

Parweld Limited  
Bewdley Business Park  
Long Bank  
Bewdley  
Worcestershire  
England  
DY12 2TZ

tel. +44 1299 266800  
fax. +44 1299 266900

[www.parweld.com](http://www.parweld.com)  
[info@parweld.co.uk](mailto:info@parweld.co.uk)

Installation and Operation  
Ergo Tig Range



# Ergo Tig Operational Manual



### INSTALLATION GUIDELINES

Your Parweld Ergo Tig Torch will be delivered in accordance with your order specification.

It may or may not be fitted with a switch and consumable parts.

Depending on the application, the correct collet, collet body, gas cup, electrode and electrode tip configuration should be fitted see Table 1

Once connected check you have adequate gas flow.

If the torch being set is water-cooled ensure you have the recommended water flow rate.

**Note:** It is essential to ensure adequate flow of clean, cool water to prevent irreparable torch failure. **A minimum of 1.2 l/m** is recommended.

Parweld recommend the use of its XTS water recirculation system designed specifically for use with all water cooled Mig, Tig and Plasma torches.

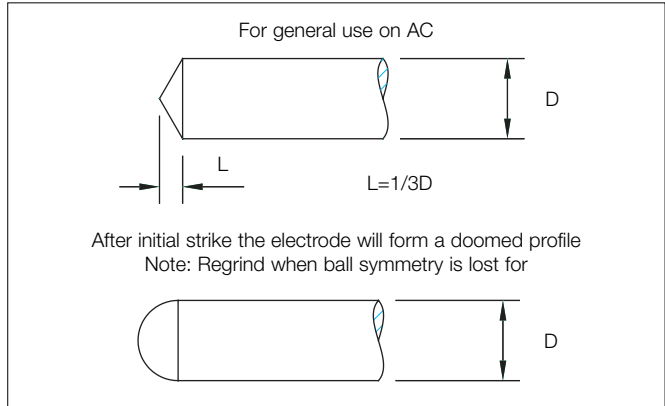
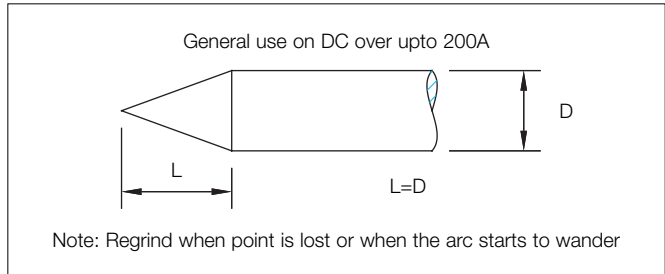
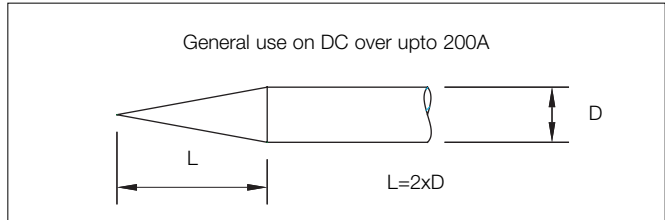
**Note:** Water flows into the torch through the blue (cold) hose or the hose marked W (water). This delivers the coolest water to the prime source of heat, the torch body and consumables. the recirculated water is then passed through the torch power cable to cool the power cable as it is returned to the recirculating device.

Ensure you have all air removed from the water-cooling circuit before welding.

**TABLE 1**  
**Electrode current and minimum nozzle boe size**

	DC								AC							
	0.5	1.0	1.6	2.4	3.2	4.0	4.8	6.4	0.5	1.0	1.6	2.4	3.2	4.0	4.8	6.4
<b>Electrode Diameter (mm)</b>	0.5	1.0	1.6	2.4	3.2	4.0	4.8	6.4	0.5	1.0	1.6	2.4	3.2	4.0	4.8	6.4
<b>Maximum Welding Current (Amps)</b>																
Thoriated Electrode	20	60	70	120	200	300	370	500	15	25	50	80	120	200	300	400
Zirconiated Electrode									25	50	80	120	160	200	320	
Ceriated/Lanthanum		60	70	120	200	300	370	500								
<b>Standard Nozzles</b>																
Ceramic Nozzle No.	4	5	6	7	8	8	10	12	5	6	7	8	8	10	12	12
Bore size (mm)	6	8	10	11	13	13	16	9	8	10	11	13	13	16	19	19
Gas Lens No.	4	5	6	7	8	8	10	12	5	6	7	8	8	10	12	12
Gas Lens Bore (mm)	6	8	10	11	13	13	16	19	8	10	11	13	13	16	19	19

**Figure 1**  
**Electrode Grinding DC**



### Thank you for choosing the Parweld Ergo Tig Range

The Parweld Ergo Tig Range has been carefully manufactured, assembled and factory tested prior to shipment.

This manual contains general information on the operation of the Parweld Ergo Tig Torch Range.

Before installing or operating the torch, please read and understand the information and safety precautions presented.

Should you experience any problems with installation or performance, please refer to the 'troubleshooting Guide' at the rear of this book.

#### Warranty

The warranty is extended to the original distributor purchasing the material from Parweld for resale.

Parweld warrants that the product will be free from defects in material and workmanship for a period of 3 months from the date of sale to the buyer. The manufacturers sole obligation under this warranty is limited to making replacement or repairs, or to refund the purchase price of the product with defects.

This warranty does not cover product malfunctions or damages, which result from the product being tampered, misused or abused. The operational instructions must be followed; failure to do will void the warranty.

- Intro & Contents**
- Installation** 1
- Safe Handling** 3
- Switch Configuration** 4
- Cable Plug Configuration** 5
- ER9 Torch Packages** 6
- ER17 Torch Packages** 8
- ER18 Torch Packages** 10
- ER18SC Torch Package** 12
- ER20 Torch Packages** 14
- ER26 Torch Packages** 16
- Adapters** 18
- Maintenance** 19
- Trouble Shooting Guide** 20

**OPERATION**

Once the installation guidelines have been followed you are ready to weld.  
When using the torch do not exceed its published current carrying capacity and duty cycle rating.

**ELECTRODE STICK OUT**

Generally the electrode should not stick out more than 5mm from the welding nozzle.

**NORMAL AND LAMINAR GAS FLOW**

For majority of applications the gas flow provided by a standard collet and collet body set up is adequate (Figure 1). However when either an extended length or a reduction in atmospheric weld defects is required a gas lens collet body arrangement should be utilised (Figure 2).

**Gas Lens Bodies offer advantages of:**

- Smooth Laminar gas flow reducing the risk of atmospheric gas entrainment
- Reduced risk of weld contamination in draughty / outdoor conditions
- Longer arc lengths to improve visibility

Once the installation guidelines have been followed you are ready to weld.

**SAFE HANDLING OF GAS CYLINDERS & REGULATORS**

Compressed Gas cylinders should be handled carefully and should be secured when stored or in use. Knocks, falls or rough handling may damage cylinders and valves causing leakage and potential accidents.

The following should be observed when setting up and using cylinders of Gas:

1. Properly secure the cylinder.
2. Before connecting a regulator purge the valve of dust and debris.
3. When a regulator is attached to a cylinder it should be in a fully closed condition. Once the cylinder valve has been opened slowly, the adjusting screw on the regulator should be adjusted slowly until the correct pressure is obtained.
4. When not in use the cylinder valve should be shut off and the regulator closed down.

**METAL FUMES**

The welding fumes generated in the TIG / GTAW process can be controlled by general ventilation, localised exhaust or respiratory protective equipment. The method of ventilation required to keep the level of toxic substances in the breathing zone below acceptable occupational exposure levels depends on a number of factors. Among them, the material being welded, the type of gas and filler metal used, the size of the work area and the degree of normal air movement.

Each operation has to be evaluated on an individual basis to determine what will be required.

Further information and methods of sampling are available in "The facts about Fume" published by The Welding Institute, Abingdon. [www.twi.co.uk](http://www.twi.co.uk).

**GASES**

The major toxic gases associated with the TIG welding process are ozone, nitrogen dioxide, carbon monoxide and phosgene gas.

**Ozone**

The ultraviolet light emitted by the welding arc reacts with the oxygen in the surrounding atmosphere to produce ozone. Present test results indicate the average concentration of ozone generated in the TIG process does not present a hazard under good ventilation conditions.

**Nitrogen Dioxide**

Test results show that high concentrations of nitrogen dioxide are found only within 150mm of the welding arc. With natural ventilation these concentrations are quickly reduced to acceptable levels if the welders breathing zone is free of the fume plume.

**Phosgene Gas**

The dangers of phosgene gas are normally attributable to the presence of cleaning and degreasing agents in the welding zone. Phosgene gas can be present as a thermal or ultraviolet decomposition of chlorinated hydrocarbon cleaning agents such as trichlorethylene and perchlorethylene. Degreasing or other cleaning operations involving chlorinated hydrocarbons should be performed where vapours from these operations are not exposed to radiation from the welding arc.

**RADIANT ENERGY**

The levels of ultraviolet radiation produced by the TIG welding process generally increases with current. The highest intensities are produced with argon based gases and when welding aluminum and stainless steel.

Welders should be fully clothed with dark leather or woolen clothing. Dark clothing reduces reflection particularly underneath the welding helmet where reflected ultraviolet burns can occur to the face and neck.

Ultraviolet radiation can cause rapid disintegration of cotton-based clothing.

To provide adequate protection for the eyes filter lenses conforming to BS EN 169 should be used.

**Recommended Lens Shades for Various GTAW Current Ranges**

Welding Current A	Recommended Shade No
Up to 75	8
75-200	10
200-400	12
Above 400	14

**ELECTRIC SHOCK**

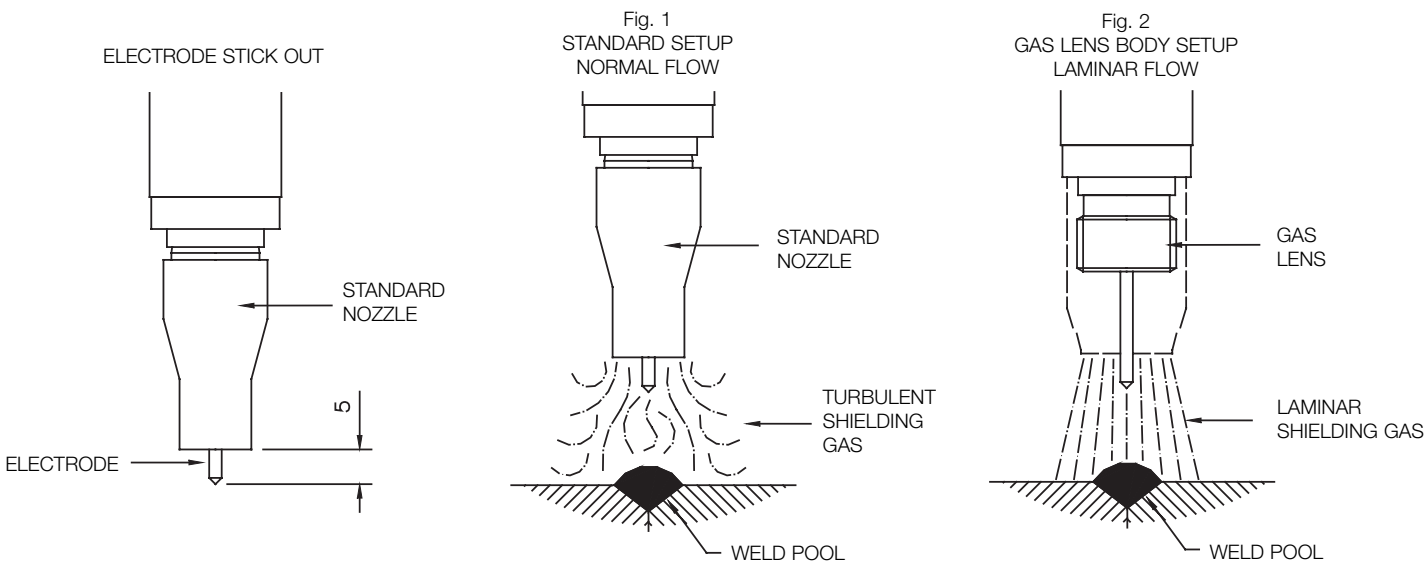
Input voltages to power supplies can vary from 24 volts to 415 volts. Welders and service personnel should exercise caution during maintenance and service procedures.

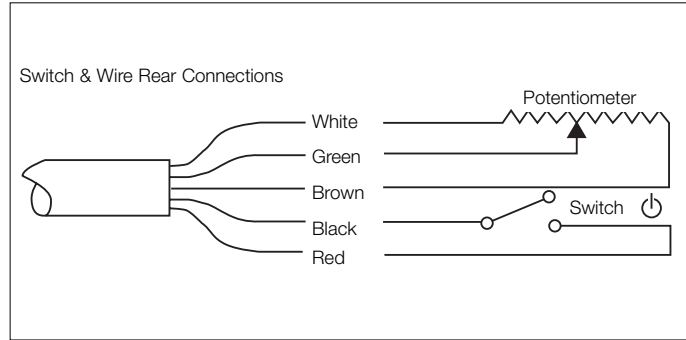
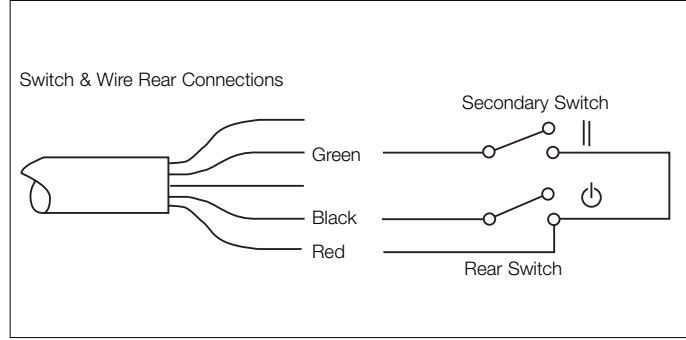
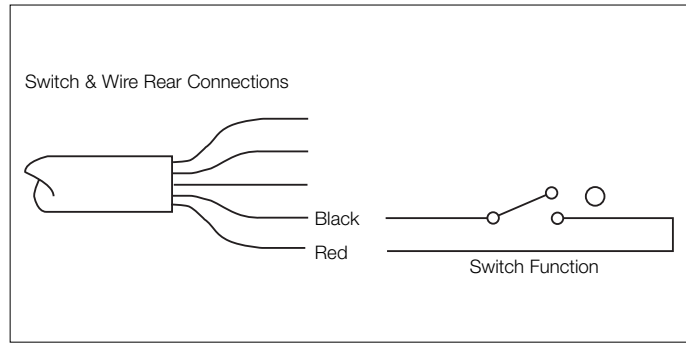
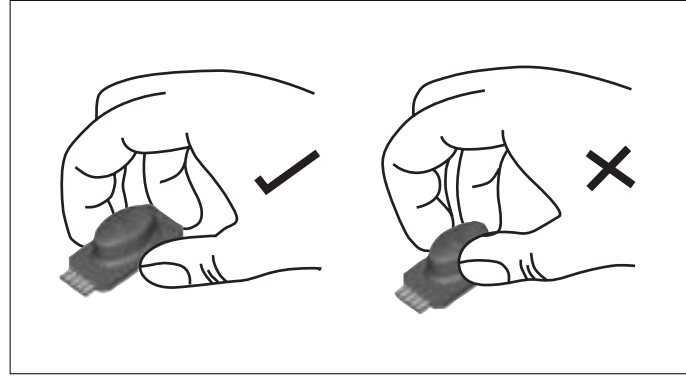
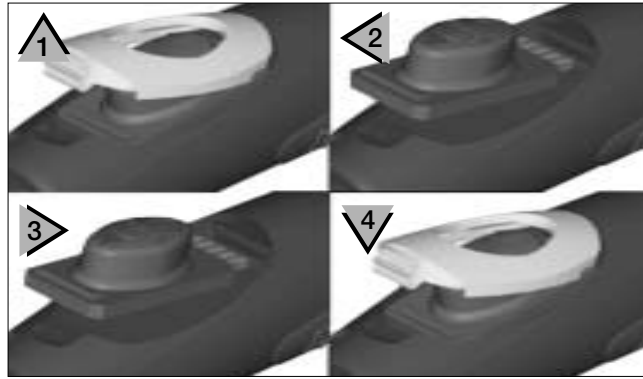
Note: Even mild shocks can cause voluntary muscular contraction which can lead to falls. The severity of the shock is determined by its path, duration and the amount of current flowing. Damp clothing from perspiration or wet conditions reduces the contact resistance and increases the likelihood of shock.

Particular care should be taken when using TIG torches in conjunction with high frequency. Never strike high frequency on your finger or clothing.

**GENERAL**

Keep the work area tidy and clean to prevent fire, slipping or tripping. When equipment is left unattended or is finished with disconnect all mains and gas supplies. Never service or clean equipment with the power connected.





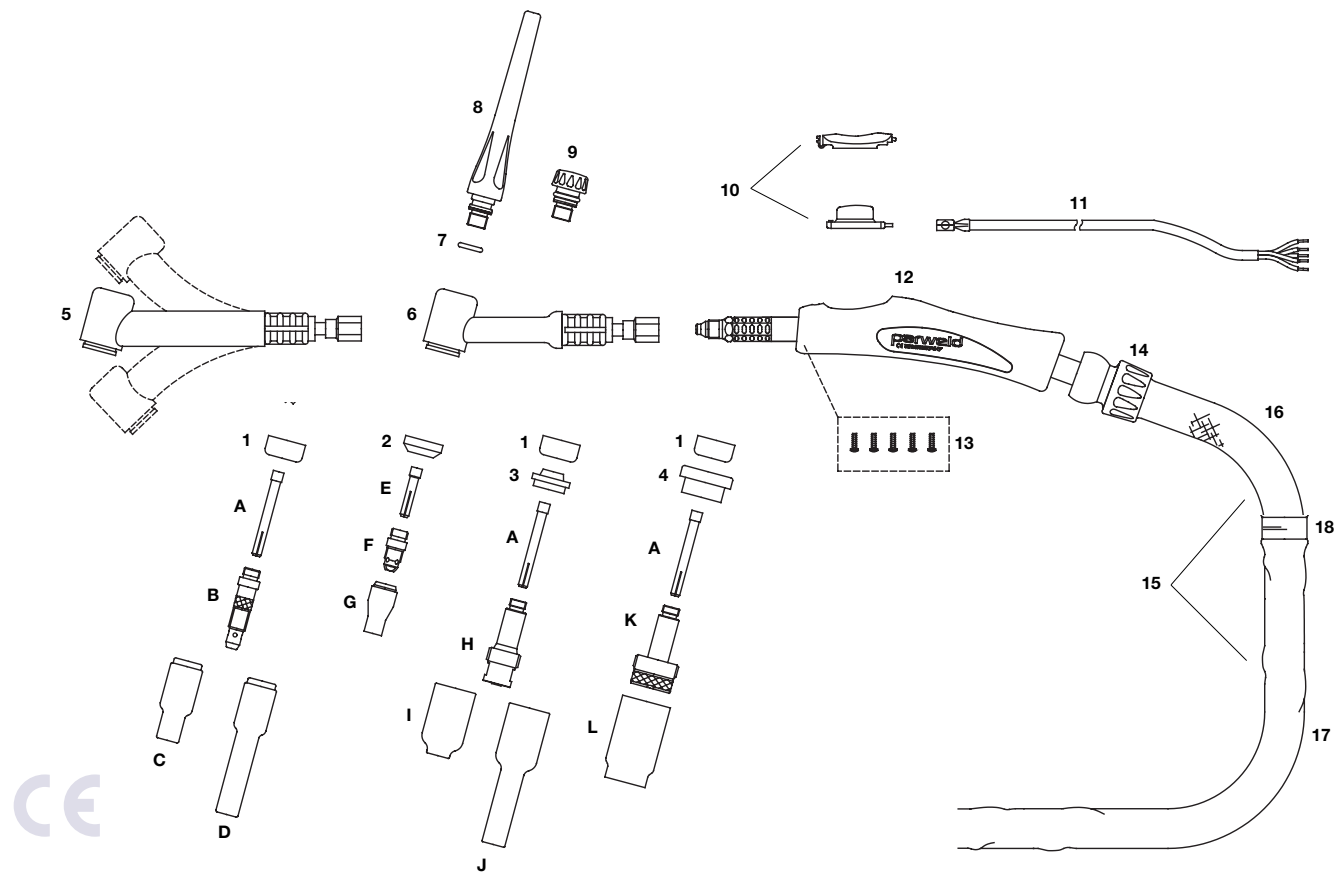
**SPECIFICATIONS**  
The torch systems stationed in the Parweld Ergo Tig torch are suitable for electronically controlled power sources only. They are not suitable for electromechanical power sources.

**SWITCH RATING**  
0.5A @42V AC max

Plug	Plug No.	Part Number and Description	Machine	Connection	Switch Configuration
		ERCP0 2 Pin Amphenol Plug	Esab	A B	Black Red
		ERCP1 4 Pin Amphenol Plug	Kempii UTP	A B	Black Red
		ERCP2 5 Pin Amphenol Plug	Miller	A B C E D	Black Red Brown Green White
		ERCP3 6 Pin Amphenol Plug	Lincoln	D E A B C	Black Red Brown Green White
		ERCP4 14 Pin Amphenol Plug	Miller	A B C E D	Black Red Brown Green White
		ERCP5 6 Pin Harting Plug	Migatronic	3 2 2 2 1 1 4	Black Red Brown Green White Link
		ERCP6 8 Pin Plug	Thermal Arc	2 3 5 7 6 4 8	Black Red Brown Green White Link
		ERCP7 3 Pin Tuchel Plug	Telwin, Cloos, Merkle, Lorch, Kjellberg, Dalex	1 2	Black Red
		ERCP8 9 Pin Tuchel Plug	Fronius Castolin	9 5 2	Black Red Green
		ERCP9 5 Pin Tuchel Plug	Miller, UTP, Messer, Oerlikon, Castalin, Rowac, EWM, Fonius, Lorch, L-Tech, Lincoln, EWM, Merkle	1 2	Black Red



Rating: 150A DC, 105A AC 0.040" to 3/32" (1.00mm-2.4mm) electrodes



**TO ORDER AN ERGO TIG TORCH PACKAGE PLEASE USE THE 5 STAGE PROCESS OUTLINED IN THE ERGO TIG CATALOGUE**

Example:- ER17FX-12S1BGO

ER17FX Ergo Torch x 12.5ft with momentary switch, 3/8 BSP fittings and 2 pin Amphenol Plug.

Torch Head		Cable Length		Switch Option		Cable Termination		Cable Plug	
Part No.	Description	Part No.	Description	Part No.	Description	Part No.	Description	Part No.	Description
ER17	ER17 150A DC	12	12.5ft cables (4m) c/w leather cover and sheath	S1	Momentary Switch	BG	Single 3/8BSP connection	0	2 Pin Amphenol Plug
ER17FX	ER17FX 150A DC FLEX	25	25ft cables (8m) c/w leather cover and sheath	S2	2 Button Momentary	EG	Central connector	1	4 Pin Amphenol Plug
				1K	1 Button Momentary +1K Pot	WG	WTG connector	2	5 Pin Amphenol Plug
				2K	1 Button Momentary +5K Pot	LG	L-TEC euro	3	6 Pin Amphenol Plug
				3K	1 Button Momentary +10K Pot			4	14 Pin Amphenol Plug
				4K	1 Button Momentary +25K Pot			5	6 Pin Harting Plug
				N	Blank			6	8 Pin Plug
								7	3 Pin Tuchel Plug
								8	9 Pin Tuchel Plug
								9	5 Pin Tuchel Plug
								10	12 Pin Bundy Plug

For complete information please refer to the Parweld Ergo Tig Catalogue or [www.parweld.com](http://www.parweld.com)

A Standard Collet	
Part Number	Description
10N21	Standard Collet 0.020"/0.5mm Bore
10N22	Standard Collet 0.040"/1.0mm Bore
10N23	Standard Collet 1/16"/1.6mm Bore
10N23M	Standard Collet 5/64"/2.0mm Bore
10N24	Standard Collet 3/32"/2.4mm Bore

B Standard Collet Body	
Part Number	Description
10N29	Standard Collet Body .020"/0.5mm Bore
10N30	Standard Collet Body .040"/1.0mm Bore
10N31	Standard Collet Body 1/16"/1.6mm Bore
10N32	Standard Collet Body 3/32"/2.4mm Bore

C Standard Ceramic Cup	
Part Number	Description
10N50	Standard Ceramic Cup 1/4"/6mm Bore
10N49	Standard Ceramic Cup 5/16"/8mm Bore
10N48	Standard Ceramic Cup 3/8"/10mm Bore
10N47	Standard Ceramic Cup 7/16"/11mm Bore
10N46	Standard Ceramic Cup 1/2"/13mm Bore
10N45	Standard Ceramic Cup 5/8"/16mm Bore
10N44	Standard Ceramic Cup 3/4"/19mm Bore

D Standard Long Ceramic Cup	
Part Number	Description
10N49L	Long Ceramic Cup 5/16"/8mm Bore
10N48L	Long Ceramic Cup 3/8"/10mm Bore
10N47L	Long Ceramic Cup 7/16"/11mm Bore

E Stubby Series Collet	
Part Number	Description
10N21S	Stubby Collet 0.020"/0.5mm Bore
10N22S	Stubby Collet 0.040"/1.0mm Bore
10N23S	Stubby Collet 1/16"/1.6mm Bore
10N24S	Stubby Collet 3/32"/2.4mm Bore

F Stubby Collet Body	
Part Number	Description
17CB20	Stubby Collet Body 0.020"/1.8mm Bore

G Stubby Series Ceramic Cup	
Part Number	Description
13N08	Standard Ceramic Cup 1/4"/6mm Bore
13N09	Standard Ceramic Cup 5/16"/8mm Bore
13N10	Standard Ceramic Cup 3/8"/10mm Bore
13N11	Standard Ceramic Cup 7/16"/11mm Bore
13N12	Standard Ceramic Cup 1/2"/15mm Bore
13N13	Standard Ceramic Cup 5/8"/16mm Bore

H Gas Lens Body	
Part Number	Description
45V29	Gas Lens Body 0.020"/0.5mm Bore
45V24	Gas Lens Body 0.040"/1.0mm Bore
45V25	Gas Lens Body 1/16"/1.6mm Bore
45V26	Gas Lens Body 3/32"/2.4mm Bore

I Standard Gas Lens Cup	
Part Number	Description
54N18	Standard Gas Lens Cup 1/4"/6mm Bore
54N17	Standard Gas Lens Cup 5/16"/8mm Bore
54N16	Standard Gas Lens Cup 3/8"/10mm Bore
54N15	Standard Gas Lens Cup 7/16"/11mm Bore
54N14	Standard Gas Lens Cup 1/2"/15mm Bore
54N19	Standard Gas Lens Cup 1/16"/18mm Bore

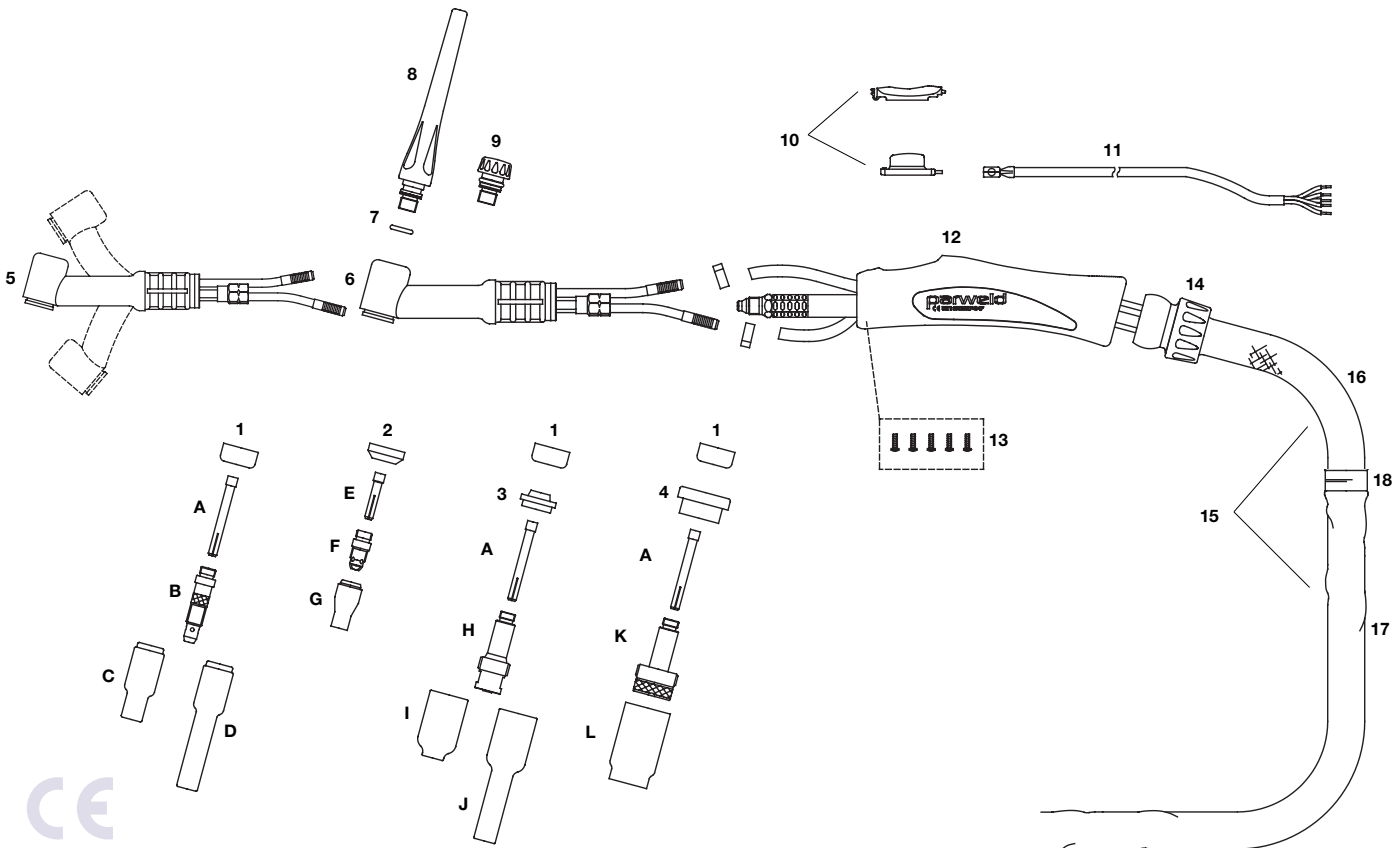
J Long Gas Lens Cup	
Part Number	Description
54N17L	Long Gas Lens Cup 5/16"/8mm Bore
54N16L	Long Gas Lens Cup 3/8"/10mm Bore
54N15L	Long Gas Lens Cup 7/16"/11mm Bore

K Large Diameter Gas Lens Body	
Part Number	Description
45V116	Lge Dia Gas Lens Bdy 1/16"/1.6mm Bore
45V64	Large Dia Gas Lens Body 3/32"/2.4mm Bore

L Large Diameter Gas Lens Cup	
Part Number	Description
57N75	Lge Dia Gas Lens Cup 3/8"/10mm Bore
57N74	Lge Dia Gas Lens Cup 1/2"/13mm Bore
53N88	Lge Dia Gas Lens Cup 5/8"/16mm Bore
53N87	Lge Dia Gas Lens Cup 3/4"/19mm Bore

Components		
Part Number	Description	
1	18CG	Cup Gasket
2	18CG20	Cup Gasket
3	54N01	Gas Lens Insulator
4	54N63	Insulator Large Dia G/Lens
5	ER17FX	Torch Head Angled with Gasket
6	ER17	Torch Head Angled with Gasket
7	98W18	Back Cap O Ring
8	ER57Y02	Back Cap Long
9	ER57Y04	Back Cap Short
10	ER1MS	Momentary Switch Kit (fitted as Standard)
11	ERSWL4	Switch & Leads x 4mt
	ERSWL8	Switch & Leads x 8mt
12	ERH100	Ergo Tig Handle Small
13	ERSP	Screw Pack
14	ERKJ100	Knuckle Joint - Small
15	ERCO100-40	Complete Cover Assembly x 4mt
	ERCO100-80	Complete Cover Assembly x 8mt
16	ERLC100-08	Leather Cover x 0.8mt
17	ERNCL-32	Neoprene Cover x 3.2mt
	ERNCL-72	Neoprene Cover x 7.2mt
18	ERJK100	Joining Repair Kit

Rating: 350A DC, 245A AC 0.020" to 5/32" (1.0mm-4.00mm) electrodes



TO ORDER AN ERGO TIG TORCH PACKAGE PLEASE USE THE 5 STAGE PROCESS OUTLINED IN THE ERGO TIG CATALOGUE

Example:- ER18FX-25S1BW0

ER18FX Ergo Torch x 25ft with momentary switch, 3/8 BSP fittings and 2 pin Amphenol Plug.

Torch Head		Cable Length		Switch Option		Cable Termination		Cable Plug	
Part No.	Description	Part No.	Description	Part No.	Description	Part No.	Description	Part No.	Description
ER18	ER18 350A DC	12	12.5ft cables (4m) c/w leather cover and sheath	S1	Momentary Switch	0	2 Pin Amphenol Plug	1	4 Pin Amphenol Plug
ER18FX	ER18FX 350A Flex	25	25ft cables (8m) c/w leather cover and sheath	S2	2 Button Momentary	BW	3/8BSP On Water, Gas, Power	2	5 Pin Amphenol Plug
				1K	1 Button Momentary +1K Pot	EW	Central Connector,	3	6 Pin Amphenol Plug
				2K	1 Button Momentary +5K Pot	WW	WTW Connector	4	14 Pin Amphenol Plug
				3K	1 Button Momentary +10K Pot	LW	L-TEC Euro	5	6 Pin Harting Plug
				4K	1 Button Momentary +25K Pot			6	8 Pin Plug
				N	Blank			7	3 Pin Tuchel Plug
								8	9 Pin Tuchel Plug
								9	5 Pin Tuchel Plug
								10	12 Pin Bundy Plug

For complete information please refer to the Parweld Ergo Tig Catalogue or [www.parweld.com](http://www.parweld.com)

A Standard Collet	
Part Number	Description
10N21	Standard Collet 0.020"/0.5mm Bore
10N22	Standard Collet 0.040"/1.0mm Bore
10N23	Standard Collet 1/16"/1.6mm Bore
10N24	Standard Collet 3/32"/2.4mm Bore
10N25	Standard Collet 1/8"/3.2mm Bore
54N20	Standard Collet 5/32"/4.0mm Bore

B Standard Collet Body	
Part Number	Description
10N29	Standard Collet Body 0.020"/0.5mm Bore
10N30	Standard Collet Body 0.040"/1.0mm Bore
10N31	Standard Collet Body 1/16"/1.6mm Bore
10N32	Standard Collet Body 3/32"/2.4mm Bore
10N28	Standard Collet Body 1/8"/3.2mm Bore
406488	Standard Collet Body 5/32"/4.0mm Bore

C Standard Ceramic Cup	
Part Number	Description
10N50	Standard Ceramic Cup 1/4"/6mm Bore
10N49	Standard Ceramic Cup 5/16"/8mm Bore
10N48	Standard Ceramic Cup 3/8"/10mm Bore
10N47	Standard Ceramic Cup 7/16"/11mm Bore
10N46	Standard Ceramic Cup 1/2"/15mm Bore
10N45	Standard Ceramic Cup 5/8"/16mm Bore
10N44	Standard Ceramic Cup 3/4"/19mm Bore

D Long Ceramic Cup	
Part Number	Description
10N49L	Long Ceramic Cup 5/16"/8mm Bore
10N48L	Long Ceramic Cup 3/8"/10mm Bore
10N47L	Long Ceramic Cup 7/16"/11mm Bore

E Stubby Collet	
Part Number	Description
10N21S	Stubby Collet 0.020"/0.5mm Bore
10N22S	Stubby Collet 0.040"/1.0mm Bore
10N23S	Stubby Collet 1/16"/1.6mm Bore
10N24S	Stubby Collet 3/32"/2.4mm Bore
10N25S	Stubby Collet 1/8"/3.2mm Bore

F Stubby Collet Body	
Part Number	Description
17CB20	Stubby Collet Body 0.020"/1.8mm Bore

G Standard Ceramic Cup	
Part Number	Description
13N08	Standard Ceramic Cup 1/4"/6mm Bore
13N09	Standard Ceramic Cup 5/16"/8mm Bore
13N10	Standard Ceramic Cup 3/8"/10mm Bore
13N11	Standard Ceramic Cup 7/16"/11mm Bore
13N12	Standard Ceramic Cup 1/2"/13mm Bore
13N13	Standard Ceramic Cup 5/8"/16mm Bore

H Gas Lens Body	
Part Number	Description
45V29	Gas Lens Body 0.020"/0.5mm Bore
45V24	Gas Lens Body 0.040"/1.0mm Bore
45V25	Gas Lens Body 1/16"/1.6mm Bore
45V26	Gas Lens Body 3/32"/2.4mm Bore
45V27	Gas Lens Body 1/8"/3.2mm Bore
45V28	Gas Lens Body 5/32"/4.0mm Bore

I Standard Gas Lens Cup	
Part Number	Description
54N18	Standard Gas Lens Cup 1/4"/6mm Bore
54N17	Standard Gas Lens Cup 5/16"/8mm Bore
54N16	Standard Gas Lens Cup 3/8"/10mm Bore
54N15	Standard Gas Lens Cup 7/16"/11mm Bore
54N14	Standard Gas Lens Cup 1/2"/13mm Bore
54N19	Standard Gas Lens Cup 1/16"/18mm Bore

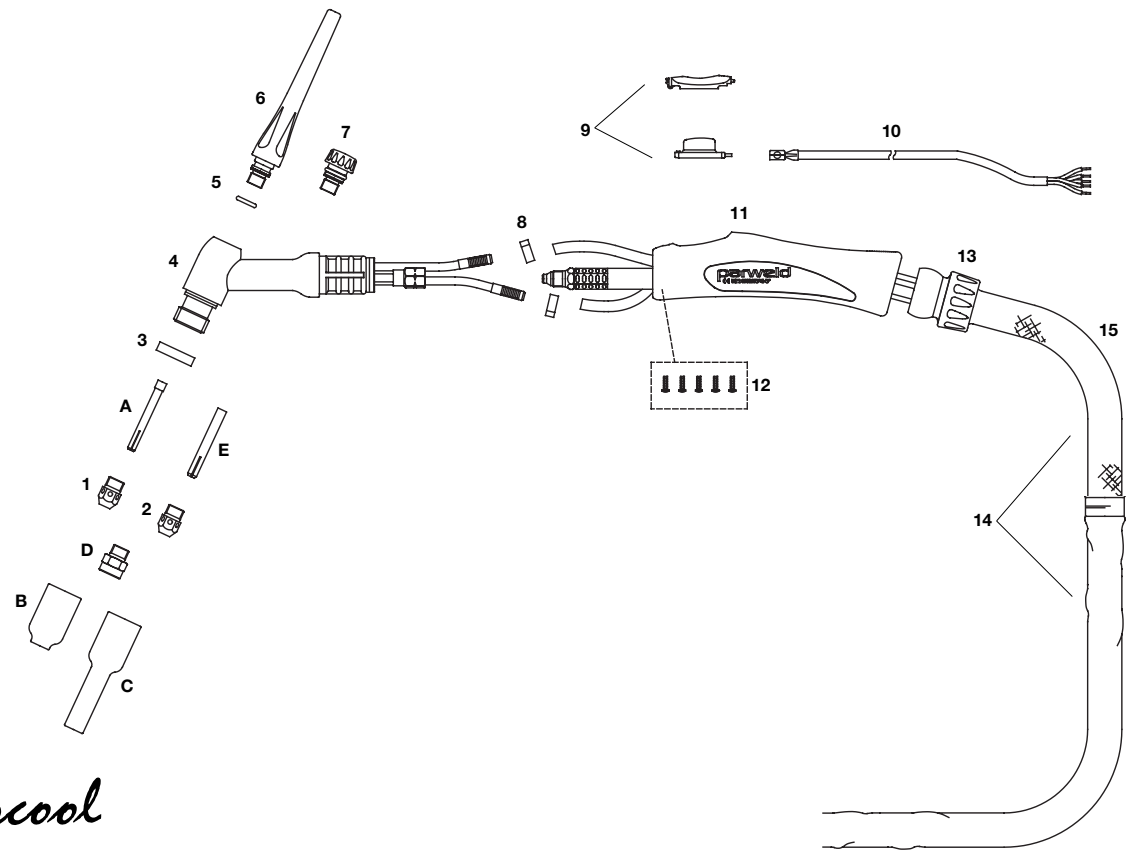
J Long Gas Lens Cup	
Part Number	Description
54N17L	Long Gas Lens Cup 5/16"/8mm Bore
54N16L	Long Gas Lens Cup 3/8"/10mm Bore
54N15L	Long Gas Lens Cup 7/16"/11mm Bore

K Large Diameter Gas Lens Body	
Part Number	Description
45V116	Lge Dia Gas Lens Bdy 1/16"/1.6mm Bore
45V64	Large Dia Gas Lens Body 3/32"/2.4mm Bore
995795	Large Dia Gas Lens Body 1/8"/3.2mm Bore
45V63	Large Dia Gas Lens Body 5/32"/4.0mm Bore

L Large Diameter Gas Lens Cup	
Part Number	Description
57N75	Lge Dia Gas Lens Cup 3/8"/10mm Bore
57N74	Lge Dia Gas Lens Cup 1/2"/13mm Bore
53N88	Lge Dia Gas Lens Cup 5/8"/16mm Bore
53N87	Lge Dia Gas Lens Cup 3/4"/19mm Bore

Components		
Part Number	Description	
1	18CG	Cup Gasket
2	18CG20	Cup Gasket
3	54N01	Gas Lens Insulator
4	54N63	Insulator Large Dia G/Lens
5	ER18FX	Torch Head Flexible
6	ER18	Torch Head Angled with Gasket
7	98W18	Back Cap O Ring
8	ER57Y02	Back Cap Long
9	ER57Y04	Back Cap Short
10	ER1MS	Momentary Switch Kit (fitted as Standard)
11	ERSWL4	Switch & Leads x 4mt
	ERSWL8	Switch & Leads x 8mt
12	ERH200	Ergo Tig Handle Large
13	ERSP	Screw Pack
14	ERKJ200	Knuckle Joint Large
15	ERCO200-40	Complete Cover Assembly x 4mt
	ERCO200-80	Complete Cover Assembly x 8mt
16	ERLC200-08	Leather Cover x 0.8mt
17	ERNCL-32	Neoprene Cover x 3.2mt
	ERNCL-72	Neoprene Cover x 7.2mt
18	ERJK200	Joining Repair Kit

Rating: 400A DC, 260A AC 0.040" to 3/16" (1.00mm-5.0mm) electrodes



*Supercool*

TO ORDER AN ERGO TIG TORCH PACKAGE PLEASE USE THE 5 STAGE PROCESS OUTLINED IN THE ERGO TIG CATALOGUE

Example:- ER18SC-25S1BW0

ER18SC Ergo Torch x 25ft with momentary switch, 3/8 BSP fittings and 2 pin Amphenol Plug

Torch Head		Cable Length		Switch Option		Cable Termination		Cable Plug	
Part No.	Description	Part No.	Description	Part No.	Description	Part No.	Description	Part No.	Description
ER18SC	ER18SC 400A DC	12	12.5ft cables (4m) c/w leather cover and sheath	S1	Momentary Switch	BW	3/8BSP On Water, Gas, Power	0	2 Pin Amphenol Plug
		25	25ft cables (8m) c/w leather cover and sheath	S2	2 Button Momentary	DQ	3595 DINSE, Quick fit Water In/Out, 3/8BSP Gas	1	4 Pin Amphenol Plug
				1K	1 Button Momentary +1K Pot	EW	Central Connector,	2	5 Pin Amphenol Plug
				2K	1 Button Momentary +5K Pot	WW	WTW Connector	3	6 Pin Amphenol Plug
				3K	1 Button Momentary +10K Pot	LW	L-TEC Euro	4	14 Pin Amphenol Plug
				4K	1 Button Momentary +25K Pot			5	6 Pin Harting Plug
				N	Blank			6	8 Pin Plug
								7	3 Pin Tuchel Plug
								8	9 Pin Tuchel Plug
								9	5 Pin Tuchel Plug
								10	12 Pin Bundy Plug

For complete information please refer to the Parweld Ergo Tig Catalogue or [www.parweld.com](http://www.parweld.com)

### A Standard Collet

Part Number	Description
10N21	Standard Collet 0.020"/0.5mm Bore
10N22	Standard Collet 0.040"/1.0mm Bore
10N23	Standard Collet 1/16"/1.6mm Bore
10N24	Standard Collet 3/32"/2.4mm Bore
10N25	Standard Collet 1/8"/3.2mm Bore
54N20	Standard Collet 5/32"/4.0mm Bore

### B Standard Gas Lens Cup

Part Number	Description
54N18	Standard Gas Lens Cup 1/4"/6mm Bore
54N17	Standard Gas Lens Cup 5/16"/8mm Bore
54N16	Standard Gas Lens Cup 3/8"/10mm Bore
54N15	Standard Gas Lens Cup 7/16"/11mm Bore
54N14	Standard Gas Lens Cup 1/2"/13mm Bore
54N19	Standard Gas Lens Cup 1/16"/16mm Bore

### C Long Gas Lens Cup

Part Number	Description
54N17L	Long Gas Lens Cup 5/16"/8mm Bore
54N16L	Long Gas Lens Cup 3/8"/10mm Bore
54N15L	Long Gas Lens Cup 7/16"/11mm Bore

### D Gas Lens Body

Part Number	Description
18GL16	Gas Lens Body 1/16"/1.6mm Bore
18GL32	Gas Lens Body 3/32"/2.4mm Bore
18GL18	Gas Lens Body 1/8"/3.2mm Bore
18GL53	Gas Lens Body 5/32"/4.0mm Bore
18GL36	Gas Lens Body 3/16"/5.0mm Bore

### E Heavy Duty Collet

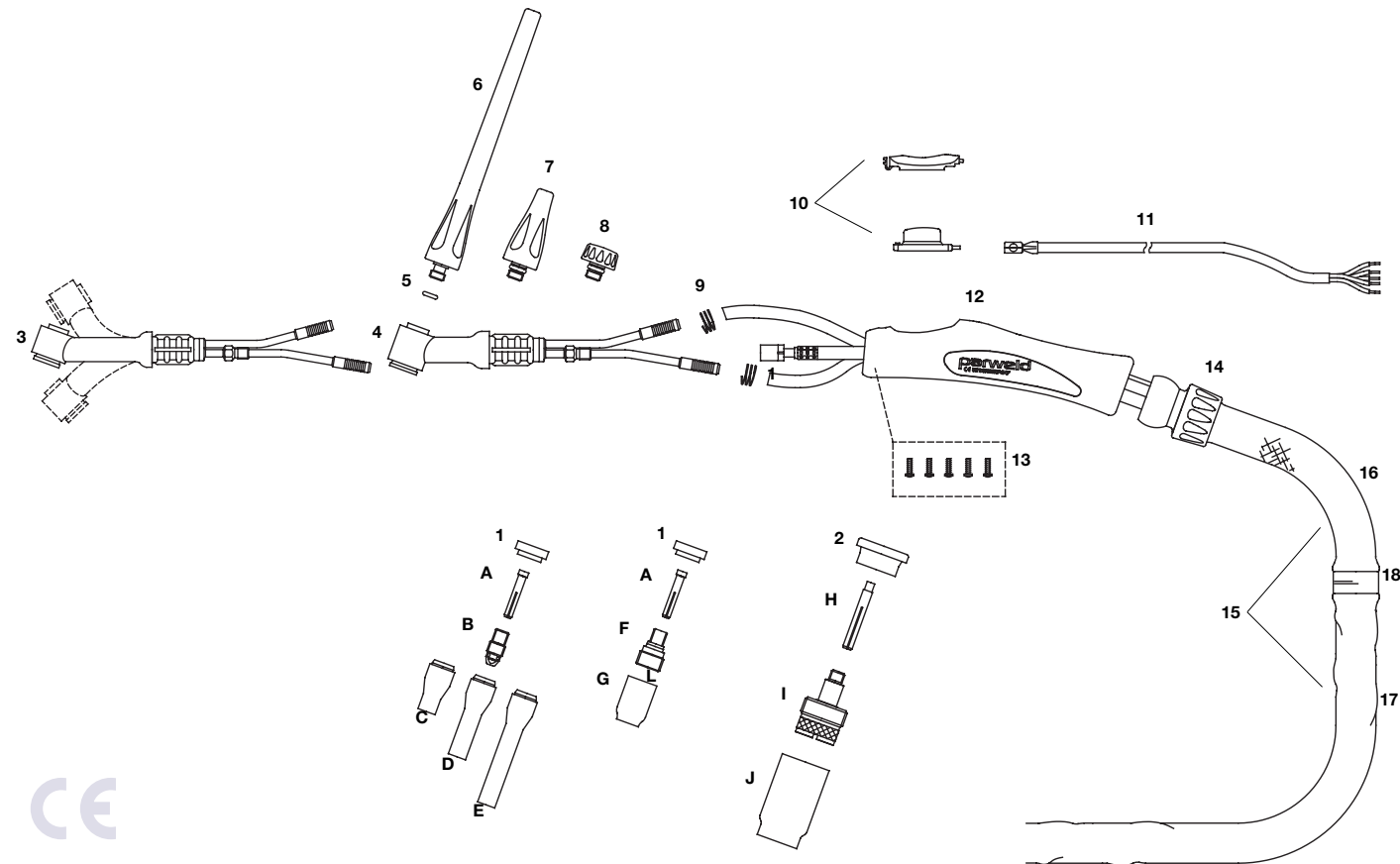
Part Number	Description
10N25HD	Heavy Duty Collet 1/8"/3.2mm Bore
54N20HD	Heavy Duty Collet 5/32"/4.0mm Bore
18C36	Heavy Duty Collet 3/16"/5.0mm Bore

### Components

Part Number	Description
1	NCB-53 Standard Nose Collet Body
2	NCB-36 Heavy Duty Nose Collet Body
3	18NG Nozzle Gasket
4	ER18SC Torch Head including Nozzle Gasket
5	98W18 Back Cap O Ring
6	ER57Y02 Back Cap Long
7	ER57Y04 Back Cap Short
8	B5024 Wire Clamp
9	ER1MS Momentary Switch Kit (fitted as Standard)
10	ERSWL4 Switch & Leads x 4mt
	ERSWL8 Switch & Leads x 8mt
11	ERH200 Ergo Tig Handle Large
12	ERSP Screw Pack
13	ERKJ200 Knuckle Joint Large
14	ERCO200-40 Complete Cover Assembly x 4mt
	ERCO200-80 Complete Cover Assembly x 8mt
15	ERLC200-08 Leather Cover x 0.8mt
16	ERNCL-32 Neoprene Cover x 3.2mt
	ERNCL-72 Neoprene Cover x 7.2mt
17	ERJK200 Jointing Repair Kit

The design, manufacture and quality systems of Parweld are certified in accordance with ISO9001.

Rating: 250A DC, 175A AC 0.020" to 1/8" (1.0mm-3.2mm) electrodes



**TO ORDER AN ERGO TIG TORCH PACKAGE PLEASE USE THE 5 STAGE PROCESS OUTLINED IN THE ERGO TIG CATALOGUE**

Example:- ER20FXL-25S1BWO

ER20 Ergo Torch x 25ft with momentary switch, 3/8 BSP fittings and 2 pin Amphenol Plug

Torch Head		Cable Length		Switch Option		Cable Termination		Cable Plug	
Part No.	Description	Part No.	Description	Part No.	Description	Part No.	Description	Part No.	Description
ER20	ER20 250ADC	12	12.5ft cables (4m) c/w leather cover and sheath	S1	Momentary Switch	BW	3/8BSP On Water, Gas, Power	0	2 Pin Amphenol Plug
ER20FXL	ER20FX 250ADC FLEX	25	25ft cables (8m) c/w leather cover and sheath	S2	2 Button Momentary	EW	Central Connector	1	4 Pin Amphenol Plug
				1K	1 Button Momentary +1K Pot	WW	WTW Connector	2	5 Pin Amphenol Plug
				2K	1 Button Momentary +5K Pot	LW	L-TEC Euro	3	6 Pin Amphenol Plug
				3K	1 Button Momentary +10K Pot			4	14 Pin Amphenol Plug
				4K	1 Button Momentary +25K Pot			5	6 Pin Harting Plug
				N	Blank			6	8 Pin Plug
								7	3 Pin Tuchel Plug
								8	9 Pin Tuchel Plug
								9	5 Pin Tuchel Plug
								10	12 Pin Bundy Plug

For complete information please refer to the Parweld Ergo Tig Catalogue or [www.parweld.com](http://www.parweld.com)

### A Standard Collet

Part Number	Description
13N20	Standard Collet 0.020"/0.5mm Bore
13N21	Standard Collet 0.040"/1.0mm Bore
13N22	Standard Collet 1/16"/1.6mm Bore
13N22M	Standard Collet 5/64"/2.0mm Bore
13N23	Standard Collet 3/32"/2.4mm Bore
13N24	Standard Collet 1/8"/3.2mm Bore

### B Standard Collet Body

Part Number	Description
13N25	Standard Collet Body 0.020"/0.5mm Bore
13N26	Standard Collet Body 0.040"/1.0mm Bore
13N27	Standard Collet Body 1/16"/1.6mm Bore
13N27M	Standard Collet Body 5/64"/2.0mm Bore
13N28	Standard Collet Body 3/32"/2.4mm Bore
13N29	Standard Collet Body 1/8"/3.2mm Bore

### C Standard Ceramic Cup

Part Number	Description
13N08	Standard Ceramic Cup 1/4"/6mm Bore
13N09	Standard Ceramic Cup 5/16"/8mm Bore
13N10	Standard Ceramic Cup 3/8"/10mm Bore
13N11	Standard Ceramic Cup 7/16"/11mm Bore
13N12	Standard Ceramic Cup 1/2"/15mm Bore
13N13	Standard Ceramic Cup 5/8"/16mm Bore

### D Long Ceramic Cup

Part Number	Description
796F70	Long Ceramic Cup 3/16"/5mm Bore
796F71	Long Ceramic Cup 1/4"/6mm Bore
796F72	Long Ceramic Cup 5/16"/8mm Bore
796F73	Long Ceramic Cup 3/8"/10mm Bore

### E Extra Long Ceramic Cup

Part Number	Description
796F74	X Long Ceramic Cup 3/16"/5mm Bore
796F75	X Long Ceramic Cup 1/4"/6mm Bore
796F76	X Long Ceramic Cup 5/16"/8mm Bore
796F77	X Long Ceramic Cup 3/8"/10mm Bore

### F Gas Lens Body

Part Number	Description
45V41	Gas Lens Body 0.020"/0.5mm Bore
45V42	Gas Lens Body 0.040"/1.0mm Bore
45V43	Gas Lens Body 1/16"/1.6mm Bore
45V44	Gas Lens Body 3/32"/2.4mm Bore
45V45	Gas Lens Body 1/8"/3.2mm Bore

### G Gas Lens Cup

Part Number	Description
53N58	Standard Gas Lens Cup 1/4"/6mm Bore
53N59	Standard Gas Lens Cup 5/16"/8mm Bore
53N60	Standard Gas Lens Cup 3/8"/10mm Bore
53N61	Standard Gas Lens Cup 7/16"/11mm Bore
53N61-S	Standard Gas Lens Cup 1/2"/15mm Bore

### H Large Diameter Gas Lens Collet

Part Number	Description
13N22L	Lge Dia Gas Lens Collet 1/16"/1.6mm Bore

### I Large Diameter Gas Lens Body

Part Number	Description
45V116S	Lge Dia Gas Lens Bdy 1/16"/1.6mm Bore

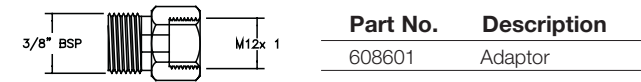
### J Large Diameter Gas Lens Cup

Part Number	Description
57N75	Lge Dia Gas Lens Cup 3/8"/10mm Bore
57N74	Lge Dia Gas Lens Cup 1/2"/11mm Bore
53N88	Lge Dia Gas Lens Cup 5/8"/16mm Bore
53N87	Lge Dia Gas Lens Cup 3/4"/19mm Bore

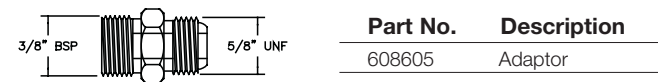
### Components

Part Number	Description
1	598882 Cup Gasket
2	54N63-20 Insulator Large Dia Gas Lens
3	ER20FXL Torch Head Flexible
4	ER20 Torch Head
5	98W18 Back Cap O Ring
6	ER41V24 Ergo Tig Back Cap Long
7	ER41V35 Ergo Tig Back Cap Medium
8	ER41V33 Ergo Tig Back Cap Small
9	53NO4 Wire Clamps
10	ER1MS Momentary Switch Kit (fitted as Standard)
11	ERSWL4 Switch & Leads x 4mt
	ERSWL8 Switch & Leads x 8mt
12	ERH100 Ergo Tig Handle Small
13	ERSP Screw Pack
14	ERKJ100 Knuckle Joint - Small
15	ERCO100-40 Complete Cover Assembly x 4mt
	ERCO100-80 Complete Cover Assembly x 8mt
16	ERLC100-08 Leather Cover x 0.8mt
17	ERNCL-32 Neoprene Cover x 3.2mt
	ERNCL-72 Neoprene Cover x 7.2mt
18	ERJK100 Jointing Repair Kit

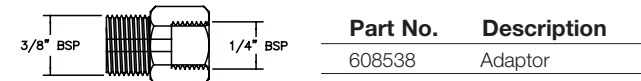




Part No.	Description
608601	Adaptor



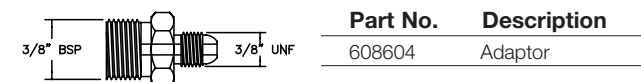
Part No.	Description
608605	Adaptor



Part No.	Description
608538	Adaptor



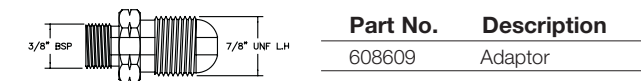
Part No.	Description
0315070	Adaptor



Part No.	Description
608604	Adaptor



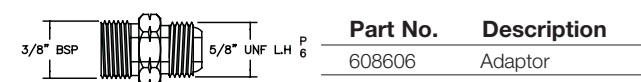
Part No.	Description
608618	Adaptor Gas



Part No.	Description
608609	Adaptor



Part No.	Description
0315012	Adaptor



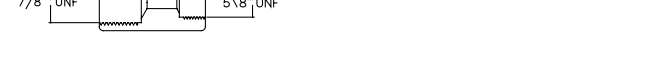
Part No.	Description
608606	Adaptor



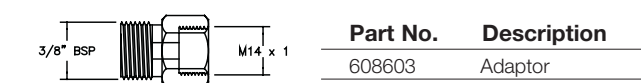
Part No.	Description
45V62	Adaptor



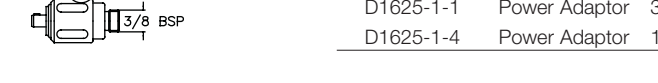
Part No.	Description
608619	Adaptor Water



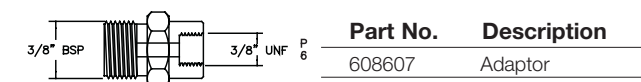
Part No.	Description
45V11	Adaptor



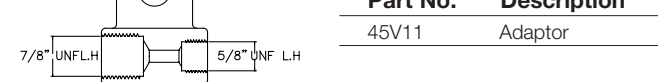
Part No.	Description
608603	Adaptor



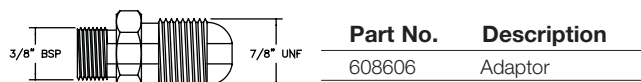
Part No.	Description	A
D1625-1-1	Power Adaptor	3/8"
D1625-1-4	Power Adaptor	1/4"



Part No.	Description
608607	Adaptor



Part No.	Description	A
D3595-1-1	Power Adaptor	3/8"
D3595-1-4	Power Adaptor	1/4"



Part No.	Description
608606	Adaptor



- Periodically remove the nozzle, head insulators, collet and collet body and inspect for wear and damage
- Any worn or damaged parts should be changed immediately
- Care should be taken not to let torch leads contact any hot surfaces
- When the torch is not in use for prolonged periods ensure the high frequency switch is off
- If the torch has not been used for 15 minutes or more purge the gas line
- Always ensure adequate gas and water flow prior to welding
- To prevent electrode oxidation and aid electrode cooling an adequate post flow is recommended
- The inclusion of a torch coolant containing corrosive retardants in the water supply is strongly recommended
- Cleanliness of both the weld joining areas and filler metals are an important consideration in the TIG process
- Oil, grease, dust, paint or marking crayon and corrosion deposits must be removed from the immediate joint area

**The chief causes of arc instability and contaminated welds are;**

- Contact of electrode tip with molten weld pool
- Contamination of electrode tip by weld pool spatter
- Contact of filler metal with electrode tip
- Exceeding the current carrying capacity of a given electrode size
- The extension of an electrode beyond the recommended distance from the collet
- Inadequate tightening of collets and back caps
- Inadequate shielding flow or excessive drafts
- Electrode arc wander or defect in the electrode surface
- The use of improper shielding gas

Problem	Cause	Remedy
<b>Excessive Electrode Consumption</b>	<ol style="list-style-type: none"> <li>1 Improper size electrode for current required</li> <li>2 Contaminated electrode</li> <li>3 Electrode oxidation during cooling</li> <li>4 Using gas containing oxygen or CO2</li> <li>5 Excessive heating in holder</li> <li>6 Operating on reverse polarity</li> <li>7 Inadequate gas flow</li> </ol>	<ol style="list-style-type: none"> <li>1 Use larger electrode</li> <li>2 Remove contaminated portion</li> <li>3 Keep gas flowing after stopping arc for at least 10 to 15 seconds</li> <li>4 Change to proper gas</li> <li>5 Check for proper collet contact</li> <li>6 Use larger electrode or change to straight polarity</li> <li>7 Increase gas flow</li> </ol>
<b>Erratic Arc</b>	<ol style="list-style-type: none"> <li>1 Electrode Mishapen</li> <li>2 Base metal is dirty or greasy wire brush or abrasives</li> <li>3 Electrode is contaminated</li> <li>4 Joint too narrow</li> <li>5 Arc too long</li> </ol>	<ol style="list-style-type: none"> <li>1 Re-sharpen electrode</li> <li>2 Use appropriate chemical cleaners</li> <li>3 Remove contaminated portion of electrode</li> <li>4 Open joint groove, bring electrode closer to work, decrease voltage</li> <li>5 Bring holder closer to work to shorten arc</li> </ol>
<b>Porosity</b>	<ol style="list-style-type: none"> <li>1 Entrapped gas impurities (hydrogen, nitrogen, air, water, vapour)</li> <li>2 Defective gas hose or loose hose connections</li> <li>3 Oil film on base metal</li> </ol>	<ol style="list-style-type: none"> <li>1 Blow out air from all lines before striking arc, use welding grade (99.99%) inert gas</li> <li>2 Check hose and connections for leaks</li> <li>3 Clean with chemical cleaner not prone to break up in arc. Do not weld when wet</li> </ol>
<b>Tungsten Contamination of Work Piece</b>	<ol style="list-style-type: none"> <li>1 Contact starting with electrode</li> <li>2 Electrode melting and alloying with base metal</li> <li>3 Touching tungsten metal pool</li> </ol>	<ol style="list-style-type: none"> <li>1 Use high frequency start or use copper striker plate</li> <li>2 Use less current or larger electrode</li> <li>3 Keep tungsten out of molten pool</li> </ol>
<b>Excessive Ceramic Cup Usage</b>	<ol style="list-style-type: none"> <li>1 Too small a nozzle bore for size of tungsten</li> <li>2 Thermal shock</li> <li>3 Exceeding duty of cycle torch</li> </ol>	<ol style="list-style-type: none"> <li>1 Increase bore of nozzle</li> <li>2 Increase bore of nozzle or warm ceramic cup slowly from cold</li> <li>3 Charge Torch</li> </ol>
<b>Poor Arc Start</b>	<ol style="list-style-type: none"> <li>1 Dirty work piece</li> <li>2 Poor earth connection</li> <li>3 Low start current</li> <li>4 Insufficient gas cover</li> <li>5 Incorrect electrode type</li> </ol>	<ol style="list-style-type: none"> <li>1 Clean work piece with appropriate cleaner</li> <li>2 Clean and refix earth</li> <li>3 Increase starting current</li> <li>4 Increase gas flow or nozzle bore</li> <li>5 Check and change electrode as necessary</li> </ol>