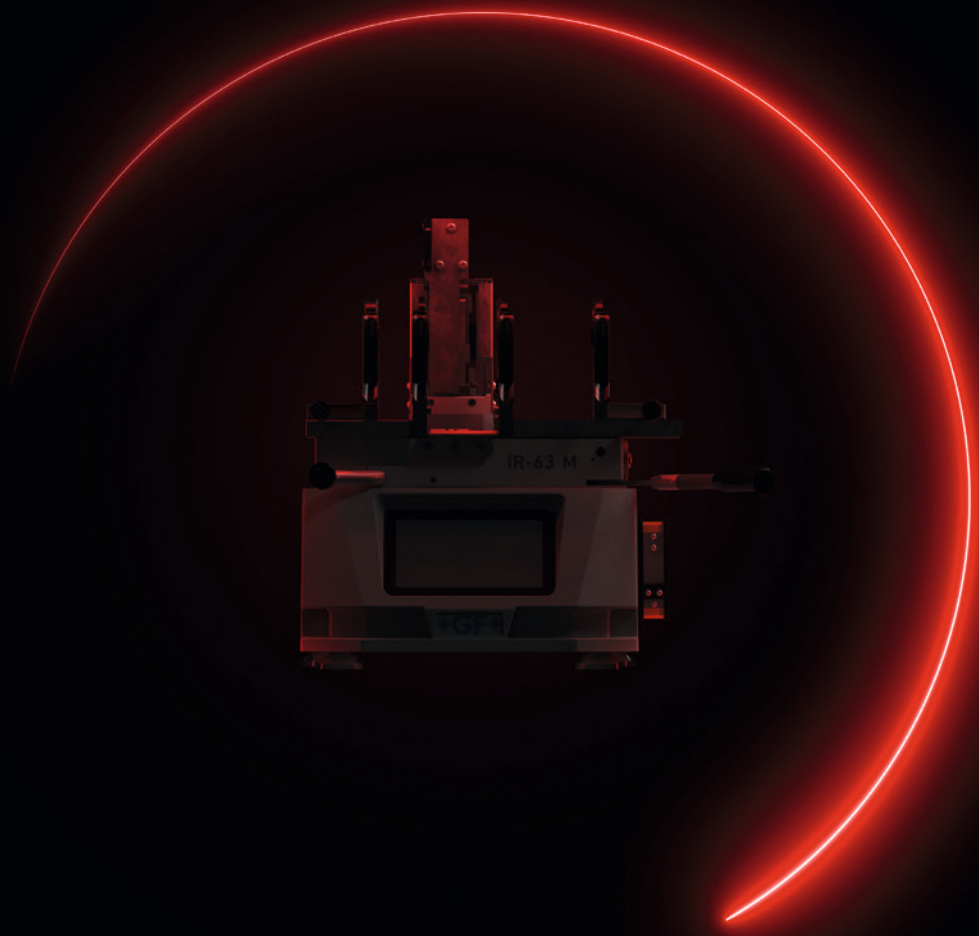
GF Piping Systems

Redefine tomorrow

IR-63 M



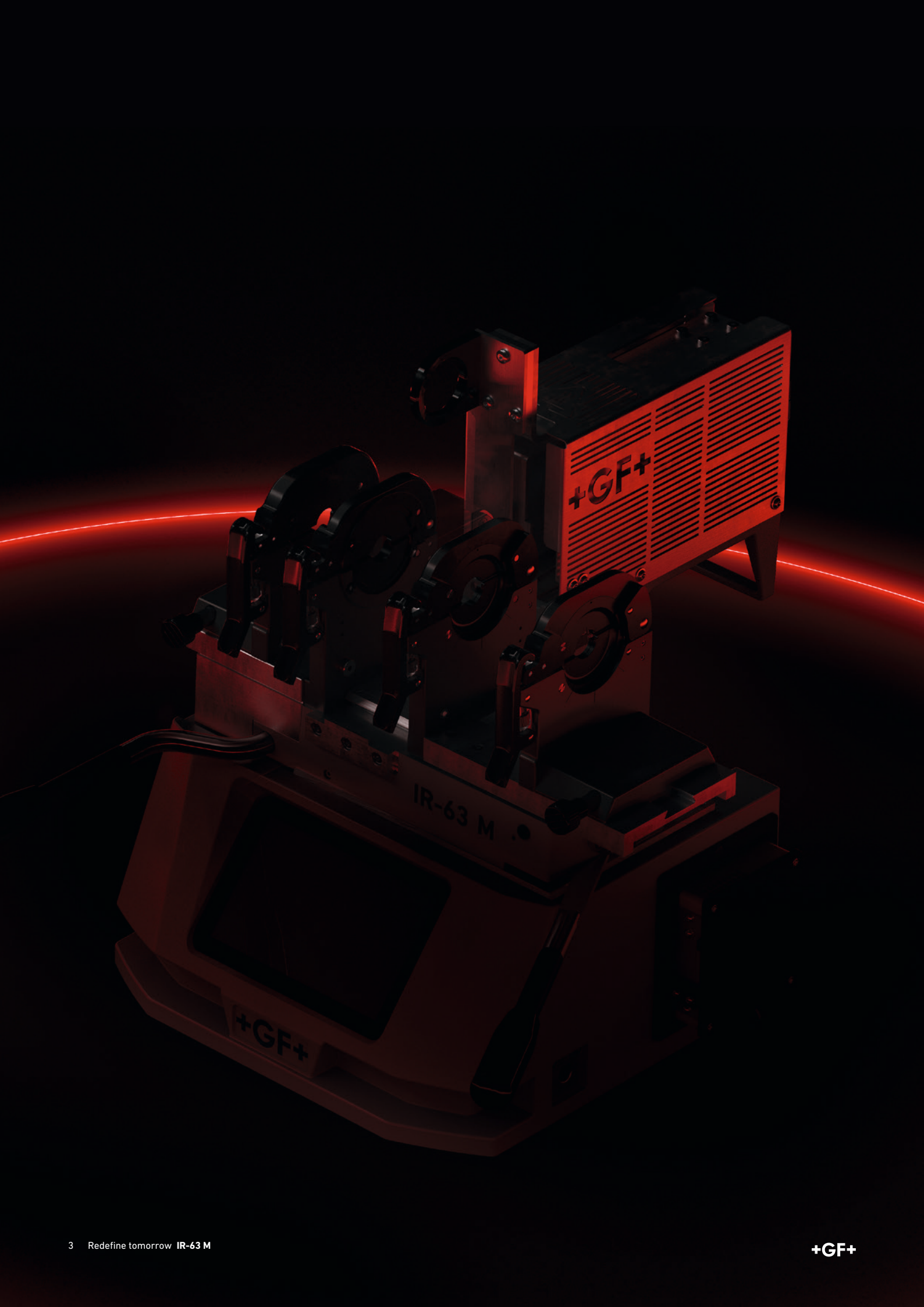
Infrared welding

The fusion evolution

Introducing the IR-63 M infrared fusion machine: GF Piping Systems combined the time-tested and reliable fusion technology and advanced it with the latest cutting-edge technology for higher precision, enhanced efficiency, and unwavering reliability of your installations.

The quest for efficient, contamination-free, and stress-free installations is an ongoing challenge regarding engineering flow solutions for mission-critical environments, such as microelectronics, data centers, battery production plants, water treatment applications, or the chemical process industry. Extensive cooling time, contaminations, and exhausting documentation can lead to costly delays and project setbacks. But what if there was a way to ensure the integrity of your piping systems, even in the most demanding settings?

Infrared (IR) Welding's contactless fusion and heat transfer via thermal radiation, adhering to DVS 2207-6 standards, are ideal for jointing plastic piping systems. IR Welding is particularly valuable in the realm of cleanroom applications, where the elimination of contamination risks and material adherence is paramount. GF Piping Systems has pioneered and led innovative infrared fusion technology since 1992. We have been working closely with our customers, focusing on their real-life needs to help you unleash the power of contamination-free fusion. With our new series of IR machines, we introduce improved process and quality control features complemented by comprehensive fusion documentation. The new IR-63 M fusion machines offer unparalleled reliability. This technology caters to microelectronics and chemical processing, the water treatment industry, and other sectors where cleanliness and high-quality connections are non-negotiable.


+GF+
IR-63 M
+GF+

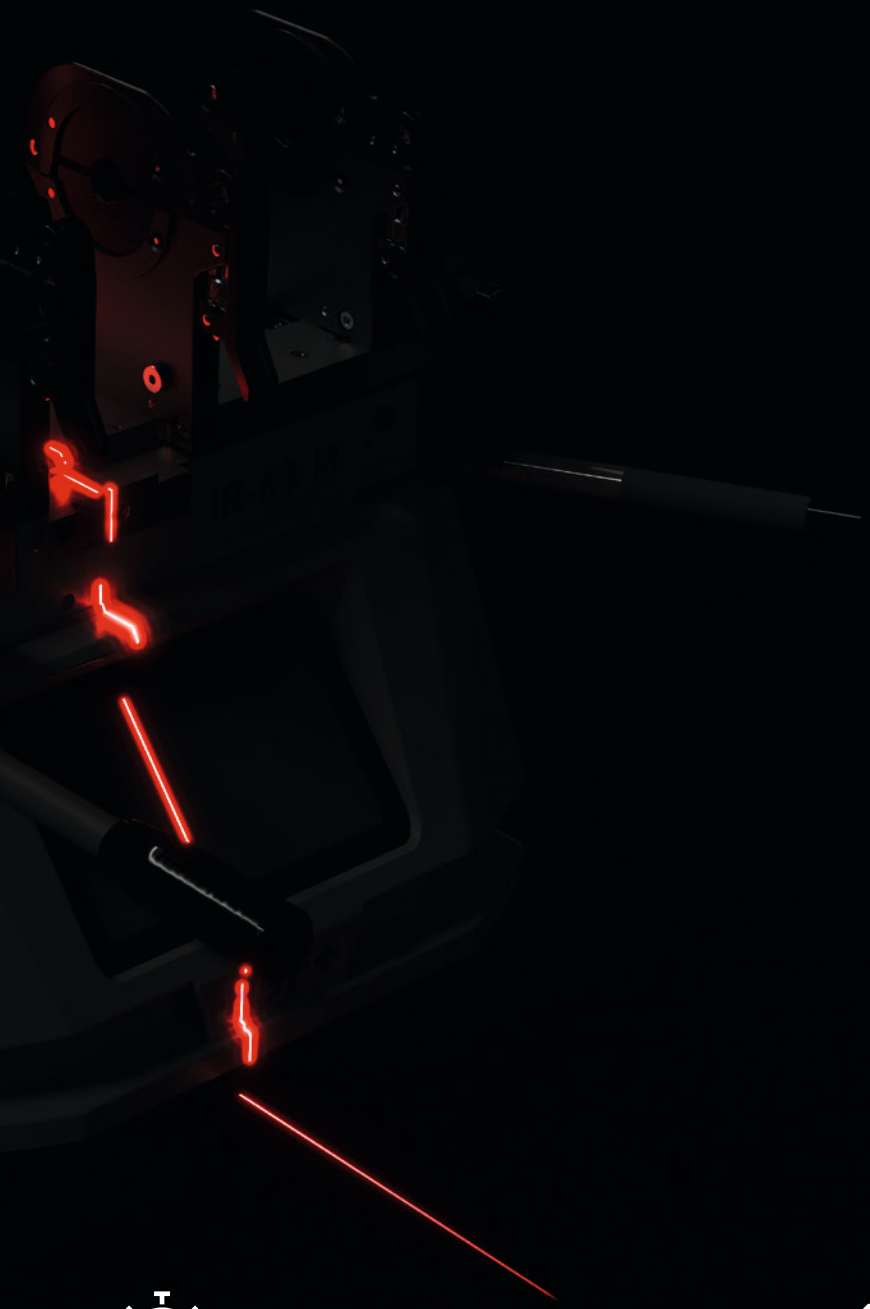
IR-63 M

Redefine solutions

Unleash the power of infrared fusion with the new IR-63 M machine, which enables the highest level of reproducibility, reliability, and efficiency for installing a plastic piping system.

Transformed design
A lightweight, compact, and robust design enables the IR-63 M to be easily transported and is ideally suited for remote welding locations with tight spatial conditions.

Redefined operation
An intuitive safety-protected touchscreen, multilingual user interface, and a new facer and clamping concept to easily master the most complex installations.



Optimized efficiency
The patented and adjustable facing unit, an automatic start-up function, and a 50% reduced cooling time increase the installation efficiency and help to reduce labor costs.

Enhanced quality control
The fully controlled fusion process enables high reproducibility and reliability with seamless connectivity options enabling easy and complete traceability.

Key features

Redefine functions

The IR-63 M is optimal for jointing pressure piping systems in industrial settings. It seamlessly merges the trusted functionalities of GF's IR welding technologies with innovative features designed to make jointing faster, easier, and more reliable.

Facer Unit

- Lightweight and ergonomic handling
- Automated activation
- Possible to mount from the front and the back

Touchscreen

- Safety glass protected
- Visual guidance through the welding process
- Multilingual instructions

2 Pipe Stops

- Fixed pipe stop with angle markings and 2 mm facing on both sides
- Adjustable patented pipe stop for individual facing of 0.5 - 3 mm

Base Frame

- Lightweight, compact, and robust
- Machine can be mounted directly to a working bench
- Modern design

Heater Unit

- Energy efficent design of heater protection
- Possible to mount from the front and the back
- Various fixation options for hand lever

Clamping Unit

- Thin design enabling compact installations
- Clamping units and half shells with angle markings enable a precise and fast installation
- Clamping slides designed for flange connections

Tube Drive

- Removable for remote weldings
- Exchangeable outer clamping units
- Ergonomic hand lever

Connections & Ports

- 2 x USB-A
- 2 x USB-C
- Ethernet
- 230 V port

CONNECT Welding Data Box

- Seamless transfer of fusion data to GF cloud environment “CONNECT Welding Data”
- WiFi and Ethernet connection

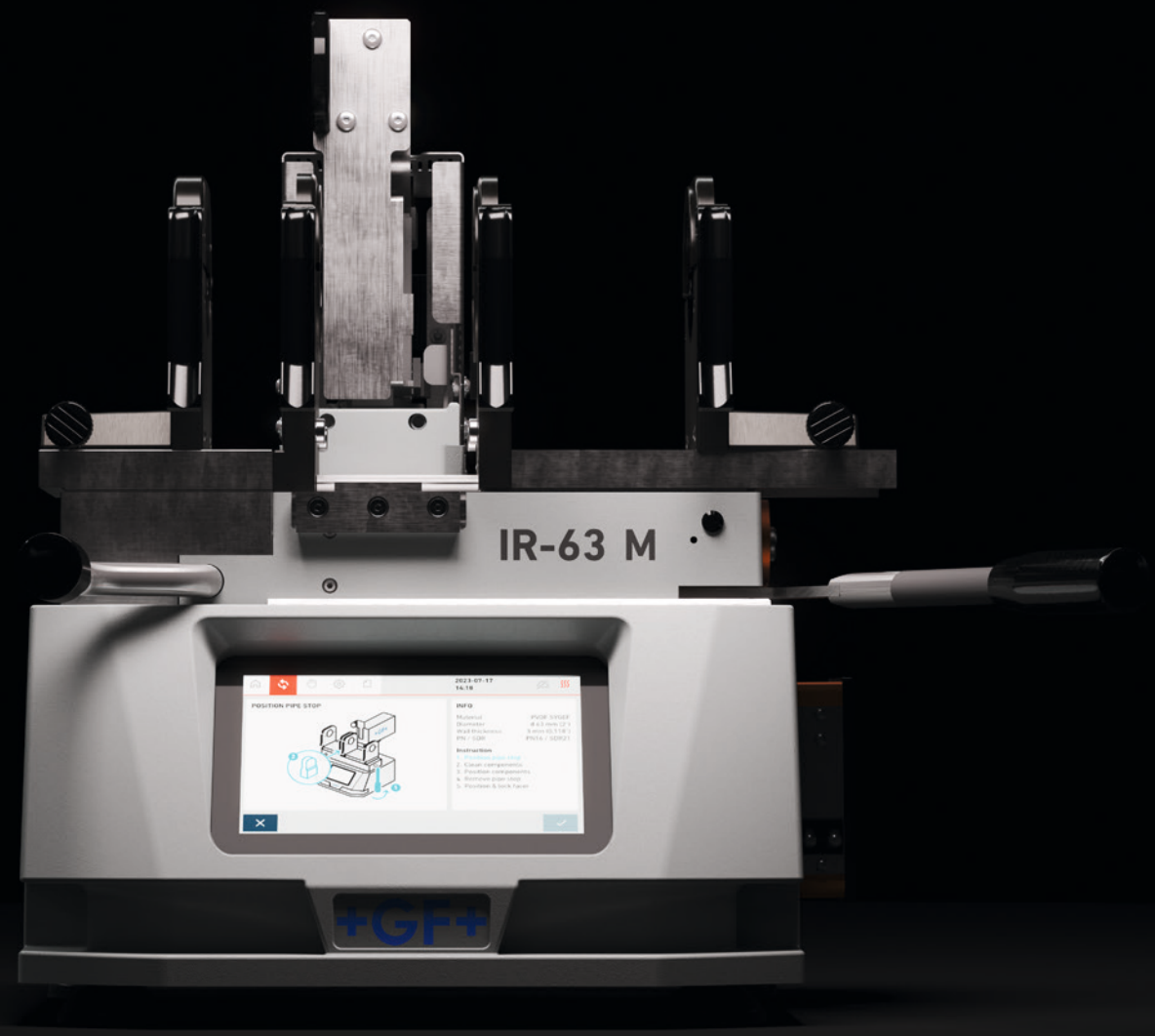
Ambient Temperature Sensor

- Monitoring of the ambient temperature during the fusion processes
- Heating and cooling processes are adjusted according to the ambient temperature

Fusion documentation

Redefined operational experience

With a safety glass-protected 7” touch screen and a cloud-connection to GF’s CONNECT Welding Data, the IR-63 M brings the welding experience to a new level. Conducting an installation with the necessary documentation was never easier.



CONNECT Welding Data and fusion documentation

The 7" touchscreen of the IR-63 M features 17 languages and makes welding even easier. Select your language and let the IR-63 M guide you through the entire welding process—from preparation to documentation. Intuitive animations support you.

Thanks to the Connectivity Box, the machine has an interactive cloud connection to GF's CONNECT Welding Data. This connection allows a seamless transfer of the welding protocols to a centralized space. Thanks to the individual welding label, each fusion is unique, and the welding protocol can be accessed through the weld ID. Furthermore, additional data like isometric drawings, pictures of the weld bead, or the assessment of a weld bead inspector can be assigned and stored directly to the welding.

We are ensuring the highest data security standard to make sure your data is safe. We also offer alternative fusion documentation possibilities like the data export to a USB Stick or the connection to a printer powered by the included 230V power outlet.

IR-63 M FUSION PROTOCOL

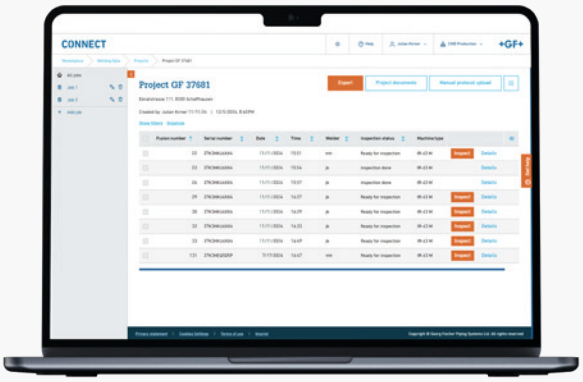
+GF+

MACHINE		
Machine type		IR-63 M
Serial number		27K3HEQ5D5P
Software version		1.5.1.b10bf39
Service status		OK
Service due date		16.05.2026
Remaining weldings		2381
GENERAL		
Date		19.12.2024
Time		09:43
Worksite		GF Schaffhausen
Welder		MH
Isometric		
Info 1		
Info 2		
PIPE DATA		
Material		PVC-U metric
Diameter		d 63 mm (2")
Wall thickness		4.7 mm (0.185")
Nominal pressure [bar]		PN16
SDR		SDR13.6
PROCESS DATA	**Set value**	**Actual value**
Ambient temperature	5 - 40 °C	24 °C
Heater temperature	502 - 512 °C	506 °C
Zero face check	-0.07 - 0.07 mm	-0.03 mm
Number of refacings		0
Insert time	max. 5 s	2 s
Heating time	20 - 21 s	21 s
Changeover time	0.5 - 2 s	2.0 s
Overlap distance	1.10 - 1.90 mm	1.71 mm
Cooling time	112 s	112 s
RESULTS		
Fusion number		306
Fusion status		OK

NOTES

Verify correct handling and visual control!

+GF+ 19.12.2024 09:43
IR-63 M 27K3HEQ5D5P
OK No. 306
PVC-U d 63 x 4.7 mm SDR13.6
Sig. ...../.....



CONNECT

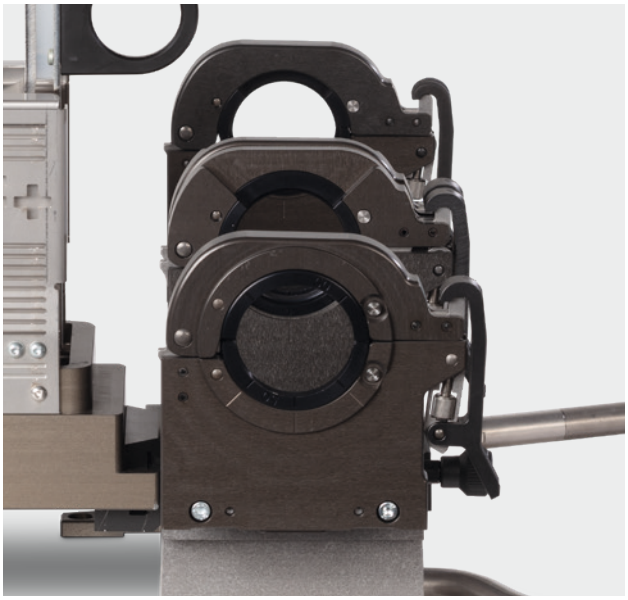
CONNECT Welding Data is part of the CONNECT Hub, GF Piping System's digital answer for networked solutions. On the CONNECT Hub you will find different software services and digital solutions tailored to your needs.

Learn more:
marketplace.connect.gfps.com

Flexible design and installation

Redefined precision

The IR-63 M is meticulously designed for high-precision welding, whether at the workstation or for remote installations.

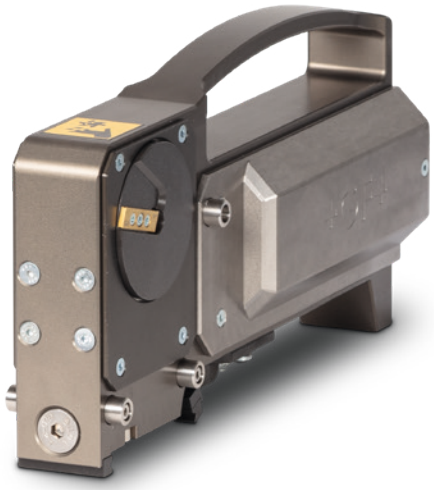


Base Frame

Easily adaptable and portable, the machine can be effortlessly fixed to your working bench for stability or taken to remote locations by removing the facer, heater unit, and tube drive, ensuring flexibility in your work environment.

Tube Drive

Our optimized thin clamping units and precise angle markings make compact installations a breeze. With the ability to clamp flanged components on both sides, this feature provides ultimate versatility for your welding needs.



Patented Adjustable Pipe Stop

Achieve unparalleled precision with an adjustable pipe stop that allows for individual facing on each side. Furthermore, the fixed pipe stop with angle marking is always included, assuring accurate installations every time. Experience the future of welding technology with us!

Facer Unit

With automated facer activation, your work becomes effortless, saving you time and effort. Whether you prefer front or back mounting, this versatile unit accommodates your needs, making welding a seamless and efficient process.

Project efficiency

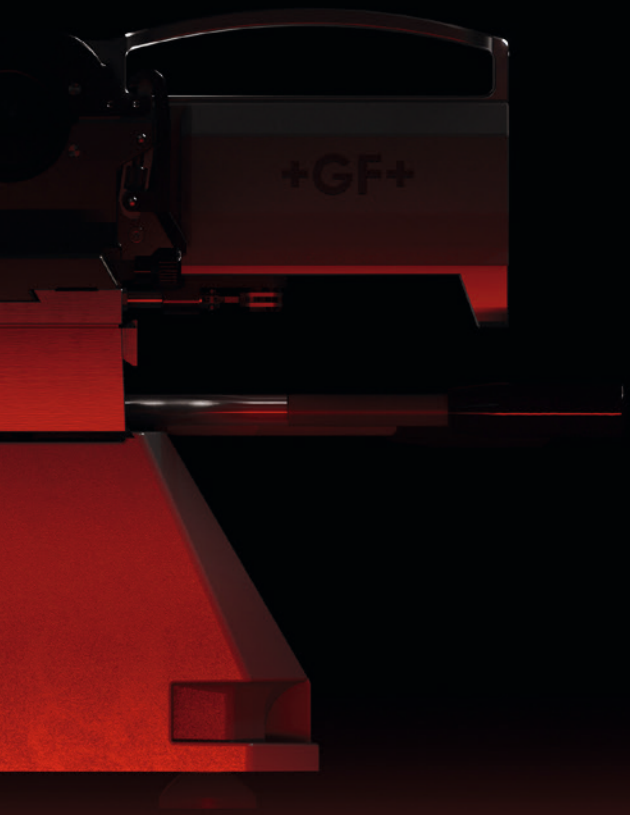
Redefine sustainability

The IR-63 M's lightweight design minimizes its carbon footprint during transportation and installation. With user-friendliness at its core, it simplifies operations, reducing the need for extensive training and manual labor. By utilizing less energy during operation, the IR-63 M is a beacon of efficiency, making your projects not only faster but also environmentally responsible.

All values are in comparison with GF Piping Systems IR-63 Plus machine.

50% reduced cooling times

What sets the IR-63 M apart is its up to 50% reduced cooling times, helping to shorten installation times and the overall project cost.



20% reduced preparation time
Individual-facing values on both sides enable flexibility in design and installation, perfect for precise prefabrication.

30% fewer process steps
The touchscreen interface enables more efficient processes to increase the performance of the operator.

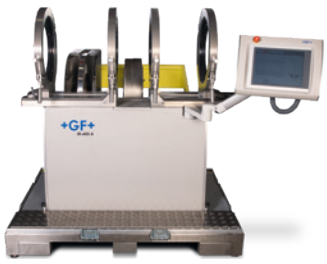
Technical opportunities

Redefine progress

Discover your perfect machine tailored to your project's unique needs. GF Piping Systems has over 30 years of IR technology expertise and offers a diverse range of solutions to ensure your project's success.

Specifications	IR-63 M	IR-110 Plus
Operation mode	Manual	Manual
Dimensions	d20-d63 mm (½ "-2")	d20-d110 mm (½ "-4")
Materials	PVDF SYGEF ECTFE SYGEF PP-H PROGEF PP-n PROGEF Natural PE100 ecoFit PVC-U metric PFA inch	PVDF SYGEF ECTFE SYGEF PP-H PROGEF PP-n PROGEF Natural PE100 ecoFit PFA inch
Languages	Chinese, Czech, Danish, Dutch, English, Finnish, French, German, Italian, Japanese, Korean, Malay (IR-63 M), Norwegian, Polish, Russian (IR-Plus), Spanish, Swedish, Taiwanese	
Adjustable facing option	Yes (0.5 - 3 mm)	No (always 2 mm)
Remote fusion	Yes	No
Power supply	230 V 50 / 60 Hz, max. 1,200 W	230 V 50 / 60 Hz, max. 1,500 W
Working temperature range	+5° C to +40° C	
Fusion data storage	More than 100,000 fusion data (Protocol and label data)	2,500 fusion data (Protocol and label data)
Maintenance **Calibration check**	2,500 fusions 18 months	2,500 fusions 18 months
Weight machine / incl. transport case	31.6 kg / 59 kg Standard 31.6 kg / 63 kg Complete	50 kg / 110 kg
Weight working table / incl. transport case	–	–
Dimensions transport case machine L x W x H	0.8 x 0.4 x 0.45 m	0.8 x 0.6 x 0.8 m
Dimensions transport case working table L x W x H	–	–
Conformance / standards	DVS 2007-6, DVS 2203-1	
Compliance with	2006/42/EC (MD) + 2004/108/EC (EMC)	
Applications	Designed for industrial applications and clean room conditions	
Order number	790180001 standard 790180003 complete with extension cable set and CONNECT box	790132001

+GF+



IR-225 Plus	IR-110 A	IR-315 A	IR-400 A
Manual	Automated	Automated	Automated
d63-d225 mm (2"-8")	d20-d110 mm (½ "-4")	d110-d315 mm (4"-12")	d355-d400 mm (14"-16")
PVDF SYGEF ECTFE SYGEF PP-H PROGEF PP-n PROGEF Natural PE100 ecoFit	PVDF SYGEF ECTFE SYGEF PP grey PROGEF PP-n PROGEF Natural PE100 ecoFit PVC-U metric	PVDF SYGEF PP grey PROGEF PE100 ecoFit	PVDF SYGEF
Same as IR-63 M and IR-110 Plus	Chinese, Czech, Danish, Dutch, English, Finnish, French, German, Italian, Japanese, Korean, Norwegian, Polish, Spanish, Swedish, Taiwanese		
No (always 2 mm)	Yes (0.5 - 5 mm)		
	No		
230 V or 3 x 230 VAC 50 / 60 Hz, max. 3,400 W	230 V 50 / 60 Hz, max. 2,000 W Integrated UPS	400 V 50 / 60 Hz, max. 5,000 W Integrated UPS	
	+5° C to +40° C		
2,500 fusion data (Protocol and label data)	More than 20,000 fusion data (protocol, label, and video file)		
2,500 fusions 18 months	4,000 fusions 18 months	1,500 fusions 18 months	1,000 fusions 18 months
130 kg / 460 kg	130 kg / 250 kg (incl. transport case and working table)	643 kg / 711 kg	860 kg / 951 kg
–	–	275 kg / 315 kg	257 kg / 297 kg
1.2 x 0.8 x 1.5 m	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
–	–	1.20 x 0.83 x 1.07 m	
DVS 2007-6, DVS 2203-1			
2006/42/EC (MD) + 2004/108/EC (EMC)			
Designed for industrial applications and clean room conditions			
790133009 working table included	790164001 working table included	790165001 working table included	790166001 rental-only working table included

The pioneer in IR fusion

GF Piping Systems is the pioneer in cutting-edge Infrared (IR) fusion technology, tailored to meet the demands of industrial applications and cleanroom environments. Our versatile range of IR fusion machines caters to a broad spectrum of dimensions and materials, ensuring precision and reliability, even in remote fusion scenarios with limited space.

Advantages of IR-fusion

- Short welding time: Shorter welding time compared to conventional methods, resulting in increased efficiency.
- Minimally defined bead: The process produces a minimally defined bead, ensuring a clean and seamless finish.
- High reproducibility and reliability: Reduces the likelihood of errors.
- Minimized thermo-stress: Uniform heat distribution to reduce the risk of weak points in the joint.
- Long-lasting joints: IR fusion creates durable joints that can withstand long-term use and environmental stressors, providing a reliable and long-lasting solution for plastic piping systems.

Application areas

IR fusion technology finds its place in a diverse array of application areas. It is the preferred choice for:

- Microelectronics: Where precision and reliability are crucial, IR fusion excels.
- Water treatment: The technology ensures a secure and clean connection, vital for water-related applications.
- Chemical process industry: IR fusion's resistance to thermo-stress and compatibility with various materials make it a go-to choice in this industry.
- Energy: Whether in power generation or distribution, IR fusion offers efficient and dependable solutions for the energy sector.

Our IR fusion technology is compatible with a range of materials, ensuring flexibility and adaptability. These materials include SYGEF PVDF, SYGEF ECTFE, PROGEF PP-H, PROGEF Natural PP-n, ecoFIT PE100, PVC-U metric, and PFA inch.

WBI Tool

The Weld-Bead Inspection (WBI) Tool from GF Piping Systems assesses the quality of infrared-weld beads more reliably than ever. It provides information about the geometry of the outer weld bead at the inspected points. Every element has been designed to be intuitive and efficient. No misinformation or falsification, the WBI Tool automatically documents facts of bead shapes for both traceability and accurate accountability. The WBI Tool is adaptive for PVDF SYGEF, ECTFE SYGEF, PP-H PROGEF, and PE100 ecoFIT weldings and has been designed for the dimension range from d20 to d225 mm.

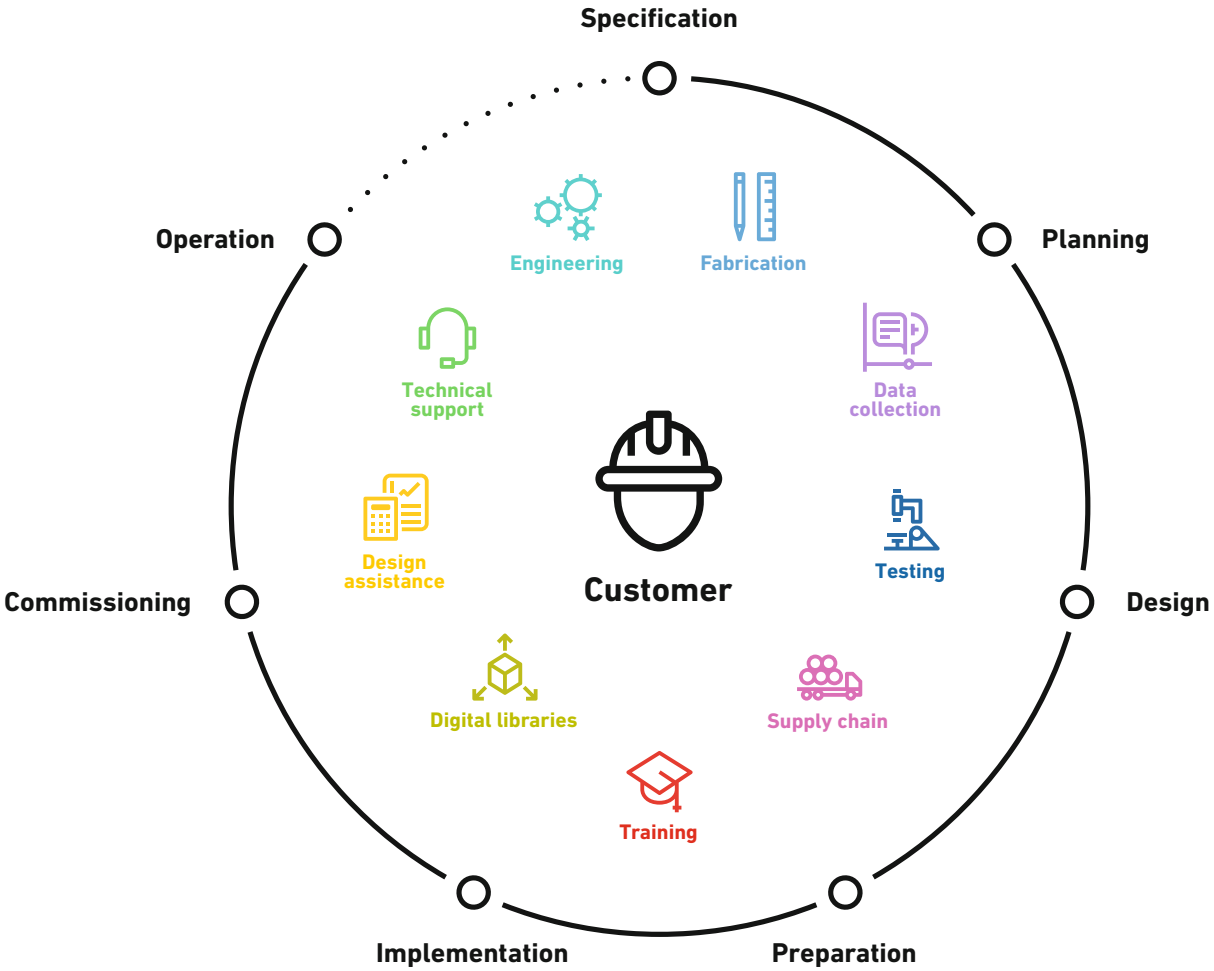
Training

GF Piping Systems instructional courses teach installers essential knowledge for the infrared welding of pipes and piping components, as well as provide them an in-depth understanding. With specialized education from GF Piping Systems, we help prevent damage before it occurs with well-trained and qualified installers. Trained individuals receive professional certificates from one of the >30 training centers of GF Piping Systems around the world.

Learn more:
gfps.com/training

One partner from planning to commissioning

With Specialized Solutions, the global leader GF Piping Systems provides project support every step of the way to achieve construction excellence, allowing owners and planners to concentrate on their daily business without interruption.



Engineering

Increase the efficiency of your project with the tailor-made analysis packages from GF Piping Systems and decide which offer is right for you according to your needs. You have the choice between Project Analysis and Advanced Engineering, thus always receiving the appropriate support in every phase of your project.

Digital libraries

GF Piping Systems is continuously developing digital libraries with all of our product design drawings. Our files are fully compatible with Autodesk Revit, AVEVA, Intergraph, Autodesk AutoCAD Plant 3D and Trimble SketchUp with 3Skeng to provide proper engineering design tools used by planners, architects, owners, and operators for BIM and Plant Design.

Custom product design and prefabrication

Having your individual needs and application in focus, our customizing teams forge the solution that fits you best, developing custom-made parts to complete systems or special solutions produced in small series, individual consulting, and off-site prefabrication. Through our global network of flexible locations, we offer a wide range of comprehensive solutions.

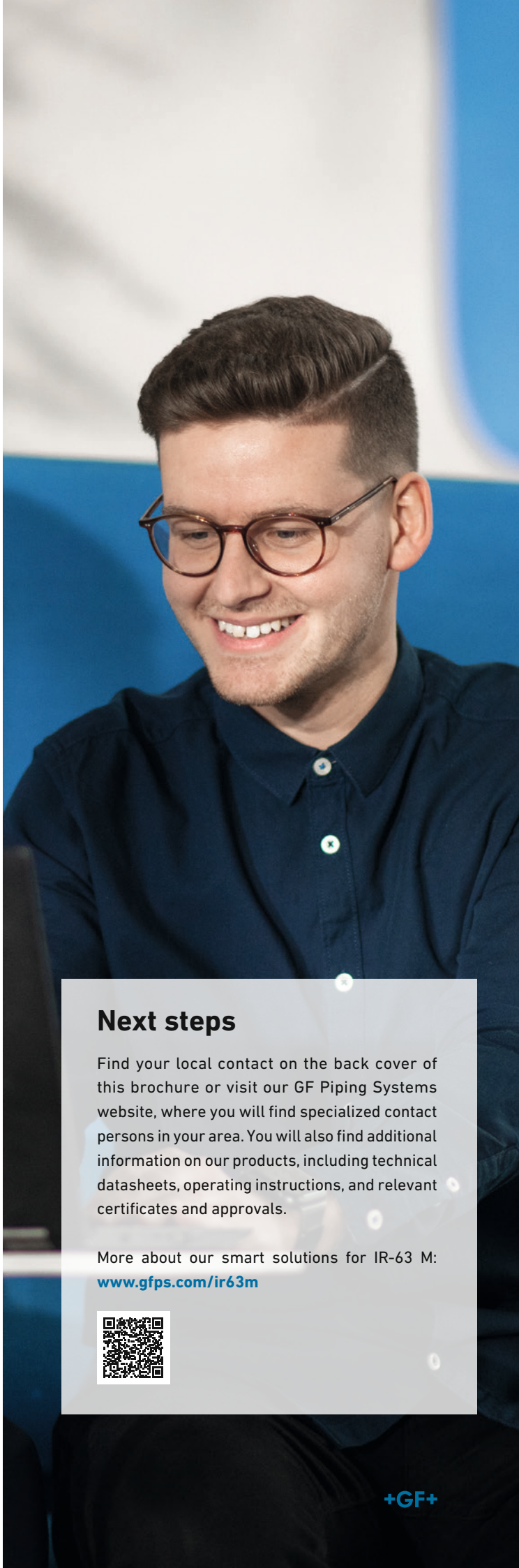
Training

GF Piping Systems instructional courses help you teach your customers and their installers essential knowledge for the welding of pipes and piping components, as well as an in-depth understanding of butt and electrofusion connections. Trainings are available virtually, in-house, or on-site.Trusted training, empowering you.

Ultrasonic nondestructive testing (NDT)

When installing a system, the most critical parts are going to be the weldings—often seen as the weakest point of a system and highly critical to a safe and reliable operation. With ultrasonic NDT, you can proceed with assurance thanks to scientific proof that the welds are secure.

www.gfps.com/specialized-solutions



Next steps

Find your local contact on the back cover of this brochure or visit our GF Piping Systems website, where you will find specialized contact persons in your area. You will also find additional information on our products, including technical datasheets, operating instructions, and relevant certificates and approvals.

More about our smart solutions for IR-63 M: **www.gfps.com/ir63m**

GF Piping Systems

Local support around the world

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

+GF+

GFDO_BR_00104a_EN (01.25)