

# Installation and Operating Instructions

## JUDO QUICKSOFT-DUO

Softener

### Model JQS-D

Valid for: Canada

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#### Attention:

Carefully read through the installation and operating instructions and safety information before installing and putting the unit into service.

These Instructions must always be issued to the owner/user.

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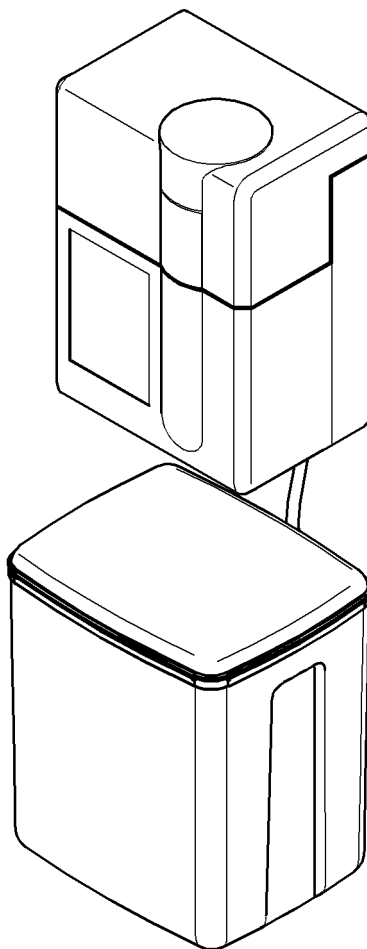


Fig. 1: JQS-D



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**1. About this Operating Instructions**



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

The instruction manual must be permanently available at the place in which the filter is installed and used.

This instruction manual is intended to make it easier to familiarize yourself with this filter.

The instruction manual contains important information in order to safely, properly and economically and operate this filter.

This Instruction Manual 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 filter.

The instruction manual must be read and used by each person entrusted with carrying out work on the filter, for example and not limiting to:

- **Installation**
- **Operation**
- **Maintenance** (servicing, inspection, repair)

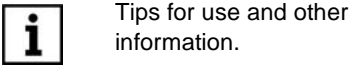
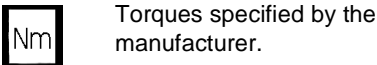
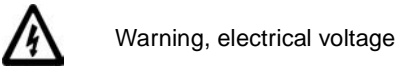
Installation and maintenance may only be carried out by qualified Personnel, who are capable of fulfilling the instructions given in the installation and instructions.

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

All the general safety notes given in this Instruction Manual are to be observed and carried out safely - Failure to do so can result in personal injury and / or property damage. The manufacture waves all liabilities.

### 1.1 Symbols used

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



Notes directly attached to the softener, e.g.

- Direction of flow (see Fig. 2)
- Rating plate
- Cleaning information

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

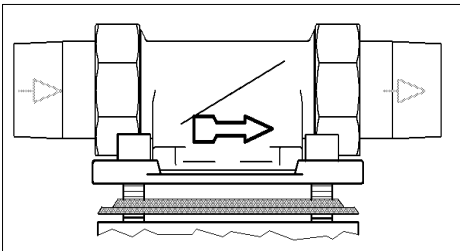


Fig. 2: Built-in rotary flange

### 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 softener.
- 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
1 psi	7 kPa = 0.0069 N/mm <sup>2</sup>
1"	DN 25
1 Grain / US Gallon	= 0.171 mmol/l alkaline earth ions

## 2. Intended Use

Installation and use of the softener 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 softened must possess quality of drinking water!**

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

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

It is produced to state of the art standards and the generally accepted safety regulations in Germany.

The softener 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 softener outside the use limitations given in the instruction manual.

The softeners 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 safely discharge the wastewater in operation and in case of any defect in the system, precise compliance with the details given in the chapter on "Requirements for the place of installation" is necessary!



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

The used regenerating salt is removed from the softener columns with the wastewater.

Therefore, it may not be used to water plants or for similar purposes.

Take extra care if the cover has been removed as moving parts are a potential danger!

The range of use for DVGW-tested softeners is specified in DIN 1988 Part 2 Para. 8.3.2. According to this standard, there are no restrictions regarding the range of use for these softeners. The capacity of the softener is designed so that it can be used to partly soften all the water for a detached or multiple dwellings, as well as corresponding part water quantities for hot water, swimming pools, washing machines and dishwashers.

## 2.1 Water pressure

The water pressure must be between 29 psi (200 kPa) and 102 psi (700 kPa).

The water pressure must not fall below 29 psi (200 kPa), as otherwise the function can be impaired! If the softener is not regularly 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 over 102 psi (700 kPa)** a pressure reducer must be installed **upstream** of the softener (see Fig. 3). An operating pressure of over 102 psi (700 kPa) can lead to malfunction and failure.

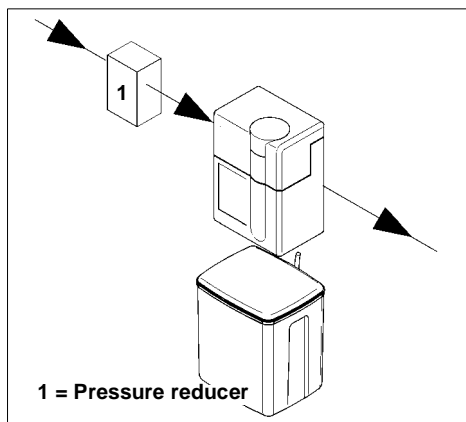


Fig. 3: Pressure reducer upstream of the unit

In modern sanitary installations (in particular where single lever mixers are used), despite normal system pressure conditions, peak pressures of up to over 435 psi (3000 kPa) frequently occur. This can cause damage to important functional interior parts of the controls. The optimum operating pressure for the softener lies between 44 psi (300 kPa) and 73 psi (500 kPa). It works most economically under these pressure conditions.



For a **water pressure of 73 psi (500 kPa) to 102 psi (700 kPa)** we recommend 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 softener!

Electrical devices / equipment, which are not splash proof and which are located near the softener can be damaged by water which escapes from the softener during regeneration 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 softener must therefore be splash proof and comply with the legal regulations for wet rooms.



In the power pack the mains voltage is reduced to a safe, extra-low voltage of 15 V, with which the system's electronics are operated. Never use any other power packs.



**ATTENTION**



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

Caution when touching the unit when the cover is removed! The load impedances in the electrical circuit can get hot during operation.

### 3. Product Information

#### 3.1 Intended purpose

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



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

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

This softener is used to protect the water pipes and hot water heater against limescale deposits.

Partly softened water protects appliances and fittings and reduces consumption of detergents and cleaning agents.



Limescale deposits inhibit water flow and can therefore result in increased energy consumption.

### 3.2 Test marks

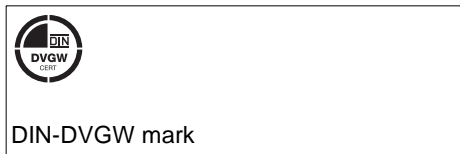


Fig. 4: Test marks

The units conform to the technical regulations for drinking water installations in accordance with DIN 1988. They are tested by the DVGW (Deutsche Vereinigung des Gas- und Wasserfaches e.V. technical –scientific association for the gas and water industries) in accordance with the requirements of DIN EN 14743 and DIN 19636-100 pressure class PN10 (150 psi) for softeners (cation exchangers) in drinking water installations and are entitled to bear the DIN-DVGW mark and DVGW-GS mark (see Fig. 4).

### 3.3 Materials used

The materials used are resistant to the physical, chemical and corrosive loads to be expected in the drinking water and fulfil the requirements specified in DIN EN 14743 and DIN 19636-100 (“softeners (Cation Exchangers) in Drinking Water Installations”). All materials are hygienically and physiologically safe. Plastics fulfill the UBA (Umweltbundesamt / Federal Environmental Agency) KTW-Guideline and DVGW Working Sheet W270. Metallic materials fulfil the requirements of DIN 50930-6.

## 4. Installation

### 4.1 General



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

The unit may only be installed by skilled personnel.

The chapter on "Intended Use" must always be observed!

The pipes must be able to safely support the softener.

Otherwise mechanical damage or fractures/ bursts can occur in the pipes. This can result in major water damage. People close to the softener 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 "Installed dimensions")

A clearance of at least 300 mm (12 inches) is required above the softener in order to be able to properly carry out all maintenance and servicing work.

(see chapter "Modifications / changes / spare parts")

### 4.1.1 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 softener!**



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

- The ambient temperature must not exceed 30 °C (86 °F)!
- In order to be able to safely discharge the wastewater (regeneration) in operation and in case of any defects that occur in the system, precise compliance with the details given in the "Installation" chapter is necessary!
- If the wastewater cannot be safely and completely discharged, the house and installations can be damaged by water.
- A shut-off valve must be installed upstream and downstream of the softener with a bypass to allow continued water supply when the softener is out of service! This enables the water supply to the softener to be interrupted during installation, servicing/ maintenance, repairs and in case of malfunctions. Floods and serious water damage to house installations can therefore be avoided.
- The unit can be installed in all standard drinking water pipes.
- It is not permitted to install the softener **upstream of the water meter!**



A power connection (120 V / 60 Hz), which is permanently live, must be available.



### 4.1.2 Installed position



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

Always install the softener in a vertical position ( $\pm 5^\circ$ )!

Failure to observe this can impair its function.

### 4.1.3 Power supply



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



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

A permanent power supply must be available. If the softener is not permanently supplied with electricity

- No regeneration takes place.
- No alarm is given in case of faults.
- Water losses or even water damage can occur if the power supply is interrupted during regeneration.

### 4.1.4 Mounting the built-in rotary flange

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

It is suitable for both horizontal and vertical pipes.

The installation height depends on the pipe layout. The minimum installation height from the floor to the rotary flange is 15 inches.

**The built-in rotary flange must be installed in the direction of flow. This is marked by a cast in arrow (see Fig. 5).**

Failure to comply with this means the softener cannot work.



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

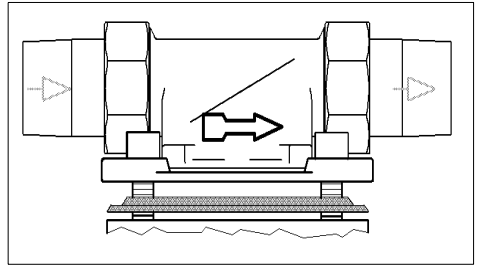


Fig. 5: Built-in rotary flange

The flange surface of the built-in rotary flange must be in a vertical position! The built-in rotary flange must be fitted so that mechanical stresses cannot occur! Otherwise mechanical damage can result in the built-in rotary flange. This can result in major water damage.

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

Therefore, during installation, ensure that no large forces act on the pipe, built-in rotary flange and softener.

### 4.1.5 Assembly of the bypass valve (accessories)

The flange of the bypass valve marked with the cast in letter "R" (pipe) is screwed onto the built-in rotary flange. The conditioner is fitted onto the flange marked with the cast in letter "G" (unit). The hand-wheel of the bypass valve can be positioned anywhere above the unit or to the side if there is enough space between the pipe and wall. Depending on conditions on site, installation should be carried out ensuring sufficient access to the hand-wheel.

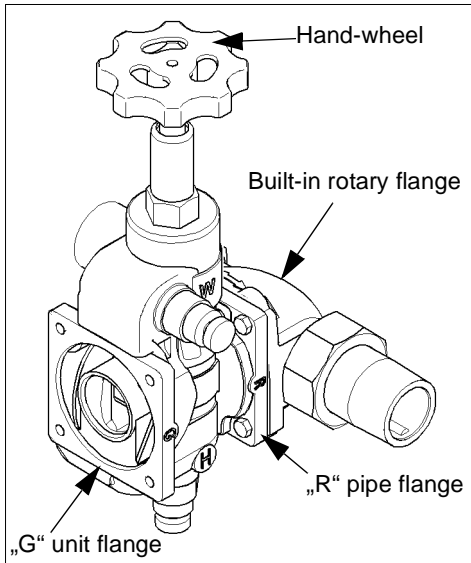


Fig. 6: Bypass valve

### 4.1.6 Fitting the wall support

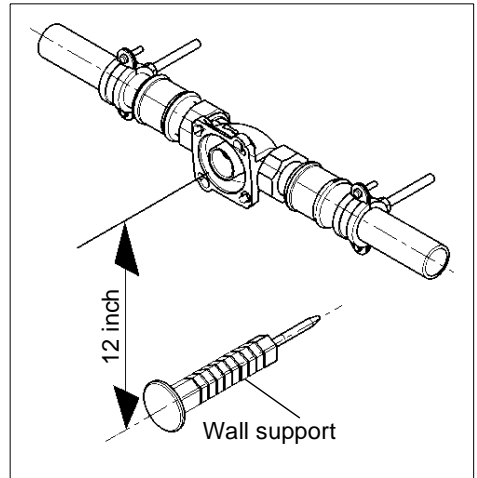


Fig. 7: Wall support without bypass valve

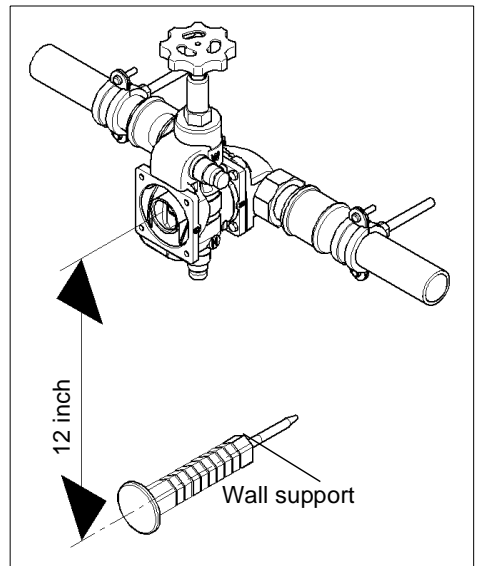


Fig. 8: Wall support with bypass valve

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

### 4.1.7 Installing the softener

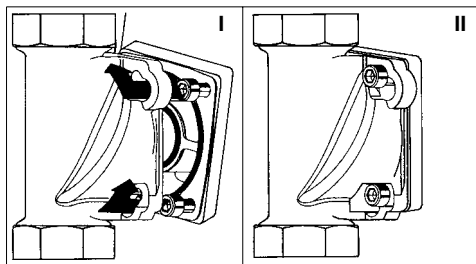


Fig. 9: Built-in rotary flange with bayonet fixture

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

Remove the white protective disc on the connecting flange of the softener by undoing the four M6 Allen screws.

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

Lift up the softener and swivel it through 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. 9 I). Swivel the softener through approx. 30° back in a clockwise direction and tighten the four Allen screws (see Fig. 9 II).

The section 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 in turn cause water damage to the house and its installations (see Fig. 10).



Select the torque (approx. 4 Nm) so that the gasket closes and the softener is not damaged or strained!

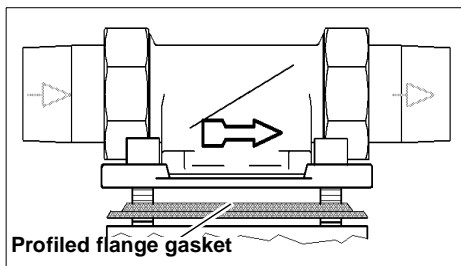


Fig. 10: Built-in rotary flange

### 4.1.8 Wastewater connection and back-up overflow hose

The hoses for the regeneration wastewater and the back-up overflow must both be laid up to the wastewater sewer without any kinks. Ensure free discharge above the wastewater channel or floor drain.

The waste water hose with 0.4 inches of outside diameters may not be shifted more highly than the control actuator. The tube length may amount to maximally 120 inches. Securely fix the loose end of the hose to the pipe or similar with the adhesive tape supplied.

The back-up overflow hose with a 0.75 inches outer diameter must be laid with a constant fall to the wastewater sewer and free of kinks.

If the connection for the wastewater sewer is higher than this, the salt container can be installed correspondingly higher with the aid of a wall bracket (see chapter "Accessories").



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

The wastewater connection must not be located above the softener.

An adequately dimensioned wastewater connection (e.g. floor drain) to DIN 1986 must be available for the wastewater and the back-up overflow hose (6).

## 5. Operation



ATTENTION

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

Always observe the chapter on "Intended Use"!

### 5.1 Commissioning

activate **regeneration**:

- Fill the regeneration salt into the salt container (5). The water dissolves the regeneration salt producing saturated brine. The regeneration salt must at least conform to food quality standards and should fulfil the requirements according to DIN EN 973.
- **Our recommendation:** Broxo or Solvay salt, either as a block, tablets or coarse grains 7 - 15 mm (0.3 - 0.6 inches). If you use other regenerating salts, the salt container (5) must be cleaned at shorter intervals and the intake screen (88) replaced more often.
- Pour approx. 4 litres of water into the salt container (5).
- Remove the cover (2).
- Enter the installation date on the label of the operating cylinder (36) and in the "servicing record sheet".
- Set the raw water hardness (°e) at the electrical circuit (see chapter "Setting the raw water hardness").
- Open the water inlet. Open the bypass valve.



ATTENTION

For safety reasons the softener must be **vented immediately** after it is connected to the water system (bypass valve is open). The system is automatically vented during the first regeneration (see chapter "Commissioning").



Connect the softener to the power supply. Plug the power pack into the socket.

- After each connection to the power supply the electronics automatically perform a self-test for approx. 10 seconds. After this has been successfully completed all the control lamps briefly light up. The system control lamp (13) then lights up.
- Trigger **regeneration** manually: Press the regeneration trigger (18). At the same time you can check whether the system is functioning correctly (see chapter "Servicing / Repair"). After completing the regeneration the softener is ready for use (approx. 15 minutes). The intake time should be at least 30 seconds (digit 2 can be seen on the driving wheel (11)). If the intake time is shorter, water must be poured into the salt container (5). Filled level 4 - 4.5 inches above the floor of the container. Start a new regeneration and check the intake time.
- Mix in hard water using the setting screw of the blending valve (10) (see chapter "Setting the blending").
- Fit the cover (2).

### 5.1.1 Setting the raw water hardness

The value depends on the place of installation. You can ask the responsible waterworks or determine it using suitable measuring equipment (see chapter "Accessories"). If the raw water hardness fluctuates, set the higher value. Regeneration is always performed with the same quantity of brine. If the raw water hardness is high a smaller quantity of water is treated. If the raw water hardness is low a larger quantity of water is treated.

The **raw water hardness** is set using the DIP switches (20 and 21).

The tens digit of the raw water hardness is set using the DIP switch (20), contacts 1 to 8.

The unit digit of the raw water hardness is set using the DIP switch (21), contacts 1 to 4 (see Fig. 11).

The allocated contact is moved downwards to make an adjustment.

#### Example: (raw water hardness 26 °e)

Push contact 2 of the DIP switch (20) and contact 3 of the DIP switch (21) downwards (see Fig. 11).

In this case the sum of the tens digit and the unit digit is  $20\text{ °e} + 6\text{ °e} = 26\text{ °e}$ .

For raw water hardnesses less than  $10\text{ °e}$ , all the DIP switch's (20) contacts must be set at the top in the "OPEN" position.

Contact 5 of the DIP switch (21) is pushed downwards.

The controls react to incorrect settings with an acoustic signal (see "Faults" chapter).

**The country to be set is adjusted using the DIP switch (21), contacts 6 to 8. To set the English hardness the contact 8 of the DIP switch (21) is pushed downwards.**

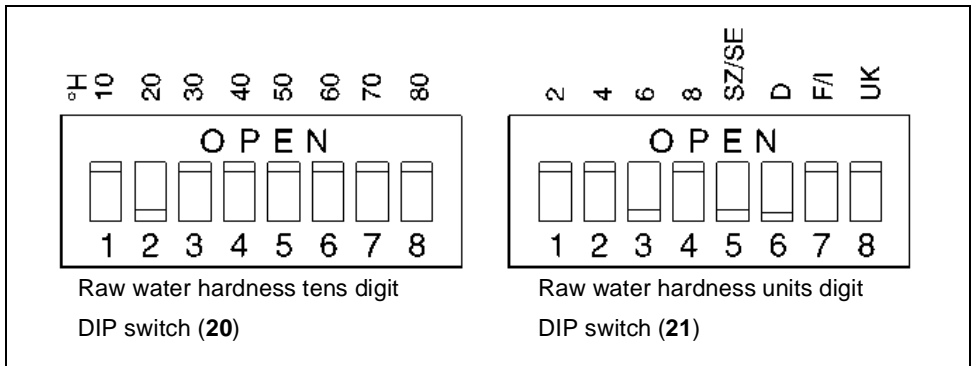


Fig. 11: DIP switch

### 5.1.2 Setting the blending

In the factory the setting screw (10) is set to the "Soft" position. You first have to check what the mixed water hardness is with this setting. The water hardness is measured using measuring equipment (see chapter "Accessories").

The sample water for measurement and adjustment of the water hardness can be drawn off at the bypass valve (see "Accessories" chapter) or at a water tap downstream of the softener.

Ensure that the readjusted mixed water has reached the drawing off point from the softener. To correctly compare the measured values, the samples should be taken from a normal water flow (1 tap fully opened). During the drawing off no large water quantities may be drawn off at any other point.

If the required mixed water hardness has still not been reached, it can be achieved by turning the blending (10). Recommended hardness is approx. 10°e.

Softer mixed water	=	turn in clockwise direction
Harder mixed water	=	turn in anti-clockwise direction

The setting may have to be changed and remeasured several times before the required value is reached.

The softening increases the sodium concentration in the mixed water, depending on the raw water hardness and the mixed water hardness set.

In accordance with the German Drinking Water Regulations of 1.1.2003 the limit value for sodium in drinking water is 200 mg/l. This does not apply to mineral and table water. Their limit values are considerably higher, some have values above 1000 mg of sodium per litre.

### Calculating the sodium content

°e	Raw water hardness (ask the waterworks or measure with a hardness test device)
- °e	Mixed water hardness (measured value)
= °e	Water hardness
x 6.4 mg Na <sup>+</sup> /l	x °e Na-Ionen-exchang value
= mg/l	Na ion exchange value Increase in sodium content due to softening.
+ mg/l	Sodium already in the raw water (ask the waterworks)
= mg/l	Total sodium content in mixed water

Tab. 1: Calculating the sodium content

### Example calculation of the sodium content

25	°e	Raw water hardness
- 10	°e	Mixed water hardness
= 15	°e	Water hardness
x 6.4		
= 96	mg/l	Due to softening
+ 10	mg/l	From waterworks
= 106	mg/l	Total

Tab. 2: Example calculation of the sodium content

If the calculated total sodium content exceeds the value permitted under the Drinking Water Regulations of 200 mg/l, it can be corrected by increasing the mixed water hardness accordingly. The sodium content must be recalculated.

### 5.1.3 Control lamps, manual pushbuttons

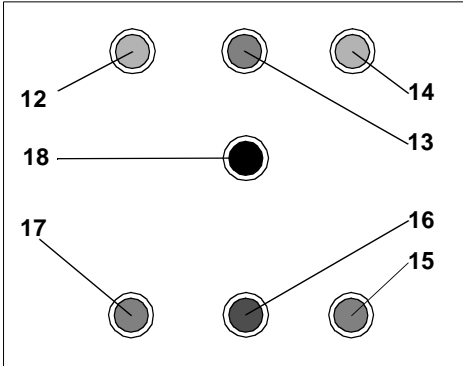


Fig. 12: Control lamps, manual pushbuttons

12	Water flow rate	yellow	
13	Net	green	
14	Switch-over	yellow	
15	Regeneration right	green	
16	Trouble	red	
17	Regeneration left	green	
18	Manual pushbutton to trigger regeneration		

## 5.2 Functional description

The softener has been designed with a single column, which can be regenerated in two steps. During regeneration the two steps alternately supply the soft water. Thus, soft water is always available for use during regeneration.

With the very short regeneration period of max. 18 minutes for both regeneration stages together, conditions can be created even for maximum continuous drawing off, which can otherwise only be achieved by expensive and larger pendulum systems.

A water meter installed in the soft water pipe precisely records the quantity of soft water produced and triggers regeneration according to the raw water hardness set at the electronics. The regeneration is carried out with economic salt use according to DIN 19636. The system is regularly disinfected, in order to prevent contamination with germs. The small quantity of chlorine required for this is electrolytically generated during regeneration from the drawn in brine.

The filter cases are filled with ion exchange resin. These are small synthetic resin spheres on which the calcium ions, which make the water "hard", are exchanged for sodium ions. This makes the water soft. However, the ion-exchange resin only absorbs a limited quantity of hardness constituents. Depending on the water hardness, sooner or later it is exhausted. The exhaustion time is recorded by the water meter and the regeneration is automatically initiated. Here diluted brines (sodium chloride) are used to remove the hardness constituents from the resin again.

Regeneration automatically takes place through wear free ceramic discs. The regeneration sequence is fixed by the geometry of the discs and therefore does not have to be re-entered even in case of a power failure.

If a very high quantity of water is drawn off (e.g. flush valve) and this leads to a pressure loss in the softener greater than around

12 psi (80 kPa), an overflow valve integrated in the control head opens in order to allow hard water to pass by the system and therefore reduce the pressure loss. However, the mixed water hardness in the pipe downstream of the softener increases for a short time as a result.

## 5.3 Salt fill

As the softener functions automatically, you only have to refill it with regeneration salt from time to time.

At the latest when the "Top up salt" sticker becomes visible in the salt container.

The salt stocks should not be allowed to reduce so much that the liquid level is above the regenerating salt, otherwise it rises excessively when the salt is refilled. The liquid level should be 4 - 4.8 inches above the floor of the container.

If the container is not refilled in good time the solid regenerating salt displaces the brine. An unnecessarily large amount of brine is drawn up during the next regeneration, the intake procedure takes a correspondingly longer time.

**Our recommendation:** Broxo or Solvay salt, either as a block, tablets or coarse grains 0.3 - 0.6 inches.



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

If there is no more regenerating salt in the container or if it is not refilled in good time, the softener switches to economy operation:

The brine stocks still available are primarily used for disinfecting the ion exchange resin and the softening effect is reduced.

In this way, the softener remains in a hygienically safe condition for weeks after the regenerating salt shortage occurs.



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

### 5.4.1 Servicing / Repair

The unit must be serviced at least once a year in accordance with the requirements of DIN 1988. A half-yearly service is required for jointly used systems.

We recommend you conclude a servicing agreement.

#### Check the functions:

- Remove the cover (2).
- As long as regeneration is taking place either the control lamp (17) or (15) is lit. As soon as the regeneration is completed trigger **regeneration** by pressing on the regeneration trigger button (18).
- The driving piston turns the driving wheel (23), which in turn controls the small gear wheel. Each stroke of the driving piston is accompanied by the lighting up of the LED (14). The position of the driving wheel can be read off at the position display (11). After two strokes the salting position (Pos 2) is reached. After approx. 3 minutes the drive executes a stroke again. Wastewater quantity up until then approx. 3.5 litres.

- After this stroke the "Backwash" position (Pos 3) is reached. The resin is flushed from below upwards. Duration 100 seconds, wastewater 3 – 4.5 litres.
- Then two strokes are performed again, until the "Initial Filtrate" position (Pos 5) is reached. Here the resin is flushed from above downwards. Duration 100 seconds, wastewater 2.5 – 4 litres.
- After two further strokes the first stage regeneration is completed. Total duration max. 9 minutes. The driving wheel now turns the right gear wheel with two strokes for the second stage regeneration up until the "Salt" position (Pos 2). After approx. 3 minutes the drive executes a stroke again. Wastewater quantity up until then approx. 3.5 litres.
- After this stroke the "Backwash" position (Pos 3) is reached. The resin is flushed from below upwards, duration 100 seconds, wastewater 3 – 4.5 litres.
- Then two strokes are performed again, until the "Initial Filtrate" position (Pos 5) is reached. The resin is flushed from above downwards, duration 100 seconds, wastewater 2.5 – 4 litres.
- After a further two strokes the operating position (Pos 1) is reached again and the regeneration is completed, total duration max. 15 minutes.
- If the measured values significantly differ from the setpoint values (see chapter "Service Record Sheet"), the customer service department must be notified. Always quote the unit number, which is imprinted in the top of the unit connection flange (28).

Before carrying out any work on the softener, which extends beyond pure operational control, the softener must be depressurised! Failure to observe this can lead to an uncontrolled escape of water and therefore lead to water damage in the building. Strictly comply with the instructions given in the "Installation" and "Maintenance" chapters.



Disconnect the power pack from the socket! (If installed, disconnect the power pack of the downstream metering pump too!)

## 5.5 Stoppages



### ATTENTION



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

The water supply to the softener is interrupted. The main tap is closed or the bypass valve is switched over.



Disconnect the power pack from the socket! (If installed, disconnect the power pack of the downstream metering pump too!)

The softener must be stored in a dry, frost-free place when dismantled. The connecting flange must be protected against dirt and damage.

If the softener is refitted and put back into service, regeneration must always be carried out first (see chapter "Commissioning").

## 6. Faults

**In order to ensure unit safety and leak tightness, only approved persons may open the units and replace parts subject to water pressure.**

At the start of the regeneration a timing element of around 5 hours is started. If the regeneration is not completed within this

time an error message is triggered. The occurrence of a fault in the unit is signalled by an intermittent buzz.

### Deleting the error message:



Disconnect the power pack from the socket. Plug it back in after approx. 5 seconds!

### Help with faults:

Fault	Cause	Remedy
Fault message	Temporary failure of the pipe pressure!	<ul style="list-style-type: none"> <li>– Delete fault signal.</li> <li>– Trigger regeneration manually (see chapter “Commissioning”).</li> </ul>
	Late salt refill.	
	During regeneration the driving wheel was manually turned.	The drive turns the driving wheel until the normal operating position is reached again. Then the red control lamp goes out and the softener is again ready for use.
	Operating error e.g. in the hardness setting.	Reset the DIP switch (see chapter “Commissioning”).
Renewed fault signal 5 hours after being deleted!		<p><b>With bypass facility:</b></p> <ul style="list-style-type: none"> <li>– Set to bypass!</li> <li>– Disconnect the power pack from the socket! (If installed, disconnect the power pack of the downstream metering pump too).</li> <li>– Immediately notify the fitter or nearest customer service.</li> </ul> <p><b>Without bypass facility:</b></p> <ul style="list-style-type: none"> <li>– Disconnect the power pack from the socket! (If installed, disconnect the power pack of the downstream metering pump too).</li> <li>– Immediately notify the fitter or nearest customer service (see chapter “Stoppages”).</li> </ul>

## 7. Maintenance



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

Always observe the chapter on "Intended Use"!

### 7.1 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.**

## 8. Warranty and Services

In order to comply with the legal warranty claim, according to DIN 1988, Part 8, it is necessary that the owner/user "carry out an inspection at least every 2 months." Depending on the water volume consumed, the corresponding salt consumption must be regularly monitored. If necessary refill the regenerating salt (only use quality according to DIN EN 973). Hygienic care is required when refilling salt. For example, the salt packages should be cleaned before use so that contaminations cannot get into the salt solution container. The regenerating salt must be tipped directly from the opened package into the salt solution container.

Ensure that the salt solution container is not overfilled and that it is carefully closed again at the end of the work. Part packages are to be avoided. The salt may only be stored in clean and dry rooms. A service is to be carried out by a qualified, skilled service firm of the manufacturer ... "at least" ... annually, half-yearly in jointly used installations ...".

Regular servicing is indispensable in order to continue to achieve a successful process for many years after the unit is put into service. In the building services sector this is covered by DIN 1988, Part 8.

A servicing agreement is the best way to ensure a good operating function beyond the warranty 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.

## 9. Data Sheet

### 9.1 Type

JUDO QUICKSOFT-DUO Softener

Abbreviated name: JQS-D

Order No.: 8200322

### 9.2 Technical specifications

- Maximum ambient temperature and water temperature: 30 °C (86 °F).
- **The water to be softened must possess quality of drinking water!**
- Threaded connection to DIN 2999.

Operating pressure	Nominal pressure
29 - 102 psi (200 - 700 kPa)	PN 10 (150 psi)

The nominal pressure denotes the pressure class, according to which the Softener must fulfil the requirements to DIN EN 14743 and DIN 19636-100. The maximum operating pressure is lower, in order to ensure the optimum function of the Softener.

Operating weight when filled with salt	approx. 60 kg
Shipping weight	approx. 20 kg
Nominal flow rate up to	1.7 m <sup>3</sup> /h (7.5 gpm)
Flow pressure at nominal flow rate at least	29 psi (200 kPa)
Pressure loss at nominal flow rate	7.25 psi (50 kPa)
Short-term max. flow	3.5 m <sup>3</sup> /h (15.4 gpm)
Pipe connection	1"
Nominal capacity	0.9 mol
Capacity per kg regenerating salt	5 mol
Salt container capacity	40 kg
Electrical connection	120 V/ 60 Hz
Max. power consumption	15 W
For further information, please refer to the "Diagrams" chapter.	

### 9.3 Diagrams

Pressure loss in normal operating position (Pos. 1) with a raw water hardness of 25 °e and a mixed water hardness of 10 °e depending on the volumetric flow rate.

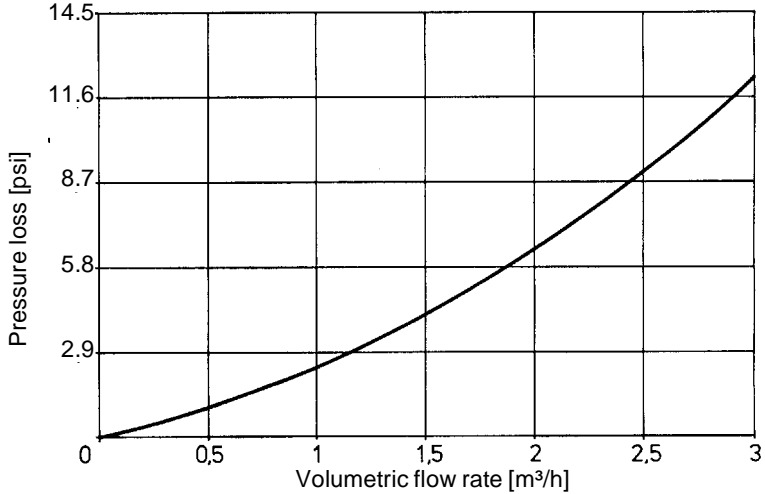


Fig. 13: Pressure loss in normal operating position

Max. possible quantity drawn off daily depending on the raw water hardness and a mixed water hardness of approx. 10 °e.

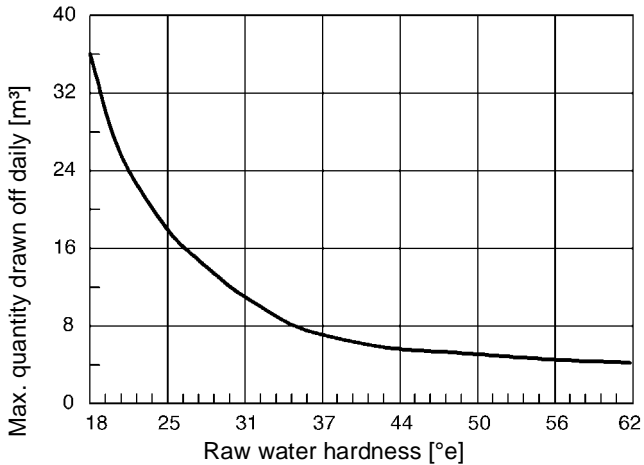


Fig. 14: Amount drawn off daily

Max. possible quantity continuously drawn off depending on the raw water hardness and a mixed water hardness of approx. 10 °e.

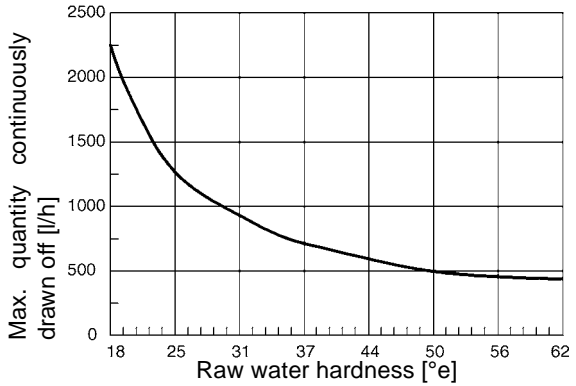


Fig. 15: Water continuously drawn off

Wastewater quantity related to 1 m<sup>3</sup> of mixed water with 10 °e depending on the raw water hardness.



Fig. 16: Wastewater quantity

Salt consumption related to 1 m<sup>3</sup> of mixed water with 10 °e depending on the raw water hardness.

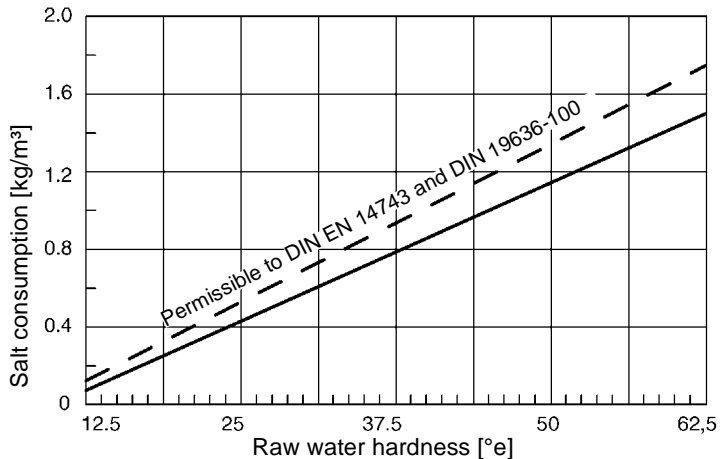


Fig. 17: Salt consumption

## 9.4 Installed dimensions

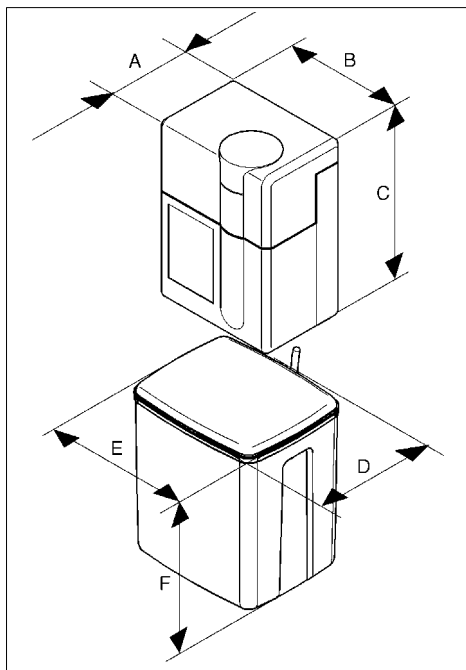


Fig. 18: "Installed dimensions"

<b>A</b>	9.8	Installed depth without bypass valve
<b>B</b>	13.4	Width of the control unit
<b>C</b>	19.3	Height of the control unit
<b>D</b>	14.2	Depth of the salt container
<b>E</b>	15.3	Width of the salt container
<b>F</b>	18.3	Height of the salt container

All dimensions in [inch](see Fig.18)

## 9.5 Scope of supply

- Softener (control unit)
- Salt container
- Accessories bag
- Installation and Operating Instructions
- built-in rotary flange  
JQE 1" with threaded fitting
- Backup overflow hose
- Wall support

## 9.6 Accessories

- Bypass valve JQX, Order No. 8735210.
- Extension QUICKSET JQR for series connection of two JUDO units (e.g. filter and Softener) to a pipe connection, Order No. 8250041.
- Wall bracket for salt container  
Order No. 8733066.

### 9.6.1 Protective measures against corrosion

If water has a water hardness of 0°e plastic pipes or corrosion resistant pipes should be laid. In the case of water with partial softening (approx. 10°e), zinc pipes and copper pipes can be laid.

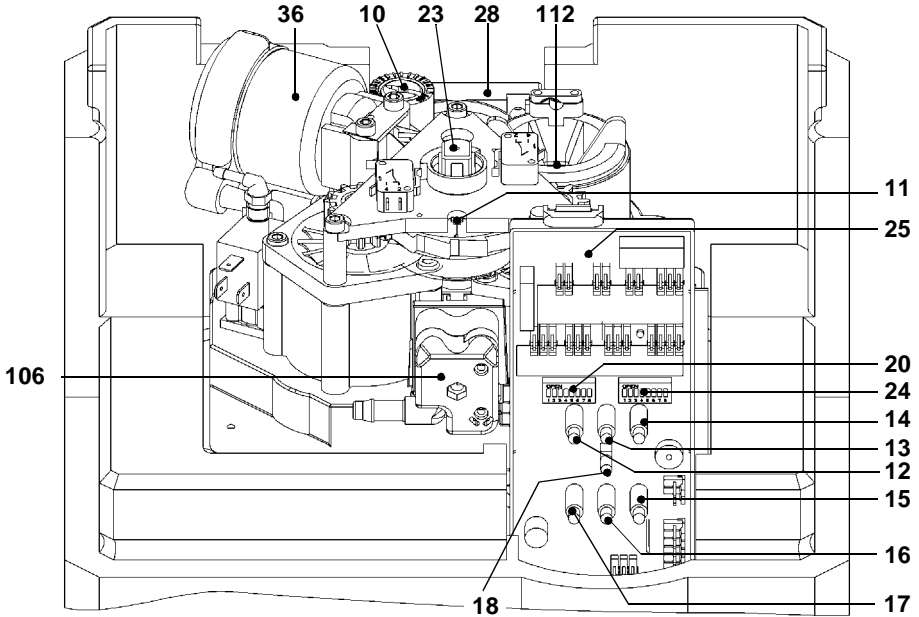
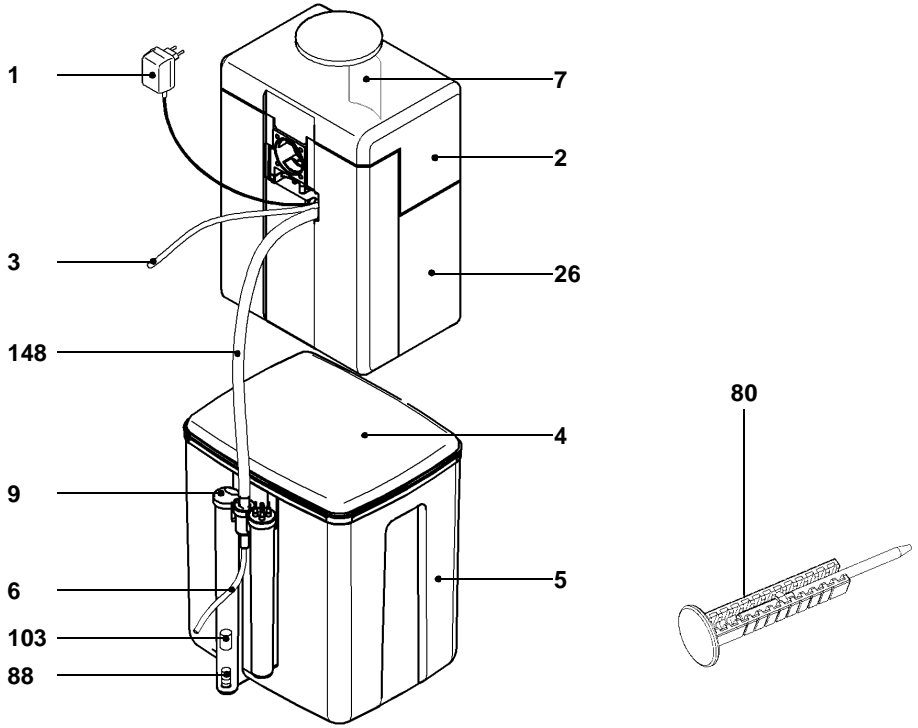
#### Our recommendation:

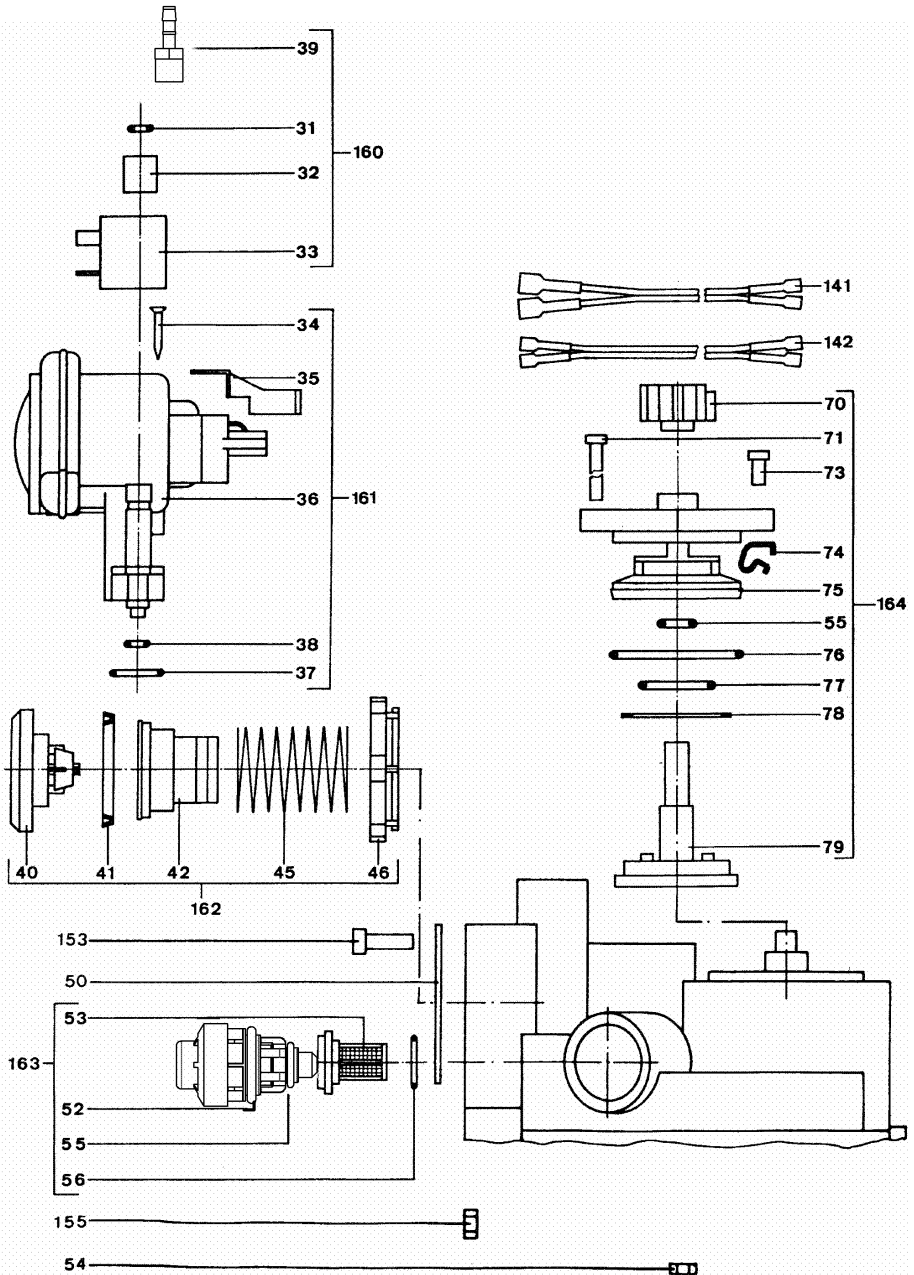
Install a JUDO JULIA metering pump in the mixed water pipe downstream of the Softener, in order to proportionately enrich the water with a JUL mineral solution.

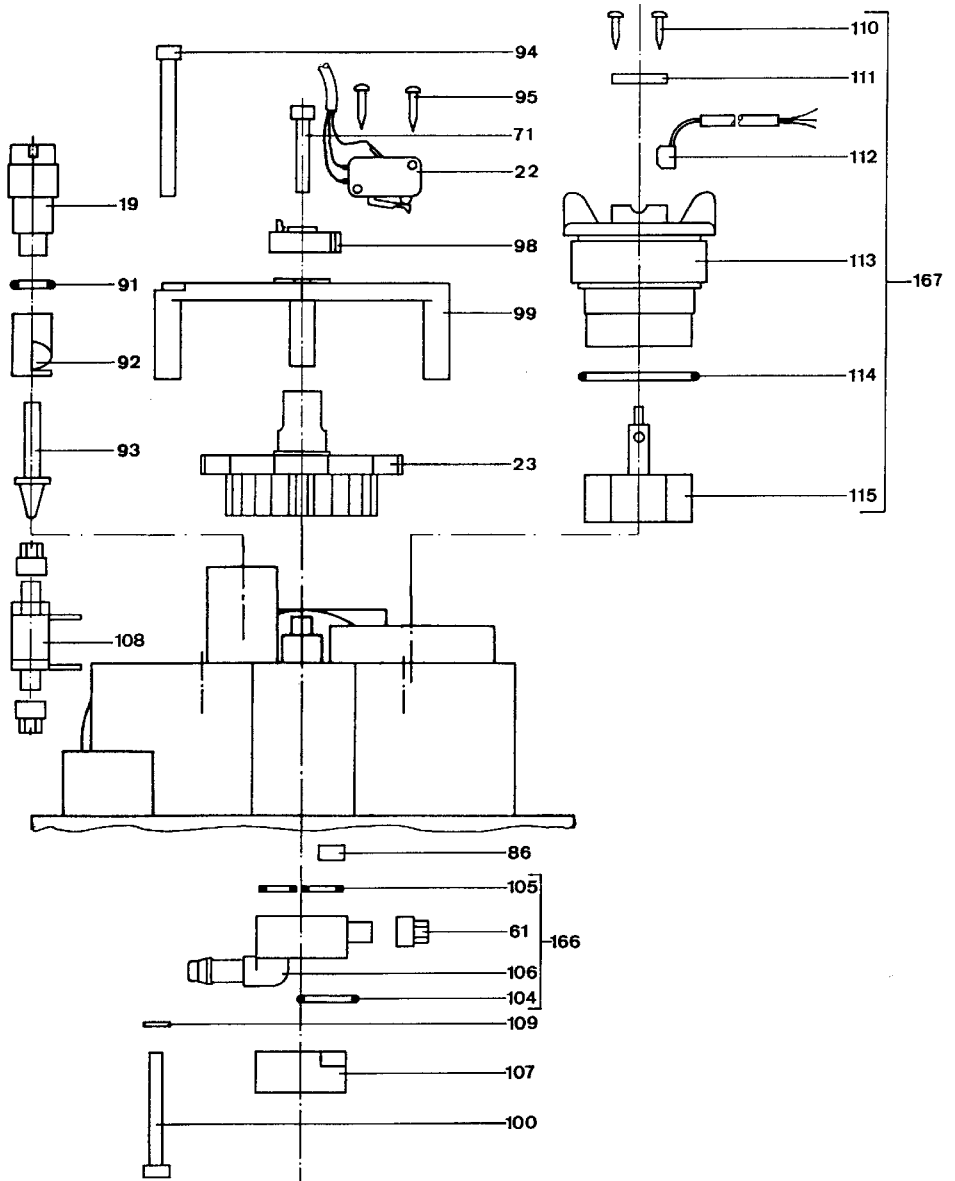
The JUL mineral solutions contain active components, which stabilise the residual carbonate constituents and create the prerequisites for developing a homogeneous protective layer in downstream pipe systems. These active ingredient components correspond to the prescribed type, quality and quantity in Art 11 TrinkwV 2001 treatment substances and disinfection methods.



10. JQS-D Spare Parts







JQS-D Spare Parts

Item	Name (Recommended average replacement interval for worn part [**])	No.	Order No.
1	Power pack	1	2201006
2	Cover	1	1140105
3	Wastewater hose <span style="float: right;">ø 0.4 inch</span>	1	2633112
4	Salt container cover	1	1120386
5	Salt container	1	1120385
6	Backup overflow hose <span style="float: right;">ø 0.75 inch</span>	1	2633342
7	Front disc	1	2200852
9	Functional chamber cover	1	2200532
10	Blending valve		
11	Position display on the driving wheel		
12	Water flow rate	display (yellow)	
13	Net	display (green)	
14	Switch-over	display (yellow)	
15	Regeneration right	display (green)	
16	Trouble	display (red)	
17	Regeneration left	display (green)	
18	Manual pushbutton to trigger regeneration		
19	VSV screw upper part	1	1120345
20	Setting: Raw water hardness unit digit		
22	Cam-operated switch	2	2200713
23	Driving wheel	1	1120394
24	Setting: D, F, UK		
25	Electrical circuit	1	2200725
26	Casing	1	2201060
28	Unit No.		
31	O-Ring 5x2	1	1609461
32	Sleeve	1	1440122
33	Solenoid valve	1	1500209
34	Countersunk head tapping screw 2.9x22	2	1650194
35	Locking plate	*****	1400079
36	Operating cylinder	1	2200447

JQS-D Spare Parts

Item	Name (Recommended average replacement interval for worn part [**])	No.	Order No.
37	O-ring 18x2.2	1	1200195
38	O-ring 6x2	1	1200196
39	Angle bracket	1	1120428
40	RV ring	1	2200328
41	NG ring 42x48	1	1200208
42	Overflow valve piston	1	2200414
45	Overflow valve spring	1	1650200
46	Overflow valve voltage	1	1120324
50	Ring seal	***	1633102
52	O-ring 17x3.5	1	1200026
53	Pressure reducing screen	***	1120373
54	Hexagonal nut M5	2	1633147
55	O-ring 10x2.5	1	1200183
56	O-ring 18x2.2	1	1200195
61	Clamping union nut	3	1140011
70	Control disc wheel	1	1120382
71	Cheese head screw M5x35	5	1650215
73	Cheese head screw M5x10	1	1621116
74	Expanding spring	2	1650186
75	Control housing cover	1	1120274
76	O-ring 53x3	1	1200185
77	O-ring 40x3	1	1200151
78	Driving slide ring	1	1420022
79	Driver	1	2200503
80	Wall support, complete	1	2200500
86	Rate regulator	***	1620213
88	Intake screen	*	1120021
91	O-ring 9.12 x3.53	1	1200251
92	VSV screw lower part	1	1120346
93	VSV sphere	1	2200565
94	Cheese head screw M5x80	1	1650195

JQS-D Spare Parts

Item	Name (Recommended average replacement interval for worn part [*])	No.	Order No.
95	Pan-head tapping screw 2.9x16	4	1650173
98	Cam wheel	1	1120277
99	Thrust bearing plate	1	2200549
100	Cheese head screw M5x45	1	1650251
103	Intermediate hose	1	2200596
104	Cover seal	* 1	1200255
105	Injector seal	* 1	1200237
106	Injector chamber	1	2200487
107	Injector chamber cover	*** 1	2200556
108	IRV adapter	*** 1	2200567
109	Disc A5.3	3	1650197
110	Pan-head tapping screw 2.9x13	2	1609172
111	Strain relieving bracket	1	1609114
112	HE contactor	1	2200715
113	Tool cover	1	2200444
114	O-ring 43x3	** 1	1200187
115	Impeller with magnet	1	2200512
141	Solenoid valve cable	1	2200714
142	Electrode cable	1	2200716
148	Flexible hose	1	2200722
160	Spare parts kit for solenoid valve	1	2200580
161	Spare parts kit for drive	* 1	2200581
162	Spare parts kit for overflow valve	**** 1	2200418
163	Spare parts kit for pressure reducer	*** 1	2200582
164	Spare parts kit for controls	*** 1	2200579
166	Spare parts kit for injector	* 1	2200585
167	Spare parts kit for water meter	1	2200763

Replacement interval

\* = 1 year, \*\* = 2 years, \*\*\* = 3 years, \*\*\*\* = 4 years, \*\*\*\*\* = 5 years

## 11. Service Record Sheet

Date installed:				System pressure:		
Date:						
Raw water hardness measured [°e]:						
Set [°e]:						
Mixed water hardness measured [°e]:						
Water meter [m <sup>3</sup> ]:						
Number reg. <sup>a</sup>	S					
	L					
	N					
	K					
Intake time <sup>b</sup> [minutes] (approx. 3 minutes)						
Wastewater produced [litres] (approx. 3.5 litres)						
Rinse <sup>c</sup> (3 - 4,5 litres)						
Initial filtrate <sup>d</sup> (2,5 - 4 litres)						

a. Is completed by the customer service department (S = Total sum, L= extended salting period, N= normal regeneration, K = reduced salting period)

b. Position 2

c. Position 3

d. Position 5

The values for intake time, wastewater produced, rinsing and initial filtrate apply to each regeneration stage.

## 12. Customer Service



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Installed by:

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