Installation and Operating Instructions JUDOMAT JM-DX 60

Softener

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!

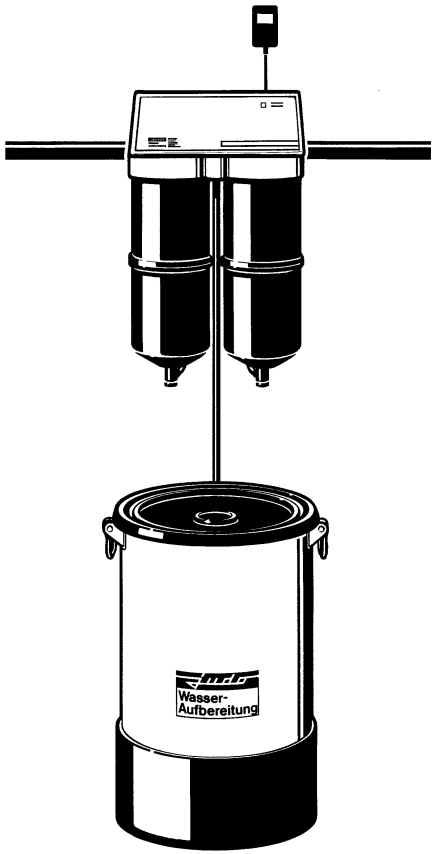

Fig: JM-DX 60

CE

Water Treatment

Inquiries, orders, customer support

JUDO Wasseraufbereitung GmbH

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D-71351 Winnenden

internet: http://www.judo.eu

e-mail: info@judo.eu

Address

JUDO Wasseraufbereitung GmbH

Hohreuschstraße 39-41

D-71364 Winnenden

Dear Customer,

Thank you for the confidence you have shown in us by purchasing this unit. With this Softener you have purchased a state of the art unit.

This Softener 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. 218/08.11

Manufacturer: JUDO Wasseraufbereitung GmbH

Address: Hohreuschstr. 39 - 41
D-71364 Winnenden

Product Description: JM-DX 60 Water Softener

• EC-Directive:	Electromagnetic Compatibility (EMC)	2004/108/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.

Issuer: JUDO Wasseraufbereitung GmbH

Place and Date: Winnenden, 12 November 2008

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.

Inhaltsverzeichnis

1. About these Operating Instructions

The operating instructions must be kept available at the place where the water softener is installed at all times.

These operating instructions should make it easier to familiarise yourself with the water softener and its proper, intended use options.

The operating instructions contain important information and instructions for operating the water softener safely, properly and economically. It contains basic instructions which must be noted and followed during installation, operation as well as maintenance. Noting and following these instructions helps to avoid hazards, reduce repair costs and increase the reliability as well as the life of the water softener.

The operating instructions must be read and used by all persons instructed to work on the water softener, for example:

– **Installation**

– **Operation**

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

Installation and maintenance may be carried out by personnel authorised by the manufacturer only, who are capable of fulfilling the instructions named in the installation and operating instructions and the country specific regulations.

Apart from the operating instructions and the binding accident prevention regulations applicable in the user's country and the place of installation, the recognised technical regulations for safe, professional working are also to be noted and followed.

Therefore, these operating instructions must always be read through by the fitter and the responsible qualified personnel/owner/operator before installation, putting into service and maintenance.

Not only the general safety instructions listed under the "Intended Use" chapter are to be noted and followed but also the special safety instructions inserted under the other main headings.

1.1 Introduction

Thank you for choosing our product. Please note and follow these operating instructions so that you can enjoy your unit for a long time. These operating instructions contain all the information needed for the installation, operation and servicing/maintenance of the described unit.

We make every effort to retain you as a satisfied customer and ask that you contact our field sales representatives or the Winnenden factory if you have any questions concerning water treatment, e.g. extending the installed system to include further features. Please quote the data given on the rating plate in all enquiries.

1.2 Pictograms and their meaning

The words: Warning, Caution and Note , highlighted with bold text with matching pictogram, have the following meaning:

Warning

Risk of injuries and accidents!

Caution

Risk of malfunctions or damage to the unit.

Note

A special feature exists!

1.3 Warranty

The warranty, as defined in our General Terms & Conditions of Sale and Delivery, only applies if:

– the unit is used according to the explanations in these operating instructions.

– the unit has not been opened or improperly handled in some other way.

– repairs have been carried out by authorised, qualified employees only.

– original spare parts only are used for repairs.

1.4 Using the unit

The owner/operator of the system is responsible for the following:

– Instructing the operating personnel.

– Arranging regular servicing/maintenance.

1.5 Duties of the owner/operator

The owner/operator of the system is responsible for the following:

– Instructing the operating personnel.

– Arranging regular servicing/maintenance.

1.6 Safety instructions

Warning!

– **Do not open system parts!**

– **Do not dismantle electronics and sensors!**

– **Repairs are to be carried out by authorised, qualified personnel only!**

– **The power supply unit must be disconnected from the socket outlet before any repair work is carried out.**

2. Transport / Scope of Supply / Storage

Transport:

Transport unit carefully, do not throw it!

Scope of supply:

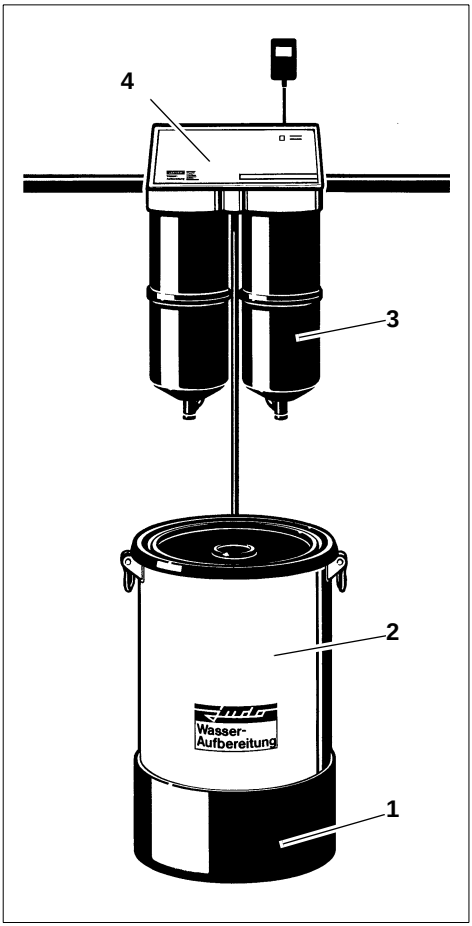


Fig. 1: Transport / Scope of Supply / Storage

1 Brine tank
2 Salt storage container
3 Filter vessels
4 Control head

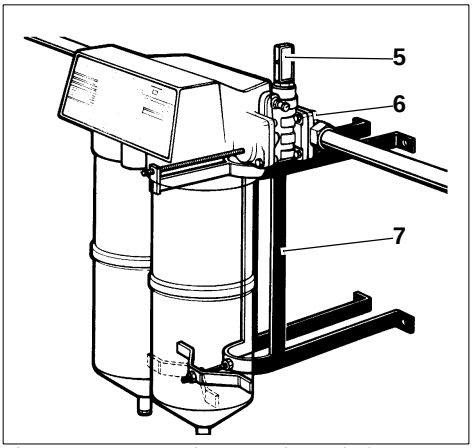


Fig. 2: Transport / Scope of Supply / Storage (similar figure)

5 Bypass valve
JUDO QUICKSET-X, JQX)

6 Rotary installation flange
(JUDO QUICKSET-E, JQE)

7 Wall bracket

– Filter filling made of high-quality ion exchange resin

–Integrated blending device[1])

– Installation and operating instructions (Order No.: 2390087)

Resources (operating materials):
(not included in scope of supply)

– Regenerating salt in tablet form (Order No.: 8839101)

– JUDO hardness tester type JGHP (Order No.: 8742120)

1. With a raw water fraction of more than 40% of the blended water quantity, an external blending device (JAV 1¼" Order No.: 8735202) is required

Note

- **System is preassembled! Resources (operating materials) are not included in the scope of supply!**
- **Please check the delivered items are complete with respect to your order and are intact.**
- **The units are transported and delivered complete and fully assembled.**
- **Transport damage must be reported within 24 hours otherwise, for insurance reasons, loss claims cannot be settled.**

Storage:

Caution

Dry, frostproof storage location. Allowable storage temperature: 4 °C to +40 °C

Note

Other uses are deemed to be abnormal, non-intended uses and are not allowed. JUDO Wasseraufbereitung GmbH is not liable for any losses whatsoever resulting from these.

3. Product Information

3.1 Manufacturer and type

Manufacturer:

JUDO Wasseraufbereitung GmbH
Hohreuschstraße 39-41
D-71364 Winnenden

Phone: 07195/692-0

Fax: 07195/692-177

E-mail: iwt@judo-online.de

www.judo.eu

Type:

JUDOMAT

JM-DX 60 water softener

3.2 Versions

Model	water meter controlled	Duplex system	Order number
JM-DX 60	x	x	8390025

3.3 Dimensions

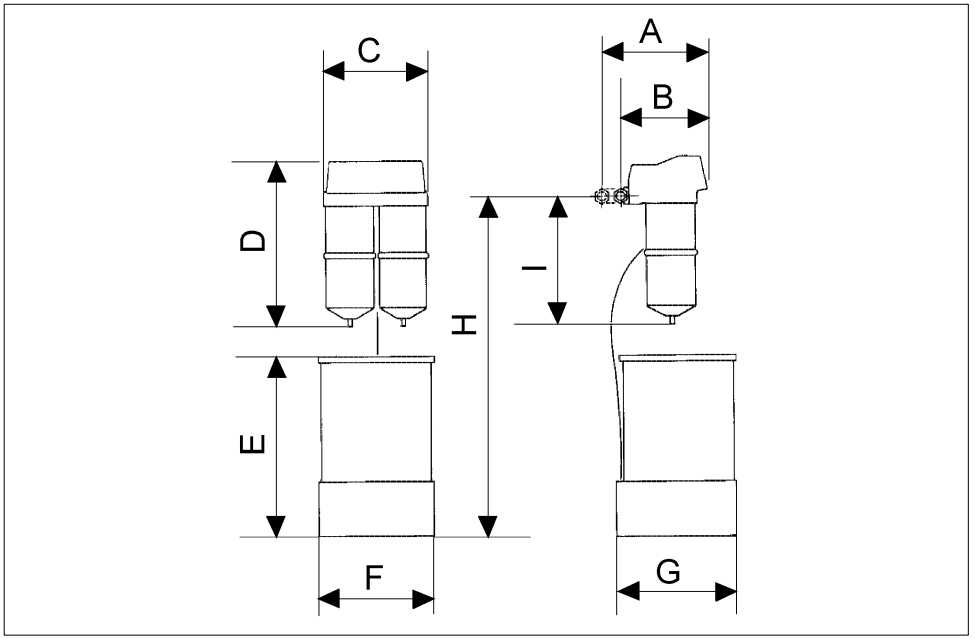


Fig. 3: Dimensions

A	370 mm	Mounting depth with bypass valve
B	300 mm	Mounting depth without bypass valve
C	345 mm	Width of the control unit with ion exchange resin vessels
D	570 mm	Height of the control unit with ion exchange resin vessels
E	510 mm	Height of the salt and brine tank
F	380 mm	Width of the salt and brine tank
G	400 mm	Depth of the salt and brine tank
H	1100 mm	Total height up to middle of pipe
I	445 mm	Height of the control unit with ion exchange resiv vessels to the pipe

3.4 Operating data

Model	JM-DX 60
Flow rate m³/h[1] with residual hardness	
< 0,1 °dH	0,60 m³/h
< 0,5 °dH	0,65 m³/h
< 2,0 °dH	0,70 m³/h
Short-term peak flow	1,20 m³/h
Operating pressure[2]	3-7 bar
Pressure loss (at maximum nominal flow rate)	0,2 bar
Maximum water temperature	30 °C
Maximum ambient temperature	30 °C
Pipe connection	1 inch
Maximum salt reserve supply	40 kg
Salt consumption[1)] for 1 m³ softened water	1,1 kg
Flushing water[1)] for 1 m³ softened water	70 Liter
Electrical connection	230 V/50 Hz
Power consumption	10 W
Switching voltage, floating (fault indicator) maximum	max. 24 V
Contact rating, maximum	max. 1 A
Operating weight, complete	80 kg
Dispatch weight, complete	26 kg

1. Nominal conditions
   20° dH raw water hardness, <0.1 °dh residual hardness and 3 bar mains pressure. If the raw water hardness is different, please refer to Figures 3 - 5 for the flow rate, the pressure loss as well as the salt and flushing water consumption.

2. The optimum operating pressure for the water softener is approximately 3 - 5 bar. This is the pressure at which it operates most economically. We therefore recommend the installation of a pressure reducer if pressures exceed 6 bar.
   The JUDO domestic water unit with integrated pressure reducer is the optimum solution for this.

Conversion:

°dH = total alkaline earths (mmol/l) x 5.6

3.4.1 Diagrams

Salt consumption and flushing water quantity based on 1 m³ softened water depending on the raw water hardness < 0,10 °dH.

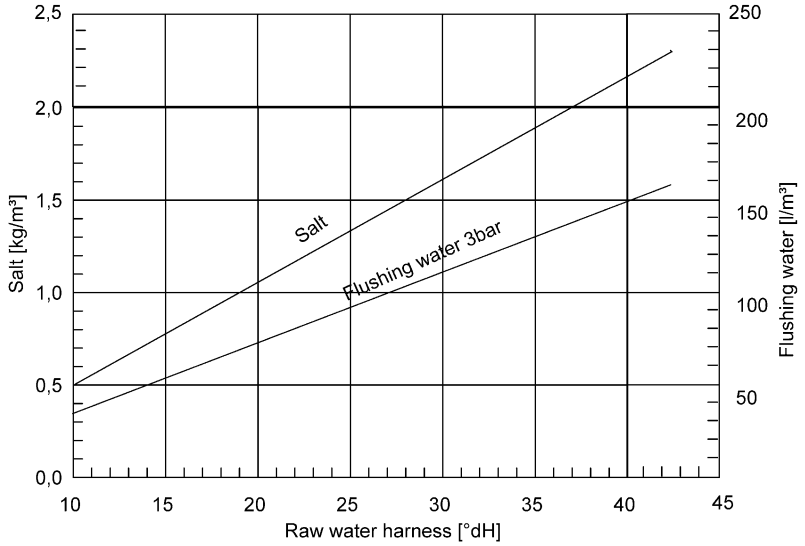


Fig. 4: Salt consumption and flushing water quantity

Pressure loss with a residual hardness < 0.10 °dH (closed blending).

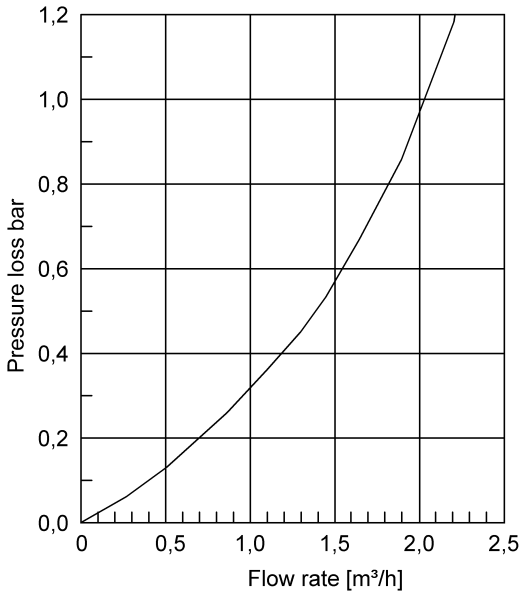


Fig. 5: Pressure loss

Maximum possible continuous withdrawal depending on the raw water hardness with a mixed water hardness of < 0.1 °dH and a flow pressure of 3 to 5 bar.

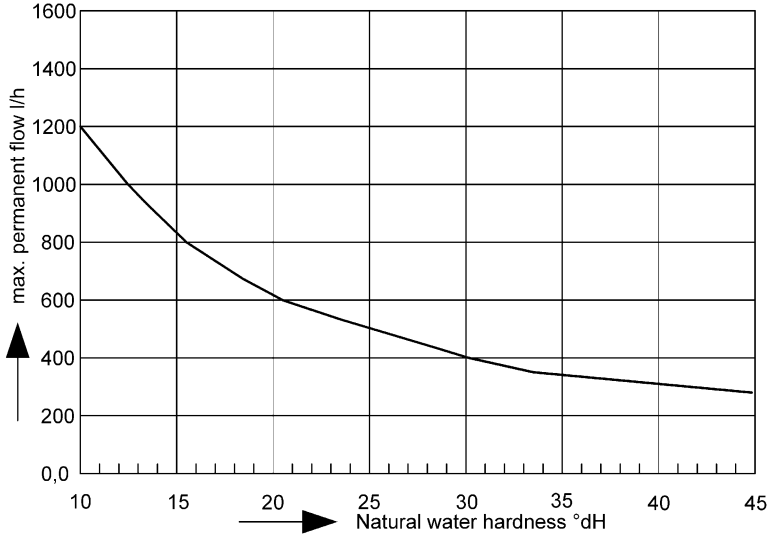


Fig. 6: Continuous withdrawal

3.5 Field of application

Natural water contains different quantities of lime scale forming constituents. Softeners are used wherever the water hardness per se or the limescale deposits caused by it is a problem and softened or partly softened water is required. E.g. in boiler water treatment, cooling water treatment, water treatment for air conditioning systems and for producing process water as well as in many other applications.

3.6 Function

The water softener functions according to the ion exchange principle. Calcium and magnesium ions dissolved in the water as lime scale forming constituents are replaced by sodium ions. The total salt content does not change.

The water softener consists of two pressure-resistant filter vessels which contain the cation exchange resin, the salt dissolving and brine storage tank, as well as the control head with quantity-dependent electronics and contact water meter.

One of the two filter cases is normally in the operational position.

The ion exchange resin can soften a specific quantity of water only, depending on the total hardness.

The time at which the filter case in the operational position is exhausted is registered by the adjustable water meter. Regeneration is automatically initiated after switching to the reserve resin vessel (duplex system). Soft water is therefore continuously available.

The regeneration is carried out by adding a concentrated brine (sodium chloride) solution. This causes the calcium and magnesium ions deposited on the resin to be displaced by sodium ions and then removed with the flushing water.

The system then achieves its full capacity again.

The regeneration is automatically carried out via 13 control and 4 main valves. The regeneration program is permanently set and does not have to be reprogrammed after a

power failure, as is usually necessary in some other systems.

4. Installation

Caution

If major damage could be caused at the installation site, e.g. due to a leak in the unit or inlet pipe, it is necessary to ensure the water is shut off upstream of the system while personnel are absent.

4.1 Location requirements

– The water softener must be installed in a dry and frostproof place. A wastewater connection in accordance with DIN 1988 (e.g. floor drain) must be available to remove the regeneration flushing water. There must be an electrical connection (230 V/50 Hz) in the immediate vicinity of the water softener. The electrical connection must be installed by a qualified electrician in compliance with the local VDE or EVU (electricity utility company) regulations. The installation height depends on the cable routing.

Minimum installation height from the floor to the rotary flange: 50 cm.

If the salt container is to be positioned directly below the filter case: 110 cm.

An operating space of around 30 cm is to be maintained above the water softener for servicing/maintenance.

4.2 Water quality requirements

The water to be softened must be clear, free of solid contaminations as well as iron and manganese free.

4.3 Installation instructions

–The water softener can be installed in horizontal or vertical pipes.

–It may not be installed in a suction pipe.

–Take into account the give space requirement for easy operation and maintenance.

–The given operating data must be adhered to, otherwise a hardness breakthrough can occur (see "Operating Data" chapter).

–Install salt dissolving and storage tanks horizontally.

–Install water softener free of mechanical stresses.

–The hoses for the regeneration flushing water and the safety overflow must both be laid free of kinks up to the wastewater connection (sewer). Hoses require free discharge and may not be reduced.

–The maximum continuous withdrawal is to be set downstream of the softener depending on the raw water hardness (e.g. by means of flow reducing valve and flowmeter) (see "Diagrams" chapter).

–Note and comply with DIN 1988. (in particular regarding annual maintenance/ service)

–If the softener is connected to the public drinking water network, it may only be installed upstream of the water meter with the consent of the local water supply company.

–Technical information, local installation regulations and general guidelines (e.g. EVU, VDE, WVU, DIN, DVGW, ÖVGW, SVGW) are to be noted and followed.

–According to DIN EN 1717 a type BA pipe disconnector must be installed.

Solutions to problems and other installation options can be clarified by JUDO's technical advisers.

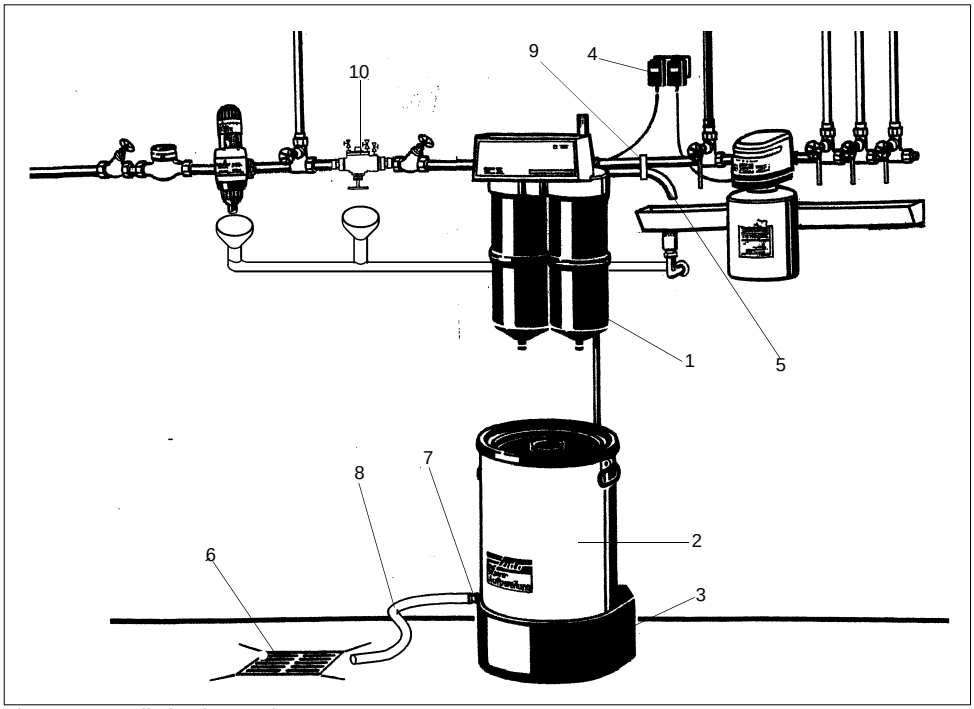


Fig. 7: Installation instructions

1 resin vessels
2 Salt storage container
3 Brine tank
4 Power supply unit
5 Flushing water hose
6 Floor drain (sewer)
7 Safety overflow
8 Safety overflow hose
9 Adhesive tape
10 pipe disconnector

Plastic pipes or other corrosion resistant pipes should be laid in cases where softened water (residual hardness < 0.1 °dH) flows through pipes. Zinced and copper pipes can be used for partial softening (approximately 8 °dH), however it is advisable to install a metering pump in the mixed water pipe downstream of the softener, which constantly adds the appropriate proprietary chemicals for stabilisation of the residual hardness and corrosion protection.

4.4 Connection to the water supply

The softener is connected to the water network using the QUICKSET-E (JQE) rotary installation flange and the QUICKSET- X (JQX) bypass valve. The rotary installation flange must be installed first.

Rotary installation flange:

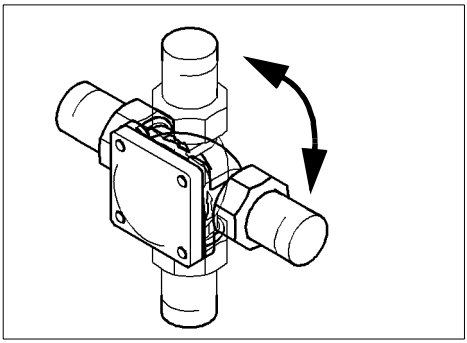


Fig. 8: Rotary installation flange JQE

This consists of the rotary flange, ring seal and access cover. The rotary flange, suitable for both horizontal and vertical pipes, must be installed in the direction of flow. This is marked by a cast-in arrow. The flange surface or access cover of the rotary flange must be parallel to the wall. The pipe can be tested hydraulically for leaks.

Bypass valve:

By installing the bypass valve (JQX) between the rotary installation flange and the water softener it is not necessary to provide a bypass pipe.

The bypass valve flange, marked with the cast-in letter "R" (pipe), is screwed onto the rotary valve flange. The water softener is installed at the flange marked with the cast-in letter "G" (unit). The handwheel of the bypass valve can be installed pointing upwards or to the side, whichever is preferred. It should be installed so that the handwheel is easy to access under the local conditions.

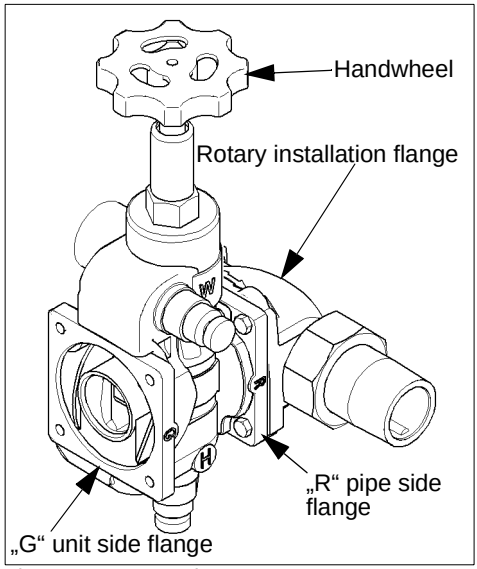


Fig. 9: Bypass valve JQX

4.5 Final assembly with wall bracket

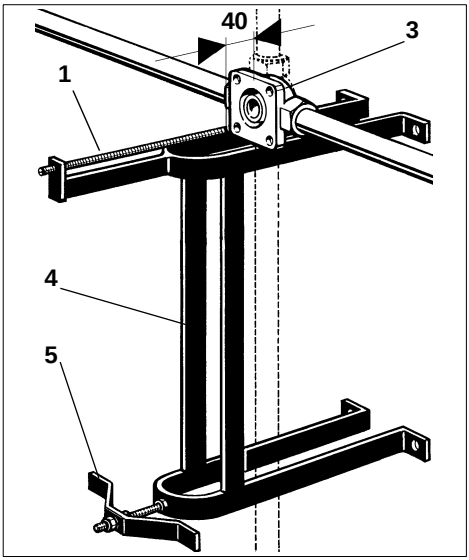


Fig. 10: Wall bracket without bypass valve

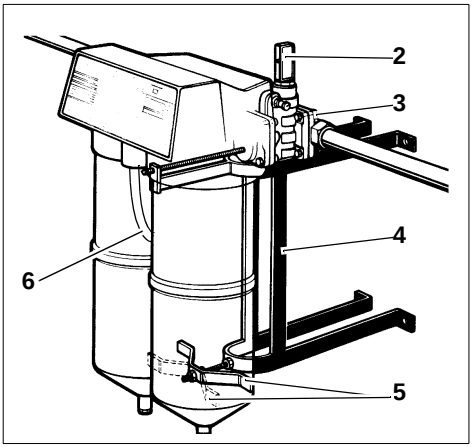


Fig. 11: Transport / Scope of Supply / Storage (similar figure)

1 Setting screw

2 Bypass valve

3 Rotary installation flange

4 Wall bracket

5 Saddle for supporting the filter case

6 Flushing water hose

– The wall bracket (4) must be installed directly in the middle under the rotary installation flange (3) and bypass valve (2) so that they are supported by the wall bracket. The complete weight of the water softener is then supported by the wall bracket.

– Unscrew the top setting screw (1) in the wall bracket until the distance between the screw and bypass valve flange is approximately 4 cm.

– Fasten the water softener onto the bypass valve with the seal inserted between.

– Tighten the (4) screws.

– Screw on the saddle (5) of the wall bracket so that the tanks are lightly supported.

– Screw back the upper setting screw until it lies against the housing without exerting pressure.

4.6 Wastewater connection and safety overflow hose

The hoses for the regeneration wastewater and the safety overflow must both be laid free of kinks to the wastewater sewer. Ensure free discharge above the wastewater channel or floor drain.

The wastewater hose with 10 mm outer diameter may not be laid higher than the control head. The maximum hose length may not exceed 3 m. Use the enclosed adhesive tape to securely fix the loose end of the hose to the pipe or similar. The safety overflow hose with 19 mm outer diameter must be laid up to the wastewater sewer with constant (falling) gradient and free of kinks.

If the connection for the wastewater sewer is positioned higher, the salt tank can be installed correspondingly higher with the help of a wall bracket (see "Accessories" chapter).

Caution

The wastewater connection may not be located above the water softener.

4.7 Fault indicator

The softener is equipped with a floating relay for forwarding a fault signal. It is therefore possible to connect an external fault indicator (e.g. warning light) to the softener.

The fault signal is deleted by unplugging and plugging in again the power supply unit.

Sketch of electronic circuit:

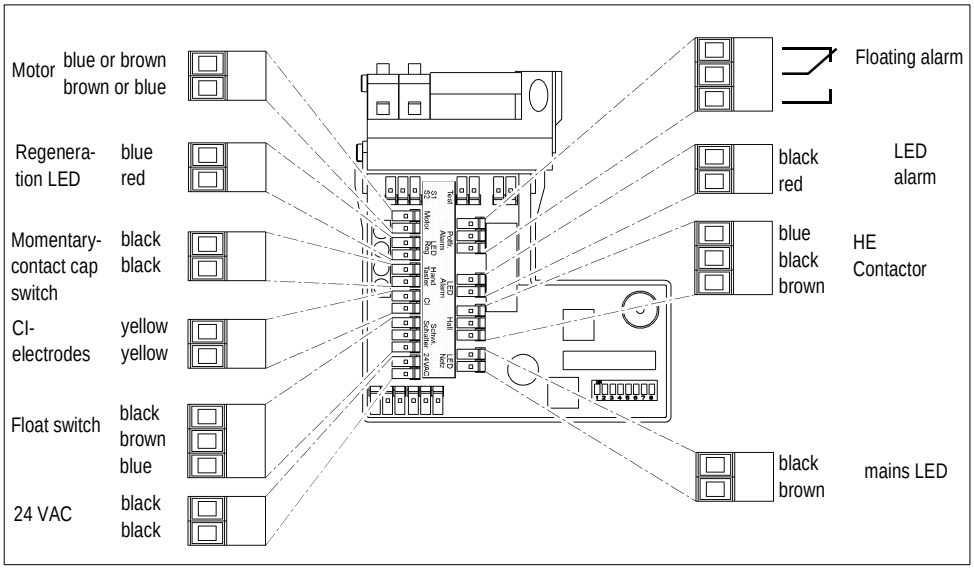


Fig. 12: Sketch of electronic circuit:

Caution

For safety reasons an external voltage of 24 V maximum only may be connected to the fault indicator.

The maximum contact rating is 1 A.

5. Commissioning

The putting into operation should be carried out by JUDO's customer service or an authorised specialist company only. The data set on putting into operation must be entered on the handover confirmation.

5.1 Salt storage container

Regeneration salt in tablet form only should be used (not block salt). The quality of the salt must conform to DIN 19604. In our experience, if other salts are used the brine tank must be cleaned more frequently and the suction control with intake screen must be replaced.

– Pour approximately 10 litre water into the salt storage container, however no higher than up to the perforated base.

– Add regeneration salt, no higher than 2 cm below the edge of the salt storage container.

5.2 Setting the raw water hardness

– Undo the four retaining screws of the cover and remove the rating plate (front plate) from the front. Then remove the cover.

– Enter the installation date on the label provided on the bottom inside of the cover, behind the rating plate.

– Set the adjusting lever for the raw water hardness on the scale to the raw water hardness that exists on site where the softener is installed (if the hardness fluctuates, set to the higher value).

Example:

Setting:

Existing raw water hardness: 20 °dH

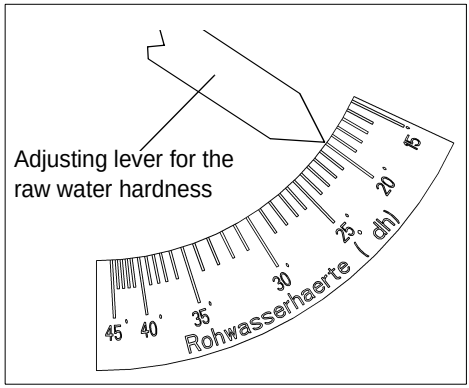


Fig. 13: Setting the raw water hardness

– If a residual hardness other than < 0.5 ° dH is required for closed circuit blending it is necessary to correct the raw water hardness to be set at the scale

Example:

Measured raw water hardness: 30 °dH

Required residual hardness: < 0.1 °dH

Setting:

Set the adjusting lever for the raw water hardness to 33 °dH.

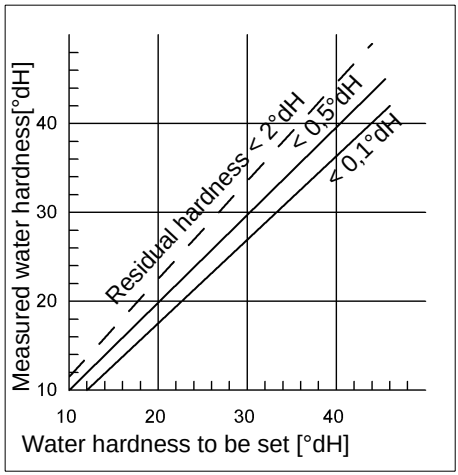


Fig. 14: Setting the raw water hardness

5.3 Initial Commissioning

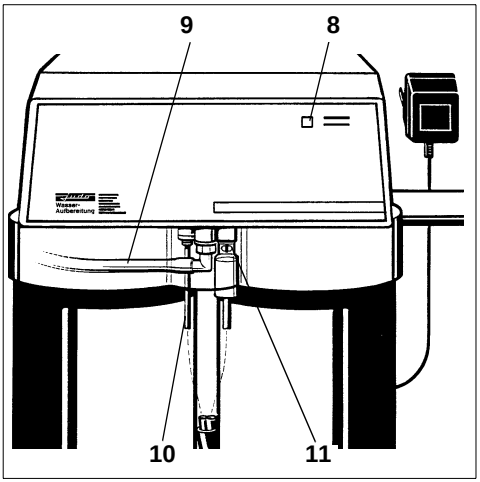


Fig. 15: Front view

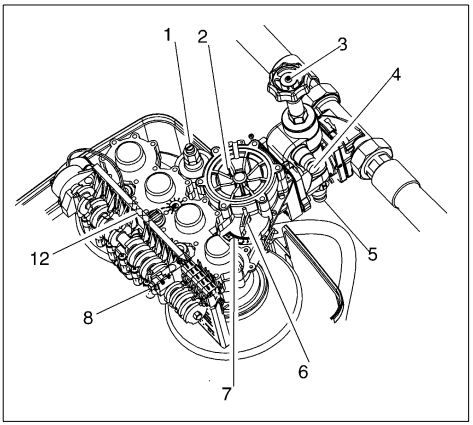


Fig. 16: View of control (similar illustration)

1 Blending (red adjusting screw)
2 Water meter
3 Bypass valve
4 Sampling valve (W) for checking the mixed water hardness
5 Sampling valve (H) for checking the raw water hardness
6 Adjusting lever for raw water hardness
7 Raw water hardness scale
8 Momentary-contact cap switch for manual release
9 Hose to the sewer
10 Filling hose to the brine tank
11 Suction control with intake hose from the brine tank
12 Unit No.

Caution

For safety reasons the water softener must be vented immediately after connecting to the water network (bypass valve in operational position). This occurs automatically during the first regeneration.

– Plug the power supply unit into the socket outlet.

– Open bypass valve.

– Initiate regeneration manually by pressing the momentary-contact cap switch. The system is checked to ensure it is working properly, as described in the "Checking the Function" chapter. The water softener is then ready for use.

– Turn the adjusting screw for the blending (addition of hard water), or if necessary close, so that the water downstream of the water softener has the required hardness. The water hardness is measured using a hardness tester (JGHP Product No.: 8742120).

– Turn in clockwise direction (screw in) - softer water

– Turn in anti-clockwise direction (screw out) - harder mixed water

– With an average raw water hardness, 1 rotation is roughly equal to changing the mixed water hardness by 1°. The sample water for measuring and setting the water hardness can be drawn off at tap "W" of the bypass valve or at a water tap point downstream of the water softener. The sample may not be taken from the flowing water until it is definite that the reset mixed water has passed through the possibly long pipe upstream of the water softener and up to the extraction point. For correct comparison of the measured values the samples should be taken from water with a normal flow rate (1 tapping point completely opened)

without water being used unnoticed at the same time elsewhere.

– After the required mixed water hardness has been set, reattach the rating plate (front plate) and the cover.

5.4 Checking the sodium content

It is only necessary to check the sodium level if the softener has been installed in a drinking water pipe. The mixed water hardness must normally be set to 8 °dH.

According to the German Drinking Water Regulations dated 1.1.2003, the limit value for sodium in drinking water is 200 mg/l. Mineral water and tablewater are not affected by this. Their limit values are significantly higher, in some cases over 1000 mg sodium per litre.

Calculating the sodium content

	°dH	Raw water hardness (ask the local waterworks or use hardness tester to measure)
-	°dH	Mixed water hardness (measured value)
=	°dH	Water hardness
x 8,2 mg		Na+/l x °dH Na ion exchange value
=	mg/l	Increase in sodium content due to softening
+	mg/l	sodium already existing in raw water (ask waterworks)
=	mg/l	Total sodium content in the mixed water

Tab. 1: Calculating the sodium content

Example of sodium content calculation

20	°dH	Raw water hardness
- 8	°dH	Mixed water hardness
= 12	°dH	Water hardness
x	8,2	
= 98	mg/l	due to softening
+ 10	mg/l	from waterworks
= 108	mg/l	total

If the calculated total sodium content exceeds the value of 200 mg/l allowed by the drinking water regulations it can be corrected by corresponding increase in the mixed water hardness. The sodium content must then be recalculated.

6. Operation

6.1 Salt reserve supply

As the JUDOMAT operates automatically, salt only has to be added from time to time. If the salt level has fallen to around the level of the company symbol on the salt storage container a whole sack of salt in tablet form can be added.

6.2 Checking the mixed water hardness

The mixed water or soft water quality should be checked at certain intervals.

Hardness measuring equipment
JGHP 0-30 °dH,

Order No.8742120.

6.3 Cleaning

The outer surfaces of the water softener can be cleaned using a normal household soap-based cleaner (soft soap). Solvents, cleaning agents containing alcohol and varnish impair the durability of the plastic parts (risk of fracture) and therefore have to be kept away from the softener.

Caution

The water supply must be interrupted, or the bypass valve set to bypass, before removing the suction control sleeve!

To easily clean the salt storage and brine tank from time to time, disconnect them. The salt storage container can be lifted off the brine tank so that the brine tank is also easy to access. It is advisable to put the cover of the salt storage container on the floor upside down and to place the salt storage container (after the salt brine has dripped away) with its moist, perforated underside on the cover on the floor. Otherwise dirt sticking to the underside would get into the brine tank when the container was placed back on the brine tank.

6.4 Procedure in case of lengthy non-use

Manual regeneration is to be carried out if no water is drawn from the water softener for a lengthy time (approximately 2 weeks). Failure to do so can cause damage, leaks or malfunctions in the water softener.

7. Servicing

7.1 Checking the function

A precise check of the system's function can be carried out as follows:

– If there is currently no regeneration underway it can be initiated manually. This is done by pressing the momentary-contact cap switch.

– First the container in maintenance position is flushed from the bottom upwards. If the flushing water is collected in buckets with a litre scale at the waste water hose, it is possible to check whether approximately 20 litre flushing water has passed through the system. The flushing time lasts approximately 4 - 10 minutes, depending on the water pressure.

Caution

The flushing water (wastewater) is used to remove the surplus regeneration salt from the filter case. It may not be used to water plants or similar purposes!

– At the same time, water is added to the brine tank. By lifting off the salt storage container, it is possible to observe the water flowing into the middle of the brine tank. Slowly place the salt storage container onto the brine tank to avoid slop over.

– Then briefly flush from the top down (initial filtrate). The quantity of water discharged from the wastewater hose is approximately 3 litre.

– Both tanks are in operation in parallel for a short time. Then close the main valves of the exhausted tank.

– The salting begins after a short switch-over time. This process takes between 11 and 30 minutes depending on the water pressure. The quantity of brine discharged in the wastewater hose is approximately 4 to 7 litre. It is possible to check whether brine is removed at the suction control. If the suction indicator pin is motionless and at the bottom there is no suction action. If it is above the flattened underpressure range, brine is being removed. The suction control sleeve with intake screen should be replaced during the service following approximately 1000 regenerations.

– The manual release button must be pressed again if the other tank is to be checked in the same way. The same procedure as described above is then repeated, however, on the other side of the softener.

7.2 Service / repair

Electrical circuit indicator lights

The four indicator lights at the edge of the electrical circuit indicate the operating state of the water softener..

Farbe (von oben)	Funktion
green	For customer service only
yellow	
red	Fault
orange	Water meter pulses

8. Maintenance

According to DIN 1988 Part 8, each technical system requires a regular service. This service should be carried out by the JUDO customer service or by an authorised specialist company, which also replaces the wearing parts.

We recommend the conclusion of a customer service agreement so that the softener is regularly checked to ensure it is functioning properly.

Fig. 17: Service sticker

The service sticker attached to the unit should be marked by the fitter after installing the unit and indicates the next date for the service.

9. Faults

The occurrence of a fault in the unit can be signalled by the fault indicator (if it is connected).

This can also occur after a power failure. In this case, disconnect the mains plug for approximately 5 seconds, then plug it in again. Only if the fault is triggered again after approximately 4 hours does a fault actually exist and the customer service must be notified.

Help in case of faults:

If the fault cannot be corrected using the information provided you must contact the **JUDO customer service** or an authorised specialist company.

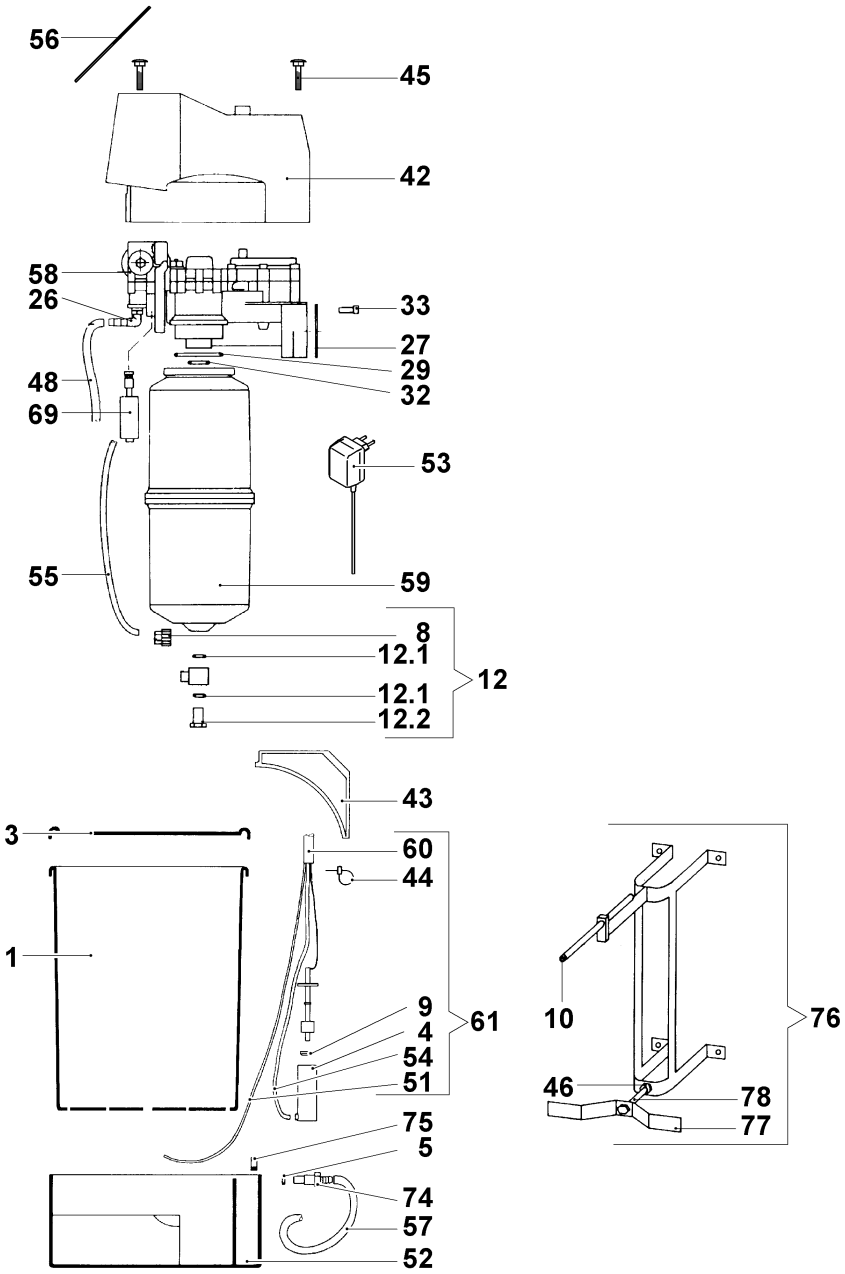
Please always quote the unit number or check number imprinted above the white toggle.

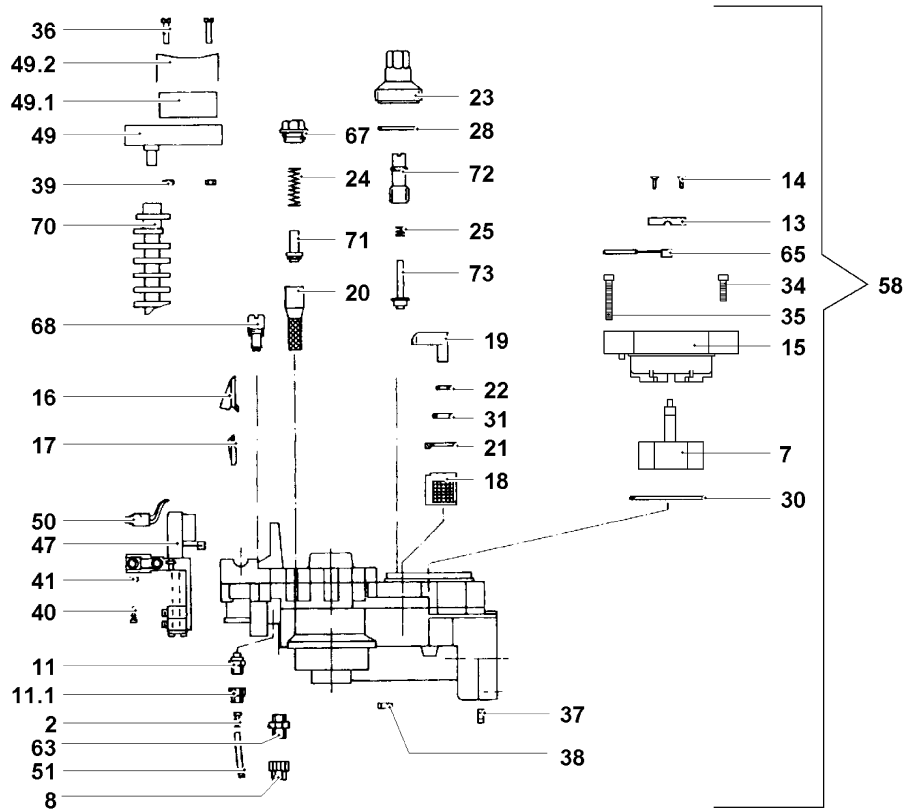
10. Shutdown

If the water softener is taken out of service it is necessary to perform a manual regeneration and then turn the handwheel to "Bypass". The sampling valves must then be opened at the bypass valve until the pressure in the softener has dissipated. Re-close the sampling valves. If the water supply to the water softener is interrupted (main tap closed or bypass valve open), the power supply unit must be unplugged at the socket outlet at the same time and, if available, from the metering pump too.

If a dismantled water softener is flange-mounted and started up again it is always necessary to initiate regeneration manually kt werden.

11. JM-DX 60 Spare Parts





Item	Name (recommended average replacement interval for wearing part [*])	Piece(s)	Order No.
1	Salt container (from 08/1994)	1	2200313
2	Filling nozzle **	1	1120017
3	Salt container cover (from 08/1994)	1	1110072
4	Protective tube **	1	1120084
5	Flat gasket	1	1633225
7	Impeller	1	2201002
8	Clamp-type union nut D6	4	1140046
9	Float valve seal *	1	1200011
10	Setting screw M8x135	1	1633230
11	Hose connection ø 4M 5	1	1440018
11.1	Clamp-type union nut D4	1	1140011
12	Hose connection, bottom	2	2200193
12.1	O-ring 14.5x2.5	4	1200231

Item	Name (recommended average replacement interval for wearing part [*])	Piece(s)	Order No.
12.2	Banjo bolt	2	1650217
13	Strain relief clip	1	1609114
14	Self-tapping screw B 2.9x13	2	1609172
15	WZ cover *****	1	2200816
16	Top part of toggle ****	13	1633010
17	Bottom part of toggle ****	13	1633011
18	Rotary valve	1	1633012
19	Adjusting lever ****	1	1633013
20	RV strainer *	1	1633015
21	Spacer disc	1	1633021
22	Spacer ring	1	1633022
23	Blending valve sleeve ***	1	1633030
24	RV spring	1	1633038
25	VSV spring	1	1633040
26	Threaded elbow socket R ¼"	1	1633092
27	Profile flange seal *	1	1200218
28	O-ring 32x1.5 ***	1	1633114
29	O-ring 61x4	2	1633115
30	O-ring 60x3 ***	1	1200312
31	O-ring 11x3	1	1633117
32	O-ring 27x3.5	2	1200301
33	Cheese head screw M6x25	4	1633140
34	Cheese head screw M5x35	5	1633141
35	Cheese head screw M5x70	1	1633142
36	Cheese head screw M4x20	2	1633144
37	Hexagon nut M6	4	1633145
38	Hexagon nut M5	1	1633147
39	Hexagon nut M4	2	1609370
40	Cheese head screw M2x12	1	1633151
41	Hexagon nut M2	1	1633152
42	Cover, white	1	1633202
43	Brine chamber cover, right-hand side	1	1120080
43	Brine chamber cover, left-hand side	1	1633212
44	Cable tie	1	1633220
45	Notched screw 2.9x25	4	1633345
46	Hexagon nut M8	3	1621107
47	TCRH electric block	1	2200930

Item	Name (recommended average replacement interval for wearing part [*])	Piece(s)	Order No.
48	Wastewater hose ø 11/8x3,000	1	2633112
49	Gear unit	1	1633086
49.1	Motor 24 V/50 Hz	1	2200814
49.2	Snap-on clip	1	1500064
50	Momentary-contact cap switch for manual release	1	2200848
51	Filling hose	1	2200162
52	Brine tank	1	1633211
53	Power supply unit 24 V AC	1	2200815
54	Suction hose ***	1	2200163
55	Flushing hose	2	2200122
56	Rating plate	1	2390039
57	Safety overflow hose ø19/13x1,850	1	2633342
58	Control head, complete	1	2200899
59	Filter case, complete	2	2200117
60	Sleeve hose, complete	1	2200967
61	Float switch, complete ****	1	2200839
63	Flushing hose connection ø 6/4 R W *****	2	2200151
65	HE contactor	1	2200715
67	RV plug, complete **	1	2200109
68	Injector insert, yellow with seal ***	1	2200126
69	Suction control sleeve, complete *	1	2200088
70	Camshaft	1	2633008
71	R valve, complete *	1	2633031
72	Blending valve screw, complete	1	2200196
73	Blending valve plug	1	2633033
74	Overflow nipple R 3/8	1	1633213
75	Overflow nut R 3/8	1	1633214
76	Wall bracket, complete	1	2633206
77	Limit stop	1	2633207
78	Hexagon screw M8x90	1	1633232

Replacement interval

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

Extended warranty period if a service compact is signed!

12. Service report Sheet

Date installed:				System pressure:		
Date:						
Raw water hardness Measured [°d]:						
Set [°d]:						
Mixed water hardness measured [°d]:						
External water meter [m³]:						
Backwashed quantity (approx 10 litres)						
Backwashing duration (3 to 7 minutes)						
Initial filtrate (2.5 to 4 litres)						
Suction period (30 to 50 minutes)						
Wastewater produced (5 to 9 litres)						
Salt added						

Notice:

13. Customer Support

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Installed by:

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