.30	-	.035	0.90-1.40	Rem	0.10-0.35	0.035	-	-
Description	Cu	Zn	Sn	Mn	Fe	Si	P	Al	Pb	
Silicon Bronze Bare	94.0 min	1.50	1.50	1.50	0.05	2.8-4.0	0	0.01	0.02	
Low Fuming Bronze Bare	56.60	Bal	0.8-1.1	0.01-0.50	0.25-1.20	0.04-0.15	0	0.01	0.05	
Low Fuming Bronze Flux Coated	56.60	Bal	0.8-1.1	0.01-0.50	0.25-1.20	0.04-0.15	0	0.01	0.05	

Stainless Steel Solid Wires

308L:

308L contains an average .03% carbon, producing a weld deposit with good resistance against intergranular corrosion caused by carbide precipitation. 308L is commonly used for welding AISI types 304L, 308L, 321, and 347.

308LSi:

308LSi has a higher silicon content along with a low carbon content. The increased silicon level provides better arc stability and a smoother bead appearance while an average .03% carbon level reduces carbide precipitation. 308LSi produces excellent quality fillet and butt welds. Typical applications would include those of 308 and 308L welding wires.

309L:

309L contains an average .03% carbon to provide a weld deposit that will offer good resistance against intergranular corrosion caused by carbide precipitation. 309L is excellent for buttering passes and overlay work. Typical applications include those of 309 welding wire.

316L:

316L is used for welding AISI 316L stainless that may be exposed to organic and inorganic acids. The addition of .03% carbon produces a weld deposit with excellent resistance against intergranular corrosion caused by carbide precipitation.

316LSi:

316LSi has a higher silicon content along with a low carbon content, producing better arc stability, smoother bead appearance and excellent resistance to carbide precipitation. 316LSi is used for welding austenitic acid-resistant steels such as those containing 18% Cr, 8% Ni, 2-3% Mo.

SPOOLS

AWS Classification	Size	2 lb. Spools	10 lb. Spools	30 lb. Spools
ER308L	.030	308L-030-2	308L-030-10	308L-030-30 308L-035-30 308L-045-30
	.035			
	.045	308L-023-10		
	.023			
ER308LSi	.030			308LHS-035-30 308LHS-045-30
	.035			
ER309L	.023		309L-023-10 309L-030-10	309L-035-30 309L-045-30
	.030			
	.035			
ER316L	.023		316L-023-10 316L-030-10	316L-035-30 316L-045-30
	.030			
	.035			
	.045			

CUT LENGTHS

AWS Classification	Size (INCH)	Part No.	1 lb. TB
ER308L	1/16	308L-116-36	308L-116-36-1
	3/32	308L-332-36	308L-332-36-1
	1/8	308L-18-36	308L-18-36-1
ER309L	1/16	309L-116-36	
	3/32	309L-332-36	
	1/8	309L-18-36	
ER316L	1/16	316L-116-36	
	3/32	316L-332-36	
	1/8	316L-18-36	

Stainless Steel Rods are 36" cut lengths/10 lbs. per box; 30 lbs. per master

Chemical Compositions (Percentages)

AWS Class.	C	Cr	Ni	Mo	Mn	Si	P	S	Fe	Cu
ER308L	0.03	19.5-22.0	9.0-11.0	0.75	1.0-2.5	0.30-0.65	0.03	0.03	Rem	0.75
ER308LSi	0.03	19.5-22.0	9.0-11.0	0.75	1.0-2.5	0.65-1.00	0.03	0.03	Rem	0.75
ER309L	0.03	23.0-25.0	12.0-14.0	0.75	1.0-2.5	0.30-0.65	0.03	0.03	Rem	0.75
ER316L	0.03	18.0-20.0	11.0-14.0	2.0-3.0	1.0-2.5	0.30-0.65	0.03	0.03	Rem	0.75
ER316LSi	0.03	18.0-20.0	11.0-14.0	2.0-3.0	1.0-2.5	0.65-1.00	0.03	0.03	Rem	0.75

Single values shown are maximum percentages, unless otherwise specified

TIG Rod

AWS Classification	Size (INCH)	10 lb. TB 30 lb. Box	1 lb. TB
ER70S-2	.035	S2-035-36	
	.045	S2-045-36	
	1/16	S2-116-36	S2-116-36-1
	3/32	S2-332-36	S2-332-36-1
	1/8	S2-18-36	S2-18-36-1
ER70S-6	1/16	S2-116-36	
	3/32	S2-332-36	
	1/8	S2-18-36	

ER70S2

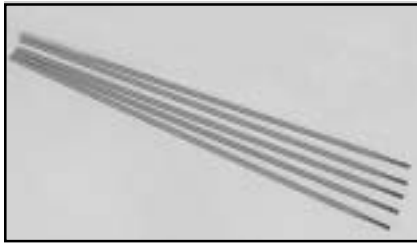
This is a premium TIG wire for welding on all grades of mild and carbon steels, producing quality welds with minimal porosity. It contains 5 deoxidizers (Manganese, Silicon, Zirconium, Titanium and Aluminum) which make it an excellent choice for welding over rust and mill scale. No flux required. This product is embossed on both ends for easy identification.

ER70S6

This is a mild steel welding wire that contains higher levels of manganese and silicon than other standard grades of MIG wire to produce high quality welds when used on dirty, oily or rusty steel. A higher silicon content increases the fluidity of the weld pool, creating a smoother bead resulting in minimal post-weld grinding. This wire is engineered to provide porosity-free, x-ray quality welds at the highest tensile strength (as welded) of all the plain carbon steel wires.

* This product require the use of CO₂ as a shielding gas.

Stick Electrodes



AWS Classification	Size (INCH)	1 lb. Box Part No.	5 lb. Box Part No.
E6011	3/32	6011-332-1	6011-332-5
	1/8	6011-18-1	6011-18-5
	5/32		6011-532-5
E6013	3/32	6013-332-1	6013-332-5
	1/8	6013-18-1	6013-18-5
	5/32		6013-532-5
E7014	3/32		7014-332-5
	1/8		7014-18-5
	5/32		7014-532-5
E7018	3/32		7018-332-5
	1/8		7018-18-5
	5/32		7018-532-5
E7018AC	3/32		7018AC-332-5
	1/8		7018AC-18-5
	5/32		7018AC-532-5
E7024	3/32		7024-332-5
	1/8		7024-18-5
	5/32		7024-532-5
E316L-16	3/32	316L-16-332-1	
	1/8	316L-16-18-1	
	5/32	316L-16-532-1	
NI-55 ENiFeCl	3/32	NI55-332-1	
	1/8	NI55-18-1	
NI-99 ENiCl	3/32	NI99-332-1	
	1/8	NI99-18-1	

Single values shown are maximum percentages, unless otherwise specified.

Chemical Compositions (Percentages)

AWS Classification	C	Mn	Si	P	S
E6011	0.08	0.45	0.18	0.014	0.015
E6013	0.08	0.45	0.18	0.014	0.012
E7014	0.12	0.68	0.33	0.021	0.012
E7018	0.08	1.0	0.6	0.012	0.011
E7024	0.06	0.81	0.43	0.018	0.019
E316L-16	0.04	0.5-2.5	0.90	0.04	0.03

Packaged Stick Electrodes

E6011:

Steel electrode offering excellent mechanical properties in the welding of mild steels, galvanized, and some low alloy steels. The coating produces a forceful, spray-type arc, resulting in deeply penetrating welds in all positions. The slag is thin and readily removable. Operates on AC or DCEP.

E6013:

Establishes 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. E6013 is ideally suited for general purpose welding, even with small AC and power sources having low open-circuit voltage. Works well on AC and DC.

E7014:

Has an iron powder covering. The iron powder content yields a high deposition rate in all positions. The welds reflect smooth beads with fine ripples. E7014 is particularly advantageous when poor fit-up exists. The slag is easily removed, often self lifting. E7014 operates on AC, DCEN or DCEP.

E7018:

Is an efficient, all position, iron powder, low hydrogen type electrode which exhibits 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 remarkably easy to remove, revealing a bead with distinct ripples. Operator appeal is a plus factor. Operates on AC or DCEP.

E7018AC:

This low-hydrogen type welding electrode is a version of E7018 specifically designed to have optimum characteristics when used with an AC power source. It is very easy to strike and has an extremely stable arc giving it excellent operator appeal. It welds exceptionally well on small, utility-type welders.

E7024:

Is a high speed, iron powder, heavy coated electrode for high deposition rates on horizontal and down hand welding. Excellent bead appearance and self-cleaning slag give it operator appeal. This electrode has good weldability and superior mechanical properties and is particularly useful in obtaining increased penetration with little or no root porosity in horizontal or positioned fillets.

E316L-16:

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

NI-55:

Nickel iron electrode for repairing large defects in cast iron, joining sections over 1/4" thick. For welding nodular, malleable and alloy cast irons; high-phosphorus castings.

NI-99:

Nickel electrode for repairing small defects in cast iron, welding thin cast iron sections together or to steel. Machinability and color match excellent.

Valu-MIG Guns



- Air Cooled Design
- Available in 250 and 400 AMP Models 15' cable
- Available with your choice of rear connections: Tweco, Lincoln or Miller

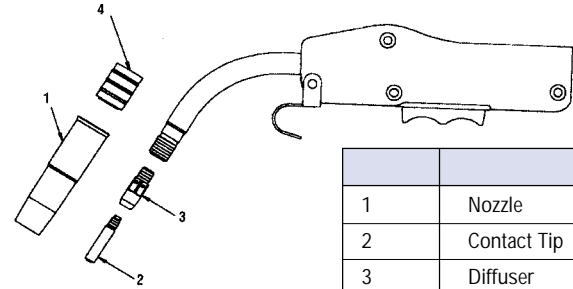
250 AMP

Part No.	Rear Connection	Diameter	Cable Length
VM250-15-3035	Tweco	.030/.035"	15'
VM250M-15-3035	Miller	.030/.035"	15'
VM250L-15-3035	Lincoln	.030/.035"	15'

400 AMP

Part No.	Rear Connection	Diameter	Cable Length
VM400-15-3545	Tweco	.030/.045"	15'
VM400M-15-3545	Miller	.030/.045"	15'
VM400L-15-3545	Lincoln	.030/.045"	15'

Valu-MIG Breakdown



Number	Description
1	Nozzle
2	Contact Tip
3	Diffuser
4	Nozzle Insulator

Tweco Selector Chart

Gun	Contact Tip	Diffuser	Insulator	Nozzle
No. 1, 150	VM 11		-	VM 21 Series
No. 2, 250	VM 14, 14H	VM 52	VM 32	VM 22 Series
	VM 14H	VM 52FN	-	VM 23 Series
No. 3, 300	VM 14, 14H	VM 54A	-	VM 23 Series
No. 4, 400	VM 14, 14H	VM 54A	VM 34A, 34CT	VM 24 Series

Contact Tips

Product	Part No.	Wire Size	
		Inches	Metric
 Use on Mini & #1 Gun	VM11-23	.023	.6 mm
	VM11-30	.030	.8 mm
	VM11-35	.035	.9 mm
	VM11-45	.045	1.2 mm
 Use on #2, 3, 4 Gun	VM14-23	.023	.6 mm
	VM14-30	.030	.8 mm
	VM14-35	.035	.9 mm
	VM14-40	.040	1.0 mm
	VM14-45	.045	1.2 mm
	VM14-52	.052	1.3 mm
 Use on #2, 3, 4 Gun	VM14H-35	.035	.9 mm
	VM14H-40	.040	1.0 mm
	VM14H-45	.045	1.2 mm
	VM14H-52	.052	1.3 mm
	VM14H-116	1/16	1.6 mm
	VM14H-564	5/64	2.0 mm
 Use on #2, 3, 4 Gun	VM14T-30	.030	.8 mm
	VM14T-35	.035	.9 mm
	VM14T-45	.045	1.2 mm
	VM14T-52	.052	1.3 mm
	VM14T-116	1/16	1.6 mm



Liners

Part No.	Length	Wire Size	Gun
VM42-3035-15	15'	.030 - .035	#1 & #2
VM42-3035-25	25'	.030 - .035	
VM42-4045-15	15'	.040 - .045	
VM42-4045-25	25'	.040 - .045	
VM42N-3545-15	15'	.030 - .035 AL	
VM44-116-15	15'	.052 - 1/16	#3 & #4
VM44-116-25	25'	.052 - 1/16	
VM44-3545-15	15'	.035 - .045	
VM44-3545-25	25'	.035 - .045	
VM44-564-15	15'	5/64	
VM44-564-25	25'	5/64	

Gas Diffusers

Product	Part No.	Description
 Part No. VM52	VM35-50	STD Mini-Mig Gun Diffuser use VM11 Tips
	VM52	STD #2 Gun Diffuser use VM14 TIPS
	VM52-23	#2 Gun Diffuser, use with .023 wire use VM14 Tips
 Part No. VM54A	VM52FN	#2 Gun Diffuser, use with #3 and #4 optional nozzles use VM14 Tips
	VM54A	STD #3 & #4 Gun Diffuser use VM14 Tips

Nozzle Insulators - Threaded

Product	Part No.	Description
 Part No. VM34A	VM32	Adjustable, for use with #2 Gun Nozzles
	VM34A	Adjustable, for use with #2 Gun (use with VM52FN Diffuser), #3 and #4 Gun Nozzles
	VM34CT	For use with coarse thread nozzles, #2, #3, #4 Gun

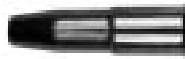
Tweco Style Consumables

Nozzles

Mini & #1 Gun



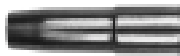
No. 2 Gun



No. 2, 3, 4 Gun



No. 2, 3, 4 Gun



Part No.	Bore Size Inches	Bore Size Metric	Insulator	Description
VM21-50	1/2"	12.7 mm	Self	Standard 1/8" Recess
VM21-62	5/8"	15.9 mm	Self	
VM22-50	1/2"	12.7 mm	VM32	Adjustable Standard for No. 2 Gun 3/32" Projection, 1/4" Recess, use with VM52 Gas Diffuser
VM22-62	5/8"	15.9 mm	VM32	
VM22-37-SS	3/8"	9.5 mm	VM32	Optional, Short-Stop 1/4" to 1/16" Recess, no projection, use with VM52 Gas Diffuser
VM22-50-SS	1/2"	12.7 mm	VM32	
VM22-62-SS	5/8"	15.9 mm	VM32	
VM22T-37-SS	3/8"	9.5 mm	VM32	Optional, Tapered-use with tapered tips only and VM52 Gas Diffuser
VM23-37	3/8"	9.5 mm	Self	Standard for No. 3, Optional for No. 2 and No. 4 Gun 1/8" to 5/32" Recess For No. 2 Gun, use with VM52FN Diffuser
VM23-50	1/2"	12.7 mm	Self	
VM23-62	5/8"	15.9 mm	Self	
VM23-75	3/4"	19.1 mm	Self	
VM23-50-F	1/2"	12.7 mm	Self	Optional for No. 2, 3, and 4 Gun Flush to 1/16" Projection For No. 2 Gun Use with VM52FN Gas Diffuser
VM23-62-F	5/8"	15.9 mm	Self	
VM23T-37	3/8"	9.5 mm	Self	Optional, Tapered, No. 2, 3, and 4 Gun 1/8" Recess. For No. 2 Gun, use with VM52FN Gas Diffuser
VM24A-50	1/2"	12.7 mm	VM34A	Standard for No. 4, Optional for No. 2 and No. 3 Gun Adjustable 3/16" Projection, 1/4" Recess For No. 2 Gun, use with VM52FN Gas Diffuser
VM24A-62	5/8"	15.9 mm	VM34A	
VM24A-75	3/4"	19.1 mm	VM34A	
VM24A-50-SS	1/2"	12.7 mm	VM34A	Optional, Short-Stop for No. 2, 3 and 4 Gun 1/4" to 1/16" Recess, No Projection for No. 2 Gun use with VM52FN Gas Diffuser
VM24A-62-SS	5/8"	15.9 mm	VM34A	
VM24CT-37-S	3/8"	9.5 mm	VM34CT	Optional, Coarse Thread for No. 2, 3 and 4 Gun 5/32" Recess for No. 2 Gun, use with VM52FN Gas Diffuser
VM24CT-50-S	1/2"	12.7 mm	VM34CT	
VM24CT-62-S	5/8"	15.9 mm	VM34CT	
VM24CT-75-S	3/4"	19.1 mm	VM34CT	
VM24CT-50-F	1/2"	12.7 mm	VM34CT	Optional, Coarse Thread for No. 2, 3 and 4 Gun 1/16" Recess for No. 2 Gun, use with VM52FN Gas Diffuser
VM24CT-62-F	5/8"	15.9 mm	VM34CT	

Carbons Arc Gouging Electrodes

- Designed specifically for the air carbon arc metal removal process
- Highly resistant to breakage, heat and oxidation
- Excellent for fast-cutting of carbon and ductile irons, aluminum, copper and other high strength and high temperature alloys
- Broad range of cutting applications, such as machining grooves for weld-joint preparation, removing hard surface metal to facilitate repair, cutting non-ferrous and other hard-to-cut metals used in industries such as metal fabrication, foundries, shipbuilding, construction, machine shops, transportation, salvage yards, general maintenance, etc.



- Superior Metal Removal Rate
- Clean Cuts
- Cooler Operation
- Uniform Diameter
- Excellent Arc Stability

DC Copperclad Electrodes

Part No.	Item/Size		Electrical Requirement	
			Min Amp	Max Amp
22-023-003X	1/8" x 12"	(3 x 300 mm)	60	90
22-983-003X	5/32" x 12"	(4 x 300 mm)	90	150
22-033-003X	3/16" x 12"	(5 x 300 mm)	200	250
22-043-003X	1/4" x 12"	(6 x 300 mm)	300	400
22-053-003X	5/16" x 12"	(8 x 300 mm)	350	450
22-063-003X	3/8" x 12"	(10 x 300 mm)	450	600

Arc Gouging Torches



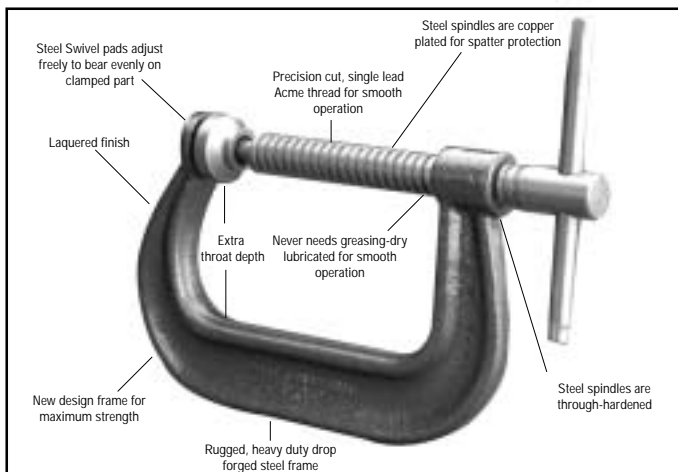
61-062-016X

Model H-3 is a general purpose Best Welds torch which will groove, bevel, cut, gouge, pierce or flush away any kind of metal. The Best Welds torch saves time, costs less to use and gives a better finished job than older methods such as grinding, chipping, etc.



61-064-009X

The K3 is a medium-duty torch. This torch is built for repair and maintenance jobs in areas such as mining, construction and all types metal fabrication.



C-Clamps

Part No.	UPC No. 0 27719	Capacity	Throat Depth	Proof Test (lbs)
402P	00136 4	0" Thru 2-1/8"	2-5/8"	3500
404P	00141 8	0" Thru 4-7/16"	3-1/4"	6200
406P	00146 3	0" Thru 6-1/16"	4-1/8"	6900
408P	00151 7	0" Thru 8-3/16"	5"	6600
410P	00156 2	2" Thru 10-1/8"	6"	8000
412P	00161 6	2" Thru 12-3/16"	6-5/16"	9300

Chipping Hammer & Tank Wrenches



Part No. 000H



Part No. 0250



Part No. 1013

Precise Openings for firm hold

3/8" Socket for Acetylene Valves

All wrenches come in high quality, black gloss finish, and are individually polybagged

Part No.	UPC No. 0 27719	Type	Socket Size	Carton Pack
1013	00266 8	Ten Way Wrench (3/16"- 1-1/8") with 3/8" Socket	3/8"	10
0250	00271 2	"T" Handle Wrench for Linde® Acetylene Valves	9/32"	10
000H	01006 9	Hardened Cone & Chisel head with coil handle		10

Cable Cover / Rap-Around / Valu-Mig Guns



MIG-TIG Cable Cover

- Abrasion resistant woven material
- Non-conductive zipper with overlap flap to protect it from weld spatter
- New Enter-Tube™ design innovation saves time by allowing the cover to be installed without disconnecting the torch from the power source
- “Snug Straps” to secure both ends on torch
- Ultraviolet light resistant
- Acid/chemical resistant
- Flame & tear resistant

Part No.	Description	Width	Length
CC310B	TIG 10'	3"	10'
CC323B	TIG 23'	3"	23'
CC410B	MIG 10'	4"	10'
CC423B	MIG 23'	4"	23'



Welders & Pipe Fitters “Rap-Around”

- Double ruled so both the top and bottom surfaces can be used for layouts - IT IS NEVER UPSIDE-DOWN!
- Packaged in its own clear plastic tube to protect it between uses
- Packaged 12 to a case

Stock No.	Size	Description	Pipe Size
RA150	small	2-1/2" W x 2' L	1" to 3" pipe
RA160	medium	4" W x 4' L*	3" to 6" pipe
RA170	large	4" W x 6' L*	3" to 10" pipe
RA177	x-large	4" W x 7' L*	6" to 14" pipe
RA179	xx-large	4" W x 9' L*	8" to 18" pipe
RA184	Special "4"	4" W, length desired	
RA187	Speical "7"	7" W, length desired	

* 36" area imprinted with Lay-Out information



Valu-Rod Oven

Operates from any 115 volt, AC/DC source. Is equipped with rod lifter, pilot light and has 1" high false bottom to prevent moisture damage to electric connections. Oven temperature not controlled by thermostat, averages 275 F.

- 10 lb. capacity
- 275 F average temperature range
- Weighs 14 lbs.
- Tube 100 W element with side placement
- 50/60 Hz frequency
- Single Phase

Part No. VO-10B



Valu-Tig Torches & Accessories

TIG Line in Silicone Rubber



125 AMP Air Cooled Flex (SR)	
Part No.	Description
VTR-9FV	Flex Torch w/valve, 125 AMP Air Cooled
VTR-9FV-12-R	Torch Package: Torch body, handle, med. back cap, 1 pc. 12-1/2' rubber cable
VTR-9FV-25-R	Torch Package: Torch body, handle, med. back cap, 1 pc. 25' rubber cable

150 AMP Air Cooled Flex (SR)	
Part No.	Description
VTR-17FV	Flex torch w/valve, 150 AMP air cooled
VTR-17FV-12-R	Torch Package: Torch body, handle, long back cap, 1 pc 12-1/2' rubber cable
VTR-17FV-25-R	Torch Package: Torch body, handle, long back cap, 1 pc 25' rubber cable

200 AMP Air Cooled Flex (SR)	
Part No.	Description
VTR-26FV	Flex Torch w/valve 200 AMP Air cooled
VTR-26FV-12-R	Torch Package: Torch body, handle, long back cap, 1 pc. 12-1/2' rubber cable
VTR-26FV-25-R	Torch Package: Torch body, handle, long back cap, 1 pc. 25' rubber cable

125 AMP Air Cooled (SR)	
Part No.	Description
VTR-9	Torch Body, 125 AMP Air cooled silicone rubber
VTR-9-12-R	Torch Package: Torch Body, handle med. back cap, 1 pc. 12-1/2' rubber cable
VTR-9-25-R	Torch Package:Torch Body, handle med. back cap, 1 pc. 25' rubber cable
VTR-9V	Torch w/valve, 125 AMP air cooled silicone rubber
VTR-9V-12-R	Torch Package: Torch Body, handle med. back cap, 1 pc. 12-1/2' rubber cable
VTR-9V-25-R	Torch Package: Torch Body, handle med. back cap, 1 pc. 25' rubber cable

150 AMP Air Cooled (SR)	
Part No.	Description
VTR-17	Torch, 150 AMP Air Cooled Silicone Rubber
VTR-17-12-R	Torch Package: Torch body, handle, long back cap, 1 pc. 12-1/2' rubber cable
VTR-17-25-R	Torch Package: Torch body, handle, long back cap, 1 pc. 25' rubber cable
VTR-17V	Torch w/valve, 150 AMP air cooled silicon rubber
VTR-17V-12-2	Torch Package: Torch body, handle, long back cap, 2 pc 12-1/2' braided cable
VTR-17V-12-R	Torch Package: Torch body, handle, long back cap, 1 pc 12-1/2' rubber cable
VTR-17V-25-2	Torch Package: Torch body, handle, long back cap, 2 pc. 25' braided cable
VTR-17V-25-R	Torch Package: Torch body, handle, long back cap, 1 pc. 25' rubber cable

200 AMP Air Cooled (SR)	
Part No.	Description
VTR-26	Torch 200 AMP Air cooled silicone rubber
VTR-26-12-R	Torch Package: Torch body, handle, long back cap, 1 pc. 12-1/2' rubber cable
VTR-26-25-R	Torch Package: Torch body, handle, long back cap, 1 pc. 25' rubber cable
VTR-26V	Torch w/ valve, 200 AMP air cooled silicone rubber
VTR-26V-12-R	Torch Package: Torch body, handle, long back cap, 1 pc. 12-1/2' rubber cable
VTR-26V-25-R	Torch Package: Torch body, handle, long back cap, 1 pc. 25' rubber cable

250 AMP Water Cooled (SR)	
Part No.	Description
VTR-20	Torch, 250 AMP Water cooled silicone rubber
VTR-20-12	Torch Package: Torch body, handle, long back cap, 3 pc. 12-1/2' vinyl pc. assy
VTR-20-25	Torch Package: Torch body, handle, long back cap, 3 pc. 25' vinyl pc. assy

350 AMP Water Cooled (SR)	
Part No.	Description
VTR-18	Torch, 350 AMP Water cooled silicone rubber
VTR-18-12	Torch Package: Torch body, handle, long back cap, 3 pc. 12-1/2' vinyl pc assy
VTR-18-25	Torch Package: Torch body, handle, long back cap, 3 pc. 25' vinyl pc assy

Valu Coolers



VC2500SS

- Best Welds Valu Water Coolers are ideal for MIG, TIG, Plasma, resistance, and Electro-Slag type welding.
- Best Welds Valu Water Coolers feature an all stainless steel tank, copper radiator coils, and a reinforced hose.
- Best Welds Valu Water Coolers have easy-to-read water indicators, quick change pumps and filters.
- Available in two compact styles with rigid motor mount to minimize damage and vibration.



VC3500SS

Model:	VC2500SS	VC3500SS
Dimensions:	17"L x 11" W x 14"H (43.2 cm x 27.9 cm x 35.6 cm)	21-1/4"L x 13-1/8"W x 16-3/4"H (54.0 cm x 33.3 cm x 42.5 cm)
Reservoir:	2-gallon capacity, stainless steel	3-gallon capacity, stainless steel
Pump Capacity:	100 psi max. 1.5 gpm (5.68 lpm) @ 50 psi 1.8 gpm (6.81 lpm) @ 60 psi	100 psi max. 1.5 gpm (5.68 lpm) @ 50 psi 1.8 gpm (6.81 lpm) @ 60 psi
Heat Exchanger:	High efficiency, copper core, rustproof	High efficiency, copper core, rustproof
Motor Voltage:	115VAC single phase 60 Hz	115VAC single phase 60 Hz
Amperage:	6.8	6.8
Water Connections:	1/4" NPT supplied w/ 5/8-18" UNC LH thread fitting	1/4" NPT supplied w/ 5/8-18" UNC LH thread fitting
Net Weight:	29.3 lbs. (13.3 kg)	43 lbs. (19.5 kg)
App Shipping Weight	34.3 lbs. (15.5 kg)	46 lbs. (20.9 kg)

Cooler Fluids



Specially formulated for use in radiator circulator and re-circulator systems. Recommended for all Plasma, MIG, TIG resistance welding systems and general industrial applications. Extends warranty

For best results always use special coolant fluid in place of ordinary tap water.

Red Coolant-For plasma cutting and welding applications.

Blue Coolant-For MIG, TIG, resistance welding, and general industrial applications.

Green Coolant- For superior temperature applications.

Part No.	Description	UM
16-25501	Blue Coolant 19°F/-7°C	1GL/3.785 liters
16-25502	Red Coolant 6°F/-14°C	1GL/3.785 liters
16-25503	Green Coolant -60°F/-52°C	1GL/3.785 liters

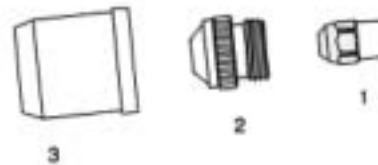
Plasma

Replacement Parts Suitable for: ESAB/L-TEC PT-17/17A

PCM-50, PCM-70, PCM-100

Item	Part No.	Ref. No.	Description	Std. Qty.
1	CS19918	19918	Electrode	1
2	CS19915	19915	Nozzle, 50A	1
	CS19916	19916	Nozzle, 60A	1
	CS19917	19917	Nozzle, 70A	1
	CS20056	20056	Nozzle, 150A	1
3	CS19124	19124	Heat Shield	1
N/S	CS20053*	20053	Electrode Adapter	1
N/S	CS19114*	19114	Baffle Tube	1

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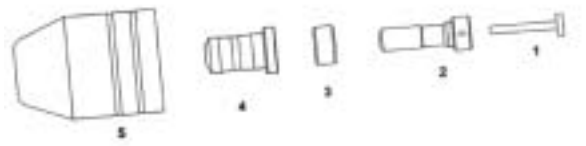


Replacement Parts Suitable for: ESAB/L-TEC PT-27

PCM-750i, PCM-875, PCM-1000i

Item	Part No.	Ref. No.	Description	Std. Qty.
1	CS21619	21619	Valve Pin	1
2	CS33366	33366	Electrode	1
3	CS33367	33367	Swirl Baffle	1
4	CS33368	33368	Nozzle, 30A	1
	CS33369	33369	Nozzle, 50A	1
	CS33418	33418	Nozzle, 80A	1
5	CS21616	21616	HeatShield	1
5	CS21615*	21615	Electrode Seat	1

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Replacement Parts Suitable for: ESAB/L-TEC PT-31/PT-31XL

PCM-Smi, VPi, 32i, 34i, 52i, 54i, 500i, 625i

Item	Part No.	Ref. No.	Description	Std. Qty.
1	CS20862	20862	Extended Electrode, XT	1
2	CS20463	20463	Swirl Baffle	1
3	CS20860	20860	Extended Tip, XT, 30A	1
	CS21008	21008	Extended Tip, XT, 40A	1
	CS20861	20861	Extended Tip, XT, 50A	1
4	CS18204	18204	HeatShield	1
N/S	CS19679*	19679	Seat	1
N/S	CS20324*	20324	Plunger	1

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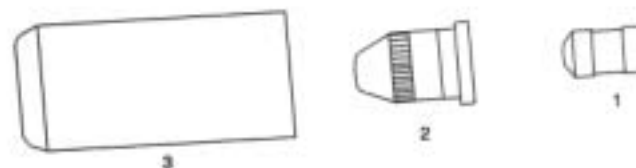


Replacement Parts Suitable for: ESAB/L-TEC PT-20AM

PCM-875, PCM-150, PCM-1000i

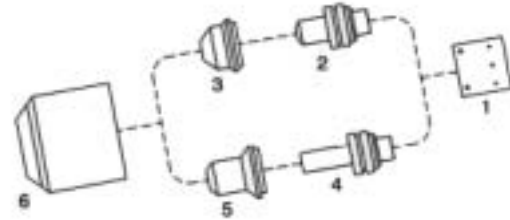
Item	Part No.	Ref. No.	Description	Std. Qty.
1	CS21150	21150	Electrode	1
2	CS21330	21330	Nozzle, 50A	1
	CS21329	21329	Nozzle, 70A	1
	CS21328	21328	Nozzle, 100A	1
3	CS21326	21326	HeatShield	1
N/S	CS21372*	21372	Electrode Seat	1
N/S	CS21373*	21373	Electrode Insulator	1
N/S	CS21374*	21374	Baffle Tube	1
N/S	CS21332*	21332	Electrode Holder Assembly includes CS21374	1

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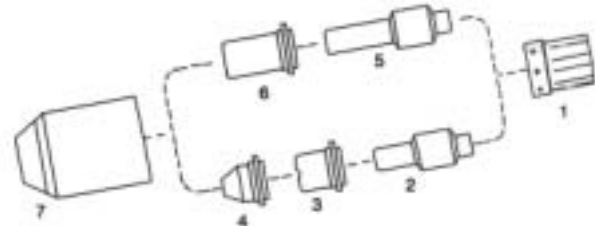
**Replacement Parts Suitable for: HYPERTHERM PAC110
MAX®20, Powermax®350**

Item	Part No.	Ref. No.	Description	Std. Qty.
1	CS020239	020239	Swirl Ring	1
2	CS020220	020220	Electrode	1
3	CS020299	020299	Nozzle, 20A	1
	CS120504	120504	Nozzle, 25A	1
4	CS020382	020382	Electrode, Extended	1
5	CS020381	020381	Extended Tip, 20A	1
6	CS020218	020218	Retaining Cap	1



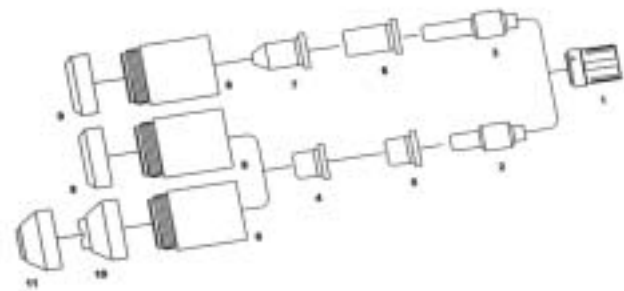
**Replacement Parts Suitable for: HYPERTHERM PAC120
MAX®40CS, MAX®42, MAX®43**

Item	Part No.	Ref. No.	Description	Std. Qty.
1	CS020361	020361	Swirl Ring	1
2	CS020351	020351	Electrode, Air	1
	CS120573	120573	Electrode, N2 <small>(replaces 020480)</small>	1
3	CS020350	020350	Nozzle, 40A	1
4	CS020542	020542	Nozzle, Pipe Saddle	1
5	CS020547	020547	Extended Electrode	1
6	CS020546	020546	Nozzle, Extended	1
	CS120281	120281	Nozzle, Gouging <small>(replaces 020539)</small>	1
7	CS020930	020930	Retaining Cap	1



**Replacement Parts Suitable for: HYPERTHERM PAC121
Powermax®800**

Item	Part No.	Ref. No.	Description	Std. Qty.
1	CS020361	020361	Swirl Ring	1
2	CS020351	020351	Electrode	1
	CS120573*	120573	Electrode	1
3	CS020547	020547	Electrode, Extended	1
	CS120574*	120574	Electrode, Extended	1
4	CS120438	120438	Nozzle, Shielded, 40A	1
	CS120282	120282	Nozzle, Shielded, 50A	1
5	CS020395	020395	Nozzle, Non-shielded	1
6	CS120304	120304	Nozzle, Extended, Non-Shielded	1
7	CS120305	120305	Nozzle, Extended, Pipe Saddle	1
8	CS120301	120301	Retaining Cap	1
9	CS120303	120303	Deflector, Non-Shielded	1
10	CS120601*	120601	Shield, Hand (replaces 120283)	1
11	CS120602*	120602	Shield, Machine	1



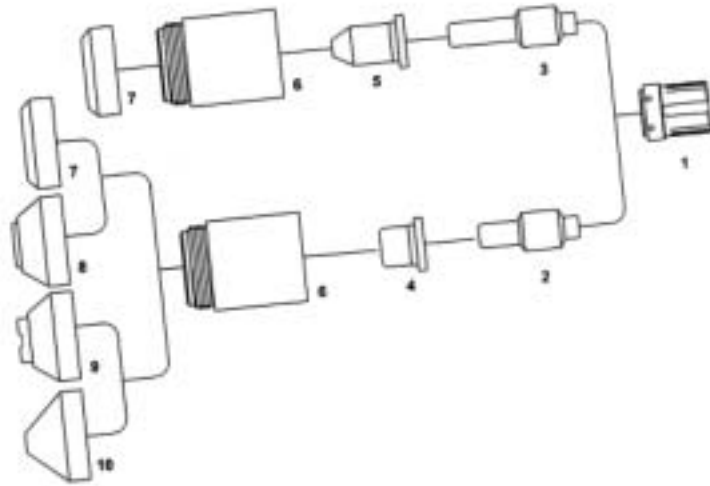
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Plasma

**Replacement Parts Suitable for: HYPERTHERM PAC125
Powermax®900**

Item	Part No.	Ref. No.	Description	Std. Qty.
1	CS120576*	120576	Swirl Ring	1
2	CS120573*	120573	Electrode	5
3	CS120574*	120574	Electrode, Extended	5
4	CS120577*	120577	Nozzle, Shielded, 55A	5
5	CS120578*	120578	Nozzle, Pipe Saddle, 55A	5
	CS120606*	120606	Nozzle, Pipe Saddle, 35A	5
	CS120607	120607	Nozzle, Gouging	1
6	CS120600*	120600	Retaining Cap	1
7	CS120303	120303	Deflector, Non-Shielded	1
8	CS120601*	120601	Shield, Hand	1
9	CS120602*	120692	Shield, Machine	1
10	CS120608	120608	Shield, Gouging	1

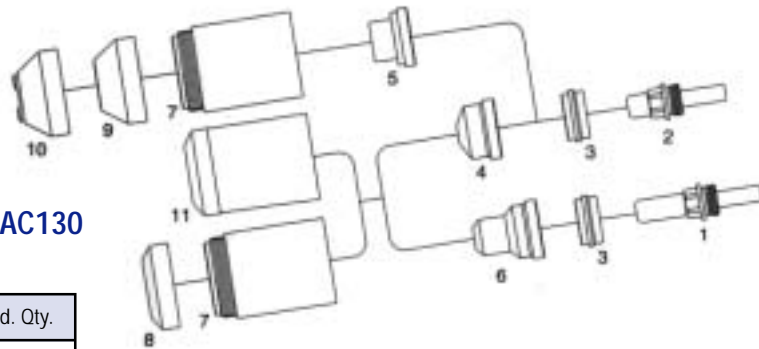
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**Replacement Parts Suitable for: HYPERTHERM PAC130
MAX®70, MAX®80, MAX®100**

Item	Part No.	Ref. No.	Description	Std. Qty.
1	CS020191	020191	Electrode, Air	1
	CS120433*	120433	Electrode, Air	5
	CS020193	020193	Electrode, N2	5
2	CS020564	020564	Electrode, Extended, Air, 10/80A	1
	CS020886	020886	Electrode, Extended, N2, 10/80A	1
	CS120444*	120444	Electrode, Extended, Air, 70/80A	5
	CS020744	020744	Electrode, Gouging, Air, 70/100A	5
3	CS020194	020194	Swirl Ring	1
4	CS020203	020203	Nozzle, Non-Shielded, 40A	1
	CS020396	020396	Nozzle, Shielded, 40A	1
	CS020345	020345	Nozzle, Non-Shielded, 70/80A	1
	CS020195	020195	Nozzle, Non-Shielded, 100A	1
5	CS020397	020397	Nozzle, Shielded 70/80A	1
	CS020337	020337	Nozzle, Shielded 100A	1
6	CS020563	020563	Nozzle, Extended	1
	CS120459	120459	Nozzle, Gouging, 100A	1
	CS020878	020878	Nozzle, Gouging, 70A	1
7	CS020336	020336	Shield Cap	1
8	CS020333*	020333	Deflector	1
9	CS020335*	020335	Shield, Hand	1
10	CS020334*	020334	Shield, Machine	1
	CS020490*	020490	Shield, Machine, 40A	1
N/S	CS020712	020712	Shield, Gouging	1
11	CS020184	020184	Retaining Cap, Std.	1

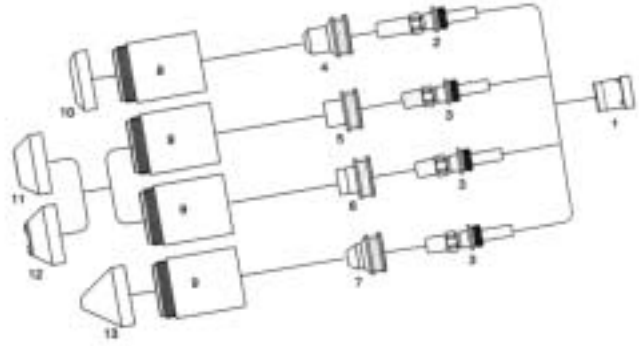
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**Replacement Parts Suitable for: HYPERTHERM PAC135
Powermax®1100**

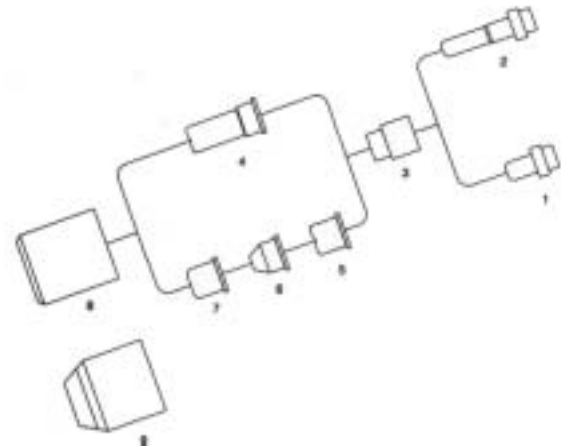
Item	Part No.	Ref. No.	Description	Std. Qty.
1	CS120474	120474	Swirl Ring	1
2	CS120517*	120517	Electrode, Extended, Air, 80A	5
3	CS120473	120473	Electrode, Air, 80A	5
4	CS120518	120518	Nozzle, Extended, 80A	5
5	CS120476*	120476	Nozzle, Shielded, 80A	5
6	CS120515*	120515	Nozzle, Shielded, 40A	5
7	CS120509	120509	Nozzle, Gouging, Air	5
8	CS120483	120483	Shield Cap, 80A	1
9	CS120520	120520	Shield Cap, 40A	1
10	CS120519*	120519	Deflector	1
11	CS120516*	120516	Shield, Machine	1
12	CS120475*	120475	Shield, Hand, 40/80A	1
13	CS120510	120510	Shield, Gouging	1

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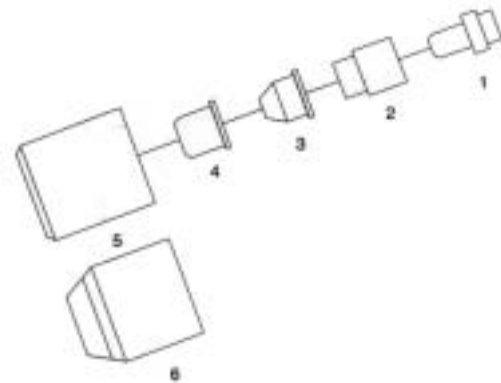
**Replacement Parts Suitable for: HYPERTHERM PAC140
MAX®40**

Item	Part No.	Ref. No.	Description	Std. Qty.
1	CS020103	020103	Electrode	1
2	CS020467	020467	Electrode, Extended	1
	CS020167	020167	Electrode, N2	5
3	CS020101	020101	Swirl Ring	1
4	CS020466	020466	Nozzle, Extended	1
5	CS020115	020115	Nozzle, Non-Shielded, 40A	1
6	CS020131	020131	Nozzle, Pipe Saddle	1
	CS020197	020197	Nozzle, Tapered, Hi-Vis	5
7	CS020102	020102	Nozzle, 40A	1
8	CS020104	020104	Retaining Cap	1
9	CS020200	020200	Retaining Cap, Hi-Vis	1



**Replacement Parts Suitable for: HYPERTHERM HT®40
HT®40C**

Item	Part No.	Ref. No.	Description	Std. Qty.
1	CS020103	020103	Electrode, Air	1
	CS020167	020167	Electrode, N2	5
2	CS020101	020101	Swirl Ring	1
3	CS020131	020131	Nozzle, Pipe Saddle	1
4	CS020102	020102	Nozzle, 40A	1
5	CS020104	020104	Retaining Cap	1
6	CS020200	020200	Retaining Cap, Hi-Vis	1

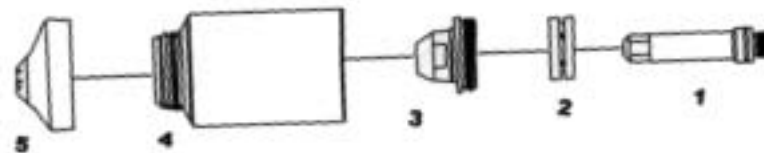
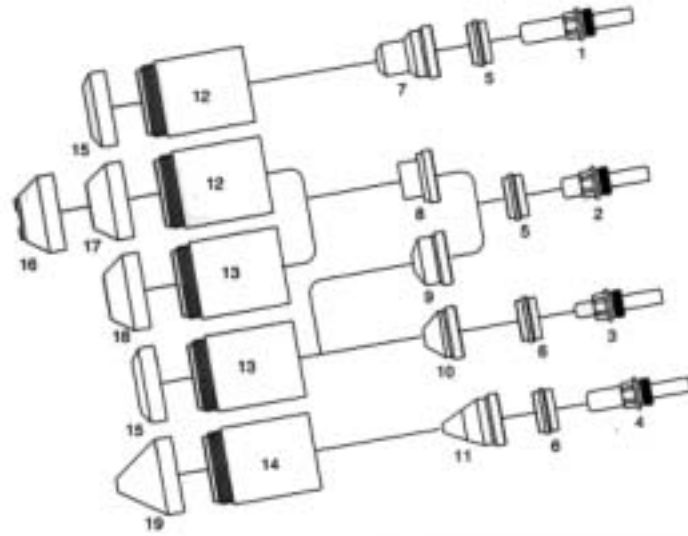


Plasma

**Replacement Parts Suitable for: HYPERTHERM PAC160
MAX®100D**

Item	Part No.	Ref. No.	Description	Std. Qty.
1	CS020564	020564	Electrode, Extended, Air, 100A	1
	CS020887	020887	Electrode, Extended, N2, 100A	5
	CS120444*	120444	Electrode, Extended, Air, 100A	5
2	CS020191	020191	Electrode, Air	1
	CS120433*	120433	Electrode, Air	5
	CS020193	020193	Electrode, N2	5
3	CS020951	020951	Electrode, Air, 30/40A	5
4	CS020744	020744	Electrode, Gouging, Air	5
	CS020703	020703	Electrode, Gouging, A/H2	5
5	CS020706	020706	Swirl Ring	1
6	CS020950	020950	Swirl Ring, 30/40A	1
	CS020750	020750	Swirl Ring, Gouging	1
7	CS020754	020754	Nozzle, Extended, 100A	5
8	CS120336*	120336	Nozzle, Shielded, 60A	5
	CS020705*	020705	Nozzle, Shielded, 100A	5
9	CS020922	020922	Nozzle, Non-Shielded, 60A	5
10	CS020921	020921	Nozzle, Non-Shielded, 100A	5
11	CS020745	020745	Nozzle, Gouging, Air	5
	CS020704	020704	Nozzle, Gouging, A/H2	5
12	CS020846	020846	Shield Cap, 100A	1
13	CS020756	020756	Shield Cap, 60A	1
14	CS020699	020699	Shield Cap, Gouging	1
15	CS020333*	020333	Deflector	1
16	CS020335*	020335	Shield, Hand	1
17	CS020334*	020334	Shield, Machine	1
18	CS020492	020492	Shield, Machine, 60A	1
19	CS020712	020712	Shield, Gouging	1

*= OEM



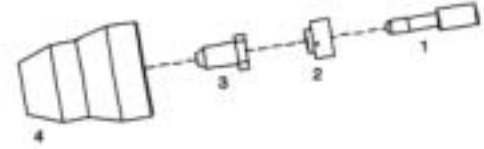
**Replacement Parts Suitable for: HYPERTHERM MAX®200
MAX®200**

Item	Part No.	Ref. No.	Description	Std. Qty.
1	CS120667	120667	Electrode, Air/O2 <small>(replaces 020414)</small>	1
	CS020415	020415	Electrode, N2	1
2	CS020607*	020607	Swirl Ring, Air, N2, Ar/H, 100-200A	1
	CS020604*	020604	Swirl Ring, O2, 200A	1
	CS120833*	120833	Swirl Ring, O2, 200A	1
3	CS020611	020611	Nozzle, Air/N2/Ar-H2, 100A	1
	CS020608	020608	Nozzle, Air/N2/Ar-H2, 200A	1
	CS020605	020605	Nozzle, O2, 200A	1
4	CS020423*	020423	Retaining Cap	1
5	CS020424*	020424	Shield, Machine	1
	CS020446*	020446	Shield, Hand	1
	CS020566*	020566	Shield, O2, 200 Amps	1

*= OEM

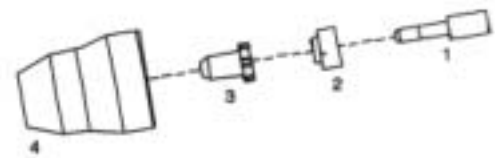
**Replacement Parts Suitable for: THERMAL DYNAMICS PCH-10
Drag-Gun™, Cougar™**

Item	Part No.	Ref. No.	Description	Std. Qty.
1	CS96006	9-6006	Electrode	5
2	CS96007	9-6007	Gas Distributor	1
3	CS96099	9-6099	Tip-Air	5
4	CS96003	9-6003	Shield Cup	1



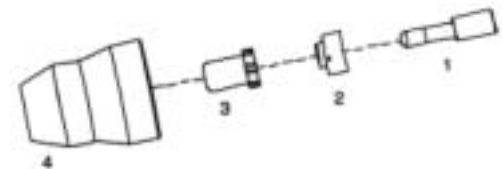
**Replacement Parts Suitable for: THERMAL DYNAMICS PCH-25
EconoPak®, Pak Master®25**

Item	Part No.	Ref. No.	Description	Std. Qty.
1	CS96006	9-6006	Electrode	5
2	CS96007	9-6007	Gas Distributor	1
3	CS94476	9-4476	Tip-Air	5
4	CS96003	9-6003	Shield Cup	1



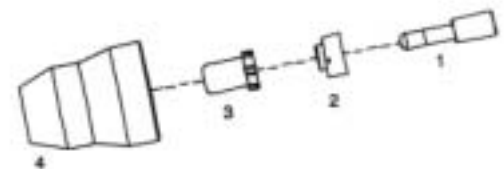
**Replacement Parts Suitable for: THERMAL DYNAMICS PCH-25/38
Pak Master® 38XL, Drag-Gun™ 38**

Item	Part No.	Ref. No.	Description	Std. Qty.
1	CS96506	9-6506	Electrode	5
2	CS96507	9-6507	Gas Distributor	1
3	CS96501	9-6501	Tip, Air	5
4	CS96003	9-6003	Shield Cup	1



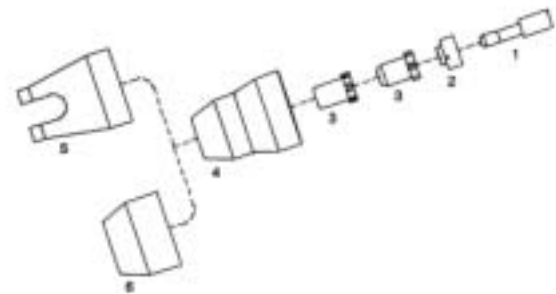
**Replacement Parts Suitable for: THERMAL DYNAMICS PCH-26
EconoPak® 50**

Item	Part No.	Ref. No.	Description	Std. Qty.
1	CS96506	9-6506	Electrode	5
2	CS96507	9-6507	Gas Distributor	1
3	CS96501	9-6501	Tip, Air	5
4	CS96003	9-6003	Shield Cup	1



**Replacement Parts Suitable for: THERMAL DYNAMICS PCH/M-28
PakMaster® 50XL**

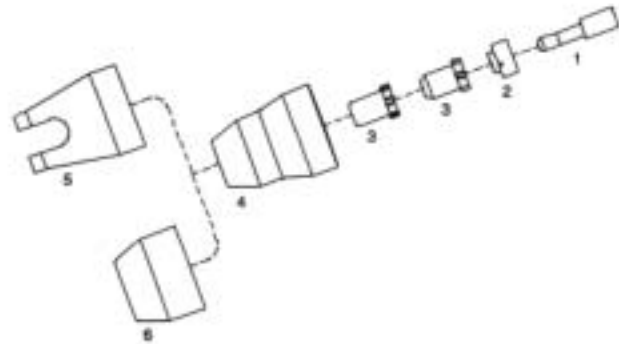
Item	Part No.	Ref. No.	Description	Std. Qty.
1	CS96506	CS96506	Electrode	5
2	CS96507	CS96507	Gas Distributor	1
3	CS96500	CS96500	Tip, Standoff	5
	CS96501	CS96501	Tip, Drag	5
4	CS96003	CS96003	Shield Cup, Std.	1
5	CS96004	CS96004	Shield Cup, Crown (requires CS96003)	1
6	CS96503	CS96503	Shield Cup, Max. life (requires CS96003)	1



Plasma

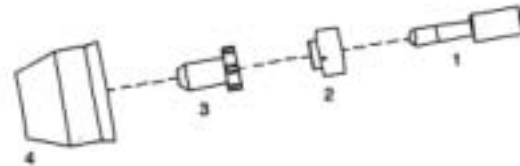
**Replacement Parts Suitable for: THERMAL DYNAMICS PCH/M-35
PakMaster® 50, Stak-Pak**

Item	Part No.	Ref. No.	Description	Std. Qty.
1	CS96506	CS96506	Electrode	5
2	CS96507	CS96507	Gas Distributor	1
3	CS96500	CS96500	Tip, Standoff	5
	CS96501	CS96501	Tip, Drag	5
4	CS96003	CS96003	Shield Cup, Std.	1
5	CS96004	CS96004	Shield Cup, Crown (requires CS96003)	1
6	CS96503	CS96503	Shield Cup, Max. life (requires CS96003)	1



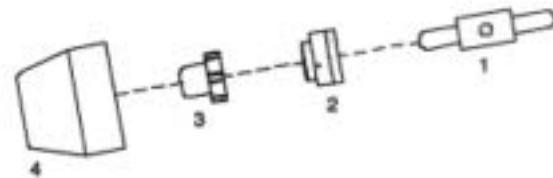
**Replacement Parts Suitable for: THERMAL DYNAMICS PCH-20
DynaPak™ 110, Pak@2XT**

Item	Part No.	Ref. No.	Description	Std. Qty.
1	CS96006	9-6006	Electrode	5
2	CS83233	8-3233	Gas Distributor	1
3	CS83218	8-3218	Tip	5
4	CS83214	8-3214	Shield Cup, Std.	1
N/S	CS83228	8-3228	Skinning Cap	1



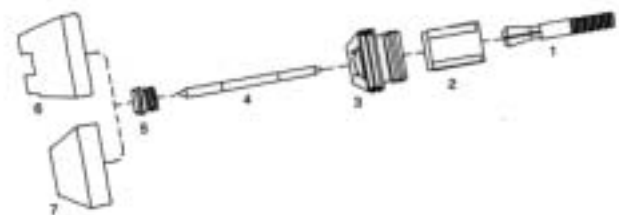
**Replacement Parts Suitable for: THERMAL DYNAMICS PCH-30
Pak@3**

Item	Part No.	Ref. No.	Description	Std. Qty.
1	CS95503	9-5503	Electrode	5
	CS95582	9-5582	Electrode	5
2	CS83233	8-3233	Gas Distributor	1
3	CS95501	9-5501	Tip	5
	CS95581	9-5581	Tip	5
4	CS95500	9-5500	Shield Cup, Std.	1



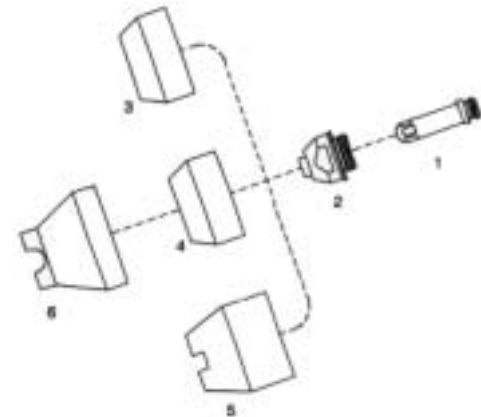
**Replacement Parts Suitable for: THERMAL DYNAMICS PCH-50
Pak@5**

Item	Part No.	Ref. No.	Description	Std. Qty.
1	CS85506	8-5506	Collet	1
2	CS85510	8-5510	Sleeve	1
3	CS85520	8-5520	Liner (includes O-rings)	1
4	CS85508	8-5508	Electrode	5
5	CS85507	8-5507	Tip	5
6	CS85519	8-5519	Shield Cup, Crown	1
7	CS85505	8-5505	Shield Cup, Std.	1



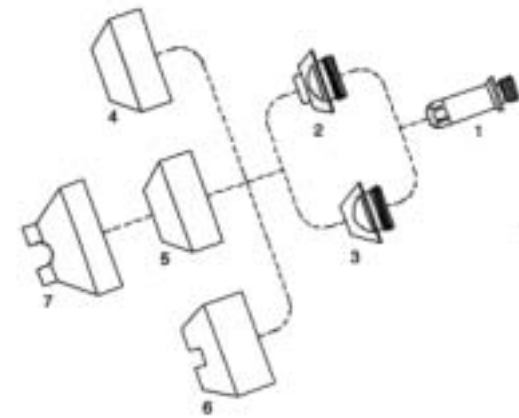
Replacement Parts Suitable for: THERMAL DYNAMICS PCH/M-51
4Xi, 6Xi, Pak®3XR, 5XR, 6XR, 7XR, 625XR, 750XR, 5XT

Item	Part No.	Ref. No.	Description	Std. Qty.
1	CS95633	9-5633	Electrode	5
	CS95720	9-5720	Electrode	5
2	CS95718	9-5718	Tip, Air, 10-40A	5
	CS95631	9-5631	Tip, Air, 10-60A	5
	CS83321	8-3321	Tip, Air, 65A	5
	CS95724	9-5724	Tip, Gouging, 0.078	5
	CS95630	9-5630	Shield Cup, Ceramic	1
4	CS82159	8-2159	Shield Cup, Phenolic, Std.	1
5	CS85526	8-5526	Shield Cup, Ceramic, Crown	1
6	CS95779	9-5779	Shield Cup, Crown (fits over CS82159)	1
N/S	CS82151	8-2151	Shield Cup, Vespel	1
N/S	CS82152	8-2152	Shield Cup, Vespel, Lg.	1



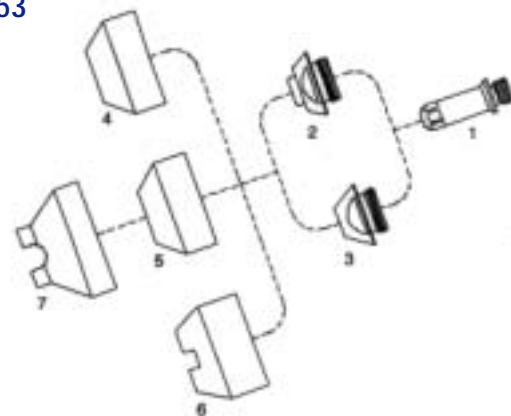
Replacement Parts Suitable for: THERMAL DYNAMICS PCH/M-52
Pak®5XR*, 6XR*, 7XR*, 8XR*, 10XR*, 625XR*, 750XR*, 1000XR, 1250XR
(* = Dual Gas)

Item	Part No.	Ref. No.	Description	Std. Qty.
1	CS83331	8-3331	Electrode, Air	5
	CS95619	9-5619	Electrode, Air, plated	5
	CS95711	9-5711	Electrode, MultiGas	5
2	CS95702	9-5702	Tip, Air, 35A	5
	CS95618	9-5618	Tip, Air, 45-55A	5
	CS95707	9-5707	Tip, Air, 60-70A	5
	CS95782	9-5782	Tip, Air, 80A	5
	CS95708	9-5708	Tip, Air, 105A	5
	CS95713	9-5713	Tip, Gouging, 105A	5
3	CS85129	8-5129	Tip, Gouging	5
	CS95709	9-5709	Tip, Gouging, 70A	5
	CS95710	9-5710	Tip, Gouging, 105A	5
	CS95713	9-5713	Tip, Gouging, 105A	5
4	CS95617	9-5617	Shield Cup, Ceramic, Std.	1
5	CS95781	9-5781	Shield Cup, Phenolic, Std.	1
6	CS95694	9-5694	Shield Cup, Ceramic, Crown	1
7	CS95780	9-5780	Shield Cup, Crown (fits over CS9581)	1



Replacement Parts Suitable for: THERMAL DYNAMICS PCH/M-53
Pak Master® 100

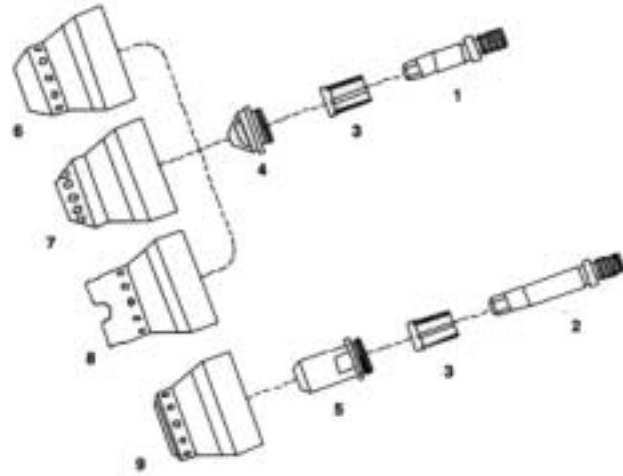
Item	Part No.	Ref. No.	Description	Std. Qty.
1	CS95898	9-5898	Electrode, Air	5
2	CS95897	9-5897	Tip, Air, 70A	5
3	CS95709	9-5709	Tip, Gouging, 70A	5
4	CS95617	9-5617	Shield Cup, Ceramic, Std.	1
5	CS95781	9-5781	Shield Cup, Phenolic, Std.	1
6	CS95694	9-5694	Shield Cup, Ceramic, Crown	1
7	CS95780	9-5780	Shield Cup, Crown (fits over CS95781)	1



Plasma

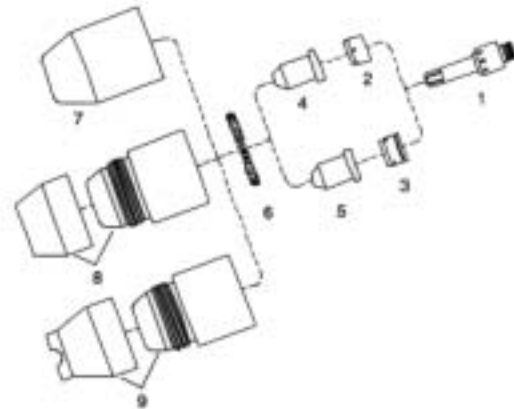
**Replacement Parts Suitable for: THERMAL DYNAMICS PCH/M-70
Stak-Pak®**

Item	Part No.	Ref. No.	Description	Std. Qty.
1	CS96019	9-6019	Electrode, Air/N2	5
	CS96021	9-6021	Electrode, Ar/H2	5
2	CS96107	9-6107	Electrode, Gouging, Air/N2	5
	CS96108	9-6108	Electrode, Gouging, Ar/H2	5
3	CS96022	9-6022	Gas Distributor	1
4	CS96008	9-6008	Tip, Air/N2, 35A	5
	CS96009	9-6009	Tip, Air/N2, 70A	5
	CS96013	9-6013	Tip, 70A, Ar/H2	5
5	CS96014	9-6014	Tip, Gouging	5
	CS96015	9-6015	Tip, Gouging	5
	CS96109	9-6109	Tip, Gouging	5
6	CS96016	9-6016	Shield Cup, Standoff, Std.	1
7	CS96024	9-6024	Shield Cup, Standoff, Long	1
8	CS96017	9-6017	Shield Cup, Crown	1
9	CS96018	9-6018	Shield Cup, Gouging	1



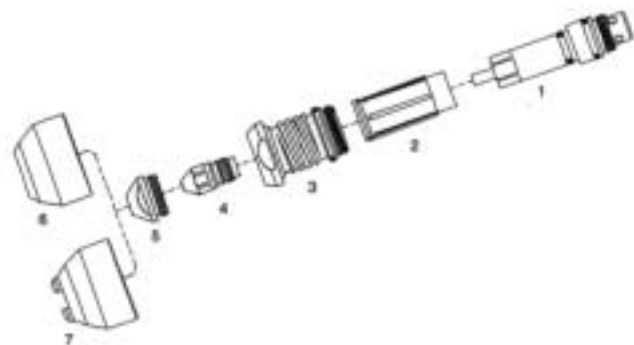
**Replacement Parts Suitable for: THERMAL DYNAMICS PCH/M-76, PCH/M-75, PCH/M-100XL
EconoPak® 100, Pak Master® 75, 75XL, Pak® 625XR, Cutmaster™ 80XL, 100XL**

Item	Part No.	Ref. No.	Description	Std. Qty.
1	CS87502	8-7502	Electrode	5
2	CS87501	8-7501	Gas Distributor, Cutting	1
3	CS87508	8-7508	Gas Distributor, Gouging	1
4	CS87503	8-7503	Tip, Air, 35A	5
	CS87504	8-7504	Tip, Air, 50/60A	5
	CS87505	8-7505	Tip, Air, 50/60A	5
5	CS87506	8-7506	Tip, Air, Gouging	5
6	CS97501	9-7501	Canted Coil Spring	1
7	CS87500	8-7500	Shield Cup, Std.	1
8	CS96499	9-6499	Shield Cup, Maximum Life	1
9	CS87507	8-7507	Shield Cup, Crown	1



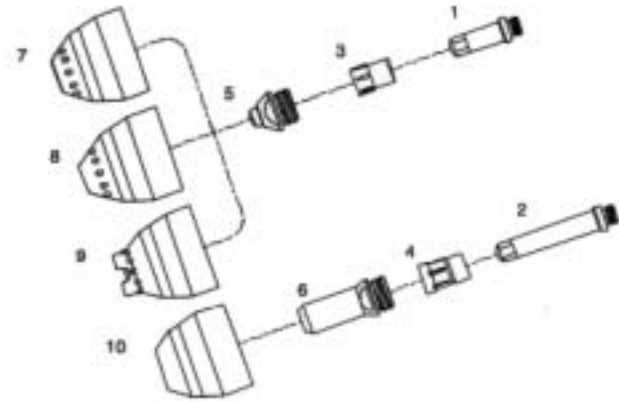
**Replacement Parts Suitable for: THERMAL DYNAMICS PCH/M-100
Pak® 10XR**

Item	Part No.	Ref. No.	Description	Std. Qty.
1	CS81108	8-1108	Electrode Holder	1
2	CS94339	9-4339	Gas Distributor	1
3	CS81106	8-1106	Liner	1
4	CS94340	9-4340	Electrode	5
5	CS94343	9-4343	Tip, 35A	5
	CS94342	9-4342	Tip, 70A	5
	CS94341	9-4341	Tip, 105A	5
6	CS81100	8-1100	Shield Cup, Std.	1
	CS94345	9-4345	Shield Cup, Machine	1
	CS81101	8-1101	Shield Cup, Crown	1



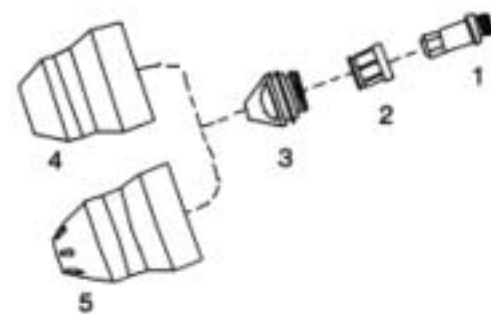
**Replacement Parts Suitable for: THERMAL DYNAMICS PCH/M-140
StakPak®**

Item	Part No.	Ref. No.	Description	Std. Qty.	
1	CS96048	9-6048	Electrode, Air/N2	5	
	CS96050	9-6050	Electrode, Ar/H2	5	
2	CS96110	9-6110	Electrode, Gouging, Air/N2	5	
	CS96111	9-6111	Electrode, Gouging, Ar/H2	5	
3	CS96051	9-6051	Gas Distributor, Cutting	1	
4	CS96112	9-6112	Gas Distributor, Gouging	1	
5	CS96025	9-6025	Tip, Air/N2, 35A	5	
	CS96026	9-6026	Tip, Air/N2, 70A	5	
	CS96027	9-6027	Tip, Air/N2, 105A	5	
	CS96028	9-6028	Tip, Air/N2, 140A	5	
	CS96034	9-6034	Tip, Ar/H2, 70A	5	
	CS96035	9-6035	Tip, Ar/H2, 105A	5	
	CS96036	9-6036	Tip, Ar/H2, 140A	5	
	6	CS96037	9-6037	Tip, Gouging .110	5
	CS96038	9-6038	Tip, Gouging .125	5	
	CS96039	9-6039	Tip, Gouging .156	5	
7	CS96045	9-6045	Shield Cup, Std.	1	
8	CS96054	9-6054	Shield Cup, Long	1	
9	CS96046	9-6046	Shield Cup, Crown	1	
10	CS96047	9-6047	Shield Cup, Gouging	1	



**Replacement Parts Suitable for: THERMAL DYNAMICS PCH/M-145
StakPak®**

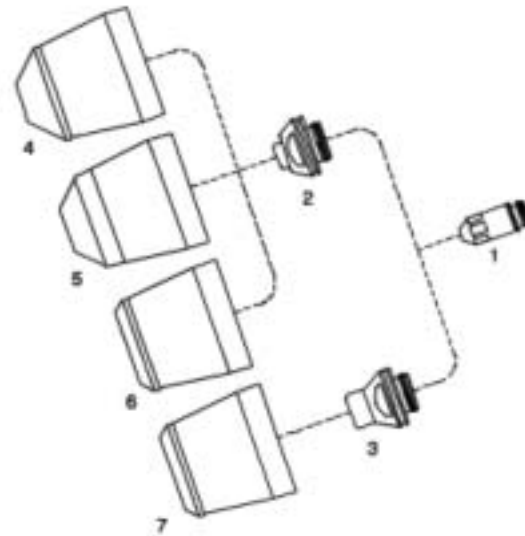
Item	Part No.	Ref. No.	Description	Std. Qty.
1	CS96078	9-6078	Electrode, Air	5
	CS96129	9-6129	Electrode, N2	5
	CS96080	9-6080	Electrode, Ar/H2	5
2	CS96081	9-6081	Gas Distributor	1
3	CS96055	9-6055	Tip, Air/N2, 35A	2
	CS96056	9-6056	Tip, Air/N2, 70A	5
	CS96057	9-6057	Tip, Air/N2, 105A	5
	CS96058	9-6058	Tip, Air/N2, 140A	5
	CS96064	9-6064	Tip, Ar/H2, 70A	5
	CS96065	9-6065	Tip, Ar/H2, 105A	5
	CS96066	9-6066	Tip, Ar/H2, 140A	5
	4	CS96075	9-6075	Shield Cup, Std.
5	CS96083	9-6083	Shield Cup, Long	1



Plasma

Replacement Parts Suitable for: THERMAL DYNAMICS PCH/M-150 Pak®15XC

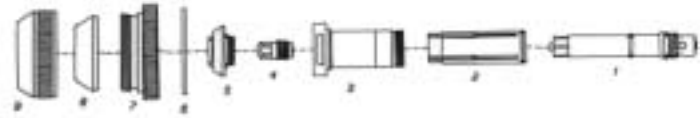
Item	Part No.	Ref. No.	Description	Std. Qty.
1	CS95749	9-5749	Electrode, Air	5
	CS95760	9-5760	Electrode, O2	5
	CS95754	9-5754	Electrode, N2, Ar-H2	5
2	CS95748	9-5748	Tip, Air, 50A	5
	CS95747	9-5747	Tip, Air, 100A	5
	CS95746	9-5746	Tip, Air, 150A	5
	CS95753	9-5753	Tip, O2, 50A	5
	CS95752	9-5752	Tip, O2, 100A	5
	CS95751	9-5751	Tip, O2, 150A	5
	CS95765	9-5765	Tip, N2, 50A	5
	CS95766	9-5766	Tip, N2, 100A	5
	CS95767	9-5767	Tip, N2, 150A	5
	CS95775	9-5775	Tip, Ar/H2, 150A	5
3	CS95756	9-5756	Tip, Gouging, .078, 85A	5
	CS95755	9-5755	Tip, Gouging, .120, 150A	5
4	CS95750	9-5750	Shield Cup, Ceramic Front	1
5	CS95790	9-5790	Shield Cup, Metal Front	1
6	CS95801	9-5801	Shield Cup, Copper (Tip Exp.)	1
	CS95758	9-5758	Shield Cup, Ceramic (Tip Exp.)	1
	CS95774	9-5774	Shield Cup, Gouging	1



Replacement Parts Suitable for: THERMAL DYNAMICS PCH/M-4B(T) Pak®5 (Mech), Pak®10, Pak®10XR (Mech)

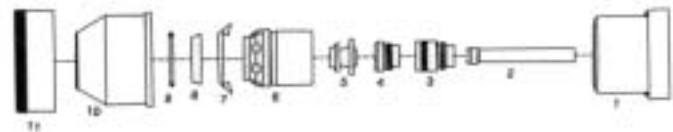
Item	Part No.	Ref. No.	Description	Std. Qty.
1	CS84158	8-4158	Back Cap	1
2	CS84156	8-4156	Collet, Std.	1
3	CS84197	8-4197	Collet, 4BT	1
4	CS84182	8-4182	Sleeve	1
5	CS84154	8-4154	Liner	1
6	CS84073	8-4073	Electrode	5
7	CS92421	9-2421	Gas Distributor	5
	CS84153	8-4153	Tip, Lo-Amp, .059	5
	CS84189	8-4189	Tip, Lo-Amp, .030 (4BT/Pak 5)	5
	CS84211	8-4211	Tip, Std., .046 (4BT/Pak 5)	5
9	CS84088	8-4088	Shield Cup, Ceramic	1
10	CS84213	8-4213	Shield Cup, Crown	1





**Replacement Parts Suitable for: THERMAL DYNAMICS PCH/M-6B
Pak®44, Pak®45**

Item	Part No.	Ref. No.	Description	Std. Qty.
1	CS86615	8-6615	Electrode Holder	1
2	CS86569	8-6569	Gas Distributor	1
3	CS86571	8-6571	Liner	1
4	CS86578	8-6578	Electrode, Gen. Purpose	5
	CS86586	8-6586	Electrode, Lo-Amp	5
5	CS86580	8-6580	Tip, 100A	5
	CS86648	8-6648	Tip, 150A	5
	CS86575	8-6575	Tip, 200A	5
	CS86582	8-6582	Tip, 300A	5
	CS86572	8-6572	Tip, 400A	5
6	CS86512	8-6512	Gasket	1
7	CS86581	8-6581	Outer Insulator	1
8	CS86514	8-6514	End Piece	1
9	CS86515	806515	End Cap	1



**Replacement Parts Suitable for: THERMAL DYNAMICS M-200
CC-65, CC-66, TA-500, TAC-500**








Item	Part No.	Ref. No.	Description	Std. Qty.
1	CS86060	8-6060	Outer Insulator	1
2	CS91640	9-1640	Coolant Tube	1
3	CS91642	9-1642	Electrode Seat	1
4	CS91662	9-1662	Electrode, 1000A	5
	CS91641	9-1641	Electrode, 500A	5
5	CS86041	8-6041	Tip, 150A	5
	CS86042	8-6042	Tip, 250A	5
	CS86043	8-6043	Tip, 350A	5
	CS86044	8-6044	Tip, 500A	5
	CS86045	8-6045	Tip, 750A	5
	CS86046	8-6046	Tip, 1000A	5
	CS86068	8-6068	Tip, Heavy Duty, 1000A	5
6	CS92210	9-2210	Inner Tip Retainer	1
7	CS92451	9-2451	Coolant Baffle	1
8	CS86006	8-6006	End Piece, Water Shield	1
	CS80607	8-0607	End Piece, Gas Shield	1
	CS86029	8-6029	End Piece, Ar/H2 Secondary	1
9	CS80563	8-0563	O-Ring	5
10	CS86057	8-6057	End Cap, Heavy Duty	1
	CS86077	8-6077	End Cap, Underwater	1
	CS86056	8-6056	End Cap	1
11	CS86059	8-6059	Collar	1

Replacement Tips









Acetylene - Oxygen		Description	Style	Size
		<ul style="list-style-type: none"> • Light preheat • For general cutting operations • Fits Airco 3790, 4690, 4700, 4800, 5700, 5800, 1100, 3000, 9000, 9500 torches 	124	00, 0, 1, 2, 3
		<ul style="list-style-type: none"> • Light preheat • For general cutting operations with hand & machine cutting apparatus • Fits Airco 3790, 4690, 4700, 4800, 5700, 5800, 1100, 3000, 9000, 9500 torches 	138	00, 0, 1, 2, 3, 4
		<ul style="list-style-type: none"> • Medium preheat • For general cutting operations with hand or machine cutting apparatus • Fits Airco 3790, 4690, 4700, 4800, 5700, 5800, 1100, 3000, 9000, 9500 torches 	144	00, 0, 1, 2, 3, 4, 5, 6, 7, 8, 10
		<ul style="list-style-type: none"> • Very heavy preheat • For general cutting, also for use in cutting cast iron and stainless steel • Fits Airco 3790, 4690, 4700, 4800, 5700, 5800, 1100, 3000, 9000, 9500 torches 	164	00, 0, 1, 2, 3, 4, 5, 6
		<ul style="list-style-type: none"> • Gouging • Medium to heavy preheat • Fits Airco 3790, 4690, 4700, 4800, 5700, 5800, 1100, 3000, 9000, 9500 torches 	183	6, 8, 10
Propane or Natural Gas-Oxygen		Description	Style	Size
		<ul style="list-style-type: none"> • Heavy preheat, general cutting • Two piece tip for hand cutting • Fits Airco 3790, 4690, 4700, 4800, 5700, 5800, 1100, 3000, 9000, 9500, 2900 torches 	261	0, 1, 2, 3, 4
MAPP-Propylene		Description	Style	Size
		<ul style="list-style-type: none"> • General cutting • Single piece • Medium preheat • Fits Airco 3790, 4690, 4700, 4800, 5700, 5800, 1100, 3000, 9000, 9500 torches 	A-SP	72, 68, 60, 56, 54, 52, 49, 44, 38
		<ul style="list-style-type: none"> • Hand and machine cutting • Two piece • Medium to heavy preheat • Fits Airco 3790, 4690, 4700, 4800, 5700, 5800, 1100, 3000, 9000, 9500 torches 	A-FS	72, 68, 60, 56, 54, 52, 49, 44, 38

Cutting Tips - AIRCO/Concoa




















Replacement Tips

Acetylene - Oxygen	Description	Style	Size	Cutting Tips - Harris
	<ul style="list-style-type: none"> • Medium preheat, general hand cutting • Fits Harris 42-3, 62-3, 72, 72A, 73, 73A, 63-2, and 85 series torches. 	6290	00, 0, 1, 2, 3, 4, 5, 6	
Propane or Natural Gas-Oxygen	Description	Style	Size	
	<ul style="list-style-type: none"> • Heavy preheat, general cutting • Two piece • Fits Harris 42-3F, 49AF, 49F, 62-3F, 85, 72, 73, and 142 series torches. 	6290-NFF	0, 1, 2, 3, 4, 5, 6	
	<ul style="list-style-type: none"> • Medium preheat, general cutting • Two piece • Fits Harris 42-3F, 49AF, 49F, 62-3F, 85, 72, 73, 142 series torches. 	6290-NX	00, 0, 1, 2, 3, 4, 5, 6	
	<ul style="list-style-type: none"> • High speed tips, for use in machine cutting • Two piece • Fits Harris 98-2 and 98-3 machine torches 	6290-VVC	000, 00, 0, 0.5, 1, 1.5, 2, 2.5, 3, 4, 5	
Acetylene - Oxygen	Description	Style	Size	Cutting Tips - Marquette
	<ul style="list-style-type: none"> • General hand and scrap cutting • Medium preheat • Fits Marquette 20-110 super jet and 21-110 star jet torches 	GW-6	0, 1, 2, 3, 4	
Acetylene - Oxygen	Description	Style	Size	Cutting Tips - MECO
	<ul style="list-style-type: none"> • General cutting • One piece • Fits Weldmaster, Cutmaster, SCA torches 	LA-6	00, 0, 1, 2, 3, 4, 5	
Acetylene - Oxygen	Description	Style	Size	Cutting Tips - Oxweld/Linde/L-TEC
	<ul style="list-style-type: none"> • Medium pre-heat • For hand or machine cutting • Fits CW-32, C-31, C-23, C-77 hand torches, C-37, C-39, C-58 machine torches 	1502	2, 3, 4, 6, 8, 10, 12	

Replacement Tips

Cutting Tips for Purox/Linde/L-Tec	Acetylene - Oxygen		<ul style="list-style-type: none"> • Medium preheat for general cutting • Fits CW-200, CW-202, Type E torches, C-205 machine torch, CW-300 torches 	4202	2, 3, 4, 5, 7, 9, 11, 13
	Propane or Natural Gas - Oxygen		<ul style="list-style-type: none"> • Two piece, general cutting • Complete tip, medium preheat • Fits CW-200, CW-202, Type E torches • For CW-300 torches 	4213-14	3, 4, 5, 7
	MAPP or FG-2 Oxygen		<ul style="list-style-type: none"> • General cutting • Two piece tip standard speed • Fits CW-200, CW-202, Type E, CW-300 torches 	P-FS	49, 52, 56, 60, 68
Cutting Tips - Rexarc (Rego)	Acetylene - Oxygen		<ul style="list-style-type: none"> • General cutting • Light preheat • 4 Preheat holes 	KX-6	68
	Acetylene - Oxygen		<ul style="list-style-type: none"> • Medium preheat for hand cutting • Fits KXA, LXA, SXA, CWP 9000, 7000, 18000, 8720, 6808, 6912, 6916 torches • 6 Preheat holes 	KX-66 KX-6	62, 56 53, 51, 46, 42, 35
Cutting Tips - Smith	Acetylene - Oxygen		<ul style="list-style-type: none"> • General cutting • Medium duty hand cutting • Fits cutting assemblies Pipeliner MC505, MC509, Airliner AC305, AC309 	MC12	00, 0, 1, 2, 3, 4
	Acetylene - Oxygen		<ul style="list-style-type: none"> • For hand or machine cutting • MC409, SC170, SC200, SC220, SC270, SC360, SC720, SC730, SC770, SC771, SC780, SC780A, SC781A, SC782A, SC850, SC860, SC890 Series • Cutting torches Tuf-Tony, Silver Star (000-7) 	SC12	000, 00, 0, 1, 2, 3, 4, 5, 6, 7
	Propane or Natural Gas - Oxygen		<ul style="list-style-type: none"> • Hand and machine cutting • Two piece • Medium to heavy preheat 	SC50	00, 0, 1, 2, 3, 4, 5, 6

Replacement Tips

Acetylene - Oxygen		Description	Style	Size
		<ul style="list-style-type: none"> • Medium preheat for hand and machine cutting • Fits CA2460, CA1060, ST, SST, CA350 machine torches, Q2000 	1-101	000, 00, 0, 1, 2, 3, 4, 5, 6, 7, 8
		<ul style="list-style-type: none"> • Gouging • Medium preheat • Fits CA2460, CA1060, ST, SST, CA350 machine torches, Q2000 	1-118	0, 2, 4, 6, 8
		<ul style="list-style-type: none"> • Medium preheat hand cutting • Fits CA1260, CA1350, C-1450, CA250 CA2060, CA2470, CST 800, C 1400 torches. 	3-101	000, 00, 0, 1, 2, 3, 4, 5
Propane - Natural Gas		Description	Style	Size
		<ul style="list-style-type: none"> • Two piece medium preheat series 3 tip • Fits CA1260, CA1350, C-1450, CA250 CA2060, CA2470, CST 800, C1400 torches 	3-GPN	0, 1, 2, 3, 4
		<ul style="list-style-type: none"> • Two piece medium preheat for hand, machine and general cutting • Fits CA2450, CA1060, CAN 1060, ST, SST, STN, machine torches 	GPN	000, 00, 0, 1, 2, 3, 4, 5, 6, 7, 8
		<ul style="list-style-type: none"> • Medium and heavy preheat • Hand and machine cutting, two piece • Fits CA2450, CA1060, CAN 1060, ST, SST, STN, machine torches 	2V-FS	72, 68, 60, 56, 54, 52, 49, 44, 38
		<ul style="list-style-type: none"> • Medium and heavy preheat • Hand cutting, Two piece 	3V-FS	68, 60, 56, 52, 49
Acetylene - Oxygen		Description	Style	Size
	Style W	<ul style="list-style-type: none"> • Complete nozzle (nozzle nut included) • General welding and preheating • Fits 300 series torches 	W	00, 0, 1, 2, 3, 4, 5, 6
	Style W-1	<ul style="list-style-type: none"> • Complete nozzle (nozzle not included) • Long cone flame general welding & brazing • Fits 100 series torches 	W-1	00, 0, 1, 2, 3, 4, 5, 6, 7
Acetylene or Hydrogen-Oxygen		Description	Style	Size
		<ul style="list-style-type: none"> • Multiflame nozzle for preheating and straightening • Fits 300 series torches * Use HD 310C torch with 3/8 hose, manifold if acetylene withdrawal rate exceeds 1/7 cylinder content per hour 	MFA	6, 8
		<ul style="list-style-type: none"> • Fits 100 series torches 	MFA-1	6, 8

Cutting Tips - Victor

Welding Tips - Victor

Heating Tips - Victor

Tungsten Electrodes

Electrodes	Ground Part No.	Dia.	Length
Pure	0407G	.040	7
	1167G	1/16	7
	3327G	3/32	7
	187G	1/8	7
2% Thoriated	0407GT2	.040	7
	1167GT2	1/16	7
	3327GT2	3/32	7
	187GT2	1/8	7
1.5 Lanthanated	1167GL	1/16	7
	3327GL	3/32	7
	187GL	1/8	7

All tungsten electrodes are packaged 10 pieces per box.

ANSI AWS A5.12-92 Classification System

Tungsten electrodes are classified on the basis of their chemical compositions.

E: stands for an electrode

W: stands for the chemical symbol for tungsten (also called Wolfram)

The final letter indicates the alloying element or oxide additions.

P: Pure

Th: Thoriated

La: Lanthanated

G: stands for unspecified oxide additions

The numbers specify the nominal alloying composition (in weight - percent). For instance, EWTH-2 is a thoriated tungsten electrode that contains nominally 2 wt - % thoria.

Standard Sizes

Standard Sizes, inches	
Nominal Size	Actual Size
0.040	0.040
1/16	0.062
3/32	0.093
1/8	0.125
5/32	0.156



For more information regarding tungsten electrodes: A Guide to the Use of Tungsten Electrodes for GTA Welding, as printed in the Welding Journal Authors: R.D. Campbell and E.J. LaCourse

The basics regarding tungsten electrode classifications, types, sizes, current types and levels, and recommended uses are explained.

Classification of Electrodes

Pure Tungsten

Color Code: Green

These electrodes are used mainly with alternating current (AC) for welding of aluminum and magnesium alloys. With this type of current, the tip of the EWP electrode forms a clean, balled end, which provides good arc stability. Pure tungsten is the least expensive, but is more prone to contamination of the weld than the other types of tungsten electrodes.

Thoriated Tungsten

Color Code: 2% Red

Thoriated tungsten electrodes, were designed for direct current electrode negative (DCEN) or straight polarity applications. They maintain a sharpened tip configuration during welding which is desirable for the welding of steels, nickel alloys, and most alloys other than aluminum and magnesium. Thoriated tungsten electrodes are not normally used with AC welding because it is difficult to maintain the balled end (which is necessary with AC welding) without splitting the electrode.

Lanthanated Tungsten

Color Code: Gray

These electrodes can be used as a nonradioactive substitute for 2% thoriated tungsten. They will provide very similar performance with minimum amount of adjustment of operating conditions required. These materials are certified to be free of radioactivity.

Tungsten Electrode Finishes

Ground Finished

Ground finished tungsten electrodes are cleaned of impurities following centerless grinding, which is done to produce a uniform size and to remove surface imperfections.

Selection of Gases for Gas Tungsten Arc Welding (GTAW)

Metal	Type of Welding Process	Shielding Gas	Advantages
Aluminum and its Alloys	Manual continuous	Argon	Better arc starting and cleaning action; lower gas consumption.
	Manual continuous	Helium	High welding speeds possible.
	Machine continuous	Argon-Helium	Lower gas flow than required with straight helium.
Magnesium and its Alloys	Less than 1/14 in.	Argon	Controlled penetration; excellent cleaning; ease of puddle manipulation; low gas flow.
	Greater than 1/14 in.	Helium	Good penetration; best for d-c welding.
Carbon Steel	Manual continuous	Argon	Ease of manipulation; freedom from overheating; better puddle control, especially for position welding.
	Machine continuous	Argon-Helium	Helium addition improves penetration on heavy gage metal; preference depends on joint preparation.
	Spot	Argon	Generally preferred for longer electrode life, better weld nugget contour, ease of starting, lower gas flow.
Austenitic Chromium-Nickel Stainless Steel	Manual continuous	Argon	Permits controlled penetration on thin-gage material (up to 15 gage).
	Manual continuous	Argon-Helium	Higher heat input and welding speeds possible on heavier gages.
	Machine continuous	Argon-Hydrogen (35% H ₂ max)	Prevents undercutting; produces desirable weld contour at low current levels; requires lower gas flows.
	Machine continuous	Helium	Provides highest heat input and deepest penetration.
Copper, Nickel and their Alloys		Argon	Ease of obtaining puddle control, penetration and bead contour on thin-gage metal.
		Argon-Helium	Higher heat input to offset high conductivity of heavier gages.
		Helium	Highest heat input for high welding speed on heavy metal section.
Titanium and its Alloys		Argon	Low gas flow rate minimizes turbulence and air contamination of weld.
		Helium	Better penetration for welding of thick sections (inert-gas backing required to shield back of weld against contamination).