ORBIWELD 12 / 19 (HD)

en-US **Enclosed orbital weld head**

Translation of original operating instructions and spare parts list

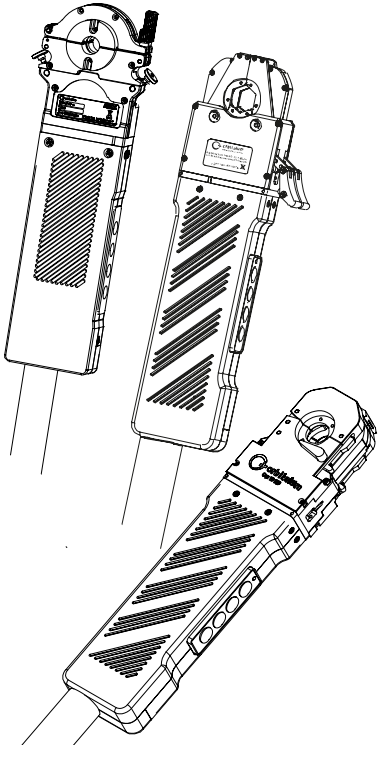

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Table of Contents

1 About these instructions

1.1 Warning messages

Die in dieser Anleitung verwendeten Warnhinweise warnen vor Verletzungen oder vor Sachschäden.

Warnhinweise immer lesen und beachten!

Dies ist das Warnsymbol. Es warnt vor Verletzungsgefahren. Um Verletzungen oder Tod zu vermeiden, die mit dem Sicherheitszeichen gekennzeichneten Maßnahmen befolgen.

	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 symbols and displays

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

1.3 Further symbols and displays

Folgende Dokumente gelten mit dieser Betriebsanleitung:

- Betriebsanleitung der Orbitalschweißstromquelle

1.4 Legend

Abbreviation	Meaning
OW	ORBIWELD

2 Information and safety instructions for the owner

2.1 Requirements for the owner-operator

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

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

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

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

TYPE OF WORKPLACE OR WORK EQUIPMENT	EVALUATION REQUIRED FOR:		
	Employees without particular risk	Employees at particular risk (with the exception of those with active implants)	Employees with active implants
	(1)	(2)	(3)
Arc welding, manual (including MIG (Metal Inert Gas), MAG (Metal Active Gas), TIG (Tungsten Inert Gas) under observance of tried-and-tested procedures and without physical contact to the line	No	No	Yes

* To Directive 2013/35/EU

2.2 Using the machine

2.2.1 Proper use

The orbital weld head is intended solely for the following utilization:

- Utilization in combination with an Orbital welding power supply of the ORBIMAT, Mobile Welder and Smart Welder series.
- TIG welding of materials that are specified in these operating instructions (see chap. applications).
- Empty unpressurized tubes that are free of contaminations, explosive atmospheres or liquids.

Only protective gases that are classified for TIG welding in accordance with EN ISO 14175 may be used.

Proper use also includes the following points:

- Permanent supervision of the machine during operation. The operator must always be able to stop the process.
- Observing all safety and warning information in these operating instructions and the general safety information for enclosed orbital weld heads.
- Observing of the further applicable documents.
- Complying with all inspection and maintenance work.
- Use of the machine solely in its original state.
- Usage solely of original accessories as well as original spare parts and operating materials.
- Checking of all the safety-relevant items and functions before commissioning.
- Processing of those materials named in the operating instructions.
- Proper usage of all components involved in the welding processes as well as of all further factors that have an influence on the welding process.
- Solely commercial usage.

2.2.2 Machine constraints

- The workplace can be in the tube preparation, in plant construction or in the plant itself.
- The machine is operated by one person.
- A space of about 2 m for people to move around the machine must be provided.
- Work lighting: min. 300 Lux.
- Ambient conditions during operation:
  Ambient temperature: –10 °C to +40 °C
  Relative humidity: < 90% at +20 °C, < 50 % at +40 °C
- Ambient conditions during storage and transport:
  Ambient temperature: –20 °C to +55 °C
  Relative humidity: < 90% at +20 °C, < 50 % at +40 °C
- The machine may only be installed and operated in a dry environment according to IP 23 (not in fog, rain, thunderstorms, etc.). If appropriate, use a welding tent.
- Smoke, steam, oil vapors and grinding dust must be avoided.
- Avoid salty ambient air (sea 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 earths, light rare earths, Niobium, platinum group metals, scandium, silicon metal, tantalum, vanadium
Plastic components	Antimony, Barite
Electrical and electronic components	Antimony, beryllium, magnesium
Metal components	Beryllium, cobalt, magnesium, tungsten, vanadium
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

2.4 Personnel qualification

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

- Only employ personnel who satisfy the job- and age-specific regulations that apply to the operation site.
- **No** physical and mental impairments.
- Persons whose ability to respond is affected by drugs, alcohol or medications are not eligible as staff.
- Operation of the machine by underage persons only under supervision by a person authorized to issue instructions.
- A basic knowledge of the TIG welding process is advisable.

2.5 Fundamental information on operational safety

CAUTION! Observe valid safety and accident prevention regulations!

Improper usage can impair safety. This can result in life-threatening injuries.

- Never leave the weld head unattended when the power supply is switched on.
- The operator must ensure that no 2nd person is located within the danger zone.
- Do **not** modify or convert the weld head.
- Use the weld head only in technically flawless operating order and condition.
- Use only genuine tools, spare parts and accessories as well as specified operating materials.
- In case of changes in the operating behavior, stop operation immediately and have the fault eliminated.
- Do not remove safety devices.
- Do not pull the machine by the hose package or the cable.
- Repair and maintenance work on the electrical equipment may only be carried out by a qualified expert.
- Opening or altering the weld head is prohibited, except for the purpose of removing foreign matter from the transmission.
  Observe the troubleshooting information (*see chapt.* “Troubleshooting” of the operating instructions).

⚠	**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.

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

2.6 Personal protective equipment

The following personal protective equipment must be worn while working at the system:

- ► Safety gloves according to EN 407 for welding operation and DIN 388 for installing the electrode.
- ► Safety shoes according to EN ISO 20345, Class SB.
- ► For overhead work safety helmet according to EN 397.
- ► Wear hearing protection in work environments > 80 db (A).

2.7 Remaining risks

2.7.1 Mechanical hazards

⚠	**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.

⚠	**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.

	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.

CAUTION! Danger of being pricked by the electrode or, where 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 of the cold wire (for KD versions).

► Remove the electrode and, if appropriate, the cold wire before storing the weld head (for KD versions).

CAUTION! Risk of body parts being crushed due to the clamping cassette falling off when clamping onto the workpiece.

► Attach drop guard to the clamping cassette (OW 25 GC only).

► Make sure that no one is beneath the site of operation.

► Wear personal protective equipment.

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.

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.

DANGER! Risk of hands and fingers being crushed due to unexpected start of the rotor when the electrode is being set up.

► 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.

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.

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.

2.7.2 Electrical hazards

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

DANGER! Depending on the form of the workplace, life-threatening electromagnetic fields can arise in the direct vicinity.

- ► People with heart problems or cardiac pacemakers must 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.

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.

WARNING! Risk of burns, blindness and fire due to arcs.
An arc may develop by releasing welded 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 if the hose package connections are mechanically secured when connecting or switching on the power supply.
- ► Do not work near highly flammable substances.

⚠	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!**	Electrostatic discharges when opening the weld head. Damage to electronic components, fires and explosions may be the result.

- ► Send the weld head in for servicing or as an experienced user contact technical support.
- ► Employ ESD-suitable workplaces and ground all conductive components.
- ► Wear ESD-suitable clothing, shoes and gloves.
- ► Use ESD protective mat in the working area.
- ► Use ionizers to neutralize static charges in the air.
- ► Use ESD-safe packaging for sensitive components.
- ► Train employees who regularly deal with ESD and instruct them in the appropriate safety measures.

⚠	**CAUTION!**	Risk of falling due to being startled following electric shock when working at heights. In addition to fall injuries, the weld head and, where applicable, the clamping cassette can fall off and cause injuries.

- ► Before clamping the weld head on the workpieces switch the power supply to test mode.
- ► Attach all drop guards: Hose package strain relief, drop guard to weld head and, where applicable, to clamping cassette.

2.7.3 Thermal hazards

DANGER! Safety parts can fail due to impurity, breakage and wear, causing many risks of injury and risk of fire and burning due to the arc.

- ► Do not misuse the cable, for example by suspending or carrying the machine by the cable.
- ► Replace defective parts immediately and check daily for proper functioning.
- ► Have an expert replace defective lines and plugs immediately.
- ► Clean and maintain machine after every use.
- ► Keep the lines and hoses away from heat, oil, sharp edges or moving device parts.
- ► Check machine daily for externally visible damage and defects and have them remedied by a professional if necessary.

WARNING! Risk of burns, blindness and fire due to arcs.
An arc may develop by releasing welded 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 if the hose package connections are mechanically secured when connecting or switching on the power supply.
- ► Do not work near highly flammable substances.

WARNING! Fire hazard when using incorrect (e.g. explosive) gases during the welding process**.**
Burns are the result. In the worst case a fire will be started.

- ► Observe safety instructions in the operating instructions of the power source.
- ► Usage solely of protective gases that are classified for TIG welding process in accordance with EN ISO 14175.

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.

2.7.4 Risks due to materials and substances

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.

DANGER! Many injuries and material damage due to incorrect use of pressure tanks and other parts of the system (e.g. welding gas cylinder)!

- ► Heed safety regulations, especially those for pressure tanks.
- ► Comply with safety data sheets.
- ► If the system and its components exceed 25 kg in weight, lift using several people or lifting equipment.

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

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

WARNING! Risk of explosion when using incorrect (explosive) gases during welding process.
Severe injuries and death may be the result.

- ► Observe safety instructions in the operating instructions of the power source.
- ► Usage solely of protective gases that are classified for TIG welding process in accordance with EN ISO 14175.

⚠	**CAUTION!**	Risk of slipping due to coolant leaking when connecting and disconnecting the hose package and power supply.

- ► Remove leaking coolant immediately.

2.7.5 Ergonomic hazards

⚠	**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.

⚠	**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.

2.7.6 Hazards due to 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 eye protection to EN 170.

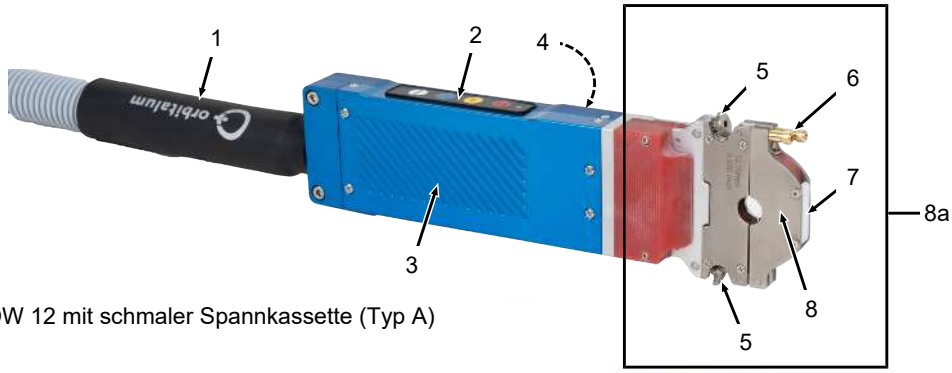
2.7.7 General danger

⚠	**CAUTION!**	General danger

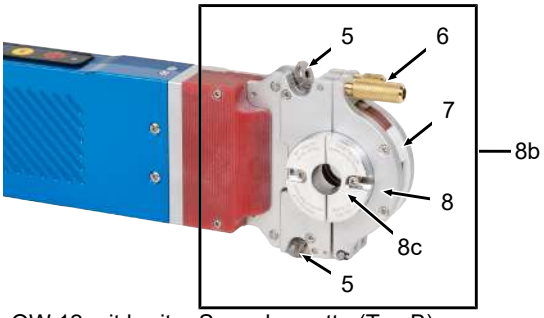
- ► In case of danger, unplug the mains plug!
- ► Accessibility to the mains plug must always be assured in order to permit disconnecting the power supply from the mains.

3 Description

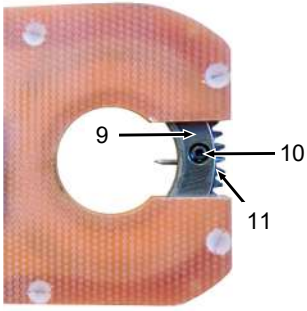
3.1 OW 12



OW 12 mit schmaler Spannkassette (Typ A)



OW 12 mit breiter Spannkassette (Typ B)



OW 12 Rotor

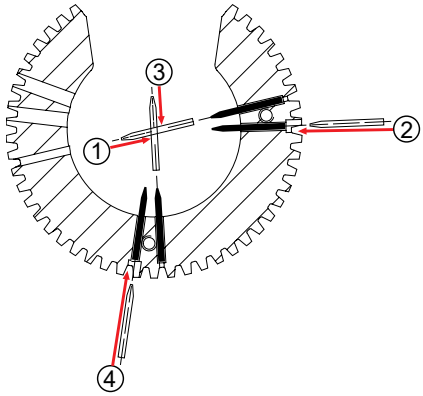
ITEM	DESCRIPTION	FUNCTION
1	Hose package	Connect weld head with welding power supply.
2	Control panel	Operate weld head.
3	Handle	Hold weld head.
4	Type plate	Lists data for the weld head (head rear).
5	Knurled screw	Lock clamping cassettes onto weld head.
6	Knurled nuts long & short (Type A & B)	Open and close the clamping cassettes.
7	Flip cover	Check the alignment of the electrode, tube joint and tube offset.
8	Swivel clamp	Clamping the workpieces.

ITEM	DESCRIPTION	FUNCTION
8a	Clamping cassette*, Type "A" (narrow)	Align and clamp workpieces (hoses).
8b	Clamping cassette*, Type "B" (wide)	Mounting of clamping inserts Type "B".
8c	Clamping inserts*, Type "B" (wide)	Align and clamp workpieces (hoses).
9	Rotor	Guide the electrode radially around the workpiece.
10	Electrode tensioning screw	Fasten the electrodes.
11	Electrode holder Ø 1.0 mm (0.039")	Inserting electrodes (*see chapt.* Set up the electrode [▶ 51]).

** Clamping cassettes and clamping inserts are not included in the scope of delivery.*

3.1.1 Electrode holders OW 12

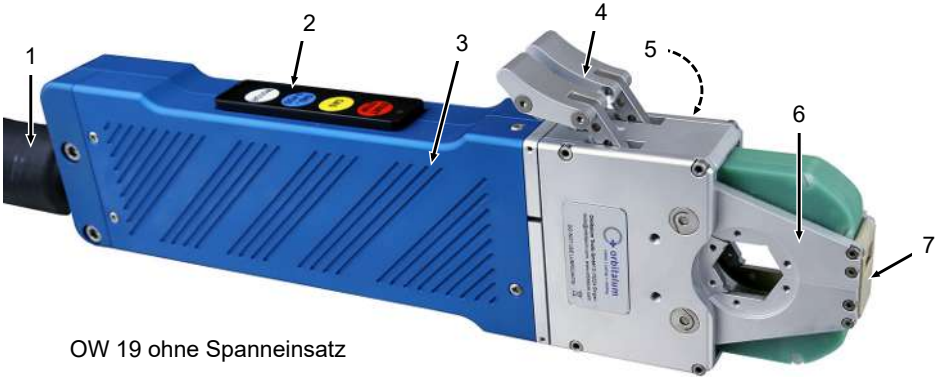
In the rotor (guide ring) of the OW 12 a total of 4 electrode holders for electrodes Ø 1.0 mm (0.039") are attached:



ITEM	FUNCTION
1	Electrode hole Ø 1.0 mm (0.039") with limit stop.
3	Electrode is inserted from the interior of the rotor. For already cut electrodes.
2	Electrode hole Ø 1.0 mm (0.039") without limit stop (continuous).
4	Electrode is inserted from the exterior. For electrodes with individual lengths.

► For information on setting up the electrodes, *see chapt.* Set up the electrode [▶ 51].

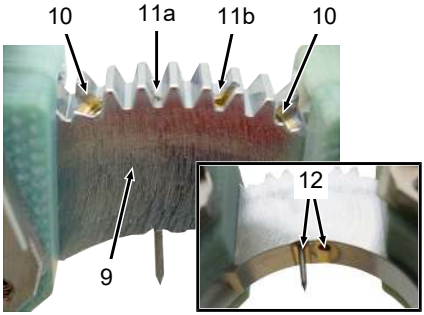
3.2 OW 19



OW 19 ohne Spanneinsatz

OW 19 mit Spanneinsatz S ("small")

OW 19 mit Spanneinsatz W ("wide")



OW 19 Rotor

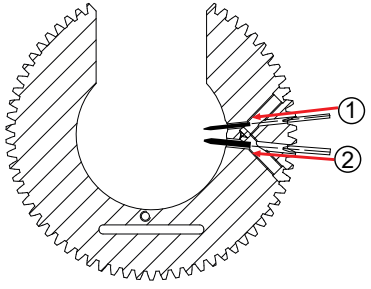
ITEM	DESCRIPTION	FUNCTION
1	Hose package	Connect weld head with welding power supply.
2	Control panel	Operate weld head.
3	Handle	Hold weld head.
4	Clamping locks	Open and close the clamping insert.
5	Type plate	Lists data for the weld head (head rear).
6	Clamping unit	• Mounting of diameter-specific clamping inserts. • Clamping the workpieces.
7	Flip cover	Check the alignment of the electrode, tube joint and tube offset.
8a	Clamping insert*, Type "S" (small/narrow)	Align and clamp workpieces (hoses).
8b	Clamping insert*, Type "W" (wide)	Align and clamp workpieces (hoses).

ITEM	DESCRIPTION	FUNCTION
9	Rotor	Guide the electrode radially around the workpiece.
10	Electrode tensioning screws	Fasten the electrodes.
11a	Electrode holder Ø 1.0 mm (0.039")	Inserting electrodes (*see chapt.* Set up the electrode [▶ 51]).
11b	Electrode holder Ø 1.6 mm (0.063")	Inserting electrodes (*see chapt.* Set up the electrode [▶ 51]).
12	Marking for electrode holder	Optical and tactile position marking of the electrode holder.

** Clamping cassettes and clamping inserts are not included in the scope of delivery.*

3.2.1 Electrode holders OW 19

In the rotor (guide ring) of the OW 19 a total of 2 electrode holders for electrodes Ø 1.0 mm (0.039") and Ø 1.6 mm (0.063") are attached:

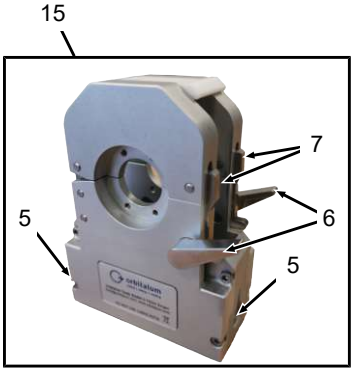


ITEM	FUNCTION
1	Electrode hole Ø 1.0 mm (0.039").
2	Electrode hole Ø 1.6 mm (0.063").

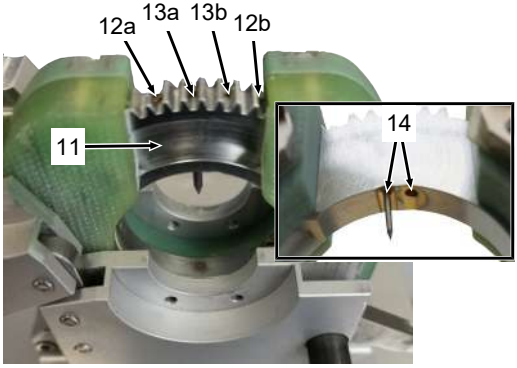
► For information on setting up the electrodes, *see chapt.* Set up the electrode [▶ 51].

3.3 OW 19 HD

OW 19 HD mit Spannkassette



OW 19 HD Spannkassette



OW 19 (HD) Rotor

ITEM	DESCRIPTION	FUNCTION
1	Hose package	Connect weld head with welding power supply.
2	Control panel	Operate weld head.
3	Handle	Hold weld head.
4	Type plate	Lists data for the weld head (head rear).
5	Fastening screw	Attach clamping cassettes to weld head.
6	Clamping lever Swivel bracket lock	Clamp swivel bracket lock.
7	Swivel bracket lock	Lock swivel bracket.
8	Flip cover	Check the alignment of the electrode, tube joint and tube offset.
9	Swivel clamp	Clamping the workpieces.
10	Clamping insert, top, bottom	Align and clamp workpieces (hoses).

ITEM	DESCRIPTION	FUNCTION
11	Rotor	Guide the electrode radially around the workpiece.
12a	Electrode tensioning screw Ø 1.0 mm (0.039")	Fasten the electrodes.
12b	Electrode tensioning screw Ø 1.6 mm (0.063")	Fasten the electrodes.
13a	Electrode holder Ø 1.0 mm (0.039")	Inserting electrodes (*see chapt.* Set up the electrode [▶ 51]).
13b	Electrode holder Ø 1.6 mm (0.063")	Inserting electrodes (*see chapt.* Set up the electrode [▶ 51]).
14	Marking for electrode holder	Optical and tactile position marking of the electrode holder.
15	Clamping cassette	Align and clamp workpieces (hoses).

** Clamping inserts are not included in the scope of delivery.*

3.3.1 Electrode holders OW 19 HD

See chapt. Electrode holders OW 19 [▶ 26].

► For information on setting up the electrodes, *see chapt.* Setting up electrode OW 19 (HD) [▶ 53].

4 Accessories (optional)

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.

INFO

Clamping cassettes and clamping inserts are not included in the scope of delivery but are absolutely necessary for the insert and have to be ordered separately.

► See product catalog "Orbital Welding" for a comprehensive overview of suitable accessories.

Download links PDF:

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

► Connect suitable accessories, see operating instructions of accessories.

4.1 Clamping cassette for OW 12

A separate clamping cassette is required for each pipe diameter for **Type "A"** (small).

For applications in confined spaces:

- Pipe-to-pipe
- Pipe-to-micro fitting
- Micro fitting-to-micro fitting

For **Type "B"** (wide) an additional clamping insert is required for each pipe diameter.

For standard applications:

- Pipe-to-pipe

4.2 Clamping inserts for OW 12, clamping cassette Type "B" (wide)

Made of aluminum.

Can only be used if the Type "B" clamping cartridge is used.

A clamping insert consists of 4 diameter-specific individual parts (2 inserts per side).

4.3 Clamping inserts for OW 19

A clamping insert consists of 6 individual parts (3 inserts per side).

Type "W" (wide/breit) made of aluminum for standard applications.

Type "S" (small/schmal) made of stainless steel for applications in extremely confined spaces.

4.4 Clamping inserts for OW 19 HD

A clamping insert consists of 4 individual parts (2 inserts per side).

Made of aluminum for standard applications.

4.5 Hose package extension

Using the hose package extension the hose package can be extended by up to 20 m (64 ft).

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

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

ITEM	LENGTH [M]	LENGTH [FT]
Hose package extension 5 m (16 ft)	5	16
Hose package extension 10 m (32 ft)	10	32
Hose package extension 15 m (49 ft)	15	49
Hose package extension 20 m (64 ft)	20	64

Further lengths on request.

4.6 Special hose package OW 19 HD

Using the special hose package the OW 19 HD can be expended to 23 m (75 ft).

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

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

ITEM	LENGTH [M]	LENGTH [FT]
Special hose package OW 19 (HD), 23 m/75 ft	23.0	75.0

Further lengths on request.

4.7 Conversion kit OW 19 HD

Using the conversion kit the OW 19 can be easily converted to the OW 19 HD.

The clamping cassette is made of stainless steel and delivered in a robust, lockable plastic box, including accessories:

- Clamping cassette OW 19 HD with 2 fastening screws.
- Hexagon screwdriver 2x60
- Installation instructions
- Type plate

Suitable clamping inserts for different tube diameters must be ordered separately.

5 Technical specifications

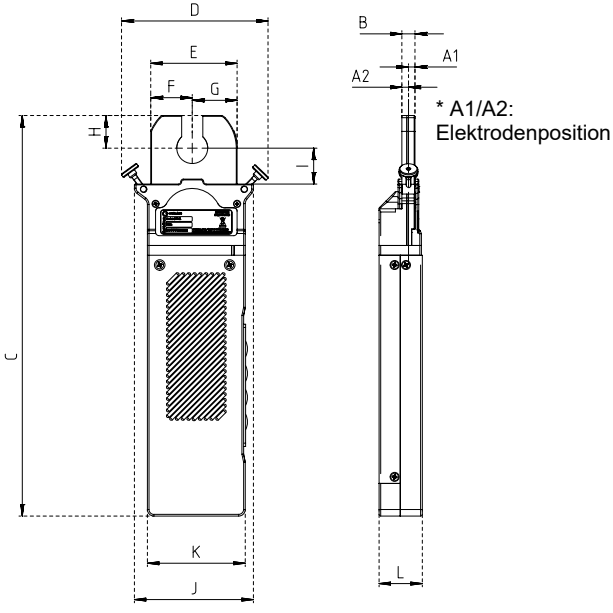
MACHINE TYPE		ORBIWELD 12	ORBIWELD 19	ORBIWELD 19 HD
Code		821 000 010	822 000 010	822 000 011
Electrode diameter	[mm]	1.0	1.0 / 1.6	1.0 / 1.6
	[inch]	0,039	0.039 / 0.063	0.039 / 0.063
Machine weight including hose package	[kg]	4.8	6.5	6.5
	[lbs]	10.6	14.3	14.3
Hose package length	[m]	7.5	7.5	7.5
	[ft]	24.6	24.6	24.6

5.1 Application area

MACHINE TYPE		ORBIWELD 12	ORBIWELD 19	ORBIWELD 19 (HD)	ORBIWELD 19 HD, WITH HOSE PACKAGE 23 M/75 FT
Code		821 000 010	822 000 010	822 000 011	890 822 200
Pipe (outer diameter)	[mm]	3 ... 12.7	3 ... 19.05	3 ... 19.05	3 ... 19.05
	[inch]	0,125 ... 0.5	0,125 ... 0.75	0,125 ... 0.75	0,125 ... 0.75
min. ... max.					
Welding process		Tungsten inert gas (TIG)			
Materials		All materials that are fundamentally suitable for the TIG welding process.			

5.2 Dimensions

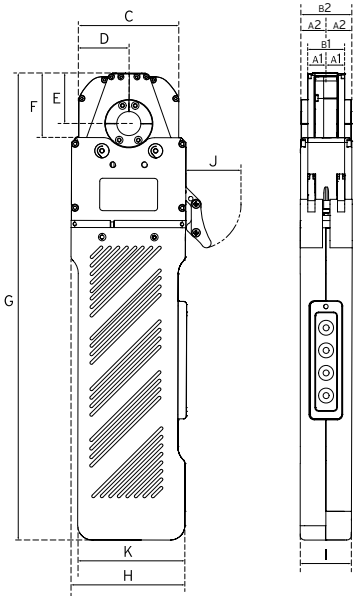
5.2.1 OW 12



DIMENSIONS	DIMENSION		ELECKTRODE GAP			
			Cassette Type "A"		Cassette Type "B"	
	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]
Dimension "A1"*	4.25	0,167	6.35	0,250	15.60	0,614
Dimension "A2"*	3.75	0,148	5.85	0,230	15.10	0,594
Dimension "B"	8.00	0,315	12.20	0,480	30.70	1,209
Dimension "C"	245.70	9,673	-	-	-	-
Dimension "D"	90.00	3,543	-	-	-	-
Dimension "E"	53.00	2,087	-	-	-	-
Dimension "F"	25.50	1,004	-	-	-	-
Dimension "G"	27.50	1,083	-	-	-	-
Dimension "H"	20.00	0,787	-	-	-	-
Dimension "I"	22.00	0,866	-	-	-	-
Dimension "J"	73.00	2,874	-	-	-	-

DIMENSIONS	DIMENSION		ELECKTRODE GAP			
Dimension "K"	60.00	2,362	-	-	-	-
Dimension "L"	26.50	1,043				

5.2.2 OW 19

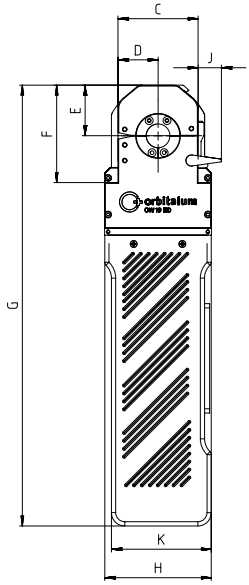


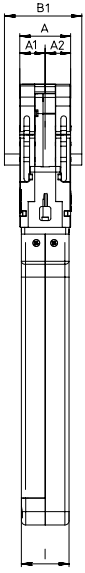
* Elektrodenposition
A1 mit Spanneinsatz Typ S
A2 mit Spanneinsatz Typ W

DIMENSIONS	DIMENSION		ELECTRODE GAP			
			Clamping insert Type "S"		Clamping insert Type "W"	
	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]
Dimension "A1"*	12.00	0,472	12.00	0,472	-	-
Dimension "A2"*	17.00	0,669	-	-	17.00	0,669
Dimension "B1"	24.00	0,945	24.00	0,945	-	-
Dimension "B2"	34.00	1,339	-	-	34.00	1,339
Dimension "C"	66.50	2,618	-	-	-	-
Dimension "D"	33.25	1,309	-	-	-	-
Dimension "E"	35.20	1,386	-	-	-	-
Dimension "F"	44.50	1,752	-	-	-	-
Dimension "G"	313.50	12,343	-	-	-	-

DIMENSIONS	DIMENSION		ELECTRODE GAP			
Dimension "H"	76.00	2,992	-	-	-	-
Dimension "I"	34.00	1,339	-	-	-	-
Dimension "J"	35.00	1,378	-	-	-	-
Dimension "K"	71.20	2,803	-	-	-	-

5.2.3 OW 19 HD





* Elektrodenposition

DIMENSIONS	DIMENSION	
	[mm]	[inch]
A	36,00	1.417
A *	55,20	2.173
A2 *	18,00	0.709
B3	18,00	0.709
C	57,20	2.252
D	28,61	1.126
E	36,00	1.417
F	69,50	2.736
G	314,44	12.379

DIMENSIONS	DIMENSION	
H	76,20	3.000
I	34,00	1.339
J	16,60	0.654
K	71,20	2.803

6 Transport and shipping

6.1 Gross weight

ITEM		OW 12	OW 19	OW 19 HD
Weight*	[kg]	11.0	14.8	15.0
	[lbs]	24.2	32.6	33.1

** incl. scope of delivery and transport case*

6.2 Transport

WARNING

Danger of injury through high weight of the weld head!
Depending on the model, the transport case with orbital weld head and delivery contents weighs max. 15.00 kg (33.10 lbs).

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

CAUTION

Danger of injury through pointed electrode!

If the weld head is removed incorrectly from the transport case, there is the danger that you may touch the pointed electrode.

- ► Use the handle provided to remove the weld head.
- ► Dismantle the electrode before transport.

1. Transport the weld head in the transport case using the handle.
2. Remove the weld head from the transport case using the handle (here the OW 12 illustrated by way of example).

7 Commissioning

7.1 Scope of delivery

We reserve the right to make changes.

ITEM	CODE	QUANTITY	UNIT
ORBIWELD 12*	821 000 010	1	PCS.
Tool set	821 030 002	1	PCS.
transport case	821 030 001	1	PCS.
General safety information for enclosed weld heads	836 060 101	1	PCS.
Operating instructions & ETL, OW 12 Download link PDF: https://www.orbitalum.com/de/download.html	821 060 203	Unlimited (PDF)	PCS.

** Clamping cassettes and clamping inserts are not included in the scope of delivery.*

ITEM	CODE	QUANTITY	UNIT
ORBIWELD 19**	822 000 010	1	PCS.
Tool set	822 030 001	1	PCS.
transport case	811 030 006	1	PCS.
General safety information for enclosed weld heads	836 060 101	1	PCS.
Operating instructions & ETL, OW 12/19 Download link PDF: https://www.orbitalum.com/de/download.html	821 060 203	Unlimited (PDF)	PCS.

*** Clamping inserts are not included in the scope of delivery.*

ITEM	CODE	QUANTITY	UNIT
ORBIWELD 19 HD***	822 000 011	1	PCS.
Tool set	822 030 001	1	PCS.
transport case	811 030 006	1	PCS.
General safety information for enclosed weld heads	836 060 101	1	PCS.
Operating instructions & ETL, OW 12/19 Download link PDF: https://www.orbitalum.com/de/download.html	821 060 203	Unlimited (PDF)	PCS.

*** *Clamping inserts are not included in the scope of delivery.*

► 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 Scope of delivery

Prerequisite:

Welding power supply connected and ready to operate.

WARNING

Risk of explosion when using incorrect (explosive) gases during welding process.

Severe injuries and death may be the result.

- ► Observe safety instructions in the operating instructions of the power supply.
- ► Usage solely of protective gases that are classified for TIG welding process in accordance with EN ISO 14175.

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.

- ► Check the weld head, hose package, ground cable and lines for damage.
- ► Check the working environment for possible sources of danger and, if applicable, eliminate these.
- ► Fill the weld head with cooling liquid (*see chapt.* Carry out the gas and cooling liquid function test).
- ► Check the weld head for loose parts and particles in the transmission.
- ► For usage in overhead position: Secure the orbital weld head with drop guard (*see chapt.* Fit drop guard).

8 Setup and mounting

8.1 Procedure

INFO  Follow the operating instructions for the welding power source!

Carry out setting up and mounting in the following order:

1. Mounting the safety clamp [▶ 42]
2. Connecting the weld head to the power source [▶ 43]
3. Only OW 12 and OW 19 HD: Mounting the clamping cassette [▶ 47]
4. Mounting clamping inserts [▶ 48]
5. Set up the electrode [▶ 51]
6. Clamping the workpieces [▶ 54]
7. Carry out the gas and cooling liquid function test [▶ 58]
8. If necessary Connect the accessories [▶ 58]
9. Configure the welding procedure [▶ 58]

8.2 Mounting the safety clamp

WARNING

Falling of unsecured weld head.

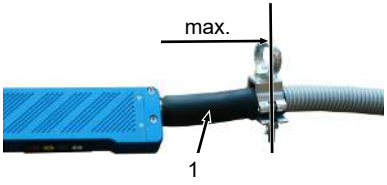
The device may drop and injure people.

- ► 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.

NOTICE!

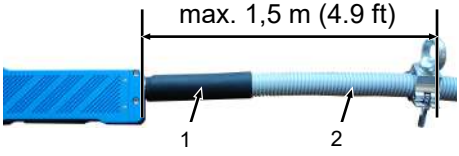
- ► For the OW 12 the safety clamp must be attached **to the shrink hose only**
- ► For the OW 19 (HD) the safety clamp can be attached **both to the shrink hose and to the hose package** (we recommend a maximum distance of 1.5 m (4.9 ft) between weld head and safety clamp).

By default the orbital weld heads are delivered with a separate safety clamp to secure the weld head against falling off. This safety clamp has to be mounted on the hose package of the weld head before start of work.



Item 1: Shrink hose

Safety clamp installed on shrink hose (OW 12 and OW 19 (HD))



Pos. 2: Hose package

Safety clamp installed on shrink hose (OW 19 (HD) only)

8.3 Connecting the weld head to the power source

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.

CAUTION

Unintentional starting up of the weld head!

Crushing of hands and fingers.

- ► Switch off the Orbital welding power source.

NOTICE!

Overheating of the weld head and damaging of the hose package because of a lack of cooling liquid!

- ► Ensure that the coolant tank of the welding power supply or of the external cooling device is filled sufficiently (coolant level should at least reach the "MIN" marking on the tank).

NOTICE!

During initial commissioning:

The hose package may be damaged while being unpacked from the packaging foil!

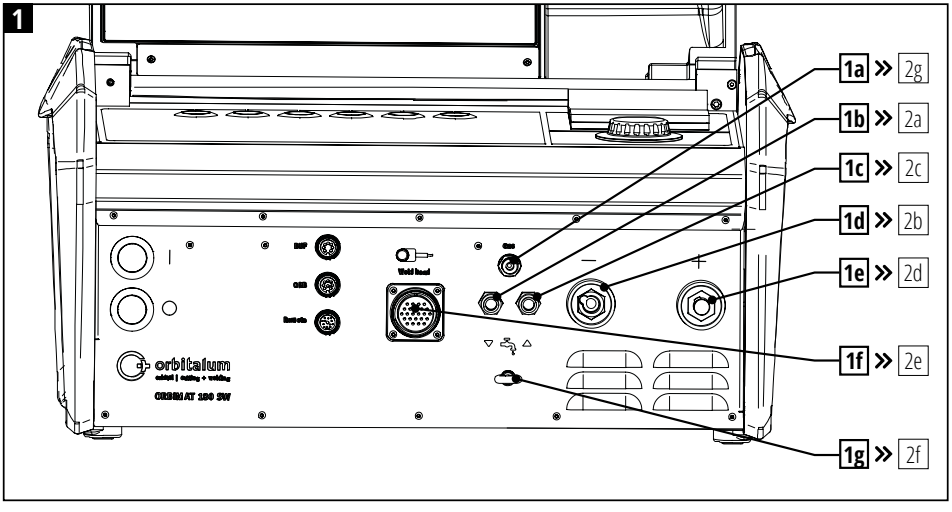
- ► Carefully sever the cable ties without damaging the hose package.

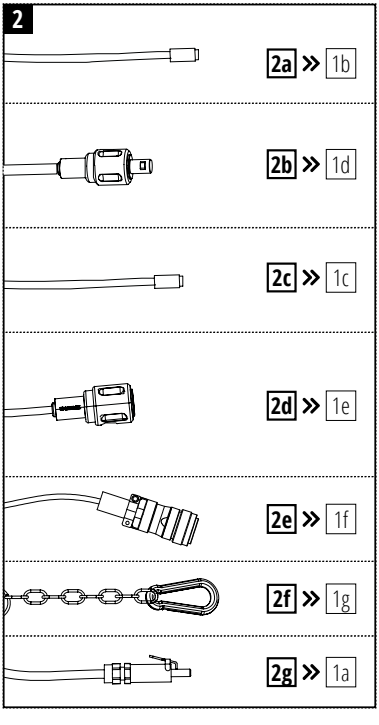
8.3.1 Connection sequence

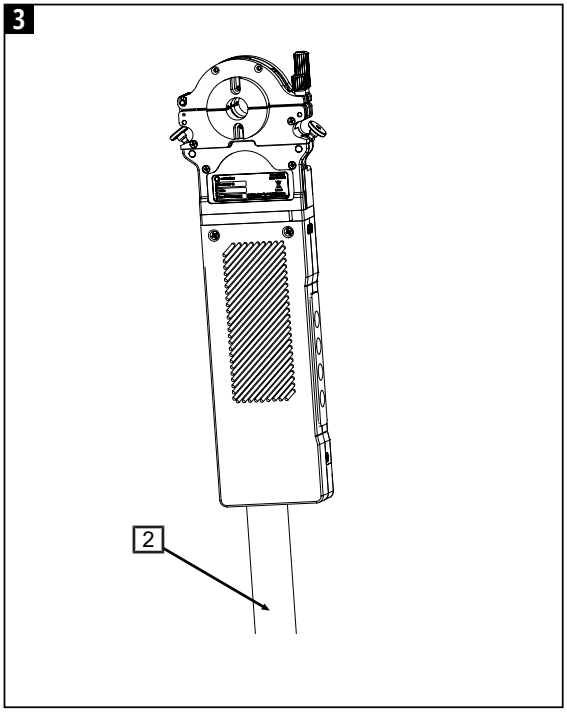
(See also chapt. Anschlussschema [▶ 45]).

1. Attach the strain relief.
2. Connect the Amphenol plug.
3. Connect the welding current plug and welding current socket.
4. Connect the blue and red cooling liquid connection.
5. Connect the gas hose.
6. Switch on the welding power supply.
7. Press the “GAS” button to carry out the gas and cooling liquid function test.

8.3.2 Anschlussschema







ITEM	DESCRIPTION	TO BE CONNECTED WITH	ITEM
1	**Power source, e.g. Smart Welder type**		
1a	Socket "Gas"	Plug "Gas", hose package	**2g**
1b	"Coolant supply line" socket, **blue**	"Coolant supply line" plug, **blue**, hose package	**2a**
1c	"Coolant return line" socket, **red**	"Coolant return line" plug, **red**, hose package	**2c**
1d	Socket "Welding current –" (hose package)	Plug "Welding current –", hose package, if necessary with connection adapter*	**2b**
1e	Plug "Welding current +" (ground cable)	Socket "Welding current +", ground cable	**2d**
1f	Socket "Control line"	Plug "control line to power source"	**2e**
1g	"Strain relief" eye	"Strain relief" snap hook, hose package	**2f**
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, if necessary with connection adapter*	**1d**
2c	"Coolant return line" plug, red	"Coolant return line" socket, red, power source	**1c**
2d	"Welding current +" socket	"Welding current +" plug, hose package, if necessary, with connection adapter*	**1e**
2e	Plug "Control line"	Socket "Control line for power source"	**1f**
2f	"Strain relief" snap hook	"Strain relief" eye, power source	**1g**
2g	"Gas" plug (quick lock)	"Gas" socket, power source	**1a**
3	**Weld head, e.g. OW 12 type**		

** For use with older Orbitalum welding power sources and orbital weld heads with green Superior connections. Newer machine models are already equipped with DINSE-compatible connections.*

8.4 Mounting the clamping cassette

8.4.1 Mounting the clamping cassette for OW 12

WARNING

The orbital weld head falling down while setting up.

Risk of injury and damage to the weld head.

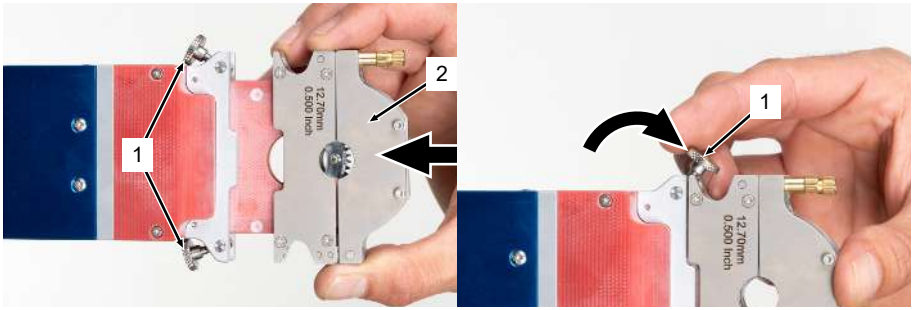
► To set up the orbital weld head place it flat on a level, non-slip surface and ensure that it cannot fall down.

► Wear safety shoes to EN ISO 20345, Class SB.

NOTICE!

The clamping cassettes are coded and can only be put on in one direction.

1. Position the weld head flat on the supporting area.
2. Open and turn down both knurled screws (1).
3. Place on the clamping cassette (2).



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

Converting OW 19 to OW 19 HD

WARNING

The orbital weld head falling down while setting up.

Risk of injury and damage to the weld head.

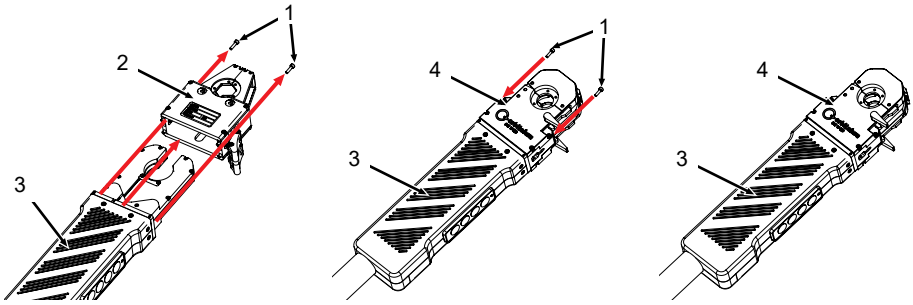
► To set up the orbital weld head place it flat on a level, non-slip surface and ensure that it cannot fall down.

► Wear safety shoes to EN ISO 20345, Class SB.

NOTICE!

The clamping cassettes are coded and can only be put on in one direction.

1. Position the weld head (3) flat on the supporting area.
2. Unscrew the screws (1) using a hexagon screwdriver.
3. Pull the old clamping cassette (2) off the weld head (3).
4. Push the clamping cassette (4) onto the weld head (3) as far as the stop.
5. Guide both fastening screws ISO 4762-M2.5x10-A2 (1) through the holes in the clamping cassette and screw them hand-tight into the weld head using a hexagon screwdriver.

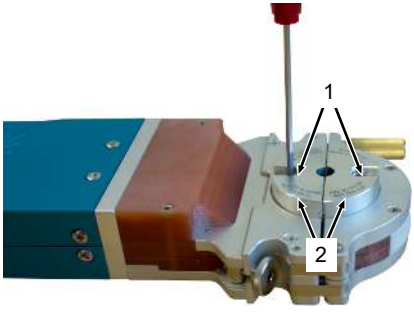


8.5 Mounting clamping inserts

8.5.1 Mounting clamping insert on clamping cassette type "B" (wide) OW 12

NOTICE!		**A clamping insert consists of 4 individual parts (2 inserts per side).**
NOTICE!		**The clamping inserts have to correspond to the hose diameter to be welded.**

1. Position the weld head flat on the supporting area.
2. Open the cylinder head screws ISO 4762-M2.5x6-A2 (1) using a hexagon screwdriver.
3. If a clamping insert (2) is already mounted, it can now be removed.
4. Insert the clamping insert (2) with the writing facing outwards.
5. Tighten the cylinder head screws ISO4762-M2.5x6-A2 (1) hand-tight using a hexagon screwdriver.
6. Turn the weld head around and repeat steps 1 to 5.

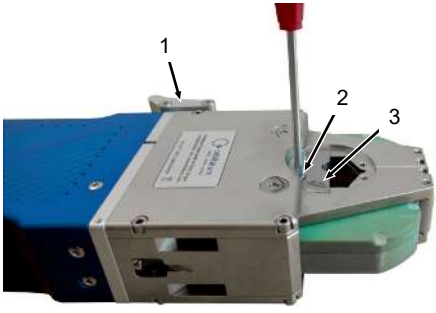


8.5.2 Installing clamping insert in clamping unit OW 19

NOTICE!		**No clamping cassettes are required for OW 19. Here diameter-specific clamping inserts are attached directly in the clamping unit of the welding head.**
NOTICE!		**A clamping insert consists of 6 individual parts (3 inserts per side).**
NOTICE!		**The clamping inserts have to correspond to the hose diameter to be welded.**

1. Position the weld head flat on the supporting area.
2. Open the clamping locks (1).
3. Loosen and remove the screws (2) using a Phillips recessed head or Phillips screwdriver.

   OW 19, Type "S": Countersunk screw ISO 7046-1-M2.5x4-A2
   OW 19, Type "W": Cylinder head screw ISO 4762-M2.5x4-A2
4. If a clamping insert (3) is already mounted, it can now be removed.
5. Insert the clamping insert (3) with the writing facing outwards.
6. Tighten the screws (2) hand-tight using a Phillips recessed head or Phillips screwdriver.
7. Turn the weld head around and repeat steps 1 to 6.

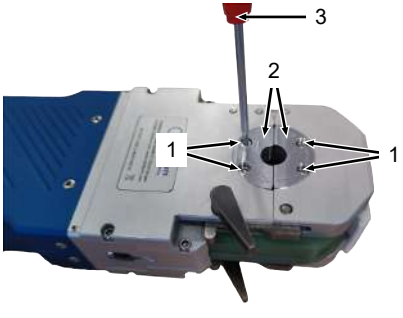


8.5.3 Installing clamping insert in clamping unit OW 19 HD

NOTICE! **A clamping insert consists of 4 individual parts (2 inserts per side).**

NOTICE! **The clamping inserts have to correspond to the hose diameter to be welded.**

1. Position the weld head flat on the supporting area.
2. Insert the clamping insert (2) with the writing facing outwards.
3. Tighten the cylinder head screws ISO 4762-M2.5x4-A2 (1) hand-tight using a hexagon screwdriver (3).
4. Turn the weld head around and repeat steps 1 to 3.



8.6 Set up the electrode

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 rotor can start up unexpectedly during the setup of the electrode.

Risk of crushing of hands and fingers!

- ► Before mounting the electrodes: Switch off the power supply.
- ► To move the rotor to home position: Close the clamping cassette or the clamping unit and flip cover.

CAUTION

Danger of being pricked by the electrode for the operator as well as for third parties while taking hold of the orbital weld head.

- ► Do **not** grasp the orbital weld head at the position of the electrode.
- ► Wear safety gloves DIN 12477, Type A for welding operation and DIN 388, Class 4 for mounting the electrode.

CAUTION

Unintentional starting up of the weld head!

Crushing at hands and fingers.

- ► Switch off the welding power source before the weld head is connected.

NOTICE!

Damage to property through electrode in the toothed space!

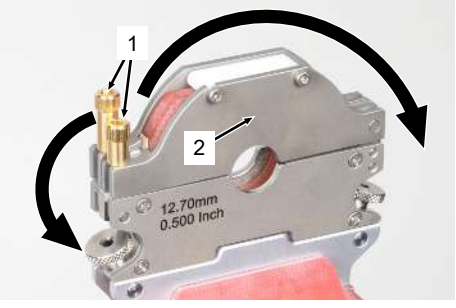
If the electrode projects into the toothed space, jamming can occur in the transmission.

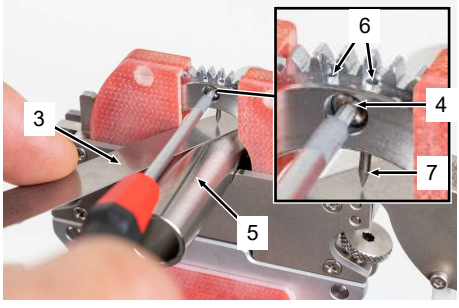
- ► Shorten the electrode.

8.6.1 Setting up electrode OW 12

INFO The OW 12 has 2 x 2 electrode holes for electrode diameters 1.0 mm (0.039") and 1.6 mm (0.063") (*see chapt.* Electrode holders OW 12 [▶ 24]).

1. Ensure that the Orbital welding power source is switched on.
2. Move the rotor to the home setting (0 position) (e.g. by pressing the "**END.-0-POS**" button on the control panel on the weld head).
3. Loosen knurled nuts (1) and fold downwards.
4. Open the swivel brackets (2).
5. Insert the workpiece (5).
6. On the control panel, press the **MOTOR** button and keep it pressed until the desired electrode hole (6) reaches the 12 o'clock position. Observe the markings in the rotor.
7. Switch off the Orbital welding power source.
8. Loosen the electrode clamping screw (4).
9. Check the electrode (7) for sharpness and geometry (*see chapt.* Grinding electrode [▶ 75]) and insert in the electrode hole (6).
10. Set the electrode distance with a feeler gage (3) and hand-tight the electrode clamping screw (4) by means of a screwdriver.
11. Ensure that the electrode does **not** project beyond the toothed space of the rotor; if required, shorten the electrode.
12. Switch on the Orbital welding power source.
13. On the control panel press the **END.- 0-POS** button to move the rotor to the home setting (0 position) (perform ignition only in the home setting).



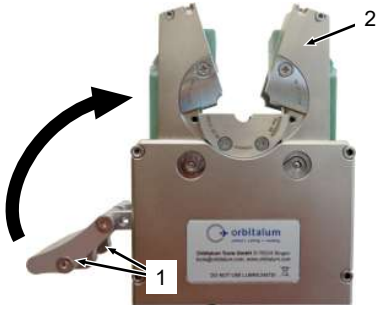


8.6.2 Setting up electrode OW 19 (HD)

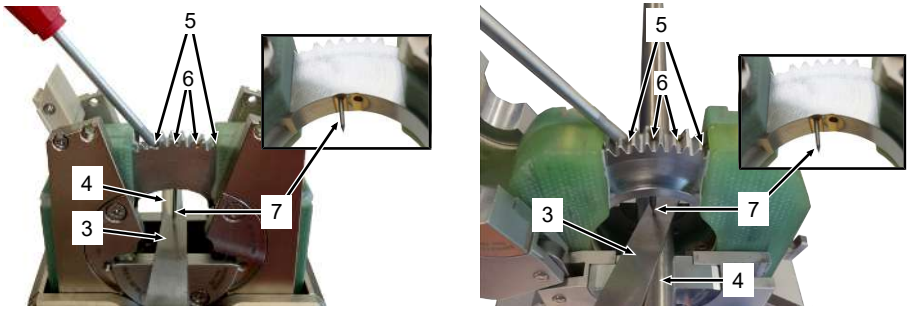
INFO The OW 19 has 2 x 2 electrode holes for electrode diameters 1.0 mm (0.039") and 1.6 mm (0.063") (*see chapt.* Electrode holders OW 19 [▶ 26]).

1. Ensure that the Orbital welding power source is switched on.
2. Move the rotor to the home setting (0 position) (e.g. by pressing the "**END.-0-POS**" button on the control panel on the weld head).
3. Open clamping unit (OW 19) / clamping cassette (OW 19 HD) (2):
   OW 19: Bend both clamping locks down.
   OW 19 HD: First loosen both clamping levers, then bend the locks down and open the swivel bracket.
4. Insert the workpiece (4).
5. On the control panel, press the **MOTOR** button and keep it pressed until the desired electrode hole 1.0 or 1.6 mm (0.039"/0.063") (6) reaches the 12 o'clock position. Observe the markings in the rotor (*see* figure below).
6. Switch off the Orbital welding power source.
7. Loosen the electrode clamping screw (5).
8. Check the electrode (7) for sharpness and geometry (*see chapt.* Grinding electrode [▶ 75]) and insert in the corresponding electrode hole (6).
9. Set the electrode distance with a feeler gage (3) and hand-tight the electrode clamping screw (5) by means of a screwdriver.
10. Ensure that the electrode does not project beyond the toothed space of the rotor. If required, shorten the electrode.
11. Switch on the Orbital welding power source.
12. On the control panel press the **END.- 0-POS** button to bring the rotor to the home position (0 position).

OW 19:



OW 19 HD:



8.7 Clamping the workpieces

CAUTION

The orbital weld head or pipe falls down during mounting/dismantling/setup or during unsecured usage in overhead position.

- ► Attach the orbital weld head securely to the workpiece and ensure that it **cannot** fall down.
- ► Wear safety shoes to EN ISO 20345, Class SB.
- ► For usage in overhead position: Wear safety helmet to DIN EN 397.

CAUTION

Danger of cut injuries caused by sharp tube edges when placing the tube in the orbital weld head.

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

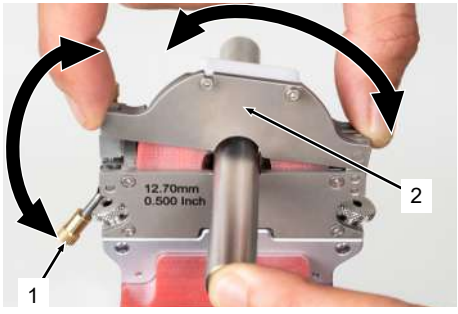
CAUTION

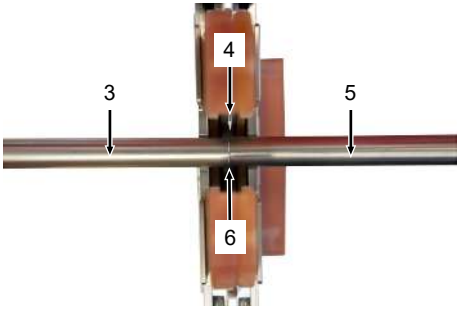
After welding the orbital weld head and the workpiece are hot. Very high temperatures arise in particular after several consecutive welding processes. There is a danger of burns or damage to the points of contact when working on the orbital weld head (for example when changing clamps or mounting/removing the electrodes). Materials without thermal resistance (for example foam inlay of the transport case) can be damaged when coming into contact with the hot orbital weld head.

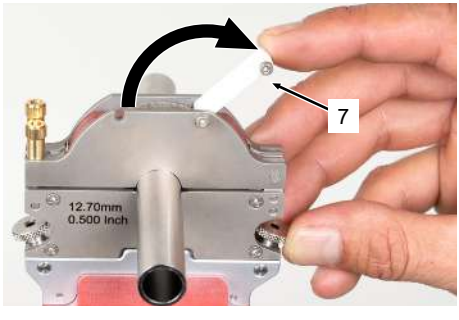
- ► Wear safety gloves to EN 388, Performance level 2.
- ► Wait until the surfaces have cooled down to below 50 °C before working on the orbital weld head or before packing into the transport case.
- ► Position the weld head correctly.
- ► Use only permissible materials in the welding area.

8.7.1 Clamping workpieces OW 12

1. Ensure that the Orbital welding power source is switched on.
2. Move the rotor to the home setting (0 position) (e.g. by pressing the "**END.-0-POS**" button on the control panel on the weld head).
3. Open the knurled nut (1) and fold downwards to open the clamping cassette.
4. Open both swivel brackets (2).
5. Insert **first workpiece** (3) and align the workpiece joint to the electrode tip (4) (see information below).
6. Close the corresponding swivel bracket (2) again.
7. Bend the knurled nut (1) up and tighten hand-tight to lock the clamping cassette half and attach the workpiece (3).
8. Insert **second workpiece** (5) and align the workpiece joint (6) to the electrode tip (4) (see information below).
9. Close the corresponding swivel bracket (2) again.
10. Bend the knurled nut (1) up and tighten hand-tight to lock the clamping cassette half and attach the workpiece (5).
11. Open the flip cover (7).
12. Check the position of the workpiece joint once more and readjust if necessary.
13. Close the flip cover (7).



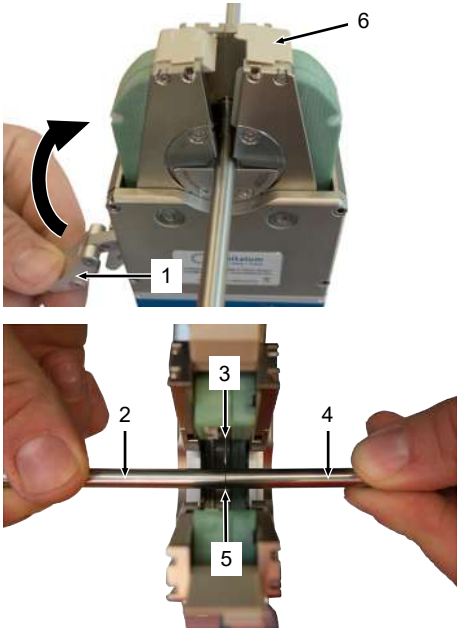




INFO		The electrode has to be positioned **centrally** over the **gap-free workpiece joint** (6).

8.7.2 Clamping workpieces OW 19

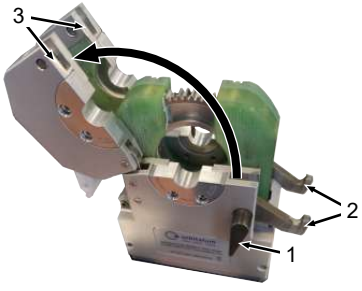
1. Ensure that the Orbital welding power source is switched on.
2. Move the rotor to the home setting (0 position) (e.g. by pressing the "**END.-0-POS**" button on the control panel on the weld head).
3. Bend both clamping locks (1) up to open the clamping unit.
4. Insert **first workpiece** (2) and align the workpiece joint (5) to the electrode tip (3) (see information below).
5. Bend the corresponding clamping lock down to lock the clamping unit half and attach the workpiece.
6. Insert **second workpiece** (4) and align the workpiece joint (5) to the electrode tip (3) (see information below).
7. Bend the corresponding clamping lock down to lock the clamping unit half and attach the workpiece.
8. Open the flip cover (6).
9. Check the position of the workpiece joint (5) once more and readjust if necessary.
10. Close the flip cover (6).

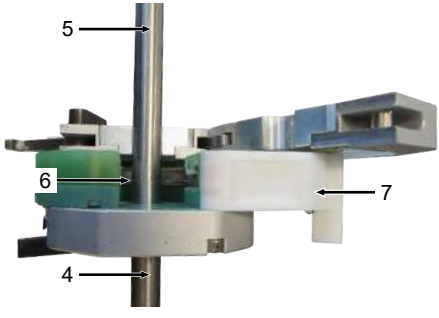


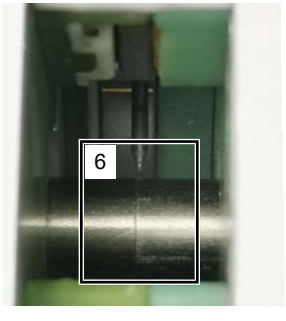
INFO		The electrode has to be positioned **centrally** over the **gap-free workpiece joint** (5).

8.7.3 Clamping workpieces OW 19 HD

1. Open the flip cover (7).
2. Open and turn down both clamping levers (1) and swivel bracket locks (2) to unlock the clamping cassette.
3. Open both swivel brackets (3).
4. Insert **workpiece 1** (4) with the joint flush to the electrode (see information below).
5. Flip the corresponding swivel bracket shut again.
6. Close the corresponding swivel bracket lock and clamping levers again to attach **workpiece 1** (4).
7. Insert **workpiece 2** (5) at joint (6) to **workpiece 1** (4).
8. Flip the corresponding swivel bracket shut again.
9. Close the corresponding swivel bracket lock and clamping levers again to attach **workpiece 2** (5). Open the flip cover (7).
10. Check the position of the workpiece joint (6) once more and readjust if necessary.
11. Close the flip cover (7).







INFO		The electrode has to be positioned **centrally** over the **gap-free workpiece joint** (6).

8.8 Carry out the gas and cooling liquid function test

1. Press the “**GAS**“ button to start the function test of the gas and cooling liquid supply.
2. At the initial operation or if the weld head is not filled, wait 1 minute until the weld head is filled with cooling liquid.
3. If necessary, repeat the procedure until the error message "Coolant or gas shortage" does not appear anymore.
4. Press the “**GAS**“ button to terminate the function test.
5. Check the coolant level of the welding power source and refill if necessary (*see* operating instructions for the welding power source).

8.9 Connect the accessories

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.

► Connect suitable accessories.

► *See* "Orbital Welding" product catalog for a comprehensive overview of suitable accessories.

Download links PDF:

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

8.10 Configure the welding procedure

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

8.11 Calibrating the motor

If several weld heads of the same type are in use, Orbitalum Tools GmbH recommends that the motors be calibrated before use. The calibration of the motors ensures that saved programs on all the weld heads produce the same result.

► Calibrate motors in accordance with the operating instructions for the welding power supply.

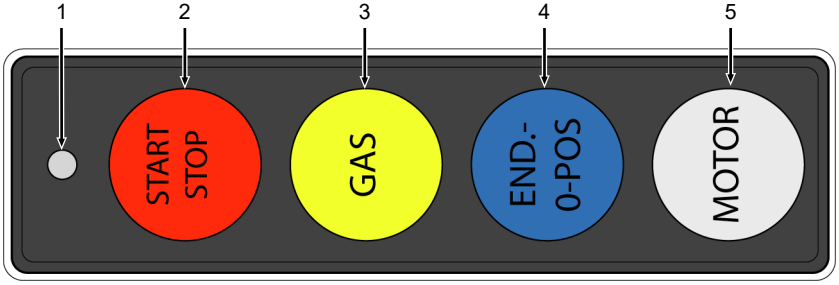
⇨ The weld head is ready to use.

8.12 Dismantling clamping inserts and clamping cassettes

Perform the work steps described in *chapt.* Mounting clamping inserts [▸ 48] and in *chapt.* Mounting the clamping cassette [▸ 47] in the reverse order.

9 Operation

9.1 Operator button panel



ITEM	CONTROL ELEMENT	FUNCTION
1	**LED**	• Flashes red in the ready-to-weld state.
		• Lights up continuously red during the welding process.
2	**START/**	• Pressing once: Starts the welding process.
	STOP	• Press during the welding process: Welding process is stopped and gas post purge time is started.
		• Press during the gas post purge time: Gas post purge time and cooling are stopped.
3	**GAS**	Pressing once: Function test of the gas and cooling-liquid supply is started.
		• Pressing again: Function test is terminated.
		• Pressing and holding the key in welding mode or in test mode of welding power supply: Mode is switched.
4	**END.-0-POS**	• Pressing and holding: The rotor rotates until it has reached its "0-position" home position.
		• Pressing once: Welding process aborts through controlled lowering. After the arc has extinguished, the gas post purge time is activated.
5	**MOTOR**	• Pressing and holding: Rotor can be moved manually, for example to set up the electrode or to check the electrode position.

9.2 Setting the welding parameters

► *See operating instructions for the welding power source.*

9.3 Welding

WARNING

Risk of explosion when using incorrect (explosive) gases during welding process.

Severe injuries and death may be the result.

- ► Observe safety instructions in the operating instructions of the power supply.
- ► Usage solely of protective gases that are classified for TIG welding process in accordance with EN ISO 14175.

WARNING

Fire hazard when using incorrect (e.g. oxygenated) gases during the welding process.

Burns are the result. In the worst case a fire will be started.

- ► Observe safety instructions in the operating instructions of the power supply.
- ► Usage solely of protective gases that are classified for TIG welding process in accordance with EN ISO 14175.

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.

DANGER

Electromagnetic fields arise during the welding process.

- ► The plant operator must realize the workplaces in accordance with the EMF Directive 2013/35/EU in such a manner that no danger whatsoever exists for the operator or persons in the vicinity of the welding system.

WARNING

UV and infrared radiation arises during the welding process.

Damage to skin and eyes.

- ► Close the clamping unit completely.
- ► Immediately replace defective clamping inserts that do not fit exactly.

WARNING

Thermal problems can arise in the case of incorrect positioning of the forming 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.

WARNING

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

Health problems, including cancer.

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

CAUTION

Risk of injury due to monotonous work and exhausting work in places that are difficult to access and performing overhead work.

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.

✓ Welding power supply connected and ready to operate.

1. Press the "END.-0-POS" button to move the rotor to the 0 position.
2. Press the "START/STOP button to start the welding process.
3. Observe the welding process.

⇨ The welding process ends automatically after the gas post purge time has expired.

⇨ The electrode returns automatically to the 0-position.

9.4 Preparing storage

Carry out the following steps before storage:

1. Remove the electrode.
2. If appropriate, remove the clamping inserts.
3. Disconnect the weld head from the welding power supply.
4. Put closure caps on the cooling liquid connections.
5. Store the weld head in the transport case. Ensure that the hose package is not twisted or squeezed.
6. Carry out the following steps additionally before longer storage periods:
7. Remove the coolant completely from the hose package and the weld head.
8. Clean the surfaces, *see chapt.* Instructions for care [▶ 64] and Standard cleaning process [▶ 68].

10 Maintenance and troubleshooting

10.1 Instructions for care

CAUTION

The use of cleaning agents may cause sensitization.

► Wear protective clothing to prevent contact with cleaning agents.

► **Do not** use lubricants or sliding agents.

► Ensure that dirt particles or small items **do not** get into the transmission (head inside) (the transmission is open at the head end for design reasons).

► If the surfaces are soiled, use only residue-free cleaning agents for cleaning.

► Clean the welding chamber, rotor, basic body and, if necessary, the clamping cassette 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 because the surfaces may be damaged).

10.2 Operating and cooling phases

CAUTION

In contrast to ORBIWELD 19 (HD) the ORBIWELD 12 is not designed for continuous operation.

During longer use diverse machine parts can become very hot and be damaged by this!

► Always let hot machine parts cool down before touching.

► Observe recommended work and cooling intervals

The uninterrupted operation of the **ORBIWELD 12** (the so-called "working phase") must, depending on the Ø of the pipe to be welded, **not** exceed a maximum processing of 5 to max 15 welding seams in sequence (see table).

Each operating phase has to be immediately followed by a cooling phase of min. 15 minutes. In the cooling phase the welding head is brought up to the ambient temperature again.

For continuous work with the ORBIWELD 12, we recommend using a 2nd welding head in combination with the ORBITWIN switching device, which allows the 2 weld heads to be operated alternately. The respective welding head not being used can cool down while you can keep working with the other weld head.

Recommended work and cooling:

MACHINE TYPE	HOSE-Ø	OPERATING PHASE	COOLING PHASE
OW 12	Up to 1/4"	Max. 15 weld seams in sequence	15 minutes
	1/ 4” - 1/2"	Max. 5 weld seams in sequence	15 minutes
OW 19 (HD)	Continuous work possible, no cooling phase required.		

10.3 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, hose package	► Check for damage and ease of operation of all moving parts (e.g. for defective functional surfaces, leakages, cracks, defective screw heads, etc.).
	Weld head	► Perform motor calibration (permissible tolerance of the TARGET speed of rotation: < 2%), see operating instructions for the orbital welding power source.
	Remote control	► Check the keys for functionality.
	Clamping cassette	► Check the lock and clamping mechanism for ease of use, function and clamping.
	Rotor	► Check the correct home setting ("0 position"): The rotor must be completely covered by the enclosure.
	Rotor / electrode	► Check the correct electrode position/rotor setting before each welding. To avoid arcing the rotor must be in the "0 position" before each welding.
	Electrodes	► Ensure the electrode distance < 1.0 mm (0.039") (*see chapt.* Determining the electrode length and electrode gap).
		Only use cleanly partially ground quality electrodes. Recommendation: Type WS2, grinding angle 22.5° (*see chap.* Grinding electrode [▸ 75]).

INTERVAL	RESPECTIVE COMPONENT	ACTIVITY
Before every use	Protective gas for welding	► Only use protective gases that are classified for the TIG welding process according to DIN EN ISO 14175 (e.g. argon 4.6 or purer protective gas for welding).
		► Set the flow rate: OW 12: 5 – 8 l/min. OW 19 (HD): 8 – 12 l/min.
		► Set the gas pre-flow time to at least 30 seconds, with flow force to at least 15 seconds.
	Coolant pump	► To ensure efficient cooling of the head, also between the welding processes: Activate the "pump follow-up time" at the power source (see operating instructions for the orbital welding power source).
	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.
Every 60 weldings or daily	Welding chamber, rotor, basic body, if necessary, clamping cassette	► 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 because the surfaces may be damaged).
		► Wipe out the rotor with a lint-free cotton cloth. **CAUTION Attention: Danger due to rotating rotor!**
At least every 250 welding processes or weekly	Weld head	► Perform the standard cleaning procedure (*see chap.* Standard cleaning process [▶ 68]) Standard cleaning process). A shorter cleaning interval can extend the service life of the weld head, the clamping cassettes (OW 12 and OW 19 HD only) and the clamping inserts.

INTERVAL	RESPECTIVE COMPONENT	ACTIVITY
OW 12: Min. every 15,000 weldings or every 12 months. OW 19 (HD): 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	Hose package/power and coolant cables*	► Have it replaced by certified Orbitalum service center.

10.3.1 Standard cleaning process

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

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.

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:

- Compressed-air vacuum unit or vacuum cleaner
- Nylon brush

- Lint-free cotton cloth
- Contact spray cleaner (e.g. LOCTITE 7039). Observe safety data sheet of the spray cleaner used!

10.3.1.1 OW 12

Preparation:

1. Ensure that the orbital welding power source is switched on.
2. Remove electrode if necessary (*see chapt.* Set up the electrode [▶ 51]).
3. Move the rotor to the home setting (0 position) (e.g. by pressing the "END.-0-POS" button on the control panel on the weld head).
4. Dismantle clamping cassette and clamping inserts (*see chapt.* Mount clamping inserts and Mounting clamping insert on clamping cassette type "B" (wide) OW 12 [▶ 48]).

Coarse cleaning procedure:

1. Spray the rotor (2) with contact cleaner spray. Let the rotor circulate once by 360° while spraying (press the "MOTOR" button).
2. Spray all of the exterior and interior surfaces of the clamping cassette (4), swivel bracket (3) and the clamping inserts (5) with contact spray cleaner.
3. Then remove coarse dirt from the rotor (2), weld head interior (1), clamping inserts (5) and the entire clamping cassette (4) using a nylon brush.
4. Vacuuming of the carbon-like deposits by using a compressed-air vacuum unit or vacuum cleaner.

Fine cleaning procedure:

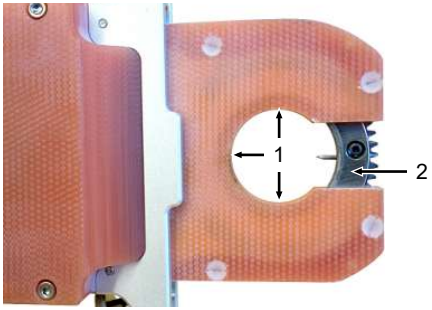
CAUTION		**The use of lubricants can severely influence the function and cause damage.** ► Never spray lubricant **into** the welding tongs!

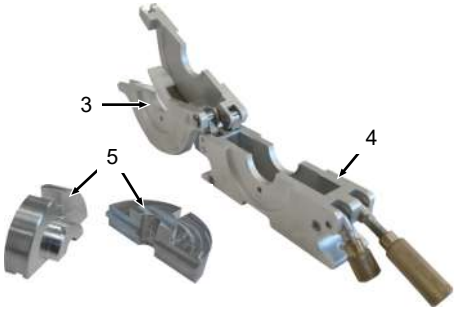
WARNING		**Danger of burning and fire due to the ignition of cleaning agent residues on the weld head during welding!** Danger of burning and fire. ► Let the cleaning agent evaporate completely after every cleaning of the weld head and prior to welding.

1. Spray the rotor (2), weld head interior (1) (both front surfaces of the rotor in particular), clamping inserts (5) and the entire clamping cassette (4) again with contact cleaner. Let the rotor rotate by 360° while spraying (press "MOTOR" button).
2. Fine cleaning of all surface areas handled using a lint-free cotton cloth.
3. Vacuuming of the carbon-like deposits by using a compressed-air vacuum unit or vacuum cleaner.
4. Then wipe both front surfaces of the rotor clean using a lint-free cotton cloth. Apply the cloth only at a complete standstill of the rotor.

⇨ If necessary, repeat coarse and fine cleaning.

5. Let cleaning agents evaporate completely.
6. Remount the clamping cassette and clamping inserts.





10.3.1.2 OW 19

Preparation:

1. Ensure that the Orbital welding power source is switched on.
2. Remove electrode if necessary (*see chapt.* Set up the electrode).
3. Move the rotor to the home setting (0 position) (e.g. by pressing the "END.-0-POS" button on the control panel on the weld head).
4. Remove clamping insert (see chapt. Mounting the clamping cassette for OW 12 [▶ 47]).

Coarse cleaning procedure:

1. Spray the rotor (2) with contact cleaner spray. Let the rotor circulate once by 360° while spraying (press the "MOTOR button).
2. Spray all of the exterior and interior surfaces of the clamping unit (4) and the clamping inserts (3) with contact spray cleaner.
3. Then remove coarse dirt from the rotor (2), weld head interior (1), clamping inserts (3) and the entire clamping unit using a nylon brush.
4. Vacuuming of the carbon-like deposits by using a compressed-air vacuum unit or vacuum cleaner.

Fine cleaning procedure:

CAUTION		**The use of lubricants can severely influence the function and cause damage.** ► Never spray lubricant **into** the welding tongs!

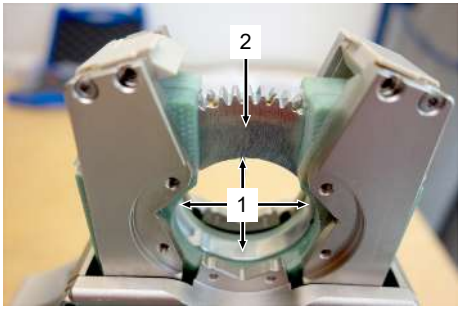
WARNING

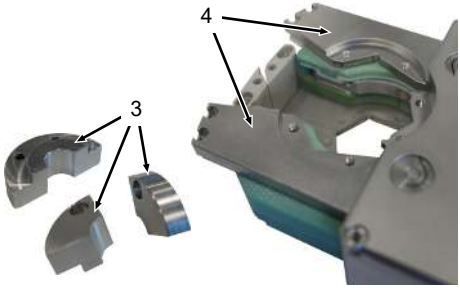
Danger of burning and fire due to the ignition of cleaning agent residues on the weld head during welding!

Danger of burning and fire.

► Let the cleaning agent evaporate completely after every cleaning of the weld head and prior to welding.

1. Spray the rotor (2), weld head interior (1) (both front surfaces of the rotor in particular), clamping inserts (3) and the entire clamping cassette (4) again with contact cleaner. Let the rotor rotate by 360° while spraying (press "MOTOR" button).
2. Fine cleaning of all surface areas handled using a lint-free cotton cloth.
3. Vacuuming of the carbon-like deposits by using a compressed-air vacuum unit or vacuum cleaner.
4. Then wipe both front surfaces of the rotor clean using a lint-free cotton cloth. Apply the cloth only at a complete standstill of the rotor.
   ⇨ If necessary, repeat coarse and fine cleaning.
5. Let cleaning agents evaporate completely.
6. Remount the clamping cassette and clamping inserts.





10.3.1.3 OW 19 HD

Preparation:

1. Ensure that the Orbital welding power source is switched on.
2. Remove electrode if necessary (*see chapt.* Set up the electrode).
3. Move the rotor to the home setting (0 position) (e.g. by pressing the "END.-0-POS" button on the control panel on the weld head).
4. Remove clamping insert (see chapt. Mounting the clamping cassette for OW 12 [▶ 47]

Coarse cleaning procedure:

1. Spray the rotor (2) with contact cleaner spray. Let the rotor circulate once by 360° while spraying (press the "MOTOR button).

2. Spray all of the exterior and interior surfaces of the clamping cassette (4) and the clamping inserts (3) with contact spray cleaner.
3. Then remove coarse dirt from the rotor (2), weld head interior (1), clamping inserts (3) and the entire clamping cassette (4) using a nylon brush.
4. Vacuuming of the carbon-like deposits by using a compressed-air vacuum unit or vacuum cleaner.

Fine cleaning procedure:

CAUTION

The use of lubricants can severely influence the function and cause damage.

► Never spray lubricant **into** the welding tongs!

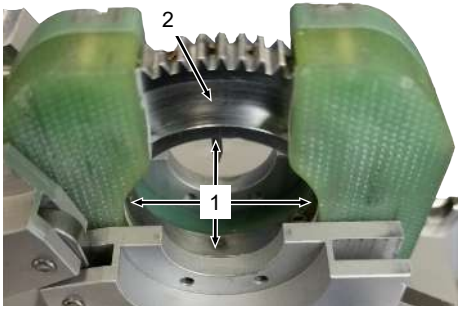
WARNING

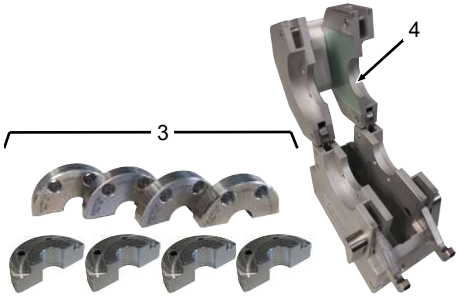
Danger of burning and fire due to the ignition of cleaning agent residues on the weld head during welding!

Danger of burning and fire.

► Let the cleaning agent evaporate completely after every cleaning of the weld head and prior to welding.

1. Spray the rotor (2) (both front surfaces of the rotor in particular), weld head interior (1), clamping insert (3) and the entire clamping cassette again with contact cleaner. Let the rotor rotate by 360° while spraying (press "MOTOR" button).
2. Fine cleaning of all surface areas handled using a lint-free cotton cloth.
3. Vacuuming of the carbon-like deposits by using a compressed-air vacuum unit or vacuum cleaner.
4. Then wipe both front surfaces of the rotor clean using a lint-free cotton cloth. Apply the cloth only at a complete standstill of the rotor.
   ⇨ If necessary, repeat coarse and fine cleaning.
5. Let cleaning agents evaporate completely.
6. Remount the clamping cassette and clamping inserts.





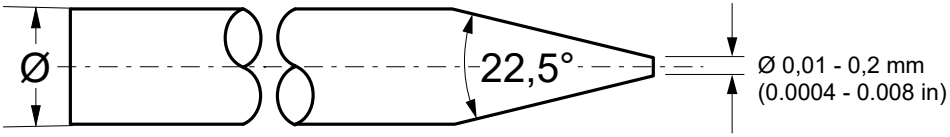
10.4 Troubleshooting

PROBLEM	POSSIBLE CAUSE	REMEDY
Welding process does not start.	No gas and cooling liquid supply.	► Check the connections at the welding power supply.
		► Check the coolant level at the power source.
		► Check the forming gas supply and forming gas quantity.
Weld head does not clamp correctly on the workpiece.	Workpiece outside the tolerance range.	► Use adapted clamping inserts.
Continuously large and constantly different speed deviations.	Defect at the power source or weld head.	► Contact Service.
Arc does not ignite.	Excess electrical resistance arising from soiling between the weld head and the clamping inserts/clamping cassette or clamping inserts/clamping cassette and workpiece.	1. Clean the workpiece and clamping insert. 2. Clean the contact surfaces between the weld head and clamping inserts/clamping cassette and workpiece to clamping jaw/clamping cassette.
	Workpieces soiled.	► Clean the workpiece.
	Forming gas concentration too low.	► Check the forming gas supply and forming gas quantity.
	Electrode distance too large.	► Set the electrode distance. (*See chapt.* Set up the electrode [▸ 51])
	Electrode tip worn.	► Regrind the electrode. (*See chapt.* Grinding electrode [▸ 75])
	Contact fault between electrode and rotor.	► Clean the head again.
	Cable break.	► Replace the hose package.
	Conductivity of the cooling liquid too high.	► Use only Orbitalum cooling liquid OCL-30.

PROBLEM	POSSIBLE CAUSE	REMEDY
Arc tends to one side.	Electrode worn.	► Regrind the electrode. (*See chapt.* Grinding electrode [▶ 75])
	Electrode ground incorrectly.	► Regrind the electrode. (*See chapt.* Grinding electrode [▶ 75])
	Poor electrode quality.	► Use Orbitalum electrodes.
	Bad material quality.	► Sulfur content too high or different.
		► Inhomogeneous alloy components.
Arc ignites against parts of the weld head.	Electrode worn.	► Replace the electrode.
	Electrode ground incorrectly.	► Set the electrode distance.
	Poor electrode quality.	► Clean the weld head.
	Gas pre purge time too short.	► Increase the gas pre-purge time.
	Electrode not installed.	► Install electrode.
No menu appears on the display.	Control line plug	► Check for tight seat.
	Power source software version	► Perform SW/MW software update.
	Power source type	► Function only compatible with SW/MW power sources.
Rotation movement does not start.	Fuse overloaded.	► Let the fuse cool down (thermal fuse).
	Foreign matter in the transmission.	► If possible, remove the foreign matter by means of a vacuum unit. Otherwise send the weld head to the Service. Under no circumstances let the rotor rotate.
	Connection faulty.	► Check the plug and welding power source.

10.5 Grinding electrode

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 Service/Kundendienst

The following data are required to order spare parts:

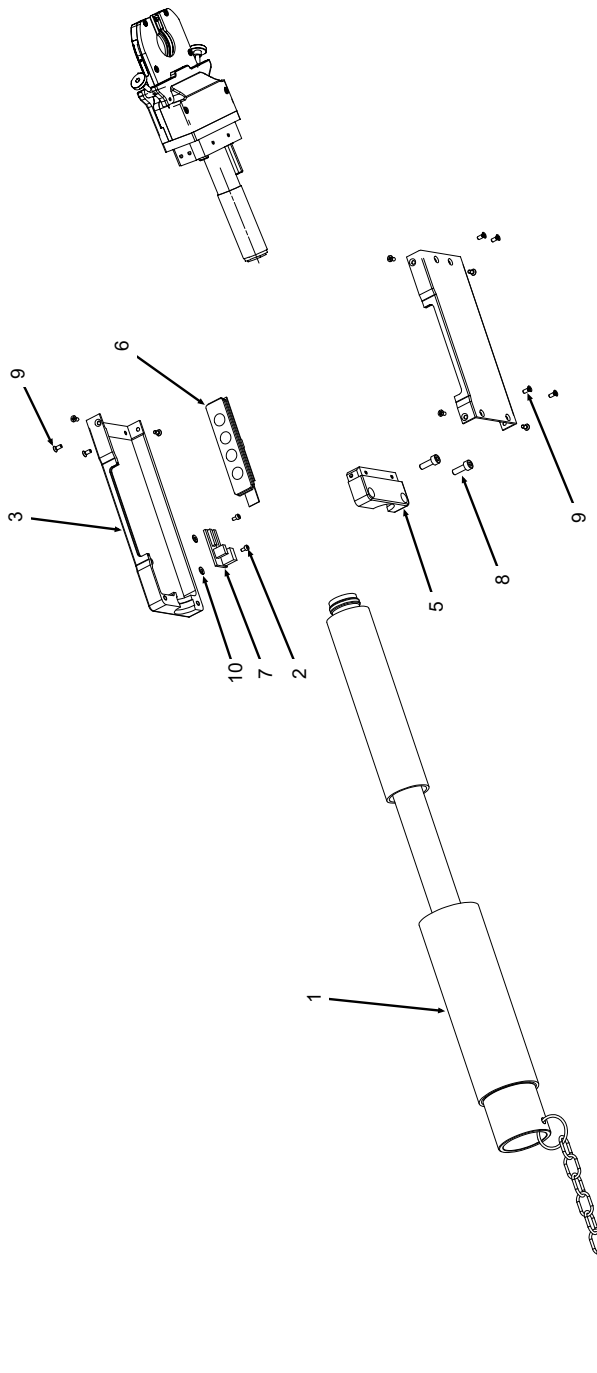
- Machine model: (example: ORBIWELD, Type OW 19 HD)
- Machine No.: (See type plate)

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

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

11 ERSATZTEILLISTE / SPARE PARTS LIST

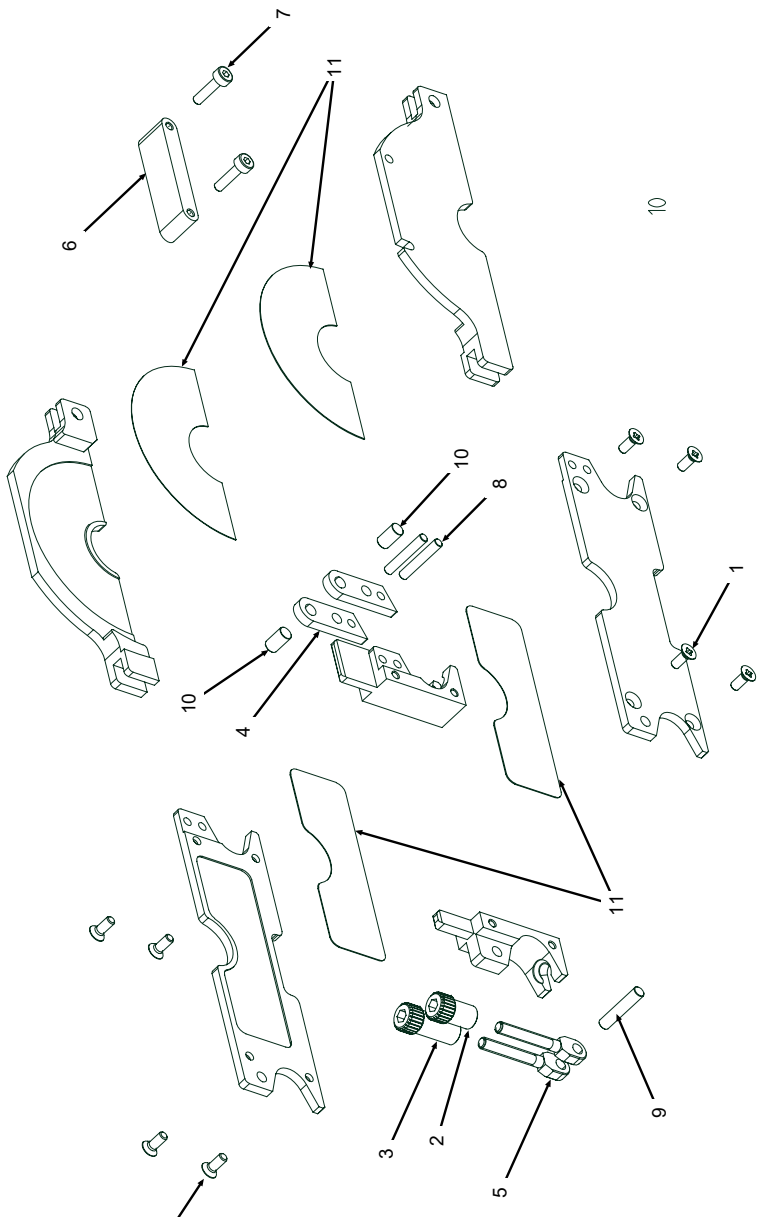
11.1 OW 12: Schweißkopf komplett | Weld head complete



POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION
1	821 050 010	1	Schlauchpaket OW 12 Hose package OW 12
2	305 501 081	2	Zylinderschraube ISO4762-M2x4-A2 Cylinder screw ISO4762-M2x4-A2
3	821 009 002	1	Handgriff, Unterteil OW 12 Handle, lower part OW 12
4	821 009 001	1	Handgriff, Oberteil OW 12 Handgriff, Oberteil OW 12
5	821 009 003	1	Handgriff, Zugentlastung OW 12 Handle, strain relief OW 12
6	821 050 008	1	Schalterplatte OW 12 Switch plate OW 12
7	821 012 001	1	Tachospannungsteiler, Platine OW 12 Voltage devider, circuit board OW 12
8	305 501 070	2	Zylinderschraube ISO4762-M4x12-A2 Cylinder screw ISO4762-M4x12-A2
9	302 000 033	12	Senkschraube ISO7046-1-M2.5x6-A2 Countersunk screw ISO7046-1-M2.5x6-A2
10	542 170 310	2	Scheibe DIN125-A-2.7-KST Washer DIN125-A-2.7-KST

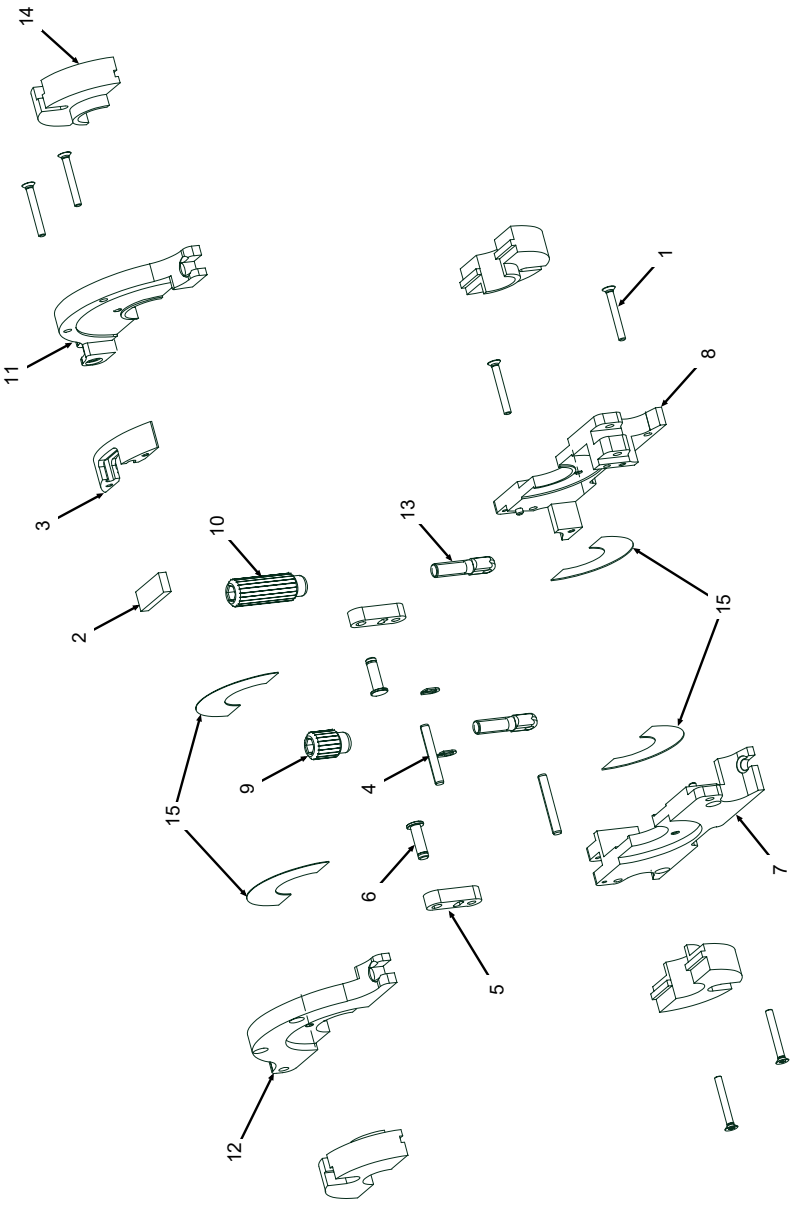
11.2 OW 12: Spannkassette Typ "A" | Clamping cartridge Typ "A"

Typ "A" (V3)



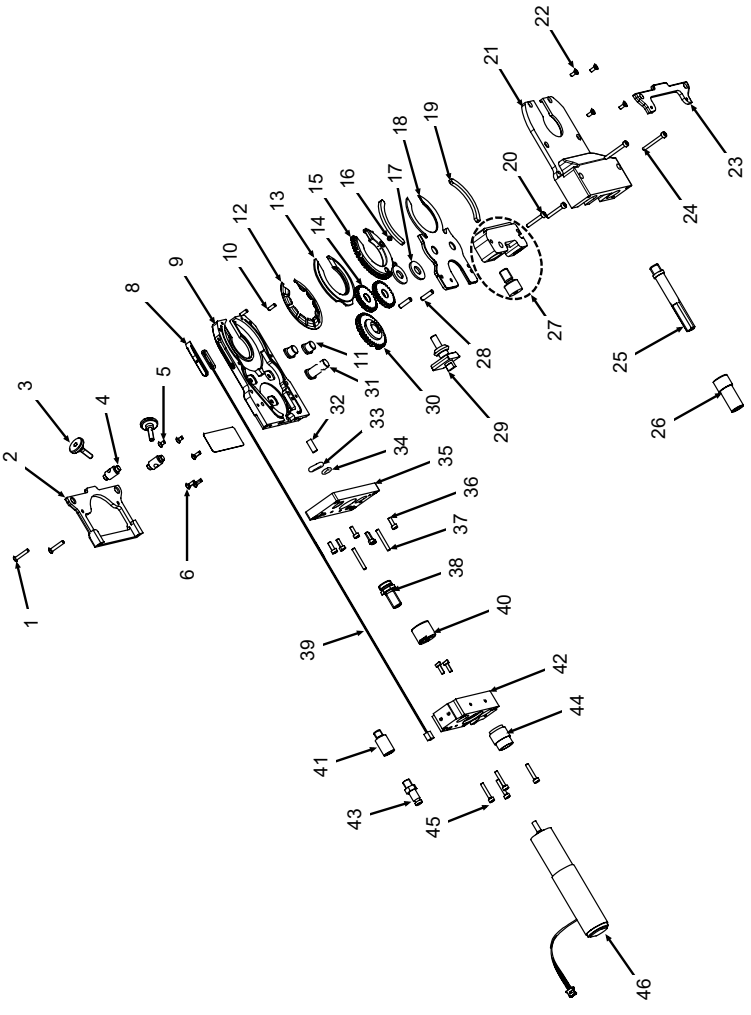
POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION	POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION
1	302 000 031	8	Senkschraube ISO7046-1-M2x5-A2 Countersunk screw ISO7046-1-M2x5-A2	11	821 050 026	1	Isolationsset Spannkassette Typ A V3 Isolation set cartridge type A V3
2	821 001 044	1	Rändelmutter, kurz (Typ A) V3 Knurled nut, short (Type A) V3				
3	821 001 043	1	Rändelmutter, lang (Typ A) V3 Knurled nut, long (type A) V3				
4	821 001 038	2	Verbindungslasche OW 12 (Typ A) V3 Connection piece OW 12 (type A) V3				
5	821 001 005	2	Augenschraube (Typ A) Eye bolt (type A)				
6	821 001 039	1	Teflonabdeckung OW 12 (Typ A) V3 Teflon cover OW 12 (type A) V3				
7	305 501 082	2	Zylinderschraube ISO4762-M2x8-A2 Cylinder screw ISO4762-M2x8-A2				
8	821 001 040	2	Zylinderstift D2x12.2 OW 12 (Typ A) V3 Cylinder pin D2x12.2 OW 12 (type A) V3				
9	821 001 041	1	Zylinderstift D2.5x12.2 OW 12 (Typ A) V3 Cylinder pin D2.5x12.2 OW 12 (type A) V3				
10	821 001 042	2	Zylinderstift D3x5.2 OW12 (Typ A) V3 Cylinder pin D3x5.2 OW12 (type A) V3				

11.3 OW 12: Spannkassette Typ "B" | Clamping cartridge Typ "B"

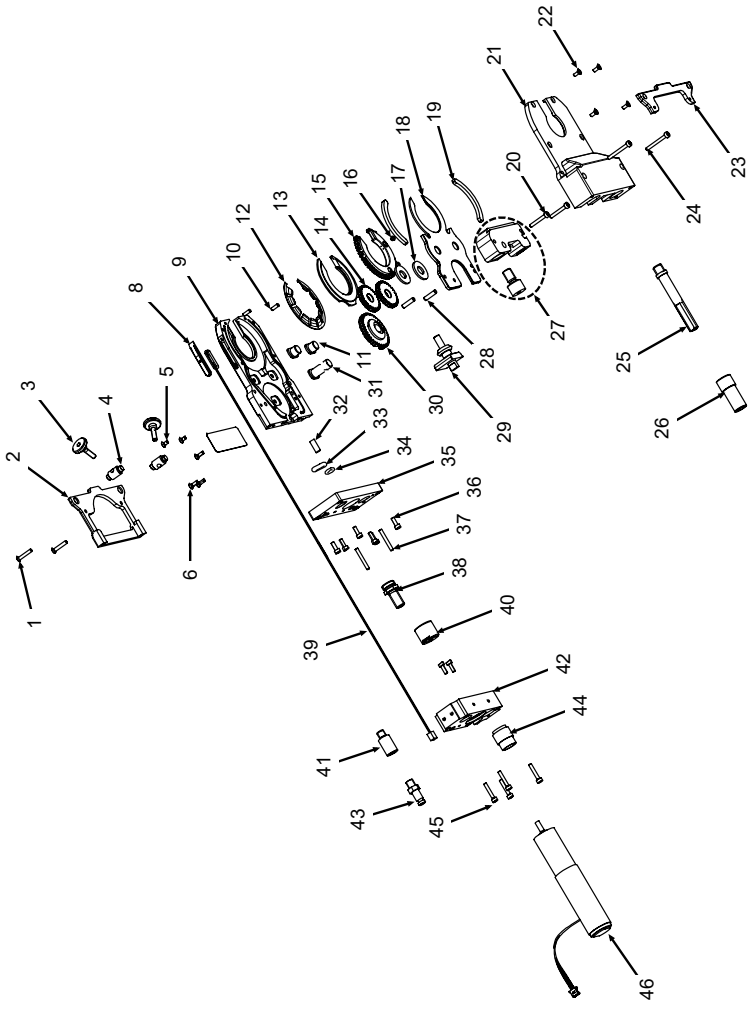


POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION	POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION
1	302 000 042	6	Senkschraube ISO7046-1-M2x16-A2 Countersunk screw ISO7046-1-M2x16-A2	12	821 001 016	1	Schwenkbügel, links (Typ B) OW 12 Pivot bracket, left-hand (type B) OW 12
2	821 001 026	1	Sichtfenster OW 12 Inspection window OW 12	13	821 001 018	2	Schwenkbügel, rechts (Typ B) OW 12 Pivot bracket, right-hand (type B) OW 12
4	821 007 022	1	Teflonabdeckung OW 12 Teflon cover OW 12	14	821 001 006	2	Augenschraube (Typ B) Eye bolt (type B)
5	565 808 209	2	Zylinderstift ISO2338-2.5M6x18-A2 Cylinder pin ISO2338-2.5M6x18-A2	15	821 002 xxx	4	Spanneinsatz OW 12 (Typ B) Ø xxx Clamping insert OW 12 (type B) Ø xxx
6	821 001 013	2	Verbindungslasche (Typ B) Connection piece (type B)	16	821 050 027	4	Isolationsset Spannkassette Typ B Isolation set cartridge type B
7	821 001 023	2	Gelenkbolzen, lang (Typ B) Pivot bolt, long (type B)				
8	821 002 003	1	Kassette, rechts (Typ B) Cartridge, right-hand (type B)				
9	821 002 001	1	Kassette, links (Typ B) Cartridge, left-hand (type B)				
10	821 001 007	1	Rändelmutter, kurz (Typ B) Knurled nut, short (type B)				
11	821 001 009	1	Rändelmutter, lang (Typ B) Knurled nut, long (type B)				

11.4 OW 12: Kopfbaugruppe | OW 12: Weld head assembly



POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION	POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION
1	302 000 027	2	Senkschraube ISO7046-M2X12-A2 Countersunk screw ISO7046-M2X12-A2	3	821 001 011	2	Rändelschraube Knurled screw OW 12/KD
2	821 001 055	1	Steitenplatte hinten V2 OW 12. Ab SN 8217310081 bis SN 8217310129 und ab SN 8217410001 Side plate, rear V2 OW 12. From SN 8217310081 to SN 8217310129 and from SN 8217410001	4	821 007 016	2	Gewindebolzen V2. Ab SN 8217310081 bis SN 8217310129 und ab SN 8217410001 Threaded bolt V2. From SN 8217310081 to SN 8217310129 and from SN 8217410001
	821 050 034		Umrüstsatz Seitenplatten OW12. Bis SN 8217310080 und 82117310130 bis 8217310136 Conversion kit side plates OW12. From SN 8217310080 and 82117310130 to 8217310136		821 050 034		Umrüstsatz Seitenplatten OW12. Bis SN 8217310080 und 82117310130 bis 8217310136 Conversion kit side plates OW12. From SN 8217310080 and 82117310130 to 8217310136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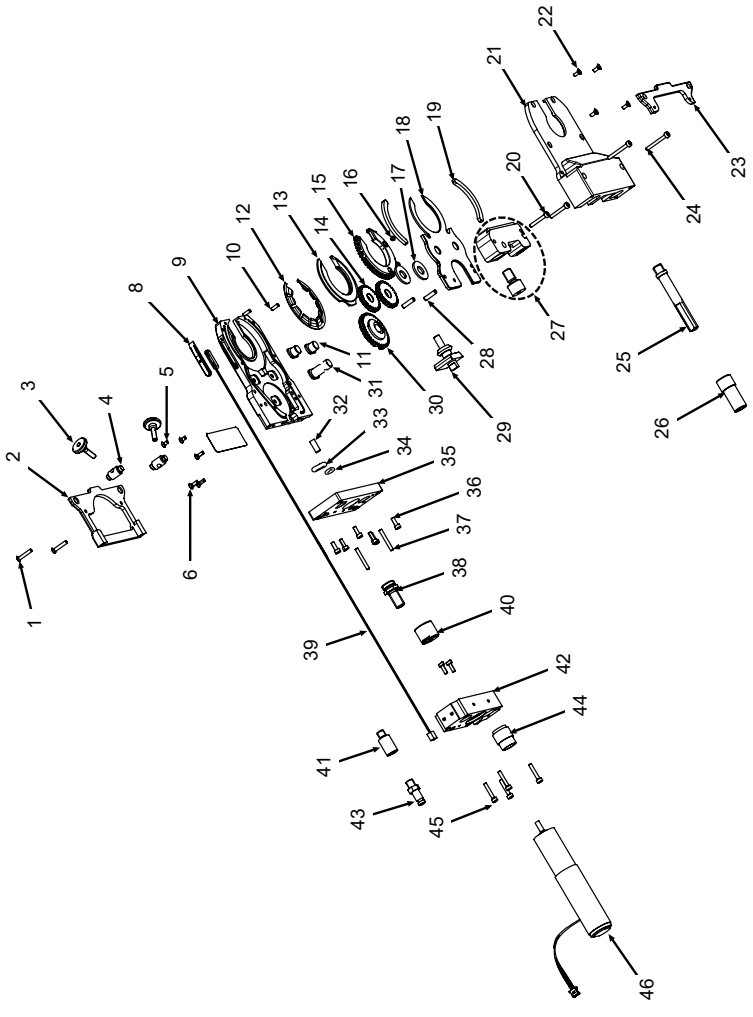
POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION	POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION
5	302 000 037	2	Senkschraube ISO7046-1-M2x4-A2 Countersunk screw ISO7046-1-M2x4-A2	14	821 008 008	2	Stirnzahnrad Spur gear OW 12
6	302 000 040	3	Senkschraube ISO7046-M2x6-A2 Countersunk screw ISO7046-M2x6-A2	15	821 050 022	1	Rotor OW (V2) Rotor OW 12 (V2)
8	821 007 005	1	Deckel Endschalter Limit switch, cover OW 12	16	821 020 002	2	Elektrodenklemmschraube OW 12 Electrode clamping screw OW 12
9	821 007 031	1	Basis Grundkörper V2 Base body, base part OW 12 (V2) (P/O)	17	821 007 006	2	Abstandshalter Zahnrad Spacer, gear wheel OW 12
10	565 808 157	2	Zylinderstift ISO2338-2M6x6-A2 Cylinder pin ISO2338-2M6x6-A2	18	821 007 028	1	Kühlplatte OW 12 (V2) Cooling plate OW 12 (V2)
11	821 007 010	2	Aufnahme Stirnzahnrad Spur gear, retainer OW 12 (purchase)	19	821 007 027	2	Rotor, Gleitsegment OW 12 (V2) Rotor, slide segment OW 12 (V2)
12	821 007 029	1	Federring OW 12 (V2) Spring washer OW 12 (V2)				
13	821 007 026	1	Rotor Führungsring Rotor, guide ring OW 12 (V2)				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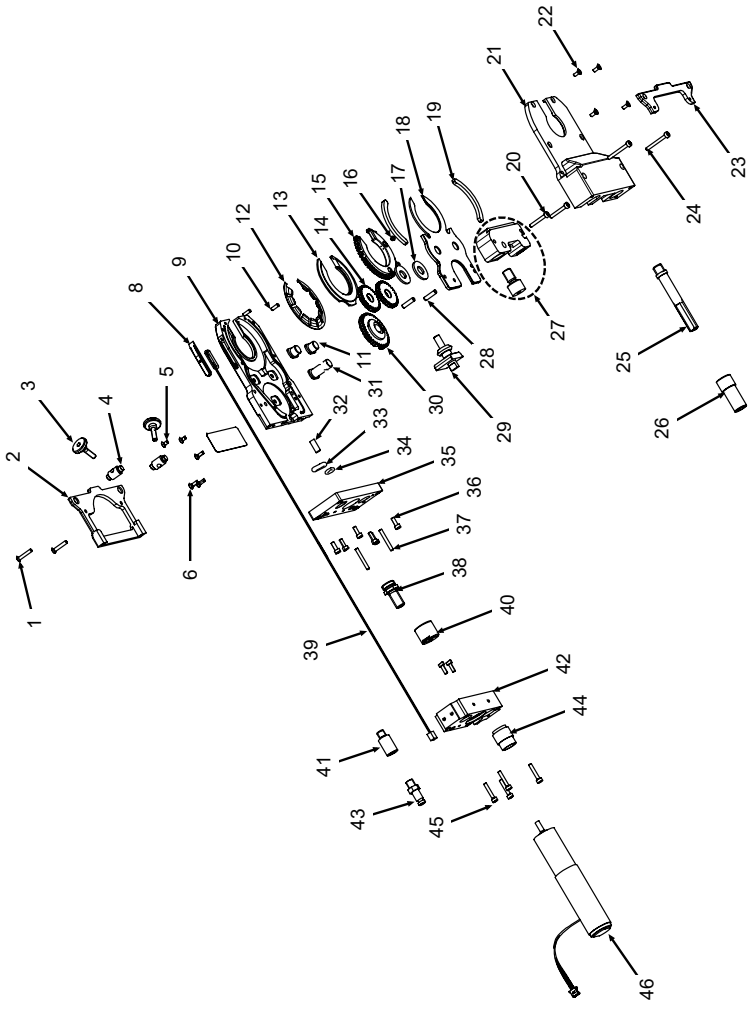
POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION
20	305 501 049	2	Zylinderschraube ISO4762-M2x14-A2. Ab SN 8217310081 bis SN 8217310129 und ab SN 8217410001 Cylinder screw ISO4762-M2x14-A2. From SN 8217310081 to SN 8217310129 and from SN 8217410001
	821 050 034		Umrüstsatz Seitenplatten OW12. Bis SN 8217310080 und 82117310130 bis 8217310136 Conversion kit side plates OW12. From SN 8217310080 and 82117310130 to 8217310136
21	821 007 002	1	Deckel Grundkörper Cover ground body
22	302 000 031	4	Senkschraube ISO7046-1-M2x5-A2 Countersunk screw ISO7046-1-M2x5-A2
23	821 001 054	1	Seitenplatte vorne V2 OW12. Ab SN 8217310081 bis SN 8217310129 und ab SN 8217410001 Side plate, front V2 OW 12. From SN 8217310081 to SN 8217310129 and from SN 8217410001
	821 050 034		Umrüstsatz Seitenplatten OW12. Bis SN 8217310080 und 82117310130 bis 8217310136 Conversion kit side plates OW12. From SN 8217310080 and 82117310130 to 8217310136
24	305 501 047	2	Zylinderschraube ISO4762-M2x18-A2 Cylinder screw ISO4762-M2x18-A2
25	821 007 007	1	Anschlussnippel Elektrode Electrode, connection nipple
26	821 007 018	1	Isolationsbuchse Elektrode(innen) Electrode, insulating bush, inside
21	821 007 002	1	Deckel Grundkörper Cover ground body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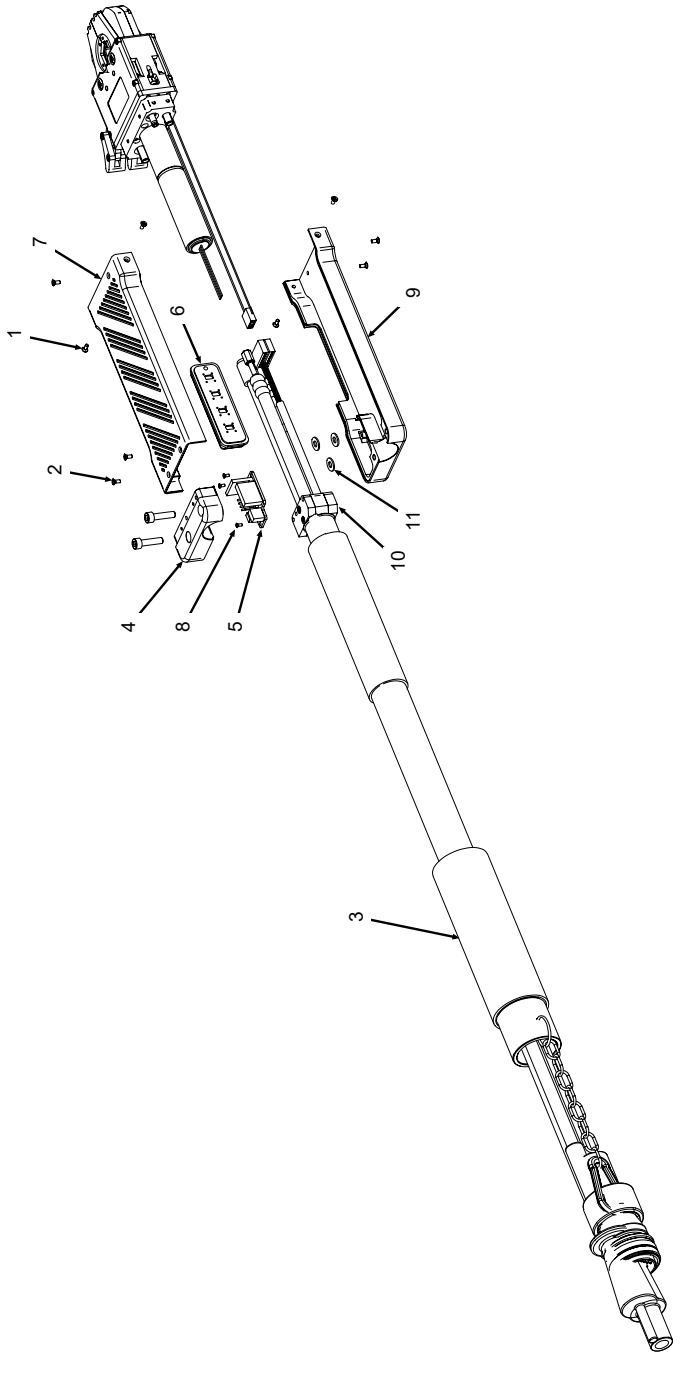
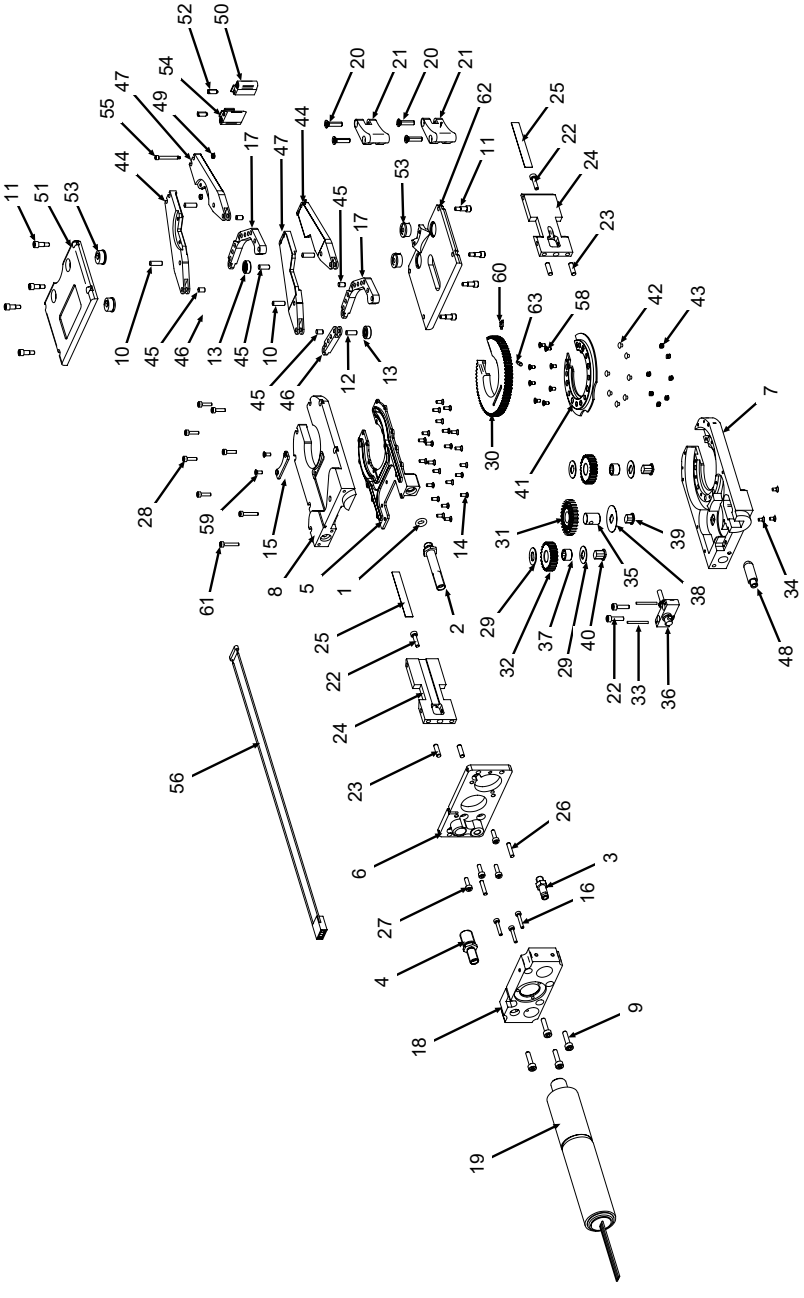
POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION	POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION
27	821 050 018	1	Kühlblock OW12, kpl. Cooling block OW 12, cpl.	37	565 808 188	2	Zylinderstift ISO2338-2M6x16-A2 Cylinder pin ISO2338-2M6x16-A2
28	565 808 151	2	Zylinderstift ISO2338-2,5m6X10-A2 EDELST Cylinder pin ISO2338-2.5x10-A2	38	821 007 008	1	Anschlussnippel Masse Ground, connection nipple
29	821 050 011	1	Antriebseinheit OW12 Drive unit OW 12	39	821 050 004	1	Endschalter OW 12 kpl. Limit switch OW 12 cpl.
30	821 008 005	1	Kombizahnrad OW 12 Combinated gear wheel OW 12	40	821 050 400	1	Motorkupplung kpl. Motor coupling OW 12 (V2), cpl.
31	821 007 009	1	Aufnahme Kombinationszahnrad Comb gear wheel, retainer OW 12 (purch.)	41	821 001 024	1	Gasanschluss-Adapter Gas connection adapter
32	821 007 030	1	Schweißgas Ausströmer OW12 Welding gas diffuser OW 12	42	821 007 020	1	Montageplatte Motor Motor, mounting plate
33	823 020 006	1	O-Ring 6,02x2,62 O-ring 6.02 x 2.62	43	826 020 010	1	Gasanschlussnippel Gas connection
34	826 020 011	1	O-Ring 2,90x1,78 O-ring 2,90x1,78	44	821 007 017	1	Isolationsbuchse Elektrode (außen) Electrode, insulating bush, outside
35	821 007 013	1	Endplatte End plate	45	305 501 050	4	Zylinderschraube ISO4762-M2X12-A2 Cylinder screw ISO4762-M2X12-A2
36	305 501 087	8	Zylinderschraube ISO4762-M2x6-A2 Cylinder screw ISO4762-M2x6-A2	46	821 050 401	1	Motor/Tachoeinheit OW12 (V2) Motor/speedometer unit OW12 (V2)

11.5 OW 19: Schweißkopf komplett | Weld head complete

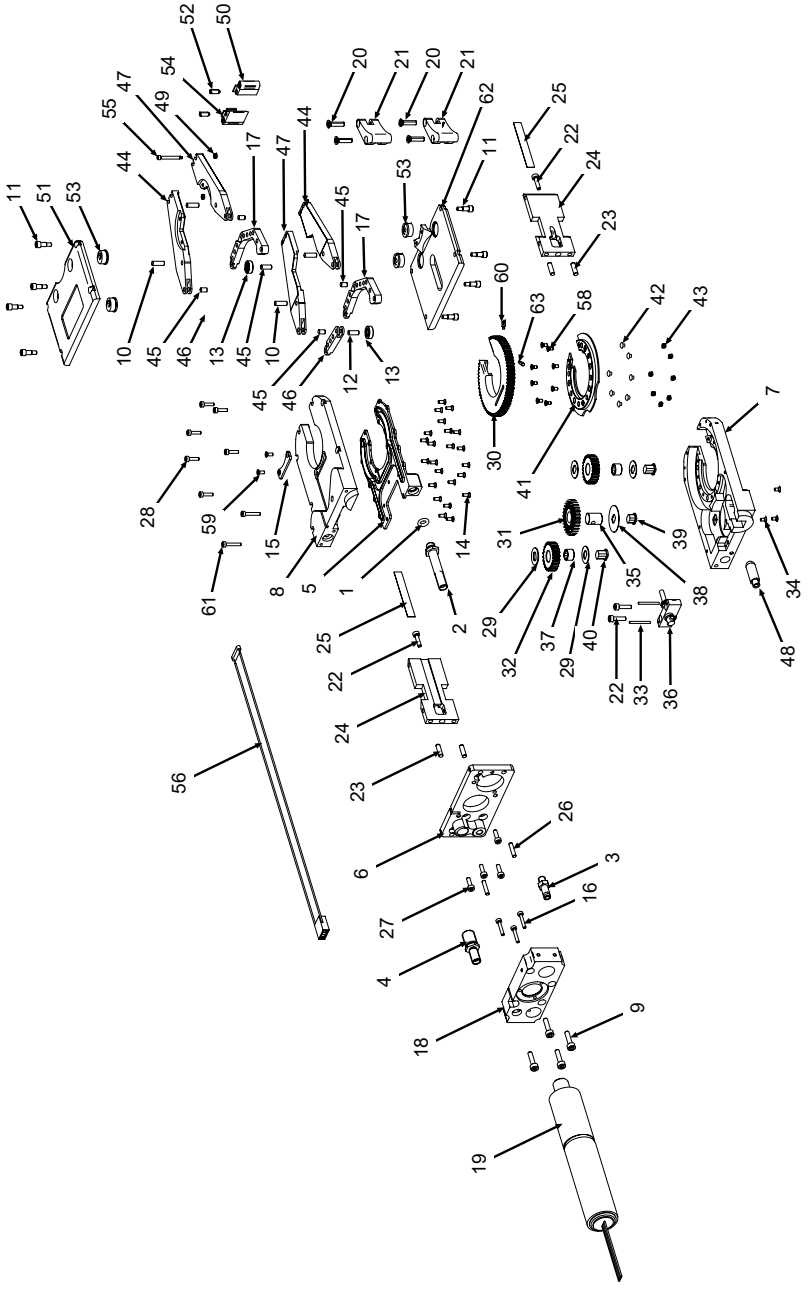


POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION	POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION
1	305 501 057	2	Zylinderschraube ISO4762-M5x20-A2 Cylinder screw ISO4762-M5x20-A2	11	542 170 310	3	Scheibe DIN125-A-2.7-KST Washer DIN125-A-2.7-KST
2	302 000 033	9	Senkschraube ISO7046-1-M2.5x6-A2 Countersunk screw ISO7046-1-M2.5x6-A2				
3	822 050 011	1	Schlauchpaket OW 19 Hose package OW 19				
4	826 009 003	1	Handgriff, Zugentlastung OWS Handle, strain relief OWS				
5	826 012 010	1	Tachospannungsteiler, Platine OWS Voltage devider, circuit board OWS				
6	826 050 021	1	Schalterplatte OWS/OW 19/TX Switch plate OWS/OW 19/TX				
7	826 009 002	1	Handgriff, Oberteil OWS Handle, upper part OWS				
8	305 501 053	3	Zylinderschraube ISO4762-M2.5x4-A2 Cylinder screw ISO4762-M2.5x4-A2				
9	826 009 001	1	Handgriff, Unterteil OWS Handle, lower part OWS				
10	826 050 023	1	Zugentlastung OWS, kpl. Strain relief OWS, cpl.				

11.6 OW 19: Kopfbaugruppe | OW 19: Weld head assembly



POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION	POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION
1	823 020 022	1	O-Ring 4.47 x 1.78 O-ring 4.47 x 1.78	11	822 001 024	8	Seitenteil OW 19, Schulterpassschraube Side plate OW 19, shoulder screw
2	827 007 001	1	Elektrode, Anschlussnippel Electrode, connection nipple	12	822 001 029	2	Zylinderstift D3x7.8 mm OW 19 Cylinder pin D3x7.8 mm OW 19
3	826 020 010	1	Gasanschlussnippel Gas connection nipplenippel	13	822 020 011	2	Kugellager OW 19 Ball bearing OW 19
4	826 007 008	1	Masse, Anschlussnippel Ground, connection nipple	14	302 000 037	23	Senkschraube ISO7046-1-M2x4-A2 Countersunk screw ISO7046-1-M2x4-A2
5	822 007 007	1	Kühlplatte OW 19 Cooling plate OW 19	15	822 001 010	1	Abdeckung Endschalter OW 19 Limit switch, cover OW 19
6	822 007 001	1	Endplatte OW 19 End plate OW 19	16	305 501 050	3	Zylinderschraube ISO4762-M2x12-A2 Cylinder screw ISO4762-M2x12-A2
7	822 050 013	1	Grundkörper, Basisteil OW 19, kpl. (bestehend aus Pos. 7 + 34 + 39 + 40) Base body, base part OW 19, cpl. (consisting of item no. 7 + 34 + 39 + 40)	17	822 010 015	2	Spannbacke, Gelenkarm OW 19, lang Clamping jaw, articul. arm OW 19, long
8	822 050 014	1	Grundkörper, Deckel OW 19, kpl. Base body, cover OW 19, cpl.	18	826 003 003	1	Motor, Montageplatte OWS/OW 19 Motor, mounting plate OWS/OW 19
9	305 501 055	4	Zylinderschraube ISO4762-M3x12-A2 Cylinder screw ISO4762-M3x12-A2	19	822 012 002	1	Motor/Tachoeinheit OW 19 Motor/speedometer unit OW 19
10	822 001 027	4	Klemmeinheit, Stift OW 19 3x9 Clamping unit, pin OW 19 3x9	20	822 026 026	4	Senkschraube DIN965-VA-M3x12-PZ Countersunk screw DIN965-VA-M3x12-PZ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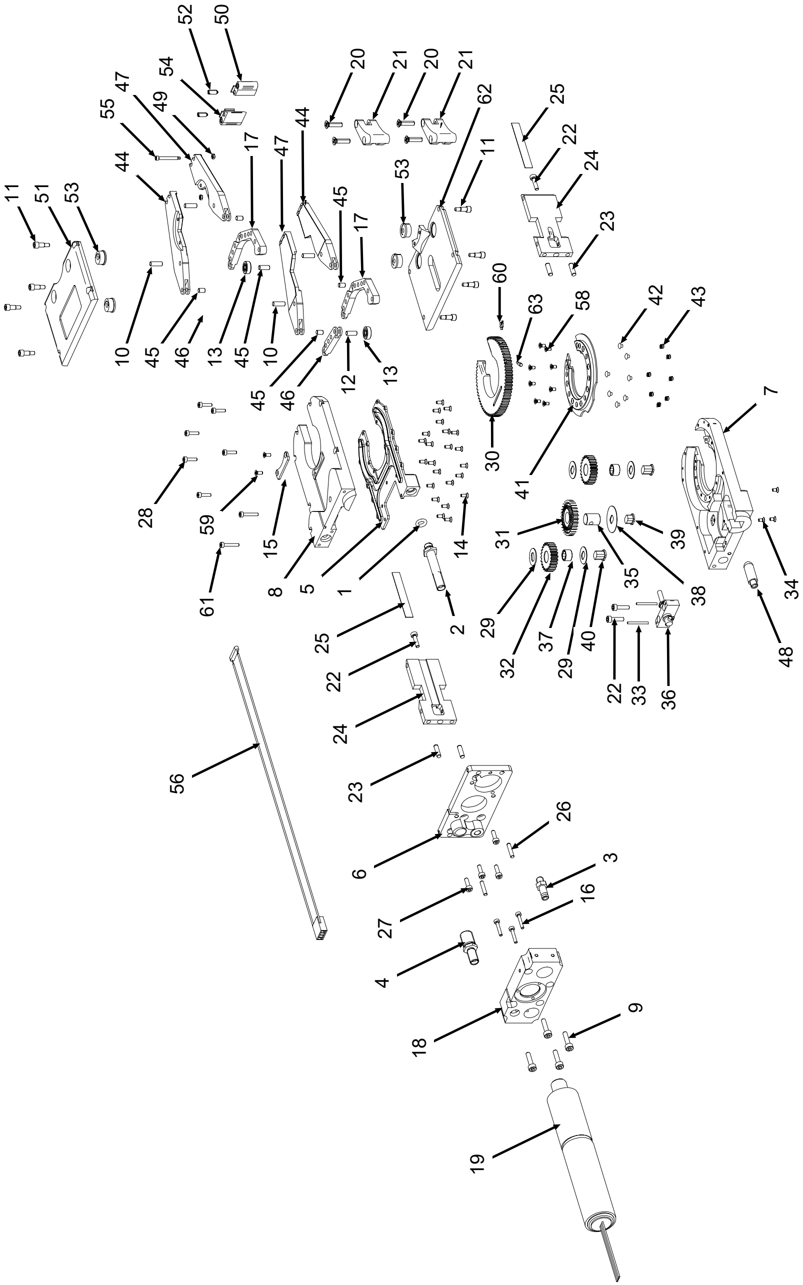
POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION	POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION
21	822 010 002	2	Griffstück OW 19 Handle piece OW 19	31	822 008 008	1	Kombinationszahnrad OW 19 Combinated gear wheel OW 19
22	305 501 076	4	Zylinderschraube ISO4762-M2.5x10-A2 Cylinder screw ISO4762-M2.5x10-A2	32	822 008 007	2	Stirnzahnrad innen D8 mm Spur gear inside D8 mm
23	565 808 163	4	Zylinderstift ISO2338-3M6x10-A2 Cylinder pin ISO2338-3M6x10-A2	33	565 808 208	2	Zylinderstift ISO2338-1,5M6x16-A2 Edelstahl Cylindrical pin ISO2338-1,5M6x16-A2 St. steel
24	822 050 039	2	Seitenteil, Verbindung OW 19, kpl. (V2) (bestehend aus Pos. 23 + 24 + 25) Side plate, connection OW 19, cpl. (V2) (consisting of item no. 23 + 24 + 25)	34	302 000 031	3	Senkschraube ISO7046-1-M2x5-A2 Countersunk screw ISO7046-1-M2x5-A2
25	822 001 009	2	Isolierung, Seitenteil OW 19 Insulating part, side plate OW 19	35	822 007 016	1	Lager RULON OW 19 (lang/metrisch) Bearing RULON OW 19 (long/metric)
26	565 808 152	2	Zylinderstift ISO2338-2.5x12-A2 Cylinder pin ISO2338-2.5x12-A2	36	822 050 007	1	Antriebseinheit OW 19 Drive unit OW 19
27	305 501 054	4	Zylinderschraube ISO4762-M2.5x8-A2 Cylinder screw ISO4762-M2.5x8-A2	37	822 007 017	2	Lager RULON OW 19 (metrisch) Bearing RULON OW 19 (metric)
28	822 020 005	6	Kunststoffschraube OW 19 M2x8 mm Plastic screw OW 19 M2x8 mm	38	822 007 014	1	Teflonscheibe OW 19, AD19.2 Teflon washer OW 19, OD19.2
29	822 007 015	4	Teflonscheibe OW 19, AD12.5 Teflon washer OW 19, OD12.5	39	822 007 011	1	Lagerzapfen OW 19, kurz Bearing pin OW 19, short
30	822 050 010	1	Rotor OW 19 Rotor OW 19	40	822 007 012	2	Lagerzapfen OW 19, lang Bearing pin OW 19, long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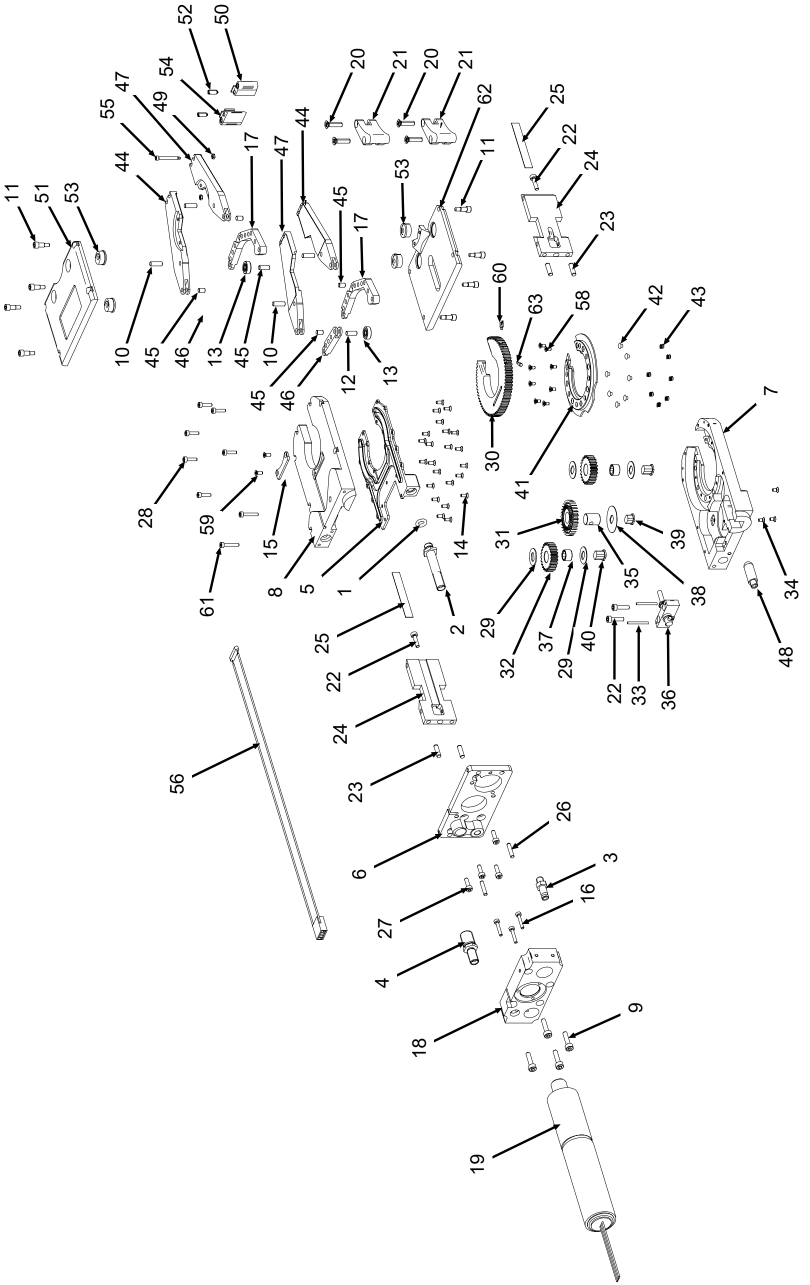
POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION	POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION
41	822 007 003	1	Teflonring OW 19 Teflon ring OW 19	50	822 050 035	1	Abdeckung OW 19, rechts, kpl. (V2) (bestehend aus Pos. 50 + 52) Cover OW 19, right-hand, cpl. (V2) (consisting of item no. 50 + 52)
42	822 008 002	7	Kugelkopfdruckstück OW 19 Spherical head pressure piece OW 19				
43	822 008 003	7	Kugekopfdruckstück, Feder OW 19 Spherical head press.piece, spring OW 19	51	822 050 001	2	Seitenplatte, vorne OW 19, kpl. (V2) (bestehend aus Pos. 51 + 53) Side plate, front OW 19, cpl. (V2) (consisting of item no. 51 + 53)
44	822 050 033	2	Spannbacke OW 19, links, kpl. (V2) (bestehend aus Pos. 44 + 10) Clamping jaw OW 19, left-hand, cpl. (V2) (consisting of item no. 44 + 10)	52	826 020 023	2	Druckstück Spanneinsatz M3 Pressure piece clamping insert M3
45	822 001 028	4	Zylinderstift D3x4.6 mm OW 19 Cylinder pin D3x4.6 mm OW 19	53	822 001 039	4	Spannbacke, Lager OW 19 (V2) Clamping jaw, bearing OW 19 (V2)
46	822 010 014	2	Spannbacke, Gelenkarm OW 19, kurz Clamping jaw, articul. arm OW 19, short	54	822 050 034	1	Abdeckung OW 19, links, kpl. (V2) (bestehend aus Pos. 54 + 52) Cover OW 19, left-hand, cpl. (V2) (consisting of item no. 54 + 52)
47	822 050 032	2	Spannbacke OW 19, rechts, kpl. (V2) (bestehend aus Pos. 47 + 10) Clamping jaw OW 19 right-hand, cpl. (V2) (consisting of item no. 47 + 10)	55	822 001 041	2	Schulterpassschraube M1.6 L17 Shoulder screw M1.6 L17
48	827 020 011	1	Schweißgasausströmer OW 76S/OW 19 Welding gas diffuser OW 76S/OW 19	56	822 050 008	1	Endschalter OW 19, kpl. Limit switch OW 19, cpl.
49	500 602 314	2	Sechskantmutter ISO4032-M1.6-A2 Hexagon nut ISO4032-M1.6-A2	58	302 000 038	8	Senkschraube ISO7046-1-M2x3-A2 Countersunk screw ISO7046-1-M2x3-A2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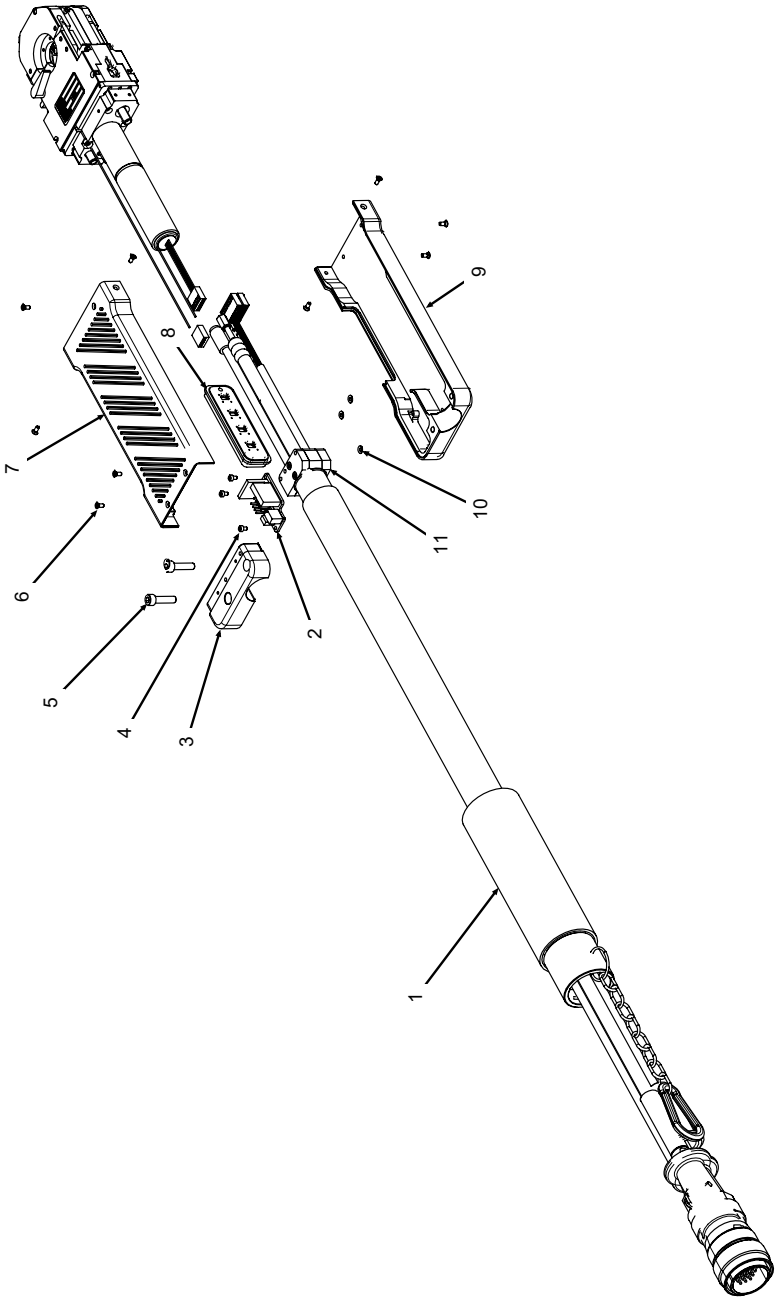
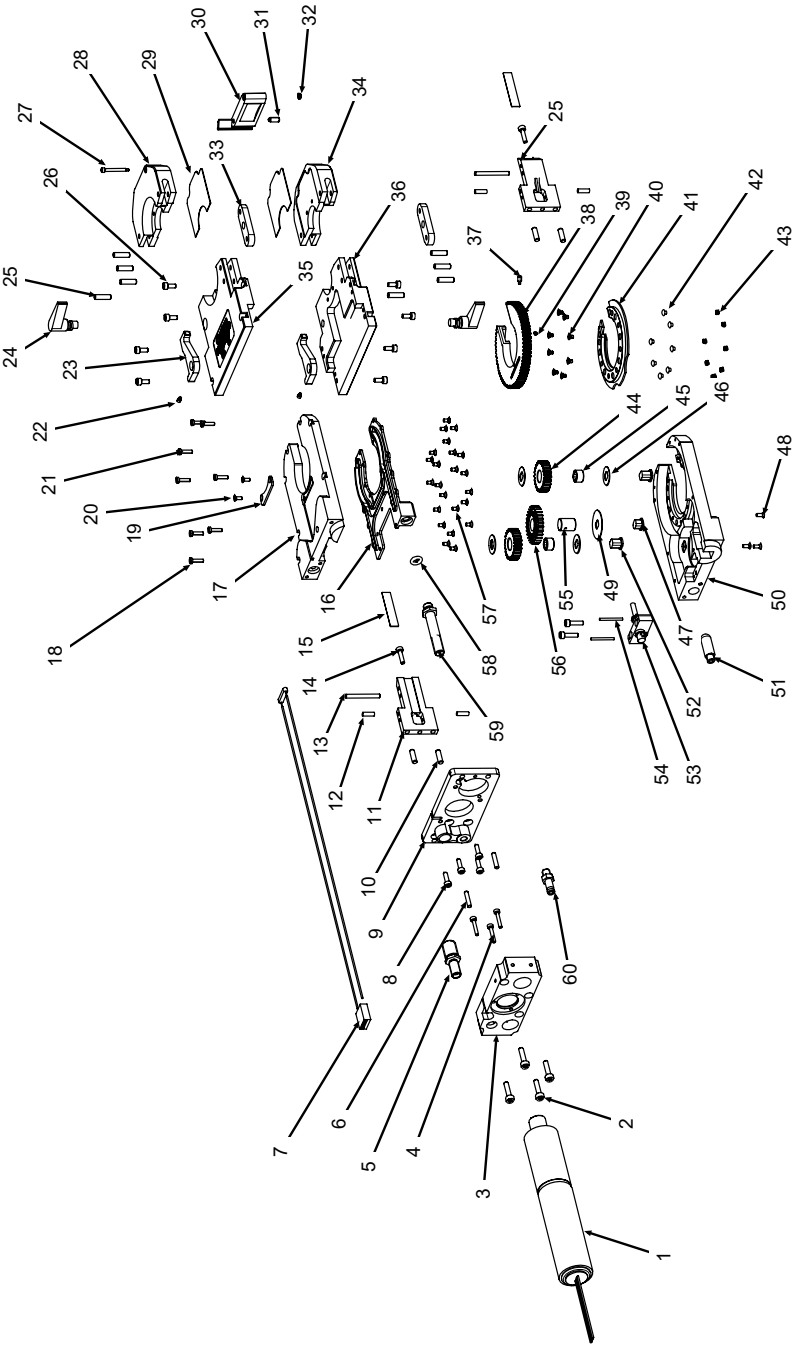
POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION	POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION
59	821 020 003	2	Kunststoffschraube M2x5 mm Plastic screw M2x5 mm				
60	822 020 012	1	Elektrodenklemmschraube OW 19 M2,5x5 Electrode clamping screw OW 19 M2,5x5				
61	822 020 006	2	Kunststoffschraube OW 19 M2x14 mm Plastic screw OW 19 M2x14 mm				
62	822 050 002	1	Seitenplatte, hinten OW 19, kpl. (V2) (bestehend aus Pos. 62 + 53) Side plate, rear OW 19, cpl. (V2) (consisting of item no. 62 + 53)				
63	822 020 014	1	Elektrodenklemmschraube OW 19 M2x3 Electrode clamping screw OW 19 M2x3				

11.7 OW 19 HD: Schweißkopf komplett | OW 19 HD: Weld head complete

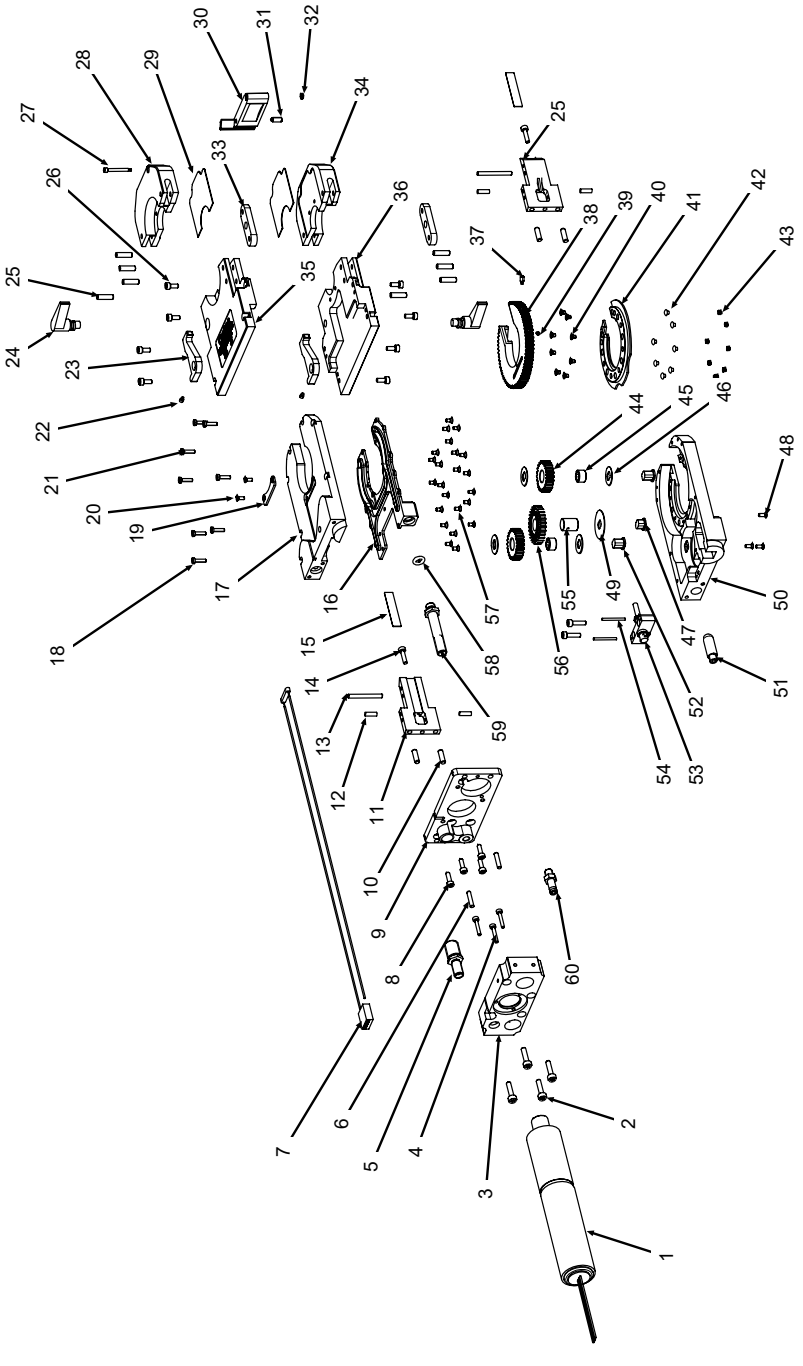


POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION
1	822 050 011	1	Schlauchpaket OW19 Hose package OW19
2	826 012 010	1	Tachospannungsteiler, Platine Voltage devider, circuit board
3	826 009 003	1	Handgriff, Zugentlastung OWS Handle, strain relief OWS
4	305 501 053	3	Zylinderschraube ISO4762-M2.5x4-A2 Cylinder screw ISO4762-M2.5x4-A2
5	305 501 057	2	Zylinderschraube ISO4762-M5x20-A2 Cylinder screw ISO4762-M5x20-A2
6	302 000 033	9	Senkschraube ISO7046-1-M2.5x6-A2 Countersunk screw ISO7046-M2.5x6-A2
7	826 009 002	1	Handgriff, Oberteil OWS Handle, upper part OWS
8	826 050 021	1	Schalterplatte OWS/OW19/TX/HX Switch plate OWS/OW19/TX/HX
9	826 009 001	1	Handgriff, Unterteil OWS Handle, lower part OWS
10	542 170 310	3	Scheibe DIN125-A-2.7-KST Washer DIN125-A-2.7-KST

11.8 OW 19 HD: Kopfbaugruppe | OW 19 HD: Weld head assembly



POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION	POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION
1	822 012 002	1	Motor/Tachoeinheit OW 19 Motor/speedmotor OW 19	11	822 050 207	2	Verbindung Seitenteil OW 19 HD Connection side panel OW 19 HD
2	305 501 055	4	Zylinderschraube ISO4762-M3x12-A2 Cylinder screw ISO4762-M3x12-A2	12	565 808 156	4	Zylinderstift ISO2338-2.5x8-A2 Cylinder pin ISO2338-2.5x8-A2
3	826 003 003	1	Montageplatte Motor OWS/OW 19 Mounting plate motor OWS/OW 19	13	565 808 192	2	Zylinderstift ISO2338-2.5M6x24-A2 Cylinder pin ISO2338-2.5M6x24-A2
4	305 501 050	3	Zylinderschraube ISO4762-M2x12-A2 Cylinder screw ISO4762-M2x12-A2	14	305 501 076	4	Zylinderschraube ISO4762-M2.5x10-A2 Cylinder screw ISO4762-M2.5x10-A2
5	826 007 008	1	Masse, Anschlussnippel Ground, connection nipple	15	822 020 207	2	Isolierung, Seitenteil OW 19 HD Insulation, side panel OW 19 HD
6	565 808 152	2	Zylinderstift ISO2338-2.5x12-A2 Cylinder pin ISO2338-2.5x12-A2	16	822 007 007	1	Kühlplatte OW 19 Cooling plate OW 19
7	822 050 008	1	Endschalter OW 19, kpl. Limit switch OW19, cpl.	17	822 007 004	1	Deckel Grundkörper OW 19 Base body, cover OW 19
8	305 501 054	4	Zylinderschraube ISO4762-M2.5x8-A2 Cylinder screw ISO4762-M2.5x8-A2	18	822 020 006	2	Zylinderschraube ISO1207-M2x12-KS Cylinder screw ISO1207-M2x12-KS
9	822 007 001	1	Endplatte OW 19 End plate OW 19	19	822 001 010	1	Abdeckung Endschalter OW 19 Limit switch, cover OW 19
10	565 808 163	4	Zylinderstift ISO2338-3M6x10-A2 Cylinder pin ISO2338-3M6x10-A2	20	821 020 003	2	Kunststoffschraube M2x5 mm Senkkopf Plastic screw M2x5 mm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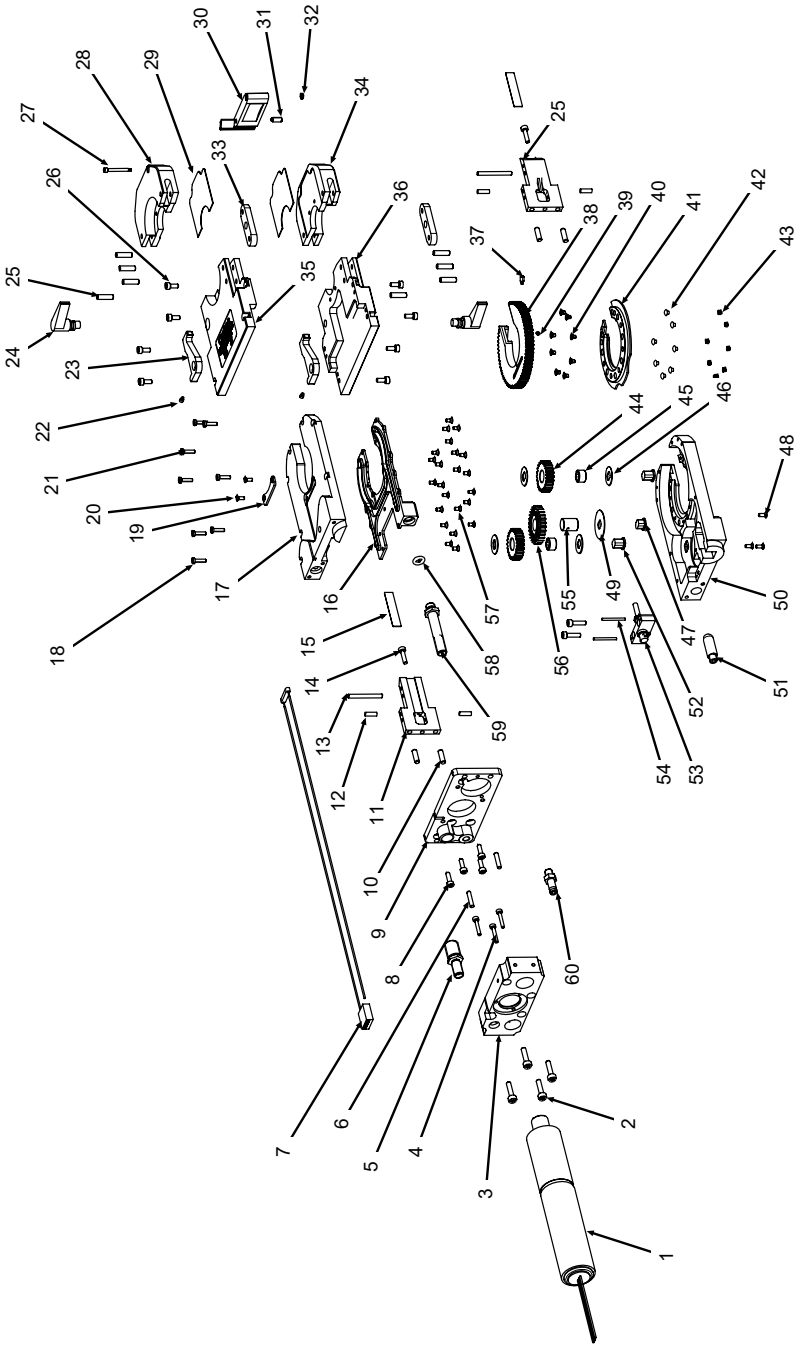
POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION	POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION
21	822 020 005	6	Zylinderschraube ISO1207-M2x8-KS Cylinder screw ISO1207-M2x8-KS	31	826 020 023	1	Druckstück Spanneinsatz M3 Pressure piece clamping insert M3
22	445 200 171	2	Gewindestift DIN915-M2.5x4-A2 Grub screw DIN915-M2.5x4-A2	32	500 602 314	1	Sechskantmutter ISO4032-M1.6-A2 Hexagon nut ISO4032-M1.6-A2
23	817 002 009	2	Verriegelung OW17 Latch OW17	33	817 002 006	2	Scharnier OW17 Hinge OW17
24	817 002 007	2	Klemmhebel OW17 Clamping level OW17	34	822 050 203	1	Schwenkbügel, vorne OW 19 HD Swivel bracket, front OW 19 HD
25	817 060 002	8	Zylinderstift 1/8" x 7/16" - A2 Cylinder pin 1/8" x 7/16" - A2	35	822 050 207	1	Seitenplatte OW 19 HD, hinten Side plate OW 19 HD, rear
26	790 982 123	8	Zylinderschraube DIN912-M2.5x6 A2 Cylinder screw DIN912-M2.5x6 A2	36	822 020 204	1	Seitenplatte OW 19 HD, vorne Side plate OW 19 HD, front
27	822 001 041	1	Schulterpassschraube M1.6 L17 Shoulder screw M1.6 L17	37	822 020 012	1	Elektrodenklemmschraube OW 19 M2.5x5 Electrode clamping screw OW 19 M2.5x5
28	822 050 204	1	Schwenkbügel, hinten OW 19 HD Swivel brecket, rear OW 19 HD	38	822 050 010	1	Rotor OW 19 Rotor OW 19
29	822 020 208	2	Isolierung, Schwenkbügel OW 19 HD Insulation, swivel bracket OW 19 HD	39	822 020 014	1	Elektrodenklemmschraube OW 19 M2x3 Electrode clamping screw OW 19 M2x3
30	822 050 205	1	FlipCover OW 19 HD FlipCover OW 19 HD	40	302 000 038	8	Senkschraube ISO7046-1-M2x3-A2 Countersunk screw ISO7046-1-M2x3-A2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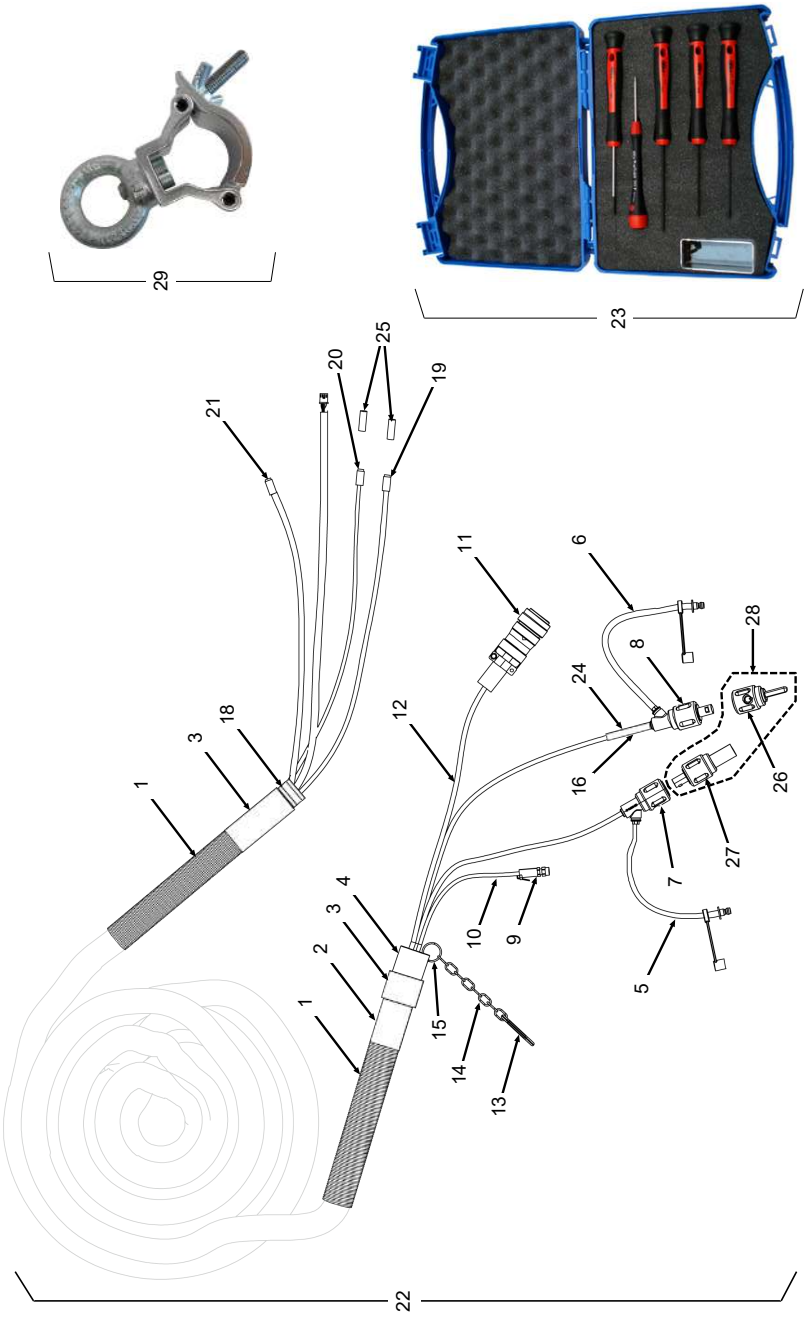
POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION	POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION
41	822 007 003	1	Teflonring OW 19 Teflon ring OW 19	51	822 020 011	1	Kugellager OW 19 Ball bearing OW 19
42	822 008 002	7	Kugelkopfdruckstück OW 19 Spheical head pressure piece OW 19	52	822 007 012	2	Lagerzapfen OW 19, lang Bearing pin OW 19, long
43	822 008 003	7	Feder für Kugelkopfdruckstück Spherical head press.piece	53	822 050 007	1	Antriebseinheit OW 19 Drive unit OW 19
44	822 008 007	2	Stirnzahnrad innen Ø8 mm Spur gear inside Ø8 mm	54	565 808 208	2	Zylinderstift ISO2338-1,5M6x16-A2 Cylinder pin ISO2338-1,5M6x16-S2
45	822 007 017	2	RULON Lager OW 19 (metrisch) Bearing RULON OW 19 (metric)	55	822 007 016	1	Lager RULON OW 19 (lang/metrisch) Bearing RULON OW 19 (long/metric)
46	822 007 015	4	Teflonscheibe OW 19, AD12.5 Teflon washer OW 19, AD12.5	56	822 008 008	1	Kombinationszahnrad OW 19 Combination gear wheel OW 19
47	822 007 011	1	Lagerzapfen OW 19, kurz Bearing pin OW 19, short	57	302 000 037	23	Senkschraube ISO7046-1-M2x4-A2 Countersunk screw ISO7046-1-M2x4-A2
48	302 000 031	3	Senkschraube ISO7046-1-M2x5-A2 Countersunk screw ISO7046-1-M2x5-A2	58	823 020 022	1	O-Ring 4.47 x 1.78 O-ring 4.47 x 1.78
49	822 007 014	1	Teflonscheibe OW 19, AD19.2 Teflon washer OW 19, AD19.2	59	827 007 001	1	Elektrode, Anschlussnippel Electrode, connection nipple
50	822 007 002	1	Basisteil Grundkörper OW 19 (Einkauf) Base body, bas part OW 19 (purchase)	60	826 020 010	1	Gasanschlussnippel Gas connection

11.9 Schläuche, Kabel, Anschlüsse | Hoses, cables, connectors



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1	821 002 007	7,5 m	Kabelschutzschlauch, D19 mm, OW 12 Cable protective hose, D19 mm, OW 12	10	823 020 061	1	Teflonschlauch OW/OWS 8.5 Teflon hose OW/OWS 8.5
	823 020 009		Kabelschutzschlauch D25 mm, OW 19 Cable protective hose D25 mm, OW 19	11	823 012 008	1	Amphenolstecker 24-polig, kpl. Amphenol plug 24 pin, cpl.
2	823 020 011	1	Kaltschrumpfschlauch D35 mm Cold-shrink tube D35 mm	12	823 012 013	8 m	Steuerleitung C-PVC 12x0.14 qmm Control cable C-PVC 12x0.14 qmm
3	823 020 012	3	Kaltschrumpfschlauch D30 mm Cold-shrink tube D30 mm	13	823 020 013	1	Schlauchpaket, Karabinerhaken Hose package, snap hook
4	823 005 009	1	Schlauchpaket, Zugentlastung Hose package, strain relief	14	823 005 004	1	Schlauchpaket, Befestigungskette 0.12 m Hose package, fastening chain 0.12 m
5	827 005 005	1	Wasseranschlussschlauch, rot Water connection hose, red	15	823 005 005	1	Schlauchpaket, Schlüsselring Hose package, key ring
6	827 005 006	1	Wasseranschlussschlauch, blau Water connection hose, blue	16	823 005 002	2	Alu-Rohr als Knickschutz Aluminum tube for bend protection
7	823 012 023	1	Strom-/Wasserkabelbuchse Current/water cable connector	18	821 001 025	1	Schutzhülse OW 12 Protection sleeve OW 12
8	823 012 024	1	Strom-/Wasserkabelstecker Current/water cable plug	19	823 005 006	1	Schutzhülse OW 19 Protection sleeve OW 19
9	823 020 014	1	Gasstecker, Schnellverschluss 1/4" Weld connector, quick-release 1/4"				


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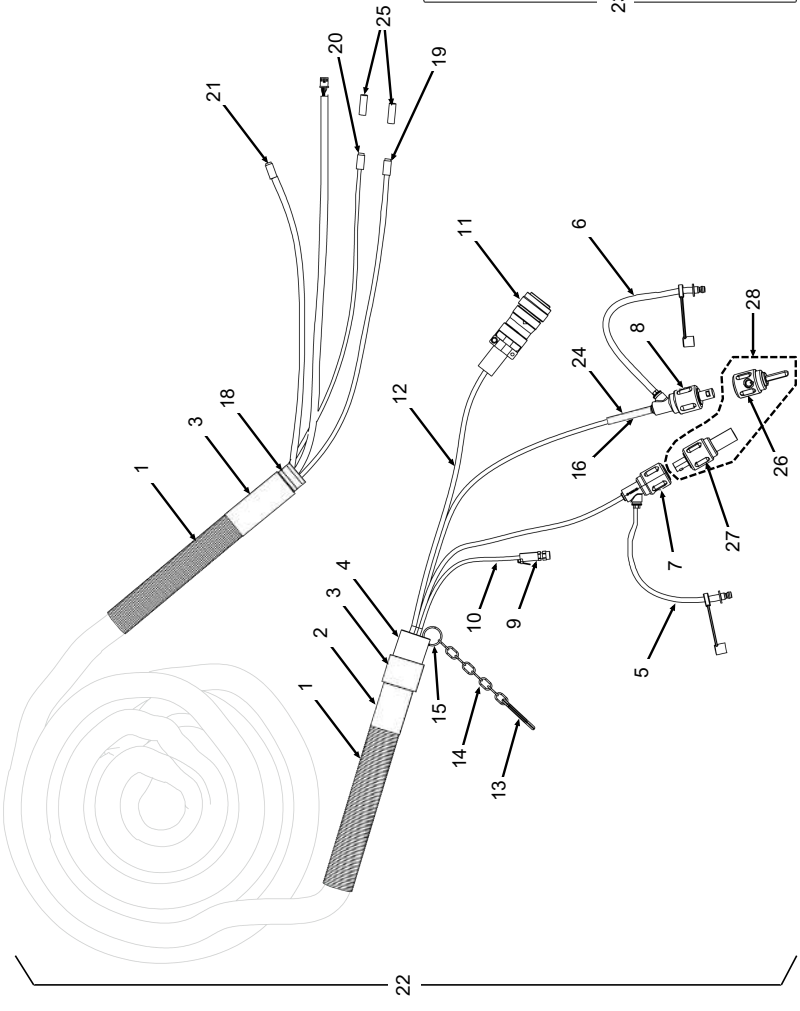
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POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION	POS. NO.	CODE PART NO.	STK. QTY.	BEZEICHNUNG DESCRIPTION
19	821 012 003	1	Strom-/Wasserkabel (rot) OW 12 Current/water cable (red) OW 12	25	875 020 044	2 x 0,1 m	Schrumpfschlauch 9.5 x 4.8 Shrink tube 9.5 x 4.8
	823 012 016		Strom-/Wasserkabel (rot) OW 19 Current/water cable (red) OW 19		875 020 045		Schrumpfschlauch 12.7 x 6.4 Shrink tube 12.7 x 6.4
20	821 012 002	1	Strom-/Wasserkabel (blau) OW 12 Current/water cable (blue) OW 12	26	850 030 002	1	Adapter für Stecker 180SW + Adapter for plug 180SW +
	823 012 015		Strom-/Wasserkabel (blau) OW 19 Current/water cable (blue) OW 19	27	850 030 003	1	Adapter für Buchse 180SW – Adapter for bushing 180SW –
21	826 020 014	1	Schnellkupplung Gas Quick coupling gas	28	850 030 004	1	Adapterset Buchse/Stecker Adapter set bushing/plug
22	821 050 010	1	Schlauchpaket OW 12 Hose package OW 12	29	826 030 010	1	Sicherungsschelle Schlauchpaket OWS Safety clamp hose package OWS
	822 050 011		Schlauchpaket OW 19 Hose package OW 19				
23	821 030 002	1	Werkzeugset OW 12 Tool set OW 12				
	822 030 001		Werkzeugset OW 19 Tool set OW 19				
24	875 020 046	2 x 0,17 m	Schrumpfschlauch 19.0 x 9.5 Shrink tube 19.0 x 9.5				

12 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

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

Orbitalschweißköpfe
(*inkl. Orbitalschweißstromquelle)
Orbital weld heads
(*incl. orbital welding power source):

- **OW 12**
- **OW 19 (HD)**
- **OW 17 (GC)**
- **OW 25 GC**
- **OW 38 S**
- **OW 76 S**
- **OW 115 S**
- **OW 170**
- **OWX 3.0**

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**

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:

- **DIN EN ISO 12100:2011-03**
- **DIN EN ISO 13849-2:2013-02**
- **DIN EN 60204-1:2019-06**
- **DIN EN 60974-1:2018-12**
- **DIN EN 60974-2:2013-11**
- **DIN EN 50445:2009-02**

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, 06.01.2025:

Jürgen Jäckle - Product Compliance Manager

ORIGINAL

de UKCA-Konformitätserklärung
en UKCA Declaration of conformity

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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, 06.01.2025:

Jürgen Jäckle - Product Compliance Manager

Orbitalum Tools GmbH provides global customers one source for the finest in pipe & tube cutting, beveling and orbital welding products.

worldwide | sales + service

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