GF Piping Systems

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# Designed for your application

## Butt fusion machines for pipeline construction up to diameter 630 mm

# Make your choice

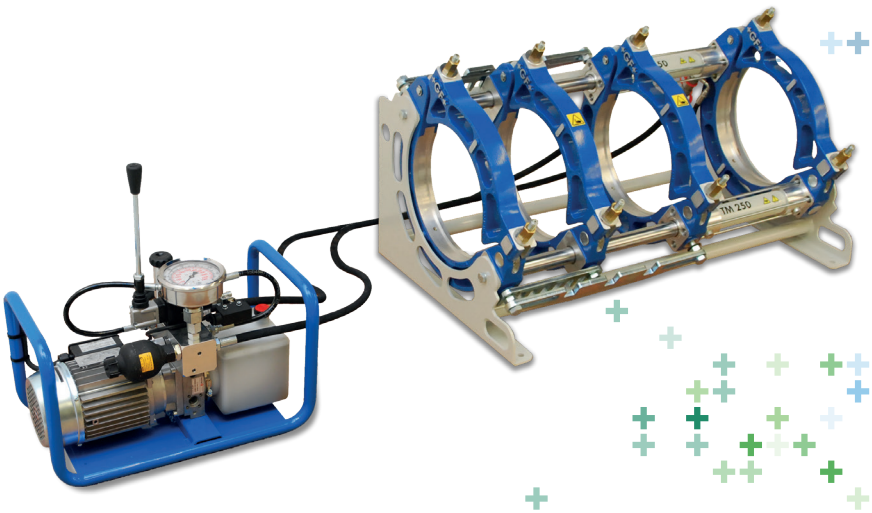
## We meet your needs

Find here the right solution for your varied installations in water/gas applications, industry and shipbuilding with pipes and fittings made of PE, PP, PB, up to diameter 630 mm. All the machines provide high flexibility and reliability in the butt fusion process, even in harsh working conditions, like water treatment or mining projects.



## The benefits at a glance

- **ECOS** provides the simplest configuration in the diameter range up to d 630 mm
- **TOP** includes more features to make manual operation and machine set-up easier
- **CNC** machines set the performance at the highest level, thanks to the automatic process control, the complete traceability management (including GPS) and the remote welding data transfer



# ECOS 160 – 250 – 315
# ECOS 400 – 500 – 630

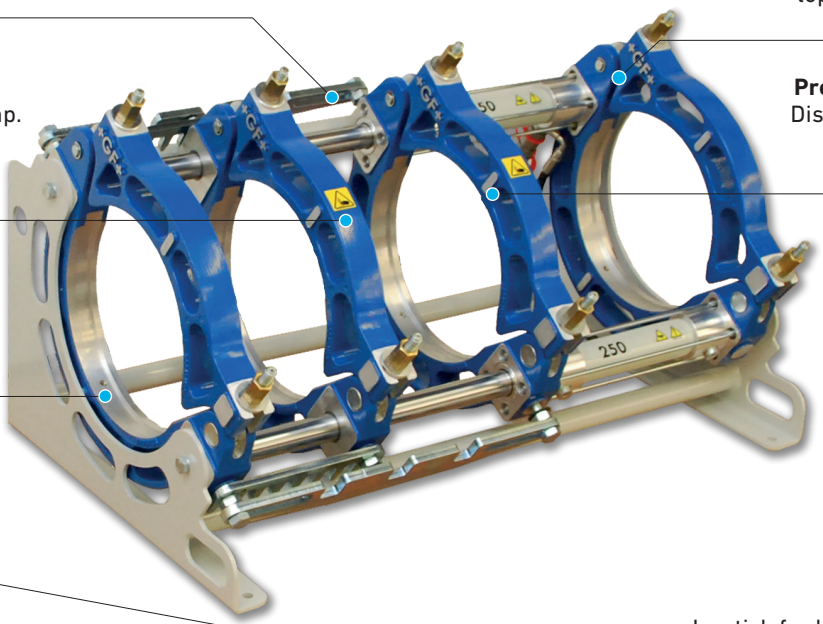
ECOS is an hydraulic butt fusion machine with manual control unit to joint thermoplastic pipes and fittings for pressure piping systems up to diameter 630 mm. ECOS is designed for installers who need a machine with simple configuration, ensuring a reliable performance in trenches and building sites.

**Fast and safe removal of the heating element**
Double-sided pull-off mechanism

**Fast set-up**
Upper clamps hinged on top side and swivelling (up to d315mm)

**Flexible configuration**
Adjustable position of inner clamp. 3 different positions for the heating element on the pull-off bars

**Precise pipe alignment**
Distortion-free machine frame with 4 clamps configuration




**Fast and safe removal / insertion of the pipes**
35°inclination of clamp axis

160-250-315

**Easy operation**
Joystick for base machine control and pressure release

**Easy handling**
Compact frame with protection plate (160-250-315) or cast aluminium full cover (400-500-630)

**Quick oil level check and refilling**
Accessible oil tank


400-500-630

**Easy handling**
Weight balanced planer with ergonomic handle. Electronic temperature controller integrated in the heating element handle

**Easy handling**
Weight balanced planer to lift by hand (up to d315mm). Electronic temperature controller integrated in the heating element handle (up to d315mm) or in a protective separate case (above d315mm)

**High performance**
Planer with powerful motor and gear/chain transmission

**Operation safety**
Planer with locking mechanism and micro-switch to prevent accidental motor start, out of the working position

# TOP 2.0 160 – 250 – 315
# TOP 2.0 400 – 500 – 630

TOP 2.0 provides an optimized user's interface to make the manual operation easier and more comfortable. The innovative hydraulic controller, with aluminium case, also offers the functionality for automatic pressure recovering during the cooling time, to ensure a reliable fusion process.

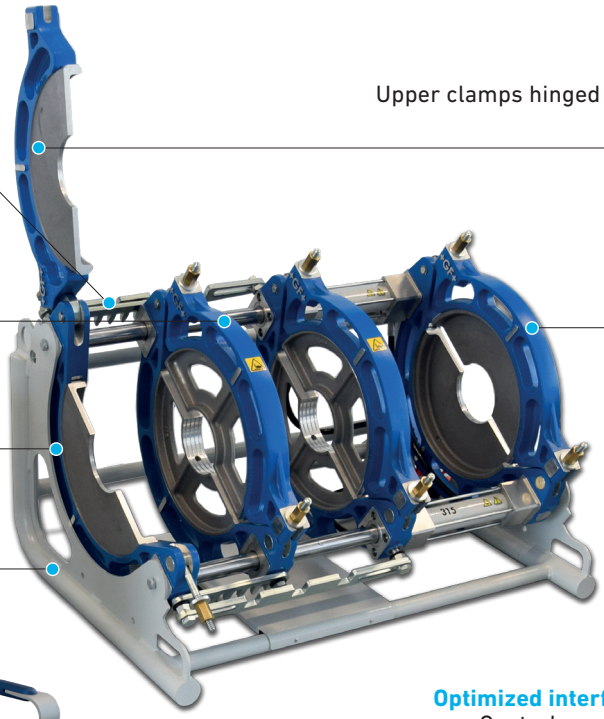
**Fast and safe removal of the heating element**
Double-sided pull-off mechanism

**Flexible configuration**
Adjustable position of inner clamp.
3 different positions
for the heating element on
the pull-off bars

**Fast and safe removal / insertion of the pipes**
35°inclination of clamp axis

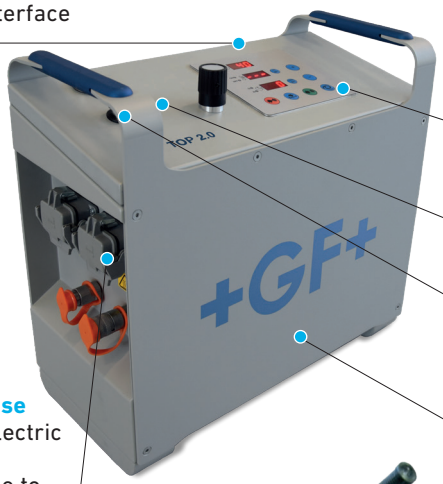
**Easy handling**
Smooth tubular frame

**Smart fusion recording**
Built-in data logger with
Bluetooth interface



**Fast set-up**
Upper clamps hinged on top side and swivelling
(up to d315 mm)

**Precise pipe alignment**
Distortion-free machine
frame with 4 clamps
configuration




**Optimized interface for manual operation**
Control panel with digital indication of
pressure, temperature, welding times

Push-buttons for machine operation

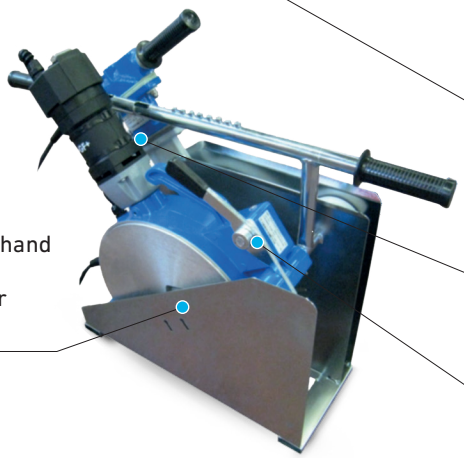
Automatic cooling pressure control

**Easy handling**
Compact unit with ergonomic handles

**Comfort in use**
Integrated electric
connectors:
just one cable to
the power source

**Quick oil level check and refilling**
Accessible oil cap with dipstick

**High protection**
Fully closed housing made of aluminium



**Easy handling**
Weight balanced planer to lift by hand
(up to d315mm).
Electronic temperature controller
integrated in the hydraulic unit

**High performance**
Planer with powerful motor and
gear/chain transmission

**Operation safety**
Planer with locking mechanism
and micro-switch to prevent accidental
motor start, out of the working position

# CNC 4.0 160 – 250 – 315
# CNC 4.0 400 – 500 – 630

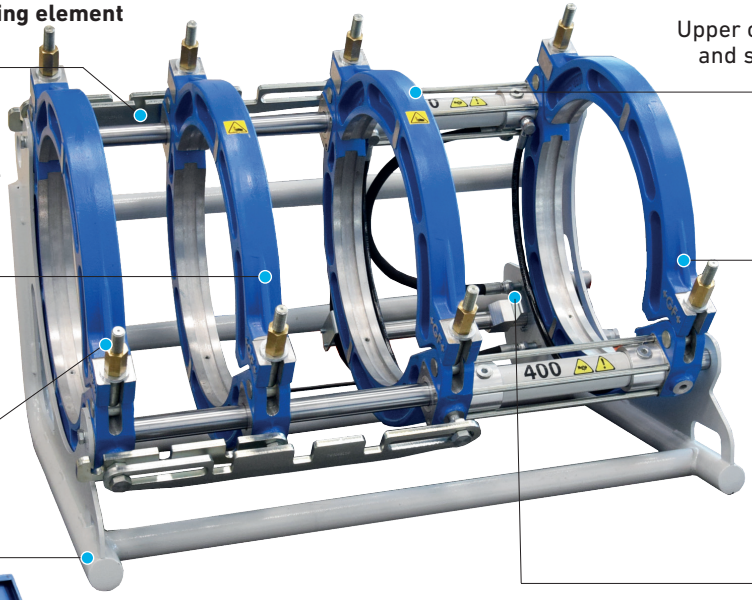
Our butt fusion machines up to d630 mm are also available with the innovative CNC automatic controller, which provides the best support to the customer in making a fast, safe, high quality and reliable joint.

**Fast and safe removal of the heating element**
Double-sided pull-off mechanism

**Flexible configuration**
Adjustable position of inner clamp.
3 different positions
for the heating element
on the pull-off bars

**Fast and safe removal / insertion of the pipes**
35°inclination of clamp axis

**Easy handling**
Smooth tubular frame




**Fast set-up**
Upper clamps hinged on top side
and swivelling(up to d315 mm)

**Precise pipe alignment**
Distortion-free machine
frame with 4 clamps
configuration

**Fully supervised**
Continuous monitoring
of machine position to
avoid faulty operations

TOP base machine
can be easily
upgraded for connection
to CNC controller


**Automatic hydraulic controller**
Touchscreen interface
Automatic process control
Integrated GPS receiver
Bluetooth connectivity

**Easy handling**
Compact unit with ergonomic handles

**Quick oil level check and refilling**
Accessible oil cap with dipstick

**Comfort in use**
Integrated electric
connectors:
just one cable to
the power source

**High protection**
Fully closed housing made of aluminium

**Easy handling**
Weight balanced planer to lift
by hand (up to d315mm).
Electronic temperature controller
integrated in the hydraulic unit

**High performance**
Planer with powerful motor
and gear/chain transmission

**Operation safety**
Planer with locking mechanism
and micro-switch to prevent accidental
motor start, out of the working position

# CNC 4.0 160 – 250 – 315
# CNC 4.0 400 – 500 – 630

The advanced features of the CNC 4.0 hydraulic controller are designed to comply with the most sophisticated requirements in gas and water applications. The CNC 4.0 unit is provided with bluetooth interface to work in combination with WeldinAir app on the smartphone. It is also compatible with optional label printer.

Transfer of memorized fusion protocols to an external PC via USB memory stick

Automatic calculation, regulation and control of the fusion parameters according to specific country guidelines

Fusion documentation management by means of a dedicated software (Welding Book)

Intuitive colour touch screen interface

Operator guidance by use of big icons and clear descriptions

Compatible with label printer (optional) to produce stickers with relevant information of the latest welding to be attached in proximity of the jointing area

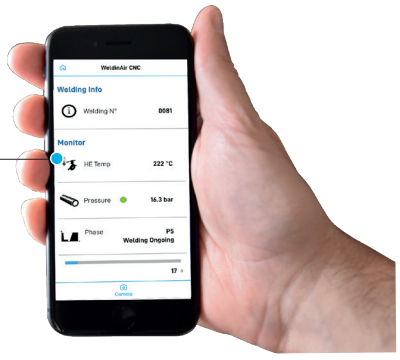

On site check of the memorized fusion protocols directly on the touchscreen

Language selection

Flexible configuration through a dedicated menu protected by password

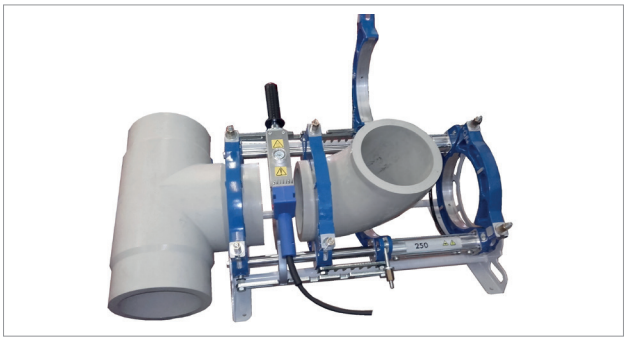
Freely programmable fusion cycles for non standard parameters

Bluetooth interface to connect the unit to consumer smartphones (both Apple and Android).
Operator ID (ISO 12176-3), job number and pipes/fittings traceability (ISO 12176-4) barcodes scanning.
Butt fusion process monitoring, fusion documentation collection and data transfer directly from jobsite



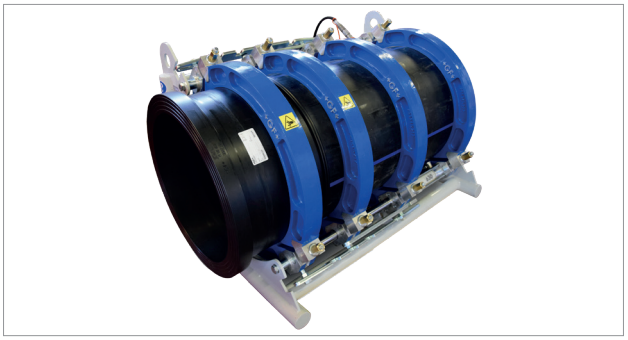
# The System

Our butt fusion machines offer the right solution to cover every specific customer's need thanks to different available models: they adapt to any situation to ensure a the best performance.



### Easy and flexible

These machines incorporate several features to minimize the set-up time and to make the operation easier. The adjustable position of the inner clamp provides a time saving and flexible system to configure the base machine for clamping plastic fittings without any additional tool. Ergonomics of the components has been optimized for comfortable handling on site. Intuitive operator interfaces are provided by the hydraulic units of TOP 2.0 (keypad, digital displays) and CNC 4.0 (touch screen).

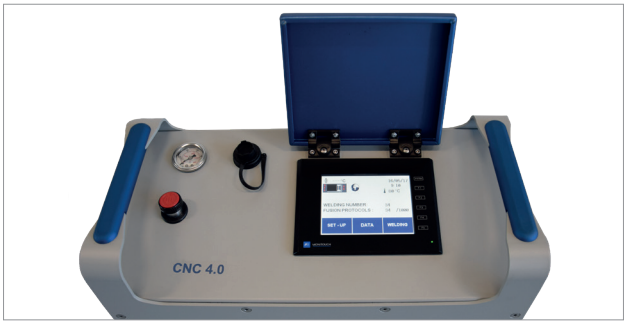


### Robust design

Base machine configuration consists of a sturdy steel frame with 4 clamps to guarantee a proper alignment and re-rounding of pipes. The TOP 2.0 and the CNC 4.0 are protected by a fully closed housing made of aluminium. The high quality of the electrical and hydraulic components guarantees a reliable work even in harsh environnments.


### TOP 2.0 WeldinAir

The TOP 2.0 machines now offer a built-in data logger with Bluetooth interface and an App on mobile devices (both iOS and Android) to support the user to set the parameters on the machine, to collect the fusion data, to allow their remote monitoring on the mobile display and wireless transfer as soon as the welding is completed.

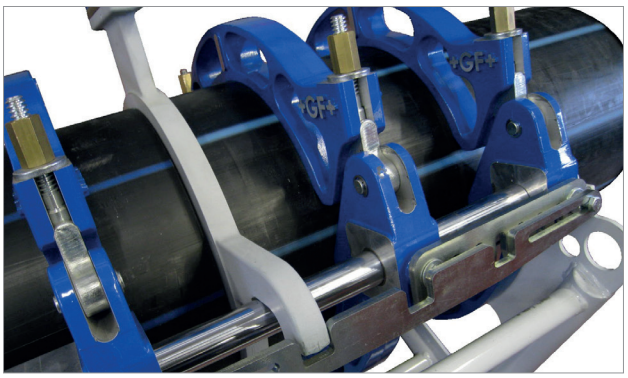



### Advanced functions

CNC 4.0 hydraulic controller includes further features to comply with sophisticated requirements. That is not just fusion protocols recording: here the welding parameters (pressure, time and heating temperature) are automatically calculated and regulated by the system to guarantee high repetitive accuracy in jointing thermoplastic pipes and fittings according to the selected welding standards.

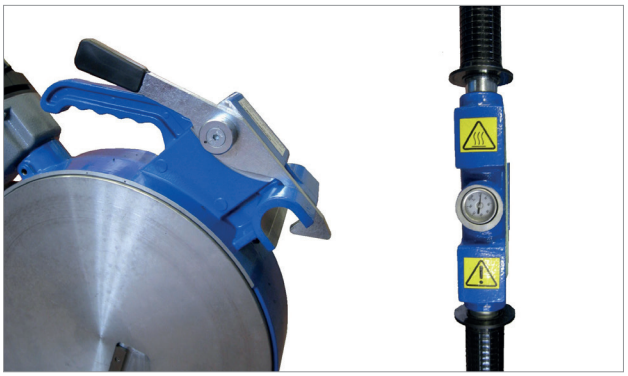
# The Details

Our butt fusion machines encompass many specific features in order to ensure a safe, high quality fusion process and the most complete support to customer's work.



### Optimized change-over phase

All the base machines are equipped with a double-sided pull-off mechanism which automatically detaches the heating element plate from the pipe ends in a fast and reliable way after the heat soaking. There are 3 different positions available to insert the heater for adapting to all possible pipes and fittings dimensions. With CNC 4.0 it is also possible to completely automate the change-over phase by combining the base machine with a specific ejection system for the heating element, for sizes 250/315 mm.



### Reliable facing and heating of the pipe ends

The planer is designed to ensure a proper performance to suit a wide range of materials (PE, PP, PB), thanks to the powerful electric motor and a robust worm-gear or chain drive transmission. It is equipped with a safety micro-switch to prevent accidental motor start out of the working position and a locking mechanism to firmly keep it on the base machine during operation. The heating element is electronically controlled to ensure highaccuracy and uniform heat distribution. The built-in thermometer permits a fast check of the actual temperature of the plate.


### Fusion data management

At the end of the welding process with WR 200 or automated CNC 4.0 control unit, the recorded data are saved into an internal memory and can be easily transferred via USB to a personal computer for printing, investigation and digital archive.

The included Welding Book application for data management also offers the opportunity to automatically merge digital photos and videos taken during the job with the recorded fusion protocols for a more complete documentation.

Moreover, CNC 4.0 machines make possible for the installer to enable the tracking of the information required by the specific job procedure on site, like the operator code (ISO 12176-3), job number, traceability data of pipes and fittings (ISO 12176-4). The built-in GPS receiver permits trench localization and automatic map creation in combination with the Welding Book. TOP 2.0 and CNC 4.0 also includes a bluetooth interface to connect to consumer smartphones for process monitoring and remote data transfer to the company office/servers.

# The Applications

**The high strength and the easy handling, in combination with the welding data recording and the CNC advanced functions, make our machines suitable for all application levels**

### Transport and distribution, water treatment, mining

When transporting water and gas, a safe and reliable connection is the key success factor, but can be a challenging task: our butt fusion machines are ideal to weld thermoplastic pipes and fittings for new installations, renovation, repair or extension of existing water and gas lines.

These machines can reliably operate within difficult construction sites and ambient temperature conditions, like projects for the conveyance of process water or chemicals as well as on mining sites.

A complete range of accessories, such as electrical hoist or flange adapter clamping unit, provides solutions to fulfill the various customer's needs.

### Industry, shipbuilding

Thanks to the high flexibility, these machines properly adapt to many other applications as plant installations or prefabrication of fittings and piping systems components made of an extended range of plastic materials as PE, PP, PB.

The modular configuration makes easy to transport and set the machine components even in places with limited accessibility, as it could be on board ship.

In case of vertical installations or reparation of existing pipelines, the special RU compact base machine is available, to be used in combination with manually operated ECOS or TOP 2.0 hydraulic units: it consists of 2 clamps (3rd optional) without frame to be easily placed at high places or inside narrow trenches.

# Specifications

Our product range offers the right butt-fusion machine to meet the specific customer's demand for pipe and fittings connection up to diameter 630 mm.

| **Technical specifications (*machine size)** | **ECOS** | **TOP 2.0** | **CNC 4.0** |
|---|---|---|---|
| **Operating conditions** | | | |
| Pipe diameter range [mm] | 40 - 160 **(*160)**<br>75 - 250 **(*250)**<br>90 - 315 **(*315)**<br>125 - 400 **(*400)**<br>200 - 500 **(*500)**<br>315 - 630 **(*630)** | 40 - 160 **(*160)**<br>75 - 250 **(*250)**<br>90 - 315 **(*315)**<br>125 - 400 **(*400)**<br>200 - 500 **(*500)**<br>315 - 630 **(*630)** | 50 - 160 **(*160)**<br>75 - 250 **(*250)**<br>90 - 315 **(*315)**<br>125 - 400 **(*400)**<br>200 - 500 **(*500)**<br>315 - 630 **(*630)** |
| Material | | PE, PP, PB | |
| Working temperature range | min. -10 °C<br>max. +45 °C | min. -10 °C<br>max. +45 °C | min. -10 °C<br>max. +45 °C |
| **Electrical data** | | | |
| Input voltage (VAC) | 230 **(*160-400)**<br>400 **(*500-630)** | 230 **(*160-315)**<br>400 **(*400-630)** | 230 **(*160-315)**<br>400 **(*400-630)** |
| Frequency range (Hz) | 50 - 60 | 50 - 60 | 50 - 60 |
| Input power (KW) | 1.9 **(*160)**<br>3.3 **(*250)**<br>3.8 **(*315)**<br>5.7 **(*400)**<br>7.0 **(*500)**<br>11.0 **(*630)** | 1.9 **(*160)**<br>3.3 **(*250)**<br>3.8 **(*315)**<br>5.7 **(*400)**<br>7.0 **(*500)**<br>11.0 **(*630)** | 1.9 **(*160)**<br>3.3 **(*250)**<br>3.8 **(*315)**<br>5.7 **(*400)**<br>7.0 **(*500)**<br>11.0 **(*630)** |
| **Product features** | | | |
| Fully closed housing for the hydraulic unit | | √ | √ |
| One single plug to power supply | | √ | √ |
| Control panel integrated in the hydraulic unit | | √ | √ |
| Safety micro-switch for the planer | √ | √ | √ |
| Locking mechanism for the planer | √ | √ | √ |
| Electronic temperature controller | √ | √ | √ |
| Fusion data recording | Optional (WR 200) | √ | √ |
| Automatic process control | | | √ |
| Barcode scanning | | | With user's smartphone |
| Operator's code input (ISO 12176-3) | | | √ |
| Pipes and fittings traceability (ISO 12176-4) | | | √ |
| GPS coordinates | | | √ |
| Label printer | | | √ |
| Bluetooth connection for remote data transfer | | √ | WeldinAir version |
| Wide reduction inserts for clamps | Optional | Optional | Optional |
| Narrow reduction inserts for clamps (to suit short-ended fittings) | Optional | Optional | Optional |
| Flange adapters clamping device | Optional | Optional | Optional |
| Chamfered upper clamp (to suit bend fittings with max diameter) | Optional | Optional | Optional |
| Automatic heater ejection system | | | Optional **(*250-315)** |
| Hoist unit (to lift planer and heater) | Optional **(*400-630)** | Optional **(*400-630)** | Optional **(*400-630)** |

| **Product codes** | | **WeldinAir** | **WeldinAir** |
|---|---|---|---|
| 160 | 790150009 | 790150011 | 790150076 |
| 250 | 790151013 | 790151011 | 790151076 |
| 250 with automatic heater ejection | | | 790151077 |
| 315 | 790152028 | 790152026 | 790152076 |
| 315 with automatic heater ejection | | | 790152077 |
| 400 | 790 127 013 | 790153011 | 790153076 |
| 500 | 790 140 010 | 790154011 | 790154078 |
| 630 | 790 345 012 | 790155011 | 790155076 |

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# Local support around the world

Visit our webpage to get in touch with your local specialist:
**www.gfps.com/our-locations**



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