Installation and Operating Instructions
JUDO
BIOSTAT-COMBI
BIOSTAT-COMBIMAT

Lime protection and hygiene center

Valid for: EU countries and Switzerland

Language: English

Attention:
Carefully read through the installation and operating instructions and safety information before installing and putting the unit into service.
These must always be issued to the owner/user.

Prolongated guarantee period if a maintenance contract has been concluded!

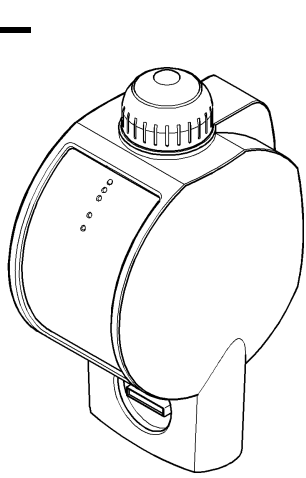

Fig.: BST-C

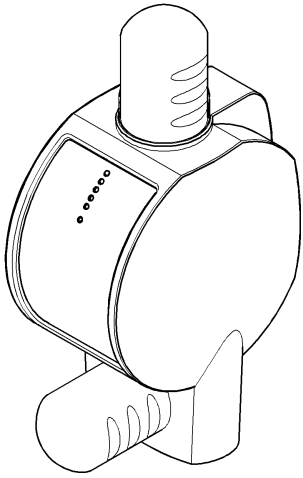

Fig.: BST-CA

CE DVGW product

For protection against lime, in accordance with DVGW-W510

Wasser-Aufbereitung

Quiries, orders, customer support

JUDO Wasseraufbereitung GmbH

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Dear Customer,

Thank you for the confidence you have shown in us by purchasing this unit. With this water treatment device you have purchased an unit that corresponds fully to the most up-dated standards of technology.

This water treatment device is suitable for use in cold drinking water up to a maximum ambient temperature of 30°C (86°F).

Each unit is thoroughly checked before delivery. Should difficulties occur, please contact the responsible customer service. See back page.

Wasser-Aufbereitung	**EC Conformity Declaration**	Document no. 151/01.06

Fabrikant: JUDO Wasseraufbereitung GmbH

Adres: Hohreuschstr. 39 - 41
D-71364 Winnenden

Product Description: Water treatment devices
BIOSTAT-COMBI Type 15, Type 25, Type 50
BIOSTAT-COMBIMAT Type 15, Type 25, Type 50

• EC-Directive:	Electromagnetic Compatibility (EMC)	89/336/EC
• Engineering Standards:	Electromagnetic Compatibility, Generic Standards for Radiated Interference and Interference Immunity.	EN 61000-6-2 EN 61000-6-3

The observance of all points of the EMC requirements (EC conformity) for the use of the device in household / commercial areas and industrial areas is hereby confirmed.

• Harmonized Standard:	Safety of power transformers, power supply units and similar.	EN 61558-2-6

Issuer: JUDO Wasseraufbereitung GmbH

Place and Date: Winnenden, 14 February 2006

Legally binding signature:

JUDO Wasseraufbereitung GmbH

This declaration certifies that the product is in accordance with all the stated directives; it is however not an assurance of its characteristics.

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Unit-No.:

.....

1. About this Operating Instructions

ATTENTION

(see chapter “Safety information and dangers due to non-compliance”)

The instruction manual must be permanently available at the place in which the water treatment devices is used.

This instruction manual is intended to make it easier to familiarize yourself with the water treatment device and its possibly intended uses.

The instruction manual contains important information in order to run safely, properly and economically the water treatment device.

It contains fundamental information, which must be observed during installation, operation and maintenance. Observance of this information helps to avoid dangers, reduce repair costs and increase the reliability and service life of the water treatment device.

The instruction manual must be read and used by each person entrusted with carrying out work on the water treatment device, for example:

– **installation**

– **Operation**

– **Maintenance** (servicing, inspection, repair)

Installation and maintenance may only be carried out by personnel authorized by the manufacturer, who are capable of fulfilling the instructions given in the installation and operating instructions and the country-specific prescriptions.

Apart from the instruction manual and the legally binding accident prevention provisions applicable in the country and place of use, the recognized technical regulations for safe and proper work must also be observed.

Therefore, this instruction manual must always be read by the fitter and responsible skilled personnel/owner or operator before installation, commissioning and maintenance.

Not only the general safety notes given in the chapter on "Intended Use"are to be observed, but also the special safety notes inserted under the other main items.

1.1 Symbols used

The safety notes contained in this instruction manual are labelled with the following symbols:

ATTENTION Notes on existing dangers

Warning, electrical voltage

Nm Torques specified by the manufacturer.

Tips for use and other information.

Notes directly attached to the water treatment device, e.g.:

– Direction of flow (see Fig. 1)
– Type plate
– Cleaning information

must always be observed and kept in a fully legible condition.

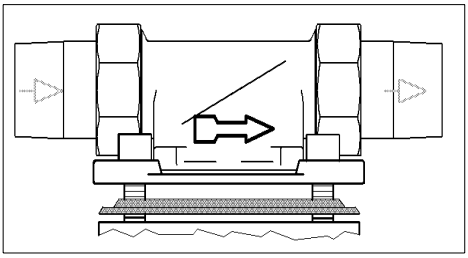


Fig. 1: Built-in rotary flange

1.2 Safety information and dangers due to non-compliance

In detail, failure to observe the general danger symbols can result, for example, in the following risks:

– Failure of important functions of the water treatment device.
– Danger to persons due to electrical and mechanical effects.
– Danger to persons and the environment due to leaks.

Refrain from any unsafe working methods.

Failure to comply with this instruction manual and the safety information can not only result in dangers for people but can also harm the environment and the unit.

1.3 Units used

In derogation of the International System of Units (SI = System International), the following units are used:

Units	Conversion
°F	°F = 9/5°C + 32
bar	1 bar = 10^5 Pa = 0,1 N/mm²
¾"	DN 20
1"	DN 25
1½"	DN 40

2. Intended Use

Installation and use of the water treatment devices are each subject to the applicable national regulations.

Apart from the instruction manual and the legally binding accident prevention provisions applicable in the country and place of use, the recognized technical regulations for safe and proper work must also be observed.

The water to be treated must comply with the European Drinking Water Directive!

Always contact the manufacturer/supplier before using water with a different quality or with additives!

This water treatment devices is suitable for use in cold drinking water up to maximum ambient temperature of 30°C (86°F).

It is produced according to the newest standards of technology and the generally accepted safety regulations in Germany.

The water treatment devices may only be used as described in the instruction manual. Any other or further use is deemed not to be intended use.

Additional dangers exist in case of non-intended use and failure to observe the danger symbols and safety information. The manufacturer/supplier are not liable for any losses or damage resulting from this. The risk is solely borne by the user.

Intended use also includes observing the instruction manual.

The manufacturer/supplier must always be consulted before using the water treatment devices outside the use limitations given in the instruction manual.

The water treatment devices are only to be used in a technically perfect condition, for their intended use, safely and aware of the dangers and with full observance of the instruction manual!

Have any malfunctions corrected immediately!

In order to be able to discharge safely the wastewater in operation and in case of any defect in the system, precise compliance with the details stated in the chapter on “Requirements for the place of installation” is necessary!

Use is permitted in the whole field of drinking water, provided the water to be treated is not calcium-antagonistic.

2.1 Water pressure

The water pressure must be between 1.5 bars and 8 bars.

If the water treatment device is not regularily regenerated, this can result in a pressure loss and impairment of the softening function.

ATTENTION

(see chapter “Safety information and dangers due to non-compliance”)

If the **water pressure is more than 8 bars** a pressure reducer must be installed **before** the water treatment device (see Fig. 2). An operating pressure of more than 8 bars can lead to malfunction and failure.

The optimal operating pressure for the water treatment device lies between 3 bars and 5 bars. It works most economically under these pressure conditions. In modern sanitary installations (in particular where single lever mixers are used), despite normal system pressure conditions, peak pressures of up to over 30 bars frequently occur. This can cause damage to important functional interior parts of the water treatment device.

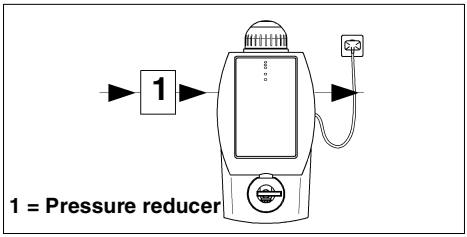


Fig. 2: Pressure reducer upstream of the water treatment device e.g. BST-C

For a **water pressure of 5 bars to 8 bars** we recommend the installation of a pressure reducer.

2.2 Notes on special dangers

2.2.1 Electrical equipment / installations

There must not be any electrical cables and devices underneath or in the immediate vicinity of the water treatment device!

Electrical devices / equipment, which are not splash proof and which are located near the water treatment device can be damaged by water which escapes from the water treatment device during “Cleaning - Flushing” or improper use. If the electrical devices / installations are connected to the power supply, a short circuit can also occur. In this case there is a risk of people suffering an electric shock. Electrical devices / equipment located near the water treatment device must therefore be splash proof and comply with the legal regulations for wet rooms (IP44).

3. Product Information

3.1 Intended purpose

This water treatment device is suitable for use in cold drinking water up to a maximum water temperature of 30°C (86°F).

ATTENTION

(see chapter “Safety information and dangers due to non-compliance”)

Please refer to the chapter on “Intended Use” for use restrictions.

This water treatment device reduces the tendency of the water to precipitate out excess calcium and thus protects the waterpipes and water heaters from lime deposits.

Appliances and taps are protected.

Lime deposits restrain the water flow and can therefore lead to an increased energy consumption.

3.2 Test marks

DVGW mark

Fig. 3: Test marks

The units correspond to the technical regulations for drinking water installations in accordance with DIN 1988.

They fulfil the requirements of the DVGW[1)] (Deutsche Vereinigung des Gas- und Wasserfaches e.V. technical-scientific association) working sheet W 510 "Calcium-protection appliances for use in drinking water installations“ (see Fig. 3).

1) DVGW: German Gas and Water Industry Association

3.3 Materials used

The used materials are resistant to the physical, chemical and corrosive properties to be expected in the drinking water. All materials are hygienically and physiologically safe. Plastics (KTW recommendations) and metallic materials fulfil the requirements of the BgVV (German Federal Institute for Consumer Health Protection and Veterinary Medicine).

4. Installation

4.1 General

ATTENTION

(see chapter “Safety information and dangers due to non-compliance”)

The unit may only be installed by skilled personnel.

The chapter on “Intended Use” has always to be observed !

The pipes must be able to support in a safe way the water treatment devices.

Otherwise mechanical damage or fractures/ bursts can occur in the pipes. This can result in major water damage. People close to the water treatment device are exposed to a health risk due to the large quantities of water released. Therefore, if necessary, the pipes must be additionally fixed or supported.

Always observe the given spacings to ensure convenient operation and servicing (see chapter “Mounting Dimensions”)

A distance of at least 150 mm above and below the water treatment device is required in order to be able to carry out property all the maintenance and servicing work.

When installing the water treatment devices in the feed-pipe to the water heater, ensure that the safety valve of the water heater is located **after** the water treatment device in the direction of flow.

4.2 Requirements for the place of installation

The room where the unit is installed must be dry and frost free!
Unauthorised persons must not have access to the water treatment device!

ATTENTION

(see chapter “Safety information and dangers due to non-compliance”)

– The ambient temperature must not exceed 30°C (86°F)! At higher temperatures or direct sun radiation the material can be damaged.

– We recommend that the water treatment devices is installed after a backwash protective filter, to prevent particles of dirt and sand being swept in.

A power connection (230 V, 50 Hz), which has to be permanently under voltage, must be available.

– Length of the power lead is approximately 1.5 m.

– Particularly in the case of small cross-sections and soft pipe materials, the water pipes should be supported in the vicinity of the connecting flange with two pipe-clamps.

4.2.1 Installed position

ATTENTION

(see chapter “Safety information and dangers due to non-compliance”)

Always install the water treatment devices in a vertical position (± 5°)!
Unless, impairments of its function can occur.

4.2.2 Power supply

A splash proof socket is required for the power supply, in accordance with the legal regulations for wet rooms.

ATTENTION

(see chapter “Safety information and dangers due to non-compliance”)

A permanent power supply must be available. If the water treatment devices is not permanently supplied with power, there is no warning in case of faults, and no water is treated.

4.2.3 Mounting the built-in rotary flange

The built-in rotary flange is used as a connecting element between the pipe and the water treatment device.

It is suitable for both, -horizontally and vertically mounted pipes.

The built-in rotary flange must be installed in the direction of flow. This is marked by a cast in arrow (see Fig. 1).

If these instructions aren't respected, the water treatment device doesn't work.

ATTENTION

(see chapter “Safety information and dangers due to non-compliance”)

The flange surface of the built-in rotary flange must be in a vertical position! The built-in rotary flange must be fitted thus that mechanical stresses cannot occur! Otherwise mechanical damages can arise at the built-in rotary flange. This can lead to major water damages.

In this case, people close to the water treatment devices are exposed to a health risk due to the large quantities of water.

Therefore, when mounting, ensure that no large forces act on the pipe, built-in rotary flange and water treatment devices.

4.2.4 Mounting of the Bypass Valve (accessories)

The flange (**c**) of the bypass valve marked with the cast in letter “R” (pipe) is screwed onto the built-in rotary flange (**b**). The water treatment device is fitted onto the flange (**d**) marked with the cast in letter “G” (unit). The hand lever (**a**) of the bypass valve can be positioned anywhere above the unit or to the side if there is sufficient space between the pipe and wall. The installation should be carried out, depending on the local circumstances, so that the hand lever (**a**) is easily accessible (see Fig. 4).

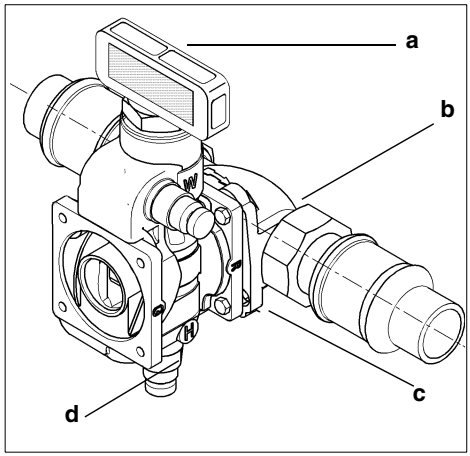


Fig. 4: Bypass valve

a Hand lever
b Built-in rotary flange
c „R“ pipe flange
d „G“ unit flange
e Wall support

4.2.5 Fitting the wall support

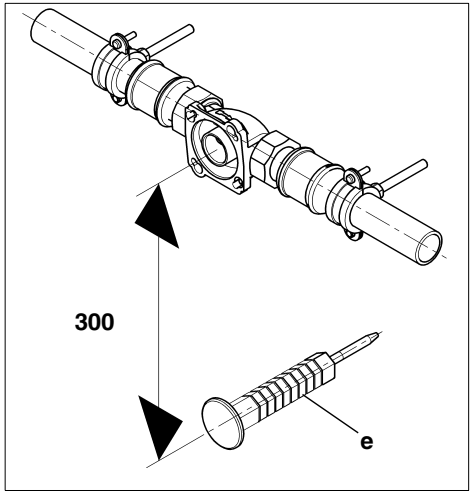


Fig. 5: Wall support without bypass valve

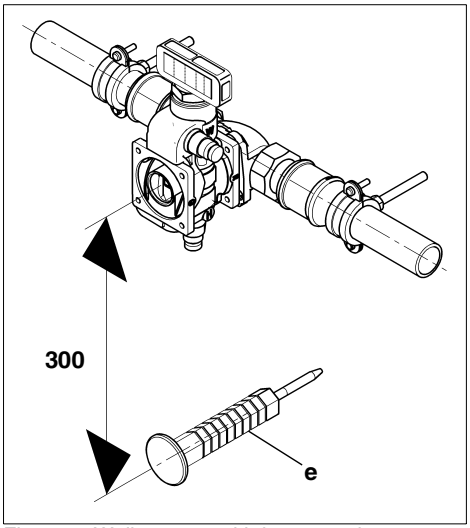


Fig. 6: Wall support with bypass valve

For further information, please refer to the installation instructions for the wall support.

4.2.6 Mounting of the Water Treatment Device

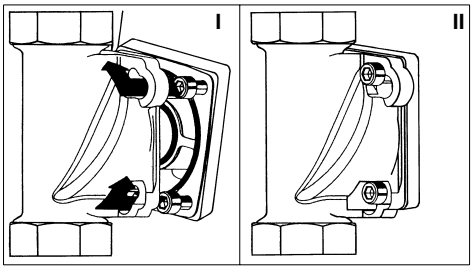


Fig. 7: Built-in rotary flange with bayonet fixture

After flushing the water pipe, remove the assembly lid of the built-in rotary flange.

Remove the white protective disc on the connecting flange of the water treatment devices by unscrewing the four M6 Allen screws.

Do not completely unscrew the screws because of the bayonet connection!

Lift up the water treatment devices and swivel it approx. 30° in an anti-clockwise direction. Position it on the built-in rotary flange so that the screw heads pass through the bayonet fixing drill holes (see Fig. 7 I). Swivel the water treatment devices approx. 30° back in a clockwise direction and tighten the four hexagon socket screws (see Fig. 7 II).

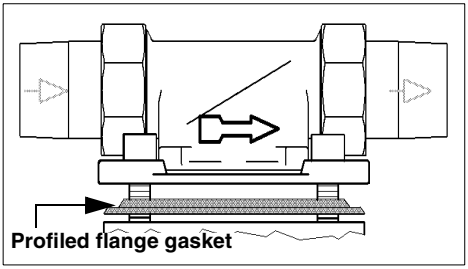


Fig. 8: Built-in rotary flange

The profile of the profiled flange gasket must point towards the built-in rotary flange. Failure to observe this can lead to leaks and water escaping. This can cause damage due to water to the house and its installations (see Fig. 8).

Select the torque (approx. 4 Nm) so that the gasket locks and the water treatment device is not damaged or strained!

4.3 Discharging the flushing water

An adequately dimensioned wastewater connection (e.g. floor drain) according to DIN 1986 must be available for the flushing water.

The dimensioning depends on the local circumstances (e.g. wastewater pipe gradient, number of pipe bends, length of the wastewater pipe, etc.). The dimensioning must at least ensure that all the wastewater can be discharged temporarily coordinated.

If it is not possible to locate a drain connection directly under the water treatment devices, the wastewater hose can be routed over the water treatment device.

The wastewater hose for the flushing water must be led to the drainage channel without any kinks.

In all options, a free discharge must be ensured in accordance with EN 1717.

The loose end of the hose has to be firmly fixed with the included adhesive tape at the pipe or a similar object.

BST-C:

If there exists no wastewater connection an appropriately sized bucket can be used (see Fig. 9).

BST-CA:

The flushing water must be discharged into a firmly mounted drain.

Ensure that the wastewater connection functions before plugging the power supply unit into the socket.

Flushing water discharge options

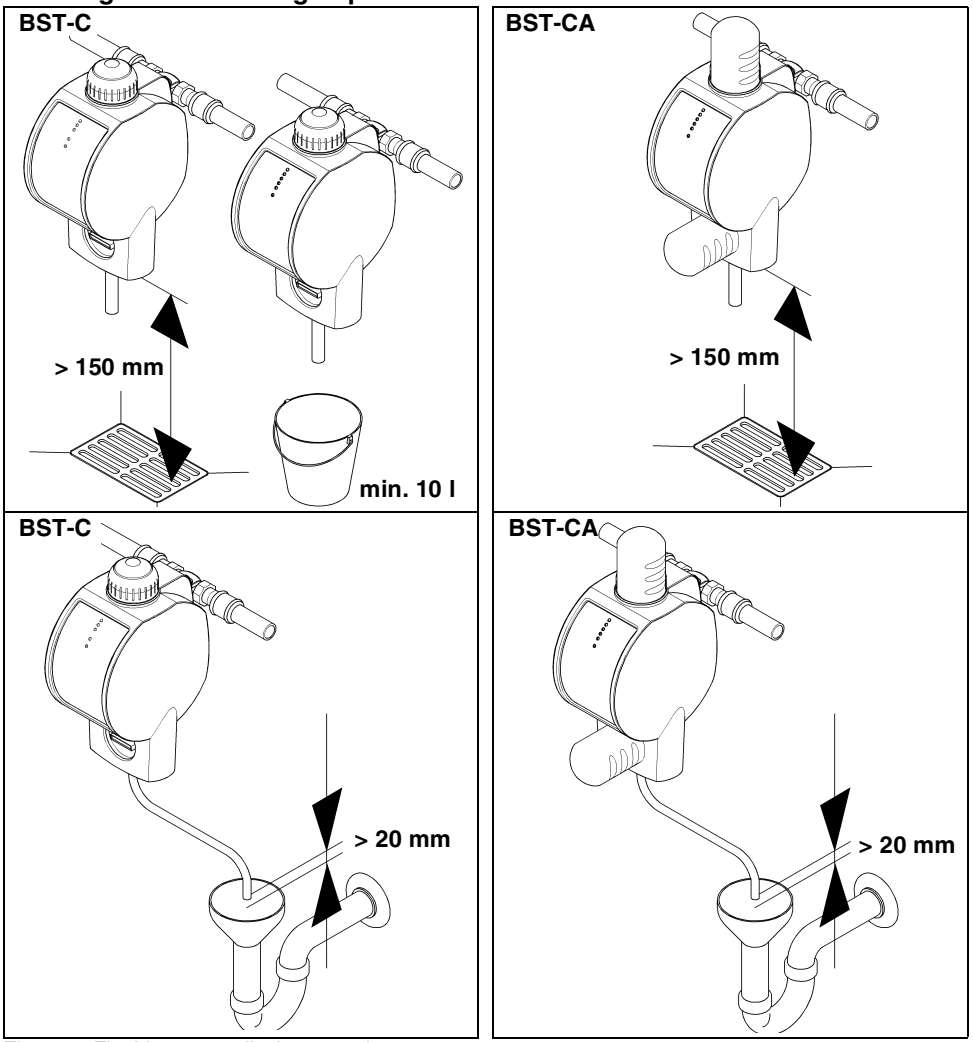


Fig. 9: Flushing water discharge options

5. Operation

ATTENTION

(see chapter “Safety information and dangers due to non-compliance”)

Always observe the chapter on “Intended Use”!

5.1 Commissioning

For safety reasons, the water treatment devices must be **vented immediately** after having been connected with the water supply. Set the bypass valve supplied at the setting "Betrieb" ("Operation") (see chapter “Mounting of the Bypass Valve (accessories)”).

– Turn on a water tap mounted after the water treatment devices.

– The power supply must be freely accessible.

Connect the water treatment device to the power supply. Plug the power supply into the socket.

– After the power supply has been connected, the electrical circuit performs a self-check of all the functions and parameters stored in the electronics.

– Following a successful check, all control lamps light up for 2 seconds (see chapter “Control lamps, manual pushbuttons”).

– As soon as LED 1 shows a continuous green light indicating "Betrieb" ("i.e. Operation"), the water treatment devices is ready for use. When water is flowing, the green LED 1 flashes (see chapter “Control lamps, manual pushbuttons”).

Electrical circuit diagram

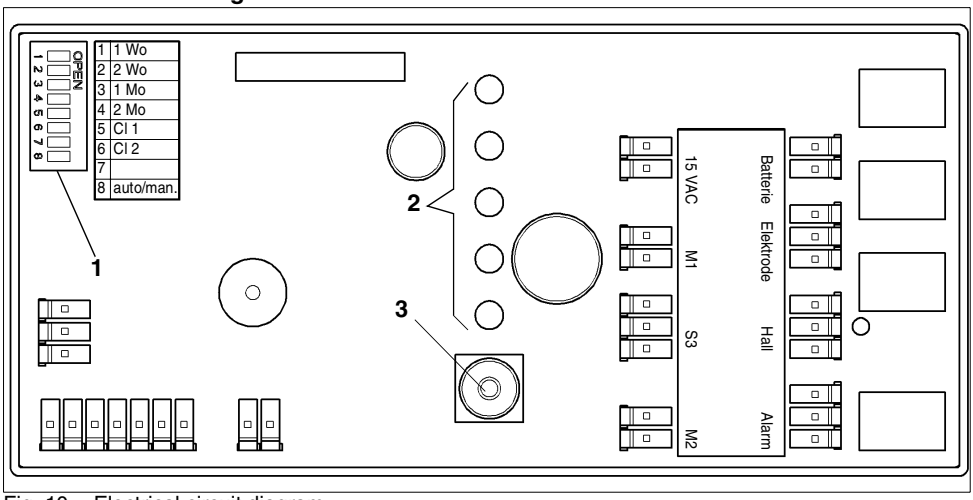


Fig. 10: Electrical circuit diagram

1 DIP switch
2 LEDs
3 Manual pushbutton

5.2 Setting of the cleaning interval

Factory settings:

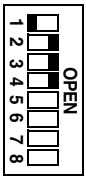
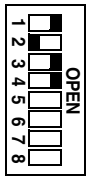
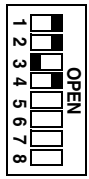
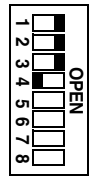
Type	cleaning
BST-C	4-weekly
BST-CA	2-weekly

(see chapter “Cleaning - Flushing”)

A Disconnect the power supply from the socket.

– Dismantle the panelling of the water treatment device (see chapter “Mounting of the panelling”).

– Adjust the cleaning interval using contacts 1 to 4 of the DIP switch (**1**), see table 1.

1 week	2 week	4 week	2 month
			

Tab. 1: Setting of the cleaning interval

– For correct setting, only one of the contacts 1 to 4 may be pushed to the left.

– The switch will react to an incorrect setting with an acoustic signal tone (see chapter “Fault”).

– Refit the water treatment device panelling (see chapter “Mounting of the panelling”).

Plug the power supply into the socket!

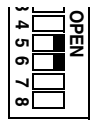
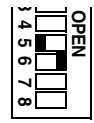
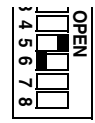
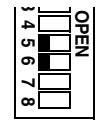
5.3 Setting of the hygiene unit

For optimal function of the hygiene unit the electric switch is set according to the natural chlorine content of the tapwater. The chlorine content of the tapwater can be established by asking the local waterworks. Alternatively, a water sample can be sent to the customer services for its water content to be determined (see chapter “Customer Support”).

Disconnect the power supply from the socket.

– Dismantle the panelling of the water treatment device (see chapter “Mounting of the panelling”).

– Adjust the chlorine content using contacts 5 and 6 of the DIP switch (**1**), see table 2.

180 to 250 mg/l	120 to 180 mg/l	60 to 120 mg/l	0 to 60 mg/l
			

Tab. 2: Setting of the hygiene unit

– The switch will react to an incorrect setting with an acoustic signal tone (see chapter “Fault”).

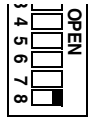
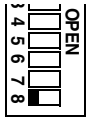
– fit the panelling of the water treatment devices (see chapter “Mounting of the panelling”).

Plug the power supply into the socket!

5.3.1 Setting of the device type

The device type is set at the factory, and must not be altered.

The device type is set by means of contact 8 of the DIP switch (**1**), see table 3.

BIOSTAT-COMBI BST-C	BIOSTAT-COMBI-MAT BST-CA
	

Tab. 3: Setting of the device type

5.4 Description of its function

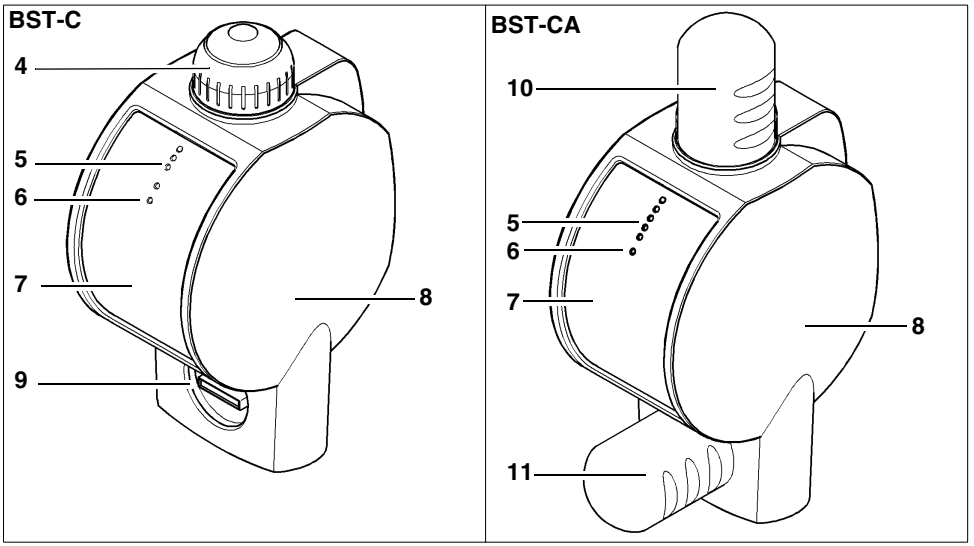


Fig. 11: Description of its function

4 Handwheel
5 Control lamps
6 Manual pushbutton
7 Type Plate
8 Panelling
9 Ball valve
10 Cleaning motor
11 Flushing motor

5.4.1 Treatment effect

The water treatment device works completely automatically. The treatment effect is adapted at the water flow. In the feed to the water treatment device there is a flow-meter.

The flow-meter consists of a propeller water meter.

Due to the water flow the screw propeller, that can be found in the propeller water meter rotates, and a Hall Sensor receives impulses from the magnet in the propeller.

The electronics then calculate the water flow from the frequency and quantity of the impulses. The electronics regulate the treatment current referring to the relation that exists between the applied voltage and the treatment current as well as from the duration of the treatment current [impulse length). The electronics optimise the treatment current, according to the quality of the water.

As soon as water flows, the water treatment is indicated by the flashing of green LED 1 (see Fig. 12).

5.4.2 Lime protection function

The water treatment devices sets free the minute seed crystals to which further lime can attach itself. In the treatment section, there is a titanium anode (positive pole) and a circular stainless steel brush switched as the cathode (negative pole). As soon as water flows, there is a pulsating direct current applied to these two electrodes so that there is a flow of electricity between the electrodes. Dissolved calcium in the form of calcium carbonate crystals is then deposited on the cathode (the circular stainless steel brushes). On cleaning, these crystals of calcium carbonate are thrown off the separate bristles by rotating the circular brush. The crystals thus formed are minute micro-crystals. Larger crystals which may possibly also appear sink together with separate loose brush particles to the bottom and are flushed out via the flushing valve during cleaning.

The lime particles can be seen in the flushing water as very fine "sand". The microcrystals remain in suspension and thus form seed crystals on which further lime can be deposited. Principally in the warm water field the growth of the crystals can be realized by a gradual clouding of the water. The crystals slowly grow large enough to be able to disperse the rays of light. At that stage, they are but a few thousandths of a millimeter in size. But even these crystals are small enough to remain in suspension and to be flushed out with the water flow. The same process goes on in the cold water field, too, although the potential here for deposition of lime is considerably less in normal circumstances. Since the excess lime (calcium) is now deposited at the seed crystals, other surfaces (e.g. pipework, boiler etc.) are not affected by lime deposits so that heating elements for example no longer fur up. Although this formation of crystals does reduce the hardness of the water, the reduction is so small that they remain undetectable by means of simple measuring instruments.

In the feed of the unit, is a propeller water meter which can even detect such small flows of water as 1.5 l/h. Together with a microprocessor-controlled electronics, optimal water treatment is ensured at all times from tiny flows up to the nominal capacity, and also depending on the water quality by adapting the electrical impulses.

5.4.3 Hygiene unit

In addition to its lime-protection function, the water treatment devices also fights bacteria such as that one which causes legionnaires' disease and herewith their increase. This is achieved by means of the proven anodic oxidation method.

The hygiene unit in the water treatment devices consists of an electrode specially coated with a mixture of oxides of precious metals as an additional anode and an electronic control unit. The approved circular stainless steel brush is used here, too in the hygiene unit as a deposition cathode in addition to its function as a lime protection. The cathode brush is freed of lime depositis from time to time by means of a scraper, so that a pole reversal of the electrodes is not necessary for the cleaning off. By avoiding regular pole reversal it is taken care of the electrodes and their service life is prolongated.

As soon as the water flows, by applying a small voltage out of the water itself, without the addition of chemicals, oxidants are produced which attack the legionella bacterium.

The water treatment devices creates a disadvantageous living environment for the legionella bacteria, but must not be used, however in legionnaires' disease-contaminated water systems as the sole protection against legionnaires' disease. In these circumstances, measures for disinfection have to be adopted here as further steps, in accordance with the DVGW working sheet W551, in order to kill the legionella bacteria completely.

The use of the water treatment devices does not replace a disinfection in the usual sense, but serves as a prophylatic measure to protect as far as possible against the danger of an increase of the germs.

5.5 Control lamps, manual pushbuttons

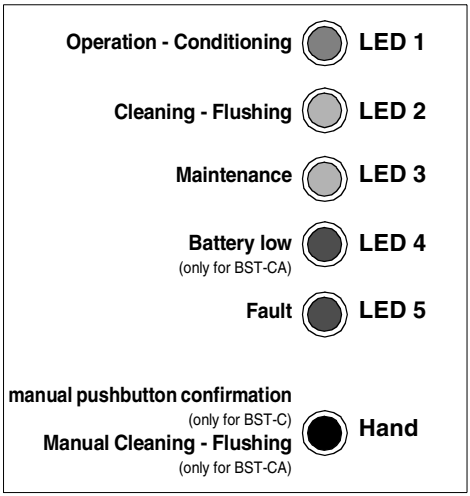


Fig. 12: Control lamps, manual pushbuttons

LED 1	Operation - Conditioning

Permanent green light: the water treatment device is ready for use.

Green light flashing: water treatment is taking place.

LED 2	Cleaning - Flushing

BST-C:

Permanent yellow light: cleaning - flushing **should** be carried out.
Permanent red light: cleaning - flushing **must** be carried out; the treatment effect is restricted (see chapter “Cleaning - Flushing”).
Red light flashing: cleaning - flushing **must** be carried out, no further water treatment is being carried out.

BST-CA:
Permanent green light: a cleaning - flushing is being carried out.

LED 3	Maintenance

Permanent yellow light: servicing **should** be carried out (see chapter “Maintenance”).

Permanent red light: servicing **must** be carried out.
Red light flashing: servicing must be carried out, no further water treatment is being carried out.

LED 4	Battery low

Only for BST-CA:
Red light flashing: the battery must be changed otherwise no further Cleaning - Flushing can be carried out.

LED 5	Fault

Red flashing light: the water treatment device is not ready for use (see chapter “Fault”).

Hand	manual pushbutton

BST-C:
Confirmation of Cleaning - Flushing (see chapter “Cleaning - Flushing”).

BST-CA:
Triggers Cleaning - Flushing.

5.6 Cleaning - Flushing

5.6.1 General

Depending on the quality of the water and the operating methods, a thin coating of lime is formed on the brush in the treatment chamber. This lime layer must be removed and flushed out of the water treatment devices at regular intervals.

The water treatment device has a device for cleaning the brush and a flush valve for rinsing out the lime particles.

5.6.2 Cleaning - Flushing concerning the BST-C

On expiry of the set cleaning interval, the yellow LED 2 lights up. Cleaning and flushing **should** now be carried out.

After an pre-warning period of 1 to 7 days (depending on the cleaning interval set) the colour of LED 2 changes from yellow to red. It is essential to carry out a Cleaning - Flushing.

Starting a Cleaning - Flushing cycle:

– Turn the handwheel (**4**) about five complete turns in direction at will. The lime particles will be loosened from the treatment brush.

– Open the ball valve (**9**).

– Flush out about 3 litres (five pints) of water.

– Close the ball valve again.

– Press the manual pushbutton (**6**) within 10 seconds.

– The cleaning has been completed now and LED 2 goes out. The cleaning interval will now restart (see chapter “Setting of the cleaning interval”).

If the flushing is not carried out, the electrolysis will be switched off automatically for the protection of the treatment chamber. Water won´t be treated any longer. After having carried out the “Cleaning - Flushing“ procedure, the water treatment appliance is immediately ready for use again.

5.6.3 Cleaning - Flushing concerning the BST-CA

Cleaning and flushing is carried out automatically by two electric motors.

Make sure that the drain connection is functional before plugging the power supply into the socket (see chapter “Discharging the flushing water”).

During Cleaning - Flushing, the yellow LED 2 lights up.

Die LED 2 can be started manually by operating the manual pushbutton (**6**).

6. Maintenance

Have maintenance carried out by the fitter or the nearest available customer service point (see chapter “Customer Support”).

6.1 Request for Maintenance

LED 3 lights up three years after the first putting into operation of the water treatment device or after the last time, maintenance was effectec.
If water usage exceeds
130 m³ per annum (types 15, 25) or
260 m³ per annum (type 50),
this period will be shortened. The electronic will generate a message that maintenance **should** be carried out either by the fitter or the nearest available customer service point.
Four weeks later, the colour of LED 3 will change from yellow to red. At this time, the maintenance has to be carried out obligatorily.

Note:

Because of manufacturing tolerances, in the type 50 the maintenance reminder will not necessarily be simultaneous for both appliances.

As soon as a request is issued for one unit, the maintenance has to be carried out at both of them.

6.2 Non-observance of the maintenance request

If the maintenance request (LED 3 red) is ignored, after ten days, no further water treatment will take place.
LED 3 flashes red.

6.3 Warning message "Battery flat"

Concerning the BST-CA

To ensure that Cleaning - Flushing is carried out completely, even in case of a power failure, the water treatment appliance has a 9V block battery installed as an emergency power supply.

Before each Cleaning - Flushing a battery test will be effected. A missing, unloaded or defective battery is indicated by the flashing of the red LED 4. A trigging of the container flushing is then not possible.

6.4 Mounting of the panelling

Dismantling:

Disconnect the power supply from the socket.

- Withdraw the upper / inferior clamping fixture.
- Carefully pull apart the right and the left panel parts by the handle cavities on the back of the panelling.
- Remove the type plate and the panelling.

Assembly:

- Push the right and left parts of the panelling together till a gap of approximately 15 mm is left.
- Ensure that the cable is not trapped!
- Refit the type plate in the blanks, of the panelling, situated above and below.
- Push the panelling completely together.

Plug the power supply into the socket!

6.5 Replacing the batteries

When a change of batteries is necessary (LED 4 flashes) the following procedure is adopted:

Disconnect the power supply from the socket.

– Remove the panelling from the water treatment devices.

– The battery is located behind the electrical switch and must be disconnected from the battery clip.

– Exchange the battery and push it back into the corresponding blank behind the switch.

– Remount the panelling on the water treatment devices.

Plug the power supply into the socket!

– Return run-down batteries to a distributor or to a properly- authorised local disposal return point.

Only use 9 V alkaline type block batteries - see battery description.

6.6 Modifications / changes / spare parts

(see chapter “Safety information and dangers due to non-compliance”)

Only original spare parts are to be used!

Independent modifications and changes are prohibited for safety reasons! These can impair the function of the water treatment device, lead to lead and in extreme cases can cause the water treatment device to burst.

The test marks imprinted on the unit are only valid if original spare parts are used.

6.7 Stoppages

(see chapter “Safety information and dangers due to non-compliance”)

If a water treatment device has to be removed from the flange or unscrewed, the chapter on “Intended Use” must always be observed!

– Protect the flange surfaces from damage! Damaged flanged surfaces cannot close tight. As a result, escaping water can damage the building and installations.

– Ensure that no dirt can get into the water treatment device! This dirt can get into contact with and be discharged into the drinking water when the water treatment device is switched back on. The health of people who drink dirty water is at risk.

– Store the water treatment device in frost-free conditions! Frost can cause any water contained in the water treatment device voids to freeze and thus cause mechanical damage to the water treatment device so that it leaks at operating pressure or can burst. Leaking water can cause major damage to the building. In addition, people near the water treatment device can be injured by breaking off water treatment device parts.

– When restarting the water treatment device, follow the instructions for a new water treatment device.

7. Fault

The opening of the units, and the exchange from parts that are water pressure-charged have to be effected only by licensed specialists to ensure the safety of the device as well as its leak tightness.

If a fault occurs at the unit it will be indicated by the LED 5 flashing red.

Deleting the error message:

Disconnect the power supply from the socket. Plug it back in after aprox. 5 seconds!

Help with faults:

Fault	Cause	Remedy
Permanent red light from LED 5 and permanent acoustic signal.	DIP switch incorrectly set.	Reset DIP switch (see chapter “Setting of the cleaning interval”).
LED 5 flashes red.	Momentary power failure.	Delete the failure message. The appliance reverts automatically to normal operation.
	Cable connections have be come loose.	 **Disconnect the power supply from the socket!** – Remove the panelling (see chapter “Mounting of the panelling”). – Check the cable connections, reconnecting each plug-and-socket connection which is loose. – Remount the panelling. – Plug the power supply back into the socket.
Repeated fault meassage after having reput the power supply in the socket.		Inform fitter or nearest available customer service point without any delay. Quote the appliance number. See appliance number in front of the chapter entitled “About this Operating Instructions”.  **Disconnect the power supply from the socket!** The water treatment devices has to be out of service till the arrival of the customer service. Set the bypass valve to "Bypass". If there is no bypass valve mounted, ensure that there is not any water escaping from the wastewater connection. BST-CA**:** remove the ball-valve actuator with a sudden pull. Close the ball-valve with the included hand lever.
BST-CA: LED 4 flashes red.	Battery has run -down.	Replace by a new battery. Return run-down batteries to the collection points.

8. Maintenance

(see chapter “Safety information and dangers due to non-compliance”)

Always observe the chapter on “Intended Use”!

8.1 Cleaning

(see chapter “Safety information and dangers due to non-compliance”)

Only use clear, clean drinking water to clean the housing.

Domestic all-purpose cleaners and glass cleaners can contain up to 25% solvents or alcohol (spirits).

These substances can chemically attack the plastic parts, which can lead to brittleness or even fractures.

Such cleaners must therefore not be used.

9. Warranty and Services

To keep your legal guarantee claims , it is necessary, in accordance with DIN 1988, section 8, that, depending on the individual water consumption, a visual inspection of the device has to be effected, every 03 to 06 months, and that the unit is flushed according to the operating instructions.

In order to achieve a successful operating , and this also after the putting into service, and for many years, it is indispensable to effect a regular maintenance. Concerning the domestic water technique this is covered by DIN 1988, section 8.

A maintenance contract is the best way, to ensure a good function of the unit, and this also beyond the guarantee period.

Wherever possible, the regular servicing work and supply with consumables and wearing materials, etc. should be carried out by the specialist trade or the factory’s customer service department.

10. Data Sheet

10.1 Type

JUDO BIOSTAT-COMBI
water treatment devices

Abbreviated name: BST-C

JUDO BIOSTAT-COMBIMAT
water treatment devices

Abbreviated name: BST-CA

10.2 Models

Model	Size	Order No.
BST-C Type 15	¾"	8210403
BST-C Type 25	1"	8210400
BST-C Type 50	1½"	8210402
BST-CA Type 15	¾"	8210405
BST-CA Type 25	1"	8210401
BST-CA Type 50	1½"	8210404

10.3 Technical specifications

– Maximum ambient temperature and water temperature: 30°C (86°F).

– **The water to be treated must correspond to the European Drinking Water Regulations!**

– Threaded connection according to DIN 2999.

Operating pressure	Nominal pressure
1.5 - 8 bar	PN 10

The nominal pressure signifies the pressure step, according to that the water treatment devices must fulfil the requirements according to W 510. The maximum operating pressure is lower, in order to ensure the optimal function of the water treatment devices.

BST-C, **BST-CA**	**Type 15**	**Type 25**	**Type 50**
Nominal flow rate	1.5 m³/h	2.5 m³/h	2 x 2.5 m³/h
Pressure loss at nominal flow rate	0.4 bar	0.4 bar	0.4 bar
Pipe connection	¾"	1"	1½"
Max. power consumption	25W	25W	2x 25W
Application	One-family house	One- or two-family house	Two- to four-family house
Average daily water consumption max. 500 litres	max. 500 Litres	max. 800 Litres	max. 1600 Litres

Installation height depends on the type of drainage (see chapter “Discharging the flushing water”).

10.4 Mounting Dimensions

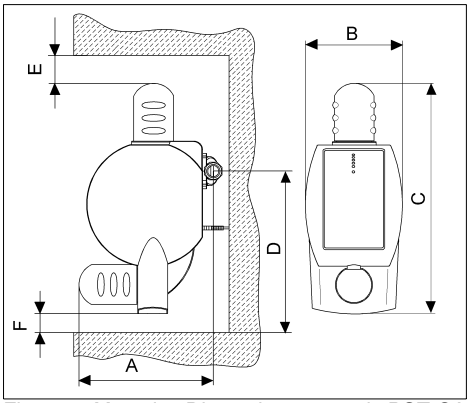


Fig. 13: Mounting Dimensions example BST-CA

		Type	JQX	Dimensions
A	Depth to pipe centre	BST-C Type 15, 25	without	300
			with	365
		BST-CA Type 15, 25	without	320
			with	385
		BST-C, BST-CA Type 50	with	420
B	Width	BST-C, BST-CA Type 15, 25		230
		BST-C, BST-CA Type 50		700
C	Height	BST-C		480
		BST-CA		550
D	Minimum height to pipe			475
E	Minimum distance above			150
F	Minimum distance below			150

All dimensions in [mm] (see Fig. 13)

10.5 Scope of supply

- Water treatment devices
- Wall support (2200500) to prevent the water treatment appliance from twisting. No support of weight!
- Built-in rotary flange JQE with threaded fitting
- Installation and Operating Instructions
- Hand lever (only BST-CA)

10.6 Accessories

- Bypass valve JQX, Order No. 8735210
- Extension QUICKSET JQR for series connection of two JUDO units (e.g. filter and water treatment devices) to a built-in rotary flange, Order No. 8250041

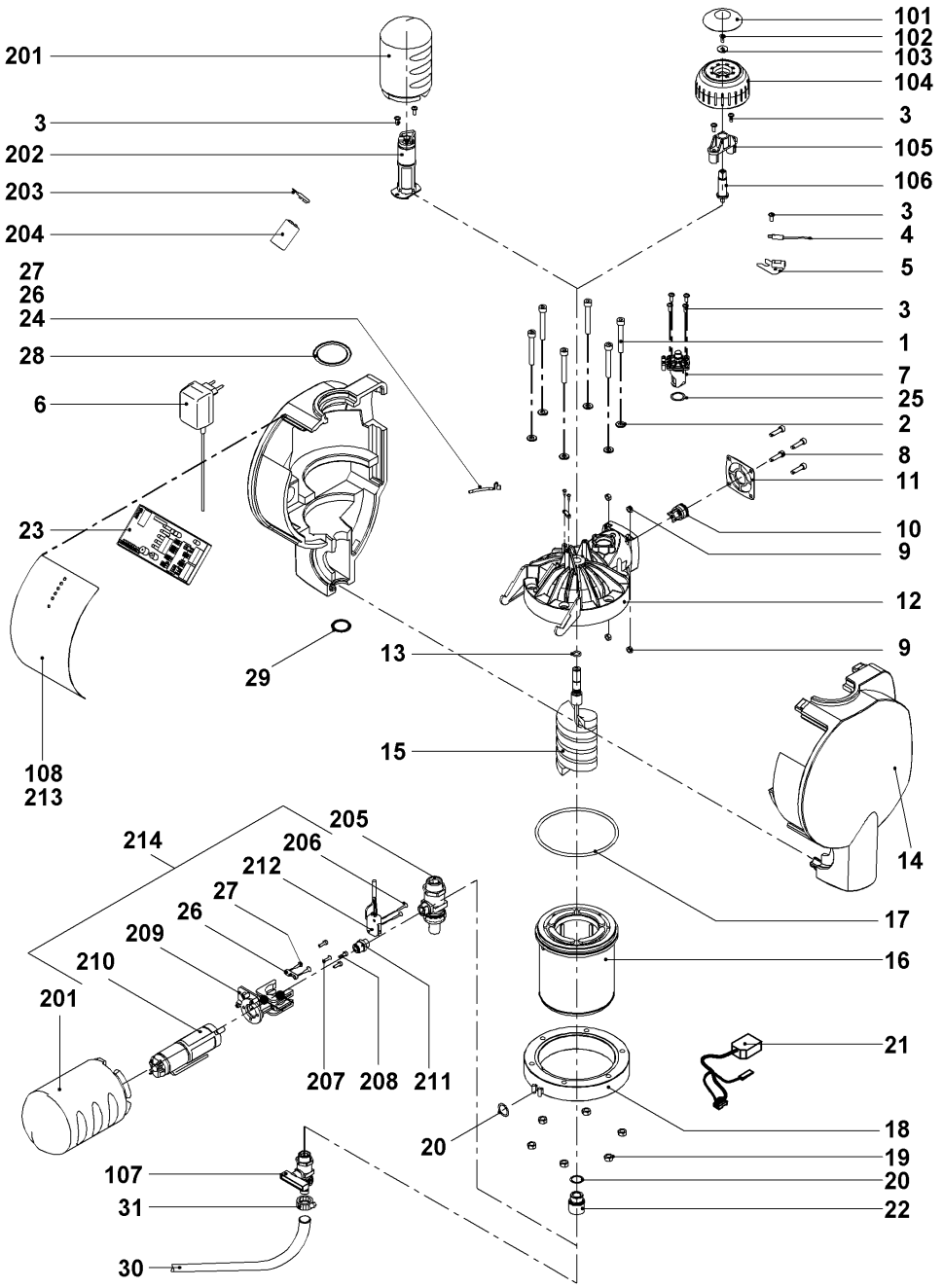
10.6.1 Protective measures against corrosion

Our recommendation for corrosion problems in cold water:

A metering pump JUDO JULIA has to be mounted ion the water pipe after the water treatment device, in order to enrich proportionally the water with a mineral solution JUL.

Miineral solutions JUL contain active components which create the conditions in which a homogeneous protective coating can be formed in the system of pipework located thereafter. These active compo-nents correspond to the prescribed type, quality and quantity, according to in article 11 Drinking Water Regulations 2001 on treatment substances and disinfection methods.

11. Spare Parts BIOSTAT-COMBI, BIOSTAT-COMBIMAT



List of Spare Parts BIOSTAT-COMBI, BIOSTAT-COMBIMAT

Item	Description (Recommended average replacement interval for wearing part [*])		piece	Order No.	AU[1)]/piece
1	Cheese head screw M8x65		6	1650365	3
2	Disc A8.4		6	1607125	1
3	EJOT- screw		7	1650201	3
4	Sliding contact		1	1500330	15
5	Owner sliding contact		1	1500314	8
6	Power supply complete		1	2200712	85
7	Water meter - insert	****	1	2210292	45
8	Cheese head screw M6x25		4	2010199	2
9	Hexagonal nut M6		4	1633145	1
10	Backflow preventer 1“		1	1610287	29
11	Profiled flange seal	**	1	1200218	5
12	Upper section		1	2210290	210
13	O-ring 10x3	**	1	1120332	1
14	Panelling		1	1140103	72
15	Round brush with O-ring	****	1	2210291	65
16	Hygiene-Set Type 15	***	1	2210298	410
16	Hygiene-Set Type 25	***	1	2210304	475
16	Hygiene-Set Type 50	***	2	2210304	475
17	O-ring 135x5	**	1	1200313	15
18	Flange ring complete		1	2210285	79
19	Hexagonal nut M8		6	1607117	2
20	O-ring 18x2.5		2	1200291	2
21	Electrode cable		1	2210301	48
22	Extension ½“		1	1440162	8
23	Electric circuit Type 15		1	2210263	580
23	Electric circuit Type 25		1	2210308	640
23	Electric circuit Type 50		2	2210308	640
24	HE contactor		1	2200715	51
25	O-ring 21.89x2.62	****	1	1200125	1
26	Strain relieving bracket		2	1609114	2
27	Pan-head tapping screw 2.9x13		4	1609172	1
28	Guard Ring large		1	1120625	5
29	Guard Ring small		1	1120624	4
30	Hose to drain		1	2633342	17
31	Hose clamp		1	1633344	7

1) AU = Accounting unit

Replacement interval: ** = 2 years, *** = 3 years, **** = 4 years
Prolongated guarantee period if a maintenance contract has been concluded!

Spare parts which are exclusively used in the BIOSTAT-COMBI: item No. 1xx

Item	Description (Recommended average replacement interval for wearing part [*])	piece	Order No.	AU[1)]/piece
101	Lid of handwheel	1	1120292	7
102	Countersunk screw M5x12	1	1607454	1
103	Disc A6.4	1	1650142	1
104	Handwheel	1	1120291	23
105	Handwheel owner	1	1120597	12
106	Putting wave for handwheel	1	1440165	20
107	KFE- Ball valve ½“	1	1610561	24
108	Front foil	1	1701352	38

1) AU = Accounting unit

Spare parts which are exclusively used in the BIOSTAT-COMBIMAT: item No. 2xx

Item	Description (Recommended average replacement interval for wearing part [*])	piece	Order No.	AU[1)]/piece
201	Engine cowling	2	1140101	27
202	Brush drive complete	1	2210272	265
203	Battery cable	1	2210286	11
204	E-block-battery 9V	1	1500261	18
205	KFE- Ball valve ½“	1	2210311	24
206	Self-tapping screw C 2.9x19	2	1609174	1
207	Countersunk screw M3x12	1	1609468	1
208	Cheese head screw M3x10	3	1650144	1
209	Engine mounting plate	1	1120590	19
210	Gear motor complete	1	2210284	265
211	Engine clutch	1	1500316	15
212	Cam-operated switch complete	1	2200799	29
213	Front foil	1	1701393	38
214	Flushing motor complete	1	2210283	338

1) AU = Accounting unit

Replacement interval: ** = 2 years, *** = 3 years, **** = 4 years
Prolongated guarantee period if a maintenance contract has been concluded!

12. Customer Support

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Installed by:

JUDO JULIA Metering pump for JUL mineral solution against corrosion (brown water) and limescale deposits.	**JUDO HEIFI-KOM** Combination of the heating backwashing filter and automatic heating feed station for fulfilment of DIN EN 1717.	
JUDO Domestic Water PROMI Backwashing protective filter with JUDO PROFI-PLUS technology, pressure reducer and backflow preventer.	**JUDO ZEWA-WATERSTOP** Central water safety fitting. Stops water flow in the event of water pipe bursts and detects leaks.	**JUDO PROFI-PLUS** Backwashing protective fitter in the germ protection class with silver plated strainer and point rotation system for optimal cleaning of the strainer.

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