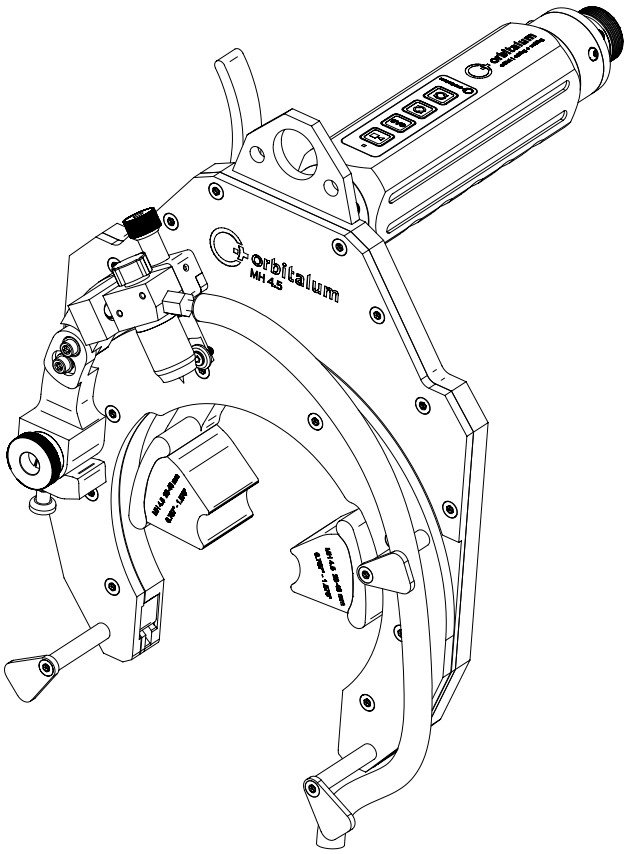
MOBILE HEAD

en Open orbital weld head

Translation of original operating instructions and spare parts list



803 060 201 REV 00 | 2309

orbitalum

An ITW Company

Table of Contents

1 About these instructions 4
1.1 Warning messages 4
1.2 Further icons and displays 4
1.3 Abbreviations 4
1.4 Further applicable documents 4
2 Information and safety instructions for the owner 5
2.1 Requirements for the owner-operator 5
2.2 Using the machine 6
2.2.1 Intended use 6
2.2.2 Machine constraints 6
2.3 Environmental protection and disposal 7
2.3.1 Information regarding the Ecodesign Directive 2009/125/EG 7
2.3.2 REACh 8
2.3.3 Electric tools and accessories 8
2.4 Personnel qualification 8
2.5 Fundamental information on operational safety 9
2.6 Personal protective equipment 9
2.7 Remaining risks 9
2.7.1 Injury through high weight 9
2.7.2 Prick injury through pointed electrode and, if appropriate, cold wire 10
2.7.3 Risk of crushing due to moving and falling parts 10
2.7.4 Injury through rotating machine parts 10
2.7.5 Risks of cuts and shear injuries 10
2.7.6 Burns and risk of fire 10
2.7.7 Tripping over wires and cables 11
2.7.8 Long-lasting physical damage through wrong posture 11
2.7.9 Electrical hazards 11
2.7.10 Damage to eyes through radiation 13
2.7.11 Dangers through electromagnetic fields 13
2.7.12 Risk of suffocation from an excessive amount of argon in the air 13
2.7.13 General injuries through tools 13
3 Description 14
3.1 Basic machine 14
3.2 Torch unit 16
3.3 Operator button panel 17
4 Scope of application 18
5 Technical data 19
5.1 Weld head 19
5.2 Electrodes 19
5.3 Dimensions 20
6 Transport 21
6.1 Gross weight 21
6.2 Transport weld head 21
7 Commissioning 22
7.1 Scope of delivery 22
7.2 Preparing initial operation 22
8 Set-up and mounting 23
8.1 Procedure 23
8.2 Fit drop guard 24
8.3 Fit clamping jaws 25
8.4 Clamp the weld head onto the workpiece 25
8.5 Set up the electrode 26
8.5.1 Fine-tune electrode 27
8.6 Set up the torch 27
8.7 Cold wire unit (optional) 29
8.7.1 Install the cold wire unit (optional) 29
8.7.2 Install the cold wire nozzle (optional). 30
8.7.3 Adjusting the cold wire nozzle (optional) 30
8.8 Connecting the weld head to the power source 33
8.8.1 Connection scheme 34
8.8.1.1 Connection sequence 35
8.9 Wind up power/gas hose 35
8.10 Carry out gas function test 37
8.11 Configure the welding procedure 37
9 Operation 38
9.1 Weld mode 38
9.2 Returning the weld head to home position 40
9.3 Removing the weld head from the workpiece. 42
9.4 Aborting welding 42
9.5 Preparing storage 44

1 Maintenance and troubleshooting 45
0

10.1 Instructions for care 45
10.2 Wartung und Pflege 45
10.2.1 Standard cleaning process 46
10.3 Replacing the gas nozzle and/or lens 46
10.4 Troubleshooting 48
10.5 Grinding electrode 48
10.6 Servicing/Customer service 49

1 Accessories (optional) 50
1

Ersatzteilliste / Spare parts list 51

Gesamtmaschine MH 3.0 | Total machine MH 3.0 51
Motorhülse MH 3.0/4.5/6.6 | Motor sleeve MH 3.0/4.5/6.6 53
Grundkörper MH 3.0 | Base body MH 3.0 55
Drehteller MH 3.0 | Turntable MH 3.0 57
Spanneinheit MH 3.0 | Clamping unit MH 3.0 61
Gesamtmaschine MH 4.5 | Total machine MH 4.5 63
Grundkörper MH 4.5 | Base body MH 4.5 65
Drehteller MH 4.5 | Turntable MH 4.5 67
Spanneinheit MH 4.5 | Clamping unit MH 4.5 71
Gesamtmaschine MH 6.6 | Total machine MH 6.6 73
Grundkörper MH 6.6 | Base body MH 6.6 75
Drehteller MH 6.6 | Turntable MH 6.6 77
Spanneinheit MH 6.6 | Clamping unit MH 6.6 81

Konformitätserklärungen 83

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

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

1.3 Abbreviations

ABBREVIATION	MEANING
MH	Orbital weld head, type “Mobile Head”

1.4 Further applicable documents

The following documents apply together with these operating instructions:

- Instructions for orbital welding power supply

2 Information and safety instructions for the owner

2.1 Requirements for the owner-operator

Workshop/outdoor/field application: The owner is responsible for safety in the danger zone around the machine and must allow only instructed personnel to remain in or operate the machine in the danger zone.

Safety of the employee: The owner must comply with the safety regulations described in this chapter and must work safety-consciously and with all prescribed protective 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

2.2 Using the machine

2.2.1 Intended use

The orbital weld head is intended exclusively for the following use:

- Use in conjunction with an orbital welding power source from the Mobile Welder, Smart Welder, Power Welder, and ORBIMAT series.
- TIG welding of materials specified in this operating manual (see chapter "Possible applications").
- Empty, non-pressurized pipes that are free of contamination, explosive atmospheres, or liquids.

Only shielding gases classified for the TIG welding process in accordance with DIN EN ISO 14175 may be used.

The following points are also part of the intended use:

- Permanent supervision of the machine during operation. The operator must always be able to stop the process.
- Observe all safety and warning instructions in the operating manual and the general safety instructions for closed orbital weld heads.
- Observe the applicable documents.
- Compliance with all inspection and maintenance work.
- Exclusive use of the machine in its original condition.
- Only use original accessories, original spare parts, and original operating materials.
- Check all safety-related components and functions before commissioning.
- Process the materials specified in the operating instructions.
- Appropriate handling of all components involved in the welding process and all other factors that influence the welding process.
- Exclusive commercial use.

2.2.2 Machine constraints

- The workstation may be located in the tube preparation area, in the plant engineering department, or within the plant itself.
- The machine is operated by one person.
- A clearance of approximately 2 m must be ensured around the machine to allow for movement.
- Work lighting: min. 300 lux.
- Operating environmental conditions:
  Ambient Temperature: –10 °C to +40 °C
  Relative humidity: < 90% at +20 °C, < 50% at +40 °C
- Environmental conditions during storage and transport:
  Ambient Temperature: –20 °C to +55 °C
  Relative humidity: < 90% at +20 °C, < 50% at +40 °C
- The machine may only be set up and operated in a dry environment in accordance with IP 23 (not in fog, rain, thunderstorms, etc.). Use a welding tent if necessary.
- Avoid smoke, steam, oil fumes, and grinding dust.
- Avoid environments with salty air (seaside air).

2.3 Environmental protection and disposal

2.3.1 Information regarding the Ecodesign Directive 2009/125/EG



- Do not dispose of product (if applicable) with general waste.
- Reuse or recycle waste electrical and electronic equipment (WEEE) by disposing of it at a designated collection point.
- Contact your local recycling office or dealer for more information.

(as per RL 2012/19/EU)

Critical raw materials potentially present in indicative quantities greater than 1 gram at the component

COMPONENT	CRITICAL RAW MATERIAL
Printed circuit boards	Barite, bismuth, cobalt, gallium, germanium, hafnium, indium, heavy rare earth, light rare earth, niobium, metals of the platinium group, scandium, silicon metal, tantalum, vanadium
Plastic components	Antimony, Barite
Electrical and electronic components	Antimony, beryllium, magnesium
Metal components	Beryllium, cobalt, magnesium, tungsten, vanadium
Cable 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 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

The following personal protective equipment must be worn when working on the system:

- ► Safety shoes in accordance with EN ISO 20345, Class SB.
- ► When working overhead, wear a safety helmet in accordance with DIN EN 397.
- ► Wear hearing protection in work environments with noise levels above 80 dB(A).

2.7 Remaining risks

2.7.1 Injury through high weight

Lifting poses a major health risk. Observe the machine weights, section Gross weight!

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

	CAUTION!	Falling of the orbital weld head during transportation, mounting/dismantling or setting up.

⚠	**CAUTION!**	Falling of the weld head in case of impermissible usage in overhead position!

- ► Wear safety shoes to EN ISO 20345, Class SB.
- ► Place the transport case on a stable base near (approx. 1.5 m/ 4.9 ft) the welding power supply.
- ► Do **not** carry the transport case on a ladder.
- ► To set up the weld head place it flat and ensure that it cannot fall down.
- ► Fit drop guard to weld head.
- ► Weld head may **only be used with drop guard** in overhead positions.
- ► Do not transport the device by crane. Use handles, straps or holders for hand transport only.
- ► Always carry out orbital weld head OW 170 mounting/dismantling work on the pipe employing 2 persons.

⚠	**CAUTION!**	Falling of the transport case caused by it being put down improperly!

- ► Place the transport case on a stable base near (approx. 1.5 m) the welding power supply.

2.7.2 Prick injury through pointed electrode and, if appropriate, cold wire

⚠	**CAUTION!**	Danger of being pricked by the electrode or, if applicable, by the cold wire, both for the operator and for third parties while grasping the weld head.

- ► Do **not** grasp the weld head at the position of the electrode or, if applicable, the cold wire.
- ► Remove the electrode and, if applicable, the cold wire before transporting the orbital welding device.

2.7.3 Risk of crushing due to moving and falling parts

⚠	**CAUTION!**	Hands and fingers can be caught in and crushed while setting up the weld head.

- ► Before setting up or before electrode replacement lay the weld head flat on the base
- ► Switch off the welding power supply before setting up or before an electrode replacement.

2.7.4 Injury through rotating machine parts

⚠	**DANGER!**	The rotating machine parts can cause hair, jewelry or clothes to be caught and pulled into the housing.

- ► Wear tight-fitting clothes.
- ► Do **not** wear open hair, jewelry or other accessories that can be easily drawn in.

2.7.5 Risks of cuts and shear injuries

⚠	**CAUTION!**	Risk of fingers being sheared when swivel bracket closed on one side between open swivel bracket and base body.

- ► Wear safety gloves according to DIN 388.

⚠	**CAUTION!**	Danger of cut injuries caused by sharp pipe edges when clamping the weld head onto the pipe.

- ► Wear safety gloves according to DIN 388.

2.7.6 Burns and risk of fire

⚠	**CAUTION!**	Risk of burns from hot machine parts and workpieces. Very high temperatures are generated, especially after several welding operations in succession. When working on the weld head (e.g., re-clamping or mounting/dismounting the electrode), there is a risk of burns or damage to the contact points. Thermally unstable materials may be damaged upon contact with the hot weld head.

- ► Wear protective gloves in accordance with EN 388, performance level 2.
- ► Before working on the weld head or packing it in the transport case, wait until the surfaces have cooled to below 50 °C (122 °F).
- ► Position the weld head correctly.
- ► Only use approved materials in the welding area.

⚠	**WARNING!**	Thermal problems can arise in the event of incorrect positioning of the weld head, purging system or the use of impermissible materials in the welding area. In the worst case a fire will be started. Observe the local general fire protection measures.

- ► Position the weld head correctly.
- ► Use only permissible materials in the welding area.
- ► Let the cleaning agent evaporate completely after cleaning the weld head and prior to welding.

⚠	**WARNING!**	Risk of burns, flashbacks, and fire due to electric arcs. An electric arc may occur if the welding contacts are loosened during operation. This may result in burns and blindness; in the worst case, a fire may be caused.

- ► Only connect and disconnect the weld head when the power source is switched off.
- ► Lay wires and cables so that they are **not** under tension.
- ► Ensure that people cannot trip over wires and cables under **any** circumstances.
- ► Attach strain relief.
- ► Check that hose package connections are secure when connecting them or before switching on the power source.
- ► Do not work near highly flammable materials.
- ► Only operate on non-combustible surfaces.

⚠	**WARNING!**	Fire hazard if incorrect gases (e.g., oxygen-containing gases) are used during the welding process**.** This can result in burns. In the worst case, a fire may be triggered.

- ► Follow the safety instructions in the power source's operating manual.
- ► Use only Gas Types classified according to DIN EN ISO 14175 for the WIG welding process.

2.7.7 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.

2.7.8 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.

2.7.9 Electrical hazards

During the welding process, there are two electrical potentials:

- Potential 1: Electrode/torch body (-)
- Potential 2: Remaining components of the weld head, including the tube (+)

⚠	**DANGER!**	There is the risk of a fatal electric shock on simultaneous contact with both potentials during the high-frequency ignition.

- ► Before connecting the weld head and before mounting the electrode: Switch off orbital welding system.
- ► Before moving the rotor with closed weld heads, fit clamping cassette or clamping units and close clamping unit and flip cover.
- ► From the start of the welding process avoid contact with the tube and the housing of the orbital weld head.
- ► Wear safety gloves DIN 12477, Type A for welding operation and DIN 388, Class 4 for mounting the electrode.

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

- ► Avoid contact with the pipe and the weld head housing from the start of the welding process.

⚠	**DANGER!**	Electrical hazards through touching as well as incorrect or damp protective equipment.

- ► Wear dry safety shoes, dry metal-free (grommet-free) leather gloves and dry safety suits to minimize the electrical hazard.
- ► Work on a dry surface.

⚠	**DANGER!**	Electric shock along with injuries and damage to property on other devices due to erroneous ignition with unmounted or incorrectly positioned weld head!

- ► Do **not** play with weld head.

⚠	**DANGER!**	Electric shock and risk of crushing due to improper action and opening of the weld head.

- ► Unplug the weld head from the power source.
- ► Allow machine to cool down sufficiently before opening.
- ► Allow only a professional electrician to access the electrical system.
- ► **Never** connect open weld head to the power source.

⚠	**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.

⚠	WARNING!	Various injuries and damage to property due to electromagnetic incompatibility of surrounding devices during high-frequency ignition and devices in operation without a protective ground.

- ► Use only electrical devices with protective insulation in the working area of the welding system.
- ► Observe electromagnetically-sensitive devices when igniting the system.

⚠	**WARNING!**	Risk of burns, flashbacks, and fire due to electric arcs. An electric arc may occur if the welding contacts are loosened during operation. This may result in burns and blindness; in the worst case, a fire may be caused.

- ► Only connect and disconnect the weld head when the power source is switched off.
- ► Lay wires and cables so that they are **not** under tension.
- ► Ensure that people cannot trip over wires and cables under **any** circumstances.

- ► Attach strain relief.
- ► Check that hose package connections are secure when connecting them or before switching on the power source.
- ► Do not work near highly flammable materials.
- ► Only operate on non-combustible surfaces.

2.7.10 Damage to eyes through radiation

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

- ► Do **not** look into the electric arc.
- ► Wear glare protection according to EN 170.
- ► Wear safety gloves to EN 388, Performance level 2.
- ► Wear long clothing.

2.7.11 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.

2.7.12 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.

2.7.13 General injuries through tools

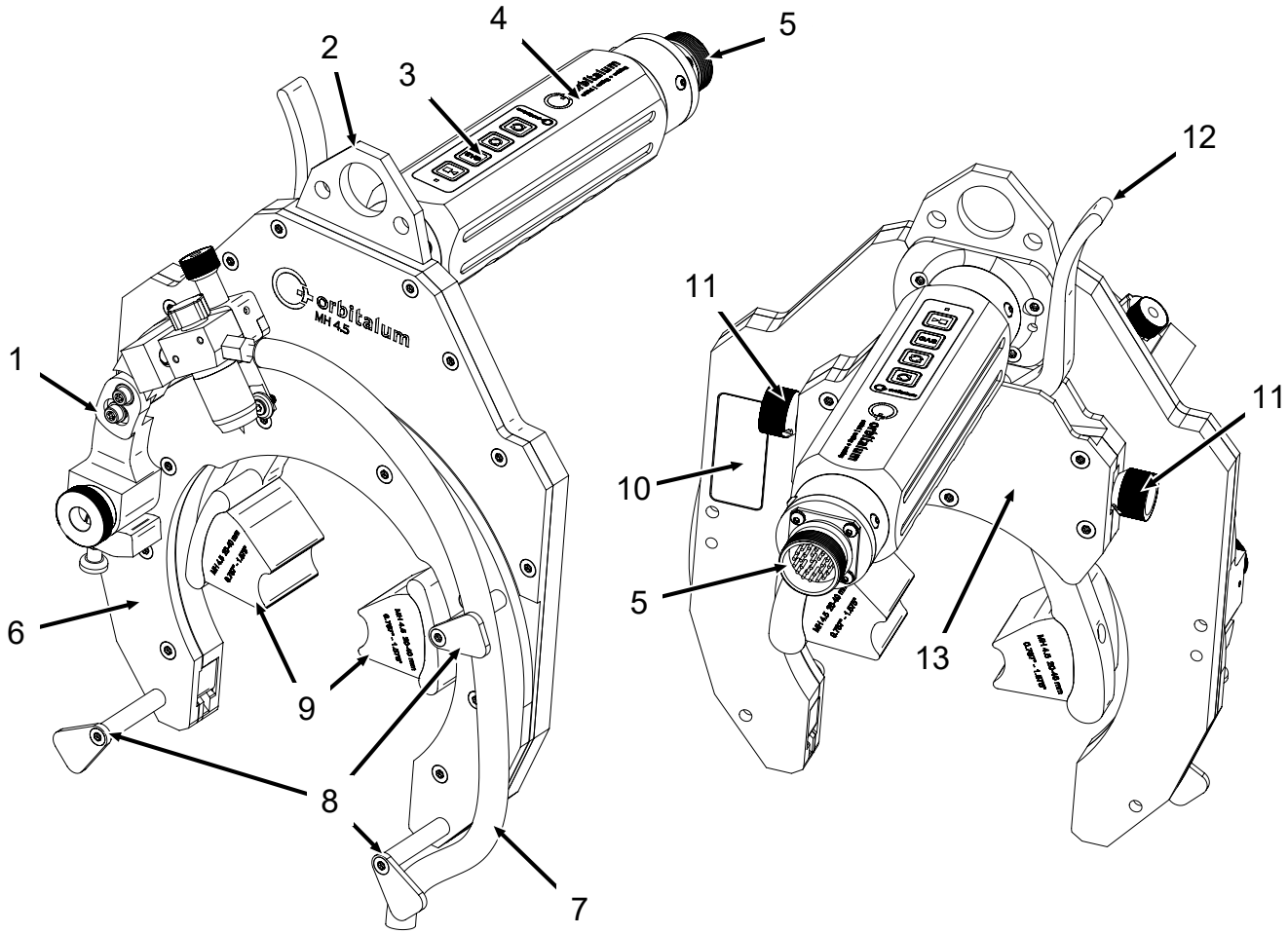
⚠	**CAUTION!**	Injuries can occur during dismantling for the proper disposal of the weld head through uncertainties in handling tools.

- ► In case of uncertainties send the weld head to Orbitalum Tools – proper disposal is carried out here.
- ► Allow only a professional electrician to access the electrical system and open the weld head.

3 Description

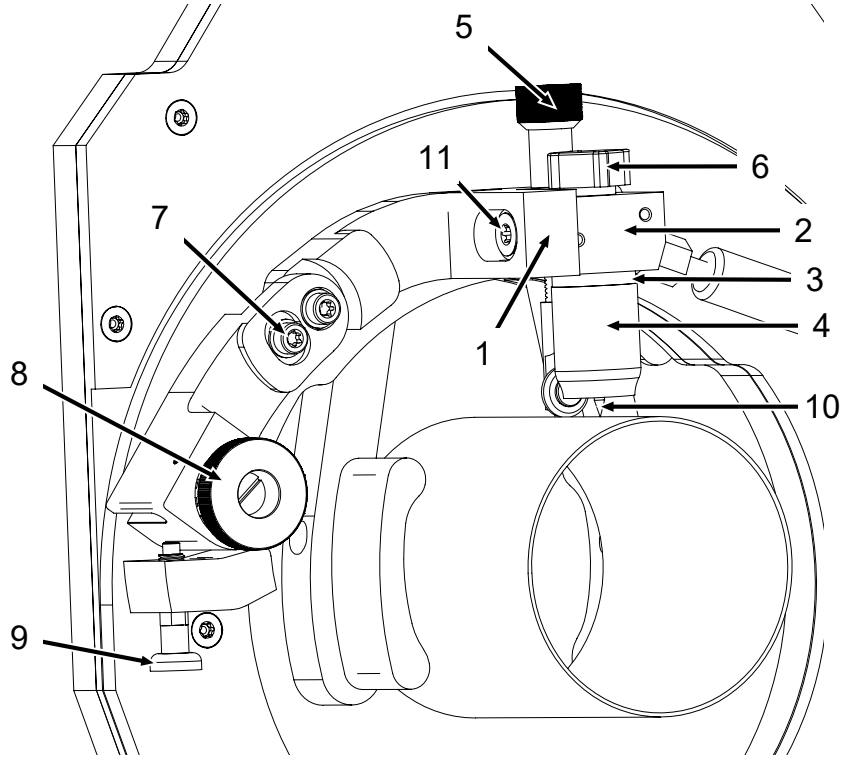
3.1 Basic machine

The MH 4.5 is shown in the figure as an example.



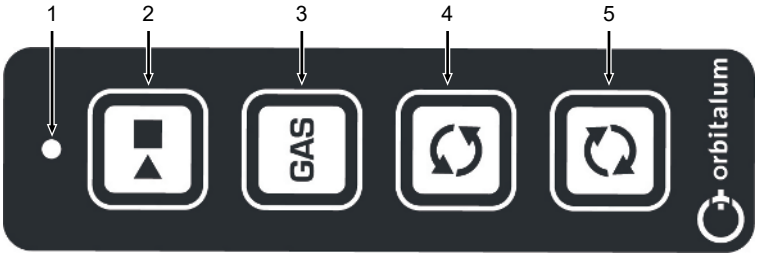
ITEM	NAME	FUNCTION
1	torch articulated arm	Holds and moves the burner assembly.
2	Mounting Eye	For attaching a fall arrest device.
3	Control panel	Control of the welding head functions.
4	Motor/Handle	Drives the rotation movement and handles the weld head.
5	Control Cable Connection	Control cable connection.
6	rotor plate	Holds the burner arm and hose holder.
7	Power and gas cables	Transmission of welding current and Gas Type.
8	Hose holder	Secure guidance and support of the hose assembly during rotation of the weld head.
9	Clamping arms	Clamping the weld head to the workpiece. Mounting of reduction jaws.
10	Nameplate	Shows the welding head identification and technical data.
11	Clamping Area System Settings (Pipe Diameter)	Adjustment of the clamping area to the tube diameter.
12	clamping lever	Clamping and releasing the weld head on the workpiece.
13	clamping unit	Clamping the weld head to the workpiece.

3.2 Torch unit



ITEM	NAME	FUNCTION
1	Torch body holder	Secures the torch body.
2	torch body	Supplies welding current to the electrode and accommodates an optional cold wire unit.
3	insulation ring	Seals the torch and gas nozzle against air ingress.
4	gas nozzle	Concentration and precise guidance of the shielding gas flow.
5	Adjusting screw for electrode gap	Adjusting the distance between the electrode and the workpiece. Depending on the application, the arc gap should be approximately 1 to 3 mm (0.039" to 0.118") and should be set using a feeler gauge.
6	Torch cap	Clamping and securing the electrode.
7	Electrode angle adjusting screw	Adjusts the electrode angle relative to the pipe axis.
8	Knurled nut for axial torch adjustment	Linear fine adjustment of the torch position along the pipe axis.
9	Torch arm lock	Locking and unlocking the burner arm.
10	electrode	Transmission of the welding current and generation of the arc.
11	Torch Position Adjusting Screw	Linear coarse adjustment of the torch position along the pipe axis, as well as lateral tilt adjustment relative to the vertical.

3.3 Operator button panel



POS.	CONTROL ELEMENT	FUNCTION
1	**LED**	Shows operating status.
2	**START/ STOP**	Start/stop the welding process.
3	**GAS**	Start/stop the gas supply function test; switch operating modes.
4	**ROTATION (counterclock-wise)**	Move the turntable counterclockwise.
5	**ROTATION (clockwise)**	Move the turntable clockwise.

4 Scope of application

ART	UNIT	MH 3.0	MH 4.5	MH 6.6
Pipe (outer diameter)	[mm]	10 - 76.20	20 - 114.30	40 - 168.30
min. - max.	[inch]	0,394 – 3,000	0,787 – 4,500	1,575 – 6,626
Electrode lengths	[mm]	30 - 55	30 - 55	30 - 55
min. - max.	[inch]	0,181 - 2,165	0,181 - 2,165	0,181 - 2,165
Welding process	Tungsten inert gas process (TIG)			
Materials	All materials that are fundamentally suitable for the TIG welding process.			

5 Technical data

5.1 Weld head

MODEL		MH 3.0	MH 4.5	MH 6.6
Code		803000001	804000001	805000001
Machine weight including power/gas cable	[kg]	4.24	5.42	6.11
	[lbs]	9.35	11.95	13.47
Power/gas cable length	[m]	7.0	7.0	7.0
	[ft]	23.0	23.0	23.0
Duty cycle	[A]	35 % @ 140 A	35 % @ 140 A	35 % @ 140 A
Weld current, max.	[A]	140	140	140
Ignition voltage, max.	[kV]	9	9	9
Motor voltage, max.	[VDC]	24	24	24
Motor current, max.	[A]	1.0	1.0	1.0
Rotor speed, max.	[rpm]	13.5	8.6	6.4
Torch pivot range	[°]	0 – 90	0 – 90	0 – 90
Sound level, max. (1 m gap)	[dB (A)]	70	70	70

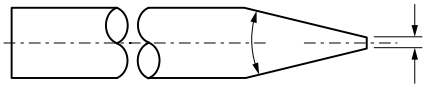
5.2 Electrodes

NOTICE!

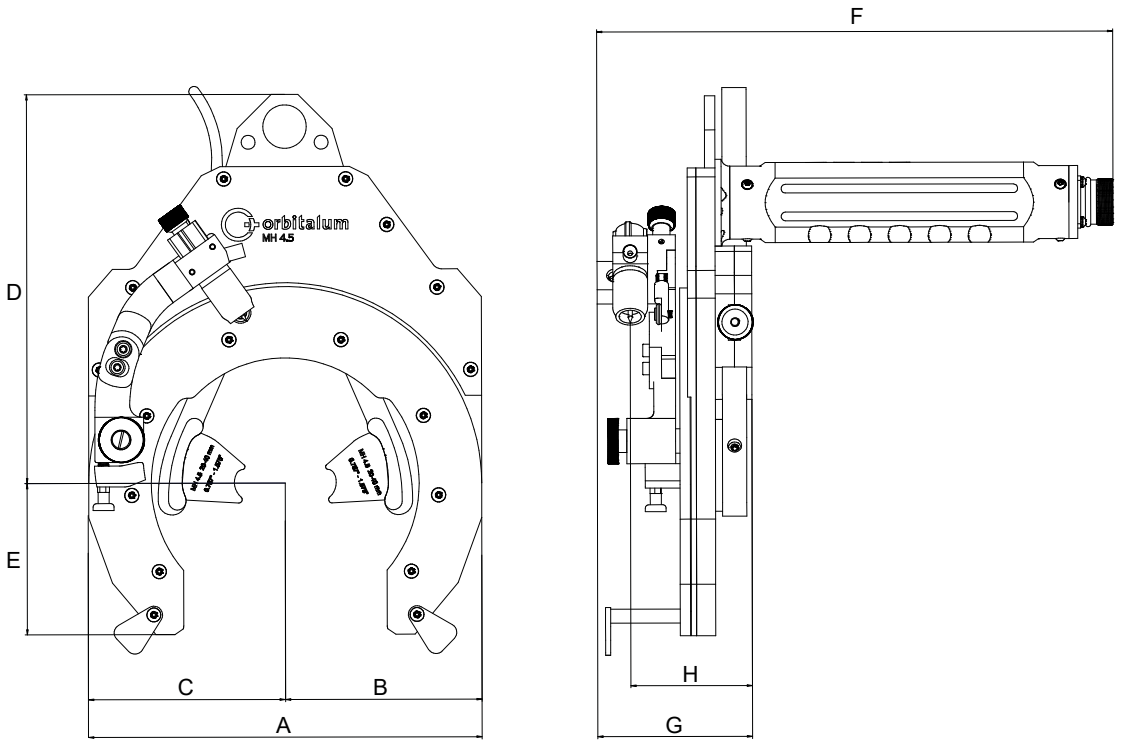


Tungsten is used as the electrode base material

If possible, do not use electrodes with thorium oxide additives.

MODEL		MH 3.0	MH 4.5	MH 6.6
Code		803000001	804000001	805000001
Arc length (gap) min.	[mm]	0.8	0.8	0.8
	[inch]	0,031	0,031	0,031
Arc length (gap) max.	[mm]	3.0	3.0	3.0
	[inch]	0,118	0,118	0,118
Electrode length, max.	[mm]	55	55	55
	[inch]	2,165	2,165	2,165
Electrode length, min.	[mm]	30	30	30
	[inch]	1,181	1,181	1,181
Electrode diameter standard version	[mm]	2.4	2.4	2.4
	[inch]	0,094	0,094	0,094
Tip angle	[°]	30	30	30
Breaking the tip after grinding is recommended (see sketch)				
Preparing the tip	Solely by grinding			
Grinding direction	Solely lengthwise			
Recommended tool	ORBITALUM TOOLS electrode grinder ESG Plus			

5.3 Dimensions



MODEL		MH 3.0	MH 4.5	MH 6.6
Code		803000001	804000001	805000001
Dimension "A":	[mm]	150.00	226.00	290.00
	[inch]	5.91	8.90	11.42
Dimension "B"	[mm]	75.00	113.00	145.00
	[inch]	2.95	4.45	5.71
Dimension "C":	[mm]	75.00	113.00	145.00
	[inch]	2.95	4.45	5.71
Dimension "D":	[mm]	172.50	224.50	252.50
	[inch]	6.79	8.84	9.94
Dimension "E":	[mm]	60.99	87.00	110.00
	[inch]	2.40	3.43	4.33
Dimension "F":	[mm]	296.70	296.70	296.70
	[inch]	11.68	11.68	11.68
Dimension "G":	[mm]	88.90	88.90	88.90
	[inch]	3.50	3.50	3.50
Dimension "H":	[mm]	69.90 – 74.90	69.90 – 74.90	69.90 – 74.90
	[inch]	2.75 – 2,949	2.75 – 2,949	2.75 – 2,949

6 Transport

INFO The figures shown in these operating instructions for the individual work steps are based on an MH 4.5 in as far as the work steps are identical for all MH versions. Procedures or work steps that deviate are, if required, described separately and represented in a separate figure.

6.1 Gross weight

MODEL		MH 3.0	MH 4.5	MH 6.6
Weight (Standard version)	[kg]	4,24	5,42	6,11
	[lbs]	9.35	11.95	13,47

**Machine weight incl. Power/gas cable*

6.2 Transport weld head

WARNING **Danger of injury through high weight of the weld head!**
Depending on the model, the orbital weld head with power/gas cable weighs max. 6.50 kg (14.33 lbs).

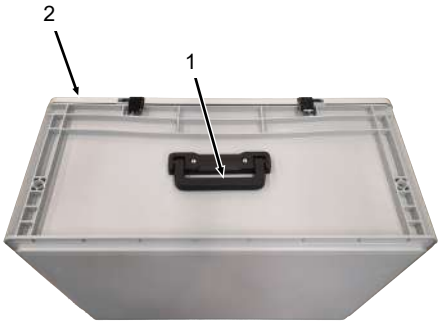
- ► Lift the orbital weld head carefully.
- ► Place the storage box on a secure base.
- ► Wear safety shoes to EN ISO 20345, Class SB.

Transport weld head and wound up power/gas cable, either

- By the handle (1) of the transport box (2)

or

- Directly by the handle (3) of the unpacked weld head and by the power/gas cable (4).









7 Commissioning

7.1 Scope of delivery

ITEM	MH 3.0	MH 4.5	MH 6.6
Transport box	X	X	X
Consumables/set of tools	X	X	X
MH 3.0 clamping jaw 10 - 30 mm (0.394” - 1.181”)	X		
MH 3.0 clamping jaw 30 - 45 mm (1,181” - 1,772”)	X		
MH 4.5 clamping jaw 20 - 40 mm (0.787” - 1.575”)		X	
MH 4.5 clamping jaw 40 - 80 mm (1,575” - 3,150”)		X	
MH 6.6 clamping jaw 40 - 80 mm (1.575” - 3.150”)			X
MH 6.6 clamping jaw 80 - 120 mm (3,150” - 4,724”)			X
Power/gas hose MH	X	X	X
Operating instructions and spare parts list MH 3.0 / 4.5 / 6.6	X	X	X
Download link PDF: https://www.orbitalum.com/de/download.html			

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.

7.2 Preparing initial operation

Prerequisite: Welding power supply connected and ready to operate.

- ► Check the weld head, power/gas hose, ground cable and lines for damage.
- ► Check the working environment for possible sources of danger and, if applicable, eliminate these.

8 Set-up and mounting

INFO		The figures shown in these operating instructions for the individual work steps are based on an MH 4.5 in as far as the work steps are identical for all MH versions. Procedures or work steps that deviate are, if required, described separately and represented in a separate figure.

8.1 Procedure

INFO		Observe the operating instructions for the welding power source!

Perform setup and installation in the following order:

1. For overhead applications, it is possible to install a fall protection device.
2. Mount the clamping jaws
3. Clamp the weld head onto the workpieces
4. Set up the electrode
5. Set up the torch
6. Connect the weld head to the power source
7. Wind up the power and gas hoses
8. Perform gas function test
9. Configure the welding program

8.2 Fit drop guard

WARNING		**Falling of unsecured weld head.** The device may drop and injure people. ► Before start of work, fit drop guard with sufficient load capacity (e.g. wire cable with snap hook) to weld head. ► Weld head must **not** be used unsecured in overhead positions.

Before start of work the weld head must be secured against falling.

To this end the MOBILE HEAD weld heads have a mounting lug (1) for fastening of a suitable drop guard, such as a screw snap hook (2) to a wire cable (3).



8.3 Fit clamping jaws

Depending on the workpiece diameter to be clamped, clamping jaws suitable for the diameter must be fitted to the clamp arms of the clamping unit.

CLAMPING AREAS OVERVIEW
MH 3.0 clamping jaw 10 - 30 mm (0.394” - 1.181”)
MH 3.0 clamping jaw 30 - 45 mm (1,181” - 1,772”)
MH 3.0 without clamping jaws 45 mm – 76.20 mm (1,772” – 3,000”)
MH 4.5 clamping jaw 20 - 40 mm (0.787” - 1.575”)
MH 4.5 clamping jaw 40 - 80 mm (1,575” - 3,150”)
MH 4.5 without clamping jaws 80 mm – 114.30 mm (3,150” – 4,500”)
MH 6.6 clamping jaw 40 - 80 mm (1.575” - 3.150”)
MH 6.6 clamping jaw 80 - 120 mm (3,150” - 4,724”)
MH 6.6 without clamping jaws 120 mm – 168.30 mm (4,724” – 6,626”)

- ► Lay weld head on a slip- and scratch-resistant surface.
- ► Lay clamping jaws into the clamp arms and mount using the bolt and key included in the accessory set.



8.4 Clamp the weld head onto the workpiece

NOTICE!



- ► When clamping the weld head on the workpiece, align the electrode centered on the workpiece joint.

NOTICE!

► To avoid deformations or damage to the workpiece, adapt the clamping force to the wall thickness of the workpiece.

NOTICE!

Swivel torch articulated arm (1) **before** moving the rotor into home position, until the locking lever engages (see chap. Set up the torch [▶ 27]).

✓ Pipe ends are tacked together light-/gap-free.

✓ Rotor is in home position.

✓ **Before** placing the weld head on the workpiece, ensure that the torch articulated arm (1) is locked in the home position.

1. Roughly adjust clamping jaws with closed clamping unit via the rotating handle (3) to the current tube diameter.
2. Completely open clamping unit with clamping lever (2).
3. Set the weld head onto the workpiece in such a way that the electrode is roughly aligned to the workpiece joint.
4. Carefully tighten clamping lever (2) of clamping unit.
   ⇨ The weld head must fit so tightly that it **cannot** shift by itself.

⇨ If necessary, correct adjustment of tube diameter via the rotating handle (3) and carefully retighten the clamping lever (2) until the weld head is securely clamped to the workpiece.

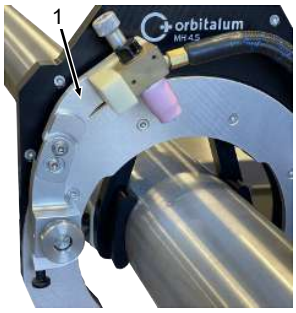


Fig.: Torch articulated arm in home position

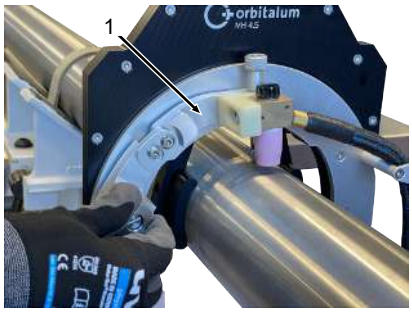


Fig.: Torch articulated arm lowered

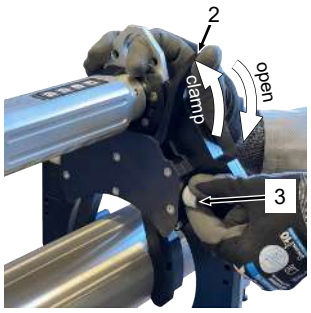


Fig.: Tighten clamping lever

8.5 Set up the electrode

CAUTION

Unintentional starting up of the weld head!

Crushing of hands and fingers.

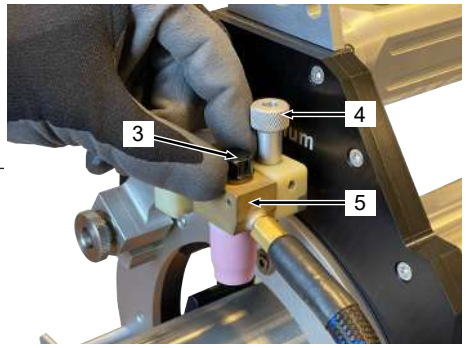
► Switch off the Orbital welding power source.

NOTICE!

Before inserting the electrode, check that it has the correct length and the sharpness. Rework, if necessary. *See the chapter* Grinding electrode

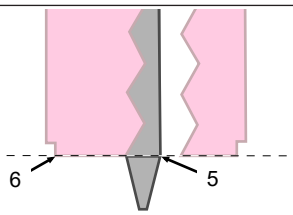
1. Unscrew the torch cap (1) and remove the clamping sleeve (2).
2. Insert the electrode (1) into the clamping sleeve (2).
3. Insert the clamping sleeve with electrode into the torch body (5).
4. Screw torch cap (4) on again.
   If required, adjust the electrode projection out of the gas nozzle.





Recommended electrode projection:

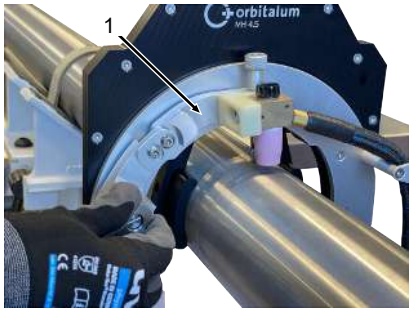
Longitudinal grinding edge electrode (6) flush with lower edge (7) of gas nozzle.



► To remove the electrode carry out the process steps in the reverse order.

8.5.1 Fine-tune electrode

► Position the electrode centrally over the workpiece joint using the bolt of the axial torch adjustment. (2). The possibility of a correction in both directions may be needed later as a result.



8.6 Set up the torch

CAUTION

Unintentional starting up of the weld head!

Crushing of hands and fingers.

► Switch off the Orbital welding power source.

CAUTION

Spring-loaded torch articulated arm!

Damage to the electrode and risk of injury through uncontrolled torch arm lowering.

► The torch arm must be lowered manually.

► Ensure that the torch fixation is locked.

CAUTION

Risk of burns from hot machine parts and workpiece.

Very high temperatures arise in particular after several consecutive welding processes. When working on the machine torch or the torch holder (e.g., repositioning or mounting/dismounting the electrode), there is a risk of burns or damage to the contact points. Materials not resistant to heat may be damaged upon contact with the hot machine torch.

► Wear safety gloves to EN 388, Performance level 2.

► Before working on the machine torch or transporting, wait until the surfaces have cooled down below 50 °C (122 °F).

► Correctly position the machine torch.

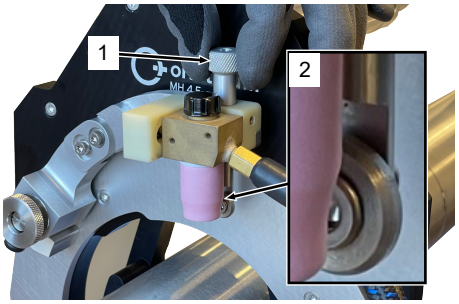
► Use only permissible materials in the welding area.

► Observe the warning signs on the hazard areas.

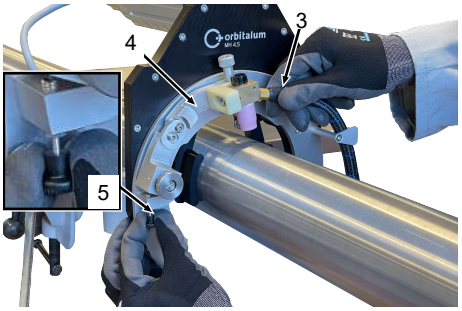
NOTICE!

Check the gas nozzle and lens regularly for soiling, such as by foreign material, clean and, if required, replace (see chap. Replacing the gas nozzle and/or lens [▶ 46]).

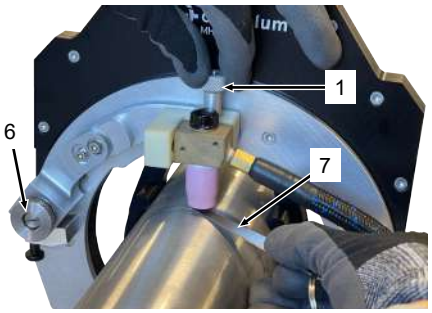
► Move the electrode gap adjusting screw (1) completely out or downward.



1. Hold torch articulated arm to power/gas hose (3).
2. Pull out the torch locking lever (5) at the torch articulated arm (4) thus releasing it.
3. Slowly and carefully lower torch articulated arm until the scanning wheel (2) touches down on the workpiece.

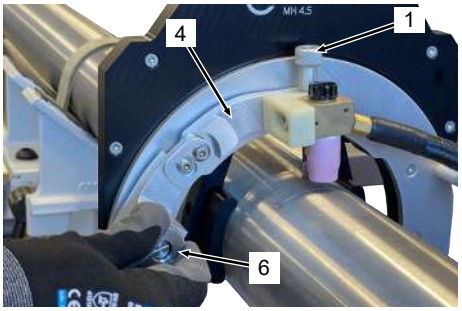


► Adjust desired electrode gap with the adjusting screw (1) and a feeler gage (7).

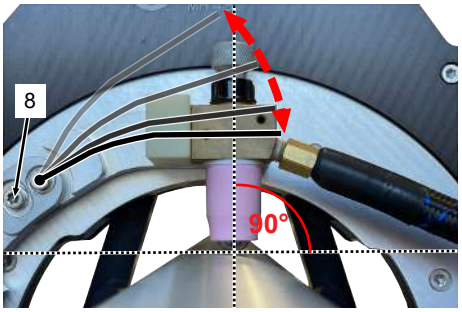


► If necessary, finely align the electrode with the axial torch adjustment (6) to the workpiece joint.
If this is insufficient, the weld head has to be offset slightly and clamped again.
The electrode has to be positioned precisely over the pipe joint.

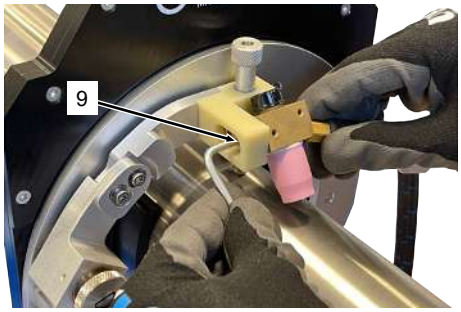
See chap. Clamp the weld head onto the workpiece [▶ 25]



► Check the 90° angle of the electrode to the workpiece:
Is the electrode setting to the workpiece joint correct (=centered)?
If required, open the clamping screw (8) at the torch articulated arm using a key, adjust to 90°, and tighten again.

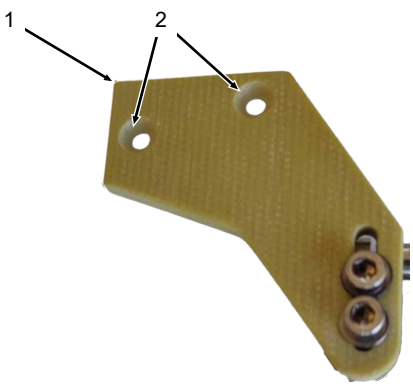


► If required, carry out torch angle adjustment by means of the fixating screw (9).

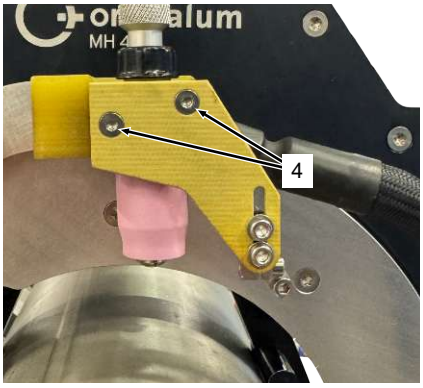


8.7 Cold wire unit (optional)

8.7.1 Install the cold wire unit (optional)







► Position the mounting plate (1) so that the two holes (2) are aligned with the threaded holes (3) in the torch body. Secure the mounting plate with the two 2-mm hex socket screws (4).

► **To remove** the cold wire feeder unit, follow the steps in reverse order.

8.7.2 Install the cold wire nozzle (optional)

CAUTION

Risk of injury from the sharp electrode or the cold wire (on KD versions)!

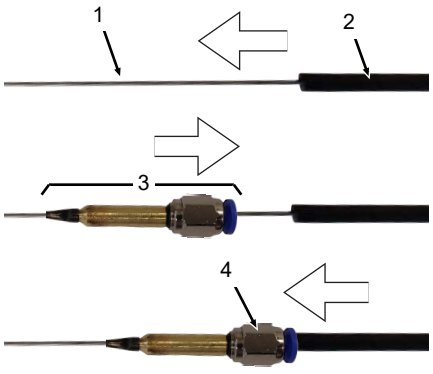
When handling the weld head, there is a risk that both the operator and by-standers could be pricked by the electrode or, if applicable, the cold wire (on KD versions).

- ► Do not grasp the weld head at the location of the electrode or the cold wire.
- ► Hold the weld head only by the handle provided for that purpose.
- ► Remove the electrode before transport.
- ► Wear protective gloves rated 1/1/1/1 according to EN 388 or 1/2/1/1 according to EN 407.

Prerequisite:

- ✓ The wire is inserted into the wire-feed hose; *see the Mobile Feeder operating instructions, section "Inserting the Wire into the Wire-Feed Hose."*
- ✓ The wire coil is installed; *see the Mobile Feeder operating instructions, section "Installing the Wire Coil."*
- ✓ The spool brake is adjusted; *see the Mobile Feeder Operating Instructions, section "Adjusting the Spool Brake."*

1. Use the manual feed to extend the cold wire (1) approximately 10 cm (4 in) beyond the end of the wire guide hose (2), then stop.
2. Slide the cold wire nozzle (3) onto the wire end.
3. Push the wire guide hose (2) all the way into the quick-release coupler (4) until it clicks into place.
4. Check that the wire guide hose (2) is securely seated in the quick-release coupler by pulling on it.



8.7.3 Adjusting the cold wire nozzle (optional)

CAUTION

Risk of injury from the sharp electrode or the exposed end of the cold wire (on KD versions)!

When handling the weld head, there is a risk of puncture for both the operator and third parties from the electrode or, if applicable, the cold wire (on KD versions).

- ► Do not grip the weld head at the location of the electrode or the cold wire.
- ► Hold the weld head only by the handle provided for this purpose.
- ► Remove the electrode before transport.
- ► Wear protective gloves rated 1/1/1/1 according to EN 388 or 1/2/1/1 according to EN 407.

CAUTION

Accidental contact with the weld head!

Crushing injuries to hands and fingers.

- ► Turn off the orbital welding power supply.

CAUTION



Risk of burns from hot machine parts and workpiece.

Very high temperatures arise in particular after several consecutive welding processes. When working on the machine torch or the torch holder (e.g., repositioning or mounting/dismounting the electrode), there is a risk of burns or damage to the contact points. Materials not resistant to heat may be damaged upon contact with the hot machine torch.

- ► Wear safety gloves to EN 388, Performance level 2.
- ► Before working on the machine torch or transporting, wait until the surfaces have cooled down below 50 °C (122 °F).
- ► Correctly position the machine torch.
- ► Use only permissible materials in the welding area.
- ► Observe the warning signs on the hazard areas.

NOTICE!



Damage caused by a sharp-edged wire beginning

When inserting a cold wire with a sharp-edged start, there is a risk of damaging the wire liner.

- ► Deburr and round off the wire beginning using a key file (included in the tool set).

⇨ This makes it easier to guide the cold wire through the wire liner.

NOTICE!



The cold wire is wound onto the spool under voltage and may unwind unintentionally.

- ► Keep the wire coil under tension while threading the cold wire through the core.

NOTICE!



The correct roller pressure is very important!

Too little pressure can cause jamming, i.e., a brief interruption in the wire feed, resulting in a defective weld bead.

Excessive roller pressure places unnecessary strain on the entire wire feed assembly.

NOTICE!

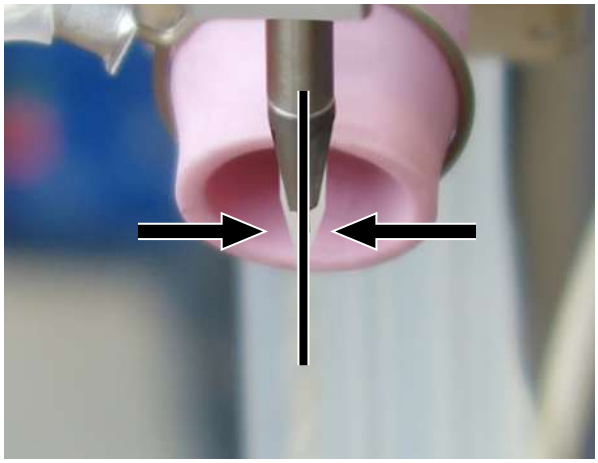


Damage to the wire liner when using the manual wire feed.

If the wire becomes jammed in the wire liner and the Manual wire feed is activated, the wire liner may be damaged.

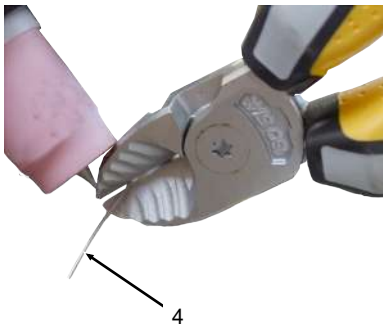
- ► Do not pull the wire into the hose using the drive!
- ► Ensure there is minimal resistance; if necessary, reduce the contact pressure of the wire feed rollers.

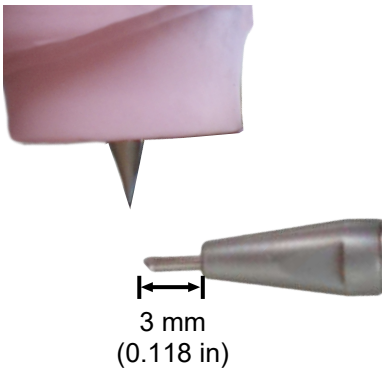
► **The wire position must be modified to the specific application.**
Recommendation for optimal wire position: Align the wire with the electrode.



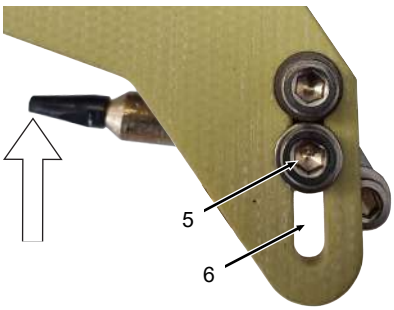
Procedure:







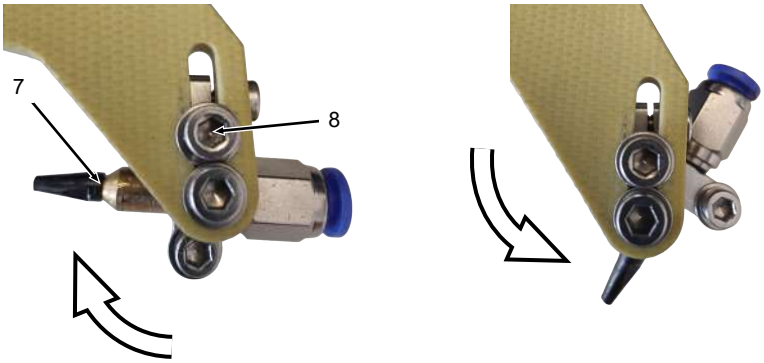
1. Trim the excess length of the wire (4) to approx. 3 mm (0.118") using side cutters.





2. The position of the wire nozzle holder can be adjusted by loosening the hex socket screw (5) and moving it within the slotted hole (6).

3. Tighten the hex screws (5) again by hand.



4. The angle of the wire nozzle (7) can be adjusted by loosening the hex screw (9).
5. Retighten the hex socket screw (8) by hand.

8.8 Connecting the weld head to the power source

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!

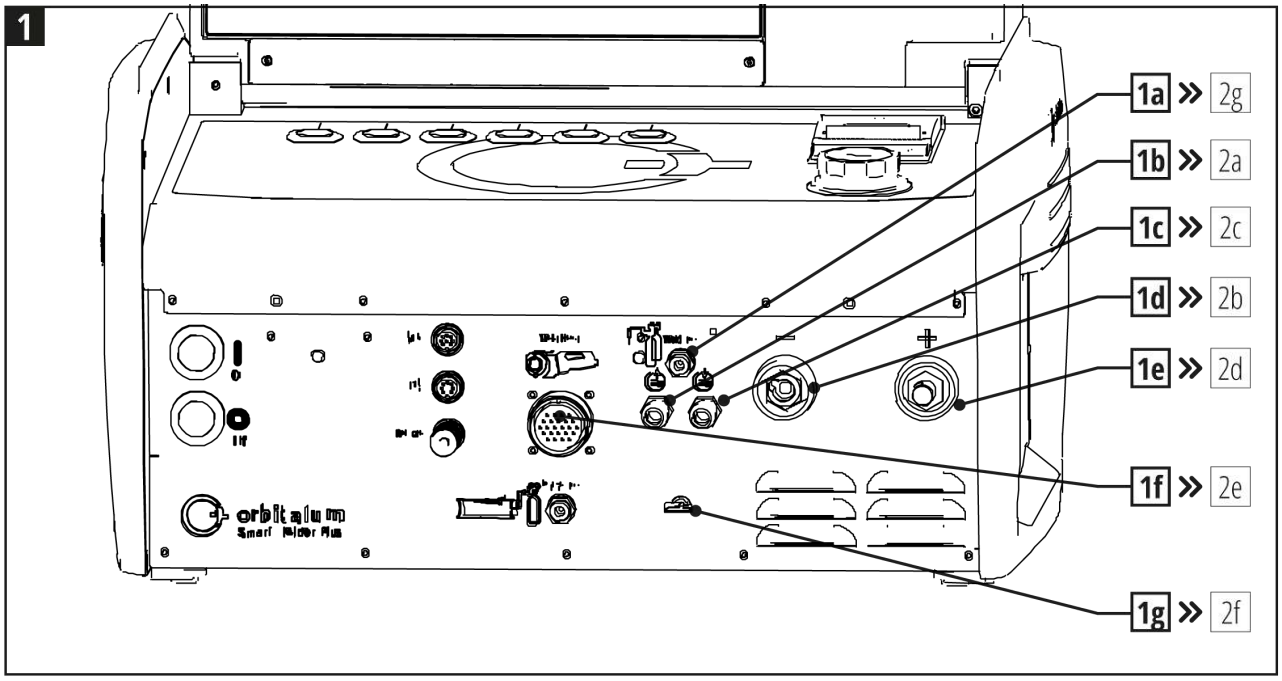
WARNING

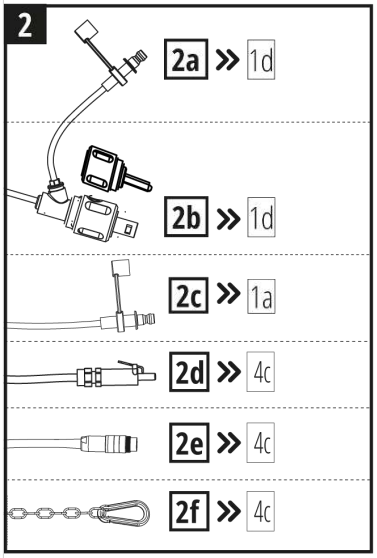
Risk of burns, blindness and fire due to arcs

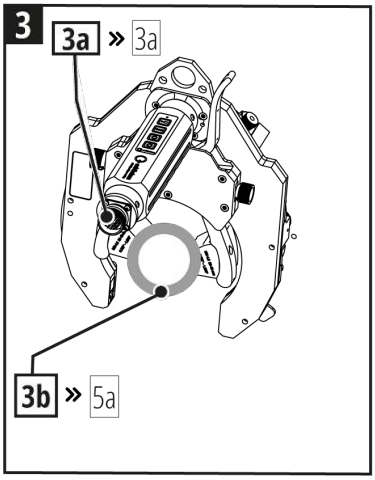
An arc may develop by releasing the welding contacts during operation. This can result in burns and blindness, in the worst case a fire can be started.

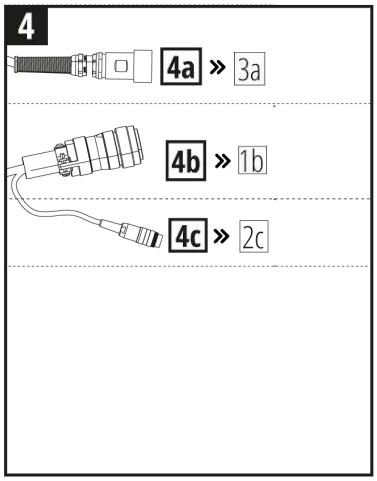
- ► Connect and disconnect the weld head only when the power supply is shut down.
- ► Lay the lines and cables so that they are **not** under tension.
- ► Ensure that under **no** circumstances can people trip over lines and/or cables.
- ► Attach the strain relief.
- ► Check that hose package connections 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.

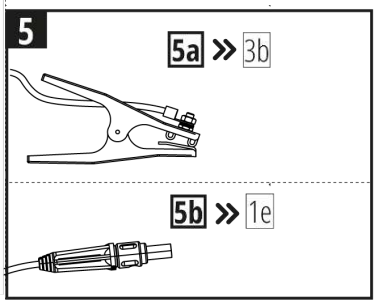
8.8.1 Connection scheme











NO.	DESIGNATION	TO BE CONNECTED WITH	NO.
1	**Power supply**		
1a	Socket "Gas" (quick lock)	Plug "Gas", hose package	**2c**
1d	Socket "Welding current (–)" (hose assembly)	Connector “Welding current (–)”, hose assembly	**2b**
1e	Plug "Welding current +" (ground cable)	Socket "Welding current +", ground cable	**5b**

NO.	DESIGNATION	TO BE CONNECTED WITH	NO.
1f	Socket (Amphenol) "control line"	Plug (Amphenol) "control line to power source"	**4b**
2	**Hose package**		
2a	Plug "Coolant supply line", **blue**	Socket "Coolant supply line", **blue**, power source	**1b**
2b	Plug "Welding current (–)"	Socket "Welding current (–)", power source	**1d**
2c	"Gas" plug (quick lock)	"Gas" socket, power source	**1a**
3	**Weld head, e.g. type MH 4.5**		
3a	Socket "Control line"	Plug "Control line to weld head", control line	**4a**
3b	Hose	Clamp "Ground cable"	**5a**
4	**Control cable**		
4a	Plug "Control line to weld head"	Socket "Control line", weld head	**3a**
4b	Plug "control line to power source"	Socket "Control line", power source	**1f**
5	**Ground cable**		
5a	Clamp "Ground cable"	Workpiece/hose	**3b**
5b	Socket "Ground cable"	Plug "Welding current +", power source	**1e**

8.8.1.1 Connection sequence

Make connections in the following order:

NOTICE!



Tungsten is used as the electrode base material.

If possible, do not use electrodes with thorium oxide additives.

1. Connect the "welding current –" plug (**2b**) from the hose package to the "welding current –" socket (**1d**) on the power source and lock it in place by turning it.
2. Connect the "Gas" plug (**2c**) from the hose package to the "Gas" socket (**1a**) on the power source.
3. Connect the "control cable to power source" Amphenol plug (**4b**) to the "control cable" socket (**1f**) on the power source.
4. Connect the "control cable to weld head" plug (**4a**) to the "control cable" socket (**3a**) on the weld head and tighten securely.
5. Connect the "ground cable" socket (**5b**) from the ground cable to the "welding current +" plug (**1e**) on the power source and tighten by hand.
6. Clamp the "ground cable" terminal (**5a**) from the ground cable to the workpiece (**3b**). Ensure good electrical contact (if necessary, sand the workpiece surface until it is bare metal).
7. Switch on the welding power source.
8. Perform a gas function test (see section Carry out gas function test [▶ 37]).

8.9 Wind up power/gas hose

CAUTION



Crushing of hands and fingers

► Keep hands out of danger area.

NOTICE!

The hose assembly must be manually wound up before welding, as it will automatically unwind due to the rotation movement during the welding process.

Failure to wind it up beforehand may result in damage.

► Ensure that there is sufficient hose length available for winding.

► While winding, ensure that the hose assembly winds up neatly and is not pinched. If necessary, guide the hose assembly by hand.

NOTICE!

The torch position of the weld head must agree with the starting/weld starting position of the weld procedure (power source (for example 9 o'clock position).

► If required, the electrode/torch position has to be readjusted.

► Hold rotation key (1 or 2) until the torch reaches the desired start position and the power/gas hose is wound up.



► The torch position (3) and start position of the welding procedure (4) must correspond with the torch position of the weld head. In auto-programming the 9 o'clock position is preset and can be changed if required.

► Press and hold “ROTATION” key (1 or 2) to carry out winding up.

► Release “ROTATION” key (1 or 2) as soon as the torch reaches the desired position and sufficient hose is wound up.

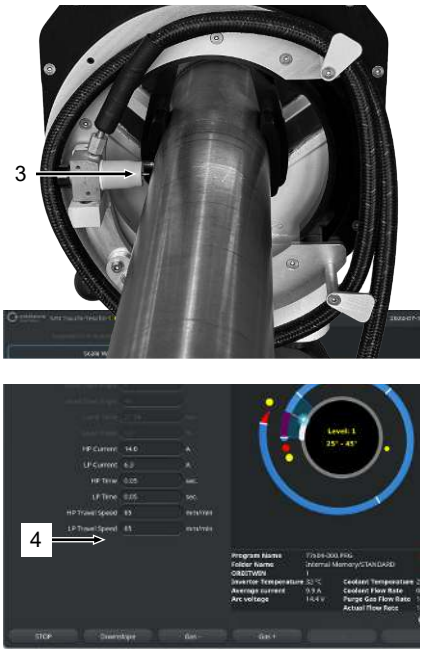


Fig.: Torch and start position welding procedure in 9 o’clock position

8.10 Carry out gas function test

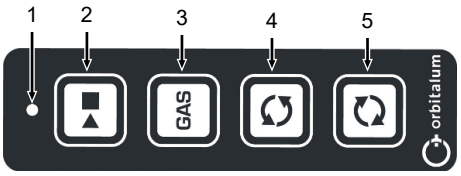
By means of the gas function test, the gas flow can be checked independently of the welding process to ensure functional readiness. In the event of a lack of gas the welding power supply issues an error message.

NOTICE!

Before carrying out the gas function test, ensure the following:

► Gas supply **must** be connected to the power supply and gas quantity correctly adjusted (see power source operating instructions).

Procedure (via control panel of weld head):



✓ Make sure that the welding gas supply and weld head are correctly connected and there is a sufficient quantity of welding gas available.

1. Press the “GAS” key (3).
2. Check and, if necessary, adjust gas quantity. Recommended welding gas quantity 12 l/min.
3. Press the “GAS” key (3) again.

⇨ The gas function test is complete.

NOTICE!

In the event of a welding power supply error message

► Check whether the welding gas supply and weld head are correctly connected, the welding gas quantity correctly set and the gas source is supplying sufficient gas.

► OR: *See operating instructions of the welding power source.*

8.11 Configure the welding procedure

► Configure the welding procedure in accordance with the operating instructions of the welding power supply.

► The weld head is ready to use.

9 Operation

INFO

The figures shown in these operating instructions for the individual work steps are based on an MH 4.5 in as far as the work steps are identical for all MH versions. Procedures or work steps that deviate are, if required, described separately and represented in a separate figure.

9.1 Weld mode

DANGER

Electromagnetic fields are generated during the welding process.

- ► The plant operator must set up the workstations in accordance with the EMF Directive 2013/35/EU so that there is no risk whatsoever to operators or persons in the vicinity of the welding system.

DANGER

If the argon concentration in the air rises above 50%, it can cause permanent damage or pose a risk of death by suffocation.

- ► Ensure adequate ventilation in the work area.
- ► Monitor the oxygen content in the air if necessary.

WARNING

Risk of crushing due to the rotor running freely during operation

During operation, the rotor spins freely for a brief moment. Hands and fingers can be caught, pinched, or crushed by rotating parts.

- ► Do not reach into the rotor's range of motion.
- ► Keep hands and fingers away from rotating parts as well as areas where crushing or shearing can occur.
- ► Keep protective and safety devices closed and in working order during operation.
- ► Perform work on the rotor only when it has come to a complete and safe stop.
- ► Wait until the rotor has come to a complete stop before entering the work area.

WARNING

Risk of crushing from rotating parts during electrode replacement and rotor positioning

When performing electrode replacement or moving the rotor into position, hands and fingers can become trapped or crushed between rotating and stationary components.

- ► Do not reach into the path of rotating parts.
- ► Keep hands and fingers away from areas where crushing or shearing can occur.
- ► Electrode replacement should only be performed when the machine has come to a complete and safe stop.
- ► Do not initiate rotor movements until you have completely exited the hazard zone.
- ► Do not place any body parts between the rotor and adjacent components while positioning the rotor.

WARNING



Warning: Risk of burns from hot materials and welding spatter.

If the welding process is started while the swivel clamp is partially open, the material and electrode may burn uncontrollably. This can cause hot particles and welding spatter to escape and result in burns.

- ► Start the welding process only when the swivel clamp is fully closed.
- ► Keep a safe distance from the hazard zone during the welding process.
- ► Ensure that none of the people can trip over wires and cables under any circumstances.
- ► Wear appropriate personal protective equipment, especially safety goggles and protective gloves.
- ► Do not touch hot components or welding spatter.

WARNING



Thermal problems may occur if the forming system is positioned incorrectly or if unauthorized materials are used in the welding area.

In the worst-case scenario, a fire may be triggered.

- ► Observe general on-site fire safety measures.

CAUTION



Skin and eye injuries due to penetration of media under pressure.

In the event of a leak coolant can spray from the coolant circuit and penetrate eyes, mouth and skin.

- ► Switch welding power supply off before setting up.
- ► Replace defective coolant circuit 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.
- ► Wear personal protective equipment.

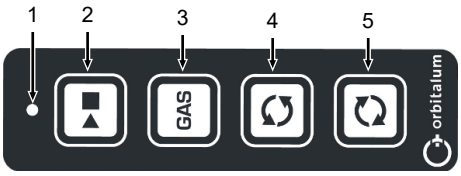
NOTICE!



Various Hazards

- ► Monitor the welding process continuously!

Procedure via the weld head's control panel:



✓ The welding power supply, ground cable, and weld head are connected, set up, and ready for operation.

1. Press the **"START/STOP"** button (2) to start the welding process.
2. Monitor the welding and the unwinding of the hose assembly.

OR via the welding power supply:

► *See the welding power supply operating instructions.*

⇨ The welding process ends automatically once the gas post purge time has elapsed.

9.2 Returning the weld head to home position

After the welding process has been terminated, the hose package is unwound onto the weld head.

► After completion of the gas post purge time the rotor with hose assembly must be returned to its home position.

DANGER		**Rotating machine parts can catch loose or baggy clothing, long hair, or jewelry!** Severe injuries. ► Wear close-fitting clothing during operation. ► Save long hair to prevent it from being caught.
WARNING		**Risk of crushing due to the rotor running freely during operation** During operation, the rotor spins freely for a brief moment. Hands and fingers can be caught, pinched, or crushed by rotating parts. ► Do not reach into the rotor's range of motion. ► Keep hands and fingers away from rotating parts as well as areas where crushing or shearing can occur. ► Keep protective and safety devices closed and in working order during operation. ► Perform work on the rotor only when it has come to a complete and safe stop. ► Wait until the rotor has come to a complete stop before entering the work area.

WARNING

Risk of crushing from rotating parts during electrode replacement and rotor positioning

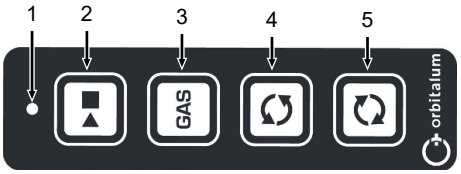
When performing electrode replacement or moving the rotor into position, hands and fingers can become trapped or crushed between rotating and stationary components.

- ► Do not reach into the path of rotating parts.
- ► Keep hands and fingers away from areas where crushing or shearing can occur.
- ► Electrode replacement should only be performed when the machine has come to a complete and safe stop.
- ► Do not initiate rotor movements until you have completely exited the hazard zone.
- ► Do not place any body parts between the rotor and adjacent components while positioning the rotor.

NOTICE!

Swivel back torch articulated arm **before** moving the rotor into home position, until it engages (*see chap.* Set up the torch [▶ 27]).

Procedure via control panel of weld head:



- ► Press and hold “ROTATION COUNTERCLOCKWISE” (4) or “ROTATION CLOCKWISE” (5) key.

OR via welding power supply:

- ► *See operating instructions of the welding power source.*

9.3 Removing the weld head from the workpiece

WARNING

Risk of Crushing from Moving Machine Parts

Hands and fingers can become trapped between moving and adjustable machine parts, resulting in crush injuries.

► Assembly should be performed only by trained personnel.

WARNING

Risk of crushing due to moving machine parts and the clamping system during setup and changeovers

During setup and changeovers, moving parts of the machine and the clamping system may move unexpectedly. Hands and fingers can become trapped or crushed between moving and stationary parts.

► Do not reach into the machine's or clamping system's range of motion.

► Keep hands and fingers away from areas where crushing or shearing may occur.

CAUTION

Risk of cuts from sharp edges and sharp parts during assembly

During assembly, sharp edges on workpieces and cutting parts can cause cuts to the hands and fingers.

► Wear protective gloves.

► Wear safety shoes.

► Be aware of sharp workpiece edges.

► Do not reach along sharp edges.

► Handle workpieces and components with care.

► Keep hands and fingers away from sharp edges and cutting parts.

NOTICE!

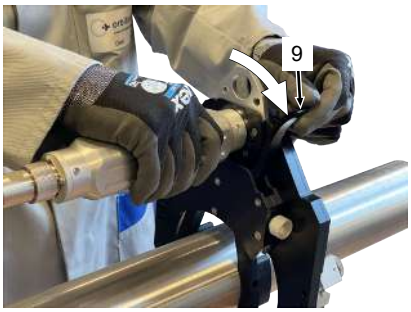
► Swivel back torch articulated arm **before** moving the rotor into home position, until the lock engages (see chap. Set up the torch [▶ 27]).

Procedure:

✓ The rotor is in home position.

✓ Torch articulated arm is locked into home position.

1. Hold weld head to handle/motor.
2. Loosen the clamping lever (9).
3. Remove the weld head from the workpiece and put it down securely.



9.4 Aborting welding

Procedure via control panel of weld head:

DANGER

Rotating machine parts can catch loose or baggy clothing, long hair, or jewelry!

Severe injuries.

► Wear close-fitting clothing during operation.

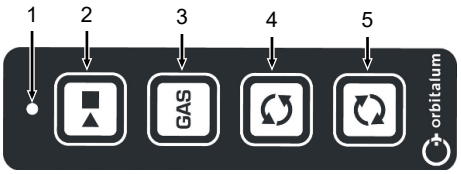
► Save long hair to prevent it from being caught.

WARNING

Risk of crushing due to the rotor running freely during operation

During operation, the rotor spins freely for a brief moment. Hands and fingers can be caught, pinched, or crushed by rotating parts.

- ► Do not reach into the rotor's range of motion.
- ► Keep hands and fingers away from rotating parts as well as areas where crushing or shearing can occur.
- ► Keep protective and safety devices closed and in working order during operation.
- ► Perform work on the rotor only when it has come to a complete and safe stop.
- ► Wait until the rotor has come to a complete stop before entering the work area.



► Press "START/STOP" key (2) on the control panel of the weld head. The current process is stopped. Only the programmed gas post purge time continues to run.
By pressing the "START/STOP" key again during the gas post purge time this is also stopped.

OR via welding power supply:

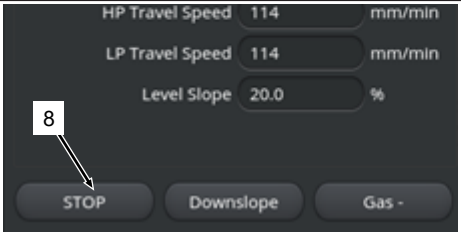
INFO

To demonstrate power sources in these operating instructions the MOBILE WELDER is used as an example.

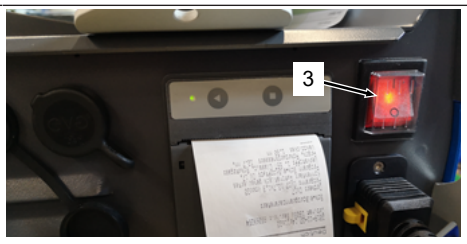
1. ► Press hardware softkey 1 (7)



2. ► Press touchscreen softkey button "STOP" (8)



3. ► Press the ON-OFF switch (6)



► *See operating instructions of the power source*

9.5 Preparing storage

Before storing, perform the following steps:

1. Turn off the welding power supply.
2. Disconnect the weld head from the welding power supply; see the section “ Connecting the weld head to the power source [▶ 33].”
3. Remove the electrode; see the chapter “ Set up the electrode [▶ 26].”
4. Store the weld head. Make sure the hose assembly is not twisted or pinched.

For extended storage, also perform the following steps:

1. Clean the surfaces.
2. Store in a dry, dust-free location.

Observe the following storage conditions:

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

For*additional care and maintenance instructions, see Chapter* Maintenance and troubleshooting [▶ 45].

10 Maintenance and troubleshooting

10.1 Instructions for care

- ► Make sure that **none of** the dirt particles or small parts get into the gearbox (inside the welding head).
- ► If the surfaces become dirty, use only residue-free cleaning agents for cleaning.

10.2 Wartung und Pflege

The following instructions for care depend, if not stated otherwise, strongly on the usage of the weld head.

Shorter cleaning intervals influence the equipment service life positively.

INTERVAL	RESPECTIVE COMPONENT	ACTIVITY
Before every use	Weld head, hoses, wires	► Check for damage and ease of operation of all parts (e.g. defective functional surfaces, leakages, cracks, defective screw heads, etc.).
	Control panel	► Check the keys for functionality.
	Clamping unit	► Check the clamping mechanism for ease of use, function and clamping.
	Electrodes	► Ensure the correct electrode gap (*see chap.* Set up the electrode [▶ 26])
		Only use cleanly partially ground quality electrodes. Recommendation: Type WS2, grinding angle 30° (*see chap.* Grinding electrode).
Before every use	Protective gas for welding	► Only use protective gases that are classified for the TIG welding process according to EN ISO 14175 (e.g. Argon 4.6 or purer protective gas for welding).
		► Set the flow rate: 8 – 15 l/min.
		► Set gas pre-flow time to min. 5 seconds.
	Workpiece/hose	► Ensure a straight hose cut of 90° (with Orbital hose saw) (burred and planed).
		► I-seam (hose-to-hose) without gap or axle offset.
		► Hose surfaces have to be metallically bright and completely free of greases and other soiling.
		► Hoses have to be aligned and tacked to each other without offset.
Every 100 weldings or daily	Weld head	► Clean and remove residues. Depending on the soiling, by using, for example, a wipe/alcohol/isopropyl, cleaning fleece or vacuum cleaner (**do not** use aggressive cleaning agents, as the surfaces might be damaged).
At least every 500 welding processes or weekly	Weld head	► Perform the standard cleaning procedure (*see chap.* Standard cleaning process [▶ 46]) Standard cleaning process). A shorter cleaning interval can prolong the service life of the weld head, the clamping cassettes and the clamping inserts.

INTERVAL	RESPECTIVE COMPONENT	ACTIVITY
Min. every 30,000 weldings or every 24 months	Weld head	► Send in weld head to Orbitalum service for basic cleaning or have cleaning performed by an authorized expert trained by Orbitalum.
Every 2 years	Power/gas cable	► Have it replaced by certified Orbitalum service center.

10.2.1 Standard cleaning process

CAUTION		**Risk of crushing due to unexpected start of the rotor when setting up the electrode.** Risk of crushing of hands and fingers! ► Before connecting the weld head and before mounting the electrode: Switch off orbital welding system. ► Before moving the rotor with closed weld heads, fit clamping cassette or clamping inserts and close clamping unit and flip cover.
DANGER		**The rotation movement of the rotor can cause hair, jewelry or clothes to be caught and pulled into the enclosure.** ► Wear tight-fitting clothes. ► Do not wear open hair, jewelery or other accessories that can be easily drawn in.
CAUTION		**The use of lubricants can severely influence the function and cause damage.** ► Never spray lubricant **into** the welding tongs!
NOTICE!		Cleaning work on the welding tongs may only be carried after it has cooled down completely!
NOTICE!		Cleaning of the welding tongs should be carried out at least every 500 welding processes. Shorter cleaning intervals influence the equipment service life positively.

Required cleaning materials:

- Lint-free cotton cloth
- Lubricant ENI Autol Top 2000 Super Longtime.
  Observe the safety data sheet of the lubricant used!

Procedure:

1. Remove soiled lubricant from the sliding surface of the rotor bearing using a lint-free cotton cloth and apply fresh lubricant thinly.
2. After each usage clean surfaces with a lint-free cotton cloth.
3. Remove foreign matter from the gas nozzle and gas lens. In the case of stubborn soiling, a Scotch-Brite cleaning sponge or a comparable product can be used.

10.3 Replacing the gas nozzle and/or lens

CAUTION		**Risk of burns from hot components** ► Components must be cooled down before replacement.

CAUTION		**Unintentional starting up of the weld head!**
		Crushing of hands and fingers.
		► Switch off the Orbital welding power source.

Procedure:

► Screw off any soiled or damaged gas nozzle (5) and screw on the new gas nozzle.

Carry out the following additional steps to replace the gas lens:

1. Remove electrode, if fitted, *see chap.* Set up the electrode [▸ 26].
2. Unscrew gas lens (4) and remove Teflon seal (3).
3. Place Teflon seal onto the new gas lens (4).
4. Screw all the components back together and, if applicable, mount the electrode again.

IMAGE	DESIGNATION
1 	Torch cap
2 	Clamping sleeve
3 	Teflon seal
4 	Gas lens
5 	Gas nozzle

Codes, see Ersatzteilliste / Spare parts list

10.4 Troubleshooting

PROBLEM	POSSIBLE CAUSE	SOLUTION
The welding process does not start.	No gas supply.	► Check the connections to the welding power supply.
		► Check the hoses, gas cylinder, and pressure regulator.
The weld head is not clamped properly to the workpiece.	The tube diameter does not match the clamping jaws/clamping arm.	► Use the correct clamping jaws or remove the clamping jaws.
Permanent large and varying speed deviations.	Defect in the welding power supply or weld head.	► Contact a service center.
The arc does not ignite.	Weld head and ground cable not connected properly.	1. Clean the workpiece and contact clamp. 2. Remove any insulating layers.
	Poor contact between the workpiece and the contact clamp.	
	Workpieces are dirty.	► Clean the workpiece.
	Welding gas concentration is too low.	► Check the welding gas supply and flow rate.
	Electrode gap too wide.	► Adjust the electrode gap. Adjust welding gap
	Electrode tip is worn.	► Regrind the electrode. *See section* Grinding electrode [▶ 48]
	Broken cable.	► Replace the current-gas cable.
The arc pulls to one side.	Electrode is worn.	► Regrind the electrode. *See section* Grinding electrode [▶ 48]
	Electrode ground incorrectly.	► Regrind the electrode. *See chapter* Grinding electrode [▶ 48]
	Poor electrode quality.	► Use Orbitalum electrodes. *See chapter*
	Incorrect workpiece material	► Change the workpiece material.
	Poor workpiece quality	► Use a different material batch.
Turning movement does not start.	Foreign object in the gearbox.	► If possible, remove foreign objects using a vacuum. Otherwise, send the weld head in for Service. Under no circumstances allow the rotor to turn.
	Connection is faulty.	► Check the connector and the welding power supply.

10.5 Grinding electrode

WARNING

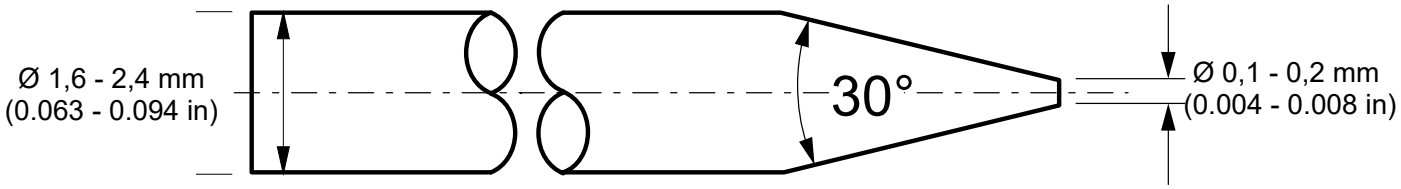
Risk of injury from tip-shaped components.

Sharp components, especially the electrode, can cause puncture and cut injuries.

► Wear the required personal protective equipment, especially safety shoes.

► Avoid contact with sharp and pointed components.

1. Grind the electrode only in the longitudinal direction.
2. After the electrode has been ground, break the tip in accordance with the following sketch.



10.6 Servicing/Customer service

The following data are required to order spare parts:

- Machine model: (example: MH 4.5)
- Machine No.: See type plate

► For ordering spare parts, see the spare part list.

► Contact your local branch directly in order to eliminate problematic situations.

11 Accessories (optional)

- Mobile Feeder
- MH Accessory Kit
- GC hose assembly, 7 m
- Hose assembly LC, 7 m
- Control Cable TP/MH/DVR-M, 7.5 m
- Ground Cable, 5 m
- Hose Assembly Extensions
- ORBmax Residual Oxygen Meter
- ORBIPURGE forming set
- WS2 Tungsten Electrodes
- ESG electrode grinding machine

WARNING 

Danger presented by using accessories that have not been approved.

Various injuries and damage to property.

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

► For a detailed overview of compatible accessories, see the "Orbital Welding" product catalog.

PDF Download Links:

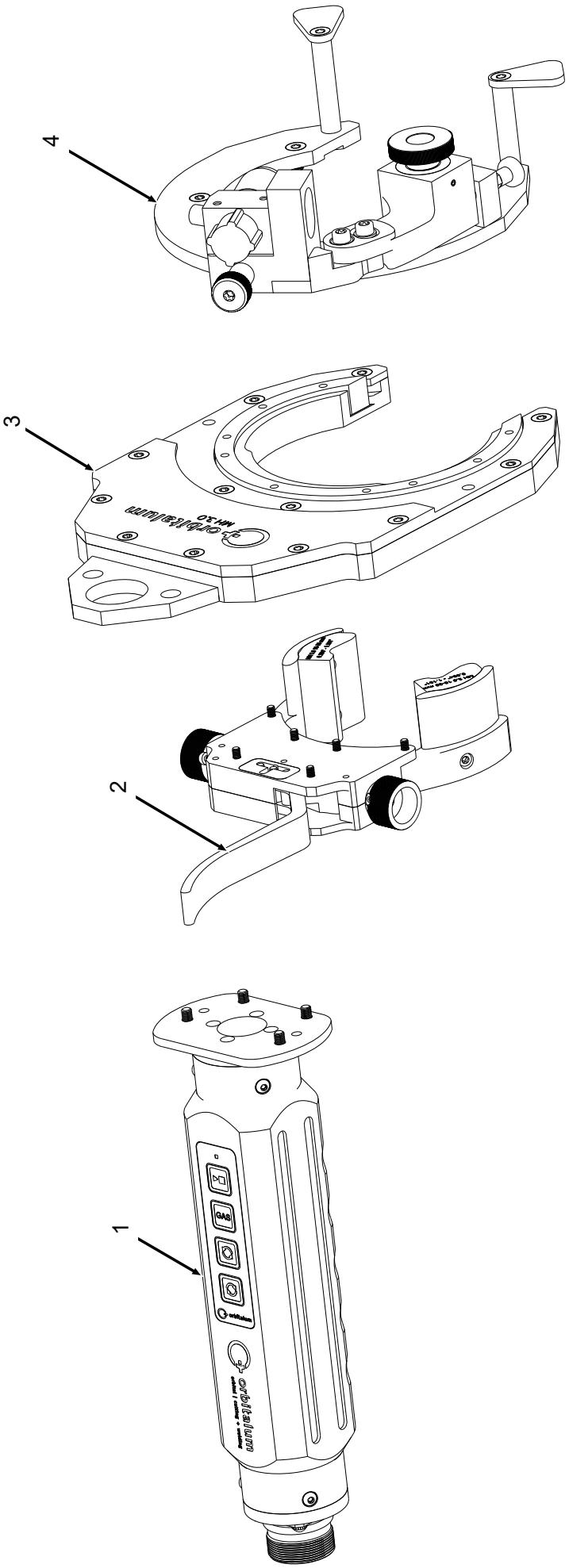
https://www.orbitalum.com/de/download.html



► Connect the appropriate accessories; refer to the accessories' operating instructions.

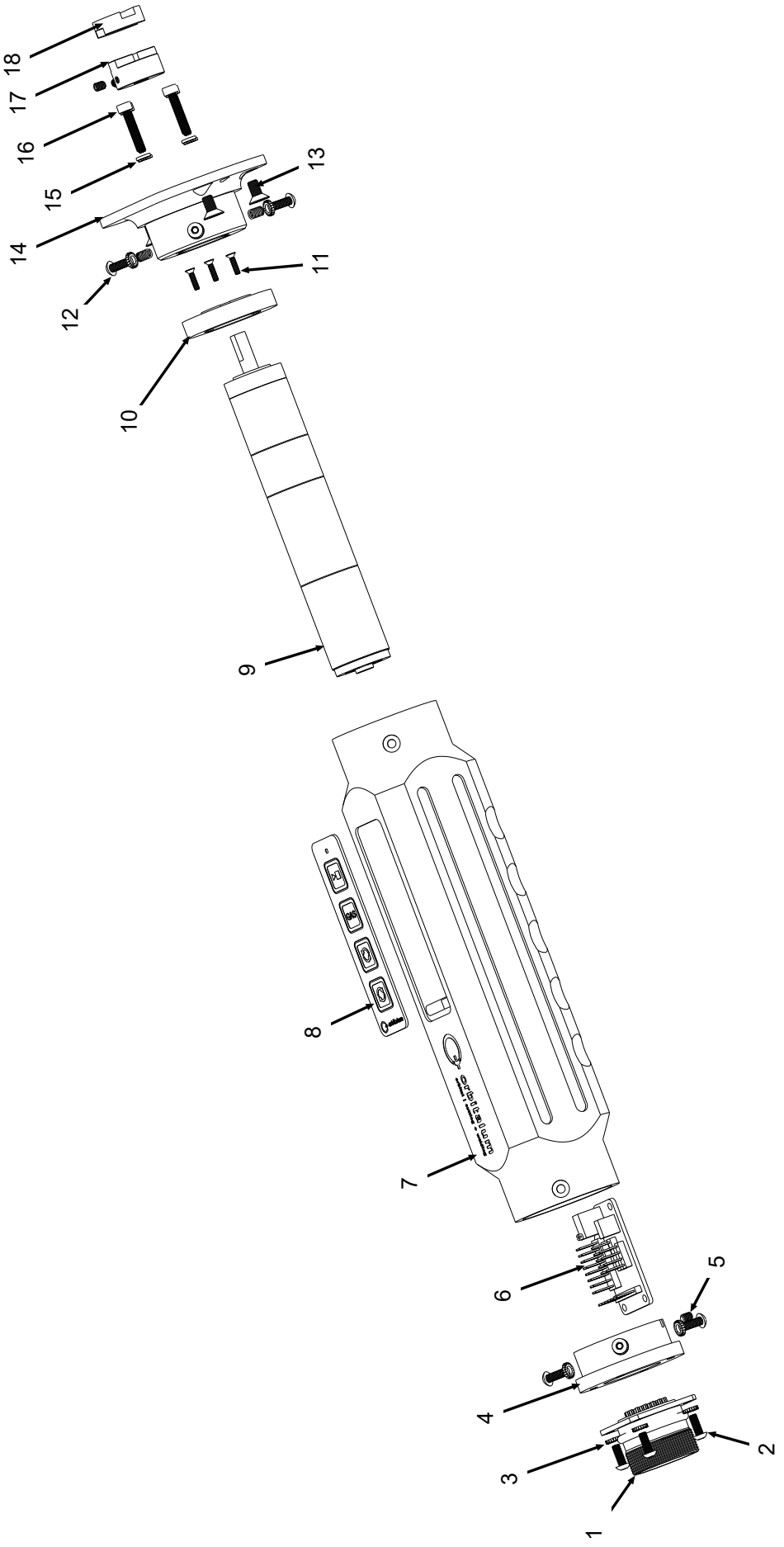
Ersatzteilliste / Spare parts list

Gesamtmaschine MH 3.0 | Total machine MH 3.0



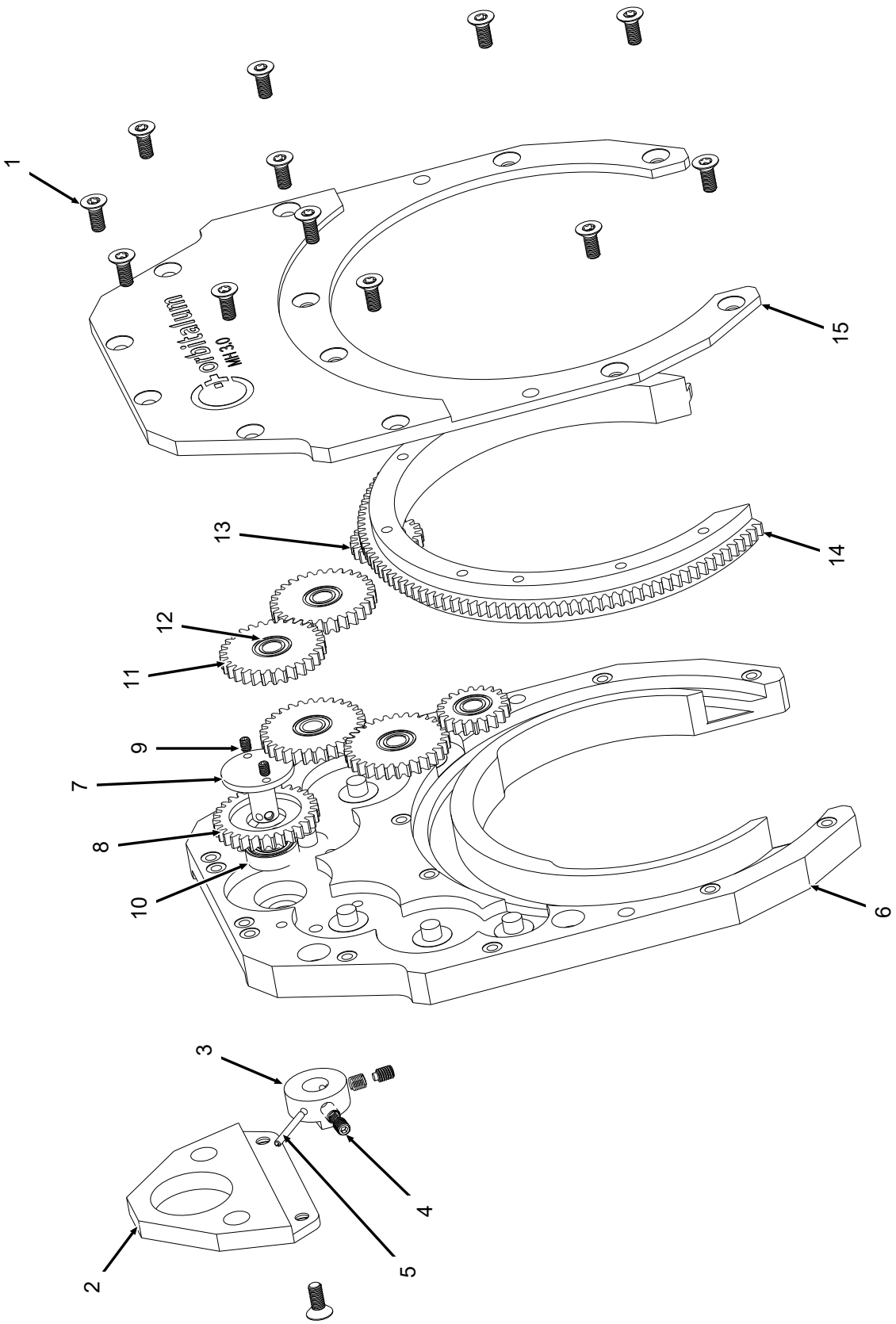
POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION
1		1	Motorhülse MH3.0 Motor sleeve MH3.0
2		1	Spanneinheit MH3.0 Clamping unit MH3.0
3		1	Grundkörper MH3.0 Base body MH3.0
4		1	Rotorplatte MH3.0 Rotor plate MH3.0

Motorhülse MH 3.0/4.5/6.6 | Motor sleeve MH 3.0/4.5/6.6



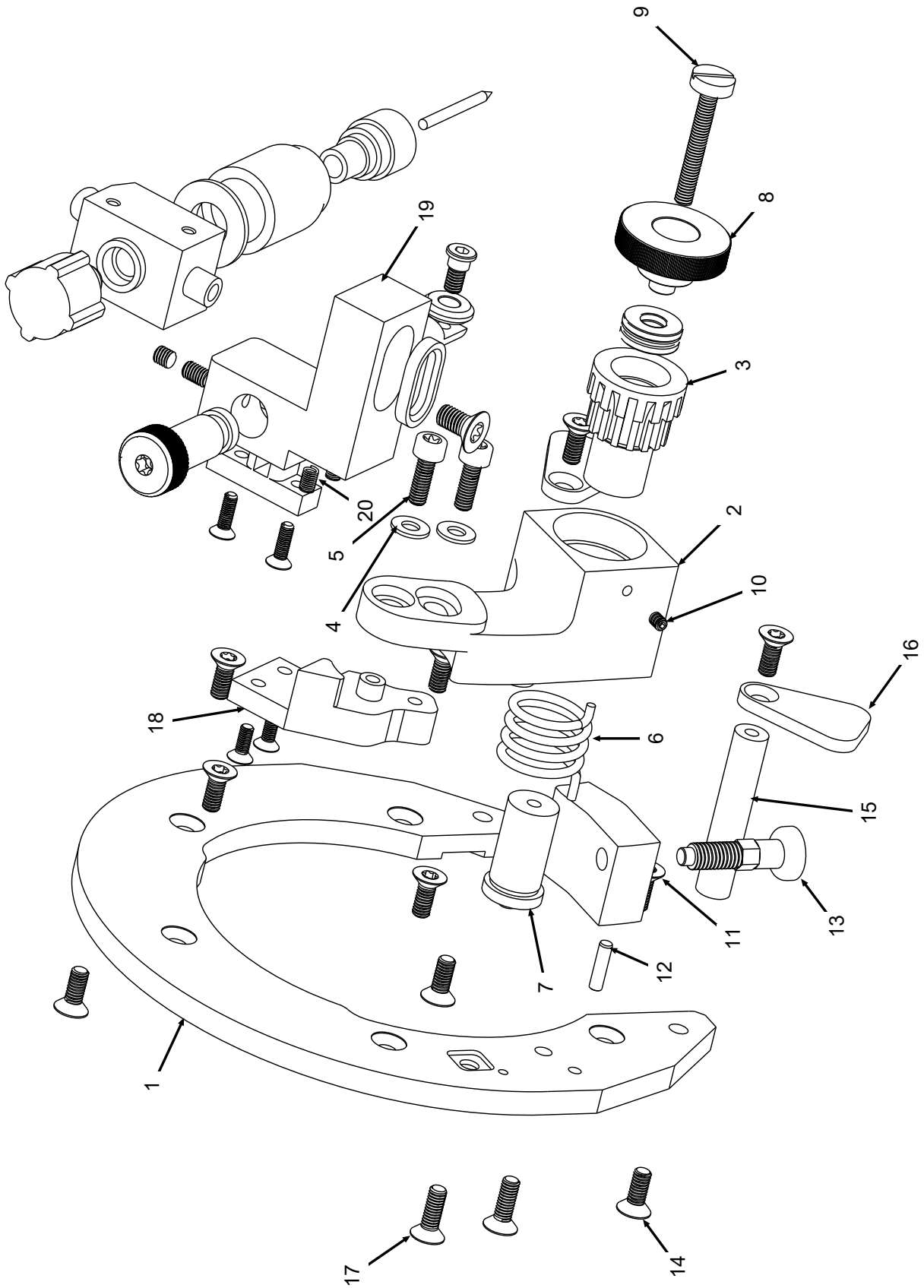
POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION	POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION
1	803 050 002	1	Anschlussdose Steuerleitung MH 3.0 Connection socket, signals MH 3.0	9	804 050 003	1	Motor/Tachoeinheit MH 4.5 Motor/tacho unit MH 4.5
	804 050 002		Anschlussdose Steuerleitung MH 4.5 Connection socket, signals MH 4.5	10	803 020 006	1	Adapterscheibe Motor MH Adapter disk motor MH
	805 050 002		Anschlussdose Steuerleitung MH 6.6 Connection socket, signals MH 6.6	11	803 025 001	3	Senkkopfschraube DIN965-M2x8-A2 Countersunk screw DIN965-M2x8-A2
2	307 001 114	10	Linsenschraube ISO7380-M3x8-A2 Oval-head screw ISO7380-M3x8-A2	12	811 020 019	3	Gewindeeinsatz M3xM5 Threaded insert M3xM5
3	553 458 325	10	Fächerscheibe DIN6798-A3.2-A2 Serrated lock washer DIN6798-A3.2-A2	13	803 025 004	4	SenkkopfschraubeDIN965-M4x8-A2 Countersunk screw DIN965-M4x8-A2
4	803 020 004	1	Bundbuchse, Anschlussdose MH Flanged socket, connection socket MH	14	803 020 007	1	Motorflansch MH Motor flange MH
5	803 025 011	3	Gewindestift ISO4026-M3x4-A2 Grub screw ISO4026-M3x4-A2	15	553 051 310	4	Federring DIN7980-5-FST Spring washer DIN7980-5-FST
6	826 012 010	1	Tachospannungsteiler, Platine Voltage devider, circuit board	16	803 025 009	4	Zylinderschraube ISO14579-M3x16-A2 Cylinder screw ISO14579-M3x16-A2
7	803 020 005	1	Motorgehäuse MH Motor housing MH	17	803 020 008	1	Motorkupplung, Motor MH Motor coupling, motor MH
8	803 007 002	1	Schalterplatte MH Switch plate MH	18	803 020 009	1	Kupplungsscheibe MH Coupling disk MH

Grundkörper MH 3.0 | Base body MH 3.0

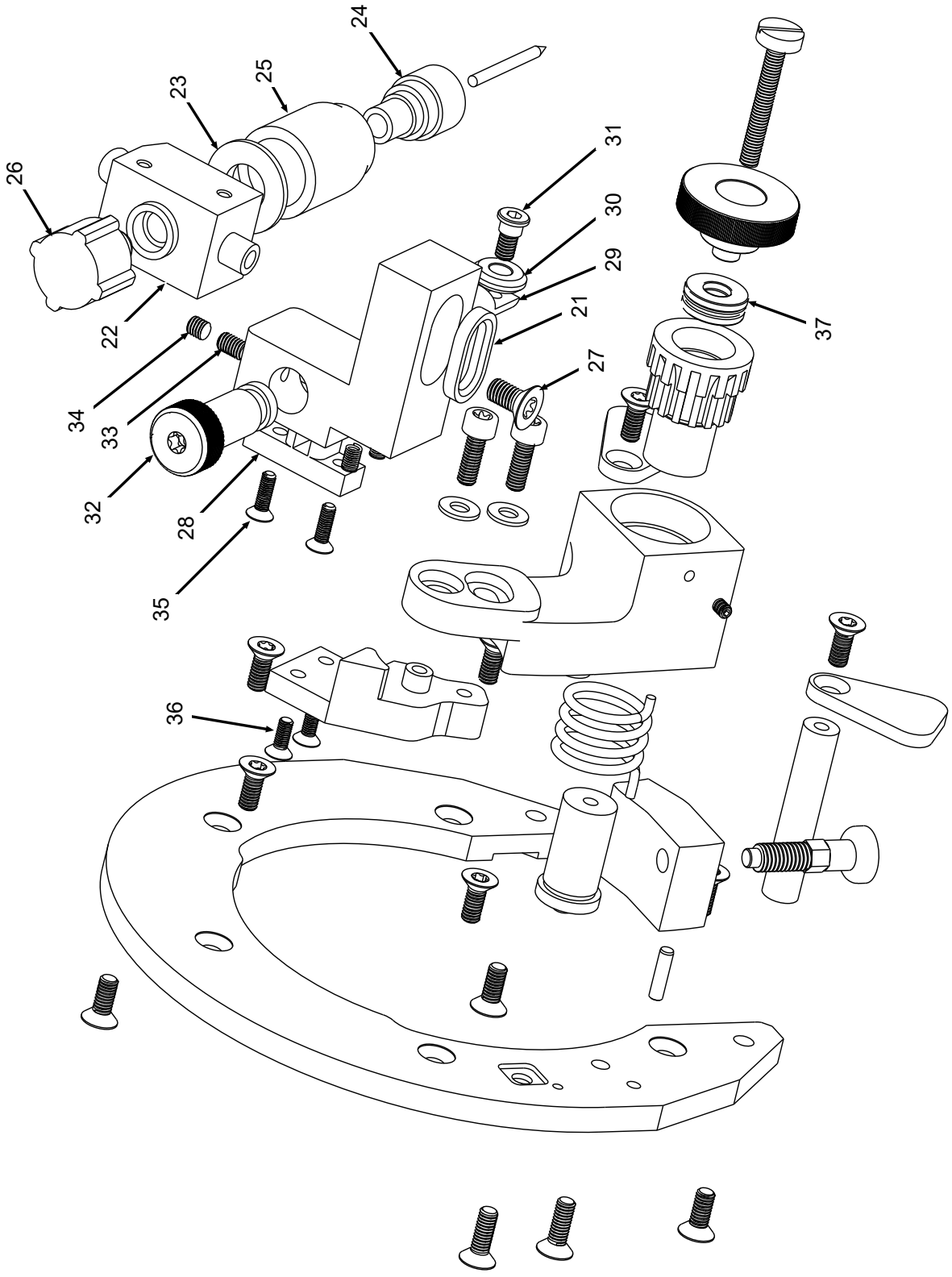


POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION	POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION
1	803 025 005	14	Senkkopfschraube DIN965-M4x10-A2 Senkkopfschraube DIN965-M4x10-A2	10	803 020 015	1	Rillenkugellager 688ZZ 8x16x5 Deep groove ball bearing 688ZZ 8x16x5
2	803 020 017	1	Aufhängeöse MH Suspension eye MH	11	803 020 033	4	Zahnrad Z30 MH 3.0 Gear Z30 MH 3.0
3	803 020 016	1	Motorkupplung, Grundkörper MH Motor coupling, basic body MH	12	803 020 014	6	Rillenkugellager MR126-ZZ 6x12x4 Ball bearing MR126-ZZ 6x12x4
4	803 025 016	2	Gewindestift DIN915-M4x6-A2 Grub screw DIN915-M4x6-A2	13	803 020 032	2	Zahnrad Z20 MH 3.0 Gear Z20 MH 3.0
5	803 025 018	1	Spiralspannstift DIN7343-D2x18 Coiled spring pin DIN7343-D2x18	14	803 020 043	1	Rotor MH 3.0 Rotor MH 3.0
6	803 020 041	1	Grundkörper MH 3.0 Base body MH 3.0	15	803 020 042	1	Deckel Grundkörper MH 3.0 Cover base body MH 3.0
7 8	803 050 007	1	Antriebszahnrad MH Drive gear MH				
9	803 025 012	2	Gewindestift DIN913-M3x4-A2 Grub screw DIN913-M3x4-A2				

Drehteller MH 3.0 | Turntable MH 3.0

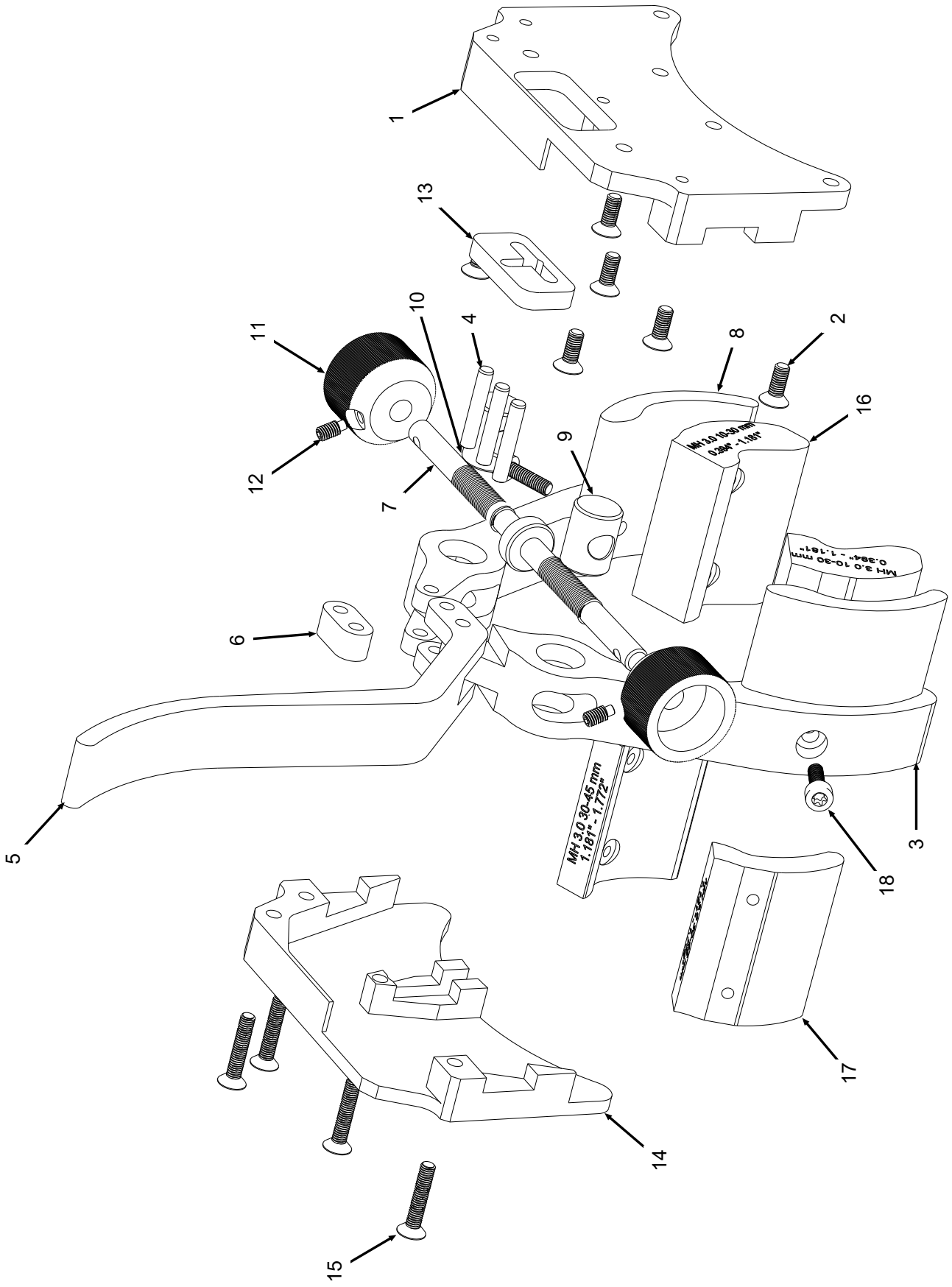


POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION	POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION
1	803020044	1	Rotorplatte MH 3.0 Rotor plate MH 3.0	11	803 020 022	1	Montageblock, Brennerarretierung MH Mounting block, torch locking MH
2	803 050 008	1	Basisteil Brennerarm MH Base part burner arm MH	12	803 025 017	1	Zylinderstift DIN6325-D3h6x12 Parallel pin DIN6325-D3h6x12
3				13	803 020 023	1	Rastbolzen, Brennerarretierung MH Locking bolt, torch locking MH
4	542 500 318	1	Scheibe DIN125-A-4.3-A2 Washer DIN125-A-4.3-A2	14	803 025 005	10	Senkkopfschraube DIN965-M4x10-A2 Countersunk screw DIN965-M4x10-A2
5	803 025 010	2	Zylinderschraube ISO14579-M4x12-A2 Cylinder head screw ISO14579-M4x12-A2	15	803 020 029	2	Hülse, Aufnahme Schlauchpaket MH Sleeve, mounting hose assembly MH
6	803 020 018	2	Torsionsfeder MH Torsion spring MH	16	803 020 030	2	Platte, Aufnahme Schlauchpaket MH Plate, mounting hose assembly MH
7	803 020 019	1	Gelenkbolzen, Brennerarm MH Joint bolt, torch arm MH	17	803 025 006	2	Senkkopfschraube DIN965-M4x12-A2 Senkkopfschraube DIN965-M4x12-A2
8	803 020 020	1	Rändelschraube, Brennerverstellung MH Knurled screw, torch adjustment MH	18	803 020 045	1	Ausleger, Brennerarm MH 3.0 Extension arm, torch arm MH 3.0
9	803 020 021	1	Hauptschraube, Brennerarm MH Main screw, torch arm MH	19	803 020 024	1	Brenneraufnahme MH Torch holder MH
10	803 025 014	1	Gewindestift DIN914-M3x5-A2 Grub screw DIN914-M3x5-A2	20	803 025 015	2	Gewindestift DIN915-M4x4-A2 Grub screw DIN915-M4x4-A2


24
23
25
26
31
30
29
21
22
37
27
34
33
32
28
35
36

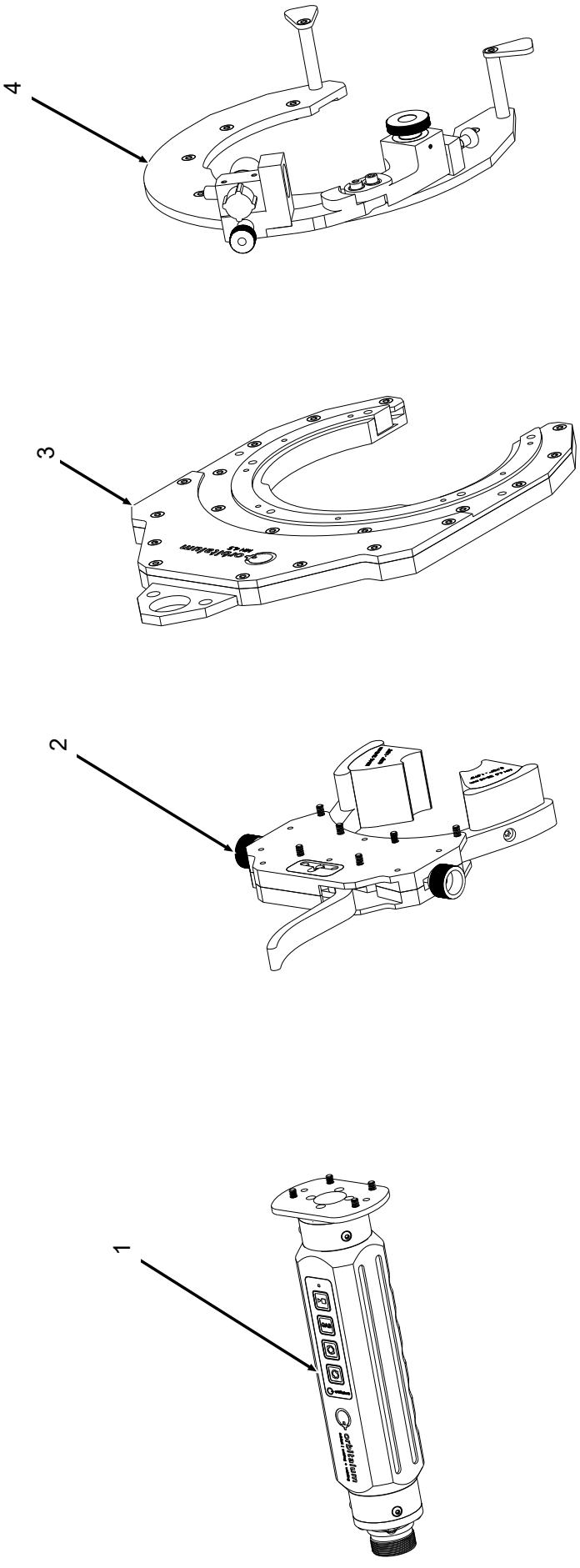
POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION	POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION
21	803 020 025	1	Einleger, Brenneraufnahme MH Insert, torch holder MH	31	803 020 049	1	Schaftschraube, Tastrad MH Shaft screw, feeler wheel MH
22	803 005 001	1	Brennerkörper MH Torch body MH	32	803 020 051	1	Rändelmutter, Tastrad MH Knurled nut, feeler wheel MH
23	803 020 002	1	Brennerisolator MH Torch insulator MH	33	803 025 013	1	Gewindestift DIN913-M4x5-A2 Grub screw DIN913-M4x5-A2
24	812 020 022	1	Gaslinse 2.4 TP/MH/HB V1/MB 250A Gas lens 2.4, TP/MH/HB V1/MB 250A	34	803 025 015	1	Gewindestift DIN915-M4x4-A2 Grub screw DIN915-M4x4-A2
25	812 020 023	1	Gasdüse, TP/MH/HB V1/MB 250A Gas nozzle, TP/MH/HB V1/MB 250A	35	803 025 002	2	Senkkopfschraube DIN965-M3x8-A2-TX Countersunk screw DIN965-M3x8-A2-TX
26	803 020 003	1	Brennerkappe MH Torch cap MH	36	803 025 001	2	Senkkopfschraube DIN965-M2x8-A2 Countersunk screw DIN965-M2x8-A2
27	803 025 019	1	Senkkopfschraube DIN965-M5x10-A2-TX Senkkopfschraube DIN965-M5x10-A2-TX	37	803 020 031	1	Axiallager MH Axial bearing MH
28	803 020 052	1	Haltelasche, Tastrad MH Retaining lug, feeler wheel MH		803 050 006	1	Strom-Gasschlauch MH Current gas hose MH
29	803 020 050	1	Ausleger, Tastrad MH Extension arm, feeler wheel MH				
30	803 020 048	1	Tastrad MH Feeler wheel MH				

Spanneinheit MH 3.0 | Clamping unit MH 3.0



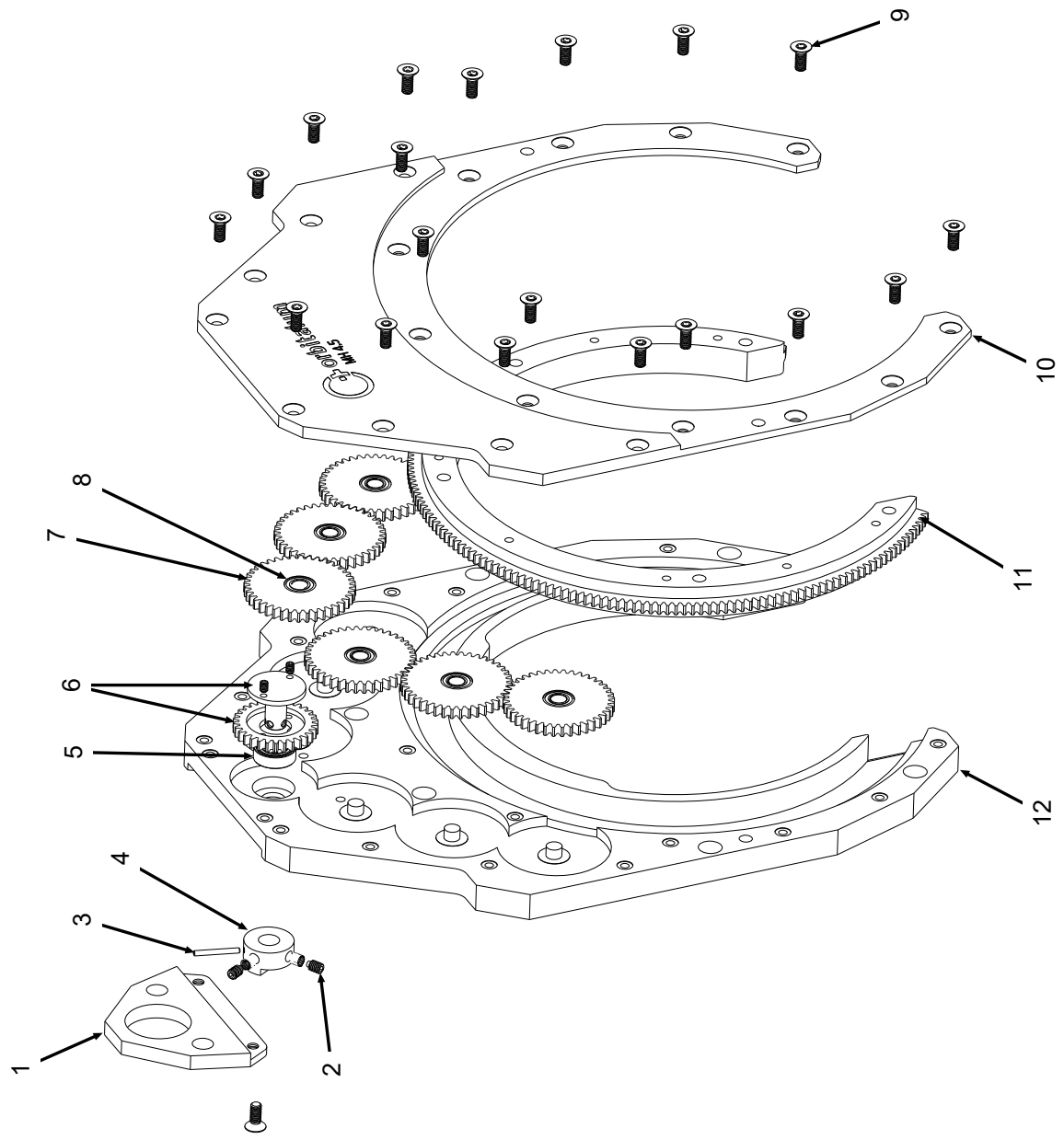
POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION	POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION
1	803 020 001	1	Grundplatte MH 3.0 Base plate MH 3.0	11	803 020 013	2	Justierknopf MH Adjustment knob MH
2	803 025 005	6	Senkkopfschraube DIN965-M4x10-A2 TX Countersunk screw DIN965-M4x10-A2-TX	12	445 005 226	2	Gewindestift DIN915-M3x6-A2 Grub screw DIN915-M3x6-A2
3	803 020 035	1	Klemmarm links MH 3.0 Clamping arm left MH 3.0	13	803 020 039	1	Führungsplatte MH 3.0 Guide plate MH 3.0
4	565 808 323	3	Zylinderstift DIN6325-D5h6x18 Cylinder pin DIN6325-D5h6x18	14	803 020 040	1	Deckplatte MH 3.0 Cover plate MH 3.0
5	804 020 038	1	Hebel MH 4.5/6.6 Lever MH 4.5/6.6	15	305 501 023	4	Senkkopfschraube ISO14581-M4x18-A2 Senkkopfschraube ISO14581-M4x18-A2
6	803 020 037	1	Pleuel MH 3.0 Connecting rod MH 3.0	16	803 020 046	1	Spannbacken-Set MH3.0 10-30 mm Clamping jaw set MH3.0 10-30 mm
7	804 020 036	1	Welle MH 3.0 Shaft MH 3.0	17	803 020 047	1	Spannbacken-Set MH3.0 30-45 mm Clamping jaw set MH3.0 30-45 mm
8	804 020 006	1	Klemmarm rechts MH 3.0 Clamping arm right MH 3.0	18	803 025 010	2	Zylinderschraube IS014579-M4x12-A2 Cylinder head screw ISO14579-M4x12-A2
9	803 020 011	1	Schwenklager links MH Pivot bearing left MH				
10	803 020 012	1	Schwenklager rechts MH Swivel bearing right MH				

Gesamtmaschine MH 4.5 | Total machine MH 4.5



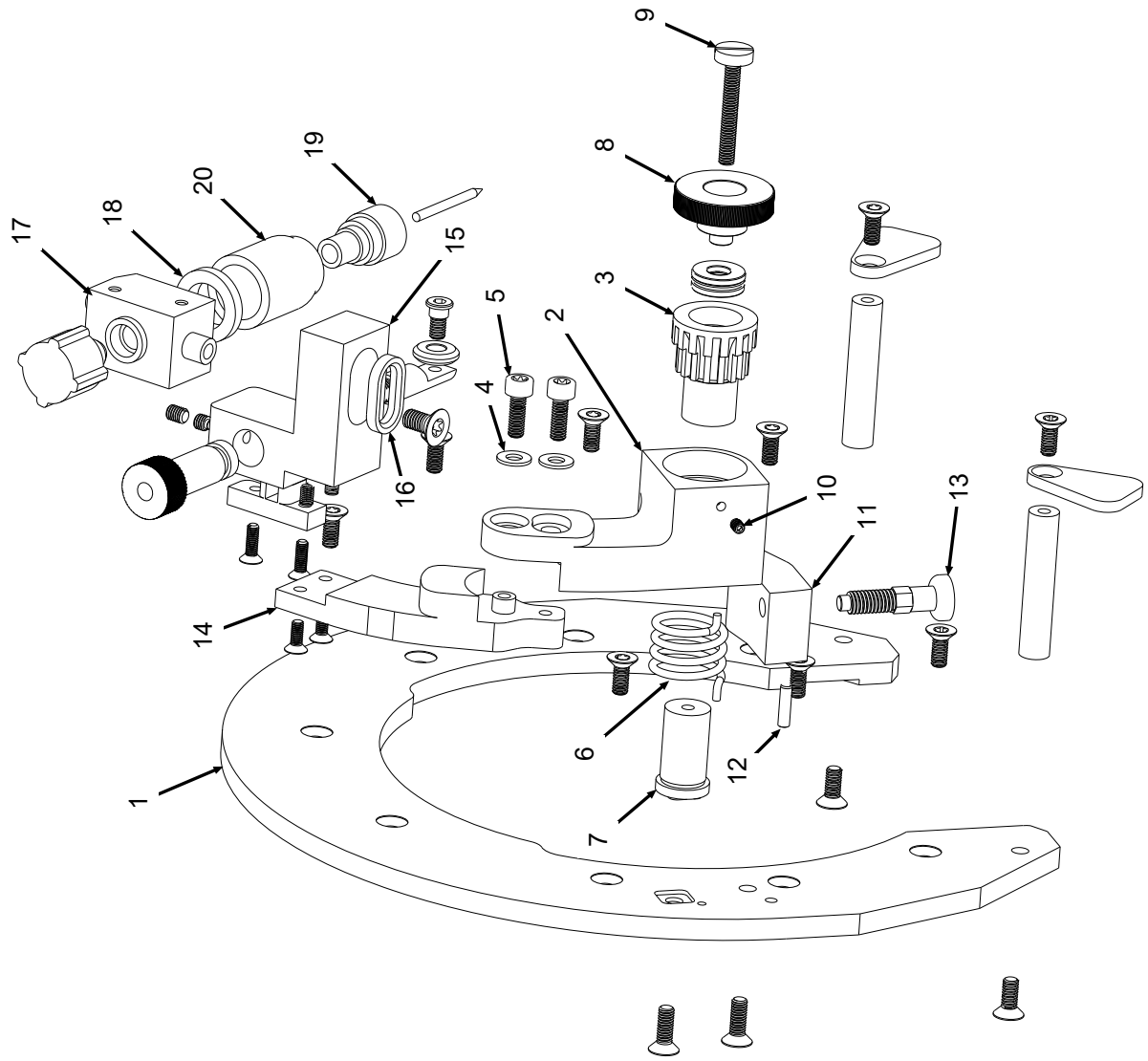
POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION
1		1	Motorhülse MH4.5 Motor sleeve MH4.5
2		1	Spanneinheit MH4.5 Clamping unit MH4.5
3		1	Grundkörper MH4.5 Base body MH4.5
4		1	Rotorplatte MH4.5 Rotor plate MH4.5

Grundkörper MH 4.5 | Base body MH 4.5

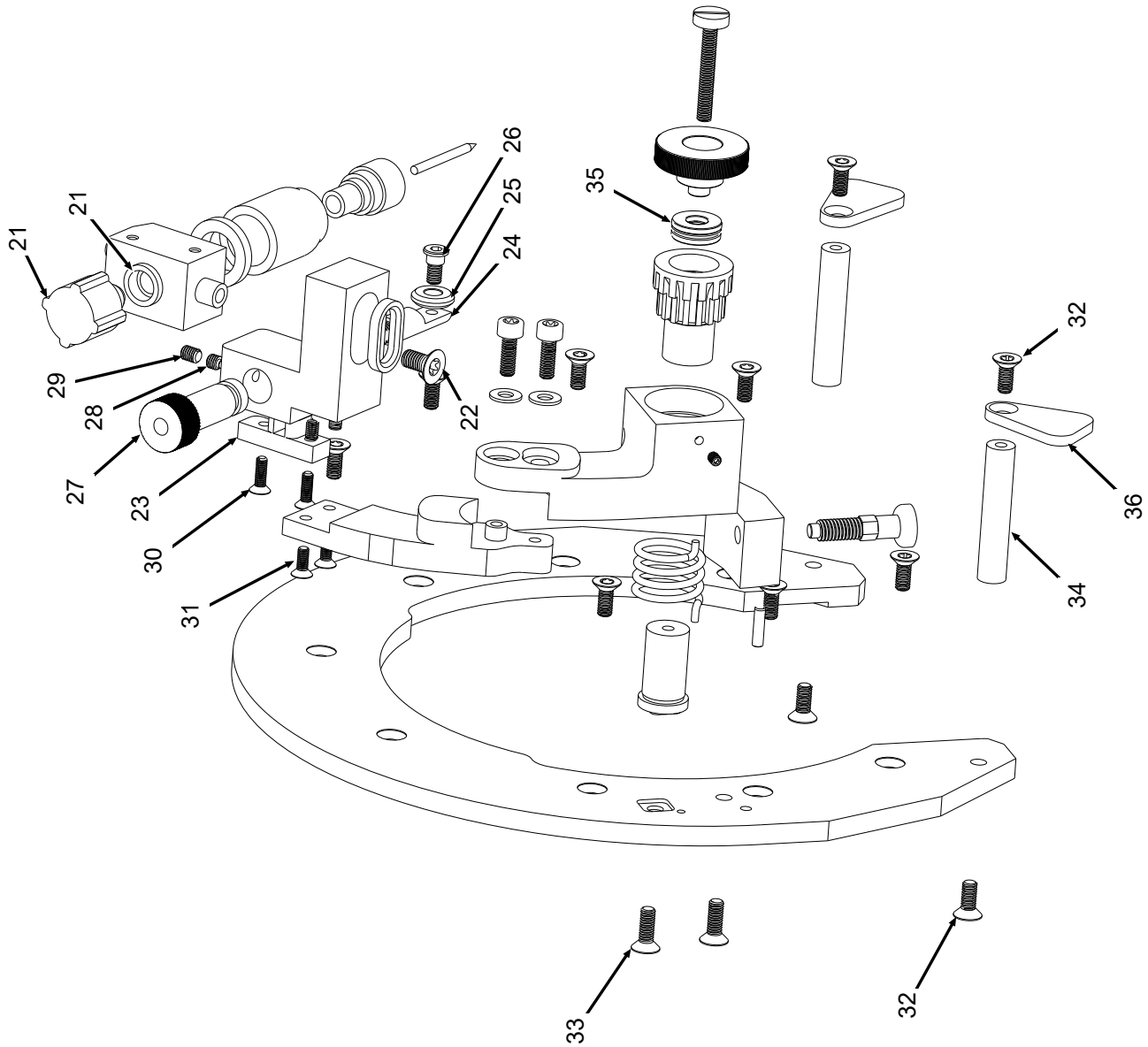


POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION
1	803 020 017	1	Aufhängeöse MH Suspension eye MH
2	803 025 016	2	Gewindestift DIN915-M4x6-A2 Grub screw DIN915-M4x6-A2
3	803 025 018	1	Spiralspannstift DIN7343-D2x18 Coiled spring pin DIN7343-D2x18
4	803 020 016	1	Motorkupplung, Grundkörper MH Motor coupling, basic body MH
5	803 020 015	1	Rillenkugellager 688ZZ 8x16x5 Deep groove ball bearing 688ZZ 8x16x5
6	803 050 007	1	Antriebszahnrad MH Drive gear MH
7	804 020 014	6	Zahnrad Z40 MH 4.5/6.6 Gear Z40 MH 4.5/6.6
8	803 020 014	6	Rillenkugellager MR126-ZZ 6x12x4 Bearing MR126-ZZ 6x12x4
9	803 025 005	21	Senkkopfschraube DIN965-M4x10-A2 Senkkopfschraube DIN965-M4x10-A2
10	804 020 012	1	Deckel Grundkörper MH 4.5 Cover base body MH 4.5
11	804 020 013	1	Rotor MH 4.5 Rotor MH 4.5
12	804 020 015	1	Grundkörper MH 4.5 Base body MH 4.5

Drehteller MH 4.5 | Turntable MH 4.5

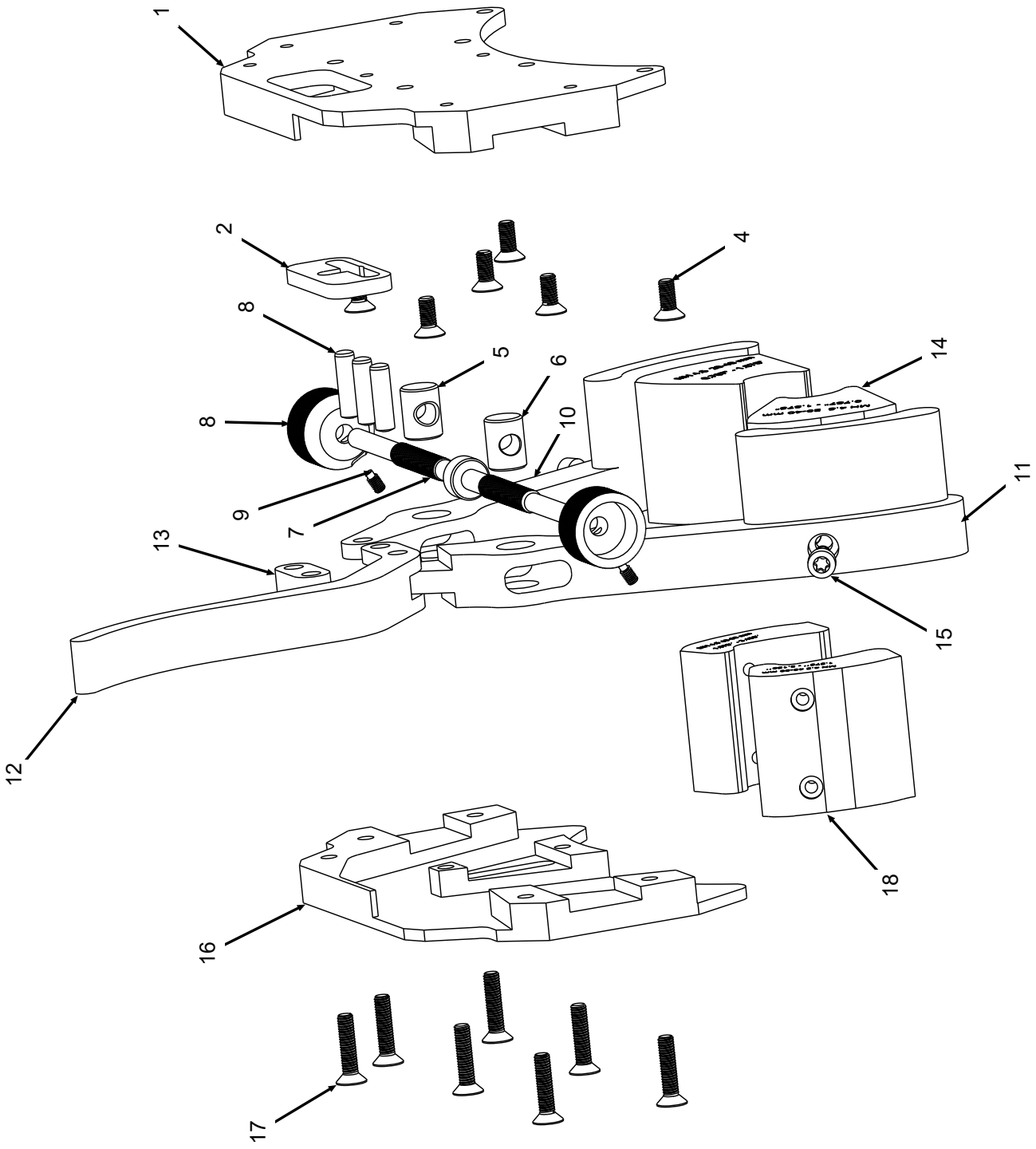


ITEM NO.	CODE PART NO.	PCS. QTY.	NAME DESCRIPTION	ITEM NO.	CODE PART NO.	PCS. QTY.	NAME DESCRIPTION
1	804 020 016	1	Rotor plate MH 4.5 Rotor plate MH 4.5	11	803 020 022	1	Mounting block, torch locking MH Mounting block, torch lock MH
2	803 050 008	1	Base part, torch arm MH Base part for MH burner arm	12	803 025 017	1	Cylindrical pin DIN 6325-D3h6x12 Parallel pin DIN 6325-D3h6x12
3				13	803 020 023	1	Locking bolt, torch locking MH Locking bolt, torch lock MH
4	542 500 318	2	Washer DIN125-A-4.3-A2 Washer DIN 125-A-4.3-A2	14	804 020 017	1	Extension arm, torch arm MH 4.5 Extension arm, torch arm MH 4.5
5	803 025 010	2	Cylinder screw ISO 14579-M4x12-A2 Cylinder head screw ISO 14579-M4x12-A2	15	803 020 024	1	Torch holder MH Torch holder MH
6	803 020 018	1	Torsion spring MH Torsion spring MH	16	803 020 025	1	Insert, Torch Holder MH Insert, torch holder MH
7	803 020 019	1	Joint bolt, torch arm MH Joint bolt, torch arm MH	17	803 005 001	1	Torch body MH Torch body MH
8	803 020 020	1	Knurled screw, torch adjustment MH Knurled screw, torch adjustment MH	18	803 020 002	1	Torch insulator MH Torch insulator MH
9	803 020 021	1	Main screw, torch arm MH Main screw, torch arm MH	19	812 020 022	1	Gas lens 2.4 TP/MH/HB V1/MB 250A Gas lens 2.4, TP/MH/HB V1/MB 250A
10	803 025 014	1	Grub screw DIN 914-M3x5-A2 Grub screw DIN 914-M3x5-A2	20	812 020 023	1	Gas nozzle, TP/MH/HB V1/MB 250A Gas nozzle, TP/MH/HB V1/MB 250A


21
21
26
25
24
35
29
28
27
23
30
31
22
32
36
34
33
32

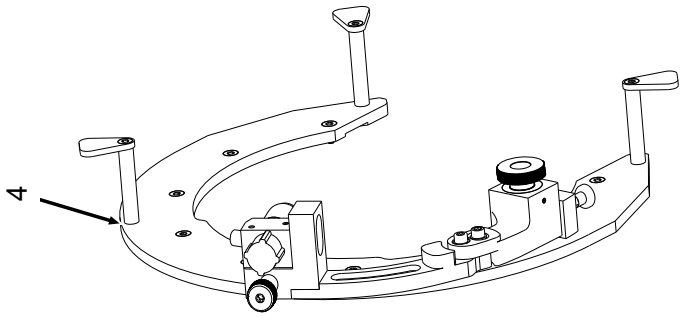
ITEM NO.	CODE PART NO.	PCS. QTY.	NAME DESCRIPTION
21	803 020 003	1	Torch Cap MH Torch cap MH
22	803 025 019	1	Countersunk screw DIN 965-M5x10-A2 Countersunk screw DIN 965-M5x10-A2
23	803 020 052	1	Retaining lug, feeler wheel MH Retaining lug, feeler wheel MH
24	803 020 050	1	Extension arm, feeler wheel MH Extension arm, feeler wheel MH
25	803 020 048	1	Feeler wheel MH Feeler wheel MH
26	803 020 049	1	Shaft screw, feeler wheel MH Shaft screw, feeler wheel MH
27	803 020 051	1	Knurled nut, feeler wheel MH Knurled nut, feeler wheel MH
28	803 025 015	1	Grub screw DIN915-M4x4-A2 Set screw DIN 915-M4x4-A2
29	803 025 013	1	Grub screw DIN913-M4x5-A2 Grub screw DIN 913-M4x5-A2
30	803 025 003	2	Countersunk screw DIN 965-M3x10-A2-TX Countersunk screw DIN 965-M3x10-A2-TX
31	803 025 002	2	Countersunk screw DIN 965-M3x8-A2 Countersunk screw DIN 965-M3x8-A2
32	803 025 005	12	Countersunk screw DIN 965-M4x10-A2 Countersunk screw DIN 965-M4x10-A2
33	803 025 006	2	Countersunk screw DIN 965-M4x12-A2 Countersunk screw DIN 965-M4x12-A2
34	803 020 029	3	Sleeve, Mounting for Hose Assembly MH Sleeve, mounting hose assembly MH
35	803 020 031	1	Axial Bearing MH Axial Bearing MH
36	803 020 030	3	Plate, Hose Assembly Mounting MH Plate, mounting hose assembly MH
37	812 020 024	1	Clamping sleeve 2.4, TP/MH/HB V1 Clamping sleeve 2.4, TP/MH/HB V1
	803 050 006	1	Electric/Gas Hose MH Current/Gas Hose MH

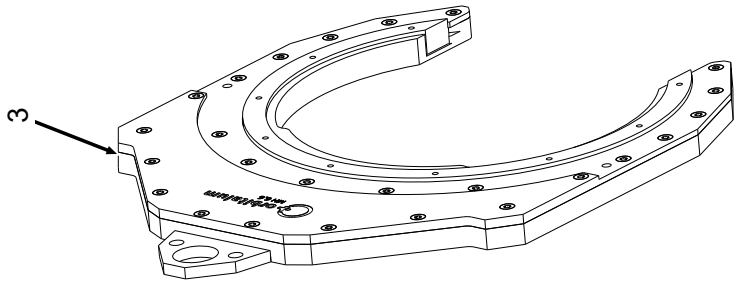
Spanneinheit MH 4.5 | Clamping unit MH 4.5

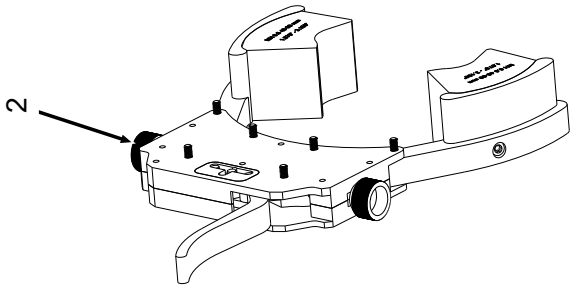


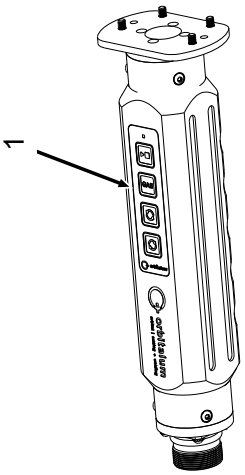
POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION	POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION
1	804 020 001	1	Grundplatte MH 4.5 Base plate MH 4.5	11	804 020 002	1	Klemmarm links MH 4.5 Clamping arm left MH 4.5
2	804 020 007	1	Führungsplatte MH 4.5/6.6 Guide plate MH 4.5/6.6	12	804 020 005	1	Hebel MH 4.5/6.6 Lever MH 4.5/6.6
3	803 025 005	6	Senkkopfschraube DIN965-M4x10-A2 Senkkopfschraube DIN965-M4x10-A2	13	804 020 004	1	Pleuel MH 4.5/6.6 Connecting rod MH 4.5/6.6
4	565 808 323	3	Zylinderstift DIN6325-D5h6x18 Cylinder pin DIN6325-D5h6x18	14	804 020 009	1	Spannbacken-Set MH4.5 20-40 mm Clamping jaw set MH4.5 20-40 mm
5	803 020 012	1	Schwenklager rechts MH Swivel bearing right MH	15	803 025 010	2	Zylinderschraube IS014579-M4x12-A2 Cylinder head screw ISO14579-M4x12-A2
6	803 020 011	1	Schwenklager links MH Pivot bearing left MH	16	804 020 008	1	Deckplatte MH4.5 Cover plate MH 4.5
7	804 020 003	1	Welle MH 4.5/6.6 Shaft MH 4.5/6.6	17	305 501 023	7	Senkkopfschraube ISO14581-M4x18-A2 Senkkopfschraube ISO14581-M4x18-A2
8	803 020 013	2	Justierknopf MH Adjustment knob MH	18	804 020 011	1	Spannbacken-Set MH4.5 40-80 mm Clamping jaw set MH4.5 40-80 mm
9	445 005 226	2	Gewindestift DIN915-M3x6-A2 Grub screw DIN915-M3x6-A2				
10	804 020 006	1	Klemmarm rechts MH 4.5 Clamping arm right MH 4.5				

Gesamtmaschine MH 6.6 | Total machine MH 6.6



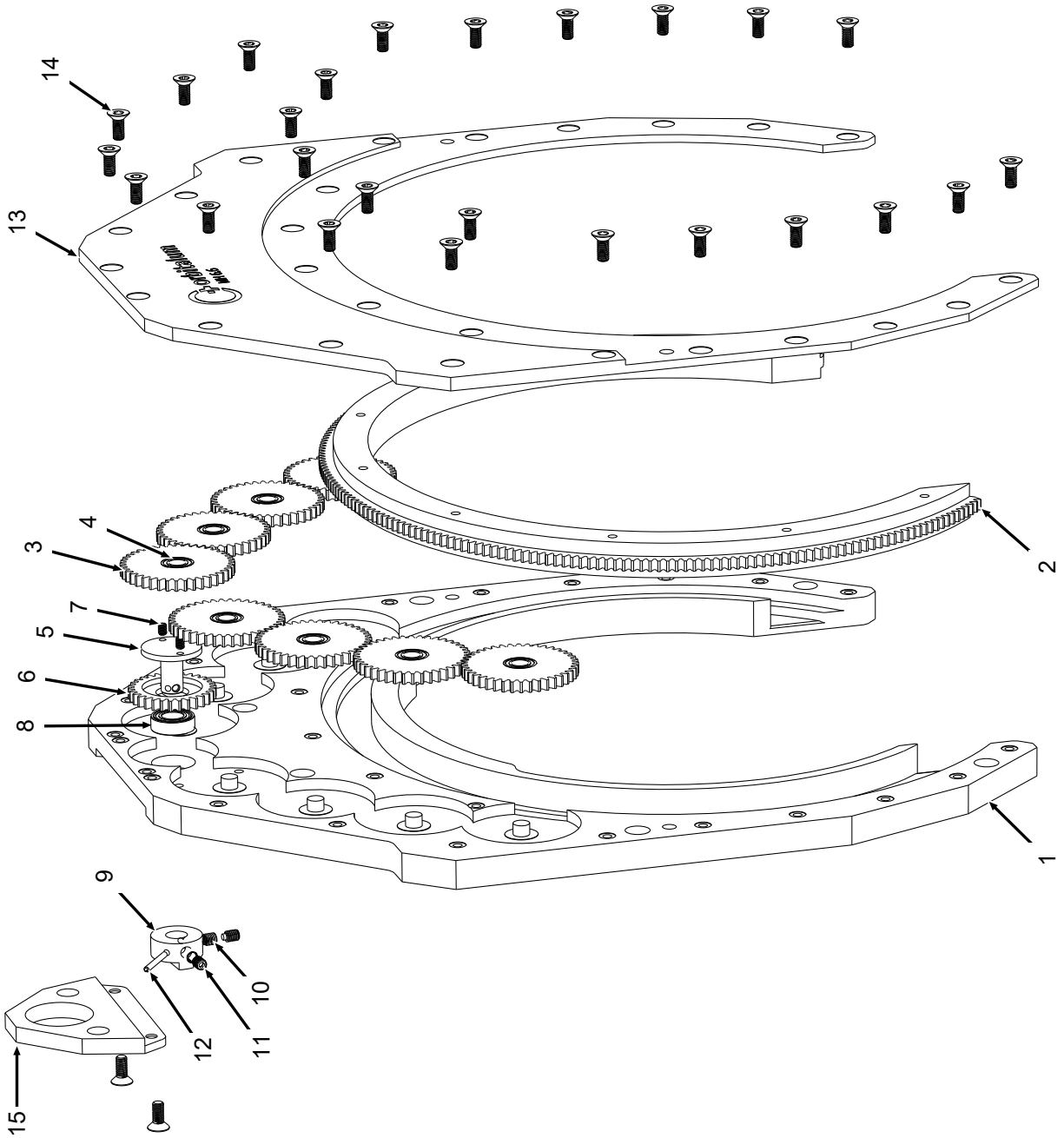






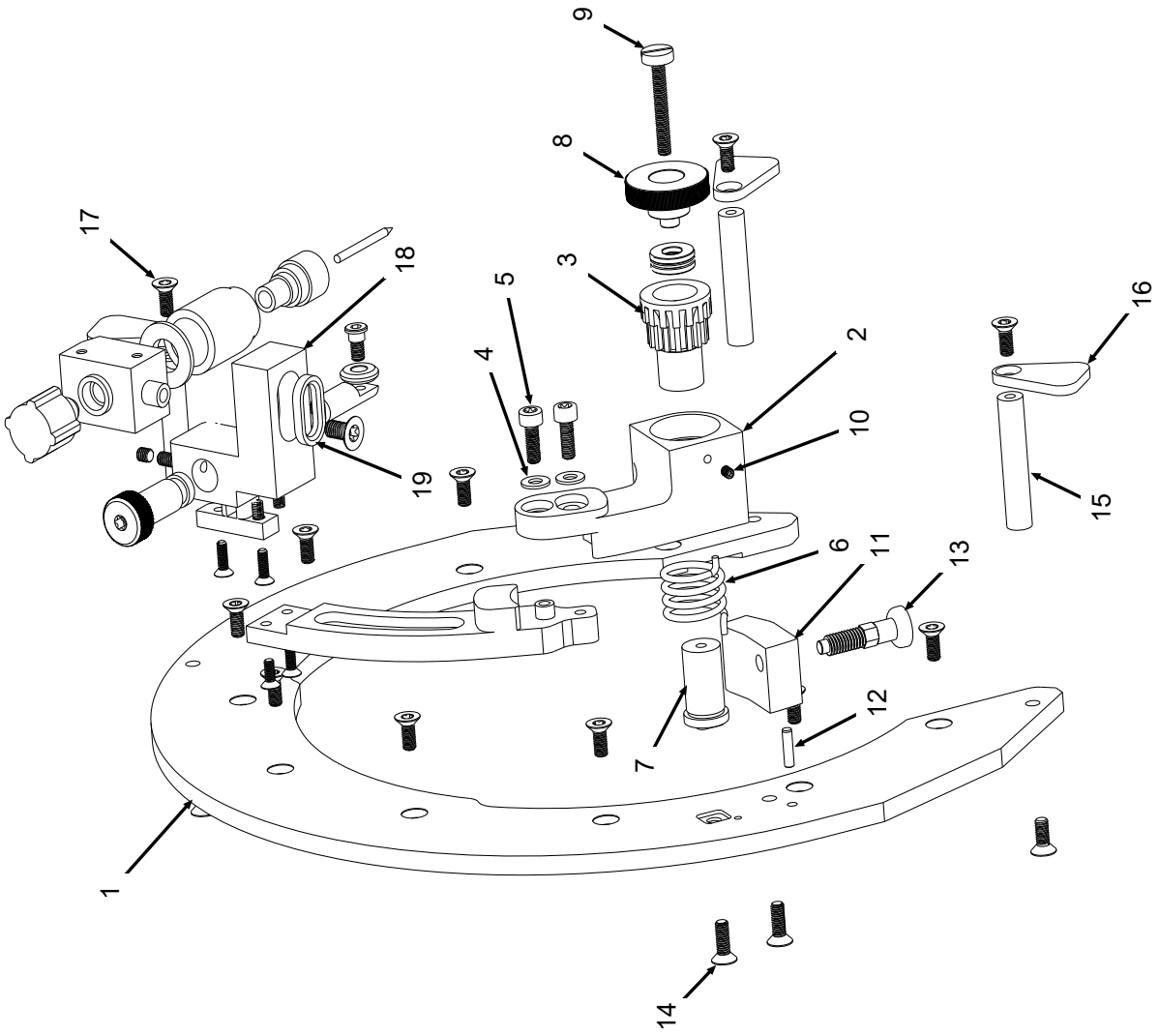
POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION
1		1	Motorhülse MH6.6 Motor sleeve MH6.6
2		1	Spanneinheit MH6.6 Clamping unit MH6.6
3		1	Grundkörper MH6.6 Base body MH6.6
4		1	Rotorplatte MH6.6 Rotor plate MH6.6

Grundkörper MH 6.6 | Base body MH 6.6

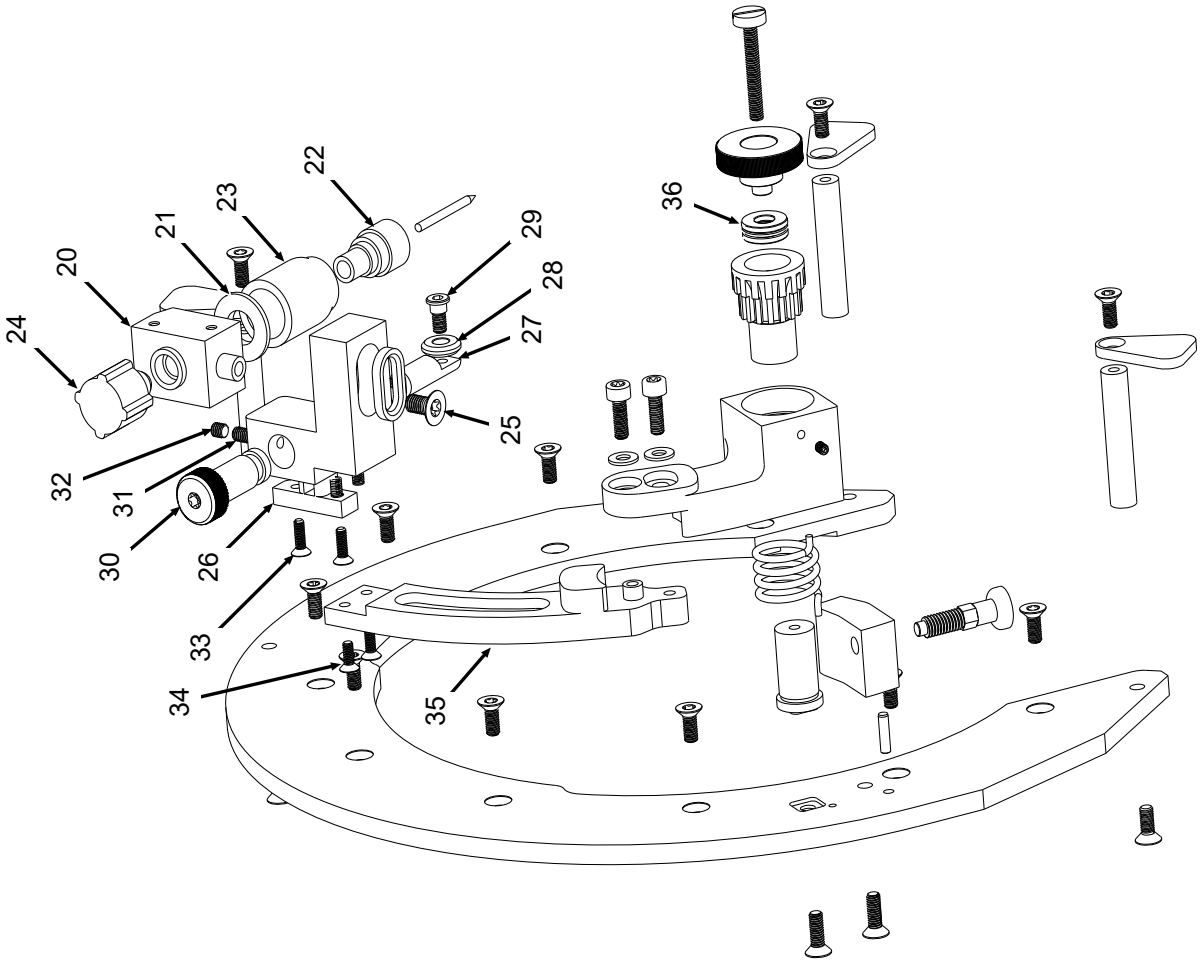


POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION	POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION
1	805 020 015	1	Grundkörper MH 6.6 Base body MH 6.6	11	803 025 016	2	Gewindestift DIN915-M4x6-A2 Grub screw DIN915-M4x6-A2
2	805 020 013	1	Rotor MH 6.6 Rotor MH 6.6	12	803 025 018	1	Spiralspannstift DIN7343-D2x18 Coiled spring pin DIN7343-D2x18
3	804 020 014	8	Zahnrad Z40 MH 4.5/6.6 Gear Z40 MH 4.5/6.6	13	805 020 012	1	Deckel Grundkörper MH 6.6 Cover base body MH 6.6
4	803 020 014	8	Rillenkugellager MR126-ZZ 6x12x4 Ball bearing MR126-ZZ 6x12x4	14	803 025 005	27	Senkkopfschraube DIN965-M4x10-A2 Senkkopfschraube DIN965-M4x10-A2
5 6	803 050 007	1	Antriebszahnrad MH Drive gear MH	15	803 020 017	1	Aufhängeöse MH Suspension eye MH
7	803 025 012	2	Gewindestift DIN913-M3x4-A2 Grub screw DIN913-M3x4-A2				
8	803 020 015	1	Rillenkugellager 688ZZ 8x16x5 Deep groove ball bearing 688ZZ 8x16x5				
9	803 020 016	1	Motorkupplung, Grundkörper MH Motor coupling, basic body MH				
10	??	2	Gewindeeinsatz M4x0,7-1.0D Threaded insert M4x0.7-1.0D				

Drehteller MH 6.6 | Turntable MH 6.6

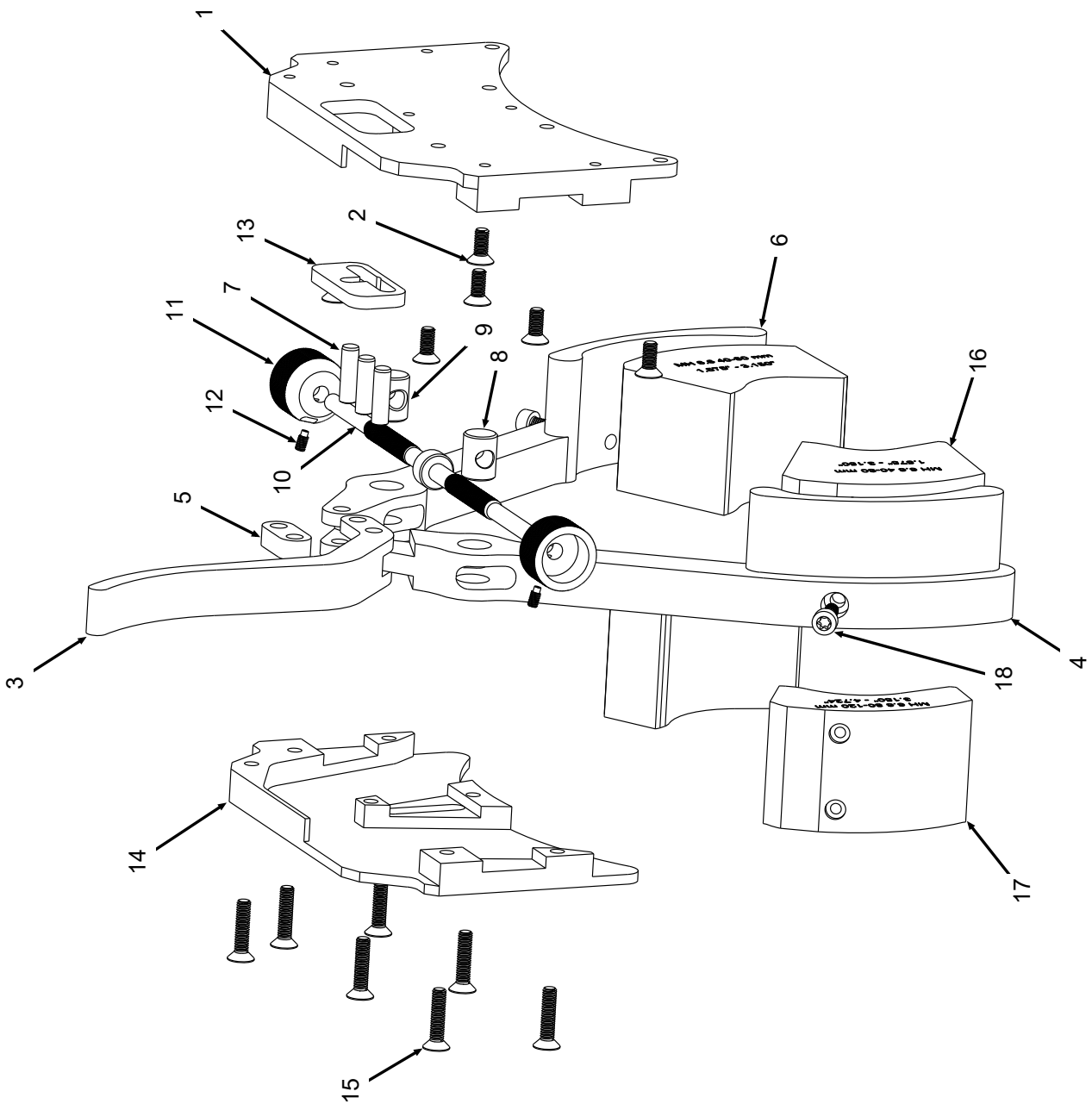


POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION	POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION
1	805 020 016	1	Rotorplatte MH 6.6 Rotor plate MH 6.6	11	803 020 022	1	Montageblock, Brennerarretierung MH Mounting block, torch locking MH
2	803 050 008	1	Basisteil Brennerarm MH Base part burner arm MH	12	803 025 017	1	Zylinderstift DIN6325-D3h6x12 Parallel pin DIN6325-D3h6x12
3				13	803 020 023	1	Rastbolzen, Brennerarretierung MH Locking bolt, torch locking MH
4	542 500 318	2	Scheibe DIN125-A-4.3-A2 Washer DIN125-A-4.3-A2	14	803 025 006	2	Senkkopfschraube DIN965-M4x12-A2 Senkkopfschraube DIN965-M4x12-A2
5	803 025 010	2	Zylinderschraube ISO14579-M4x12-A2 Cylinder head screw ISO14579-M4x12-A2	15	803 020 029	3	Hülse, Aufnahme Schlauchpaket MH Sleeve, mounting hose assembly MH
6	803 020 018	1	Torsionsfeder MH Torsion spring MH	16	803 020 030	3	Platte, Aufnahme Schlauchpaket MH Plate, mounting hose assembly MH
7	803 020 019	1	Gelenkbolzen, Brennerarm MH Joint bolt, torch arm MH	17	803 025 005	15	Senkkopfschraube DIN965-M4x10-A2 Senkkopfschraube DIN965-M4x10-A2
8	803 020 020	1	Rändelschraube, Brennerverstellung MH Knurled screw, torch adjustment MH	18	803 020 024	1	Brenneraufnahme MH Torch holder MH
9	803 020 021	1	Hauptschraube, Brennerarm MH Main screw, torch arm MH	19	803 020 025	1	Einleger, Brenneraufnahme MH Insert, torch holder MH
10	445 005 229	1	Gewindestift DIN913-M3x5-A2 Grub screw DIN913-M3x5-A2				


22
23
21
20
24
29
28
27
25
36
32
31
30
26
33
34
35

POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION	POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION
20	803 005 001	1	Brennerkörper MH Torch body MH	30	803 020 027	1	Rändelmutter, Rohrabtastschraube MH Knurled nut, tube tracing screw MH
21	803 020 002	1	Brennerisolator MH Torch insulator MH	31	803 025 015	1	Gewindestift DIN915-M4x4-A2 Grub screw DIN915-M4x4-A2
22	812 020 022	1	Gaslinse 2.4 TP/MH/HB V1/MB 250A Gas lens 2.4, TP/MH/HB V1/MB 250A	32	803 025 013	1	Gewindestift DIN913-M4x5-A2 Grub screw DIN913-M4x5-A2
23	812 020 023	1	Gasdüse, TP/MH/HB V1/MB 250A Gas nozzle, TP/MH/HB V1/MB 250A	33	803 025 003	2	Senkkopfschraube DIN965-M3x10-A2-TX Countersunk screw DIN965-M3x10-A2-TX
24	803 020 003	1	Brennerkappe MH Torch cap MH	34	803 025 002	2	Senkkopfschraube DIN965-M3x8-A2 Countersunk screw DIN965-M3x8-A2
25	803 025 019	1	Senkkopfschraube DIN965-M5x10-A2-TX Countersunk screw DIN965-M5x10-A2-TX	35	805 020 017	1	Ausleger, Brennerarm MH 6.6 Extension arm, torch arm MH 6.6
26	803 020 052	1	Haltelasche, Tastrad MH Retaining lug, feeler wheel MH	36	803 020 031	1	Axiallager MH Axial bearing MH
27	803 020 050	1	Ausleger, Tastrad MH Extension arm, feeler wheel MH		803 050 006	1	Strom-Gasschlauch MH Current gas hose MH
28	803 020 048	1	Tastrad MH Feeler wheel MH				
29	803 020 049	1	Schaftschraube, Tastrad MH Shaft screw, feeler wheel MH				

Spanneinheit MH 6.6 | Clamping unit MH 6.6



POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION	POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION
1	805 020 001	1	Grundplatte MH 6.6 Base plate MH 6.6	11	803 020 013	2	Justierknopf MH Adjustment knob MH
2	803 025 002	6	Senkkopfschraube DIN965-M3x8-A2 Senkkopfschraube DIN965-M4x10-A2	12	445 005 226	2	Gewindestift DIN915-M3x6-A2 Grub screw DIN915-M3x6-A2
3	804 020 038	1	Hebel MH 4.5/6.6 Lever MH 4.5/6.6	13	804 020 007	1	Führungsplatte MH 4.5/6.6 Guide plate MH 4.5/6.6
4	805 020 006	1	Klemmarm links MH 6.6 Clamping arm left MH 6.6	14	805 020 008	1	Deckplatte MH6.6 Cover plate MH6.6
5	803 020 037	1	Pleuel MH 4.5/6.6 Connecting rod MH 4.5/6.6	15	305 501 023	4	Senkkopfschraube ISO14581-M4x18-A2 Senkkopfschraube ISO14581-M4x18-A2
6	805 020 002	1	Klemmarm rechts MH 3.0 Clamping arm right MH 3.0	16	805 020 018	1	Spannbacken-Set MH 6.6 40-80mm Clamping jaw set MH 6.6 40-80mm
7	565 808 323	3	Zylinderstift DIN6325-D5h6x18 Cylinder pin DIN6325-D5h6x18	17	805 020 019	1	Spannbacken-Set MH6.6 80-120 mm Clamping jaw set MH6.6 80-120 mm
8	803 020 011	1	Schwenklager links MH Pivot bearing left MH	18	803 025 010	2	Zylinderschraube IS014579-M4x12-A2 Cylinder head screw ISO14579-M4x12-A2
9	803 020 012	1	Schwenklager rechts MH Swivel bearing right MH				
10	804 020 036	1	Welle MH 4.5/6.6 Shaft MH 4.5/6.6				

Konformitätserklärungen

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
pl Deklaracja zgodności WE

Orbitalum Tools GmbH
Josef-Schüttler-Straße 17
78224 Singen, Deutschland
Tel. +49 (0) 77 31 792-0

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

Offene Orbitalschweißköpfe (*inkl. Orbitalschweißstromquelle):
- **MOBILE HEAD 3.0**
- **MOBILE HEAD 4.5**
- **MOBILE HEAD 6.6**

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

Baujahr: / Year: / Année: / Anno: / Año: / Bouwjaar: / Rok výroby: / Rok výroby:

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 standards: / 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: / Niniejszym potwierdzamy, że powyższa maszyna została wyprodukowana i przetestowana zgodnie z wymienionymi poniżej wytycznymi:

- **Maschinen-Richtlinie 2006/42/EG**
- **EMV-Richtlinie 2014/30/EU**
- **RoHS-Richtlinie 2011/65/EU**

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 / Cele ochronne następujących dyrektyw są spełnione:

- **Niederspannungsrichtlinie 2014/35/EU**

Folgende harmonisierte Normen sind angewandt: / The following harmonized norms 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: / Stosowane są następujące normy zharmonizowane:

- **EN ISO 12100:2010**
- **EN ISO 13849-1:2015**
- **EN ISO 13849-2:2012**
- **EN 60204-1:2018**
- **EN IEC 60974-1:2018+A1:2019**
- **EN 60974-10:2014+A1:2015**
- **EN 60204-1:2018**

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: / Uprawniony do sporządzania dokumentacji technicznej:

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, 03.03.2023:

Jürgen Jäckle - Product Compliance Manager

ORIGINAL

de UKCA-Konformitätserklärung
en UKCA Declaration of conformity

Orbitalum Tools GmbH
Josef-Schüttler-Straße 17
78224 Singen, Deutschland
Tel. +49 (0) 77 31 792-0

Maschine und Typ (inklusive optional erhältlichen Zubehörartikeln von Orbitalum): / Machinery and type (including optionally available accessories from Orbitalum):

Offene Orbitalschweißköpfe / Open orbital weld heads (*inkl. Orbitalschweißstromquelle / incl. Orbital welding power source):
- **MOBILE HEAD 3.0**
- **MOBILE HEAD 4.5**
- **MOBILE HEAD 6.6**

Seriennummer: / Series number:

Baujahr: / Year:

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 regulations:

- **S.I. 2008/1597 Supply of Machinery (Safety)**
- **S.I. 2016/1091 Electromagnetic Compatibility**
- **S.I. 2012/3032 Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment**

Schutzziele folgender Richtlinien werden eingehalten: / Protection goals of the following guidelines are observerd:

- **S.I. 2016/1101 Electrical Equipment (Safety)**

Folgende harmonisierte Normen sind angewandt: / The following harmonized standards have been applied:

- **EN ISO 12100:2010**
- **EN ISO 13849-1:2015**
- **EN ISO 13849-2:2012**
- **EN 60204-1:2018**
- **EN IEC 60974-1:2018+A1:2019**
- **EN 60974-10:2014+A1:2015**
- **EN 60204-1:2018**

Bevollmächtigt für die Zusammenstellung der technischen Unterlagen: / Authorised to compile the technical file:

Bestätigt durch: / Confirmed by:



Singen, 03.03.2023:

Jürgen Jäckle - Product Compliance Manager

Notizen

Notizen

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

NORTH AMERICA

USA

Orbitalum North America
Headquarters
281 Lies Rd E
Carol Stream, IL 60188
USA
Tel. +1 847 484 9100
24-Hour Emergency Response:
Tel. +1 847 484 9100

Northeast US
Orbitalum - New Jersey
1001 Lower Landing Road, Suite 208
Blackwood, New Jersey 08012
USA
Tel. +1 856 579 8747
24-Hour Emergency Response:
Mob. +1 609 414 21638

PACIFIC NORTHWEST US
Orbitalum - Oregon
2056 NE Aloclek Drive, Suite 314
Hillsboro, Oregon 97124
USA
Tel. +1 503 941 9270
24-Hour Emergency Response:
Mob. +1 971 777 2603

Southeast US
Orbitalum - South Carolina
171 Johns Road, Unit A
Greer, South Carolina 29650
USA
Tel. +1 864 655 4771
24-Hour Emergency Response:
Mob. +1 470 806 6663

SOUTHWEST US
Orbitalum - Arizona
Customer Support Center
3106 W Thomas Road, Suite 1117
Phoenix, AZ 85017
USA
Tel. +1 602 540 0813
24-Hour Emergency Response:
Tel. +1 805 433 3270

SOUTHWEST US
Orbitalum - Arizona
Customer Support Center
3106 W Thomas Road, Suite 1117
Phoenix, AZ 85017
USA
Tel. +1 602 540 0813
24-Hour Emergency Response:
Tel. +1 805 433 3270

CANADA

Wachs Canada Ltd - East
Eastern Canada Sales,
Service & Rental Center
1250 Journey's End Circle, Unit 5
Newmarket, Ontario L3Y 0B9
Canada
Tel. +1 905 830 8888
Toll Free: 888 785 2000
24-Hour Emergency Response:
Mob. +1 647 278 0537

Wachs Canada Ltd - West
Western Canada Sales, Service & Rental Center
5411 82 Ave NW
Edmonton, Alberta T6B 2J6
Canada
Tel. +1 780 469 6402
Toll Free: 800 661 4235
24-Hour Emergency Response:
Mob. +1 847 537 8800

EUROPE

GERMANY

Orbitalum Tools GmbH
Josef-Schuettler-Str. 17
78224 Singen
Germany
Tel. +49 (0) 77 31 - 792 0

MIDDLE EAST

UNITED ARAB EMIRATES

ITW Welding Middle East
S3 A2SR10, Jebel Ali Free Zone, Dubai
United Arab Emirates
Phone: [+971] [0] 42559194
Mobile: [+971] 547904400

ASIA

CHINA

Orbitalum Tools GmbH
189 Huayuan Road
Kunshan, Jiangsu Province
China
Mob. +86 (0) 183 5165 7838
Tel. +86 (0) 512 5016 7816

INDIA

ITW India Pvt. Ltd
Plot No.28/22, D-2 Block
Near KSB Chowk
MIDC, Chinchwad
Pune - 411019
Maharashtra - India
Mob. +91 (0) 91 00 99 45 78

SINGAPORE

Orbitalum
23 Tagore Lane #04-06/07
Tagore 23 Warehouse
787601
Singapore

orbitalum

An ITW Company