

Technical Manual  
***WATER SOFTENER***

iQ soft

Models: **IQ-CS-**

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## WARNING & SAFETY INSTRUCTIONS

- Before you begin the installation of the appliance, we advise you read and carefully follow the instructions contained in this manual. It contains important information about safety, installation, use and maintenance of the product. The actual system that you have received, may differ from the pictures/illustrations/descriptions in this Technical Manual.
- Failure to follow the instructions could cause personal injury or damage to the appliance or property. Only when installed, commissioned and serviced correctly, the appliance will offer you many years of trouble-free operation.
- The appliance is intended to 'soften' the water, meaning it will remove hardness minerals; it will not necessarily remove other contaminants present in the water. The appliance will not purify polluted water or make it safe to drink!
- Installation of the appliance should only be undertaken by a competent person, aware of the local codes in force. All plumbing and electrical connections must be done in accordance with local codes.
- Before setting up the appliance, make sure to check it for any externally visible damage; do not install or use when damaged.
- Use a hand truck to transport the appliance. To prevent accident or injury, do not hoist the appliance over your shoulder. Do not lay the appliance on its side.
- Keep this Technical Manual in a safe place and ensure that new users are familiar with the content.
- The appliance is designed and manufactured in accordance with current safety requirements and regulations. Incorrect repairs can result in unforeseen danger for the user, for which the manufacturer cannot be held responsible. Therefore repairs should only be undertaken by a competent technician, familiar and trained for this product.
- In respect of the environment, the appliance should be disposed of in accordance with Waste Electrical and Electronic Equipment requirements. Refer to national/local laws and codes for correct recycling of the appliance.

## OPERATING CONDITIONS & REQUIREMENTS

- **OPERATING PRESSURE MIN-MAX: 1,4-8,3 bar / 20-120 psi**
  - this appliance is configured to perform optimally at an operating pressure of 3 bar (45 psi)  $\pm$  ½ bar (7 psi); in case of a lower or higher operating pressure the performance may be affected negatively!
  - check water pressure regularly; it may fluctuate severely depending on the time of day, the day of the week or even the season of the year.
  - take into account that night time water pressure may be considerably higher than day time water pressure.
  - install a pressure reducer ahead of the appliance if necessary.
  - install a pressure booster, if it is likely that water pressure may drop below the minimum.
  
- **OPERATING TEMPERATURE MIN-MAX: 2-48 °C / 35-120 °F**
  - do not install the appliance in an environment where high ambient temperatures (e.g. unvented boiler house) or freezing temperatures can occur.
  - the appliance cannot be exposed to outdoor elements, such as direct sunlight or atmospheric precipitation.
  - do not install the appliance too close to a water heater; keep at least 3 m (10 ft) of piping between the outlet of the appliance and the inlet of the water heater; water heaters can sometimes transmit heat back down the cold pipe into the appliance; always install a check valve at the outlet of the appliance.
  
- **ELECTRICAL CONNECTION:**
  - the appliance only works on 24 VAC; always use it in combination with the supplied transformer.
  - make sure to plug the transformer into a power outlet, which is installed in a dry location, with the proper rating and over-current protection.

# INSTALLATION

## PREPARATION BRINE CABINET

### **Picture 1&10**

To facilitate the installation, you may want to remove the salt lid and main cover from the brine cabinet.

## INLET & OUTLET

*In case of high concentration of impurities in the inlet water, we recommend the installation of a sediment filter, ahead of the appliance.*

*We strongly recommend the use of flexible hoses to connect the appliance to the water distribution system; use hoses with a large diameter in order to limit the pressure loss.*

*If the appliance is not equipped with the included factory bypass, we strongly recommend to install a 3-valve bypass system (not included with this product!) to isolate the appliance from the water distribution system in case of repairs. It allows to turn off the water to the appliance, while maintaining (untreated) water supply to the user.*

### WITH FACTORY BYPASS

### **Picture 2**

❶ = mains water supply (untreated water)

❷ = inlet of appliance (untreated water)

❸ = outlet of appliance (treated water)

❹ = house/application (treated water)

1. Screw the factory bypass onto the elbow connections of the appliance (❷&❸); make sure to install the gasket seals. Tighten the nuts firmly by hand.
2. Screw the connection kit with nuts onto the factory bypass (❶&❹); make sure to install the gasket seals. Tighten the nuts firmly by hand.
3. Connect the mains water supply to the adaptor on the inlet port of the factory bypass (❶).
4. Connect the house/application to the adaptor on the outlet port of the factory bypass (❹).

### WITH 3-VALVE BYPASS SYSTEM (not included)

### **Picture 3**

❶ = inlet of appliance (untreated water)

❷ = outlet of appliance (treated water)

1. Install the 3-valve bypass system.
2. Screw the connection kit with nuts onto the elbow connections of the appliance (❶&❷); make sure to install the gasket seals. Tighten the nuts firmly by hand.
3. Connect the 3-valve bypass system to the adaptors on the in (❶) and out (❷) elbow connections
4. Connect the mains water supply to the inlet of the 3-valve bypass system.
5. Connect the house/application to the outlet of the 3-valve bypass system.

## DRAIN

*We recommend the use of a stand pipe with P-trap.*

*To prevent backflow from the sewerage system into the appliance, always install and use the included drain adaptor with air gap and double hose barb, to connect the drain hoses to the sewerage system.*

*Always use separate drain hoses for the control valve (discharge of rinse water) and the brine cabinet's overflow.*

*Lay-out the drain hoses in such a way that pressure loss is minimized; avoid kinks and unnecessary elevations.*

*Make sure that the sewerage system is suitable for the rinse water flow rate of the appliance.*

### **Picture 4**

1. Install the drain adaptor to the sewerage system; it fits over a 32 mm pipe or inside a 40 mm pipe adaptor. Ensure a permanent and watertight connection.
2. Connect a 13 mm hose to the drain solenoid of the control valve (❶); secure it by means of a clamp.
3. Run the drain hose to the drain adaptor and connect it to one of the hose barbs; secure it by means of a clamp. This drain line operates under pressure, so it may be installed higher than the appliance.
4. Connect a 13 mm hose to the brine cabinet overflow elbow; secure it by means of a clamp.
5. Run the drain hose to the drain adaptor and connect it to the other hose barb; secure it by means of a clamp. This drain line does NOT operate under pressure, so it may NOT be installed higher than the appliance.

# COMMISSIONING

## ELECTRICAL

### **Picture 5**

1. Plug the transformers output lead into the socket on the appliances power cord; secure it by means of the TwistLock clamp.
2. Plug the transformer into an electrical outlet.

## PRESSURIZING

1. Make sure the bypass system is in 'bypass' position.
2. Make sure the electronic controller of the appliance is in service mode.
3. Open the mains water supply.
4. Open a cold treated water faucet nearby the appliance and let the water run for a few minutes until all air is purged and all foreign material that may have resulted from the installation is washed out; close the tap.
5. Gently pressurize the appliance, by putting it into service:
  - *factory bypass:*
    1. open the 'outlet' valve;
    2. slowly open the 'inlet' valve.
  - *3-valve bypass:*
    1. close the 'bypass' valve;
    2. open the 'outlet' valve;
    3. slowly open the 'inlet' valve.
6. After 2-3 minutes, open a cold treated water faucet nearby the appliance and let the water run for a few minutes until all air is purged from the installation and the resin bed is rinsed (it is normal for the rinse water to show some discoloration!); close the tap.
7. Check the appliance and all hydraulic connections for leaks.

*After the first regenerations of the appliance, some slight discoloration of the treated water might occur. This is totally harmless and will disappear rapidly!*

## BRINE CABINET

1. Add water conditioner salt to the brine cabinet.

## ELECTRONIC CONTROL PANEL

1. Program the electronic controller.

## ADJUSTMENT RESIDUAL HARDNESS


*In practice the residual hardness is influenced by the inlet pressure, flow rate and hardness of the incoming untreated water. When adjusting the residual hardness, make sure these conditions are similar to the actual operating conditions.*

### **Picture 6**

1. Adjust the residual hardness of the water that leaves the softener, by means of the adjusting screw, incorporated in the 'outlet' valve of the factory bypass:
  - to raise the residual hardness: turn the screw counter clockwise.

- to reduce the residual hardness: turn the screw clockwise.
2. Measure the residual water hardness with a water hardness test kit; readjust if necessary.

## PERFORM REGENERATION

1. Manually initiate a regeneration, by pressing the **scroll**  button repeatedly until the display shows:

**Regen in 10 sec**

2. Leave the appliance in this position; the countdown timer will countdown to 0 sec and start a regeneration.

# ELECTRONIC CONTROL PANEL

## Picture 7

symbol	button	function
	SCROLL	to advance to the next parameter
	UP	to increase the value of the parameter
	DOWN	to decrease the value of the parameter

### POWER-UP

After power-up the display will show the 5-digit Part Number of the electronic board and the installed software version.

### POWER FAILURE

In the event of a power failure, the program will remain stored in the NOVRAM® during an undefined period, while an incorporated SuperCap will maintain the correct time of day during a period of several hours; consequently, in case of prolonged power failure, the time of day might not be maintained; if this happens, the time of day will be reset to 8:00 when the power supply is re-established, while the indication will *flash*, indicating that the time of day needs to be set.

*When the power failure occurs during the execution of an automatic regeneration, the appliance will immediately return to the service mode; when the power supply is re-established, the appliance will resume the regeneration.*

### TIMER FAILURE

In the event of a timer failure, the display will show the message:

**Service Required**

The buzzer, if enabled (see Basic Settings), will beep continuously. If powering off/on the appliance doesn't solve this problem, professional service is required.

### MAINTENANCE REMINDER

Once the maintenance interval is reached, the following will happen:

- the display will intermittently show the message:

**8:01      1000L -  
Maintenance Now**

- the buzzer, if enabled (see Basic Settings), will beep 3 times every hour.

While the appliance will continue to operate normally, it is recommended to have preventive maintenance performed by a professional.

*To reset the maintenance reminder, simply access the configuration parameters programming mode.*

### SERVICE MODE

In **service mode** the display shows:

- on 1<sup>st</sup> line: the time of day and the remaining capacity;
- on 2<sup>nd</sup> line: alternately every 5 seconds:
  - the total volume of water used since commissioning;
  - the instantaneous flow rate;

**8:01      1000L -  
TotVol: 1234567L**

### REGENERATION MODE

In **regeneration mode** the display shows the actual regeneration cycle and, where relevant, the total remaining regeneration time and remaining cycle time:

**BRINE FILL**

**REGEN PENDING**

**Rgn:XXX CycY:ZZZ**

*The appliance can be reset to service mode at any time by pressing the scroll button, as such manually advancing it through the regeneration cycles.*

### CHECKING THE FLOW METER

In case of water usage, the remaining capacity counter in the service display will count back per unit, i.e. per litre. This way the correct functioning of the water meter can be verified.

### MANUAL REGENERATION

It is possible to manually initiate an immediate regeneration or a delayed regeneration (at the preprogrammed time of regeneration).

- Press the **scroll** button repeatedly until the display shows:


**Regen in 10 sec**

- If the control panel is left in this position, the countdown timer will countdown to 0 sec and *start an immediate regeneration*.
- To cancel this mode, press the **scroll** button before the countdown timer has reached 0 sec; the display will show:

**Regen @      2:00**

- If the control panel is left in this position, a *delayed regeneration* will be started at the indicated preprogrammed time of regeneration.


## ELECTRONIC CONTROL PANEL


- To cancel this mode, press the **scroll**  button repeatedly; the control panel will return to the service mode.

### SALT LEVEL ALARM


The electronic control panel is equipped with a salt level alarm, that will periodically remind the user to check the salt level inside the brine cabinet and to refill it with water conditioner salt if necessary. When the salt level alarm is triggered, the following will happen:

- the backlight of the display will flash on/off;
- the buzzer, if enabled (see Basic Settings), will beep 3 times every hour;
- the display will show:

**Check salt level  
To reset push** 

After refilling the brine cabinet, simply push the **down**  button to reset the salt level alarm. If any other button is pushed, the salt level alarm will be cancelled, but not reset, meaning it will be activated again after the next regeneration!

If the brine cabinet is refilled by the user with water conditioner salt, before the salt level alarm is activated, it is possible to reset the salt level alarm.


- Press the **scroll**  button; the display will show:

**Salt Added?  
To reset push** 

- Press the **down**  button to *reset the salt level alarm*.

### HOLIDAY MODE

It is possible to put the appliance in holiday mode; this will prevent automatic regeneration from taking place, yet will ensure the appliance is automatically regenerated at the end of the holiday cycle.

- Press the **scroll**  button repeatedly until the display shows:

**Holiday: OFF**

- Press the **up**  or **down**  button to *activate the holiday mode by setting the number of full days away from home, or deactivate the holiday mode (OFF)*.


Once the control panel is back in service mode, the display will show:

**8:01 Holiday  
TotVol: 1234567L**



- The holiday mode is automatically cancelled when a regeneration is manually initiated!*


### PROGRAMMING INSTRUCTIONS - BASIC SETTINGS

- Before entering the programming mode, make sure that the appliance is in service mode.*
- In case no button is pressed in a period of 5 min, the control panel will automatically return to the service mode; any changes made will NOT be saved!*

- Press the **scroll**  button and hold it for 2 sec until the display shows:


**Language: English**

- Press the **up**  or **down**  button to set *the language*.



- Press the **scroll**  button again; the display will show:


**Set time: 8:01**

- Press the **up**  or **down**  button to set *the time of day*.

- Press the **scroll**  button again; the display will show:


**HardUnit: °f**

- Press the **up**  or **down**  button to set *the unit of measure for water hardness*. Make sure it is identical to the unit of measure of the water hardness test kit or water analysis report that is used to determine the hardness of the incoming untreated water!



- Press the **scroll**  button again; the display will show:

**Set hardn: XX °f**

- Press the **up**  or **down**  button to set *the hardness of the incoming untreated water*.

- Press the **scroll**  button again; the display will show:

**Buzzer: 2**

- Press the **up**  or **down**  button to *enable the buzzer by setting the sound level, or disable the buzzer (OFF)*.

- Press the **scroll**  button again; the display will show:

**Exit**

- Press the **up**  or **down**  button to save the settings into the NOVRAM® and exit the programming mode.



# ELECTRONIC CONTROL PANEL

## PROGRAMMING INSTRUCTIONS - CONFIGURATION PARAMETERS

☑ All configuration parameters on this appliance have been pre-programmed in the factory, to offer optimal performance in a wide range of applications and situations. See table at the end of this manual for default configuration parameter settings.

☑ Before entering the programming mode, make sure that the appliance is in service mode.

☑ In case no button is pressed in a period of 5 min, the control panel will automatically return to the service mode; any changes made will NOT be saved!

1. Press the **scroll** button and hold it for 6 sec until the display shows:

**System Check**

2. Within 10 sec, press the **up** button; the display will show:

**Units:Metric**

- Press the **up** or **down** button to set the units of measure (Metric or US).

3. Press the **scroll** button again; the display will show:

**MaintInt: 24mths**

- Press the **up** or **down** button to activate the maintenance reminder function by setting the maintenance interval, or deactivate the maintenance reminder function.

4. Press the **scroll** button again; the display will show:

**ExCap:5.1°f M3/L**

- Press the **up** or **down** button to set the exchange capacity per litre of resin.

5. Press the **scroll** button again; the display will show:

**Age corr.: 1.0%**

- Press the **up** or **down** button to set the age correction factor (%/year) to compensate for capacity loss of the resin due to aging.

6. Press the **scroll** button again; the display will show:

**Resin:XXX liters**

- Press the **up** or **down** button to set the volume of resin.

7. Press the **scroll** button again; the display will show:

**Override: 7 days**

- Press the **up** or **down** button to set the number of days between regenerations.

8. Press the **scroll** button again; the display will show:

**Cycle 1: XXX sec**

- Press the **up** or **down** button to set the length of the regeneration cycle.
- Press the **scroll** button again to advance to the next regeneration cycle.

	Eco
Refill	Cycle 1
Brine preparation	Cycle 2
Brine draw/slow rinse	Cycle 3

9. Press the **scroll** button again; the display will show:

**Regen:Dlyd/Immd**

- Press the **up** or **down** button to set the regeneration mode:
  - **Dlyd/Immd**: when the remaining capacity equals the reserve capacity, a *delayed regeneration* is started at the programmed time of regeneration; however when the remaining capacity equals 0 before the programmed time of regeneration is reached, an *immediate regeneration* is started.
  - **Immediate**: when the remaining capacity equals 0, an *immediate regeneration* is started.
  - **Delayed**: when the remaining capacity equals the reserve capacity, a *delayed regeneration* is started.

10. Press the **scroll** button again; the display will show (only when the regeneration mode was set to 'Delayed' or 'Dlyd/Immd'):

**Regen @ 2:00**

- Press the **up** or **down** button to set the time of regeneration.

11. Press the **scroll** button again; the display will show:

**Salt alarm: ON**

- Press the **up** or **down** button to activate or deactivate the salt level alarm function.

# ELECTRONIC CONTROL PANEL

12. Press the **scroll** button again; the display will show:

**Alarm interval:**  
**9 Regens**

- Press the **up** or **down** button to set the salt level alarm interval (= number of regens after which the salt level alarm is activated).

13. Press the **scroll** button again; the display will show (only when the regeneration mode was set to 'Dlyd' or 'Dlyd/lmmd'):

**Rsrv Variable**

- Press the **up** or **down** button to set the reserve capacity:
  - **Variable:** the reserve capacity is calculated automatically, based on the registered daily water usage.
  - **Fxd:** press the **scroll** button again and press the **up** or **down** button to set the reserve capacity to a fixed amount.

14. Press the **scroll** button again; the display will show:

**AUX: Regen**

- Press the **up** or **down** button to set the function of auxiliary contact 1 and auxiliary contact 2:
  - **Regen:** aux. contact is powered during entire regeneration (does not include refill and brine preparation cycles!).
  - **Chlor.Cell:** aux. contact is powered at start of brine draw/slow rinse cycle. Press the **scroll** button again and press the **up** or **down** button to set the duration of activation of the chlorination cell.
  - **Maintenance:** aux. contact is powered when maintenance reminder is triggered.
  - **Error:** aux. contact is powered when timer failure occurs.
  - **Light:** aux. contact is powered when display backlight is activated.
  - **Salt alarm:** aux. contact is powered when salt level alarm is triggered.

15. Press the **scroll** button again; the display will show:

**Exit**

- Press the **up** or **down** button to save the settings into the NOVRAM® and exit the programming mode.

## DIAGNOSTICS MODE

- ☑ In the Diagnostics mode several operating parameters can be consulted; particularly during a service intervention, these parameters can be helpful to identify the cause of a problem or malfunction.
- ☑ Before entering the Diagnostics mode, make sure that the appliance is in service mode.
- ☑ In case no button is pressed in a period of 5 min, the control panel will automatically return to the service mode!

### ACCESSING THE DIAGNOSTICS MODE

1. Press the **scroll** button and hold it for 6 sec until the display shows:

**System Check**

2. Within 10 sec, press the **down** button; the display will show:

**Regen XXdays ago**

- You are now in the Diagnostics mode.
- Press the **scroll** button to advance to the next diagnostics parameter.

### AVAILABLE DIAGNOSTICS PARAMETERS

- **Regen X days ago:** number of days since last regeneration.
- **In Srvc:** total number of days in service.
- **# of Regens:** number of regenerations since installation.
- **TotVol:** total volume of treated water since installation.
- **LastSet:** number of days since last change of configuration parameter or hardness of incoming untreated water.
- **InstFlow:** instantaneous flow rate through appliance.
- **AvgVol:** calculated average daily water usage.
- **LastRgn@:** consumed capacity at last regeneration.
- **Capacity:** calculated capacity between regenerations.
- **TotAgeCorr:** total accumulated age correction factor.
- **MaintCnt:** current status of maintenance reminder counter (counting up).
- **MP Resets:** number of resets of microprocessor.
- **Memory Reset:** number of corrupt memory start-ups.
- **CapToUse:** remaining capacity.
- **Fill:** length of refill cycle of last regeneration.
- **Alarm count:** current status of salt level alarm counter (counting up).
- **Reserve:** calculated reserve capacity.
- **EZ2L4d EZ2LPBr13:** software version.

### EXITING THE DIAGNOSTICS MODE

1. Press the **scroll** button repeatedly until the display shows:

**Exit**

- Press the **up** or **down** button to exit the Diagnostics mode.

# MAINTENANCE

## RECOMMENDATION

Notwithstanding the reliability of the appliance, we strongly recommend to have it serviced and maintained on a regular basis by a competent and duly trained technician. He will be able to determine the appropriate maintenance interval for the appliance, depending on your specific application and the local operating conditions. The advantages of performing regular maintenance are:

- regular check of the local operating conditions (water quality, pressure, etc);
- regular control and adjustment of the settings of the appliance, to guarantee it operates at maximum efficiency;
- minimize the risk of unexpected break-down.

Contact your dealer or installer for more information, or visit our website.

## ROUTINE CHECKS

Regularly the user should perform a basic check to verify if the appliance is functioning correctly, on the basis of the following control points:

1. Check settings of electronic control panel.
2. Measure water hardness before/after appliance.
3. Check drain line from control valve; there shouldn't be any water flow (unless appliance is in regeneration).
4. Check drain line from brine cabinet overflow; there shouldn't be any water flow.
5. Check appliance and surrounding area; there shouldn't be any water leakages.

## BYPASSING THE APPLIANCE

Occasionally it may be necessary to put the appliance hydraulically in bypass, i.e. to isolate it from the water distribution system; f.e.:

- in case of an urgent technical problem;
- when it is not necessary to supply treated water to the house/application (refill swimming pool, irrigation,...).

### WITH FACTORY BYPASS

#### **Picture 8.a**

##### SERVICE POSITION

- ❶ = inlet valve to appliance is OPEN
- ❷ = outlet valve from appliance is OPEN

#### **Picture 8.b**

##### BYPASS POSITION

- ❶ = inlet valve to appliance is CLOSED
- ❷ = outlet valve from appliance is CLOSED

#### **Picture 8.c**

##### MAINTENANCE POSITION

- ❶ = inlet valve to appliance is OPEN
- ❷ = outlet valve from appliance is CLOSED

### WITH 3-VALVE BYPASS SYSTEM (not included)

#### **Picture 9.a**

##### SERVICE POSITION

- ❶ = bypass valve is CLOSED
- ❷ = inlet valve to appliance is OPEN
- ❸ = outlet valve from appliance is OPEN

#### **Picture 9.b**

##### BYPASS POSITION

- ❶ = bypass valve is OPEN
- ❷ = inlet valve to appliance is CLOSED
- ❸ = outlet valve from appliance is CLOSED

#### **Picture 9.c**

##### MAINTENANCE POSITION

- ❶ = bypass valve is OPEN
- ❷ = inlet valve to appliance is OPEN
- ❸ = outlet valve from appliance is CLOSED

## WATER CONDITIONER SALT

#### **Picture 10**

The appliance needs 'brine' for its periodic regenerations. This brine solution is made from water, that is automatically dosed in the brine cabinet by the control valve, and water conditioner salt. The user should make sure that the brine cabinet is always kept full of water conditioner salt. Therefore he should periodically check the salt level inside the brine cabinet and refill it if necessary; the salt level alarm will remind him of this on a regular basis. The salt lid can be removed completely to facilitate refilling.

Ideally the level of water conditioner salt inside the brine cabinet is kept between 1/3 and 2/3. A lower level of water conditioner salt can cause insufficient brine saturation, resulting in a loss of softening capacity. A higher level of water conditioner salt can cause salt bridging (hard crust or salt bridges in the brine cabinet). When you suspect salt bridging:

- carefully pound on the outside of the brine cabinet to break loose the salt bridges;
- using a broom (or like blunt tool) carefully push the salt to break it apart;
- pour warm water over the top of the salt to dissolve it.

## APPEARANCE

To retain the appearance of the appliance, simply wipe it with a damp cloth or clean it with a mild soap solution; never use abrasive cleaners, ammonia or solvents.

## RESIN CLEANER

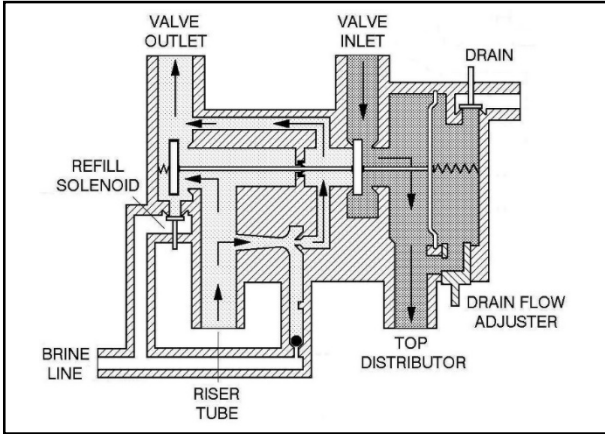
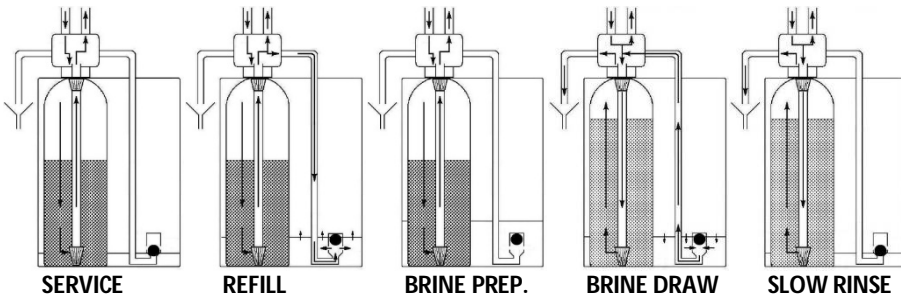
Other contaminants (f.e. iron) present in the feed water can cause the resin bed to foul up, resulting in a loss of softening capacity. An approved resin cleaner can be used periodically to thoroughly clean the resin bed.

### ***SANITIZING THE APPLIANCE***

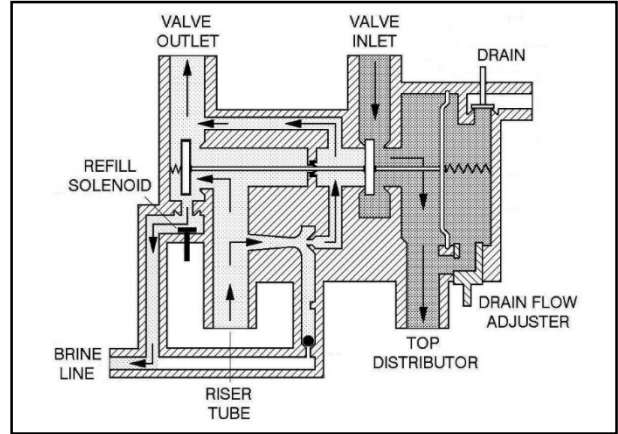
This appliance is manufactured from premium quality material and assembled in safe conditions to assure it is clean and sanitary. If installed and serviced correctly, this appliance will not infect or contaminate your water supply. However, as in any 'device' plumbed-in in your water distribution system, a proliferation of bacteria is possible, especially in case of 'stagnant water'. Therefore this appliance is equipped with a 'days override' feature, that will automatically rinse the resin bed periodically, even in case of low or absence of water usage.

If the power supply to the appliance is disconnected for a longer period of time, we recommend, when the power supply is re-established, to manually initiate a complete regeneration.

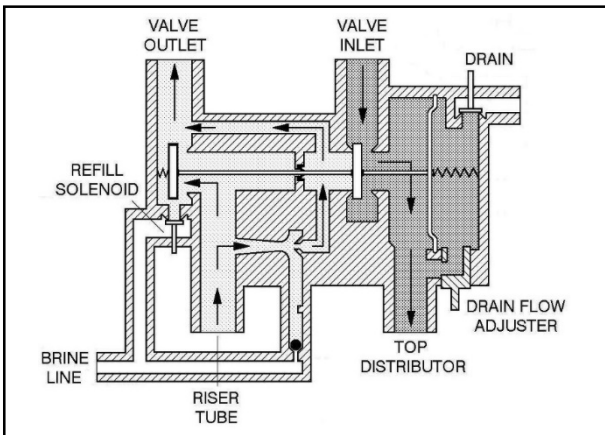
# HYDRAULIC FLOW DIAGRAMS



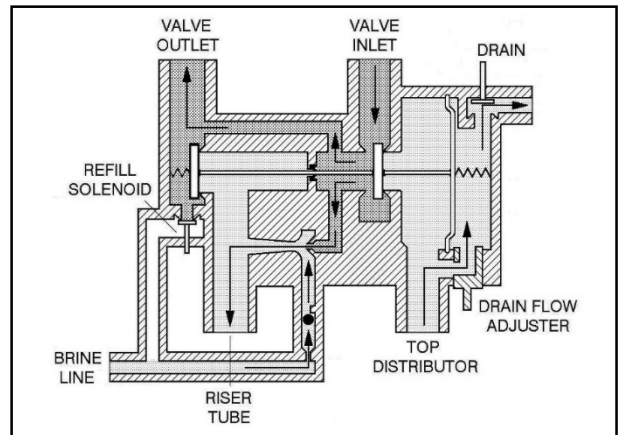
**SERVICE**



**REFILL**



**BRINE PREPARATION**



**BRINE DRAW / SLOW RINSE**

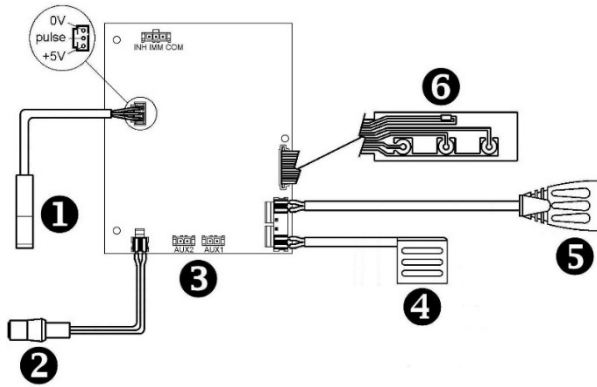
## TROUBLESHOOTING

PROBLEM	CAUSE	SOLUTION
<b>Hard (untreated) water to service</b>	Open or defective bypass	Close or replace bypass
	Appliance in regeneration	Wait until regeneration finishes or manually advance regeneration to end
	No salt in brine cabinet	Add salt and initiate regeneration manually
	Salt bridging	Break salt bridge(s) and initiate regeneration manually
	Change in raw water hardness	Measure the hardness of the incoming untreated water and adjust programming accordingly
	Appliance fails to regenerate	Refer to problem "Appliance fails to regenerate"
	Improper brine draw	Refer to problem "Improper brine draw"
	Decreasing exchange capacity of resin	Clean or replace resin bed
	Loss of resin	Refer to problem "Loss of resin"
Leak at riser tube	Verify that riser tube is seated correctly and is not cracked	
<b>Residual hardness in treated water</b>	Bypass not completely closed	Close bypass
	Appliance is overrunning its softening capacity	Measure the hardness of the incoming untreated water and adjust programming accordingly
		Verify operation of flow meter
<b>Appliance fails to regenerate</b>	Faulty electrical supply	Verify electrical service (fuse, transformer,...)
	Defective flow meter	Verify operation of flow meter
	Defective PCB	Replace PCB
	Defective drain solenoid	Replace drain solenoid
	Control valve does not switch to regeneration position	Check operating pressure; must be higher than 1,4 bar
<b>Appliance uses too much salt</b>	Excessive water in brine cabinet	Refer to problem "Excessive water in brine cabinet"
	System regenerates too frequently	Measure the hardness of the incoming untreated water and adjust programming accordingly
<b>Excessive water in brine cabinet</b>	Improper brine draw	Refer to problem "Improper brine draw"
	Improper setting of refill cycle	Verify setting of refill cycle
	Missing refill flow control	Verify that refill flow control is installed and properly sized
	Leak from control valve to brine cabinet	Clean or replace plunger and solenoid diaphragm of refill solenoid
		Check seal between brine draw check ball and brine draw restrictor
<b>Salt taste in treated water</b>	Improper setting of brine draw/slow rinse cycle	Verify setting of brine draw/slow rinse cycle
	Excessive water in brine tank	Refer to problem "Excessive water in brine tank"
	Improper brine draw	Refer to problem "Improper brine draw"
<b>Loss of water pressure</b>	Mineral or iron build-up in resin tank	Clean resin bed and control valve; increase regeneration frequency
	Plugged lower and/or upper distributor	Verify that distributors are free of debris
	Crushed lower and/or upper distributor	Replace distributor(s)
<b>Drain line from control valve flows continuously</b>	Appliance in regeneration	Wait until regeneration finishes or manually advance regeneration to end
	Drain solenoid stuck in open position	Clean drain solenoid
	Defective PCB	Replace PCB
<b>Drain line from brine cabinet overflow flows continuously</b>	Excessive water in brine cabinet	Refer to problem "Excessive water in brine cabinet"
	Leak between control valve and pressure tank	Verify seal between control valve and pressure tank
<b>Control valve fails to refill brine tank</b>	Improper setting of refill cycle	Verify setting of refill cycle
	Plugged refill flow control	Clean refill flow control
	Refill solenoid not opening	Verify operation of refill solenoid
<b>Loss of resin</b>	Lower and/or upper distributor damaged	Replace distributor(s)
	Leak between riser tube and upper distributor	Verify that riser tube is seated correctly and is not cracked

## TROUBLESHOOTING

PROBLEM	CAUSE	SOLUTION
Improper brine draw	Low operating pressure	Check operating pressure; must be higher than 1,4 bar
	Plugged injector and/or brine draw restrictor	Clean injector and/or brine draw restrictor
	Plugged injector filter	Clean injector filter
	Restricted drain line	Verify drain line for kinks or restrictions
	Restricted brine line	Verify brine line for kinks or restrictions
	Leak in brine line	Verify brine line and connections for air leakage
	No water in brine tank	Refer to problem "Control valve fails to refill brine tank"

## ELECTRICAL WIRING DIAGRAM



- ❶ = flow meter
- ❷ = power lead
- ❸ = auxilliary contacts (24 VAC, max. 500mA)
- ❹ = refill solenoid (white)
- ❺ = drain solenoid
- ❻ = key pad



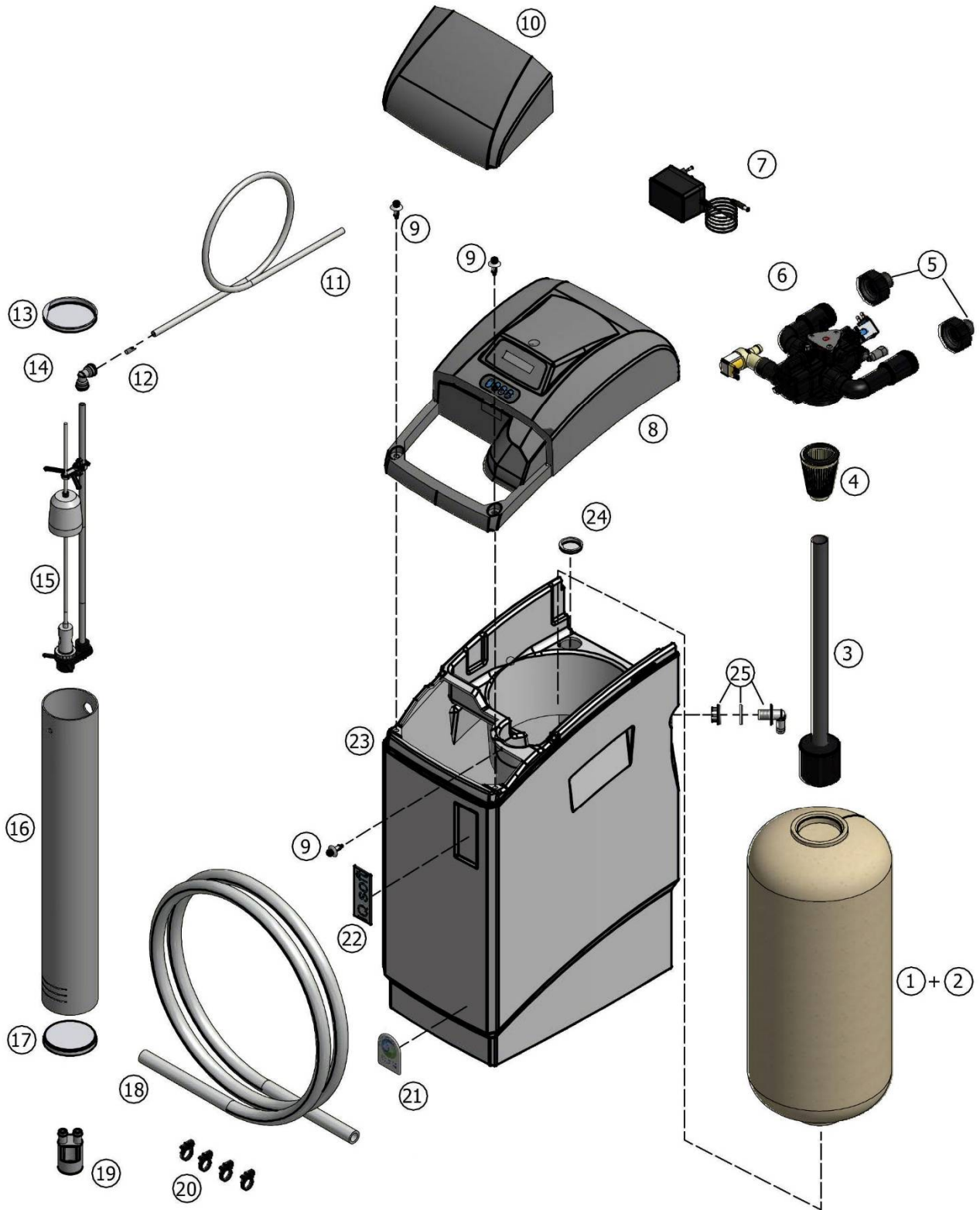
## DEFAULT CONFIGURATION PARAMETER SETTINGS

Model	IQ-CS-			
	9	12	18	26
Resin				
Units	Metric	Metric	Metric	Metric
MaintInt (mths)	24	24	24	24
Exchange capacity per liter resin (°f M <sup>3</sup> /L) <sup>(1) (2)</sup>	3,5	4,5	5,1	5,1
Age correction (%)	1.0	1.0	1.0	1.0
Resin (liters)	9	12	18	26
Override (days)	7	7	7	7
Cycle 1: REFILL (sec) <sup>(2)</sup>	198	264	396	572
Cycle 2: BRINE PREPARATION (min)	15	15	15	15
Cycle 3: BRINE DRAW/SLOW RINSE (min)	43	50	73	110
Regen	Dlyd/Immd	Dlyd/Immd	Dlyd/Immd	Dlyd/Immd
Regen @	2:00	2:00	2:00	2:00
Salt alarm	ON	ON	ON	ON
Alarm interval (Regens)	8	8	7	9
Rsrv	Variable	Variable	Variable	Variable
Auxilliary contact 1	Regen	Regen	Regen	Regen
Auxilliary contact 2	Regen	Regen	Regen	Regen

(1) When the Hardness Unit is changed in the Basic Settings, the Exchange capacity per liter resin is automatically converted to the new Hardness Unit.

(2) When the Exchange capacity per liter resin is changed, the refill cycle time needs to be adjusted accordingly.

# EXPLODED VIEW - SYSTEM

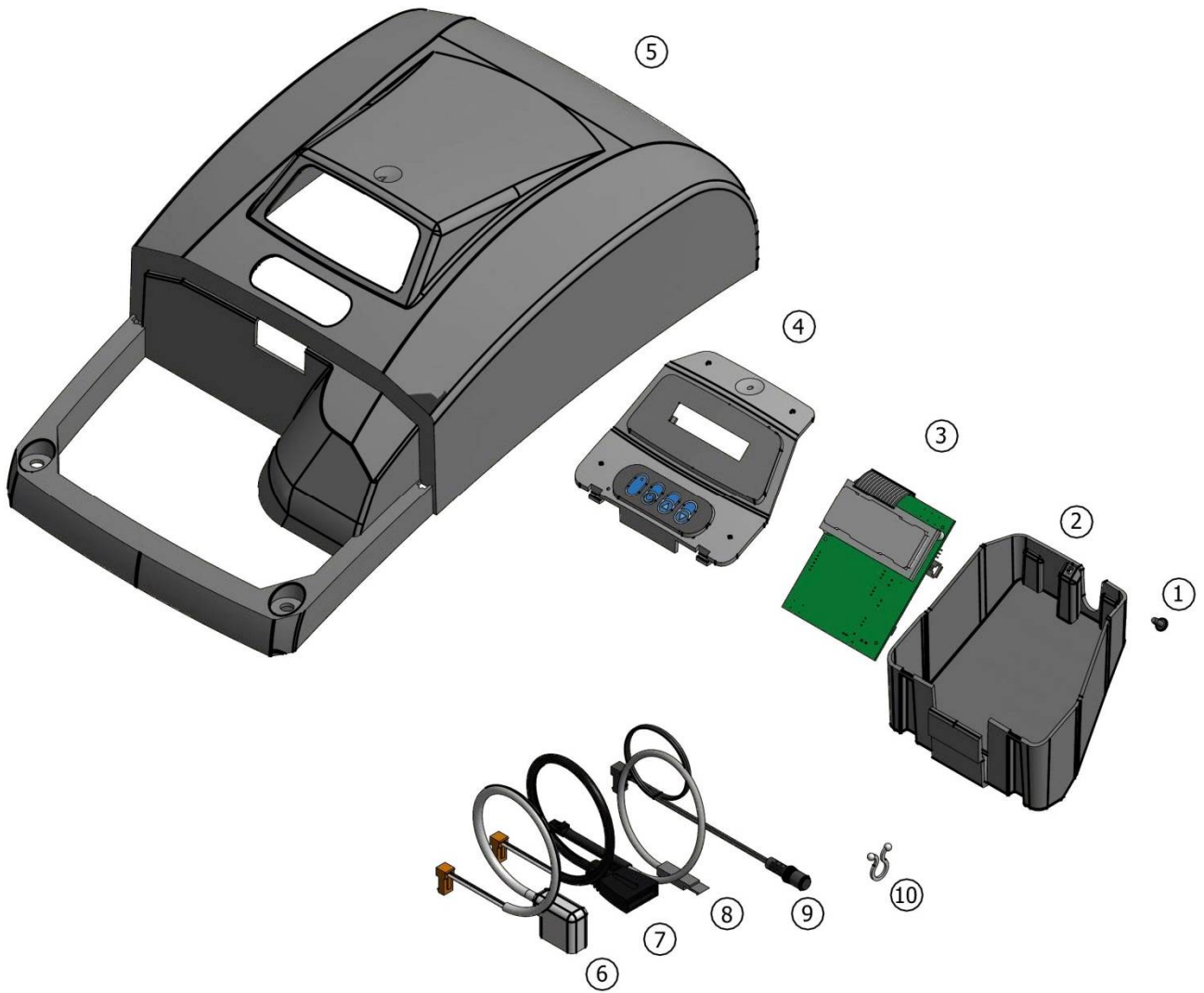


## EXPLODED VIEW - SYSTEM

Item	PN	Description	Remark	(*)
1	PT/0913/CP	Pressure tank 9x13	9L	✓
	PT/0916/CP	Pressure tank 9x16	12L	✓
	PT/0922/CP	Pressure tank 9x22	18L	✓
	PT/0932/CP	Pressure tank 9x32	26L	✓
2	E8000	Softening resin		✓
3	38528	Riser tube assembly with deflector	to be cut to length	✓
4	287/166	Top distributor		✓
5	568/303/6	Connection kit ¾" male		✓
6	541NCX9B/J90	Valve body assembly	9L	✓
	541NCX9B/J80	Valve body assembly	12L, 18L, 26L	✓
7	28/298/11	Transformer 230/24V - 50 Hz, 24VA, EuroT plug		✓
8		Cover assembly		
9	38536	Screw rivet (3x)		✓
10	39001	Salt lid		✓
11	H1015/2	Brine line polytube	to be ordered per meter	✓
12	74179	Brine line filter		✓
13	H1016/2	Brine well cap, top		
14	DM/A6EU6	Quick-fit elbow 3/8"		✓
15	38530	Brine valve assembly 464	to be cut to length	✓
16	BW3.5/0352	Brine well	9L	
	BW3.5/043	Brine well	11L	
	BW3.5/0583	Brine well	18L	
	BW3.5/0837	Brine well	26L	
17	H1016/4	Brine well cap, bottom		
18	38522	Drain hose	to be ordered per meter	
19	74163	Air gap with double hose barb		
20	38521	Clamp, drain hose (4x)		
21	39004	Dome label 'erie water treatment'		
22	39013	Dome label 'IQsoft'		
23	39009	Cabinet body, micro	9L	
	39010	Cabinet body, mini	11L	
	39011	Cabinet body, midi	18L	
	39012	Cabinet body, maxi	26L	
24	38559	Cap		
25	38532	Overflow assembly		

(\*) Recommended Spare Part

# EXPLODED VIEW - COVER ASSEMBLY

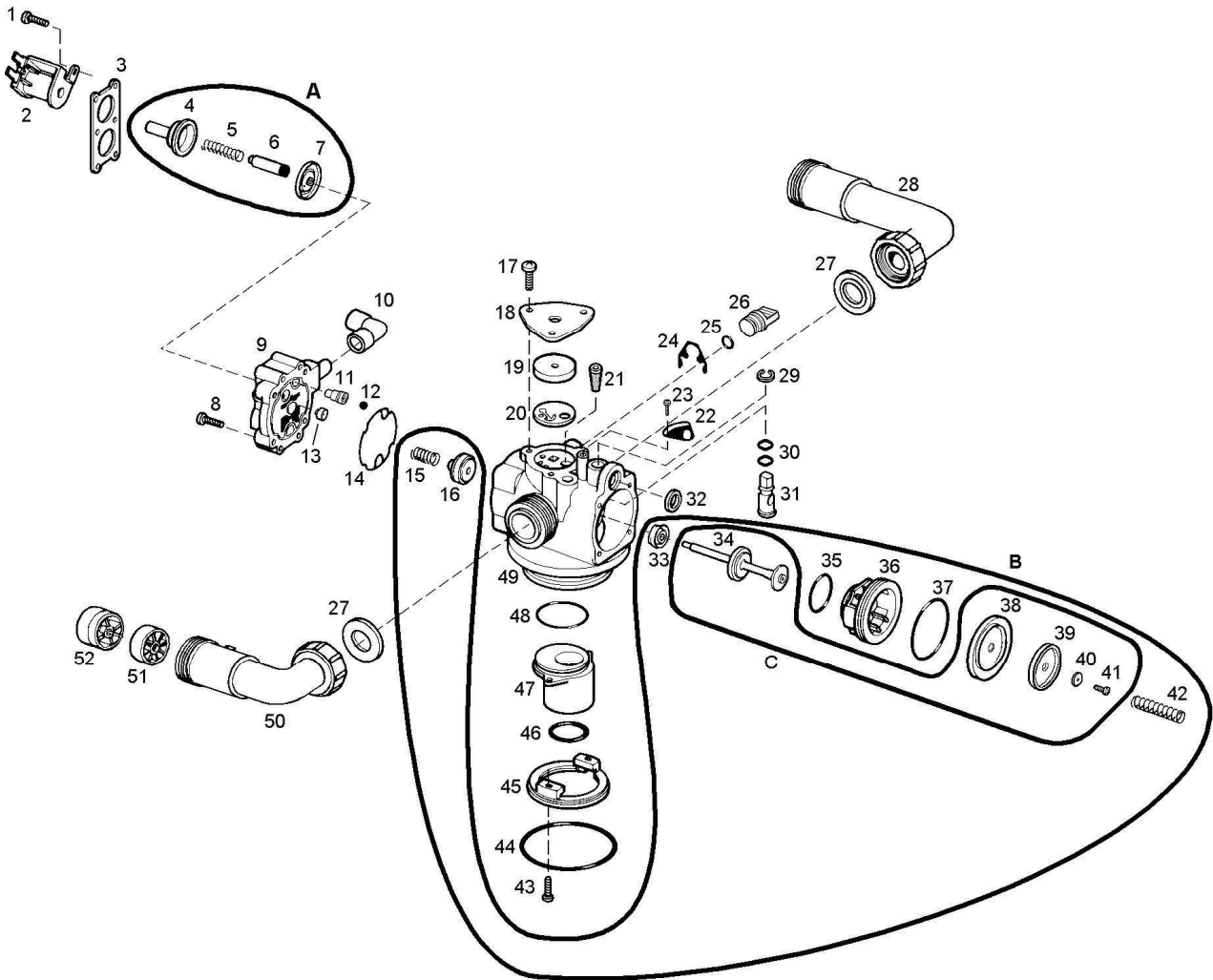


## EXPLODED VIEW - COVER ASSEMBLY

Item	PN	Description	Remark	(*)
1	71502	Screw, PCB housing		
2	39003	PCB housing back		
3	72738	Printed Circuit Board		✓
4	39020	PCB housing front assembly		
5	39000	Main cover		
6	71682	Refill solenoid cable (white)		✓
7	72561	Drain solenoid cable		✓
8	72519	Flow meter cable		✓
9	70971	Power cord		✓
10	72263	Twist lock clamp, power cord		

(\*) Recommended Spare Part

# EXPLODED VIEW - VALVE BODY ASSEMBLY

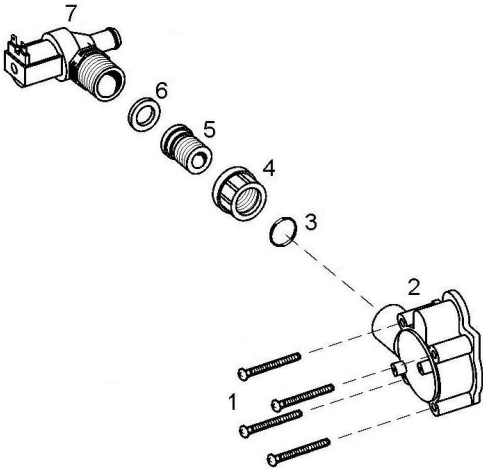


## EXPLODED VIEW - VALVE BODY ASSEMBLY

Item	PN	Description	Remark	(*)
1	15/90	Screw, solenoid retainer (4x)		
2	413/134/24	Solenoid		✓
3	541/229	Retainer, solenoid		
4	413/58	Guide, solenoid		
5	413/62	Spring, solenoid plunger		✓
6	74099	Plunger, solenoid		✓
7	74098	Diaphragm, solenoid		✓
8	15/222	Screw, back cap (4x)		
9	541/286/3	Back cap		
10	74258	Brine elbow		
11	74015 74022	Brine draw restrictor 0,8 mm (white) Brine draw restrictor 1,0 mm (black)		
12	541/275	Check ball		✓
13	568/385/2/A	Refill flow control 0,25 gpm		
14	541/206	Gasket, back cap		
15	541/239	Spring, check disc		
16	541/246	Check disc		
17	15/89	Screw, cover plate (3x)		
18	541/221	Cover plate, injector		
19	428/5	Injector disc #5		✓
20	541/325	Gasket, injector		✓
21	74179	Filter, injector		✓
22	72609	Locking plate, drain flow adjuster		
23	15/76	Screw, locking plate		
24	541/254	Spring clip		
25	186/118	O-ring, brine plug		
26	541/273	Brine plug		
27	72467	Union gasket (2x)		✓
28	72542	Elbow, inlet		✓
29	19/19	Clip, drain flow adjuster		
30	186/134	O-ring, drain flow adjuster (2x)		
31	541/238	Drain flow adjuster		
32	529/244	O-ring, drain port		
33	467/216	Seal, body stem		
34	72605	Body stem		✓
35	185/024/1	O-ring, seat insert (small)		
36	541/204	Seat insert		
37	185/029/1	O-ring, seat insert (large)		
38	72602	Main diaphragm		✓
39	72507	Retainer, main diaphragm		
40	72245	Washer, main diaphragm		
41	72552	Screw, main diaphragm		
42	516/221	Spring, main diaphragm		
43	15/90	Screw, adapter ring (2x)		
44	185/67/4	O-ring, tank		✓
45	541/232	Adapter ring		
46	185/214/1	O-ring, riser tube		
47	541/218	Riser insert 1,050"		
48	185/029/1	O-ring, riser insert		
49	541/257/1	Valve body (incl. 467/216)		
50	72543	Elbow, outlet		✓
51	72544	Impeller		✓
52	72545	Hub, Impeller		
A	RK/413	Repair kit solenoid diaphragm		✓
B	RK/541/244	Repair kit body stem and seat		✓
C	72611	Repair kit body stem		

(\*) Recommended Spare Part

## EXPLODED VIEW - VALVE HEAD ASSEMBLY



Item	PN	Description	Remark	(*)
1	15/87	Screw, valve head (4x)		
2	72216	Valve head		
3	185/115/1	O-ring, drain line adaptor		
4	74018	Nut, drain solenoid		
5	74016	Drain line adaptor		
6	74019	Gasket, drain solenoid		
7	74023	Drain solenoid		✓

(\*) Recommended Spare Part



## TECHNICAL DATA

### Technical specifications:

Model	IQ-CS-			
Resin (Ltr)	9	12	18	26
Operating pressure min/max (bar)	1,4/8,3			
Operating temperature min/max (°C)	2/48			
Electrical connection (V/Hz)	230/50 <sup>(1)</sup>			
Maximum power consumption (VA)	17			
Hydraulic connection inlet/outlet	¾" BSP Male			

(1) Supplied with 24V transformer

### Performances @ 3 bar operating pressure <sup>(2)</sup>:

Model	IQ-CS-			
Resin (Ltr)	9	12	18	26
Nominal exchange capacity (m <sup>3</sup> x°f)	32	54	92	133
Nominal exchange capacity (m <sup>3</sup> x°d)	18	30	52	74
Service flow rate @Δp 1 bar (m <sup>3</sup> /hr)	2,4	2,2	2,1	1,8
Recommended maximum service flow rate (m <sup>3</sup> /hr) <sup>(3)</sup>	0,9	1,2	1,8	2,6
Salt usage per regeneration (kg) <sup>(4)</sup>	1,1	1,5	2,3	3,3
Rinse water usage per regeneration (Ltr) <sup>(4)</sup>	47	54	80	120

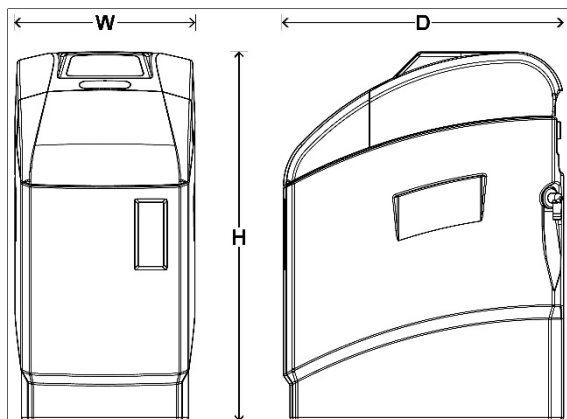
(2) Indicative numbers, performances depending on operating conditions and water quality

(3) Flow rate at which softening process is still executed adequately

(4) Maximum salt/water usage as brining is proportional (minimum of 60%)

### Dimensions & weights:

Model	IQ-CS-			
Resin (Ltr)	9	12	18	26
Width (mm) (W)	280			
Height (mm) (H)	497	575	728	982
Depth (mm) (D)	438			
Depth, including bypass (mm)	540			
Height inlet/outlet (mm)	375	453	606	860
Height inlet/outlet, including bypass (mm)	381	459	612	866
Weight (kg)	15,5	20,0	26,5	36,0
Weight, including bypass (kg)	16,0	20,5	27,0	36,5
Maximum salt storage capacity (kg)	13	17	23	35









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