COLLECTIVE SERIES AUTOMATIC WATER SOFTENER

PERMO ALCYO 7000

INSTALLATION, COMMISSIONING AND MAINTENANCE MANUAL

PERMO ALCYO 7000 Technical Manual
Code **P0011157 revision 5** dated 2012/12/10

AGENCY'S STAMP

VERY IMPORTANT:

Prior to any connection, water supply and utilization, please carefully read this manual. The non-compliance wit these prescriptions will void the **PERMO** warranty.
In no case shall the appliance be connected to a lead pipe.
We reserve the right to incorporate any technical modifications to this manual without notice.
The characteristics contained herein are provided for information only and pictures or drawings are not contractual.

A technical assistant always close to your site

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Dear Customer,

You relied on the **PERMO** brand and you are now the owner of a **PERMO ALCYO 7000** water softener.

This appliance is compliant with the 87/308/CEE Directive.

The EC marking affixed to **PERMO ALCYO 7000** appliances certifies their compliance with the following requirements:

- Directive 2004/108/CEE dated 20/07/2007 dealing with **electromagnetic compatibility**.

- Directive 2006/95/CEE dated 16/01/2007 dealing with **electric equipment designed to be used within some voltage limits.**

The **PERMO ALCYO 7000** water softeners are compliant with Directive 97/23/CEE dated 29/05/97 dealing with pressurized equipment. They meet the requirements of article 3 item 3 (design and manufacturing in accordance with the current state of the art) but do not pertain to categories I to IV and, as such, **they are not concerned by the EC marking related to pressurized equipment**.

We did our best for your satisfaction.

This equipment is user-friendly; nevertheless, we recommend that you carefully read this manual before implementing it.

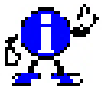
This equipment is warranted as defined on the enclosed certificate. The warranty will be valid only if the warranty certificate is sent back to us.

Remember also that our Customer Service Dept. is at your disposal.

ÉRACLÈS
L'engagement service Permo

Descriptions are written in clear text.

The **WARNING, CAUTION and NOTE** sections have the following meanings:



NOTE

Points out a particular or important item of information.

WARNING

Risk related to the presence of electric current.

CAUTION

Risk of malfunctioning

WARNING

Risk of injury or accident

REMARQUE

Recyclable item

CAUTION: For your safety and that of the appliance, take care to comply with the basic operating precautions and the following instructions:

Please carefully read this manual before using your appliance.

- This manual contains very important notes about your appliance installation, utilization and maintenance procedures.
- Make sure that the appliance and packing were not damaged during transportation.
- Do not use the appliance in case of visible damage and immediately call the vendor.

During installation:

- Electrical connections must be performed in compliance with the data printed on the appliance name plate.
- This appliance is designed to be connected to a cold water inlet.
- This appliance must be installed so that the electric plug remains accessible.
- This appliance must be connected to a water system composed of new pipes.
- The water softener must be connected to the water system by means of hoses.
- Never re-use worn-out pipes.

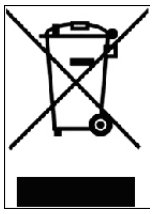
WARNING: Applies to the power supply cord.

For most electric appliances, it is recommended to connect them to a dedicated circuit, i.e. a single connector only supplying the appliance in question and to which no other plug or by-pass circuit is added.

Do not overload wall sockets. Periodically check your appliance power supply cord. If it seems damaged or deteriorated, disconnect it, stop using your appliance and ask an authorized repairer to replace the faulty power supply cord by a new one to be strictly identical to the used item.

RETAIN THESE INSTRUCTIONS

Disposal of your old appliance



1. This symbol, representing a crossed castor-wheeled garbage can, means that the product is covered by the 2002/96/EC European Directive.

2. All electric and electronic components must be disposed of separately in dedicated containers.

3. A disposal performed in compliance with the instructions will help reducing the negative consequences and possible risks for the environment and human health.

INSTALLATION INSTRUCTIONS

CAUTION: Any electrical work required for installing this appliance must be performed by a qualified electrician or a skilful staff.

Any plumbing work required for installing this appliance must be performed by a qualified plumber or a skilful staff.

CABLING

CAUTION: For personal safety's sake, remove the electrical system fuse or release the circuit-breaker before connecting the appliance to the network. Make sure that the wall socket has been cut off.

Do not use extension cables or socket adaptors with this appliance. Electrical and earth connections should be compliant with all national, regional and/or local electrical standards.

This appliance must be supplied under the suitable voltage and frequency as indicated in this manual and on the water softener name plate. It must be connected to a separate circuit correctly earthed and protected by a circuit-breaker or a fuse matching with the installed equipment.

The power supply socket must be accessible and located next to the appliance at about 1.20 meters. In no case should it be located behind the appliance. No other item of equipment should be connected to the same socket using a power bar or any other system.

Hydraulic and electrical connections must be performed in compliance with the state of the art and all standards applicable to the appliance installation room. In particular, should water inlet and outlet pipes be fitted with devices likely to generate surges (electromagnetic valves among others), efficient surge protectors must be installed.

Beside, as any electrical device, the control unit electronics is sensitive to electrical or magnetic interferences. The control unit is normally fitted with filters designed to eliminate usual interferences. However, if power switches, transformers or any other interference emitter are fitted next to the appliance, it will be necessary to make connections with shielded cables and install a suitable anti-spurious device.

Contents

GENERAL

1 - Glossary

Softening process: Water treating process intended for eliminating water hardness (due to the presence of alkaline earth salts, carbonates, sulfates and calcium and magnesium chlorides). The softened water is not scale-forming and easily emulsifies with soap. The softening process consists in making water flow through a cation exchanger (change-over between calcium ions and sodium ions) regenerated with sodium chloride.

Cation: Positively charged ion.

Corrosion: Metal surface etching due to an electrochemical action in an aerated or non aerated medium. A physical action etching may be the cause of erosion or abrasion. Etching of a non metallic material is a degradation.

Cycle: (of an ion exchanger) Water volume produced by an ion exchanger between two regenerations.

Degrees: Concentration unit of chemical substances in aqueous solution. One degree (1°f) equals 0.2 milliequivalent per liter or 10 mg/l $CaCO_3$

Degree of hardness (TH): Water hardness degree expressed in degrees.

Water hardness: Calcium and magnesium contents counteracting foam formation with soap and allowing deposit of insoluble and scale-forming salts (scaling or incrustations).

Soft water: Water defined as being the opposite of either salt water (it is then water with low dissolved minerals content), or hard water (in this case, it is water with low calcium and magnesium content).

Scaling: Formation on vessel or pipe walls of a fur layer (deposit generally hard and adherent, some times porous) mainly composed of salts (carbonates, sulfates, calcium silicates, etc.) originating from hard or calcareous waters.

Milliequivalent per liter (meq/l): Concentration unit of bodies dissolved in an aqueous solution: 1 meq/l corresponds to the concentration of a normal solution diluted one thousand times. 1 meq/l is equivalent to 5 degrees.

Regeneration: Operation performed on a saturated ion-exchanging resin so as to bring it back to its initial state. Regeneration consists in percolating an adequate highly pure (acid, basic or saline) solution over the resin.

The regeneration process is conventionally broken down into various sequences as follows:

* Resin thinning-out or lifting in order to limit load loss increase.

* The regenerating transfer or brine suction makes it possible to bring resin in contact with the regenerating liquid.

* Move or slow rinsing to entirely regenerate the resin volume.

* A fast rinsing makes it possible to drain out the regenerating liquid in excess.

Counter-flow regeneration: Ion exchangers regeneration process consisting in circulating the regenerating solution in the reverse direction (from bottom to top of the resin bed) to that followed by the water under treatment.

Resins: Partially improper term designating granular materials used in ion exchange (cation exchangers, anion exchangers).

Salt: Substance resulting from the action of an acid on a base. Among the salts used in water treatment, one can mention: sodium chloride, sodium silicate, ferric chloride, aluminum sulfate. The salt used for regenerating water softeners is composed of highly pure sodium chloride.

Scale: Deposit generally hard and adherent, sometimes porous, mainly composed of salts (carbonates, sulfates, calcium silicates, etc.) originating from hard or calcareous waters.

TH (hardness degree): See water harness.

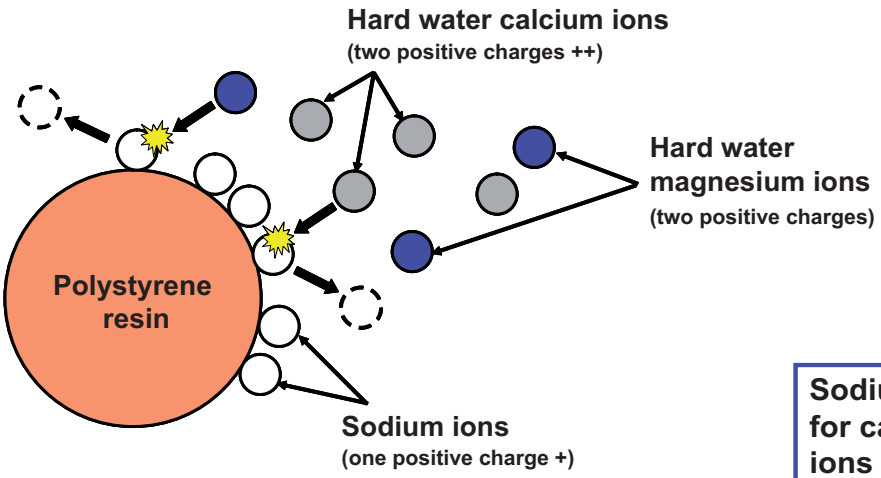
Turbidity: Characteristic of a turbid, non clear water. Turbidity intensity is expressed in putty drops or in Jackson units.

2 - Water softening principle

The softening process is the technique used to eliminate the TH from water (due to the presence of alkaline-earth salts : carbonates, sulfates and calcium and magnesium chlorides). The softened water is not scale-forming and easily emulsifies with soap. The water softener is a device which uses an ion exchanging resin and the principle consists in changing over water hardness calcium and magnesium ions with sodium ions bound to the water softener resin.

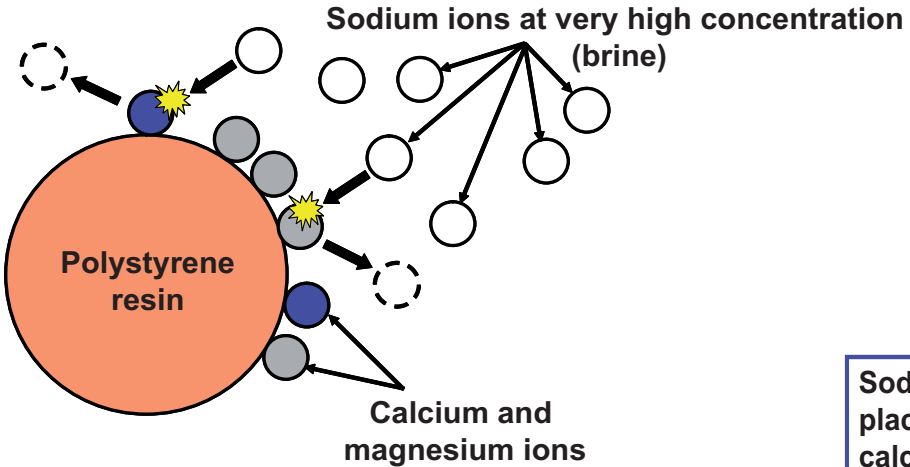
When all sodium ions have been exchanged, the resin is said to be saturated and it must then be regenerated. Resin regeneration is then performed by means of brine (saturated NaCl solution or sodium chloride). Thus, sodium ions are reintroduced into the resins, while calcium and magnesium ions are drained out to the sewer system in the form of chlorides.

2.1 Ion exchange



Sodium ions are substituted for calcium and magnesium ions on the resin. The former are released into water, which becomes soft.

2.2 Regeneration



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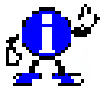
Sodium ions go back to their place on the resin. The expulsed calcium and magnesium ions return to water which is drained out to the sewer system.

3 - Packaging

The PERMO ALCYO 7000 range devices are delivered in 2 parcels:

- 1 parcel containing the water softener and the control unit,
- 1 parcel containing the salt tray.



Note: Depending on the model, the water softener is also delivered with a pallet of flint and ion exchanging resin bags in accordance with the quantities shown for 1 appliance in Table I below..

Type of appliance	Nb 25-kg flint bags	Nb 25-l. resin bags
ALCYO 7050	Delivered preloaded	
ALCYO 7075	Delivered preloaded	
ALCYO 7100	Delivered preloaded	
ALCYO 7125	Delivered preloaded	
ALCYO 7150	1	6
ALCYO 7200	2	8
ALCYO 7300	3	12

Table n° I : «Water softeners load »

IMPORTANT: It is important to store the received equipment in a clean and dry room at an ambient temperature ranging within +5°C - +40°C failing which ion exchanging resins and some appliance components might be deteriorated.

Non-compliance with these requirements may void the warranty of the deteriorated items

4 - Technical description

PERMO ALCYO 7000 is a range of automatic water softeners which can operate either in the chronometric or in the volumetric mode (with an optional impulsing meter).

They are equipped with cationic ion exchange resins operating in sodium cycle in compliancethe regulations in force.

All material used are the food quality grade.

In order to optimize appliance efficiency, ion exchange resins are regenerated in accordance with the backwashing principle (regeneration from bottom to top).

The electronic unit provides for water softener self-monitoring and controlling the various regeneration steps. Owing to built-in microprocessors, it is programmable via the front panel 5-key keypad. It controls the solenoid valves (double isolation) using a very low voltage safety current (24 V AC).

CHARACTERISTICS

5 - Technical characteristics

ALCYO 7000 characteristics Automatic valve (5-stroke cycle)	7050	7075	7100	7125	7150	7200	7300
Resin volume *liters*	50	75	100	125	150	200	300
Exchange capability *m3*	275	410	550	685	825	1100	1650
Salt/regeneration consumption *kg*	7	9	13	14	18	30	40
Salt tray autonomy (Number of regenerations)	19	13	8	6	11	8	7
Average water consumption par regeneration * *liters*	400	600	800	1000	1200	1600	2400
First salt tray loading *kg*	200	200	200	200	300	300	400
Floor load *kg*	450	500	500	550	850	950	1100
Shipment weight *kg*	150	180	200	230	275	350	450
Bleed-off flow-rate at TH < 0.2°F *m^3/h*	7	7	7	7	9,5	9	7

Table n° II : «Technical characteristics»

* Depending on settings and operating requirements related to the water under treatment and the operating conditions.

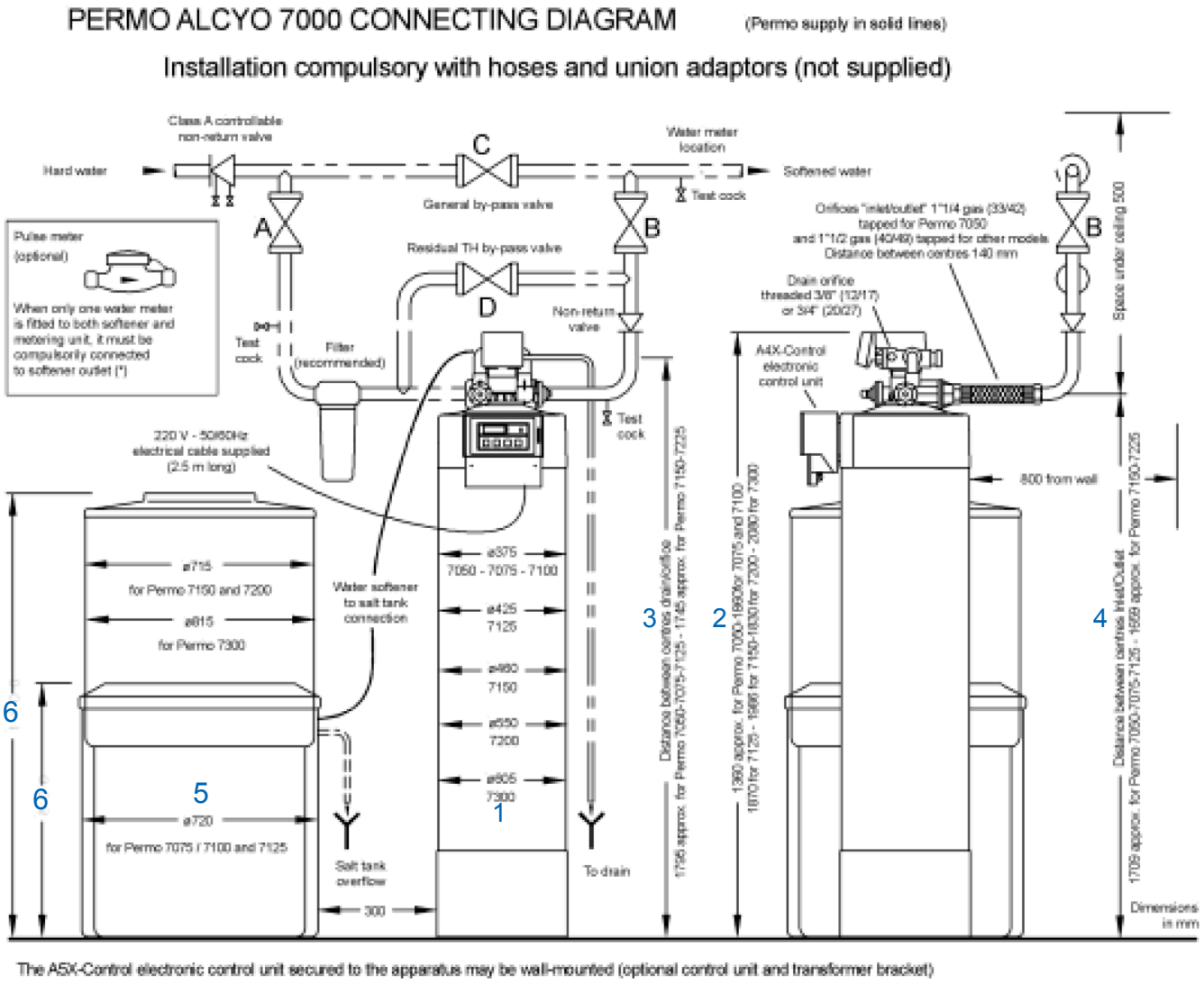
6 - Technical operating requirements

Power supply voltage		Single-phase 230 V 50 Hz/60 Hz
Minimum voltage		200 volts
Maximum voltage		250 volts
Electrical consumption	In service	10 watts
	In regeneration	50 watts
Minimum operating pressure (in dynamic mode)		1,5 bars
Maximum permissible pressure (in static mode)		7 bars
Minimum flow-rate for a good regeneration		0,9 m^3/h
Water temperature	Minimum	2°C
	maximum	35°C
Room temperature	Minimum	5°C
	maximum	40°C

Table n° III : «Technical operating requirements»

ASSEMBLY INSTALLATION

7 - Dimensions



The A5X-Control electronic control unit secured to the apparatus may be wall-mounted (optional control unit and transformer bracket)

Figure I: «Permo Alcyo 7000 connecting diagram»

Type of appliance	Rep	7050	7075	7100	7125	7150	7200	7300
Diameter softener	1	375	375	375	425	460	555	615
Total height softener	2	1330	1830	1830	1830	1910	1800	2040
Height to th drain	3	1245	1745	1745	1745	1825	1715	1955
Axis input / output	4	1165	1665	1665	1665	1745	1635	1875
Diameter salt tank	5	720	720	720	720	715	715	815
Height salt tank	6	800	800	800	800	1435	1435	1435

COMPULSORY

All PERMO ALCYO 7000 water softeners must be connected using 1»1/4 hoses provided for Model 7050 and 1»1/2 hoses provided for the other models.

8 - Assembly and connections

8.1. Location

The PERMO ALCYO 7000 water softener shall be installed in an accessible, clean and dry, well ventilated room. This room shall be frost-proof and the atmosphere shall not contain any chemical vapors potentially harmful to operation.

The fitter shall be responsible for checking before installation that dimensional requirements (see dimensional diagram), technical characteristics (in accordance with table below) and operating technical requirements (in accordance with table on next page) are met.

The PERMO ALCYO 7000 water softener shall be compulsorily connected with hoses (Supply).

The room shall be equipped with a suitably sized regeneration water sewer discharge, see paragraph «Discharging regeneration waters». The water softener accommodating floor shall be thoroughly level and able to bear the installation load in working order (see floor load in the technical characteristics table). Provide for a sufficient room height for performing the possible maintenance operations (See Connecting diagram on previous page).

The salt tray shall be located as near as possible to the water softener, preferably on the same level plane (maximum permissible level offset within 0.5 - 1 meter according to water under treatment pressure) - Maximum acceptable distance on the same plane of about 4 meters according to water under treatment pressure. The salt tray shall be easily accessible for facilitating regeneration salt reloading. It is compulsory to provide for a possible water gravity outflow of salt tray overflow (in case of installation malfunctioning).

TYPICAL INSTALLATION DIAGRAMS

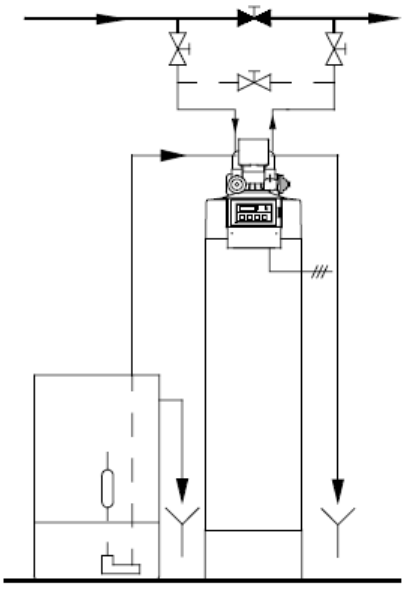


Figure II: iSimplex water softener with time-based regenerationî

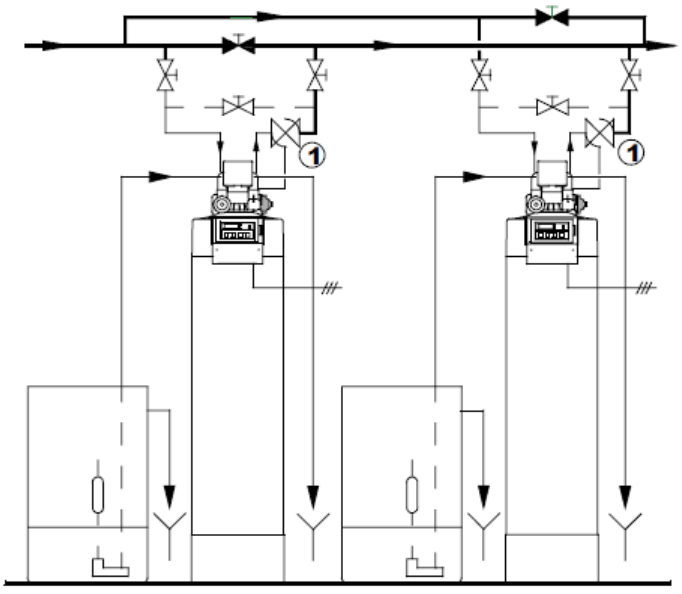


Figure III: iParallel-mounted multiplex water softeners with time-based regenerationî

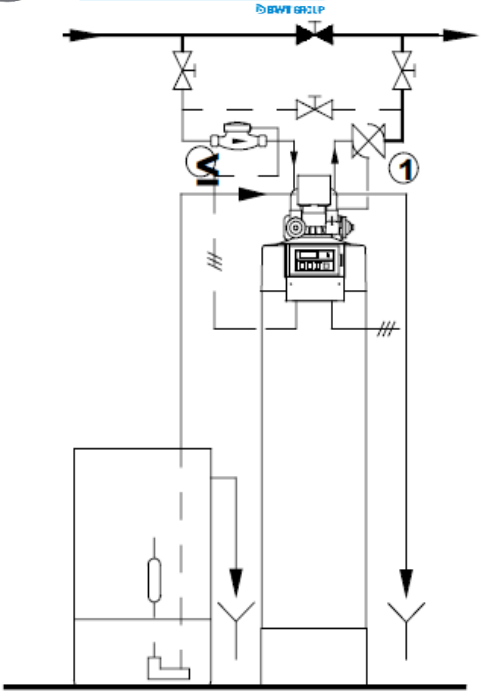


Figure IV: iSimplex water softener with volume-based regenerationî

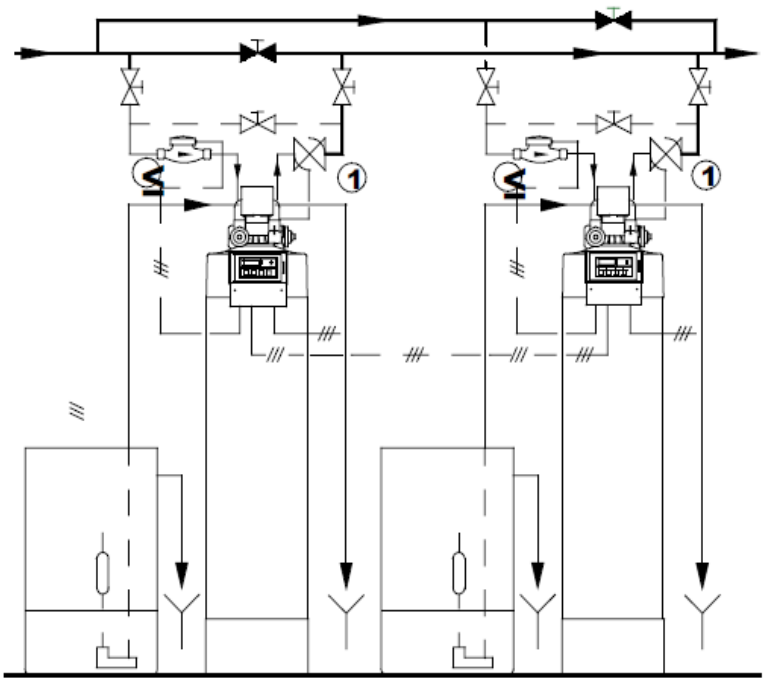


Figure V: iParallel-mounted multiplex water softeners with volume-based regenerationî

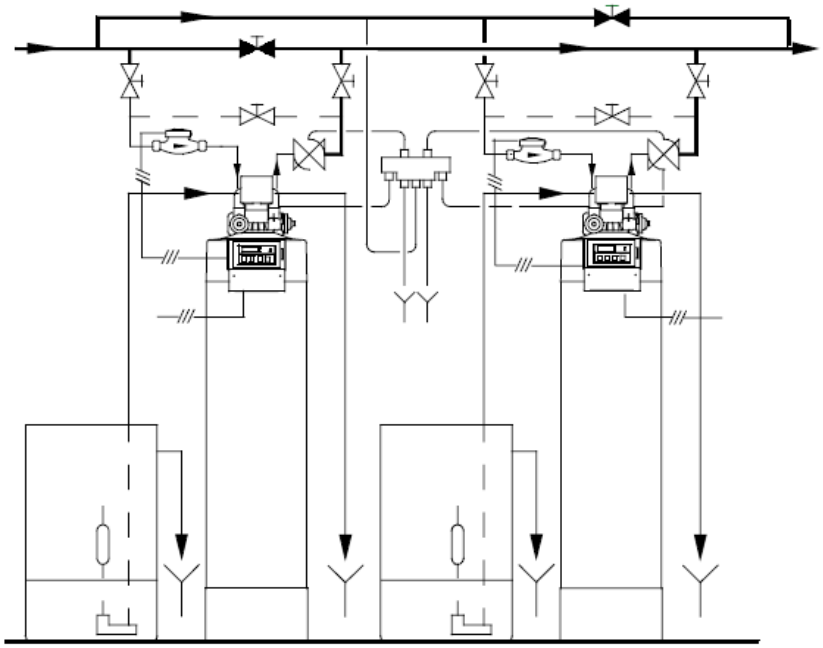


Figure VI: iDuplex water softeners with alternating volumeî

Nota :

- Optional by-pass overriding valve No 1.

- Item 2 in the case of a single meter used for the water softener and the metering unit; the meter must be located on water softener outlet.

Valve A = Water softener inlet
Valve B = Water softener outlet
Valve C = General by-pass
Valve D = Residual TH by-pass

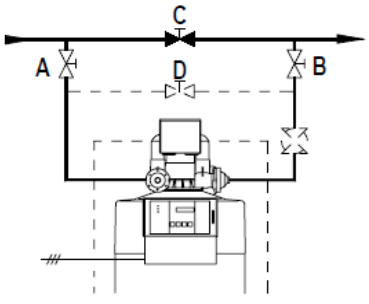
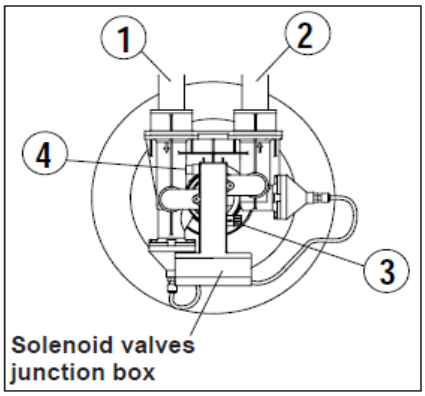


Figure VII : «Valve locations»

8.2. Hydraulic connections

Four connections are to be performed on the PERMO ALCYO 7000 water softener.



① Water under treatment inlet	1"1/4 gas-type threaded union (7050), 1"1/2 threaded for Models 7075-7100-7125-7150-7200-7300)
② Softened water outlet	Same characteristics as above
IMPORTANT: Connections (1) and (2) must compulsorily be performed with hoses.	
③ Regeneration waters discharge	3/8" threaded union (12/17) or 3/4" tapped union (20/27)
④ Link to brine regulator (in salt tray)	6 x 8 or 11 x 14 hose union according to model (supplied)

Figure VIII - «Hydraulic connection locations»
Water softener seen from top

Water softener connections shall be compulsorily removable and accessible in order to facilitate the possible maintenance operations.
All pipes shall be correctly held so that no stress or constraint affects the appliance.

8.3. Non-treated water inlet and treated water outlet

The non-treated water inlet pipe must be large enough to accommodate the rated production flow-rate and the minimum regeneration flow-rate (0.9 m3/h) under a minimum pressure of 1.5 bar in dynamic mode and 7 bar in static mode. To monitor this pressure, it is recommended to install a pressure gage upstream of the water softener.

In addition, we recommend to install a filter (filtrating power 20 µm max.) upstream of the water softener in order to protect it against foreign materials that are likely to disturb operation.

In compliance with health regulations in force, a Class A controllable check-valve shall be installed upstream of the water treating station. The fitter shall be responsible to check all specific health regulations likely to be in force on the installation site and to comply with them.

In addition, water samples shall be taken upstream and downstream of the water softener.

The PERMO ALCYO 7000 water softener shall be protected against possible hot water backwashes by means of suitable non-return devices installed downstream from the appliance on the treated water pipe.

The installation upstream and downstream from the water softener shall generate no «surges» (efficient anti-surge devices to be provided for as applicable).

Connections shall be compulsorily performed using hose quick-disconnect unions.

Generally, the water softener shall be installed in a by-pass layout and always fitted with shut-off and by-pass valves as shown on diagrams.

Diameter of possible residual TH by-pass (item D on Figure VII)

The by-pass shall consist in a needle valve (not supplied) which, in the case of a sanitary water system, makes it possible to yield the required residual hardness. Table IV below indicates the by-pass pipe diameter in relation to that of the main pipe.

Raw water inlet Ø	33 x 42 1"1/4	40 x 49 1"1/2	50 x 60 2"	66 x 76 2"1/2
Additional by-pass Ø	26 x 34 1"	26 x 34 1"	33 x 42 1"1/4	40 x 49 1"1/2

Table n°IV : «Additional by-pass diameter»

8.4. Discharging regeneration waters

The water softener regeneration waters discharge shall be achieved and connected to the 3/8» threaded tapping (12/17) or 3/4» tapped (20/27) provided for this purpose on water softener valve. Valve union must be tightened by hand (without any tool so as to avoid any possible breakage). This discharge shall be preferably made of PVC and suitably held.

Pipe inner diameter shall be at least equal to 12 mm for Models 7050, 7075 and 7125 and at least equal to 20 mm for Models 7150, 7200 and 7300. This pipe shall follow a path to be as straight and short as possible. It shall be designed to discharge a flow-rate of 50 liters/min with a total load loss (load loss + geometric height) less than a 3-meter water head (0.3 bar).

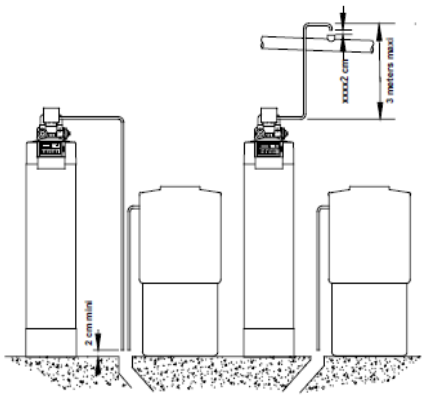


Figure IX : «Head drops»

In compliance with the Règlement Sanitaire Départemental prescriptions, a head drop of at least 2 cm shall be provided for between water softener and sewer system in accordance with Figure IX opposite.

In case of discharge via a disposal pit and lifting pump, these items of equipment shall be sized so as to avoid room flooding risks (case of lifting pump accidental shut-off during the regeneration process). In case of power failure during a regeneration process, water softener discharge to the sewer will be stopped.

8.5. Discharging salt tray overflow

The salt tray is fitted with a safety overflow to be connected either to a gutter or to the main sewer. The outflow should take place by gravity with no load loss. In addition, it is compulsory to create a head drop of at least 2 cm in compliance with health regulations (see Figure 1).

8.6. Connecting the brine regulator

The brine regulator is located in the brine well (gray PVC cylinder) inside the salt tray. Connect the supplied 6 x 8 or 11 x 14 hose to the regulator on one side and to the water softener on the other side (item 4 on Figure VIII).

8.7. Connecting the various options

a) Connecting an impulsing meter (option for a volumetric operation)

The meter shall be installed upstream or downstream from the water softener. When the meter also controls a metering pump, it shall be compulsorily located downstream from the water softener. To avoid metering errors and early wear of the internal mechanism, the meter shall be mounted horizontally with the reading head directed upward. In accordance with the state of the art, it shall be necessary to use upstream and downstream straight sections.

For memory: upstream 10 x pipe Ø
downstream 5 x pipe Ø

b) Connecting the by-pass overpressure kit (optional)

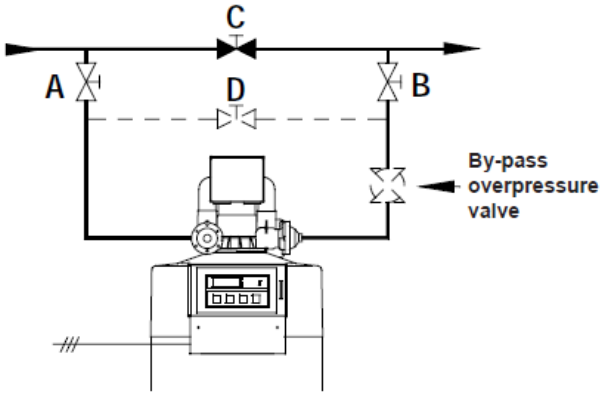


Figure X: «By-pass overpressure kit»

In the regeneration mode, the water softener automatically by-passes itself in order to continue producing water. Throughout this regeneration step, the water delivered by the water softener is hard water (hardness identical to that of the water under treatment). For specific applications, it may be necessary to install a kit overriding this by-pass.

For this, it is necessary to fit the water softener outlet with a hydraulic valve supplied with the kit and to connect it to the water softener by means of the supplied 6 x 8 pipe and tee (see Figure X opposite).

c) Connecting the alternate kit

In the alternate version, a hydraulic alternate kit is supplied in order to change over between the various water softeners (1 water softener in service, the other in regeneration or in standby). Two impulsing meters are also to be provided for (see paragraph on impulsing meter connection).

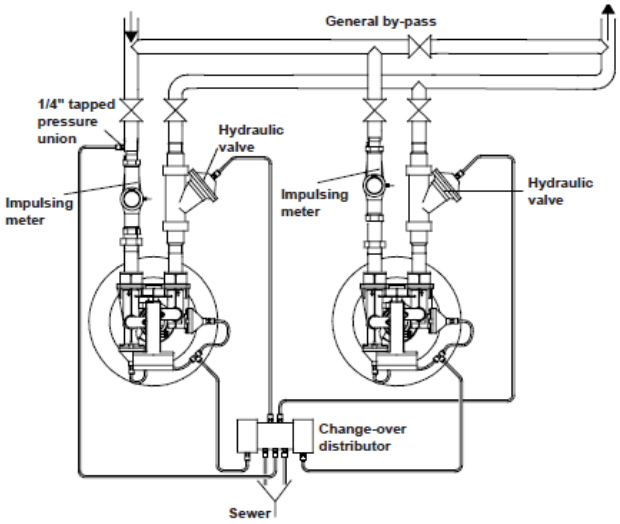


Figure XI: «Change-over kit»

Install the hydraulic valves supplied with the kit on each water softener outlet.

Secure the alternate distributor to the wall. It is necessary to create a 1/4» tapping in order to dispose of a measuring connection upstream of water softeners for controlling the change-over device (see Figure XI opposite).

8.8. Electric connections

PERMO ALCYO 7000 water softeners are controlled by an electronic unit which, in the standard version, is to be installed on the upper trimming cover of the water softener at the special location in accordance with Figure XII below for cable runs.

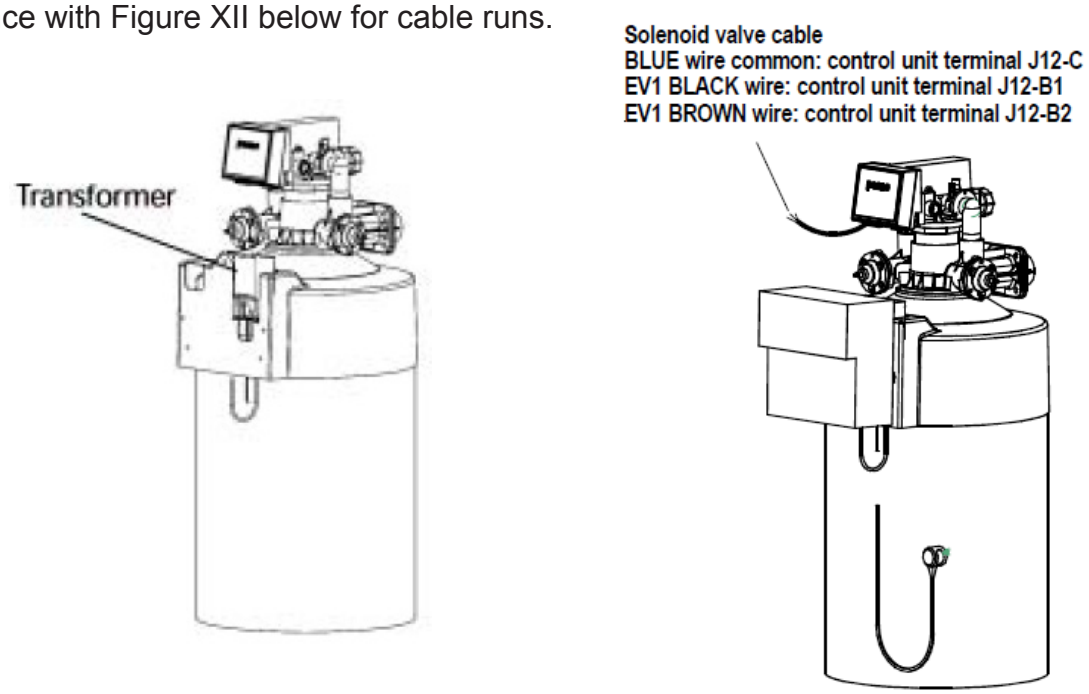


Figure XII: «Clamping and running cables»

When applicable, the unit can also be secured to the wall (see paragraph «Securing the A5X-Control Unit»). In both cases, the fitter shall be responsible for making sure that the cables used are compliant with the standard in force in the appliance accommodating room and to replace them as necessary.

IMPORTANT : In accordance with 2006/95/CE Directives and for safety's sake, the transformer primary and secondary power supply cables cannot be replaced. If they are damaged, the whole transformer shall be discarded and replaced by a new one.

a) General description of the electronic control unit

The A5X-CONTROL microprocessor-driven electronic unit was designed to control a water softener.

A front panel 5-key keypad makes it possible to program the various sequences required to operate the water softener and the regeneration time-delays. The control unit is delivered with an external transformer delivering very low voltage currents for operating the electronics and the regeneration solenoid valves. This transformer is equipped on the primary circuit with a 2.5-meter power supply cable without earth pin because the unit and the controlled solenoid valves are the double insulation class. It will be necessary to install a 220 volts single-phase wall socket (European Standards) next to the control unit (See also «Technical operating requirements»).

b) Securing the A5X-CONTROL unit to the wall

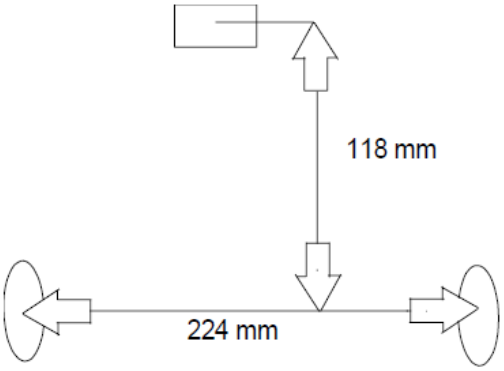


Figure XIII: «Drilling jig»

The A5X-CONTROL unit is designed in standard to be secured to the water softener. It can also be wall-mounted at an accessible place at a height of about 1.6 meters in accordance with the drilling jig as shown on Figure XIII opposite.

To secure the unit, open terminal strip lower access hatch and secure control unit lower section using 2 side oblong holes and the upper section using the external «hook» on control unit rear face.

c) Electric cabling

IMPORTANT: Electric connections to the A5X-CONTROL unit must be performed using a 0.5 or 0.75 mm² flexible cable. Carefully read the paragraph «Control unit description» which indicates the type of cable to be used.

d) Control unit description

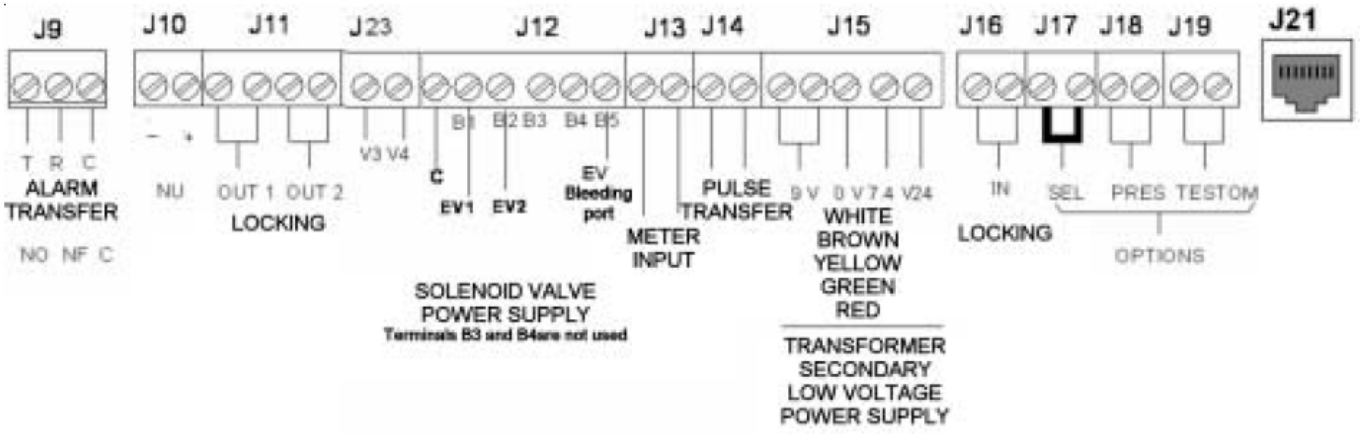
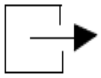


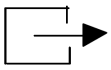
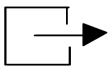
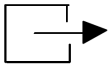
Figure XIV: «Connecting terminal strip»

Description from left to right

Input = 

Output = 

Once hydraulic and electric connections are achieved and checked, proceed with control unit programming.

Terminal No	Type of cable	Description
J9 	2 x 0.5 or 0.75 mm² or 3 x 0.5 or 0.75 mm² according to the desired contacts	A5X-CONTROL Unit alarm transfer in case of: - Power supply failure - Salt low level (optional) - Lack of pressure (optional) Power off from left to right: NO = Normally open dry contact NF = Normally closed dry contact C = Common Power on from left to right: NF = Normally closed dry contact NO = Normally open dry contact C = Common
J10		Bio probe power supply (optional) Comply with polarities: terminal –: black wire Terminal +: red wire
J11 	4 x 0.5 or 0.75 mm²	OUT 1 = output 1 Dry contact Water softener No 2 dialogue lockout. Case of 2 dialoguing water softeners (in parallel),No 2 regeneration interlock when No 1 is regenerating and vice versa. OUT 2 = output 2 Dry contact Water softener No 3 dialogue lockout Case of 3 dialoguing water softeners (in parallel)
J23 	3 x 0.5 or 0.75 mm²	Metering pump control (optional) C of terminal J12 = Common V3 = not used V4 = pump control] 24 V~ 9W maxi
J12 	3 x 0.5 or 0.75 mm²	C = Solenoid valves common – Blue wire B1 = EV1 Black wire B2 = EV2 Brown wire] 24 V~ B5 may be used to supply a external bleeding SV 15 sec after regeneration and for 40 sec.
J13 	2 x 0.5 or 0.75 mm² Shielded if longer than 5 meters or power cable in the vicinity	Input for external volumetric impulsing meter pulses.
J14 	2 x 0.5 or 0.75 mm² Shielded if longer than 5 meters or power cable in the vicinity	Transfer of external volumetric impulsing meter pulses. Dry contact: - maximum load 10 watts - limits 100 volts - 0.4 A

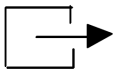
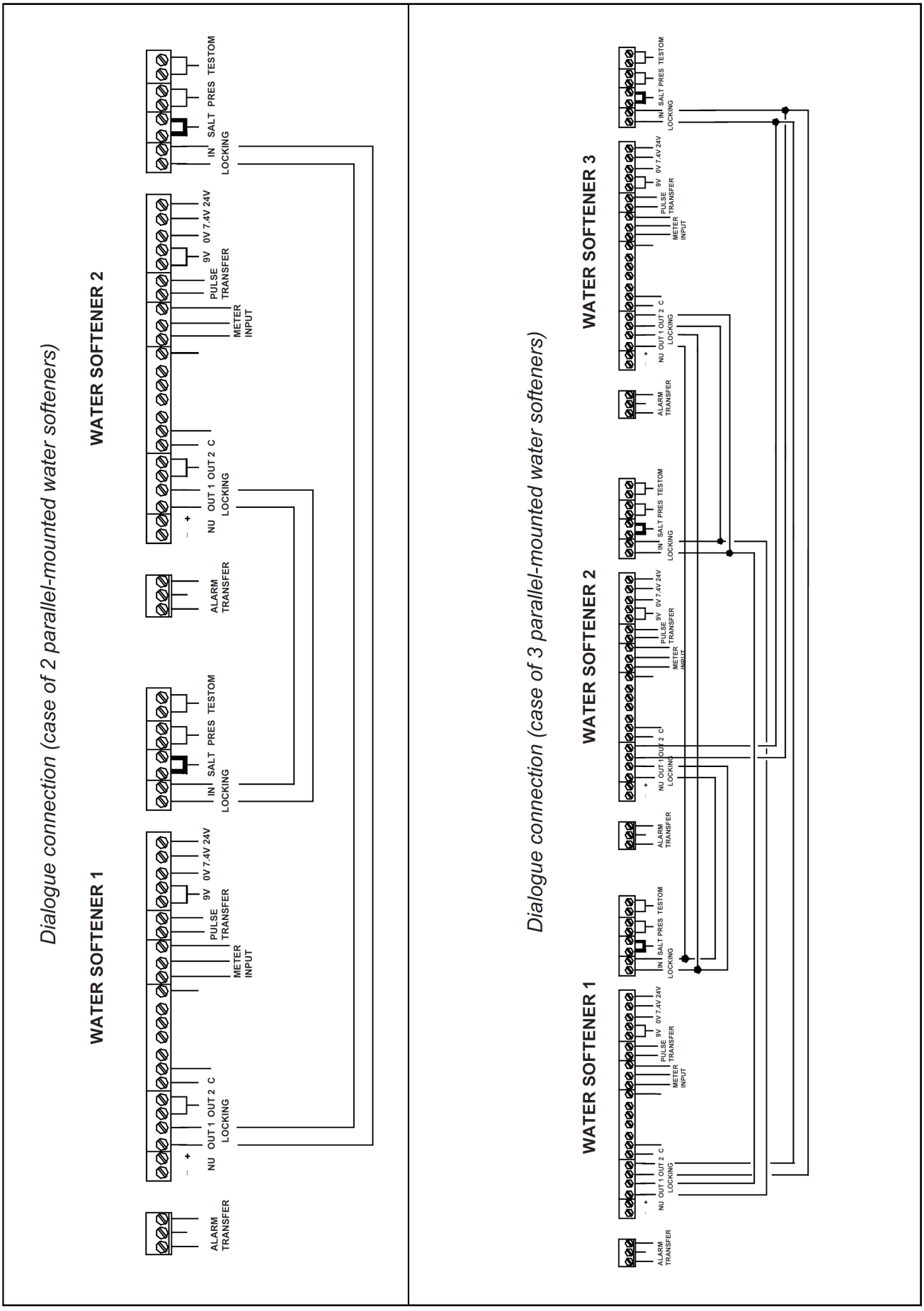
Terminal No	*Type of cable*	*Description*
J15 	Fitted to the transformer	External transformer secondary input 9 volts = White and brown wire 0 volt = Yellow wire 7.4 volts = Green wire 24 volts = Red wire
J16 	2 x 0.5 or 0.75 mm²	IN = Dialogue interlock input from OUT 1 or OUT 2 of another A5X-CONTROL unit or A4X-CONTROL unit
J17 	2 x 0.5 or 0.75 mm²	Salt low level input (optional) Terminals delivered with a jumper (contact open at low level)
J18 	2 x 0.5 or 0.75 mm²	Pressure fault input (optional) Contact closed when pressure too low (Pressure switch upstream from water softener). Regeneration blocked in case of pressure too low (regeneration time count-down cut-off)
J19 	2 x 0.5 or 0.75 mm²	Remote regeneration triggering input (Testomat option or else) Dry contact: Closed for regeneration triggering. Resetting by re-opening the contact so as to avoid a closed-loop regeneration
J21 	Network cable	RS422 output for transmission of the water softener operating data (optional)

Table V: «Description of the connecting terminal strip»

Figure XV : «Electric connections diagram»
Dialogue link in parallel between several units (3 maxi)



COMMISSIONING PROCEDURE

9 - Programming the A5X Unit

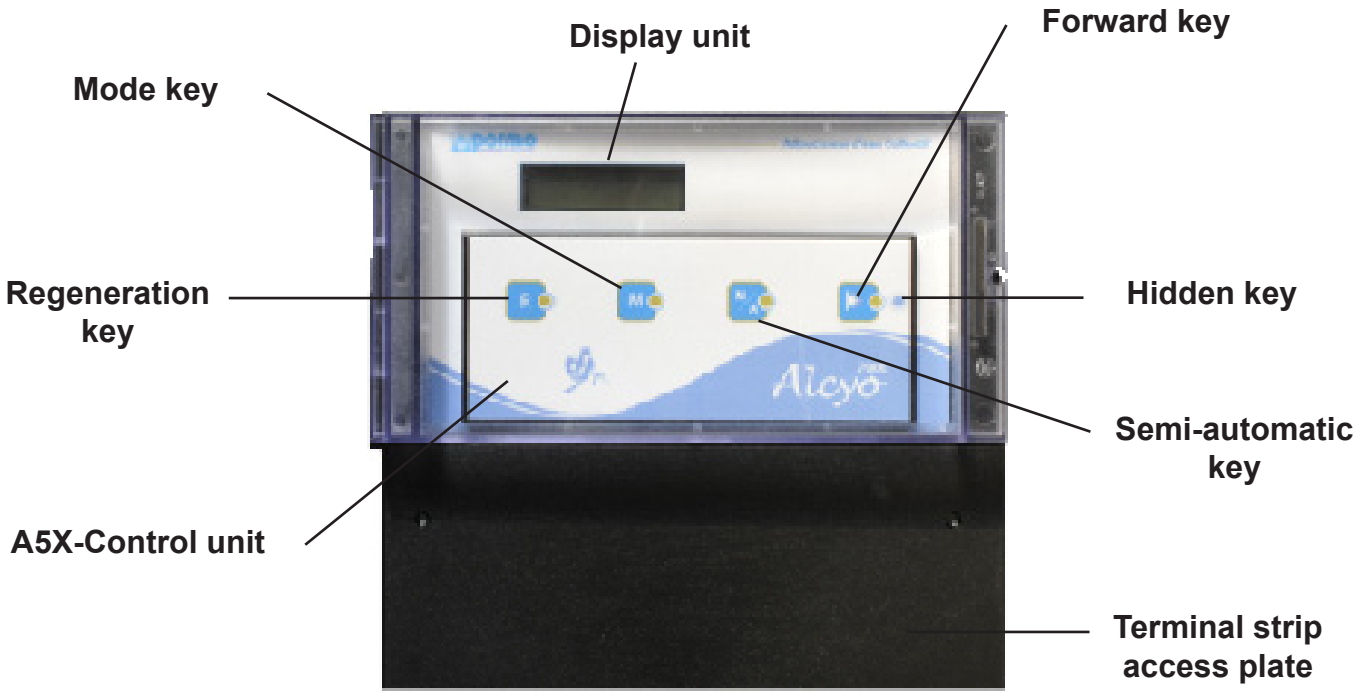


Figure XVI: «Control Unit overview»

	meaning
	- displays the remaining volume on scale 10 in volumetric mode - displays the remaining time on scale 10 in chronometric mode - displays the remaining time during a regeneration on scale 10
R 1 2 3	- R displayed during regeneration - 1, 2 and 3 successively come on during phases 1 (thinninig-out), 2 (brining and slow rinsing) and3 (fast rinsing).
	- alarm displayed in case of salt failure or lack of water (optional)
	- alarm displayed after regeneration in case of too low conductivity during brining
	- alarm displayed when the number of maintenance regenerations is reached
	- alarm displayed when the number of customer service regenerations is reached
	- displayed with the current time
	- displayed in the standby mode
m^3	- displayed when a volume is shown in m3
L	- displayed when a volume is shown in liters
88:88	- current time displayed in service and test modes - displays program step in the programming mode
8.88:88	- program data entry - entry of generic code and OF n° - displays the number of days before the next regeneration or the programmed time - displays the regeneration initial or final time - displays the remaining integer volume in liters if lower than 99999, in m3 otherwise - displays the number of regenerations - displays the total theated volume in m3

Table VI: «Display unit symbols»

9.1. Selecting the operating mode

The PERMO ALCYO 7000 water softeners operating mode is selected via the A5X Unit-Control programming keys.

The PERMO ALCYO 7000 water softeners can operate in different modes identified by the codes described below.

The optional Permo 7000 chlorination kit is also identified by a specific code for each operating mode.

Operating mode	Program code	Designation	Remark
Pure time	**40210**	Regeneration every "x" days (interval between two regenerations) at a fixed preset time.	
Pure time Bio	**50210**	Regeneration every "x" days (interval between two regenerations) at a fixed preset time. Chlorination takes place during the brining phase by sucked brine electrolysis.	System Bio option. Available up to ALCYO 7125 inclusive (125 liters resin maxi.)
Pure time "Seven"	**40410**	Regeneration programmable over the seven days of the week (14 ranges possible) at a preset time each day.	Possibility to perform two regenerations per day over the seven days of the week.
Pure time "Seven" Bio	**50410**	Regeneration over seven days of the week (14 ranges possible) at a preset time each day. Chlorination takes place during the brining phase by sucked brine electrolysis.	Possibility to perform two regenerations per day over the seven days of the week. System Bio Option available up to ALCYO 7125 inclusive (125 liters resin maxi.).
Anticipated volume "Data"	**42230**	Regeneration depending on water softener programmable cycle and the average daily consumption at a preset time.	
Anticipated volume "Data" Bio	**52230**	Regeneration depending on water softener programmable cycle and the average daily consumption at a preset time. Chlorination takes place during the brining phase by sucked brine electrolysis.	System Bio option available up to ALCYO 7125 inclusive (125 liters resin maxi.).
Anticipated volume "Data" with priority to volume	**42730**	Regeneration depending on water softener programmable cycle and the average daily consumption at a preset time.	Immediate regeneration if water softener cycle = 0

Table VII: «Operating modes»

Operating mode	Program code	Designation	Remark
Anticipated volume "Data" Bio with priority to volume	**52730**	Regeneration depending on water softener programmable cycle and the average daily consumption at a preset time. Chlorination takes place during the brining phase by sucked brine electrolysis.	System Bio option available up to ALCYO 7125 inclusive (125 liters resin maxi.). Immediate regeneration if water softener cycle = 0
Anticipated volume "Seven"	**42530**	Regeneration depending on water softener programmable cycle at a preset time and the average consumption calculated over seven days.	
Anticipated volume "Seven" Bio	**52530**	Regeneration depending on water softener programmable cycle at a preset time and the average consumption calculated over seven days. Chlorination takes place during the brining phase by sucked brine electrolysis.	System Bio option available up to ALCYO 7125 inclusive (125 liters resin maxi.).

Table VII: «Operating modes»

9.2. Programming the operating mode code

A / Powering up the control unit

Connect the appliance to a standard wall socket and in accordance with the water softener operating characteristics described in this manual.

1/. First case:

At power-up, the unit normally starts in regeneration mode:

- the first line displays a current time to be set later
- the second line alternately displays the regeneration initial time and final time
- the barograph is in low position and the «R» character is visible.

To stop regeneration, simply press both «Mode» and «Regeneration» keys simultaneously.

2/. Second case:

At power-up, the unit displays five zeros the first of which on the left is flashing. It will remain in this configuration until your appliance operating mode is entered and identified by a generic code described in Table VII. The «Mode» and «Regeneration» keys are not active.

a) Entering the operating mode generic code

Press the «Semi-automatic» key to move the flashing digit selection to the right and modify its value by pressing the «Forward» key.

Enter the generic code matching with the selected operating mode.

Once the operating mode 5-digit code displayed, press the «Hidden» key to validate the selection.

The display unit then indicates in some cases an OF number which may be ignored by pressing again the «Hidden» key.

The next display over 2 lines specifies the current time and the defaulted water softener cycles.

CAUTION: Each operating mode selecting code described above corresponds to a program which is well defined in the A5X-Control unit microprocessor.

Any code erroneous or not corresponding to the above list may result in a malfunction of your appliance and possibly in voiding the PERMO warranty.

B / Modifying the operating mode

To modify the five-digit code, press both «Mode» and «Hidden» keys simultaneously for 5 seconds, then release them. Modify the displayed code then validate after entry with the «Hidden» key.

Program again the new operating mode.

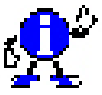
C / Restoring factory parameters

To reset the programmed operating mode, press both «Hidden» and «Mode» keys simultaneously for five seconds, then release them.

Then press the «Hidden» key, the display unit indicates « ini 0 «, select 1 by pressing the «Forward» key, then press again the «Hidden» key to validate the resetting process.

9.3. Case of 2 or 3 dialoguing softeners - parallel link

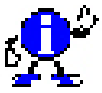
When two or three water softeners are working in pure volume mode, it is necessary to make a multiplex electrical link between the various units so as to interlock regeneration of the other water softeners when one of them is regenerating. The programming code is then the same for each appliance (41230).



CAUTION: If during regeneration of a water softener, another water softener becomes saturated, it will display letter «R». Once the first device regeneration is complete, the standby appliance will trigger its regeneration after a time-delay only.

9.4. Programming the operating phases

The following explanations below provide the meanings of the program steps and the value of the parameters to be programmed depending on the operating mode (see also operating logic diagrams at the end of the manual).



CAUTION: From this time onward, and to avoid any mishandling, the preset values will remain displayed for 20 seconds; beyond this time and if no key is pressed, the display unit automatically returns to the initial value.

IMPORTANT: Except for the current time, the above-described programming procedure will be effectively validated only when the first regeneration is triggered, either automatically by the electronic unit, or manually by pressing the «Regeneration» key for 5 seconds. From this time onward, the updated parameters such as cycle data will be displayed.

In the next steps, use the following keys to modify the displayed value.

- The «Forward» key is used to modify the flashing digit value.
- The «Semi-automatic» key is used to move the selecting cursor to the right.

9.4.1. Chronometric operating mode - code 40210

Press the «Mode» key for about five seconds.

The display unit indicates program step P100 and the defaulted setting to service date in week units.

Example: 03:08 for week 03 of year 2008.

It is possible to change this value by entering the current week number at setting to service date.

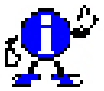
Press again the «Mode» key. The display unit indicates program step P001 and defaults to the current year.

Set the current year value.

Press the «Mode» key. The display unit indicates program step P002 as well as the default current day and month.

Example: 01:02 for February 1st.

Set the current day and month value.



The data programmed in P001 & P002 is used if the communication option is installed.

Press the «Mode» key. The display unit indicates program step P003 as well as the default current day of the week and time.

Example: 1.01:01 for Monday at 01h01.

Set the current day of the week and time value over 24 hours.

Press the «Mode» key. The display unit indicates program step P020 as well as the number of days between the various regenerations.

Press the «Mode» key. The display unit indicates P051 and value 04 corresponding to lifting, the first regeneration phase, expressed in minutes (see Table VIII - «Regeneration time»).

Press the «Mode» key. The display unit indicates P052 and value 12. This value must be modified and entered at 00.

Press again the «Mode» key. The display unit indicates P053, program step corresponding to brine suction duration and slow rinsing, along with the «40» value (minutes) (see Table VIII - «Regeneration time»).

Press again the «Mode» key. P054 is displayed along with the duration in minutes of the final rinsing «08» (see Table IX - «Regeneration time»).

Press the «Mode» key. The display unit indicates program step P080 as well the default regeneration time. This setting makes it possible to anticipate regeneration depending on consumptions.

Example: 0.01:00 for 01h00.

Set the regeneration time over 24 hours.

Press again the «Mode» key. The display unit indicates program step P031 as well as the alarms to be selected in accordance with Table VIII hereafter:

Alarm type / Configuration	Salt		Pressure		Maintenance		Customer service	
	active	inactive	active	inactive	active	inactive	active	inactive
10000		X	X			X		X
01000	X			X		X		X
00010		X		X	X			X
00001		X		X		X	X	
11000	X		X			X		X
10010		X	X		X			X
10001		X	X			X	X	
01010	X			X	X			X
01001	X			X		X	X	
00011		X		X	X		X	
11010	X		X		X			X
11001	X		X			X	X	
10011		X	X		X		X	
01011	X			X	X		X	
11011	X		X		X		X	

Table VIII : «Configuring the alarms»

Press again the «Mode» key. The display unit indicates program step P032 as well as the number of default regenerations on completion of which the maintenance alarm is displayed.

If necessary, set the maintenance alarm from 1 to 999 regenerations. If the alarm has not been selected when setting program step P031, no maintenance alarm will be displayed.

Then press the «Mode» key. The display unit indicates program step P033 as well as the default number of regenerations on completion of which the customer service alarm is displayed.

If necessary, set the customer service alarm from 1 to 999 regenerations. If the alarm has not been selected when setting program step P031, no customer service alarm will be displayed.

Press the «Mode» key. The programming phase is complete and the display unit is returned to the operating configuration.

9.4.2. Chronometric operating mode - code 50210

Programming identical to code 40210 for the chronometric mode. The only difference is that the A5X PCB microprocessor monitors the management of the optional electro-chlorination probe on PERMO ALCYO 7000 water softeners up to 125 liters of resin. This chlorination phase takes place when brine is sucked into the salt tray during water softener regeneration.

9.4.3. Seven» chronometric operating mode - code 40410

Press the «Mode» key for about five seconds.

The display unit indicates program step P100 and the default setting to service date in week units.

Example: 03:08 for week 03 of year 2008.

It is possible to change this value by entering the current week upon setting to service.

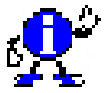
Press again the «Mode» key. The display unit indicates program step P001 and the default current year.

Set the current year value.

Press the «Mode» key. The display unit indicates program step P002 and defaults to the current day and month.

Example: 01:02 for February 1st.

Set the current day and month values.



The data programmed in P001 & P002 will be used if the communication option is installed.

Press the «Mode» key. The display unit indicates program step P003 along with the day of the week and the default current time.

Example: 1.01:01 for Monday at 01h01.

Set the current day and time values over 24 hours.

Press the «Mode» key. The display unit indicates program step P081 along with a default regeneration time and day. This setting makes it possible to anticipate regeneration depending on consumptions.

Example: 1.01:00 for Monday at 01h00.

Set the regeneration time value over 24 hours.

The next steps from P082 to P097 make it possible to set the other 13 regenerations of the week.

To override a program step, simply enter 0 in the day field.

Press the «Mode» key. The display unit then indicates P051 and value 04 corresponding to the lifting, first regeneration phase, expressed in minutes (see Table IX - «Regeneration time»).

Press the «Mode» key. The display unit indicates P052 and value 12. This value must be modified and set to 00.

Press the «Mode» key again. The display unit indicates P053, program step corresponding to brine suction and slow rinsing time, along with «40» (minutes) (see Table IX - «Regeneration time»).

Press the «Mode» key again. P054 is displayed as well as final rinsing duration in minutes «08» (see Table IX - «Regeneration time»).

Press again the «Mode» key. The display unit indicates program step P031 along with the alarms to be selected in accordance with Table VIII - Configuring the alarms.

Press again the «Mode» key. The display unit indicates program step P032 along with the default number of regenerations on completion of which the maintenance alarm is displayed.

If necessary, set the maintenance alarm from 1 to 999 regenerations. If the alarm was not selected when setting program step P031, no maintenance alarm will be displayed.

Then press the «Mode» key. The display unit indicates program step P033 along with the default number of regenerations on completion of which the customer service alarm is displayed.

If necessary, set the customer service alarm from 1 to 999 regenerations. If the alarm was not selected when setting program step P031, no customer service alarm will be displayed.

Press the «Mode» key. The programming phase is complete and the display unit is returned to the operating configuration.

9.4.4. «Seven» chronometric operating mode - code 50410

Programming procedure identical to code 40410 for the chronometric mode. The only difference resides in the A5X PCB microprocessor which manages the optional electro-chlorination probe on PERMO ALCYO 7000 water softeners up to 125 liters resin. This chlorination phase takes place when brine is sucked into the salt tray, while the water softener is being regenerated.

9.4.5. «Data» anticipated volume operating modes - codes 42230 and 42730

Switch on the control unit and follow the operating mode code programming instructions given in paragraph 7.2.

Press the «Mode» key for about five seconds.

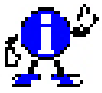
The display unit indicates program step P100 and the default setting to service date in week units.

Example: 03:08 for week 03 of year 2008.

It is possible to change this value by entering the current week upon setting to service.

Press again the «Mode» key. The display unit indicates program step P001 and the default current year.

Set the current year value.



The data programmed in P001 & P002 will be used if the communication option is installed.

Press the «Mode» key. The display unit indicates program step P002 along with the default current day and month.

Example: 01:02 for February 1st.

Set the current day and month values.

Press the «Mode» key. The display unit indicates program step P003 along with the default current day of the week and time.

Example: 1.01:01 for Monday at 01h01.

Set the current day and time values over 24 hours.

Press the «Mode» key. The display unit indicates program step P080 along with the default regeneration time. This setting makes it possible to anticipate regeneration depending on consumptions.

Example: 0.01:00 for 01h00.

Set the regeneration time value over 24 hours.

Press the «Mode» key. The display unit indicates P051 and value 04 corresponding to lifting, first regeneration phase, expressed in minutes (see Table IX - «Regeneration time»).

Press the «Mode» key. The display unit indicates P052 and value 12. This value must be modified and set to 00.

Press the «Mode» key again. The display unit indicates P053, program step corresponding to brine suction and slow rinsing duration, along with value «40» (minutes) (see Table IX - «Regeneration time»).

Press the «Mode» key again. P054 is displayed along with final rinsing duration in minutes «08» (see Table IX - «Regeneration time»).

Press the «Mode» key again. P060 is displayed along with «0-001».

The LH side «0» stands for meter operating mode: multiplier (value 1) or divider (value 0).

The 3 RH side digits stand for the ratio of meter pulses to the number of liters recorded by the unit.

Example: 1 meter pulse corresponds to 5 liters -> set 1-005.

Press the «Mode» key. P062 is displayed along with «0-001».

This function makes it possible to set external pulse transfer.

The LH side «0» stands for meter operating mode: multiplier (value 1) or divider (value 0).

The 3 RH side digits stand for the ratio of meter pulses to the number of pulses transferred to unit output.

Example: 1 meter pulse corresponds to 5 output pulses -> set 1-005.

Press again the «Mode» key. The display unit indicates program step P040 along with the default regeneration cycle.

Example: L.1000 corresponds to a 1000 liter-cycle; H.1000 corresponds to a 1000 hectoliter-cycle.

Set the cycle corresponding to the volume of water produced between 2 regenerations.

To calculate your water softener cycle, divide the exchange capability (see Table II «Technical characteristics») by the water under treatment TH value.

Press the «Mode» key. The display unit indicates P070 and the value in «L.0300». This value corresponds to the initial average. It is programmable if daily consumptions are known. The electronic A5X-Control unit will automatically record and modify this value depending on consumptions. The average is calculated every day at the regeneration time programmed at step P080.

Press again the «Mode» key. The display unit indicates program step P031 along with the alarms to be selected in accordance with Table VIII - «Configuring the alarms».

Press again the «Mode» key. The display unit indicates program step P032 along with the default number of regenerations on completion of which the maintenance alarm is displayed.

If necessary, set the maintenance alarm from 1 to 999 regenerations. If the alarm was not selected when setting program step P031, no maintenance alarm will be displayed.

Then press the «Mode» key. The display unit indicates program step P033 along with the default number of regenerations on completion of which the customer service alarm is displayed.

If necessary, set the customer service alarm from 1 to 999 regenerations. If the alarm was not selected when setting program step P031, no customer service alarm will be displayed.

Press the «Mode» key. The programming phase is complete and the display unit is returned to the operating configuration.

9.4.6. «Data» anticipated volume operating modes - codes 52230 and 52730

Programming procedure identical to codes 42230 and 42730 in the anticipated volume operating mode.

The only difference is the A5X PCB microprocessor managing the optional electro-chlorination

probe on ALCYO 7000 water softeners up to 125 liters resin. This chlorination phase takes place when brine is sucked into the salt tray, while the water softener is being regenerated.

9.4.7. «Seven» anticipated volume operating mode - code 42530

Switch on the control unit and follow the instructions given in paragraph 7.2 on operating mode code programming procedure.

Press the «Mode» key for about five seconds.

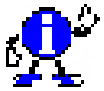
The display unit indicates program step P100 and the default setting to service date in week units.

Example: 03:08 for week 03 of year 2008.

It is possible to change this value by entering the current week upon setting to service.

Press again the «Mode» key. The display unit indicates program step P001 and the default current year.

Set the current year value.



The data programmed in P001 & P002 will be used if the communication option is installed.

Press the «Mode» key. The display unit indicates program step P002 along with the default current day and month.

Example: 01:02 for February 1st.

Set the current day and month values.

Press the «Mode» key. The display unit indicates program step P003 along with the default current day of the week and time.

Example: 1.01:01 for Monday at 01h01.

Set the current day and time values over 24 hours.

Press the «Mode» key. The display unit indicates program step P080 along with the default regeneration time. This setting makes it possible to anticipate regeneration depending on consumptions.

Example: 0.01:00 for 01h00.

Set the regeneration time value over 24 hours.

Press the «Mode» key. The display unit indicates P051 and value 04 corresponding to lifting, first regeneration phase, expressed in minutes (see Table IX - «Regeneration time»).

Press the «Mode» key. The display unit indicates P052 and value 12. This value must be modified and set to 00.

Press the «Mode» key again. The display unit indicates P053, program step corresponding to brine suction and slow rinsing time, along with value «40» (minutes) (see Table IX - «Regeneration time»).

Press the «Mode» key again. P054 is displayed along with final rinsing duration in minutes «08» (see Table IX - «Regeneration time»).

Press the «Mode» key again. P060 is displayed along with «0-001».

«0» stands for meter operating mode: multiplier (value 1) or divider (value 0).

The 3 RH side digits stand for the ratio of meter pulses to the number of liters recorded by the unit.

Example: 1 meter pulse corresponds to 5 liters -> set 1-005.

Press the «Mode» key. P062 is displayed along with «0-001».

This function makes it possible to set external pulse transfer.

«0» stands for meter operating mode: multiplier (value 1) or divider (value 0).

The 3 RH side digits stand for the ratio of meter pulses to the number of pulses transferred to unit output.

Example: 1 meter pulse corresponds to 5 output pulses -> set 1-005.

Press again the «Mode» key. The display unit indicates program step P040 along with the default regeneration cycle.

Example: L.1000 corresponds to a 1000 liter-cycle; H.1000 corresponds to a 1000 hectoliter-cycle.

Set the cycle corresponding to the volume of water produced between 2 regenerations.

To calculate your water softener cycle, divide the exchange capability (see Table II «Technical characteristics») by the water under treatment TH value.

Press again the «Mode» key. The display unit indicates program step P071 along with the default average Monday consumption.

Example: L.0300 corresponds to a 300 liter-average consumption; H.0300 corresponds to a 300 hectoliter-average consumption

For each day of the week (P071=Monday; P072=Tuesday,…,P077=Sunday), enter the average consumed volume.

If average volumes are not known, skip the various steps P071 to P077 by successively pressing the «Mode» key. The default value of 300 liters will then be taken into account at the beginning and the average values will be recalculated as weeks elapse. Such calculated values can be looked up at any time by reading program steps P071 to P077.

Press again the «Mode» key. The display unit indicates program step P031 along with the alarms to be selected in compliance with Table VIII.

Press again the «Mode» key. The display unit indicates program step P032 along with the default number of regenerations on completion of which the maintenance alarm is displayed.

If necessary, set the maintenance alarm from 1 to 999 regenerations. If the alarm was not selected when setting program step P031, no maintenance alarm will be displayed.

Then press the «Mode» key. The display unit indicates program step P033 along with the default number of regenerations on completion of which the customer service alarm is displayed.

If necessary, set the customer service alarm from 1 to 999 regenerations. If the alarm was not selected when setting program step P031, no customer service alarm will be displayed.

Press the «Mode» key. The programming phase is complete and the display unit is returned to the operating configuration.

9.4.8. «Seven» anticipated volume operating mode - code 52530

Programming procedure identical to code 42530 in the anticipated volume operating mode «Seven». The only difference is the A5X PCB microprocessor managing the optional electro-chlorination probe on PERMO ALCYO 7000 water softeners up to 125 liters resin. This chlorination phase takes place when brine is sucked into the salt tray, while the water softener is being regenerated.

9.4.9. Pure volume operating mode - code 41230

Switch on the control unit and follow the instructions given in paragraph 7.2 on operating mode code programming procedure.

Press the «Mode» key for about five seconds.

The display unit indicates program step P100 and the default setting to service date in week units.

Example: 03:08 for week 03 of year 2008.

It is possible to change this value by entering the current week upon setting to service.

Press again the «Mode» key. The display unit indicates program step P001 and the default current year.

Set the current year value.

The data programmed in P001 & P002 will be used if the communication option is installed.

Press the «Mode» key. The display unit indicates program step P002 along with the default current day and month.

Example: 01:02 for February 1st.

Set the current day and month values.

Press the «Mode» key. The display unit indicates program step P003 along with the default current day of the week and time.

Example: 1.01:01 for Monday at 01h01.

Set the current day and time values over 24 hours.

Press again the «Mode» key. The display unit indicates program step P040 along with the default regeneration cycle.

Example: L.1000 corresponds to a 1000 liter-cycle; H.1000 corresponds to a 1000 hectoliter-cycle.

Set the cycle corresponding to the volume of water produced between 2 regenerations.

To calculate your water softener cycle, divide the exchange capability (see Table II «Technical characteristics») by the water under treatment TH value.

Press the «Mode» key. The display unit indicates P051 and value 04 corresponding to lifting, first regeneration phase, expressed in minutes (see Table IX - «Regeneration time»).

Press the «Mode» key. The display unit indicates P052 and value 12. This value must be modified and set to 00.

Press the «Mode» key again. The display unit indicates P053, program step corresponding to brine suction and slow rinsing duration, along with value «40» (minutes) (see Table IX - «Regeneration time»).

Press the «Mode» key again. P054 is displayed along with final rinsing duration in minutes «08» (see Table IX - «Regeneration time»).

Press the «Mode» key. The display unit indicates P056. This step is not used.

Press the «Mode» key again. P060 is displayed along with «0-001».

The «0» stands for meter operating mode: multiplier (value 1) or divider (value 0).

The 3 RH side digits stand for the ratio of meter pulses to the number of liters recorded by the unit. Example: 1 meter pulse corresponds to 5 liters -> set 1- 005.

Press the «Mode» key. P062 is displayed along with «0-001».

This function makes it possible to set external pulse transfer.

«0» stands for meter operating mode: multiplier (value 1) or divider (value 0).

The 3 RH side digits stand for the ratio of meter pulses to the number of pulses transferred to unit output.

Example: 1 meter pulse corresponds to 5 output pulses -> set 1-005.

Press again the «Mode» key. The display unit indicates program step P031 along with the alarms to be selected in compliance with Table VIII.

Press again the «Mode» key. The display unit indicates program step P032 along with the default number of regenerations on completion of which the maintenance alarm is displayed.

If necessary, set the maintenance alarm from 1 to 999 regenerations. If the alarm was not selected when setting program step P031, no maintenance alarm will be displayed.

Then press the «Mode» key. The display unit indicates program step P033 along with the default number of regenerations on completion of which the customer service alarm is displayed.

If necessary, set the customer service alarm from 1 to 999 regenerations. If the alarm was not selected when setting program step P031, no customer service alarm will be displayed.

Press the «Mode» key. The programming phase is complete and the display unit is returned to the operating configuration.

Softener type	Time in minutes					
	Pressure lower than 4 bars			Pressure higher than 4 bars		
	Lifting duration	Suction and slow rinsing duration	Fast rinsing duration	Lifting duration	Suction and slow rinsing duration	Fast rinsing duration
7050	7	33	7	5	35	5
7075	7	33	7	5	35	5
7100	7	33	7	5	35	5
7125	6	48	12	4	52	8
7150	8	44	16	6	48	12
7200	8	44	16	6	48	12
7300	8	64	16	6	68	12

Table IX : «Regeneration time»

The times indicated in minutes in the above table are basic values which may be modified depending on installation operating conditions.

9.4.10. Pure volume operating mode - code 51230

Programming procedure identical to code 41230 for pure volume operating mode. The only difference is the A5X PCB microprocessor which manages the optional electro-chlorination probe on PERMO ALCYO 7000 water softeners up to 125 liters resin. This chlorination phase takes place when brine is sucked into the salt tray, while the water softener is being regenerated.

9.4.11. «TEST» Program

To start the Test program, press both «Regeneration» and «Semiautomatic» keys simultaneously for about 5 seconds. The water softener automatically triggers regeneration (R1 is displayed). The barograph remains in high position throughout the test.

To skip to the next regeneration phase (brine suction and slow rinsing), briefly press the «Mode» key. The display then skips to R2.

Another action on the «Mode» key makes it possible to skip to fast rinsing, the last regeneration phase. The display then skips to R3.

CAUTION: It is recommended to allow this last phase to fully take place if the brine suction phase has been tested during a few minutes in order to correctly wash the resin contained in the water softener bottle.

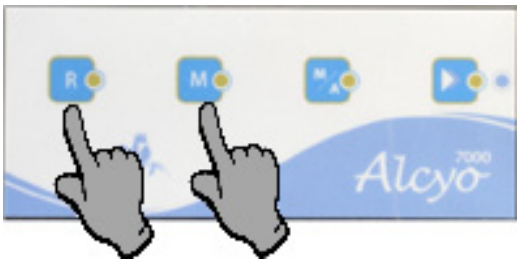
Another action on the «Mode» key will terminate the Test program and return to the initial display. The appliance is hydraulically set to service of softened water production.

CAUTION: The «TEST» mode makes it possible to monitor the water softener regeneration phases and should in no case be used to run a regeneration. Similarly, this mode will not reset the volume remaining in volume-programmed appliances.

Other functions:

Triggering a regeneration: press the «R» key for at least 5 seconds. A complete regeneration phase is triggered when the key is released.

Stopping a regeneration in progress



CAUTION: This emergency stop mode will return the water softener to the service mode. If stopped during brine flow or during a rinsing phase, the brine might be scavenged to installations downstream from the water softener.

To perform this operation: simultaneously press both «R» and «Mode» keys.

Water softener log

If the water softener is not in the regeneration phase, it is possible to visualize at any time the total volume of softened water and the number of regenerations performed.

Simply hold the «Forward» key pressed for 5 seconds.

The total volume of softened water is displayed. This indicative value is updated after each regeneration. The unit of volume automatically shifts from liter to m3 when the value exceeds 99999 liters.

Pressing the «Forward» key again makes it possible to display the total number of regenerations performed.

Both total volume and number of regenerations can be reset by holding the 3 «Mode», «Semi-automatic» and «Forward» keys simultaneously pressed for 5 seconds.

Controlling an external pump

A 24 volt-contact is available on terminal V3 to slave a metering pump as soon as the water softener is not regenerating.

10 - First setting to service

10.1. Setting the brine regulator

Take the regulator out of the brine well located in the salt tray.

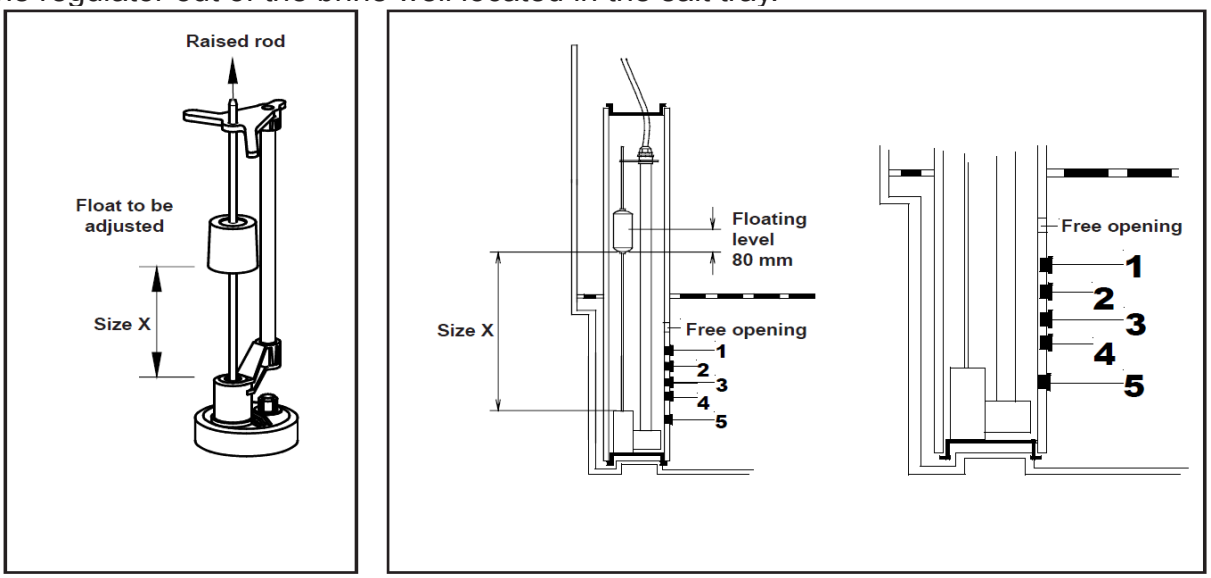


Figure XVII: «Setting size X»

	Capacity	Size x in mm for salt pellets	Plastic plugs to be removed (sketch)
7050	**Standard / Max.**	55 / 65	None
7075	**Standard / Max.**	80 / 95	None
7100	**Standard / Max.**	120 / 140	None
7125	**Standard / Max.**	125 / 150	None
7150	**Standard / Max.**	426 / 416	None / 1&2
7200	**Standard / Max.**	454 / 497	1 / 1 – 2 & 3
7300	**Standard / Max.**	450 / 500	1-2-3-4 / 1-2-3-4-5

Table X: «Setting size X»

Check size «X» in accordance with Figure XVII and Table X hereafter.

If required, set size X by sliding the float along regulator rod.

10.2. Preparing the salt tray

Load the tray with salt. Do not overpass the brim of the stack so that the brine regulator remains accessible. Make sure beforehand that tray bottom and any holding brackets are correctly positioned.

10.3. Flooding procedure (see Figure XVIII below)

In compliance with the prescriptions of Decree 89.3 as amended and to mitigate any risks of unwanted microbiological proliferations, the water softener must be disinfected with a bleach solution in the following proportions:

Volume of resin (in liters)	Quantity of bleach concentrate at 39 chlorometric degrees (commerce cartons) to be used (in ml)	
	In salt tray (after salt loading) for any type of water softener	In the body (after flint loading) for water softeners delivered empty
50	5	Delivered preloaded
75	5	Delivered preloaded
100	10	Delivered preloaded
125	10	Delivered preloaded
150	15	20
200	20	30
300	30	45

Table XI: «Bleach solutions upon setting to service»

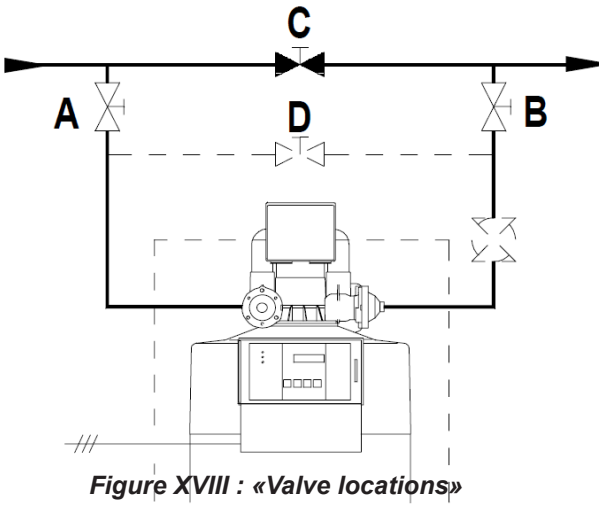


Figure XVIII : «Valve locations»

With valves A - B closed, C open, start a regeneration process by pressing key «R» of the A5X-CONTROL electronic unit.

Slowly open valve A to bleed off the air contained in the system. After bleeding, fully open valve A.

Also bleed off the brine regulator by pushing on float rod (hold the rod by its low point), put back the regulator into salt tray brine well and fit back brine well plug.

Open valve B, then close valve C. Leave the water softener in the regeneration mode.

Once regeneration is complete, check for appliance tightness. Measure softened water TH and chlorides. Modify slow and/or fast rinsing times, if necessary.

Set residual TH setting valve D as required.

11 - Operation / Overall servicing

Power supply failures

- The A5X control unit display goes off.
- Solenoid valves are no longer supplied.
- Flow-rate and average value calculations are still taken into account by the microprocessor.
- If the failure occurs during a regeneration process, the latter stops, the appliance returns to service mode. When power is restored, the interrupted regeneration process restarts at the beginning of the halted phase.

Non-programmed regeneration

It is possible to trigger a regeneration process at any time by pressing the key.

If the «R» key of the 2nd water softener is pressed during regeneration of the 1st one, the « regeneration request « information is stored by the control unit and regeneration of the 2nd appliance will be triggered after the first's.

Overall servicing

Periodically check both TH and chlorides of raw and softened waters and modify water softeners regeneration parameters as required.

Reload the salt tray whenever necessary. The salt level should always be higher than the level of the water contained in the salt tray, however do not overpass brine well brim in order to gain access to the brine regulator.

At least once every 6 months: take advantage of a salt tray reloading to drain it off, clean and disinfect it after reloading it with salt by introducing in the brine regulator stack a bleach solution in the following proportions:

Resin volume (in liters)	Quantity of bleach concentrate at 39 chlorometric degrees (commerce cartons) to be used (in ml)
50	5
75	5
100	10
125	10
150	15
200	20
300	30

Table XII: "Bleach solutions upon setting to service"

Then, trigger a regeneration phase in the manual mode.

Alarm transfer

Power failure: alarm transfer contact closes.

The contact remains closed event after power restoration. To override it, it is necessary to press the Mode key (for at least 5 seconds) and successively skip the various program steps to make sure that no data has been lost.

Pressure fault: alarm transfer contact closes.

The contact will be automatically deactivated as soon as a proper pressure is restored. In case of pressure fault during the regeneration process, the regeneration time countdown will be halted and resumed when a proper pressure is restored.

Salt low level: alarm transfer contact closes.

The contact will be automatically deactivated as soon as salt level is restored in salt tray.

Incidents

INCIDENTS	CAUSES	REMEDIES
The water softener delivers no more water.	By-pass open.	Check residual by-pass setting. Check that general by-pass is not open.
	Lack of regeneration salt.	Check for salt in salt tray.
	Brine suction faulty or poor.	Check pressure (in dynamic mode) at water softener inlet (1,5 bar minimum).
	Water under treatment TH higher than rated TH.	Check water under treatment TH.
	Extracted softened water volume not counted.	Check volume count on control unit (turbine/counter ILS faulty).
Water scavenged to sewer out of regeneration periods.	Appliance internal valves or solenoid valves not tight.	Replace defective elements.
	Decompression limiter clogged.	Clean limiter.
	Pressure too low.	Check pressure (1,5 bar minimum in dynamic mode).
Water flowing out of salt tray overflow.	Brine regulator tightness faulty	Check for deposits on salt tray bottom. Clean salt tray and regulator.

Table XIII: «Faults and remedies»

12 - Programming flow-charts

12.1. Chronometric mode - codes 40210 & 50210

FUNCTION	DISPLAY UNIT	DESCRIPTION
Operating mode	**01:00** **40210 or 50210**	Programming operating code
Factory programming	**01:01** **1000 L**	➔Moment time over 24 hours ➔Water softener default autonomy
Program step P100	**P100** **01:01**	Press Mode key for 5 seconds ➔Setting to service date (year : week = YY:WW) Modify with Forward and Semi-Automatic keys
Program step P001	**P001** **2000**	Press Mode key ➔Moment year Modify with Forward and Semi-Automatic keys
Program step P002	**P002** **01:01**	Press Mode key ➔Moment day and month (JJ:MM) Modify with Forward and Semi-Automatic keys
Program step P003	**P003** **1.01:01**	Press Mode key ➔Week day and moment time Modify with Forward and Semi-Automatic keys
Program step P020	**P020** **04**	Press Mode key ➔Number of days between regenerations Modify with Forward and Semi-Automatic keys
Program step P051	**P051** **04**	Press Mode key ➔Thinning-out duration in minutes Modify with Forward and Semi-Automatic keys
Program step P052	**P052** **12**	Press Mode key ➔Function not used, value to be set to "0"
Program step P053	**P053** **40**	Press Mode key ➔Slow rinsing duration in minutes Modify with Forward and Semi-Automatic keys
Program step P054	**P054** **08**	Press Mode key ➔Fast rinsing duration in minutes Modify with Forward and Semi-Automatic keys
Program step P080	**P080** **0.01:00**	Press Mode key ➔Regeneration time (HH:MM) Modify with Forward and Semi-Automatic keys
Program step P031	**P031** **00111**	Press Mode key ➔Configuring the alarms Modify with Forward and Semi-Automatic keys
Program step P032	**P032** **070**	Press Mode key ➔Maintenance frequency in number of regenerations Modify with Forward and Semi-Automatic keys
Program step P033	**P033** **140**	Press Mode key ➔Customer service frequency in number of regenerations Modify with Forward and Semi-Automatic keys

12.2. SEVEN Chronometric mode - codes 40410 & 50410

FUNCTION	DISPLAY UNIT	DESCRIPTION
Operating mode	**01:00** **40410 ou 50410**	Operating code programming
Factory programming	**01:01** **1000 L**	➔Moment time over 24 hours ➔Water softener default autonomy
Program step P100	**P100** **01:01**	Press Mode key for 5 seconds ➔Setting to service date (year : week = YY:WW) Modify with Forward and Semi-Automatic keys
Program step P001	**P001** **2000**	Press Mode key ➔Moment year Modify with Forward and Semi-Automatic keys
Program step P002	**P002** **01:01**	Press Mode key ➔Moment day and month (DD:MM) Modify with Forward and Semi-Automatic keys
Program step P003	**P003** **1.01:01**	Press Mode key ➔Week day and moment time Modify with Forward and Semi-Automatic keys
Program step P081	**P081** **1.01:00**	Press Mode key ➔Regeneration day and time (DD:HH:MM) Modify with Forward and Semi-Automatic keys
Program step P082	**P082** **1.01:00**	Press Mode key ➔Regeneration day and time (DD:HH:MM) Modify with Forward and Semi-Automatic keys
Program step P083	**P083** **1.01:00**	Press Mode key ➔Regeneration day and time (DD:HH:MM) Modify with Forward and Semi-Automatic keys
Program step P084	**P084** **1.01:00**	Press Mode key ➔Regeneration day and time (DD:HH:MM) Modify with Forward and Semi-Automatic keys
Program step P085	**P085** **1.01:00**	Press Mode key ➔Regeneration day and time (DD:HH:MM) Modify with Forward and Semi-Automatic keys
Program step P086	**P086** **1.01:00**	Press Mode key ➔Regeneration day and time (DD:HH:MM) Modify with Forward and Semi-Automatic keys
Program step P087	**P087** **1.01:00**	Press Mode key ➔Regeneration day and time (DD:HH:MM) Modify with Forward and Semi-Automatic keys
Program step P091	**P091** **0.01:00**	Press Mode key ➔Regeneration day and time (DD:HH:MM) Modify with Forward and Semi-Automatic keys
Program step P092	**P092** **0.01:00**	Press Mode key ➔Regeneration day and time (DD:HH:MM) Modify with Forward and Semi-Automatic keys
Program step P093	**P093** **0.01:00**	Press Mode key ➔Regeneration day and time (DD:HH:MM) Modify with Forward and Semi-Automatic keys
Program step P094	**P094** **0.01:00**	Press Mode key ➔Regeneration day and time (DD:HH:MM) Modify with Forward and Semi-Automatic keys
Program step P095	**P095** **0.01:00**	Press Mode key ➔Regeneration day and time (DD.HH:MM) Modify with Forward and Semi-Automatic keys
Program step P096	**P096** **0.01:00**	Press Mode key ➔Regeneration day and time (DD:HH:MM) Modify with Forward and Semi-Automatic keys

FUNCTION	DISPLAY UNIT	DESCRIPTION
Program step P097	**P097** **0.01:00**	Press Mode key ➔Regeneration day and time (DD:HH:MM) Modify with Forward and Semi-Automatic keys
Program step P051	**P051** **04**	Press Mode key ➔Thinning-out duration in minutes Modify with Forward and Semi-Automatic keys
Program step P052	**P052** **12**	Press Mode key ➔Function not used, value to be set to "0"
Program step P053	**P053** **40**	Press Mode key ➔Slow rinsing duration in minutes Modify with Forward and Semi-Automatic keys
Program step P054	**P054** **08**	Press Mode key ➔Fast rinsing duration in minutes Modify with Forward and Semi-Automatic keys
Program step P031	**P031** **00111**	Press Mode key ➔Configuring the alarms Modify with Forward and Semi-Automatic keys
Program step P032	**P032** **070**	Press Mode key ➔Maintenance frequency in number of regenerations Modify with Forward and Semi-Automatic keys
Program step P033	**P033** **140**	Press Mode key ➔Customer service frequency in number of regenerations Modify with Forward and Semi-Automatic keys

12.3. ANTICIPATED VOLUME DATA operating mode - codes 42230, 42730 , 52230 & 52730

FUNCTION	DISPLAY UNIT	DESCRIPTION
Operating mode	**01:00** **42230 ou 42730**	Operating code programming
Factory programming	**01:01** **1000 L**	➔Moment time over 24 hours ➔Water softener default autonomy
Program step P100	**P100** **01:01**	Press Mode key for 5 seconds ➔Setting to service date (year : week = YY:WW) Modify with Forward and Semi-Automatic keys
Program step P001	**P001** **2000**	Press Mode key ➔Moment year Modify with Forward and Semi-Automatic keys
Program step P002	**P002** **01:01**	Press Mode key ➔Moment day and month (DD:MM) Modify with Forward and Semi-Automatic keys
Program step P003	**P003** **1.01:01**	Press Mode key ➔Week day and moment time Modify with Forward and Semi-Automatic keys
Program step P080	**P080** **0.01:00**	Press Mode key ➔Regeneration time (HH:MM) Modify with Forward and Semi-Automatic keys
Program step P051	**P051** **04**	Press Mode key ➔Thinning-out duration in minutes Modify with Forward and Semi-Automatic keys
Program step P052	**P052** **12**	Press Mode key ➔Function not used, value to be set to "0"
Program step P053	**P053** **40**	Press Mode key ➔Slow rinsing duration in minutes Modify with Forward and Semi-Automatic keys
Program step P054	**P054** **08**	Press Mode key ➔Fast rinsing duration in minutes Modify with Forward and Semi-Automatic keys

FUNCTION	DISPLAY UNIT	DESCRIPTION
Program step P060	**P060** **0-001**	Press Mode key ➔Water counter pulses conversion Modify with Forward and Semi-Automatic keys
Program step P062	**P062** **0-001**	Press Mode key ➔Pulses transmitted outside
Program step P040	**P040** **L.1000**	Press Mode key ➔Water softener cycle in liters or hectoliters Modify with Forward and Semi-Automatic keys
Program step P070	**P070** **L.0300**	Press Mode key ➔Initial daily average Modify with Forward and Semi-Automatic keys
Program step P031	**P031** **00111**	Press Mode key ➔Configuring the alarms Modify with Forward and Semi-Automatic keys
Program step P032	**P032** **070**	Press Mode key ➔Maintenance frequency in number of regenerations ➔Modify with Forward and Semi-Automatic keys
Program step P033	**P033** **140**	Press Mode key ➔Customer service frequency in number of regenerations ➔Modify with Forward and Semi-Automatic keys

12.4. ANTICIPATED VOLUME SEVEN operating mode - codes 42530 & 52530

FUNCTION	DISPLAY UNIT	DESCRIPTION
Operating mode	**01:00** **42530**	Operating code programming
Factory programming	**01:01** **1000 L**	➔Moment time over 24 hours ➔Water softener default autonomy
Program step P100	**P100** **01:01**	Press Mode key for 5 seconds ➔Setting to service date (year : week = YY:WW) Modify with Forward and Semi-Automatic keys
Program step P001	**P001** **2000**	Press Mode key ➔Moment year Modify with Forward and Semi-Automatic keys
Program step P002	**P002** **01:01**	Press Mode key ➔Moment day and month (DD:MM) Modify with Forward and Semi-Automatic keys
Program step P003	**P003** **1.01:01**	Press Mode key ➔Week day and moment time Modify with Forward and Semi-Automatic keys
Program step P080	**P080** **0.01:00**	Press Mode key ➔Regeneration time (HH:MM) Modify with Forward and Semi-Automatic keys
Program step P051	**P051** **04**	Press Mode key ➔Thinning-out duration in minutes Modify with Forward and Semi-Automatic keys
Program step P052	**P052** **12**	Press Mode key ➔Function not used, value to be set to "0"
Program step P053	**P053** **40**	Press Mode key ➔Slow rinsing duration in minutes Modify with Forward and Semi-Automatic keys
Program step P054	**P054** **08**	Press Mode key ➔Fast rinsing duration in minutes Modify with Forward and Semi-Automatic keys
Program step P060	**P060** **0-001**	Press Mode key ➔Water counter pulses conversion Modify with Forward and Semi-Automatic keys

FUNCTION	DISPLAY UNIT	DESCRIPTION
Program step P062	**P062** **0-001**	Press Mode key ➔Pulses transmitted outside
Program step P040	**P040** **L.1000**	Press Mode key ➔Water softener cycle in liters or hectoliters Modify with Forward and Semi-Automatic keys
Program step P071	**P071** **L.0300**	Press Mode key ➔Monday initial average Modify with Forward and Semi-Automatic keys
Program step P072	**P072** **L.0300**	Press Mode key ➔Tuesday initial average Modify with Forward and Semi-Automatic keys
Program step P073	**P073** **L.0300**	Press Mode key ➔Wednesday initial average Modify with Forward and Semi-Automatic keys
Program step P074	**P074** **L.0300**	Press Mode key ➔Thursday initial average Modify with Forward and Semi-Automatic keys
Program step P075	**P075** **L.0300**	Press Mode key ➔Friday initial average Modify with Forward and Semi-Automatic keys
Program step P076	**P076** **L.0300**	Press Mode key ➔Saturday initial average Modify with Forward and Semi-Automatic keys
Program step P077	**P077** **L.0300**	Press Mode key ➔Sunday initial average Modify with Forward and Semi-Automatic keys
Program step P031	**P031** **00111**	Press Mode key ➔Configuring the alarms Modify with Forward and Semi-Automatic keys
Program step P032	**P032** **070**	Press Mode key ➔Maintenance frequency in number of regenerations Modify with Forward and Semi-Automatic keys
Program step P033	**P033** **140**	Press Mode key ➔Customer service frequency in number of regenerations Modify with Forward and Semi-Automatic keys

12.5. PURE VOLUME operating mode - codes 41230 & 51230

FUNCTION	DISPLAY UNIT	DESCRIPTION
Operating mode	**01:00** **41230**	Operating code programming
Factory programming	**01:01** **1000 L**	➔Moment time over 24 hours ➔Water softener default autonomy
Program step P100	**P100** **01:01**	Press Mode key for 5 seconds ➔Setting to service date (year : week = YY:WW) Modify with Forward and Semi-Automatic keys
Program step P001	**P001** **2000**	Press Mode key ➔Moment year Modify with Forward and Semi-Automatic keys
Program step P002	**P002** **01:01**	Press Mode key ➔Moment day and month (DD:MM) Modify with Forward and Semi-Automatic keys
Program step P003	**P003** **1.01:01**	Press Mode key ➔Week day and moment time Modify with Forward and Semi-Automatic keys
Program step P040	**P040** **L.1000**	Press Mode key ➔Water softener cycle in liters or hectoliters Modify with Forward and Semi-Automatic keys

FUNCTION	DISPLAY UNIT	DESCRIPTION
Program step P051	**P051** **04**	Press Mode key ➔Thinning-out duration in minutes Modify with Forward and Semi-Automatic keys
Program step P052	**P052** **12**	Press Mode key ➔Function not used, value to be set to "0"
Program step P053	**P053** **40**	Press Mode key ➔Slow rinsing duration in minutes Modify with Forward and Semi-Automatic keys
Program step P054	**P054** **08**	Press Mode key ➔Fast rinsing duration in minutes Modify with Forward and Semi-Automatic keys
Program step P056	**P056** **00000**	Press Mode key ➔Function not used
Program step P060	**P060** **0-001**	Press Mode key ➔Water counter pulses conversion Modify with Forward and Semi-Automatic keys
Program step P062	**P062** **0-001**	Press Mode key ➔Pulses transmitted outside
Program step P031	**P031** **00111**	Press Mode key ➔Configuring the alarms Modify with Forward and Semi-Automatic keys
Program step P032	**P032** **070**	Press Mode key ➔Maintenance frequency in number of regenerations Modify with Forward and Semi-Automatic keys
Program step P033	**P033** **140**	Press Mode key ➔Customer service frequency in number of regenerations Modify with Forward and Semi-Automatic keys

12.6. Program step codes on A5-X PCB

Step	Description	Default value
P001	Current year	2000
P002	Current day and month	01:01
P003	Current time	1.01:01
P020	Frequency in days	04
P031	Configuration alarms	00011 if not bio / 00111 if bio
P032	Servicing frequency in number of regenerations	070
P033	Customer service frequency in number of	140
P040	Cycle	L.1000
P050	Regeneration duration in minutes	064
P051	Lifting duration in minutes	04
P052	Pump 2 duration in minutes	12
P053	Slow rinsing duration in minutes	40
P054	Fast rinsing duration in minutes	08
P056	Regenerations offset in seconds	00000
P060	Count conversion	0-001
P062	Count transfer	0-001
P070	Initial average	L.0300
P071	Monday initial average	L.0300
P072	Tuesday initial average	L.0300
P073	Wednesday initial average	L.0300
P074	Thursday initial average	L.0300
P075	Friday initial average	L.0300
P076	Saturday initial average	L.0300
P077	Sunday initial average	L.0300
P080	Regeneration time	0.01:00
P081	Regeneration time 1° slot	1.01:00
P082	Regeneration time 2° slot	1.01:00
P083	Regeneration time 3° slot	1.01:00
P084	Regeneration time 4° slot	1.01:00
P085	Regeneration time 5° slot	1.01:00
P086	Regeneration time 6° slot	1.01:00
P087	Regeneration time 7° slot	1.01:00
P091	Regeneration time 8° slot	0.01:00
P092	Regeneration time 9° slot	0.01:00
P093	Regeneration time 10° slot	0.01:00
P094	Regeneration time 11° slot	0.01:00
P095	Regeneration time 12° slot	0.01:00
P096	Regeneration time 13° slot	0.01:00
P097	Regeneration time 14° slot	0.01:00
P100	Setting to service date	01:01

13 - Programmed parameter record

Water softener type: _____

Raw water TH: _____ °f

Residual TH: _____ °f

Operating mode chosen:

1/ ❑ Pure time

2/ ❑ "Seven" pure time *(regeneration programmable over 7 days)*

3/ ❑ Pure volume regeneration if cycle = "0"

4/ ❑ Anticipated volume regeneration at fixed time compulsory

5/ ❑ Anticipated volume with priority to volume

6/ ❑ "Seven" anticipated volume regeneration at fixed time in accordance with calculated average

❑ **System Bio option** *(appliance fitted with electro-chlorination probe)*

Regeneration time: _____ hours _____minutes

Number of days between two regenerations: _____ days

Regeneration day and time:

❑ Monday _____h_____m	❑ Monday _____h_____m
❑ Tuesday _____h_____m	❑ Tuesday _____h_____m
❑ Wednesday_____h_____m	❑ Wednesday_____h_____m
❑ Thursday _____h_____m	❑ Thursday _____h_____m
❑ Friday _____h_____m	❑ Friday _____h_____m
❑ Saturday _____h_____m	❑ Saturday _____h_____m
❑ Sunday _____h_____m	❑ Sunday _____h_____m

Setting regeneration duration:

- Lifting : _____ minutes
- Brine suction and slow rinsing :_____ minutes
- Fast rinsing : _____ minutes

Impulsing meter: _____ pulse(s) per _____ liter

Diameter : _____ Rated flow-rate : _____ m3/h

Water softener cycle: _____ liters

Consumption average values: Monday (1) : _____ liters Tuesday (2) : _____ liters

Wednesday (3) : _____ liters Thursday (4) : _____ liters Friday (5) : _____ liters

Saturday (6) : _____ liters Sunday (7) : _____ liters

Note : - The above parameters shall be accurately documented while setting the appliance to service.
- Check the boxes opposite the operating mode and regeneration days and times.

MAINTENANCE

- EVERY DAY (or at least once a week depending on the process)

Check upstream water hardness (TH).

Any variation by + or - 10% of water under treatment hardness shall be taken into account in order to possibly review appliance settings.

Check hardness (TH) downstream from the appliance.

Check mixed water hardness (TH) (Depending on the process).

Correct mixing device setting if necessary.

To check hardness TH, PERMO can offer you TH kits which will facilitate such analyses.

Samples can be taken at sample unions (PE) as shown on the diagrams below or at any other points representative of the system.

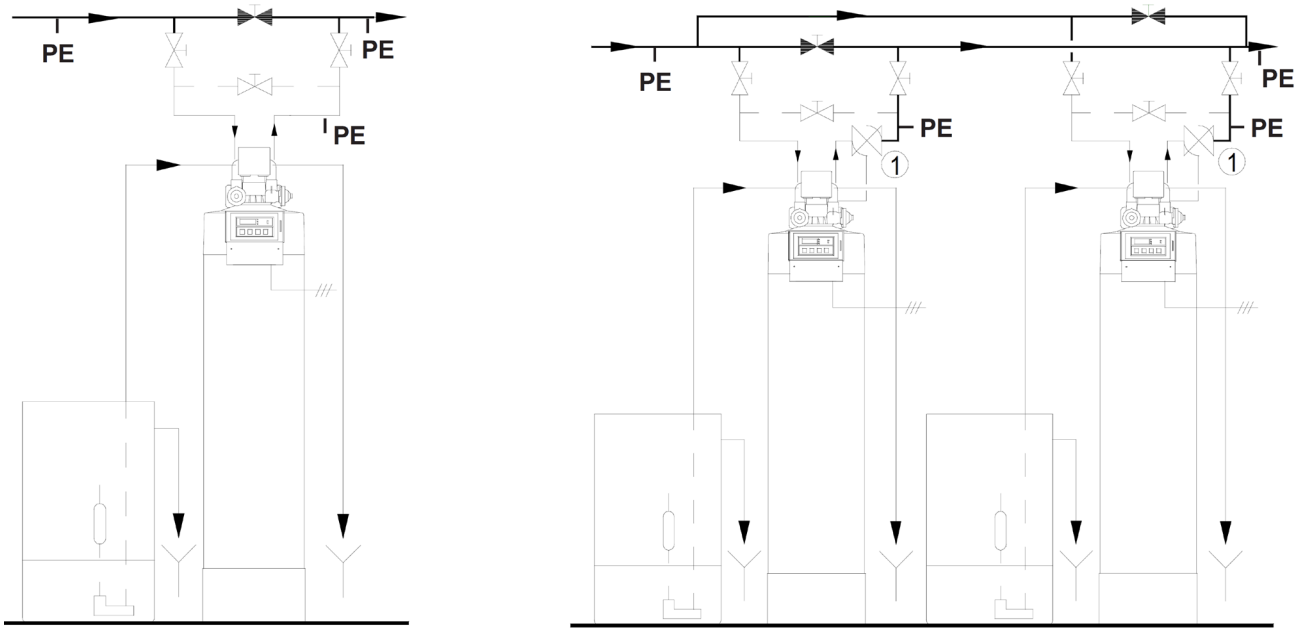


Figure XVIII: «Sampling point locations»

Note system operating parameters:

Water under treatment pressure (upstream of the water softener).

Counter index (for volumetric appliances).

Salt level in tray and reloaded quantity (if necessary)

Process-specific parameters

All notes (Hardness, operating parameters …) shall be recorded in a document for further reference if necessary.

- EVERY WEEK (or several times per week depending on the process)

Perform a functional test of water treatment components (if applicable) upstream from water softeners (E.g. filters)

Perform leak tests.

Check salt level in salt tray et and replenish as necessary.

- EVERY MONTH (or several times per week depending on the process)

Check the water softener control unit display in order to set the internal clock if necessary.

Procedure: refer to page 28 paragraph 9 of this manual.

Check (on volumetric installations only) that flow-rate data is correctly received by the water impulsing meter installed on water pipe.

Procedure: Select cycle display on control unit display unit and wait for a unit countdown during softened water production.

Check that the appliance does not discharge water to the sewer system (out of regeneration mode).

Check for security of electric connections.

Check the pre-treatment or filtration systems possibly installed downstream from the water softener.

- EVERY SIX MONTHS (or several times per half-year depending on the process)

We recommend to clean resins using the STERICLEAN product.

- EVERY YEAR (or several times per half-year depending on the process)

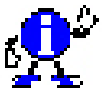
Check valve internal components (operating and wear parts). Operating or wear parts are shown on page 59 of this manual.

Replace worn-out parts or parts showing incipient wear.

Clean or replace the other parts if necessary.

Check for too high quantities of salt insoluble deposits. Clean salt tray if necessary.

Perform a functional test of the brine regulator, replace parts as necessary.



NOTE: The above-mentioned information is a minimum. Depending on water under treatment quality and the changes thereof in time, the typology of the appliance accommodating room, upstream or downstream processes, it may be necessary to provide for an increased maintenance at different periods.

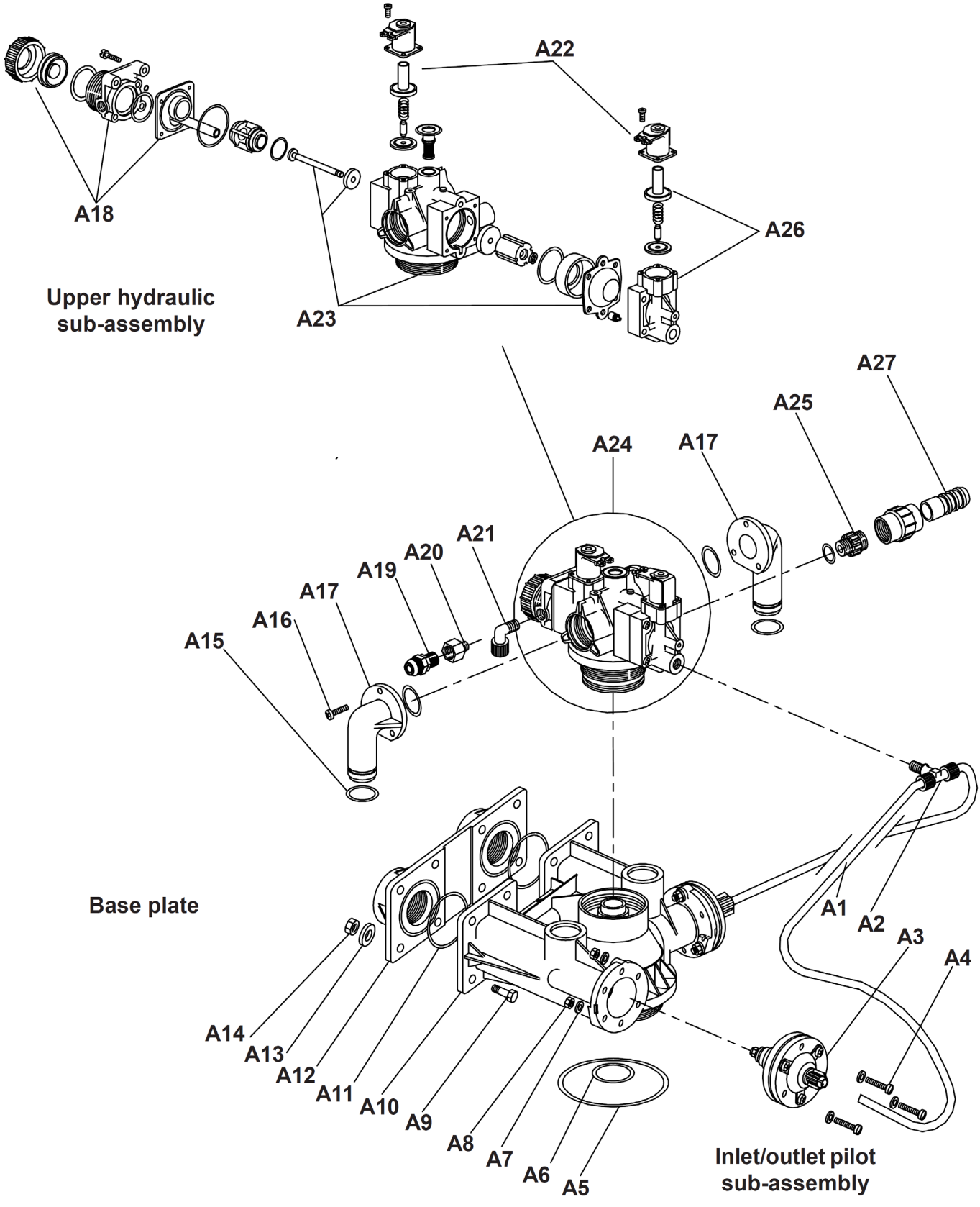
For your appliance to operate correctly and provide you with the utmost comfort and safety, it is important to ensure a periodical maintenance.

Indeed, some components are subject to normal ageing specific to the appliance operation. These components, also called operating and/or wear parts, must be periodically replaced by a qualified person authorized to perform this work.

Operating and wear parts are excluded form our general warranty conditions.

The exchange frequency is determined in accordance with equipment installation and functioning conditions. Refer to the «Maintenance» section for more details and contact our technical departments to benefit by all their know-how.

Parts List


A22
A18
A26
Upper hydraulic sub-assembly
A23
A27
A25
A24
A17
A21
A20
A19
A17
A16
A15
Base plate
A1
A2
A3
A4
A14
A13
A12
A11
A10
A9
A8
A7
A6
A5
Inlet/outlet pilot sub-assembly

Parts List

Item	Description	Customer service
A1	Inlet/outlet pilot hydraulic line tubing	0
A2	Inlet/outlet pilot hydraulic line tee	1
A3	Inlet/outlet pilots	1
A4	Inlet/outlet pilots attaching screw	0
A5	Bottle/valve O-ring	1
A6	Soft water tube O-ring	1
A7	Inlet/outlet pilots attaching screw washer	0
A8	Inlet/outlet pilots attaching screw nut	0
A9	Inlet/outlet flange attaching screw	0
A10	Base plate	0
A11	Inlet/outlet flange O-ring	0
A12	Inlet/outlet flange	0
A13	Inlet/outlet flange screw washer	0
A14	Inlet/outlet flange screw washer nut	0
A15	O-ring for upper hydraulic sub-assembly inlet junction elbow	0
A16	Attaching screw for upper hydraulic sub-assembly inlet junction elbow	0
A17	Upper hydraulic sub-assembly inlet junction elbow	0
A18	Hydro-ejector sub-assembly	1
A19	Brine union for 11/14 pipe	1
A20	Adaptor 3/8" x 1/4"	0
A21	Brine union for 6/8 pipe	1
A22	Solenoid valve sub-assembly	2
A23	Moving mechanism and membrane sub-assembly	2
A24	Upper hydraulic control sub-assembly	0
A25	3/4" sewer nipple sub-assembly	1
A26	Head and solenoid valve sub-assembly	0
A27	Grooved discharge end-piece	0

Some parts listed in the above table are not available separately.
They may pertain to our Customer Service kits. To obtain the part number of the spare parts required for servicing your appliance, it is compulsory to get in touch with one of our numerous PERMO agencies (see the list at the beginning of this manual).

permo
BEST WATER TECHNOLOGY

Regional agencies in:

BORDEAUX, CANNES, COLMAR, GRENOBLE, LILLE, LYON, MARSEILLE, NANCY, NANTERRE, REIMS, ROUEN, TOURS, NANTES, TRAPPES, C.A.R. ROISSY and SERVICE EXPORT.

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