

# Automated infrared fusion machines IR-400 A, IR-315 A, IR-110 A

# Peace of mind



## Quality of jointing

Infrared (IR) fusion machines, designed and produced by GF Piping Systems, meet the highest demands of mechanical stability, reproducibility and quality of fusion jointing. Typical application areas include the process and microelectronic industry.

IR-400 A

# Peace of mind in quality of jointing

Pressure piping systems for industrial applications place high demands on mechanical stability and quality of fusion jointing. The new IR-400 A is part of the automated IR-A family made by GF. Automation, intuitive handling, and system security for big dimensions enable highest reproducibility, reliability and efficiency for installers and operators.





IR-315 A



Working table for  
IR-315 A and IR-400 A



IR-110 A  
with integrated working table

12.1" touchscreen  
display on  
pivoting arm



Two-hand  
buttons for  
safe operation

Automated  
clamping slide



**Interfaces:**

- 4 x USB
- Ethernet
- 230V output

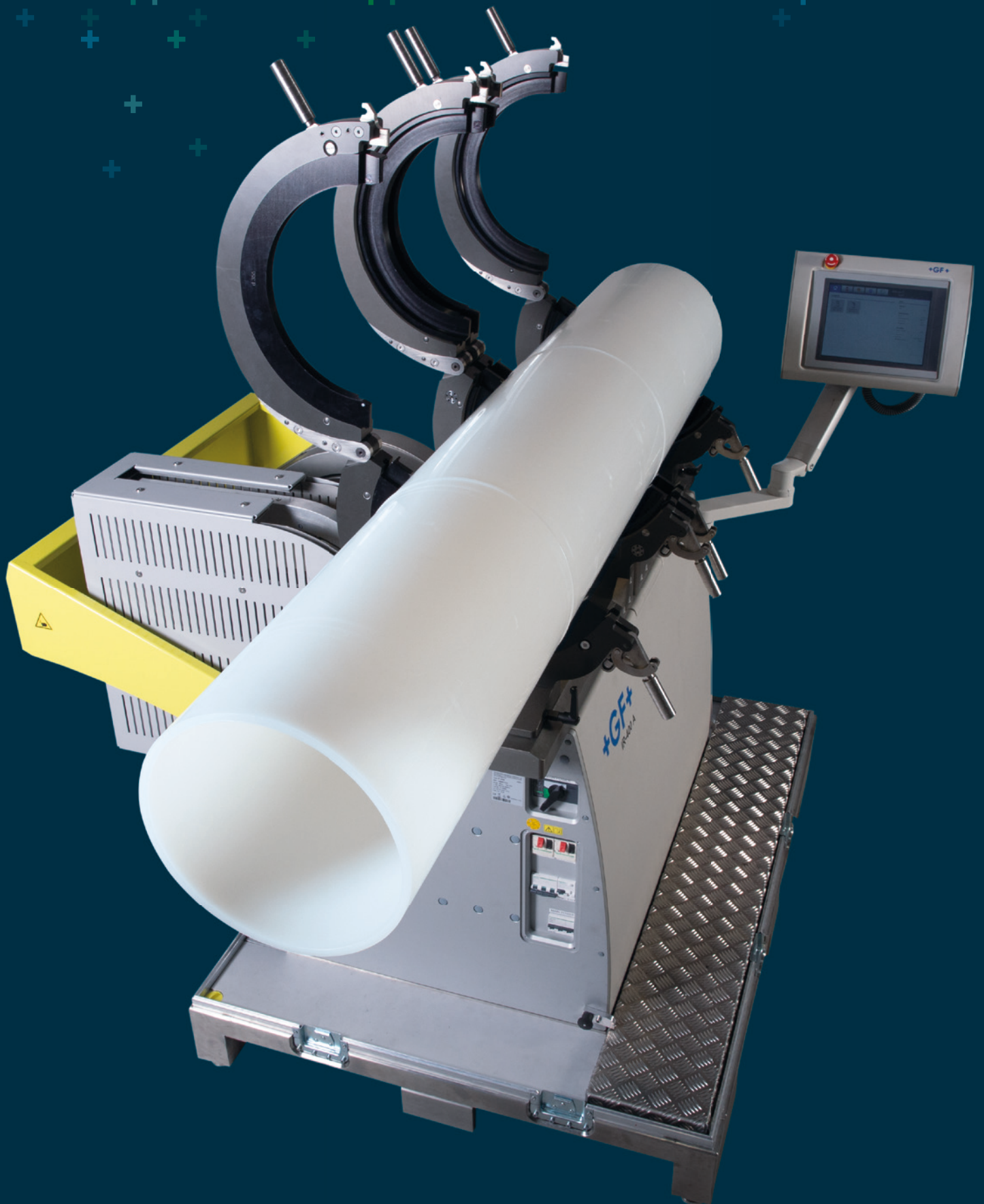


IR temperature  
sensor



Video camera

Specifications	IR-110 A	IR-315 A	IR-400 A
<b>Dimensions</b>	d20-d110 mm (½"-4")	d110-d315 mm (4"-12")	d355-d400 mm (14"-16")
<b>Materials</b>	PVDF SYGEF ECTFE SYGEF PP grey PROGEF PE100 ecoFit PP-n PROGEF Natural	PVDF SYGEF ECTFE SYGEF PP grey PROGEF PE100 ecoFit	PVDF SYGEF
<b>Languages</b>	Chinese, Czech, Danish, Dutch, English, Finnish, French, German, Italian, Japanese, Korean, Polish, Swedish, Taiwanese		
<b>Power supply</b>	230 V 50 / 60 Hz, max. 2000 W Integrated UPS (uninterruptible power supply)	400 V 50 / 60 Hz, max. 5000 W Integrated UPS (uninterruptible power supply)	400 V 50 / 60 Hz, max. 5000 W Integrated UPS (uninterruptible power supply)
<b>Machine control</b>	PLC (programmable logical controller)		
<b>Working temperature range</b>	+5° C to +40° C		
<b>Fusion data storage</b>	More than 20000 fusion data (protocol, label and video file)		
<b>Maintenance</b>	4 000 fusions	2 500 fusions	1 000 fusions
<b>Calibration check</b>	18 months	18 months	18 months
<b>Weight machine / incl. transport case</b>	130kg / 250kg (incl. Transport case and working table)	643kg / 711kg	860kg / 951kg
<b>Weight working table / incl. transport case</b>	-	275kg / 315kg	257kg / 297kg
<b>Dimensions transport case machine L x W x H</b>	1.00 x 0.80 x 1.35 m	1.20 x 0.80 x 1.67 m	1.20 x 1.51 x 1.55 m
<b>Dimensions transport case working table L x W x H</b>	-	1.20 x 0.83 x 1.07 m	1.20 x 0.83 x 1.07 m
<b>Conformance / standards</b>	DVS 2007-6, DVS 2203-1		
<b>Compliance to</b>	2006 / 42 / EC (MD) + 2004 / 108 / EC (EMC)		
<b>Applications</b>	Fusion machines are designed for industrial applications and clean room conditions		
<b>Order number for fully equipped machine (with working table)</b>	790.164.001	790.165.001	790.166.001 rental only



## Features & Benefits

# The user-friendly machines

### + IR-A automated fusion process

**Minimizes operator errors and immediately detects operational issues**

- Facing is automated
- Heating is automated
- Jointing process is automated
- Highest process security



### + IR-A more free space

**Ideal for complex installations**

- Facer and heater do not interfere with the components
- Clamping slides designed for flange connections
- Clamping slide length is designed for bulky components



### + IR-A interactive handling

**Easy to use**

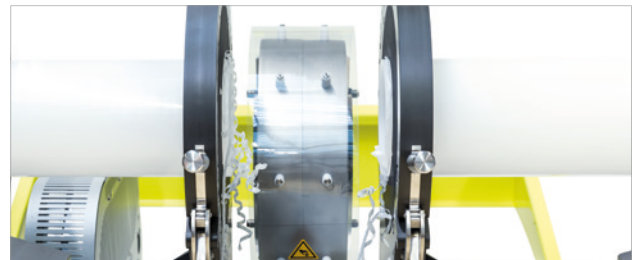
- Ergonomic adjustable touchscreen display
- Graphical user interface (GUI)
- Video guided process steps
- Multilingual instructions



### + IR-A adjustable facing

**Flexibility in design and installation**

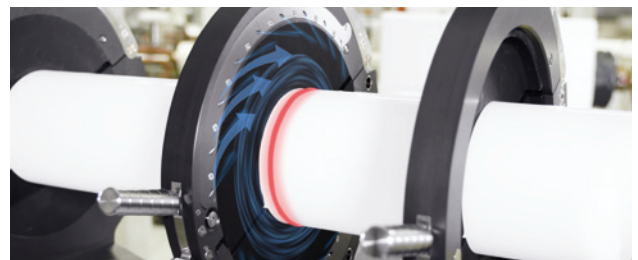
- Length options from 0.5 up to 5 mm (first facing default: 2 mm)
- Individual facing values on both sides
- Refacing on one side possible
- Precise prefabrication possible
- Facing blades with four edges



### + IR-315 A active cooling system

**Reduces cooling time up to 30 %**

- Integrated in clamping device
- With filtered / cleaned air
- 360° air flow starts automatically after joining



### + Product range up to 400 mm

**PVDF SYGEF from d20 to d400mm**

- Easy handling of heavy and bulky components
- Premium quality with outstanding performance



## Quality control

# No compromise in quality

The demand for quality control is constantly increasing. End user frequently require comprehensive documentation of the fusion process. Fusion joint documentation must be easy, safe and economical to obtain. The IR-A family creates peace of mind.

### + Measures all temperatures

#### Increased efficiency and time saving

- Ambient temperature sensor
- Heater temperature is controlled
- Component temperature measured by IR sensor

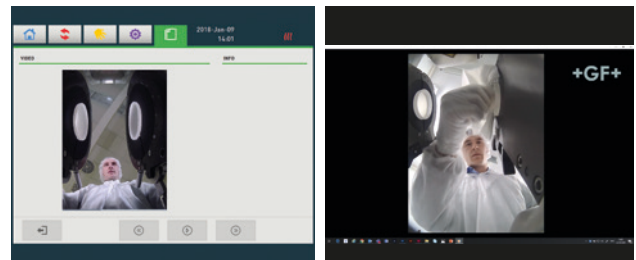


PROTOCOL		PREPARATION DATA		ADDITIONAL INFO	
<b>PIPE DATA</b>		<b>PREPARATION DATA</b>		<b>GENERAL</b>	
Material	PVDF S16EP	Ambient temperature	26.5 °C	Date	27-Aug-2020
Diameter	ø 315 mm (12)	Component temperature	29.0 °C	Time	13:40
Wall thickness	9.7 mm (0.382)	Number of refacings	3	Worksite	TC
Nominal pressure [bar]	PN10	Sum facing left	2.0 mm	<b>MACHINE</b>	
SDR	33	Sum facing right	5.5 mm	Name	IR-315 A
<b>PROCESS DATA</b>		<b>Set value</b>	<b>Actual value</b>	Serial number	165690202
Heater temperature		S20 - S21 °C	S25 °C	Software version	1.13.2003
Facing position		-0.20 - 0.30 mm	0.27 mm	Service status	OK

### + Integrated video camera

#### Enhanced quality control

- Records handling and preparation
- Enables traceability
- Exportable video files via USB flash drive



### + Integrated process and quality control

#### Permanent data alignment

- Jointing distance and jointing pressure are controlled and monitored by the machine
- Heating and cooling process are adjusted according to the ambient temperature



### + Data traceability

#### Simplifies QA / QC

- Soft copies via USB connection
- No additional software needed
- Clear OK or NOK (Not OK) message
- Up to 5 printouts for protocol and label



## Wide range of applications



IR fusion machines are perfectly designed for industrial applications and cleanroom conditions. The wide range of machines covers a large spectrum of dimensions and materials. GF has the right machine for every point of use, including remote fusion with tight spatial conditions.

Main areas of application:

- Microelectronics
- Clean water applications
- Chemical process industry
- Energy

Technology

# The pioneer in IR fusion

GF Piping Systems has been the pioneer and leader for innovative infrared fusion technology since 1992. We have been working closely together with our customers focussing on their real-life needs. As a result we developed the automated IR-A family, which covers the dimension range from d20 up to d400 mm.

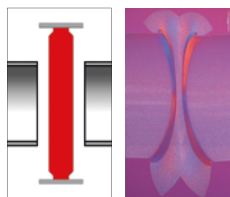
## + Advantages of IR fusion

- Short welding time
- Minimal defined bead
- High reproducibility
- High reliability
- Less thermo-stress
- Best for high purity applications

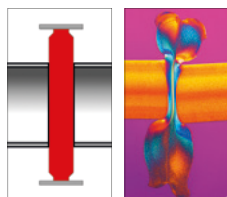
## + The optimized heating process

Non-contact heating (IR) shortens the heating time by more than 30% compared to conventional butt fusion. The entire equalization process is no longer necessary which solves the problem of varying bead formations". The tendency for melted material to stick to the heating element (especially PVDF) is eliminated.

IR fusion



Conventional butt fusion



Weld Bead Inspection (WBI) Tool

# Your Seal of Approval

The WBI Tool provides information about the geometry of the outer weld bead at the inspected points.

## + Objective and documented results

The WBI Tool is placed on the weld bead with the aid of semi-circular clamps. The camera, which moves over the entire width of the weld bead, takes pictures which are merged into one picture. The software defines the edges of the weld bead and calculates the following data:

- K-value
- Wall offset
- Width
- Heights
- Area
- Angle of the components

If all values are within the defined tolerances, the weld bead is rated OK.



## More information on

<https://www.gfps.com/ir>EN>

## Additionally to automated IR-A

In addition to the automated IR-A machines we also offer our well established semi-automated IR-Plus machines.

### IR-Plus Semi-automated fusion machines

Machine type	Materials	Dimensions	Order number
IR-63 Plus	PVDF, ECTFE, PP-H, PE100, PP-n, PFA	d20 - d63 mm	790 131 005
IR-110 Plus	PVDF, ECTFE, PP-H, PE100, PP-n, PFA	d20 - d110 mm	790 132 001
IR-225 Plus	PVDF, ECTFE, PP-H, PE100, PP-n	d63 - d225 mm	790 133 009
IR-315 Plus	PVDF	d225 - d315 mm	Rental only



+GF+

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Our sales companies and representatives ensure local customer support in more than 100 countries.

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