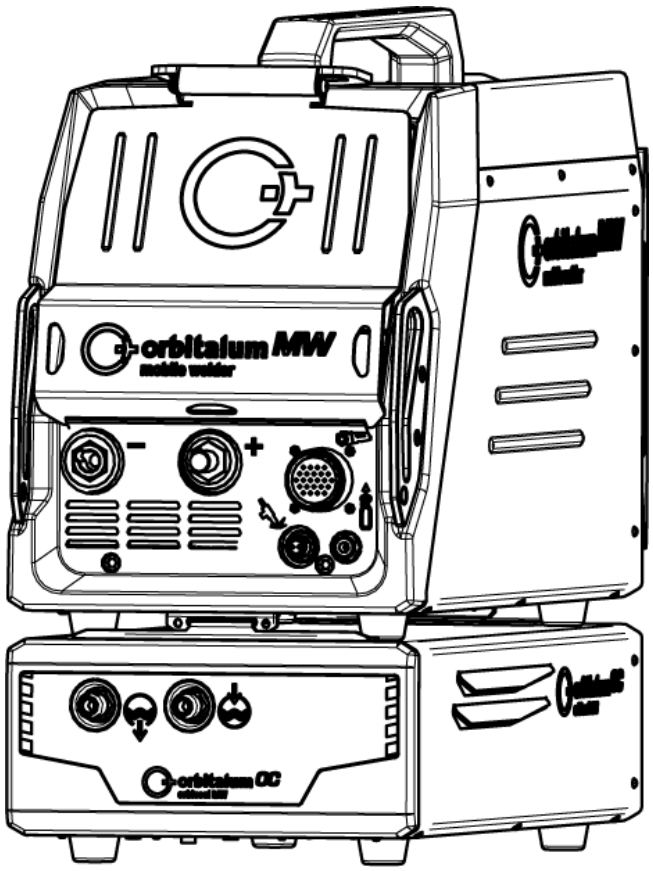
Mobile Welder

en Orbital Welding Power Supply

Translation of original operating instructions and spare parts list



854 060 201 REV 00 | 2610

orbitalum

An ITW Company

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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
ℹ	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
MW	MOBILE WELDER
OC	ORBICOOL
Orbital weld head	Open orbital weld head / orbital welding tongs
	Closed orbital weld head
	Function requires ORBICOOL MW* UPGRADE.
	Function requires MW Plus* software UPGRADE.
	Function requires LAN/IoT/VNC* connectivity UPGRADE.

**See chap.* Upgrade options [▶ 152]

NOTE:

NOTICE! The ORBICOOL MW & MW Plus software UPGRADES meet the range of functions of the MOBILE WELDER OC Plus power supply.

1.4 Applicable documents

The following documents apply to this operating manual:

- Declaration of conformity
- Calibration certificate
- Operating instructions for welding head/hand torch
- Operating instructions ORBICOOL MW
- 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 [▶ 153]).

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	86	48.8 W
	3-phase + PE		



- 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.

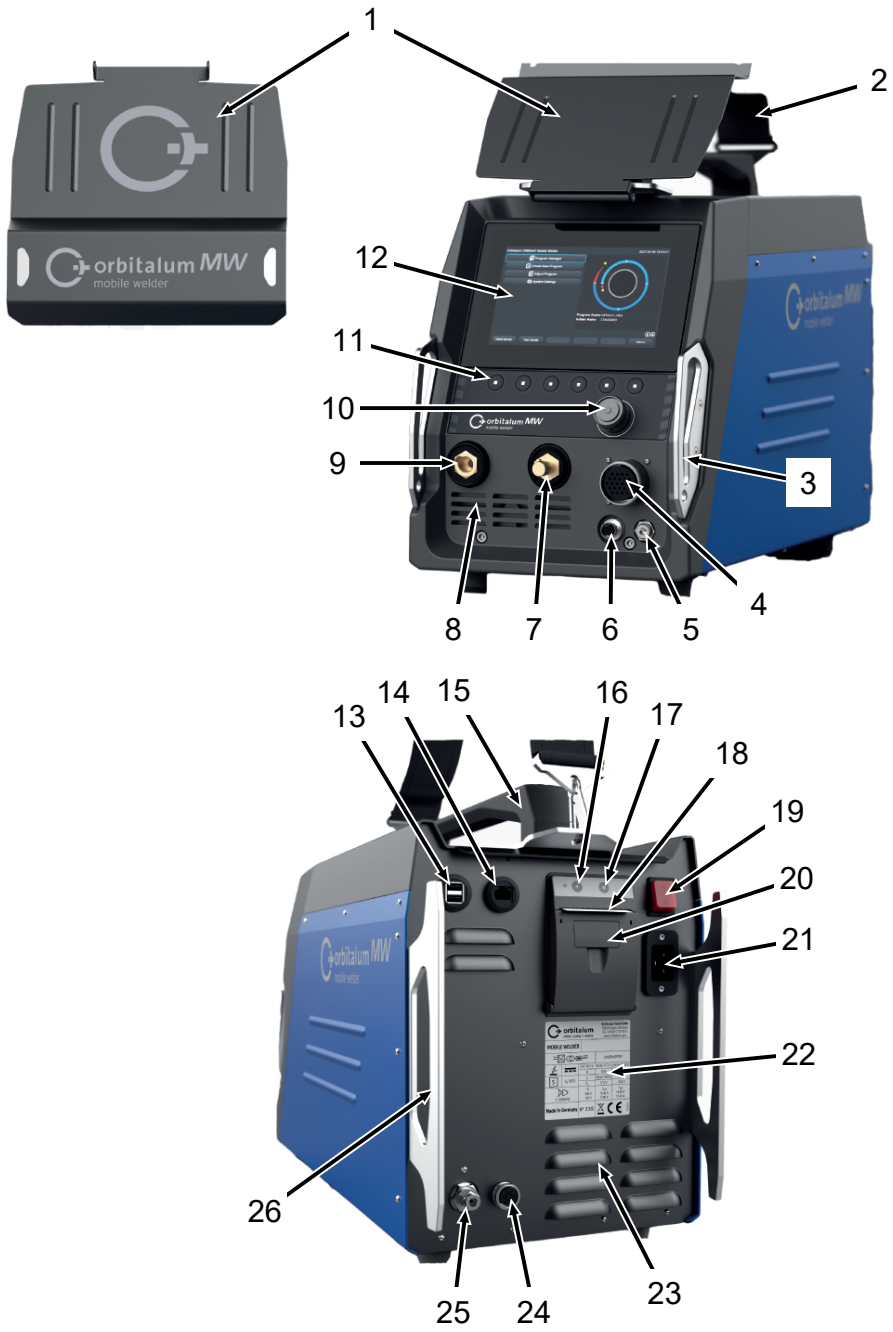
2.7.13 General injuries through tools

⚠	**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

3.1 Basic machine



NO.	DESIGNATION	FUNCTION
1	Sheet metal guard, operating elements MW	Protects the operating elements
2	MW shoulder strap	Relieves the load when carrying the welding power supply
3	Bumper bar, front MW	Protects the operating elements and front connections
4	Connection socket "Weld head"	Connection for weld head signal cable
5	Connection socket "Gas"	Connection for gas hose

NO.	DESIGNATION	FUNCTION
6	Connection socket "Manual torch"	Connection for manual welding torch signal cable
7	Weld current connection (+)	Connection for weld current cable (+)
8	Front ventilation slots	Inlet opening for cooling air
9	Weld current connector (-)	Connection for weld current cable (-)
10	Rotary actuator	Operating the welding power supply, *see the chap.* Rotary actuator
11	Softkey buttons	Operating the welding power supply, *see the chap.* Softkey buttons
12	Touchscreen	Operating the welding power supply, *see the chap.* Touchscreen
13	Connection socket "USB"	Connection possibility for USB devices (2x)
14	Connection socket "LAN"	Connection possibility for LAN cable
15	Handle MW	Transporting the welding power supply
16	Paper feed button on built-in printer	Starts paper feed
17	Paper feed stop button on built-in printer	Stops paper feed
18	Paper discharge on built-in printer	For removal of printouts
19	ON/OFF switch	Switches the welding power supply on and off
20	Paper roller cover on built-in printer	Replacing a paper roller, *see the chap.* Replacing the roll of paper [▶ 149]
21	Power input socket	Connection for power line
22	Type plate	Indication of the machine data
23	Rear ventilation slots	Outlet opening for cooling air
24	Connection socket "External cooling"	Connection possibility for signal cable for external cooling unit
25	Gas connection	Weld gas input
26	Bumper bar, rear panel MW	Protects the operating elements and rear connections

3.1.1 Warning signs

The warning signs and safety signs located on the machine must be observed.

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

IMAGE	POSITION ON MACHINE	MEANING	CODE
	Front cover, inside	Read the safety instructions!	871 001 057
	Rear panel	Before opening the unit	850 060 025

3.2 Cooling unit

► See operating instructions for the ORBICOOL MW.

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4 Scope of application

The MOBILE WELDER is characterized by the following scope of application and functions:

- For welding using the Tungsten Inert Gas (TIG) process
- Can be used for all materials that are fundamentally suitable for the TIG welding process.
- Simple and convenient operation thanks to multifunctional rotary actuator or touchscreen.
- DC current welding source
- "Permanent gas" function
- Digital programmable gas quantity
- Monitoring of weld gas
- Monitoring of coolant
- Rotation constant or pulsating
- Clockwise direction of rotation
- Counterclockwise direction of rotation
- Optimal visual and operating conditions thanks to clearly laid-out 7" swivel monitor
- Graphically-supported operating interface and multilingual menu navigation via color display
- Metric and imperial measuring units
- Process-oriented, stable and real-time operating system without power-down sequence
- Automatic weld head recognition and resulting parameter modification
- Motor current monitoring of the drive motors
- Capacity to store over 5,000 welding procedures, providing systematic and clear procedure management thanks to the creation of folder structures
- Welding data logging and printout of actual values
- Built-in thermal printer
- Connection possibility for an external printer (via USB/LAN)
- Integral carrying handle and shoulder strap
- Option to program up to 99 sectors
- Power and motor slope adjustment between the individual sectors
- External liquid cooling system

5 Technical specifications

	UNIT	MW (US)	MW OC PLUS (US)
Code		854 000 001	854 000 011
		854 000 002 (US)	854 000 012 (US)
Weld system type		Welding rectifier (inverter)	
input		Mains	
Mains system		1 phase + PE	
Mains input voltage	[V (AV)]	1 x 110-230	
Permissible voltage tolerance	[%]	+/– 10	
Mains frequency	[Hz]	50/60	
Continuous input current	[A (AC)]	15.3	
Continuous input power	[kVA]	3.6	
Current consumption, max.	[A (AC)]	19.5	
Connection value, max.	[kVA]	4.5	
Power factor		0.99 (with 140 A)	
Output (welding circuit)			
Setting range weld current	[A (DC)]	5 - 140	5 – 180
Weld current reproducibility	[%]	+/– 0.5	
Rated current at 100% duty cycle	[A (DC)]	140	
Rated current at 60% duty cycle	[A (DC)]	-	180
Weld voltage, min.	[V (DC)]	10	
Weld voltage, max.	[V (DC)]	20	
Open-circuit voltage, max.	[V (DC)]	90	
Ignition power, max.	[Joule]	0.9	
Ignition voltage, max.	[kV]	10	
Output (control)			
Rotation motor voltage, max.	[V (DC)]	24	
Motor current rotation	[A (DC)]	1.5	
Rotation tacho voltage	[V (DC)]	0 – 10	
Other			
Degree of protection		IP 23 S	
Cooling type		AF recirculating air	
Insulation class		F	
Dimensions (wxdxh) power supply only	[mm]	264 x 540 x 376	
	[inch]	9.7 x 21.3 x 14.8	
Weight power supply only	[kg]	15.6	
	[lbs]	33.06	
Dimensions (wxdxh) with cooling unit ORBICOOL MW	[mm]	-	273 x 546 x 513
	[inch]		10.8 x 21.5 x 20.2
Weight (without coolant) with cooling unit ORBICOOL MW	[kg]	-	20.9
	[lbs]		46.1

	UNIT	MW (US)	MW OC PLUS (US)
Gas input pressure	[bar]	3 – 10 Via pressure reducer	
Recommended gas input pressure	[bar]	4 Via pressure reducer	

Cooling unit ORBICOOL MW

► For further technical specifications, see ORBICOOL MW operating instructions.

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Coolant volume	[l]	-	2.1
Max. flow rate	[l/min]	-	0.9
Coolant pressure, max.	[bar]	-	7.5
Sound level, max.	[dB (A)]	-	72

6 Transport and shipping

WARNING



Improper transport

Permanent damage to the welding power supply.

► Transport the power source only in a suitable, all-round protective and shock-proof outer packaging.

WARNING



Risk of injury from incorrect handling of shielding gas bottles

Incorrect handling and inadequate fastening of shielding gas bottles can lead to serious injuries.

► Follow the instructions of the gas manufacturer and the legal regulations for pressurized gas bottles.

► There must be nothing attached to the valve on the shielding gas bottle.

► Avoid heating the shielding gas bottle.

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.

CAUTION



Risk of accidents from falling and tripping hazards

During transport, supply lines that are not disconnected can cause hazards, such as connected devices tipping over and causing injury to people.

6.1 Gross weight

ITEM	WEIGHT*	UNIT
MOBILE WELDER, incl. scope of delivery*	19.0	kg
	41.88	lbs
+		
ORBICOOL MW, incl. scope of delivery*	14.0	kg
	30.86	lbs

** incl. original ORBITALUM shipping cartons*

6.2 Shipping

Transport the power supply only in a suitable, all-round protective and shockproof outer packaging, e.g. the original ORBITALUM shipping cartons.

For some types of transport, liquid-free shipping of equipment is required.
In this case, completely empty the coolant tank before transporting the power supply.

► See operating instructions for the ORBICOOL MW.

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6.3 Transport

WARNING

Danger of injury from the high weight of the orbital welding power supply! Depending on the model, the orbital welding power supply weighs a max. of 23.20 kg (51.15 lbs).

- ► Carry the orbital welding power supply by the carrying handle and shoulder strap.
- ► Wear safety shoes to EN ISO 20345, Class SB.
- ► When lifting the machine do not exceed the permissible total weight of 25 kg for men and 15 kg for women.

WARNING

Danger of accident from loose fastening screws

The cooling unit can detach from the power supply and cause serious injury.

- ► Before installing, remove any dirt from the feet of the power supply and the connecting elements.
- ► Before transporting, check the fastening screws between the power supply and the cooling unit for secure fit; tighten if necessary.

WARNING

Risk of accident from impermissible transport by crane

The device may drop and injure people.

- ► Do **not** transport the device by crane.
- ► Use handles, straps or holders for hand transport only.



Illustration: Transporting the Mobile Welder

1	Carry handle
2	Shoulder strap

See also the chapter Adjusting the length of the shoulder strap [▸ 28]

6.3.1 Adjusting the length of the shoulder strap

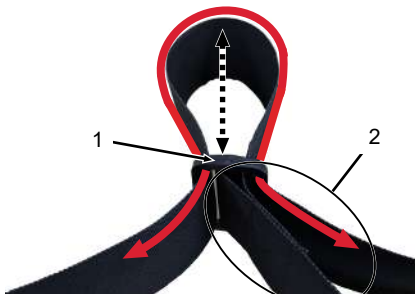


Illustration: Adjusting the length of the shoulder strap

1	Buckle
2	Strap loop

Lengthening the shoulder strap:

► Move the strap through the buckle (1) so that the strap loop (2) becomes shorter.

Shortening the shoulder strap:

► Move the strap through the buckle (1) so that the strap loop (2) becomes longer.

7 Setup and commissioning

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.

CAUTION



Danger from incorrect operating sequence

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

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.

7.1 Unpacking the power supply

1. Remove the cardboard cover insert from the cardboard carton.
2. Remove the cardboard protective corners (4 x) from the cardboard carton.
3. Lift the power supply out of the cardboard carton by the handle with both hands and place it upright on a flat, stable and non-slip surface.
4. Check the power supply and accessories for transport damage.

CAUTION



Danger of injury from the high weight of the orbital welding power supply! Depending on the model, the orbital welding power supply weighs max. 23.20 kg (51.15 lbs).

- ► To unpack, place the shipping carton upright on a stable, level, non-slip and non-combustible surface.
- ► Wear safety shoes to EN ISO 20345, Class SB.
- ► When lifting the machine do not exceed the permissible total weight of 25 kg for men and 15 kg for women.

NOTICE!



- ► Report any damage to your power supply immediately.

7.2 Scope of delivery

ITEM	CODE	QUANTITY	UNIT
MOBILE WELDER /	854 000 001	1	PCS.
MOBILE WELDER (US)	854 000 002		
ORBICOOL MW, incl. scope of delivery	854 030 100	1	PCS.
MW shoulder strap	854 030 015	1	PCS.
Power cable DE /	850 040 001	1	PCS.
Power cable (US)	850 040 002		
Hose connection set MW EU /	854 030 003	1	PCS.
Hose connection set MW (US)	854 030 004		
MOBILE WELDER operating instructions & ETL	854 060 201	PDF	PCS.
Download links PDF: https://www.orbitalum.com/de/download.html			
MOBILE WELDER & OC-MW Quick Start Guide	854 060 102	1	PCS.
MW&OC-MW Gen. Safety Instructions	854 060 101	1	PCS.

We reserve the right to make changes.

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

7.3 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.

7.4 Attaching the cooling unit

► See operating instructions for the ORBICOOL MW.

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7.5 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.

7.6 Setting up the welding gas supply

WARNING

Risk of injury from incorrect handling of shielding gas bottles

Incorrect handling and inadequate fastening of shielding gas bottles can lead to serious injuries.

- ► Follow the instructions of the gas manufacturer and those for the pressurized gas supply!
- ► There must be nothing attached to the valve on the shielding gas bottle!
- ► Avoid heating the shielding gas bottle!

- The flow of welding gas to the torch must be adjusted at the pressure reducer of the welding gas supply.
- The desired volume flow of welding gas at the torch is set in the power supply software.

NOTICE!		**In order to use the complete range of functions of the digital gas control, we recommend setting the incoming volume flow from the pressure reducer higher than the welding gas volume actually required at the torch.**

Recommended incoming volume flows:

Welding gas 8 – 18 l/min, 30 l/min

- The welding gas displaces oxygen in the welding area outside the pipe to prevent oxidation of the material and is introduced via the welding torch.

Forming gas 3-5 l/min

- The forming gas displaces oxygen inside the pipe and is usually introduced into the pipe interior via forming gas plugs.

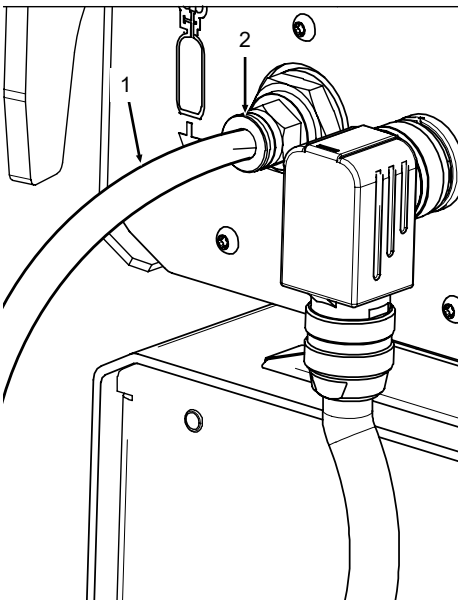
NOTICE!		**Do not exceed max. 10 bar inlet pressure at the gas inlet connection of the power supply, otherwise damage may occur.**

NOTICE!		**Use hoses from the hose connection set included in the scope of delivery for the welding gas supply.**

1. Check the stability of the gas bottle.
2. Secure the gas bottle against falling over.
3. Attach the gas hoses included in the scope of delivery to the pressure reducer.
4. Mount the pressure reducer on the gas bottle.
5. Set the desired volume rate on the pressure reducer.
6. Insert the free end of the gas hose (1) into the gas inlet connection (2) on the rear of the power supply as far as it will go.

⇨ The gas hose is secured against slipping out by the locking ring of the gas inlet connection.

Gas hose diameter AD = 6 mm



7.7 Mains connection

For detailed information on the mains input voltage, see the chapter Technical specifications [▸ 24]

► Ensure that the mains connection at the place of use complies with local regulations.

► Ensure that only original ORBITALUM power supply cables are used for the mains connection.

► Ensure that the electrical outlet is properly rated and grounded.

► Check the power cable and power plug for damage before use.

WARNING

Faulty mains connection

Injury and property damage from electric shock

- ► Operate the welding power supply only on a single-phase 2-wire system with grounded neutral conductor.
- ► A residual current device (RCD) to IEC standards with a rated residual current of max. 0.03 A or a protective isolating transformer is required on the mains side.

7.8 Operation of the power supply with other mains voltages

The welding power supply is designed for operation on a single-phase mains voltage of 115 V or 230 V AC.

With an input voltage of < 200 V AC, the welding current is limited to max. 120 A due to the higher input currents.

Welding programs with current values > 120 A cannot be started.

7.9 Connecting the power cable

WARNING

The danger of an electric shock exists through non-compatible or damaged connectors.

Death or severe injuries can result

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

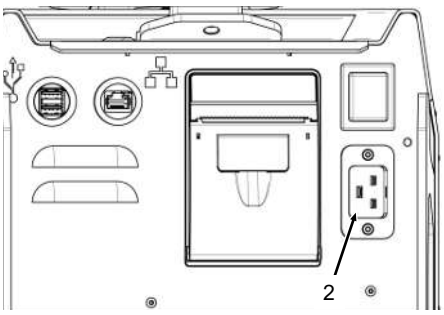
WARNING

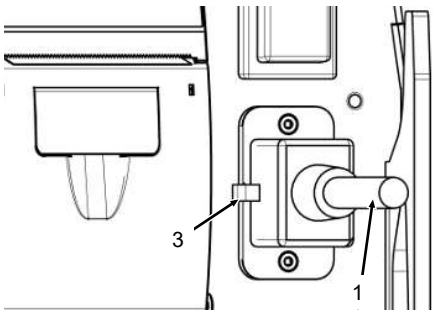
Risk of electric shock from faulty or damaged insulation.

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

- ► Check the housing, power cable and protective insulation of all other cables for proper condition.

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



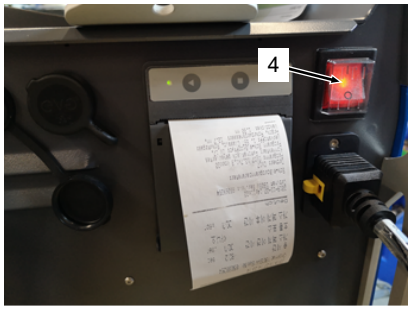


7.10 Switching on the power supply

► Set the ON/OFF switch (4) on the rear of the power supply to position I (ON).

⇨ The ON/OFF switch (red) (4) lights up as soon as the power supply is connected to the mains, mains voltage is present and switched on.

⇨ The operating system boots and the (reduced) main menu (5) appears in the display.





7.11 Activation

NOTICE!

For operation of the power supply, see the chapter Operating concept [▶ 42]

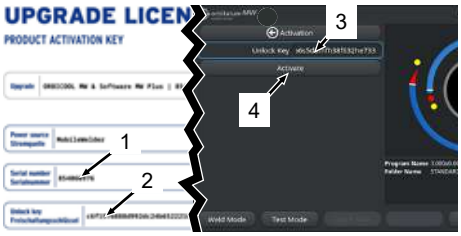
Under the menu item "Activation" in the main menu, optionally purchased software upgrades can be unlocked via an activation key in the power supply software

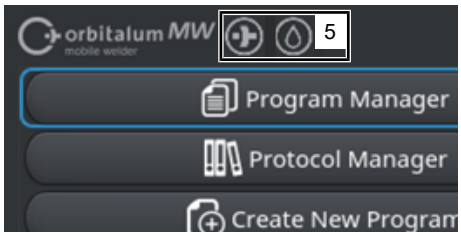
Procedure:

► From the main menu of the power supply, navigate to "System Settings" > "Activation".









1. Enter the activation key (2) in the text input field (3).
2. Confirm the entry by pressing the "Activation" button (4).

⇨ Successful activation is indicated by a plus sign and a teardrop icon (5) in the menu header.

See the chapter Upgrade options [▶ 152]



Illustration: "UPGRADEF LICENSE PRODUCT ACTIVAVATION KEY" form

NO.	DESCRIPTION	FUNCTION
3	"Activation key" text input field	Text input field for entry of the activation key. The activation key can be entered via keyboard or by scanning the QR code (6). **NOTICE! The activation keys are coupled with a power supply serial number. Activation can therefore only take place on the associated power supply! You can find the activation key and the matching power supply serial number on the purchased activation document.**

NO.	DESCRIPTION	FUNCTION
4	"Activation" button	button to confirm the activation key entered. After successful confirmation, the acquired additional functions are available in the power supply software. *See also the chapter* Main menu

NOTICE!

If an error message is displayed:

- ► Check whether the activation key entered matches the activation key provided in the documentation.
- ► Check whether the serial number specified in the activation documentation matches the serial number of the power supply.

7.12 Login screen

The login screen protects the power supply from unauthorized access.

Two user levels with different function ranges are available:

1. User level with the range of functions relevant for the user
2. Administration level with extended range of functions

7.12.1 Login



Perform the following steps on the login screen:

1. Enter the password in the "Password" input field (1).
2. Confirm the entry by pressing the "Login" button (2).

NOTICE!

For initial passwords, see the chapters Administration level [▷ 40] and User level [▷ 40].

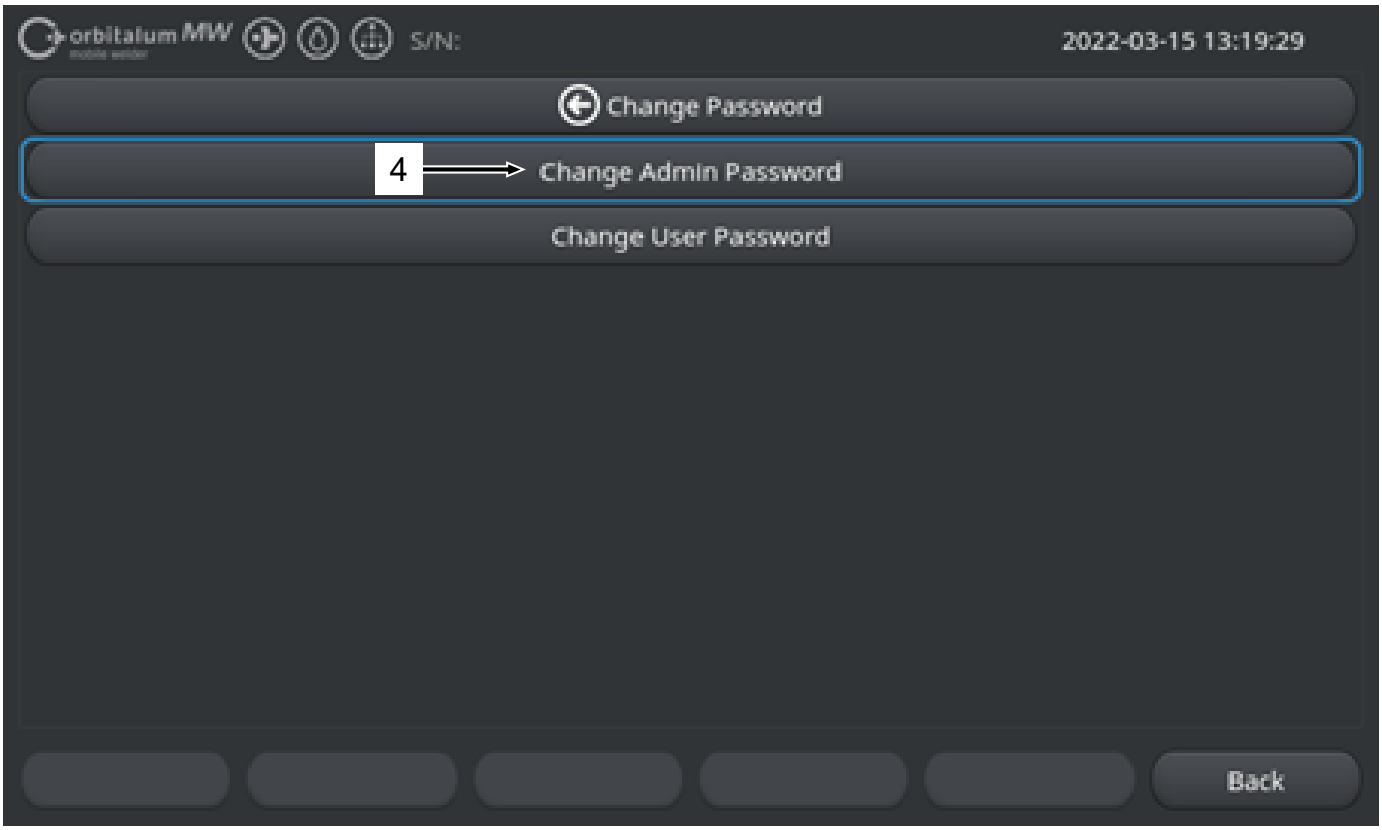
7.12.2Changing a password

The "Change Password" button (3) can be used to change the user level passwords for users and administrators.

NOTICE! **The user password can only be changed by entering the admin. password.**



7.12.2.1 Changing the Admin Password

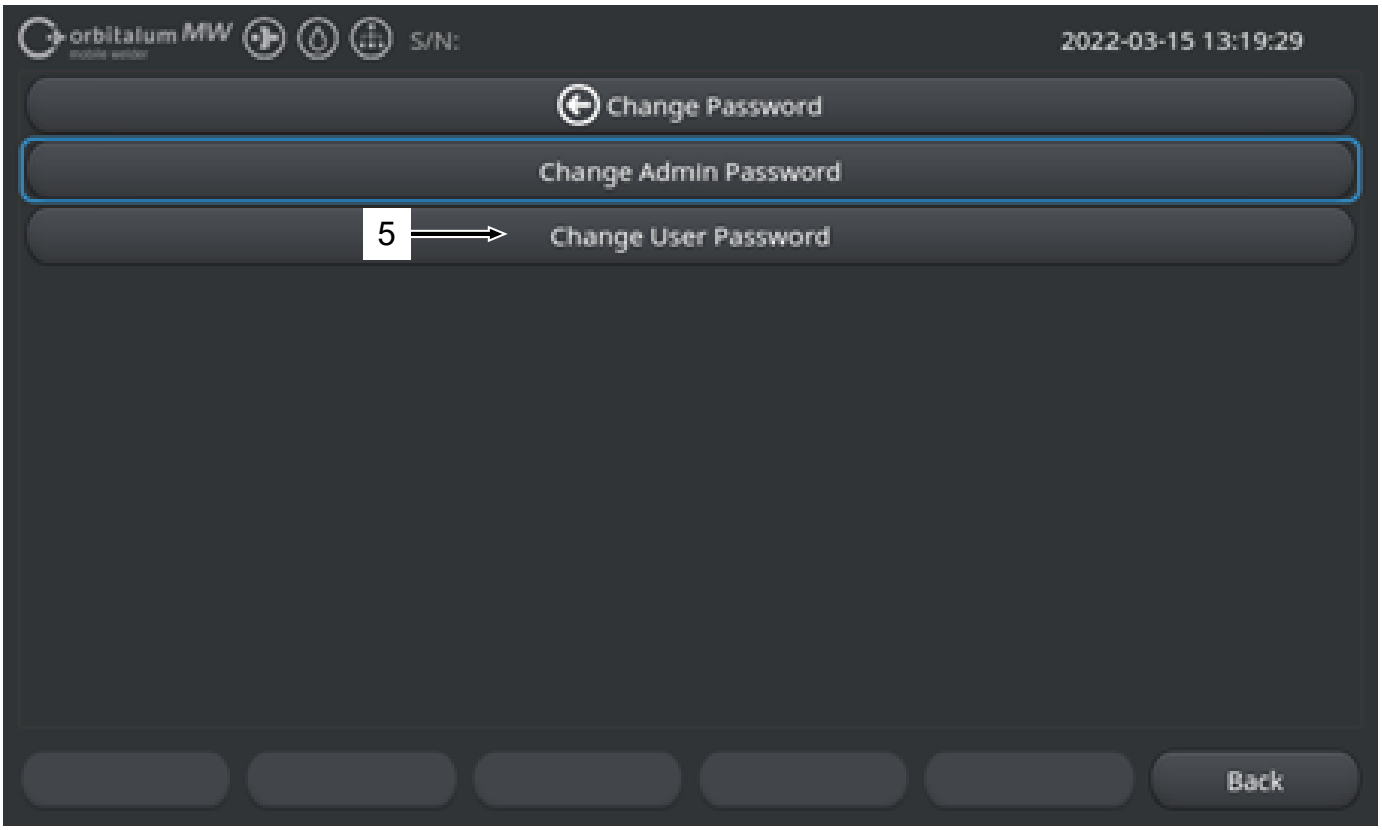


To change the admin password, perform the following steps:

1. Press the "Change Password" button (4) on the login screen.
2. Press the "Change Admin Password" button.
3. Enter the current admin password in the "Old Password" input field.
4. Enter the new admin password in the "New Password" input field.
5. Enter the new admin password again in the "Confirm Password" input field.

⇨ The admin password has been changed.

7.12.2.2 Changing the user password



To change the user password, perform the following steps:

1. Press the "Change Password" button on the login screen.
2. Press the "Change User Password" button (5).
3. Enter the admin password in the "Admin Password" input field.
4. Enter the new user password in the "New Password" input field.
5. Enter the new user password again in the "Confirm Password" input field.

⇨ The user password has been changed.

7.12.3 Resetting a password

All passwords can be reset using the super password.

The "Super Password" is located on the power supply data sheet supplied with the power supply.

To reset the password, perform the following steps:

1. Press the "Change Password" button on the login screen.
2. Press the "Change Admin Password" or "Change User Password" button.
3. Enter the super password in the "Old Password" input field.
4. Enter the new admin password in the "New Password" input field.
5. Enter the new admin password again in the "Confirm Password" input field.

7.13 User levels

The power supply supports two user levels:

1. Administration level - Full range of functions
2. User level - Limited range of functions

The distinction between the levels is made by means of the login password.

7.13.1 Administration level

At the administration level, the unrestricted range of function of the power supply is enabled.

Any system and program settings can be made and welding parameters can be adjusted.

Administrator password preset on the machine: **12345**

At this level, you can additionally define a limit for the correction factor at the user level.

See the chapter Basic adjustments [▶ 80]

7.13.2 User level

When you log in at the user level, only the functions relevant to welding are accessible. The range of functions in the software is tailored strictly to the user role.

User password preset on the machine**: 54321**

Accessible functions:

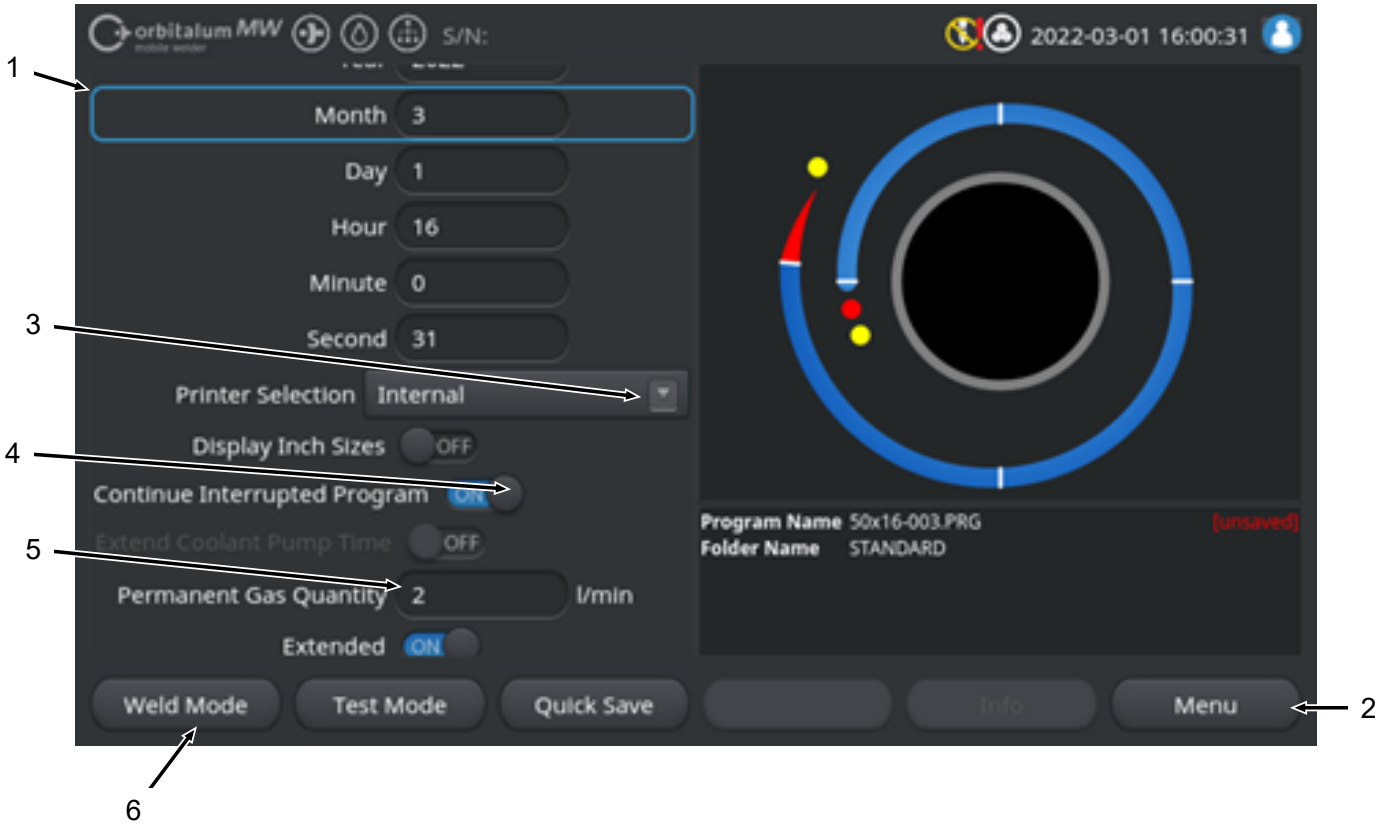
- Load welding procedures
- Display welding logs
- Change the system language and units of measure
- Welding comments
- Welding current adjustment via "Scale Weld" across levels
- Test mode
- Welding

Blocked functions:

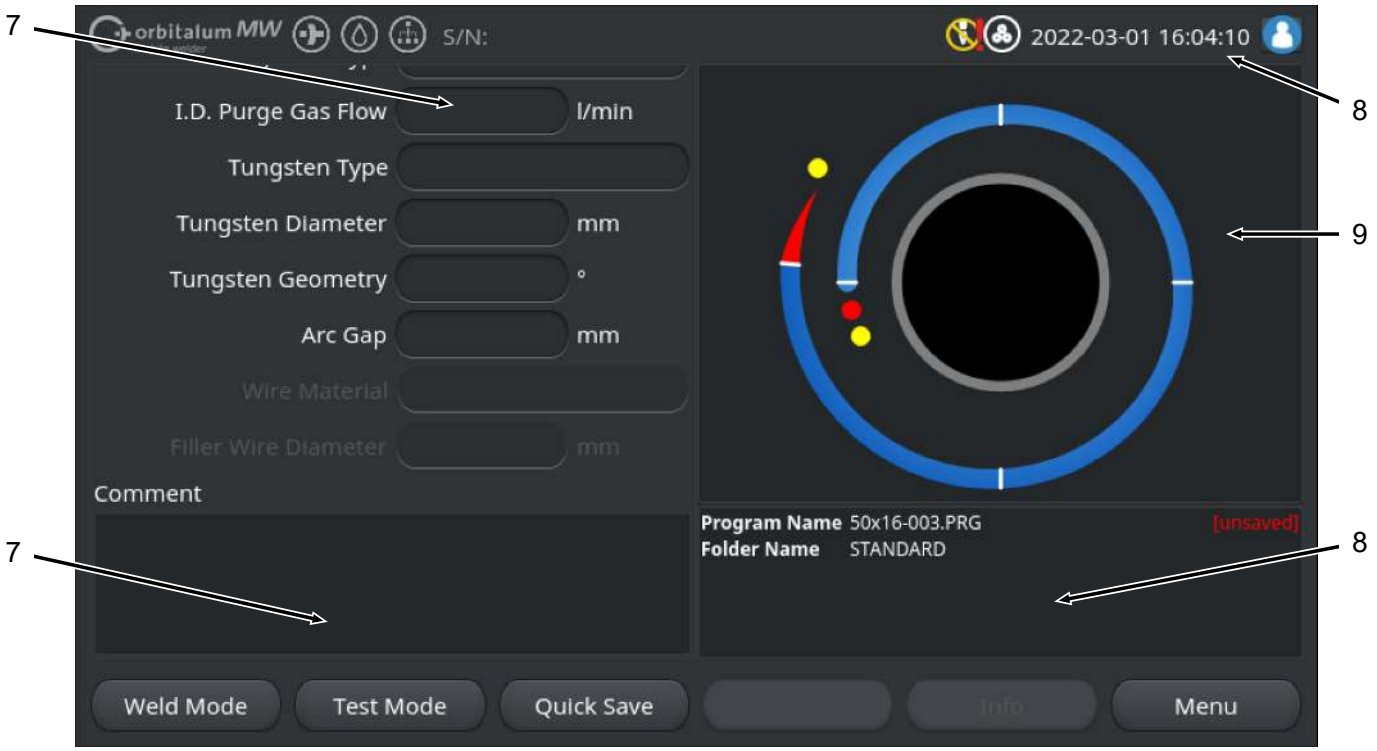
- Create welding procedures
- Adjust welding parameters
- Delete/rename/copy/move welding procedures
- Delete/copy/move weld logs
- Change system settings
- Change program settings
- Blocked functions and menu items are hidden or grayed out.

7.14 Operating concept

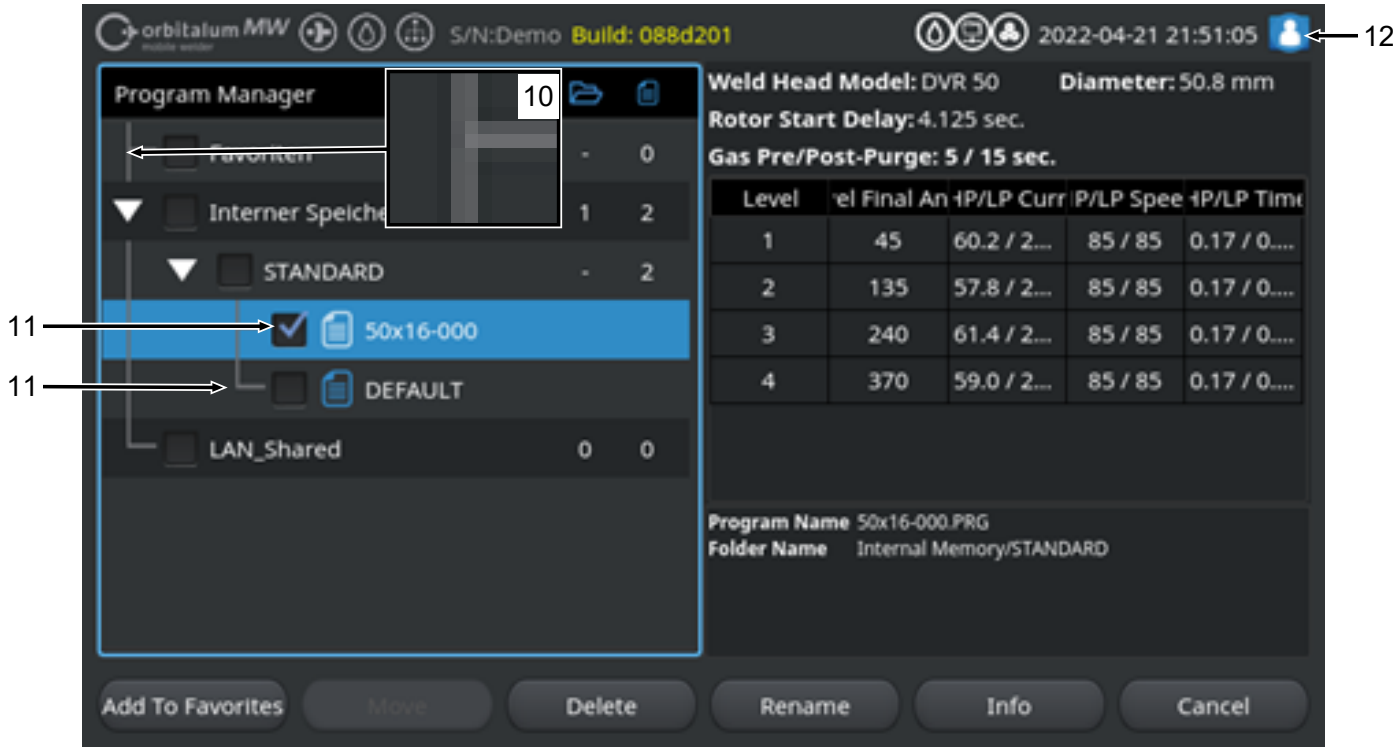
7.14.1 Software control elements and fields



NO.	DESIGNATION	FUNCTION
1	Menu cursor	Marks the current editing position
2	Menu button	Control element to execute assigned function.
3	Dropdown list	Control element to open a selection list and select a given value or function.
4	Slide control	Control element to enable (ON) or disable (OFF) assigned function. Activated slider buttons are highlighted in blue.
5	Number input field	Input element to enter numerical values. Activated fields are highlighted in blue.
6	Touch-actuated softkey button	Variable control element to execute functions that change depending on the menu.



NO.	DESIGNATION	FUNCTION
7	Text input field	Input element to enter text values. Activated text input fields are highlighted in blue.
8	Information field	Information element that displays various information.
9	Touch-actuated action field	Touch-actuated control element to execute assigned function.



NO.	DESIGNATION	FUNCTION
10	Menu tree element	Element to open/expand or close a menu tree.

NO.	DESIGNATION	FUNCTION
11	Checkbox	Control element for making a selection. Selected checkboxes are marked with a check mark.
12	Status icons	Display the system status of various functions.



NO.	DESIGNATION	FUNCTION
13	Progress bar	Displays the progress of the currently active program segment.
14	Interaction graphic	Provides graphical feedback to the user when parameters are changed.
15	Input field - highlighted in yellow	Input fields highlighted in yellow mark all values currently changed in the welding procedure that deviate from the current memory value. By saving the welding procedure again, the changed values are applied and highlighted in gray. **NOTICE! The function serves as an orientation aid for the user when creating and adjusting the welding procedure.**
16	"Gobal Change" softkey	If the "Gobal Change" softkey is pressed, the parameter value currently marked with the menu cursor is applied in all subsequent weld procedure sectors and existing values are overwritten.

7.14.2 Input devices and control elements

Primary control elements:

Optional input devices:

- 6 Optional input devices:
- Touchscreen
- Optional input devices:
- USB keyboard
- USB code scanner
- USB mouse

7.14.2.1 Softkey buttons

The functions assigned to the 6 softkeys (1 - 6) depend on the currently selected menu. The current function of the button is indicated by the label on the softkey buttons above it on the touchscreen and can be executed by pressing the physical or virtual softkey buttons.



Examples:

- The softkey button (6) is usually assigned to the "Menu" function, meaning pressing it brings you directly to the main menu, regardless of which sub-menu currently appears in the display.
- The softkey button (3) is assigned to the "Save" function in the "Program Manager" sub-menu, i.e. by pressing it, a program change can be saved directly.

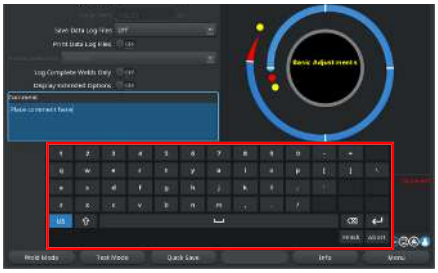
7.14.2.2 Touchscreen

The touchscreen is operated by touching it with the fingertip.

Tapping or swiping activates or executes the field on which the menu cursor is located.

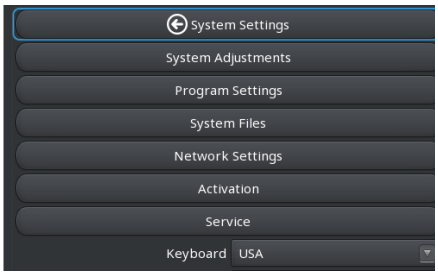
Virtual keyboard

Numeric and alphanumeric values can be entered via a virtual touch keyboard. It appears automatically when a corresponding input field is touched.



Menu buttons

Touching the desired slide control executes the function.



Slide control

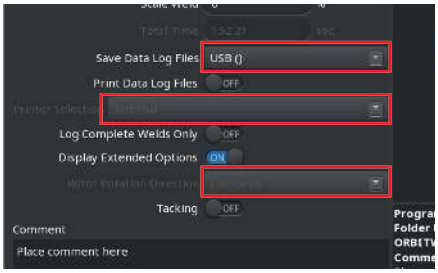
Touching the desired slide control activates (ON) or deactivates (OFF) the function.



Dropdown list fields

Touching the dropdown list field opens the list. Touching the desired parameter again selects it.

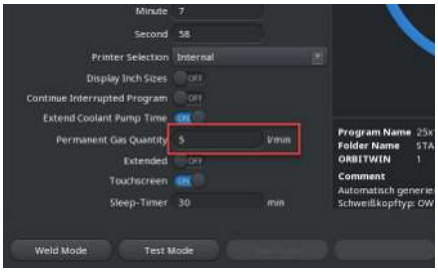
Touching the dropdown list field again closes the list.



Number input field

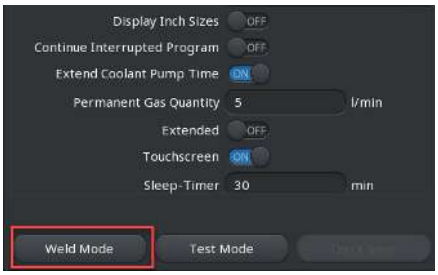
By touching an input field, the virtual numeric touch-actuated keyboard appears for input.

The entry can be confirmed by means of the "Finished" button or canceled using the "Cancel" field



Touch-actuated softkey buttons

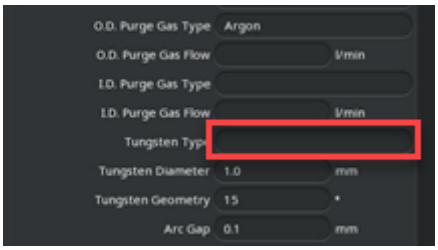
Touching a softkey button executes the stored function.



Text input fields

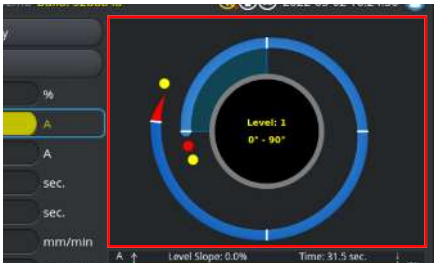
By touching a text input field, the virtual alphanu- meric touch-actuated keyboard appears for input.

The entry can be confirmed by means of the "Finished" button or canceled using the "Cancel" field.



Touch-actuated action fields

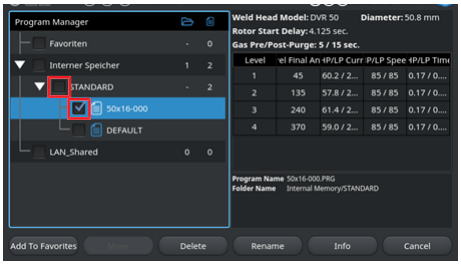
Touching an action field executes the stored function.



Checkboxes

Touching a selected checkbox will places a check mark in it.

Touching it again removes the check mark.

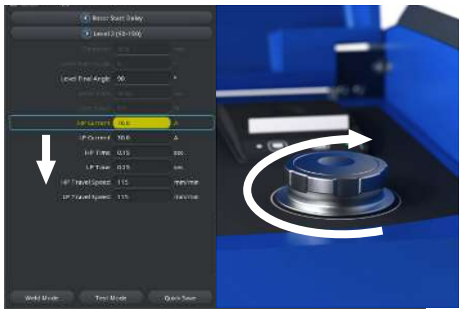


7.14.2.3 Rotary actuator

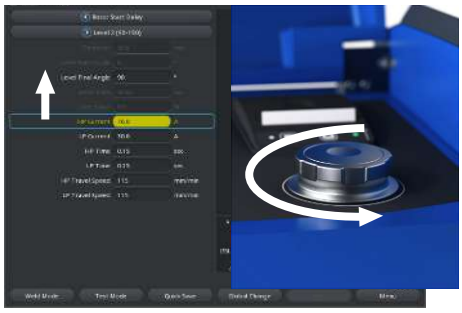
The rotary actuator is operated by turning and pressing it.

Rotate it to select the desired software control element or field. The control element or field on which the menu cursor is located is outlined in blue. The function is activated or executed by pressing the rotary actuator.

Clockwise rotation => The menu cursor moves down



Counterclockwise rotation => The menu cursor moves up



Pressing and holding the rotary actuator for a long time (> 2 seconds) returns you to the higher menu level.



Menu buttons

By briefly pressing the rotary actuator (< 2 seconds) executes the function of the highlighted menu button.



Slide control

Pressing the rotary actuator activates (ON) or de- activates (OFF) the function of the highlighted slider.

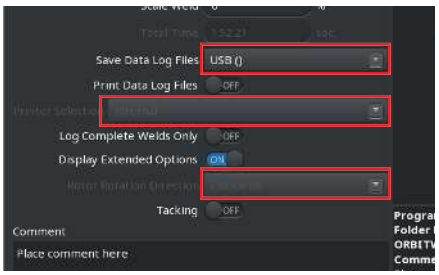


Dropdown list fields

Pressing the rotary actuator opens the highlighted dropdown list field. The desired parameter can be highlighted by turning and selected by pressing again.

By pressing longer (> 2 sec.), the input can be can- celed and the list can be closed.

This is also possible by pressing the dropdown list field again.



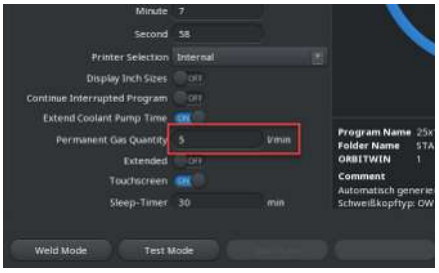
Number input field

Pressing the rotary actuator opens the highlighted number input field.

The desired numerical value can be selected by turning the rotary actuator and confirmed by pressing it again.

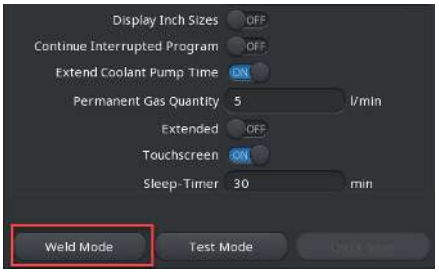
Depending on the direction of rotation, the input value increases or de- creases.

The entry can be canceled by pressing and holding longer (> 2 seconds).



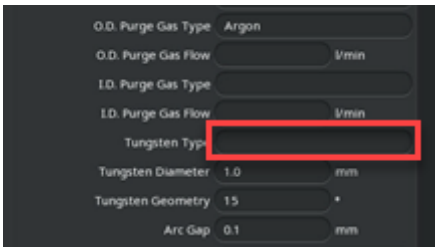
Touch-actuated softkey buttons

Operation via rotary actuator not possible.



Text input fields

Operation via rotary actuator not possible.



Touch-actuated action fields

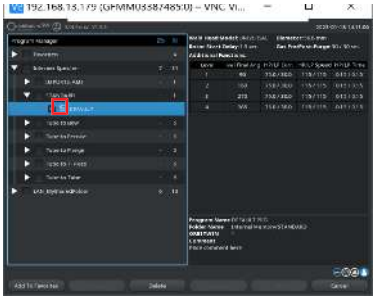
Operation via rotary actuator not possible.



Checkboxes

Pressing the rotary actuator selects the highlighted checkbox and places a check mark in it.

Pressing it again removes the check mark.



7.14.2.4 USB mouse

The mouse is operated using the mouse buttons and scroll wheel.

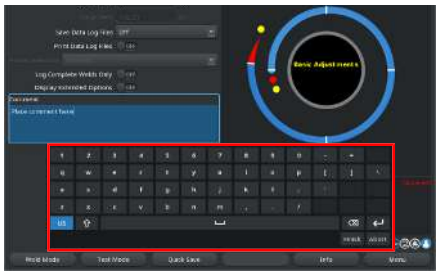
Left-clicking activates or executes the field where the mouse cursor is positioned.

You can scroll through the menu areas by turning the scroll wheel up or down.

The mouse cursor is hidden if there has been no movement with the mouse for approx. 2 seconds or as soon as an operation is registered via the touch function of the screen.
The mouse cursor reappears as soon as any movement of the mouse is detected.

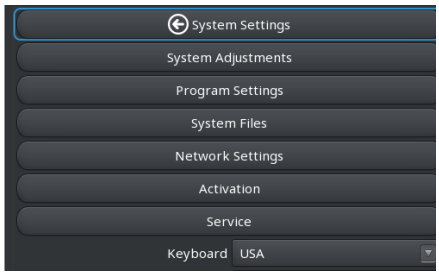
Virtual keyboard

Numeric and alphanumeric values can be entered using a virtual touch keyboard. It appears automatically when you click in the corresponding input field.



Menü-Buttons

Clicking on the desired menu button opens the stored menu.



Slide control

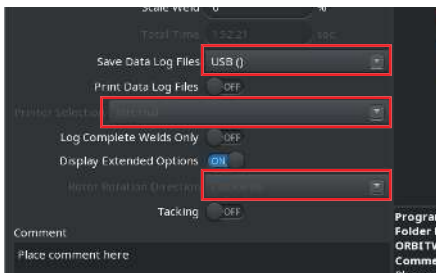
Clicking on the desired slider activates (ON) or deactivates (OFF) the function.



Dropdown list fields

Clicking on the drop-down list field opens the list. Clicking again on the desired parameter selects it.

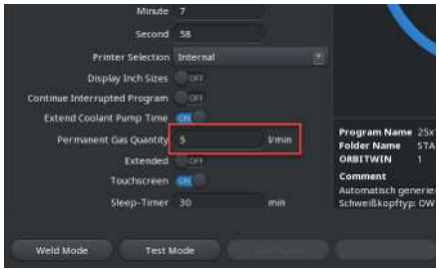
Clicking on the drop-down list field again closes the list.



Number input field

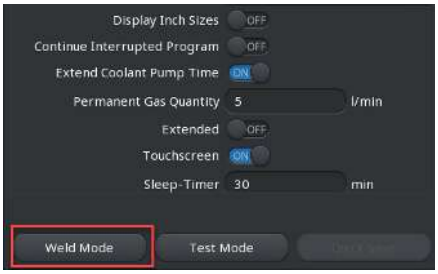
When you click in an input field, the virtual numeric key-board appears for input via mouse click.

The entry can be confirmed by means of the "Finished" button or canceled using the "Cancel" field.



Touch-Softkey-Buttons

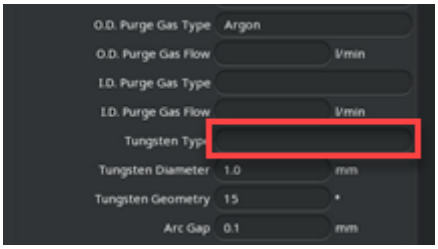
Clicking on a softkey button executes the stored function.



Text input fields

When you click in a text input field, the virtual alphanumeric touch keyboard appears for input via mouse click.

The entry can be confirmed by pressing the "Finished" button or canceled by pressing the "Cancel" button.



Touch-actuated action fields

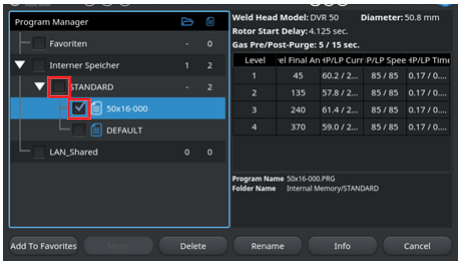
Clicking on an action field executes the stored function.



Checkboxes

Clicking on a marked checkbox will check it.

Clicking again removes the check mark.



7.14.2.5 USB keyboard

The primary navigation elements of the keyboard are the arrow keys, the "ENTER" key, the "ESC" key and the "F1 to F6" keys, as well as the numeric and alphanumeric keyboard.

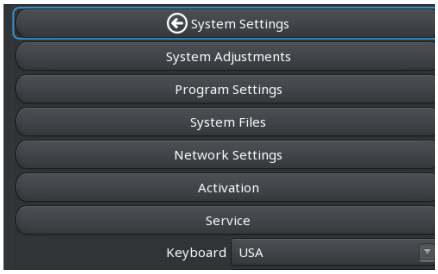


KEY/KEY COMBINATION	FUNCTION
Arrow	Use the right arrow key to move to the next menu and the left arrow key to move to the previous menu. The desired control element or field can be selected with the menu cursor using the "up" and "down" arrow keys. The control element or field on which the menu cursor is located is highlighted in blue.
Enter	The function is activated or executed by pressing the "ENTER" key.
Esc	By pressing the "ESC" key, you can revoke the entry or switch back from the current menu to the higher menu level.

KEY/KEY COMBINATION	FUNCTION
Letters and numbers	Numeric and alphanumeric values can be entered using the corresponding keys.
F1 – F6	Execute the functions of softkeys 1 - 6.
Tab	Use the menu cursor to move to the next control or input field.
Tap in input field	Discard all unsaved changes in the current field and move the menu cursor to the next item.
Shift + Tap	Use the menu cursor to move to the previous control or input field.
Shift + Tab in Input field	Discard all unsaved changes in the current field and move the menu cursor to the previous item.

Menu buttons

Pressing the "ENTER" key executes the function of the menu button marked with the menu cursor.



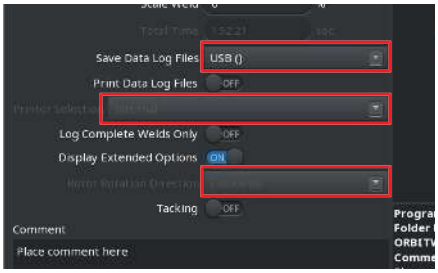
Slide controls

Pressing the "ENTER" key activates (ON) or deactivates (OFF) the function of the selected slider.



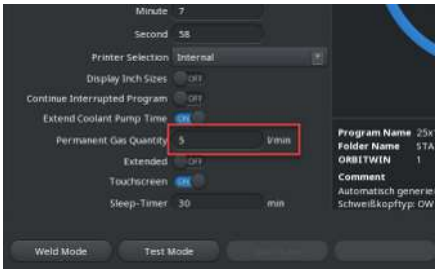
Dropdown list fields

Pressing the “ENTER” key opens the selected drop-down list field.
The desired parameter can be selected using the "up" and "down" arrow keys and confirmed with the "ENTER" key.
The selection can be canceled using the "ESC" key.
Selecting again using the arrow keys and confirming with the "ENTER" key closes the drop-down list again.

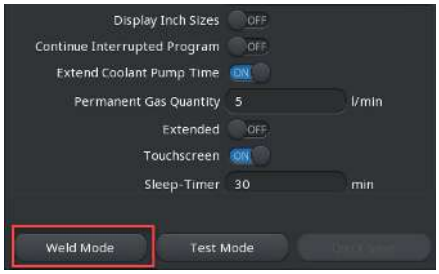


Number input fields

Pressing the "ENTER" key activates the selected number input field.
The numerical keys can be used to enter the numerical value, which can then be confirmed with the "ENTER" key.
Pressing the "ESC" key will cancel the entry.



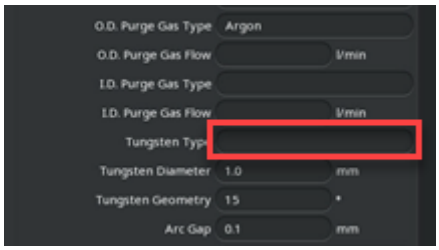
Softkey-Buttons



The functions of the 6 softkey buttons are executed by pressing the corresponding keys "F1-F6".

Taste F1 = Softkey 1
Taste F2 = Softkey 2
Taste F3 = Softkey 3
Taste F4 = Softkey 4
Taste F5 = Softkey 5
Taste F6 = Softkey 6

Text input fields

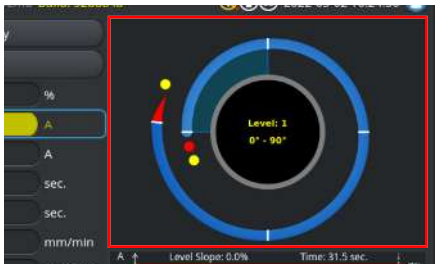


Pressing the "ENTER" key activates the selected text input field.

Text can be entered using the alphanumeric keys and confirmed with the "ENTER" key.

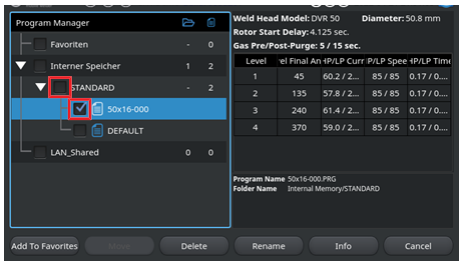
Pressing the "ESC" key will cancel the entry.

Touch action fields



Operation via USB keyboard not possible.

Checkboxes



Pressing the "ENTER" key activates the selected checkbox and marks it with a check mark.

The check mark can be removed by pressing again.

7.14.2.6 USB code scanner



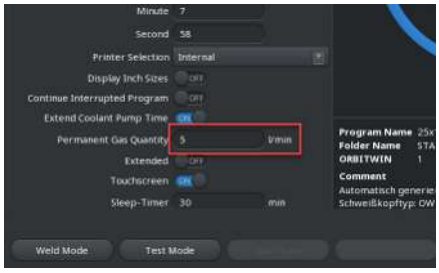
The USB code scanner can only be used to enter text or numbers into corresponding input fields.

Bar codes and QR codes can be read.

Text input fields



Number input fields



Transferring text and numbers

Procedure:

1. Select the desired input field by means of an input device.
2. Align the scanner with the code to be read and press the "Scanner key".
   ⇨ The input field is now activated.
3. Press the "Scanner key" again.

⇨ The code content is read in.

7.15 Setting the system language and language of the documentation

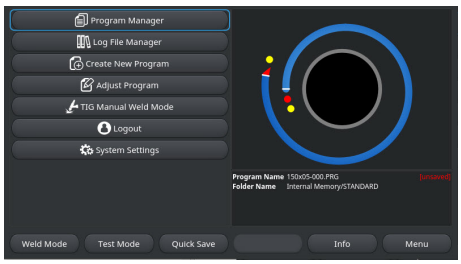
NOTICE!

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

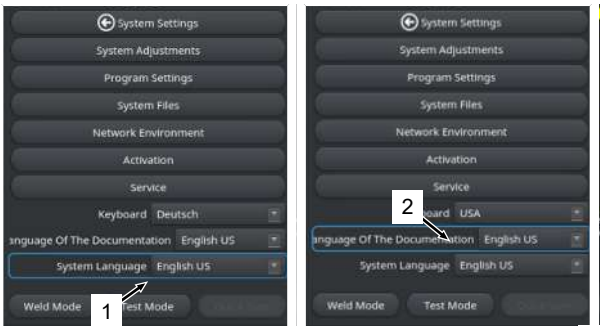
► If a language incomprehensible to the operator has been set, the dropdown list of languages can be accessed from the main menu by selecting the last menu item (Settings > Language).

Changing system/documentation language, from the main menu:

► Select the "System Settings" menu item.



1. Select the dropdown list field "System Language" (1) or "Language of the Documentation" (2) .
2. Select the desired language.



7.16 Setting the units of measure

The power supply supports metric and imperial units of measure.

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

Changing the units of measure, from the main menu:



1. Select the " System Settings" menu item.
2. Select the "System Adjustments" menu item.
3. Select the slide button "Display Inch Sizes" and make the desired setting:
   1. "ON"
      ⇨ Display imperial units of measure
   2. "OFF"
      ⇨ Display metric units of measure

See the chapter System adjustments [▶ 108]

8 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 [▶ 7]

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.

8.1 Main menu

All functions of the power supply can be accessed from the main menu. It also provides information on the currently loaded welding procedure and on the status of system-relevant functions.

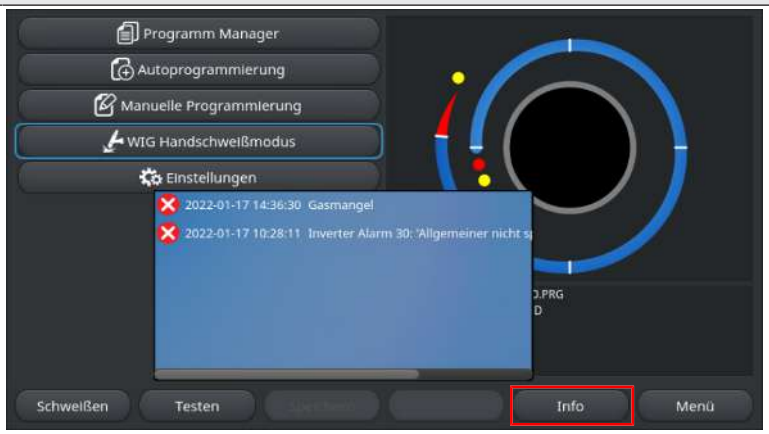


Illustration: ***Main menu***

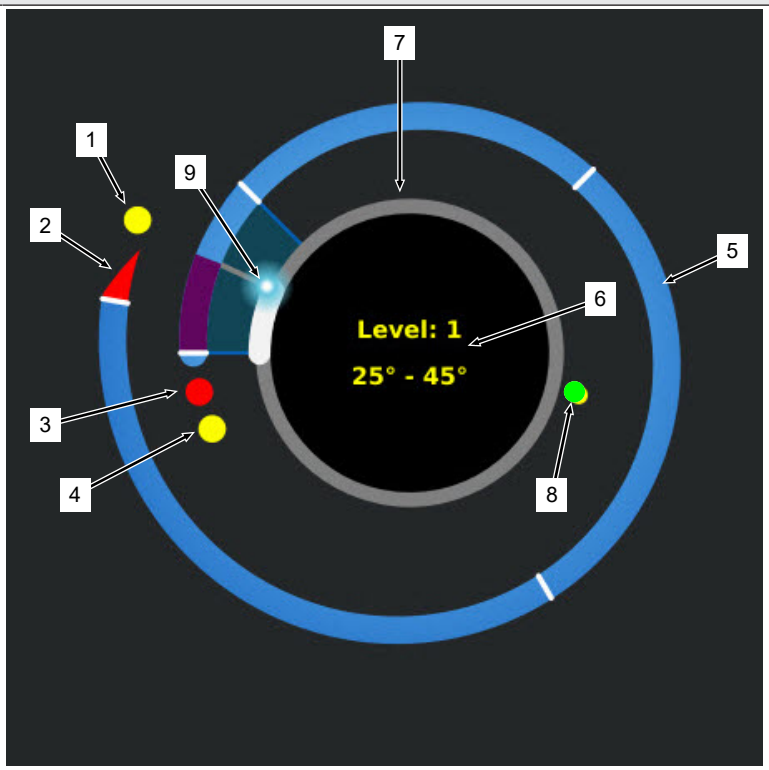
Overview and function descriptions in the main menu

NO.	DESIGNATION	FUNCTION
1	"Program Manager" menu button	Opens the "Program Manager" menu, where welding programs can be loaded and managed. *For detailed information, see the chapter* Program Manager [▶ 62]
2	"Protocol Manager" menu button	Opens the "Protocol Manager" menu, where welding reports can be displayed, printed and managed. *For detailed information, see the chapter* Protocol Manager [▶ 73]
3	"Create New Program" menu button	Opens the "Create New Program" menu, where welding programs can be created with system support. *For detailed information, see the chapter* Auto programming [▶ 75]
4	"Adjust Program" menu button	Opens the "Adjust Program" menu, where welding parameters and segments of the currently loaded welding procedure can be adjusted. *For detailed information, see the chapter* Adjusting the program [▶ 77]
5	"TIG Manual Weld Mode" menu button"	Opens a user interface adapted to manual welding. *For detailed information, see the chapter* TIG manual welding mode [▶ 93]

NO.	DESIGNATION	FUNCTION
6	"Logout" menu button	Takes you to the logout screen, where it is possible to switch between user levels and change passwords. *For detailed information, see the chapter* Login screen [▶ 36]
7	"System Settings" menu button	Opens the "System Settings" menu, where system-, service- and weld procedure-relevant settings can be made and system-relevant information is displayed. In addition, system updates and activation of optional software can be performed. *For detailed information, see the chapter* Settings [▶ 108]
8	"Weld Mode" softkey	Opens the "Weld Mode" menu, where the welding torch can be controlled, welding parameters adjusted and the welding process started. *For detailed information, see the chapter* Weld mode [▶ 135]
9	"Test Mode" softkey	Opens the "Test Mode" menu, where the welding torch can be controlled manually, welding parameters can be adjusted and a simulation without arcing can be started in order to test all process-relevant functions before welding begins. *For detailed information see the chapter* Test mode [▶ 142]
10	"Save" softkey	Saves newly created or modified welding procedures. If no welding parameters for the currently active welding procedure have been changed, the "Save" menu button is inactive and grayed out. Welding procedures newly created via "Adjust Program" are saved in the "Internal Memory" in the "STANDARD" folder. Alternatively, welding procedures can also be saved selectively. *For detailed information, see the chapter*
11	"Print Prev. Log" softkey	The "Print Prev. Log" softkey can be used to print out the weld data log of the last weld, regardless of the weld data log settings in the welding procedure. This function must be activated in the "System Settings". *For detailed information, see the chapter* System adjustments [▶ 108]

NO.	DESIGNATION	FUNCTION
12	"Info" softkey	 The "Info" softkey button can be used to display system messages. 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 been generated. Pressing the softkey button opens a window with a detailed, chronological listing of the system messages. Pressing and holding the "Info" softkey button resets the warning messages. If there are no messages, the softkey button is grayed out and cannot be pressed.
13	"Menu" softkey	Takes you directly to the main menu.
14	Welding procedure information	The "Welding Procedure Information" field displays information about the currently loaded welding procedure. **Program name** Displays the file name of the loaded welding procedure. **Folder Name** Displays the name of the folder where the loaded welding procedure is located.
15	Save status of welding procedure "[not saved]".	The status "[not saved]" indicates that changes have been made in the currently loaded welding procedure and these have not yet been saved. In the case of a newly created welding procedure, it indicates that the welding procedure itself has not yet been saved.
16	"Date and Time"	The information field displays the system date and time set in the power supply. The date and time can be set in the system settings. *For detailed information, see the chapter* System adjustments [▶ 108]
17	Power supply type and serial number	The information field shows the manufacturer, power supply type and serial number.

NO.	DESIGNATION	FUNCTION
18	Software status icons	The software status icons indicate the currently enabled functionality and scope of the software. Enhancements can be purchased and activated as an option. *For detailed information see the chapter* Upgrade options [▶ 152]
	SYMBOL	**STATUS**
		Software MW+ enabled. *For detailed information, see the chapter* Activation [▶ 35]
		ORBICOOL MW and liquid cooled weld heads enabled. *For detailed information, see the chapter* Activation [▶ 35]
		LAN/IoT/VNC connectivity functions enabled. *For detailed information, see the chapter* Activation [▶ 35]
19	System status icons	The system status icons indicate the current status of system-relevant functions.
	SYMBOL/BUTTON	**STATUS**
		Logged in at user level Button function: Log out / activate the login screen
		Status: Logged in at the administrator level Button function: Log out / activate the login screen
		Orbicool MW cooling unit connected
		No communication Power supply <-> Inverter
		No communication HMI <-> IO board
		One storage medium connected
		Active access to the storage medium
		Multiple storage media connected
		Active access to one storage medium
		Network drive(s) connected
		Active access to network drive(s)
		Internal printer selected
		"Print weld data logs" function active
		Corded printer selected
		"Print weld data logs" function active
		Network printer selected
		"Print weld data logs" function active

NO.	DESIGNATION	FUNCTION
20	Welding procedure process graphic	 In the main menu, the process graphic shows the structure of the currently loaded welding procedure and its progress in a clockwise direction. It adapts dynamically depending on the number of segments and segment length, as well as on the welding parameters of the respective active welding procedure. During the welding process, it is used to determine the position of the electrode and to display the current welding process. In the main menu, the process graphic is also a touch-actuated action field that can be used to access the welding parameter levels of the different segments in order to change their parameters. To do this, touch the respective area on the monitor.

NO.	DESIGNATION	FUNCTION
	1	**Touch-actuated action field "Post-Purge Time" (1)** Touching the touch-actuated action field takes you directly to the "Gas Post-Purge Time" welding parameter level of the currently loaded welding procedure.
	2	**Touch-actuated action field "Downslope"** Touching the touch-actuated action field takes you directly to the "Downslope" welding parameter level of the currently loaded welding procedure.
	3	**Touch-actuated actuated action field "Rotor Start Delay"** Touching the touch-actuated action field takes you directly to the "Rotor Start Delay" welding parameter level of the currently loaded welding procedure.
	4	**Touch-actuated action field "Pre-Purge Time"** Touching the touch-actuated action field takes you directly to the "Gas pre-purge" welding parameter level of the currently loaded welding procedure.
	5	**Touch-actuated action field "Level X"** Touching the touch-actuated action field takes you directly to the welding parameter level of the respective segment of the currently loaded welding procedure.
	6	**Touch-actuated action field "Basic Adjustments"** Touching the touch-actuated action field "Basic Adjustments" takes you directly to the "Basic settings" welding parameter level of the currently loaded welding procedure.
	7	**Tube graphic** The tube graphic represents the workpiece and is not an active element. It is used solely for orientation purposes.

8.1.1 Program Manager

Welding procedures can be loaded, saved and organized across locations and folders with the aid of the Program Manager.
It is possible to copy, rename or delete welding procedures and folders across drives.
In addition, the Program Manager provides an overview of the welding procedures in the locations where they are saved and a preview of the main welding parameters of the selected welding program.
All locations, folders and procedures are displayed and structured via an expandable and collapsible file tree.

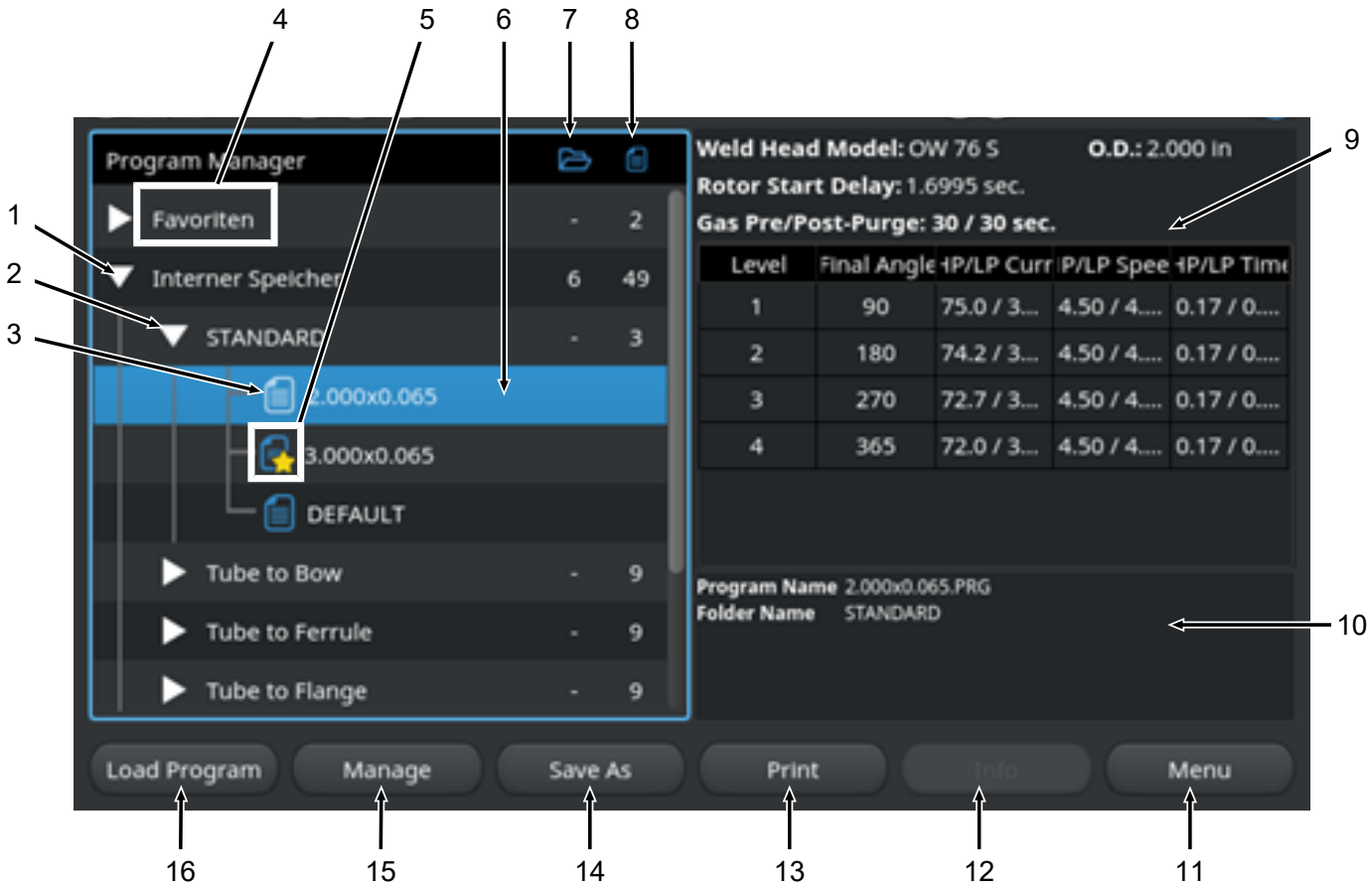


Illustration: "Program Manager" softkey assignment for marked welding procedures

NO.	DESIGNATION	FUNCTION
1	Drive level	All active and connected drives are displayed at this level. Possible drive include: • Internal memory • External storage media connected via USB • LAN network storage locations
2	Folder level	All the welding procedure folders created in the parent location are displayed at this level.
3	Welding procedure level	All the welding procedures located in the folder are displayed at this level. Welding procedures are indicated by the blue file icon.
4	Favorites folder	The welding procedures marked as favorites in this folder are linked for quick access.
5	Favorite icon	The star icon indicates that a folder has been added to the Favorites.
6	Menu cursor	Drives, folders or welding procedures marked with the menu cursor are highlighted in blue in the Program Manager.
7	Number of folders	Indicates the number of folders at each storage location level.
8	Number of welding procedures	Indicates the number of welding procedures at each storage location level.
9	Welding parameter preview	The welding parameter preview information field shows a preview of the main welding parameters for the currently selected welding procedure.
10	Welding procedure informations preview	The welding procedure information preview information field shows the welding procedure information for the currently selected welding procedure.

NO.	DESIGNATION	FUNCTION
11	"Menu" softkey	The "Menu" softkey takes you directly back to the main menu.
12	"Info" softkey	The "Info" softkey is used to display system messages. *For detailed information, see the chapter* Main menu [▶ 57]
13	"Print" softkey	The "Print" softkey is used to print out the welding procedure currently marked with the menu cursor using the printer set in the system settings. *For detailed information, see the chapter* System adjustments [▶ 108]
14	"Save As" softkey	The "Save As" softkey can be used to save the currently active welding procedure to the desired storage location. **NOTICE! The "Save As" softkey function is only displayed if a welding procedure is highlighted at the welding procedure level.** *For detailed information, see the chapter* Saving the welding procedure [▶ 65]
	"New Folder" softkey	The "New Folder" softkey can be used to create a new folder on the marked drive. **NOTICE! The "New Folder" softkey function is only displayed if a drive is marked at the drive level.** *For detailed information, see the chapter* Creating a folder [▶ 65]
15	"Manage" softkey	The "Manage" softkey opens a softkey submenu which can be used to rename, delete, copy across drives and mark weld procedures and folders as favorites *For detailed information, see the chapter* Managing welding procedures [▶ 66]
16	"Load Program" softkey	The "Load Program" softkey is used to load the welding procedure currently marked with the menu cursor. *For detailed information, see the chapter* Loading the welding procedure [▶ 64]

8.1.1.1 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.

8.1.1.2 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

8.1.1.3 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.

8.1.1.4 Managing welding procedures

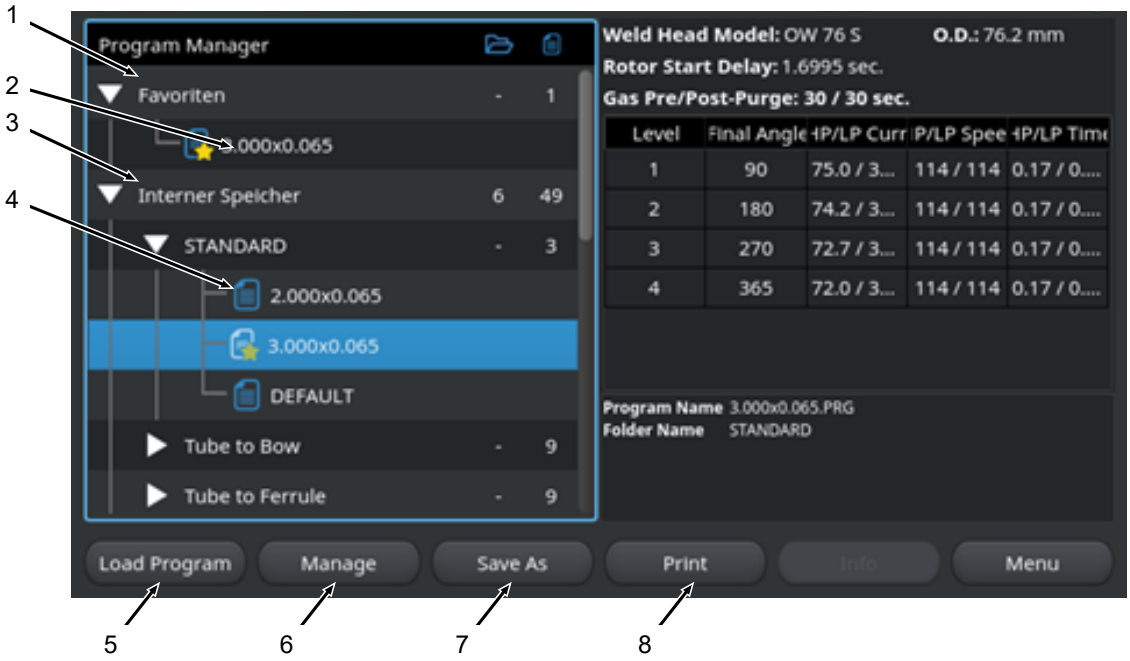


Illustration: "Manage welding procedures" softkey assignment with welding procedure marked

NO.	DESIGNATION	FUNCTION
1	Favorites folder	The welding procedures selected as favorites in this folder are linked for quick access.
2	Favorites icon	The star icon indicates that the highlighted procedure has been marked as a favorite.
3	Checkbox	Individual folders and welding procedures as well as a selection of welding procedures can be marked for management via the checkboxes.
4	Activated checkbox	An activated checkbox has a check mark in it. In this way, individual folders and welding procedures as well as a selection of welding procedures can be marked for management by activating the checkboxes.
5	"Load Program" softkey	The "Load Program" softkey can be used to mark welding procedures and folders as favorites. *For detailed information, see the chapter* Add welding procedure as favorite [▶ 67]
	"Copy" softkey	The "Copy" softkey can be used to copy welding procedures and folders. *For detailed information, see the chapter* Copying welding procedures and folders [▶ 68]
6	"Move" softkey	The "Move" softkey can be used to move welding procedures and folders between the storage locations. *For detailed information, see the chapter* Moving welding procedures and folders [▶ 69]
	"Remove Favorites" softkey	The "Remove Favorites" softkey can be used to remove the favorite status of welding procedures and folders. *For detailed information, see the chapter* Remove welding procedures as favorite [▶ 67]

NO.	DESIGNATION	FUNCTION
7	"Delete" softkey	The "Delete" softkey can be used to delete welding procedures and folders. *For detailed information, see the chapter* Deleting welding procedures and folders [▶ 71]
8	"Rename" softkey	The "Rename" softkey can be used to rename welding procedures and folder names. *For detailed information, see the chapter* Renaming welding procedures and folders [▶ 67]

8.1.1.4.1 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).

8.1.1.4.2 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).

8.1.1.4.3 Renaming welding procedures and folders

From the main menu

1. Select the "Program Manager" menu item.
2. Select the "Manage" softkey (Main menu [▶ 57]).
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 [▶ 66]).
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.

8.1.1.4.4 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 [▶ 57]).
3. Activate the checkboxes for the welding procedures or folders to be copied (Managing welding procedures [▶ 66]).
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”.

8.1.1.4.5 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 [▶ 57]).

3. Activate the checkboxes for the welding procedures or folders to be copied (Managing welding procedures [▶ 66]).
4. Mark the destination drive or folder with the menu cursor.
5. Select the "Move" softkey.
6. System prompt: "Move procedure?" Confirm with "Yes”.

8.1.1.4.6 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:

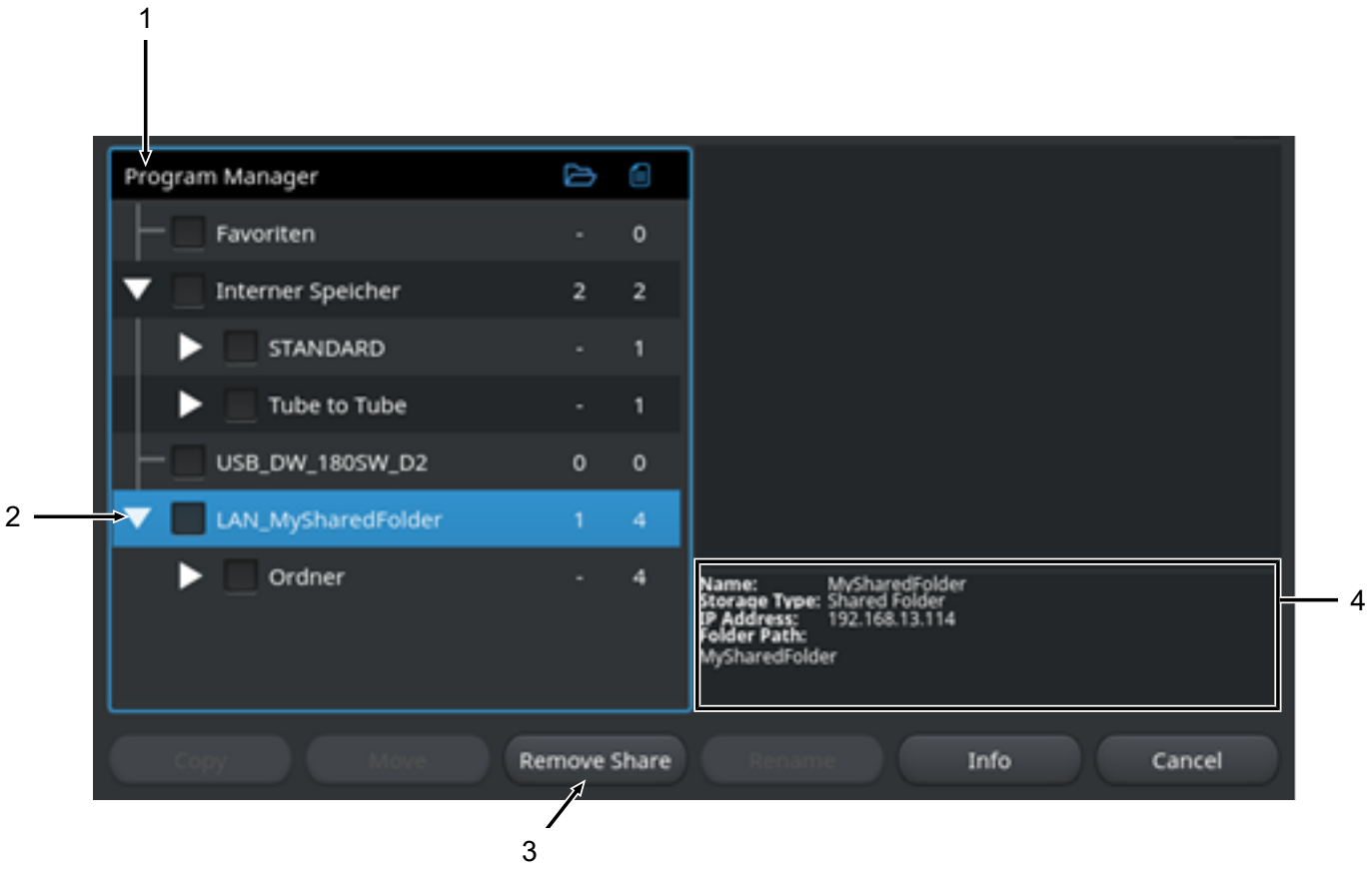
- Entire drives

From the main menu:

1. Select the "Program Manager" menu item.
2. Select the "Manage" softkey (Program Manager [▶ 62]).
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."

8.1.1.5 Removing share

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



NO.	DESIGNATION	FUNCTION
1	Drive level	All active and connected drives are displayed at this level. Possible drive include: • Internal memory • External storage media connected via USB. • LAN network storage locations.
2	Menu cursor	Drives, folders or welding procedures marked with the menu cursor are highlighted in blue in the Program Manager.
3	Remove Share" softkey	The "Remove Share" softkey can be used to remove network shares or storage locations. *See also the chapter* Shared Folder Setup [▶ 123]
4	Drive information	The "Drive Information" field displays information about the drive currently marked with the menu cursors. • **Name:** Displays the drive name. • **Types of drive:** Indicates whether the drive is internal, USB or LAN. • **IP address:** Displays the IP address of the network storage location. • **Directory path:** Displays the network path of the network storage location.

8.1.2 Protocol Manager

Welding logs can be viewed, printed and organized across locations and folders using the Protocol Manager. It is possible to copy, move or delete welding logs and folders across drives.
In addition, the Protocol Manager provides an overview of the welding logs located on the storage locations and a preview and complete view of the welding protocol.

NOTICE! **Logs can only be stored on external storage media (USB/ LAN)!**
The "STANDARD" folder cannot be deleted.



NO.	DESIGNATION	FUNCTION
1	"Local" icon	The power supply can display log files from other Orbitalum power supplies, among others. This is the case, for example, with a shared LAN location where multiple power supplies store the weld logs. The Local icon marks the storage location belonging to the currently used power supply.
2	Drive level	All active and connected drives are displayed at this level. Possible drive include: • Internal memory • External storage media connected via USB • LAN network storage locations.
3	Folder level	All welding protocol folders created in the parent location are displayed at this level. The folder structure is taken from the Program Manager of the associated welding procedure.
4	Menu cursor	Drives, folders or welding procedures marked with the menu cursor are highlighted in blue in the Program Manager.

NO.	DESIGNATION	FUNCTION
5	Weld data log level	Shows the name of the welding procedure associated with the weld data logs. All weld data logs located in the folder are listed at this level. Each weld data log has a unique number generated when the data record is saved (at the end of the current welding process), which is comprised of the current date and time. Example: `Log file 20210302 103517 (3/2/2021 at 10:35 a.m. and 17 seconds)`
6	Weld data log status icon	The status icon indicates whether, during the welding recorded in the associated log, a warning message or an abort occurred or whether the weld was performed without these.
	SYMBOL	**MEANING**
		Check mark: All measured actual values lie within the monitoring limits for alarm and abort.
		Exclamation mark: An alarm message was generated during welding. The alarm limits set in the monitoring limits were violated. The process was not aborted.
		X Welding was aborted. The monitoring limits were overshot/undershot or the operator initiated a "STOP".
7	"Manage" softkey	The "Manage" softkey opens a softkey submenu which can be used to delete, copy, move and print welding protocols. *For further information, see the chapter* Managing welding procedures [▶ 66]
8	"Display" softkey	The "Display" softkey opens the welding protocol currently marked with the menu cursor and displays it in full screen mode. The full screen display can be closed by pressing the "Close" softkey.
9	"Print" softkey	The "Print" softkey is used to print out the welding protocol currently marked with the menu cursor using the printer set in the system settings. *For further information, see the chapter* System adjustments [▶ 108]
10	Welding protocol preview	The welding protocol preview information field shows the content of the currently selected welding protocol.

8.1.3 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.

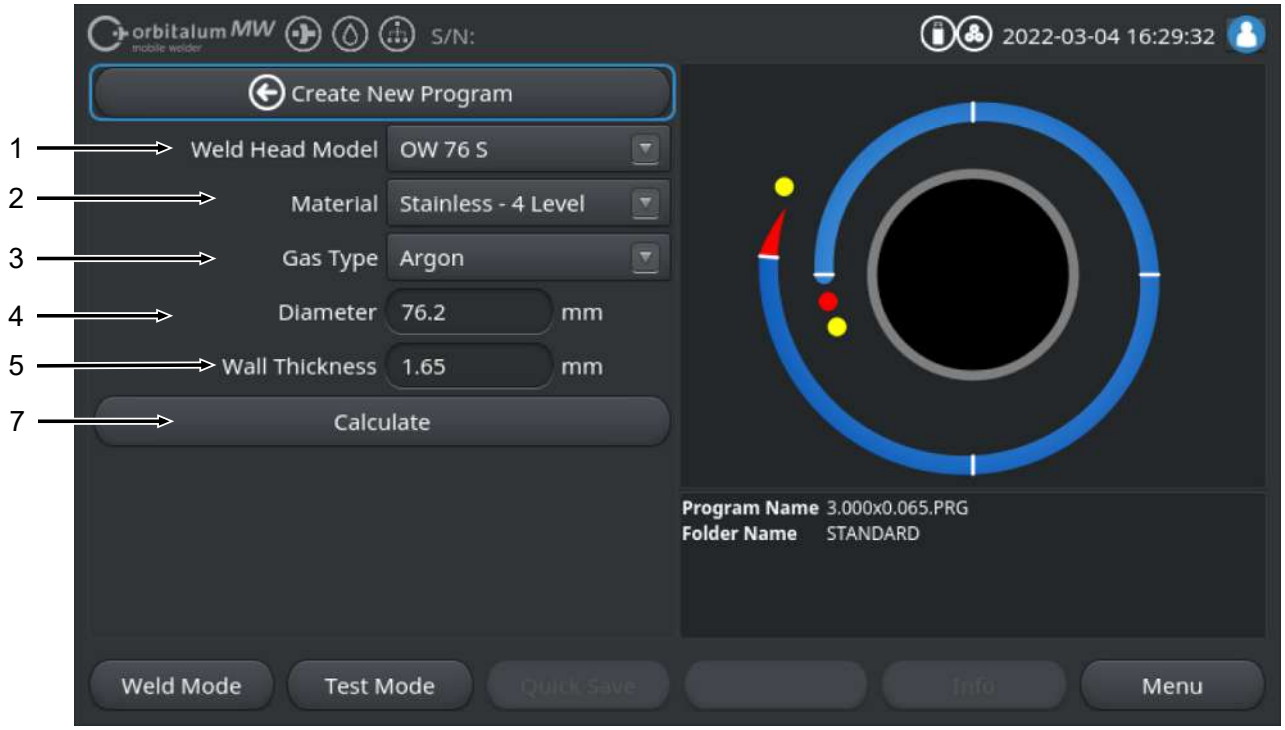
Auto programming only works in conjunction with an orbital weld head or rotary table. This function is not available for manual welding torches.

8.1.3.1 Using auto programming

From the main menu

1. Select the "Create New Program" menu item.
2. Select the "Weld Head Model" menu item.
3. Select "Material" and parameter set.
4. Select "Gas Type".
5. Enter "Diameter".
6. Enter "Wall Thickness".
7. Select "Wire Feed" slide button.
8. Slide button "ON" = Welding with cold wire
   Slide button "OFF" = Welding without cold wire
9. Press the "Calculate" menu button.

⇨ After successful entry, the power supply switches back to the main menu.



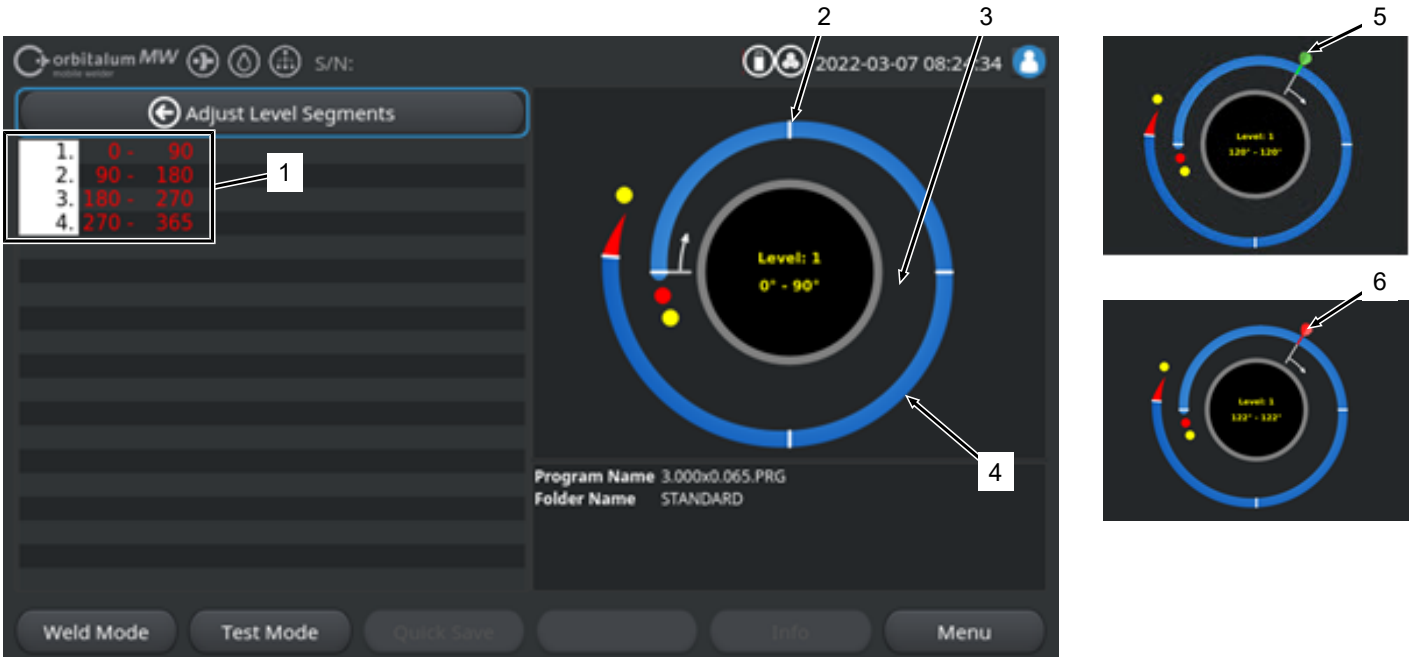
NO.	DESIGNATION	FUNCTION
1	"Weld Head Model"	***NOTE*** **For automatic determination, the dropdown list must be activated once. The connected weld head model is highlighted and can be selected.** Possibility to select weld head type. If a weld head is already connected, the connected weld head type is determined automatically.
2	Material	Several materials and parameter sets are available for programming. The selection must be made on the basis of 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 over the entire pipe 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
3	Gas Type	Several shielding gases are available for programming. The selection must be made on the basis of the application and the shielding gas to be used. **Argon** Standard shielding gas Argon e.g.: Argon 4.6 or Argon 5.0 **Argon H2-2%** Argon shielding gas containing 2% hydrogen **Argon H2-5%** Argon shielding gas containing 5% hydrogen
4	"O.D."	Enter the tube's outer diameter
5	Wall thickness	Enter the tube's wall thickness
6	Wire Feed	Possibility to select whether cold wire to be used or not. ***NOTE*** **Function depends on weld head.** **Can only be activated with weld heads that support use of cold wire.**
7	"Calculate" menu button	After the "Calculate" menu button is pressed, the welding procedure is created on the basis of the parameters entered.

8.1.4 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.

8.1.4.1 Adjusting level segments

In the "Adjust Level Segments" menu, program segments can be changed, removed or added in the currently loaded welding procedure.



NO.	DESIGNATION	FUNCTION
1	List of levels	Tabular overview of the levels contained in the currently loaded procedure with indication of the number of levels and their angular ranges from-to.
2	Level segment boundary	Marks the start and/or end of a level segment.
3	Level segment cursor	The level segment cursor can be used to move and reset level segment boundaries.
4	Level segment	Level segment range. Defined by 2 level segment boundaries.
5	Cursor flag, green	The green cursor flag appears when the cursor is placed exactly on the level segment boundary.
6	Cursor flag, red	The red cursor flag appears when a level segment boundary is selected.

NOTICE!

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

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

8.1.4.1.1 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).

8.1.4.1.2 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.

8.1.4.1.3 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.

8.1.4.2 Adjusting parameters

The "Adjust Program Parameters" menu can be used to adjust the welding procedure parameters of the currently loaded welding procedure.

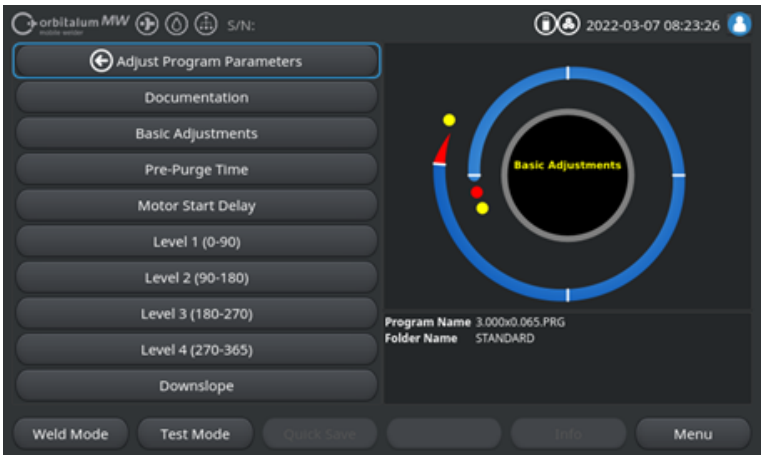
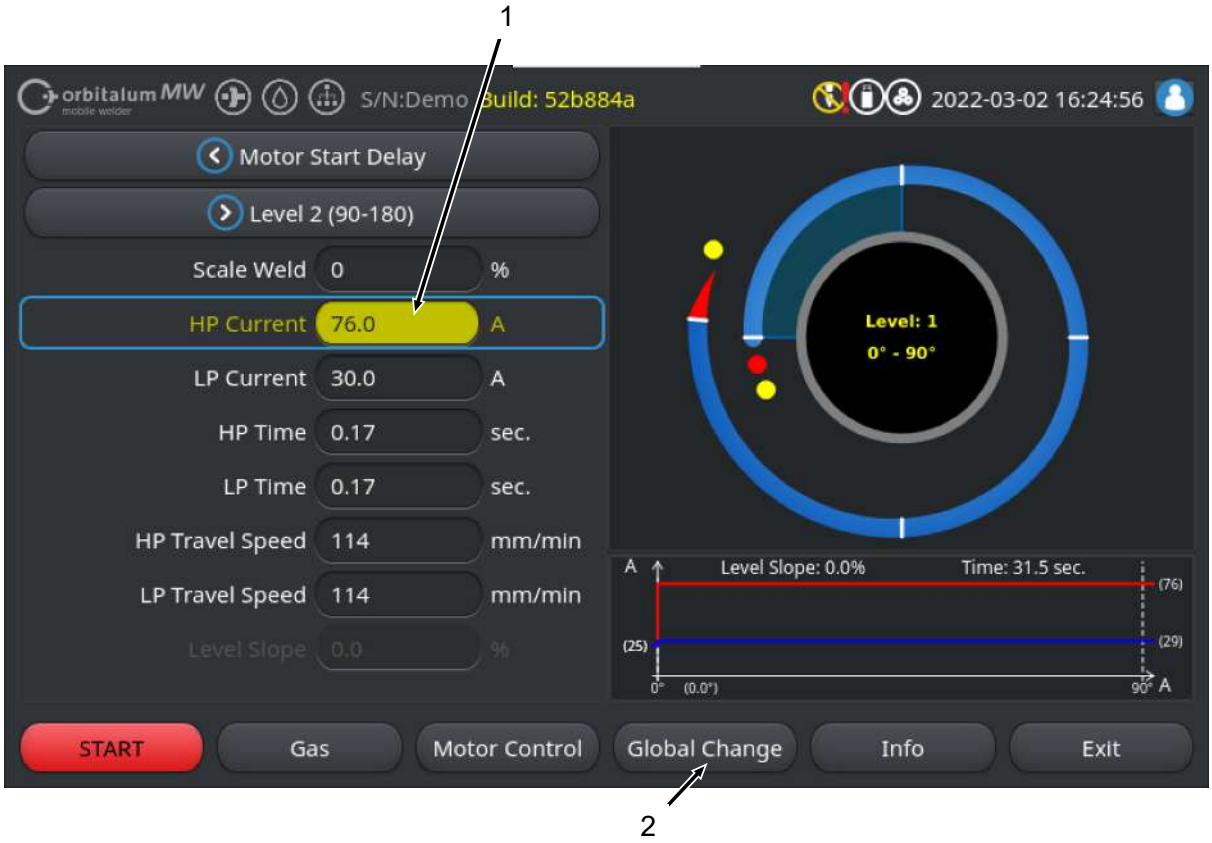


Illustration: "Adjust Program Parameters" menu

Changing parameter values



NO.	DESIGNATION	FUNCTION
1	Input field - highlighted in yellow	Input fields highlighted in yellow mark all values currently changed in the welding procedure that deviate from the current memory value. By saving the welding procedure again, the changed values are applied and highlighted in gray. **NOTICE! The function serves as an orientation aid for the user when creating and adjusting the welding procedure.**
2	"Global Change" softkey	Pressing the "Global Change" softkey transfers the parameter value currently marked with the menu cursor to all subsequent levels and existing values are overwritten. **NOTICE! The function serves the user as a convenience function to adjust identical values across segments faster.**

8.1.4.2.1 Basic adjustments

All basic adjustments required for the welding process can be made in the "Basic Adjustments" section of the welding procedure.



Illustration: Basic adjustments, upper region of menu

NO.	PARAMETER	FUNCTION
1	"Process Details"	*See the chapter* "Process Details" [▶ 86]
2	"O.D."	Input field for the tube outer diameter to be welded in mm.
3	"Weld Head Model"	Possibility for selecting the torch type If a welding torch is already connected, the connected torch model is determined automatically. **NOTICE! For automatic determination, the dropdown list must be activated once. The connected weld head model is highlighted and can be selected.**
4	"Weld Number"	Consecutive numbering of welds. Weld seam numbers can also be assigned individually. They serve as an indicator of progress or as an identifier in documentation. **NOTICE! When the welding power supply is restarted or the program is changed, the weld number is always reset to the value "1".**
5	"Graphic Start Position"	Enter in °. Rotates the process graphic of the software strictly visually to the desired angle in degrees. Serves as an orientation aid for the real start position of the electrode, or for alignment of the weld head on the tube.
6	"Rotor Start Position"	Enter in °. Determines the start position of the welding process, starting from the home position of the weld head. After the welding process is started, the electrode moves from the home position to the entered position. Ignition takes place when this position is reached. **NOTICE! When the electrode or the weld head rotor is moved from the home position, there is a risk of misfiring between the rotor and surrounding components due to the open position of the weld head rotor. When using this function, make sure that the electrode is in good condition, the electrode gap is correct and the contact surfaces (clamping shells and ground connections) and workpiece surfaces are clean!**

NO.	PARAMETER	FUNCTION
7	"Replace Electrode Alert"	When this function is activated, you can define the number of welding ignitions after which the operator is prompted via a message window to check or change the electrode.
	Ignitions until electrode replacement necessary	Input field for the number of ignitions after which a message window appears prompting the operator to replace the electrode. After each ignition the value decreases by 1. When the value "0" is reached, the prompt window appears.
8	Correction factor	By entering a correction factor in %, the HP and LP welding currents programmed for the individual level segments can be changed across segments. It is recommended that you use this function if the welding current is not to be adjusted segment-specifically but across segments. **NOTICE! The HP and LP welding current values changed by the correction factor are applied after the welding procedure is saved. The new welding current values now serve as the new calculation basis for the correction factor. Therefore, the factor is displayed with the value 0% after saving.**



Illustration: Basic adjustments, middle region of menu

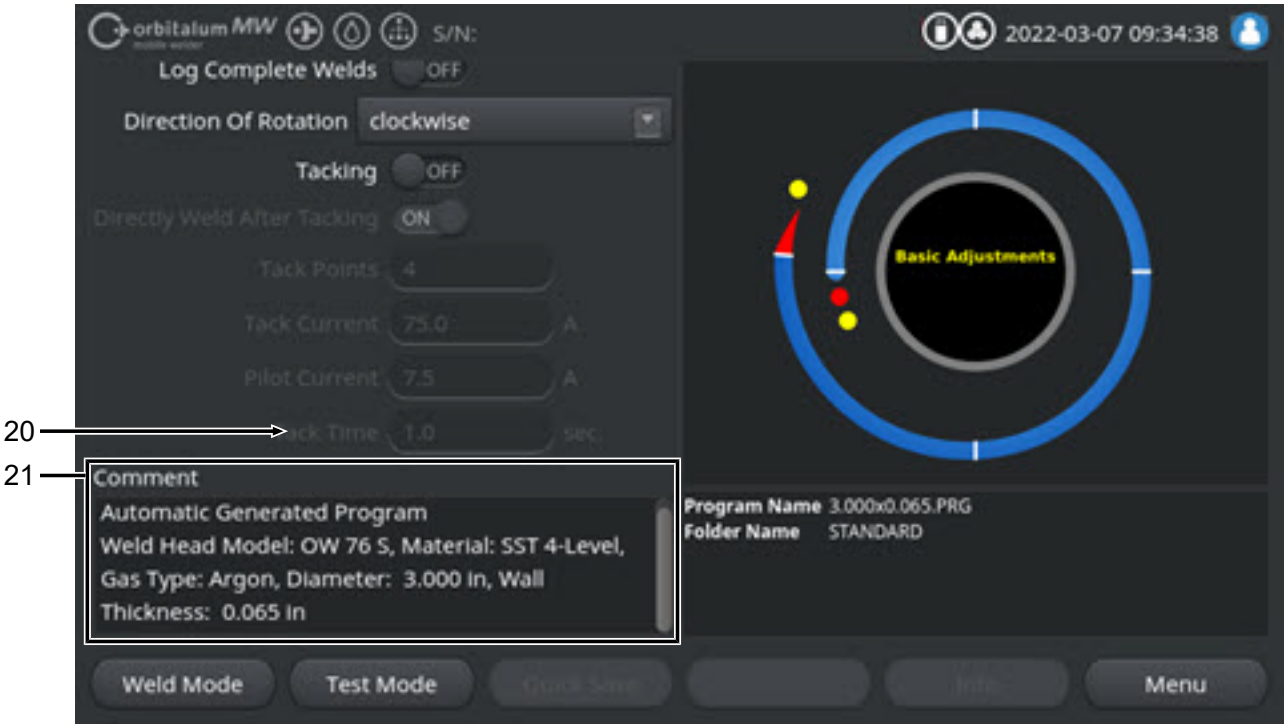


Illustration: Basic adjustments, lower region of menu

NO.	PARAMETER	FUNCTION
9	"Total Time"	Displays the total time of the welding procedure from the start command of the welding process until the gas post-purge time has elapsed in seconds.
10	"Save Data Log Files"	This function determines whether and where weld data logs are saved for the currently active welding procedure. Select the desired storage location from the dropdown list. Weld data logs are saved per weld in CSV and PDF format to the selected location. **Off** Weld data logging deactivated. **USB** Saves to USB data storage media. Prerequisite: Data storage media is connected to any USB port. If several USB data storage media are connected, they are listed individually in the dropdown list. **NET** Saves to local network. Prerequisite: Power supply is included in the network and network directory is set up. See the chapter "Network Environment".
11	"Print Data Log Files"	When activated, the weld data log is printed out by the selected printer after each weld, regardless of data log storage.

NO.	PARAMETER	FUNCTION
12	"Printer Selection"	**Internal** System printer installed in the welding power supply. **USB** External USB printer Prerequisite: Printer is connected to any USB port. **NOTICE! Due to the variety of USB printers available on the market, no general compatibility can be guaranteed.** **NET** Network printer Prerequisite: Power supply is incorporated in the network. See the chapter "Network Environment". The printers shared on the network are listed in the dropdown list.
	"Update Printer List"	Selecting this option will update the printer list in the background. When you open the dropdown list again, any new entries that may have been added are displayed.
13	"Log Complete Welds"	When activated, weld data logs are only created when the welding process is completely finished. No logs are created in the event of a manual abort. This function can be helpful when using the weld head to set tack points by manually moving the electrode position and briefly starting and stopping the welding process.
14	"Direction of Rotation"	Dropdown list selection for selecting the desired direction of rotation of the weld head. **clockwise** Standard direction of rotation: Starts welding upslope **counterclockwise** Alternative direction of rotation: Starts welding downslope
15	"Tacking"	When this function is activated, tack points are set on the basis of the programmed tacking parameters after the gas pre-purge time has elapsed. This function can be useful to fix the alignment of the tubes to be welded before the actual welding process by partial welding of the workpiece surface. Useful, for example, for materials that tend to warp when exposed to heat.
16	"Directly Weld After Tacking"	When this function is activated, the electrode moves to the programmed start position after setting the last tack point; the actual welding process starts immediately upon reaching it. If this function is deactivated, only the tacking parameters of the welding procedure are taken into account. After the last tack point is set and after the gas post-purge time has elapsed, the process is terminated. This function is useful if the workpiece only needs to be tacked.
17	"Tack Points"	Enter the desired number of tack points. At least 2, at most 8.
18	"Tack Current"	Welding current flowing during the tack time in amperes.

NO.	PARAMETER	FUNCTION
19	"Pilot Current"	Pilot current to maintain the arc between the tack points. **NOTICE! This function is used to maintain the arc when moving the electrode between the tack point positions so as not to have to re-ignite at each tack point location. Therefore, the pilot current value should be selected as low as possible so that the workpiece surface is not changed by the pilot current.**
20	"Tack Time"	Duration of the tack current in seconds.
21	"Comment"	Free text field for additional information about the welding procedure.

8.1.4.2.1.1 "Process Details"

In the "Process Details" menu, additional information for welding process stability and comments can be made on individual parameters such as material, gas or electrode, e.g. a description of the seam preparation or the angular position of the electrode adapter.

In this way, the user can be provided with important information for the reproduction and documentation of welding results.

The process details can be created individually for each welding procedure.

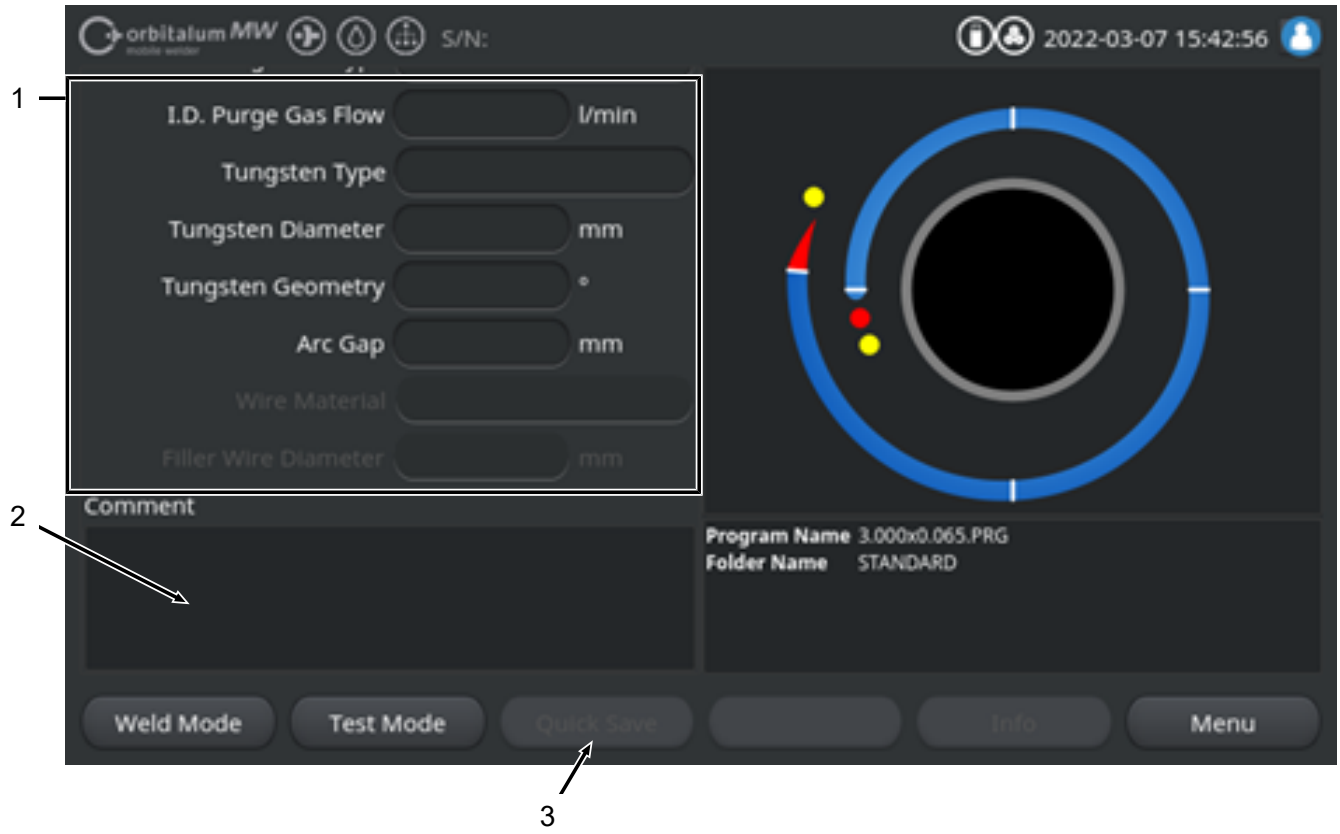


Illustration: "Process Details"

NO.	DESCRIPTION
1	Text and number input fields for values of specific parameters.
2	Comment field for free text.
3	"Save" softkey for saving the entries.

Procedure:

1. Mark the desired parameter.
2. Use the keyboard to enter in the input fields the values or texts to be documented.
3. Press the "Save" softkey.

⇨ Parameter values and comments are saved in the process details.

NOTICE! **The "Process Details" are procedure-related and are stored in the data record of the respective welding procedure.**

Print out the process details together with welding procedures, see the chapter Documentation [▶ 116]

8.1.4.2.2 Gas pre purge

All welding procedure parameters that affect gas pre-purge can be set in the "Gas Pre-Purge" section of the welding procedure.



Illustration: "Gas Pre-Purge" section of the welding procedure

NO.	PARAMETER	FUNCTION
22	"Pre-Purge Time"	Time period from process start to ignition in seconds during which the weld head is purged with the process gas quantity. *See also the chapter* Gas overview [▶ 138]
23	"Gas Quantity"	Process gas quantity with which the welding torch is purged during the welding process and the regular gas pre-purge time and gas post-purge time. *See also the chapter* Gas overview [▶ 138]
24	"Gas Overview"	Takes you to the "Gas Overview" menu. *See also the chapter* Gas overview [▶ 138]
25	"Flow Force"	Activates/deactivates the Flow Force function in the gas pre-purge phase. *For further information, see the chapter* Gas overview [▶ 138] Flow Force ON — Flow Force active Flow Force OFF — Flow Force not active
26	"Flow Force Time" (gas pre-purge)	Time period in seconds during which the weld head is pressurized with the set "Flow Force Gas Quantity". **NOTICE! It is recommended that you reduce the welding gas quantity to the actual process gas quantity at least 2 seconds before ignition of the arc to allow the gas flow to stabilize before ignition.**
27	"Flow Force Gas Quantity"	Welding gas quantity with which the weld head is pressurized during the "Flow Force Time" in the pre-purge and post-purges phases.

8.1.4.2.3 Pool Formation

All welding procedure parameters that affect the basic adjustments for pool formation and filler wire can be adjusted in the "Pool Formation" section of the welding procedure.



Illustration: "Pool Formation" section of the procedure

NO.	PARAMETER	FUNCTION
28	"Rotor Start Delay"	Time period in seconds between ignition and the programmed time in Level 1 in which the welding current builds up linearly. The pool formation process is static without rotation movement.
29	"Wire Feed" ON/ OFF	Activates/deactivates cold wire feed to the weld head. **NOTICE! This function is only supported by weld heads with a built-in cold wire unit. When weld heads without a cold wire unit are used, the following parameters are hidden.** • Wire start delay: • Wire final delay time: • Wire retract: Wire feed ON — Wire feed active Wire feed OFF — Wire feed not active
30	"Wire Start Delay"	Time period in seconds between arc ignition and start of wire feeding.
31	"Wire Final Delay Time"	Time period in seconds during which the cold wire still needs to be conveyed after completion of the last level.
32	"Wire Retract"	Time period in seconds during which the wire needs to be retracted after the "Wire Final Delay Time" has elapsed. This function can be useful to prevent the filler wire from becoming stuck at the weld seam end.

8.1.4.2.4 Level

All welding procedure parameters for the individual levels are located in the "Level" section of the welding procedure. A welding procedure can consist of several levels. By using multiple levels, physical conditions such as the effect of gravity in different welding positions can be addressed individually.

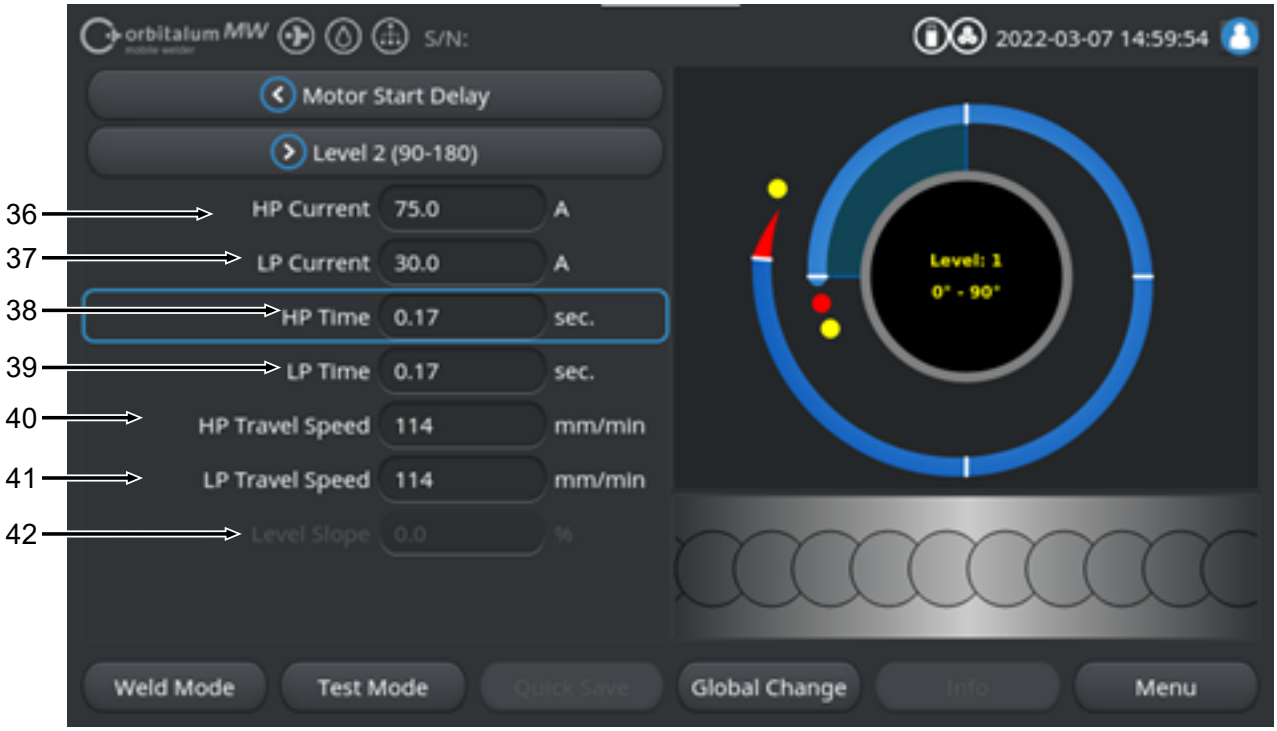


Illustration: "Level" section of the welding procedure

NO.	PARAMETER	FUNCTION
36	"HP Current"	High pulse welding current, primary welding current in amps.
37	"LP Current"	Low-pulse welding current, secondary welding current in amps.
38	"HP Time"	High-pulse travel time: Time period in seconds during which the HP current flows.
39	"LP Time"	Low-pulse time: Time period in seconds during which the LP current flows.
40	"HP Travel Speed"	High pulse travel speed: Welding speed in mm/min (in/min) used during the time period of high-pulse current.
41	"LP Travel Speed"	Low-pulse travel speed: Welding speed in mm/min (in/min) used during the time period of low-pulse current.
42	"Level Slope"	Duration of linear welding current adjustment between the current value of the current level and that of the following level. The value is the percentage of the level time of the following level in which the linear transition from the (current) value of the previous level to the current value of the current level occurs.

8.1.4.2.5 Weld seam end

All welding procedure parameters that affect the downslope phase at the weld seam end can be set in the "Downslope" section of the welding procedure. The settings can prevent the formation of an end crater.



Illustration: "Downslope" section of the welding procedure

NO.	PARAMETER	FUNCTION	
43	"Downslope Time"	Time period in seconds of linear current reduction, starting from the welding current value of the previous level, until the set final current is reached.	
44	"Final Current"	Value of the final current in amperes, when it is reached during current reduction, the welding arc is extinguished.	
45	"Rotate During Downslope"	The "Rotate During Downslope" function can be used to set the rotation behavior of the weld head rotor during the final slope.	
		"Rotate During Downslope" "ON"	Electrode is moved at the welding speed of the previous level during the final slope.
		"Rotate During Downslope" "OFF"	Electrode remains in place during the final slope.

8.1.4.2.6 Gas post purge

All welding procedure parameters that affect gas post purge can be set in the "Gas Post Purge" section of the welding procedure.



Illustration: "Gas Post-Purge Time" section of the welding procedure

NO.	PARAMETER	FUNCTION
46	"Post-Purge Time"	Time period in seconds during which the weld head is pressurized with the process gas quantity after the arc has been extinguished. *See also the chapter* Gas overview [▶ 138]
47	"Home Delay Time"	Time period in seconds during which the electrode remains in the last position after the welding arc is extinguished until it is automatically returned to the home position.
48	"Gas Overview"	Takes you to the "Gas Overview" menu. *See also the chapter* Gas overview [▶ 138]
49	"Flow Force" – Post-Purge	Activates/deactivates the Flow Force function in gas post purge phase. *See also the chapter* Gas overview [▶ 138]
	Flow Force ON	Flow Force active
	Flow Force OFF	Flow Force not active
50	"Flow Force Time" – Post-Purge	Time period in seconds during which the weld head is pressurized with the set Flow Force gas quantity. **NOTICE! It is recommended that you keep the process gas flow applied for 3 seconds after the welding arc has been extinguished and then switch to the Flow Force gas quantity.**

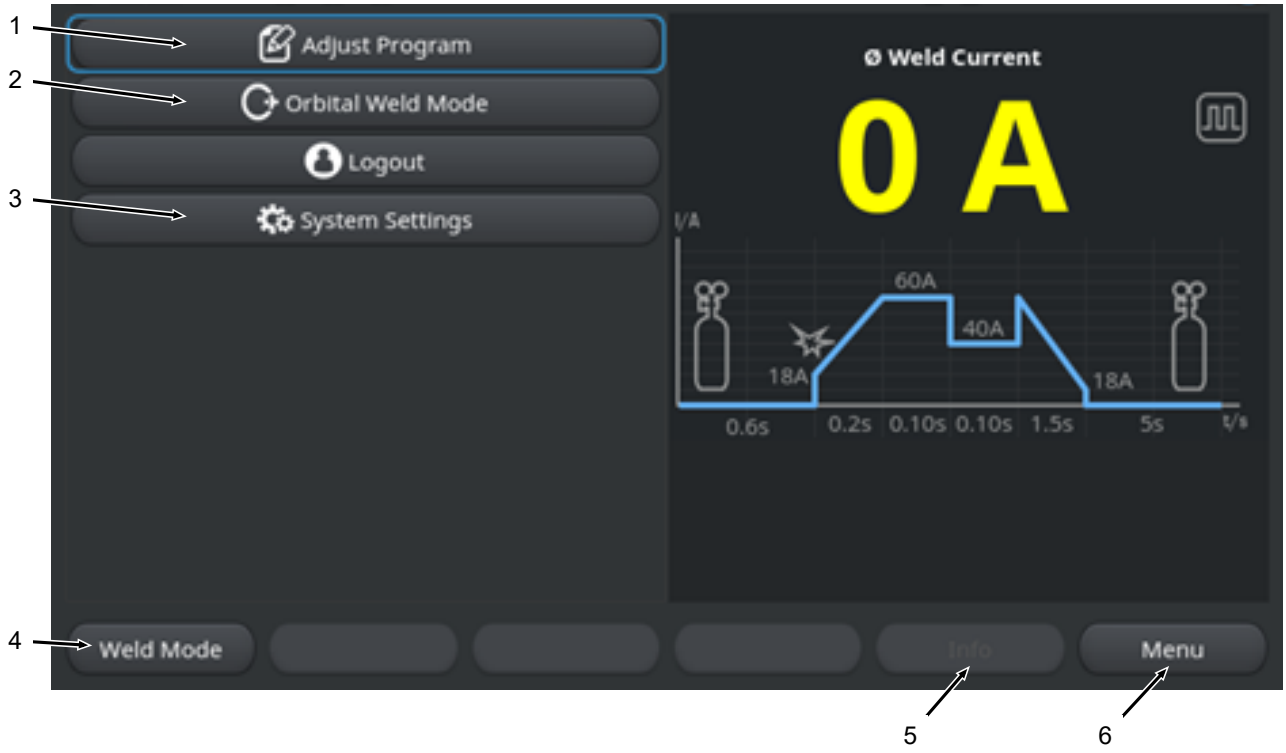
NO.	PARAMETER	FUNCTION
51	"Coolant Delay"	Time period in minutes during which the coolant system is to remain activated after the end of the welding process. This function can be used to actively cool the weld heads with the liquid cooling system of the power supply after completion of the welding process. **NOTICE! When the coolant system is active, the weld head should not be disconnected from the power supply.** **NOTICE! This function must be activated in the "System Settings" beforehand:** ► Set switch at "Coolant Delay" to "ON". *See the chapter* System adjustments [▶ 108]

8.1.5 TIG manual welding mode

The "TIG Manual Weld Mode" menu item switches the power supply from orbital welding mode to TIG manual welding mode.

The TIG manual welding mode is designed and optimized for manual welding with a manual welding torch.

The orbital process graphic changes to a classic welding ramp view.
All welding parameters in "Adjust Program" are adapted to manual welding.



NO.	PARAMETER	PROCESS DETAIL/ITEM
1	"Adjust Program" menu in the manual welding mode	Welding parameters can be changed in the "Adjust Program" section. *For detailed information, see the chapter* Adjust Program - Manual_Welding_Mode [▶ 97]
2	"Orbital Weld Mode" menu	You switch the power supply from the "TIG Manual Weld Mode" to the orbital welding mode via the "Orbital Weld Mode" menu item.
3	"System Settings" menu	System-, service- and program-relevant settings can be made and system-relevant information displayed under "System Settings". In addition, system updates and activation of optional software can be performed. *For detailed information, see the chapter* Settings [▶ 108]
4	"Weld Mode" softkey	The "Weld Mode" softkey switches the power supply to the welding mode. In the welding mode, the welding torch can be controlled, welding parameters adjusted and the welding process started. *For detailed information, see the chapter* Welding in the manual welding mode [▶ 105]

NO.	PARAMETER	PROCESS DETAIL/ITEM
5	"Info" softkey	The "Info" softkey displays warning and status messages that have been generated with their time and date. Any messages that have been generated are indicated by an icon on the left edge of the softkey button. Pressing the softkey button opens a window with a detailed, chronological listing of the warning messages. Pressing and holding the "Info" softkey resets the warning messages. If there are no warning messages, the softkey button is grayed out and cannot be pressed.
6	"Menu" softkey	Pressing the "Menu" softkey takes you directly back to the main menu.

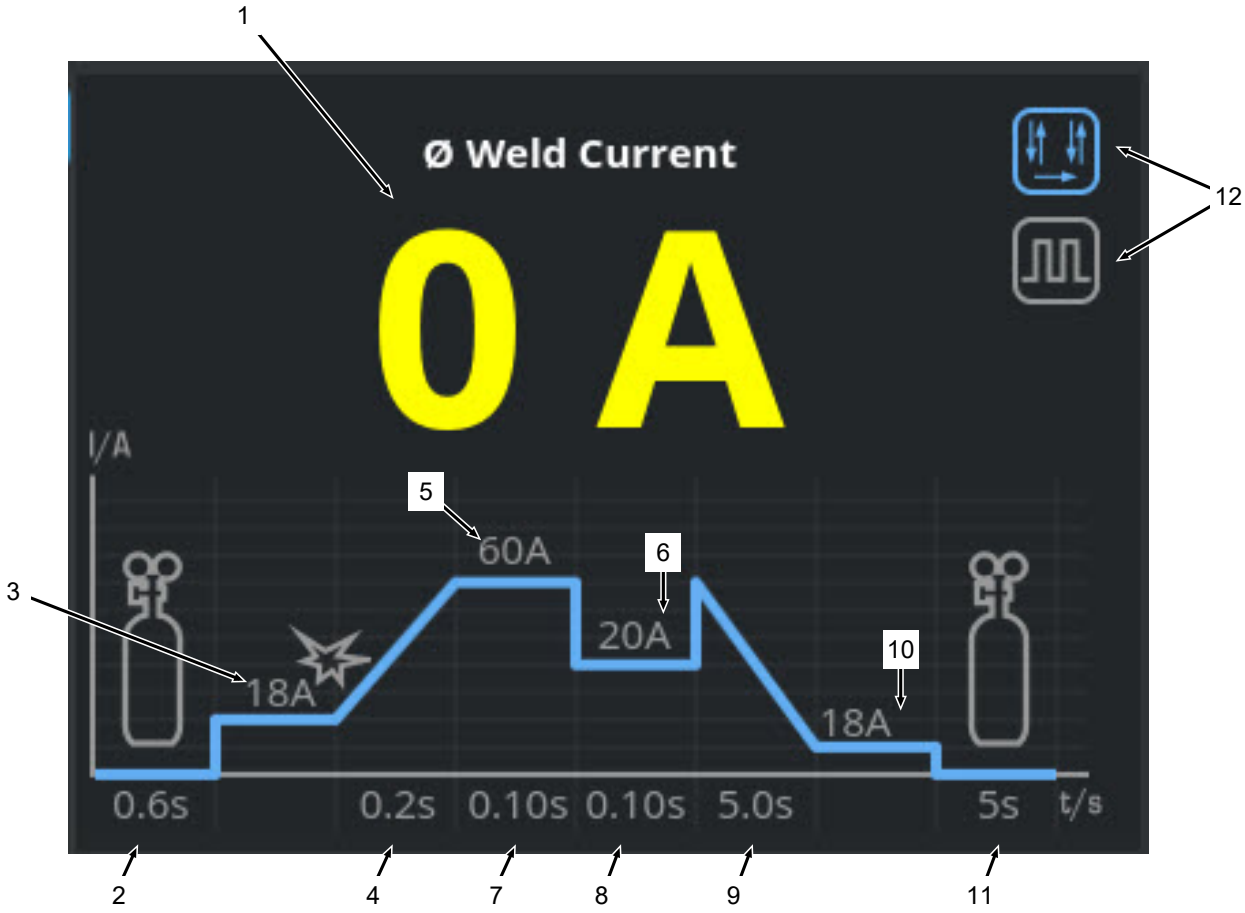
8.1.5.1 Welding ramp process graphic

The welding ramp process graphic in the menu view provides information about the currently set welding parameters of the individual process phases.

It also serves as a progress indicator during the welding process.

The welding parameter currently active in the sequence is highlighted by a yellow font color (pos. 2) and moves from left to right, usually starting with the "Gas Pre-Purge Time" (3) and ending with the "Gas Post-Purge Time" (11).

The welding ramp graphically adapts to the constant or pulse welding mode set in the welding parameters.



NO.	PARAMETER	PROCESS DETAIL/ITEM
1	Weld current display	The weld current display shows the currently flowing average welding current. When the current is adjusted via the welding current up/down keys of the manual welding torch, the display changes to the newly set set-point value of the welding current for the moment of current adjustment.
2	"Gas Pre Purge Time" process phase	Welding ramp range in seconds during the "Gas Pre-Purge Time" phase and the set parameter value.
3	"Start Current" process phase	Welding ramp range in seconds during the "Start Current" phase and the set parameter value.
4	"Upslope Time" process phase	Welding ramp range in seconds during the "Upslope Time" phase and the set parameter value.
5	"HP Current" process phase	Welding ramp range in seconds during the "HP Current" phase and the set parameter value.
6	"LP Current" process phase	Welding ramp range in seconds during the "LP Current" phase and the set parameter value.

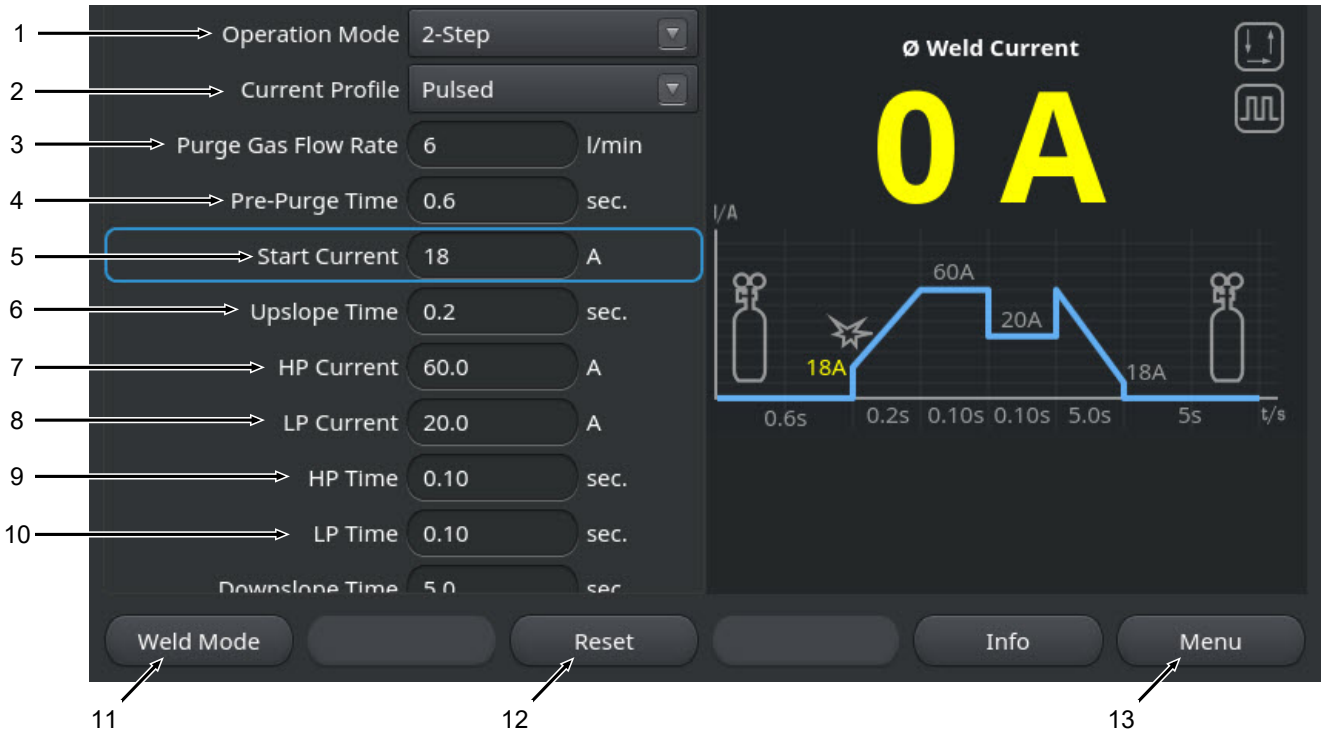
NO.	PARAMETER	PROCESS DETAIL/ITEM
7	"HP Time" process phase	Welding ramp range in seconds during the "HP Time" phase and the set parameter value.
8	"LP Time" process phase	Welding ramp range in seconds during the "LP Time" phase and the set parameter value.
9	"Downslope Time" process phase	Welding ramp range in seconds during the "Downslope Time" phase and the set parameter value.
10	"Final Current" process phase	Welding ramp range in seconds during the "Final Current" phase and the set parameter value.
11	"Gas Post-Purge Time" process phase	Welding ramp range in seconds during the "Gas Pre-Purge Time" phase and the set parameter value.
12	Mode icons	The mode icons indicate the currently active welding mode.
	Icon	**Mode**
		Constant welding
		Pulsed welding

8.1.5.2 Adjust Program - Manual_Welding_Mode

Welding parameters can be displayed and adjusted via the "Adjust Program" menu item in the manual welding mode.

You can select between the welding modes "pulsed welding" and "constant welding".

NOTICE! **The welding parameter currently marked with the cursor is additionally highlighted in the "Welding ramp process graphic" by a yellow font color.**



Default values of welding parameters

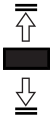
NO.	PARAMETER	PROCESS DETAIL/ITEM
1	Current Profile	Drop-down list for selecting the desired current profile. Adjusts the behavior of the welding arc. **Pulsed** • Pulsed welding current between the welding current values "HP Current" and "LP current" within the time intervals of "HP time" and "LP time". **Constant** • Constant welding current in amps.
2	"Gas Quantity"	Process gas quantity with which the manual welding torch is pressurized during the welding process and the gas pre-purge time and post-purge time.
3	"Pre-Purge Time"	Time period in seconds during which the welding torch is pressurized with welding gas from process start to ignition.
4	"Start Current"	Current in amps that is established immediately after ignition of the arc.
5	"Upslope Time"	Ignition of the welding arc and time period in seconds during which the Start Current" increases linearly from ignition of the arc to the programmed "HP Current".
6	"HP Current"	High-pulse welding current, primary welding current in amps.

NO.	PARAMETER	PROCESS DETAIL/ITEM
7	"LP Current"	Low-pulse welding current, secondary welding amperage in amps. Only available with pulsed current waveform.
8	"HP Time"	High-pulse time. Time period in seconds during which the HP current flows. Only available with pulsed current waveform.
9	"LP Time"	Low-pulse time. Time period in seconds during which the LP current flows. Only available with pulsed current waveform.
11	"Downslope Time"	Time period in seconds during which the welding current decreases linearly to the programmed "Final Current" after the stop signal.
12	"Final Current"	Final current in amps at which the welding arc is extinguished by the current reduction.
13	"Post-Purge Time"	Time period in seconds during which the weld head is pressurized with the process gas quantity after the arc has been extinguished.
14	"Weld Mode" softkey	The "Weld Mode" softkey switches the power supply to the welding mode. In the welding mode, the welding torch can be controlled, welding parameters adjusted and the welding process started. For detailed information, see the chapter Welding in the manual welding mode [▶ 105]
15	"Reset" softkey	Pressing the "Reset" softkey button resets all welding parameters to the current supply's default values (see illustration)
16	"Menu" softkey	Pressing the "Menu" softkey takes you directly back to the main menu for the manual welding mode.

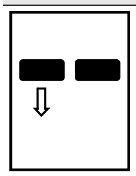
8.1.5.3 Functions of the hand torch control panel

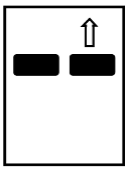
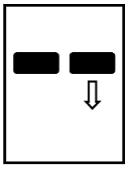
The welding process phases are controlled via two rocker switches located next to each other on the MW TIG hand welding torch.

The rocker switches can be held up or down independently of each other or tapped. When pressure is released, they spring back to the middle position:

Hold up/down	
Tap up/down	
Release	

Basic functions

	ROCKER DIRECTION	BASIC FUNCTION
	► Left rocker down	Start/stop welding process

	ROCKER DIRECTION	BASIC FUNCTION
	► Right rocker switch up	Welding current reduction
	► Right rocker switch down	Welding current increase

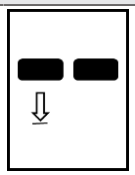
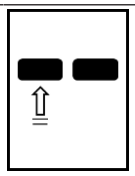
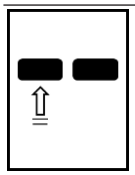
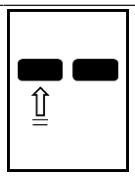
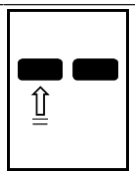
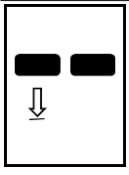
Context-sensitive function assignment

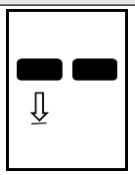
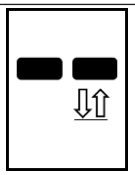
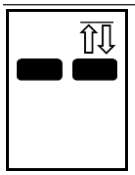
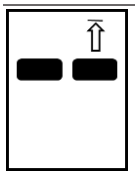
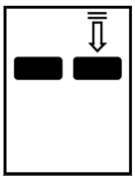
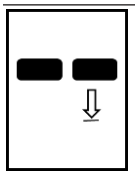
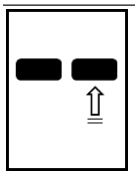
The function assignment of the rocker switches and their direction of movement depends on the operating mode (2- or 4-stroke), the process phase, and the actuation types tap/hold.

These rocker movements are assigned different functions in the various process phases.

8.1.5.3.1 2-cycle mode

In 2-stroke mode, the left rocker switch is held down during welding and released to stop.

PROCESS PHASE		ROCKER MOVEMENT	FUNCTION
Outside process		► Hold the left rocker switch down.	> The gas pre-flow time begins. > The arc ignites and the starting current is set. > The current rise time begins and the starting current rises linearly to the welding current.
Gas pre-flow time		► Release the left rocker switch.	> The welding process stops.
		► Hold the left rocker switch down again.	> The gas pre-flow time begins again.
Current rise time		► Release the left rocker switch.	> The gas post-flow time begins.
Welding current (HP/TP or constant)		► Release the left rocker switch.	> The current decrease time begins and the welding current decreases linearly to the final current. > The arc extinguishes and the gas flow stops after the gas post-flow time has elapsed.
Current reduction time		► Press and hold the left rocker switch down again.	> The welding current (HP/TP or constant) is set.

PROCESS PHASE		ROCKER MOVEMENT	FUNCTION
Gas post-flow time		► Hold the left rocker switch down again.	> The arc ignites again.
Inside and outside welding process		► Tap the right rocker switch down.	> The welding current (HP/TP or constant) is increased by 1 A/tap.
		► Tap the right rocker switch upwards.	> The welding current (HP/TP or constant) is decreased by 1 A/tap.
		► Press and hold the right rocker switch upwards.	> The welding current (HP/TP or constant) is reduced by 15 A/second.
		► Release the right rocker switch.	> The reduction of the welding current (HP/TP or constant) is stopped.
		► Hold down the right rocker switch.	> The welding current (HP/TP or constant) is increased by 15 A/second.
		► Release the right rocker switch.	> The increase in welding current (HP/TP or constant) is stopped.

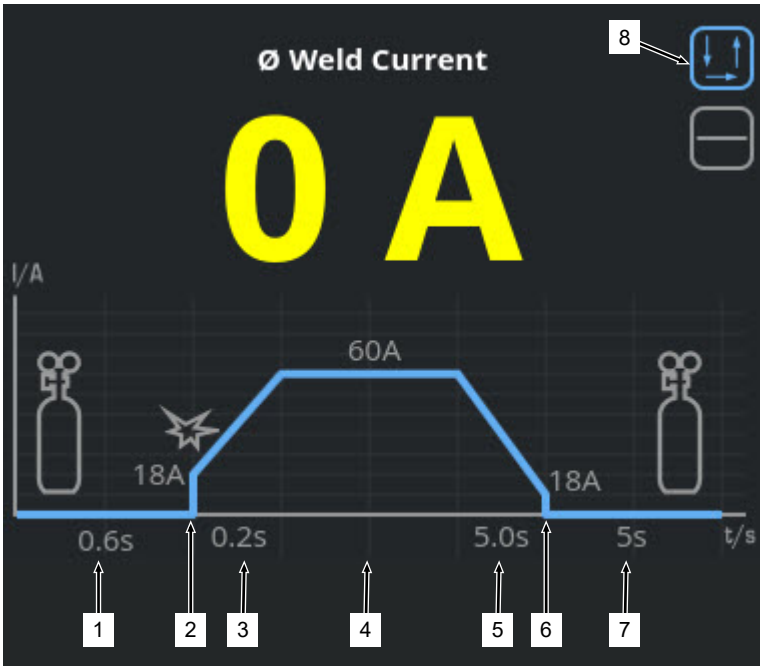


Illustration: Welding ramp in 2-cycle mode

Procedure for regular welding process in 2-cycle mode:

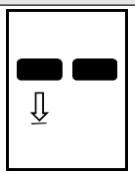
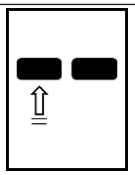
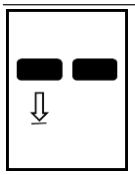
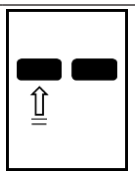
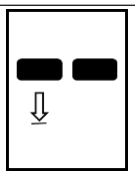
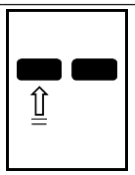
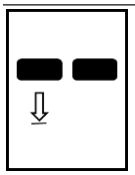
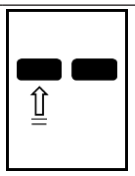
- ✓ In the basic settings of manual programming, the desired manual torch is selected as the welding head type (*see section* Basic adjustments*).*
- ✓ The power source is in manual welding mode (*see section* Main menu [▶ 57]).
- ✓ The power source is switched to 2-cycle mode (8) and the other parameters are set (*see section* Adjust Program - Manual_Welding_Mode [▶ 97]).

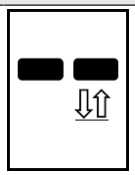
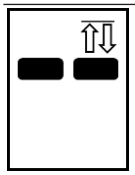
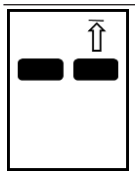
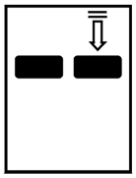
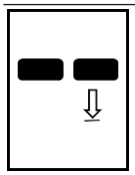
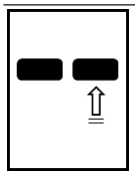
1. Hold the left rocker switch down.
   - ⇨ The welding process starts with the welding gas flow and the gas pre-flow time (1).
   - ⇨ After the gas pre-flow time (1) has elapsed, the arc ignites and the start current (2) is set.
   - ⇨ The current rise time (3) begins.
   - ⇨ Within the current rise time (3), the start current (2) increases linearly to the welding current (4) (HP/TP or constant).
2. Release the left rocker switch.
   - ⇨ The welding current (4) (HP/TP or constant) changes to the reduction phase and the current reduction time (5) begins.
   - ⇨ The welding current (4) is decreased linearly until the end current (6) is reached.
   - ⇨ When the end current (6) is reached, the arc extinguishes and the gas post-flow time (7) begins.
   - ⇨ After the gas post-flow time (7) has elapsed, the welding gas flow is stopped.

⇨ The welding process is complete.

8.1.5.3.2 4-cycle mode

In 4-stroke mode, the left rocker switch is pressed down to start a process phase and pressed down again to end it and start the next process phase.

PROCESS PHASE		ROCKER MOVEMENT	FUNCTION
Outside process		► Hold the left rocker switch down.	> The gas pre-flow time begins. > The arc ignites and the starting current is established.
Current rise time		► Release the left rocker switch and press it down again.	> The arc extinguishes before reaching the welding current. > The gas post-flow time begins.
			
Starting current		► Release the left rocker switch.	> The current rise time starts and the start current rises linearly to the welding current.
Welding current (HP/TP or constant)		► Keep the left rocker pressed down.	> The current decrease time starts and the welding current decreases linearly to the end current.
Current decrease time		► Release the left rocker switch.	> The arc extinguishes before reaching the final current. > The gas post-flow time begins.
			
Final current		► Release the left rocker switch.	> The arc extinguishes and the gas flow stops after the gas post-flow time has elapsed.

PROCESS PHASE		ROCKER MOVEMENT	FUNCTION
Inside and outside welding process		► Tap the right rocker switch downwards.	> The welding current (HP/TP or constant) is increased by 1 A/tap.
		► Tap the right rocker switch upwards.	> The welding current (HP/TP or constant) is reduced by 1 A/tap.
		► Press and hold the right rocker switch upwards.	> The welding current (HP/TP or constant) is reduced by 15 A/second.
		► Release the right rocker switch.	> The reduction of the welding current (HP/TP or constant) is stopped.
		► Hold down the right rocker switch.	> The welding current (HP/TP or constant) is increased by 15 A/second.
		► Release the right rocker switch.	> The increase in welding current (HP/TP or constant) is stopped.

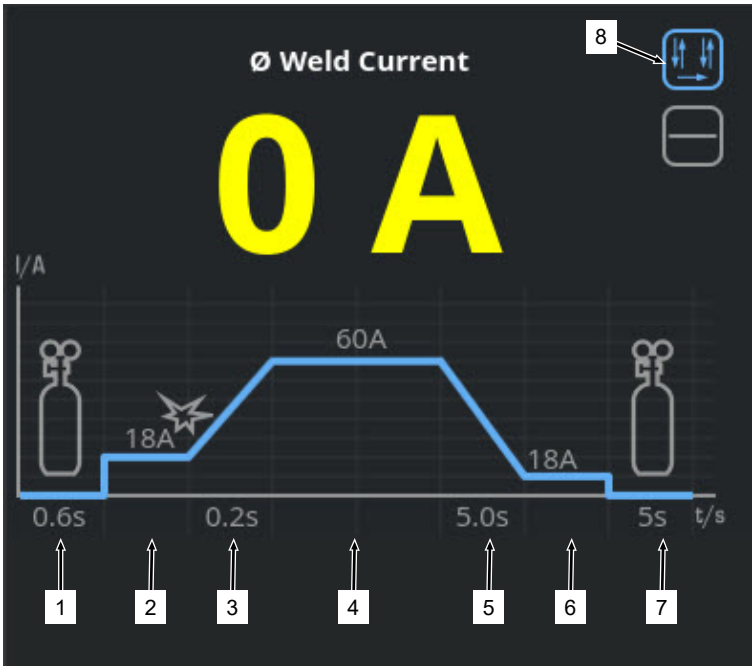


Illustration: Welding ramp in 4-cycle mode

Procedure for regular welding process in 4-cycle mode:

✓ In the basic settings of manual programming, the desired manual torch is selected as the welding head type (*see section* Basic adjustments*).*

✓ The power source is in manual welding mode (*see section* Main menu [▶ 57]).

✓ The power source is switched to 4-cycle mode (8) and the other parameters are set (*see section* Adjust Program - Manual_Welding_Mode [▶ 97]).

1. Hold the left rocker switch down.
   ⇨ The welding process starts with the welding gas flow and the gas pre-flow time (1).
   ⇨ The arc ignites and the starting current (2) is set.
2. Release the left rocker switch.
   ⇨ The current rise time (3) begins.
   ⇨ Within the current rise time (3), the starting current (2) increases linearly to the welding current (4).
   NOTE: By releasing and pressing down the left rocker switch again during the current rise time (3), the arc is extinguished before the welding current (4) is reached and the gas post-flow time begins.
   During the welding current phase, the functions described in the table row "Inside and outside the welding process" can be controlled with the right rocker switch.
3. Hold the left rocker switch down.
   ⇨ The welding current (4) switches to the reduction phase and the current reduction time (5) begins.
   ⇨ The welding current is reduced linearly until the end current (6) is reached.
4. Release the left rocker switch.
   ⇨ The arc extinguishes and the gas post-flow time (7) begins.
   ⇨ After the gas post-flow time (7) has elapsed, the welding gas flow is stopped.
   NOTE: Releasing the left rocker switch during the current reduction time (5) extinguishes the arc before the end current (6) is reached and the gas post-flow time (7) begins.

⇨ The welding process is complete.

8.1.5.3.3 Basting - Manual welding mode

Tack points can be set in manual welding mode to fix the position of the pipe joints before welding.

To do this, the "Tacking" operating mode must be activated in the "Manual programming – Manual welding mode" menu and the parameters for the tacking process must be set (*see section* Adjust Program - Manual_Welding_Mode [▶ 97]).

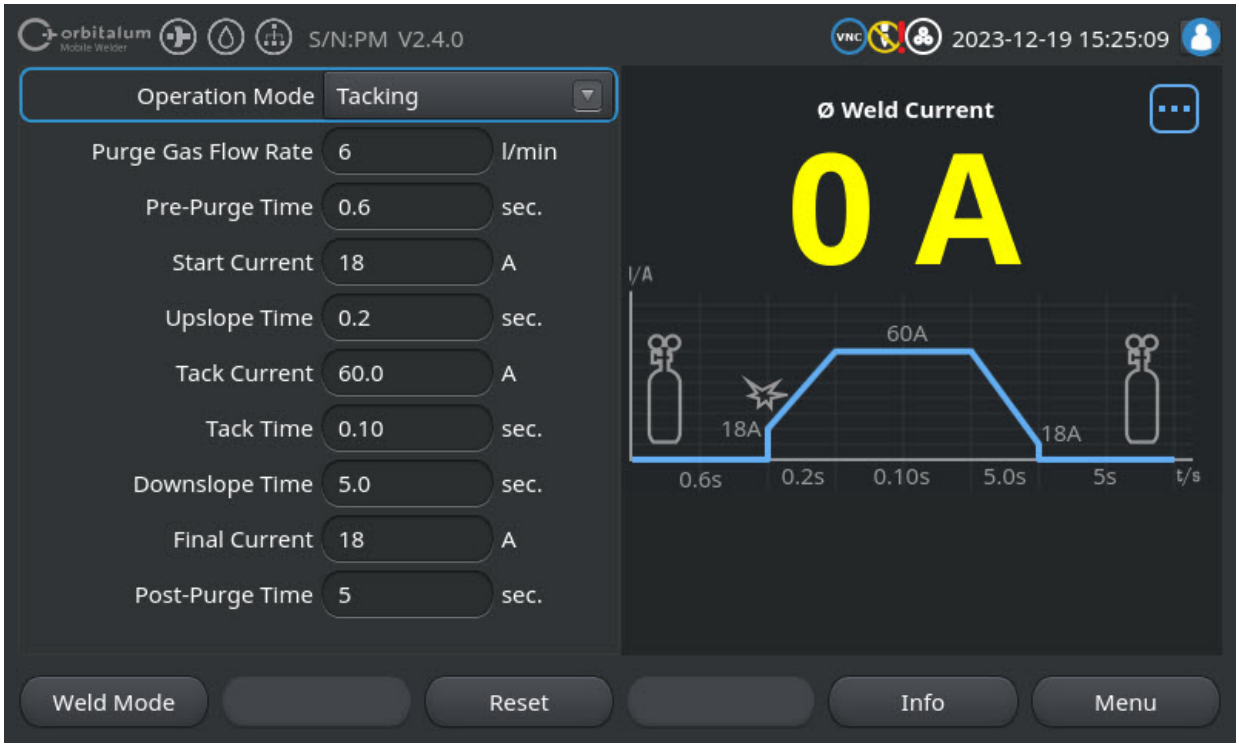
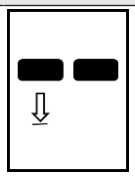
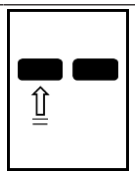


Illustration: Manual programming, tack welding operating mode

PROCESS PHASE		ROCKING MOVEMENT	FUNCTION
Outside process		► Hold the left rocker down.	Start welding process beginning with the "gas pre-flow time"
Inside process		► Release the left rocker switch.	Stop welding process

Procedure:

✓ The power source must be in manual welding mode.

1. Hold the left rocker switch down.
   ⇨ The arc ignites and the "spot welding current" is set.
   ⇨ The "spot welding time" starts.
2. Release the left rocker switch or wait for the preset tacking time to elapse.
   ⇨ The arc extinguishes.

⇨ The tacking process is complete.

8.1.5.4 Welding in the manual welding mode

All relevant welding functions can be controlled and the welding process can be started via the manual welding torch control panel in the welding menu/welding mode.

NOTICE!		**During the active welding process, it is not possible to adjust the welding parameters via the software interface.**

NOTICE!		**The welding process can only be started via the control panel of the manual welding torch. Starting via the power supply is not possible in manual welding mode.**



Default values of welding parameters

NO.	PARAMETER	PROCESS DETAIL/ITEM
1	"Weld Mode"	Shows the current status of the manual welding torch, whether the signal connector is connected.
	Icon	**Mode**
		Signal connector of manual welding torch connected.
		Signal connector of manual welding torch not connected.
2	"Gas On/Off"	The welding gas flow is started manually by pressing the "Gas On/Off" softkey button. Pressing it again shuts off the welding gas flow. **NOTICE! By means of a manual start, the gas flow can be checked independently of the welding process to ensure functional readiness. An error message appears in the event of a lack of gas.**
3	"Menu" softkey	Pressing the "Menu" softkey takes you directly back to the main menu for the manual welding mode.
4	Welding procedure information field	The "Welding program information field" provides an overview of current technical values such as inverter temperature, average current and arc voltage.
5	Welding ramp process graphic	In the "Welding ramp process graphic", the currently active welding parameter in the active welding processes highlighted by a yellow font color.

8.1.5.5 Logout

Procedure:

► Press the "Logout" menu button (1) or the "Logout" function button (2) in the main menu.

⇨ The Logout screen appears.

See also the chapter Login screen [▶ 36]

⇨ The power supply is protected from unauthorized access.

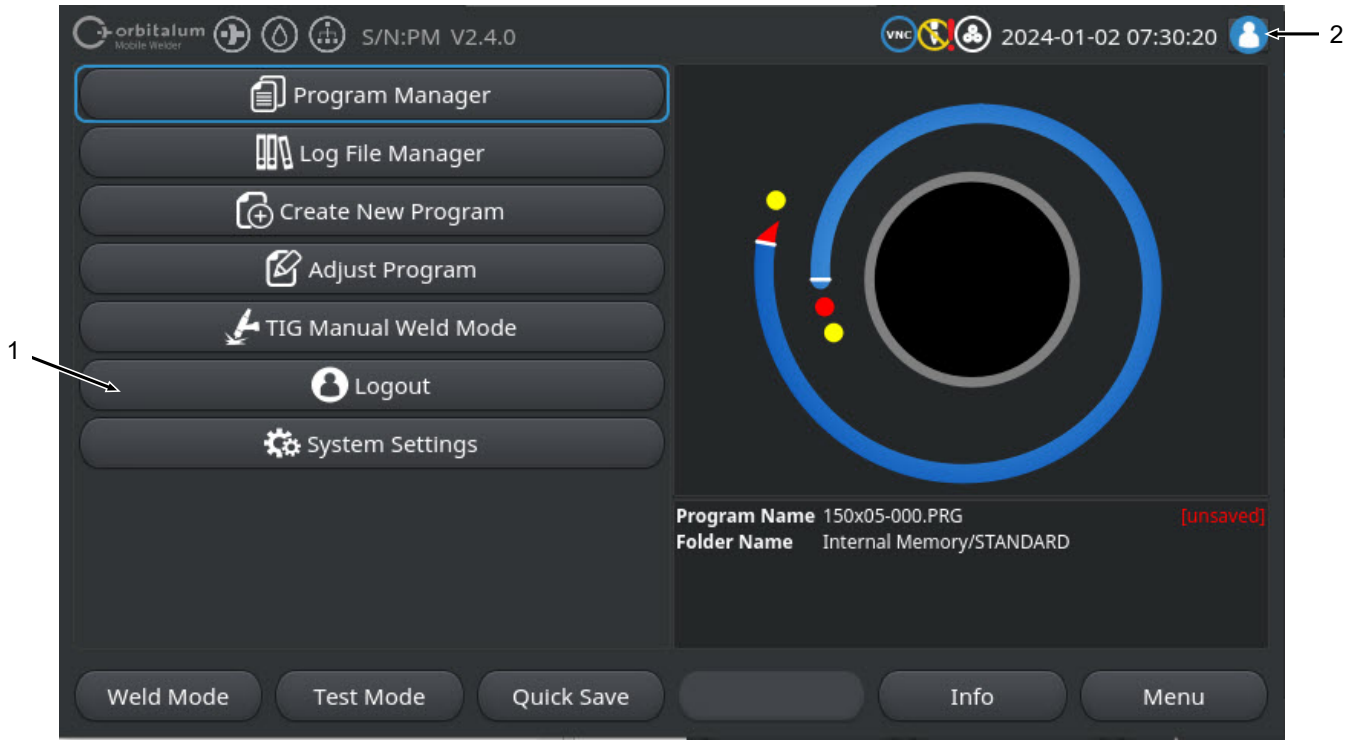


Illustration: Logout buttons on main menu

NO.	DESIGNATION
1	"Logout" button
2	"Logout" function button

FUNCTION BUTTON VERSION	STATUS	FUNCTION
	Logged in at user level	Log out / activate the login screen
	Logged in at the administrator level	

8.1.6 Settings

8.1.6.1 System adjustments

Adjustments can be made at the system level in the system settings.



Illustration: System adjustments, upper region of menu

NO.	DESIGNATION	SYSTEM ADJUSTMENTS OPTIONS	
1	"Flow Sensor" ON/ OFF	The welding gas sensor and thus welding gas monitoring can be temporarily deactivated via the "Flow Sensor ON/OFF" function. This can be useful, for example, when the gas sensor is defective and work must be continued temporarily.	
		"Flow Sensor": ON	Welding gas monitoring active
		"Flow Sensor": OFF	Welding gas monitoring deactivated
		CAUTION When the welding gas sensor is deactivated, the flow of welding gas from the power supply is not actively monitored! Therefore, increased operator attention is required during continued use of the power supply. The flow of welding gas and the quantity must be monitored by the operator himself! Defective sensors must be replaced as soon as possible. **NOTICE! For safety reasons, the function is reset to gas sensor "ON" each time the power supply is restarted**.	

NO.	DESIGNATION	SYSTEM ADJUSTMENTS OPTIONS	
2	"Coolant Sensor" ON/OFF	The "Coolant Sensor ON/OFF" function can be used to deactivate the coolant sensor temporarily and thus monitoring of the coolant flow. This can be useful, for example, when the coolant sensor is defective and work must be continued temporarily.	
		"Coolant Sensor": ON	Coolant monitoring active
		"Coolant Sensor": OFF	Coolant monitoring deactivated
		CAUTION When the coolant sensor is deactivated, the cooling flow from the power supply is not actively monitored! Therefore, increased operator attention is required during continued use of the power supply. The cooling flow must be monitored by the operator himself! Defective sensors must be replaced as soon as possible.	
		NOTICE! For safety reasons, the function is reset to coolant sensor "ON" each time the power supply is restarted.	
3	"Parameter Limits" ON/OFF	The "Parameter Limits" function can be used to activate or deactivate the limits defined under "Program Settings" > "Parameter Limits".	
		See the chapter Limit Adjustments [▶ 115]	
		If parameter limits are activated, an alarm message is generated or a welding process abort is triggered when the defined limit values of welding current, welding voltage and welding speed are reached.	
		"Parameter Limits": ON	Monitoring of welding parameters activated
		"Parameter Limits": OFF	Monitoring of welding parameters deactivated
		CAUTION When parameter limits are deactivated, there is no active monitoring of the welding parameters such as welding current, welding voltage and welding speed! Therefore, increased operator attention is required during continued use of the power supply. The welding process must be observed continuously and monitored by the operator himself! It is recommended that you disable this function only temporarily in exceptional cases.	
4	"Headlist"	Selects the headlist to be used.	
		The headlist contains all the technical parameters of the welding heads.	
		The connected welding head is recognized by the power supply and the associated general conditions are assigned by the software.	
		When the adaptation solution is used for a competitor's weld head, the headlist must be changed accordingly.	
		ORBITALUM	Standard headlist – includes all ORBITALUM weld head data.
		AMI	Includes selected AMI weld head data.
		Cajon_Polysoude	Includes selected Cajon, Swagelok and Polysoude weld head data.
		NOTICE! Modified headlists deviating from the original are preceded by an [M].	

NO.	DESIGNATION	SYSTEM ADJUSTMENTS OPTIONS
5	"Date and Time"	Input fields for the current date and time: • Year • Month • Day • Hour • Minute • Second

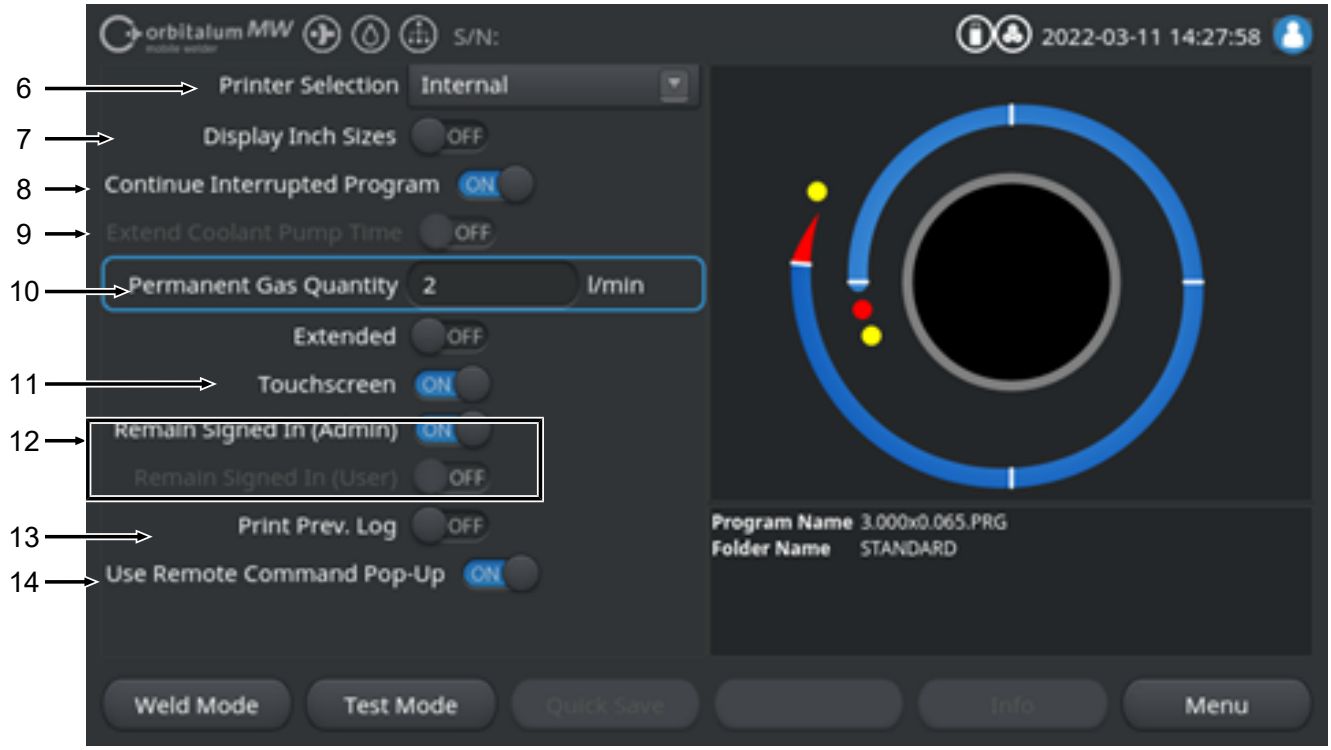


Illustration: System adjustments, lower region of menu

NO.	DESIGNATION	SYSTEM ADJUSTMENTS OPTIONS	
6	"Printer Selection"	Used to select the output printer for all printing processes such as weld data logs or welding procedures. Only the printers accessible when the power supply is started are listed in the printer list. To add subsequently accessible printers, the printer list must first be updated using the "Update Printer List" option. In this case, the power supply scans all USB ports and the LAN network for accessible network and USB printers.	
		Internal	Prints using the internal system printer
		NET	Prints using a network printer
		USB	Prints using a USB- printer
		Update printer list	Scans the USB ports and LAN network for accessible printers.
7	"Display Inch Sizes"	Function to change the system's units of measure between "Metric" and "Imperial" After the change, all fields are displayed in the active unit of measure and existing values are converted accordingly. *See also the chapter* Setting the units of measure [▶ 54]	
		"Display Inch Sizes" ON	"Imperial" units of measure active
		"Display Inch Sizes" OFF	"Metric" units of measure active

NO.	DESIGNATION	SYSTEM ADJUSTMENTS OPTIONS
8	"Continue Interrupted Program"	When the function is activated, it is possible to continue the welding process at the point where it was interrupted. **NOTICE! Aborting the welding process must be done manually via the "Stop" key/ button!** When the "Start" key/button is pressed again, the following message appears: "Should the interrupted welding process be continued?" The message can be confirmed with "Yes" or "No": Yes: The welding process resumes with the "Gas Pre-Purge Time" and "Rotor Start Delay" defined in the welding procedure, then changes directly to the level and angle position where the interruption occurred, and continues the welding process from there. No: The welding process is aborted.
9	"Extend Coolant Pump Time" **NOTICE! To use this function, a cooling unit must be connected.**	 The "Coolant Delay" function can be used to activate the liquid cooling system of the power supply beyond the welding process. On activation of the function, the "Coolant Delay" input field is also activated in the welding procedure at the "Gas Post-Purge" program level. Based on the program, a time in min. can be set there for which the liquid cooling system remains active after the end of the welding process. Coolant Delay ON: The "Coolant Delay" program input field is activated. Coolant Delay OFF: The "Coolant Delay" program input field is deactivated. **NOTICE! Do not disconnect the weld head from the power supply when a liquid cooling system is active.**
10	"Permanent Gas Quantity"	The "Permanent Gas Quantity" 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 Quantity": 2-5 l/min *See also the chapter* Gas overview [▶ 138]
11	Touchscreen ON/ OFF	Activates/deactivates the touch function of the touchscreen.

NO.	DESIGNATION	SYSTEM ADJUSTMENTS OPTIONS	
12	"Remain Signed In" ON/OFF	The "Remain Signed in" function can be used to define the authorization level or range of functions with which the power supply starts after being switched on.	
		"Remain Signed In" ON	The power supply always starts at the authorization level: "Full Range of Functions" The password to activate the full range of functions must be entered once.
		"Remain Signed In" OFF	The power supply always starts at the authorization level: "Limited Range of Functions". *See also the chapter: SETUP AND COMISSIONING and "Activating the Full Range of Functions"*
13	"Print Prev. Log" ON/OFF	When the "Print Prev. Log" function is activated, an additional softkey is activated in the Main, Test and Weld menus. Pressing the "Print Prev. Log" softkey prints out the weld data log of the last weld seam regardless of the data log settings of the welding procedure. 	
14	Use pop-up remote command	Using the “Use pop-up remote command” function it is possible to define in which form a remote access via VNC is shown to the user.	
		Use pop-up remote command ON	A large notification window appears during remote access.
		Use pop-up remote command OFF	During remote access a system message appears in the notification area of the “Info” softkey. *See also “Softkey Info” in chapter* Main menu [▶ 57]

8.1.6.2 Program settings

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

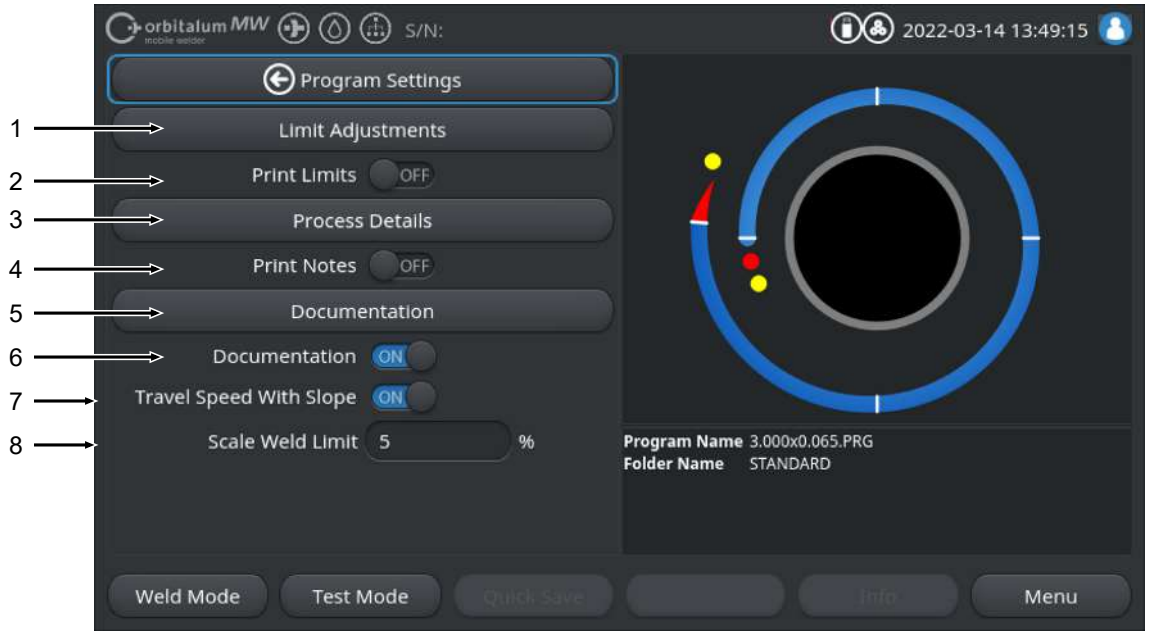


Illustration: "Program Settings" menu

NO.	MENU ITEM	SETTING OPTIONS	
1	"Limit Adjustments"	In the "Limit Adjustments" menu item, you can define the limit values above or below which a warning message or a welding process abort is triggered. *See also the chapter* Limit Adjustments [▶ 115]	
2	"Print Limits" ON/ OFF	The "Print Limits ON/OFF" slide button can be used to specify whether the stored "Limit Adjustments" are to be appended to each weld data log.	
		"Print Limits" ON	Attach "Limit Adjustments" activated.
		"Print Limits" OFF	"Limit Adjustments" attached not activated.
3	"Process Details"	*See the chapter* "Process Details" [▶ 86]	
4	"Prints Notes" ON/ OFF	The "Print Notes ON/OFF" slide button can be used to specify whether the information entered under "Process Details" is to be printed in addition to the welding parameters when the welding procedure is printed out.	
		"Print Notes" ON	Print "Process Details" activated
		"Print Notes" OFF	Print "Process Details" deactivated
5	Documentation	Using the documentation function, you can define and display documentation processes. *See also the chapter* Overview and documentation list functions [▶ 116] *and* Documentation [▶ 116]	
6	"Documentation" ON/OFF	The "Documentation ON/OFF" slide button can be used to activate or deactivate the fields defined under the "Documentation" menu item and their documentation function in the welding procedure.	

NO.	MENU ITEM	SETTING OPTIONS
7	"Travel Speed with Slope" ON/OFF	The "Travel Speed with Slope ON/OFF" slide button can be used to define whether the rotation speed adjustment between two level segments should be linear or abrupt. When this function is activated, the behavior is set together with adjustment of the welding current via the "Slope" welding procedure parameter. *See also the chapter* Level [▶ 89]
8	Scale weld limit	The "Scale Weld Limit" input field can be used to define the extent to which the welding current can be adjusted via the "Scale Weld" welding procedure parameter in the "User Mode" of the power supply. *See also the chapter* User levels [▶ 40]

8.1.6.2.1 Limit Adjustments

The power supply controls and monitors the SET and ACTUAL values of the welding current, arc voltage and weld speed during the entire welding process.

The limit values above or below which a warning message or a welding process abort is triggered are specified under the "Limit Adjustments" menu item.

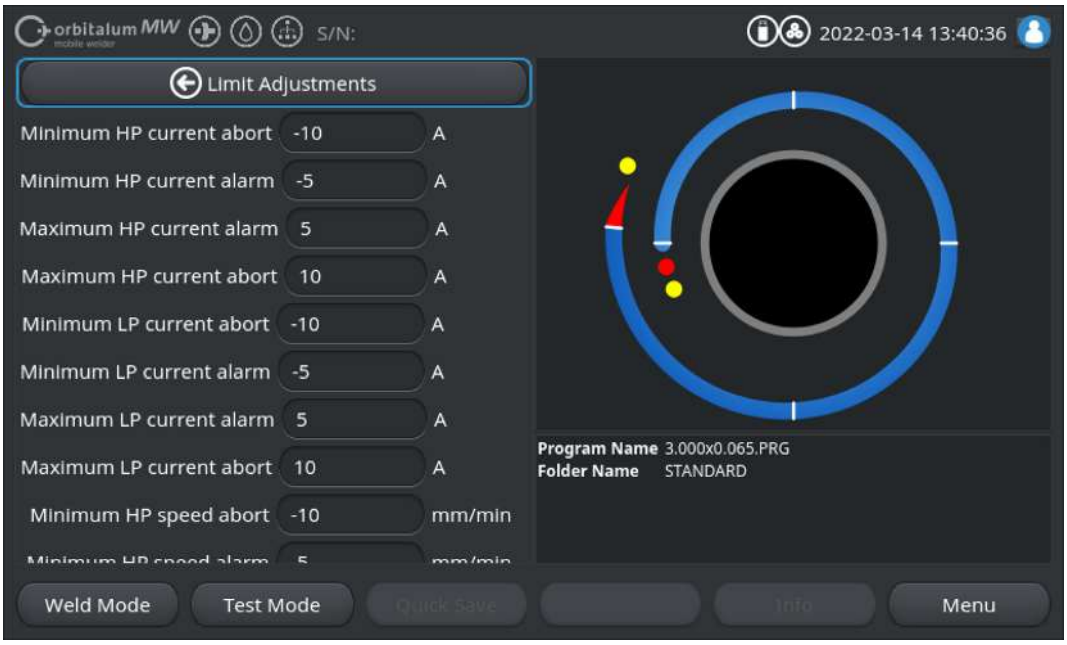


Illustration: "Limit Adjustments" menu

The limits can be adjusted individually for each welding procedure.

Changes must be applied via the "Save" softkey.

NOTICE!		**The "Limit Adjustments" are welding procedure-based and stored in the data log of the welding procedure.**
CAUTION		**When the limits are deactivated, there is no active monitoring of the welding parameters such as welding current, welding voltage and welding speed!** Continued use of the power supply requires increased operator attention. ► The welding process must be observed continuously and monitored by the operator himself! ► It is recommended that you disable this function only temporarily in exceptional cases.

8.1.6.3 Documentation

All documentation fields defined in the program settings "Documentation" are displayed in the welding procedure segment Documentation.



Illustration: "Adjust Program Parameters" menu

NO.	DESIGNATION	FUNCTION
1	"Documentation" section of the welding procedure	All documentation fields defined in the "Documentation" program settings are displayed in the documentation section of the welding procedure. Prerequisites: • Documentation fields have been defined and the documentation function has been activated. *See the chapters* Program settings [▶ 113] *and* Overview and documentation list functions [▶ 116] • The welding procedure parameter "Save Data Log Files" is activated. *See the chapter* Basic adjustments [▶ 80]

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.

8.1.6.3.1 Overview and documentation list functions

Using the documentation function, you can define and display 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 interval.
- The data is entered either using the internal or external keyboard or by means of a bar code scanner
- The defined parameters need to be entered either before each welding task or after each restart of the power supply.
- Output occurs together with all welding-related SET and ACTUAL values in the form of a weld log file saved on a USB medium or in a network directory or can be printed out by means of the internal or external printer.
- The documentation routine created can be saved on a USB storage medium and transferred to other power supplies.

See also the chapter System data [▶ 119]

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

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

In addition, it is possible to set whether a value is required for a documentation field and whether it should be stored permanently.

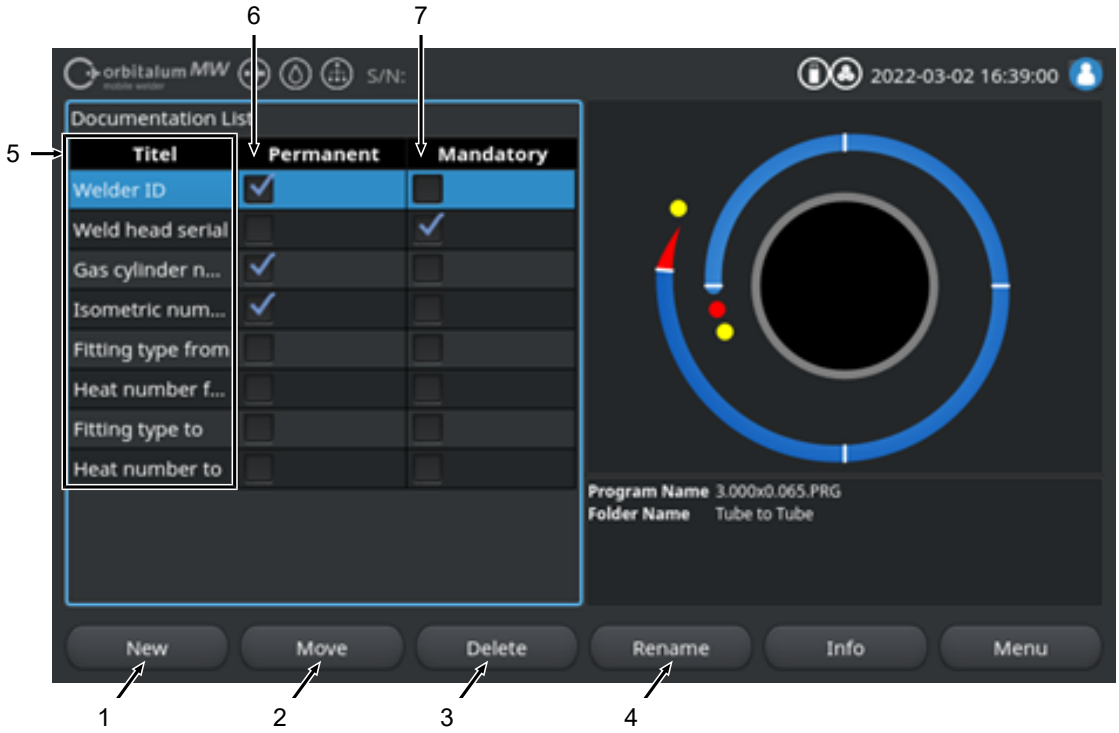


Illustration: "Documentation List" menu

NO.	TOUCHSCREEN ELEMENT	FUNCTION
1	"New" softkey	New documentation fields can be created using the "New" softkey.
2	"Move" softkey	The "Move" softkey can be used to change the display sequence of the documentation fields in the welding procedure and the log file.
3	"Delete" softkey	The "Delete" softkey can be used to remove documentation fields.
4	"Rename" softkey	The "Rename" softkey can be used to rename documentation fields.
5	"Title" text input field	Used to enter the name of the documentation parameter to be entered. The designation is displayed as an input field designation in the welding procedure and under Documentation in the weld data log.

NO.	TOUCHSCREEN ELEMENT	FUNCTION
6	"Permanent" checkbox	When this option is activated, the parameter value entered in the welding procedure is saved in the input field until the power supply is restarted. This option is recommended for static parameters such as: "Welder ID", "Weld head serial number", "Gas cylinder number", "Gas type", … If the function is deactivated, the content of the input field is deleted after each ignition and must be reentered. This option is recommended for variable parameters such as: "Batch number", "Workpiece type", "Welding position in the geometry", … **NOTICE! You can select one, all or no checkboxes.**
7	"Mandatory" checkbox	When this option is activated, a parameter must be specified in the associated documentation field to start a welding process. **NOTICE! You can select one, all or no checkboxes.**

8.1.6.3.1.1 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 designation of the documentation parameter in the input field.

8.1.6.3.1.2 Moving a documentation field

The documentation fields can be arranged in a rolling manner using the "Move" softkey.
The defined sequence corresponds to the display sequence of the documentation input fields in the welding procedure and the log file.

NOTICE!		**Pressing the "Move" softkey moves the selected documentation field down one position at a time on a rolling basis. 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.

8.1.6.3.1.3 Deleting a documentation field

The documentation fields can be removed by pressing the "Delete" softkey.

NOTICE! **Pressing the "Delete" softkey irrevocably deletes the marked 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.

8.1.6.3.1.4 Renaming a documentation field

When renaming, the designation 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.

8.1.6.4 System data

Individual system areas of the software can be updated / backed up / restored under system data.

8.1.6.4.1 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.

8.1.6.4.2 Backup

Individual system areas can be independently backed up to a USB data storage media under the "Backup" menu item.

The following system areas are available for backup:

- Auto programming
- Headlist

- Language files
- Documentation list

Procedure:

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

⇨ After successful selection the backup routine starts.

8.1.6.4.3 Restore

The system can be reset to the last software version under the "Restore" menu item.

Procedure:

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

⇨ After successful selection the restore routine starts.

8.1.6.5 Network environment

NOTICE!		**Configuration of the network is a more demanding task and should be carried out by a system administrator!**

All settings for integrating the power supply into a local network and accessing a network printer can be made under the "Network environment" menu item.

With the LAN/IoT/VNC connectivity UPGRADE option welding procedures and welding reports can be locally saved and called up. Thanks to the ability to integrated the unit into an MQTT/IoT/Industry 4.0 network, data and control commands can be exchanged among the network participants.

NOTICE!		**The network functions are only available with the UPGRADE Connectivity LAN/IoT/VNC option. *See the chapter* Upgrade options [▶ 152]**

A destination computer/server which meets the following system requirements is required for network setup:

- Ethernet RJ-45 (LAN) connection (10Base-T, 100Base-TX or 1000BaseTX)
- Active TCP/IP service
- Connection as shown in the Connection Diagram figure

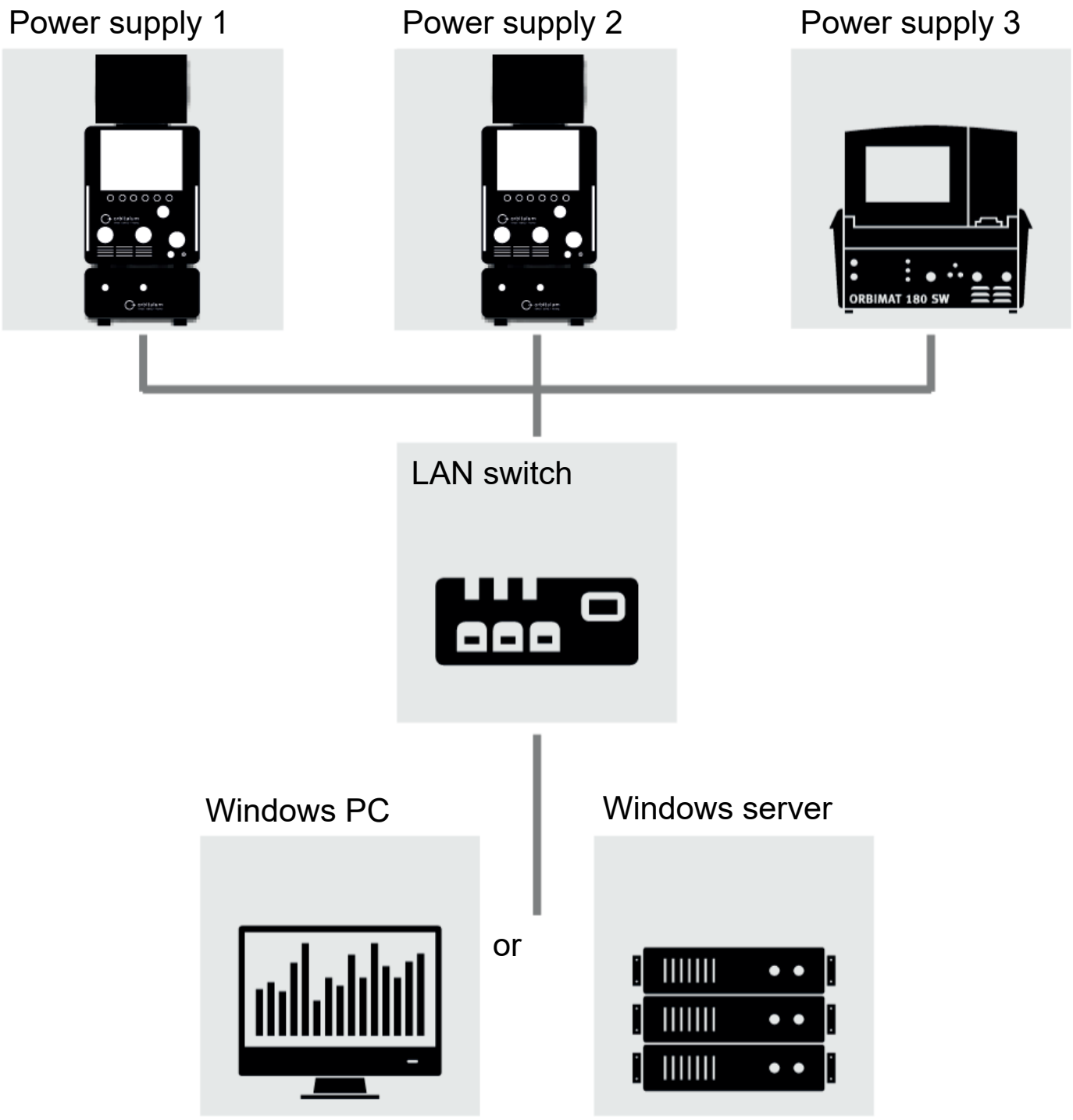


Illustration: Connection scheme

8.1.6.5.1 LAN network setup

All network-relevant parameters required to integrate the power supply into a local network structure can be entered under the "LAN Network Setup" menu item.

PARAMETER	FUNCTION	
DHCP server	The DHCP function enables connection of the power supply to an existing network without manual configuration.	
	DHCP server "ON"	The configuration parameters are sent directly from the DHCP server to the power supply.
	DHCP server "OFF"	The configuration must be entered manually using the following network parameters.
Interface	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.**	
Standard gateway	Input field for the standard gateway address of the network. **NOTICE! Mandatory network parameter. If a standard gateway is not available, address 128.0.0.1 must be used.**	
DNS 1	Input field for the IP address of the DNS server of the network. **NOTICE! Optional network parameter.**	
DNS 2	Input field for the IP address of an alternative DNS server of the network. **NOTICE! Optional network parameter.**	
IP address	Input field for the IP address of the power supply. **NOTICE! Mandatory network parameter. The IP range should lie within the IP range of the network.**	
"Save Settings"	Menu button for applying the network configuration **NOTICE! Following successful setup, the operating system of the power supply will restart.**	

8.1.6.5.2 Shared Folder Setup

Network storage locations for welding procedures and log files can be set up under the "Shared Folder Setup" menu item.

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

NOTICE!

- ► The destination directories must be created on the destination computer/server beforehand.
- ► Network sharing with read and write authorization must be set up for the destination directory on the destination computer/server.
- ► Multiple network directories can be set up in the power supply.
- ► The network directories can be accessed at the same time by multiple power supplies.

PARAMETER	FUNCTION
Add Shared Folder	The "Add Shared Folder menu" button opens the submenu for entering the shared folder location information.
Directory name	Input field for entering the internal directory name that is displayed in the "Program Manager" of the power supplies.
Computer name or IP address	Computer name or IP address of the destination computer/server. The computer name is preferable. **NOTICE! Pay attention to correct use of upper/lower case!** IMPORTANT: • Network sharing with read and write authorization must be set up for the destination directory on the destination computer/server. • Entry of the address **without** a preceding "Computer name": Example: **Correct:** "ORBINet/Welding/Data" **Wrong:** \\DESIOTGS0022\ORBINet\Welding\Data • Do **not** use a forward slash at the beginning of the network path: **Correct:** "ORBINet/Welding/Data" **Wrong:** "/ORBINet/Welding/Data" • Use only the forward slash (/) for folder separation in the network path: **Correct:** "ORBINet/Welding/Data" **Wrong:** "ORBINet\Welding\Data" • Do **not** use folder names with spaces: **Correct:** "ORBINet/Welding/Data" **Wrong:** "ORBINet /Welding/Data"
User name	User name or domain and user name with read and write authorization for the destination directory. Example: "Administrator" or "DOMAIN/Administrator"
Password	Input field for the password associated with the user name that exists on the login server.

PARAMETER	FUNCTION	
Advanced settings	The "Advanced Settings" menu button opens a submenu for entering the SMB version network parameters and the server network security mode.	
	SMB version	Dropdown list for selecting the SMB version. • Server Message Block Network protocol for file, print and other server services. • The option is set to "Default" at the factory and usually does not need to be changed. • In case of connection problems, the SMB version can be adjusted accordingly. • Then set the SMB version according to the operating system of the destination computer/server. This setting should preferably be performed by a system administrator. Selection 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	Dropdown list for selecting the security mode of the server network. In case of connection problems, the security mode can be adjusted accordingly. Set mode on the basis of the operating system of the target computer/server. This setting should preferably be performed by a system administrator. Selection options:

Mode	Description
none	Attempt to connection 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

PARAMETER	FUNCTION
"Add Shared Folder"	Menu button for applying the parameters entered. **NOTICE! Following the successful setup of the network directory on the power supply, the network directory can be accessed in the main menu through the " Program Manager" and the " Log Manager".** *See the chapter* Program Manager [▶ 62] *See the list item "Software Status Icons" in chapter* Main menu [▶ 57] **NOTICE! If the power supply is unable to establish a network connection, an error message will be displayed. In this case, check the entered parameters, network cabling and network settings.**

The computer name is preferable.

NOTICE! Pay attention to correct use of upper/lower case!

8.1.6.5.3 WLAN setup

The WLAN functionality enables network connection via a WLAN dongle, which can be plugged into one of the USB ports.

This requires activation of the connectivity upgrade; *see sections* Activation and Upgrade options [▶ 152].

Under the menu item "WLAN Setup," the WLAN functionality can be activated or deactivated using a slider.

8.1.6.6 Service

8.1.6.6.1 Coolant pump On

The "Coolant pump On" function is used to empty the coolant tank, e.g. for service purposes such as coolant change or if the power supply will not be used for an extended period of time.

Prerequisite: Cooling unit ORBICOOL MW is connected.

8.1.6.6.2 Motor calibration

Use to check and correct the rotor speed.

For how to use, see the chapter Motor calibration [▶ 147]

8.1.6.6.3 Importing procedures

The "Import Programs" function can be used to import welding procedures from power supplies of the ORBIMAT C and ORBIMAT CB generations and convert them into the current welding procedure format.

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

Preparation

1. On a compatible USB stick with the help of a PC, create the "PROGRAMS" folder.

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

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

Procedure

1. Insert the USB stick into any USB port of the power supply.
2. Select the "Import Programs" button
   ⇨ If the import is successful, a message "Import of programs is finished" appears
3. Confirm with "OK".
4. Restart the power supply.

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

8.1.6.6.4 Importing an Arc Machines Program

The "Import AMI Program" function can be used to import welding procedure parameters from Arc Machines power supplies into an ORBITALUM welding procedure.

For this purpose, all of the following welding procedure parameters must be transferred from the AMI welding procedure to be converted to the input masks.

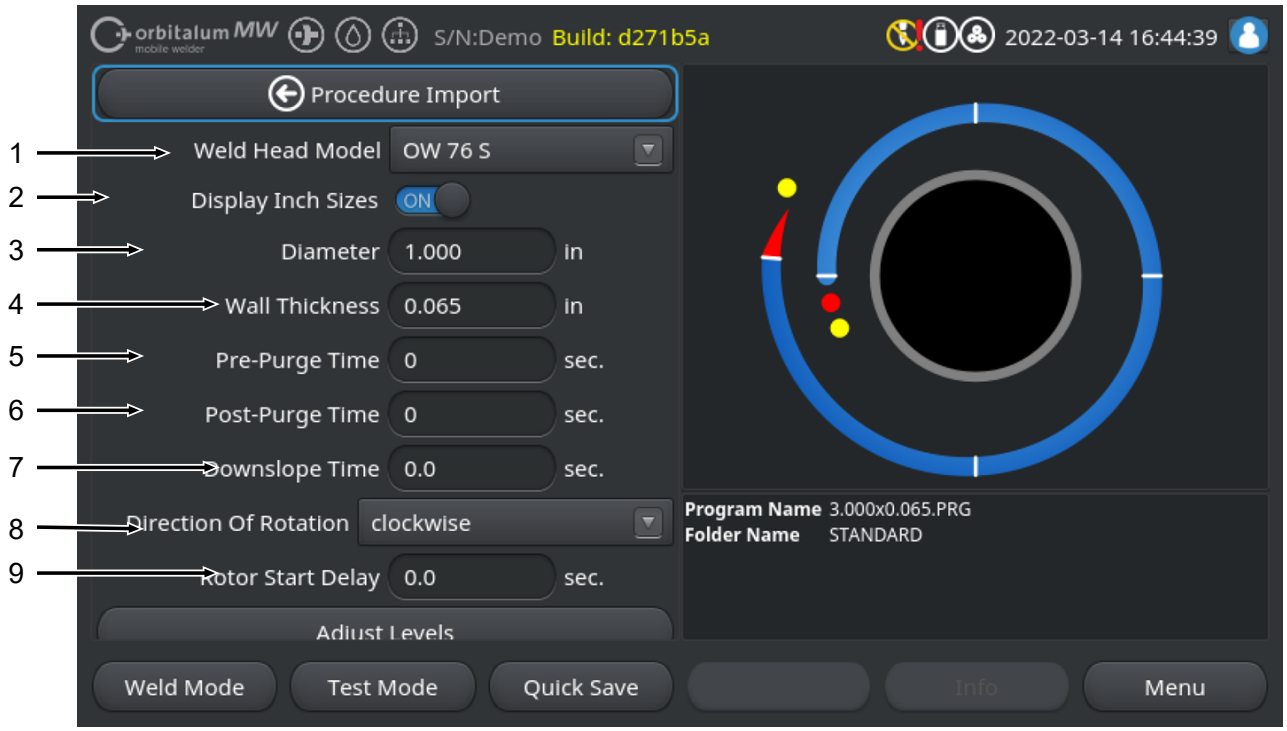


Illustration: "Import Programs" menu, upper region

NO.	MENU ITEM	SETTING OPTIONS
1	"Weld Head Model"	Possibility for selecting the torch model used.
2	"Display Inch Sizes"	Function to change the units of measure between "Metric" and "Imperial". After the change, all fields are displayed with the active unit of measure and existing values are converted accordingly. Options: "Display Inch Sizes" ON — "Imperial" units of measure active "Display Inch Sizes" OFF — "Metric" units of measure active
3	"O.D."	For entering the tube outer diameter
4	Wall thickness	For entering the tube wall thickness
5	"Pre-Purge Time"	Time period in seconds for how long the welding torch is pressurized with welding gas from process start to ignition.
6	"Gas Post-Purge Time"	Time period in seconds for how long the welding torch is pressurized with welding gas after the arc is extinguished.
7	"Downslope Time"	Time period in seconds of linear current reduction, starting from the welding current value of the previous level, until the set final current is reached.

NO.	MENU ITEM	SETTING OPTIONS	
8	"Direction of Rotation"	Dropdown list for selecting the desired direction of rotation when welding.	
		clockwise	Standard direction of rotation – starts with upslope welding
		counterclockwise	Alternative direction of rotation – starts with downslope welding
9	"Rotor Start Delay"	For entering the pool formation time in seconds.	



Illustration: "Import Programs" menu, lower region

NO.	MENU ITEM	SETTING OPTIONS
10	"Adjust Levels"	Levels can be created and the level-specific parameters of the AMI welding procedure entered under the "Adjust Levels" menu item. The input is done in tabular form. Before a value is entered, the input field must be selected/marked. **NOTICE! All of the following parameters can be transferred from existing AMI welding programs as shown, without conversion of units.**



No.	Touchscreen element	Function	
1	"Level +" softkey	The "Level +" softkey adds another level entry to the end of the level table.	
2	"Level -" softkey	The "Level -" softkey deletes the last level of the level table.	
3	"Global Change" softkey	Pressing the "Global Change" softkey transfers the value of the currently selected welding parameter to all cells below.	
4	"Reset" softkey	The "Reset" softkey resets the entire level table.	
5	"Back" softkey	Switches back one menu level	
6	"Levels" column	Shows the current number of levels and level number in tabular form.	
7	"TIME" column	Level time in seconds.	
8	"PULSE" column	Checkbox for pulsating welding current	
		Checkbox activated	PULSE "ON"
		Checkbox deactivated	PULSE "OFF"
9	"ROT CONT" column	Checkbox for continuous rotation	
		Checkbox activated	ROT "CONT"
		Checkbox deactivated	ROT "CONT"
10	"PRI RPM" column	Number input field for primary rpm	
11	"BCK RPM" column	Number input field for secondary rpm	
12	"PRI AMP" column	Number input field for primary welding current in A	
13	"BCK AMP" column	Number input field for secondary welding current in A	
14	"PRI PULSE“ column	Number input field for primary pulse time in seconds	
15	"BCK PULSE“ column	Number input field for secondary pulse time in seconds	

NO.	MENU ITEM	SETTING OPTIONS
11	Import	Pressing the "Import" menu button converts the AMI welding parameters entered for use in an ORBITALUM welding procedure. The converted AMI welding procedure is automatically stored in the "Program Manager" in the internal memory under the path Internal Memory/PROGRAM/MPORTS_AMI. 

8.1.6.6.5 Settings for external printer

You can make the settings for text output in the "External Printer Setup" menu.



Illustration: "External Printer Setup" menu

NO.	MENU ITEM	SETTING OPTIONS	
1	"Small Letters"	ON	Small font size activated
		OFF	Small font size deactivated
2	"Distance From The Left"	Value for distance from the left edge of the page to the beginning of the print area in mm	
3	"Width of Tex"	Width of the print area in mm.	
4	"Distance From The Top"	Value for distance from the top edge of the page in mm to the beginning of the print area	
5	Tex Height	Height of the print area in mm.	

8.1.6.6.6 Service screen

The "Service Screen" shows an overview of all electronic input and output signals used to control the power supply. These can be used for troubleshooting when service is necessary.



Illustration: "Service Screen" menu, signal value table, upper region

NO.	TOUCHSCREEN 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 for the active process calculated from the analog input information or serial inverter interface.
4	"Analog In"	Current values of the analog inputs
5	"Analog Out"	Current values of the analog outputs

8.1.6.6.7 Info

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

8.1.6.6.8 What's new

The "What's new" menu button opens an overview with information on the software functions added during the last software update.

8.1.6.6.9 Changelog

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

8.1.6.7 Setting the language and keyboard



Illustration: "System Settings"

NO.	MENU ITEM	DISPLAY
1	"Keyboard"	For setting the language-specific keyboard layout of the external USB keyboard.
2	Language Of The Documentation	For setting the language of the documentation/logfile independently of the system language.
3	"System Language"	For setting the system language of the power supply. *See also the chapter* Setting the system language and language of the documentation [▶ 53]

NOTICE!

When the language is changed, all messages generated, parameter and menu designations in the software and printouts will be changed. Comments on the procedures or logs which were entered by the operator are not translated.

8.2 Weld mode

The "Weld Mode" softkey (1) is used to access the welding mode from the main menu:

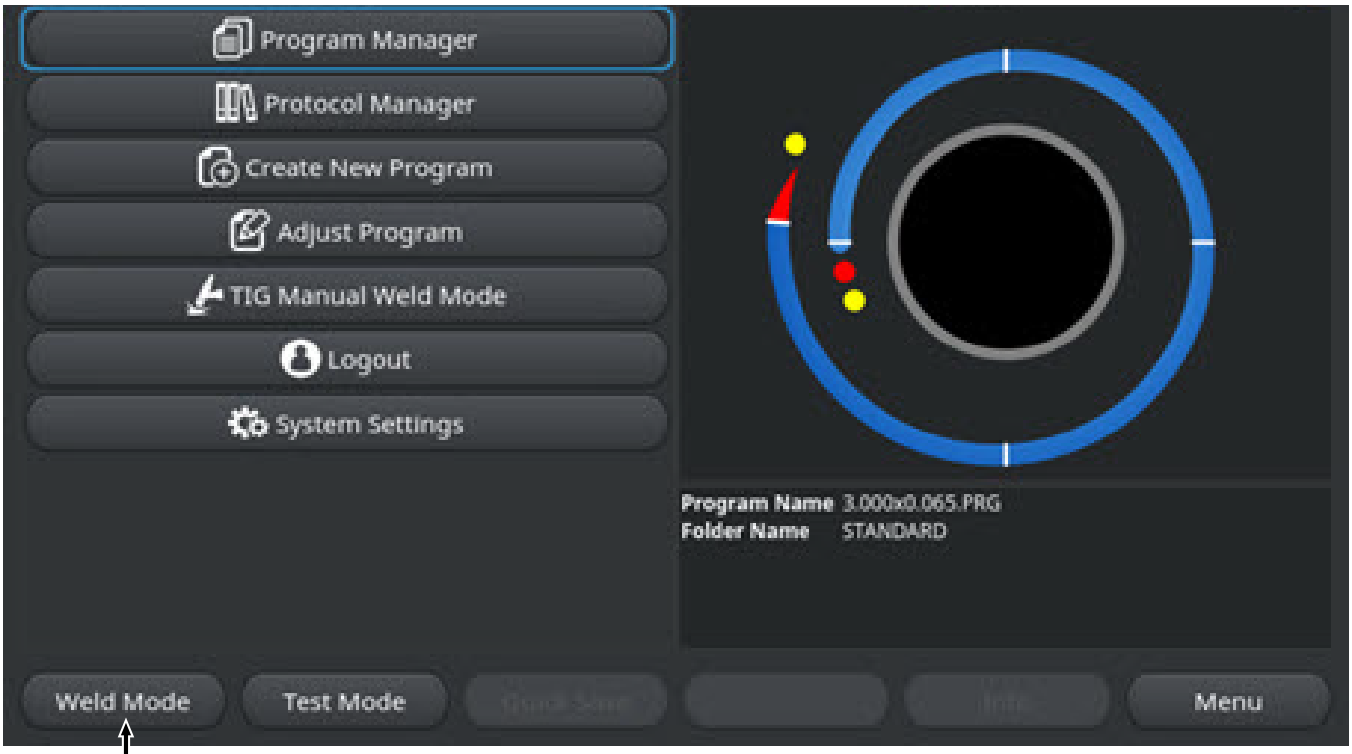


Illustration: Main menu

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

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

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

Welding parameters for the currently loaded welding process can also be adjusted at the administration level (*see also the chapter* User levels [▶ 40]).

In the 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 [▶ 7]

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!



Pressing and holding (3 sec.) the "GAS" key on the weld head remote control switches between the "Test Mode" and "Weld Mode" menus.

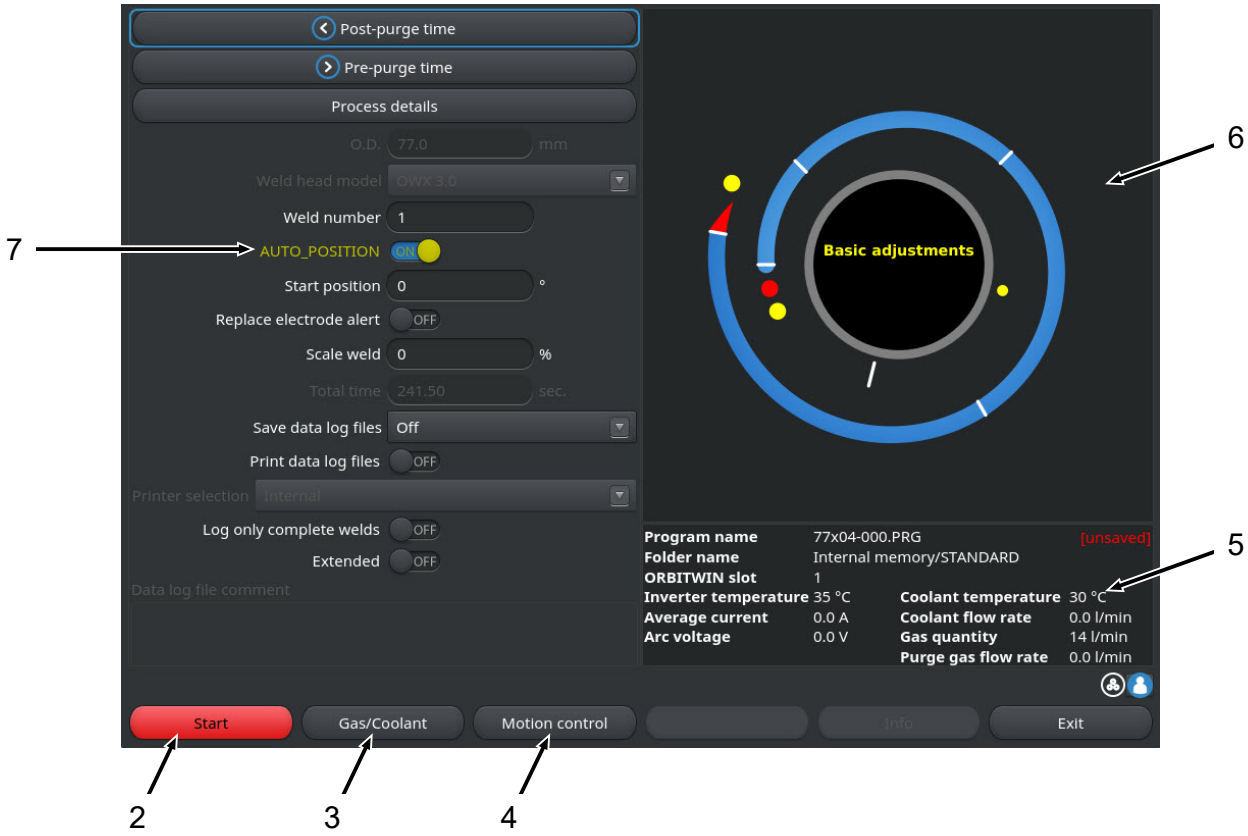


Illustration: "Weld Mode" menu, "START" softkey highlighted in red

NO.	CONTROL ELEMENT	FUNCTION
2	"START" Softkey	Starts the welding process with welding gas and cooling flow, based on the parameters of the currently loaded welding procedure. **NOTICE! The weld head model programmed in the welding procedure must match the weld head model connected to the power supply. If welding procedure parameters are outside the weld head specification, it is not possible to start the welding process.**
3	"Gas" softkey	The "Gas" softkey opens a softkey submenu with all functions relevant to coolant- and welding gas. *See the chapter* "Gas" and "Gas/coolant" softkey [▶ 138] **NOTICE! The "Gas" softkey with softkey submenu is only available if a cooling unit is connected. If this is not the case, the "Gas" softkey is activated and the softkey submenu contains only the functions relevant to welding gas.**
4	"Motor Control" softkey	The "Motor Control" softkey opens a softkey submenu in which the weld head rotation and cold wire functions can be controlled manually. *See the chapter* Motor control [▶ 141]

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.

8.2.1 "Gas" and “Gas/coolant” softkey

The "Gas" or “Gas/coolant” softkey takes you from the "Weld Mode" menu to a submenu with all the functions relevant to welding gas.

8.2.1.1 "Gas On" softkey

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

When actuated again, the gas and cooling flow are stopped.

NOTICE!		**By means of a manual start, the gas and cooling flow can be checked independently of the welding process to ensure functional readiness. An error message appears in the event of a lack of gas or coolant.**

8.2.1.2 Gas overview

The gas overview provides a summary and visualization of the welding gas parameters "Gas Pre-Purge Time" and "Gas Post-Purge Time" and the special functions "Flow Force" and "Permanent Gas".

With these functions, welding gas management can be optimized in terms of gas consumption, annealing colors and process time.

Welding gas special functions

By using welding gas special functions, such as "Flow Force" and "Permanent Gas", you can optimize the welding process in terms of process time, annealing colors, gas consumption, workpiece temperature and weld head temperature.

Flow Force

The "Flow Force" functions are primarily used to reduce the gas pre-purge and gas post-purge times. They offers advanced welding gas settings to optimize welding gas management. The "Flow Force" functions can be used to optimize not only process time but also annealing colors, gas flow, workpiece temperature and weld head temperature.

In the gas pre-purge phase before the arc is ignited, the weld head is pressurized with a significantly larger gas quantity compared to the actual welding gas quantity in order to achieve faster and more efficient purging or removal of residual oxygen from the welding torch.

In the gas post-purge phase, the welding torch can be pressurized with a significantly larger gas quantity in order to obtain faster cooling of the workpiece and weld head.

Permanent Gas

The "Permanent Gas" function continuously pressurizes the weld head with a constant flow of welding gas to prevent oxygen from entering the weld head even during non-productive times.

With continuous purging of the welding torch, the gas pre-purge time can be significantly reduced.

As with the "Flow Force" function, this allows the process time, annealing colors, gas quantity, and weld head temperature to be optimized.

NOTICE!	**It is also possible to combine the "Flow Force" and "Permanent Gas" functions.**

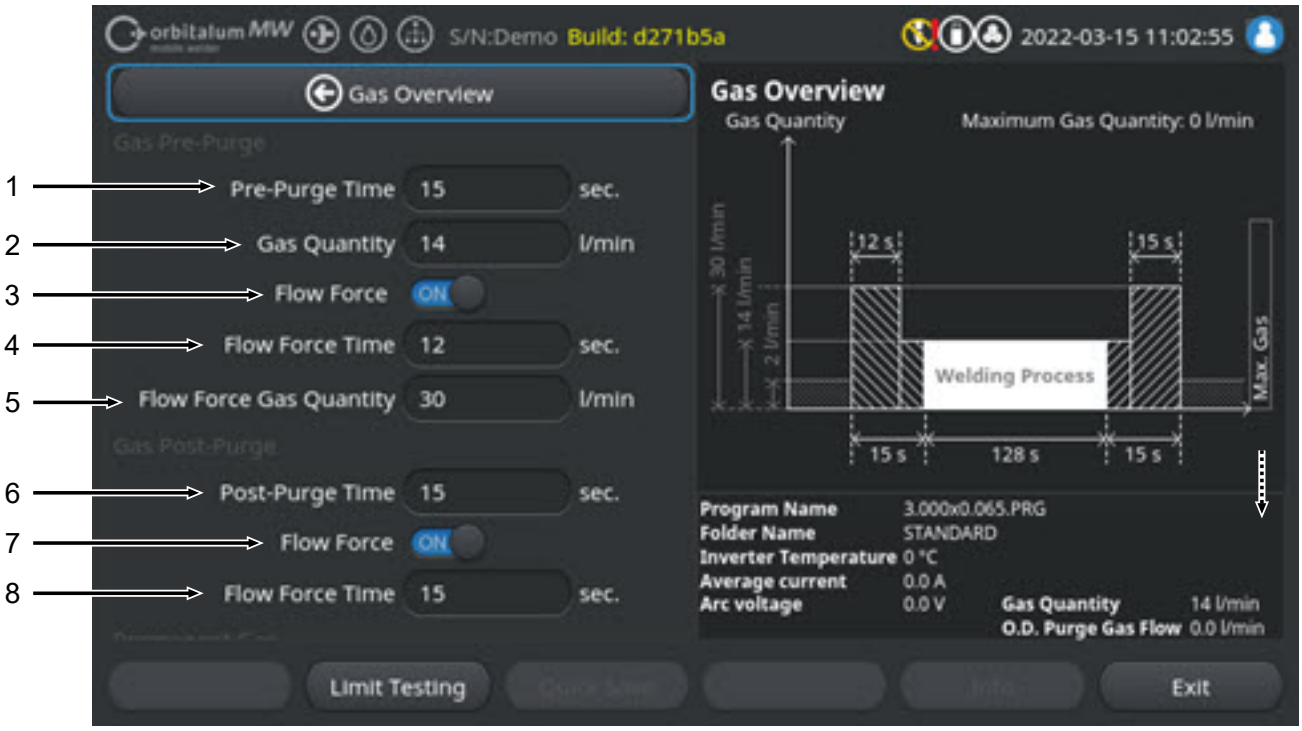


Illustration: "Gas Overview" menu, upper region

NO.	MENU ITEM	FUNCTION	
1	"Pre-Purge Time"	Time period in seconds for how long the weld torch is pressurized with the process gas quantity from process start to ignition.	
2	"Gas Quantity"	Process gas quantity with which the weld head is pressurized during the welding process and the regular gas pre-purge time and post-purge time.	
3	"Flow Force" - Pre-Purge	Function for activating the "Flow Force" function in the gas pre-purge phase.	
		Flow Force ON	Flow Force active
		Flow Force OFF	Flow Force not active
4	"Flow Force Time"	Time period in seconds during which the weld head is pressurized with the set "Flow Force Gas Quantity" in the gas pre-purge time **NOTICE! It is recommended that you reduce the welding gas quantity to the actual process gas quantity at least 2 seconds before ignition of the arc in order to allow the gas flow to stabilize before ignition.**	
5	"Flow Force Gas Quantity"	Welding gas quantity with which the weld head is pressurized during the "Flow Force Time" in the pre-purge and post-purge phases.	
6	"Post-Purge Time"	Time period in seconds for how long the welding torch is pressurized with process gas quantity after the arc is extinguished.	
7	"Flow Force" - Post-Purge	Function for activating the "Flow Force" function in the gas post-purge phase.	
		Flow Force ON	Flow Force active
		Flow Force OFF	Flow Force not active

NO.	MENU ITEM	FUNCTION
8	"Flow Force Time" - Post-Purge	Time period in seconds during which the weld head is pressurized with the set "Flow Force Gas Quantity" in the gas post-purge time. **NOTICE! It is recommended that you keep the process gas flow applied for 3 seconds after the welding arc has been extinguished and then switch to the Flow Force gas quantity.**

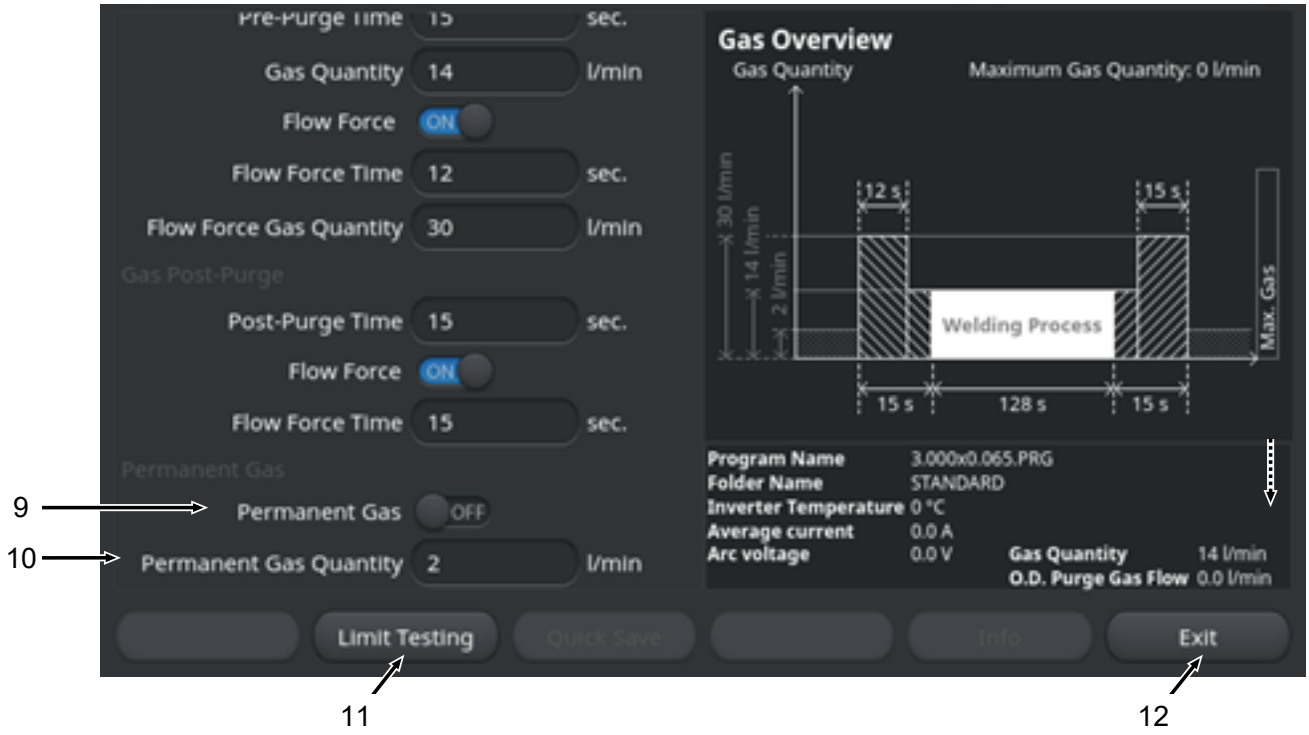


Illustration: "Gas overview" menu, lower region

NO.	MENU ITEM	FUNCTION
9	"Permanent Gas"	Function for activating the "Permanent Gas" function.
		Permanent Gas ON Permanent Gas active
		Permanent Gas OFF Permanent Gas not active
10	"Permanent Gas Quantity"	Welding gas quantity with which the weld head is continuously pressurized during the non-productive time.
11	"Limit Testing" softkey	When the "Limit Testing" softkey is pressed the power supply starts a welding gas flow test to determine the max. welding gas quantity available at the gas input connection. The gas quantity determined is transferred to the "Flow Force Gas Quantity" input field, taking a safety margin into account. ***NOTE*** 1. Ensure that the welding gas supply and the weld head are connected correctly. 2. If the welding gas quantity determined is insufficient, check the welding gas source and set it to max. available gas quantity.
12	"Exit" softkey	Closes the "Gas Overview" and switches back to the "Weld Mode" menu.

8.2.1.3 "Permanent Gas" softkey

The "Permanent Gas" softkey starts the continuous flow of gas.

Pressing the softkey again stops the continuous flow of gas.

The permanent gas quantity can be defined in the system settings or in the "Gas Overview" under the "Permanent Gas Quantity" menu item.

For further information, see the chapters Gas overview [▶ 138] and System adjustments [▶ 108]

8.2.1.4 "Back" softkey

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

8.2.2 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.

8.2.2.1 "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.

8.2.2.2 "Wire" softkey

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

MENU ITEM	FUNCTION
"Wire Reverse" softkey	Retracts the cold wire.
"Wire Forward" softkey	Advances the cold wire.

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

8.2.2.3 "Global Change" softkey

Pressing the "Global Change" softkey transfers the parameter value currently marked with the menu cursor to all subsequent levels and existing values are overwritten.

NOTICE! **The function serves the user as a convenience function to adjust identical values across segments faster.**

8.2.2.4 "Menu" softkey

Takes you back the the "Main Menu".

8.3 Test mode

The "Test Mode" softkey (1) is used to access the test mode from the main menu.

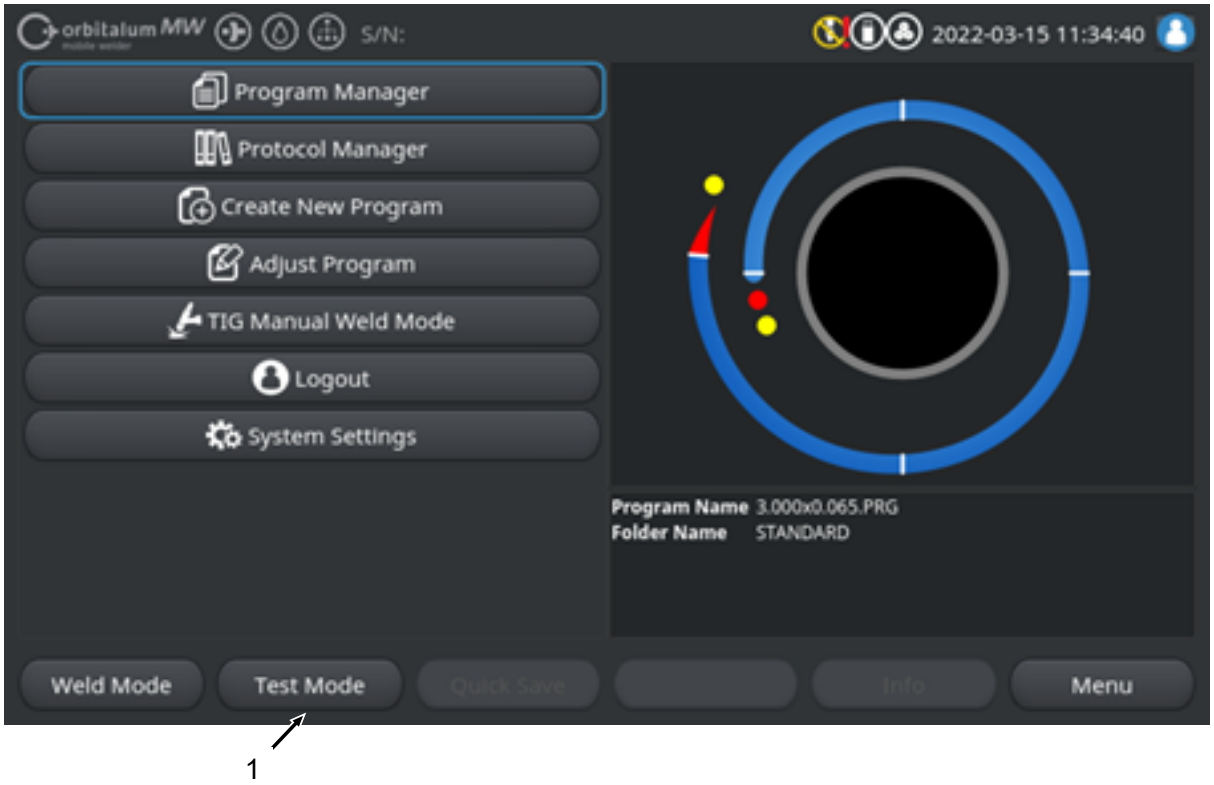


Illustration: Main menu

In the test menu/test mode, a simulation process can be started and all welding-relevant functions can be controlled in order to check and adjust the sequence of the currently loaded welding procedure.

The entire welding process is started, but without:

- Arc ignition / welding current
- Flow of welding gas
- Cooling Flow

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

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



Illustration: "Test Mode" menu, "START" softkey highlighted in yellow

NO.	CONTROL ELEMENT	FUNCTION
2	"Start" softkey	Starts the simulation process without arc ignition, welding current, welding gas and cooling flow, based on the parameters of the currently loaded welding procedure. **NOTICE! The weld head model programmed in the welding procedure must match the weld head model connected to the power supply.** *For all further functions see the chapter* Weld mode [▶ 135]

8.4 Welding process

✓ The power supply must be in the welding mode.

► Pressing the "START" softkey starts the welding process and thus the cooling flow and the supply of welding gas for gas pre=purge.



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

1. After the "Gas Pre-Purge Time" has elapsed, the arc ignites and the weld pool forms.
2. After the weld pool has formed, the rotor starts rotating and the welding parameters for the first level are set. At a level transition, the welding parameters adjust to those of the next level.
3. Once the end of the last level has been reached, the downslope phase starts; from here the welding current is decreased linearly until the final current is reached.
4. When the value for the "Final Current" is reached, the arc is extinguished and the "Gas Post-Purge Time" begins.
5. After the gas post-purge time has elapsed, the flow of welding gas and the cooling flow are stopped and the welding process is complete.

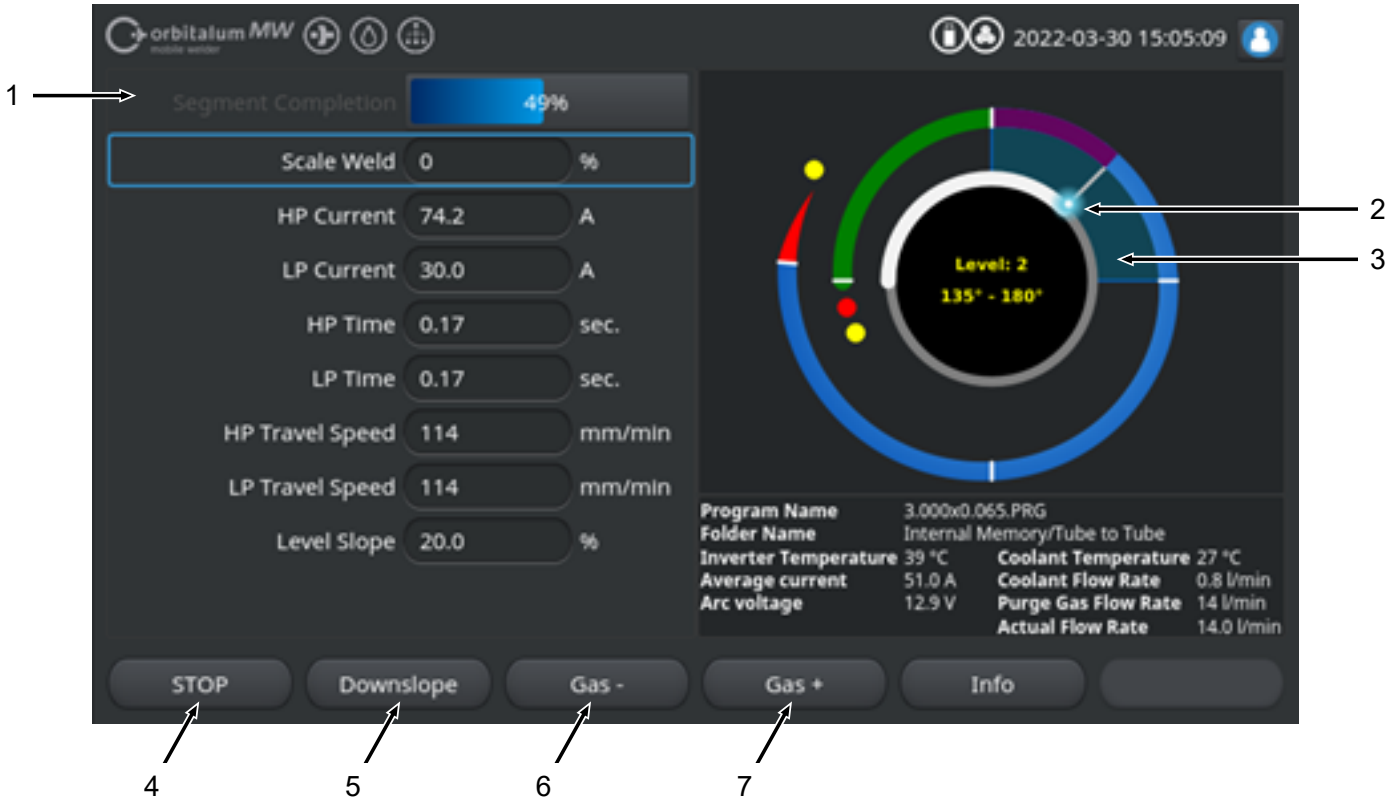


Illustration: View during active welding process

NO.	TOUCHSCREEN ELEMENT	FUNCTION
1	Progress of process:	The progress of process bar shows the progress of the currently active level in %.
2	Welding position animation graphic	Shows the current welding position.
3	Level marking	Shows the currently active level.
4	"STOP" softkey	Pressing the "STOP" softkey immediately ends the entire welding process.
5	"Downslope" softkey	Pressing the "Downslope" softkey switches the power supply to the downslope phase of the welding procedure.
6	"Gas –" softkey	Reduces the welding gas quantity by 1 l/min.
7	"Gas +" softkey	Increases the welding gas quantity by 1 l/min.

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

9 Special commands

9.1 Keyboard entry of special commands

Special commands can be entered in the power supply software via the external USB keyboard.

To do this, enter the following key combinations while holding down the "Alt" key:

VER ► Display the software version.

SER ► Display the service screen.

SLO ► Switches the slope representation in the welding procedure from % to seconds.

RES ► Restarts the software

BMP ► Creates an image file of the current screen in BMP format. Prerequisite: USB data storage media must be plugged in.

9.2 "Special Commands" softkey

US Reset

If a connected USB peripheral does not work as expected, you can try to fix the error via a USB reset without having to restart the power supply.

► In the main menu, press and hold the "Menu" softkey button for at least 5 seconds.

Reset information messages

► Press and hold the "Info" softkey button.

10 Service and maintenance

10.1 Service screen

See the chapter Service screen.

10.2 Software information

See the chapters Info and Keyboard entry of special commands [▶ 146]

See the chapter What's new

See the chapter --- FEHLENDER LINK ---

10.3 Motor calibration

During motor calibration, the rotational speed of the weld head is measured and compared with the set speed.
A deviation can be compensated by the software.

If several weld heads of the same type are used, it is recommended that you perform a motor calibration each time the weld head is changed.

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.

NOTICE!		**Motor calibration is only possible for weld heads with limit switches. Not for MH series weld heads.**

If several weld heads of different types or if all of the same weld heads are identical, this is not necessary because the machine stores one deviation per head type.

See also the chapter Motor calibration

Preparation

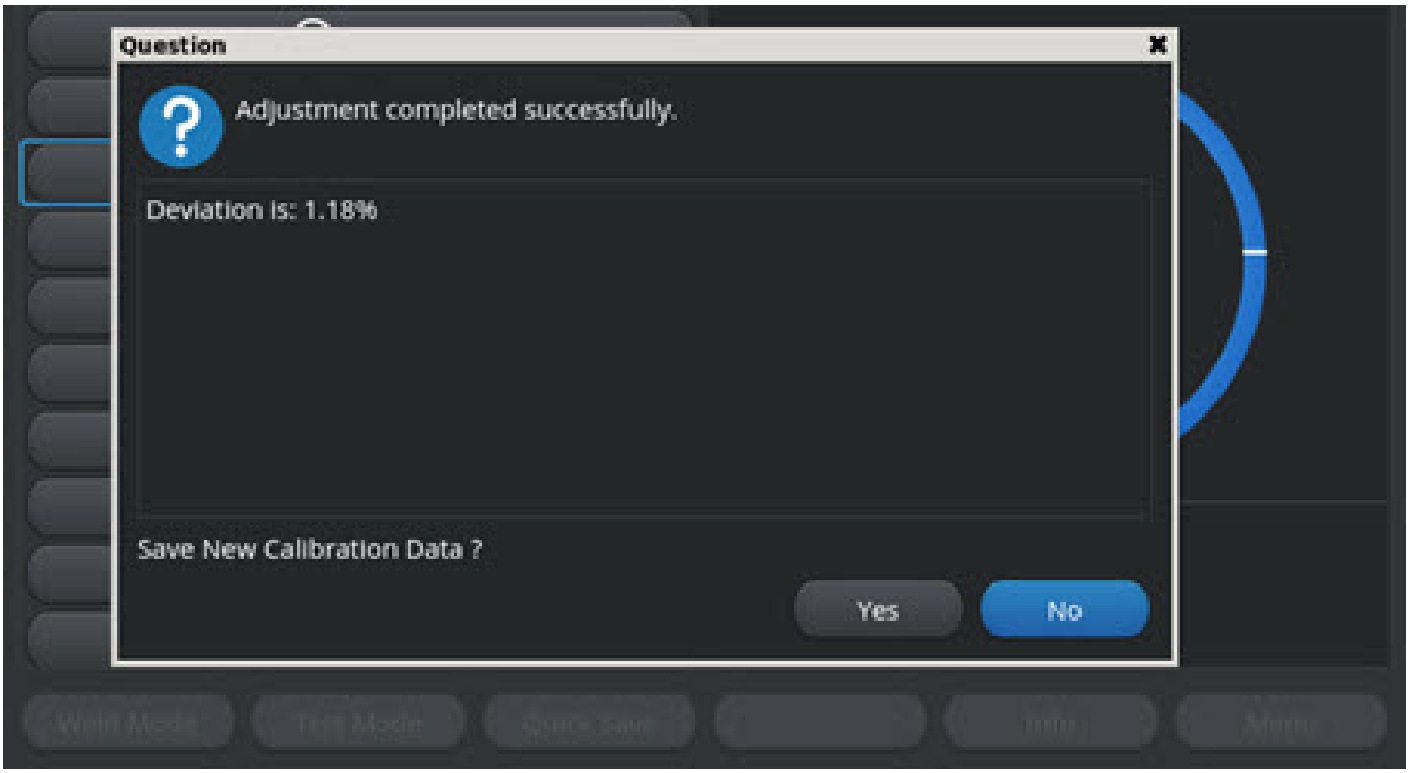
► Connect the weld head to the power supply- see the operating instructions for the weld head.

Procedure

1. Press the "Motor Calibration" button.
   ⇨ The weld head rotor moves to the home position and then performs a complete revolution. The required time is measured and compared with the setpoint. The deviation is displayed as a percentage. Properly calibrated heads generally mean deviations of +/- 2 %.



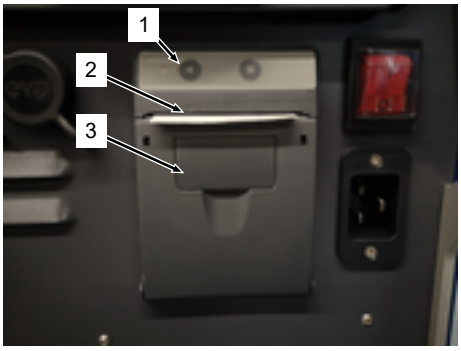
⇨ A message appears: "Do you want to save the new calibration data?"

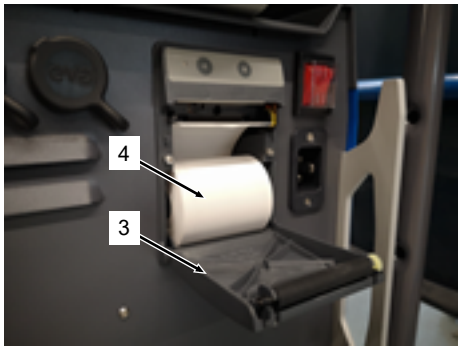


2. If the deviation is less than 1%: Confirm message with "No".
3. If the deviation is greater than 1%: Confirm message with "Yes".
   ⇨ The deviation value determined is accepted.
   ⇨ The machine knows the error of the currently connected weld head and compensates for it in the welding process.

10.4 Printer

10.4.1 Replacing the roll of paper





1. Open the printer cover (3).
2. Align the new paper roll (4) as shown and unroll the beginning of the paper so that it can protrude from the cover slot (2).
3. Hold the beginning of the paper above the cover slot (2) and close the printer cover (3).
4. Tear off excess paper by pulling upwards.

10.5 Maintenance schedule

INTERVAL	ACTIVITY
Monthly	► Clean the machine fully from the outside.
	► Check power cable, power plug and power supply for physical damage.
	► Recommendation: Carry out motor calibration even if the weld heads appear to be running smoothly. *See the chapter* Motor calibration [▶ 147]
Annually	► Have inverter calibration carried out by the Orbitalum Service.
	► Have a DGUV V3 inspection performed by Orbitalum or certified service center.

10.6 Service and customer support

10.6.1 Customer support

Our products are extremely robust and reliable. To ensure the performance in the long run, the recommended service and maintenance intervals should be performed regularly.

We offer competent service via branches as well as our worldwide network of authorized partners. These are carefully selected and are regularly trained by our experts to always be up-to-date with regard to products and technologies.

All service and maintenance work is performed with great care by qualified and motivated employees. They analyze your situation to find the best long-term solution.

Service contact at Orbitalum GmbH Singen:

E-mail: customerservice@orbitalum.com

Phone: +49 (0) 77 31 792-786

If you require service, please download our "Service Form" from the Orbitalum home page at Service & Repairs and enclose the completed form with the shipment of the affected goods.

10.6.2 Technical support & application engineering

Do you have questions about the operation of your Orbitalum system or do you have a technical problem?

Our experienced and qualified product and application specialists will support you in the correct selection and application of products.

In order to process your request as efficiently as possible, please provide us with the serial number of the equipment concerned when contacting us. This way we will have an initial overview.

- Handling of technical inquiries and problems
- Systematic fault diagnosis and correction
- Support in the selection of the right spare parts
- Support during operation, commissioning and test runs
- Support by telephone, by e-mail and on request also at your facility

E-mail: tech.support@orbitalum.com

Phone: +49 (0) 77 31 792-764

10.6.3 Operator and service training

Our specialist knowledge is imparted by our own experts in small groups in our modern training rooms in Singen. This makes it possible to respond to each individual participant and address specific questions. We will gladly conduct training at your facility upon request.

At the end of each training you will receive a certificate of attendance and a certificate confirming that you have acquired the required knowledge.

Operators from the plant, container and pipeline construction industries are particularly suitable as target groups for the various training courses.

E-mail: training@orbitalum.com

Phone: +49 (0) 77 31 792-741

11 Storage and decommissioning

The following storage conditions must be observed:

- Storage only in enclosed spaces
- Do not store near materials that may cause corrosion.
- Temperature range -20 to +55 °C
- Relative humidity up to 90 % at 40 °C

The operator obligations for proper disposal in the chapter Environmental protection and disposal [▶ 11] and the following safety note must be observed:

CAUTION		**Risk of injury from improper disassembly** ► The device may only be opened by a qualified electrician

12 Upgrade options

Optional upgrade options make it easy to expand the functionality of the power supply software.
Activation is done by means of an alphanumeric activation code ("activation key") that can be entered in the system settings.

See the chapter Activation [▶ 35]

In the operating instructions functions that require upgrades are marked with the respective upgrade icon.

See the chapter Legend [▶ 6]

ORBICOOL MW (code 854 030 301)

Hardware and software upgrade to activate the following capabilities:

Hardware:

- 1 PCS Cooling unit ORBICOOL MW

Software:

- Compatibility with the external cooling unit ORBICOOL MW
- Compatibility with liquid-cooled ORBITALUM weld heads*
- Activation of all cooling unit-related functions
- Cold wire functionality

** Weld heads with AVC/OSC are not supported*

MW Plus software (code 854 030 302)

Software upgrade to activate the following capabilities:

- Welding current up to 180 A.
- Welding data logging.
- Extended auto programming functions.
- Digital weld gas management (MFC).
- Access control user levels.
- Cold wire functions.
- Smart functions such as tacking, electrode replacement warning, emphasis on changed setting values and cross-sector parameter adoption.
- LAN/IoT/VNC-ready.

NOTICE!		**With the ORBICOOL MW and MW Plus software upgrade options the MOBILE WELDER corresponds to a MOBILE WELDER OC Plus.**

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

Software upgrade to activate the following capabilities:

- Exchange of data from welding data logs and welding procedures between power supplies and LAN network drives.
- Integration of the power supply into an Industry 4.0/IoT environment via the MQTT protocol.
- Control of the power supply over VNC via PC, tablet, mobile device.
- Input of control commands via QR code scanner.

** MW Plus software upgrade requirement*

13 Accessories

Optionally available.

WARNING

Danger due to the use of unauthorized accessories.

Various physical injuries and property damage.

► Only use original tools, spare parts, operating materials, and accessories from Orbitalum Tools.

Gas-cooled TIG manual torch MW

The use of a "manual welding mode" is also possible in combination with a TIG manual torch, thus expanding the range of applications to include flexible tack welding and the easy creation of manual welded joints in areas that are inaccessible with orbital weld heads.

Code 854 030 200



ORBmax residual oxygen measuring device

For optical oxygen measurement via fluorescence quenching.

The ORBmax requires no warm-up time and detects the oxygen content in the gas reliably, quickly, and accurately throughout the entire welding process.

Code 880 000 010



Double pressure reducer

With 2 adjustable flow indicators and connection option for welding and forming gas.

Code 888 000 001



bar code/QR code scanner MW/SW/PW

For transmitting all commands relevant to welding to the power source.

Code 850 030 005



ORBIPURGE forming set

For fast and efficient internal forming of pipe and fitting welded joints with low gas consumption.

Code 881 000 001



Ground cable

For use in combination with an orbital welding power source from the Mobile Welder, Smart Welder, and Power Welder series.

Code 811 050 005



Hose package extensions

Suitable for all Orbitalum weld heads except the AVC/OSC versions of the ORBIWELD TP series.

The welding current connection adapter set may be required for use with older Orbitalum welding power sources and heads with green Superior connections. Newer machine models are already equipped with DINSE-compatible connections.



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

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

14 Consumables

Optionally available.

WARNING

Danger presented by using consumables that have not been approved.

Various injuries and damage to property.

► Use only genuine tools, spare parts, operating materials and accessories from Orbitalum Tools.

Replacement paper rolls

For internal thermal printer

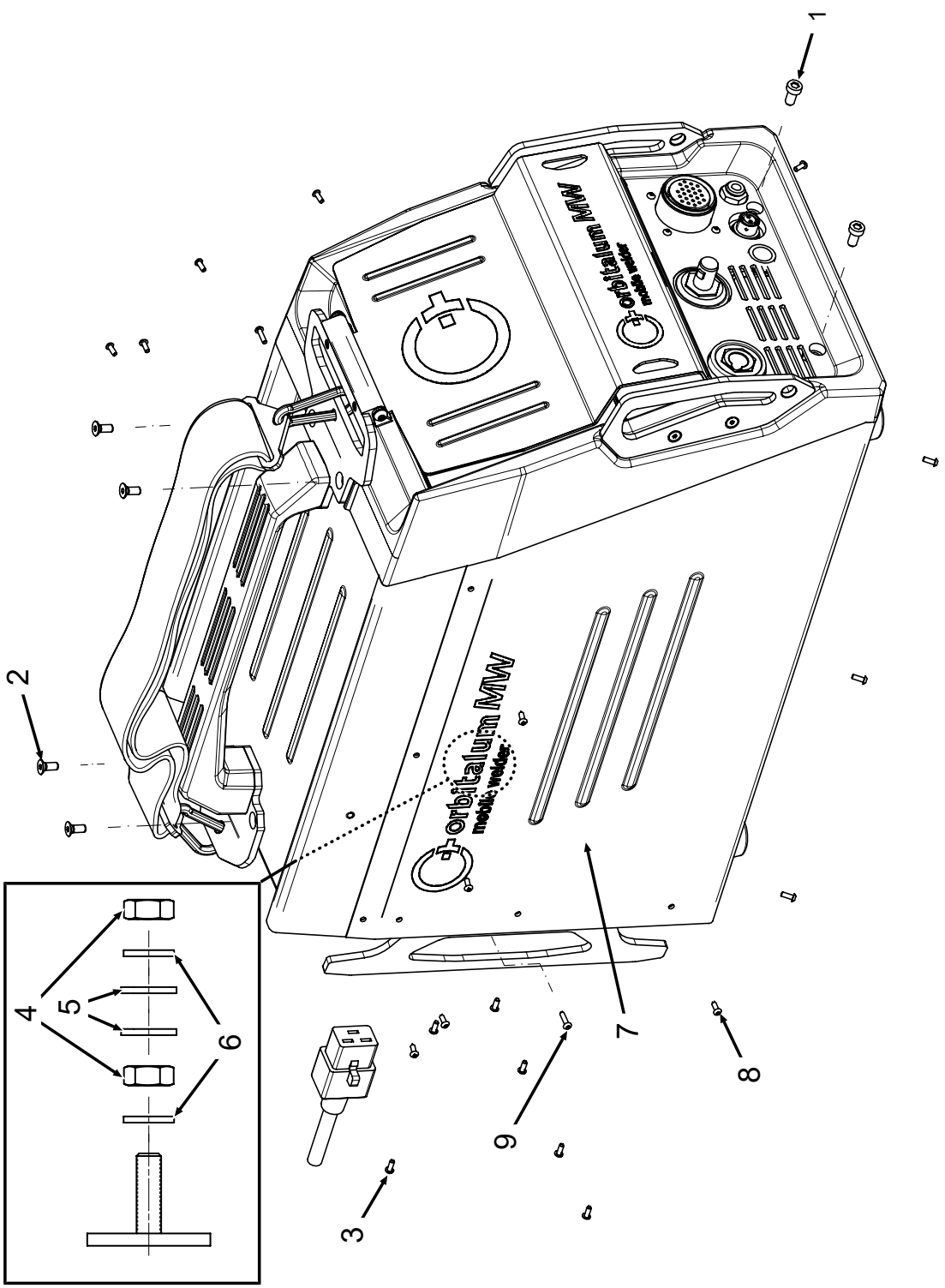
Suitable for all orbital welding power supplies from the MOBILE WELDER series.

Code for 3-pack 854 030 001



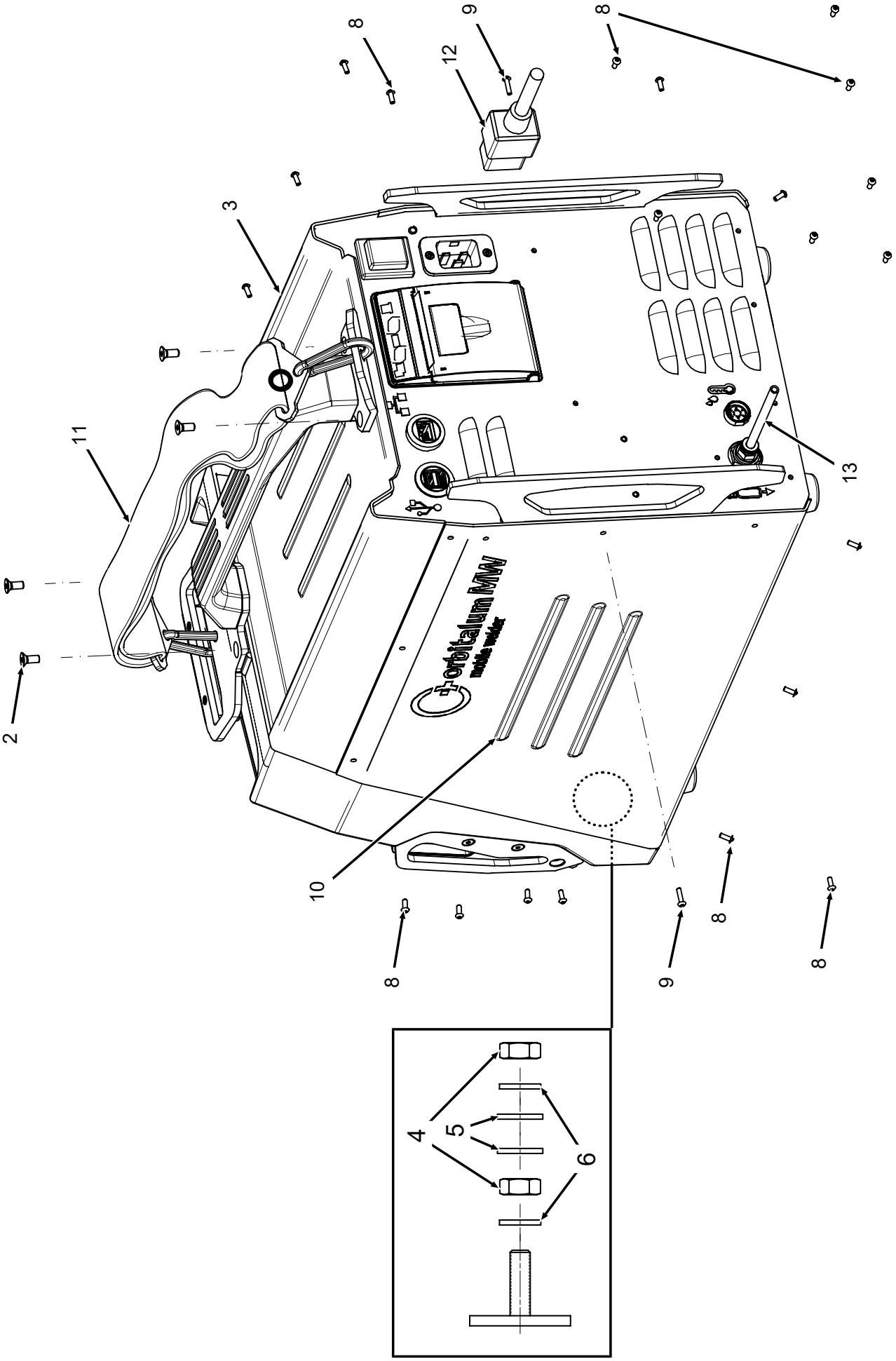
15 SPARE PARTS LIST

15.1 Grundaufbau MW (Frontansicht) | Basic structure MW (front view)



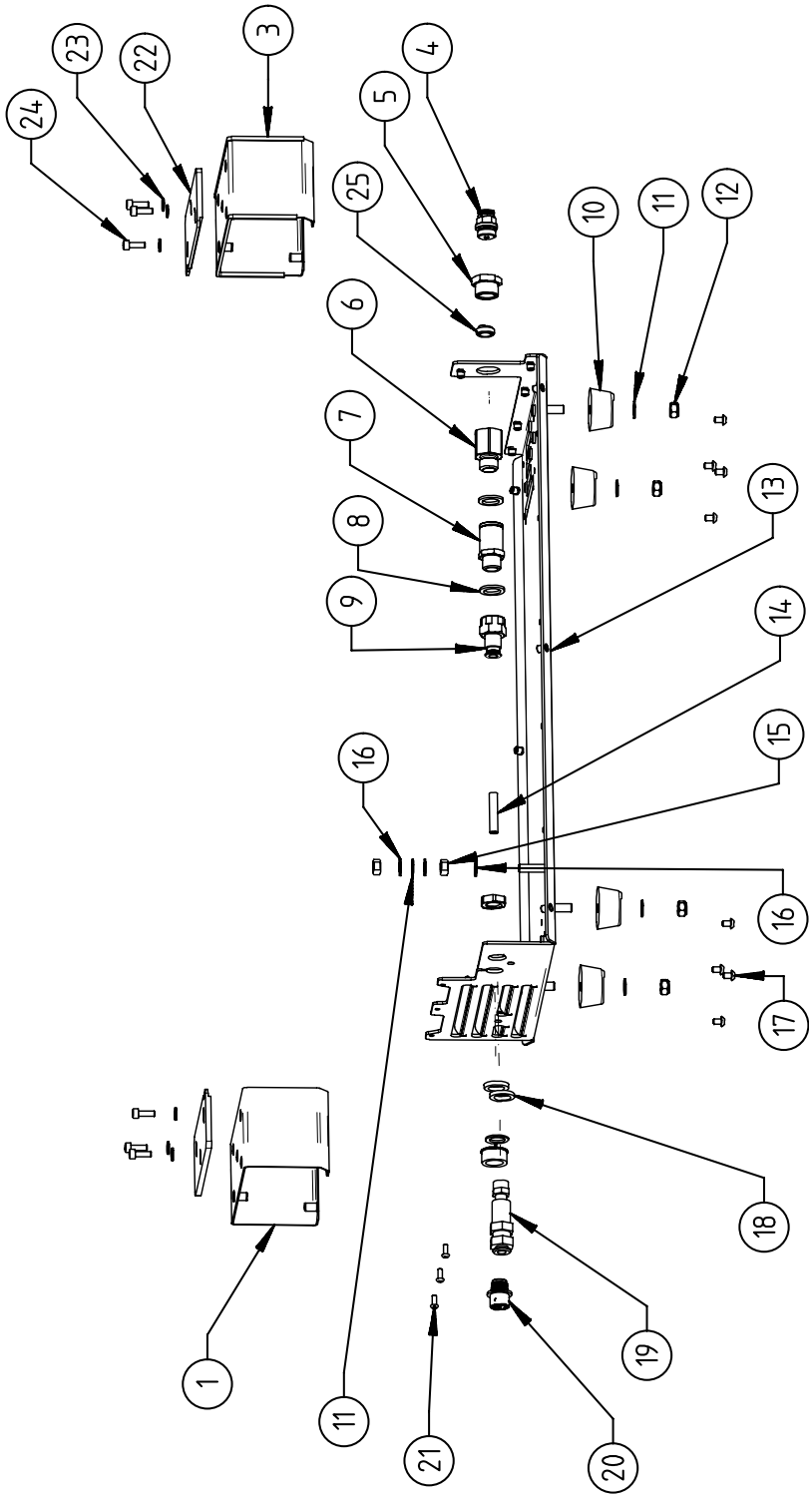
POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION
1	305 805 214	2	Zylinderschraube DIN7984-M6x12-8.8-ZN Cylinder screw DIN7984-M6x12-8.8-ZN
2	302 303 117	4	Senkschraube DIN7991-M5x16-A2 Countersunk screw DIN7991-M5x16-A2
3	854 020 004	1	Deckel MW Cover MW
4	500 602 309	4	Sechskantmutter ISO4032-M4-A2 Hexagon nut ISO4032-M4-A2
5	542 5003 18	4	Scheibe DIN125-ISO7089-d4.3-A2 Washer DIN125-ISO7089-d4.3-A2
6	871 020 033	4	Sperrkantscheibe A4 K für Gewinde M4 Retaining washer A4 K for thread M4
7	854 020 005	1	Seitenwand links MW Side panel left MW
8	307 001 126	23	Linsenschraube ISO7380-M3x8-A2-TX Oval-head screw ISO7380-M3x8-A2-TX
9	307 001 131	2	Linsenschraube ISO7380-M3x12-A2-TX Oval-head screw ISO7380-M3x12-A2-TX

15.2 Grundaufbau MW (Rückansicht) | Basic structure MW (rear view)

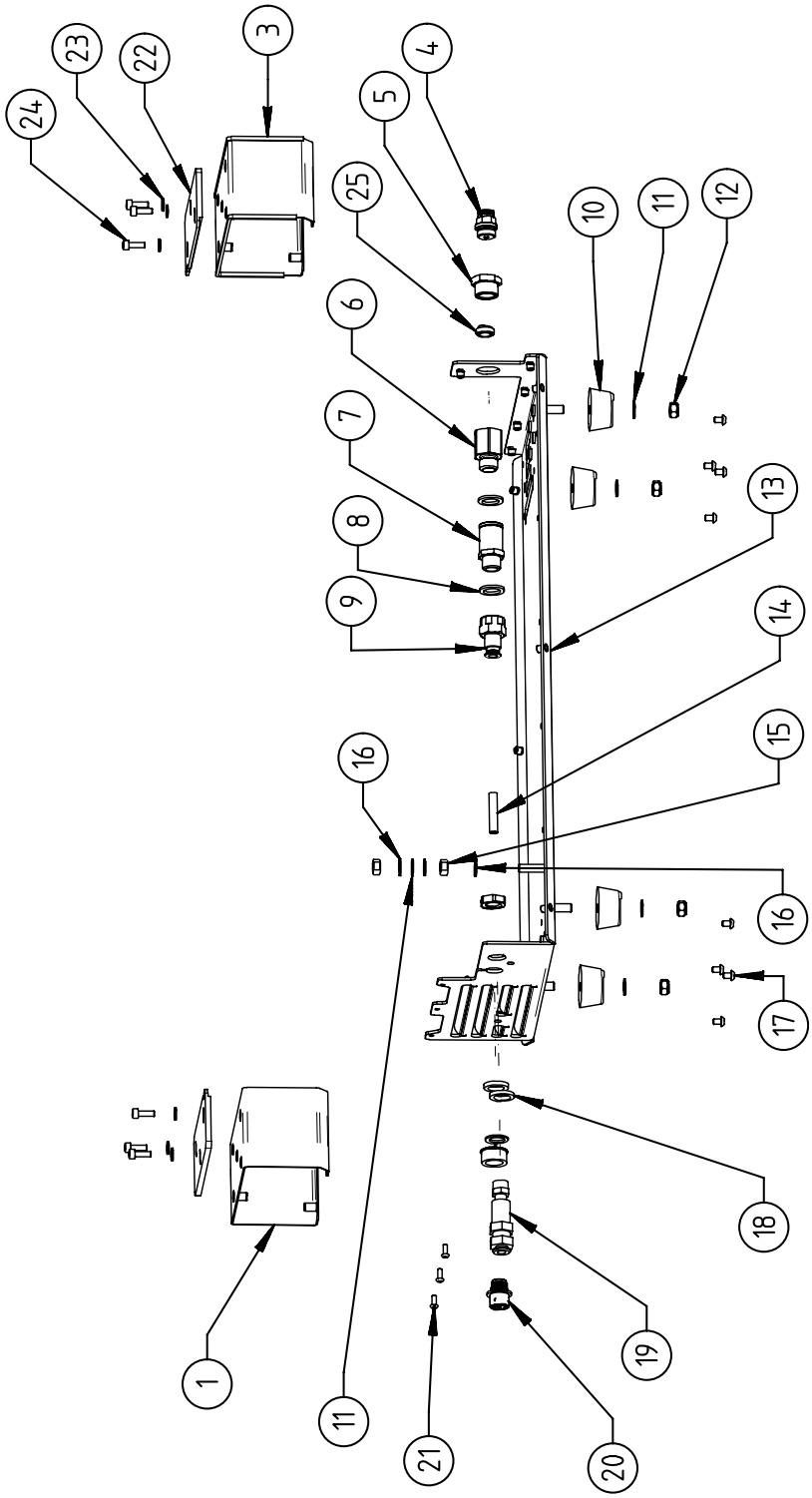


POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION	POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION
2	302 303 117	4	Senkschraube DIN7991-M5x16-A2 Countersunk screw DIN7991-M5x16-A2	12	850 040 001	1	Netzleitung DE Power cable DE
3	854 020 004	1	Deckel MW Cover MW		850 040 002		Netzleitung US Power cable US
4	500 602 309	2	Sechskantmutter ISO4032-M4-A2 Hexagon nut ISO4032-M4-A2	13	854 030 003	1	Schlauch-Anschlusset MW EU Hose connection set MW EU
5	542 500 318	2	Scheibe DIN125-ISO7089-d4.3-A2 Washer DIN125-ISO7089-d4.3-A2				
6	871 020 033	2	Sperrkantscheibe A4 K für Gewinde M4 Retaining washer A4 K for thread M4				
8	307 001 126	23	Linsenschraube ISO7380-M3x8-A2-TX Oval-head screw ISO7380-M3x8-A2-TX				
9	307 001 131	2	Linsenschraube ISO7380-M3x12-A2-TX Oval-head screw ISO7380-M3x12-A2-TX				
10	854 020 006	1	Seitenwand rechts MW Side panel right MW				
11	854 030 015	1	Schultergurt MW Shoulder strap MW				

15.3 Bodenblech MW | Base plate MW

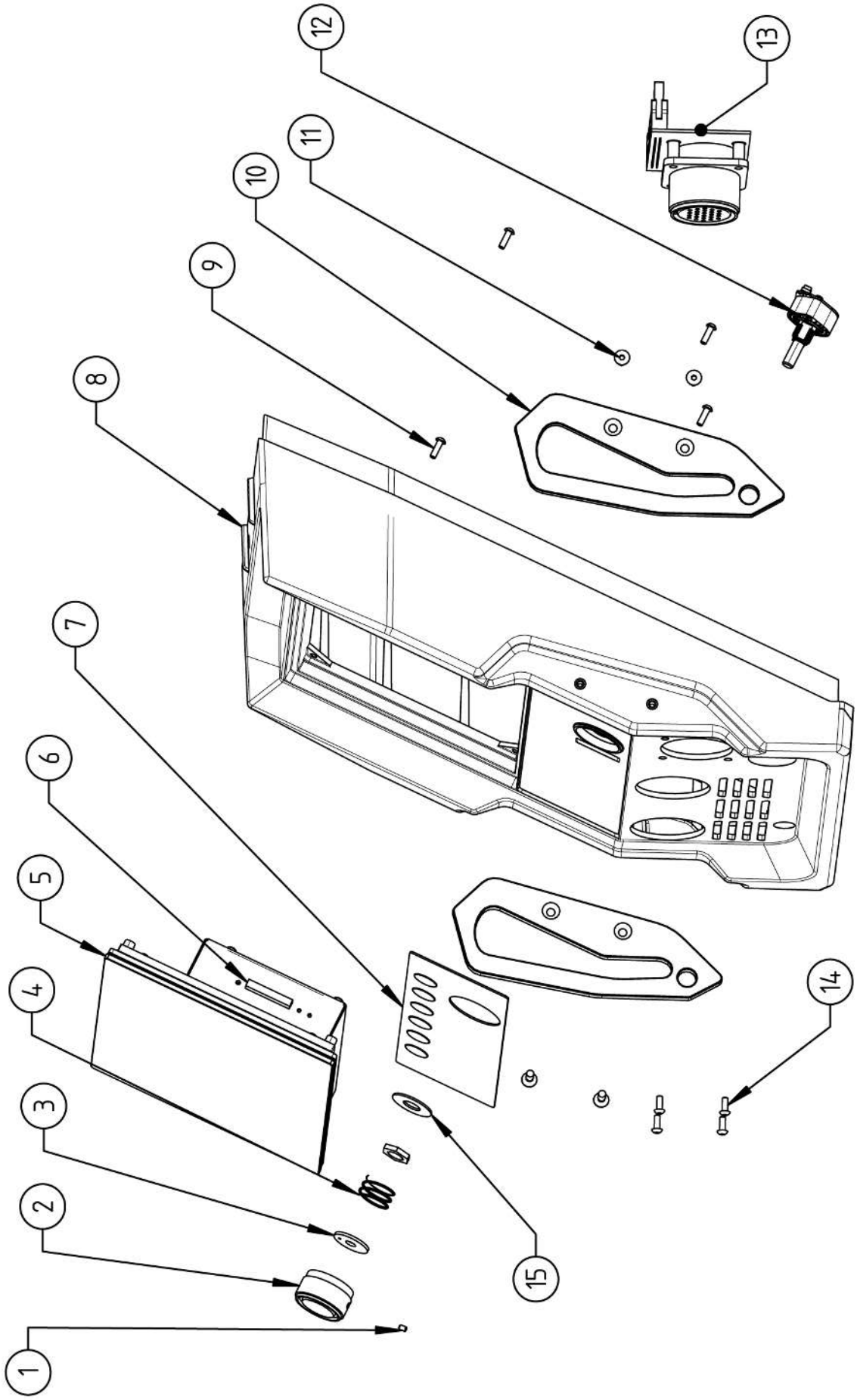


POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION	POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION
1	854 020 010	1	Kanalblech, Inverter Eingang MW Channel plate, inverter inlet MW	13	854 020 001	1	Grundplatte MW Base plate MW
3	854 050 009	1	Kanalblech, Inverter Außgang MW Channel plate, inverter outlet MW	14	823 020 016	0,3 m	Gasschlauch, Teflon Gas hose, Teflon
4	854 020 053	1	Steckverschraub. NPQM-D-G14-Q6-P10 Push-in fitting NPQM-D-G14-Q6-P10	15	500 602 311	2	Sechskantmutter ISO4032-M6-A2 Hexagon nut ISO4032-M6-A2
5	854 020 052	1	Reduziernippel NPFCR-R-G3/8-G1/4-MF Reduct. nipple NPFCR-R-G3/8-G1/4-MF	16	871 020 035	2	Sperrkantscheibe A4 K für Gewinde M6 Retaining washer A4 K for thread M6
6	854 020 050	1	Reduziernippel, lang MS G1/4 a.-G3/8" i. Reduction nipple, long MS G1/4 a.-G3/8"	17	307 001 115	8	Linsenschraube ISO7380-M4x6-A2 Oval-head screw ISO7380-M4x6-A2
7	850 020 304	1	Druckreduzierventil, 4 bar 1/4" Pressure reduction valve, 4 bar 1/4"	18	871 020 004	1	Ring PA D18 d12.6 t3 Ring PA D18 d12.6 t3
8	860 020 080	2	Dichtring 0 - 1/4" Seal ring 0 - 1/4"	19	875 012 048	1	Gasanschlussbuchse, Ausgang Gas connection socket, outlet
9	850 020 301	1	Steckverschr. QSF 6mm 1/4 in gerade Push-in fitting QSF 6 mm 1/4" straight	20	854 010 016	1	Einbaubuchse 9pol., Manual Interface Panel jack 9pin, Manual Interface
10	854 020 054	4	Gerätefuß Device foot	21	307 001 126	3	Linsenschraube ISO7380-M3x8-A2-TX Oval-head screw ISO7380-M3x8-A2-TX
11	542 500 320	6	Scheibe DIN125-ISO7089-d6.4-A2 Washer DIN125-ISO7089-d6.4-A2	22	854 020 024		Fixierblech, OSI-Inverter MW Fixing plate, OSI inverter MW
12	501 607 311	4	Sechskantmutter ISO10511-M6-05-ZN Hexagon nut ISO10511-M6-05-ZN	23	542 500 318		Scheibe DIN125-ISO7089-d4.3-A2 Washer DIN125-ISO7089-d4.3-A2


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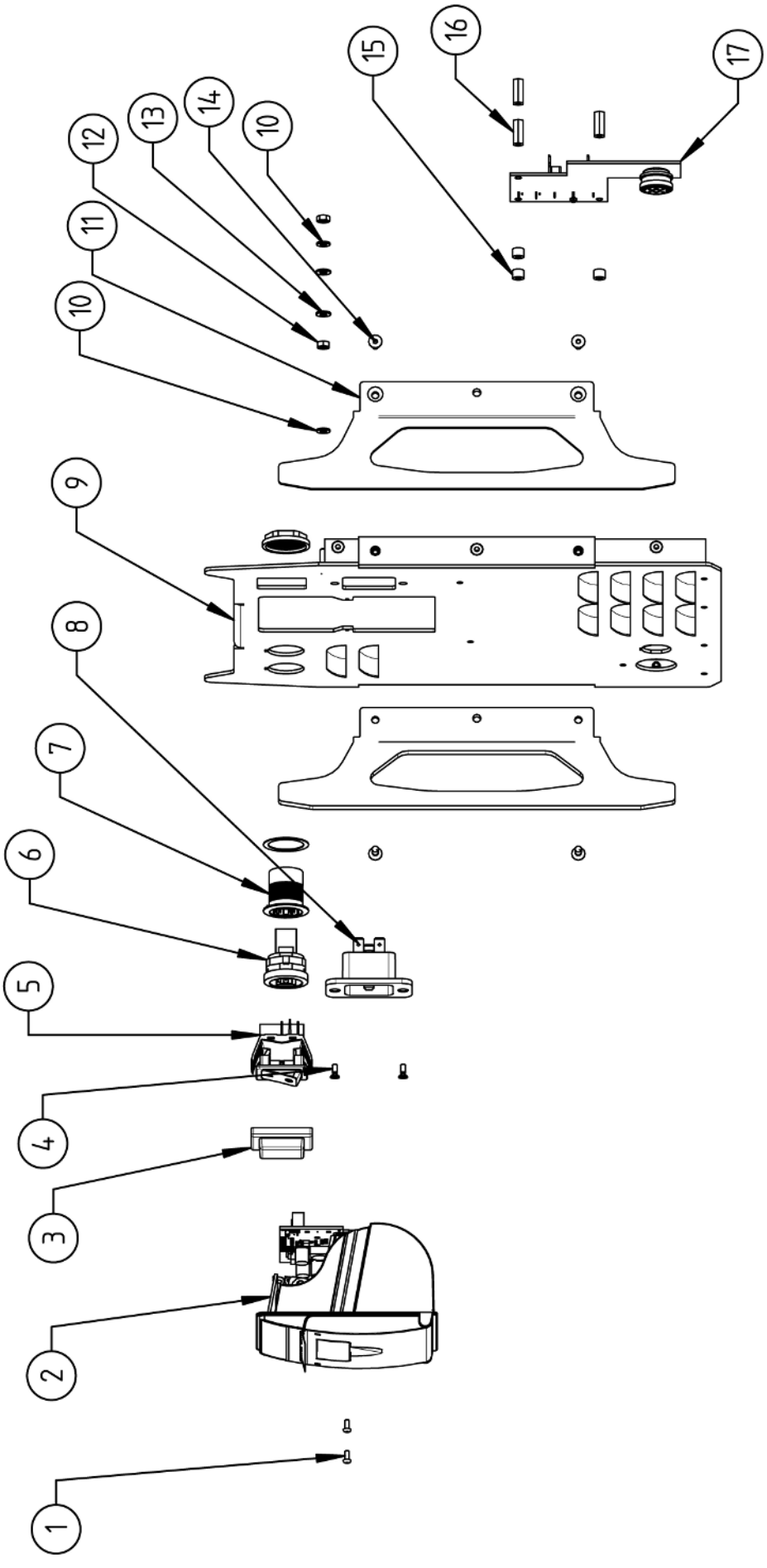
POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION
24	305 501 070	6	Zylinderschraube ISO4762-M4x12-A2 Cylinder screw ISO4762-M4x12-A2
25	542 020 060	1	Filterlinse ¼“ Filter lens ¼"

15.4 Frontabdeckung MW | Front cover MW



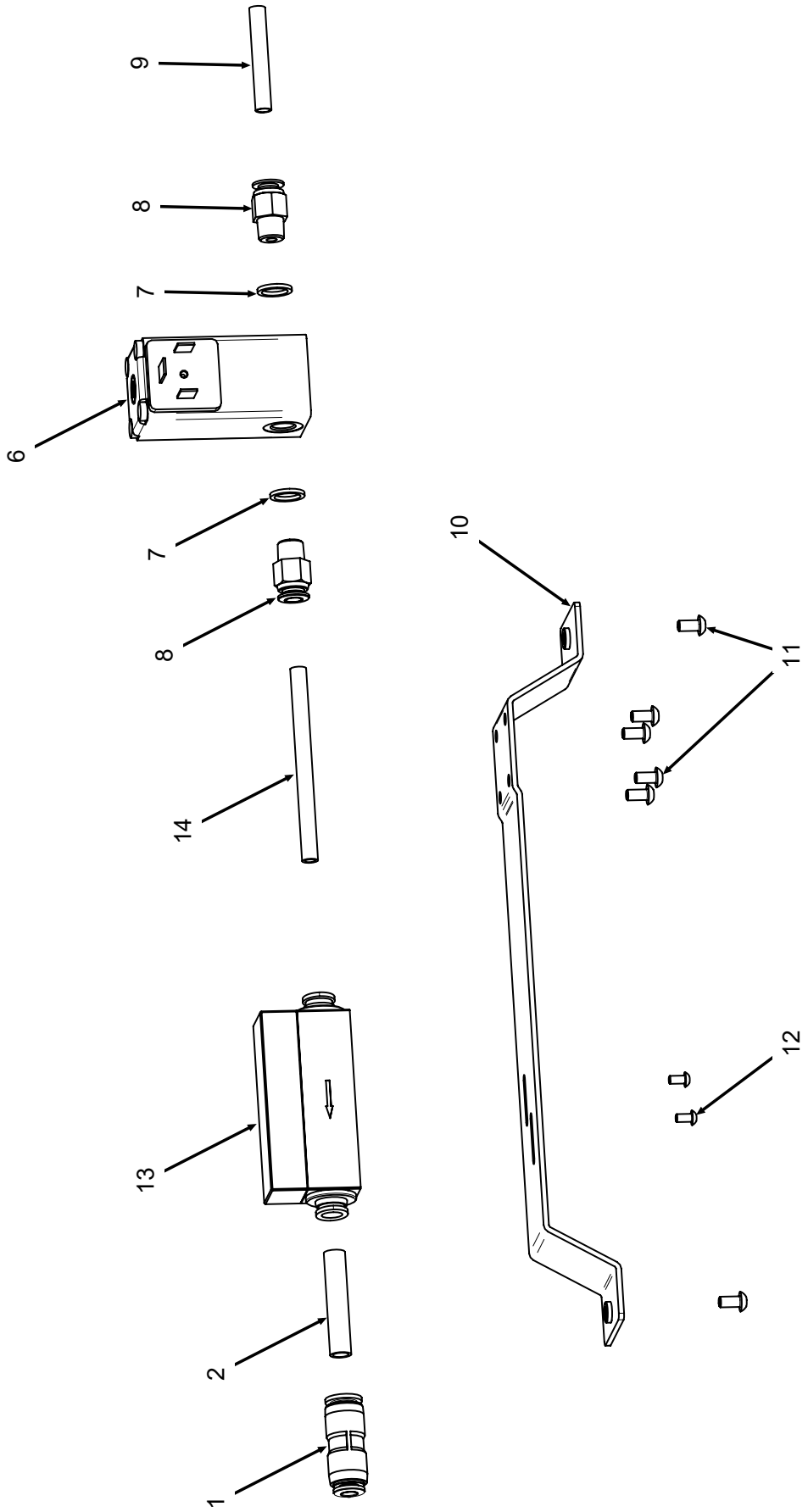
POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION	POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION
1	822 020 012	1	Klemmschraube M2.5x5 Clamping screw M2.5x5	11	302 301 114	4	Senkschraube DIN7991-M4x10-A2 Countersunk screw DIN7991-M4x10-A2
2	854 020 056	1	Betätigungsknopf, Drehsteller MW Actuating knob, rotary actuator MW	12	872 012 008	1	Drehsteller (V2) Rotary actuator ORBIMAT CA (V2)
3	872 001 039	1	Unterlegscheibe D6 D20 H1.5 Washer D6 D20 H1.5	13	854 010 010	1	Platine, 24pol. Steuerleitungsbuchse MW Board, 24pin control line socket MW
4	790 052 409	1	Druckfeder Pressure spring	14	307 001 129	4	Linsenschraube ISO7380-M3x10-A2-TX Oval-head screw ISO7380-M3x10-A2-TX
5	854 050 012	1	Display Rechnereinheit MW Display computer unit MW	15	854 020 031	1	Distanzscheibe ID10 AD23 H1, POM sw. Spacer ID10 AD23 H1, POM black
6	882 012 030	1	SD-Karte SD-Card				
7	854 010 009	1	Folientastatur, Softkeys MW Membrane keyboard, soft keys MW				
8	854 020 003	1	Kunststofffront MW Plastic front cover MW				
9	854 020 113	4	Linsenschraube PT 3x10 TX A2 Panhead screw PT 3x10 TX A2				
10	854 020 016	2	Stoßschutzbügel, Front MW Shock protection bracket, front MW				

15.5 Rückwand MW | Rear panel MW



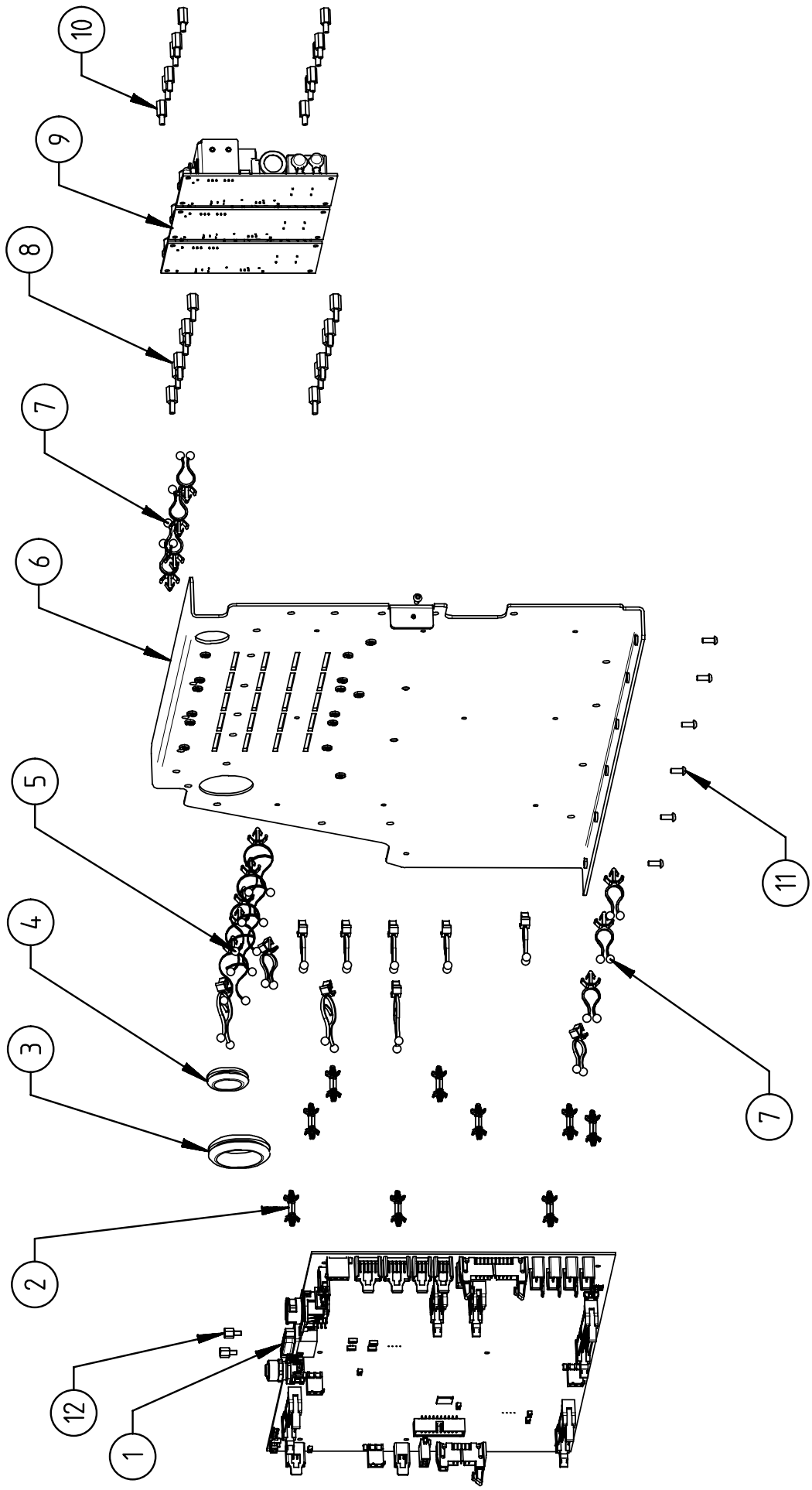
POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION	POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION
1	307 001 075	2	Linsenschraube ISO7380-M2.5x6-A2 Oval-head screw ISO7380-M2.5x6-A2	11	854 020 015	2	Stoßschutzbügel, Rückwand MW Shock protection bracket, rear panel MW
2	854 010 053	1	Einbaudrucker, Thermo MW V2 Built-in printer, thermal MW V2	12	500 602 309	2	Sechskantmutter ISO4032-M4-A2 Hexagon nut ISO4032-M4-A2
3	854 020 055	1	IP Abdeckung EIN/AUS Einbauschalter IP Cover ON/OFF Built-in switch	13	542 500 318	2	Scheibe DIN125-ISO7089-d4.3-A2 Washer DIN125-ISO7089-d4.3-A2
4	303 305 010	2	Senkschraube ISO14581-Tx10/M3x8-A2 Counters. scr. ISO14581-Tx10/M3x8-A2	14	302 301 114	4	Senkschraube DIN7991-M4x10-A2 Countersunk screw DIN7991-M4x10-A2
5	854 010 006	1	EIN/AUS Einbauschalter ON/OFF Built-in switch	15	871 020 032	3	Distanzrolle ohne Gewinde, L 5 mm Spacing roller w/o thread, L 5 mm
6	854 010 004	1	LAN RJ45 Einbaubuchse LAN RJ45 jack	16	860 020 090	3	Abstandsbolzen, Kunststoff 15 mm, M3 Distance bolt, plastic 15 mm, M3
7	854 010 003	1	USB-Einbaubuchse 2xUSB-A 0.5m USB built-in socket 2xUSB-A, 0.5m	17	854 010 048	1	Platine, Kühleinheitsignale MW/OC V2 Board, cooling unit signals MW/OC V2
8	854 010 052	1	IEC Einbaustecker C20 IEC Panel Connector C20				
9	854 020 002	1	Rückwand MW Back panel MW				
10	871 020 033	2	Sperrkantscheibe A4 K für Gewinde M4 Retaining washer A4 K for thread M4				

15.6 Gaskomponenten MW | Gas components MW



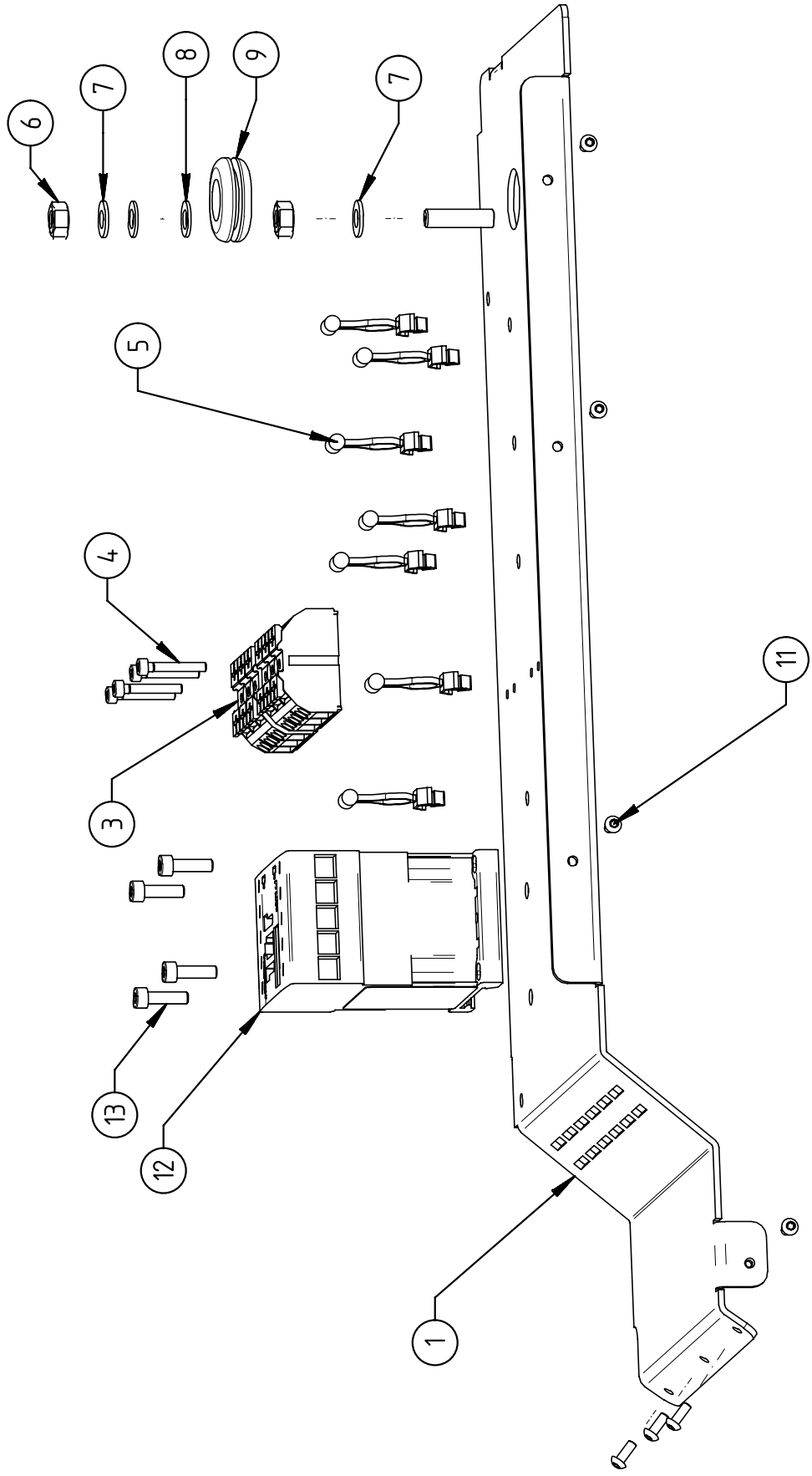
POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION
1	854 050 010	1	Bis SN 2024-0-071: Umrüsts. Massendurchflussmesser MW Up to SN 2024-0-071: Conversion kit mass flow meter MW
	850 010 022		Ab SN 2024-0-072: Massendurchflussmesser V2 From SN 2024-0-072: Mass flow meter V2
2	854 050 010	1	Bis SN 2024-0-071: Umrüsts. Massendurchflussmesser MW Up to SN 2024-0-071: Conversion kit mass flow meter MW
	823 020 016	01 m	Ab SN 2024-0-072: Gasschlauch Teflon 6x4 mm, weiß From SN 2024-0-072: Gas hose, Teflon 6x4 mm, white
6	850 010 008	1	Proportionalventil Proportional valve
7	860 020 081	1	Dichtring, Typ 0 - 1/8" Seal ring, type 0 - 1/8"
8	860 020 015	1	Gerade Einschraubverschr. 6 mm 1/8Z Straight screw-in connection 6 mm 1/8Z
9	823 020 016	0,065 m	Gasschlauch, Teflon Gas hose, Teflon
10	854 020 009	1	Montageblech Gaskomponenten MW Mounting plate gas components MW
11	307 001 127	6	Linsenschr. ISO7380-M4x8-A2-TX Oval-head scr. ISO7380-M4x8-A2-TX
12	307 001 104	2	Linsenschr. ISO7380-M3x6-A2-TX Oval-head scr. ISO7380-M3x6-A2-TX
13	854 050 010	1	Bis SN 2024-0-071: Umrüsts. Massendurchf.-mess. MW Up to SN 2024-0-071: Conversion kit mass flow meter MW
	860 020 015		Steckverschraubung, SL 6 mm, 1/8" Push-in fitting, SL 6 mm, 1/8"
14	823 020 016	0,1 m	Gasschlauch Teflon 6x4 mm, weiß Gas hose, Teflon 6x4 mm, white

15.7 Vertikalblech MW | Vertical plate MW



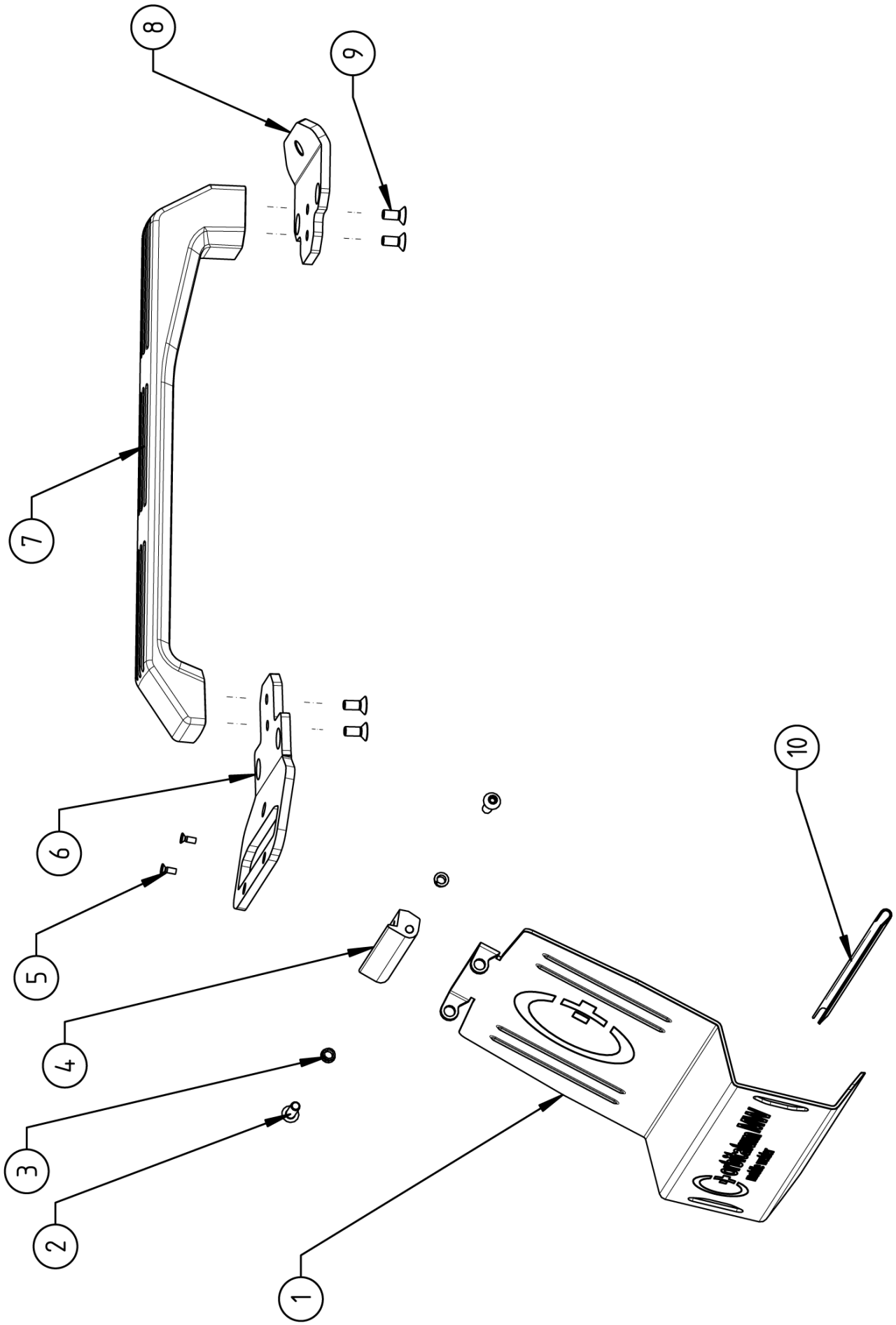
POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION	POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION
1	850 010 028	1	Rechnerboard - I/O Board Ver.D Main board - I/O board ver.D	11	307 001 126	7	Linsenschraube ISO7380-M3x8-A2-TX Oval-head screw ISO7380-M3x8-A2-TX
2	850 020 215	9	Platinenabstandshalter, 12.7mm Board spacer, 12.7mm	12	860 012 103	2	Schraubbolzen UNC/UNC, ohne Mutter Threaded bolt UNC/UNC, w/o nut
3	854 070 003	1	Kabeldurchführung ID30 Cable gland ID30				
4	854 070 002	1	Kabeldurchführung ID18 Cable gland ID18				
5	854 070 005	8	Kabeldriller 6.6 34.9x18.2 Cable twister 6.6 34.9x18.2				
6	854 020 007	1	Montageblech vertikal MW Mounting plate vertical MW				
7	854 070 006	14	Kabeldriller 6.6 29x10 Cable twister 6.6 29x10				
8	860 020 091	12	Abstandshalter 10mm, M3 I+A Kunststoff Spacer 10mm, M3 I+O plastic				
9	875 012 031	3	Netzteil CPU/Motor 24 VDC/60W Power supply CPU/motor 24 VDC/60 W				
10	811 020 021	12	Abstandshalter 10mm, M3 I+A Metall Spacer 10mm, M3 I+O metal				

15.8 Horizontalblech MW | Horizontal plate MW



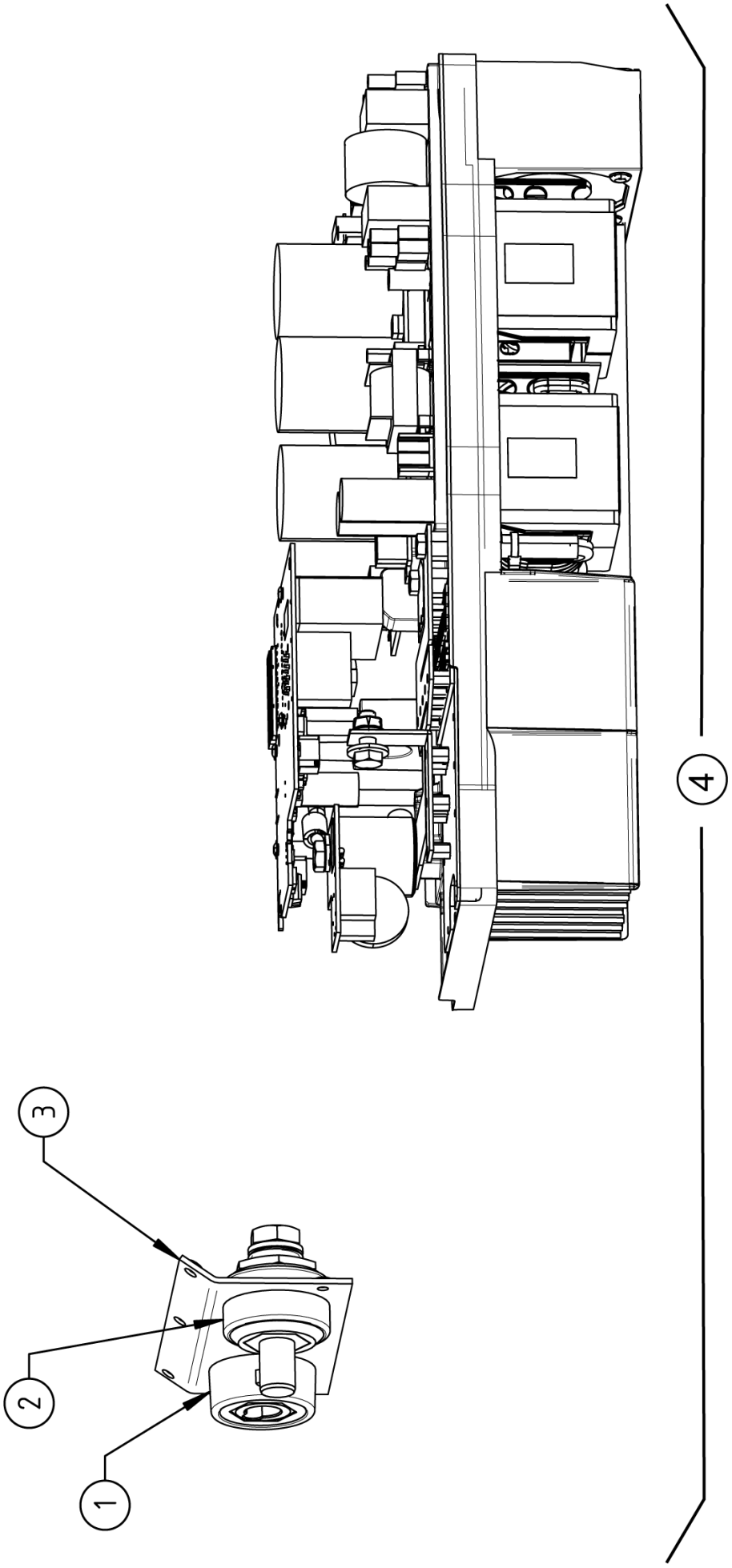
POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION
1	854 020 008	1	Montageblech horizontal MW Mounting plate MW
2	854 020 058	2	Abstandsbolzen Polyamid L15 SW8 M4 II Spacer bolt polyamide L15 SW8 M4 II
3	854 010 007	2	Geräte Anschlussklemme L/N/PE Main connection terminal L/N/PE
4	305 501 058	4	Zylinderschraube ISO4762-M3x20-A2 Cylinder screw ISO4762-M3x20-A2
5	854 070 006	7	Kabeldriller 6.6 29x10 Cable twister 6.6 29x10
6	500 602 311	2	Sechskantmutter ISO4032-M6-A2 Hexagon nut ISO4032-M6-A2
7	871 020 035	2	Sperrkantscheibe A4 K für Gewinde M6 Retaining washer A4 K for thread M6
8	542 500 320	2	Scheibe DIN125-ISO7089-d6.4-A2 Washer DIN125-ISO7089-d6.4-A2
9	854 070 001	1	Kabeldurchführung ID14 Cable gland ID14
10	854 020 059	4	Abstandsbolzen Polyamid L43 SW8 M4 IA Spacer bolt polyamide L43 SW8 M4 IA
11	307 001 126	7	Linsenschraube ISO7380-M3x8-A2-TX Oval-head screw ISO7380-M3x8-A2-TX
12	875 012 025	1	Schütz 165CA/180SW/MW Contactor 165CA/180SW/MW
13	305 501 074	4	Zylinderschraube ISO4762-M4x14-A2 Cylinder screw ISO4762-M4x14-A2

15.9 Handgriff-Abdeckung MW | Handle-display cover MW



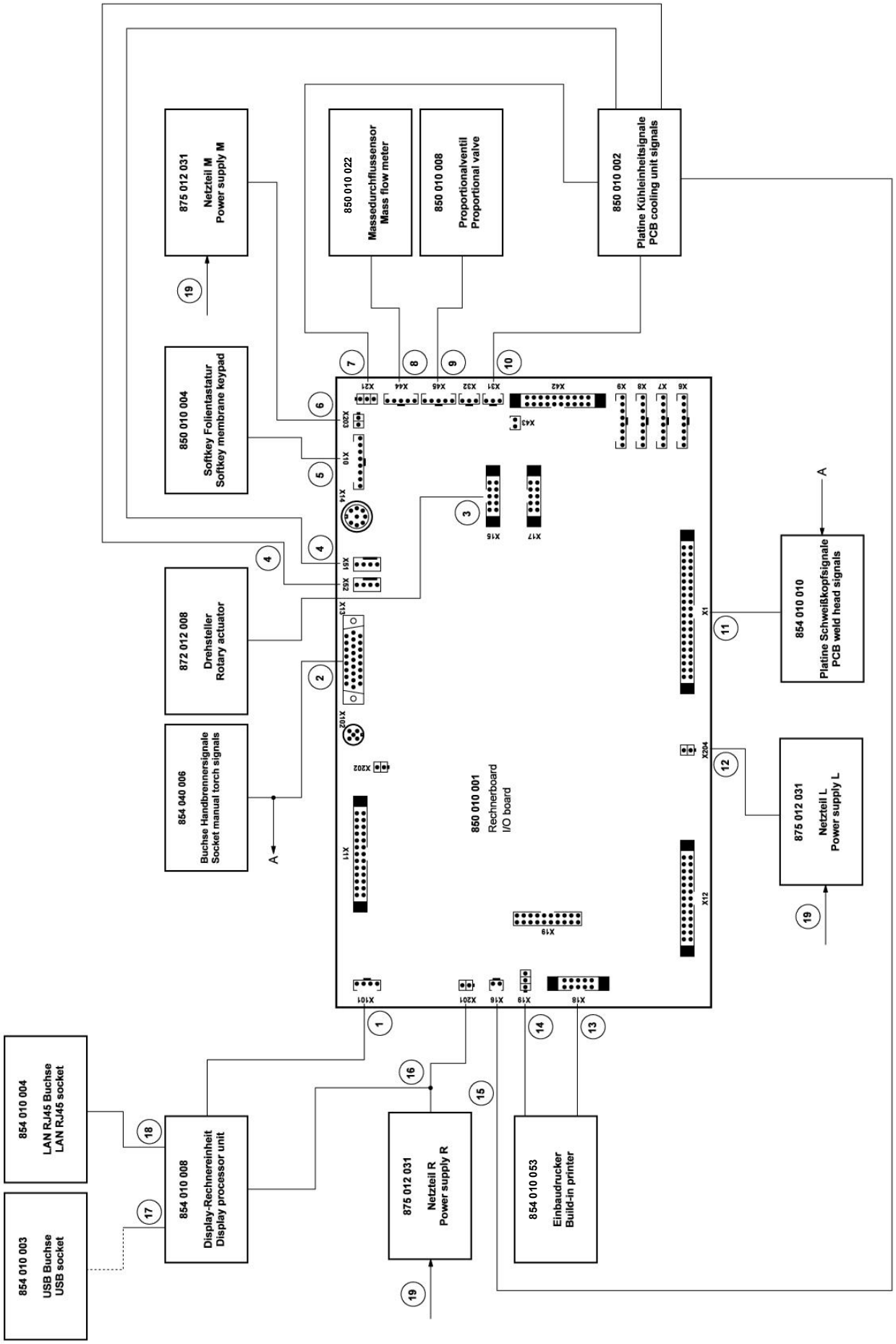
POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION
1	854 020 020	1	Schutzblech, Bedienelemente MW Protective cover, operating elements MW
2	307 001 168	2	Linsenschraube ISO7380-M5x16-A2 Oval-head screw ISO7380-M5x16-A2
3	850 020 105	2	Clipslager MCM ID5 L2 Clip bearing MCM ID5 L2
4	854 020 021	1	Scharnier, Schutzblech Bedienelemente MW Hinge, protective cover MW
5	305 501 010	2	Senkschraube ISO14581-M3x10-A2-TX Countersunk screw ISO14581-M3x10-A2-TX
6	854 020 012	1	Gurtlasche, vorne MW Belt flap, front MW
7	854 020 017	1	Handgriff MW Handle
8	854 020 013	1	Gurtlasche, hinten MW Belt flap, rear MW
9	302 303 116	4	Senkschraube DIN7991-M5x12-A2 Countersunk screw DIN7991-M5x12-A2
10	850 070 005	0,19	U-Klemmprofil armiert Kantenschutz 9,5x6 U-clamp profile edge protection 9,5x6

15.10 Schweißstrominverter MW | Welding current inverter MW



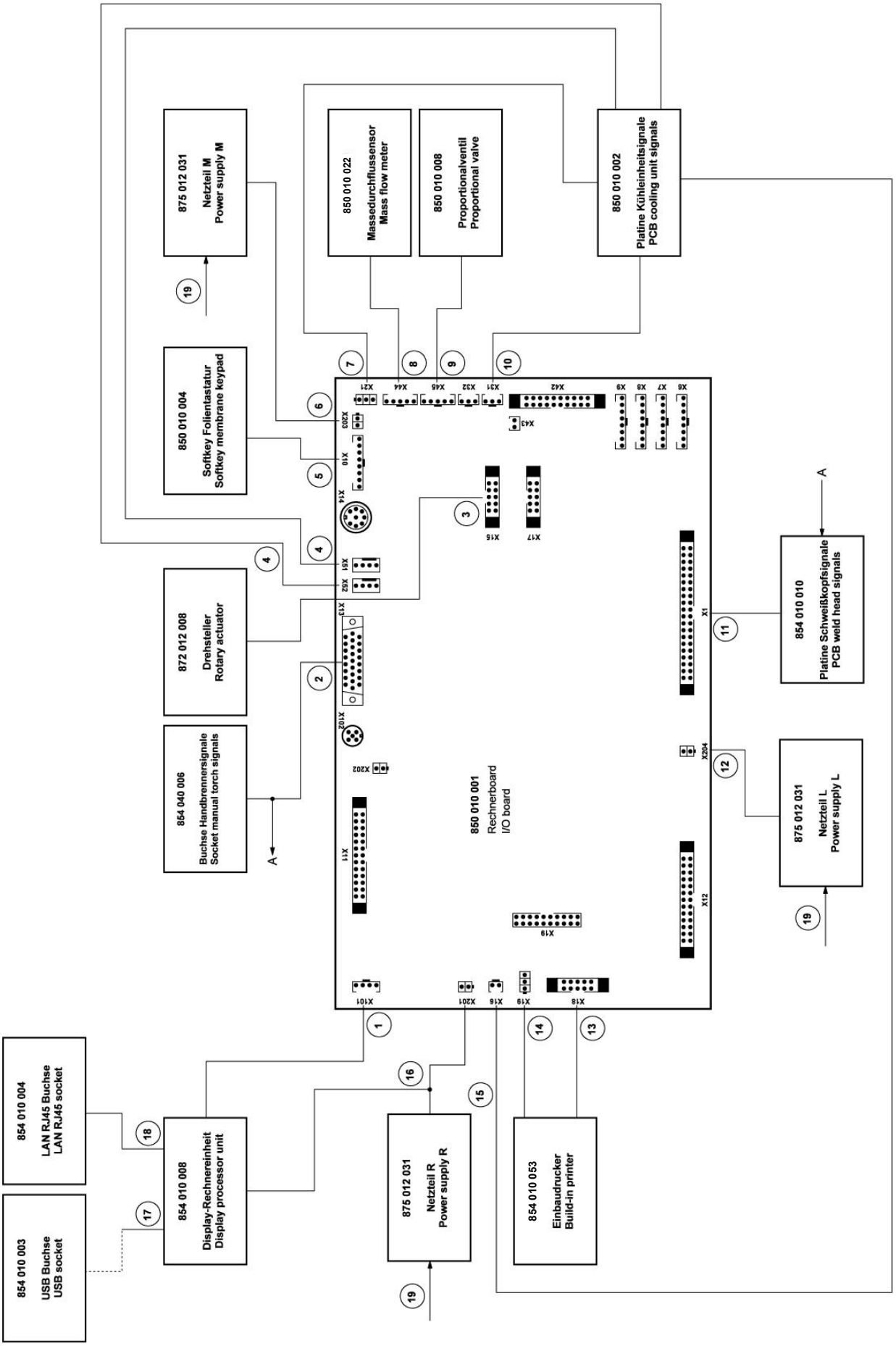
POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION
1	850 010 017	1	Schweißstrom-Einbaubuchse 400A Weld current built-in socket 400A
2	850 010 018	1	Schweißstrom-Einbaustecker 400A Weld current built-in plug 400A
3	854 020 022	1	Frontblech, Schweißstromanschlüsse MW Front plate, weld current connections MW
4	854 050 011	1	Schweißstrominverter MW, kpl. Welding current inverter MW, cpl.

15.11 Verbindungskabel | Connection cables

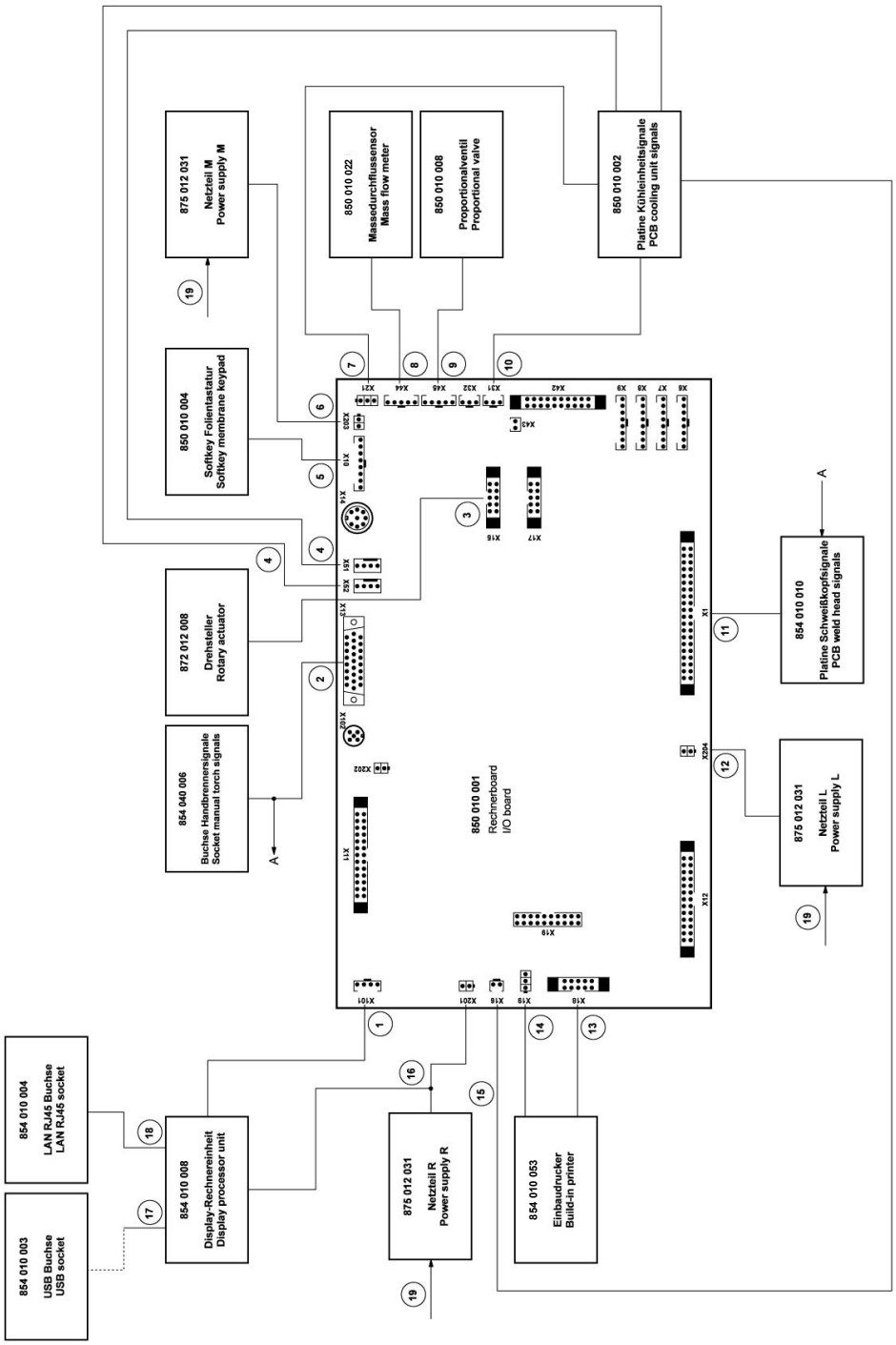


POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION
1	854 040 005	1	Leitung, X101 CAN BUS-HMI Cable, X101 CAN BUS-HMI
2	854 040 006	1	Leitung, X13 Buchse 9pol. - I/O Board Cable, X13 MW socket 9pol. - I/O Board
3	854 040 007	1	Leitung, X15 10pol.-Drehsteller Cable, X15 10pin rotary encoder
4	854 040 018	1	Leitung, X51/52 Lüfter-IF Platine KE Cable, X51/52 Fan-IF Board KE
5	854 040 004	1	Leitung, X10 -Soft Key Folie Cable, X10 -Soft Key Foil
6	854 040 013	1	Leitung, X203 24VDC SV-Netzteil MITTE Cable, X203 24VDC SV power supply
7	854 040 016	1	Leitung, X21 Pumpe -IF Platine KE Cable, X21 Pump -IF Board KE

POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION
8	854 050 010	1	Bis SN 2024-0-071: Umrüsts. Massendurchflussmesser MW Up to S/N 2024-0-071: Conversion kit mass flow meter MW
	850 040 037		Ab SN 2024-0-072: Leitung, X45 MD Sensor-Rechnerboard V2 From S/N 2024-0-072: Cable, X45 MF sensor-main board V2
9	854 040 019	1	Leitung, X44 Proportionalventil Cable, X44 proportion valve


875 012 031
Netzteil M
Power supply M
850 010 022
Massedurchflussensor
Mass flow meter
850 010 008
Proportionalventil
Proportional valve
850 010 002
Platine Kühleinheitsignale
PCB cooling unit signals
850 010 004
Softkey Folientastatur
Softkey membrane keypad
872 012 008
Drehsteller
Rotary actuator
854 040 006
Buchse Handbrennersignale
Socket manual torch signals
850 010 001
Rechnerboard
I/O board
854 010 010
Platine Schweißkopfsignale
PCB weld head signals
875 012 031
Netzteil L
Power supply L
854 010 004
LAN RJ45 Buchse
LAN RJ45 socket
854 010 003
USB Buchse
USB socket
854 010 008
Display-Rechnereinheit
Display processor unit
875 012 031
Netzteil R
Power supply R
854 010 053
Einbaudrucker
Build-in printer

POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION	POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION
10	854 040 017	1	Leitung, X31 KM Sensor-IF Platine KE Cable, X31 KM Sensor-IF Board KE	17	854 040 002	1	Leitung, USB A - USB Mini Cable, USB A - USB Mini
11	854 040 003	1	Leitung, X1 40pol.-IF Platine SK Cable, X1 40pin -IF Board SK	18	854 040 001	1	Leitung, LAN RJ45 0.5m Cable, LAN RJ45 0.5m
12	854 040 014	1	Leitung, X204 24VDC SV-Netzteil LINKS Cable, X204 24VDC SV pow. sup. LEFT	19	854 040 022	1	Leitung, 230V N-L, Netzteille MW Cable, 230V N-L, power supply MW


875 012 031
Netzteil M
Power supply M
850 010 022
Massedurchflussensor
Mass flow meter
850 010 008
Proportionalventil
Proportional valve
850 010 002
Platine Kühleinheitsignale
PCB cooling unit signals
850 010 004
Softkey Folientastatur
Softkey membrane keypad
872 012 008
Drehsteller
Rotary actuator
864 040 006
Buchse Handbrennersignale
Socket manual torch signals
850 010 001
Rechnerboard
I/O board
854 010 010
Platine Schweißkopfsignale
PCB weld head signals
875 012 031
Netzteil L
Power supply L
854 010 004
LAN RJ45 Buchse
LAN RJ45 socket
854 010 003
USB Buchse
USB socket
854 010 008
Display-Rechnereinheit
Display processor unit
875 012 031
Netzteil R
Power supply R
854 010 053
Einbaudrucker
Build-in printer

POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION
13	854 040 020	1	Ab/inkl. SN 2023-0-283: Leitung, X18 10pol.-Drucker Com. V2; bis/inkl. SN 2023-0-282 siehe Pos. 20 Austauschset 854 050 021 from/including SN 2023-0-283: Cable, X18 10pin-printer Com. V2; up to/incl. SN 2023-0-282 see pos. 20 exchange set 854 050 021
14	850 040 011	1	Leit., X19 24VDC-Druck. MW/SW/PW V2: ab/inkl. der SN 2023-0-283; bis/inkl. SN2023-0-282 siehe Pos. 20 Austauschset 854 050 021 Cab., X19 24VDC Pr. MW/SW/PW V2: from/including SN 2023-0-283; to/incl. SN2023-0-282 see pos. 20 exchange set 854 050 021
15	854 040 008	1	Leit., X16 Temp. Sensor-IF Platine KE Cable, X16 Temp. sensor-IF Board KE
16	854 040 035	1	Leitung, X203 - Schütz / Netzteil MITTE Cable, X203 - contactor / PS-CENTER
21	854 040 034	1	Leitung IF Platine KE - Schütz Cable, IF Board KE - contactor
20	854 050 021	1	bis/inkl. SN 2023-0-282: Drucker, Austauschset V1 zu V2 MW, bestehend aus je 1 ST: up to/incl. SN 2023-0-282: Printer, exchange set V1 to V2 MW, consisting of 1 PC each: • Einbaudrucker, Thermo MW V2 Built-in printer, thermal MW V2 • Leitung, X18 10pol.-Dru. Com. V2 Cable, X18 10pin-printer Com. V2 • Lei., X19 24VDC-Dr. MW/SW/PW V2 Ca., X19 24VDC P. MW/SW/PW V2

15.12 Service, Kundendienst | Servicing, customer service

Für das Bestellen von Ersatzteilen und die Behebung von Störungen wenden Sie sich bitte direkt an unsere für Sie zuständige Niederlassung.

Für die Ersatzteilbestellung geben Sie bitte folgende Daten an:

- Maschinentyp
- Ersatzteilbezeichnung
- Code

For ordering spare parts and for the resolution of faults, please contact your branch office directly.

Please provide the following information when ordering spare parts:

- Machine type
- Spare parts description
- Part No.

16 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

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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:

Gerd Riegraf
Orbitalum Tools GmbH
D-78224 Singen

Bestätigt durch: / Confirmed by: / Confirmé par: /
Confermato da: / Confirmado por: / Bevestigd door: / Potvrdil: / Potvrdil / Bestätigt durch:

Singen, 10.03.2026

Jürgen Jäckle - Manager Product Compliance

Notizen

Orbitalum Tools GmbH offers global customers the best in the field of pipe cutting and beveling as well as orbital welding technology from a single source.

worldwide | sales + service

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