



# Butt Fusion & Electrofusion Equipment & Tooling

*Manufacturing Excellence from the Fusion Group*



## THE COMPANY

Fusion Group  
Chesterfield Site



Founded in 1971, Fusion Group is a multinational company with its headquarters and principal manufacturing site located in Chesterfield, England.

Fusion Group's Equipment Division is a world leader in the manufacture of automatic and manual butt fusion machines, electrofusion boxes and tooling for polyethylene pipe jointing.



In the UK, Fusion Group markets its manufactured products through its distribution arm, Fusion Provida. In addition to its National Sales Office in Chesterfield, Fusion Provida has a strategically located hire and service depot network. Contact details for both UK equipment sales and hire are listed on page 55.



Over 60% of Fusion Group's UK manufactured output is sold into international markets through a global network of wholly-owned subsidiaries, joint-venture companies, and agents. Contact details for Fusion's international sales team are provided on page 54.

The Fusion Group is an entrepreneurial award-winning innovator. A brief overview of Group activities is provided on page 53.

### BUTT FUSION



4-14

**BUTT FUSION MACHINES**



15

**BUTT FUSION LINERS**



16-17

**DEBADERS**



18

**PIPE SUPPORT ROLLERS**

### JOINT RECORDS



19-23

**DATA RETRIEVAL  
JOINT ANALYSIS  
ASSET INTEGRITY**

### ELECTROFUSION



24-29

**ELECTROFUSION  
CONTROL BOXES**



30-31

**SCRAPERS**



32-37

**CLAMPS**



38

**TEST CAPS/  
CUTTER KEYS**



39-42

**STRAP CLAMPS  
POWERCLAMP**



43

**POST SQUEEZE OFF CLAMPS  
REROUNDING TOOLS**

## CONTENTS

### ANCILLARY EQUIPMENT



44-46

**SQUEEZE TOOLS**



47-48

**DRILLING EQUIPMENT**



49-50

**PIPE CUTTERS**



51

**GENERATORS**

# BUTT FUSION

## BUTT FUSION - WHAT DO I NEED?

A basic butt fusion kit for jointing polyethylene pipes should include:-

- Butt fusion machine
- Generator
- Pipe cutter
- Pipe support rollers
- Welding tent/shelter and ground sheet

Depending on your specific requirements, you may also need:

- External/internal debanding tools
- Data transfer options
- Pipe end covers
- Indelible marker pen for marking beads

New to butt fusion? Fusion Group can provide training on all of our products tailored to your specific needs. Contact the Equipment Office on +44 (0) 1246 268666 for more details.

We have also produced a "Good Guide to Butt Fusion" which takes you through the process step-by-step. You can download a copy free of charge from our website at [www.fusiongroup.com](http://www.fusiongroup.com)



Good Guide to Butt Fusion and Electrofusion Jointing

### PRODUCT DETAILS

Item	Machine Size Range (mm)						Page(s)
	63-180mm	63-250mm	90-315mm	160-400mm	315-500mm	400-630mm	
Automatic Butt Fusion - Gator	✓	✓	✓	✓	✓	✓ (Hire Only)	Pages 8-10
Pipeliner			✓	✓			Pages 11 & 12
Welda	✓	✓	✓	✓			Page 13
Welda Station			✓				Page 14



## AUTOMATIC BUTT FUSION



**63-400mm**



**315-500mm**



**400-630mm**

Globally recognised as the market leader in pipe jointing equipment with the most efficient, robust and easy to use machines providing 100% successful joints time after time.

In the utility industry where quality and safety are paramount, Fusion's butt fusion machines lead the way.

Fusion has created the Gator range of machines capable of jointing pipes from 63mm to 630mm.

Fusion's Gator range offers full automation of all functions that contribute to a successful joint, including:

- Drag measurement
- Trimming incorporating Fusion's unique feathering function
- Pressure control during the heating, jointing and cooling stages
- Temperature control throughout the entire process
- Data capture
- Linear transducers control the pipe movement and
  - control the trimming process
  - distinguish between static and dynamic friction for drag measurement
  - detects pipe slippage
  - keeps dwell time (open-close) to a minimum
  - optimise pipe pressure during fusion
  - control bead size
  - detect early pipe removal

On the 500 and 630 machines heater and trimmer loading is fully automatic eliminating manual lifting.

A large selection of languages for screen prompts and data displays are available. Please contact us for further details.

The combination of industry accepted jointing parameters, continuous machine monitored feedback and relevant operator input has produced a system capable of controlling the complete jointing process at all times.

Automatic machine features:

- Automatic joint cycle
- Database memory up to 500 joint history
- Short dwell time - heater removed in under 2 seconds
- Fast trimming action
- Operator friendly machine
- Fast Weld compatible
- Failsafe system
- Optional barcode reader for ISO standard traceability (Gator 250, 315 and 400 only)

**Fusion automatic butt fusion machines - 100% successful joints every time!**

## THE GOOD GUIDE TO: AUTOMATIC BUTT FUSION

# Do's and Don'ts

### PRE JOINTING CHECKS

- Use equipment that is clean, in good condition, regularly maintained and within required calibration/service.
- Ensure the correct jointing parameters for the machine and pipe are known and understood and correct parameters are selected.
- Ensure the generator is in good condition and has plenty of fuel.
- Check that the heater plate is clean - wash only when cold with clean water and dry with a lint free cloth or paper towel. Clean trimmer discs before use with lint free cloth.
- Check that the trimmer is clean and that the blades are not damaged and in the correct position for the required pipe size.
- Ensure clamp liners and securing screws are of the correct size.
- Cover pipe ends to eliminate wind chill to the heater and joint interface.
- Clean pipe surfaces inside and out (approx 300mm), clean pipe ends and clamps before inserting pipe into machine.
- Position pipes in clamps with the pipe marking to the top and aligned.
- Wash the heater plate when cold before every welding session and perform dummy welds when hot to remove fine particles and prevent the production of fumes. Carry out one dummy weld on pipe size 180mm or below, or two dummy welds on larger pipe sizes. The first print out should read 'Error 20 Abort During Fusion' if butted or 'Error 19 Abort During Soak' if prior to butting or 'Error 32 Abort During Dwell'.
- Always perform dummy welds after changing pipe size and also if the heater plate has been allowed to cool.
- Ensure that when trimming a continuous ribbon of material of pipe wall thickness is produced from both pipe ends before commencing feathering operation.

### ABF DO'S

- Always input correct operator code and job code to allow for full traceability.
- Always weld in a shelter and on a suitable board or ground sheet.
- Check size, SDR and pipe material to ensure compatibility.
- Always ensure pipes are aligned correctly and supported on pipe support rollers to minimise drag.
- Always use trimmer/hotplate stands provided.
- Always remove swarf from underneath pipe ends and chassis.
- Visually check that both ends are completely trimmed.
- Always check pipes for alignment and gaps around the entire circumference of the abutted pipes.
- Always remove external bead from completed joint, bag and label with corresponding joint number for submission and inspection by the supervisor.

## THE GOOD GUIDE TO: AUTOMATIC BUTT FUSION

# Do's and Don'ts

### ABF DON'TS

- Attempt to use equipment unless trained to do so.
- Attempt to weld pipes of incompatible materials or SDR.
- Leave swarf inside pipe or on chassis.
- Introduce dirt onto trimmed pipe ends whilst removing swarf.
- Touch trimmed pipe ends or fitting ends.
- Remove pipes from machine before cooling time had elapsed.
- Attempt to cut corners in any part of the welding cycle.
- Attempt to install pipe until fully cooled.
- **DO NOT UNDER ANY CIRCUMSTANCES ATTEMPT TO PULL THE MATERIAL FROM THE SKIN AS THIS WILL INVARIABLY REMOVE THE SKIN AS WELL.**
- Avoid contact with trimmer blades when cleaning and especially when in motion, blades are very sharp and could cause serious injury.
- Do not attempt to operate the trimmer whilst it is out of the machine or attempt to by-pass the safety switch.
- Keep fingers and hands away from the pipe end, chassis, trimmer and heater while in operation.
- Do not attempt to lift or move lengths of heavy pipe without assistance. The requirements of 'manual handling' should be adhered to.
- An audible alarm is fitted to automatic butt fusion machines to warn of impending movement.
- Normal precautions should be observed when handling electrical equipment and, for safety reasons, all 110v portable generator sets should be 'centre tapped' for site use +55/0/-55 volts.

### HEALTH AND SAFETY

Although we make every effort in the design of our equipment to ensure operator safety, it is worth bearing in mind the following precautions:

- Do not touch heater plate (unless to clean when cold).
- Never allow molten or semi-molten polyethylene to come into contact with skin. In the event of such an occurrence it is recommended that cold water should be used to flush the affected area and medical advice be sought.
- Health and safety regulations insist upon the wearing of personal protective equipment such as gloves, safety glasses and safety boots.

**ALWAYS REMEMBER THAT ALL JOINT RECORDS ARE AUTOMATICALLY STORED AND SHOULD BE DOWNLOADED ON A REGULAR BASIS TO ALLOW FULL TRACEABILITY AND TO PROVE THE INTEGRITY OF WORKMANSHIP**

# GATOR 180, 250, 315 & 400

(BUTT FUSION - AUTOMATIC 63 - 400mm)

## SPECIAL FEATURES

- Unique fast clamping system allows rapid and easy pipe loading as well as removing the need for additional tooling
- Curved trimmer blade ensures optimum cutting performance
- Light and compact heater and trimmer stand
- Fast twist-lock system for rapid installation of trimmer and heater (250 & 315 only)
- Automatic interlock for correct heater temperature
- Replaceable heater surface plates
- Hard anodised trimmer discs
- Detachable stainless steel cradle for on site protection
- Ideal for in trench work
- Data transfer
- Gator 250, 315 & 400 - National Grid approved



GATOR 250

## OPTIONAL EXTRAS

- Liners
- Bevel liners (for short spigot fittings)
- Printer
- Barcode scanner
- Stub flange adaptor
- Knife-edge clamp
- Touch key



GATOR 315

Check out the award-winning Gator Pipeliner 315 and 400 on page 11

## MACHINE SPECIFICATION

Machine Type	Range (mm)	Weight (kg)	Fittings	Data Retrieval	Voltage	Product Code
GATOR 180	63mm-180mm	105	YES	YES	110V 220V	G180110AFE* G180220AFE
GATOR 250	63mm-250mm	127	YES	YES	110V 220V	G250110AFE G250220AFE
GATOR 315	90mm-315mm	163	YES	YES	110V 220V	G315110AFE G315220AFE
GATOR 400	160mm-400mm	250	YES	YES	110V 220V	G400MK2110FE G400MK2220FE

All machines supplied without liners. Please specify liners when ordering if required

\* 'E' denotes plug type    E = 3 Pin Blue    G = 2 Pin Black

## POWER SPECIFICATION

Machine Type	Heater	Trimmer	Controller
GATOR 180	1500W	650W	1100W
GATOR 250	1800W	650W	1100W
GATOR 315	3300W	650W	1100W
GATOR 400	4000W	1050W	1100W

For details of Fusion's range of generators see page 51



# GATOR 500

## (BUTT FUSION - AUTOMATIC 315 - 500mm)

### SPECIAL FEATURES

- Hydraulic actuation of the trimmer and heater
- Linear transducer to control processes
- Fast heater removal (2.8 seconds dwell time)
- Automatic interlock for correct heater temperature
- Articulated carriage to aid positioning
- Adjustable leg supports for easy levelling
- Integral hydraulic pipe support rollers
- Utilises familiar operator friendly Gator 2 computer with additional functions
- Full safety interlocks including audible and visual alarms during machine cycles/movement
- Failsafe error code system
- Fastweld compatible
- Data retrieval and processing
- Curved blade ensures optimum trimming performance
- Fully automatic jointing cycle
- Database memory up to 500 joint history
- Optional barcode reader for ISO standard traceability
- Optional printer unit for joint record printout
- Fast trimming action
- Operator friendly machine
- Fully floating heater
- National Grid approved



### OPTIONAL EXTRAS

- Liners
- Printer
- Barcode scanner

### MACHINE SPECIFICATION

Item	G500
Diameter Range	315-500mm
Gross Weight	750kg
Data Retrieval	YES
Fast Heater Removal	2.8 seconds
Environmental Protection	IP54
Dimensions L x H x W (parked)	1620x2020x1300mm
Product Code	G500EAJSXPX

All machines supplied without liners.  
Please specify liners when ordering if required

### POWER SPECIFICATION

Item	Power Requirements
Heater	7500W
Trimmer	1050W
Controller	1200W
Minimum Recommended Generator	12kVA 3PH 415V

For details of Fusion's range of generators see page 51



## BF 630 (BUTT FUSION - AUTOMATIC 400 - 630mm)

Available for hire only!

The only fully automatic 630mm butt fusion machine in the World!

### SPECIAL FEATURES

- Integral hydraulic pipe support rollers
- Hydraulic clamping and trimmer/heater loading
- Independent chassis, power pack and hand-held controller for optimal manoeuvrability
- Automatic hydraulic trim cycle and "feathering"
- Pipe slippage is monitored automatically and the operator is prompted to visually inspect pipe alignment by means of the "check cycle"
- Software and fascia available in a variety of languages
- Automatic interlock for correct heater temperature
- Repeatable dwell time of less than 4 seconds helps produce quality points and opens the door for "faster welding" with revised jointing parameters. A heated pipe end typically loses 3° - 5°C per second in normal ambient conditions. All the more reason to make the joint quickly!
- Security immobiliser restricts access to authorised operators only
- Joint records are stored and can be downloaded via data transfer onto a PC for network analysis
- Complete in-built diagnostic system
- Optional floating heater
- National Grid approved



### MACHINE SPECIFICATION

Item	BF630A
Diameter Range	400-630mm
Gross Weight	1775kg
Data Retrieval	YES
Fast Heater Removal	< 4 seconds
Environmental Protection	IP54
Dimensions L x H x W (parked)	1700x1365x1700mm

All machines supplied without liners.  
Please specify liners when ordering if required

### POWER SPECIFICATION

Item	Power Requirements
Heater	13.5KW
Trimmer	Hydraulic
Controller	4000W
Minimum Recommended Generator	20kVA 3PH 415V

For details of Fusion's range of generators see page 51

## GATOR PIPELINER 315 & 400 (BUTT FUSION - AUTOMATIC 90 - 400mm)

Introducing the new Gator "Pipeliner" fully automatic butt fusion machine. Based on the Gator 315 the Pipeliner has a gas sprung pivoting heater and trimmer to remove all lifting from the jointing process.

### SPECIAL FEATURES

- One person machine setup
- Heater ejects automatically
- Automatic interlock for correct heater temperature
- Chassis can split into two manageable modules
- Once in-situ can be operated by one person
- Increases productivity
- Faster joint cycle
- Upgrade available for existing Gator 315 (refurbishment of heater and trimmer can be included in the upgrade)
- National Grid approved

### OPTIONAL EXTRAS

- Liners
- Printer
- Barcode scanner
- Stub flange adaptor
- Knife-edge clamp

### POWER SPECIFICATION

Item	Power Requirements	
	Gator 315 Pipeliner	Gator 400 Pipeliner
Heater	3300W	4000W
Trimmer	650W	1050W
Controller	1100W	1100W

For details of Fusion's range of generators see page 51



The Pipeliner was the winner of the SBWWI Innovation Award



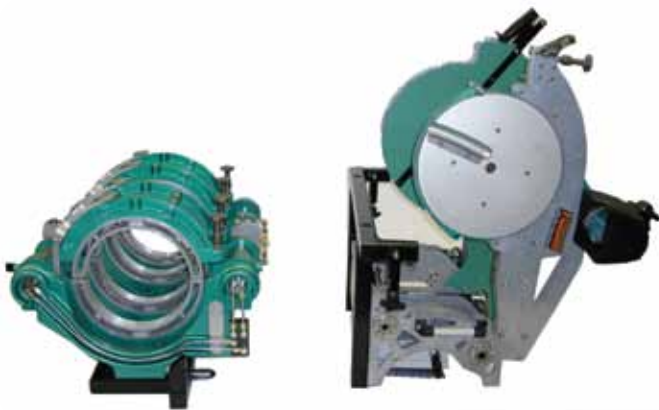


# GATOR PIPELINER 315 & 400

(BUTT FUSION - AUTOMATIC 90 - 400mm)

## MACHINE SPECIFICATION

Item		Gator 315 Pipeliner	Gator 400 Pipeliner	
Product Code		G315110NLE	G400110NLE	
		G315220NLE	G400220NLE	
Input Supply	110V Units	97-135Vac	97-135Vac	
	220V Units	195-260Vac	195-260Vac	
Diameter Range		90 - 315mm	160-400mm	
Gross Weight		175.5kg	292kg	
SDR Range (Typical)		7.25, 7.4, 9, 11, 13, 17, 17.6, 26, 32 plus capability for special SDR	7.25, 7.4, 9, 11, 13, 17, 17.6, 26, 32 plus capability for special SDR	
Operating Temperature (Range)		-10 to +40 °C	-10 to +40 °C	
Storage Temperature (Range)		-15 to +45 °C	-15 to +45 °C	
Data Retrieval		YES	YES	
Environmental Protection		IP54	IP54	
Unit Weights	Insert Module	69kg	250kg	
	Chassis	64.5kg		
	Controller	42kg	42kg	
Dimensions (mm) (L x W x H)	Overall Machine (Parked)	1160 x 820 x 660mm	including protective carriage	
	Overall Machine (Unparked)	1160 x 820 x 1170mm		1250 x 880 x 780mm
	Chassis Only	760 x 820 x 470mm		1530 x 880 x 1450mm
	Insert Module Only (Parked)	1100 x 820 x 580mm		N/A
	Controller	470 x 515 x 500mm		N/A
Input Cable (Length)		5m	5m	
Hydraulic Hoses (Length)		5m	5m	



Pipeliner 315

Quickly separates for 2 person carry



Complete Pipeliner 315 in parked position

Very Compact

# WELDA 180, 250, 315 & 400 Mk2

## (BUTT FUSION - MANUAL 63 - 400mm)

“Welda Mk2” machines are part of the manual range of butt fusion machines launched by Fusion. They are suitable for welding polyethylene pipes for gas and water pipeline projects and also polypropylene pipes used in industrial applications.

The “Welda Mk2” machines have been designed to meet ISO 12176-1.

### FEATURES

- Twin dual pipe clamps
- Fast clamping for pipe installation
- Two centre axial mounted hydraulic cylinders
- Lightweight
- Large, easy-to-read pressure gauge
- Independent pressure control valve
- Pressure relief valve
- Maintains pressure during the cooling process
- 150 bar operating system
- Unique curved blade technology for fast and efficient pipe trimming action
- Trimmer safety micro switch fitted for safe operation
- Electronically regulated heater and temperature adjustment
- Joins pipe to pipe and pipe to fittings



### OPTIONAL EXTRAS

- Liners
- Stub flange adaptor
- Bevel liners for short spigot fitting



### MACHINE SPECIFICATION

Product Code	Machine Type	Range (mm)	Fittings	Voltage	Weight (kg)
W180220MFE	WELDA 180	63-180mm	YES	220V	95
W250220MFE-MK2	WELDA 250	63-250mm	YES	220V	100
W315220MFE-MK2	WELDA 315	90-315mm	YES	220V	128
W400220MFE-MK2	WELDA 400	160-400mm	YES	220V	188

All machines supplied without liners. Please specify liners when ordering if required

\* 'E' denotes plug type    E = 3 Pin Blue    G = 2 Pin Black

### POWER SPECIFICATION

Machine Type	Heater	Trimmer	Pump Unit
WELDA 180	1500W	650W	1100W
WELDA 250	1800W	650W	1100W
WELDA 315	3300W	650W	1100W
WELDA 400	4000W	1050W	1100W

For details of Fusion's range of generators see page 51

Note: The Welda range was developed for international markets and operates on 220V supply as standard. 110V machines are available to UK operators on special request

# WELDA STATION

## 315 BUTT FUSION MACHINE

### (BUTT FUSION - MANUAL 90-315mm)

The Welda Station 315 is a brand new design in manual butt fusion which is manufactured by Fusion Provida in the UK for the international market.

The Welda Station 315 is fixed at a 45 degree angle for ease of loading and underclamping pipes. It is highly manoeuvrable and compact and has the hydraulic control unit mounted on the wheeled trolley. One of the advantages of the Welda Station 315 is that the chassis can be removed for trench work.

### FEATURES

- Robust, reliable and low maintenance
- Quick removal of chassis, trimmer and heater from trolley for in trench work
- Easy single person operation
- Easily manoeuvrable with pull out handle
- Pipe range Ø90 - 315mm
- Fast clamping system
- Powerpack mounted on trolley for ease of use with ergonomic controls
- Replaceable heater surface plates



### MACHINE SPECIFICATION

Item	Description	Weight
Welda Station 315	1180(L) x 800(D) x 930(H) mm	229kg
Hydraulic Unit and Trolley	150 bar, 1.1kW, 220V, 50Hz, single phase	109kg
Butt Fusion Chassis	690(L) x 610(D) x 460(H) mm	65kg
Trimmer	650W, 220V	31kg
Heater Plate	3.3kW, 220V	15kg
Heater Stand	Removable heater stand	9kg

*Minimum recommended portable generator output for field use is: 5kw, 240v single phase*





# BUTT FUSION - LINERS

Butt Fusion liners are designed to maximise the size range of the machine. Liners are available either in a tough engineering plastic or cast aluminium.



Size	Product Code	Material	Machine Diameter *
<b>500X450</b>	BFL500450X50	Aluminium	500
<b>500X400</b>	BFL500400X50	Aluminium	500
<b>400X355</b>	BFL400355X50	Aluminium	500
<b>400X315</b>	BFL400315X50	Aluminium	500
<b>400X355</b>	BFL400355	Aluminium	400
<b>400X315</b>	BFL400315	Aluminium	400
<b>400X250</b>	BFL400250	Aluminium	400
<b>315X280</b>	BFL315280	Aluminium	400, 315
<b>315X250</b>	BFL315250	Aluminium	400, 315
<b>315X200</b>	BFL315200	Aluminium	400, 315
<b>250X225</b>	BFL250225	Aluminium	400, 315, 250
<b>250X200</b>	BFL250200	Aluminium	400, 315, 250
<b>250X180</b>	BFL250180	Aluminium	400, 315, 250
<b>250X160</b>	BFL250160	Aluminium	400, 315, 250
<b>180X160</b>	BFL180160PT	Engineering Plastic	400, 315, 250
<b>180X160</b>	BFL180160	Aluminium	400, 315, 250
<b>180X140</b>	BFL180140PT	Engineering Plastic	315, 250
<b>180X140</b>	BFL180140	Aluminium	315, 250
<b>180X125</b>	BFL180125PT	Engineering Plastic	315,250
<b>180X125</b>	BFL180125	Aluminium	315, 250
<b>180X110</b>	BFL180110PT	Engineering Plastic	315, 250
<b>180X110</b>	BFL180110	Aluminium	315, 250
<b>180X90</b>	BFL18090PT	Engineering Plastic	315, 250
<b>180X90</b>	BFL18090	Aluminium	315, 250
<b>180X75</b>	BFL18075PT	Engineering Plastic	250
<b>180X75</b>	BFL18075	Aluminium	250
<b>180X63</b>	BFL18063PT	Engineering Plastic	250
<b>180X63</b>	BFL18063	Aluminium	250

\* Liners are designed to fit both Gator and Welda machines

Where 180mm engineering plastic liners are ordered as spares for existing machines the purchaser should check to ensure that the 250 x 180 aluminium liner (into which the 180 liner is to fit) has got a recess machined into it (see picture).



# INTERNAL DEBEADERS

## A simple and effective tool for removing internal beads

A manual kit for the simple and effective removal of internal beads formed during the butt fusion process for polyethylene pipes in the size range 110-450mm

### FEATURES

- Rods can be assembled to debead pipe up to 13m in length - more on request
- Portable kit
- Bead retained in head after withdrawal
- Robust build quality
- Simple to assemble, easy to use
- National Grid approved

### SPECIFICATION

Product Code	Description	Weight
IBRTKIT	Kit supplied with heads 1,2, 3, 4	70kg
IBRT1	Kit with head 1 only	40kg
IBRT2	Kit with head 2 only	40kg
IBRT3	Kit with head 3 only	42kg
IBRT4	Kit with head 4 only	63kg
31681	Spare blade for head 1 and 2	N/A
32187	Spare blade for head 3 and 4	N/A

### Fusion's internal debeader allows:

- Quality control procedures from visual bead inspection (i.e. bend back test)
- Quality assurance records (i.e. archiving beads and data print-out for joint history)
- Removal of internal bead increases flow
- Protection for pipelines carrying sewage or other media where entrained solids could become attached to an internal bead and cause a blockage

### Selection chart - internal debeading head size and setting

SDR	44	32	26	17	11	7.3
O/D	HEAD SIZE	HEAD SIZE	HEAD SIZE	HEAD SIZE	HEAD SIZE	HEAD SIZE
110				1(B)	1(A)	
125				1(D)	1(C)	1(A)
140				1(A)	1(D)	1(C)
160	2(B)	2(B)	2(B)	2(B)	2(B)	1(D)
180	3(A)	2(C)	2(C)	2(C)	2(B)	2(B)
200	3(A)	3(A)	3(A)	3(A)	2(C)	2(B)
225	3(B)	3(B)	3(B)	3(B)	3(A)	2(C)
250	3(C)	3(C)	3(C)	3(C)	3(B)	3(A)
280	4(B)	4(B)	4(B)	3(C)	3(C)	3(B)
315	4(C)	4(C)	4(C)	4(B)	4(A)	3(C)
355	4(D)	4(D)	4(D)	4(C)	4(C)	4(A)
400				4(D)	4(C)	4(B)
450				4(D)	4(D)	

Note: Each debeader head size has multiple settings. These are referred to in the table as A, B, C or D. To select the correct head size you will need to know the outer diameter of the pipe you wish to debead (see first column) and its SDR (see top row).

If you have any questions please call the National Sales Office hotline on +44 (0) 1246 455998



Complete internal debeading kit (product code: IBRTKIT) comprises:	
Product Code	Description
11769	1 x storage box
11560	1 x drive handle
21459	1 x no. 1 size head
21457	1 x no. 2 size head
21453	1 x no. 3 size head
21451	1 x no. 4 size head
n/a	Allen keys
n/a	1 x set operating instructions
32740	3 x size 1 rod supports
31754	3 x size 2 rod supports
21803	3 x size 3 rod supports
21310	3 x size 4 rod supports
21859	3 x size 4b rod supports
69046	1 x rod bag
21560	6 x 2 meter rods
21618	1 x 1 meter rod
Extras	
91425	Adaptor for 450mm SDR11
91474	Adaptor for 450mm SDR17.6
51416	2 x screws

## EXTERNAL DEBEADERS

### A simple and effective tool for removing external beads

The Fusion external debeader is easy to operate. All that is required is to set the debeader to the correct pipe diameter and then after the bead has cooled, simply locate the debeader on the bead and knock into position. Once the debeader's ratchet has been engaged, the debeader works its way round the bend until it has been fully removed.

### FEATURES

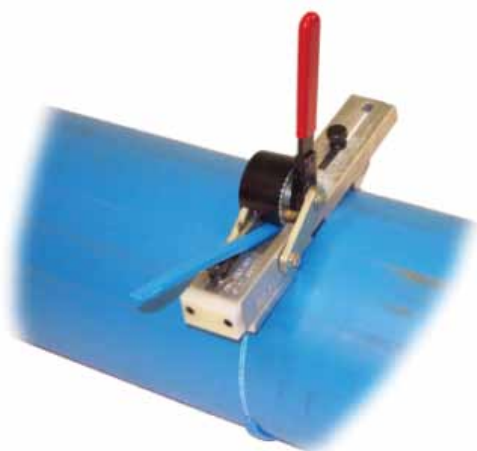
- Simple to use
- Easily adjusts to pipe diameter
- Does not scar the pipe
- Storage box
- Robust, hard working blades
- Replacement blades available
- National Grid approved

### Fusion's external debeader allows:

- Quality control procedures from visual bead inspection i.e. bend back test
- Quality assurance records i.e. archiving beads and data print-out for joint history
- Slip-lining of old pipes with polyethylene; the removal of the external bead allows a much closer fit

### SPECIFICATION

Product Code	Range	Weight
EXTDB	75-400mm	3kg
EXTDBL	800mm	4kg
EXTDBBLADE	Spare blade 75-400mm	40g





# PIPE SUPPORT ROLLERS

## 315 ADJUSTABLE PIPE ROLLER

- Suitable for pipe sizes from 63mm up to 315mm
- Lightweight rigid construction for use with automatic and manual machines
- Plastic rollers soften impact loading and give a free rolling action
- Supplied as a pair
- 80mm (maximum) vertical adjustment
- National Grid approved



## 400 ADJUSTABLE PIPE ROLLER

- Suitable for pipe sizes from 63mm to 400mm
- Lightweight rigid construction for use with automatic and manual machines
- Metal rollers contain bearings and give a free rolling action
- Supplied as a pair
- 5 stage rapid height adjustment from 118mm to 298mm
- National Grid approved



## 630 ADJUSTABLE PIPE ROLLER

- Suitable for pipe sizes from 315 to 630mm
- Ideal for use with automatic and manual machines
- Metal rollers contain bearings to give a free rolling action
- Supplied as a pair
- 11 stage height adjustment from approximately 450mm to 850mm
- National Grid approved



## SPECIFICATION

Product Code	Description	Range	Weight
PSROLL315	315 adjustable roller (pair)	63-315mm	4.5kg Each
PSROLL400	400 adjustable roller (pair)	63-400mm	18kg Each
PSROLL630	630 adjustable roller (pair)	315-630mm	52kg Each

## DATA RETRIEVAL

Since the introduction of its very first automatic butt fusion machine, Fusion has recognised the importance of being able to download joint integrity/traceability data. This feature, referred to as 'Data Retrieval', is available on most Fusion electrofusion controllers and automatic butt fusion machines\*. Critical jointing parameters such as pressures, times, voltages and currents, in addition to information such as the time and date of the joint, the operator and the location, are automatically stored as 'joint records' within the internal memory of the machine. At a later stage these joint records can be transferred from the internal memory to other devices for analysis or for safe storage and archiving. With the launch of JointManager, see page 22, joint records can now be posted to a password protected website. As long as you have an internet connection you can now view, analyse, and share joint data with colleagues and customers 24/7.

Fusion offers four options for downloading joint records: data printer, data transfer lead, Minitran and USB memory stick\*\*.

\*Refer to the technical specifications of the various electrofusion and automatic butt fusion machines within this brochure for compatibility.

\*\*USB joint download currently only available on the QBOX electrofusion controller

## DATA PRINTER

A hand-held data printer provides a printed historical joint record containing all the important parameters relating to the jointing process. Using the options presented on the LCD screen of the Fusion butt fusion machine or electrofusion controller, it is easy for the user to select and print the relevant joint records.

### FEATURES

- Can be used by a supervisor as a 'silent policeman' to ensure pipeline joint integrity.
- Provides the installer with documentary evidence of good working practices.
- Helps utilities and contractors to conform to BS EN ISO 9001:2000 enabling the operator to demonstrate traceability of parameters for a 'special process which cannot undergo destructive testing'.

### STANDARD THERMAL PRINTER

For use with the A60DR, M60DR, AM65 and AM85 electrofusion controllers and the 'Grey' and 'Gator' automatic butt fusion machines (not QBox)

Product Code	Description
705856	Printer, lead & roll
705799	Paper roll
705855	Lead (only)
705852	Battery pack
705857	Mains charger

### UNIVERSAL DATA TRANSFER LEAD

This lead allows the jointing machine to be connected directly to a free RS232 serial port on a PC that is equipped with the Data Transfer System V2 software.

### FEATURES

- Low cost option
- Suitable for situations where a portable laptop PC can be used for data collection



### ADVANCED THERMAL PRINTER

For use at present only with the QBox

Product Code	Description
705892	Printer, lead, roll & charger
705799	Paper roll
705893	Lead (only)

### SPECIFICATIONS

- Designed for use with Data Transfer System V2 software

Product Code	Description
701632	Universal data transfer lead
701646	PC USB to RS232 adaptor



## MINITRAN

The Minitran device allows joint record data to be transferred from a butt fusion machine or electrofusion box to readily available compact flash ('CF') memory cards. A PC equipped with the Fusion Data Transfer System software and a compact flash card reader can access the joint record data.



Minitran

## FEATURES

- Requires no batteries or separate power supply
- Compatible with all Fusion products having the data retrieval feature:
  - All automatic butt fusion machines including the current 'Gator' range and the earlier 'grey' series\*
  - The QBox and most previous electrofusion controllers including A60DR, M60DR, AM65 and AM85
- Clear red/green light display for simple use
- Small and easily portable (pocket sized)
- If required, the Data Transfer System V2 software can be installed on the user's PC from the supplied compact flash memory card

\* Compatible with grey controllers containing 40k digital PCB software version 096 onwards

## SPECIFICATIONS

- Uses compact flash (type 1) memory cards
- Up to 100,000 joint records can be stored on a 64 megabyte (MB) card
- Data retention time of up to 10 years
- Requires a PC with a compact flash card reader, alternatively the card reader can be supplied as part of the MINITRANKIT or is available separately.

Product Code	Description
MINITRAN	Minitran flash memory card data transfer device (without card reader)
MINITRANKIT	Minitran flash memory card data transfer device (with card reader)
703552	Flash memory card
703550	Flash memory card reader

## USB MEMORY STICK

The USB memory stick option allows joint record data to be transferred easily from the QBox electrofusion controller.

## FEATURES

- Requires no batteries, separate power supply or other devices in order to enable easy transfer of joint record data
- Simply plugs into the USB port provided on the QBox
- Plugs straight into the USB port on a PC for transfer of joint record data
- Readily available

## SPECIFICATIONS

- Up to 100,000 joint records can be stored on a 64 megabyte (MB) device
- For use with Fusion Data Transfer System software
- For use with the QBox electrofusion controller

Product Code	Description
742182	USB memory stick





# JOINT ANALYSIS

Traditionally, data retrieved from the internal memory of an electrofusion controller or automatic butt fusion machine has been stored and analysed on the foreman’s, site agent’s or contract manager’s laptop or PC. This option is still available from Fusion in the form of the Data Transfer System V2 software.

The advent of the internet combined with the move towards partnership working and an increased focus within utilities on joint integrity means that greater flexibility is required with regard to the sharing and analysis of joint records. Fusion has responded to these trends by creating JointManager (see page 22) and SiteManager (see page 23).

## DATA TRANSFER SYSTEM V2

Once digital joint records have been downloaded to a laptop using the Minitran, universal data transfer lead or USB options (see pages 19 and 20) they can be found easily using powerful search facilities and then viewed on screen in various formats. All parameters relating to the jointing process are available. Visual analysis of important information such as joint integrity and operator performance is possible using pie charts and graphs. The information is invaluable when assessing costs and training needs. All information is just a few clicks away and yet is stored in total security.

### FEATURES

- Helps utilities and contractors to conform to BS EN ISO 9001:2000 enabling the operator to demonstrate traceability of parameters for a ‘special process which cannot undergo destructive testing’.
- The software is compatible with PCs running Windows 98, NT, 2000 and XP operating systems
- Provides a means of evaluating overall quality of newly joined pipe:
  - Highlights deviations from agreed procedures
  - Records performance levels of those operating the equipment
  - The jointing equipment itself can be monitored thus providing continuous feedback of machine performance
- Chart facility produces a clear graphical record of error conditions, pipe usage etc
- Compatible with all Fusion products having the Data Retrieval feature:
  - All automatic butt fusion machines including the current ‘Gator’ range and the earlier ‘grey’ series\*
  - The QBox and most previous electrofusion controllers including A60DR(CE), M60DR(CE), AM65(CE) and AM85CE

*\* Compatible with grey controllers containing 40k digital PCB software version 096 onwards*



Product Code	Description
701235	Data transfer system software version 2.0 on CD
701241	Data transfer system software version 2.0 kit including CD and universal data transfer lead

Call the **Data Transfer Hotline on +44 (0)1246 262323** if in any doubt as to the compatibility of your Fusion product with the Data Transfer System V2 software.

## JOINT MANAGER

In the 1990s, Fusion pioneered data transfer software which allowed joint data to be electronically downloaded and stored on a laptop or PC for analysis and review.

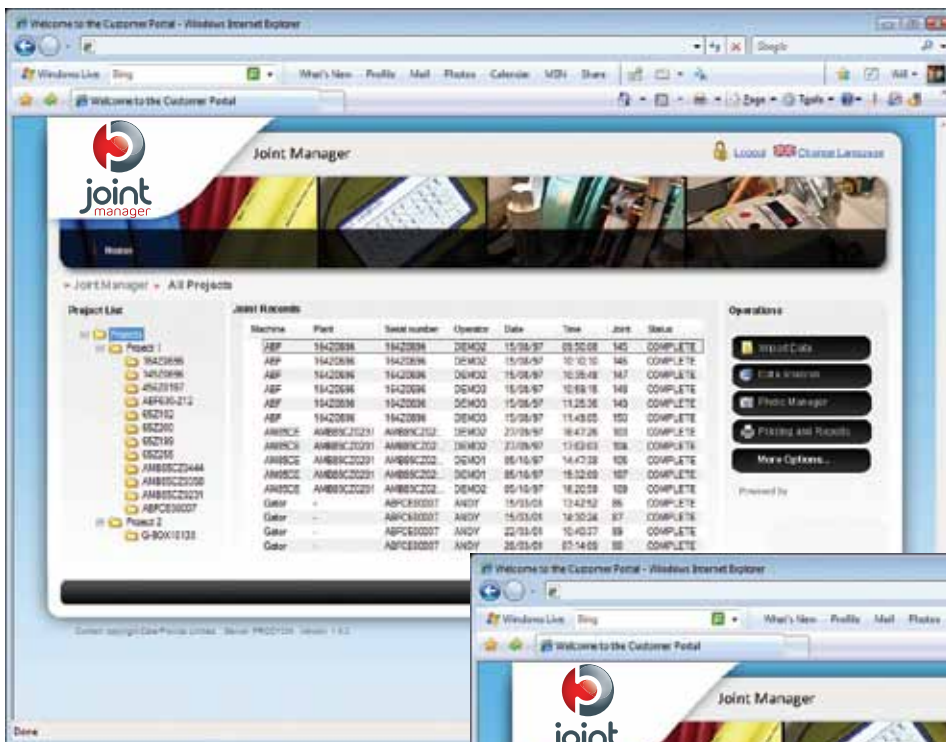
Today, JointManager enables you to electronically send your encrypted joint records to a secure password protected server which you can access any time of day or night via the JointManager web portal. The flexibility of the JointManager database structure means you can undertake a far more rigorous analysis of your joint data than was possible with the previous Data Transfer System V2 software. Furthermore, you can monitor joint integrity trends over multiple projects: it's the ideal tool for identifying deviations from agreed procedures over time, the performance of those using the machines, even the performance of the machine itself.

There is a growing recognition within utilities of the operational and financial value of ensuring joint integrity. JointManager's use of the internet means that joint records and analysis can be shared between contractors, consultants and utility managers.

## FEATURES

In addition to the functionality provided by the V2 software, JointManager has many additional features:

- Multi-lingual support including Chinese; language can be changed quickly and easily when necessary
- Modern user interface simplifies all operations
- Improved and automated data sorting and storage facilities make jointing information easier to find, view, analyse and export
- The data is stored on a secure server, which can be accessed using the internet at anytime from anywhere in the world
- Improved output facilities including the standard 'pdf' format
- Improved reporting facilities that can be personalised as desired
- Future add-ons will provide specific program functionality, allowing the user to tailor the software exactly as required
- Software updates handled automatically over the internet



Screen shots for illustrative purposes only



# ASSET INTEGRITY

Joint integrity is a critical element in a portfolio of variables which, taken collectively, can be described as asset integrity.

Utilities spend a long time designing, specifying, and procuring underground infrastructure. There is a high degree of control and scrutiny at each stage. Once the infrastructure is in place, utilities are using telemetry and modelling to optimise the performance of the asset over its lifetime.

The 'weakest link' in terms of control is, ironically, the most important: installation.

The installation phase of underground infrastructure is different from the design and management phases in two key areas. Firstly, front line responsibility often transfers from the utility to the contractor, or to a partnership arrangement. Secondly, the primary location is the site rather than the utility office. Not only is out of sight often out of mind, frequently out of sight means out of control.

# SITE MANAGER

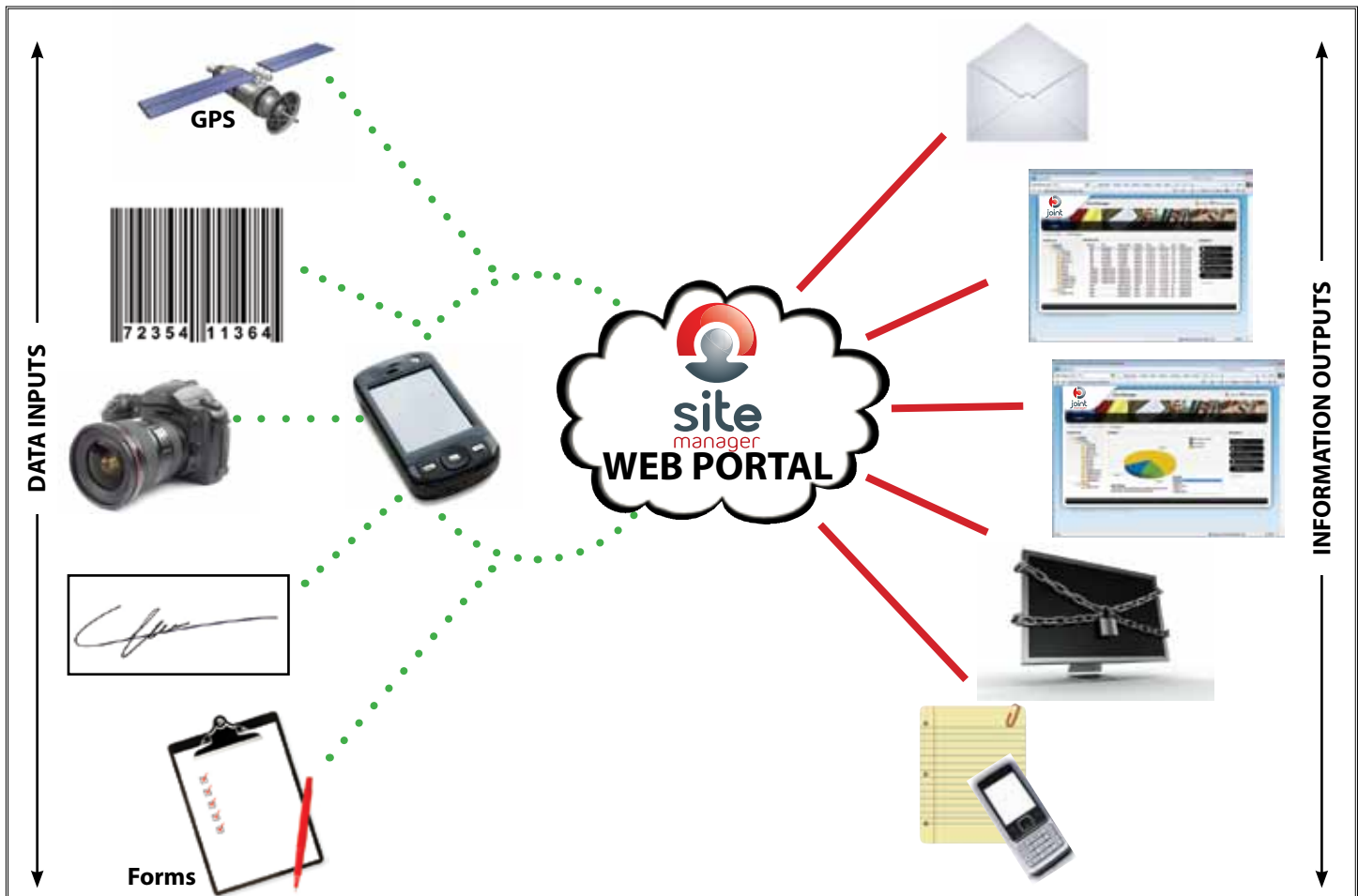
Developed by Fusion, SiteManager plugs the information and communications gap that exists between a site and the manager's office, and between contractor and client. SiteManager uses rugged handheld devices to collect a huge array of data: photographs, GPS locations, barcodes, signatures, joint records, HSEQ audits, TMA feedback to name just a few.

The collected data is validated, encrypted and transmitted back to the SiteManager website using mobile telephony. At this point the data is transformed into information in a variety of formats - graphs, reports, variance analysis etc - which are automatically communicated to authorised recipients via email or SMS: in real time. Management information you can actually use to manage!

How to turn this information into insight? One option is to filter the SiteManager information through the experienced and analytical mind of the utility or construction manager, and for them to initiate actions based on what they find. A second option is to use the services of Fusion Group company, Insite.

Insite's experienced utility specialists can review information as it is received and respond accordingly; this could mean simply contacting site and fine tuning procedures, or alerting specialists in areas such as mapping, joint failure, training, and leak detection. With Insite, out of sight no longer means out of control.

To discuss JointManager, SiteManager and Insite in more detail, or for a demonstration, please contact Steve Hamshaw on 01246-262787 or [shamshaw@fusionprovida.com](mailto:shamshaw@fusionprovida.com)





# ELECTROFUSION

## ELECTROFUSION - WHAT DO I NEED?

A basic electrofusion kit for jointing polyethylene (PE) pipes should include:-

- An automatic or manual control box with appropriate leads
- Generator
- Pipe cutter
- Pipe scraper
- Restraining, aligning and insertion equipment
- Indelible marker pen

Optional extras could include:

- Data retrieval options
- Barcode scanner

New to electrofusion? Fusion Group can provide training on all of our products tailored to your specific needs. Contact the Equipment Office on +44 (0) 1246 268666 for more details.

Fusion has also produced a "Good Guide to Electrofusion" which takes you through the process step-by-step. You can download a copy free of charge from our website at [www.fusiongroup.com](http://www.fusiongroup.com)

Details of Fusion's comprehensive range of electrofusion fittings are given in the fittings catalogue. To obtain a copy simply call your nearest distributor or download a copy free of charge from our website at [www.fusiongroup.com](http://www.fusiongroup.com)



Good Guide to Butt Fusion and Electrofusion Jointing



Electrofusion Fittings Product Guide

### PRODUCT DETAILS

Item	Machine Description				Page(s)
	Manual	(Fusamatic) Automatic	Barcode	Data Retrieval	
Q Box 110V	✓	✓		✓	Pages 27-28
Q Box 110V Barcode	✓	✓	✓	✓	Pages 27-28
Q Box 220/230V	✓	✓		✓	Pages 27-28
Q Box 220/230V Barcode	✓	✓	✓	✓	Pages 27-28
Standard A 220/230V Box		✓			Page 29
Standard M 220/230V Box	✓				Page 29

## THE GOOD GUIDE TO: ELECTROFUSION

# Do's and Don'ts

### PRE JOINTING CHECKS

- Use equipment that is clean, in good condition, regularly maintained and within required calibration/service.
- Ensure that cutters/blades and scrapers are clean and in good condition.
- Mechanical scrapers must be used wherever possible.
- Check that restraining clamps are in good condition.
- Check that you have somewhere clean and dry to place tools and equipment during the electrofusion process.
- Do not start the jointing process unless it can be completed in one go.
- Fully scrape pipe and/or spigot surfaces. (Secura-Line pipes need not be scraped prior to electrofusion if outer skin has been freshly peeled and the core pipe is pristine. Should the peeled pipe ends become contaminated then they should be treated in the same way as standard PE pipe).
- Keep scraped pipe and/or spigot surfaces and fittings clean.
- Assemble joint and fuse immediately following scraping the pipe.
- If Fusion automatic fittings and boxes are being used, connect the red lead to the fitting terminal with the red pin and the black lead to the plain pin.
- In all cases check the fusion time displayed by the control box matches the fusion time on the fitting. If different do not continue to weld, replace with a new bagged fitting or enter fitting time manually.
- Ensure correct fusion and cooling times are observed and adhered to.
- Drilling/tapping through fitting/pipe should only be carried out following the required quality inspections and pressure testing.
- Always ensure you mark the completed joint with the number issued from the electrofusion control box, along with the date. Again, this is imperative for full traceability.

### DO'S

- Understand the principles of electrofusion (refer to pipe manufacturer's details in van pack if necessary).
- Ensure all fusion indicators have risen, if not cut out and make new weld.
- Use a shelter and ground sheet, both in dry and wet conditions, to minimise contamination.
- Use pipe end covers wherever possible.
- Always enter your details into the electrofusion control box if the box requests it; your operator code and job code must be entered to allow full traceability.
- Always use clamps for alignment/restraining/re-rounding.
- Ensure control box voltage is compatible with fitting.
- Ensure pipe and fittings to be jointed are compatible with each other.
- Cut pipe ends square for all electrofusion socket fittings.

### DON'TS

- Do not start any electrofusion joint unless it can be completed without interruption.
- Do not use an electrofusion box within an excavation.
- Under no circumstances should an attempt be made to carry out a second fusion cycle on any fitting. This is a WIS 4-32-08 specification and must be adhered to.
- Incomplete, interrupted, failed or aborted fittings should ALWAYS be cut out, bagged and numbered with corresponding joint number for submission to the supervisor for inspection.

**(CONTINUED....)**

## THE GOOD GUIDE TO: ELECTROFUSION

# Do's and Don'ts

### DON'TS (...CONTINUED)

- Do not use dirty or contaminated fittings, or those from split or torn bags, or touch prepared surfaces.
- Do not leave fittings out of their protective bags or remove them from bags until immediately before use.
- Do not allow prepared fusion/jointing surfaces to become wet or damp.
- Do not remove clamps from fitting until cooling time has elapsed.
- Do not remove integral cutter from the stack/saddle once the main has been drilled.
- **IF EVER IN DOUBT - CUT IT OUT**

### THE USE OF WET WIPES

The preferred position is to make electrofusion joints without the use of Wet Wipes. This guidance pertains as long as the pipes are freshly scraped, the fitting has just been debagged and the assembly and fusion of the joint follows immediately.

If any deviation from the above occurs, which may result in contamination of either the scraped pipe or the debagged fitting, then prescribed Wet Wipes shall be used. Separate fresh Wet Wipes shall be used for the scraped pipes and the debagged fitting if both are contaminated. Whether wiping both scraped pipe or fitting or just one of them, wiped surfaces must be allowed to visibly dry (do not touch the wet surface), then the joint assembled and fused. Failure to allow the jointing surfaces to visually dry will increase the risk of voids at the weld interface.

N.B. In butt fusion jointing Wet Wipes are not used for cleaning pipes that have already been machined/trimmed.

### HEALTH AND SAFETY

Fusion Provida make every effort in the design and manufacture of its pipes, fittings and equipment to ensure safety in use. The following precautions are however worth bearing in mind:

- Never allow hot polyethylene to come into contact with the skin. In such an event cold water should be used to cool the affected area. Expert medical advice should be sought.
- Under no circumstances should any attempt be made to remove any material that becomes stuck on the skin without medical supervision, as this would risk a more serious injury.
- Heavy pipes, fittings and equipment should not be handled without assistance or mechanical aid. The requirements of 'manual handling' legislation should be adhered to.
- Health and safety regulations insist upon the wearing of personal protective equipment such as gloves, safety glasses and safety boots whilst carrying out electrofusion joints.
- Care should be exercised, by taking normal precautions, when using electrical equipment on site, particularly in wet conditions.
- Normal precautions should be observed when handling electrical equipment and, for safety reasons, all 110v portable generator sets should be 'centre tapped' for site use +55/0/-55 volts.

**ALWAYS REMEMBER THAT ALL JOINT RECORDS ARE AUTOMATICALLY STORED AND SHOULD BE DOWNLOADED ON A REGULAR BASIS TO ALLOW FULL TRACEABILITY AND INTEGRITY OF WORKMANSHIP.**



# QBOX

## (ELECTROFUSION CONTROL BOXES)

### FEATURES

- Largest, brightest screen in its class
- Improved user interface with helpful on-screen prompts
- Automatic contrast adjustment of the screen
- Multi-lingual display; the language can be changed at the touch of a button
- Convenient on screen display at all times of
  - remaining joint record memory capacity
  - time until next service
  - input supply voltage
  - time and date
- Well specified control system allowing for future upgrades and improvements
- Joint record data is stored in internal memory and is automatically backed up to a removable SD card for complete security
- Compatible with the Data Transfer System software; joint record data can easily be downloaded to a readily available USB memory stick for the transfer of data to PC
- Joint records can be reviewed quickly on screen
- Fusion's unique 'touch-key' technology is available on 110V UK control boxes
- Count-up timer at the end of jointing allows the cooling time to be monitored
- Robust construction employing high quality die-cast aluminium enclosure and integrated heat-sink
- IP54 rated to EN60529 preventing ingress of water and dirt
- Improved performance allows use with larger fittings
- Plus all the existing functions of a Fusion control box

### IMPROVED MAINTENANCE AND SERVICING

- Quick and easy calibration using the keypad
- Intelligent design allowing fascia screen and keypad to be replaced quickly and independently, reducing potential maintenance costs
- The operating software upgrades can be updated quickly and easily via a USB memory stick
- Improved lead end assemblies and sense pin designed for strength, durability and ease of maintenance
- Input and output cables are more flexible and user friendly
- Standard box can be upgraded with a barcode reader if required.



# QBOX

## (ELECTROFUSION CONTROL BOXES)

Product Code	Description
QBOX220E	220/230V automatic electrofusion controller
QBOX110	110V automatic electrofusion controller
QBOX220BCE	220/230V automatic/barcode electrofusion controller
QBOX110BC	110V automatic/barcode electrofusion controller
QBOX220BC10E	220V/230v automatic/barcode electrofusion controller (with 10 metre output lead)
QBOX22010E	220/230V automatic electrofusion controller (with 10 metre output lead)
742213	QBOX protective lid kit - for parallel frame type
742182	USB memory stick

\* 'E' denotes plug type    E = 3 Pin Blue    G = 2 Pin Black

### MACHINE SPECIFICATION

Description	QBOX110	QBOX110BC	QBOX220E	QBOX220BCE
Input supply voltage (Vac)	97-150V	97-150V	187-265V	187-265V
Frequency (Hz)	40-70	40-70	40-70	40-70
Max output current (A)	80	80	80	80
Maximum output power (kW)	3.20	3.20	3.20	3.20
Recommended minimum generator size for 40V, 60A output* (kVA)	3.75	3.75	3.75	3.75
Recommended minimum generator size for 40V, 80A output* (kVA)	5.00	5.00	5.00	5.00
Operating temperature (deg C)	-10 to +50	-10 to +50	-10 to +50	-10 to +50
Environmental protection (IP)	IP54	IP54	IP54	IP54
Compatible with manual fittings	Yes	Yes	Yes	Yes
Compatible with Fusamatic® fittings	Yes	Yes	Yes	Yes
Bar code reader	No	Yes	No	Yes
Output voltage (V)	Fixed: 39.5	Variable: 10-48	Fixed: 39.5	Variable: 10-48
Fuse time(s)	10-3500	10-3500	10-3500	10-3500
Safety frame	Yes	Yes	Yes	Yes
Detachable output cable	Yes	Yes	Yes	Yes
Weight excluding output cable (kg)	23	23	21.5	21.5
Output cable length (m)	3.2	3.2	3.2	3.2
Input cable length (m)	6	6	3	3
Input plug rating (A)	32	32	16	16
Data memory (number of joints)	up to 2000	up to 2000	up to 2000	up to 2000
Data transfer methods	Direct to PC using the 'universal data transfer lead', via the 'MiniTran', via the USB memory stick			
Memory back up SD Card	Yes	Yes	Yes	Yes
Dimensions (including frame) (mm)	300W x 290D x 430H			

\* The minimum values shown in the table will guarantee correct operation of the control box when supplying the specified current to the electrofusion fitting. It may be possible to use a generator of a smaller size when employing the control box for service connection work.

The kW rating of the generator must also be considered; contact your nearest Fusion representative for advice on generator selection if in any doubt.

# STANDARD ABOX & STANDARD MBOX

## (ELECTROFUSION CONTROL BOXES)

Designed as a basic specification box for pipeline jointing where accurate microprocessor control is a must but advanced functionality such as data retrieval is not required.

### STANDARD ABOX FEATURES

- Designed for use with Fusion's 'Fusamatic' range of automatic recognition fittings
- 220V/230V operation
- Simple user interface with only two buttons
- Full microprocessor control and verification of jointing process
- Two row LCD display
- Available in many languages

### STANDARD MBOX FEATURES

- Designed for use with manual fittings
- 220V/230V operation
- Simple user interface with four buttons
- Full microprocessor control and verification of jointing process
- Two row LCD display
- Available in many languages



## MACHINE SPECIFICATION

Description	STANDARD A	STANDARD M
Input supply voltage (Vac)	195-260	195-260
Frequency (Hz)	40-70	40-70
Max output current (A)	60	60
Output voltage; typical (V)	39.5	39.5
Output voltage; min/max (V)	38.8/40.2	38.8/40.2
Recommended minimum generator size for 60A output* (kVA)	3.2	3.2
Operating temperature (deg C)	-10 to +40	-10 to +40
Environmental protection (IP)	IP54	IP54
Compatible with manual fittings	No	Yes
Compatible with Fusamatic® fittings	Yes	No
Fuse time(s)	20-900	10-3000
Data memory/retrieval/printout	None/Unavailable	
Safety frame	Yes	Yes
Output lead type	Fixed	Fixed
Weight including cables (kg)	22.5	22.5
Output cable length (m)	3	3
Input cable length (m)	3	3
Input plug rating (A)	16	16
Dimensions (including frame) (mm)	475(W) x 375(L) x 265(H)	

Product Code	Description
STDBOXA	220/230V automatic (Fusamatic) electrofusion controller
STDBOXM	220/230V manual electrofusion controller

\* The minimum values shown in the table will guarantee correct operation of the control box when supplying the specified current to the electrofusion fitting. It may be possible to use a generator of a smaller size when employing the control box for service connection work. The kW rating of the generator must also be considered; contact your nearest Fusion representative for advice on generator selection if in any doubt.



# MULTI SCRAPE

Multi Scrape is a versatile pipe scraper designed specifically with coiled pipe in mind. Mandrels keep the pipe end straight and a spring loaded blade ensures that the optimum cut is achieved.

## FEATURES

- Scrapes 20-63mm pipe with one tool
- Robust and lightweight construction
- Easy to use
- Hardened steel blade, indexable and replaceable
- Precision blade ensures a consistent depth of cut
- Sprung loaded arm ensures a consistent scrape, even on coiled and oval pipe
- Expandable mandrels aid pipe re-rounding and cover a wide variety of pipe sizes and SDR's to be scraped
- Swarf easily removed without touching the freshly scraped pipe
- Supplied in a robust carry case complete with all mandrels
- Tool also supplied for individual sizes if other mandrels not required
- National Grid approved



MULTISCRKITEM - Multi Scrape



Expandable mandrel



Multi Scrape in use

## SPECIFICATIONS

Diameter Range	SDR Range	Case Dimensions	Weight (Complete kit)
20, 25, 32, 40, 50, 55 and 63mm	11, 17	275 x 225 x 90mm	2.5kg

Product Code	Description
MULTISCRAPE	Tool only
MULTISCRAPEKIT	Tool including complete set of mandrels and spare blade in case
MULTISCRKITUK	Tool including 63mm SDR11/32mm/25mm mandrels only in case
MULTISCRKITEM	Tool including 20mm/25mm/small expanding/medium expanding/large expanding mandrels in case
35571	20mm solid mandrel
35572	25mm solid mandrel
35573	32mm solid mandrel
35574	40mm solid mandrel
35575	50mm SDR11 solid mandrel
35576	50mm SDR17 solid mandrel
35577	63mm SDR11 solid mandrel
35578	63mm SDR17 solid mandrel
35559	Spare blade
22902	Case
35794	Small expanding mandrel covers 32mm and 40mm
35795	Medium expanding mandrel covers 50mm (all SDR's)
35796	Large expanding mandrel covers 63mm (all SDR's)

## HAND SCRAPERS (SCRAPERS 20MM+)

Hand scrapers are used for scraping pipe areas prior to the electrofusion of couplers, reducers, branch saddles and tapping tees. The area for scraping should be outlined with marker pen and, with good even strokes of the scraper along the length of the pipe, an even layer of approx 0.2mm of the surface layer should be removed.

The operator should be looking for a clean even scrape of the entire jointing area.



### FEATURES

- Easy to use
- Robust plastic handle construction
- Hardened steel blades (4 cutting edges)
- Replacement blades available
- National Grid approved

Product Code	Description	Weight
HARRIS	Harris 1.5	0.1kg
HARRISLGE	Harris 2.5	0.1kg
60122	Harris 1.5 spare blade	N/A
60233	Harris 2.5 spare blade	N/A

## THE UNIVERSAL SCRAPER (SCRAPERS 63-250MM)

The Universal Scraper provides a convenient means of preparing pipe ends prior to electrofusion jointing. It can operate on all pipe diameters and commonly used SDR sizes from 63mm to 250mm inclusive and can be used on coiled pipe.



### FEATURES

- Correct length of scrape is pre-set
- Fixed, serrated blade driven around the pipe by a splined shaft
- Ratchet action
- Internal roller action holds the blade against the pipe
- The adjustment knob caters for the variation in wall thickness and pressure ratings
- Carry case, spare blade and cleaning brush
- National Grid approved

Product Code	Description/Range	Weight
UNISCRP	63mm-250mm	4.5Kg (incl case)
370300	Spare blade	N/A

## UNIPREP SCRAPER (SCRAPERS 90-500MM)

Uniprep scrapers are robust tools and can be used for preparing pipe ends prior to electrofusion on pipe sizes 90-500mm. Exact size ranges are given in the table below.



### FEATURES

- Maintains mechanical scraping across the whole joint area
- Faster scraping action
- Hardened blade
- Controlled depth of cut
- National Grid approved

PRODUCT CODE	DESCRIPTION/RANGE	WEIGHT
UNIPREP225	63-225mm	3kg
UNIPREP250	90-250mm	3kg
UNIPREP400	110-400mm	3.5kg
UNIPREP500	125-500mm	4kg
UNIPREP22	Blade	N/A

# MULTI-CLAMP

The new Multi-Clamp kit has been specifically re-designed for easier alignment and restraint of electrofusion fittings as a result of customers' requests for a lighter, more flexible multi-clamp to suit narrow trenching techniques.

## FEATURES

- Promotes full rerounding and restraint during electrofusion
- Top clamp is removable via a hinge pin to allow use in narrow trenches
- The new dovetail assembly allows complete rotation through 360° to suit any pipe and fittings configuration (large diameter tees require extra base, ring and liners)
- Extruded lightweight base
- National Grid approved



Multi - Clamp with bossed rings

## BASIC

Product Code	Weight
MCKIT180B	20.75kg
1 x Carrying bag	
2 x Basic 180mm rings (no bosses)	
1 x 600mm base	
4 x 180mm x 125mm liners segments	
4 x 125mm x 90mm liners segments	
4 x 125mm x 63mm liners segments	
2 x Dovetail slide blocks	
1 x Allen key	

## UNIVERSAL

Product Code	Weight
MCKIT180	30.5kg
1 x Plastic container	
2 x 180mm rings	
4 x 180mm x 125mm liners segments	
4 x 125mm x 90mm liners segments	
4 x 125mm x 63mm liners segments	
2 x Dovetail slide blocks	
2 x 460mm bases	
1 x Allen key	
1 x Spanner	
1 x 'T' connector	

## DELUXE

Product Code	Weight
MCKIT180DL	30.5kg
1 x Plastic Container	
2 x Basic 180mm rings	
2 x Bossed Rings	
8 x 180mm x 125mm liners segments	
8 x 125mm x 90mm liners segments	
8 x 125mm x 63mm liners segments	
4 x Dovetail slide blocks	
2 x 460mm bases	
1 x Allen key	
1 x 'T' connector	

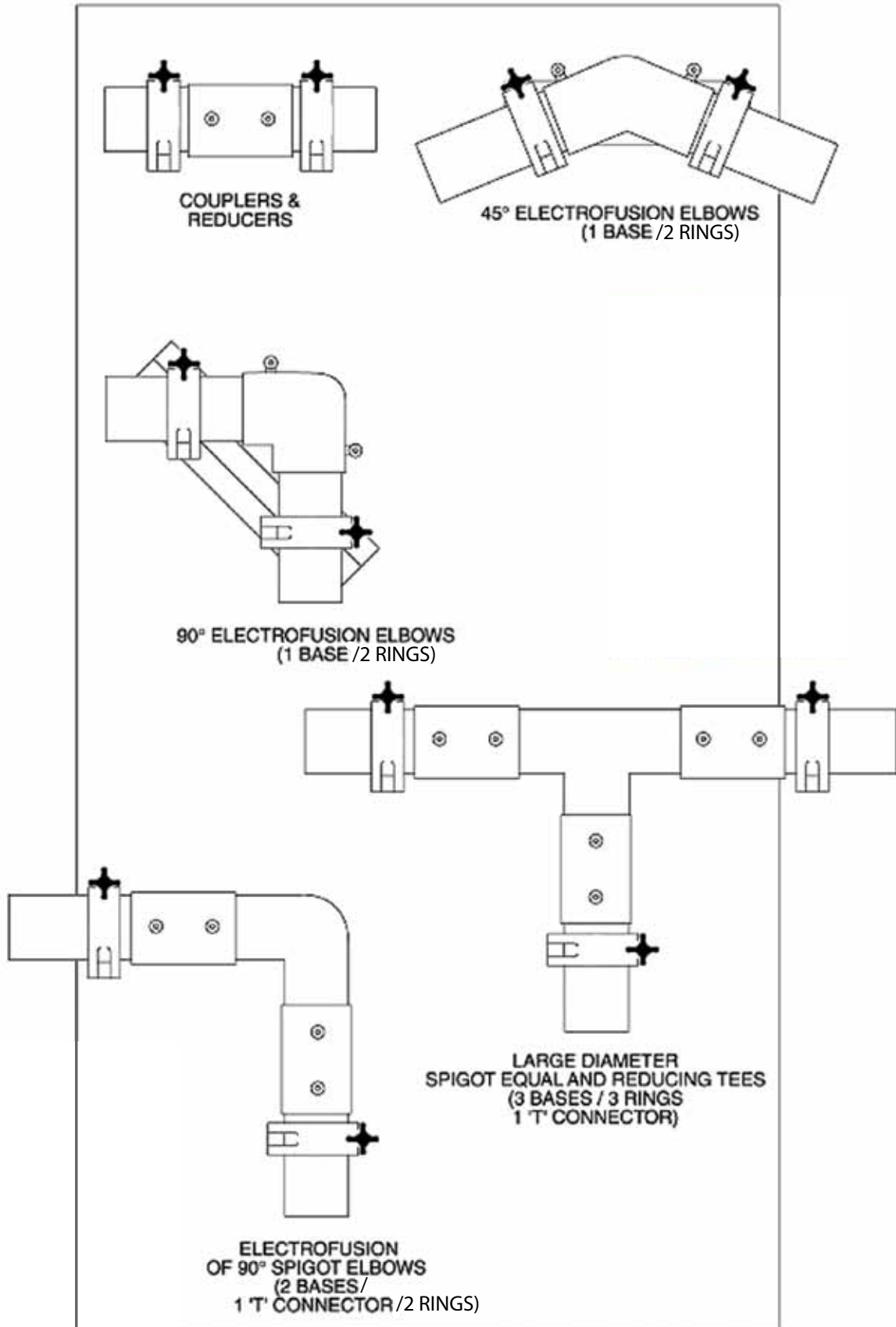
## OPTIONAL EXTRAS & SPARES

Product Code	Description
12390	180mm ring
132000	460mm base
148500	600mm base
11987	180mm ring with boss
22541	180mm x 160mm liner segments
22540	180mm x 140mm liner segments
21607	180mm x 125mm liner segments
31784	160mm x 110mm liner segments
33812	160mm x 75mm liner segments
33354	125mm x 90mm liner segments
33356	125mm x 63mm liner segments
SAW	Saw
SGUIDE	Saw guide
33469	Hinge pin and wire
33470	Locking handle with screw (for base)
21692	45° convertor



# MULTI-CLAMP

## APPLICATION AND USAGE





## “LITE” SERVICE CLAMPS

Introducing a new range of size specific pipe clamps designed for use on service connections where space is at a premium. The new “Lite” range of clamps comprises a 90° elbow clamp in sizes 20mm, 25mm or 32mm and a multiclamp that encompasses 90°, 45° and straight connections, again in either 20mm, 25mm or 32mm.

## VERSACLAMP

### FEATURES

- Extremely light; minimised residual loading on pipe during clamping
- Simple and compact design for use in the tightest working spaces
- Economical and robust
- Manufactured from a tough engineering plastic
- National Grid approved

### SPECIFICATIONS

Product Code	Description/Range	Weight
VERSACLAMP20	20mm multi angled clamp	0.180kg
VERSACLAMP25	25mm multi angled clamp	0.180kg
VERSACLAMP32	32mm multi angled clamp	0.180kg



## ELBOW CLAMPS

A very simple hand tool for clamping 20, 25 and 32mm service pipe when fusing 90° elbows giving stress free joints

### FEATURES

- Extremely light; minimised residual loading on pipe during clamping
- Simple and compact design for use in the tightest working spaces
- Economical and robust
- Manufactured from a tough engineering plastic
- National Grid approved

### SPECIFICATIONS

Product Code	Description	Weight
ELBOWCLAMP20	Elbow clamp 20mm	0.1kg
ELBOWCLAMP25	Elbow clamp 25mm	0.1kg
ELBOWCLAMP32	Elbow clamp 32mm	0.1kg



## MINI POSI AND MAXI POSI CLAMPS

Easy to use clamp for electrofusion fittings 20 to 75mm. Can be used for couplers, reducers, end caps, equal tees, 45° & 90° elbows.

### FEATURES

- Accepts all types of electrofusion fittings
- Aligns, restrains and promotes re-rounding of the pipe to prevent movement of the fitting during fusion and cooling
- Lightweight and easy to use
- Exceedingly strong
- Made from a tough engineering plastic called Noryl
- All nuts and adjustments are fully captive and therefore cannot be lost
- National Grid approved

### SPECIFICATIONS

Product Code	Description	Range	Weight
MINIPOSI	Couplers Reducers End caps Equal tees 45 degree elbows 90 degree elbows	20mm 25mm 32mm 40mm	0.5kg
MAXIPOSI	Couplers Reducers End caps Equal tees 45 degree elbows 90 degree elbows	32mm 40mm 50mm 63mm	0.9kg
MAXIPOSI75	Couplers Reducers End caps Equal tees 45 degree elbows 90 degree elbows	40mm 55mm 63mm 75mm	0.9kg



**Note:** Units are not suitable for use on 45 degree or 90 degree elbows when used on tapping tee outlets.

## MINI AND MAXI CLAMPS

The mini and maxi clamps are designed to retain and align pipe and fittings for service connections during the electrofusion process.

The mini clamp is suitable for pipe sizes 20, 25 and 32mm and the maxi clamp 40, 50, 55 and 63mm.

### FEATURES

- Interchangeable arms
- Reducers, couplers & tapping tee outlets can be accommodated
- Quick tightening operation
- Lightweight and easy to use
- Robust construction
- Promotes re-rounding and restraint during electrofusion
- National Grid approved

### SPECIFICATIONS

Product Code	Range	Weight
MINICLAMP	20, 25 & 32mm	1kg
MAXI40	40mm	1.3kg
MAXI50	50mm	1.3kg
MAXI55	55mm	1.3kg
MAXI63	63mm	1.3kg

# ALIGNMENT CLAMPS

This type of clamp is an aid to ensure correct alignment of pipe and large diameter couplers during the electrofusion process and during the cooling period. It is available in 3 basic sizes for 250mm, 315mm and 355mm pipe. Each tool can be lined down as detailed in the table below.

## FEATURES

- Fixed clamps
- Robust construction
- Hinged with pins for ease of pipe positioning in trench - allows for narrow trenching techniques
- Lightweight and portable
- Optional threaded bosses available for branching drill connections for under pressure drilling (product code: 34446) (MC250 only)
- Offers full rerounding and restraint of pipe and fitting during welding

## SPECIFICATIONS

Product Code	Weight
MC250	13.5kg
MC315	29kg
MC355	33kg

## OPTIONAL EXTRAS & SPARES

Part Code	Description	Weight
21707	Liner 250x180 (ring) (2 required per tool) Split ring set allowing MC250 to clamp 180 pipe	9.0kg
21209	Liner 250x200 (ring) (2 required per tool) Split ring set allowing MC250 to clamp 200 pipe	6.7kg
21208	Liner 250x225 (ring) (2 required per tool) Split ring set allowing MC250 to clamp 225 pipe	3.5kg
BFL315200	Liner set (8 segments) allowing MC315 to clamp 200mm pipe	7.5kg
BFL315250	Liner set (8 segments) allowing MC315 to clamp 250mm pipe	8kg
BFL315280	Liner set (8 segments) allowing MC315 to clamp 280mm pipe	7kg
11615	Liner 355x315 (ring) (4 required per tool) Split ring set allowing MC355 to clamp 315 pipe	4.5kg



250mm Alignment Clamp



315mm Alignment Clamp

# G CLAMPS

G Clamps are used in the installation of top loading (also known as ‘stack loading’) electrofusion branch saddles and tapping tees.

## FEATURES

- Suitable for all manufacturers’ top loading fittings that comply with GIS PL2/E Part 4
- Load indicator gives visual indication of correct force application between fitting and pipe thereby ensuring joint integrity
- Load screw totally isolated from load indicator mechanism, thus not affected by use

## THE STANDARD RANGE

Available in three sizes: 63-250mm, 63 - 315mm, 63 - 400mm.

### SPECIFICATIONS

Product Code	Range	Weight
GCLAMP	63-250mm	5kg
GCLAMPE	63-315mm	8kg
GCLAMP5L	63-400mm	10.5kg

All the above G Clamps have telescopic range



**Note:** All Standard Range G Clamps are supplied with an adaptor for use with Fusion’s unique Multiseal© tapping tees. To order additional adaptors use the part code GTOOLADAPT



## THE ECONOMY RANGE

A lightweight alternative to the Standard G Clamp system, constructed from corrosion resistant materials.

Swivel foot centralises and accommodates varying pipe positions

### SPECIFICATIONS

Product Code	Range	Weight
GCLAMPECON (2 piece bar)	63-400mm	5.5kg
GCLAMPECON250	63-250mm	5kg
GCLAMPECON400 (1 piece bar)	63-400mm	7kg

**Note:** Econ Range G Clamps do not require an adaptor to work with Fusion’s Multiseal© tapping tees





## CUTTER KEY

A range of drive key tools for service/tapping tee integral cutters with 12mm hexagonal drives (as per UK WIS and GIS specifications).

National Grid approved.

### SPECIFICATIONS

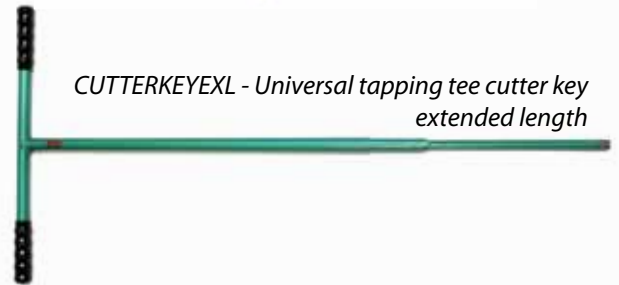
Product Code	Description	Weight
CUTKEY12	Universal tapping tee cutter key (with cutter key and wrench)	0.6kg
21681	Cutter key 32mm with thread follower (not for use with Multiseal)	0.5kg
21681B	Cutter key 32mm extended shaft with thread follower (not for use with Multiseal)	0.65kg
353600	Cutter key 63mm with thread follower (not for use with Multiseal)	0.9kg
CUTTERKEYEXL	Universal tapping tee cutter key extended length - 1000mm	1.25kg



CUTKEY12 - Universal tapping tee cutter key



21681 - Cutter key 32mm



CUTTERKEYEXL - Universal tapping tee cutter key extended length

## TEST CAP

A range of reusable caps for the pressure testing of Fusion manufactured service/tapping tee fittings.

National Grid approved.

### SPECIFICATIONS

Product Code	Description	Weight
32864	63mm test cap (not for use with Multiseal)	0.1
32865	32mm test cap (not for use with Multiseal)	0.1
34263	32mm Multiseal test cap	0.1
34571	63mm Multiseal test cap	0.1
22867	32mm Aluminium HD Multiseal test cap	0.2
22869	63mm Aluminium HD Multiseal test cap	0.4



32mm

63mm

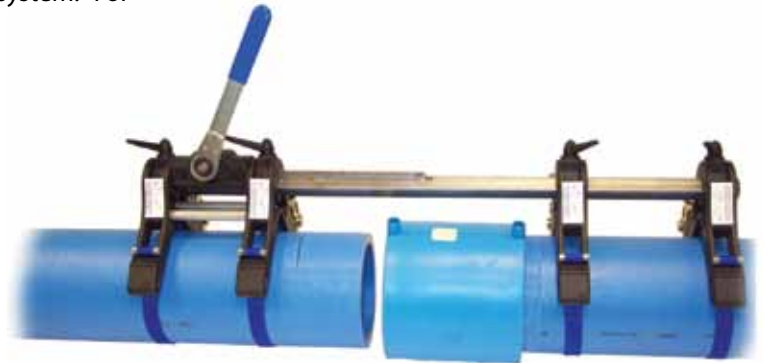
63mm Aluminium

## TITAN 200 (STRAP CLAMP 40-200MM)

Pulls lengths of pipe into position with minimal effort on the part of the operator using a simple but ingenious ratchet system. For use on pipe ranging from 40-200mm diameter.

### FEATURES

- Ratchet handle included
- Lightweight
- Fast acting 'tug and tension' straps
- Works in all positions around the joint
- Compact design
- No liners required
- Ideal for use with Ping seal socket fittings
- National Grid approved



### SPECIFICATIONS

Product Code	Description	Range	Weight
SC200T	Straight ratchet runner bar with 4 clamps	40-200mm	6.5kg

## TITAN 500 (STRAP CLAMP 160-500MM)

The Strap Clamp Titan is the 'Daddy' of the range. It is capable of pulling 12m lengths of pipe into position with minimal effort on the part of the operator using a simple but ingenious ratchet system.

### FEATURES

- Ratchet handle included
- Fast acting 'tug and tension' straps
- Works in all positions around the joint
- Compact design
- No liners required
- National Grid approved



### SPECIFICATIONS

Product Code	Description	Range	Weight
SC500T	Straight ratchet runner bar with 4 clamps	160-500mm	20kg

# STRAP CLAMP 200 KNUCKLE

## (STRAP CLAMP KNUCKLE 40-200mm)

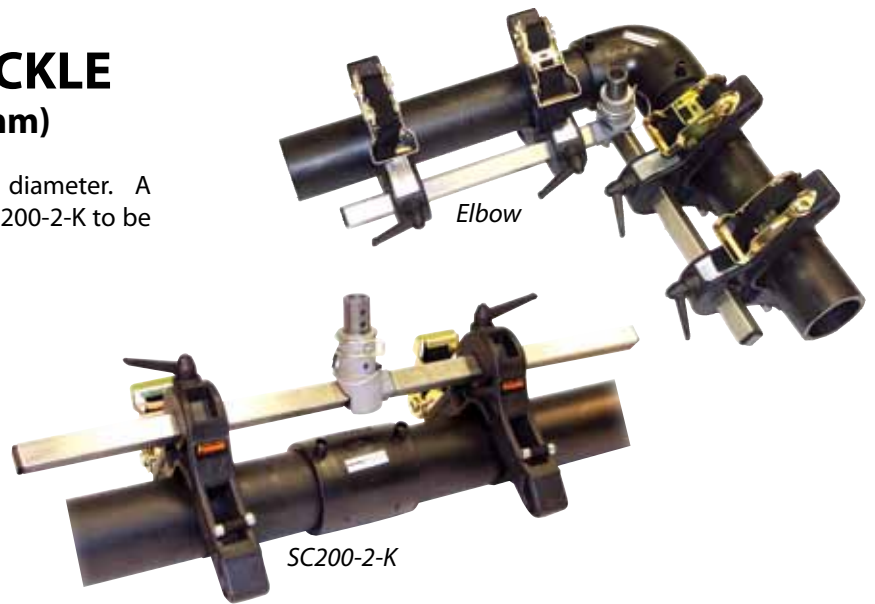
For use on pipe ranging from 40mm to 200mm diameter. A centrally located adjustable 'knuckle' allows the SC200-2-K to be used for elbows and reducers as well as couplers.

### FEATURES

- Lightweight
- Fast acting 'tug and tension' straps
- Works above, below or alongside the joint
- Compact design
- No liners required

### SPECIFICATIONS

Product Code	Description	Range	Weight
SC200-2-K	Knuckle bar with 2 clamps	40-200mm	2.7Kg
SC200-2-K-4	Knuckle bar with 4 clamps	40-200mm	4.6Kg



Reducer



## T-ADAPTOR

A smart add-on tool allowing Strap Clamps to be used for clamping tees. The T-Adaptor can be used on pipe ranging from 40mm to 200mm.

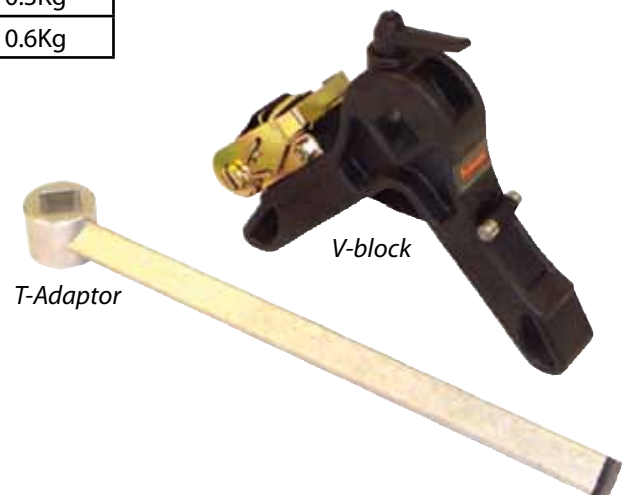
To use the T-Adaptor a further V-block clamp needs to be purchased.

### SPECIFICATIONS

Product Code	Description	Range	Weight
SC200ADT	Strap clamp T-Adaptor	40-200mm	0.3Kg
34989	V block clamp assembly	40-200mm	0.6Kg



SC200-2-K with T-Adaptor



T-Adaptor

V-block

## STRAP CLAMP 200 STRAIGHT (STRAP CLAMPS STRAIGHT 40-200MM)

For use on pipe ranging from 40mm to 200mm diameter

### FEATURES

- Lightweight
- Fast acting 'tug and tension' straps
- Works above, below or alongside the joint
- Compact design
- No liners required
- National Grid approved



### SPECIFICATIONS

Product Code	Description	Range	Weight
SC200-2-S	Straight runner bar with 2 clamps	40-200mm	2.5kg
SC200-2-S-4	Straight runner bar with 4 clamps	40-200mm	4.6kg

**Note:** To use the Strap Clamp 200 Straight to clamp tees, a T-Adaptor is required - see previous page for details

## STRAP CLAMP 500 STRAIGHT (STRAP CLAMPS STRAIGHT 160-500MM)

Accommodating pipes between 160 and 500mm, the SC500 is the SC200's big brother. National Grid approved.



### SPECIFICATIONS

Product Code	Description	Range	Weight
SC500	Plain runner bar with 2 clamps	160-500mm	8kg
12799	V-block clamp assembly	160-500mm	1.5kg



# POWERCLAMP - 125mm & 180mm

Introducing the Powerclamp hydraulic rerounding tool. Powerclamp has been developed by Fusion and the water companies as a result of on site trials to help combat pipe ovality on coil installations.

## FEATURES

- Produces stress free electrofusion joints
- Provides rerounding force from sides where the ovality is worst
- Lightweight - single person lift
- Mechanical stops prevent over rerounding and pipe damage
- Increases on site productivity
- Minimal effort required from operator
- Top loading for easy "in trench" use
- Fast acting hydraulic pump speeds up the process of using pipe inserts
- Lightweight polyethylene liners to increase the tools range
- Can be lined down to 110mm and 160mm respectively
- National Grid approved



## SPECIFICATIONS

Product Code	Diameter Range	SDR Range	Operating Temperature	Tool Dimensions	Weight
POWERCLAMP125	125 & 110mm	All	-10 °C to +40 °C	255(W)X360(H)X125(L)mm Hydraulic Rerounder 410(L) including alignment kit	14kg Hydraulic Rerounder 5kg alignment kit 10kg hand pump
POWERCLAMP180	180 & 160mm	All	-10 °C to +40 °C	350(W)x500(H)x200(L)mm Hydraulic Rerounder 750(L) including alignment kit	17.5kg Hydraulic rerounder 6.5kg alignment kit 10kg hand pump

## REROUNDING/POST SQUEEZE-OFF CLAMPS

Designed for rerounding pipes after squeeze off has been applied. The range covers 50-250mm polyethylene pipes.

### FEATURES

- Designed to be left permanently underground if required
- Two separate half shells brought together by extended nuts
- Steel unit
- Diagonal pattern tightening action
- The longer the clamp is left in position the better the rerounding effect
- National Grid approved.



### SPECIFICATIONS

Product Code	Range	Weight
RRC50	50mm	2.9kg
RRC63	63mm	3kg
RRC75	75mm	3.5kg
RRC90	90mm	3.5kg
RRC110	110mm	5.75kg
RRC125	125mm	5.5kg
RRC140	140mm	5.5kg
RRC160	160mm	7.5kg
RRC180	180mm	6.75kg
RRC200	200mm	9.25kg
RRC225	225mm	11.5kg
RRC250	250mm	12kg

For a unique rerounding solution see the Powerclamp on Page 42

## REROUNDING TOOLS

For rerounding polyethylene coiled or oval pipe prior to electrofusion. See table for available size range. National Grid approved.



### SPECIFICATIONS

Product Code	Range	Weight
RRT16	16mm	0.4kg
RRT20	20mm	0.5kg
RRT25	25mm	0.5kg
RRT32	32mm	0.5kg
RRT40	40mm	1.5kg
RRT50	50mm	1.25kg
RRT55	55mm	1.25kg
RRT63	63mm	1.25kg
RRT75	75mm	1.5kg
RRT90	90mm	1.5kg
RRT110	110mm	2.0kg
RRT125	125mm	2.0kg
RRT160	160mm	2.25kg
RRT180	180mm	3.0kg
RRT200	200mm	3.0kg
RRT225	225mm	3.0kg
RRT250	250mm	3.0kg

## MINI SQUEEZE TOOL (SQUEEZE TOOLS 16-32mm)

The Mini Squeeze Tool is designed solely for SDR11 service pipes in the ranges 16 to 32mm.

### FEATURES

- Compact, robust design
- Easy to use
- Unique design incorporates built-in safety stops to prevent damage to the pipe
- National Grid approved



Squeeze Tools



## SERVICE SQUEEZE TOOL 63 (SQUEEZE TOOLS 16-63mm)

The Service Squeeze Tool is for stopping on both metric and imperial sizes of pipe. It may be used on 16, 20, 25, 32, 40, 50 and 63mm metric pipes or on 3/4, 1 or 2" imperial pipes (imperial stops sold separately).

### FEATURES

- A compact unit fitted with squeeze limit plates
- The limit plates prevent damage to the pipe
- Squeeze-off is affected by turning the handle in a clockwise direction
- National Grid approved

## MECHANICAL SQUEEZE OFF TOOL (SQUEEZE TOOLS 63-125mm)

Mechanical Squeeze Off Tool for thin walled pipe 63-125mm diameter (SDR 11 63/90mm) (SDR17.6 90/110/125mm)

### FEATURES

- A compact unit fitted with squeeze limit plates
- The limit plates prevent damage to the pipe
- Squeeze-off is affected by turning the handle in a clockwise direction
- National Grid approved



### SPECIFICATIONS

Product Code	Range	Weight
SQT32	16 to 32mm Mini Squeeze Tool	1kg
SQT63	16 to 63mm Mini Squeeze Tool (UK)	6kg
SQT63X10	16 to 63mm Mini Squeeze Tool (Exp)	6kg
SQT125M	63-125mm Squeeze Tool	9.0kg

Ancillary Equipment

## 125 MAINS SQUEEZE TOOL (SQUEEZE TOOLS 63-125mm)

Hydraulically operated squeeze tool for use on pipe sizes between 63mm and 125mm designed with compact trenches in mind.

### FEATURES

- Full stroke hydraulic unit
- Ultra compact frame design
- Mechanical safety stops prevent creep and permit controlled release
- National Grid approved

### SPECIFICATIONS

Product Code	SDR Rating	Diameter	Weight
SQT125 (1 set end gauges)	11	63, 75, 90, 110, 125	19kg
	17 / 17.6	90, 110, 125	
SQT125UK (2 sets end gauges)	11	63, 75, 90, 110, 125 2", 3", 4"	19kg
	17 / 17.6	90, 110, 125	
	21	75, 90, 110, 125	
35742	Replacement / spare jack - 10 tonne - tested		



**Note:** For correct site practice, rerounding clamps should be used after squeeze off is completed.

## 200 MAINS SQUEEZE TOOL (SQUEEZE TOOLS 63-200mm)

The Mains Squeeze Tool is used as a flow stop on both metric or imperial sizes of pipe. The tool comes with a variety of end gauges for 63 to 200mm and various SDR ratings.

### FEATURES

- Full stroke hydraulic unit
- Metric or imperial limit plates
- Mechanical safety stops prevent creep and permit controlled release
- Springs to return jack to park position after squeeze off
- Integral safety relief valve
- Standard export tool comes complete with 2 sets of end gauges for 63mm - 200mm SDR11 and 17
- If SDR 21 end gauges are required please order SQT200UK
- National Grid approved

### SPECIFICATIONS

PRODUCT CODE	DESCRIPTION	WEIGHT
SQT200UK	200mm Squeeze Tool with stops for SDR 11, 17 and SDR21	39kg
SQT200	200mm Squeeze Tool with stops for SDR11 and 17	39kg
35303	Replacement / Spare Jack - 15 Tonne - Tested	10kg
33969	Dual marked end gauges up to 180mm - SDR11, 17.6 are available if required	0.6kg





# 250 MAINS SQUEEZE TOOL (SQUEEZE TOOLS 180-250mm)

## SQT250A / SQT250AECON

The 250 Mains Squeeze Tool can be used for stopping-off on 180 to 250mm pipe. When a pipe has been squeezed-off the hydraulic cylinder frame can be removed leaving only the beams and stops in-situ (see diagrams).

The 'A' frame design is very lightweight and folds compactly with handles and lifting points for ease of transportation compared with more traditional squeeze-off equipment.

The standard 'A' frame tool (SQT250A) is supplied with 4 beam sets and a hand pump. Stops should be ordered separately specifying the pipe diameter, SDR to be squeezed off and the quantity required.

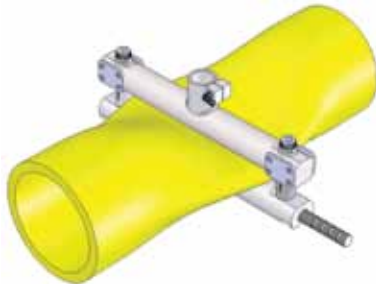
Unit can be requested with an air intensifier power unit as an alternative to the hand pump (pneumatic input/hydraulic output)

## FEATURES

- The basic tool allows four squeeze-off points to be carried out concurrently, quickly and effectively.
- Centrally mounted hydraulic cylinder compressing two round profile beams against the pipe.
- Fast on-site 'assembly to squeeze' time
- Tool-less exchange of end gauges if required
- Quick connecting hydraulic lines
- Spring return hand pump
- Safety stops to prevent creep also permit controlled release

SQT250A supplied with -  
1 x 'A' frame with integral spring return hydraulic cylinder  
4 x top and bottom bar beam sets (no stops included)  
1 x hand pump

SQT250AECON supplied with -  
1 x 'A' frame with integral spring return hydraulic cylinder  
1 x top and bottom bar beam sets (no stops included)  
1 x hand pump



## SPECIFICATIONS

Product Code	Description/Range	Weight
SQT250A	180-250mm 'A' frame squeeze tool complete with sufficient equipment for 4 squeeze-offs (stops to be purchased separately)	153kg
SQT250AECON	180-250mm 'A' frame squeeze tool complete with sufficient equipment for 1 squeeze-off (stops to be purchased separately)	75kg
69055	Air intensifier for above squeeze tool range	15kg

**Note:** For correct site practice, rerounding clamps should be used after squeeze-off is completed.

## SAFETY STOPS

Stops should be ordered separately and bought in pairs. Please specify the pipe diameter, SDR to be squeezed off and the quantity required.

Product Code	Pipe Diameter / SDR
<b>Stops for SQT250A / SQT250AECON</b>	
35885/180-11	180 SDR11
35885/180-17	180 SDR17
35885/180-17.6	180 SDR17.6
35885/200-11	200 SDR11
35885/200-17	200 SDR17
35885/200-17.6	200 SDR17.6
35885/200-21	200 SDR21
35885/200-26	200 SDR26
35885/213-26	213 SDR26
35885/225-11	225 SDR11
35885/225-17	225 SDR17
35885/225-17.6	225 SDR17.6
35885/225-21	225 SDR21
35885/225-26	225 SDR26
35885/250-11	250 SDR11
35885/250-17	250 SDR17
35885/250-17.6	250 SDR17.6
35885/250-21	250 SDR21
35885/250-26	250 SDR26
35885/268-26	268 SDR26

## UNDER PRESSURE LARGE DIAMETER DRILL

Under pressure drilling of polyethylene pipe is used when a new branch main is required from an existing distribution main, without disturbing customer supply downstream or incurring the use of expensive by-passes.

### FEATURES

- Minimum excavation needed
- No by-passes required
- Customer supply uninterrupted
- Operation should take less than 2 hours
- Suitable for gas or water
- Drill retains swarf and coupon
- Can be performed on SDR11 and 17.6 pipes
- Branch outlet can be either pipe, flange or valve
- Robust construction
- Carry case - 2 man lift required
- National Grid approved



### OPTIONAL EXTRAS

- Extension bars for cutter and side arms  
Quote Code : UPLDDRSQKIT

Product Code	Description	Range	Weight
UPLDDRILL	Under pressure large diameter branch drill	90 and 125mm	45kg
22251	110mm cutter	110mm	0.7kg
MC250DLADPT	MC250 C/W fitting to take up drill	N/A	18kg

## NON-PRESSURE DRILL

This drill is for use in non-pressure applications and allows the operator to create cost-effective and convenient service branch connections on 63, 90 and 125mm pipe.

### FEATURES

- Adjustable webbing straps
- Positive ratchet action
- Positive alignment
- Suitable for use on SDR 26, 17 and 11 pipes up to 355mm diameter
- Robust construction
- Easy maintenance
- Carry case
- Drill retains swarf and coupon
- National Grid approved

### SPECIFICATIONS

Product Code	Description	Range	Weight
NPLDDRILL	Non-pressure drill	63, 90 and 125mm	10kg
NPLDDRILL-63	Non-pressure drill 63mm only	63mm	7.5kg
324800	Cutters (replacement) 63mm	63mm	0.2kg
260100	Cutters (replacement) 90mm	90mm	0.5kg
265300	Cutters (replacement) 125mm	125mm	0.9kg

### OPTIONAL EXTRAS

- Extra 110mm Cutter  
Quote Code: 22251



# DRILLING UNDER PRESSURE FASTCUT™ DRILL

The new range of large diameter electrofusion branch saddles provides the gas and water installer with a long awaited simple alternative to the high cost of by-pass systems or the inconvenience and associated costs of supply interruptions. Under pressure drilling provides the operator with a simple, safe and cost-effective method of branch installation.

## DRILL FEATURES

- Modular construction ensures ease of handling and assembly
- Lightweight construction
- Hydraulic operation of cutter head helps the operator with cutting through the pipe
- Can be used with plate or gate valves
- Dedicated cutter drive prevents penetration beyond centre line of main
- Swarf and coupon retained
- Drill comes complete with 3 heads as standard - 250, 200 and 150 NP16.

## SADDLE FEATURES

- Bolt on sacrificial underclamp - no additional tooling needed
- Minimal pressure drop due to large bore through fitting
- Large electrofusion area ensures integrity of weld
- 39.5 volt fittings
- Automatically welded flange under factory conditions to ensure compliance with ISO9002 "Special Processes"
- Tested in accordance with industry specifications

## SPECIFICATIONS

Product Code	Description	Pipe Range	Weight
FASTCUT355110V	FastCut Drill UK	225-500mm	42kg
FASTCUT355220V	FastCut Drill Export	225-500mm	42kg

Branch Saddle Size		Applications		
Pipe x Outlet	Pipe Material	Pipe SDR		
		11	17.6	21
250mm x 200 NP16	PE80	✓	✓	
	PE100		✓	✓
315mm x 150 NP16 **	PE80	✓	✓	
	PE100	✓	✓	✓
315mm x 250 NP16	PE80		✓	✓
	PE100		✓	✓
355mm x 150 NP16 **	PE80	✓	✓	
	PE100	✓	✓	✓
355mm x 250 NP16	PE80		✓	✓
	PE100		✓	✓
400mm x 150 NP16 **	PE80	✓	✓	
	PE100	✓	✓	✓
400mm x 250 NP16	PE80		✓	✓
	PE100			✓
450mm x 250 NP16	PE80		✓	✓
	PE100			✓
500mm x 250 NP16	PE80		✓	✓
	PE100			✓

\*\* Under development



Large diameter branch saddles form just one part of the fabrication capabilities of Fusion's Pipe Systems Division. Further details are provided in the Pipe Systems Division's brochure. To obtain a copy please call the Pipe Systems hotline on +44 (0)1246 262730



## SMALL SECATEUR CUTTER (PIPE CUTTERS 16-40mm)

Polyethylene pipe is a soft material with differing wall thickness (SDR rating). This can present problems when attempting to cut it with tools designed for metal. The best approach is to 'slice' the pipe by means of a secateur or guillotine action. Fusion has a range of pipe cutters for pipe sizes from 16 to 800mm.

### FEATURES

- For pipe sizes up to 40mm
- Robust construction
- Easy to use
- Positive ratchet action
- Gives clean square ends ready for scraping
- National Grid approved

### SPECIFICATIONS

Product Code	Range	Weight	Spare Blade Code
PCS2032M	16-40mm	0.3kg	66228

## LARGE SECATEUR CUTTER (PIPE CUTTERS 20-63mm)

### FEATURES

- For pipe sizes up to 63mm
- Robust construction
- Easy to use
- Positive ratchet action
- Gives clean square ends ready for scraping
- National Grid approved

### SPECIFICATIONS

Product Code	Range	Weight	Spare Blade Code
PCS2063	20-63mm	1.5kg	PCS2063BLADE

## GUILLOTINE CUTTER (PIPE CUTTERS 63mm-315mm)

### FEATURES

- Robust construction
- Easy to use manual operation
- Ergonomically designed handle
- Gives clean square ends prior to scraping
- Narrow design for in-trench use
- Hinged bottom clamp for ease of pipe insertion. Can be used for cutting out sections of dead mains.
- National Grid approved

### SPECIFICATIONS

Product Code	Range	Weight	Spare Blade Code
PCG125	63-125mm	7.5kg	60449
PCG200	63-225mm	15kg	11774
PCG315	63-315mm	33kg	11923





# JUMBO PIPE CUTTER

## (PIPE CUTTERS 355-800mm)

For use on pipe diameters 355 to 800mm

### FEATURES

- Quick release cutting segments allow easy pipe diameter change
- Requires only 20cm (8") trench clearance
- Simple to use
- Low physical cutting effort
- Neat and precise cut
- Efficient cutting action reduces time required and minimises material waste
- National Grid approved



### SPECIFICATIONS

Product Code	Description	Range	Weight
PCJ630	Pipe cutter up to 630mm	355-630mm	14.1kg
PCJ800	Pipe cutter up to 800mm	355-800mm	28.2kg



# GENERATORS

Fusion's range of generators is specifically manufactured for powering both electrofusion control boxes and automatic butt fusion machines. All Fusion generators produce a high quality, smooth, regular power output, which can be used to power even the most sensitive item of equipment. All generators comply with the Tin12 (ECE3) specification, are available in petrol or diesel engines, and meet the current EC noise regulations.

## GENERATORS - STANDARD RANGE

Code	Engine	Output kVA	Output kW	Sockets
P440	Petrol	4.4	3.5	1 x 16 amp & 1 x 32 amp BS4343 sockets
P501	Petrol	5	4.0	2 x 16 amp & 1 x 32 amp BS4343 sockets
P750	Petrol	6.4	5.1	2 x 16 amp & 1 x 32 amp BS4343 sockets
D585	Diesel	6	4.8	2 x 16 amp & 1 x 32 amp BS4343 sockets

Other generators are available for sale or hire upon request. Please call if your requirements are not met by the table above.

## STANDARD OPTIONS

Description
230V 50Hz output FOC
110 and 230V 50Hz output
Wheeled frame with lift-up handles
Electronic start including battery
Hours run meter
RCD and case
Schuko sockets FOC

A range of other options/specifications are available. Please call if your requirements are not met by the table above.

## APPLICATION CHART

The following chart indicates the Fusion Generator that is recommended for use with Fusion butt fusion machines or electrofusion control boxes -

### BUTT FUSION

Butt Fusion Machines	Suggested Fusion Generator
Gator 180/250 / WELDA 180/250	P440
Gator 315 / Gator Pipeliner 315 / WELDA 315 / WELDA Station 315	P501/D585/P750
Gator 400 / Gator Pipeliner 400 / WELDA 400	D585/P750
Gator 500	16KVA D
ABF630 (Hire only)	30KVA D

### ELECTROFUSION

Electrofusion Control Boxes	Voltage	Suggested Fusion Generator
A60, A60DR, AM65, AM85, M60, STD A, STD M	40V	P440
Q Box	40V	P440 (max fitting current 60A) P501 (max fitting current 80A)
AM55, Easigrip/Profuse	80V	P750

5Kva Petrol Generator



6Kva Diesel Generator





# OVERVIEW



Origin's mobile systems enable accurate, real time communication of information from site to the office including signatures, photographs and GPS data.

**Did you know?** You can use Origin's systems for site audits, job cards, TWA details, timesheets, materials requisition – and much more besides.



Electric cable, joining sets, switching, and other ancillary products for LV and HV distribution networks.

**Did you know?** Utility Power Systems now also distributes FTTX fibre optics cables and ancillary products through its Utility Fibre Systems division.



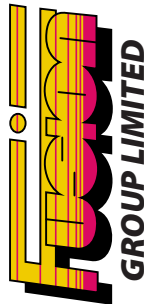
Pipe, cable, fittings and ancillary products for gas, water, electricity and multi-utility infrastructure projects.

**Did you know?** The Fusion Provida projects team will take your project drawings and provide you with costed bills of materials.



Utility meters, meter kits and components, fully tested and assembled meter modules.

**Did you know?** In addition to assembling and distributing gas, water and electricity metering kits, Meter Provida also supplies products and services for the design and build of LPG networks.



- Established in 1971
  - Headquarters in Chesterfield
  - Turnover - £70m
  - Regional winner of the HBOS/Sunday Times 'Corporate Entrepreneur Challenge'
  - Winner SBWWI Water Dragons
- e: [sales@fusiongroup.com](mailto:sales@fusiongroup.com)  
w: [www.fusiongroup.com](http://www.fusiongroup.com)

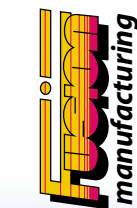
**Equipment**  
Electrofusion boxes, automatic butt fusion machines, and associated tooling.



**Fusamatic**  
Electrofusion fittings.



**Pipe Systems**  
Standard and bespoke polyethylene fabrications, pipe extrusion, large diameter branch saddles, and specialist pipe systems.



**Did you know?** 70% of products manufactured in Chesterfield are sold into international markets. Fusion has a global manufacturing network with plants in the UK, China and Egypt.



Loops, pipe, fittings, manifolds, chambers and ancillary products for ground source heat pump (GSHP) installations.



**Did you know?** G-Source works with its customers to design and fabricate bespoke ground source chambers and manifolds.



**International**  
Global distribution of Fusion manufactured automatic butt fusion machines, electrofusion boxes and fittings, and fabrications.



**Did you know?** Fusion International has wholly-owned or joint-venture distribution companies in nineteen countries. Fusion people, in Fusion companies, selling Fusion products.



Hire and sale of butt fusion machines and electrofusion boxes, tooling, coil trailers and ancillaries for gas and water pipe joining.



**Did you know?** Fusion Hire & Repair has one of the world's largest fleets of butt fusion and electrofusion pipe joining equipment and tooling.



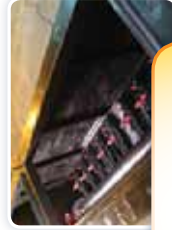
A portfolio of technology-led products and services that deliver real time asset integrity management for utilities and contractors.



**Did you know?** ControlPoint combines GSM telemetry, GPS, digital photography, the internet and software engineering to deliver asset data direct to your computer in an instant.



Solid, slotted, threaded, perforated pipe, fittings and fabrications for landfill gas and leachate extraction systems.



**Did you know?** Involving Environmental Provida's engineers at the design stage can help you identify significant cost savings.



# INTERNATIONAL

## FUSION INTERNATIONAL DIVISION

Smekley Wood Close  
Chesterfield Trading Estate  
Chesterfield  
Derbyshire  
S41 9PZ

Tel: +44 (0) 1246 268666

Fax: +44 (0) 1246 268052

Email: [international@fusiongroup.com](mailto:international@fusiongroup.com)

Web: [www.fusiongroup.com](http://www.fusiongroup.com)



Fusion's International Division has an extensive network of agents, distributors and joint-venture companies throughout the World.

Through this network Fusion have sold their products from Holland to Hong Kong and Portugal to Pakistan. Fusion's products have even reached Outer Mongolia!

Fusion currently sells over 60% of its UK manufactured product into international markets and in recognition of this has twice won The Gas Industry International Business Development Award.



### DISTRIBUTOR

## UNITED KINGDOM CONTACTS

### UK NATIONAL SALES OFFICE

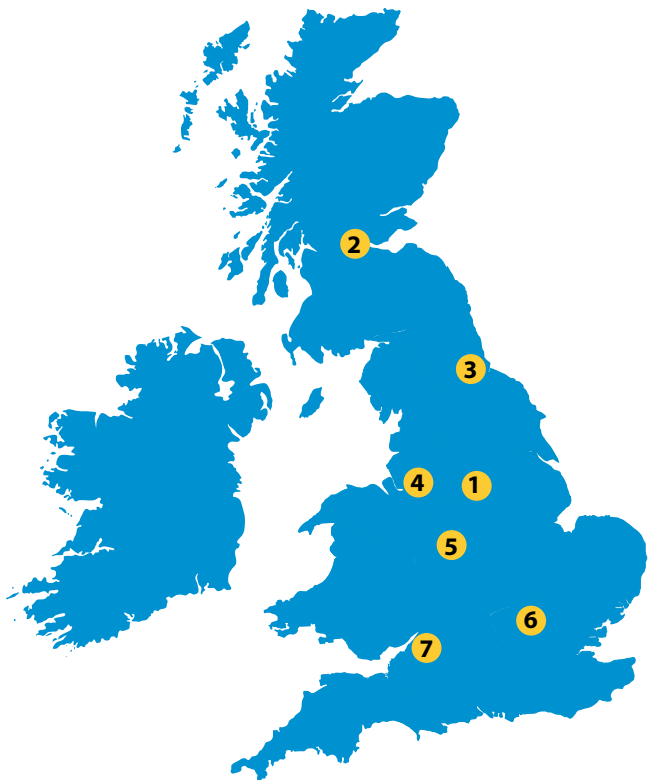
Smeckley Wood Close  
Chesterfield Trading Estate  
Chesterfield  
Derbyshire  
S41 9PZ

Tel: 01246 455998

Fax: 01246 261785

Email: [sales@fusionprovida.com](mailto:sales@fusionprovida.com)

Web: [www.fusionprovida.com](http://www.fusionprovida.com)



### DEPOT NETWORK

#### 1. East Midlands

Smeckley Wood Close  
Chesterfield Trading Estate  
Chesterfield  
Derbyshire S41 9PZ  
Tel: 01246 455998  
Fax: 01246 261785  
Email: [sales@fusionprovida.com](mailto:sales@fusionprovida.com)

#### 2. Scotland

Royston Road  
Deans Industrial Estate  
Livingston  
West Lothian EH54 8AH  
Tel: 01506 410929  
Fax: 01506 416545  
Email: [internalsales-livingston@fusionprovida.com](mailto:internalsales-livingston@fusionprovida.com)

#### 3. North East

Unit 2C Walton Road  
Pattinson North Industrial Estate  
Washington  
Tyne & Wear NE38 8QE  
Tel: 0191 418 7833  
Fax: 0191 417 4278  
Email: [northeast@fusionprovida.com](mailto:northeast@fusionprovida.com)

#### 4. North West

Unit 4 Fishwicks Industrial Estate  
Kilbuck Lane, Haydock  
St Helens  
Merseyside WA11 9SZ  
Tel: 01942 271517  
Fax: 01942 716187  
Email: [northwest@fusionprovida.com](mailto:northwest@fusionprovida.com)

#### 5. West Midlands

Gainsford Drive  
Halesowen  
B62 8BQ  
Tel: 0121 585 1079  
Fax: 0121 585 1081  
Email: [westmidlands@fusionprovida.com](mailto:westmidlands@fusionprovida.com)

#### 6. South

Travellers Lane  
Welham Green, Hatfield  
Herts AL9 7HF  
Tel: 01707 270073  
Fax: 01707 251264  
Email: [south@fusionprovida.com](mailto:south@fusionprovida.com)

#### 7. South West

Days Road  
St Phillips  
Bristol BS2 0QS  
Tel: 0117 955 1027  
Fax: 0117 941 4882  
Email: [southwest@fusionprovida.com](mailto:southwest@fusionprovida.com)



**Fusion Group Limited  
Smeckley Wood Close  
Chesterfield Trading Estate  
Chesterfield  
Derbyshire  
S41 9PZ**

**UK Sales**

**Tel: +44 (0) 1246 455998  
Fax: +44(0) 1246 261785  
sales@fusionprovida.com**

**Hire**

**Tel: +44 (0) 1246 452643  
Fax: +44(0) 1246 262914  
hire@fusionprovida.com**

**International Sales**

**Tel: +44 (0) 1246 268666  
Fax: +44 (0) 1246 268052  
international@fusiongroup.com**

**www.fusiongroup.com**