

Technical Manual
MULTI-PURPOSE WATER FILTER

ProFlow

Models: **PF-MMX**
PF-BTA

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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 these Instructions.
- 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 'filter' the water, meaning it will remove specific undesired substances; 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 these Instructions 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, this 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 this appliance.

OPERATING CONDITIONS & REQUIREMENTS

- **APPLICATION LIMITATIONS:**

- pH: 5-10
- maximum contaminant content:

Water hardness	75 °f / 42 °d
Iron (Fe ²⁺)	15 mg/L
Manganese (Mn ²⁺)	3 mg/L
Oxidizability (O ₂)	4 mg/L
Ammonia (NH ₃)	4 mg/L

- **OPERATING PRESSURE MIN-M AX: 1,4-8,0 bar / 20-116 psi**

- this appliance is configured to perform optimally at an operating pressure of 3 bar (45 psi) ±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-M AX: 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:**

- this appliance only works on 24 VDC; always use it in combination with the supplied transformer.
- in case of damage to the power supply cable of the transformer, immediately disconnect the transformer from the power outlet and replace the 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.

- **OPTIONAL Wi-Fi:**

- to order your system with the optional Wi-Fi function, indicate this by adding “-W” to the corresponding part number:

PN 35810	Softener 1", Simplex 25L
PN 35810-W	Softener 1", Simplex 25L - Wi-Fi enabled

2400VS J4JB/PRL1	Control Valve 1", Multimix 24L
2400VS J4JB/PRL1-W	Control Valve 1", Multimix 24L - Wi-Fi enabled

ASSEMBLY

CONTENT CHECK

- Actual parts that you have received, may differ from the pictures/illustrations in these Instructions!*
- For ease of transportation and installation, the filter media is NOT loaded in the pressure tank, but delivered in separate bags of 12 or 25 ltr; it must be loaded on-site, after positioning of the pressure tank.*

Check the content of the system, using the Composition Overview in these Instructions. Identify and lay-out the different components to facilitate the assembly.

FILTER MEDIA LOADING

1. Move the pressure tank to the correct installation location; position it on a flat and level surface. Make sure to leave enough space for ease of service.
2. Position the riser assembly upright and centred in the pressure tank; plug the top of the riser tube with a piece of tape or clean rag, to prevent filter media from entering the tube.
3. Add water to the pressure tank to a height of ± 30 cm from the bottom; this water will protect the bottom of the pressure tank and the bottom distributor, during filling of the pressure tank.
4. Place a funnel on the pressure tank opening and fill the pressure tank with filter media; make sure the riser assembly remains centered in the pressure tank.
5. Rinse the pressure tank opening to remove any grains of filter media from the threaded section.
6. Unplug the top of the riser tube.

CONTROL VALVE

1. Make sure the O-ring in the riser insert and the tank O-ring (around the threaded section of the control valve) are in the correct position.
2. Screw the top distributor onto the control valve.
3. Lubricate the threaded section of the pressure tank, the top of the riser tube and the tank O-ring of the control valve; use a silicon-based lubricant.
4. Lower the control valve straight down onto the riser tube, until the riser tube is correctly inserted in the riser insert; then push it down firmly and screw it onto the pressure tank.

BRINE TANK ASSEMBLY (PF-BTA) (optional)

Picture 1

1. Move the brine tank to the correct installation location; position it on a flat and level surface. Make sure to leave enough space for ease of service.
2. Insert the polytube into the brine line connection on the control valve (❶); make sure to push the polytube in all the way; tighten the nut.
3. Remove the lid from the brine tank.
4. Remove the lid from the brine well.
5. Make sure the correct elbow connection is installed on the brine valve ($\frac{3}{8}$ " for PF-MMX); replace if necessary.
6. Run the polytube from the control valve through the hole in the sidewall of the brine tank, to the inside of the brine tank.

7. Insert the polytube into the elbow connection on the brine valve; make sure to push the polytube in all the way.
8. Install the lid on the brine well.
9. Add water to the brine tank to a height of ± 10 cm from the bottom.
10. Add salt to the brine tank.
11. Install the lid on the brine tank.

INSTALLATION

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.*
- ☑ *We strongly recommend the installation of a 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 full-flow (untreated) water supply to the user.*

with factory bypass (optional)

Picture 2

- ❶ = mains water supply (untreated water)
 - ❷ = inlet of control valve (untreated water)
 - ❸ = outlet of control valve (treated water)
 - ❹ = application (treated water)
1. Screw the factory bypass onto the in/out ports on the control valve (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 application to the adaptor on the outlet port of the factory bypass (❹).

with 3-valve connection kit (not included)

Picture 3

- ❶ = inlet of control valve (untreated water)
 - ❷ = outlet of control valve (treated water)
1. Install the 3-valve connection kit.
 2. Screw the connection kit with nuts onto the in/out ports on the control valve (❶&❷); make sure to install the gasket seals. Tighten the nuts firmly by hand.
 3. Connect the IN valve of the 3-valve connection kit to the adaptor on the in port of the control valve (❶).
 4. Connect the OUT valve of the 3-valve connection kit to the adaptor on the out port of the control valve (❷).
 5. Connect the mains water supply to the inlet of the 3-valve connection kit.
 6. Connect the application to the outlet of the 3-valve connection kit.

DRAIN

- ☑ *We recommend the use of a stand pipe with P-trap.*
- ☑ *To prevent backflow from the sewerage system into the appliance, always ensure sufficient air gap between the end of the drain hose or pipe and the sewerage system.*
- ☑ *Always use separate drain hoses for the control valve(s) (discharge of rinse water) and the brine tank 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.*

for PF-MMX

Picture 4

1. Connect the 19 mm hose to the drain connection of the control valve (❶); secure it by means of the clamp.
2. Run the drain hose to the sewerage system and connect it, ensuring sufficient air gap between the end of the hose and the sewerage system. This drain line operates under pressure, so it may be installed higher than the appliance.

PF-BTA: brine tank assembly (optional)

1. Connect the 19 mm hose to the overflow elbow on the brine tank; secure it by means of the clamp.
2. Run the drain hose to the sewerage system and connect it, ensuring sufficient air gap between the end of the hose and the sewerage system. This drain line does NOT operate under pressure, so it may NOT be installed higher than the brine tank.

COMMISSIONING

ELECTRICAL

1. Connect the appliances power cord to the transformers output.
2. Plug the transformer into an electrical outlet.


PRESSURIZING

1. Put the bypass system 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:
 - close the 'BYPASS' valve;
 - open the 'OUT' valve;
 - slowly open the 'IN' 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 filter media 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.


ELECTRONIC CONTROL PANEL

1. Program the electronic controller.

INITIATE A REGENERATION

1. Manually initiate a regeneration, by pressing the **scroll**  button; the display will show:

Regen in 10 sec

2. Leave the appliance in this position; the count-down timer will count down to 0 sec and start a regeneration; to save time you may skip, or terminate prematurely, the second cycle of the regeneration by pressing the **scroll**  button once, as soon as the display indicates that the system is in the second regeneration position.

ELECTRONIC CONTROL PANEL

Picture 5

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 installed software version for a period of 5 seconds.

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 control valve will remain in its last position; when the power supply is re-established, the control valve will return to the service position, stay there for 60 sec. and restart a complete regeneration from the beginning.

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

Only available if the maintenance reminder function has been activated and programmed by your supplier!

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 5 minutes.

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

SERVICE MODE

In **service mode** the display shows:

- on 1st line: the time of day and the remaining capacity;
- on 2nd line: the total volume of water used since commissioning.

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

REGENERATION MODE

In **regeneration mode** the display shows the total remaining regeneration time and remaining cycle time:

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.

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; the display will show:

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



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.

ELECTRONIC CONTROL PANEL

1. 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


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

ELECTRONIC CONTROL PANEL



PROGRAMMING INSTRUCTIONS- BASIC SETTINGS


Before entering the programming mode, make sure that the appliance is in the 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 2 sec until the display shows:


Language: English

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



2. 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.

3. 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!



4. 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.

5. 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).

6. 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.

PROGRAMMING INSTRUCTIONS- CONFIGURATION PARAMETERS


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

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. Nevertheless it may be necessary or desirable to change any of these parameters, to further optimize the appliances performance or to adapt it to the specific requirements of the installation.

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: 3.8 °f M3/L

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

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

Age corr.: 2.0%

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

ELECTRONIC CONTROL PANEL

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

Resin:XXX liters

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

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

Override: 4 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: XX min

- 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.

Cycle 1	Backwash
Cycle 2	Brine draw/slow rinse
Cycle 3	Fast rinse/brine tank refill

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* at the programmed time of regeneration is started; 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.
- Note**: *Delayed manual regeneration is not available when this regeneration mode is selected.*
- **Delayed**: when the remaining capacity equals the reserve capacity, a *delayed regeneration* at the programmed time of regeneration is started.

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

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*.

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

AUX2: Regen

- Press the **up** or **down** button to set *the function of auxiliary contact 2*:
 - **Regen**: aux. contact is powered during entire regeneration.
 - **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.

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

Exit

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

ELECTRONIC CONTROL PANEL

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.
- **LastRgn@**: consumed capacity at last regeneration.
- **InstFlow**: instantaneous flow rate through appliance.
- **AvgVol**: calculated average daily water usage.
- **Capacity**: calculated capacity between regenerations.
- **Hardness**: setting of water hardness.
- **Rsrv**: setting of reserve capacity.
- **Regen @**: setting of time of regeneration.
- **Override**: setting of number of days between regenerations.
- **Cycle X**: setting of length of corresponding regeneration cycle.
- **Units**: control is programmed for Metric units.
- **MTR**: setting of the water meter.
- **Capacity**: control is programmed for hardness setting.
- **Regen**: setting of the regeneration mode.
- **Valve Type**: setting of valve type.
- **MP Resets**: number of resets of the microprocessor.
- **Memory Reset**: number of corrupt memory start-ups.
- **EZRSDg**: software version.
- **CapToUse**: remaining capacity.

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.

M AINTENANCE

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. Check water composition 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 tank 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 application.

WITH FACTORY BYPASS (optional)

Picture 6.a

SERVICE POSITION

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

Picture 6.b

BYPASS POSITION

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

Picture 6.c

MAINTENANCE POSITION

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

WATER CONDITIONER SALT

This appliance needs 'brine' for its periodic regenerations. This brine solution is made from water, that is automatically dosed in the brine tank by the control valve, and water conditioner salt. The user should make sure that the brine tank is always kept full of water conditioner salt. Therefore he should periodically check the salt level inside the brine tank and refill it if necessary. Simply lift the brine tank cover to check the salt level inside the brine tank.

Ideally the level of water conditioner salt inside the brine tank 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 tank). When you suspect salt bridging:

- carefully pound on the outside of the brine tank 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.

FILTER MEDIA CLEANER

Other contaminants present in the feed water can cause the filter media (especially the ion exchange resin) to foul up, resulting in a loss of filtration capacity. An approved filter media cleaner can be used periodically to thoroughly clean the filter media.

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 filter media 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.



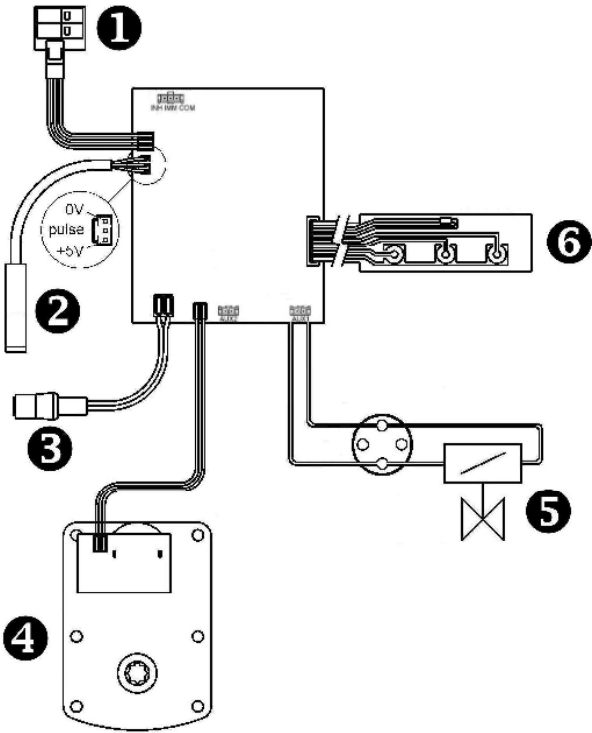
TROUBLESHOOTING

PROBLEM	CAUSE	SOLUTION
Untreated water to service	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 tank	Add salt and initiate regeneration manually
	Salt bridging in brine tank	Break salt bridge(s) and initiate regeneration manually
	Change in raw water composition	Measure hardness of incoming untreated water and adjust programming accordingly
	Appliance fails to start a regeneration	Refer to problem "Appliance fails to start a regeneration"
	Valve body and timer out of synchronisation	Synchronise valve body and timer
	Control valve fails to draw brine	Refer to problem "Valve fails to draw brine"
	Decreasing exchange capacity of filter media	Clean or replace filter media
	Loss of filter media	Refer to problem "Loss of filter media"
	Leak at riser tube	Verify that riser tube is seated correctly and is not cracked
Low levels of contaminant in treated water	Bypass not completely closed	Close bypass
	Excessive service flow rate	Lower service flow rate Increase filter capacity by increasing volume of filter media
Appliance fails to start a regeneration	Faulty electrical supply	Verify electrical service (fuse, transformer,...)
	Defective flow meter	Clean and/or replace flow meter
	Defective PCB	Replace PCB
	Defective drive motor	Replace drive motor
Appliance uses too much salt	Excessive water in brine tank	Refer to problem "Excessive water in brine tank"
	Appliance regenerates too frequently	Verify program
Excessive water in brine tank	Control valve fails to draw brine	Refer to problem "Control valve fails to draw brine"
	Improper refill time setting	Verify that refill time corresponds to the proper salt level and amount of filter media
	Missing refill flow control	Verify that refill flow control is installed and properly sized
	Leak from control valve to brine tank	<i>PF-SOF1 only:</i> check synchronisation between valve body and timer <i>PF-SOF1,5 only:</i> check brine line shut-off valve of valve body
Salt taste in treated water	Excessive water in brine tank	Refer to problem "Excessive water in brine tank"
	Injector undersized	Verify injector selection and operating pressure
	Improper brine/slow rinse time setting	Verify that brine/slow rinse time corresponds to the proper salt level and amount of filter media
Loss of water pressure	Build-up of impurities in pressure tank	Clean filter media bed and control valve; increase regeneration frequency
	Plugged lower and/or upper distributor	Verify that distributors are free of debris
Drain line from control valve flows continuously	Appliance in regeneration	Wait until regeneration finishes or manually advance regeneration to end
	Faulty electrical supply	Verify electrical service (fuse, transformer,...)
	Defective drive motor	Replace drive motor
	Defective micro switch	Replace micro switches
	Defective PCB	Replace PCB
	Valve body and timer out of synchronisation	Synchronise valve body and timer
Drain line from brine tank overflow flows continuously	Excessive water in brine tank	Refer to problem "Excessive water in brine tank"

TROUBLESHOOTING

PROBLEM	CAUSE	SOLUTION
Control valve fails to refill brine tank	Improper refill time setting	Verify that refill time corresponds to salt level and amount of filter media
	Plugged refill flow control	Clean refill flow control
Loss of filter media	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
Control valve fails to draw brine	Low operating pressure	Check operating pressure; must be higher than 1,4 bar
	Plugged injector	Clean injector
	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"
Control valve cycles continuously	Defective micro switch	Replace micro switches
Appliance fails to backwash properly	Low operating pressure	Check operating pressure; must be higher than 1,4 bar
	Insufficient water supply	Check water supply (flow rate/ dynamic pressure)
	Restricted drain line	Verify drain line for kinks or restrictions
	Excessive build-up of impurities in pressure tank	Clean or replace filter media and control valve; increase regeneration frequency
	Plugged backwash flow control	Clean or replace backwash flow control
	Plugged top or bottom distributor	Verify that top and bottom distributor are clean and slots are not clogged by iron or other impurities
	Filter media is completely 'caked' (solid block)	Replace filter media and increase regeneration frequency

ELECTRICAL WIRING DIAGRAM S



- ❶ = position switches
- ❷ = flow meter
- ❸ = power lead
- ❹ = drive motor
- ❺ = auxilliary contacts (24 VDC, max. 500mA)
AUX1 = PF-SOF1-SM: service valve NO (optional)
 = PF-SOF1-PRL: service valve NO
 = PF-SOF1-ALT: service valve NC
AUX2 = PN 74372 is needed, to use this contact
- ❻ = key pad

DEFAULT CONFIGURATION PARAM ETER SETTINGS

Model	PF-M M X			
Filter media (ltr)	24	36	48	72
Units	Metric	Metric	Metric	Metric
MaintInt (mths)	24	24	24	24
Exchange cap. per liter filter media (°f M ³ /L) ⁽¹⁾	3,8	3,8	3,8	3,8
Age correction (%)	2,0	2,0	2,0	2,0
Filter media (liters)	24	36	48	72
Override (days)	4	4	4	4
Cycle 1: BACKWASH (min)	10	10	10	10
Cycle 2: BRINE DRAW/ SLOW RINSE (min)	57	50	78	88
Cycle 3: FAST RINSE/ REFILL (min) ⁽²⁾	4	6	4	6
Regen	Dlyd/ Immd	Dlyd/ Immd	Dlyd/ Immd	Dlyd/ Immd
Regen @	2:00	2:00	2:00	2:00
Rsrv	Variable	Variable	Variable	Variable
Auxilliary contact 2 (PN 74372 is needed)	Regen	Regen	Regen	Regen

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

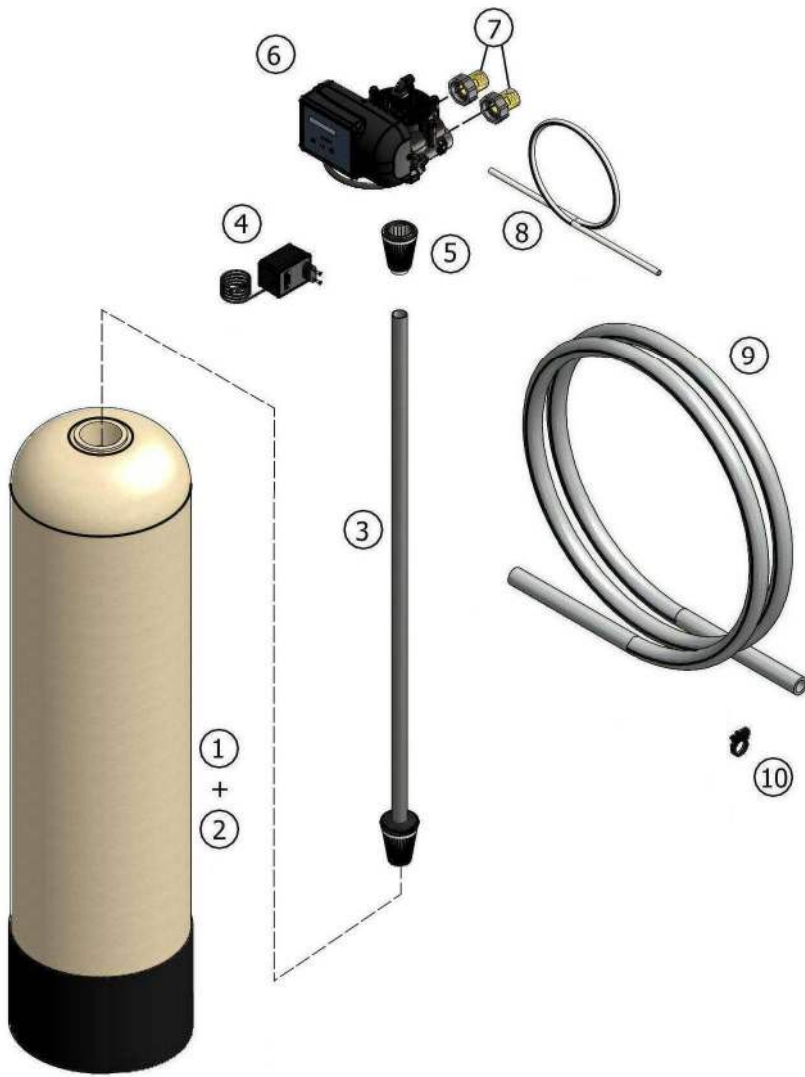
(2) When the Exchange capacity per liter filter media is changed, the refill cycle time needs to be adjusted accordingly.

COM POSITION OVERVIEW

Model	Media volume	PN	Control valve, incl. transformer, 1" BSP male connections		Pressure tank, incl. distributor assy		Filter media
	Ltr		model	#	model	#	(12 kg bag) #
PF-MMX	24	35690	2400VS/J1B/PRL1	1	10x35	1	2
	36	35691	2400VS/J1B/PRL1	1	10x47	1	3
	48	35692	2400VS/J1LD/PRL1	1	12x48	1	4
	72	35693	2400VS/J1ND/PRL1	1	14x65	1	6



EXPLODED VIEW - PF-M M X - SYSTEM

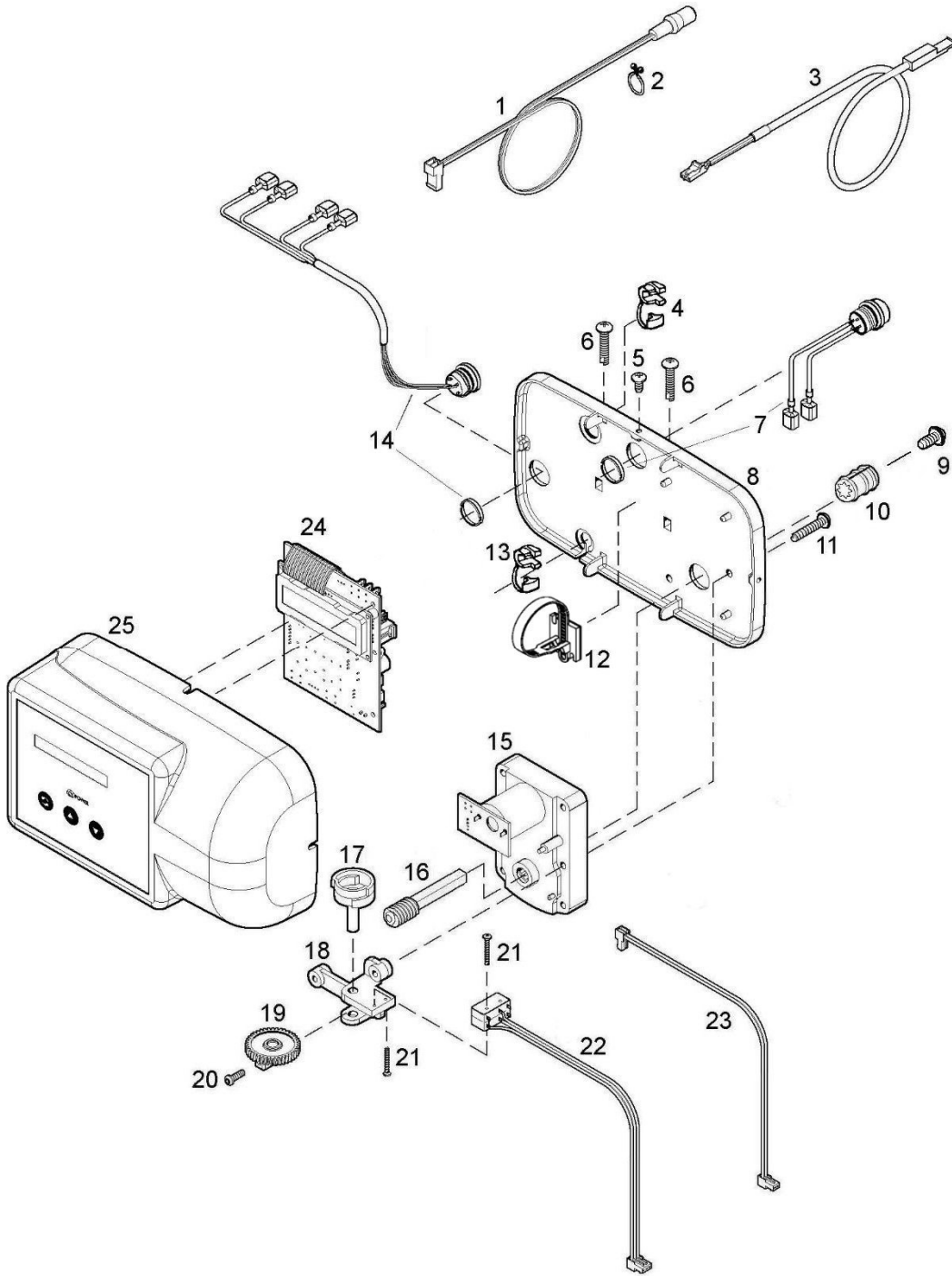


Item	PN	Description	Remark	(*)
1	PT/1035/BA	Pressure tank 10x35	24 Ltr	✓
	PT/1047/BA	Pressure tank 10x47	36 Ltr	✓
	PT/1248/BA	Pressure tank 12x48	48 Ltr	✓
	PT/1354/BA	Pressure tank 14x65	72 Ltr	✓
2	E8100(12)	Filter media (12 Ltr)	multiple of 12 Ltr	✓
3	38534	Riser tube assembly	to be cut to length, 20mm below pressure tank opening	✓
4	74312	Transformer 100-230/24 VDC - 50Hz, 1.0A, EuroT plug		✓
	74313	Transformer 100-230/24 VDC - 50Hz, 1.0A, UK plug		✓
5	287/166	Top distributor		✓
6	2400VS/J4JB/PRL1	Control valve (**)	24 Ltr	
	2400VS/J1JB/PRL1	Control valve (**)	36 Ltr	
	2400VS/J1LD/PRL1	Control valve (**)	48 Ltr	
	2400VS/J1ND/PRL1	Control valve (**)	72 Ltr	
7	568/303/1	Connection kit 1" BSP male		✓
8	H1015/2	Brine line polytube	to be ordered per meter	✓
9	39132	Drain hose 19 mm, 3 mtr		✓
10	39124	Clamp, drain hose 19 mm		

(*) Recommended Spare Part

(**) Optional Wi-Fi available

EXPLODED VIEW - PF-M M X - TIM ER ASSEM BLY

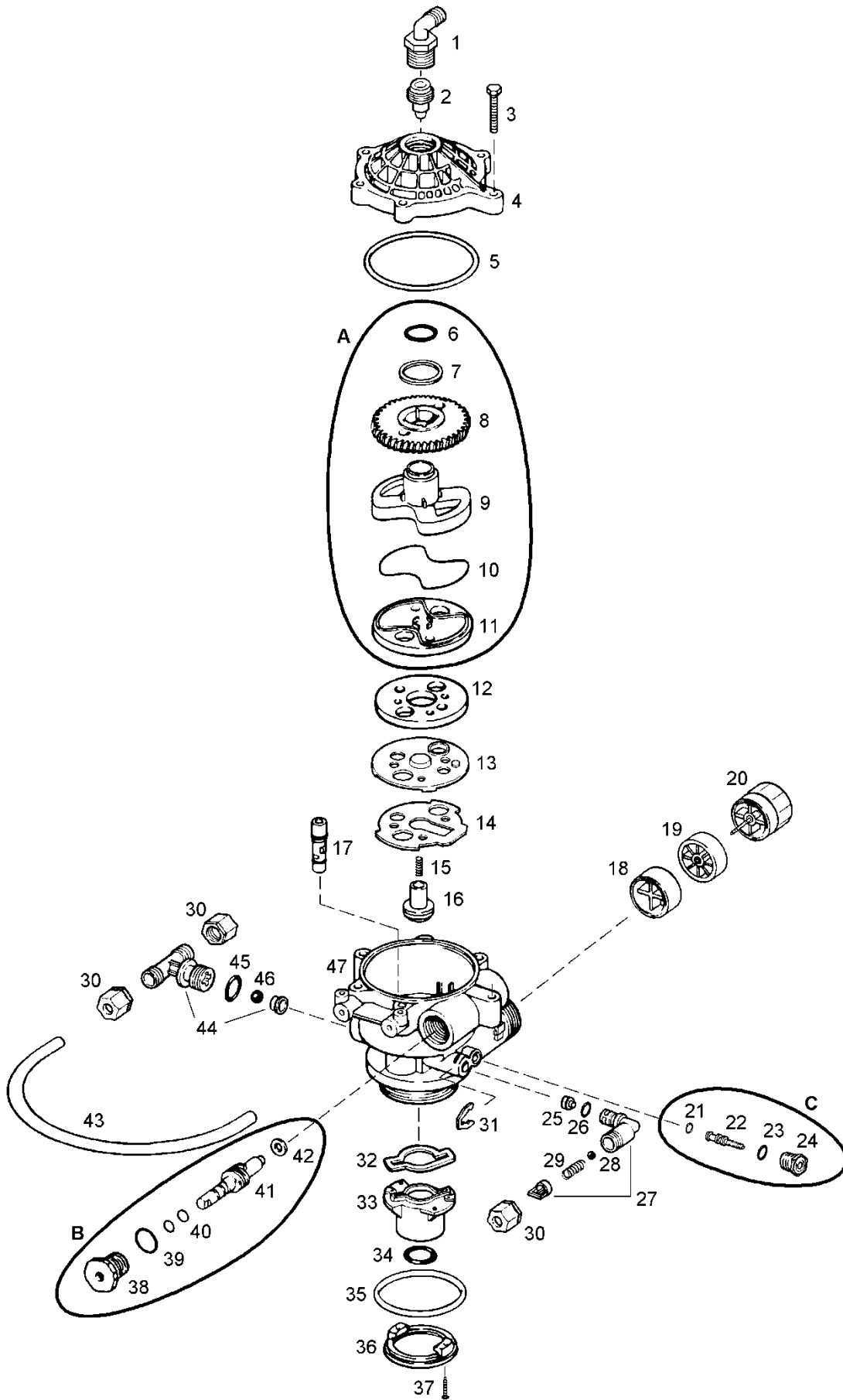


EXPLODED VIEW - PF-M M X - T I M E R A S S E M B L Y

Item	PN	Description	Remark	(*)
1	74307	Power lead with plug		✓
2	72263	Clamp		
3	72519	Flow meter cable		✓
4	28/8/7	Strain relief, flow meter cable		
5	71502	Screw, timer cover (3x)		
6	15/222	Screw, back plate (2x)		
7	74367	Socket and cable assembly, Service Valve - 24 VDC		
8	72369	Back plate		
9	15/102	Screw, worm coupling		
10	75157	Worm coupling		✓
11	15/222	Screw, drive motor assembly (2x)		
12	74267	Cable clamp		
13	70312	Strain relief, power lead		
14	74370	Socket & cable assembly, InterConnect - 24 VDC		
15	72261	Drive motor		✓
16	75156	Worm drive shaft		✓
17	70965	Switch cam		
18	568/386	Bracket, micro switches		
19	568/310	Gear, switch cam		
20	15/184/7	Locking screw, switch cam		
21	15/173/12	Screw, micro switches (2x)		
22	72451	Micro switch assy		✓
23	71679	Cable set, drive motor		✓
24	74410 74354	Printed Circuit Board - Wi-Fi enabled - 24 VDC Printed Circuit Board - 24 VDC		✓
25	72614	Timer cover assembly		
	RK/75157	Repair kit worm coupling and worm drive shaft	item 9-10-16	✓

(*) Recommended Spare Part

EXPLODED VIEW - PF-M M X - VALVE BODY

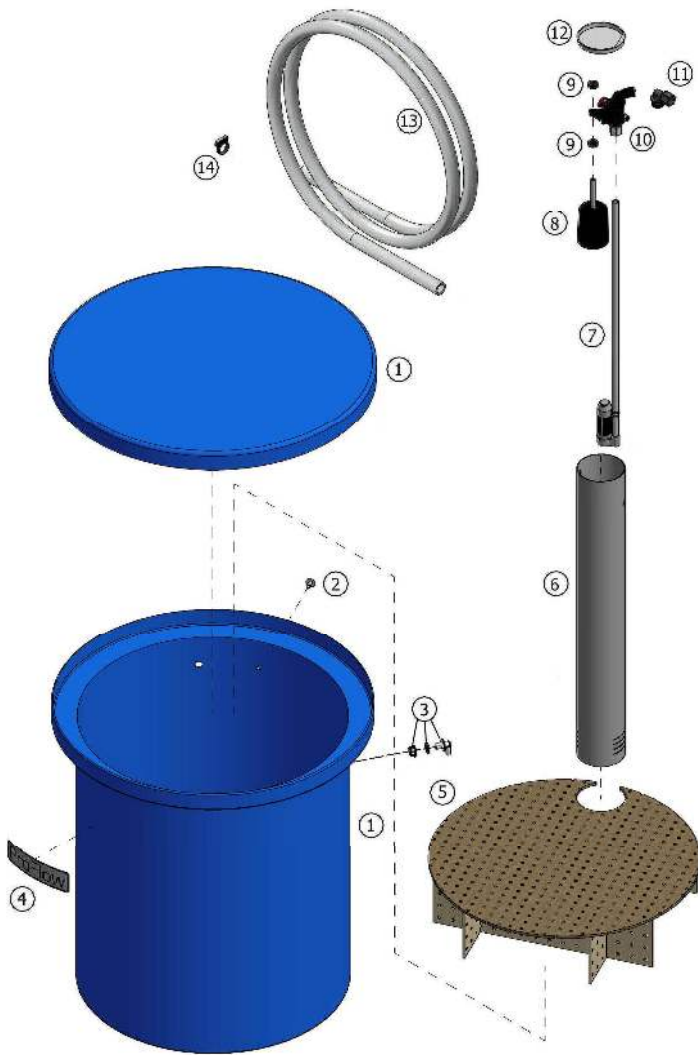


EXPLODED VIEW - PF-M M X - VALVE BODY

Item	PN	Description	Remark	(*)
1	39121	Drain elbow 19 mm		✓
2	568/271/J 568/271/L 568/271/N	Drain Line Flow Control J (9,8 Ltr/ min) Drain Line Flow Control K (15,1 Ltr/ min) Drain Line Flow Control N (22,7 Ltr/ min)	24 Ltr, 36 Ltr 48 Ltr 72 Ltr	
3	72678	Bolt, valve cover (6x)		
4	568/254/3	Valve cover		
5	185/154/1	O-ring, valve cover		
6	186/112	O-ring, Teflon		
7	72327	Washer, PE		
8	568/260	Worm gear		
9	568/259	Rotor cam		
10	185/041/1	O-ring, rotor		
11	568/345/2	Rotor plate		✓
12	568/256	Seal disk		✓
13	568/383	Insert plate		
14	568/384	Gasket		
15	51/5/105	Spring, float valve		
16	568/270/4	Float valve		
17	568/274/4 568/274/1	Injector (purple) Injector (red)	24 Ltr, 36 Ltr 48 Ltr, 72 Ltr	
18	72458	Diffuser, impeller	Eco	
19	72544	Impeller	Eco	✓
20	72545	Hub, impeller	Eco	
21	185/007/6	O-ring, mixing valve		
22	568/406	Mixing valve		
23	186/118	O-ring, sleeve		
24	568/407/L	Sleeve, mixing valve		
25	568/385/2/B 568/385/2/D	Refill Flow Control 1,9 ltr/min Refill Flow Control 3,8 ltr/min	24 Ltr, 36 Ltr 48 Ltr, 72 Ltr	
26	186/118	O-ring, refill elbow		
27	568/336	Refill elbow 3/8"		
28	541/275	Check ball, refill elbow		
29	413/62	Spring, refill elbow		
30	21/88	Nut, refill elbow/brine tee		
31	541/254	Spring clip		
32	570/251	Gasket, riser		
33	568/334	Riser insert		
34	185/214/1	O-ring, riser tube		
35	185/337/1	O-ring, tank		
36	541/232	Adapter ring		
37	15/207/12	Screw, adapter ring (2x)		
38	72772	Packing gland nut (plastic)		
39	185/211/1	O-ring, packing gland nut		
40	186/115	O-ring, worm drive shaft (2x)		
41	568/208/2	Worm drive shaft		
42	14/43	Washer, worm drive shaft		
43	EB64/33	Refill tube		
44	568/340	Brine Tee 3/8"		✓
45	185/208/1	O-ring, brine tee		
46	26/47/12N	Check ball, brine tee		
47	72801	Valve body		
A	568/359	Repair kit rotor	item 6-8-9-10-11	
B	RK/75154	Repair kit packing gland nut	item 38-39-40-41-42	

(*) Recommended Spare Part

EXPLODED VIEW - PF-BTA



Item	PN	Description	Remark	(*)
1	BT/0125 BT/0275	Brine tank 125 Ltr Brine tank 275 Ltr		
2	38535	Fastener (snap rivet & washer), brine well		
3	39131	Overflow assembly 19 mm		
4	38537	Label 'ProFlow'		✓
5	BP/0125/01 BP/0275/01	Brine platform for simplex Brine platform for simplex	BT/0125 BT/0275	
6	BW4/072 BW4/088	Brine well Ø10 cm, 72 cm Brine well Ø10 cm, 88 cm	BT/0125 BT/0275	
7	H4500/48	Air check	to be cut to length	✓
8	H4640/32	Float		✓
9		Grommet, float (2x)	included in item 8	
10	474/000	Brine valve with elbow 3/8", quick-fit connection		
11	H4650	Elbow 1/2", compression connection	not applicable	
12	H1016	Brine well lid Ø10 cm		
13	39132	Drain hose 19 mm, 3 mtr	3 mtr	
14	39124	Clamp, drain hose 19 mm		

(*) Recommended Spare Part

TECHNICAL DATA - PF-M M X

Technical specifications:

Model	PF-M M X			
Filter media (ltr)	24	36	48	72
Operating pressure min/ max (bar)	1,4/ 8,3			
Operating temperature min/ max (°C)	2/ 48			
Electrical connection (V/Hz)	230/ 50 ⁽¹⁾			
Max. power consumption (VA)	8			
Hydraulic connection inlet/outlet	1" BSP Male			
Hydraulic connection drain	19 mm hose barb			
Hydraulic connection brine tank	¾" compression fitting			
Pressure tank	10x35	10x47	12x48	14x65

(1) Supplied with 24 VDC transformer

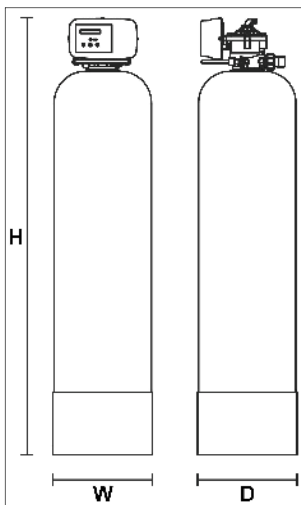
Performances @ 3 bar operating pressure⁽²⁾:

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

Model	PF-M M X			
Filter media (ltr)	24	36	48	72
Nominal exchange capacity (m ³ x°f)	91	137	182	274
Nominal exchange capacity (m ³ x°d)	51	77	102	153
Service flow rate @Δp 1 bar (m ³ /hr)	3,3	3,4	3,5	3,5
Salt usage per regeneration (kg)	2,4	3,6	4,8	7,2
Rinse water usage per regeneration (ltr)	202	246	348	522
Max. flow to drain (ltr/min)	9,8	9,8	15,1	22,7

Dimensions:

Model	PF-M M X			
Filter media (ltr)	24	36	48	72
Width (mm) (W)	264	264	311	365
Depth (mm) (D)	282	282	311	365
Depth, incl. factory bypass (mm) (D)	371	371	376	403
Height (mm) (H)	1.059	1.366	1.394	1.836



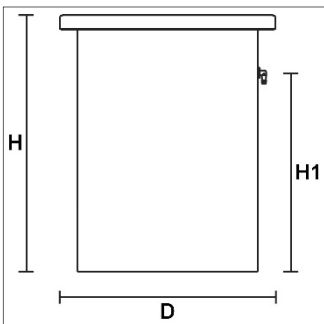
TECHNICAL DATA - PF-BTA

Technical specifications:

Model	PF-BTA	
Volume (ltr)	125	275
Hydraulic connection brine valve	3/8" Quick-Fit	
Hydraulic connection overflow	19 mm hose barb	

Dimensions:

Model	PF-BTA	
Volume (ltr)	125	275
Diameter (mm) (D)	540	685
Height (mm) (H)	850	975
Height overflow (mm) (H1)	660	825
Max. salt storage capacity (kg)	100	200







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