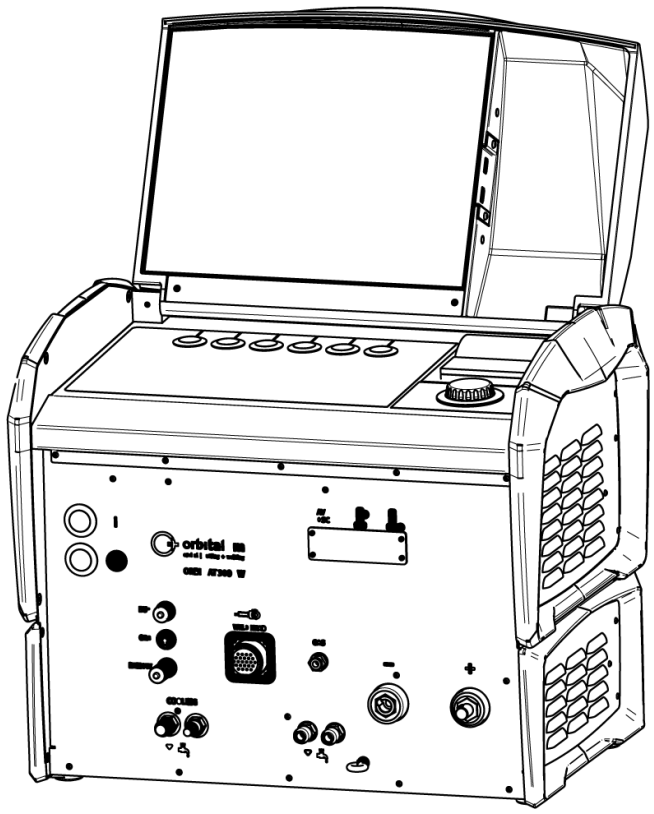
Power Welder

en- Orbital Welding Power Supply
US Translation of original operating instructions and spare parts list



852 060 201 REV 00 | 2601

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An ITW Company

Table of Contents

1 About these instructions 4

1.1 Warning messages 4
1.2 Further icons and displays 4
1.3 Legend 5
1.4 Further applicable documents 5

2 Information and safety instructions for the owner 6

2.1 Requirements for the owner-operator 6
2.2 Using the machine 8
2.2.1 Intended use 8
2.2.2 Machine constraints 8
2.2.3 Welding in environments with increased electrical hazards 9
2.2.4 Device cooling 9
2.3 Environmental protection and disposal 10
2.3.1 Information regarding the Ecodesign Directive 2009/125/EG 10
2.3.2 REACh 11
2.3.3 Coolant 11
2.3.4 Electric tools and accessories 12
2.4 Personnel qualification 12
2.5 Fundamental information on operational safety 13
2.6 Personal protective equipment 13
2.7 Remaining risks 13
2.7.1 Injury through high weight 13
2.7.2 Burns and danger of fire through high temperatures 15
2.7.3 Tripping over wires and cables 15
2.7.4 Long-lasting physical damage through wrong posture 16
2.7.5 Electric shock 16
2.7.6 Danger from incorrect handling of shielding gas bottles 16
2.7.7 Damage to eyes through radiation 16
2.7.8 Dangers through electromagnetic fields 17
2.7.9 Risk of suffocation from an excessive amount of argon in the air 17
2.7.10 Health problems 17
2.7.11 Danger of system tipping over 17
2.7.12 Danger of explosion and fire 17
2.7.13 General injuries through tools 18

3 Description 19

3.1 Warning signs 20

4 Possible applications 22

5 Technical specification 23

6 Setup and commissioning 25

6.1 Scope of delivery 25
6.2 Unpack the power source 25
6.3 Setting up the power supply 25
6.4 Connecting the weld head/manual welding torch 26
6.5 Set up welding gas supply 26
6.6 Power grid connection 27
6.7 Operation of the power source at different mains voltages 27
6.8 Connect the power cord 28
6.9 Connecting the remote control/dummy plug 28
6.10 Use of a cooling device (e.g., ORBICOOL Active compressor cooling device) 29
6.11 Turn on the power source 29
6.12 Set system and documentation language 29
6.13 Maßeinheiten einstellen 31

7 Operation 32

7.1 Main menu 34
7.1.1 Program Manager 38
7.1.1.1 Loading the welding procedure 40
7.1.1.2 Saving the welding procedure 41
7.1.1.3 Creating a folder 41
7.1.1.4 Managing welding procedures 42
7.1.1.5 Removing share 48
7.1.2 Protocol Manager 49
7.1.3 Auto programming 51
7.1.3.1 Using auto programming 51
7.1.4 Adjusting the program 54
7.1.4.1 Adjusting level segments 54
7.1.4.2 Adjusting parameters 56
7.1.5 Settings 70
7.1.5.1 System adjustments 70
7.1.5.2 Program settings 75
7.1.5.3 Documentation settings 79
7.1.5.4 System data 82
7.1.5.5 Network environment 84
7.1.5.6 Service 89
7.1.5.7 Setting the language and keyboard 96

7.2 Weld mode 97
7.2.1 "Gas/Coolant" soft key 100
7.2.1.1 "Gas On" softkey 100
7.2.1.2 Gas overview 101
7.2.1.3 "Permanent Gas" softkey 103
7.2.1.4 "Back" softkey 103
7.2.2 Motor control 103
7.2.2.1 "Motor" softkey 103
7.2.2.2 "Wire" softkey 104
7.2.2.3 "Global Change" softkey 104
7.2.2.4 "Menu" softkey 104
7.3 Test mode 105
7.4 Welding process 107

8 Service and maintenance 109

8.1 Cleaning 109
8.2 Maintenance schedule 109
8.3 Pump out coolant from the external cooling unit 109
8.4 Troubleshooting 111

9 Upgrade options 118

10 Accessories 119

11 Consumables 120

12 ERSATZTEILLISTE / SPARE PARTS LIST 122

12.1 Maschine | Machine 123
12.2 Gehäuse | Housing 125
12.3 Deckel | Cover 129
12.4 Frontplatte | Front Panel 133
12.5 Rückwand PW, groß | Back Panel, large 136
12.6 Rückwand PW, klein | Back panel PW, small 138
12.7 Seitenwand, rechts | Side panel, right 142
12.8 Kühlkanal, rechts | Cooling channel, right 144
12.9 Kühlkanal, links | Cooling channel, left 146
12.10 I/O Platine | I/O Circuit board 148
12.11 Netzfilterplatine | Net filter panel 150
12.12 Proportionalventil | Proportional valve 152
12.13 Verbindungskabel | Connection cables 154
12.14 Zubehör & Verbrauchsmaterial | Accessories & consumables 156

13 DECLARATION OF CONFORMITY 157

1 About these instructions

1.1 Warning messages

The warnings used in these instructions warn you of injuries or damage to property.

Always read and observe these warnings!



This is a warning icon. It warns against dangers of injury. In order to avoid injuries or death observe the measures marked with a safety sign.

	WARNING LEVEL	MEANING
⚠	**DANGER**	Imminently hazardous situation that results in death or serious injuries if the safety measures are not observed.
⚠	**WARNING**	Potentially hazardous situation that may result in death or serious injuries if the safety measures are not observed.
⚠	**CAUTION**	Potentially hazardous situation that may result in slight injuries if the safety measures are not observed.
❗	*NOTE!*	Potentially hazardous situation that may result in material damage if the safety measures are not observed.

1.2 Further icons and displays

SYMBOL	MEANING
ⓘ	Important information for comprehension.
1. 2. 3. …	Request for action in a sequence of actions: Action is required here.
►	Single request for action: Action is required here.

1.3 Legend

Term/SYMBOL	MEANING
PW	Power Welder
ORBIMAT 300 SW	
SW	Smart Welder
ORBIMAT 180 SW	
SW+	Smart Welder Plus
MW	Mobile Welder
orbital weld head	Open/closed orbital weld head
	Function requires UPGRADE Connectivity LAN/IoT/VNC*.
	Function requires UPGRADE ORBICOOL MW* (only applies to Mobile Welder).
	Function requires UPGRADE Software MW Plus* (only applies to Mobile Welder).

**See chapter.* Upgrade options

1.4 Further applicable documents

The following documents apply to this operating manual:

- Declaration of conformity
- Calibration certificate
- Operating instructions for weld head/manual torch
- When using the External Interface X13: Interface Control Document

2 Information and safety instructions for the owner

2.1 Requirements for the owner-operator

Workshop/outdoor/field use: The owner is responsible for safety in the danger zone around the machine, and should allow only qualified personnel to enter the zone or operate the machine in the danger zone.

Employee safety: The operator has to observe the safety regulations described in this chapter as well as has to work safety-consciously and with all prescribed safety equipment.

The employer undertakes to give the employees clear notice of the dangers arising that are specified in the EMF directives and to evaluate the workplace correspondingly.

Requirements for special EMF evaluations with regard to general activities, working materials and workplaces*:

TYPE OF WORKPLACE OR WORK EQUIPMENT	EVALUATION REQUIRED FOR:		
	Employees without special risks	Employees at particular risk (with the exception of those with active implants)	Employees with active implants
	(1)	(2)	(3)
Manual arc welding, including • MIG (Metal Inert Gas) • MAG (Metal Active Gas) • TIG (Tungsten Inert Gas) Under observance of established procedures and without physical contact with the conductor	No	No	Yes

* To Directive 2013/35/EU

EMF DATA SHEET
ARC WELDING POWER SOURCE

Product/Apparatus Identification

Product	Stock Number
Smart Welder Plus	850 000 010
Mobile Welder *	854 000 001
(* inclose, equal inverter, all variants)	

Compliance Information Summary

Applicable regulation: Directive 2014/35/EU

Reference limits: Directive 2013/35/EU, Recommendation 1999/519/EC

Applicable standards: IEC 62822-1:2016, IEC 62822-2:2016

Intended use: ☒ for occupational use ☐ for use by laymen

Non-thermal effects need to be considered for workplace assessment: ☒ YES ☐ NO

Thermal effects need to be considered for workplace assessment: ☐ YES ☒ NO

☐ Data is based on maximum power source capability (valid unless firmware/hardware is changed)

☒ Data is based on worst case setting/program (only valid until setting options/welding programs are changed)

☐ Data is based on multiple settings/programs (only valid until setting options/welding programs are changed)

Occupational exposure is below the Exposure Limit Values (ELVs) for health effects at the standardized configurations: ☒ YES ☐ NO (if NO, specific required minimum distances apply)

Occupational exposure is below the Exposure Limit Values (ELVs) for sensory effects at the standardized configurations: ☐ n.a ☒ YES ☐ NO (if applicable and NO, specific measures are needed)

Occupational exposure is below the Action Levels (ALs) at the standardized configurations: ☐ n.a ☒ YES ☐ NO (if applicable and NO, specific signage is needed)

EMF Data for Non-thermal Effects

Exposure Indices (EIs) and distances to welding circuit (for each operation mode, as applicable)

	Head		Trunk	Limb (hand)	Limb (thigh)
	Sensory Effects	Health Effects			
Standardized distance	10 cm	10 cm	10 cm	3 cm	3 cm
ELV EI @ standardized distance	0,08	0,07	0,11	0,06	0,14
Required minimum distance	1 cm	1 cm	1 cm	1 cm	1 cm

Distance where all occupational ELV Exposure Indices fall below 0.20 (20%): 3 cm

Distance where all general public ELV Exposure Indices fall below 1.00 (100%): 85 cm

Tested by: J. Jaeckle

Date tested: 2020-11-04
Date reworked: 2022-06-09

220609_EMF Data_OM180SW_MW

2.2 Using the machine

2.2.1 Intended use

WARNING		**Dangers result from improper use!** The device has been manufactured according to the state of the art and the recognized safety regulations and standards for use in industry and trade. It is intended only for the welding processes specified in these operating instructions. If the device is not used as intended, it may pose a risk to persons, animals and property. No liability is assumed for any resulting damage. ► Only use the unit for TIG DC welding with Liftarc (contact ignition) or HF ignition (non-contact). Accessory components can extend the range of functions if necessary (*see the chapter* Accessories).

The orbital welding power supply is intended solely for the following utilization:

- Utilization in combination with an orbital weld head or manual welding torch of the company Orbitalum Tools GmbH or with a compatible third-part device in combination with a weld head adapter of the company Orbitalum Tools GmbH.
- TIG welding of materials that are suitable for the TIG welding process.
- Empty unpressurized tubes that are free of contaminations, explosive atmospheres or liquids.

Proper use also includes the following points:

- Permanent supervision of the machine during operation. The operator must always be able to stop the process.
- Observing all safety and warning information in these operating instructions.
- Observing of the further applicable documents.
- Complying with all inspection and maintenance work.
- Use of the machine solely in its original state.
- Usage solely of original accessories as well as original spare parts and operating materials.
- Usage solely of protective gases that are classified for TIG welding process in accordance with EN ISO 14175.
- Usage solely of coolant OCL-30 of the company Orbitalum Tools GmbH
- Checking of all the safety-relevant items and functions before commissioning.
- Processing of those materials named in the operating instructions.
- Proper usage of all components involved in the welding processes as well as of all further factors that have an influence on the welding process.
- Solely commercial usage.

2.2.2 Machine constraints

- The workplace can be in the tube preparation, in plant construction or in the plant itself.
- The device is operated by one person.
- The device may only be set up and operated on a stable, level and non-slip surface.
- A space of about 2 m for people to move around the unit must be provided.
- Work lighting: min. 300 Lux.

- Ambient conditions during operation:
  Ambient temperature: –10 °C to +40 °C
  Relative humidity: < 90% at +20 °C, < 50 % at +40 °C
- Ambient conditions during storage and transport:
  Ambient temperature: –20 °C to +55 °C
  Relative humidity: < 90% at +20 °C, < 50 % at +40 °C
- The device may only be installed and operated in a dry environment according to IP 23 (not in fog, rain, thunderstorms, etc.). If appropriate, use a welding tent.
- Cooling is only ensured with a full coolant tank.
- Smoke, steam, oil vapors and grinding dust must be avoided.
- Avoid salty ambient air (sea air).

2.2.3 Welding in environments with increased electrical hazards

The power supply can be used in environments with increased electrical hazards.
It complies with the regulations and standards IEC/DIN EN 60974 and VDE0544.

2.2.4 Device cooling

Insufficient ventilation leads to reduced performance and equipment damage.

► Observe the limits of the machine.

► Keep inlet and outlet openings of the cooling air unobstructed.

► Keep a minimum distance of 0.5 m from obstacles.

2.3 Environmental protection and disposal

2.3.1 Information regarding the Ecodesign Directive 2009/125/EG

MODEL	MAINS INPUT	MINIMUM EFFICIENCY OF THE POWER SOURCE	MAXIMUM POWER CONSUMPTION WHEN IDLE
Mobile Welder (OC/Plus)	1 x 110 - 230 VAC	81	38
Smart Welder Plus	1-phase + PE	83	43
Power Welder	400 - 480 VAC 3-phase + PE	86	48.8 W



- Do not dispose of the product (if applicable) with general waste.
- Reuse or recycle waste electrical and electronic equipment (WEEE) by disposing of it at a designated collection point.
- For more information, contact your local recycling office or your local dealer. Critical raw materials that may be present in indicative quantities of more than 1 gram at the component level.

(according to Directive 2012/19/EU)

Critical raw materials that may be present in indicative quantities of more than 1 gram at the component level.

COMPONENT	CRITICAL RAW MATERIAL
Circuit boards	Baryte, bismuth, cobalt, gallium, germanium, hafnium, indium, heavy rare earths, light rare earths, Niobium, Platinum group metals, Scandium, Silicon metal, Tantalum, Vanadium
Plastic components	Antimony, barite
Electrical and electronic components	Antimony, beryllium, magnesium
Metal components	Beryllium, cobalt, magnesium, tungsten, vanadium
Cables and cable assemblies	Borate, antimony, barite, beryllium, magnesium
Displays	Gallium, indium, heavy rare earths, light rare earths, niobium, platinum group metals, scandium
Batteries	Fluorspar, heavy rare earths, light rare earths, magnesium

2.3.2 REACh

The regulation (EC) 1907/2006 of the European Parliaments and of the Council concerning the registration, evaluation, authorization and restriction of chemicals (REACh) regulates the production, placing on the market and use of chemical substances and the mixtures produced from these.

Our products are "products" in the sense of the REACh regulation. In accordance with Article 33 of the REACh regulation, suppliers of products must inform their customers if the supplied product contains a substance specified in the REACh SVHC candidate list exceeding 0.1 percent by mass of the object. On June 27, 2018 lead (CAS: 7439-92-1 / EINECS: 231-100-4) was included in the SVHC candidate list. This inclusion activates an obligation to inform along the chain of delivery.

We herewith inform you that individual partial components of our products contain lead in quantities exceeding 0.1 % by mass of the object as an alloy component in steel, aluminum and copper alloys as well as in solders and capacitors of electronic components. The lead content lies within the exceptions specified in the RoHS Directive.

Since lead as an alloy component is firmly bound and therefore no exposure is to be expected in the case of proper use, no additional specification of its safe use are required.

2.3.3 Coolant

Dispose of coolant in accordance with the local statutory regulations.



(as per RL 2012/19/EU)

2.3.4 Electric tools and accessories

Used-up power tools and accessories contain a large amount of valuable raw materials and plastics which can be recycled:

- Used electronic devices marked with the adjacent icon may not be disposed of with household waste in accordance with EU directives.
- By actively using the offered return and collection systems, you are doing your part to reuse and recycle used electronic devices.
- Used electronic devices contain parts that must be handled selectively according to the EU directive. Separate collection and selective treatment are the basis for environmentally responsible disposal and protection of human health.
- We will properly dispose of devices and machines from Orbitalum Tools GmbH purchased after August 13th, 2005 if they are sent to us postage-paid.
- In the case of used electronic devices which may represent a risk to human health or safety due to contamination during use, we have the option of refusing return.
- **Important for Germany:** Devices and machines of Orbitalum Tools GmbH must not be disposed of at municipal collection points, as they are only used in the commercial sector.



(as per RL 2012/19/EU)

2.4 Personnel qualification

⚠	**CAUTION!**	The weld head/manual welding torch may only be used by instructed personnel.

- Only assign personnel who comply with the occupational and age-specific regulations in effect at the work site.
- **None. No** physical or mental impairments.
- Persons whose reaction time is impaired by drugs, alcohol, or medication are not permitted to operate the machine.
- Minors may operate the machine only under the supervision of an authorized supervisor.
- A basic understanding of the WIG welding process is required.

2.5 Fundamental information on operational safety

⚠	**CAUTION!**	Risk of injury due to monotonous work and exhausting work in places that are difficult to access and performing overhead work! Discomfort, tiredness and malfunctions in the motor system, restricted ability to react and cramping.

- ► Increase break times.
- ► Perform "loosening-up" exercises.
- ► Assume an upright, fatigue-free and comfortable body position during operation.
- ► Ensure a varied range of activities.

2.6 Personal protective equipment

Always personal protective equipment (PPE) when welding. This protects the welder from exposure to radiation, burns and welding fumes, among other things.

The following personal protective equipment must be worn when welding with the power supply:

- ► Safety gloves 1/1/1/1 in accordance with EN 388 or 1/2/1/1 EN 407.
- ► Safety gloves DIN 12477, Type A for welding operation and DIN 388, Class 4 for mounting the electrode.
- ► Safety shoes to EN ISO 20345, Class SB.
- ► Eye protection to EN 170 and skin-covering safety clothing
- ► Leather apron
- ► Head covering for overhead work
- ► When connecting and using a weld head observe the respective safety instructions and warning messages of the weld head.
- ► Observe the remaining risks.

2.7 Remaining risks

2.7.1 Injury through high weight

The power sources weigh

15.6 kg (34.39 lbs) – Mobile Welder (Plus)

- 21.0 kg (46.30 lbs) – Mobile Welder (OC/OC Plus)

26 kg (57.32 lbs) – Smart Welder Plus

35.4 kg (78.04 lbs) – Power Welder

Lifting poses a major health risk.

There is a risk of impact and crushing in the following situations:

⚠	**CAUTION!**	The power source may fall during transport or setup.
⚠	**CAUTION!**	The power source may fall due to improper storage.

- ► When lifting the power source, do not exceed the permissible load limit of 25 kg for men and 15 kg for women.
- ► Use a suitable transport medium to transport the power source.
- ► Only two people should lift and remove the power source from its packaging.

- ► Place the power source on a stable surface.
- ► Wear safety shoes.
- ► Do not transport the device by crane. Use handles, straps, or brackets exclusively for manual transport.
- ► Before each transport, check that the fastening screws between the power source and the cooling unit (optional) are secure and tighten them if necessary.

2.7.2 Burns and danger of fire through high temperatures

⚠	**CAUTION!**	The orbital welding head or hand torch is hot after welding. Very high temperatures are generated, especially after several welding operations in succession. When working on the orbital welding head or hand torch (e.g., re-clamping or mounting/dismounting the electrode), there is a risk of burns or damage to the contact points. Thermally unstable materials (e.g., foam inlay of the transport packaging) can be damaged upon contact with the hot orbital welding head or hand torch.

- ► Wear protective gloves.
- ► Before working on the orbital welding head and hand torch or before packing them into the transport packaging, wait until the surfaces have cooled to below 50 °C.

⚠	**WARNING!**	There is a risk of fire if the forming system is positioned incorrectly or if unsuitable materials are used in the welding area. Observe general fire safety measures on site.

- ► Position the forming system correctly.
- ► Only use approved materials in the welding area.

⚠	**WARNING!**	Risk of scalding due to hot, escaping liquids and hot plug connections during heavy operation.

- ► Observe the safety measures of the supervisor/safety officer.

⚠	**WARNING!**	Risk of burns from hot hand torch heads and flying sparks and splashes.

- ► Wear personal protective equipment.

⚠	**Warning!**	Risk of burns from hot hand torch head and flying sparks and splashes.

- ► Wear personal protective equipment.

2.7.3 Tripping over wires and cables

⚠	**CAUTION!**	If the power cable, gas line or control cable are under tension, there is the danger that persons may trip over them and be injured.

- ► Ensure that under **no** circumstances can people trip over lines and/or cables.
- ► Do **not** put lines or cables under tension.
- ► Place the weld head in the transport case after dismantling.
- ► Ensure that the hose package is connected properly and that the strain relief is attached.

2.7.4 Long-lasting physical damage through wrong posture

⚠	**CAUTION!**	Long-lasting physical damage due to incorrect posture. Risk of discomfort, tiredness and malfunctions in the motor system, restricted ability to react and cramping.

- ► Increase break times.
- ► Perform "loosening-up" exercises.
- ► Assume an upright, fatigue-free and comfortable body position during operation.
- ► Ensure a varied range of activities.

2.7.5 Electric shock

⚠	**WARNING!**	Electrical hazards through contact.

- ► Do not touch energized parts (workpiece), especially when igniting the arc.
- ► From the start of the welding process avoid contact with the tube and the housing of the orbital weld head.
- ► Wear dry safety shoes, dry metal-free (grommet-free) leather gloves and dry safety clothing to minimize the electrical hazard.
- ► Work on a dry surface.

⚠	**DANGER!**	Risk of death for people with heart problems or cardiac pacemakers.

- ► Do not allow persons with increased sensitivity to electrical hazards (e.g. cardiac pacemakers) to work with the machine.

⚠	**DANGER!**	Danger of an electric shock in the case of improperly reaching into and opening of the machine.

- ► Service and repairs may only be carried out by a qualified electrician.

⚠	**DANGER!**	The danger of an electric shock exists through non-compatible or damaged connectors.

- ► Do not use adapter plugs together with protectively grounded power tools.
- ► Ensure that the connecting plugs of the machine fit into the outlet.
- ► When connecting use a residual-current circuit breaker 30 mA.

2.7.6 Danger from incorrect handling of shielding gas bottles

⚠	**WARNING!**	Various injuries and damage to property.

- ► Heed safety regulations for shielding gas bottles.
- ► Heed safety data sheets for shielding gas bottles.

2.7.7 Damage to eyes through radiation

⚠	**WARNING!**	During the welding process infrared, glaring and ultraviolet rays arise that can seriously damage the eyes.

- ► During operation, wear eye protection to EN 170 and skin-covering safety clothing.
- ► At closed weld heads ensure proper working order of the eye protection.
- ► Shield the welding area to protect other people.

2.7.8 Dangers through electromagnetic fields

⚠	**DANGER!**	During the welding process, electromagnetic fields are generated that can be fatal to people with heart problems or pacemakers.

- ► People with heart problems or pacemakers may not operate the welding system.
- ► The owner has to ensure safe design of the workplace in accordance with the EMF Directive 2013/35/EU.
- ► Use only electrical devices with protective insulation in the working area of the welding system.
- ► Observe electromagnetically-sensitive devices when igniting the system.

2.7.9 Risk of suffocation from an excessive amount of argon in the air

⚠	**DANGER!**	When leaks in the gas supply occur, there is a danger of suffocation due to the high argon content in the ambient air. Irreversible damage or deadly hazard due to suffocation may be the result.

- ► Replace defective parts immediately and check daily for proper functioning.
- ► Check machine daily for externally visible damage and defects and have them remedied by a professional if necessary.
- ► Keep the lines and hoses away from heat, oil, sharp edges or moving device parts.
- ► Use only in well ventilated areas.
- ► Monitor oxygen, if necessary.

2.7.10 Health problems

⚠	**WARNING!**	Poisonous vapors and substances during the welding process and handling of the electrodes!

- ► Use extraction devices in accordance with the professional association regulations (e.g. BGI: 7006-1).
- ► Extra caution is required with chrome, nickel and manganese.
- ► Do not use electrodes containing thorium.

2.7.11 Danger of system tipping over

⚠	**WARNING!**	Various injuries and damage to property from tipping over of the system through the application of force from the outside.

- ► Set up the machine so that it stands securely against external influences.
- ► Keep moving masses at least 2 meter away from the machine.

2.7.12 Danger of explosion and fire

⚠	**DANGER!**	Danger of explosion and fire through flammable materials near the welding zone or solvent in the room air.

- ► Do not weld near solvents (for example where degreasing, painting is being carried out) or explosive substances.
- ► Do not use flammable substances as a base in the welding area.
- ► Ensure that no flammable materials or soiling is located near the machine.

2.7.13 General injuries through tools

⚠	**CAUTION!**	Injuries can occur during dismantling for the proper disposal of the orbital welding power supply through uncertainties in handling tools.

► In case of uncertainties send the orbital welding power supply to Orbitalum Tools – proper disposal is carried out here.

3 Description



Illustration: Front

POS.	DESIGNATION	FUNCTION
1	Color touch display	Operate welding power source, see section 3.2, page 16
2	Foldable cover	Protects the controls
3	USB connection sockets, front	Connection option for USB devices (2x) (optional)
4	Integrated system printer	For printing actual values and welding data logs
5	Carrying handles	Transporting the welding power source
6	Rotary controller	Operating the welding power source, see section 3.2, page 16
7	Gas connection socket	Connection for gas hose to weld head
8	Ventilation slots	Vent welding power source
9	Welding current plug	Weld head connection
10	Welding current socket	Weld head connection
11	Eyelet, strain relief	Strain relief weld head to power source
12	Coolant connection, red	Connection for coolant return
13	Coolant connection, blue	Connection for coolant supply line
14	Connection socket "Weld head"	Connection for weld head signal line
15	Coolant connection for cooling unit	Connection for coolant return line
16	Coolant connection for cooling unit	Connection for coolant supply line
17	"Remote" connection socket	Connection option for external remote control (optional) or dummy plug
18	"ORBmax" connection socket	Connection option for "ORBmax" residual oxygen meter (optional)
19	"BUP" connection socket	Connection option for "BUP Control Box" forming gas pressure regulator (optional)
20	Off button (red)	Switch off welding power source; lights up red during operation and in "standby" mode.

POS.	DESIGNATION	FUNCTION
21	Main switch (green)	Switch on welding power source; lights up green during operation.
22	Space for keyboard	The optionally available keyboard can be placed in front of the soft keys.
23	Push buttons (softkeys)	Operating the welding power source, see Section 3.2, page 16.

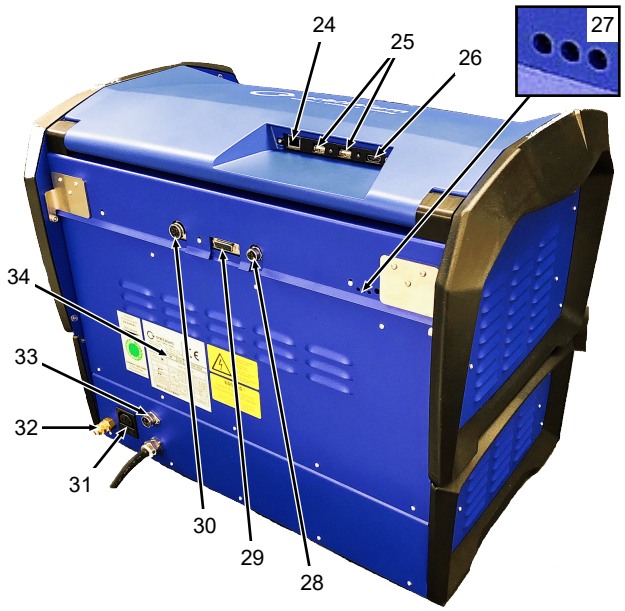


Illustration: Rear

POS.	DESIGNATION	FUNCTION
24	"LAN" connection socket, rear	Connection option for LAN cable
25	USB port, rear	Connection option for USB devices (2x) – see item 4
26	HDMI connection socket, rear	Connection option for HDMI cables
27	LED display	Displays operating status and coolant flow
28	Connection socket	Connection option for CAN-compatible components
29	Connection socket	Connection option for higher-level control system
30	Connection socket "External cooling"	Connection for external cooling device signal line (24 V DC)
31	"ORBITWIN" connection socket	Connection for ORBITWIN switchover device
32	Gas connection	Welding gas inlet
33	Connection socket "External cooling"	Connection for external cooling unit signal line (24 V AC)
34	Type plate	Display of machine data

3.1 Warning signs

The warning and safety instructions attached to the machine must be observed.

The warning signs are part of the machine. They must not be removed or altered. Missing or illegible warning signs must be replaced immediately.

IMAGE	POSITION ON MACHINE	MEANING	CODE
	Cover, inside	Read the safety instructions in the operating manual.	871 001 057

IMAGE	POSITION ON MACHINE	MEANING	CODE
	Rear panel	Disconnect the power plug before opening the device.	850 060 025
	Side, left	Caution: Only use Orbitalum cooling liquid.	884 001 001

4 Possible applications

The Power Welder is characterized by the following applications and functions:

For welding using the tungsten inert gas (TIG) process

- Can be used for all materials suitable for the TIG welding process
- Simple and convenient operation via multifunctional rotary control or touchscreen
- DC direct current source
- "Flow Force" function to reduce gas pre- and post-flow time
- "Permanent gas" function
- Digital control of welding gas volume
- Monitoring of coolant and welding gas
- Control option for cold-wire feed
- Connection option for external remote control
- Constant or pulsating rotation and wire feed movement
- Optimal visibility and operating conditions thanks to clear 12.4" swivel monitor
- Graphics-supported user interface and multilingual menu navigation via color display
- Metric and imperial units of measurement
- Process-focused, stable, and real-time capable operating system without shutdown sequence
- Automatic welding head detection and resulting parameter limitation
- Motor current monitoring of the drive motors
- Memory capacity for over 5,000 welding programs, enabling systematic and clear program management by creating folder structures
- Welding data logging and printing of actual values
- Integrated system printer
- Connection option for an external monitor and printer (via HDMI/USB/LAN)
- Integrated carrying handles
- Programming option for up to 99 sectors
- Current and motor slope adjustment between individual sectors
- Can be used in conjunction with separately available liquid cooling system

5 Technical specification

PARAMETER	UNIT	POWER WELDER	COMMENTS
Code		852 000 001	
Type of welding system	Welding rectifier (inverter)		
Input (Mains)			
Power system	3-phase + PE		
Mains input voltage	[V (AV)] 3 x 400–480		
Permissible voltage tolerance	[%] ±10		
Mains frequency	[Hz] 50/60		–
Continuous input current	[A (AC)] 13		
Input continuous power	[kVA] 9.0		
Current consumption, max.	[A (AC)] 20		
Rated power, max.	[kVA] 13.85		at 20 A
Power factor	[cos] 0.9		
Output (welding circuit)			
Welding current range	[A (DC)] 5 - 300		in increments of 0.1 A
Welding current repeatability	[%] ±1		
Rated current at 100% duty cycle	[A (DC)] 220		
Rated current at 40% duty cycle	[A (DC)] 300		
Weld voltage, min.	[V (DC)] 10.4		
Weld voltage, max.	[V (DC)] 22		
Open-circuit voltage, max.	[V (DC)] 86		
Ignition power, max.	[joules] 0.9		
Ignition voltage, max.	[kV] 10		
Output (control)			
Motor voltage (rotation), max.	[V (DC)] 24		PWM signal
Motor voltage (wire feeding), max.	[V (DC)] 24		PWM signal
Motor current, rotation	[A (DC)] 1.5		
Motor current for wire feeding, max.	[A (DC)] 1.5		
Rotation speed signal	[V (DC)] 0 - 10		Rotation actual value
Other			
Protection class	IP 23 S		
Cooling type	AF		
Insulation class	F		
Dimensions (WxDxH)	[mm] 600 x 400 x 480 [inches] 23.6 x 15.7 x 18.9		
Weight	[kg] 35.4 [lbs] 78.04		
Gas inlet pressure	[bar] 3 - 10		via pressure reducer
Recommended gas inlet pressure	[bar] 4		via pressure reducer
Coolant volume	[l] -		

PARAMETER	UNIT	POWER WELDER	COMMENTS
Coolant pressure, max.	[bar] 4		
Sound level, max.	[dB (A)] 70		

6 Setup and commissioning

6.1 Scope of delivery

SCOPE OF DELIVERY	POWER WELDER
Orbital welding power source	1 pc
Hose connection set SW/PW EU	1 PC
External Keyboard	1 ST
Dummy Plug for Remote Control Socket	1 PC
General safety instructions for welding power sources	1 ST
Operating instructions with spare parts list	PDF
Calibration Certificate	1 ST

Subject to change without notice.

- ► Check delivery for completeness and transport damage.
- ► Report any missing parts or transport damage to your supplier immediately.

6.2 Unpack the power source

1. Remove the cardboard lid insert from the box.
2. Remove the cardboard corner protectors (4 pcs) from the box.
3. Lift the power source out of the cardboard box using the handles integrated into the side frames and place it upright on a stable, non-slip surface.
4. Check the power source and accessories for transport damage.

NOTICE!



► Report any damage to your supplier immediately.

6.3 Setting up the power supply

CAUTION



Risk of tipping

When moving and setting up the device, it may tip over and be damaged or injure people. Tipping resistance is guaranteed up to an angle of 10° (to IEC 60974-1).

- ► Set up or transport the device on a level, solid surface.
- ► Use suitable means to secure the attachment parts.

- ► Plug in and lock accessory components in the designated connection sockets only when the power supply is switched off.
  The accessory components are automatically detected by the power supply after power-up.
- ► Detailed information on accessory components can be found in their operating instructions.
- ► Place power supply upright on a stable, level, non-slip and non-combustible surface.
- ► Operate the power supply only in an upright position!
  Operation in non-approved positions may cause damage.
- ► Position the power supply for connection so that its front and rear sides are easily accessible. A space of about 2 m for people to move around the unit must be provided.
- ► Set up only in a dry environment.

► Ambient conditions during operation:

Ambient temperature: -10 °C to +40 °C

Relative humidity < 90 % to +20 °C, < 50 % to +40 °C.

► Work lighting: min. 300 Lux.

6.4 Connecting the weld head/manual welding torch

CAUTION



Danger of burns from improper welding current connection!

Unsecured welding current plugs or dirty workpiece connections (dust, corrosion) can heat up and cause burns if touched.

► Check welding current connections daily and ensure cable socket latch is engaged.

► Clean the workpiece connection point thoroughly and fasten it securely!

► Do not use structural parts of the workpiece as welding current return line!

WARNING



Risk of burns, blindness and fire due to arcs

An arc may develop by releasing the welding contacts during operation. This can result in burns and blindness, in the worst case a fire can be started.

► Connect and disconnect the weld head only when the power supply is shut down.

► Lay the lines and cables so that they are **not** under tension.

► Ensure that under **no** circumstances can people trip over lines and/or cables.

► Attach the strain relief.

► Check that hose package connections fit firmly in place when connecting or before activating the power supply.

► Do not work near highly flammable substances.

► Operate only on non-combustible surfaces.

CAUTION



Coolant leakage during weld head change

Irritation of skin, eyes and respiratory tract possible on contact with coolant.

► When changing the weld head, switch off the coolant pump and power supply.

► For procedure, see operating instructions of weld head/manual welding torch.

6.5 Set up welding gas supply

WARNING



Risk of injury due to incorrect handling of protective gas cylinders

Incorrect handling and inadequate securing of protective gas cylinders can lead to serious injury.

► Follow the instructions of the gas manufacturer and the compressed gas supplier!

► Do not attach anything to the valve of the protective gas cylinder!

► Avoid heating the protective gas cylinder!

- The welding gas flow of the torch is regulated and monitored by the digital gas flow control of the power source.
- The desired welding gas flow rate at the torch is set in the power source software.

NOTICE!

In order to utilize the full range of functions of the digital gas control, we recommend setting the input flow rate coming from the pressure reducer higher than the welding gas volume actually required at the torch on the pressure reducer.

Recommended inlet flow rates: Welding gas 30 l/min (64 SCFH).

- The welding gas displaces oxygen outside the pipe in the welding area to prevent oxidation of the material and is introduced via the welding torch.
- The forming gas displaces oxygen inside the pipe and is usually introduced into the pipe interior via forming gas plugs.

NOTICE!

Do not exceed a max. inlet pressure of 10 bar (145 psi), as this may cause damage.

1. Check that the gas cylinder is secure.
2. Secure the gas cylinder against falling over.
3. Connect the gas hoses included in the scope of delivery to the pressure reducer.
4. Ensure that the union nut on the pressure reducer fits the thread on the gas cylinder valve.
5. Attach the pressure regulator to the gas cylinder.
6. Connect the gas distributor (if using a double pressure regulator, the gas distributor is not required).
7. Set the desired volume flow on the pressure regulator.
8. Insert the bare end of the gas hose (1) into the gas inlet socket on the rear of the power source until it stops.

⇨ The gas hose is secured against slipping out by the retaining ring on the gas inlet socket.



6.6 Power grid connection

For detailed information on the mains input voltage, *see chapter* Technical specifications

- ► Ensure that the mains supply provided at the place of use complies with local regulations.
- ► Ensure that a suitable power cord is used for the mains connection.
- ► Ensure that the mains socket is properly designed and earthed.
- ► Check the power cord and power plug for damage before use.
- ► To increase safety, a residual current device (RCD) in accordance with IEC standard with a rated residual current of max. 0.03 A or a protective isolation transformer is required on the mains side.

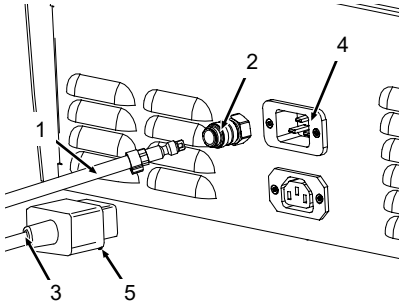
6.7 Operation of the power source at different mains voltages

Bei einer Eingangsspannung von < 200 V AC wird aufgrund der höheren Eingangsströme der Schweißstrom auf max. 120 A begrenzt.

Schweißprogramme mit Stromwerten > 120 A können nicht gestartet werden.

6.8 Connect the power cord

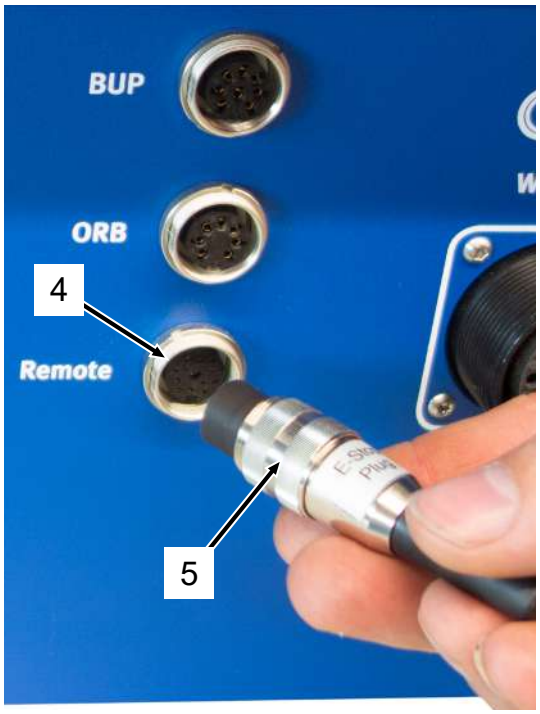
1. Plug the cable socket of the power cord (3) included in the scope of delivery into the power input socket (4) on the rear of the power source.
2. Ensure that the yellow cable socket lock (5) is engaged.
3. Connect the power plug to the power supply.



6.9 Connecting the remote control/dummy plug

NOTICE! The power source cannot be switched on without a dummy plug or unlocked remote control.





1. Connect the supplied dummy plug (3) or the optionally available remote control (4) (code 875 050 001) to the remote control socket (1) using the adapter cable (5) (included in the scope of delivery for the remote control).
2. If a remote control is connected, the STOP button (2) must also be unlocked.

6.10 Use of a cooling device (e.g., ORBICOOL Active compressor cooling device)

1. Fill with coolant according to the operating instructions for the cooling device.
2. Connect the coolant hoses to the front connections (1) and (2) of the power source to ensure coolant flow and temperature monitoring by the power source.



6.11 Turn on the power source

WARNING

Incompatible or damaged plugs pose a risk of electric shock.

This can result in death or serious injury.

- ► Do not use adapter plugs with grounded power tools.
- ► Ensure that the machine's plug fits into the socket.
- ► Use a standard 30 mA residual current device when connecting.

1. Connect the machine to the power supply.
2. The off button (red) (1) lights up as soon as the machine is connected to the power supply.
3. Switch on the green main switch (2).
   - ⇨ The operating system loads and the main menu (4) appears on the display (3).



6.12 Set system and documentation language

NOTICE!

The factory setting for the system language is "German."

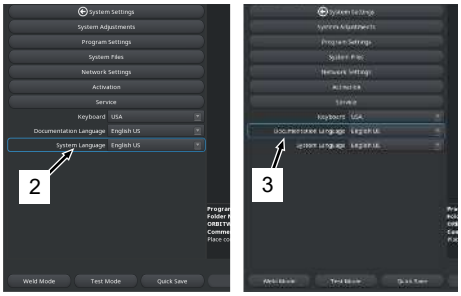
- ► If a language that the user does not understand has been set, the drop-down list with the languages can be accessed from the main menu by selecting the last menu item (Settings > Language).

To change the system documentation language from the main menu:

► Select the "Settings" menu button (1).



1. Select the drop-down list field "System language" (2) or "Documentation language" (3).
2. Select the desired language.



6.13 Maßeinheiten einstellen

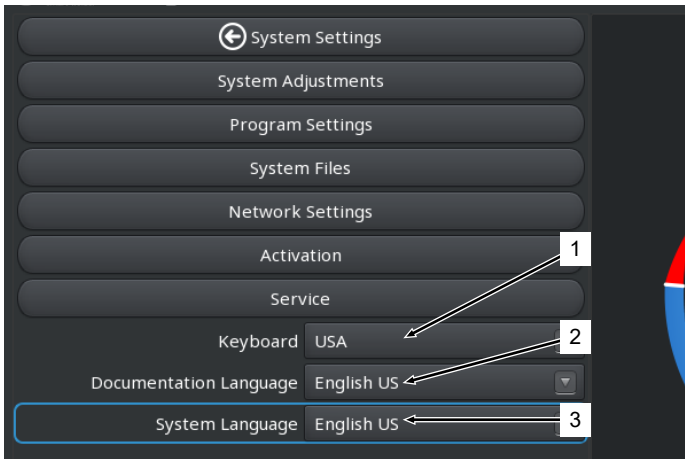
The power source supports metric and imperial units of measurement.

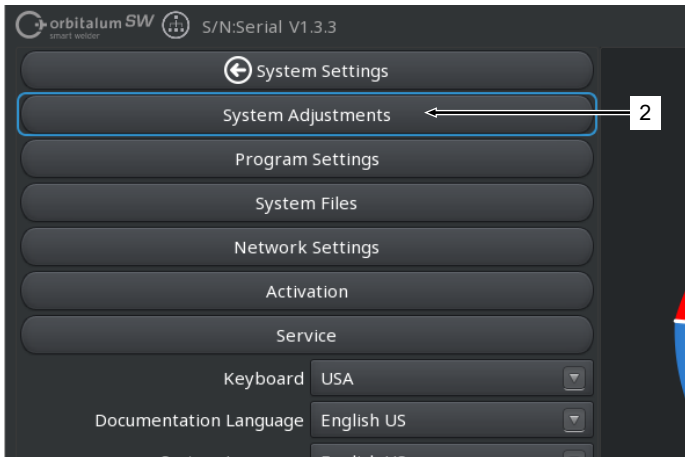
NOTICE! **The factory setting for the unit system is metric (English units of measurement - OFF).**

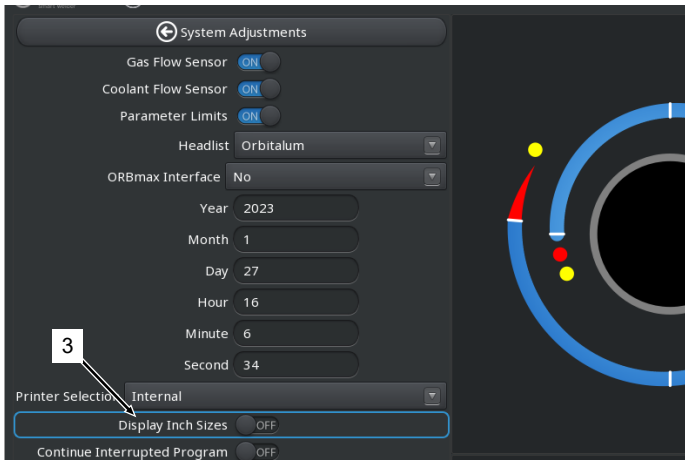
To change the unit of measurement from the main menu:

1. Select the "Settings" menu item (1).
2. Select the "System settings" menu item (2).
3. Select the "English units" slider button (3) and make the desired setting:
4. "ON"
   ⇨ Imperial units of measurement display activated.
5. "OFF"

1. Display of metric units deactivated.







See chapter System adjustments [▶ 70]

7 Operation

WARNING



Risk of electric shock from faulty or damaged insulation.

Normally protected parts of the power supply (e.g. housing) may be live. If touched, death or severe injuries can result.

► Connect only to an electricity supply with a protective conductor PE.

CAUTION



General danger

► In case of danger, unplug the mains plug!

► Accessibility to the mains plug must always be assured in order to permit disconnecting the power supply from the mains.

WARNING



Electric shock due to short circuit

► Set up only in a dry environment!

WARNING



Risk of burns, blindness and fire due to arcs

An arc may develop by releasing the welding contacts during operation. This can result in burns and blindness, in the worst case a fire can be started.

► Connect and disconnect the weld head only when the power supply is shut down.

► Lay the lines and cables so that they are **not** under tension.

► Ensure that under **no** circumstances can people trip over lines and/or cables.

► Attach the strain relief.

► Check that hose package connections fit firmly in place when connecting or before activating the power supply.

► Do not work near highly flammable substances.

► Operate only on non-combustible surfaces.

WARNING



Danger of fire

► Follow general fire prevention measures!

► Do **not** work near flammable substances.

► Do **not** use flammable substances as a base in the welding area.

► Do **not** weld near solvents (for example where degreasing, painting is being carried out) or explosive substances.

► Do **not** use flammable gases.

► Ensure that **no** flammable materials or soiling is located near the machine.

WARNING



Dangers from electromagnetic fields

Active implants of persons in the vicinity can be disturbed

► Persons with pacemakers, defibrillators or neurostimulators may only work with the power supply after a workplace evaluation by the system operator. *See EMF Directive at* Requirements for the owner-operator [▶ 6]

WARNING



Danger of suffocation!

If the level of shielding gas in the ambient air rises, lasting damage or risk of death can arise as the result of suffocation.

- ► Use only in well ventilated areas.
- ► Monitor oxygen, if necessary.

WARNING



Damage to health from toxic emissions in the ambient air

- ► No welding of coated workpieces and - of pressurized / media-containing pipes / objects.
- ► Clean workpieces before welding.
- ► Weld only materials suitable for the TIG welding process (TIG DC).

WARNING



Health hazard from inhalation of radioactive particles

- ► Do not use electrodes containing thorium.
- ► Do not weld radioactive workpieces.

CAUTION



The rotor may start unexpectedly while setting up the electrode.

Risk of crushing hands and fingers!

- ► Before mounting the electrode: Turn off the power source.
- ► To move the rotor to the home position: Close the clamping cassette or clamping unit and the flip cover.

7.1 Main menu

All functions of the power source can be accessed via the main menu. It also provides information about the currently loaded welding program and the status of system-relevant functions.

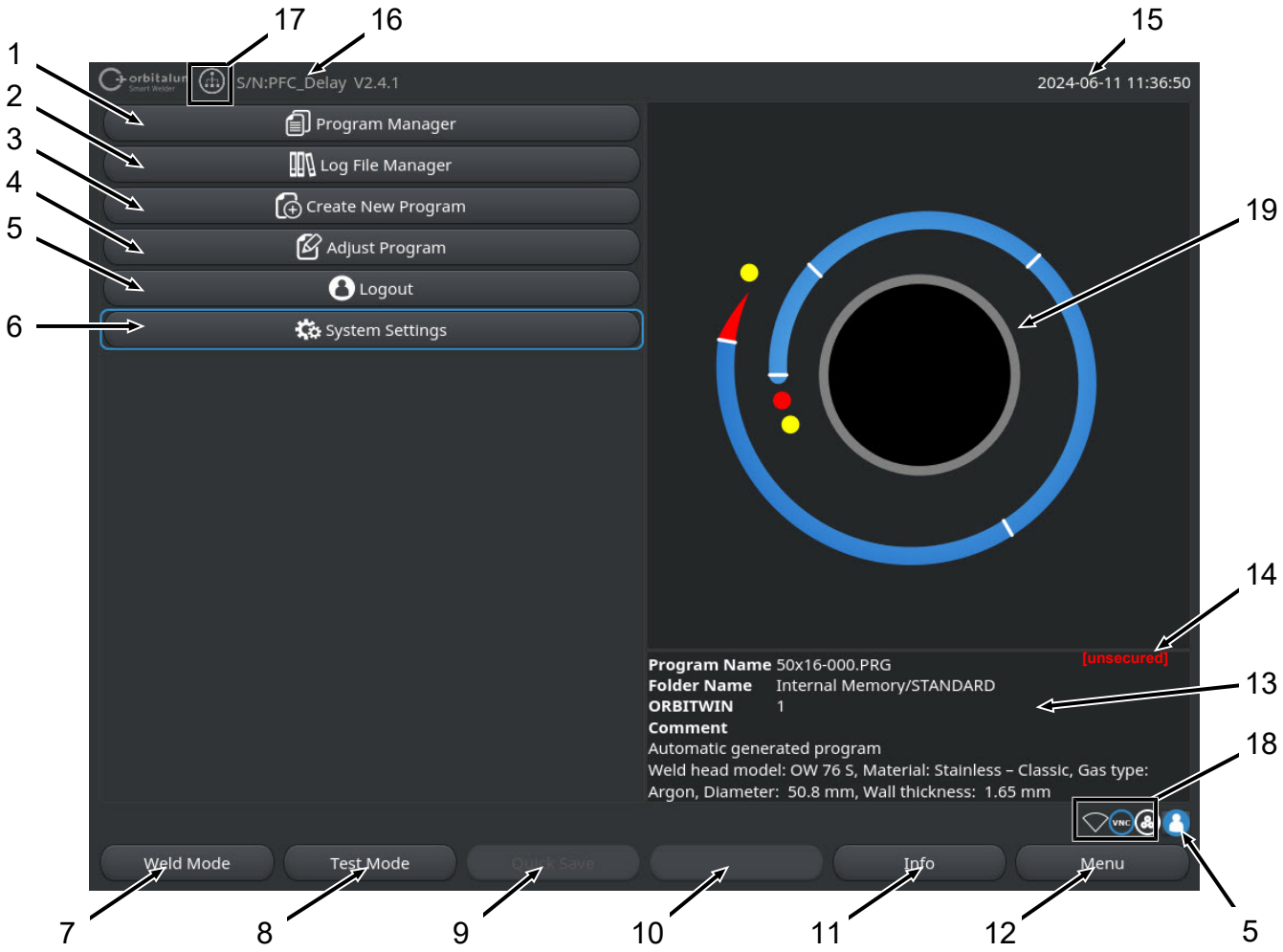


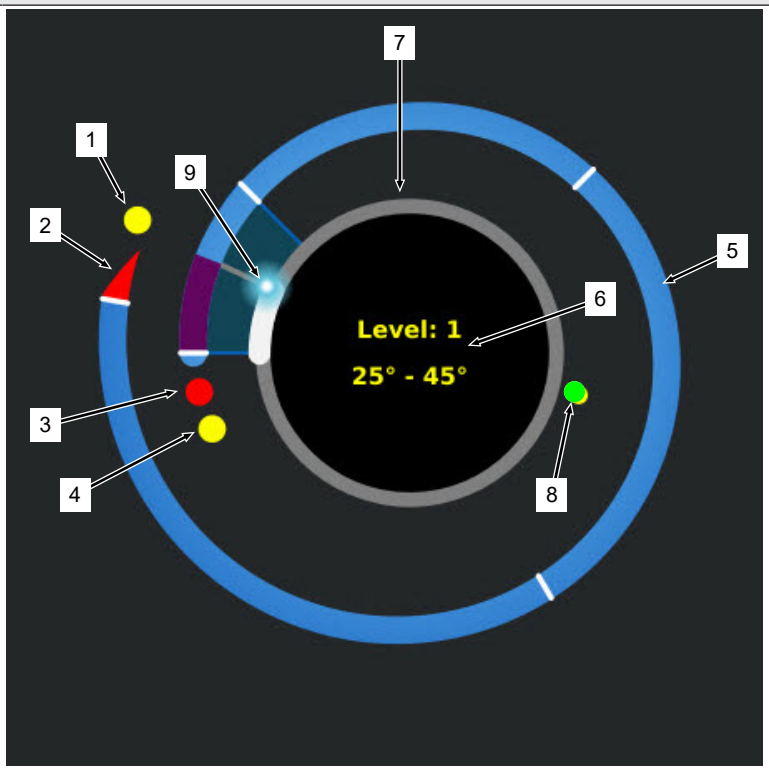
Illustration: Main menu

Overview and function descriptions Main menu

ITEM	DESIGNATION	FUNCTION
1	Menu button "Program Manager"	Opens the "Program Manager" menu, where welding programs can be loaded and managed. *For detailed information, see chapter* Program Manager [▶ 38]
2	Menu button "Log Manager"	Opens the "Log Manager" menu, where welding logs can be displayed, printed, and managed. *For detailed information, see chapter* Protocol Manager [▶ 49]
3	Menu button "Auto Programming"	Opens the "Auto Programming" menu, where welding programs can be created with system support. *For detailed information, see chapter* Auto programming [▶ 51]
4	Menu button "Manual Programming"	Opens the "Manual Programming" menu, in which welding parameters and sectors of the currently loaded welding program can be adjusted. *For detailed information, see chapter* Adjusting the program [▶ 54]
5	"Logout" menu button	Leads to the logout screen, where you can switch between user levels and change passwords. *For detailed information, see chapter* Login screen

ITEM	DESIGNATION	FUNCTION
6	"Settings" menu button	Opens the "Settings" menu, where you can configure system, service, and program-related settings and view system-related information. You can also perform system updates and activate optional software. *For detailed information, see chapter* Settings [▶ 70]
7	"Welding" softkey	Opens the "Welding" menu, where you can control the welding torch, adjust welding parameters, and start the welding process. *For detailed information, see chapter* Weld mode [▶ 97]
8	"Test" softkey	Opens the "Test" menu, where you can manually control the welding torch, adjust welding parameters, and start a simulation run without arc ignition in order to test all process-relevant functions before starting welding. *For detailed information, see chapter* Test mode [▶ 105]
9	"Save" softkey	Saves newly created or modified welding programs. If no welding parameters of the currently active welding program have been changed, the "Save" menu button is inactive and grayed out. Welding programs newly created using "Auto Programming" are stored in the "Internal Memory" in the "STANDARD" folder. Alternatively, welding programs can also be saved selectively. *For detailed information, see chapter* Saving the welding procedure [▶ 41]
10	Softkey "Print last log"	The "Print last prot." softkey can be used to print out the welding data log of the last weld, regardless of the log settings in the welding program. This function must be activated in the "System settings." *For detailed information, see chapter* System adjustments [▶ 70]
11	"Info" softkey	 The "Info" softkey button can be used to display any system messages that have occurred. New system messages are indicated by a blue circle on the left edge of the softkey button. The number indicates the number of system messages that have occurred. Pressing the softkey button opens a window with a detailed, chronological list of system messages. Press and hold the "Info" softkey button to reset the warning messages. If there are no messages, the softkey button is grayed out and cannot be pressed.
12	"Menu" softkey	Leads directly to the main menu.

ITEM	DESIGNATION	FUNCTION
13	Welding program information	The "Welding program information" field displays information about the currently loaded welding program. **Program name** Displays the file name of the loaded welding program. **Folder name** Displays the folder name of the storage location of the loaded welding program.
14	Storage status of welding program "[unsaved]"	The memory status "[unsaved]" indicates that changes have been made to the currently loaded welding program and these have not yet been saved. For a newly created welding program, it indicates that the welding program itself has not yet been saved.
15	Date and time	The information field displays the system date and time set in the power source. The date and time can be set in the system settings. *For detailed information, see chapter* System adjustments [▶ 70]
16	Power source type and serial number	The information field displays the manufacturer, power source type, and serial number.
17	System status icons	The system status icons indicate the current status of system-related functions.
	SYMBOL/BUTTON	**STATUS**
		Logged in at user level Button function: Log out / Activate the login screen
		Status: Logged in at the administration level Button function: Log out / Activate the login screen
		No communication Power source <-> Inverter
		No communication HMI <-> IO board
		A storage medium is connected
		Active access to the storage medium
		Multiple storage media connected
		Active access to a storage medium
		Network drive(s) connected
		Active access to network drive(s)
		Internal printer selected
		"Print logs" function active
		Wired printer selected
		"Print logs" function active
		Network printer selected
		"Print logs" function active

ITEM	DESIGNATION	FUNCTION
18	Process graphic welding program	 The process graphic in the main menu shows the structure of the currently loaded welding program and its progress in a clockwise direction. It adapts dynamically depending on the number and length of sectors, as well as the welding parameters of the currently active welding program. During the welding process, it is used to determine the position of the electrode and to display the current welding progress. In the main menu, the process graphic is also a touch action field that can be used to call up the welding parameter levels of the various sectors in order to change their program parameters. To do this, touch the respective area on the monitor.

ITEM	DESIGNATION	FUNCTION
	1	**Touch action field "Gas post-flow time" (1)** Touching the touch action field takes you directly to the "Gas post-flow time" welding parameter level of the currently loaded welding program.
	2	**Touch action field "Weld end"** Touching the touch action field takes you directly to the "Weld seam end" welding parameter level of the currently loaded welding program.
	3	**Touch action field "Pool formation"** Touching the touch action field takes you directly to the "Weld pool formation" welding parameter level of the currently loaded welding program.
	4	**"Gas pre-flow" touch action field** Touching the touch action field takes you directly to the "Gas pre-flow" welding parameter level of the currently loaded welding program.
	5	**Touch action field "Sector X"** Touching the touch action field takes you directly to the welding parameter level of the respective sector of the currently loaded welding program.
	6	**"Basic settings" touch action field** Touching the "Basic settings" touch action field takes you directly to the "Basic settings" welding parameter level of the currently loaded welding program.
	7	**Pipe graphic** The pipe graphic represents the workpiece and is not an active element. It is for orientation purposes only.

7.1.1 Program Manager

The program manager can be used to load and save welding programs and organize them across storage locations and folders.
It is possible to copy, rename, or delete welding programs and folders across drives.
The Program Manager also provides an overview of the welding programs located in the storage locations and a preview of the main welding parameters of the selected welding program file.
All storage locations, folders, and programs are displayed and structured in a file tree that can be expanded and collapsed.

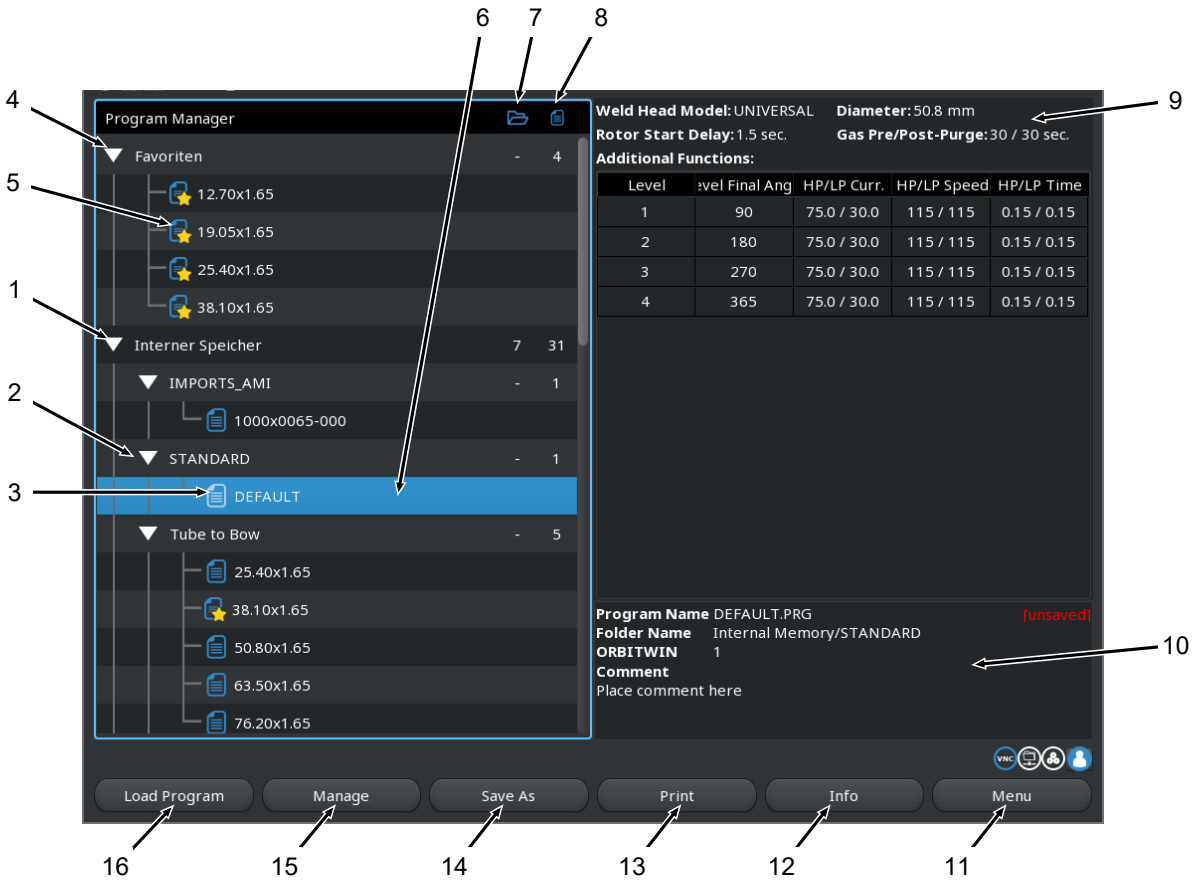


Illustration: Softkey assignment "Program Manager" when welding program is selected

POS.	DESIGNATION	FUNCTION
1	Drive level	All active and connected drives are displayed at this level. Drives can be: • Internal storage • External storage media connected via USB • LAN network storage locations
2	Folder level	All welding program folders created in the parent storage location are displayed at this level.
3	Welding program level	All welding programs located in the folder are displayed at this level. Welding programs are indicated by the blue file icon.
4	Favorites folder	This folder contains links to the welding programs marked as favorites for quick access.
5	Favorites icon	The star icon indicates that a folder has been added to the favorites.
6	Menu cursor	Drives, folders, or welding programs marked with the menu cursor are highlighted in blue in the program manager.
7	Number of folders	Indicates the number of folders at the respective storage location level.
8	Number of programs	Indicates the number of programs at the respective storage location level.
9	Welding parameter preview	The Welding parameter preview information field shows a preview of the main welding parameters of the currently selected welding program.
10	Welding program information preview	The Welding Program Information Preview information field shows the welding program information for the currently selected welding program.
11	"Menu" softkey	The "Menu" softkey takes you directly back to the main menu.

POS.	DESIGNATION	FUNCTION
12	"Info" soft key	The "Info" softkey displays any system messages that have occurred. *For detailed information, see chapter* Main menu [▶ 34]
13	"Print" softkey	The "Print" softkey prints the welding program currently selected with the menu cursor using the printer specified in the system settings. *For detailed information, see chapter* System adjustments [▶ 70]
14	"Save as" softkey	The "Save as" softkey can be used to save the currently active welding program to the desired storage location. **NOTICE! The "Save as" softkey function is only displayed if a welding program is selected at the welding program level.** *For detailed information, see chapter*
	"New Folder" softkey	The "New Folder" softkey can be used to create a new folder on the selected drive. **NOTICE! The "New Folder" softkey function is only displayed if a drive is selected at the drive level.** *For detailed information, see chapter* Creating a folder [▶ 41]
15	"Manage" softkey	The "Manage" softkey opens a softkey submenu that can be used to rename, delete, copy across drives, and mark welding programs and folders as favorites. *For detailed information, see chapter* Managing welding procedures [▶ 42]
16	"Load Program" softkey	The "Load Program" softkey loads the welding program currently selected with the menu cursor. *For detailed information, see chapter* Loading the welding procedure [▶ 40]

7.1.1.1 Loading the welding procedure

To load a welding procedure, follow the steps below.

From the main menu

1. Select the "Program Manager" menu item.
2. At the drive level, select the desired drive.
3. At the folder level, select the desired folder.
4. Mark the desired welding procedure with the menu cursor.
5. Load the welding procedure via:
   - **Softkey**
     By pressing the touch or hardware softkey "Load Program”.
   - **Softkey**
     By pressing the touch or hardware softkey "Load Program”.
   - **Rotary actuator**
     By pressing the rotary actuator.
   - **Rotary actuator**
     By pressing the rotary actuator.
   - **USB keyboard**
     By pressing the "ENTER’ key.
   - **USB keyboard**
     By pressing the "ENTER’ key.

After successful entry, the power supply switches back to the main menu.
The newly loaded welding procedure is displayed in the "Welding procedure information" information field.

7.1.1.2 Saving the welding procedure

NOTICE!



Welding procedures can only be saved in folders at the folder level.
It is not possible to save individual welding procedures at the drive level.

To save a welding procedure, follow the steps below.

From the main menu

1. Select the "Program Manager" menu item.
2. At the drive level, select the desired drive.
3. At the folder level, select the desired destination folder.
4. Mark the desired welding procedure with the menu cursor.
5. Save the welding procedure via:

- **Softkey**
  By pressing the touch or hardware softkey "Save As”.
- **USB keyboard**
  By pressing the F3 key.

Alternatively, welding procedures can be saved via the "Save" softkey.
For detailed information, see the chapter

7.1.1.3 Creating a folder

Folders and subfolders can be created on the drives for structured storage of the welding procedures.

NOTICE!



The "New Folder" softkey function can only be used at the drive level.

To create a folder, follow the steps below.

From the main menu

1. Select the "Program Manager" menu item.
2. At the drive level, mark the desired drive with the menu cursor.
3. Press the "New Folder" softkey. A new folder is created, the folder name is highlighted in yellow and the software keyboard is displayed.
4. Rename the folder via:

- **Touchscreen**
  Enter folder name and confirm with the "Finished" keyboard button.
- **USB keyboard**
  Pressing a key on the external keyboard hides the software keyboard. Enter the folder name and confirm it with the "Enter" keyboard button.

7.1.1.4 Managing welding procedures

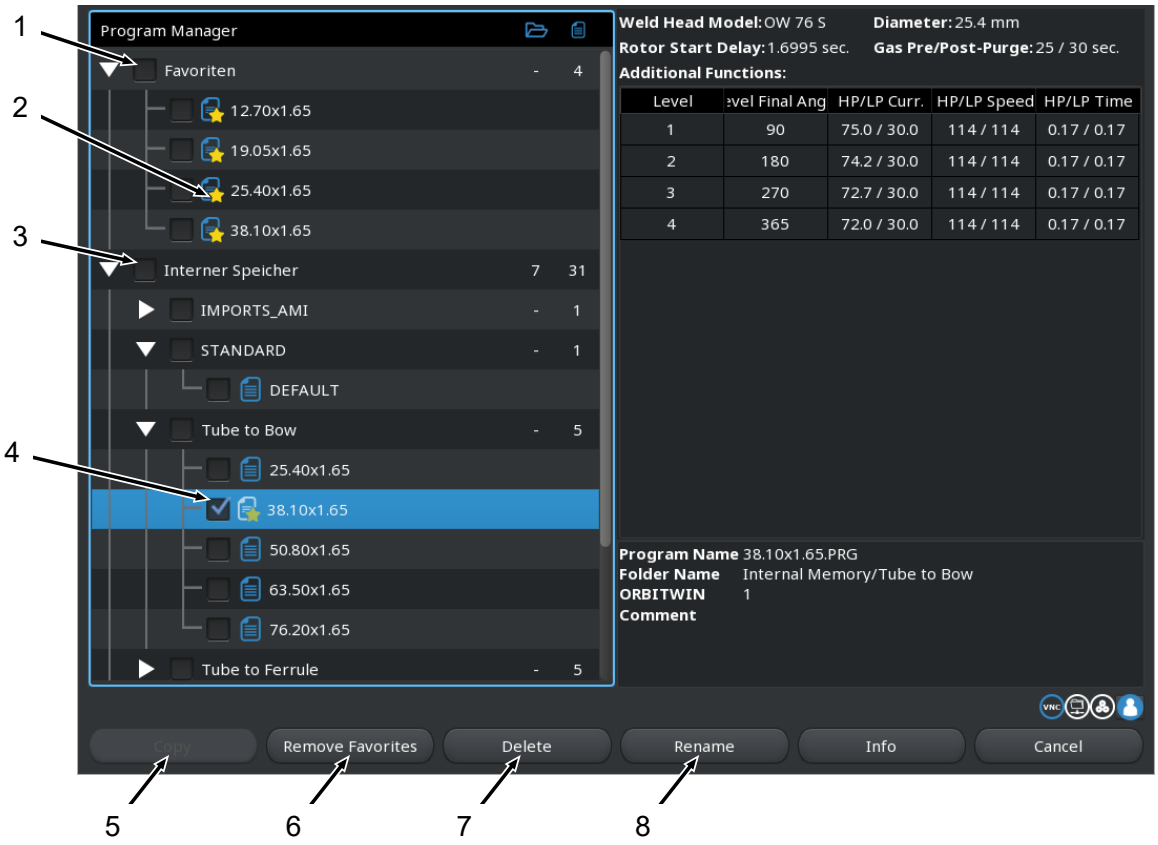


Illustration: Softkey assignment "Manage welding programs" when welding program is selected

ITEM	DESIGNATION	FUNCTION
1	Favorites folder	This folder contains links to the welding programs selected as favorites for quick access.
2	Favorites icon	The star icon indicates that the selected program has been marked as a favorite.
3	Checkbox	The checkboxes can be used to select individual folders and welding programs, as well as a selection of welding programs for management purposes.
4	Activated checkbox	An activated checkbox is marked with a check mark. Individual folders and welding programs, as well as a selection of welding programs, can be selected for management by activating the checkboxes.
5	"Add to favorites" softkey	Welding programs and folders can be marked as favorites using the "Add to favorites" softkey. *For detailed information, see chapter* Add welding procedure as favorite [▶ 43]
	"Copy" softkey	The "Copy" softkey can be used to copy welding programs and folders. *For detailed information, see chapter* Copying welding procedures and folders [▶ 44]

ITEM	DESIGNATION	FUNCTION
6	"Move" soft key	The "Move" softkey can be used to move welding programs and folders between storage locations. *For detailed information, see chapter* Moving welding procedures and folders [▶ 45]
	"Remove Fav." softkey	The "Remove Fav." softkey can be used to remove the favorite status of welding programs and folders. *For detailed information, see chapter* Remove welding procedures as favorite [▶ 43]
7	"Delete" softkey	The "Delete" softkey can be used to delete welding programs and folders. *For detailed information, see chapter* Deleting welding procedures and folders [▶ 47]
8	"Rename" soft key	The "Rename" softkey can be used to rename welding programs and folder names. *For detailed information, see chapter* Renaming welding procedures and folders [▶ 43]

7.1.1.4.1 Add welding procedure as favorite

Welding programs can be marked as favorites for quicker access.
The marked programs are linked in the "Favorites" folder.

NOTICE! **If an entire folder is selected and added to the favorites, only the welding programs in the "Favorites" folder are linked, not the folder itself.**

From the main menu:

1. Select the "Program Manager" menu item.
2. Select the "Manage" softkey (*see* Program Manager).
3. Activate the checkboxes of the welding programs or folders to be marked (*see* Managing welding procedures).
4. Select the "Add to Favorites" softkey (*see* Managing welding procedures).

7.1.1.4.2 Remove welding procedures as favorite

NOTICE! **Removing the favorite status removes the welding program from the "Favorites" folder. The welding program is not deleted and remains in its original storage location.**

From the main menu:

1. Select the "Program Manager" menu item.
2. Select the "Manage" softkey (Program Manager).
3. Activate the checkboxes for the welding programs to be removed in the favorites folder or program folder (Managing welding procedures).
4. Select the "Remove Favorites" soft key (Managing welding procedures).

7.1.1.4.3 Renaming welding procedures and folders

From the main menu

1. Select the "Program Manager" menu item.

2. Select the "Manage" softkey (Main menu [▶ 34]).
3. On the folder level, mark the desired destination folder with the menu cursor or, on the welding procedure level, mark the desired welding procedure (Managing welding procedures [▶ 42]).
4. Select the "Rename" softkey. The welding procedure or folder name is highlighted in yellow and the software keyboard is displayed.
5. Rename the welding procedure or folder via:

- **Touch**
  Using the input layout of the software keyboard, rename the welding procedure or folder and confirm the entry with the keyboard button "Finished".
- **USB keyboard**
  Pressing a key on the external keyboard hides the software keyboard. Using the input layout of the external keyboard, rename the welding procedure or folder and confirm the entry with the "Enter" key.

7.1.1.4.4 Copying welding procedures and folders

Copying creates a copy of the selected welding procedure(s) or folder(s) at the destination.

NOTICE!		**The Copy function can be used within and across drives.**

NOTICE!		**If welding procedures are saved to an external drive (USB/LAN), a PDF of the procedure's content is automatically generated and saved together with the welding procedure file. The same applies to moving and copying logs.**

The following items can be copied:

- A complete folder
- Individual welding procedures from a folder
- A selection of welding procedures from a folder

If only one drive is selected as the destination when copying a welding procedure or a selection of welding procedures, the original folder is also created when copying the welding procedures. The copied welding procedures are then also located in it.

The following items cannot be copied:

- Complete drives
- Welding procedures directly to the drive level
- Welding procedures within the same folder
- Selections of welding procedures from different folders

From the main menu

1. Select the "Program Manager" menu item.
2. Select the "Manage" softkey (Main menu [▶ 34]).
3. Activate the checkboxes for the welding procedures or folders to be copied (Managing welding procedures [▶ 42]).
4. Mark the destination drive or folder with the menu cursor.
5. Select the "Copy" softkey.
6. System prompt: “Do you wish to copy the selected files?" Confirm with"Yes”.

7.1.1.4.5 Moving welding procedures and folders

NOTICE!		**The Move function can be applied internally and across drives.**

NOTICE!		**If welding procedures are saved to an external drive (USB/LAN), a PDF of the procedure’s content is automatically generated and saved together with the welding procedure file. The same applies to moving and copying logs.**

The following items can be moved:

- A complete folder
- Individual welding procedures from a folder
- A selection of welding procedures from a folder

If only one drive is selected as the destination when moving a welding procedure or a selection of welding procedures, the original folder is also created when moving the welding procedures. The copied welding procedures are then also located in it.

The following items cannot be moved:

- Complete drives
- Welding procedures directly to the drive level
- Welding procedures within a folder
- Selections of welding procedures from different folders

From the main menu

1. Select the "Program Manager" menu item.
2. Select the "Manage" softkey (Main menu [▶ 34]).

3. Activate the checkboxes for the welding procedures or folders to be copied (Managing welding procedures [▶ 42]).
4. Mark the destination drive or folder with the menu cursor.
5. Select the "Move" softkey.
6. System prompt: "Move procedure?" Confirm with "Yes”.

7.1.1.4.6 Deleting welding procedures and folders

NOTICE!  **Deleting permanently removes welding programs or folders from the drive.**

The following can be deleted:

- A complete folder
- Individual welding programs from a folder
- A selection of welding programs from a folder

The following cannot be deleted:

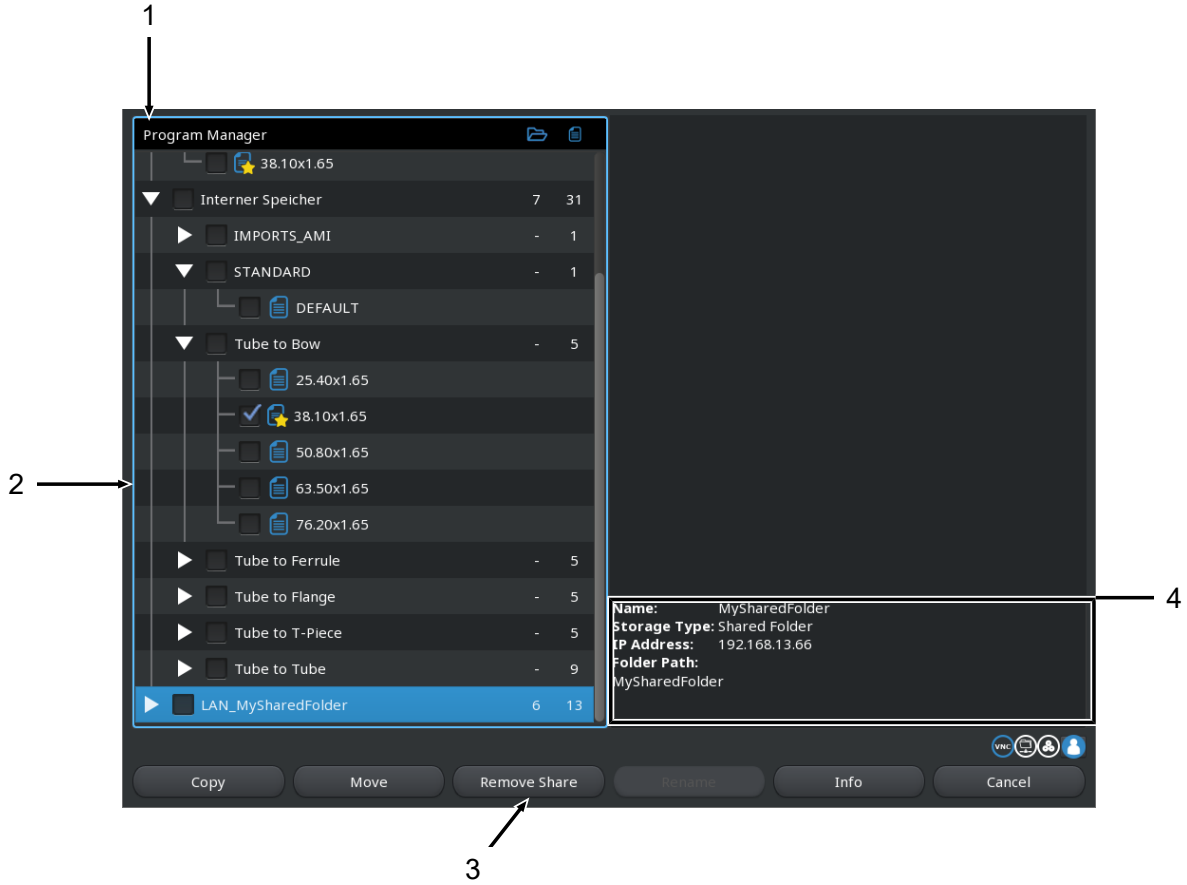
- Entire drives

From the main menu:

1. Select the "Program Manager" menu item.
2. Select the "Manage" softkey (Program Manager).
3. Activate the checkboxes for the welding programs or folders to be deleted (Managing welding procedures).
4. Select the target drive or target folder with the menu cursor.
5. Select the "Delete" softkey.
6. Confirm the system query "Do you really want to delete the selected directories and/or files?" with "Yes."

7.1.1.5 Removing share

LAN network drives can be removed from the Program Manager using the "Remove Share" softkey.



ITEM	DESCRIPTION	FUNCTION
1	Drive Level	All active and connected drives are displayed at this level. Drives can be: • Internal storage. • External storage media connected via USB. • LAN network storage locations.
2	Menu cursor	Drives, folders, or welding programs marked with the menu cursor are highlighted in blue in the program manager.
3	"Disconnect" soft key	Network shares or storage locations can be removed using the "Disconnect" softkey. *See also chapter* Shared Folder Setup [▶ 86]
4	Drive information	The "Drive Information" field displays information about the drive currently selected with the menu cursor. • **Name:** Displays the drive name. • **Storage type:** Shows whether it is internal, USB, or LAN storage. • **IP Address:** Displays the IP address of the network storage location. • **Directory path:** Displays the network path of the network storage location.

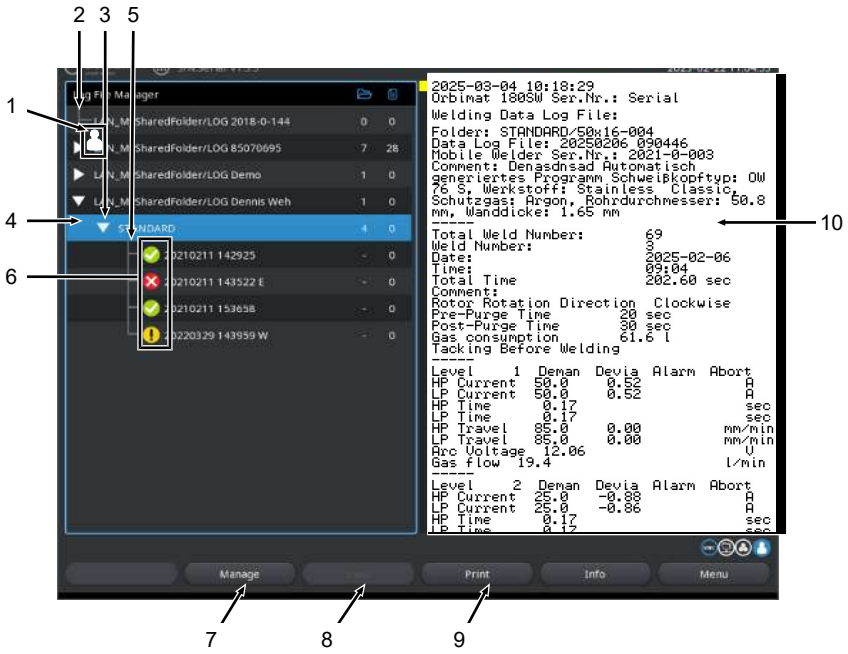
7.1.2 Protocol Manager

The log manager can be used to view and print welding logs and organize them across storage locations and folders. Welding logs and folders can be copied, moved, or deleted across drives.
The log manager also provides an overview of the welding logs located in the storage locations and a preview and complete view of the welding log.

NOTICE!

Logs can only be saved to external storage media (USB/ LAN)!

The "STANDARD" log folder cannot be deleted.



ITEM	DESIGNATION	FUNCTION
1	"Local" icon	The power source can display log files from other Orbitalum power sources, among other things. This is the case, for example, with a shared LAN storage location where multiple power sources store the welding logs. The local icon marks the storage location that belongs to the currently used power source.
2	Drive level	All active and connected drives are displayed at this level. <u>Drives can be:</u> • Internal storage • External storage media connected via USB • LAN network storage locations.
3	Folder level	All welding log folders created in the parent storage location are displayed at this level. The folder structure is taken from the program manager of the corresponding welding program.
4	Menu cursor	Drives, folders, or welding programs marked with the menu cursor are highlighted in blue in the program manager.

ITEM	DESIGNATION	FUNCTION
5	Welding log level	Displays the name of the welding program associated with the logs. All welding logs in the folder are listed at this level. Each log has a unique number that is generated from the current date and time when the data record is saved (at the end of the current welding operation). Example: `Protokolldatei 20210302 103517 (02.03.2021 um 10.35 Uhr und 17 Sekunden)`
6	Welding log status icon	The status symbol indicates whether a warning message or an abort occurred during the welding of the corresponding log, or whether the welding was completed without any such incidents.
	SYMBOL	**MEANING**
		Check mark: All measured actual values are within the monitoring limits for alarm and termination.
		Exclamation mark: An alarm message was issued during welding. The alarm limits specified in the monitoring limits were exceeded or not reached. The process was not aborted.
		Cross: Welding was aborted. The monitoring limits were exceeded or not reached, or the operator triggered a "STOP".
7	"Manage" softkey	The "Manage" softkey opens a softkey submenu that can be used to delete, copy, move, and print welding logs. *For more information, see chapter* Managing welding procedures [▶ 42]
8	"Display" softkey	The "Display" softkey opens the welding log currently selected with the menu cursor and displays it in full screen mode. The full display can be closed by pressing the "Close" softkey.
9	"Print" soft key	The "Print" softkey prints the welding report currently selected with the menu cursor using the printer specified in the system settings. *For more information, see chapter* System adjustments [▶ 70]
10	Welding log preview	The Welding Protocol Preview information field displays the contents of the currently selected welding protocol.

7.1.3 Auto programming

Auto programming is used for software-supported creation of welding procedures based on the workpiece dimensions, the welding gas and the weld head type.

NOTICE!



The result of the auto programming serves as a reference value

No guarantee is given for an optimal welding result.

- ► The welding result must be checked (specifications, welding instructions, etc.)
- ► The welding parameters may have to be adjusted subsequently.

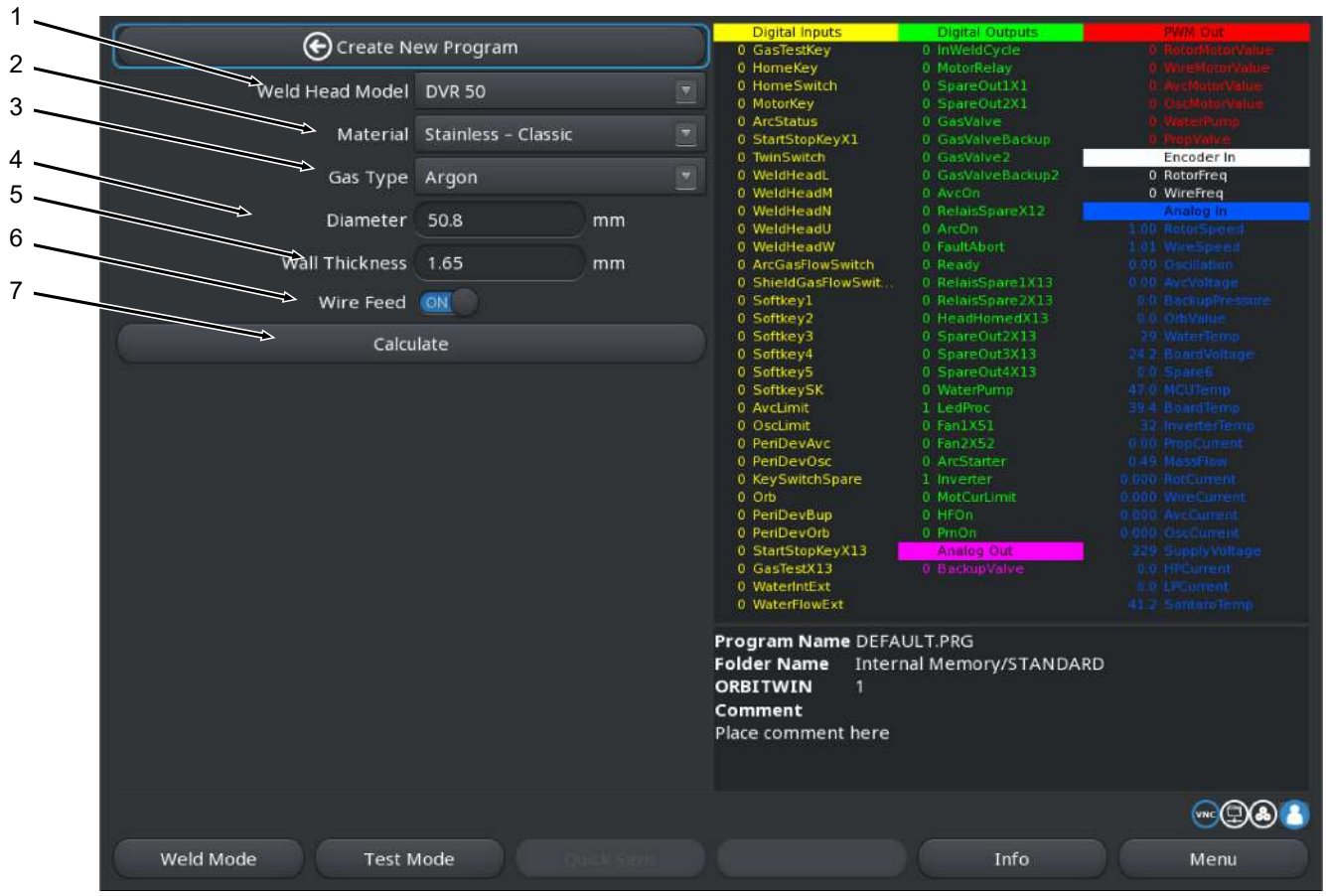
Auto programming only works in conjunction with an orbital weld head or rotary table. This function is not available for manual welding torches.

7.1.3.1 Using auto programming

From the main menu:

1. Select the "Auto programming" menu item.
2. Select the "Welding head type" menu item.
3. Select "Material" and parameter set.
4. Select "Shielding gas."
5. Enter "Tube diameter."
6. Enter "Wall thickness."
7. Select the "Wire feed" slider button.
8. Slide button "ON" = welding with cold wire
   Slider button "OFF" = Welding without cold wire
9. Press the "Calculate welding program" menu button.

⇨ After successful entry, the power source returns to the main menu.



ITEM	DESIGNATION	FUNCTION
1	Welding head type	***NOTE*** **For automatic detection, the drop-down list must be activated once. The connected welding head type is highlighted and can be selected.** Selection option for the welding head type. If a weld head is already connected, the connected weld head type is determined automatically.
2	Material	Several materials and parameter sets are available for programming. The selection must be made according to the application. **Stainless Classic = Classic** Orbitalum parameter set, suitable for general stainless steels. **Stainless-4-Level = Stainless steel parameter set** recommended for ASME stainless steel pipe dimensions Suitable for high-purity and pharmaceutical applications. **Stainless-Slope = Stainless steel parameter set** with linear current reduction across the entire tube diameter. Suitable for all common stainless steels. **Carbon = Classic** Orbitalum parameter set, suitable for general carbon steels. **Titanium** = Classic Orbitalum parameter set Suitable for titanium and titanium alloys

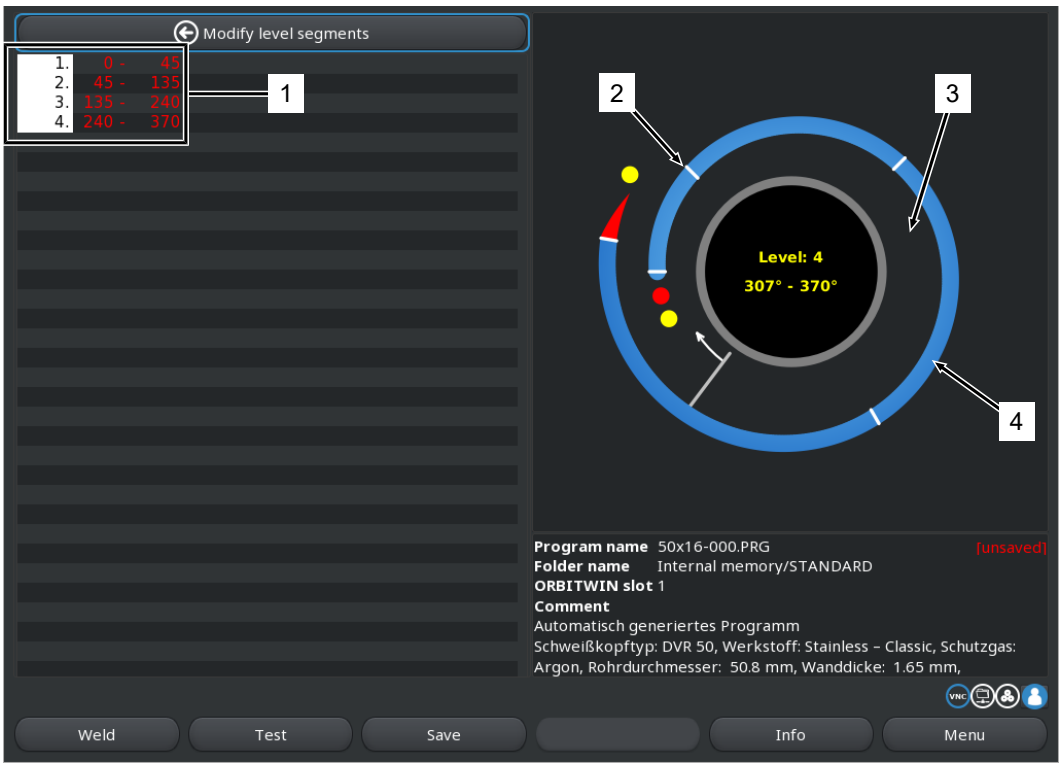
ITEM	DESIGNATION	FUNCTION
3	Shielding gas	Several shielding gases are available for programming. The selection must be made according to the application and the protective gas to be used. **Argon** Standard protective gas argon, e.g.: Argon 4.6 or Argon 5.0 **Argon H2-2%** Argon shielding gas with 2% hydrogen content **Argon H2-5%** Argon shielding gas with 5% hydrogen content
4	tube diameter	Enter the outer diameter of the pipe
5	Wall thickness	Enter the pipe wall thickness
6	Wire feed	Option to select whether cold wire should be used or not. ***NOTE*** **This function depends on the welding head.** **Can only be activated with weld heads that support cold wire.**
7	Menu button "Calculate welding program"	Pressing the "Calculate welding program" menu button creates the welding program based on the parameters entered.

7.1.4 Adjusting the program

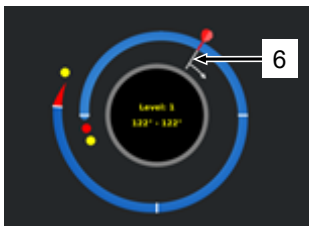
In the "Adjust Program" menu, welding parameters and levels of the currently loaded welding procedure can be viewed and adjusted. Levels can be changed, removed or added. In addition to the parameters relevant to welding, various settings relevant to the welding procedure can be made.

7.1.4.1 Adjusting level segments

In the "Set Sectors" menu, program sectors can be changed, removed, or added to the currently loaded welding program.







ITEM	DESIGNATION	FUNCTION
1	Sector list	Tabular overview of the sectors contained in the currently loaded program, specifying the number of sectors and their angle ranges from-to.
2	Sector boundary	Marks the beginning and/or end of a sector.
3	Sector cursor	The sector cursor can be used to move and reset sector boundaries.
4	Sector	Sector area. Delimited by two sector boundaries.
5	Green cursor flag	The green cursor flag appears when the cursor is placed exactly on the sector boundary.
6	Red cursor flag	The red cursor flag appears when a sector boundary is selected.

NOTICE!

By holding down the rotary knob and then turning it, the sector cursor jumps directly to the next sector boundary in the direction of rotation.

► The input combination of pressing and holding must be performed within one second!

7.1.4.1.1 Adding a new level segment/level segment boundary

To add a new level segment or level segment boundary, follow the steps below.

From the main menu

1. Select the "Adjust Level Segments" menu item.
2. Position the level segment cursor (3) at the desired position and select it.

⇨ A new level segment boundary (2) is set. The new level segment and level segment range is now included the list of levels(1).

7.1.4.1.2 Moving a level segment boundary

To move a level segment boundary, follow the steps below.

From the main menu

1. Select the "Adjust Level Segments" menu item.
2. Place the level segment cursor (3) on the segment boundary (2) to be moved (5) and select it (6).
3. Move the selected level segment boundary (6) to the desired position and place it by selecting it again.

7.1.4.1.3 Deleting a level segment boundary

To delete a level segment boundary , follow the steps below.

From the main menu

1. Select the "Adjust Level Segments" menu item.
2. Place the level segment cursor on the level segment boundary to be deleted and select it.
3. Place the selected level segment boundary exactly on the preceding or following level segment boundary and select it.

⇨ The level segment boundary is deleted.

7.1.4.2 Adjusting parameters

The welding program parameters of the currently loaded welding program can be adjusted via the "Set parameters" menu.



Illustration: "Set Parameters" menu

Change parameter values



POS.	DESIGNATION	FUNCTION
1	Input field – highlighted in yellow	Input fields highlighted in yellow indicate all values currently changed in the welding program that differ from the current memory status. When the welding program is saved again, the changed values are accepted and highlighted in gray. **NOTICE! This function serves as a guide for the user when creating and adjusting the welding program.**
2	"Apply value" softkey	Pressing the "Apply value" softkey applies the parameter value currently selected with the menu cursor to all subsequent sectors and overwrites existing values. **NOTICE! This function serves as a convenience feature for the user to adjust identical values across sectors more quickly.**

7.1.4.2.1 Basic adjustments

All basic settings required for the welding process can be made in the "Basic settings" section of the welding program.



Illustration: Basic settings, upper menu area

ITEM	PARAMETER	FUNCTION
1	Process notes	*See chapter* "Process Details" [▶ 63]
2	tube diameter	Input field for the outer diameter of the pipe to be welded in mm.
3	Welding head type	Option to select the burner type. If a welding torch is already connected, the connected torch type is determined automatically. **NOTICE! The drop-down list must be activated once for automatic detection. The connected torch type is highlighted and can be selected.**
4	Weld seam number	Consecutive counting of welds. Weld seam numbers can also be assigned individually. They serve as a progress indicator or as an identifier for documentation purposes. **NOTICE! When the welding power source is restarted or the program is changed, the weld seam number is always reset to "1".**
5	Starting position graphic	Input in °. Visually rotates the process graphic of the software to the desired angle. Serves as a guide for the actual starting position of the electrode or the alignment of the weld head on the pipe.

ITEM	PARAMETER	FUNCTION
6	Start position	Input in °. Determines the start position of the welding process based on the basic position of the weld head. After the welding process has started, the electrode moves from the basic position to the entered position. Ignition takes place after this position has been reached. **NOTICE! Due to the open position of the welding head rotor, moving the electrode or welding head rotor from the home position creates a risk of misfires between the rotor and surrounding components. When using this function, ensure that the electrode is in good condition, check the electrode distance, and ensure that the contact surfaces (clamping shells and ground connections) and workpiece surfaces are clean!**
7	Electrode replacement warning	When this function is activated, a number of welding ignitions can be defined. Once this number has been reached, a message window prompts the operator to check or change the electrode.
7.1	Ignitions until electrode replacement	Input field for the number of ignitions after which a message window appears prompting the operator to change the electrode. After each ignition, the value is reduced by 1. When the value "0" is reached, the message window appears.
8	Correction factor	By entering a correction factor in %, the HP and TP welding currents programmed for the individual sectors can be changed across sectors. It is recommended to use this function if the welding current is to be adjusted across sectors rather than sector-specifically. **NOTICE! The HP and TP welding current values changed by the correction factor are applied after the welding program is saved. The new welding current values now serve as the new calculation basis for the correction factor. Therefore, the factor is displayed with a value of 0% after saving.**



Illustration: Basic settings, lower menu area Advanced settings display activated

ITEM	PARAMETER	FUNCTION
9	Total time	Displays the total time of the welding program in seconds from the start command of the welding process to the end of the gas post-flow time.
10	Save logs	This function determines whether and where welding data logs for the currently active welding program are saved. The desired storage location can be selected from the drop-down list. The welding data logs are saved for each weld in CSV and PDF format at the selected location. **Off** Welding data logging disabled. **USB** Save to USB data carrier. Prerequisite: Data carrier is connected to any USB port. If multiple USB data carriers are connected, they are listed individually in the drop-down list. **NET** Saving to the local network. Prerequisite: Power source is integrated into the network and network directory is set up. *See chapter* Network environment [▶ 84]
11	Printing logs	When activated, the welding data log is printed on the selected printer after each weld, regardless of whether the log is saved.

ITEM	PARAMETER	FUNCTION
12	Printer selection	**Internal** System printer built into the welding power source. **USB** External USB printer Prerequisite: Printer is connected to any USB port. **NOTICE! Due to the wide variety of USB printers available on the market, general compatibility cannot be guaranteed.** **NET** Network printer Prerequisite: Power source is connected to the network. See chapter "Network environment." The printers shared on the network are listed in the drop-down list.
	Update printer list	Selecting this option updates the printer list in the background. When you reopen the drop-down list, any new entries will be displayed.
13	Log only for complete welds	When activated, welding data logs are only created when the welding process is completely finished. No logs are created if the process is stopped manually. This function can be helpful when tacking points are set using the weld head by manually moving the electrode position and briefly starting and stopping the welding process.
14	Advanced	This function determines whether the "Rotation direction" and "Tacking" setting options are displayed. **ON** Display of the advanced setting options activated. **OFF** Display of advanced settings disabled.
15	Direction of rotation	Drop-down list selection of the desired direction of rotation of the weld head. **NOTICE! Only displayed if the "Advanced" setting (14) is activated.** **Clockwise** Standard direction of rotation: Starts welding in an ascending direction **Counterclockwise** Alternative direction of rotation: Starts welding downwards
16	Tacking	This function determines whether the tacking parameters are displayed. **NOTICE! Only displayed if the "Advanced" setting (14) is activated.** When this function is activated, tacking points are set according to the programmed tacking parameters after the gas pre-flow time has elapsed. This function can be helpful for fixing the alignment of the pipes to be welded before the actual welding process by partially welding the workpiece surface. This is useful, for example, for materials that tend to warp when exposed to heat. **ON** Display of tacking parameters activated. **OFF** Display of tacking parameters deactivated.

ITEM	PARAMETER	FUNCTION
17	Welding after tacking	**NOTICE! Only displayed if the "Tack" setting (16) is activated.** When this function is activated, the electrode moves to the programmed start position after the last tacking point has been set, from where the actual welding process starts immediately after reaching the position. When the function is deactivated, only the tacking parameters of the welding program are taken into account. After setting the last tack point and after the gas post-flow time has elapsed, the process is terminated. This function is useful if the workpiece is only to be tack welded.
18	Tack points	**NOTICE! Only displayed if the "Tacking" setting (16) is activated.** Enter the desired number of staples. Minimum 2, maximum 8.
19	Stapling current	**NOTICE! Only displayed if the "Stitching" setting (16) is activated.** Continuous welding current in amperes for the duration of the stapling process.
20	Pilot current	**NOTICE! Only displayed when the "Spot Welding" setting (16) is activated.** Pilot current for maintaining the arc between the tack points. **NOTICE! This function is used to maintain the arc when moving the electrode between tack point positions so that it does not have to be reignited at each tack point. Therefore, the pilot current should be set as low as possible so that the pilot current does not alter the workpiece surface.**
21	Spot welding time	**NOTICE! Only displayed when the "Spot Welding" setting (16) is activated.** Duration of the upcoming tacking current in seconds.
22	Comment on the welding program	Free text field for additional information about the welding program.

7.1.4.2.1.1 "Process Details"

In the "Process notes" menu, additional welding process-related information and comments on individual parameters such as material, gas, or electrode can be entered, e.g., a description of the seam preparation or the angle position of the electrode adapter.

This provides the user with important information for reproducing and documenting welding results.

The process notes can be created individually for each welding program.



ITEM	DESCRIPTION
1	Text and number input fields for values of specific parameters.
2	Comment field for free text.
3	"Save" softkey for saving entries.

Procedure:

1. Select the desired parameter.
2. Enter the values or texts to be documented in the input fields using the keyboard.
3. Press the "Save" softkey.

⇨ Parameter values and comments have been saved in the process notes.

NOTICE! **The "process notes" are program-related and are stored in the data record of the respective welding program.**

Print out process notes together with welding programs, see chapter Documentation settings [▶ 79]

7.1.4.2.2 Gas pre purge

All welding program parameters relating to gas pre-flow can be set in the "Gas pre-flow" section of the welding program.

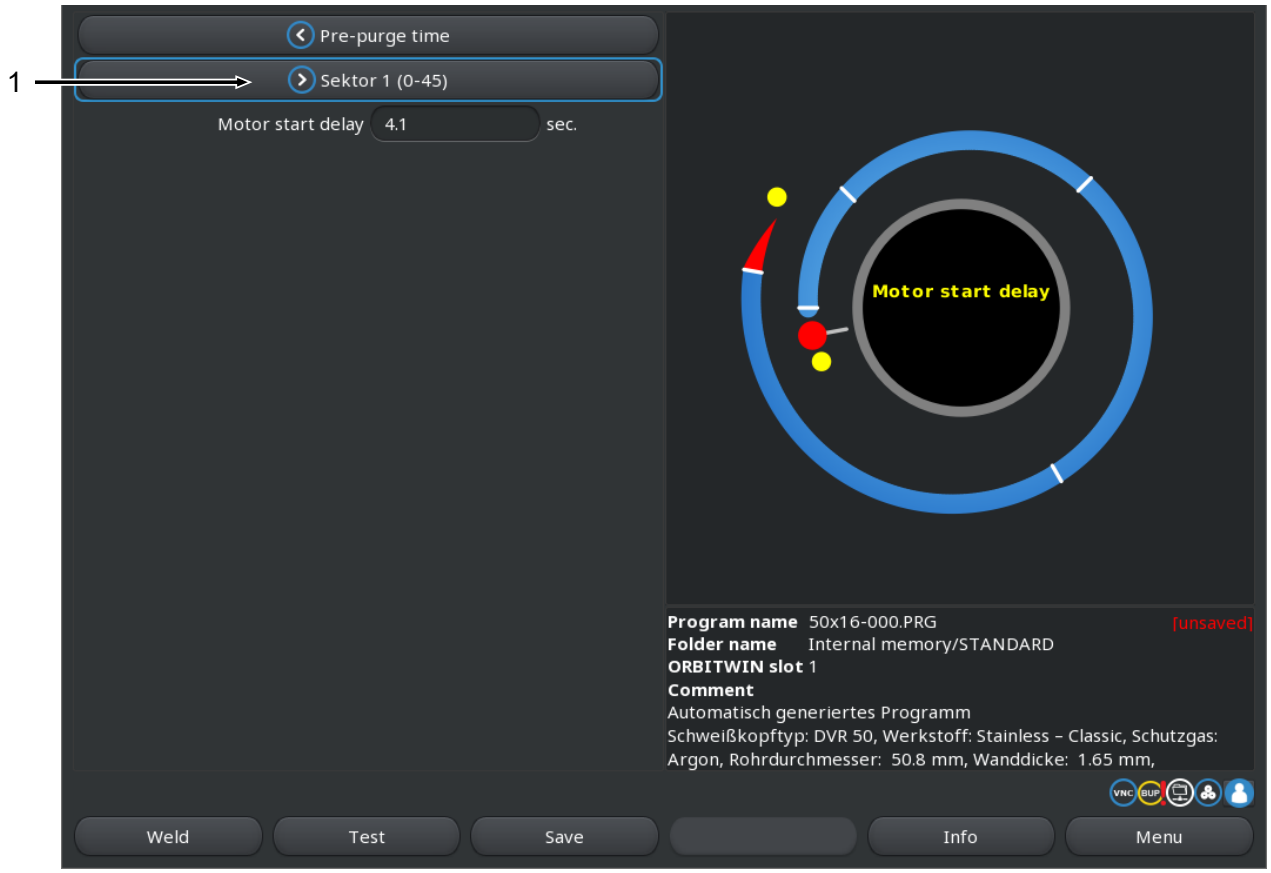


POS.	PARAMETER	FUNCTION/SETTING OPTION
1	Gas pre-flow time	Period from process start to ignition in seconds during which the weld head is supplied with the process gas quantity. *See also chapter* Gas overview [▶ 101]
2	Gas volume	Process gas volume supplied to the welding torch during the welding process and the regular gas pre-flow and post-flow times. *See also chapter* Gas overview [▶ 101]
3	Gas Overview	Switches to the "Gas Overview" menu. *See also chapter* Gas overview [▶ 101]
4	Flow Force	Activates/deactivates the Flow Force function in the gas pre-flow phase. *For more information, see chapter* Gas overview [▶ 101]
		ON Activates the Flow Force function
		OFF Deactivates the Flow Force function
5	Flow Force time (gas pre-flow)	Period in seconds during which the weld head is supplied with the set Flow Force gas quantity. **NOTICE! It is recommended to reduce the welding gas volume to the actual process gas volume at least 2 seconds before igniting the arc so that the gas flow stabilizes before ignition.**
6	Flow force gas volume	Welding gas volume applied to the weld head during the flow force time in the pre-flow and post-flow phases.

POS.	PARAMETER	FUNCTION/SETTING OPTION	
7	Extended	ON	Expands the menu to include the "Forming gas control" parameter.
		OFF	Hides the parameters for "forming gas control."
8	Forming gas control	ON	Activates the number input fields for the "forming gas control" parameters.
		OFF	Activates the number input fields for the "forming gas control" parameters.
9	Angle for upper point	Rotation angle from the starting position of the weld head to the trough position (12 o'clock position).	
10	Pressure at upper point	Pipe internal pressure that is present when the weld head is in the trough position (12 o'clock position).	
11	Pressure on the lower side	Pipe internal pressure that is applied while the weld head moves along the underside of the pipe (between 3 and 9 o'clock).	
12	Forming gas pressure b. Pre-flow	Forming gas pressure applied during the gas pre-flow time specified in the program.	

7.1.4.2.3 Pool Formation

All welding program parameters relating to the basic settings for weld pool formation can be adjusted in the "Weld pool formation" section of the welding program.



ITEM	PARAMETER	FUNCTION
1	Weld pool formation time	Period between ignition and the programmed time in sector 1 during which the welding current is to be built up linearly, in seconds. The bath formation process is static without any rotational movement.

7.1.4.2.4 Level

The "Sector" section of the welding program contains all welding program parameters for the individual sectors. A welding program can consist of several sectors. By using several sectors, physical conditions such as the effect of gravity in different welding positions can be addressed individually.

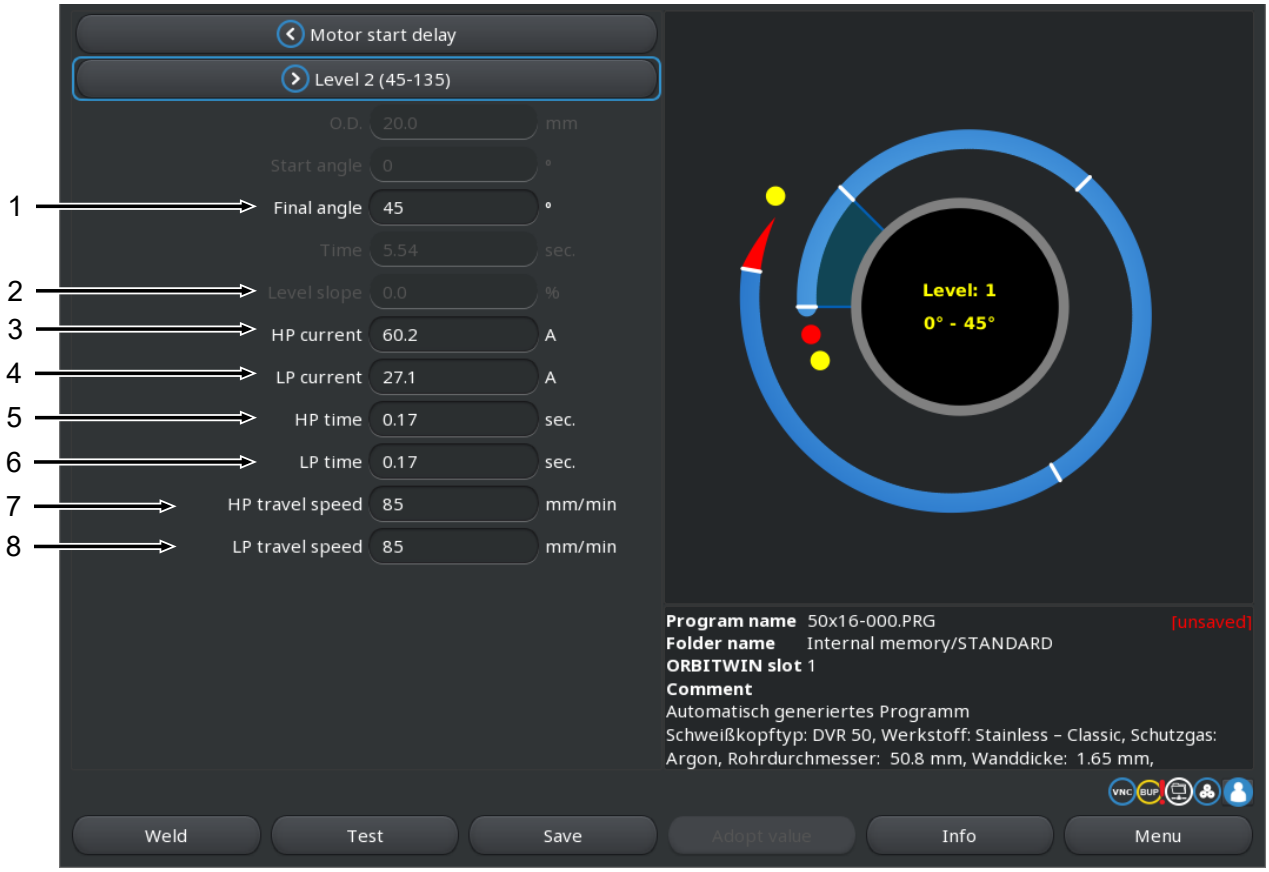


Illustration: Welding program section "Sector"

POS.	PARAMETER	FUNCTION
1	End angle	Enter the end angle of the selected sector. The end angle forms the start angle of the following sector.
2	HP current	High pulse welding current, primary welding current in amperes.
3	TP current	Low pulse welding current, secondary welding current in amperes.
4	HP time	High pulse time: Period during which the HP current flows, in seconds.
5	TP time	Low pulse time: Period during which the TP current flows, in seconds.
6	HP speed	High pulse speed: Welding speed at which the high pulse welding current is applied, in mm/min (in/min).
7	TP speed	Low pulse speed: Welding speed during the low pulse welding current period, in mm/min (in/min).
8	Slope	Duration of the linear welding current adjustment between the current value of the current sector and that of the following sector. The value is the percentage of the sector time of the following sector in which the linear transition from the (current) value of the preceding sector to the current value of the current sector takes place.

7.1.4.2.5 Weld seam end

All welding program parameters relating to the ramp-down phase at the end of welding can be set under the "Weld seam end" welding program section. These settings can prevent the formation of an end crater.

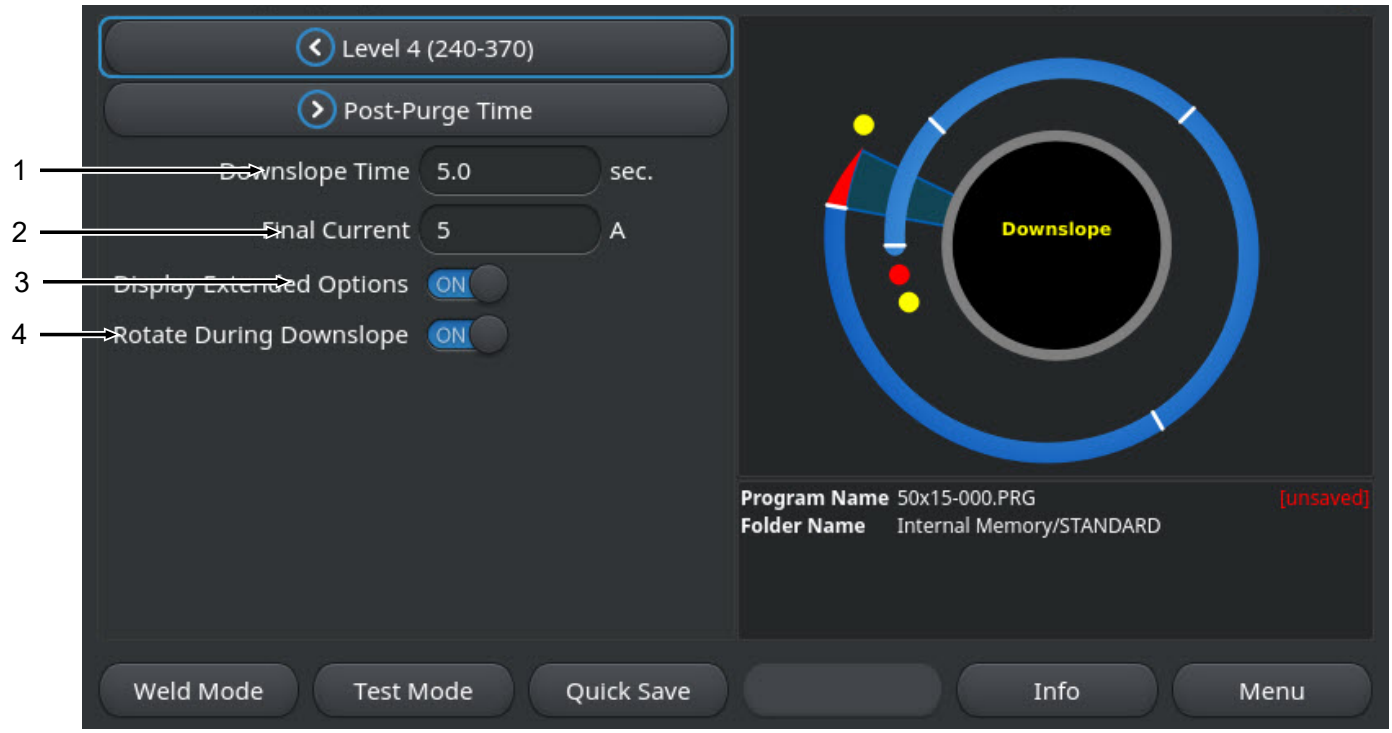


Illustration: Welding program section "Weld end"

POS.	PARAMETER	FUNCTION	
1	Reduction	Period of linear current reduction, starting from the welding current level of the previous sector, until the set end current is reached in seconds.	
2	Final current	Value of the end current in amperes at which the arc extinguishes when reached by the current reduction.	
3	Extended	ON	Expands the menu to include the "Rotation during reduction" parameter.
		OFF	Hides the "Rotation when lowering" parameter.
4	Rotation during lowering	The "Rotation during lowering" function can be used to set the rotation behavior of the welding head rotor during lowering.	
		ON	The electrode is moved during descent at the welding speed of the previous sector.
		OFF	The electrode remains stationary during descent.

7.1.4.2.6 Gas post purge

All welding program parameters relating to gas post-flow can be set in the "Gas post-flow" section of the welding program.



Illustration: Welding program section "Gas post-flow time"

ITEM	PARAMETER	FUNCTION
1	Gas post-flow time	Period during which the weld head is supplied with the process gas quantity after the arc has been extinguished, in seconds. *See also chapter* Gas overview [▶ 101]
2	Return delay	Period during which the electrode remains in its last position after the arc has been extinguished until it is automatically returned to its home position, in seconds.
3	Gas Overview	Switches to the "Gas Overview" menu. *See also chapter* Gas overview [▶ 101]
4	Flow Force – Afterflow	Activate/deactivate the Flow Force function in the gas flow phase. *See also chapter* Gas overview [▶ 101]
	Flow Force ON	Flow Force active
	Flow Force OFF	Flow Force inactive
5	Flow Force time – afterflow	Period during which the weld head is supplied with the set Flow Force gas volume in seconds. **NOTICE! It is recommended to continue supplying the process gas for 3 seconds after the arc has been extinguished and then switch to the Flow Force gas volume.**

7.1.5 Settings

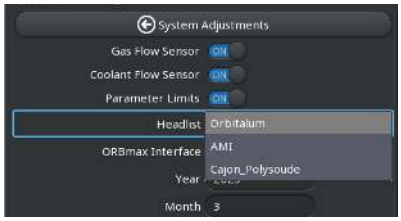
7.1.5.1 System adjustments

System settings can be configured at the system level.

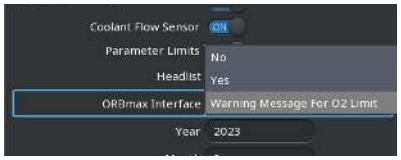


Illustration: System settings, upper menu area

ITEM	DESCRIPTION	SYSTEM SETTINGS OPTIONS
1	Gas sensor	The "Gas sensor" function can be used to temporarily deactivate the welding gas sensor and thus welding gas monitoring. This can be useful, for example, if the gas sensor is defective and work must be continued temporarily.
		ON Welding gas monitoring active
		OFF Welding gas monitoring deactivated
		CAUTION When the welding gas sensor is deactivated, the welding gas flow is not actively monitored by the power source! Therefore, the operator must pay increased attention when continuing to use the power source. The welding gas flow and quantity must be monitored by the operator! Defective sensors must be replaced as soon as possible.
		NOTICE! For safety reasons, the function is reset to gas sensor "ON" after each restart of the power source.

ITEM	DESCRIPTION	SYSTEM SETTINGS OPTIONS
2	Coolant sensor	The "Coolant sensor" function can be used to temporarily deactivate the coolant sensor and thus the monitoring of the coolant flow. This can be useful, for example, if the coolant sensor is defective and work must be continued temporarily.
		ON — Coolant monitoring active
		OFF — Coolant monitoring deactivated
		CAUTION When the coolant sensor is deactivated, the coolant flow of the power source is not actively monitored! Therefore, the operator must pay increased attention when continuing to use the power source. The coolant flow must be monitored by the operator! Defective sensors must be replaced as soon as possible.
		NOTICE! For safety reasons, the function is reset to coolant sensor "ON" after each restart of the power source.
3	Monitoring limits	The "Monitoring limits" function can be used to activate or deactivate the limit values defined under "Program settings" > "Monitoring limits".
		See chapter Limit Adjustments [▶ 77]
		When monitoring limits are activated, an alarm message is issued or a welding process is terminated when the defined limits for welding current, welding voltage, and welding speed are reached.
		ON — Welding parameter monitoring activated
		OFF — Welding parameter monitoring deactivated
		CAUTION When monitoring limits are deactivated, there is no active monitoring of welding parameters such as welding current, welding voltage, and welding speed! Therefore, the operator must pay increased attention when continuing to use the power source. The welding process must be continuously observed and monitored by the operator! It is recommended that this function only be deactivated temporarily in exceptional cases.
4	Head list	Selection of the head list to be used.
		All technical specifications of the weld heads are recorded in the head list.
		
		The connected weld head is recognized by the power source and the corresponding conditions are assigned by the software.
		When using the adapter solution for competitor welding heads, the head list must be adjusted accordingly.
		Orbitalum — Standard head list – includes all Orbitalum welding head data.
		AMI — Includes entered AMI welding head data.
		Cajon_Polysoude — Includes entered Cajon, Swagelok, and Polysoude welding head data.
		NOTICE! Modified head lists that differ from the original are marked with a preceding [M].

ITEM	DESCRIPTION	SYSTEM SETTINGS OPTIONS
5	ORBmax interface	The "ORBmax Interface" function can be used to set whether an ORBmax residual oxygen device is connected or not and whether the Orbmax interface should issue a warning message when the oxygen limit is reached.



No	Make this setting if no ORBmax is connected.
Yes	Make this setting if an ORBmax is connected.
Warning message when the O2 limit is reached	Make the setting if an ORBmax is connected and a warning message is to be displayed on the ORBmax interface when the preset oxygen limit is reached.

6	Date and time	Input fields for current date and time: • Year • Month • Day • Hour • Minute • Second
7	Printer selection	Printer selection of the output printer for all print jobs, such as welding reports or welding programs. Only printers that are accessible when the power source is started are listed in the printer list. To add printers that become available later, the printer list must first be updated using the "Update printer list" option. The power source searches all USB ports and the LAN network for available network and USB printers.
		Internal: Output to integrated system printer
		NET: Output to network printer
		USB: Output to USB printer
		Update printer list: Search USB ports and LAN network for available printers.
8	English units of measurement	Function for switching the system units of measurement between "Metric" and "Imperial." After switching, all fields are displayed in the active unit of measurement and existing values are converted accordingly. *See also chapter* Setting the units of measure
		ON: "Imperial" units of measurement activated
		OFF: "Metric" units of measurement activated

ITEM	DESCRIPTION	SYSTEM SETTINGS OPTIONS	
9	Resuming welding process	When this function is activated, it is possible to resume the welding process at the point where it was interrupted. **NOTICE! The process must be stopped manually using the "Stop" button!** When the "Start" button is pressed again, the following message appears: "Do you want to continue the interrupted welding process?" The message can be confirmed with "Yes" or "No":	
		Yes	The welding process starts with the "gas pre-flow and pool formation time" specified in the welding program, then switches directly to the sector and angle position of the interruption point and continues the welding process from there.
		No	The welding process is interrupted.
10	Use coolant delay **NOTICE! A cooling unit must be connected in order to use this function.**	The coolant delay function allows the power source's liquid cooling system to be activated beyond the welding process. Activating this function also activates the "Coolant delay" input field in the welding program under the "Gas post-flow" program level. Depending on the program, a time in minutes can be set there, during which the liquid cooling system remains active after the end of the welding process.	
		ON	The "Coolant delay" program input field is activated.
		OFF	The "Coolant delay" program input field is deactivated.
		NOTICE! When the liquid cooling system is active, the weld head must not be disconnected from the power source.	

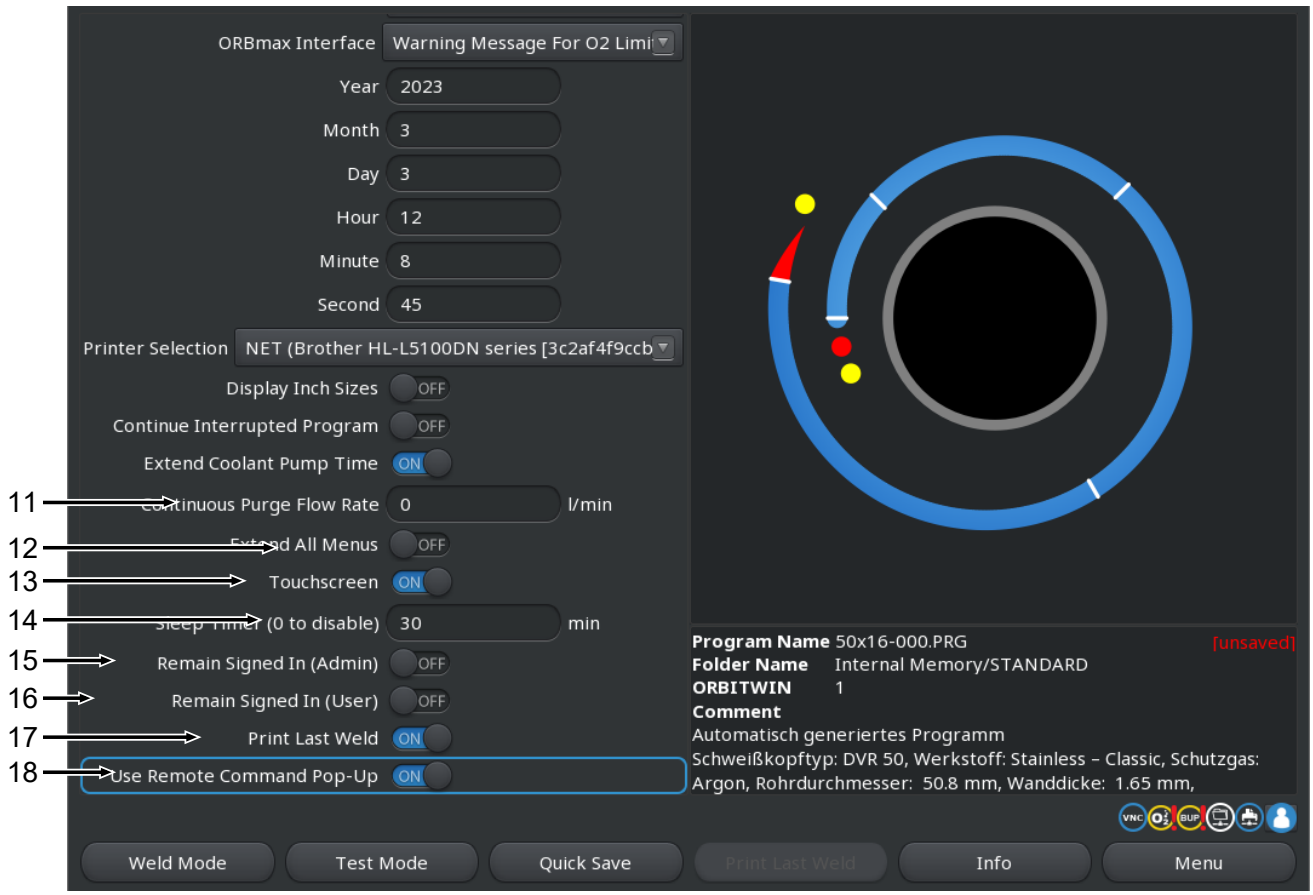
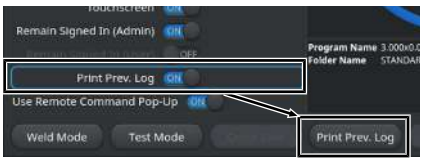


Illustration: System settings, lower menu area

ITEM	DESCRIPTION	SYSTEM SETTINGS OPTIONS	
11	Permanent gas volume	The "Permanent gas flow rate" input field can be used to set the gas volume flow in l/min that flows into the weld head when the "Gas permanently on" function is activated. Recommended permanent gas volume: 2-5 l/min *See also chapter* Gas overview [▶ 101]	
12	Advanced		
13	Touch	Enable or disable the touch function of the screen.	
		ON	Touch function activated
		OFF	Touch function deactivated
14	Sleep timer	Period of inactivity in minutes after which the power source is put into sleep mode but not disconnected from the power supply.	
15	Stay logged in (Admin)	The "Stay logged in (Admin)" function can be used to define the authorization level or range of functions with which the power source starts up after being switched on. *See also section* User levels	
		ON	The power source always starts with the authorization level: "Full range of functions" The password for activating the full range of functions must be entered once.
		OFF	The power source always starts with the authorization level: "Limited range of functions."
16	Stay logged in (user)	The "Stay logged in (user)" function can be used to define the authorization level or functional scope with which the power source starts up after being switched on. *See also section* User levels	
		ON	The power source always starts with the authorization level: "Restricted functionality". The password for activating the restricted range of functions must be entered once.
		OFF	The power source always starts with the last selected authorization level.
14	Print last log	When the "Print last log" function is activated, the additional "Print last log" softkey is activated in the main test and welding menu. By pressing the "Print last log" softkey, the welding log for the last weld seam can be printed out retrospectively, regardless of the log settings in the welding program. 	
		ON	Soft key "Print last log" activated in the main test and weld menu.
		OFF	Softkey "Print last log" deactivated in the main test and weld menu.

7.1.5.2 Program settings

All program-related settings can be configured in the program settings.

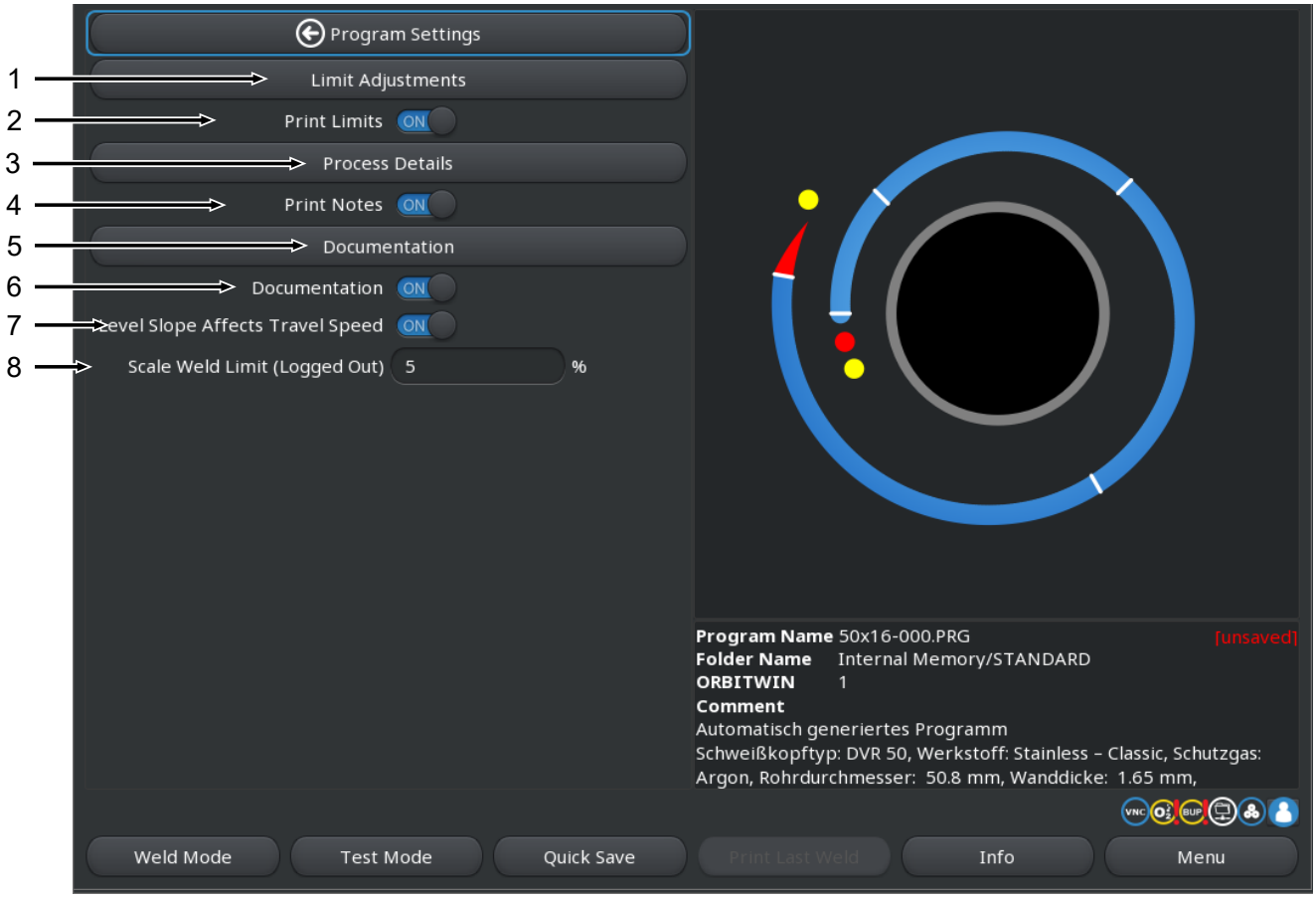


Illustration: "Program settings" menu

ITEM	MENU ITEM	SETTING OPTIONS	
1	Monitoring limits	Under the menu item "Monitoring limits," you can set the limit values at which a warning message or a welding process interruption is triggered if they are exceeded or not reached. *See also chapter* Limit Adjustments [▶ 77]	
2	Print limits	The "Print Limits ON/OFF" slider button can be used to specify whether the stored "monitoring limits" should be appended to each welding log.	
		ON	"Monitoring limits" activated as an attachment.
		OFF	"Monitoring limits" as an attachment deactivated.
3	Process notes	*See chapter* "Process Details" [▶ 63]	
4	Print notes	The "Print notes" slider button can be used to specify whether the information entered under "Process notes" should also be printed out when the welding program is printed, in addition to the welding parameters.	
		ON	Print "Process Notes" activated
		OFF	Print "Process notes" deactivated
5	Documentation	The documentation function can be used to define and map documentation processes. *See also chapter* Documentation list [▶ 79] *and* Documentation settings [▶ 79]	

ITEM	MENU ITEM	SETTING OPTIONS	
6	Documentation	The "Documentation" slide button can be used to activate or deactivate the fields defined under the "Documentation" menu item and their documentation function in the welding program.	
		ON	Fields defined under "Documentation" activated
		OFF	Fields defined under "Documentation" deactivated
7	Speed with inclination	The "Speed with slope" slider can be used to specify whether the rotation speed adjustment between two sectors should be linear or abrupt. When this function is activated, the behavior is set together with the welding current adjustment using the "Slope" welding program parameter. *See also chapter* Level [▶ 67]	
		ON	Linear rotation speed adjustment
		OFF	Abrupt rotation speed adjustment
8	Limit for correction factor	The "Limit for correction factor" input field can be used to define the extent to which the welding current can be adjusted via the "Correction factor" welding program parameter in the "User mode" of the power source. *See also chapter* User levels	

7.1.5.2.1 Limit Adjustments

The power source regulates and monitors the target and actual values of welding current, arc voltage, and welding speed throughout the entire welding process.

The "Monitoring limits" menu item contains limit values which, if exceeded or not reached, trigger a warning message or an interruption of the welding process.

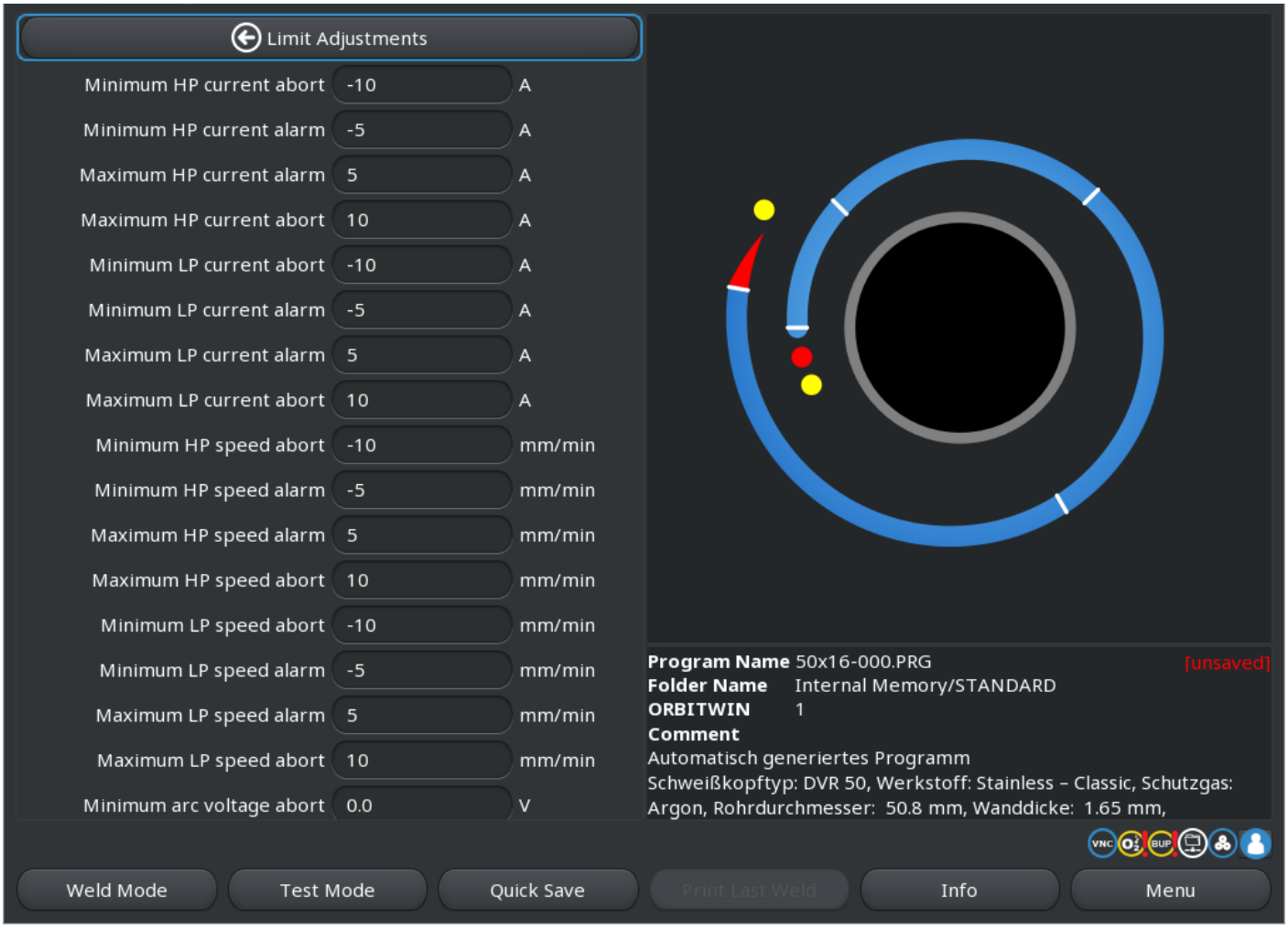


Illustration: Monitoring limits menu, upper section

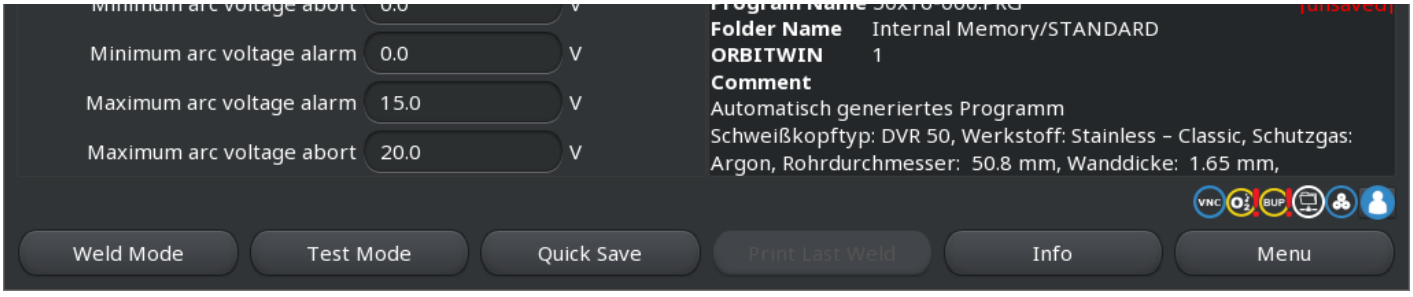


Illustration: Monitoring limits menu, lower section

The monitoring limits can be adjusted individually for each welding program.

Changes must be accepted using the "Save" softkey.

NOTICE!		**The "Monitoring limits" are welding program-based and are stored in the welding program data record.**

CAUTION



If the monitoring limits are deactivated, there is no active monitoring of the welding parameters such as welding current, welding voltage, and welding speed!

If the power source continues to be used, the operator must pay increased attention.

- ► The welding process must be continuously observed and monitored by the operator!
- ► This function should only be deactivated temporarily in exceptional cases.

7.1.5.3 Documentation settings

The Documentation section of the welding program displays all documentation fields defined under the "Documentation" program settings.



Illustration: "Set Parameters" menu

ITEM	DESIGNATION	FUNCTION
1	Welding program section "Documentation"	The welding program section "Documentation" displays all documentation fields defined under the program settings "Documentation." Prerequisites: • Documentation fields have been defined and the documentation function has been activated. *See chapter "* Program settings [▶ 75] *" and* Documentation list [▶ 79] • The welding program parameter "Save logs" is activated. *See chapter* Basic adjustments [▶ 57]

Marking of documentation fields

- Documentation fields marked as **required** are outlined in red.
- Documentation fields marked as **permanent** are outlined in blue.
- Documentation fields marked as **permanent and required** are outlined in yellow.
- Unmarked documentation fields are outlined in white.

7.1.5.3.1 Documentation list

The documentation function can be used to define and map documentation processes. When this function is activated, the operator is prompted to enter the defined documentation parameters before starting the orbital welding process.

- All parameters to be documented can be freely defined in terms of types and input intervals.
- The data can be entered either via the internal or external keyboard or via a code scanner.
- The defined parameters can be entered either before each weld or after each restart of the power source.
- The output is provided together with all welding-related target and actual values in the form of a welding log file that can be saved to a USB medium or a network directory or output via the internal or external printer.
- The documentation routine created can be saved on a USB storage medium and transferred to other power sources.

See also chapter System data [▶ 82]

NOTICE! The documentation function is system-based and is automatically activated for each loaded welding program.

Documentation fields can be added and managed in the documentation list.

In addition, you can set whether a value is required for a documentation field and whether it should be permanently saved.

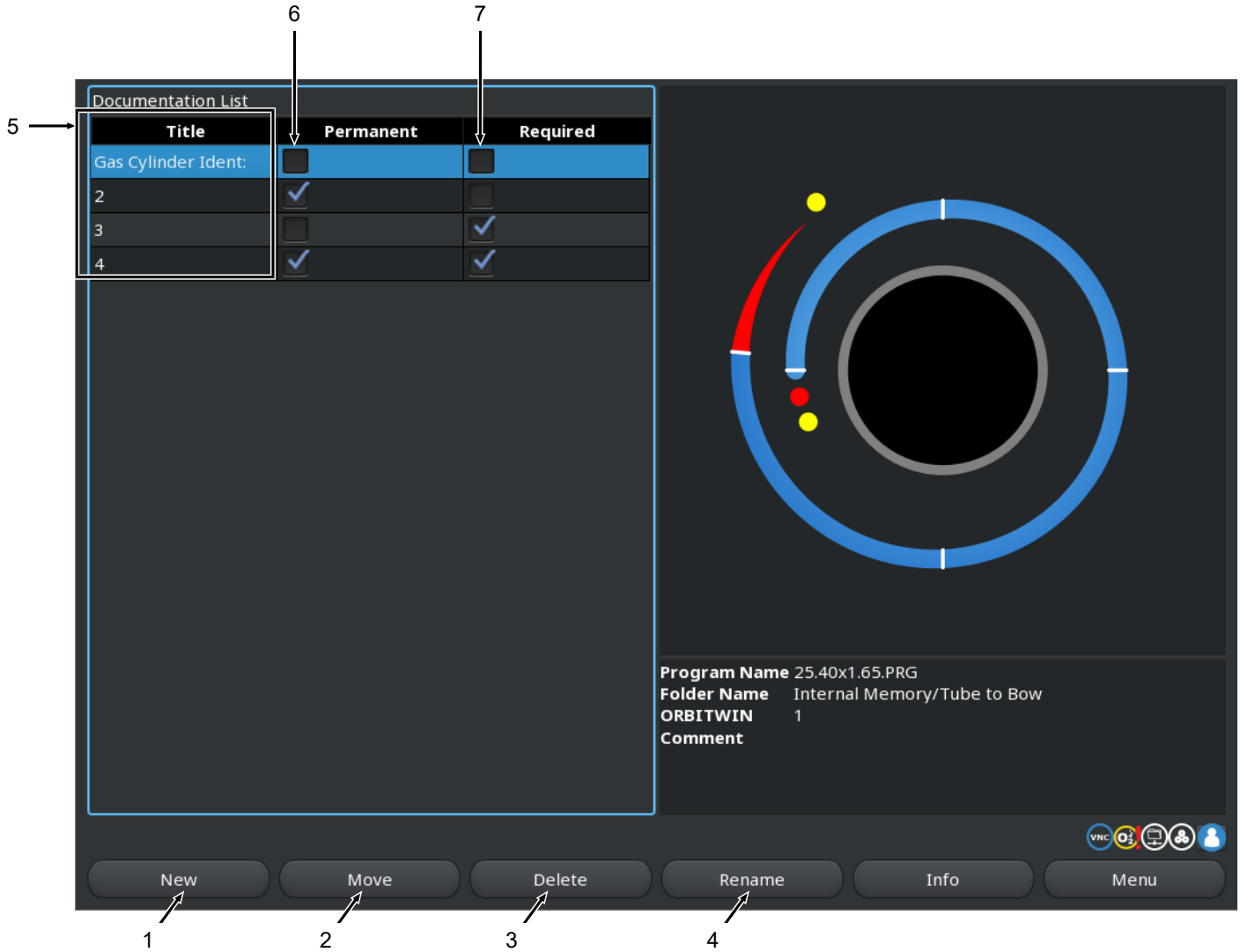


Illustration: "Documentation list" menu

ITEM	SCREEN ELEMENT	FUNCTION
1	"New" soft key	The "New" softkey can be used to create new documentation fields.
2	"Move" softkey	The softkey "Move" can be used to change the display order of the documentation fields in the welding program and in the log file.
3	"Delete" softkey	The "Delete" soft key can be used to remove documentation fields.

ITEM	SCREEN ELEMENT	FUNCTION
4	Rename soft key	Documentation fields can be renamed using the "Rename" softkey.
5	"Title" text input field	Enter the name of the documentation parameter to be entered. The name is displayed as the input field name in the welding program and under Documentation in the welding report.
6	"Permanent" checkbox	If this option is activated, the parameter value entered in the welding program is saved in the input field until the power source is restarted. This option is recommended for static parameters such as: "Welder ID," "Weld head serial number," "Gas cylinder number," "Gas type," etc. If this function is deactivated, the contents of the input field are deleted after each ignition and must be re-entered. This option is recommended for variable parameters such as: "Batch number," "Workpiece type," "Welding position in the geometry," etc. **NOTICE! One, all, or none of the checkboxes can be activated.**
7	"Required" checkbox	When this option is enabled, a parameter must be specified in the corresponding documentation field in order to start a welding process. **NOTICE! One, all, or none of the checkboxes can be activated.**

7.1.5.3.1.1 Creating a documentation field

To create a new documentation field, please follow these steps:

From the main menu:

1. Select the "Settings" menu item.
2. Select the "Program settings" menu item.
3. Select the "Documentation" menu item.
4. Press the "New" softkey.
5. Enter the name of the documentation parameter in the input field.

7.1.5.3.1.2 Moving a documentation field

The documentation fields can be arranged in a rolling order using the "Move" softkey.
The specified order corresponds to the display order of the documentation input fields in the welding program and in the log file.

NOTICE!		**Pressing the "Move" softkey moves the selected documentation field down one position at a time. Repeat the process until the desired position is reached.**

From the main menu:

1. Select the "Settings" menu item.
2. Select the "Program settings" menu item.
3. Select the "Documentation" menu item.
4. Select the documentation field to be moved.
5. Press the "Move" softkey.

7.1.5.3.1.3 Deleting a documentation field

The documentation fields can be removed using the "Delete" softkey.

NOTICE! **Pressing the "Delete" softkey irrevocably deletes the selected parameter.**

From the main menu:

1. Select the "Settings" menu item.
2. Select the "Program settings" menu item.
3. Select the "Documentation" menu item.
4. Select the documentation field to be moved.
5. Press the "Delete" softkey.

7.1.5.3.1.4 Renaming a documentation field

When renaming, the name of the documentation field can be changed.

From the main menu:

1. Select the "Settings" menu item.
2. Select the "Program settings" menu item.
3. Select the "Documentation" menu item.
4. Select the documentation field to be moved.
5. Press the "Rename" softkey.

7.1.5.4 System data

Under System Data, individual system areas of the software can be updated/backed up/restored.

7.1.5.4.1 Update

Individual system areas can be updated independently of each other under this menu item.

The following system areas are available for updating:

- System
- Auto programming
- Headlist
- Language files
- Documentation list

Procedure:

1. Insert the USB data storage media with the update file into any USB port.
2. Select the menu item for the desired system area.

⇨ After successful selection the update routine starts.

7.1.5.4.2 Backup

Under the "Backup" menu item, individual system areas can be backed up independently of each other on a USB data carrier.

The following system areas are available for backup:

- Auto programming
- Head list
- Language files

- Documentation list

Procedure:

1. Insert the USB data carrier into any USB port.
2. Select the menu item for the desired system area.

⇨ After successful selection, the storage routine starts.

7.1.5.4.3 Restore

Under the "Restore" menu item, the system can be reset to the latest software version.

Procedure:

1. Press the "Restore system" menu button (1).
2. Confirm the system dialog "Do you really want to restore the system?" with "Yes" (2).

⇨ After successful confirmation, the restore routine will start.

7.1.5.5 Network environment

NOTICE!		**Configuring the network is a more complex task and should be performed by a system administrator!**

All settings for connecting the power source to a local network and accessing network printers can be made under the "Network environment" menu item.

With the UPGRADE Connectivity LAN/IoT/VNC option, welding programs and welding logs can be stored and accessed remotely. The ability to integrate into an MQTT/IoT/Industry 4.0 network allows data and control commands to be exchanged between network participants.

NOTICE!		**The network functions are only available with the UPGRADE Connectivity LAN/IoT/VNC option. *See chapter* Upgrade options**

A target computer/server that meets the following system requirements is required for network setup:

- Ethernet RJ-45 (LAN) connection (10Base-T/100Base-TX/1000BaseTX)
- Active TCP/IP service
- Connection diagram according to Fig. Connection diagram

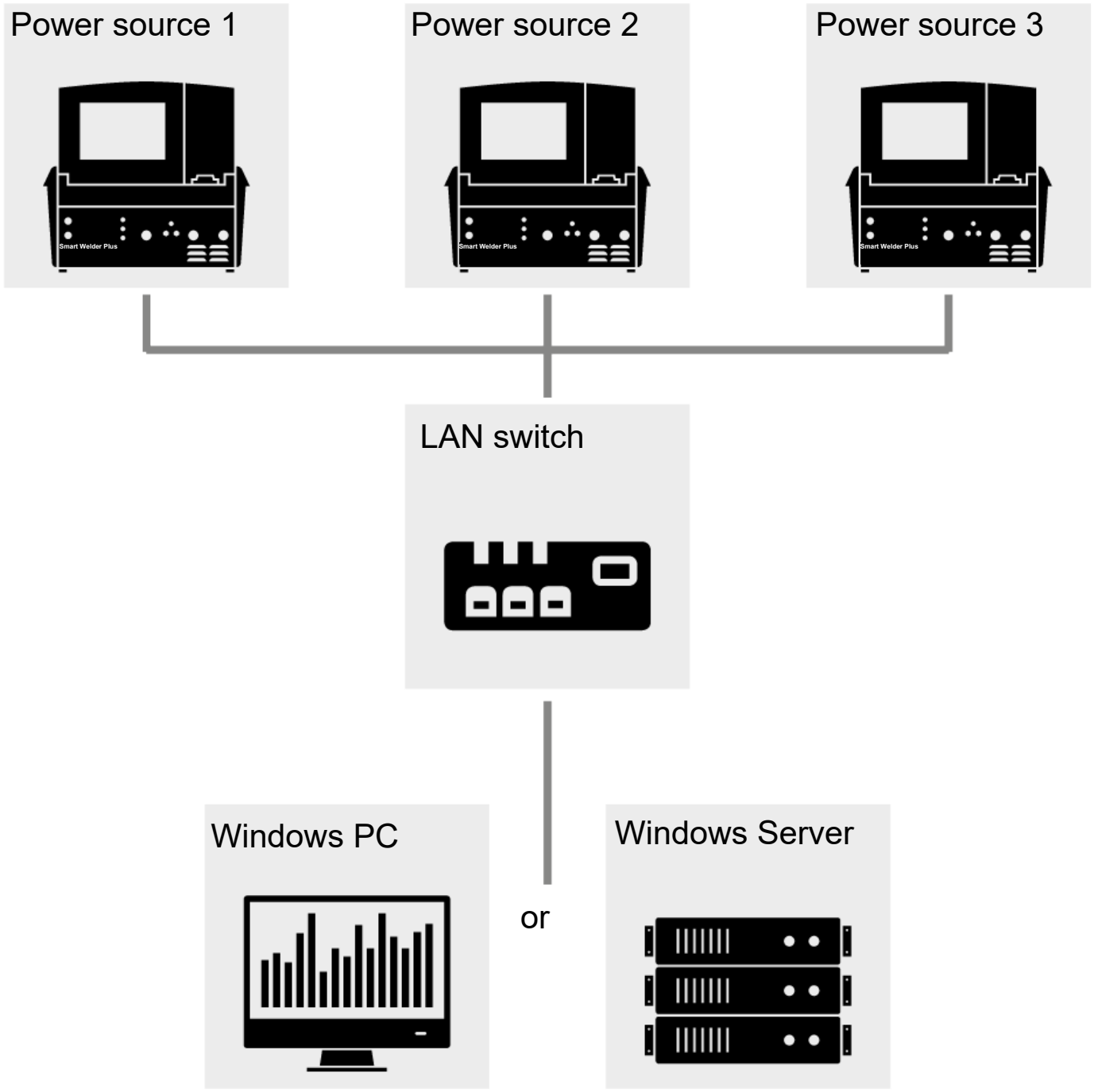


Illustration: Connection diagram

7.1.5.5.1 LAN network setup

Under the menu item "Network LAN Setup," you can enter all network-related parameters that are necessary for integrating the power source into a local network structure.

PARAMETERS	FUNCTION	
DHCP server	The DHCP function allows the power source to be integrated into an existing network without manual configuration.	
	DHCP server "ON"	The configuration parameters are sent directly from the DHCP server to the power source.
	DHCP server "OFF"	The configuration must be carried out manually using the following network parameters.
Interface	The parameter is set by the system and serves as information. No action required.	
Interface available	Parameter is set by the system and serves as information. No action required.	
MAC address	Parameter is set by the system and serves as information. No action required.	
Broadcast	Parameter is set by the system and serves as information. No action required.	
Subnet mask	Input field for the subnet mask address of the network. **NOTICE! Mandatory network parameter. The subnet mask must be identical to the subnet mask of the network.**	
Default gateway	Input field for the default gateway address of the network. **NOTICE! Mandatory network parameter. If no default gateway is available, the address 128.0.0.1 must be used.**	
DNS 1	Input field for the IP address of the network's DNS server. **NOTICE! Optional network parameter.**	
DNS 2	Input field for the IP address of an alternative DNS server for the network. **NOTICE! Optional network parameter.**	
IP address	Input field for the IP address of the power source. **NOTICE! Mandatory network parameter. The IP range should be within the IP range of the network.**	
Set up network	Menu button for applying the network configuration **NOTICE! After successful setup, the operating system of the power source restarts.**	

7.1.5.5.2 Shared Folder Setup

Network storage locations for welding programs and log files can be set up under the "Network Directory Setup" menu item.

If identical storage locations are set up for multiple power sources, the data stored there can be shared between them.

NOTICE!



- ► The target directories must be created in advance on the target computer/server.
- ► A network share with read and write permissions must be set up for the target directory on the target computer/server.
- ► Multiple network directories can be set up in the power source.
- ► The network directories can be accessed in parallel via multiple power sources.

PARAMETERS	FUNCTION
Add shared folder	The "Add shared folder" menu button opens the submenu for entering the storage location information for the shared folder.
Directory name	Input field for entering the internal directory name displayed in the "Program Manager" of the power sources.
Computer name or IP address	Computer name or IP address of the target computer/server. The computer name is preferred. **NOTICE! Please note the correct upper/lower case!** IMPORTANT • A network share with read and write permissions must be set up for the target directory on the target computer/server. • Entering the address **without** the preceding "computer name": Example: **Correct:** "ORBINet/Welding/Data" **Incorrect:** \\DESIOTGS0022\ORBINet\Welding\Data • **Do not** use slashes at the beginning of the network path: **Correct:** "ORBINet/Welding/Data" **Incorrect:** "/ORBINet/Welding/Data" • Only use slashes (/) to separate folders in the network path: **Correct:** "ORBINet/Welding/Data" **Incorrect:** "ORBINet\Welding\Data" • **Do not** use folder names with spaces: **Correct:** "ORBINet/Welding/Data" **Incorrect:** "ORBINet /Welding/Data"
User	Username or domain/username with read and write permissions for the target directory. Example: "Administrator" or "DOMAIN/Administrator"
Pass	Input field for the password associated with the user name, which exists on the login server.

PARAMETERS	FUNCTION	
Advanced settings	The "Advanced settings" menu button opens a submenu for entering the SMB version network parameters and the security mode of the server network.	
	SMB version	Drop-down list for selecting the SMB version. • Server Message Block network protocol for file, print, and other server services. • The factory setting for this option is "Default" and does not usually need to be changed. • If you experience connection problems, the SMB version can be adjusted accordingly. • Set the SMB version according to the operating system of the target computer/server. This setting should preferably be carried out by a system administrator. Options:

Version	Operating system
Default	Automatic selection of the correct SMB version
1.0	Windows 2000, Windows XP, Windows Server 2003, Windows Server 2003 R2
2.0	Windows Vista, Windows Server 2008
2.1	Windows 7, Windows Server 2008 R2
3.0	Windows 8, Windows Server 2012
3.02	Windows 8.1, Windows Server 2012 R2
3.1.1	Windows 10, Windows Server 2016 TP2

Advanced settings	Authentication and Security	Drop-down list for selecting the security mode of the server network. If you encounter connection problems, you can adjust the security mode accordingly. Set the mode according to the operating system of the target computer/server. This setting should preferably be made by a system administrator. Options:

Mode	Description
none	Attempt to connect as a null user (no name)
krb5	Use Kerberos version 5 authentication
krb5i	Use Kerberos authentication and forcibly enable packet signing
ntlm	Use NTLM password hashing
ntlmi	Use NTLM password hashing and force packet signing
ntlmv2	Use NTLMv2 password hashing
ntlmv2i	Use NTLMv2 password hashing and force packet signing
ntlmssp	Use NTLMv2 password hashing encapsulated in Raw NTLMSSP message

PARAMETERS	FUNCTION
Add network directory	Menu button to apply the entered parameters. **NOTICE! After successfully setting up the network directory on the power source, the network directory can be accessed in the main menu via the "Program Manager" and the "Log Manager."** *See chapter* Program Manager [▶ 38] *See list item "Software status icons" in chapter* Main menu [▶ 34] **NOTICE! If the power source cannot establish a network connection, an error message is displayed. In this case, check the entered parameters, network cabling, and network settings.**

The computer name is preferred.

NOTICE! Pay attention to correct upper/lower case!

7.1.5.6 Service

7.1.5.6.1 Coolant pump On

The "Coolant pump on" function is used to empty the coolant tank, e.g., for service purposes such as coolant replacement or during prolonged power outages.

Prerequisite: ORBICOOL MW cooling unit is connected.

7.1.5.6.2 Motor calibration

Use to check and correct the rotor speed.

For how to use, see the chapter Motor calibration

7.1.5.6.3 Importing procedures

The "Import Programs" function can be used to import welding programs from ORBIMAT C and ORBIMAT CB generation power sources and convert them to the current welding program format.

NOTICE!		**Welding programs from the ORBIMAT CA generation are fully compatible and do not need to be imported. They can be copied/opened directly via the "Program Manager."**

Preparation

1. Create the "PROGRAMS" folder on a compatible USB stick using a PC.

NOTICE!		**The "PROGRAMS" folder must be located at the top level in the root directory of the USB stick.**

2. Copy the welding programs to be imported without subfolders into the "PROGRAMS" folder you created.

Execution

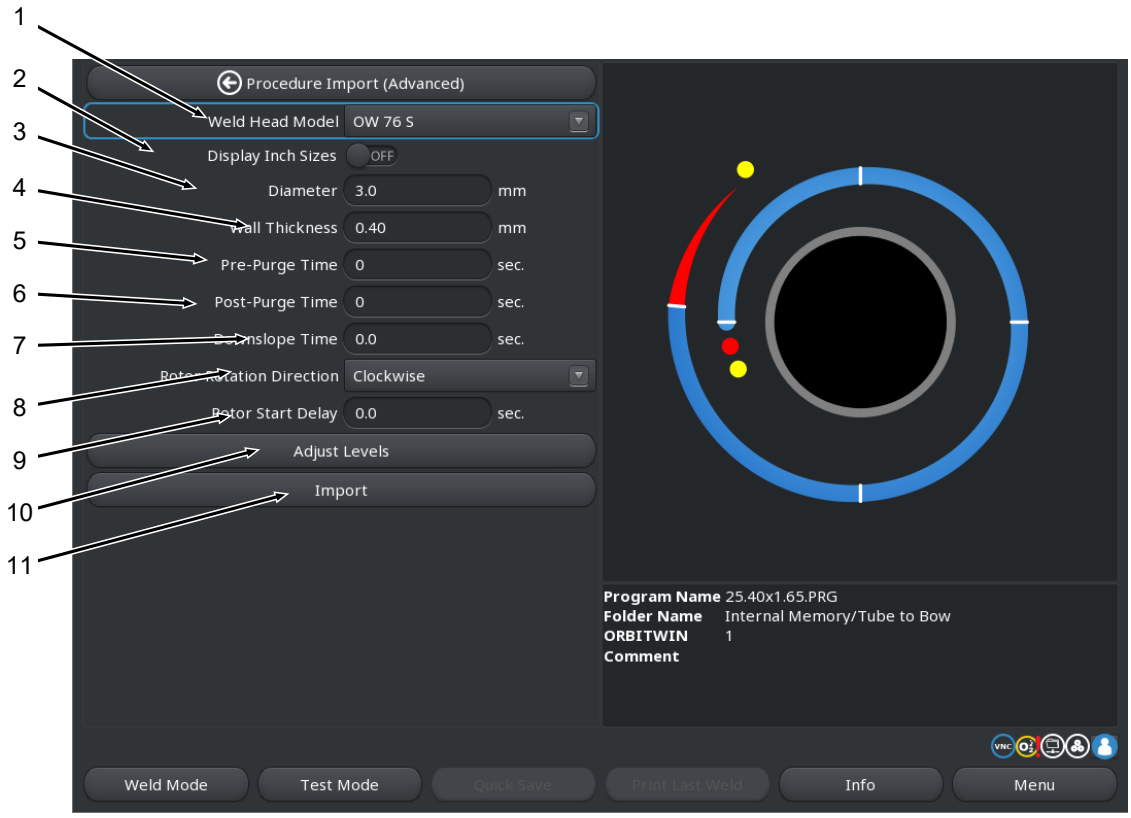
1. Insert the USB stick into any USB port on the power source.
2. Select the "Import programs" button.
   ⇨ If the import is successful, the message "Program import complete" appears.
3. Confirm with "OK."
4. Restart the power source.

⇨ The imported programs can be used in the "Program Manager" in the "Import_XXX" folder.

7.1.5.6.4 Importing an Arc Machines Program

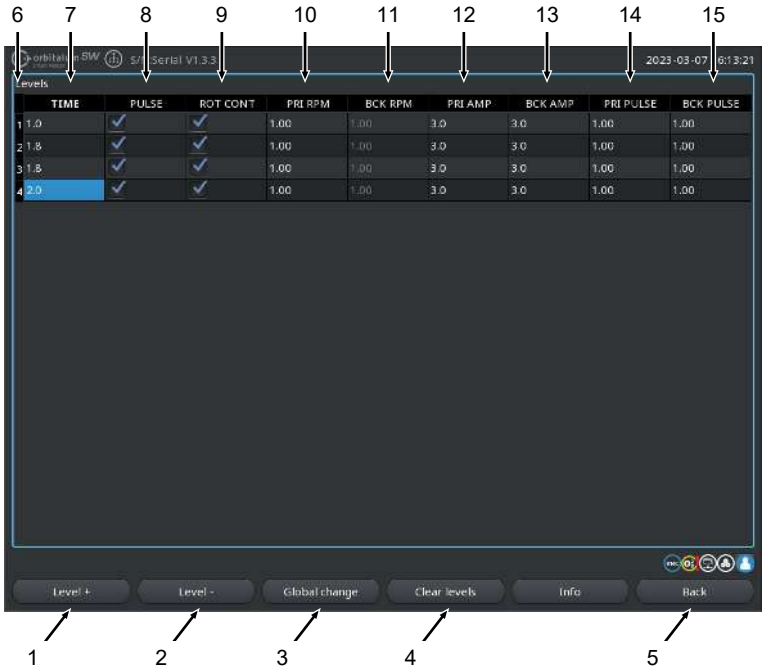
The "Import AMI program" function can be used to import welding program parameters from Arc Machines power sources into an Orbitalum welding program.

To do this, all of the following welding program parameters must be transferred from the AMI welding program to be converted into the input masks.



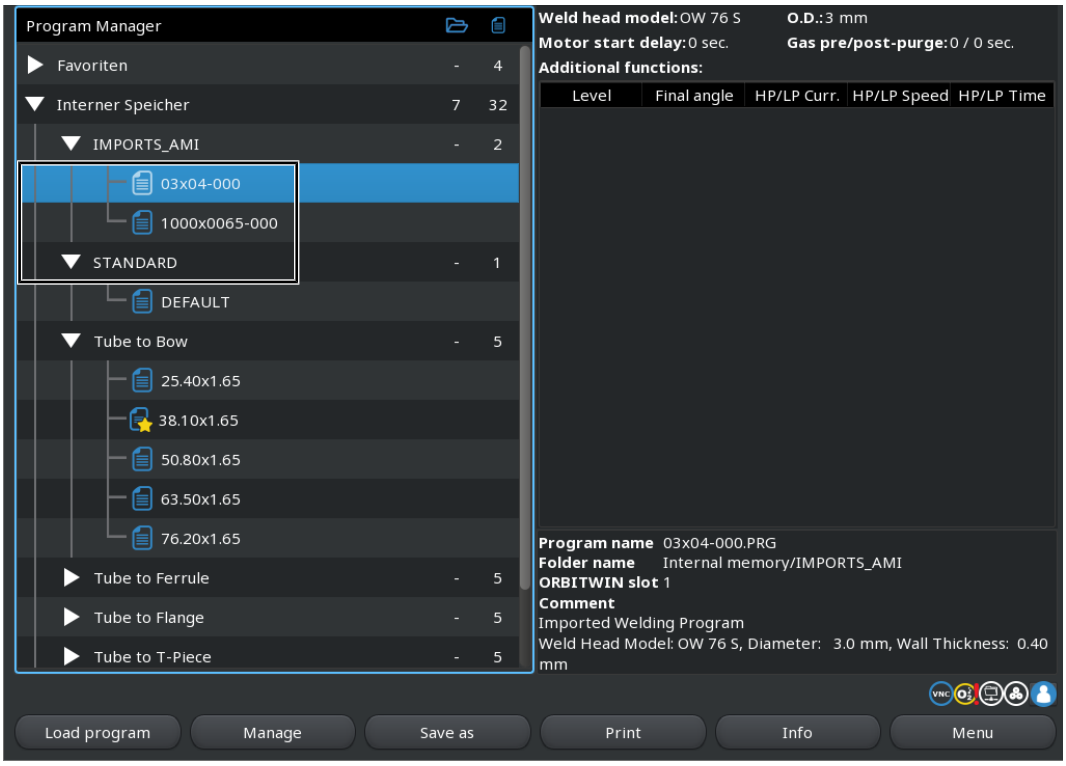
ITEM	MENU ITEM	SETTING OPTIONS	
1	Welding head type	Option to select the torch type to be used.	
2	English units of measurement	Function for switching the units of measurement between "Metric" and "Imperial." After conversion, all fields are displayed with the active unit of measurement and existing values are converted accordingly.	
		Options:	
		English units of measurement ON	"Imperial" units of measurement active
		English units OFF	Metric units active
3	tube diameter	Enter the outer diameter of the pipe	
4	Wall thickness	Enter the pipe wall thickness	
5	Gas pre-flow time	Period in seconds during which the weld head is supplied with welding gas from the start of the process until ignition.	
6	Gas post-flow time	Period in seconds during which the weld head is supplied with welding gas after the arc has been extinguished.	

ITEM	MENU ITEM	SETTING OPTIONS	
7	Reduction	Period in seconds of linear current reduction, starting from the welding current level of the previous sector, until the set end current is reached.	
8	Direction of rotation	Drop-down lists Selection of the desired rotation welding direction.	
		Clockwise	Standard direction of rotation – starts with ascending welding
		Counterclockwise	Alternative direction of rotation – starts welding downwards
9	Weld pool formation time	Enter the bath formation time in seconds.	
10	Adjust sectors	Under the menu item "Adjust sector," sectors can be created and the sector-specific parameters of the AMI welding program can be entered. The input is made in tabular form. Before entering a value, the input field must be selected/highlighted. **NOTICE! All of the following parameters can be transferred from existing AMI welding programs as shown, without converting the units.**	



Pos.	Screen element	Function
1	Softkey "Sector +"	The "Sector +" softkey adds another sector entry to the end of the sector table.
2	"Sector -" soft key	The "Sector -" softkey deletes the last sector from the sector table.
3	"Apply values" softkey	The "Apply values" softkey is used to apply the value of the currently selected welding parameter to all cells below it.
4	"Reset" softkey	The "Reset" softkey resets the entire sector table.
5	"Back" softkey	Goes back one menu level.
6	"Sector number" column	Displays the current sector count and number in ascending order in a table.
7	"TIME" column	Sector time in seconds.

ITEM	MENU ITEM	SETTING OPTIONS		
	8	"PULSE" column	Checkbox for pulsating welding current	
			Checkbox activated	PULSE "ON"
			Checkbox deactivated	PULSE "OFF"
	9	Column "RED CONT"	Checkbox continuous rotation	
			Checkbox activated	RED "CONT"
			Checkbox deactivated	RED "NCONT"
	10	Column "PRI RPM"	Number input field Primary rotations per minute	
	11	Column "BCK RPM"	Number input field Secondary rotations per minute	
	12	Column "PRI AMP"	Number input field Primary welding current in A	
	13	"BCK AMP" column	Number input field for secondary welding current in A.	
	14	Column "PRI PULSE"	Number input field for primary pulse time in seconds	
	15	"BCK PULSE" column	Number input field for secondary pulse time in seconds	
11	Import	Pressing the "Import" menu button converts the entered AMI welding parameters into an Orbitalum welding program. The converted AMI welding program is automatically saved in the "Program Manager" in the internal memory in the path Internal Memory/PROGRAM/MPORTS_AMI.		



7.1.5.6.5 Settings for external printer

Settings for text output can be configured in the "Settings for external printer" menu.



Illustration: "External Printer Settings" menu

ITEM	MENU ITEM	SETTING OPTIONS	
1	Reduce font size	ON	Small font size activated
		OFF	Small font size disabled
2	Distance from left	Distance value from the left edge of the sheet to the start of the print area in mm	
3	Text width	Width of the print area in mm.	
4	Distance from top	Distance in mm from the top edge of the sheet to the start of the print area.	
5	Text height	Height of the print area in mm.	

7.1.5.6.6 Service screen

The "Service Screen" displays an overview of all electronic input and output signals of the power source control. These can be used for troubleshooting in the event of a service call.

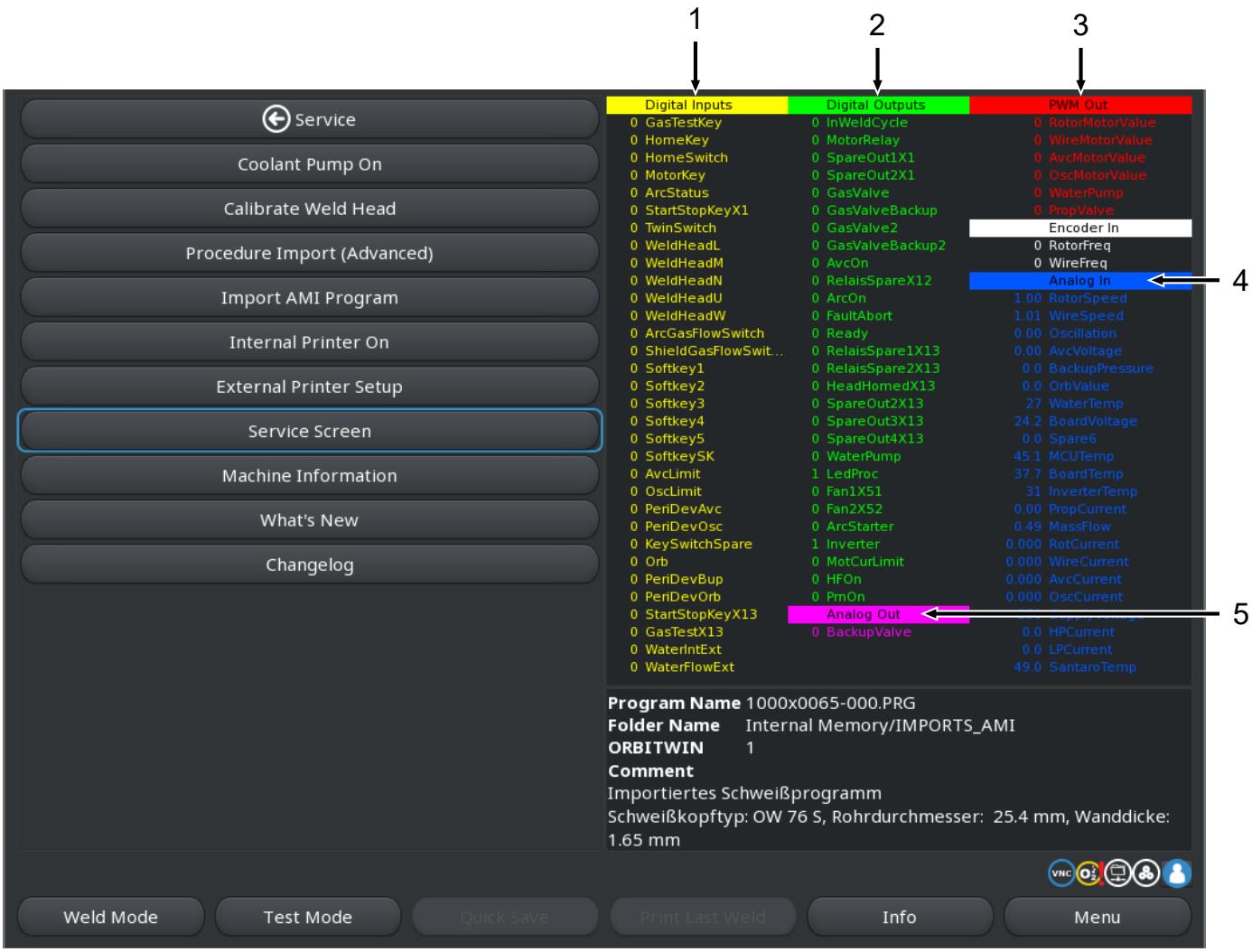


Illustration: "Service screen" menu, signal value table

ITEM	SCREEN ELEMENT	DISPLAY
1	Digital inputs	Current values of the digital inputs
2	Digital outputs	Current values of the digital outputs
3	PWM Out	Current actual values of the running process calculated from the information provided by the analog inputs or serial inverter interface.
4	Analog In	Current values of the analog inputs.
5	Analog Out	Current values of the analog outputs

7.1.5.6.7 Info

The "Info" menu button opens an overview with information on the currently used software version and the serial number of the power supply.

7.1.5.6.8 What's new

The "What's new" menu button opens an information overview of the software features added in the last software update.

7.1.5.6.9 Changelog

The "Changelog" menu button opens an information overview of all software changes by software version.

7.1.5.7 Setting the language and keyboard

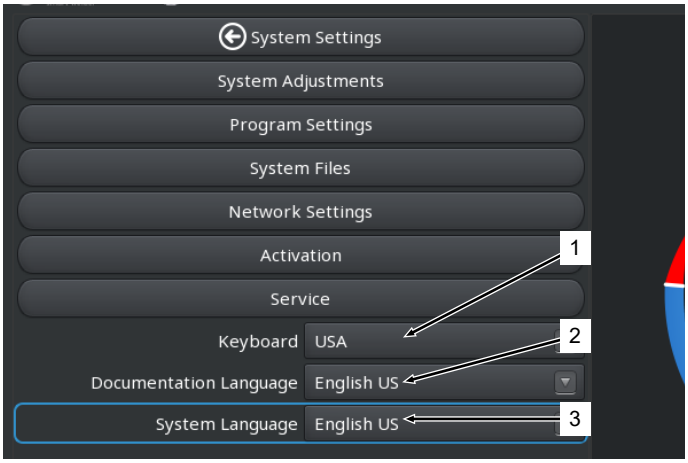


Illustration: "System Settings" menu

ITEM	MENU ITEM	DISPLAY
1	Keyboard	Setting the language-specific keyboard layout of the external USB keyboard.
2	Documentation language	Setting the language of the documentation/log file independently of the system language.
3	System language	Setting the system language of the power source. *See also chapter* Setting the system language and language of the documentation

NOTICE! **Changing the language changes all messages, parameter and menu names in the software and printouts. Comments or logs entered by the operator are not translated.**

7.2 Weld mode

The "Welding" softkey (1) takes you from the main menu to welding mode:



Illustration: Main menu, "Welding" softkey

In the welding menu/welding mode, the welding process can be started and all functions relevant to welding can be controlled.

CAUTION

General danger

- ► In case of danger, unplug the mains plug!
- ► Accessibility to the mains plug must always be assured in order to permit disconnecting the power supply from the mains.

The "Welding program information field" (5) provides an overview of current technical values such as coolant and gas flows, welding voltage, and temperatures.

The "Process graphic" (6) shows an overview of the current process progress and the current welding position on the workpiece during the active welding process.

At the administration level, the welding parameters of the currently loaded welding process can also be adjusted (*see also chapter* User levels).

In welding mode, the "Start" softkey (2) is highlighted in red.

WARNING

Dangers from electromagnetic fields

Active implants of persons in the vicinity can be disturbed

- ► Persons with pacemakers, defibrillators or neurostimulators may only work with the power supply after a workplace evaluation by the system operator. *See EMF Directive at* Requirements for the owner-operator [▶ 6]

CAUTION



Danger from incorrect operating sequence

- ► Observe the operator's obligations.
- ► Operation only by suitable, instructed personnel.

WARNING



Danger of suffocation!

If the level of shielding gas in the ambient air rises, lasting damage or risk of death can arise as the result of suffocation.

- ► Use only in well ventilated areas.
- ► Monitor oxygen, if necessary.

WARNING



Risk of burns, blindness and fire due to arcs

An arc may develop by releasing the welding contacts during operation. This can result in burns and blindness, in the worst case a fire can be started.

- ► Connect and disconnect the weld head only when the power supply is shut down.
- ► Lay the lines and cables so that they are **not** under tension.
- ► Ensure that under **no** circumstances can people trip over lines and/or cables.
- ► Attach the strain relief.
- ► Check that hose package connections fit firmly in place when connecting or before activating the power supply.
- ► Do not work near highly flammable substances.
- ► Operate only on non-combustible surfaces.

WARNING



Danger of fire

- ► Follow general fire prevention measures!
- ► Do **not** work near flammable substances.
- ► Do **not** use flammable substances as a base in the welding area.
- ► Do **not** weld near solvents (for example where degreasing, painting is being carried out) or explosive substances.
- ► Do **not** use flammable gases.
- ► Ensure that **no** flammable materials or soiling is located near the machine.

NOTICE!



By pressing and holding (3 sec.) the "GAS" button on the welding head remote control, you can switch between the "Test" and "welding" menus.

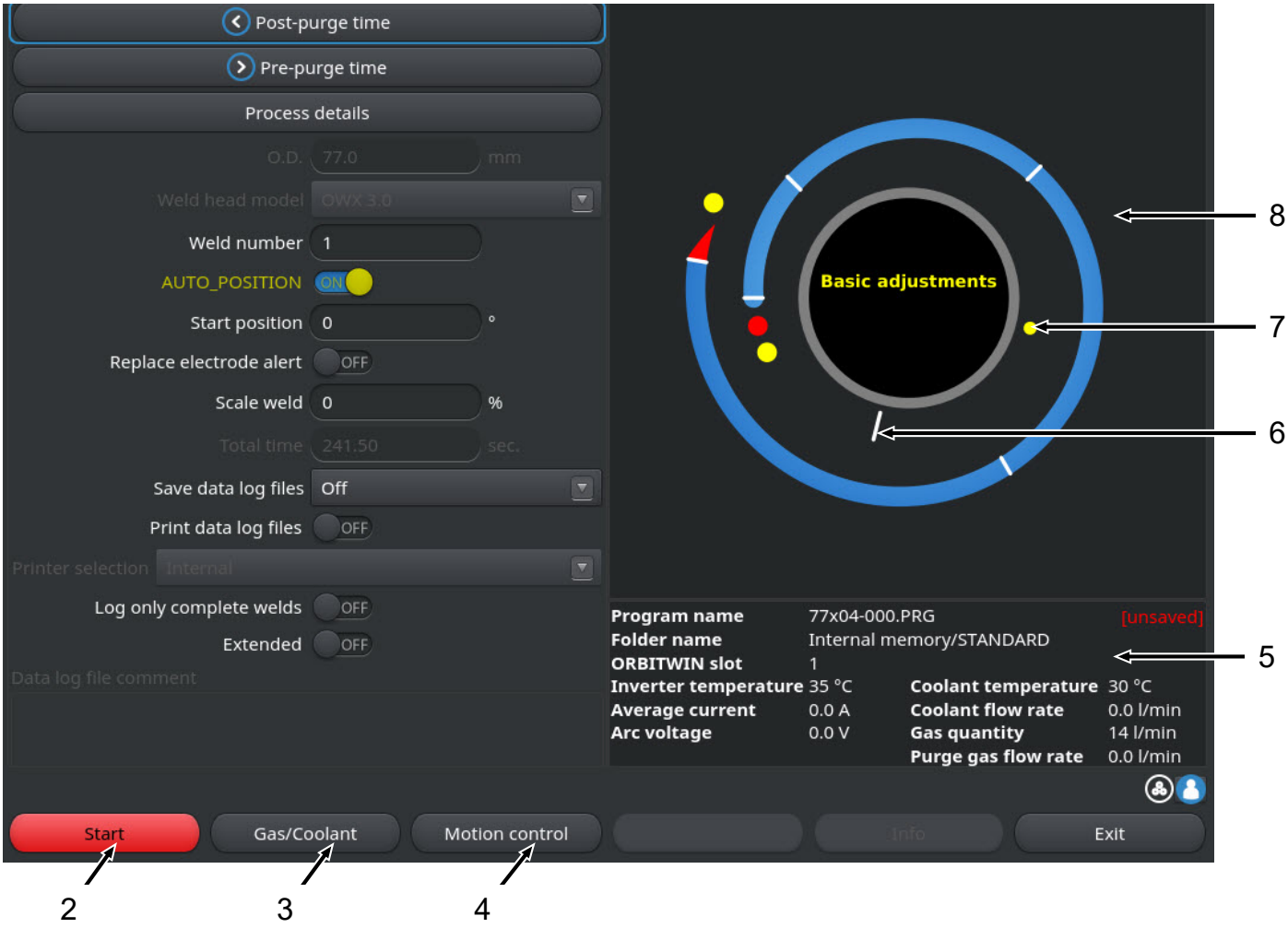


Illustration: "Welding" menu, "START" softkey red

ITEM	CONTROL	FUNCTION
2	"START" soft key	Starts the welding process with welding gas and coolant flow based on the parameters of the currently loaded welding program. **NOTICE! The welding head type programmed in the welding program must match the type connected to the power source. If the welding program parameters are outside the welding head specifications, it is not possible to start the welding process.**
3	"Gas" softkey "Gas/Coolant"	The "Gas/Coolant" softkey opens a softkey submenu with all coolant and welding gas-related functions. *See chapter* "Gas/Coolant" soft key [▶ 100]
4	"Manual Control" softkey	The "Manual Control" softkey opens a softkey submenu in which the welding head rotation and cold wire functions can be controlled manually. *See chapter* Motor control [▶ 103]

CAUTION

The rotor may start unexpectedly while setting up the electrode.

Risk of crushing hands and fingers!

- ► Before mounting the electrode: Turn off the power source.
- ► To move the rotor to the home position: Close the clamping cassette or clamping unit and the flip cover.

WARNING		**Damage to health from toxic emissions in the ambient air** ► No welding of coated workpieces and - of pressurized / media-containing pipes / objects. ► Clean workpieces before welding. ► Weld only materials suitable for the TIG welding process (TIG DC).
WARNING		**Health hazard from inhalation of radioactive particles** ► Do not use electrodes containing thorium. ► Do not weld radioactive workpieces.

7.2.1 "Gas/Coolant" soft key

The "Gas/Coolant" softkey takes you from the "Welding" menu to a submenu containing all functions relevant to welding gas:

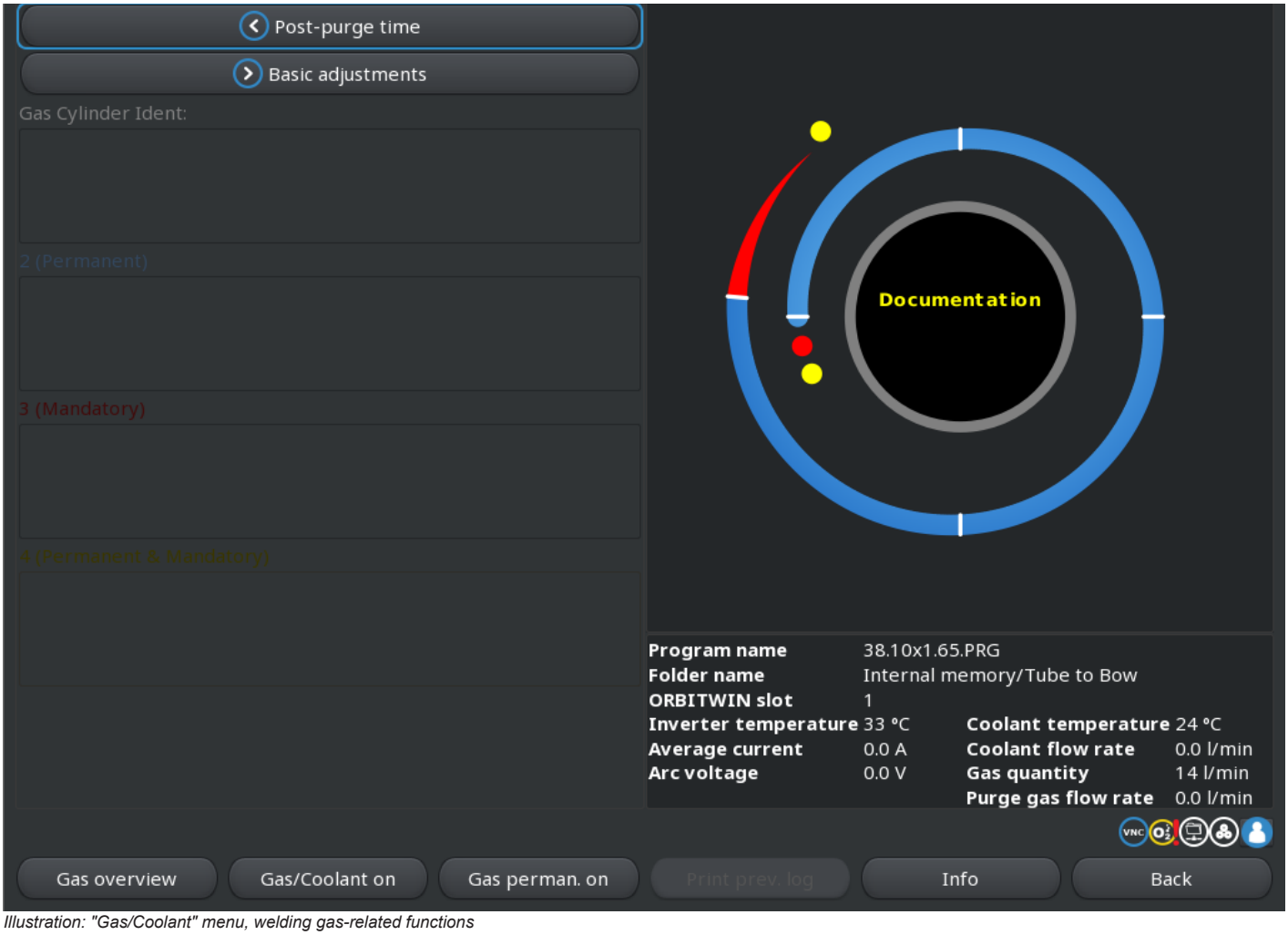


Illustration: "Gas/Coolant" menu, welding gas-related functions

7.2.1.1 "Gas On" softkey

The "Gas on" softkey manually starts the gas flow and, if the ORBICOOL cooling unit is connected, also the coolant flow.

Pressing it again stops the gas and coolant flow.

NOTICE!		**Manual start-up allows the gas and coolant flow to be checked independently of the welding process to ensure that everything is working properly. An error message is displayed if there is a gas or coolant shortage.**

7.2.1.2 Gas overview

The gas overview provides a summary and visualization of the welding gas parameters gas pre- and post-flow time and the special functions Flow Force and Permanent Gas.

These functions can be used to optimize welding gas management in terms of gas consumption, start-up colors, and process time.

Welding gas special functions

By using special welding gas functions such as Flow Force and Permanent Gas, the welding process can be optimized in terms of process time, start-up colors, gas consumption, workpiece and welding head temperature.

Flow Force

The Flow Force function is primarily used to reduce gas pre-flow and post-flow times. It offers advanced welding gas settings for optimizing welding gas management. In addition to process time, the Flow Force functions can also be used to optimize start-up colors, gas volume, workpiece and welding head temperature.

In the gas pre-flow phase, before the arc is ignited, the weld head is supplied with a significantly increased amount of gas compared to the actual welding gas volume in order to achieve faster and more efficient flushing and removal of residual oxygen in the welding torch.

In the gas post-flow phase, the welding torch can be supplied with a significantly increased amount of gas in order to achieve faster cooling of the workpiece and weld head.

Permanent gas

The permanent gas function supplies the weld head with a constant flow of welding gas in order to prevent oxygen from entering the weld head even during non-productive times.

The permanent flushing of the welding torch allows the gas pre-flow time to be significantly reduced.

As with the Flow Force function, this allows the process time, start-up colors, gas volume, and welding head temperature to be optimized.

NOTICE!		**A combination of the Flow Force and Permanent Gas functions is also possible.**

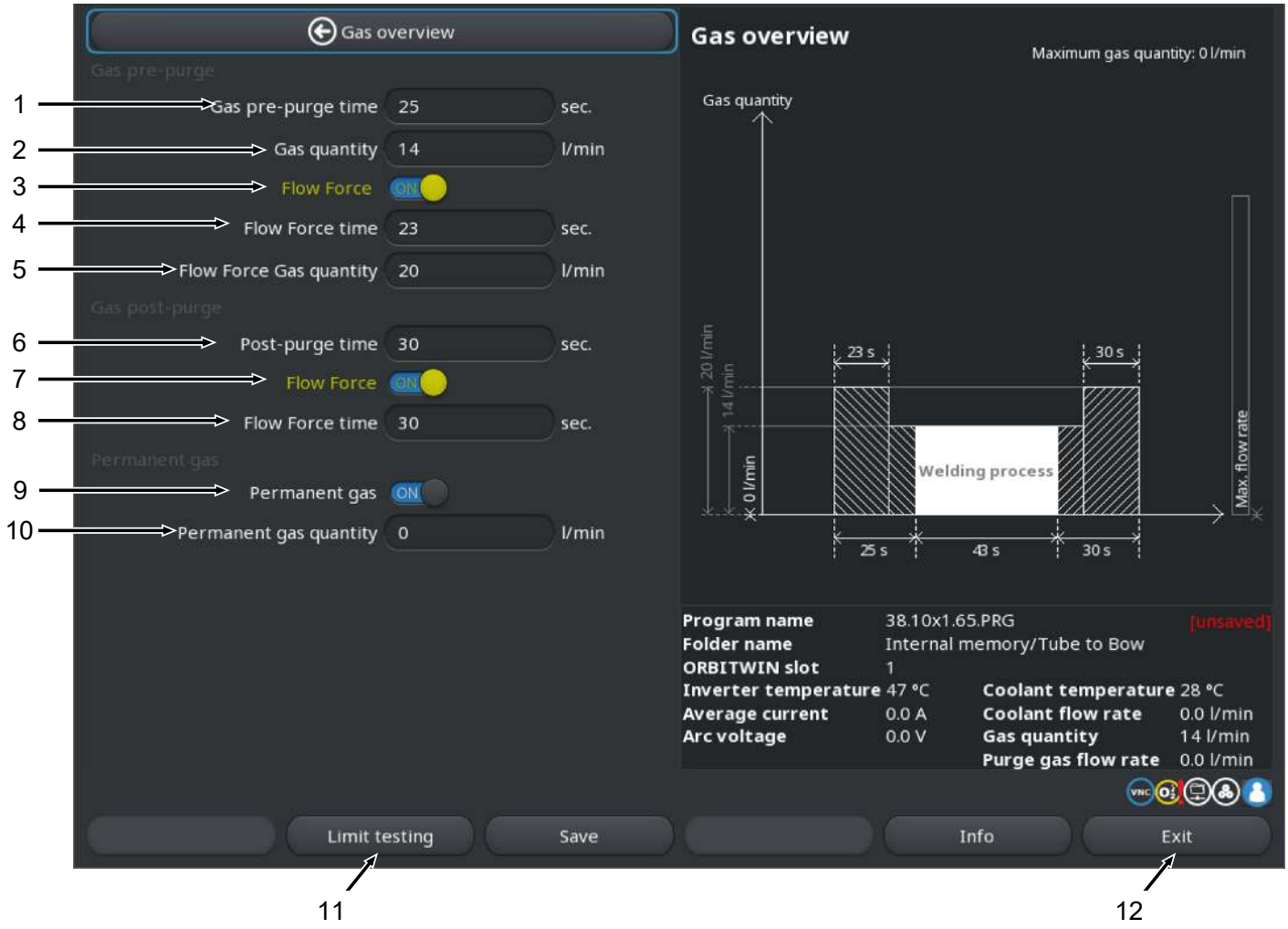


Illustration: "Gas Overview" menu

ITEM	MENU ITEM	FUNCTION	
1	Gas pre-flow time	Period in seconds during which the weld head is supplied with the process gas volume from the start of the process until ignition.	
2	Gas volume	Process gas volume supplied to the weld head during the welding process and the regular gas pre-flow and post-flow times.	
3	Flow Force - Pre-flow	Function for activating the Flow Force function in the gas pre-flow phase.	
		Flow Force ON	Flow Force active
		Flow Force OFF	Flow Force inactive
4	Flow Force time - pre-flow	Period in seconds during which the weld head is supplied with the set Flow Force gas volume during the gas pre-flow time **NOTICE! It is recommended to reduce the welding gas volume to the actual process gas volume at least 2 seconds before igniting the arc in order to stabilize the gas flow before ignition.**	
5	Flow Force gas volume	Welding gas volume with which the weld head is supplied during the flow force time in the pre-flow and post-flow phases.	
6	Gas post-flow time	Period in seconds during which the weld head is exposed to the process gas volume after the arc has been extinguished.	
7	Flow Force - Post-flow	Function for activating the Flow Force function in the gas post-flow phase.	
		Flow Force ON	Flow Force active
		Flow Force OFF	Flow Force inactive

ITEM	MENU ITEM	FUNCTION
8	Flow Force time - Afterflow	Period in seconds during which the weld head is supplied with the set Flow Force gas volume during the gas post-flow time. **NOTICE! It is recommended to apply the process gas volume for 3 seconds after the arc has been extinguished and then switch to the Flow Force gas volume.**
9	Permanent Gas	Function for activating the permanent gas function.
		Permanent Gas ON Permanent Gas active
		Permanent Gas OFF Permanent Gas inactive
10	Permanent gas volume	Welding gas quantity with which the weld head is permanently supplied during non-productive time.
11	Softkey "Limit test"	The power source uses the "Limit test" softkey to start a welding gas flow test in order to determine the max. welding gas volume available at the gas inlet socket. The determined gas volume is transferred to the "Flow Force Gas Volume" input field, taking into account a safety margin. ***NOTE*** 1. Ensure that the welding gas supply and the weld head are connected correctly. 2. If an insufficient welding gas volume can be determined, check the welding gas source and set it to the max. available gas volume.
12	"Exit" softkey	Closes the "Gas Overview" and returns to the welding menu.

7.2.1.3 "Permanent Gas" softkey

The "Gas permanent" softkey starts the permanent gas supply.

Pressing it again stops the permanent gas supply.

The permanent gas volume can be defined in the system settings or in the "Gas overview" under the entry "Permanent gas volume".

For*more information, see the chapter "* Gas overview [▶ 101] " and System adjustments [▶ 70]

7.2.1.4 "Back" softkey

The "Back" softkey takes you directly back to the "Weld Mode" menu.

7.2.2 Motor control

The "Motor Control" softkey takes you from the "Weld Mode" menu to a submenu where the weld head rotation and cold wire functions can be controlled manually.

7.2.2.1 "Motor" softkey

The "Motor" softkey opens a softkey submenu with all rotation functions of the weld head:

MENU ITEM	FUNCTION
"Jog Rotor CCW" softkey	Rotates the weld head rotor counterclockwise.
"Jog Rotor CW" softkey	Rotates the weld head rotor clockwise.
"Home Position" softkey	Rotates the weld head rotor to the home position.
"Exit" softkey	Takes you back to the "Motor Control" softkey menu.

7.2.2.2 "Wire" softkey

The "Wire" softkey opens a softkey submenu with all cold wire functions of the weld head:

MENU ITEM	FUNCTION
Wire backward soft key	Feeds the cold wire backward.
Wire forward softkey	Feeds the cold wire forward.

NOTICE! **The softkeys are only displayed if the selected weld head supports wire.**

7.2.2.3 "Global Change" softkey

Pressing the "Apply value" softkey applies the parameter value currently selected with the menu cursor to all subsequent sectors, overwriting existing values.

NOTICE! **This function serves as a convenience feature for the user, allowing them to adjust identical values across sectors more quickly.**

7.2.2.4 "Menu" softkey

Takes you back the the "Main Menu".

7.3 Test mode

The "Test" softkey (1) takes you from the main menu to test mode.



Illustration: Main menu, "Test" softkey

In the test menu/test mode, you can start a simulation process and control all welding-related functions in order to check and adjust the sequence of the currently loaded welding program.

The entire welding process is started, but without:

- Arc ignition / welding current
- Welding gas flow
- Coolant flow

Except for the above features, the test mode is identical to the "Welding" mode.

In test mode, the "Start" softkey (2) is highlighted in yellow.

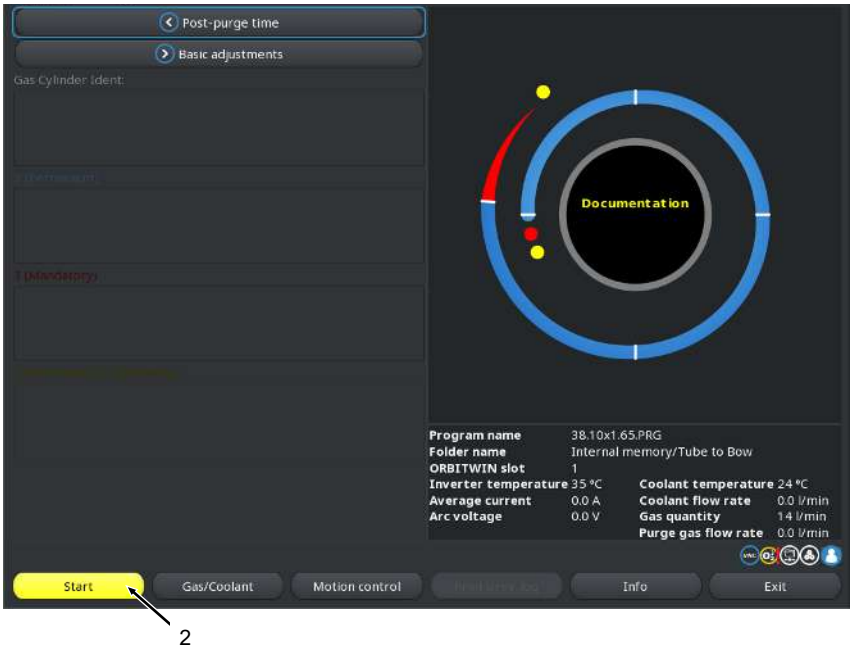


Illustration: "Test" menu, "START" soft key yellow

ITEM	CONTROL ELEMENT	FUNCTION
2	"Start" softkey	Starts the simulation process without arc ignition, welding current, welding gas, and coolant flow, based on the parameters of the currently loaded welding program. **NOTICE! The welding head type programmed in the welding program must match the type connected to the power source.** *For all other functions, see chapter* Weld mode [▶ 97]

7.4 Welding process

✓ The power source must be in welding mode.

► Pressing the "START" softkey starts the welding process and thus the coolant flow and the welding gas supply to the gas pre-flow.

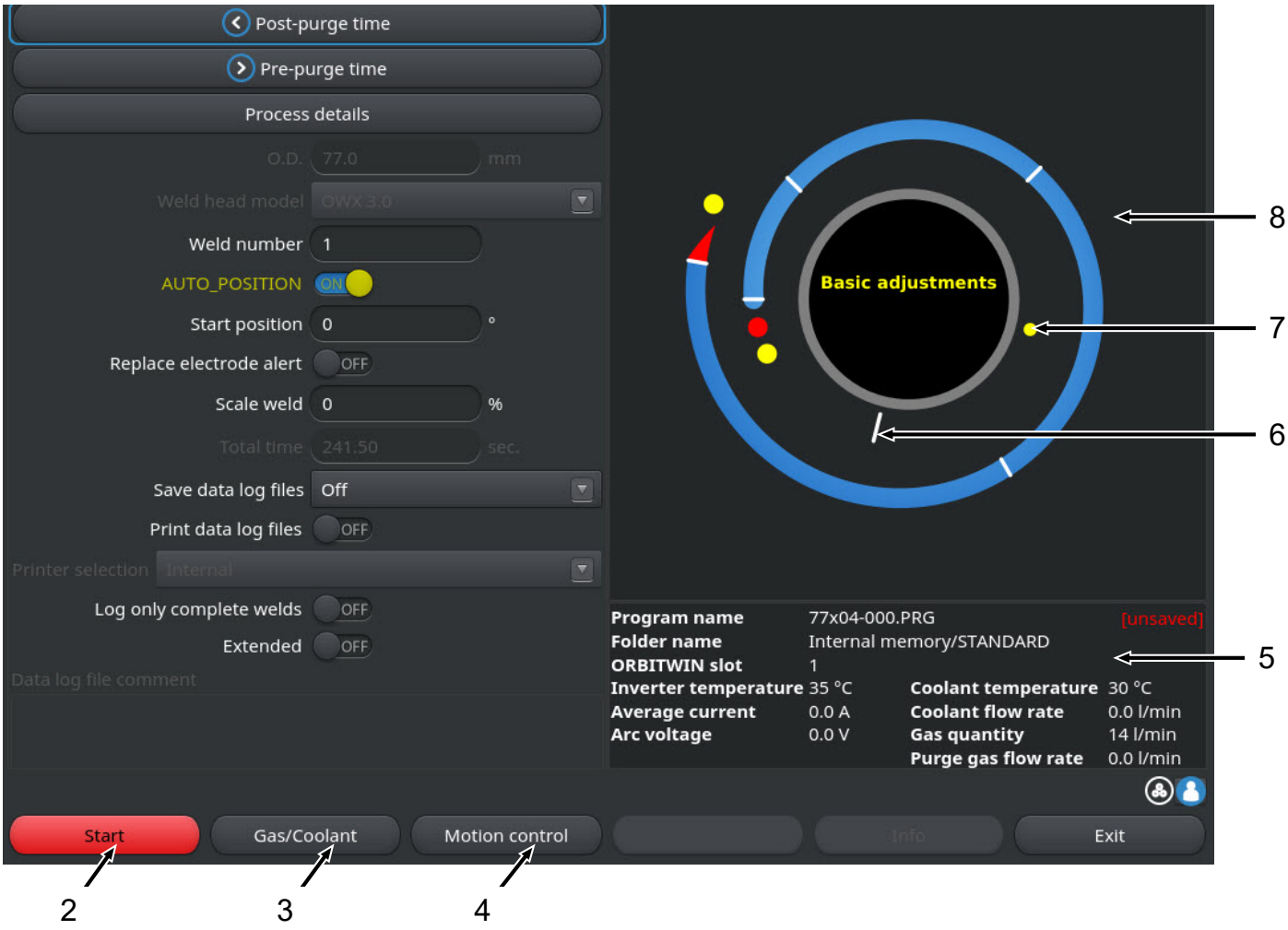


Illustration: "Welding process" menu, "START" softkey red

1. Once the gas pre-flow time has elapsed, the arc ignites and the weld pool forms.
2. Once the weld pool has formed, the rotor starts rotating and the welding parameters for the first sector are set. At a sector transition, the welding parameters are adjusted to those of the following sector.
3. Once the end of the last sector has been reached, the reduction phase begins, during which the welding current is reduced linearly until the end current is reached.
4. When the final current value is reached, the arc extinguishes and the gas post-flow time begins.
5. At the end of the gas post-flow time, the welding gas and coolant flow is stopped and the welding process is complete.

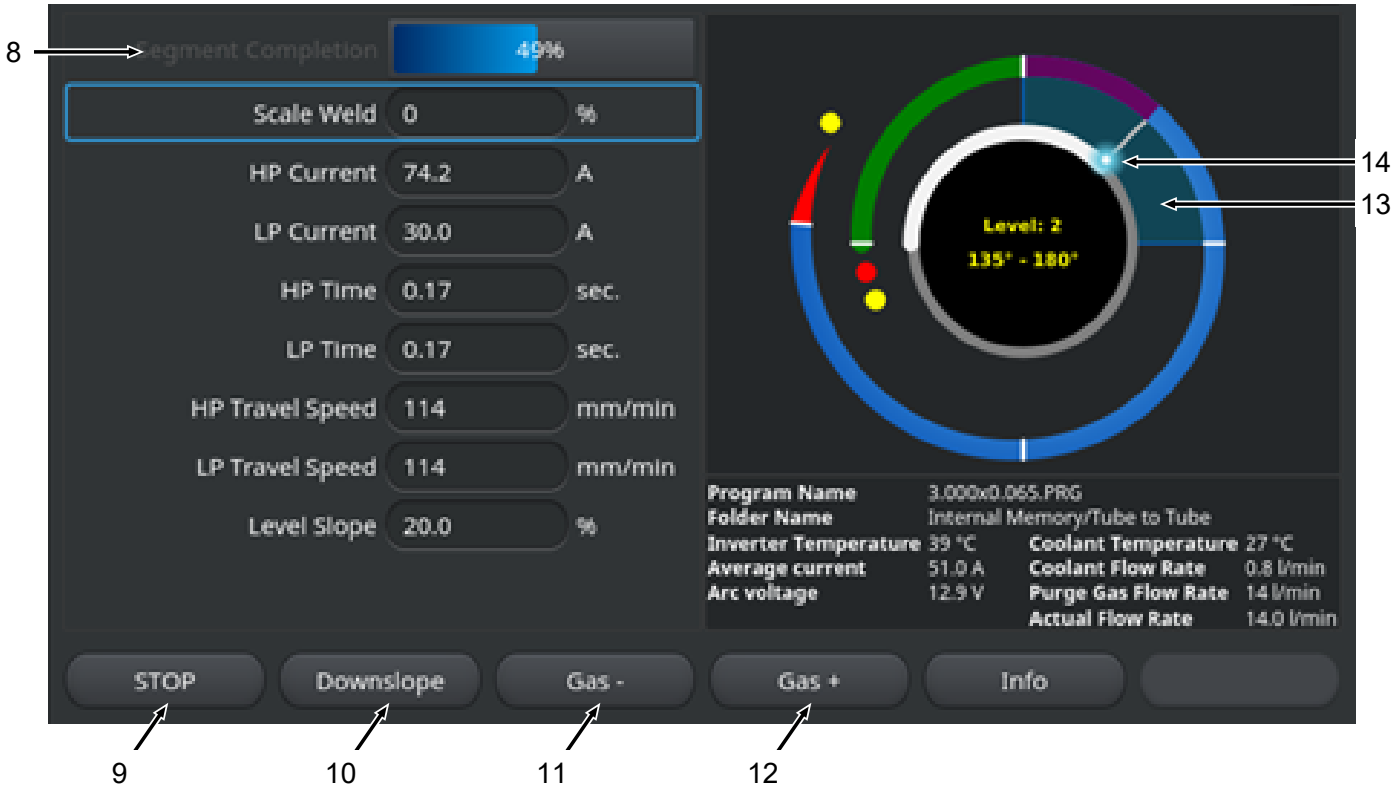


Illustration: View during the welding process

POS.	SCREEN ELEMENT	FUNCTION
1	Process progress	The process progress bar shows the progress of the currently active sector in %.
2	Animation graphic Welding position	Shows the current welding position.
3	Sector marking	Shows the currently active sector.
4	"Stop" softkey	Pressing the "Stop" softkey immediately terminates the entire welding process.
5	"Lowering" softkey	Pressing the "Lowering" softkey causes the power source to switch to the lowering phase of the welding program.
6	"Gas –" softkey	Reduces the welding gas flow rate by 1 l/min.
7	"Gas +" softkey	Increases the welding gas flow rate by 1 l/min.

NOTICE! **The parameters displayed during the welding process can be adjusted while the welding process is in progress.**

8 Service and maintenance

8.1 Cleaning

- ► Use a damp cloth to clean the surface.
- ► Only use residue-free cleaning agents.
- ► Carefully blow out the air inlets and air outlet with water- and oil-free compressed air.

8.2 Maintenance schedule

INTERVAL	ACTIVITY
Daily	► Check the coolant level in the tank of the external cooling unit and top up if necessary.
	NOTICE! If weld heads are changed frequently, it may be necessary to refill the coolant more often.
	1. After changing a welding head, ensure that it is completely filled with coolant (run for approx. 3 min – button: GAS/Coolant). 2. Check the coolant level and top up if necessary.
	► If antifreeze is used: Top up with coolant accordingly.
	► Wipe the display with a slightly damp cloth. Do not use cleaning agents.
	► Check that the fasteners on the cooling unit power source are secure.
Monthly	► Clean the entire exterior of the machine.
	► Check the connecting lines for mechanical damage.
	► Check the coolant for contamination and replace if necessary.
	► Check coolant connections for proper function and contamination.
Every six months	1. Completely drain the coolant from the external cooling unit. 2. Fill with fresh tap water and pump out this filling completely again. 3. Refill the tank with OCL-30 coolant.
Annually	► Perform a repeat test in accordance with standard IEC 60974-4.
	► Have the inverter calibrated by Orbitalum Service. Have the BGV-A3 test performed by Orbitalum or a certified body.
	► Country-specific laws and regulations must be complied with where applicable.

8.3 Pump out coolant from the external cooling unit

Used when changing the coolant and emptying the tank during prolonged machine downtime.

Preparation

1. Connect the drain hose (included in the scope of delivery) to the blue coolant connection (1).
2. Hold the open end of the hose in a collection container (min. 3 liters).



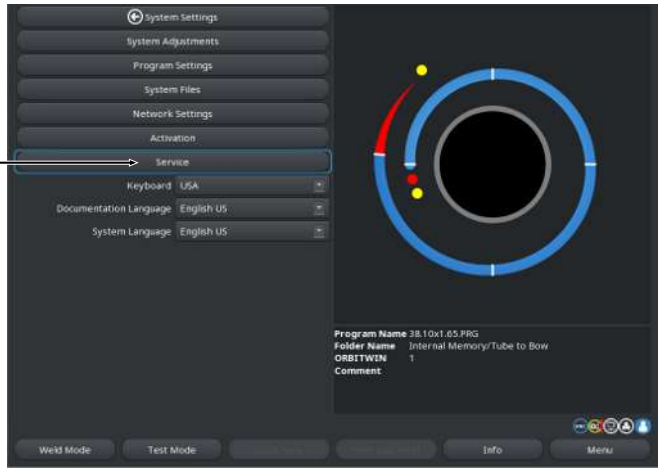
Procedure

Perform the following steps in the welding power source menu:

► Press the "Settings" button (2) in the main menu.



► Press the "Service" button (3).



► Press the "Coolant pump on" button (4).

⇨ The pumping process starts and the message "Coolant is being pumped out" appears.



► Check the fill level indicator and stop the pumping process by pressing the "Cancel" message button (5) when the tank is empty.



NOTICE!

The pumping process is limited to approx. 30 seconds.

When the pump is idling, the pump speed increases audibly.

- ► Stop the pumping process immediately.
- ► If no coolant is discharged for more than 10 seconds of pump operation, cancel the pumping process to avoid damage to the pump.
- ► To empty the tank completely, lift the power source slightly at the rear.
- ► Repeat the process until the coolant tank is completely empty.
- ► To disconnect the drain hose from the coolant connection, gently push back the blue ring on the connection.

8.4 Troubleshooting

NO.	FAULT REPORT	REMEDY
01	Warning	A "warning" appears on the display (during the process, directly below the mains voltage information). The message can be combined with the parameters voltage, current, or speed and the specification "high" or "low." The message indicates that the corresponding parameter has exceeded or fallen below the limit value specified in the monitoring limits for the alarm. Example "Warning Speed Low": The limit value specified for the alarm for the welding speed during the "low current time" has been reached. This can be an overrun or an underrun. If one of the abort values is also reached, the process is aborted with another message.
02	Gas shortage	The process was aborted due to a gas shortage. ► Check the hoses, cylinder, and pressure reducer. ► Check the sensor if the gas is flowing in sufficient quantities despite the error message. This message also appears outside of the welding process if the gas is switched on using the "Gas/Coolant" button and no gas is flowing.

NO.	FAULT REPORT	REMEDY
03	Coolant shortage	The process was interrupted due to a lack of coolant.
		► Check hoses, coolant level in the tank, and pump operation.
		► Check the sensor if the coolant is flowing in sufficient quantities despite the error message.
		► Check coolant flow: to test, disconnect the coolant return on the machine.
		This message also appears outside of the welding process if the coolant is switched on via the Gas/Coolant button and no coolant is flowing.
04	External input error	A device connected to the external error input has triggered the error.
		If no device is connected to the external error input:
		► Deactivate the monitoring function in the system settings.
05	Current error	Used in connection with a deviation in the welding current.
		Example: "Warning: low current fault," see message 01.
06	Current interruption	The welding current has exceeded or fallen below the limits defined in the monitoring limits for interruption, and the process has been interrupted.
		► Check limit values: possibly set too narrow.
		Excessive resistance in the welding circuit (ground connection, rotor, current cooling cable): The machine can no longer maintain the programmed welding current (setpoint) within the specified limits.
07	Low	The limit value specified for the low pulse of the corresponding parameter has been reached, see also message 01.
08	Voltage	The message appears as "Voltage warning." The limit values specified in the monitoring limits for the alarm have been exceeded or fallen below.
		► Check the limit values and observe the information in the chapter "Monitoring Functions" (*see chapter* Limit Adjustments [▶ 77]).
		Cause of excessive arc voltage:
		High contact resistances in the welding circuit (plug, ground contact, etc.).
		For cassette heads: worn current/coolant cables.
09	Voltage interruption	The limit values specified in the monitoring limits for interruption with regard to the arc voltage are exceeded or not reached.
		► Check the limit values and observe the information in the chapter "Monitoring Functions" (*see chapter* Limit Adjustments [▶ 77]).
		Cause of excessive arc voltage:
		High contact resistance in the welding circuit (plug, ground contact, etc.).
		For cassette heads: worn current/coolant cables.
10	Speed	Addition to "Warning." The speed limit values (warning) specified in the monitoring limits have been exceeded or not reached.
		► Check limit values.
		► Check the welding head speed.
		► Perform motor calibration if necessary.

NO.	FAULT REPORT	REMEDY
11	Speed abort	The welding speed exceeded or fell below the limits specified in the monitoring limits for interruption, and the process was interrupted. Check the limits; they may be set too narrowly. Other causes for a speed interruption: Mechanically blocked, sluggish, or defective weld heads.
		► Check whether the weld head can be moved manually (or with the remote control).
		► If necessary, perform a motor calibration.
12	Time limit for high-voltage ignition exceeded	No arc ignition occurred within approx. 3 seconds after switching on the ignition device. The process is interrupted. <u>Possible causes for failure of arc ignition:</u> • Poor electrode quality, worn or scaled electrode • Poor ground contact (open heads – ground clamp) • Worn welding current plugs, poor contact • Rusty or dirty pipe surface • No gas, wrong gas (never use carbon dioxide, even in mixture with argon!) or gas pre-flow time too short • Excessive arc distance • Moisture in the weld head • Hose packages (extensions) too long
		► Rectify possible causes.
		► Recommendation: Do not exceed a total length of 15 m for hose packages.
13	Inverter	Error in serial communication (RS232) between PC control and inverter.
		► Switch off the machine and switch it back on again after approx. 30 seconds.
		Is the error still present?
		► Contact your dealer or Orbitalum.
14	Arc is interrupted	The arc ignition was successful, but the arc was interrupted during the process. <u>Possible causes:</u> • Interruption in the welding circuit (contact problems, ground clamp) • Currents too low (low pulse not below 5 A for standard applications!) • Final current too low • Arc distance too large • With open heads: strong drafts cause the arc to break
15	Short circuit (current flows, but no voltage)	The electrode touched the workpiece during the process. This causes the arc voltage to drop below the "normal" value (from approx. 10 V), and the system detects a short circuit regardless of the settings in the monitoring limits.
		► Eliminate the short circuit.
		► Resharpen the electrode.
		► If necessary, grind out any tungsten inclusions in the weld seam.

NO.	FAULT REPORT	REMEDY
16	Forming gas pressure	When used with the forming gas pressure control. The actual pressure value deviates too much from the specified target value (warning or process interruption). Causes: • Actual value too low, see internal pressure display • Possibly too low inlet pressure from the cylinder pressure gauge
		► Ensure that there are no excessive gaps (pipe joints?).
		► Ensure that the plugs close tightly so that pressure can build up.
		► If necessary, set the pressure regulator on the BUP box to a maximum of 10 bar.
		► If necessary, correct the inlet pressure from the cylinder pressure gauge. See also: Operating instructions for the BUP unit itself.
17	Error code	Internal read/write error in the software. After "Error code," the error appears in "plain text" (see messages 18 to 29) or as a two-digit number.
		► Contact Orbitalum Service.
18	An error has occurred! Please contact our support	► Plain text messages that can appear with the message "Error code" (message 17).
19	Parameter error	
20	Drive not found	
21	File not found	
22	Path not found	
23	Folder full	
24	Drive full	► Contact Orbitalum if the problem cannot be resolved.
25	Drive not ready	
26	Write-protected	
27	Access error to file	
28	The name contains invalid characters.	
29	Program cannot be opened under this name	
30	The file version does not match. The file has been modified!	► Reload/copy/correct the file.
31	Additional programs cannot be created!	For messages with "90%" information: Resources are largely exhausted. Additional data can still be saved.
32	Over 90% of resources used for programs!	
33	No more folders can be created!	Recommendation:
34	Over 90% of resources used for folders!	► Clean up your system, delete data that is no longer needed, or back it up externally. The number of folders and programs per folder is limited to 100 each.

NO.	FAULT REPORT	REMEDY
35	The program cannot be loaded!	Program cannot be loaded when switching on. When the machine is switched on, the last program used is loaded. If this is not possible (e.g., USB stick removed), the default program is loaded.
		► Contact Orbitalum if the problem cannot be solved.
36	The program cannot be saved!	Problem saving programs. The error appears in "plain text" (see messages 18 to 29) or as a two-digit number.
37	File with inverter characteristic curve cannot be opened! Default values are used.	File with characteristic curves cannot be read. Current balance of the machine ineffective. A file generated during current balancing is stored in the machine's internal memory: During calibration, a digital balancing is performed in which the differences between the target and actual values are recorded point by point in comparison with the measured values of a calibrated measuring unit and stored in a file. If the file is unreadable, the error coefficients are assigned the default value (= 1). This means that the current balance performed by Orbitalum is ineffective.
		► For applications that require data monitoring and actual value recording, do not continue to work with the machine.
		► Contact Orbitalum to restore the calibration data.
38	Auto programming failed! The autoprog file may be missing or faulty.	Error in auto programming. <u>Causes:</u>
		• The combination of tube diameter and wall thickness is outside the value range of the auto programming (e.g., wall thickness >4 mm).
		► Use other parameters.
		• Data from the database on the internal memory is not available or cannot be read.
		► Contact Orbitalum to restore the data.
39	External storage medium not found! Possibly no USB stick is plugged into the USB port	Access to external USB stick not possible.
		► Check whether the USB stick is recognized by the system.
		► Remove the USB stick, wait a moment, and reinsert it. You may need to use a different port.
		► Check whether the USB stick is defective or has an unreadable format.
		► Contact Orbitalum Service if the problem cannot be solved.
40	Error saving log	Software conflicts due to damaged files or files with unreadable content. After the message appears, the error is displayed in "plain text" (see messages 18 to 29) or as a two-digit number.
41	Program file cannot be opened!	
42	Log file cannot be opened!	
43	Some currents are set too high. These cannot be reached at 115 V mains voltage!	Machine connected to power supply <200 V AC. The maximum welding current is limited to 120 A. Program with higher welding current has been started.
44	Error reading the FAILURES.TXT file!	Internal error log (file "Failures.txt") is missing or damaged.

NO.	FAULT REPORT	REMEDY
45	No weld head connected!	Program started, no weld head connected to the machine. Is the weld head connected? • Weld head not coded • Power supply to the weld head defective. The control buttons on the weld head do not work. ► Contact Orbitalum Service.
46	Wrong weld head connected!	The program that has been started has selected a different weld head than the one currently connected. ► Select the connected weld head in the program. – or – ► Connect the weld head selected in the program to the machine. The welding head types are identical, but the message still appears? ► Contact Orbitalum Service.
47	There are parameters in the program that are outside the limits for the selected weld head!	Weld head changed in the program. Weld head does not match the parameters. The parameters of the weld heads that can be connected to the machine are stored in the machine's weld head list, e.g., the maximum rotor speed, the maximum tube diameter to be welded, and the maximum permissible current. ► Adjust the program parameters to the selected weld head.
48	Motor current >> Collision detection Normal motor current Motor current Time	Gearbox sluggish. ► Check head. ► Repair gearbox if necessary.
49	Electrode replacement warning	► Replace electrode.
50	Calibration error ("Calibration aborted due to execution error; calibration aborted due to operating error; calibration aborted due to parameter")	► Perform calibration again or restart the machine.
51	Error copying programs or protocols	► Check for possible write protection; the drive may not be ready.
52	Printer error, error when communicating with printer	► Check the connection to the printer. ► Check the network connection. ► Update printer list.
53	Incorrect settings	► Check your entries.
54	Shared folder could not be created/integrated	► Check whether the shared folder is set to "public." ► Check whether the input data is correct. ► Check whether the IP address range matches.
55	Touchscreen could not be changed	► Restart the machine.

NO.	FAULT REPORT	REMEDY
56	CAN timeout error	► Click "OK" to dismiss the message.
		If welding process is not possible:
		► Contact Orbitalum Service.
57	Required current higher than maximum current of the inverter	► Check the current settings.
		If this error message appears frequently:
		► Contact Orbitalum Service.
58	Welding head parameters for wire are incorrect	► Check wire settings.

9 Upgrade options

The functionality of the power source software can be easily expanded with optional upgrade options.
Activation is performed using an alphanumeric activation code ("activation key") that can be entered in the system settings.

See chapter Activation

In the operating instructions, functions that require upgrades are marked with the corresponding upgrade icons.

See chapter Legend

UPGRADE Connectivity LAN/IoT/VNC (code 850080001)*

Software upgrade to activate the following scope of services:

- Data exchange between power sources and LAN network drives for welding data logs and welding programs.
- Integration of the power source into an Industry 4.0/IoT environment via MQTT protocol.
- Control of the power source via VNC using a PC, tablet, or mobile device.
- Input of control commands via QR code scanner.

10 Accessories

ITEMS	CODE
bar code/QR code scanner MW/SW/PW	850 030 005
Remote control with 7.5 m cable	875 050 001
ORBITWIN SW/PW Switching unit	853 000 001
Transport case 300	874 050 001
ORBICAR W Trolley with external cooling	884 000 002
ORBICOOL Active SW/PW	889 000 015
Double pressure reducer ARGON	888 000 001
Double pressure reducer ARGON/HYDROGEN	888 000 002
TIG manual torch with 4.0 m hose package	890 013 010
ground cable	811 050 005
ORBmax residual oxygen meter	882 000 002

Subject to change without notice.
For detailed information, see product catalog, download links PDF:

https://www.orbitalum.com/de/download.html

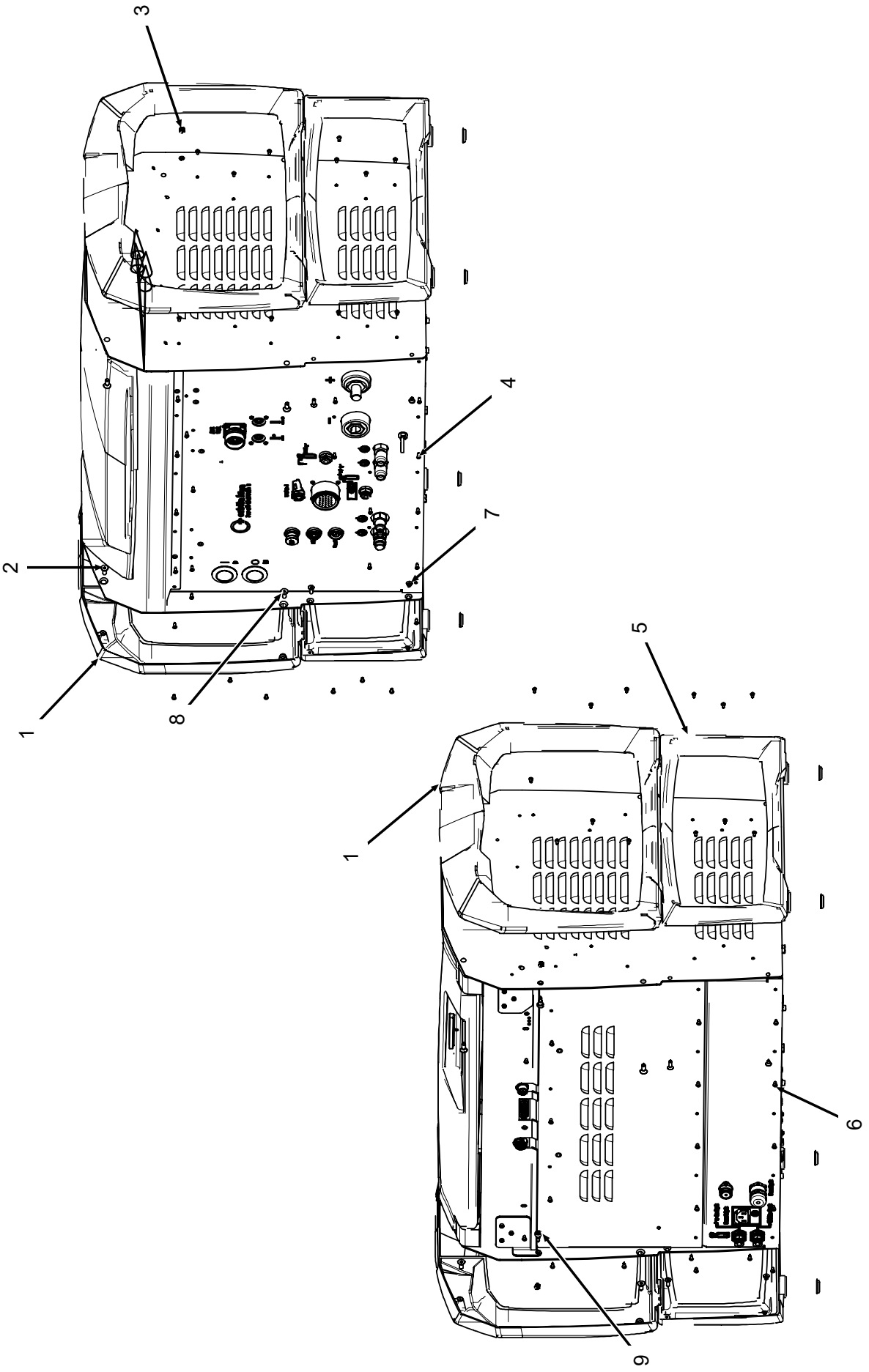
11 Consumables

Available as an option.

ITEM	CODE
Coolant OCL-30 (3.5 L canister)	850 030 010
Thermal paper rolls, pack of 3	854 030 001

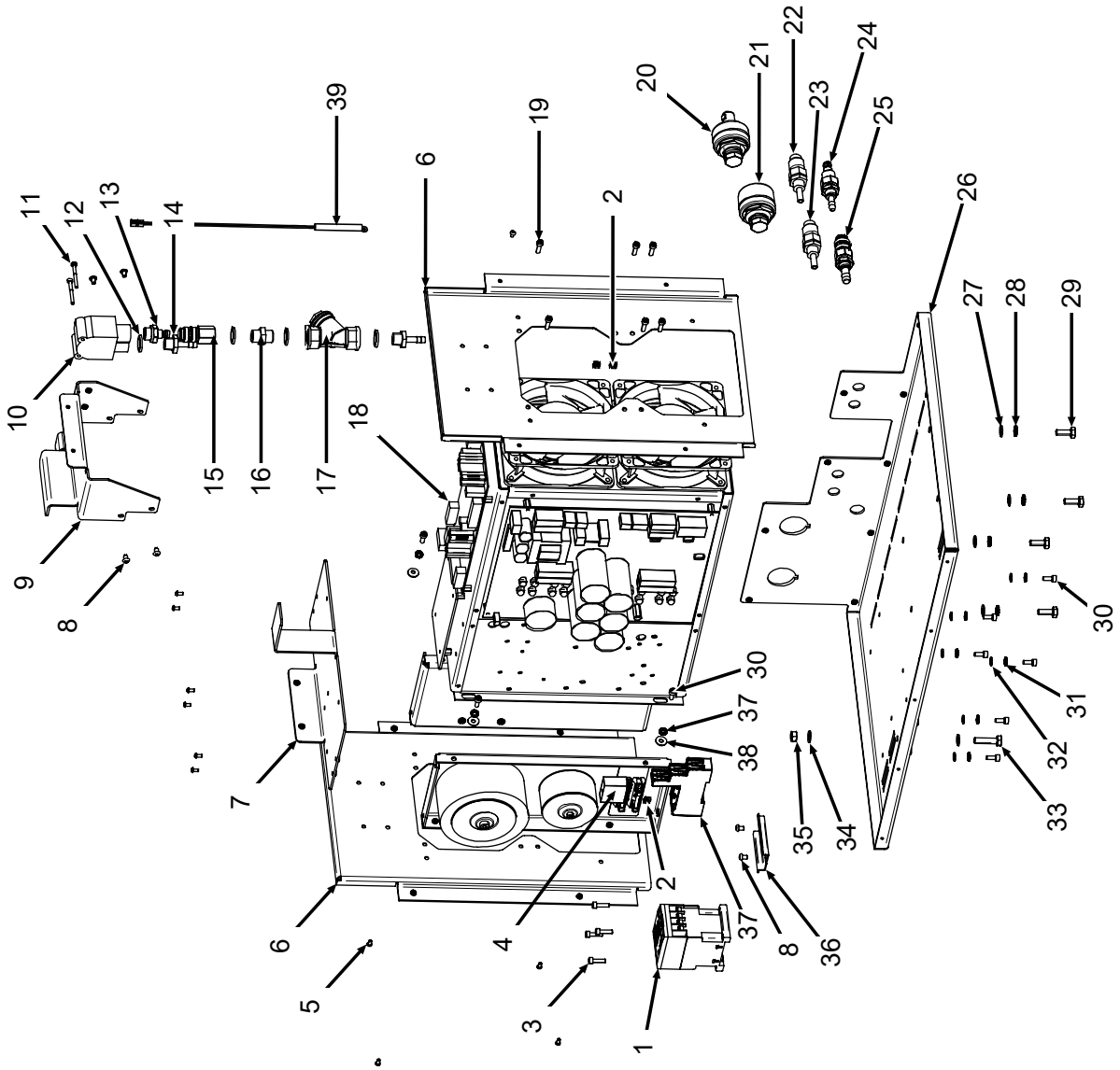
12 ERSATZTEILLISTE / SPARE PARTS LIST

12.1 Maschine | Machine

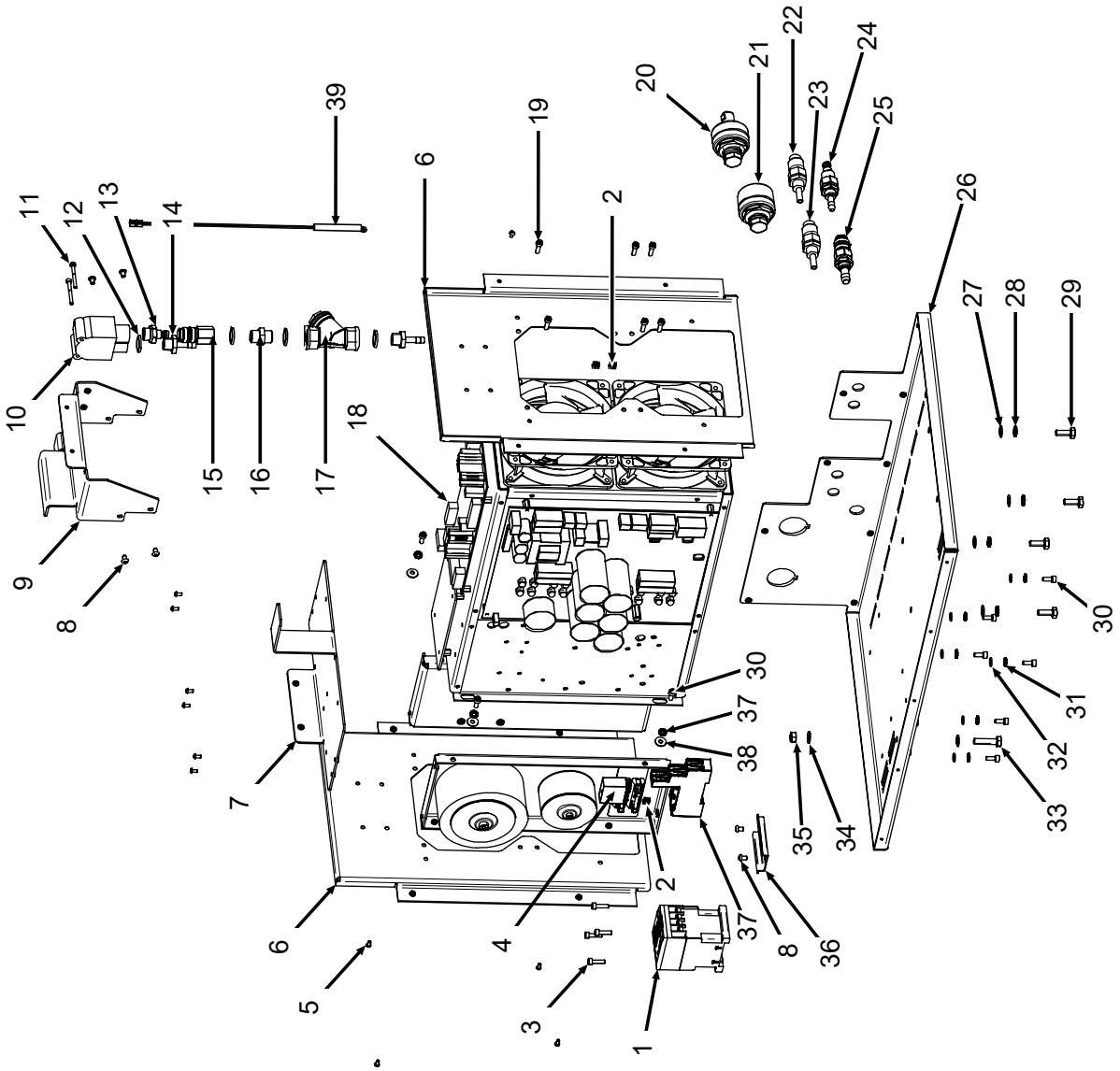


POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION
1	852 020 007	2	Gehäuse, Seitenrahmen Teil 1 (oben) Housing, side frame, part 1 (top)
2	302 305 164	8	Senkschraube DIN7991-M5x12-8.8-ZN Countersunk screw DIN7991-M5x12-8.8-ZN
3	501 607 309	2	Sechskantmutter ISO10511-M4-05-ZN Hexagon nut ISO10511-M4-05-ZN
4	307 001 104	56	Linsenschraube ISO7380-M3x6-A2-TX Oval-head screw ISO7380-M3x6-A2-TX
5	852 020 006	2	Gehäuse, Seitenrahmen Teil 2 (unten) Housing, side frame, part 2 (below)
6	850 020 122	4	Gummifuß Rubber foot
7	302 303 111	4	Senkschraube DIN7991-M4x6-A2 Countersunk screw DIN7991-M4x6-A2
8	302 301 115	4	Senkschraube DIN7991-M4x12-A2 Countersunk screw DIN7991-M4x12-A2
9	850 020 107	2	Passschraube M4 Fitting screw M4

12.2 Gehäuse | Housing

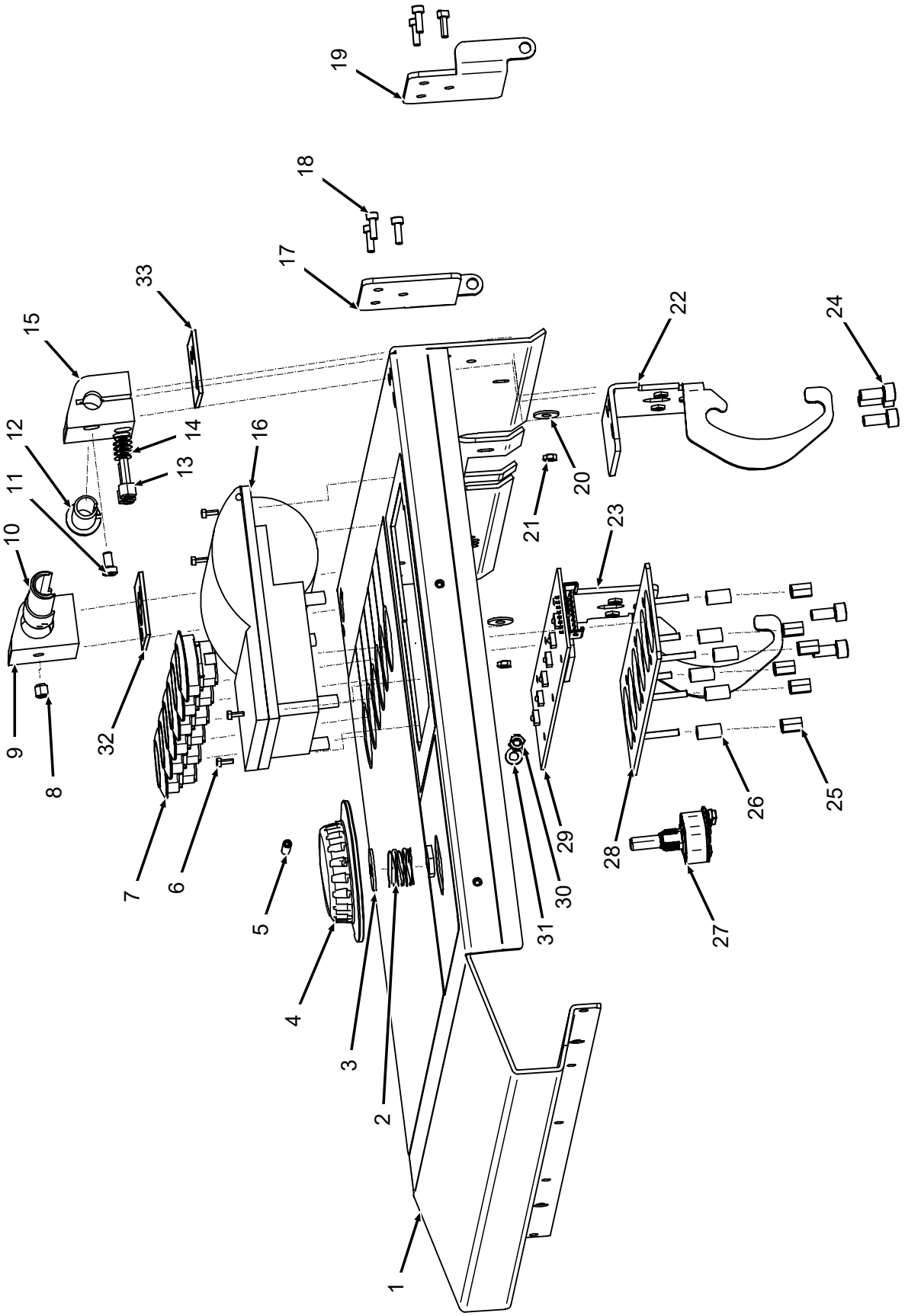


POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION	POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION
1	872 012 011	1	DC-Hauptschütz 300 SW/CA WR DC main contactor 300 SW/CA WR	11	305 501 056	2	Zylinderschraube ISO4762-M3x30-A2 Cylinder screw ISO4762-M3x30-A2
2	500 602 309	12	Sechskanmutter ISO4032-M4-A2 Hexagon nut ISO4032-M4-A2	12	860 020 080	3	Dichtring Typ 0-1/4" Seal ring 0-1/4"
3	305 501 072	4	Zylinderschraube ISO4762-M4x16-A2 Cylinder screw ISO4762-M4x16-A2	13	860 020 056	1	Stecknippel Plug nipple
4	848 050 031	1	Relais 24V Relay 24V	14	860 020 054	1	Verschlusskupplung rot Sealing coupling, red
5	307 001 104	10	Linsenschraube ISO7380-M3x6-A2-TX Oval-head screw ISO7380-M3x6-A2-TX	15	885 020 002	1	Gewindetülle 1/4"/6 mm Rechtsgewinde Thread.nozzle 1/4"/6 mm righthand thread
6	852 020 001	2	Kühlkanal Cooling channel	16	860 020 045	1	Doppelnippel, DN 13/13, 1/4"x1/4" Double nipple DN13/13 1/4" x 1/4, right
7	852 020 002	1	Abdeckung Kühlkanal Cover cooling channel	17	874 030 001	1	Wasserfilter kpl. Water filter, cpl.
8	307 001 115	6	Linsenschraube ISO7380-M4x6-A2 Oval-head screw ISO7380-M4x6-A2	18	874 012 002	1	Inverterbausatz 300 A DC , Wide Range Inverter assembly 300 A DC, wide range
9	852 020 009	1	Montageblech Wasserfluss-Sensor Mounting plate, water flow sensor	19	305 501 074	6	Zylinderschraube ISO4762-M4x14-A2 Cylinder screw ISO4762-M4x14-A2
10	875 012 020	1	Wasserflusssensor Water flow sensor	20	850 010 018	1	Schweißstrom-Einbaustecker 400A Weld current built-in plug 400A

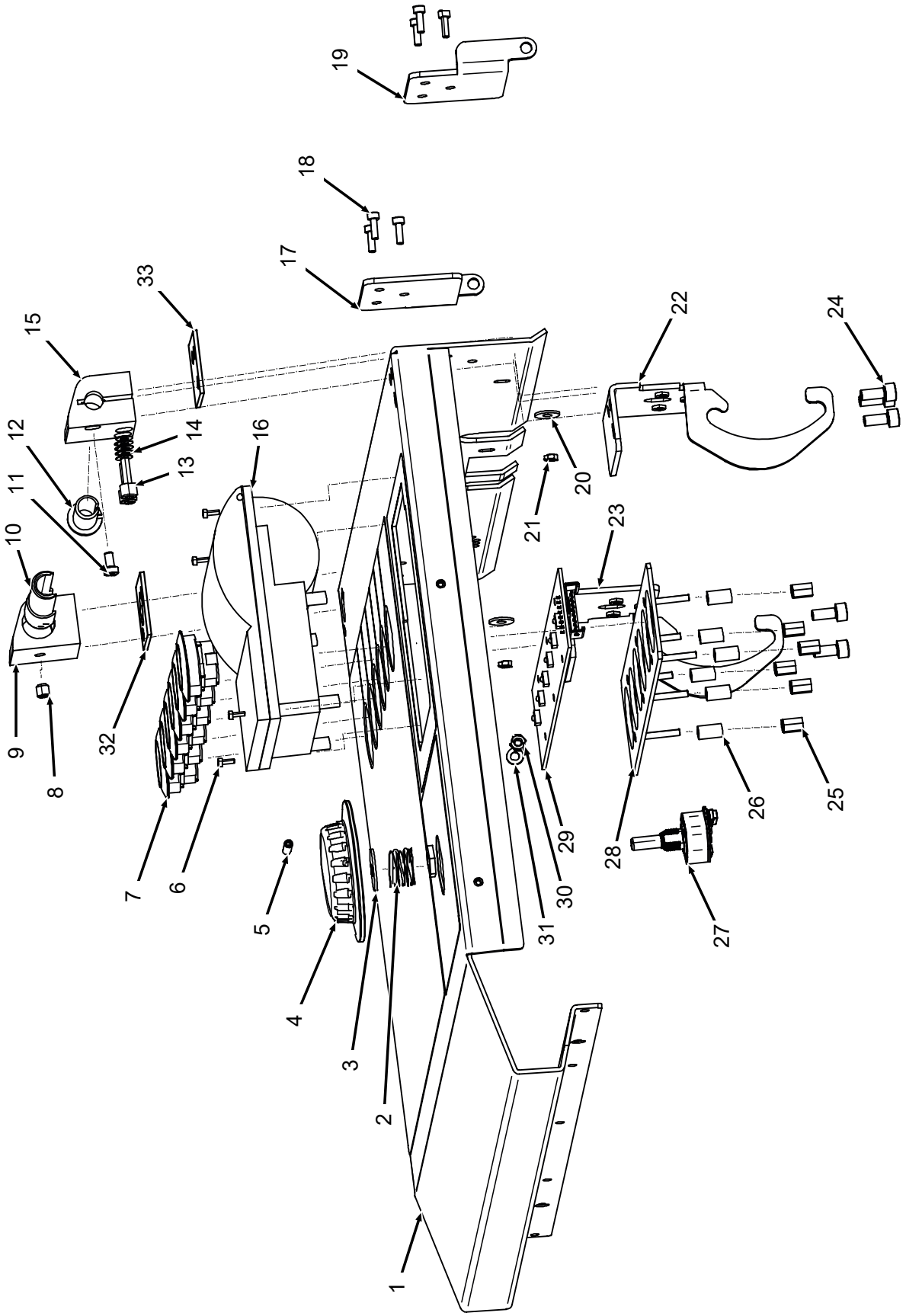

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POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION	POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION
21	850 010 017	1	Schweißstrom-Einbaubuchse 400A Weld current built-in socket 400A	31	553 458 321	10	Fächerscheibe DIN6798-A4.3-A2 Serrated washer DIN6798-A4.3-A2
22	850 020 307	1	Einbaubuchse Kühlmittel OM/OT V2, rot Build-in socket coolant OM/OT V2, red	32	542 500 318	8	Scheibe DIN125-ISO7089-d4.3-A2 Washer DIN125-ISO7089-d4.3-A2
23	850 020 306	1	Einbaubuchse Kühlmittel OM/OT V2, blau Build-in socket coolant OM/OT V2, blue	33	300 000 215	1	Sechskantschraube EN24017-M6x25-A2 Hexagon screw EN24017-M6x25-A2
24	860 020 059	1	Verschlusskupplung Stecker, Neutral BA Sealing coupling, neutral	34	871 020 035	1	Sperrkantscheibe A4 K für Gewinde M6 Retaining washer A4 K for thread M6
25	874 012 008	1	Einbaubuchse Kühlmittel OC, neutral Build-in socket coolant OC, neutral	35	500 602 311	1	Sechskantmutter ISO4032-M6-A2 Hexagon nut ISO4032-M6-A2
26	852 020 013	1	Grundplatte Gehäuse PW Housing, base plate PW	36	872 020 004	1	Hutschiene, L50 Top-hat rail , L50
27	542 500 320	1	Scheibe DIN125-ISO7089-d6.4-A2 Washer DIN125-ISO7089-d6.4-A2	37	848 019 014	1	Relaissockel Relay socket
28	553 458 323	4	Fächerscheibe DIN6798-A6.4-A2 Serrated washer DIN6798-A6.4-A2	38	790 052 389	2	Scheibe DIN9021-d4.3-A2 Washer DIN9021-d4.3
29	300 000 211	4	Sechskantschraube EN24017-M6x16-8.8 Hexagon screw EN24017-M6x16-8.8				
30	305 501 067	10	Zylinderschraube ISO4762-M4x10-A2 Cylinder screw ISO4762-M4x10-A2				

12.3 Deckel | Cover



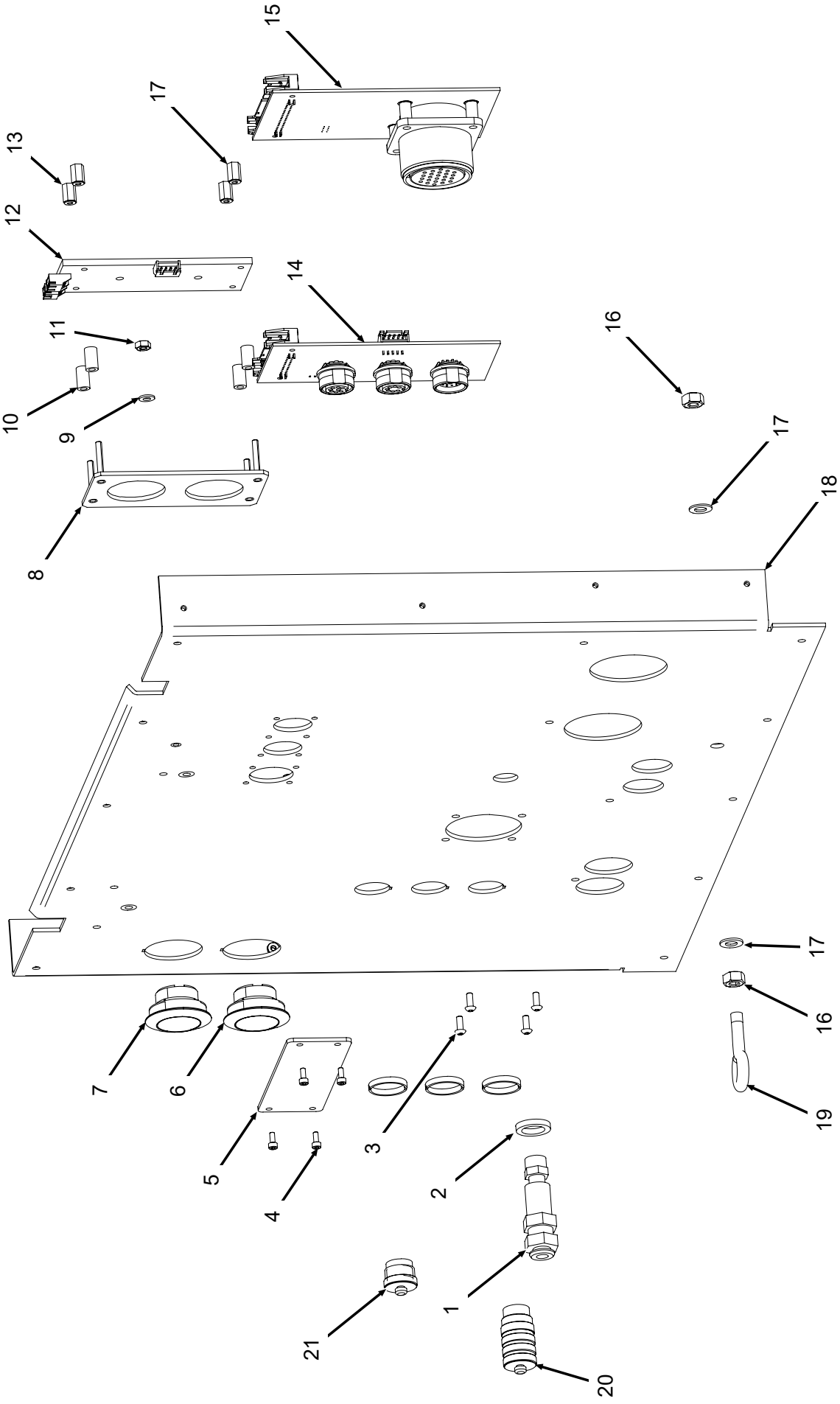
POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION	POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION
1	850 020 100	1	Deckel SW+ Cover SW+	11	305 801 050	1	Zylinderschraube DIN7984-M4x8-A2 Cylinder screw DIN7984-M4x8-A2
2	790 052 409	1	Druckfeder Pressure spring	12	850 020 118	1	Gleitlagerbuchse Slide bearing bushing
3	872 001 039	1	Unterlegscheibe D6 D20 H1.5 Washer D6 D20 H1.5	13	850 020 116	2	Zylinderschraube M4x0.35 Cylinder screw M4x0.35
4	872 001 037	1	Betätigungsknopf, Drehsteller (V2) Button, rotary actuator (V2)	14	850 020 119	8	Tellerfeder DIN2093 8x4.2x0.4 Cup spring DIN2093 8x4.2x0.4
5	445 005 116	1	Gewindestift DIN913-M4x16-45H Grub screw DIN913-M4x16-45H	15	850 020 110	1	Lagerblock rechts, Gehäuse SW/PW Bearing block right, housing SW/PW
6	850 020 162	4	Linsenschraube DIN7500 M2x6 Oval-head screw DIN7500 M2x6	16	850 050 020	1	Umrüstsatz Drucker SW/PW V1 - V2 Thermo Bis SN 8527510006 Conversion kit printer SW/PW V1 - V2 thermo Up to SN 8527510006
7	850 010 011	6	Softkeytaster VA, blau Softkey VA, blue		854 010 053	1	Einbaudrucker, Thermo V2 Ab SN 8527510007 Built-in printer, thermal V2 From SN 8527510007
8	445 005 223	1	Gewindestift DIN913-M6x6-A2 Grub screw DIN913-M6x6-A2	17	850 020 132	1	Scharnier außen links V2 SW/PW Hinge outside left V2 SW/PW
9	850 020 108	1	Lagerblock links, Gehäuse SW/PW Bearing block left, housing SW/PW	18	305 501 100	6	Zylinderschraube ISO4762-M3x10-A2 Cylinder screw ISO4762-M3x10-A2
10	850 020 109	1	Gelenkbolzen SW/PW Pivot bolt SW/PW	19	850 020 133	1	Scharnier außen rechts V2 SW/PW Hinge outside right V2 SW/PW



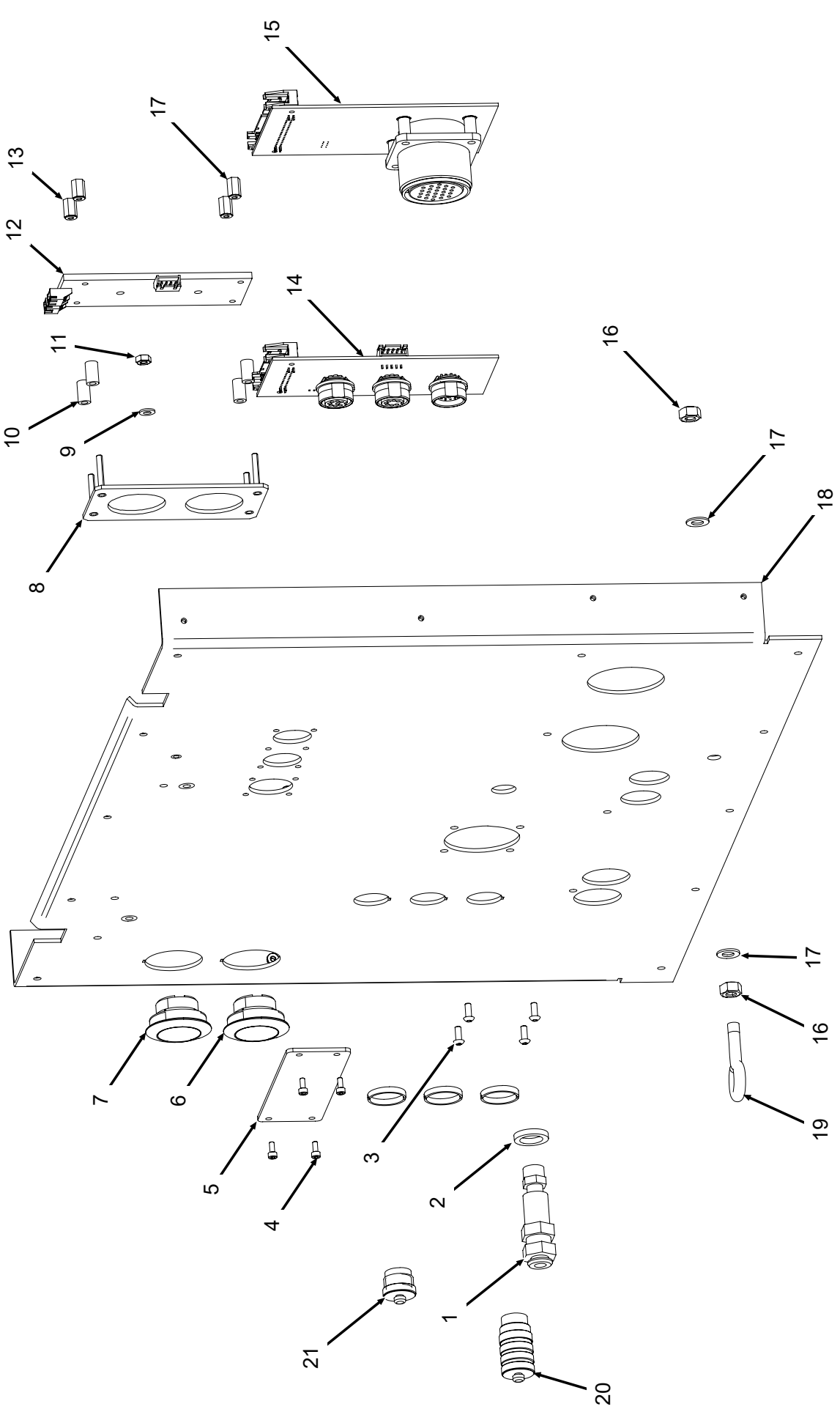
POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION
20	790 052 389	2	Scheibe DIN9021-d4.3 A2 Washer DIN9021-d4.3
30	500 602 309	1	Sechskantmutter ISO4032-M4-A2 Hexagon nut ISO4032-M4-A2

POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION	POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION
21	500 602 308	2	Sechskantmutter ISO4032-M3-A2 Hexagon nut ISO4032-M3-A2	31	871 020 033	1	Sperrkantscheibe A4 K für Gewinde M4 Retaining washer A4 K for thread M4
22	850 020 130	1	Scharnier innen rechts V2 SW/PW Hinge inside right V2 SW/PW	32	850 020 143	1	Scharnierdichtung SW+, links Hinge seal SW+, left
23	850 020 131	1	Scharnier innen links V2 SW/PW Hinge inside left V2 SW/PW	33	850 020 144	1	Scharnierdichtung SW+, rechts Hinge seal SW+, right
24	305 501 089	5	Zylinderschraube ISO4762-M5x12-A2 Cylinder screw ISO4762-M5x12-A2	34	850 020 143	1	Scharnierdichtung SW+, links Hinge seal SW+, left
25	860 020 091	6	Abstandsbolzen, Kunststoff 10 mm, M3 IxA Distance bolt, plastic 10 mm, M3 IxA	35	850 020 144	1	Scharnierdichtung SW+, rechts Hinge seal SW+, right
26	850 020 123	6	Abstandshülse AD6.5 ID3.5 L11.5 Spacer sleeve OD6.5 ID3.5 L11.5				
27	872 012 008	1	Drehsteller (V2) Rotary actuator ORBIMAT CA (V2)				
28	850 020 140	1	Montageblech, Hauptsoftkeytaster SW/PW Mounting plate, main softkey SW/PW				
29	850 010 004	1	Platine, Hauptsoftkeys SW/PW Circuit board, main softkeys SW/PW				

12.4 Frontplatte | Front Panel



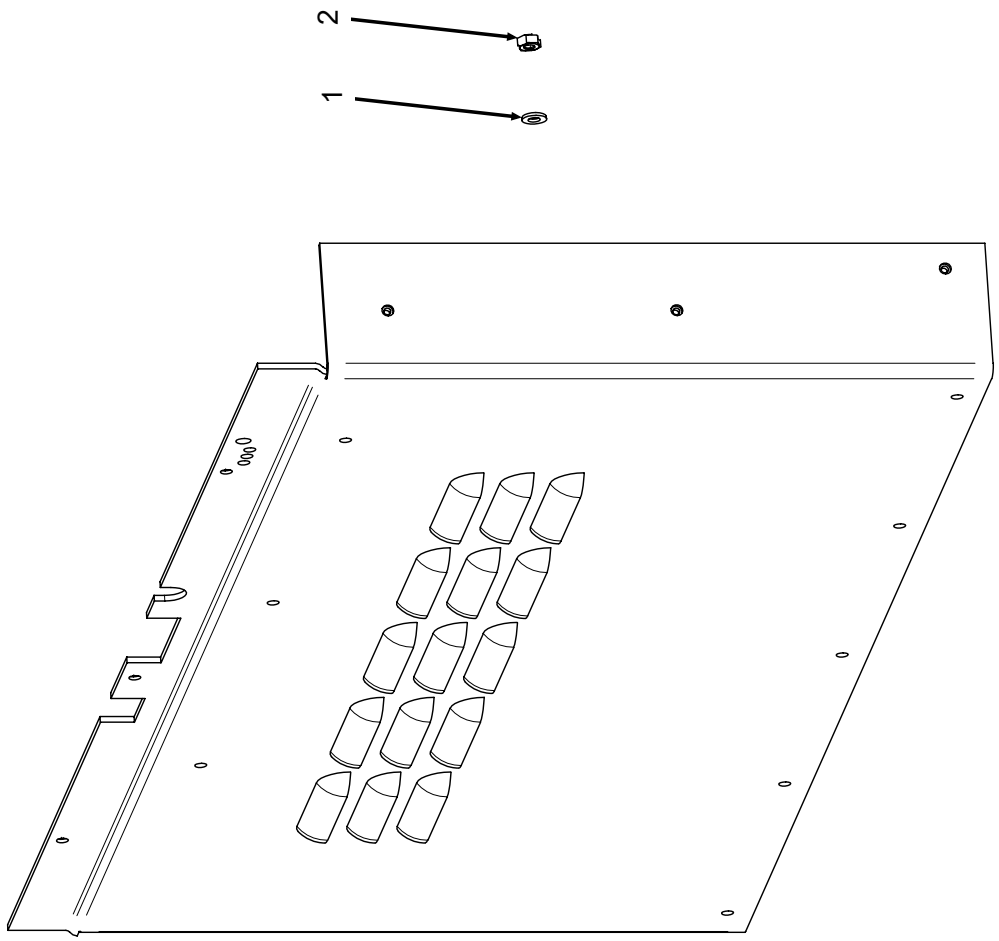
POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION	POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION
1	875 012 048	1	Gasanschlussbuchse, Ausgang Gas connection socket, outlet	11	500 602 309	1	Sechskantmutter ISO4032-M4-A2 Hexagon nut ISO4032-M4-A2
2	871 020 004	1	Gasausgangsbuchse, Ring PA 12.2x18x3 Gas outlet socket, ring PA 12.2x18x3	12	850 010 012	1	Platine, ON/OFF-Taster SW/PW Circuit board, ON/OFF button SW/PW
3	307 001 126	4	Linsenschraube ISO7380-M3x8-A2-TX Oval-head screw ISO7380-M3x8-A2-TX	13	860 020 091	4	Abstandsbolzen, Kunststoff 10 mm, M3 IxA Distance bolt, plastic 10 mm, M3 IxA
4	305 501 063	4	Zylinderschraube ISO4762-M2.5x6-A2 Cylinder screw ISO4762-M2.5x6-A2	14	850 010 016	1	Platine, BUP-ORB-Fernbed.-buchse SW/PW Circ.board BUP-ORB-remote ctrl.soc SW/PW
5	872 001 033	1	Abdeckblech PW/CA AVC_OSC Cover plate PW/CA AVC_OSC	15	850 010 015	1	Platine, 24pol. Steuerleit.-buchse SW/PW Circ.board,24pol.contr.cbl. socket SW/PW
6	850 010 014	1	Softkeytaster, rot Softkey, red	16	500 602 311	2	Sechskantmutter ISO4032-M6-A2 Hexagon nut ISO4032-M6-A2
7	850 010 013	1	Softkeytaster, grün Softkey, green	17	542 500 320	2	Scheibe DIN125-ISO7089-d6.4-A2 Washer DIN125-ISO7089-d6.4-A2
8	850 020 142	1	Montageblech, ON/OFF-Softkeytaster SW/PW Mounting plate, ON/OFF softkey SW/PW	18	852 020 008	1	Frontplatte Gehäuse PW Housing, front plate PW
9	871 020 033	1	Sperrkantscheibe A4 K für Gewinde M4 Retaining washer A4 K for thread M4	19	875 012 051	1	Ringschraube, Zugentlastung Ring bolt, strain relief
10	850 020 123	4	Abstandshülse AD6.5 ID3.5 L11.5 Spacer sleeve OD6.5 ID3.5 L11.5	20	850 050 004	1	Fernbedienungsbuchse, Blindstecker SW/PW Remote control socket, blind plug SW/PW



POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION
21	850 010 020	1	Schutzkappe Frontplattenbuchsen ORB/BUP Protection cap front panel sockets SW

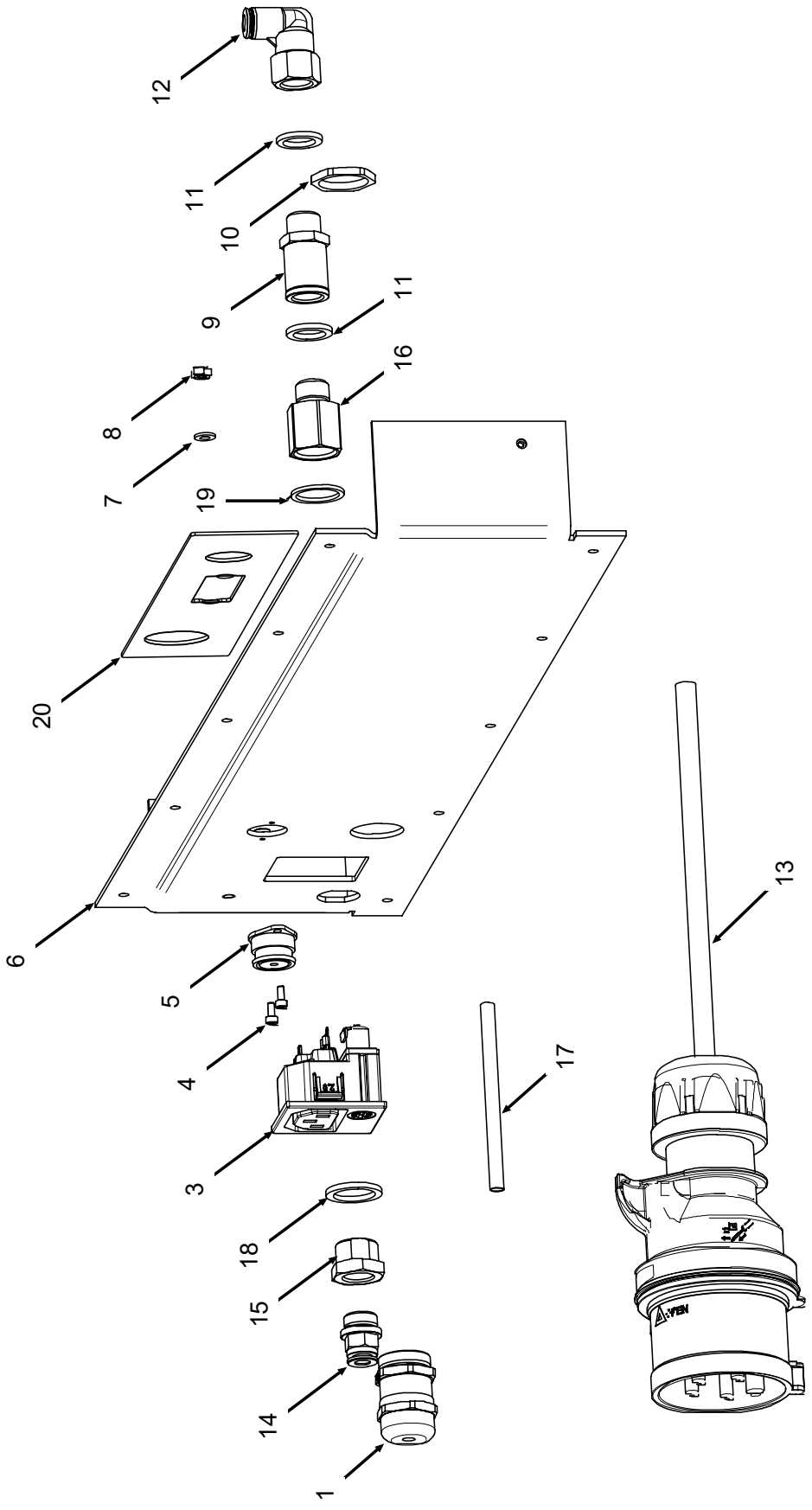
POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION

12.5 Rückwand PW, groß | Back Panel, large

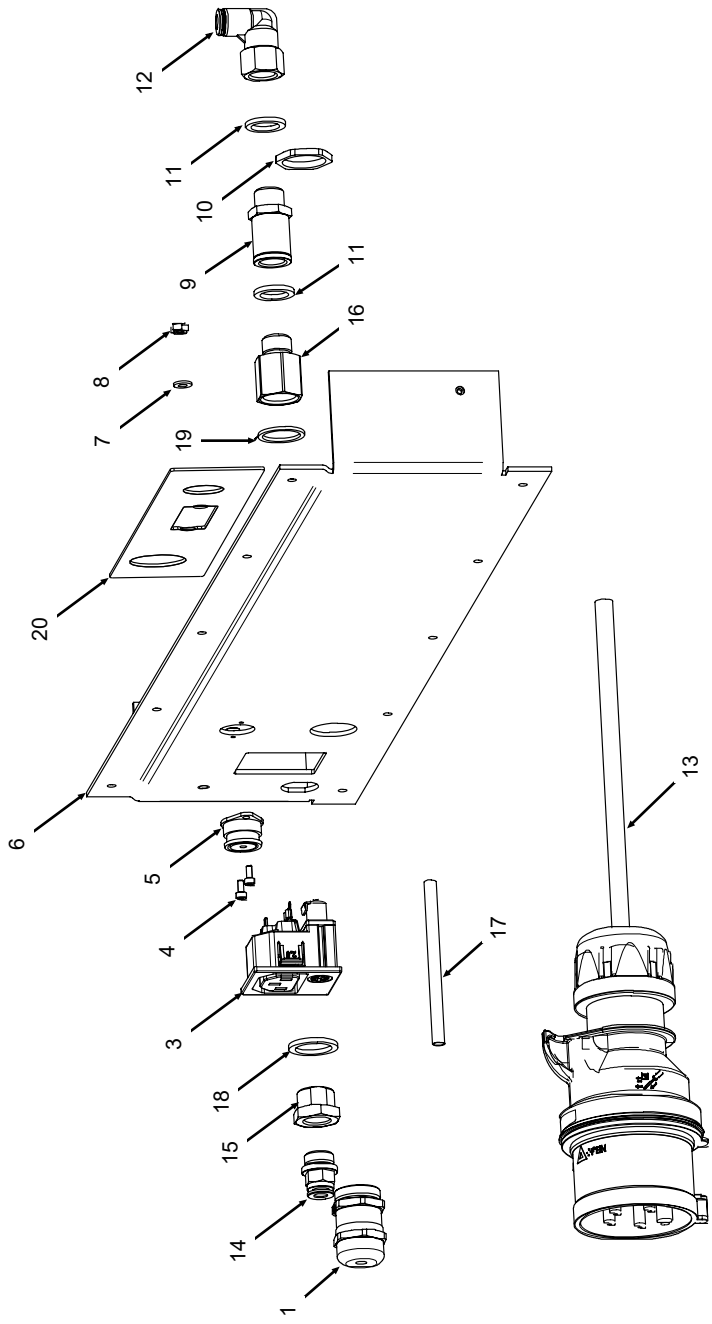


POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION
1	875 012 048	1	Gasanschlussbuchse, Ausgang Gas connection socket, outlet
2	871 020 004	1	Gasausgangsbuchse, Ring PA 12.2x18x3 Gas outlet socket, ring PA 12.2x18x3

12.6 Rückwand PW, klein | Back panel PW, small



POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION	POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION
1	875 012 055	1	Zugentlastung, Netzkabel 300 A Strain relief, power cable 300 A	11	860 020 080	1	Dichtring 0 - 1/4" Seal ring 0 - 1/4"
3	850 010 037	1	Netzanschlussbuchse Orbitwin V2 Mains socket ORBITWIN V2		860 020 080	1	Dichtring 0 - 1/4"** Seal ring 0 -1/4"**
4	305 605 432	2	Zylinderschraube ISO4762-M2.5x6-A2 Cylinder screw ISO4762-M2.5x6-A2	12	850 020 301	1	Steckverschraubung QSF 6mm 1/4 in gerade Push-in fitting QSF 6 mm 1/4" straight
5	874 012 007	1	RENK-Einbaubuchse, 5-polig RENK built-in socket, 5 pole	13	872 012 005	1	Netzanschlussleitung OM 300 (CEE) Mains power cable OM 300 (CEE)
6	852 020 014	1	Rückwand OM 300 SW, klein Back panel OM 300 SW, small	14	854 020 053	1	Steckverschraubung NPQM-D-G14-Q6-P10** Push-in fitting NPQM-D-G14-Q6-P10**
7	871 020 033	1	Sperrkantscheibe A4 K für Gewinde M4 Retaining washer A4 K for thread M4	15	854 020 052	1	Reduziernippel, MS A-G3/8; I-G14; L14** Reduction nipple, MS A-G3/8; I-G1/4; L14**
8	500 602 309	1	Sechskantmutter ISO4032-M4-A2 Hexagon nut ISO4032-M4-A2	16	854020050	1	Reduziernippel, lang MS G1/4 a. - G3/8 i.** Reduction nipple, long MS G1/4 a.-G3/8"**
9	850 020 304	1	Druckreduzierventil, 4 bar 1/4" Pressure reduction valve, 4 bar 1/4"	17	823 020 016	3 m	Gasschlauch, Teflon Gas hose, Teflon
10	872 020 020	1	Kontermutter PG 13.5 Counter nut PG 13.5	18	854 020 051	1	Dichtring, PVC G3/8" Sealing ring, PVC G3/8"
				19	854 020 049	1	Dichtring, Kupfer 17,2x20,9x1,5 G3/8" Sealing ring, copper 17,2x20,9x1,5 G3/8"

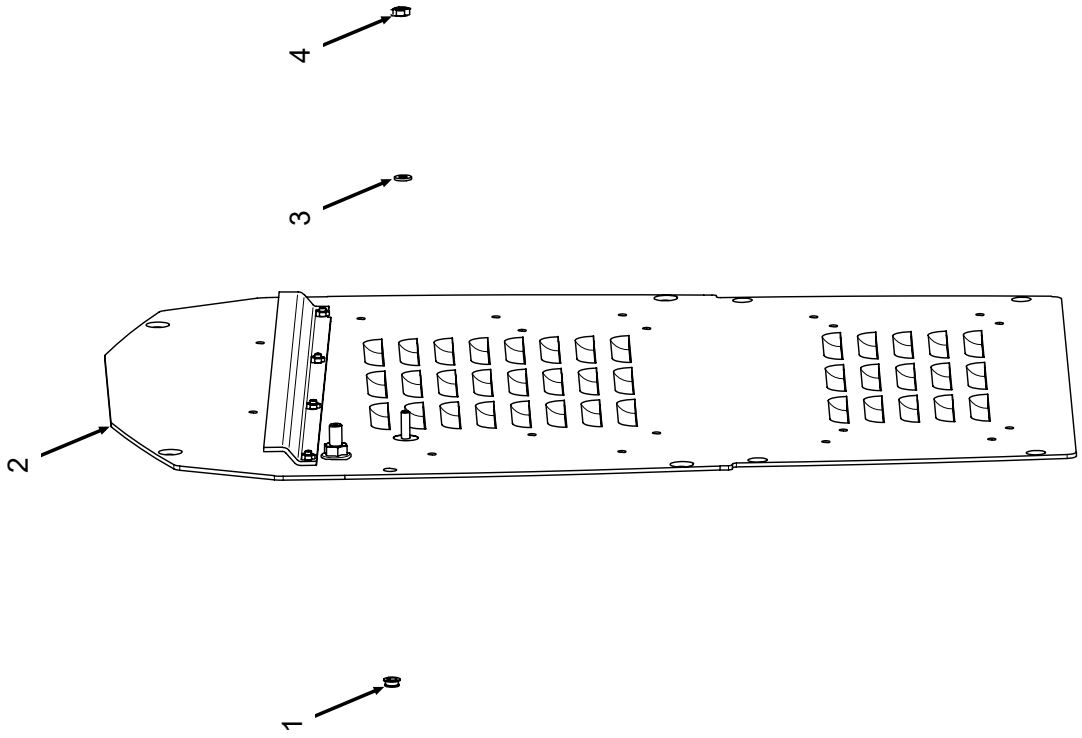

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POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION
20	850 020 145	1	Dichtung I/O Platine-Rückwand SW+ Seal I/O board back panel
-	854 020 060	1	Filterlinse 1/4" AG** Filter lense 1/4" OT**
-	850 020 305	1	Gaseingangsbuchse* Gas input socket*
-	860 020 008	1	1-Ohr-Klemme, Einlagering 5.9-7.0 mm 7.5* 1-ear clamp, insert 5.9-7.0 mm 7.5*
-	885 020 011	1	Gasstecker 4mm, Eingang* Gas plus 4 mm, input*

*bis SN 8527510018
*up to SN 8527510018

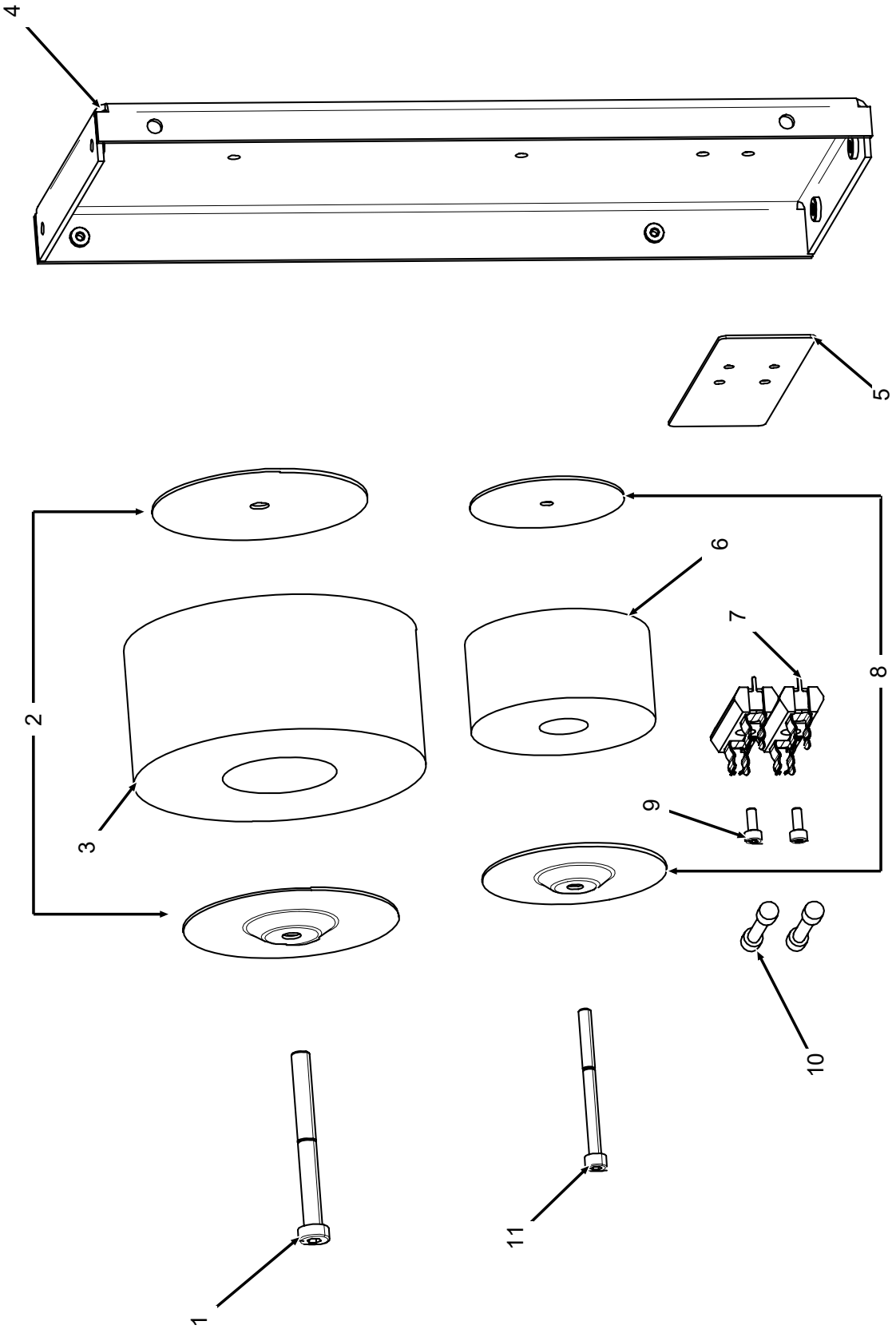
**ab SN 8527510019
**from SN 8527510019

12.7 Seitenwand, rechts | Side panel, right

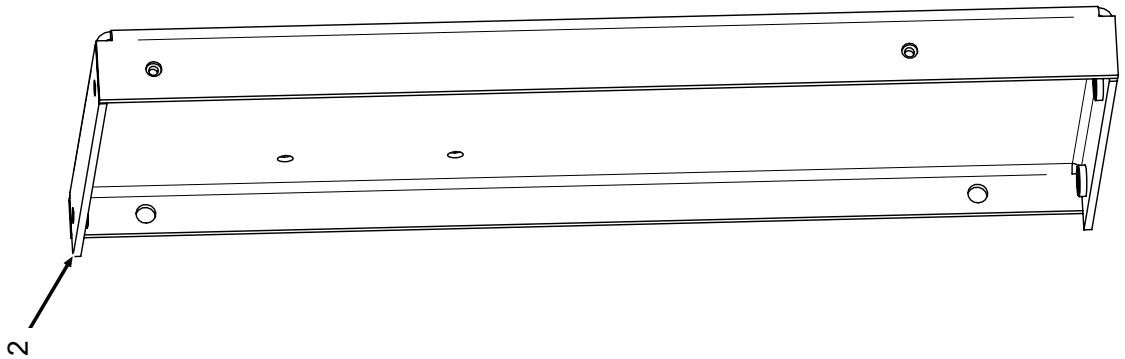


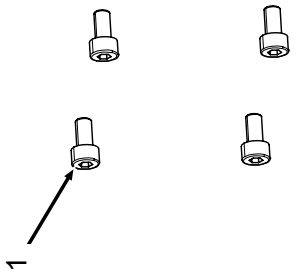
POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION
1	850 020 105	1	Clipslager MCM ID5 L2 Clip bearing MCM ID5 L2
2	852 020 004	1	Gehäuse, Seitenwand, rechts Housing, sidewall, right
3	871 020 033	1	Sperrkantscheibe A4 K für Gewinde M4 Retaining washer A4 K for thread M4
4	500 602 309	1	Sechskantmutter ISO4032-M4-A2 Hexagon nut ISO4032-M4-A2

12.8 Kühlkanal, rechts | Cooling channel, right



POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION	POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION
1	305 860 220	1	Zylinderschraube DIN7984-M6x60-A2 Cylinder screw DIN7984-M6x60-A2	11	305 501 092	1	Zylinderschraube ISO4726-M4x50-A2 Cylinder screw ISO4726-M4x50-A2
2	874 012 014	1	Montagezubehör Ringkerntrafo 50/80VA Mounting set toroid. core transf.50/80VA				
3	872 012 017	1	Ringkerntransformator 255 VA Toroidal core transformer 255 VA				
4	852 020 003	1	Kühlkanal, rechts Cooling channel, right				
5	874 001 023	1	Isolierplatte für Halteprofil PC-Board Insul. plate f.retainer profile PC board				
6	872 012 016	1	Ringkerntransformator 7.5 VA Toroidal core transformer 7.5 VA				
7	872 012 021	2	Feinsicherungshalter 6.3x32 mm Fine wire fuse holder 6.3x32 mm				
8	872 020 001	1	Montagezubehör für Ringkerntrafo 15 VA Mounting parts toroidal core transf.15VA				
9	305 501 080	2	Zylinderschraube ISO4762-M3x8-A2-VA Cylinder screw ISO4762-M3x8-A2-VA				
10	872 012 022	2	Feinsicherung 6.3x32 mm 0.1 A, träge Fine wire fuse 6.3x32 mm 0.1 A, time-lag				

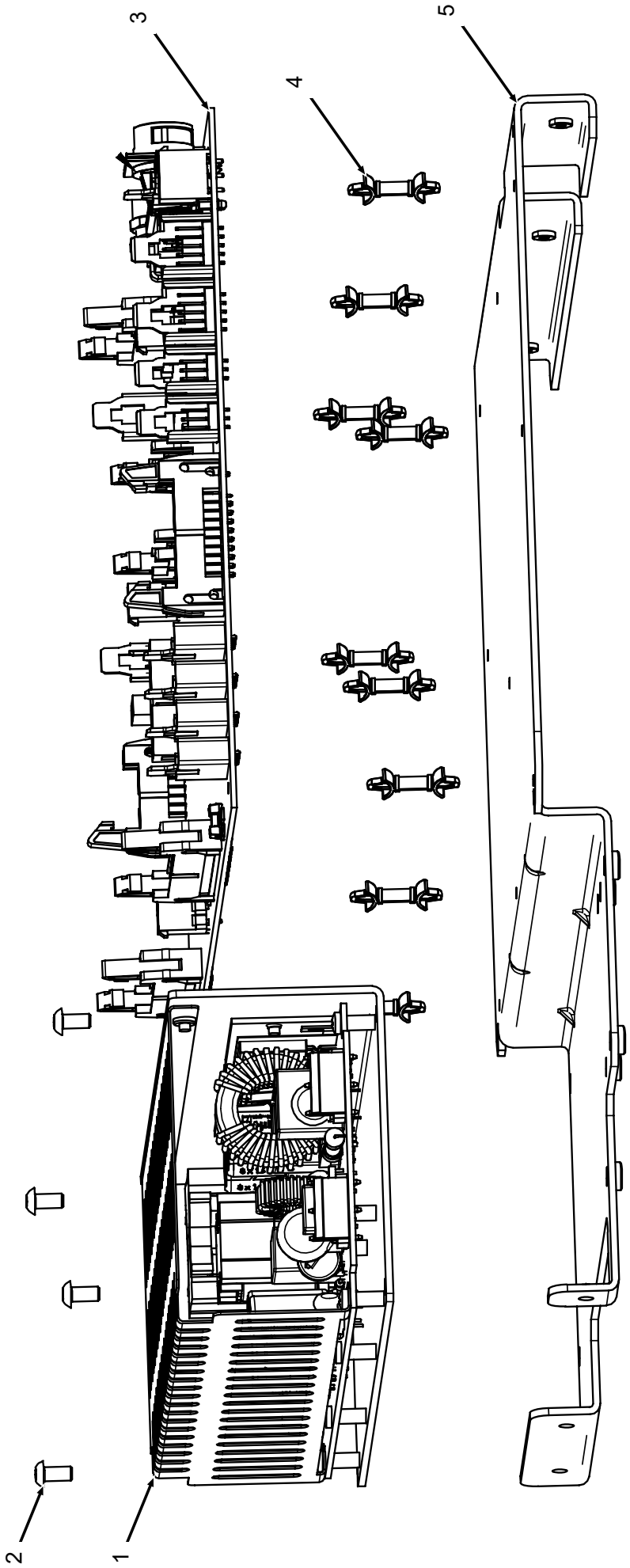




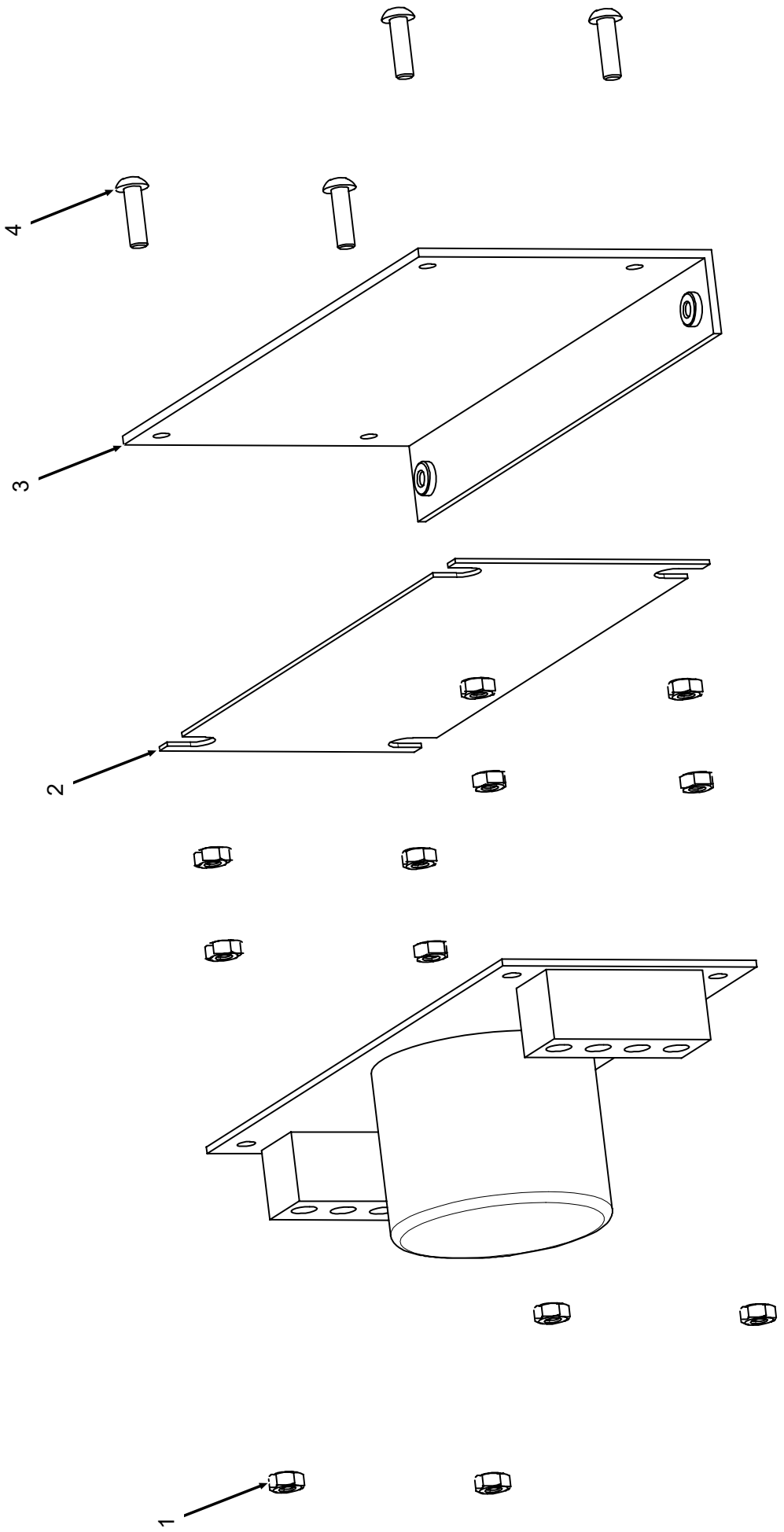
12.9 Kühlkanal, links | Cooling channel, left

POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION
1	305 501 064	4	Zylinderschraube ISO4762-M4x8-A2 Cylinder screw ISO4762-M4x8-A2
2	852 020 012	1	Kühlkanal links Cooling channel left

12.10 I/O Platine | I/O Circuit board



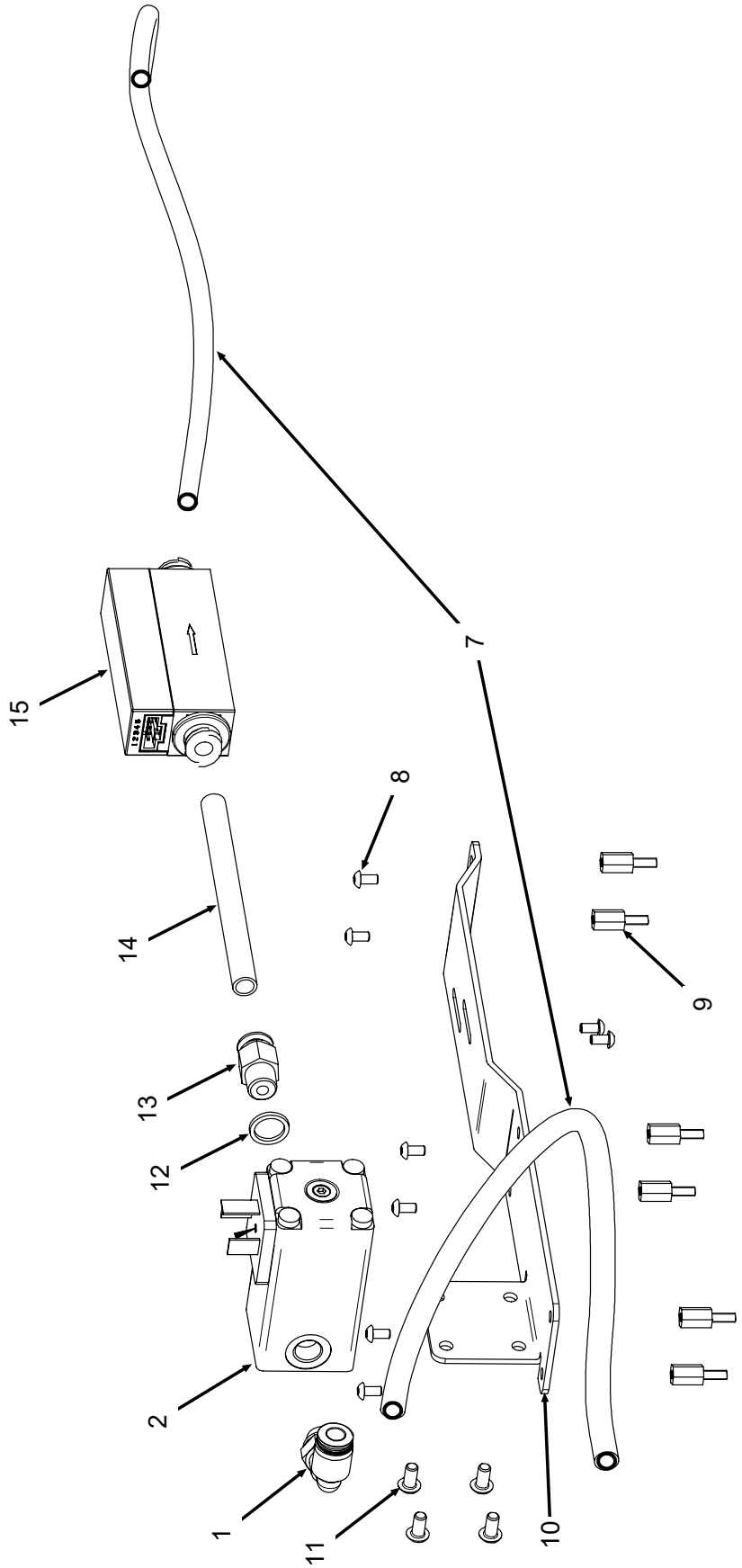
POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION
1	850 010 002	1	Hauptnetzteil 4x24 VDC 300 W Main power supply 4x24 VDC 300 W
2	307 001 127	4	Linsenschraube ISO7380-M4x8-A2-TX Oval-head screw ISO7380-M4x8-A2-TX
3	850 010 028	1	Rechnerboard - I/O Board Ver.D Main board - I/O board ver.D
4	850 020 215	9	Linsenschraube ISO7380-M4x16-A2 Distance bolt 12.7 mm, I/O platine
5	850 020 214	1	Montageblech, I/O-Platine SW/PW Mounting plate, I/O board SW/PW



12.11 Netzfilterplatine | Net filter panel

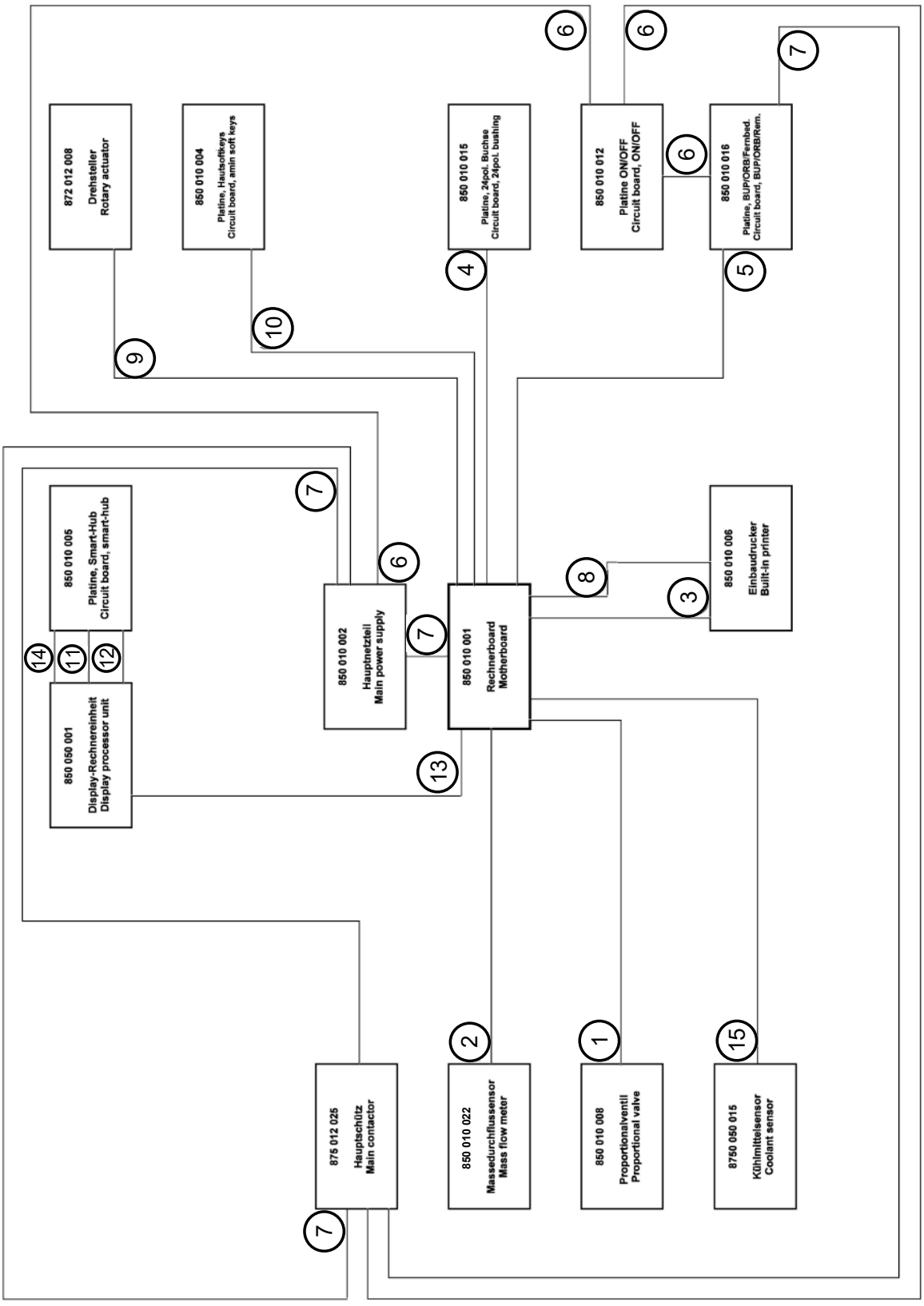
POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION
1	500 602 309	12	Sechskantmutter ISO4032-M4-A2 Hexagon nut ISO4032-M4-A2
2	872 001 036	1	Isolationsfolie, Filterkarte Insulation foil, filter card
3	874 001 036	1	Haltewinkel Netzfilter Angle bracket mains filter
4	307 001 120	4	Linsenschraube ISO7380-M4x16-A2 Oval-head screw ISO7380-M4x16-A2

12.12 Proportionalventil | Proportional valve



POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION
1	850 020 302	1	L-Steckverschraubung SL 6 mm 1/8 in Gew. L push-in fitting SL 6 mm 1/8 in thread
2	850 010 008	1	Proportionalventil Proportional valve
7	823 020 016	710 mm	Gasschlauch Teflon 6x4 mm, weiß Gas hose, Teflon 6x4 mm, white
8	307 001 104	8	Linsenschraube ISO7380-M3x6-A2-TX Oval-head screw ISO7380-M3x6-A2-TX
9	860 020 091	6	Abstandsbolzen, Kunststoff 10 mm, M3 IxA Distance bolt, plastic 10 mm, M3 IxA
10	852 020 011	1	Montageblech, Proportionalventil PW Mounting plate, proportional valve PW
11	307 001 127	4	Linsenschraube ISO7380-M4x8-A2-TX Oval-head screw ISO7380-M4x8-A2-TX
12	860 020 081	1	Dichtring, Typ 0 - 1/8" Seal ring, type 0 - 1/8"
13	852 050 001	1	Bis SN 8527410020: Umrüstsatz Massendurchflussmesser PW Up to SN 8527410020: Conversion kit mass flow meter PW
	860 020 015		Steckverschraubung, SL 6 mm, 1/8" Push-in fitting, SL 6 mm, 1/8"
14	852 050 001	1	Bis SN 8527410020: Umrüstsatz Massendurchflussmesser PW Up to SN 8527410020: Conversion kit mass flow meter PW
	823 020 016	100 mm	Gasschlauch Teflon 6x4 mm, weiß Gas hose, Teflon 6x4 mm, white
15	852 050 001	1	Bis SN 8527410020: Umrüstsatz Massendurchflussmesser PW Up to SN 8527410020: Conversion kit mass flow meter PW
	850 010 022		Ab SN 8527410021: Massendurchflussmesser V2 From SN 8527410021: Mass flow meter V2

12.13 Verbindungskabel | Connection cables



POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION	POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION
1	850 040 010	1	Kabel Propotionalventil-Rechnerboard Cable propotional valve-main board	11	850 040 005	1	Kabel SmartHub Platine-Display Cable SmartHub circuit board-display
2	850 040 007	1	Kabel MD Sensor-Rechnerboard Cable MF sensor-main board	12	850 040 004	1	HDMI-Leitung L0.45; HDMI-HDMI Mikro HDMI cable L0.45; HDMI-HDMI micro
3	850 040 011	1	Kabel Drucker-Rechnerboard Cable printer-main board	13	850 040 016	1	Kabel Display-Hauptplatine Cable display-main board
4	850 040 018	1	Kabel 24pol. Steuerl.-Hauptplatine Cable 24 pole control cable-main board	14	850 040 009	1	Kabel SmartHub Platine LAN-Display Cable SmartHub circuit board LAN display
5	850 040 017	1	Kabel BUP/ORB/Fernb.-Hauptplatine Cable BUP/ORB/rem. contr.main board	15	852 040 004	1	Leitung, Wasserflusswächter PW Cable water flow sensor PW
6	850 040 006	1	Kabel ON/OFF Platine-Rechnerb. 3 Teilig Cable ON/OFF circuit board-main board				
7	850 040 015	1	Kabel Netzteil-Hauptplatine-Schütz Cable power supply-main board-contactor				
8	850 040 019	1	FB-Kabel Drucker-Rechnerboard FB cable printer-main board				
9	850 040 020	1	FB-Kabel Drehsteller-Rechnerboard FB cable redary actuator-main board				
10	850 040 008	1	Kabel Hauptsoftkey Platine-Rechnerboard Cable main softkey circ.board-motherb.				

12.14 Zubehör & Verbrauchsmaterial | Accessories & consumables

POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION	POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION
-	850 040 030	1	Fernbed.-adapter OM CA_B auf SW/PW Remote adapter OM CA/CB to SW/PW	-	875 030 004	1	Farbbandkassette, Einbaudrucker Ribbon cartridge, built-in printer
-	850 030 004	1	OM Schweißstromadapter Set OM weld current adapter, set	-	850 050 019	1	Schlauch-Anschlussset SW/PW EU Ab SN 8527510019 (EU-Variante) Hose connection set SW/PW EU From SN 8527510019 (EU-Version)
-	850 030 010	1	Kühlflüssigkeit OCL-30 3.5 l/118.3 fl oz Coolant OCL-30 3.5 l/118.3 fl oz	-	850 050 021	1	Schlauch-Anschlussset SW/PW US Ab SN 8527510019 (US-Variante) Hose connection set SW/PW US From SN 8527510019 (US-Version)
-	875 012 057	1	Externe Tastatur EU MW/SW/PW External keyboard EU MW/SW/PW				
	850 010 021	1	Externe Tastatur US CA/SW/PW External keyboard US CA/SW/PW				
-	875 030 018	1	Schlauch-Anschlussset CA/SW EU Bis SN 8527510018 (EU-Variante) Hose connection set CA/SW EU Up to SN 8527510018 (EU-Version)				
	850 030 011	1	Schlauch-Anschlussset CA/SW US Bis SN 8527510018 (US-Variante) Hose connection set CA/SW US Up to SN 8527510018 (US-Version)				
-	850 030 005	1	Barcode-/QR-Code Scanner MW/SW/PW Barcode/QR code scanner MW/SW/PW				
-	875 050 017	3	Normalpapierrollen, 3er-Pack Plain paper rolls, pack of 3				

13 DECLARATION OF CONFORMITY

ORIGINAL

de EG-Konformitätserklärung
en EC Declaration of conformity
fr CE Déclaration de conformité
it CE Dichiarazione di conformità
es CE Declaración de conformidad
nl EG-conformiteitsverklaring
cz ES Prohlášení o shodě
sk EÚ Prehlásenie o zhode
fi EY-vaatimustenmukaisuusvakuutus

Orbitalum Tools GmbH
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78224 Singen, Deutschland
Tel. +49 (0) 77 31 792-0

Maschine und Typ (inklusive optional erhältlichen Zubehörartikeln von Orbitalum): / Machinery and type (including optionally available accessories from Orbitalum): / Machine et type (y compris accessoires Orbitalum disponibles en option): / Macchina e tipo (inclusi gli articoli accessori acquistabili opzionalmente da Orbitalum): / Máquina y tipo (incluidos los artículos de accesorios de Orbitalum disponibles opcionalmente): / Machine en type (inclusief optioneel verkrijgbare accessoires van Orbitalum): / Stroj a typ stroje (včetně volitelného příslušenství firmy Orbitalum): / Stroj a typ (vrátane voliteľne dostupného príslušenstva od Orbitalum) / Kone ja tyyppi (mukaan lukien Orbitalumin lisävarusteet):

Orbitalschweißstromquelle
- **Mobile Welder**
- **Mobile Welder OC Plus**
- **Smart Welder**
- **Smart Welder Plus**
- **Power Welder**

Seriennummer: / Series number: / Nombre de série: / Numero di serie: / Número de serie: / Serienummer: / Sériové číslo: / Sériové číslo:

Hiermit bestätigen wir, dass die genannte Maschine entsprechend den nachfolgend aufgeführten Richtlinien gefertigt und geprüft worden ist: / Herewith our confirmation that the named machine has been manufactured and tested in accordance with the following directives: / Par la présente, nous déclarons que la machine citée ci-dessus a été fabriquée et testée en conformité aux directives: / Con la presente confermiamo che la macchina sopra specificata è stata costruita e controllata conformemente alle direttive qui di seguito elencate: / Por la presente confirmamos que la máquina mencionada ha sido fabricada y comprobada de acuerdo con las directivas especificadas a continuación: / Hiermee bevestigen wij, dat de vermelde machine in overeenstemming met de hieronder vermelde richtlijnen is gefabriceerd en gecontroleerd: / Tímto potvrzujeme, že uvedený stroj byl vyroben a testován v souladu s níže uvedenými směrnicemi: / Týmto potvrdzujeme, že uvedený stroj bol zhotovený a odskúšaný podľa nižšie uvedených smerníc / Vahvistamme täten, että edellä mainittu kone on valmistettu ja testattu seuraavien ohjeiden mukaisesti.:

- **Niederspannungsrichtlinie 2014/35/EU**
- **EMV-Richtlinie 2014/30/EU**
- **RoHS-Richtlinie 2011/65/EU**
- **Ökodesign-Verordnung (EU) 2019/1784**

Schutzziele folgender Richtlinien werden eingehalten: / Protection goals of the following guidelines are observed: / Les objectifs de protection des directives suivantes sont respectés : / Gli obiettivi di protezione delle seguenti linee guida sono rispettati: / Se observan los objetivos de protección de las siguientes directrices: / De beschermingsdoelstellingen van de volgende richtlijnen worden in acht genomen: / Jsou splněny ochranné cíle těchto nařízení: / Sú splnené ochranné ciele týchto nariadení / Seuraavien direktiivien suojelutavoitteet täyttyvät:

- **Maschinen-Richtlinie 2006/42/EG**

Folgende harmonisierte Normen sind angewandt: / The following harmonized standards have been applied: / Les normes suivantes harmonisées où applicables: / Le seguenti norme armonizzate ove applicabili: / Las siguientes normas armonizadas han sido aplicadas: / Onderstaande geharmoniseerde normen zijn toegepast: / Jsou použity následující harmonizované normy: / Boli aplikované tieto harmonizované normy / :Sovelletaan seuraavia yhdenmukaistettuja standardeja

- **EN IEC 60974-1:2018+A1:2019**
- **EN IEC 60974-3:2019**
- **EN 60974-10:2014+A1:2015**
- **EN ISO 12100:2010**
- **EN ISO 13849-1:2023**
- **EN ISO 13849-2:2012**
- **EN 63000:2018**

Bevollmächtigt für die Zusammenstellung der technischen Unterlagen: / Authorised to compile the technical file: / Autorisé à compiler la documentation technique: / Incaricato della redazione della documentazione tecnica: / Autorizado para la elaboración de la documentación técnica: / Gemachtigde voor het samenstellen van het technisch dossier: / Osoba zplnomocněná k sestavení technické dokumentace: / Splnomocnenec pre zostavenie technických podkladov / Valtuutettu laatimaan tekniset asiakirjat:

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Singen, 10.03.2026

Jürgen Jäckle - Manager Product Compliance

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