

MONARCH WATER: ASSEMBLY AND INSTALLATION INSTRUCTIONS – DS Models

Duplex Water Softeners – Effective October 2013.

Please read these instructions carefully before the assembly and installation of your Duplex water softener.

All models are shipped in component form to prevent problems during transport.

Both vessels will need to be tested for leaks and to eliminate air in the system to ensure correct operation.

The regeneration times are pre-set at the factory.

Site Requirements

Water: Pressure 25 (dynamic) – 70 (static) psi. An air break check valve should be fitted on the inlet supply if there is any danger of negative pressure.

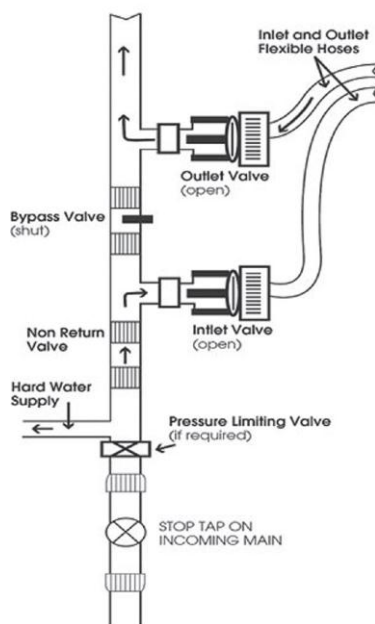
Power: A continuous 240v / 50Hz single phase **double socket** supply is required.

Existing Plumbing: The existing plumbing should be free from iron build up. Contaminated pipe work should be replaced. If the water supply suffers from an iron problem, an iron filter should be fitted to the supply prior to the softener.

Air Temp: 3 - 40 deg C.

Connections: It is recommended to use the hoses provided for the connection of both the inlet and outlet water supplies.

Form an installation layout as per the diagram below (sample taps optional but recommended)



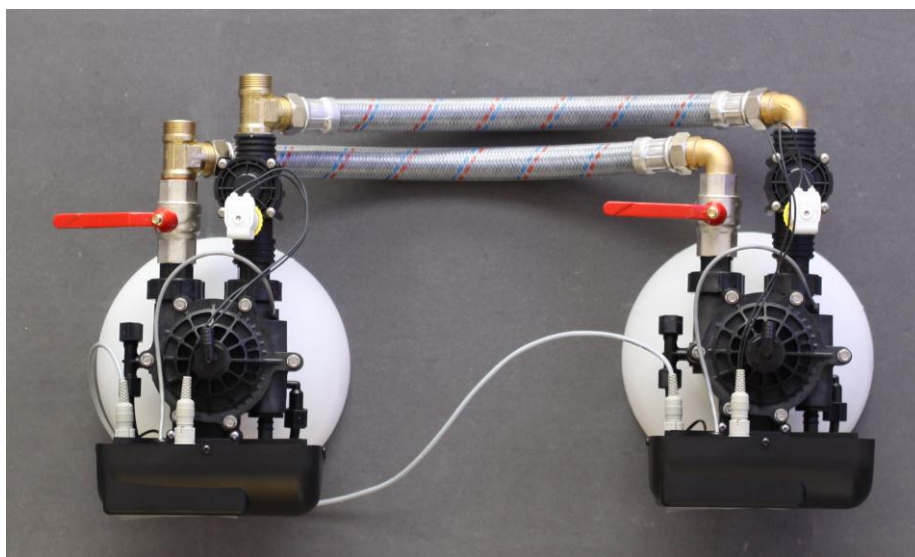
Dimensions

Model	Soft H*	Soft W	Soft D	S-Tnk H	S-Tnk Dia
DS20	1090	600	490	850	540
DS30	1090	610	490	850	540
DS50	1580	610	490	850	540
DS75	1580	690	530	975	685
DS100	1895	790	545	975	685
DS125	1895	920	570	1110	875

*denotes allowing extra height to connect valve to vessel on site.

Assembly

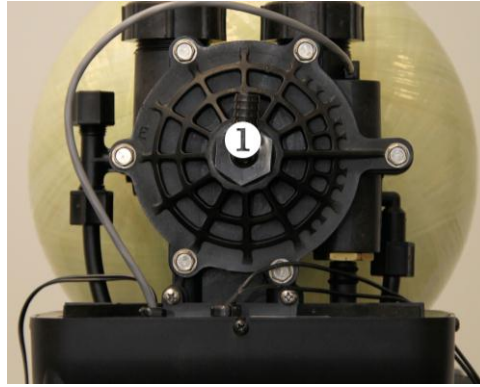
1. The control valves have the solenoids and inlet isolating valves pre-connected but please be aware they are despatched hand tightened only. Full seals must be made by the installer once in situ.
2. Locate component parts of system and inspect for damage.
3. Place the empty pressure vessels in their approx. positions to avoid moving them too far when full of resin.
4. Fit riser and ensure the riser tube is located in the centre of the vessel.
5. Cover top of riser to prevent ingress* of resin when filling, apply blue funnel (supplied) and then fill with half of total quantity of resin received. Repeat for other vessel with remaining half of resin. * Denotes vitally important to keep resin out of riser as could lead to failure of unit. 2no red caps provided to assist you.. It is recommended to remove internal thread to obtain best seal.
6. Before removing funnel and riser top protection, brush loose resin in funnel and around riser protector into vessel.
7. Before fitting both control valves, check to ensure large O ring is located at top of thread on each valve. Lubricate O ring for best seal.
8. Lubricate top of riser. Carefully slide the control valve c/w top screen down onto the riser. Before the thread on the valve engages with the thread of the vessel, a small amount of resistance will be felt when the riser engages the internal O ring of the valve. Carefully, apply extra pressure to overcome this internal O ring then thread down valve and tighten to seal.
9. Repeat for second control valve.
10. **IMPORTANT: DO NOT USE EITHER INLET OR OUTLET ADAPTORS (SOLENOID AND ISO VALVE ADAPTORS) AS LEVERAGE TO TIGHTEN CONTROL VALVES TO VESSELS.**
11. Position both vessels and connect together using braided flexible hoses and fibre washers provided as per picture below.



Pic 1

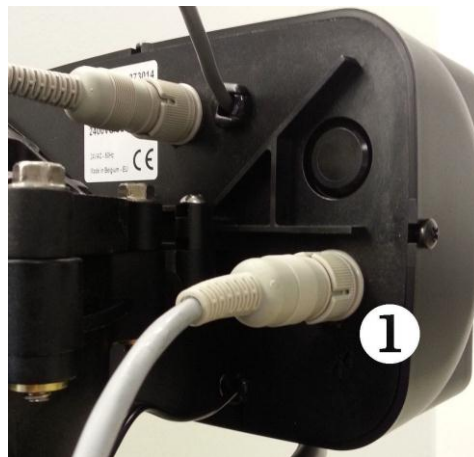
12. On each control valve you will find a short piece of 3/8" tubing terminated at a 3/8" speed connector. Connect brine line (supplied) to this connector and to one of the bulkheads on the salt tank – both speed/push fit connections. It is recommended to bevel the edge of both ends of the brine line, as a sharp 90 deg edge may damage the seal inside the push fit. Important: Do not remove more than 1mm on the bevel you create. Repeat this on the other control valve connecting the brine line to the other bulkhead on the salt tank.

13. Connect drain line to ½” male spigot on top of control valve as per the picture below (1) and secure. Repeat for both valves. Run these drain lines to an adjacent drain or gully and fix. Ensure there is a minimum 20mm air gap where drain line terminates to ensure compliance with Bye-Laws.



Pic 2

14. Connect overflow to brine tank. No need to secure as this connection is not under pressure.
15. Connect interconnecting signal cable (1) from one valve to the other as shown in picture below.



Pic 3

16. Connect both flexible hoses to Inlet and Outlet on softener (1” male brass threads) and to male iron fittings on pipe work (not supplied) using fibre washers to seal. The hoses provided are 1” to suit 1” male iron adaptors. If application has 22mm copper pipe, 22mm x 1” male irons will be needed to connect to the flexible hoses.
17. Connect both control valves to the power supply via the plug in transformers (supplied) but do not turn on power at this stage.
18. Turn on water supply slowly through one inlet valve at a time (red iso handles). Pic 1. shows iso valves in closed position. Check for leaks.

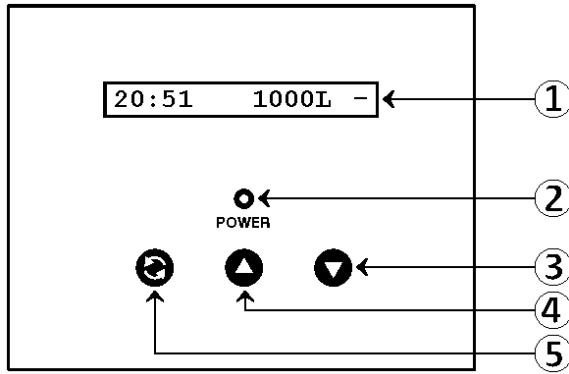
Obtaining your water hardness with test kit provided.

These instructions apply only to the Erie test kit. Run hard water to be tested for 2 minutes and rinse test tube. Add 2 drops of titrant (dark solution) and swirl carefully.

If the sample contains hardness it will become wine red. Add the titrant in batches of 5 drops, holding the dropper at 45 deg. Swirl after each 5 drops. Count the drops needed until the colour changes from red to blue/green. Apply the drops total to the Programming when setting No 4 > **Set Hardn : 30fr**

Always round number of drops up to nearest Zero or Five i.e. 32 drops becomes 35, 37 becomes 40 etc.

Commissioning of the Electronic Control Panel (Valve).



- ① **DISPLAY** - Time of Day not shown on Duplex models.
- ② **POWER led**: lights up when electrical power is applied
- ③ **DOWN button**: to decrease the value of the setting
- ④ **UP button**: to increase the value of the setting
- ⑤ **SCROLL button**: to advance to the next setting/cycle.

1. Turn on power for both valves, the display will show the installed software version for 5 seconds, Program first valve as below

EZDUPa EZDPLXr01

2. The display will automatically revert to the display below

Srvc 3400 L

Before entering the programming mode, make sure that the control valve is in the correct language mode.

3. Press the *scroll* (**double arrow**) button; the display will show:

Language: English

- This is correct so please ignore flashing display *English*

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

Set Hardn : 30fr

- Press the *up* button to as per the water hardness (in drops) as per your water test (rounded up). i.e 40 drops advance the 30 shown in display to 40 using the *up* button.

5. Press the *scroll* button again; the display will show a countdown to the start of the self-commission regeneration:

Regeneration in 10 secs

6. Once the display reaches zero seconds, the control valve will automatically advance to the next stage. The display will vary depending on the model of softener.

Reg: Cyc::

7. Let the control valve and display automatically countdown and advance to the next stage (5–12 minutes depending on model). During this time you will hear water run to drain quickly. You will also hear any air being purged from the vessel underneath the valve you are programming.
8. At the end of the 5-12 minute countdown, the valve will automatically advance again. Once advanced, press scroll button to advance to next Cycle. Allow valve to automatically countdown on final stage (4-12 minutes depending on model). You have now finished programming this valve.
9. Repeat 2-8 above for second control valve.
10. Total Programming time is between 12 and 27 minutes (depending on model) per valve.

Check for leaks after programming second control valve. Fill salt tank to within 6" of the top.

DUPLEX COMPONENTS LIST - PART(S)**TICK**

2 no vessels c/w bases

2 no riser tubes cut 13mm below top of vessel c/w bottom screens (no shrouds)

2 no control valve c/w (top screens, solenoids, short 3/8" tubing with 3/8" straight connector – all fitted) c/w 2no sachets of Autotrol valve grease

1 no Interconnecting signal cable

1 no salt tank c/w 2no air checks pre-fitted through push fit bulkhead connector. Overflow fitted.

2 no 5 mtr lengths drain/overflow hose

6 no Drain hose clips

2 no 2 mtr lengths brine line – chamfered both ends

1 pair interconnecting flexible hoses – 1" female connections both ends c/w 1" fibre washers to suit (hoses straight x straight connections)

1 pair 1" Maxflow flexible hoses - c/w 4no 1" fibre washers to suit (hoses elbow x straight connections)

1 set instructions and Monarch return envelope.

1 no Test kit

2 no jubilee clips

1 no blue funnel

2no plug in transformers

2no 22mm x 1" brass connectors c/w 2no 1" fibre washers

2no 28mm x 1" brass connectors c/w 2no 1" fibre washers

2no 1" red caps

RESIN

DS20 (2 x 20 litres bags)

DS30 (2 x 25 and 2 x 5 litres bags)

DS50 (4 x 25 litres bags)

DS75 (6 x 25 litres bags)

DS100 (8 x 25 litres bags)

DS125 (10 x 25 litre bags)

Monarch Water, Halesworth Road, Bramfield, Suffolk, IP19 9HP. Tel 01986 784759



MONARCH WATER

EDC AND DUPLEX (DS) MODELS SPECIFICATION

Resin - litres	20	30	50	75	100	125
Operating pressure min/max (bar)	1.4/5.0					
Operating temperature min/max (°C)	2/48					
Electrical connection (V/Hz)	230/50					
Max. power consumption (VA): (1) Simplex Duplex	1 x 12 2 x 18					
Hydraulic connection inlet/outlet	1" BSP Male (Flexible hoses and adaptors to both 22mm and 28mm supplied)					
Pressure tank dimensions (inch)	9x35	10x35	10x54	13x54	14x65	16x65

PERFORMANCE @ 3BAR OPERATING PRESSURE @ 150gr/Ltr RESIN BRINING

Resin - litres	20	30	50	75	100	125
Capacity per regen @ 300ppm (litres)	3680	5520	9166	13765	18330	22930
Salt usage per regeneration (kg)	3.0	4.5	7.5	11.25	15.0	18.75
Exchange capacity per kg salt (litres)	1226	1226	1222	1222	1222	1222
Service flow rate @ 1 bar pressure drop - ltrs/min (2)	54	56	57	59	62	65
Peak flow rate @ 1 bar pressure drop - ltrs/min (3)	76	78	80	82	87	91
Rinse water usage per regen - ltrs	110	165	285	400	540	670

(1) Supplied with 230/24V-50Hz plug in transformer (one per valve).

(2) Applies to EDC (Simplex) and DS (Duplex) models. DS models are alternating duplex.

(3) Recommended not to run at this flow rate for more than 20 minutes.

DIMENSIONS & WEIGHTS

	Simplex					
Model	EDC20	EDC30	EDC50	EDC75	EDC100	EDC125
Brine tank volume – litres	125	125	125	275	275	500
Brine tank diameter base/cover (mm)	470/540	470/540	470/540	575/685	575/685	800/875
Brine tank height (mm)	850	850	850	975	975	1110
Vessel & control valve depth (mm)	340	340	340	380	395	420
Vessel & control valve height (mm) +-10mm	1090	1090	1580	1580	1895	1895
Vessel & control valve width (mm) +-10mm	240	275	275	355	385	430
Height inlet/outlet (mm) +-10mm	925	925	1415	1415	1730	1730
Max. salt storage capacity (kg)	100	100	100	200	200	475
	Duplex alternating					
Model	DS20	DS30	DS50	DS75	DS100	DS125
Brine tank volume litres	1 x 125	1 x 125	1 x 125	1 x 275	1 x 275	1 x 500
Brine tank diameter base/cover (mm)	470/540	470/540	470/540	575/685	575/685	800/875
Brine tank height (mm)	850	850	850	975	975	1110
Vessel & control valve depth (mm)	490	490	490	530	545	570
Vessel & control valve height (mm) +-10mm	1090	1090	1580	1580	1895	1895
Vessel & control valve width (mm) +-10mm	600	610	610	690	790	920
Height inlet/outlet (mm) +-15mm	925	925	1415	1415	1730	1730
Max. salt storage capacity (kg)	100	100	100	200	200	475

Suppliers to H.M. the Queens Estate at Sandringham

Monarch Water Ltd, Halesworth Road, Bramfield, Suffolk, IP19 9HP

Tel: 01986 784759 Fax: 01986 784769 Email: sales@monarchwater.co.uk Web: www.monarchwater.co.uk



MONARCH WATER

MONARCH WATER DUPLEX WATER SOFTENER GUARANTEE Effective October 2013.

This water softener is fully covered by 3 years parts and 12 months labour guarantee for installation within the hard water regions of mainland England as detailed on Monarchs National Service Coverage List, from date of original purchase. – Full details available on request.

Installations outside this area are automatically covered by a 3 years parts only 'exchange' warranty.

PLEASE NOTE - This guarantee has the following conditions, and is not covered by the following.

1. Damage caused by high water pressure, we strongly recommend a '5bar water pressure limiting valve' on the inlet to your water supply, where daytime water pressure exceeds a static pressure of 50 psi (3.5 bar)
2. This water softener is suitable for a mains water supply only. Under no circumstances install this softener on a private water supply unless it is fully protected against iron, sediment build up etc in the water.
3. Damage caused by a dirty mains water supply. The installation of an H1034 c/w APSR Debris Filter on the supply to your softener cancels this clause. The majority of debris in water is caused by local authority work on the water main. If notified in advance, by your local water authority, please put your softener onto 'bypass', see Fig 1 on Programming & Installation Instructions.

For Bypass: Close both Inlet & Outlet valves, and open Bypass valve.

For Normal Service: Open both Inlet & Outlet valves, and close Bypass valve.

Details with diagrams are available on our web site: www.monarchwater.co.uk/htm/home/bypassing.htm

4. Callouts due to incorrect installation. If you have any queries when installing your softener, please call us on 01986 784759.
5. The wrong type of salt used.
NOTE: In all cases **use TABLET SALT ONLY.**
6. The use of any other hoses than those provided. Under no circumstances use washing machine hoses.
7. The build up of salt fines in the bottom of the salt compartment.
8. The effect of aggressive water, the degradation and/or blinding of resin and/or chlorine attack on resin.
9. Under no circumstances plumb in the softener in solid copper.
10. The installation kit is only covered by the OEM twelve-month parts 'exchange' warranty only.
11. Compensation as a result of damage caused by; or incorrect installation of the water softener. In the unlikely event of a fault developing, put the softener on to Bypass, see 3 above ref 'For Bypass' until an engineer calls.

THE ABOVE DOES NOT AFFECT YOUR STATUTORY RIGHTS

SERVICE CARE

The manufacturer of your water softener includes 45+ years of manufacturing experience, to give you a water softener that is arguably the most reliable on the market today.

One of the aspects incorporated into the manufacture of your softener is 'Prevention is better than cure'.

To these ends, Monarch strongly recommends a service every 2 years from date of installation, to ensure the continued excellent operating efficiency you will come to expect.

We will of course inform you when this small service is due and arrange a convenient time for our engineer to call. Therefore please ensure that your guarantee card is returned once installation is complete.

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MONARCH WATER

The below is to be completed by the installer.

Please tear out this section and return to Monarch Water in the envelope provided.

Model No:

Dynamic water pressure:psi/bar

Static water pressure:psi/bar

Water hardness:drops

Installer name:

Installer address:

.....

Postcode:Install date:

Monarch reference: Rotary duplex 36/12 warranty.

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