



Technical Specification.

March 2008

Gator is the latest range of Automatic Butt Fusion machines from Fusion Provida, advancing the technology of ABF. Gator has new and improved design concepts making the machine more efficient and robust. Its 'Fast Clamp' system increases on-site productivity by up to 30%. Quality Assurance is offered through Fusion's Data Transfer system, providing the opportunity to review the on-site performance of Gator and its operatives.

Electrical Supply 110VAC or 220VAC 50/60Hz (Must be specified at time of ordering)
Input voltage monitoring 97-135V & 195-260V (110V & 220V Nominal)
Input cables are 5m in length

Generator requirements 3KVA (250), 4.2KVA (315), 6KVA (400)

Diameter range Gator250: 63 – 250mm (with applicable liners)
Gator315: 90 – 315mm (with applicable liners)
Gator400: 160 – 400mm (with applicable liners)

SDR range Typically, 7.25, 7.4, 9,11,13, 17, 17.6, 26, 32 and other special sizes.

Operating temperature –10 to +40°C
Storage temperature –15 to +45°C

Chassis

The Fastclamp (**Patent pending**) system replaces traditional pipe loading techniques and significantly reduces pipe loading and unloading.

Extensive use of corrosion resistant materials increases product lifetime and reduces service time.

The use of a Linear Voltage Displacement Transducer for feedback of pipe movement ensures that temperature compensation during bead-up is accounted for.

The use of in-house designed Z-Links means that fast retraction may be used, resulting in reduced dwell times and hence reduced cooling of pipe ends when removed from the pipe ends.

Trimmer

Bayonet type fast clamping system ensures rapid fixing to the chassis.

Unique, high performance curved blade technology cuts all pipe sizes with equal efficiency.

A chain drive system enhances drive performance and extends service intervals whilst reducing service time.

The unit is lightweight for ease of handling and a dual trimmer/heater stand reduces on-site working area.

Heater

Automated heater retraction, allows significant reduction in the dwell time.

Bayonet type fast clamping system ensures rapid fixing to the chassis.

Continuous heater plate temperature is displayed on the control screen throughout the jointing process.

Wide heater plates ensure that sufficient thermal capacity is stored to ensure that temperature drop is significantly reduced when pipes are brought into contact with the surface.

Quick release, ABS heater guards offer protection against accidental damage and operator contact with the hot surface.

Multi-selection heater switches offer the operator ease of switching between welding standards and revised heater plate temperatures.

A smooth PTFE coated surface offers reduced risk of surface contamination. The surface plates are replaceable if severe damage is encountered.

An LED mounted on the heater control enclosure indicates when the heater is drawing power.

Heater retraction time (dwell) is typically under 1.5seconds.

Control System

An integral part of the hydraulic pump system, the electronics enclosure has an environmental protection rating of IP54 rating.

The operator interface utilises internationally recognised symbols on a wipe clean membrane, whilst the main control screen consists of an illuminated green graphics LCD with contrast adjustment. Multiple languages are available for the LCD operator interface.

The control system offers constant monitoring of input current and voltage, automatically measures and evaluates friction (drag) within the pipe/machine assembly, automatically monitors trimmer current to test for service requirement and 'feathers off' the trimmer to prevent a 'step' in the pipe end.

Safety features include checking to ensure that the trimmer is located in the machine prior to switching on the drive motor, checking that drag is at a reasonable level, checking that the clamps are sufficiently tight, checking that the heater temperature is at the correct level and ensuring that the dwell time is within reasonable limits. The machine offers checks throughout the jointing process to ensure that no shortcuts can be made (providing proof is obtained by printout or Data Transfer - see later section).

Multiple possible welding standards including WIS4-32-08, BG Gas, DVS, DSInf, SNT, Toho Gas, Osaka Gas, GDF welding, Ital Gas, Landfill and UKWIR90 FASTweld (Some are optional and others are chargeable). Multiple pipe SDR's can be fused without the need for machine reprogramming as the controller calculates all parameters based on specification, pipe diameter and SDR.

Error Messaging

During the welding cycle, the controller monitors the system for problems that could potentially result in poor joints. In the event of such a problem, or if an unexpected event occurs, a message is issued indicating its nature.



Electrical Safety devices Safety cutouts include a main Over-current/RCD protection device along with circuit breakers for the power supplies for the electronics circuitry and the electrical motor on the hydraulic pump unit.

Data Storage/Retrieval Data recording - The control automatically stores all traceability details within joint history memory. The unit will store in excess of 600 joints and there are two options for data retrieval using an RS232 protocol:
1200baud printer for individual or multiple joint printing
9600baud electronic data transfer to Minitran Data Transfer Device or an IBM compatible PC

Supply connections Hydraulic hose connection is by quick release type connectors and electrical connection by standard military specification connectors.

An electrical oil level indicator warns operators of low oil condition and filling is by way of an easy-access oil filler cap.

Operating Manual A copy of the Product Operating Manual will be supplied with the unit. Manuals will be in English and will use metric measurements wherever applicable.

Tool kit A basic kit of tools is supplied for the operation of the machine.

Maintenance Wherever possible, points of maintenance have been removed and as such, regular greasing or cylinder seals is not required. It is highly recommended that maintenance and servicing is carried out by Fusion Group or on of its authorised distributors.

CE Compliance The equipment meets all essential requirements of the applicable European Union Directives and is CE marked accordingly. A Certificate of Conformity is included with the Operating Manual.

Process sequence

- Constant monitoring of input current and voltage.
- Stores traceability details within joint history memory.
- Evaluates friction (drag) within the pipe/machine assembly.
- Switches trimmer on and brings pipe into contact with trimmer blades.
- Machine checks that movement has occurred and that a pressure increase is evident.
- Machine then 'feathers off' the trimmer to prevent a 'step' in the pipe end.
- Brings pipe ends together and performs a pipe slippage assessment to ensure the pipe is adequately clamped.
- A monitoring circuit checks that the heater temperature is within the specified tolerance and will not allow jointing until acceptable.
- Brings the pipe ends onto the heater plate and using, temperature compensation, an initial bead is formed at a pressure obtained from the jointing parameter tables.
- The distance moved by the pipe is accurately monitored and controlled using the liner voltage displacement transducer.
- Machine uses real time to monitor a soak period where heat is transferred from the heater plate to each pipe end.
- The machine then opens and the heater plate is automatically removed. The pipe ends are then rapidly brought together.



- To prevent pipe slamming, deceleration of the pipe movement occurs prior to pipe contact.
- The time taken between heater plate removal to pipe contact is recorded. If excessive, the joint is aborted.
- The pipes are held at jointing pressure (specified in the parameter tables).
- Pressure is reduced to zero
- The cool time is then controlled using real time.
- The machine monitors the cool time to ensure the pipes are not removed before the end.
- Logs target and achieved jointing parameters into the joint history memory.
- Machine continuously maintains pressure levels with the hydraulic pump.
- Machine continuously monitors maintenance/service condition.

Optional Extras

Barcode scanning facility for data input.
 Liners for jointing a multitude of pipe diameters.
 Electronic "Touchkey" for access to the operator menus.
 Minitran Data Transfer package

Additional Equipment

Generator
 Welding Shelter
 Pipe Rollers
 External / Internal Debeader

Specification

	250	315	400
CHASSIS			
Weight Kg	41	62.5	99
Dimensions mm	770x710x425	690x625x490	980x1120x625
TRIMMER			
Weight Kg	14	19.6	39
Dimensions mm	455x260x475	555x290x550	780x240x1160
Nom Power kW	0.65	0.65	1.05
HEATER			
Weight Kg	21	29.5	45.5
Dimensions mm	525x230x580	620x250x680	780x240x1160
Nom Power Kw	1.8	3.3	4
CONTROLLER			
Weight Kg	51	51	51
Dimensions mm	515x470x500	515x470x500	515x470x500
Nom Power Kw	0.8	0.8	0.8
GENERATOR			
Recommended	3 KVA	4.2 KVA	6 KVA

Fusion Provida reserve the right to amend this specification at any time and in any particular manner without prior notice provided that the ultimate performance of the equipment is not lessened by such application without prior consent of the customer

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