

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

Peace of mind



Quality of jointing

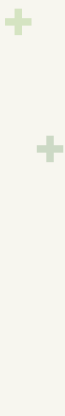
Infrared (IR) fusion machines, designed and produced by GF Piping Systems, meet the highest demands of mechanical stability, reproducibility and quality of fusion jointing. Typical application areas include the process and microelectronic industry.

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**



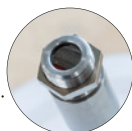
**Two-hand
buttons for
safe operation**

**Automated
clamping slide**



Interfaces:

- 4 x USB
- Ethernet
- 230V output

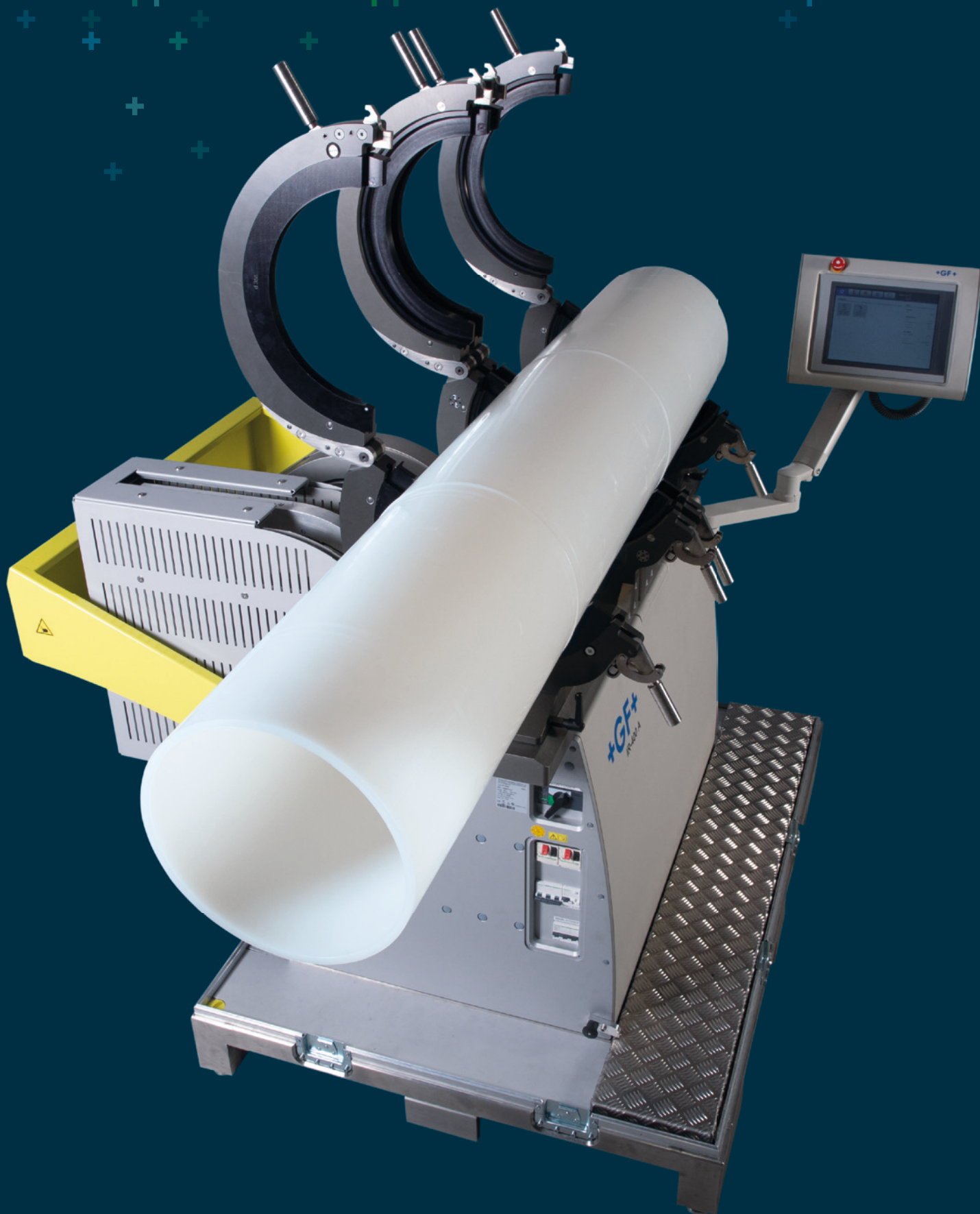


**IR temperature
sensor**



Video camera

Specifications	IR-110 A	IR-315 A	IR-400 A
Dimensions	d20-d110 mm (½"-4")	d110-d315 mm (4"-12")	d355-d400 mm (14"-16")
Materials	PVDF SYGEF ECTFE SYGEF PP grey PROGEF PE100 ecoFit PP-n PROGEF Natural	PVDF SYGEF ECTFE SYGEF PP grey PROGEF PE100 ecoFit	PVDF SYGEF
Languages	Chinese, Czech, Danish, Dutch, English, Finnish, French, German, Italian, Japanese, Korean, Polish, Swedish, Taiwanese		
Power supply	230 V 50 / 60 Hz, max. 2 000 W Integrated UPS (uninterruptible power supply)	400 V 50 / 60 Hz, max. 5 000 W Integrated UPS (uninterruptible power supply)	400 V 50 / 60 Hz, max. 5 000 W Integrated UPS (uninterruptible power supply)
Machine control	PLC (programmable logical controller)		
Working temperature range	+5° C to +40° C		
Fusion data storage	More than 20 000 fusion data (protocol, label and video file)		
Maintenance	4 000 fusions	2 500 fusions	1 000 fusions
Calibration check	18 months	18 months	18 months
Weight machine / incl. transport case	130kg / 250kg (incl. Transport case and working table)	643kg / 711kg	860kg / 951kg
Weight working table / incl. transport case	–	275kg / 315kg	257kg / 297kg
Dimensions transport case machine L x W x H	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
Dimensions transport case working table L x W x H	–	1.20 x 0.83 x 1.07 m	1.20 x 0.83 x 1.07 m
Conformance / standards	DVS 2007-6, DVS 2203-1		
Compliance to	2006 / 42 / EC (MD) + 2004 / 108/EC (EMC)		
Applications	Fusion machines are designed for industrial applications and clean room conditions		
Order number for fully equipped machine (with working table)	790.164.001	790.165.001	790.166.001 rental only



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

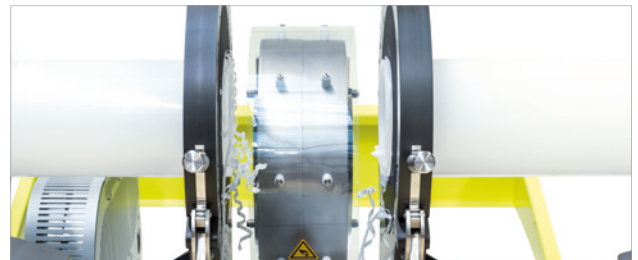
- Ergonomic adjustable touchscreen display
- Graphical user interface (GUI)
- Video guided process steps
- Multilingual instructions



+ 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

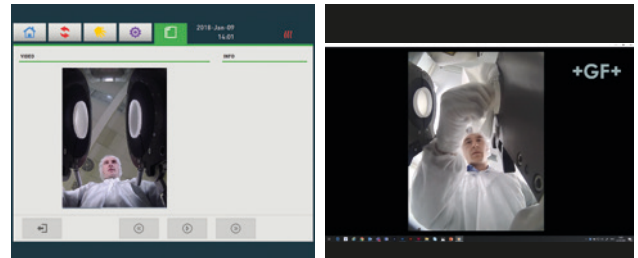


PROTOCOL		ADDITIONAL INFO	
PIPE DATA		PREPARATION DATA	
Material	PVDF S100P	Ambient temperature	26.5 °C
Diameter	d 315 mm (12")	Component temperature	29.0 °C
Wall thickness	9.7 mm (0.382")	Number of reflections	3
Nominal pressure [bar]	PN10	Sum facing left	2.0 mm
SDR	30	Sum facing right	5.5 mm
PROCESS DATA		Set value	Actual value
Heater temperature		S20 - S21 °C	S25 °C
Facing position		-0.20 - 0.30 mm	0.07 mm
		GENERAL	
		Date	27-Aug-2020
		Time	13:40
		Worksite	TC
		MACHINE	
		Name	IR-315 A
		Serial number	145690202
		Software version	1.13.2000
		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

- Joining distance and joining 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.

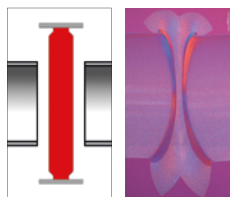
+ Advantages of IR fusion

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

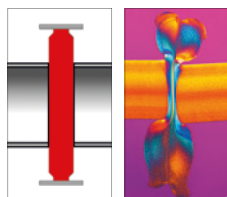
+ The optimized heating process

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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