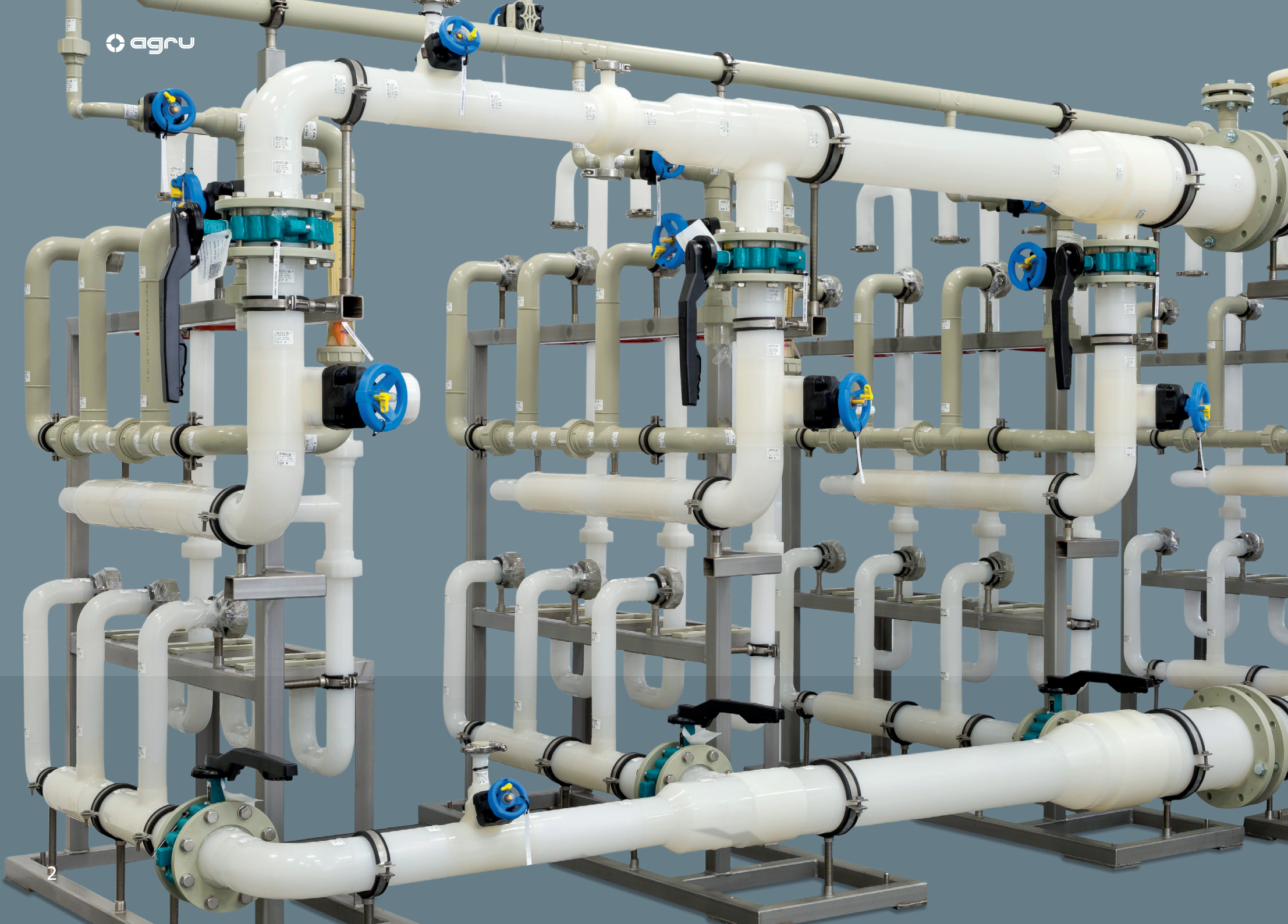


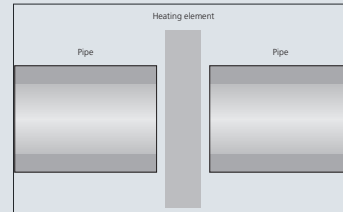
PREMIUM WELDING TECHNOLOGY

FOR PLASTIC PIPING SYSTEMS



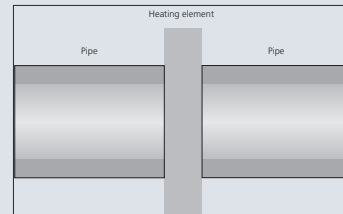
WELDING TECHNIQUES

Infrared welding (IR)



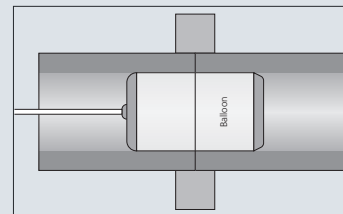
In infrared welding (non contact heating element butt welding), the pipe components are heated without contact and with a constant distance between the heating element and the pipe components. After the pipe components are heated up and the heating element has been removed, they are welded under constant joining pressure.

Butt welding



The welding faces of the parts to be joined are aligned under pressure onto the heating element (alignment). Then the parts are heated up to the welding temperature under reduced pressure (pre-heating) and joined under pressure after the heating element has been removed (joining).

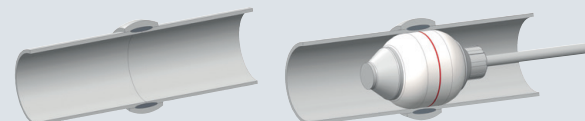
Beadless welding (B)



Beadless welding involves heating up the to be welded pipe components from the outside. A balloon is inflated inside the pipe for counter-pressure. The pipe components are welded under constant joining pressure, creating a beadless weld both inside and outside.

Electro fusion socket welding (EF)

In this process the to be welded surfaces (pipe surface and inside of EF-socket) overlap. They are heated up to welding temperature with electric power using resistance wires (heating wires) positioned in the fitting and thereby welding them. For PVDF, AGRU offers the option of inserting a balloon inside so that the gap between the pipes is welded.



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INFRARED WELDING

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BUTT WELDING

ST CNC 2.0	12
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BEADLESS WELDING / ELECTRO FUSION SOCKET WELDING (EF)

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BENEFITS

360° access

Ergonomic

Safe

Optimised for clean rooms

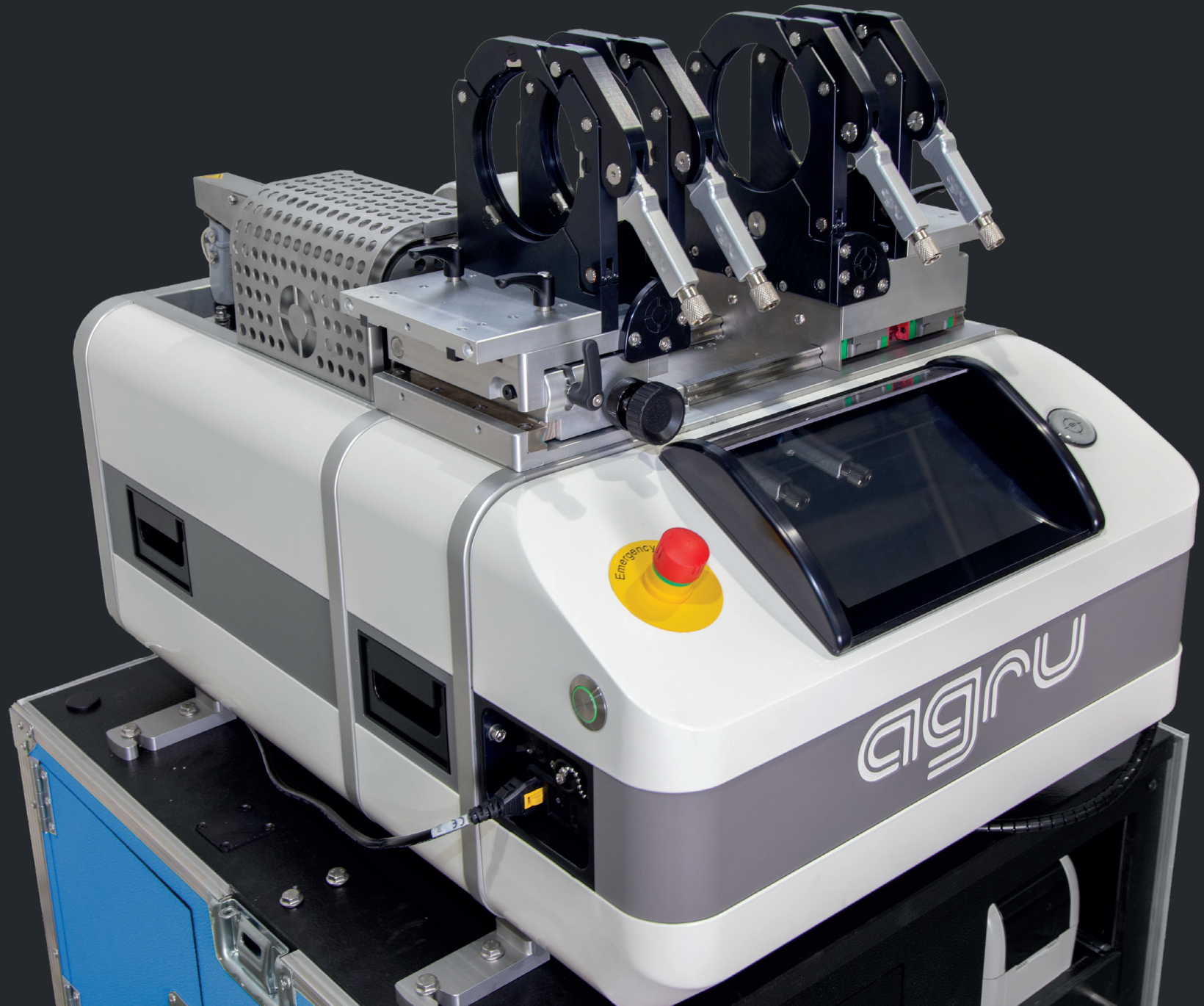
Suitable for all AGRU piping systems

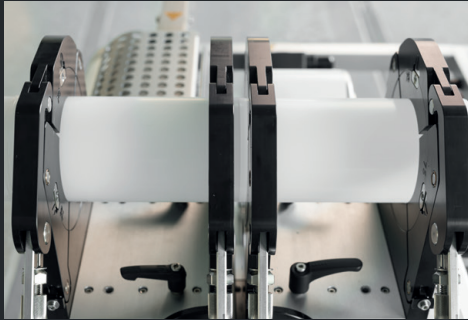
Computer-controlled welding processes

Simple dimension change without tools

Intelligent sensors for ideal results

Industry 4.0





Clamping system

- No displacement thanks to vertical and lateral adjustment
- Magnetic clamping inserts
- Clamping force can be custom-adjusted



Key

- RFID access for certified welding operators
- Also used for identification, registration and data collection



Transparency

- All welding parameters, such as temperature, joining pressure and time, are documented
- Printer with special labels that can only be removed from the pipes by destructive means



Operation

- Touchscreen or control panel
- 3D visualisation
- Direction through the welding process available in multiple languages
- Variable planing loss of up to 13 mm

Sensors

Integrated sensors monitor **stroke, force, temperature and time** to regulate, control, reproduce and document the welding process



Transport box

- Full range of accessories integrated in the welding machine
- Transportable, stackable and foldable boxes



APPLICATIONS

Universal

- Semiconductor industry
- Industrial applications
- Chemicals industry
- Hospitals and laboratories
- Food and beverage industries
- Dairy industry
- Pharmaceutical industry

PE 100
PE 100-RC

Poly-Flo
PE 100-RC

PPR
PPH
PP-Pure

Poly-Flo
PP

PE-el

Polypure
(PP natural)

PFA

PVDF
PVDF-UHP

ECTFE

PVDF
HV-Liner

WE LIKE IT

“ Safe and automatic
welding process
guaranteed.”

“ Perfect, very
easy to use.”

“ Congratulations on
the big progress in
IR welding.”

“ Fascinated by the reliable
welding quality.”





SP 110-S V3.1

The new generation
up to OD 110 mm (4")

**FOR ALL AGRU PIPING SYSTEMS FROM
OD 20 MM (1/2") UP TO OD 110 MM (4")**
PVDF-UHP, PVDF, PP-R, PP-H, PP-Pure, Polypure,
ECTFE, PFA, Poly-Flo (PE 100-RC, PP),
PVDF HV-Liner and PE 100-RC

AUTOMATIC WELDING

Top weld quality with 100% reproducibility

MAXIMUM PERFORMANCE

Extensive experience based on 25 years of
infrared welding technology

ALL-IN-ONE BOX

Machine and accessories in a foldable and
stackable box suitable for clean rooms

SP 250-S V3

The new generation
up to OD 250 mm (10")

**FOR AGRU PIPING SYSTEMS FROM
OD 90 MM (3") UP TO OD 250 MM (10")**
PVDF-UHP, PVDF, PP-R, PP-H, PP-Pure, Polypure,
ECTFE, Poly-Flo and PE 100-RC

AUTOMATIC WELDING

Top weld quality with 100% reproducibility

MAXIMUM PERFORMANCE

Extensive experience based on 25 years of
infrared welding technology

ALL-IN-ONE BOX

Machine and accessories in a foldable
and stackable box suitable for clean
rooms



INFRARED WELDING (IR)



SP 315-S V3

The new generation for components up to OD 315 mm (12")

FOR AGRU PIPING SYSTEMS FROM OD 90 MM (3") UP TO OD 315 MM (12")

PVDF-UHP, PVDF, PP-R, PP-H, PP-Pure, Polypure, ECTFE, Poly-Flo and PE 100-RC

AUTOMATIC WELDING

Top weld quality with 100% reproducibility

MAXIMUM PERFORMANCE

Extensive experience based on 25 years of infrared welding technology

ALL-IN-ONE BOX

Machine and accessories in a foldable and stackable box suitable for clean rooms

SP 63-MOBILE V3

The mobile machine

FOR AGRU PIPING SYSTEMS FROM OD 20 MM (1/2") UP TO OD 63 MM (2")

PVDF-UHP, PVDF, PP-R, PP-H, PP-Pure,
Polypure, ECTFE, PFA (on request)
and PE 100-RC

AUTOMATIC WELDING

Fully automated weld data recording and
weld label provide 100 % traceability
Preprogrammed weld parameters for all
weldable sizes

FIRST-RATE WELDING ON SITE

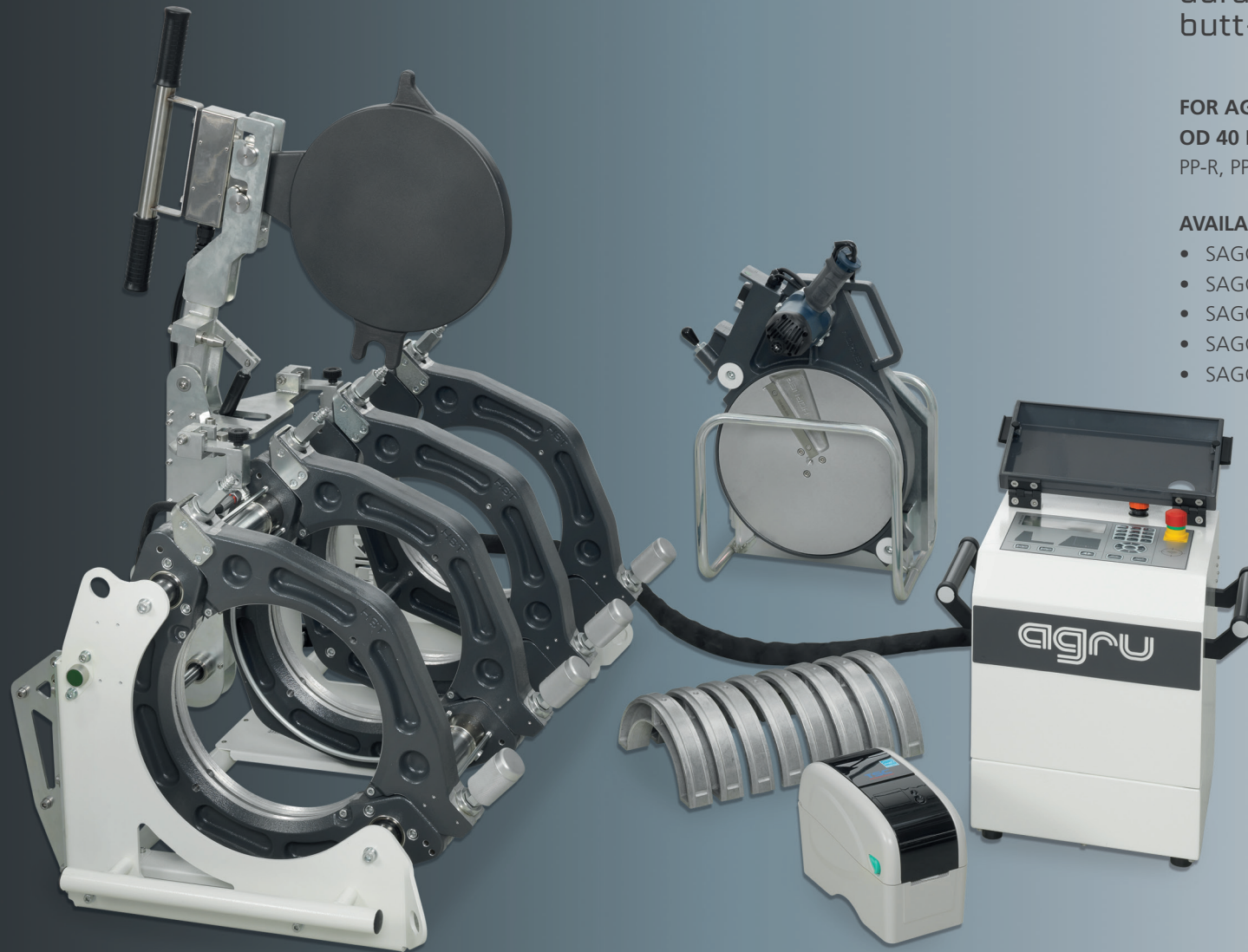
The SP 63 mobile is designed for welding in
difficult conditions, such as tie in welds

MAXIMUM PERFORMANCE

Suitable for pipe rack installation with
integrated remote weld unit (horizontal and
vertical weld positions)



INFRARED WELDING (IR)



ST CNC 2.0

The high-quality and durable CNC-controlled butt-welding machine

**FOR AGRU PIPING SYSTEMS FROM
OD 40 MM UP TO OD 630 MM**

PP-R, PP-H, PP-Pure, Polypure und PE 100-RC

AVAILABLE TYPES

- SAGCNC20160 | OD 40 - 160 mm
- SAGCNC20315 | OD 90 - 315 mm
- SAGCNC20355 | OD 90 - 355 mm
- SAGCNC20500 | OD 200 - 500 mm
- SAGCNC20630 | OD 315 - 630 mm

EF 110-B

The mobile instrument
for beadless electrofusion
socket welding

**FOR AGRU PIPING SYSTEMS FROM
OD 20 MM (1/2") UP TO OD 63 MM (2")
PVDF-UHP, PVDF**

FIRST-RATE BEADLESS WELDING ON SITE

The EF 110-B is a mobile tool designed
for welding in difficult conditions

SMOOTH INSIDE SURFACES

Beadless welds ensure smooth surfaces and
prevent residual fluid build-up

EF 110-B can also be used for PE and PP
up to OD 110 mm (4") by standard electro-
fusion welding method



BEADLESS WELDING



SP 110-B

The machine for beadless welding

**FOR AGRU PIPING SYSTEMS FROM
OD 20 MM (1/2") UP TO OD 110 MM (4")**
PVDF-UHP, PVDF, PP-R, PP-H, PP-Pure,
Polypure and PE 100-RC

SMOOTH PIPE SURFACES INSIDE AND OUTSIDE

Beadless welds ensure smooth surfaces and
prevent residual fluid build-up

HIGH-PURITY PIPING

Engineered for the precision requirements
of the semiconductor, food and life sciences
industries



THE MACHINES



Name	Welding method	Material	Dimensions	Product code
SP 110-S V3.1	Infrared welding	PE, PP, PVDF, ECTFE, Poly-Flo, HV Liner	OD 20 mm - OD 110 mm	SAGSP110S30
SP 110-S V3.1	Infrared welding	PE, PP, PVDF, ECTFE, Poly-Flo, HV Liner, PFA	OD 20 mm - OD 110 mm	SAGSP110S40
SP 250-S V3	Infrared welding	PP, PVDF, ECTFE	OD 110 mm - OD 250 mm	SAGSP250S30
SP 315-S V3	Infrared welding	PP, PVDF, ECTFE	OD 110 mm - OD 315 mm	SAGSP315S30
SP 63-mobile V3	Infrared welding	PP, PVDF, ECTFE	OD 20 mm - OD 63 mm	SAGSP063M00
ST CNC 2.0	Butt welding	PP-R, PP-H, PP-Pure, Polypure, PE 100-RC	OD 40 mm - OD 630 mm	SAGCNC20XXX
EF 110-B	Electro-socket welding	PE, PP, PVDF	OD 20 mm - OD 110 mm (PE, PP) OD 20 mm - OD 63 mm (PVDF)	SAGEF110B00
SP 110-B	Beadless welding	PE, PP, PVDF	OD 20 mm - OD 63 mm	SAGSP110B00
SP 110-B	Beadless welding	PE, PP, PVDF	OD 20 mm - OD 110 mm	-



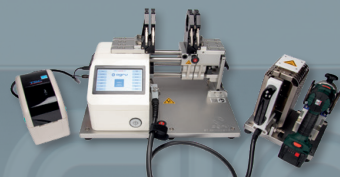
SP 110-S V3.1



SP 250-S V3



SP 315-S V3



SP 63-mobile V3



ST CNC 2.0



EF 110-B



SP 110-B



SMART WELD CHECK

Perfect welds

The AGRU SWC (Smart Weld Check) system is your professional solution for recording and evaluating IR welds through bead measurements.

The AGRU SWC system is delivered with a Bluetooth QR code scanner and a Bluetooth caliper. The internal memory can store up to 20,000 bead measurements. In addition, AGRU's SWC system offers a USB port to which a label printer can be connected to print out a label. This can be stuck close to the weld on the pipe.

AGRU WELD CONNECT

- Communicate with the machine via Bluetooth
- Download and send the welding log
- Service analytics

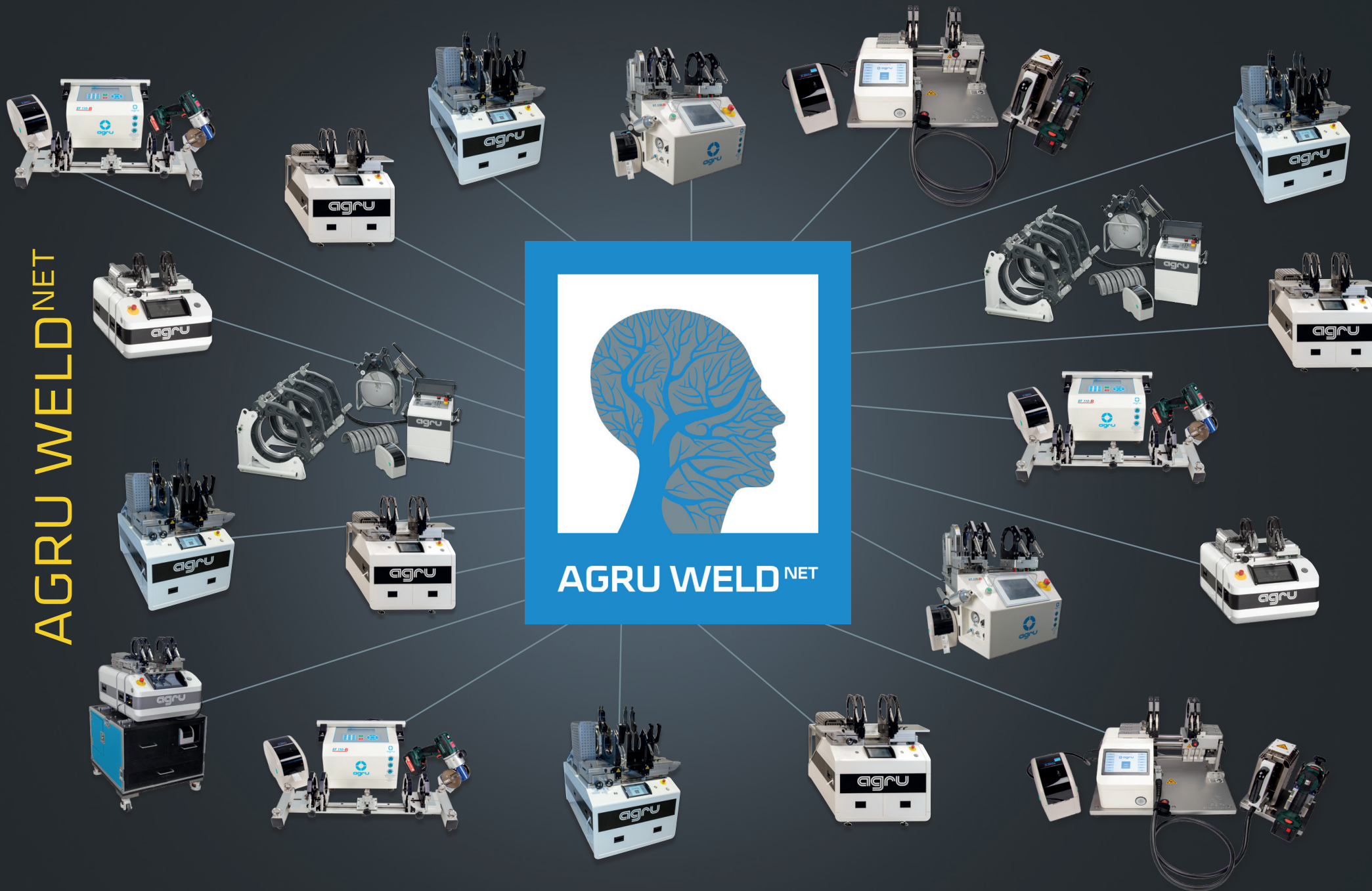


QUALITY ASSURANCE



Weld quality assurance

- RFID welder card to identify certified welding operators
- Documentation of welding parameters
- Can be transferred via Bluetooth or USB
- Label printing
- SWC for subsequent bead measurement
- AGRU WELD Connect (app for communication with the machine via Bluetooth, service analytics, welding logs, etc.)
- AGRU Weld Net (central data collection for all machines)



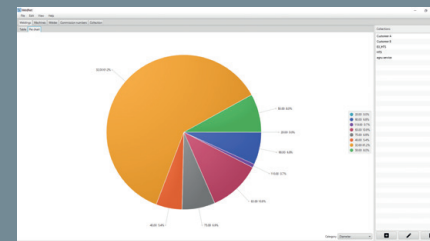
BIG DATA

AGRU WELD^{NET} is a software solution for

- preliminary and final costing for projects
- Data analysis
- Capacity planning
- Worldwide evaluation

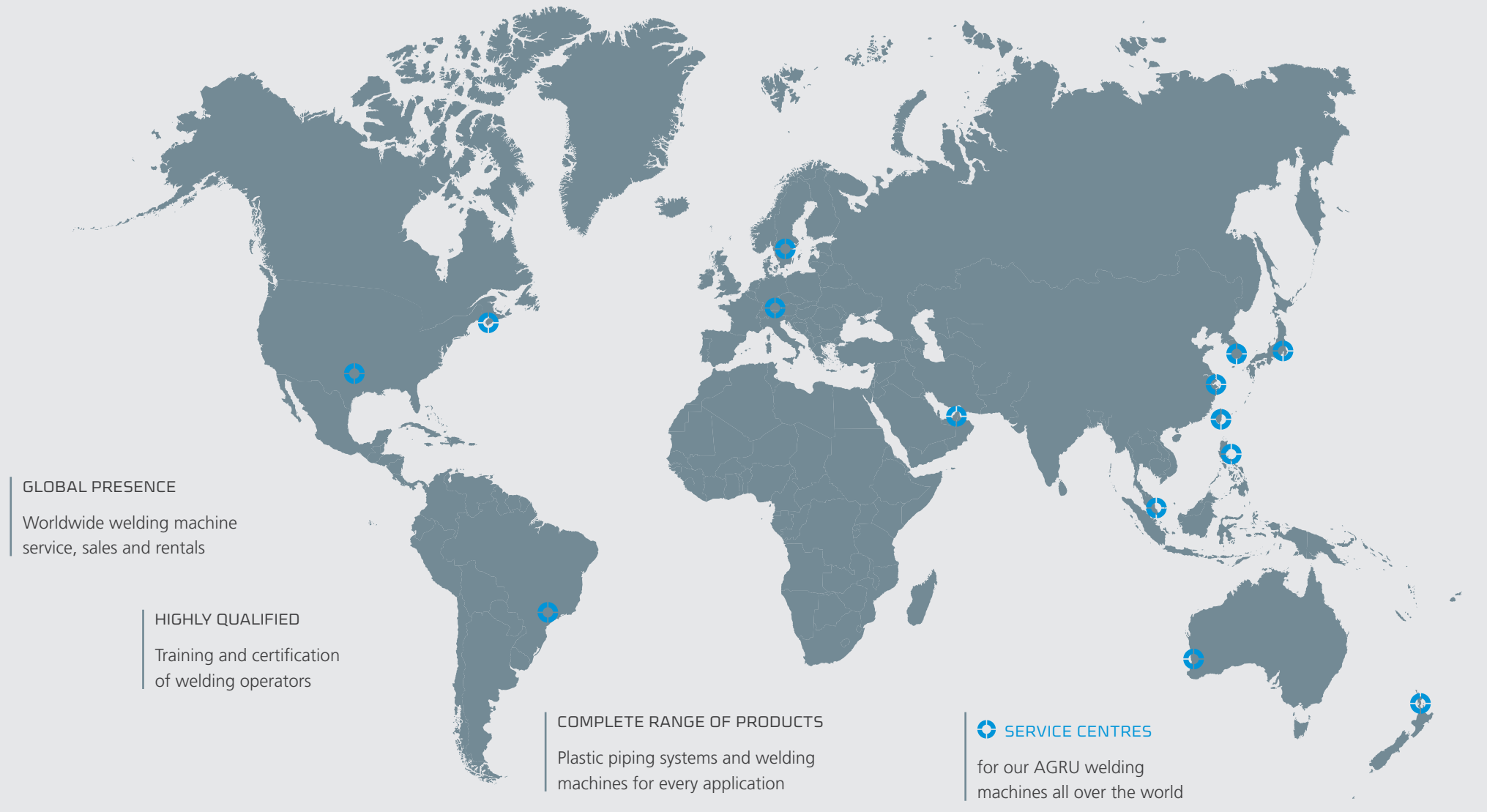
AGRU WELD^{NET} ensures that you always have a complete overview of your welding machinery. Whether for data transfers or welding documentation, the digital service platform facilitates a data exchange and communication between the machine and IT system. This produces ideal results, making it possible to plan processes flexibly and ensure their mutual compatibility. At different locations, worldwide.

AGRU WELD^{NET}



Project	Location	Start Date	End Date	Status	Cost	Revenue	Profit	Margin
Project A	Germany	2023-01-01	2023-03-31	Completed	100000	120000	20000	20%
Project B	France	2023-04-01	2023-06-30	In Progress	80000	95000	15000	18%
Project C	Italy	2023-07-01	2023-09-30	Planned	60000	70000	10000	16%
Project D	Spain	2023-10-01	2023-12-31	Planned	40000	48000	8000	20%
Project E	UK	2024-01-01	2024-03-31	Planned	30000	36000	6000	20%

AGRU - A GLOBAL BRAND



GLOBAL PRESENCE

Worldwide welding machine
service, sales and rentals

HIGHLY QUALIFIED

Training and certification
of welding operators

COMPLETE RANGE OF PRODUCTS

Plastic piping systems and welding
machines for every application

SERVICE CENTRES

for our AGRU welding
machines all over the world