MONARCH WATER

COMMERCIAL

PRODUCT GUIDE

Effective June 2020

Making the most of water since 1964

www.monarchwater.co.uk www.scaleout.co.uk

5 interesting facts about hard water...

- A commercial application using just 2000 litres per day in a hard water area of only 300ppm, will use water containing 233kg (512lb) of scale in just one year. That's nearly a quarter of a tonne!
- Hard water costs the UK in excess of £1 billion every year.
- Just 0.5mm of scale increases your fuel costs by 9.4%. Similarly, 1mm of scale will increase this to 12%.
- Approx. 60% of the UK suffers from the effects of hard water.
- Hard water begins its life soft!

Contents/Index

Premio non-electric water softener

Model: Premio
Code: PSP028
Dimensions: 730H x 300W x 625D
Connections: ¾" or 1" male – please specify
Capacity: 8832 litres per day @ 325ppm
Operation: Duplex meter parallel

7 reasons why Premio...

- Integrated bypass as standard—see inset
- 5-years parts and 2-year labour guarantee
- Non-electric duplex meter control
- Suitable for 15, 22 and 28mm supplies
- High capacity from a small machine
- 8832 litres capacity @ 325ppm per 24 hour day
- High flow rates—70 lpm @ 1 bar p/drop

Maximo Water Softener

Model: GS6000 HE
Code: GS6004HE
Operation: Meter control with Opti-brining
Dimensions: 1100H x 350W x 565D
Connections: ¾" male

Optional Rapid-Fit Bypass to go into pipework to **GS6000 HE**
Model: Rapid Fit bypass
Code: MBP00134 for ¾" male bsp
Code: MBP00144 for 1" male bsp

Model: GS4000 HE
Code: GS4004HE
Operation: Meter control with Opti-brining
Dimensions: 870H x 350W x 565D
Connections: ¾" male

Optional Rapid-Fit Bypass to go into pipework to **GS4000 HE**
Model: Rapid Fit bypass
Code: MBP00134 for ¾" male bsp
Code: MBP00144 for 1" male bsp

8 reasons to use Maximo...

- ✓ GS6000HE giving up to 6430 litres per regen at 300ppm (4595 ltrs/GS4000HE)
- ✓ Intelligent microprocessor that controls, monitors and remembers your water use
- ✓ High flow rates (up to 75 lpm) and low pressure drops
- ✓ Opti-brining as standard – up to 56% salt savings
- ✓ Suitable for up to 28mm supplies
- ✓ Proven long life and accurate metering system
- ✓ 7 year parts and 2 years labour guarantee
- ✓ Comes complete with pair of Maxflow connection hoses and 3mtrs of drain/overflow hose

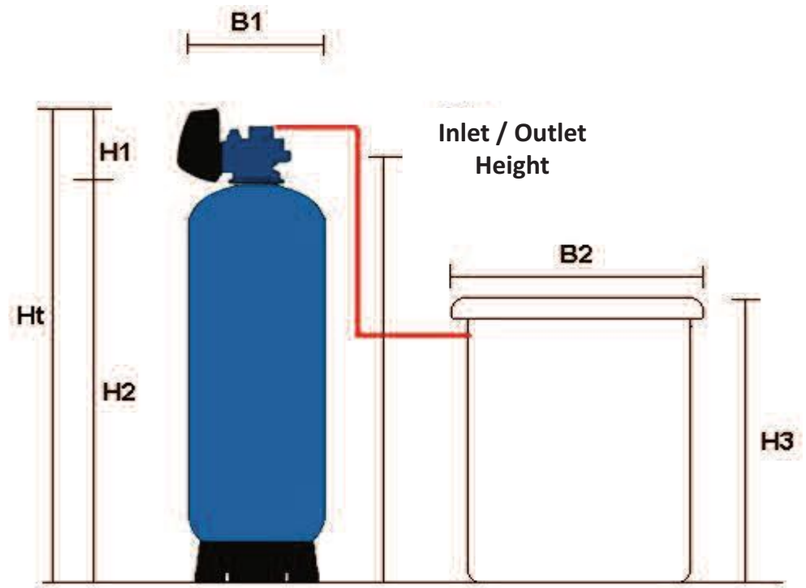
Model	Litres of solvent-free resin	Salt use per regeneration (kg)	Capacity per regeneration@300ppm	Flow rates lpm
GS6000HE	35	3.7 - 5.3	6430 litres	75
GS4000HE	25	2.6 - 3.7	4595 litres	75

MONARCH WATER

Technical data sheet simplex softener *MONARCH EDC 1″*

Electronic Demand Control (EDC)

Dimensions (cm)



model	valve H1	vessel H2	brine tank H3	softener Ht	Inlet / Outlet Ht	vessel B1	brine tank B2	weight (*) kg
EDC 20/44	19	89	44	108	74	22	32sq	27
EDC 30/44	19	89	89	108	94	27	32sq	40
EDC 40/44	19	112	84	131	117	27	44sq	50
EDC 50/44	19	139	84	158	144	27	44sq	65
EDC 60/44	19	123	84	142	128	32	44sq	75
EDC 75/44	19	140	83	159	145	34	67ø	90
EDC 100/44	19	168	83	187	173	37	67ø	118
EDC 125/44	19	168	83	187	173	37	67ø	140

All measurements can vary due to the cooling process during manufacture of the vessels and brine tanks.
(*) Estimated weight of the system without water or salt.

- Optional assembly and commissioning service available
- 5 years parts & 12 month labour warranty*
  *serviceable items excluded

MONARCH WATER

General conditions for installation

Connection IN & OUT:	1″ male (1.25″ available on request)
Option side mount:	N/A
Drain connection(*):	3/4" or 1" for DLFC flows over 10 gpm
Electrical rating:	230V 50Hz 12V Transformer
max power rating:	6W
IP protection class:	Double isolated transformer
Minimum inlet pressure :	200 kPa (2 bar)
Maximum inlet pressure:	600 kPa (6 bar)
Vacuum:	no allowance
Average pressure loss (**):	100 kPa (1 bar)
Min-max water temperature:	5-35°C

Remarks
(*) Dependant on Drain line flow control.
(**) Under normal circumstances.
It is always recommended to install a 25µ cartridge filter before a softener.

Resin

Type	: Strong acid cation resin - softening ,food grade quality
Life span	: 15 years under normal circumstances

Ion exchange (for average salt consumption of 150 g/L)

litres of resin	20	30	40	50	60	75	100	125
Capacity kg $CaCO_3$	1	1.5	2	2.5	3	3.8	5	6.3
M³ @ 300ppm	3.3	5	6.6	8.3	10	13	17	21
Salt consumption Kg / Regen	3	4.5	6	7.5	9	11	15	19

Regeneration

Start : Default Time 2:00 am, set on the timer as (delayed regeneration)
Options : TIME - VOLUME - IMMEDIATE - DELAYED
- DAYS OVERRIDE and manual regeneration.

Total time min :	67	79	71	81	73	75	97	97

Remarks When sizing an EDC softener, the interval between regenerations should not be more than 4 days, to prevent tracking of water through the vessel.

Flow rate

	litres of resin	20	30	40	50	60	75	100	125
Nominal	m³/h	0.8	1.2	1.6	2.0	2.4	3.0	4.0	5.0
Minimum	L/h	60							

Consumption of rinse water

	litres of resin	20	30	40	50	60	75	100	125
1.Backwash	litres	32	52	52	52	74	95	95	95
2.Brining + Slow	litres	67	124	102	110	153	188	263	246
4.Fast rinse	litres	39	62	62	62	89	114	114	114
Total (***)	litres	138	238	216	224	316	397	472	455

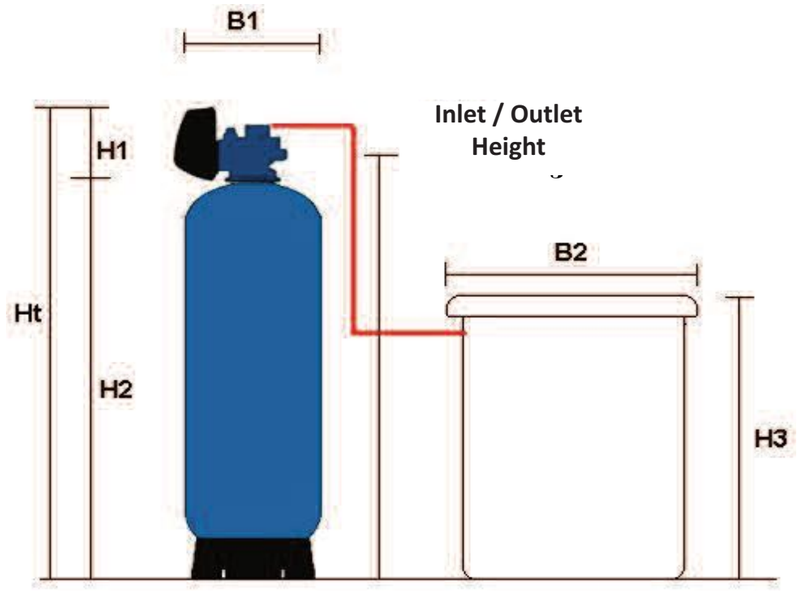
(***) Figures based on 60PSI pressure.

MONARCH WATER

Technical data sheet simplex softener *MONARCH EDC 1.25″*

Electronic Demand Control (EDC)

Dimensions (cm)



model	valve H1	vessel H2	brine tank H3	softener Ht	Inlet / Outlet	vessel B1	brine tank B2	weight (*) kg
EDC 75/54	19	140	83	159	145	34	67ø	90
EDC 100/54	19	168	83	187	173	37	67ø	118
EDC 125/54	19	168	83	187	173	37	67ø	140
EDC 150/54	19	167	101	186	172	41	76ø	175
EDC 200/54	19	179	93	198	184	51	87ø	230

(*) Estimated weight of the system without water or salt.
(**) Sizes may vary dependant on components used and should only be used as a guide.

- Optional assembly and commissioning service available
- 5 years parts & 12 month labour warranty*
  *serviceable items excluded

MONARCH WATER

General conditions for installation

Connection IN & OUT:	1.25″ male
Option side mount:	N/A
Drain connection(*):	3/4" or 1" for DLFC flows over 10 gpm
Electrical rating:	230V 50Hz 12V Transformer
Max power rating:	6W
IP protection class:	Double isolated transformer
Minimum inlet pressure :	200 kPa (2 bar)
Maximum inlet pressure:	600 kPa (6 bar)
Vacuum:	no allowance
Average pressure loss (**):	100 kPa (1 bar)
Min-max water temperature:	5-35°C

Remarks
(*) Dependant on Drain line flow control.
(**) Under normal circumstances.
It is always recommended to install a 25µ cartridge filter before a softener.

Resin

Type	: Strong acid cation resin - softening ,food grade quality
Life span	: 15 years under normal circumstances

Ion exchange (for average salt consumption of 150 g/L)

litres of resin	75	100	125	150	200
Capacity kg $CaCO_3$	3.8	5	6.3	7.5	10
M^3 @ 300ppm	13	17	21	25	33
Salt consumption kg / regen.	11	15	19	22.5	30

Regeneration

start : Default Time 2:00 am, set on the timer as (delayed regeneration)
Options : TIME - VOLUME - IMMEDIATE - DELAYED
- DAYS OVERRIDE and manual regeneration.

total time min :	75	97	97	82	95

Remarks When sizing an EDC softener, the interval between regenerations should not be more than 4 days, to prevent tracking of water through the vessel.

Flow rate

litres of resin		75	100	125	150	200
nominal	M^3/h	3.0	4.0	5.0	6.0	8.0
minimum	L/h	60				

Consumption of rinse water

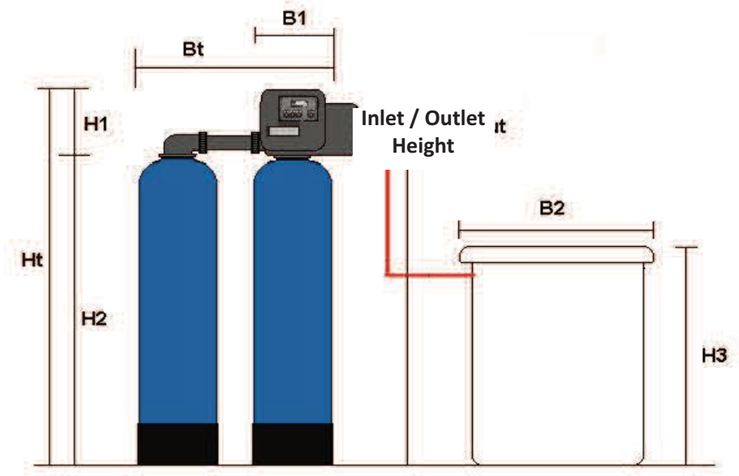
	litres of resin	75	100	125	150	200
1.Backwash	litres	95	95	95	132	170
2.Brining + Slow	litres	188	263	246	282	440
4.Fast rinse	litres	114	114	114	159	204
Total ***	litres	**397**	**472**	**455**	**573**	**814**

MONARCH WATER

Technical data sheet duplex softener *MONARCH DS 1″*

Alternating Duplex/Duplex Standby (DS)

Dimensions (cm)



model	valve H1	vessel H2	brine tank H3	softener Ht	Connection Ht	vessel B1	softener Bt	brine tank B2	weight (*) kg
DS 10/44	19	42	44	61	47	22	45	32 sq	35
DS 20/44	19	89	84	108	94	22	45	44 sq	56
DS 30/44	19	89	84	108	94	27	64	44 sq	75
DS 40/44	19	112	84	131	117	27	64	44 sq	96
DS 50/44	19	139	84	158	144	27	64	44 sq	115
DS 60/44	19	123	83	142	128	32	77	67⌀	147
DS 75/44	19	140	101	159	145	34	80	76⌀	180
DS 100/44	19	168	93	187	173	37	92	87⌀	235
DS 125/44	19	168	93	187	173	37	92	87⌀	280
DS 150/44	19	167	124	186	172	41	96	87⌀	340
DS 200/44	19	179	124	198	184	51	119	87⌀	440

(*) total weight of the unit without water or filled brine tank

(**) sizes may vary dependant on components used and should only be used as a guide.

- Optional assembly and commissioning service available
- 5 years parts & 12 month labour warranty*
  *serviceable items excluded

MONARCH WATER

General conditions for installation

Connection IN & OUT:	1" male
Option side mount:	N/A
Drain connection(*):	3/4" or 1" for DLFC flows over 10 gpm
Electrical rating:	230V 50Hz 12V Transformer
max power rating:	6W
IP protection class:	Double isolated transformer
Minimum inlet pressure :	200 kPa (2 bar)
Maximum inlet pressure:	600 kPa (6 bar)
Vacuum:	no allowance
Average pressure loss (**):	100 kPa (1 bar)
Min-max water temperature:	5-35°C

Remarks
(*) Dependant on Drain line flow control.
(**) Under normal circumstances.

Resin

Type:	Strong acid cation resin - softening ,food grade quality
Life span:	15 years under normal circumstances

Ion exchange (for average salt consumption of 150 g/L)

Litres of resin	10	20	30	40	50	60	75	100	125	150	200
Capacity Kg $CaCO_3$	0.5	1	1.5	2	2.5	3	3.8	5	6.3	7.5	10
M^3 @ 300ppm	1.6	3.3	5	6.6	8.3	10	13	17	21	25	33
Salt consumption	1.5	3	4.5	6	7.5	9	11	15	19	23	30

Regeneration

Alternating Duplex (Duty Standby) Total time:

Total time min :	65	65	79	71	81	73	75	97	97	82	95

Remarks When sizing a duplex softener, the interval between regenerations should not be more frequent than every 6 hours, to allow brine creation. Additionally, the interval between regenerations should not be more than 4 days, to prevent tracking of water through the vessel. In all cases, BV exchange should be considered in conjunction with the regeneration frequency calculated.

Flow rate

Litres of resin		10	20	30	40	50	60	75	100	125	150	200
Nominal	M^3/h	0.4	0.8	1.2	1.6	2	2.4	3	4	5	6	6.4
Minimum	L/h	60	60	60	60	60	60	60	60	60	60	60

Consumption of rinse water

C

Litres of resin	10	20	30	40	50	60	75	100	125	150	200
1.Backwash	32	32	52	52	52	74	95	95	95	132	170
2.Brining + Slow rinse	72	67	124	102	110	153	188	263	246	282	440
4.Fast rinse	39	39	62	62	62	89	114	114	114	159	204
Total ***	**143**	**138**	**238**	**216**	**224**	**316**	**397**	**472**	**455**	**573**	**814**

(***) Figures based on 60 PSI pressure.

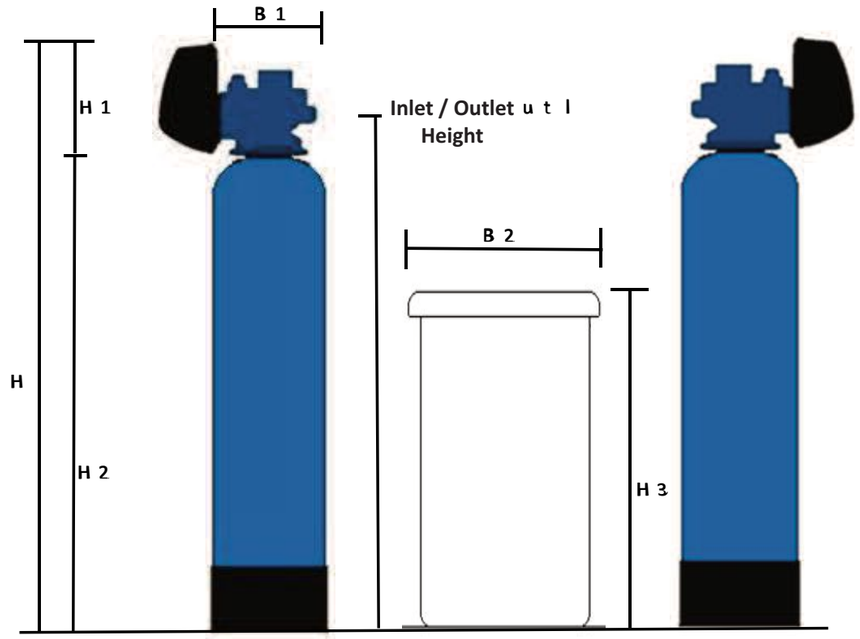
10/12/2018

MONARCH WATER

Technical data sheet duplex softener *MONARCH DS 1.25″*

Alternating Duplex/Duplex Standby (DS)

Dimensions (cm)



model	valve H1	vessel H2	brine tank H3	softener Ht	Inlet / Outlet	vessel B1	brine tank B2	weight (*) kg
DS 75/54	19	140	101	159	145	34	76ø	166
DS 100/54	19	168	87	187	173	37	93ø	210
DS 125/54	19	168	87	187	173	37	93ø	232
DS 150/54	19	167	124	186	172	41	87ø	316
DS 200/54	19	179	124	198	184	51	87ø	410

(*) Estimated weight of the system without water or salt.
(**) Sizes may vary dependant on components used and should only be used as a guide.

- Optional assembly and commissioning service available
- 5 years parts & 12 month labour warranty*
  *serviceable items excluded

MONARCH WATER

General conditions for installation

Connection IN & OUT:	1.25" male
Option side mount:	N/A
Drain connection(*):	3/4" or 1" for DLFC flows over 10 gpm
Electrical rating:	230V 50Hz 12V Transformer
Max power rating:	6W
IP protection class:	Double isolated transformer
Minimum inlet pressure :	200 kPa (2 bar)
Maximum inlet pressure:	600 kPa (6 bar)
Vacuum:	no allowance
Average pressure loss (**):	100 kPa (1 bar)
Min-max water temperature:	5-35°C

Remarks
(*) Dependant on Drain line flow control.
(**) Under normal circumstances.
It is always recommended to install a 25µ cartridge filter before a softener.

Resin

Type	: Strong acid cation resin - softening ,food grade quality
Life span	: 15 years under normal circumstances

Ion exchange (for average salt consumption of 150 g/L)

litres of resin	75	100	125	150	200
Capacity kg $CaCO_3$	3.8	5	6.3	7.5	10
M³ @ 300ppm	13	17	21	25	33
Salt consumption kg / regen.	11	15	19	22.5	30

Regeneration

Alternating Duplex (Duty Standby) Total time:

total time min :	75	97	97	82	95

Remarks When sizing a duplex softener, the interval between regenerations should not be more frequent than every 6 hours, to allow brine creation. Additionally, the interval between regenerations should not be more than 4 days, to prevent tracking of water through the vessel. In all cases, BV exchange should be considered in conjunction with the regeneration frequency calculated.

Flow rate

litres of resin		75	100	125	150	200
nominal	M³/h	3.0	4.0	5.0	6.0	8.0
minimum	L/h	60				

Consumption of rinse water

	litres of resin	75	100	125	150	200
1.Backwash	litres	95	95	95	132	170
2.Brining + Slow rinse	litres	188	263	246	282	440
4.Fast rinse	litres	114	114	114	159	204
Total ***	litres	**397**	**472**	**455**	**573**	**814**

(***) Figures based on 60 PSI pressure.

High-Efficiency Water Softener HE 1.5”

TECHNICAL DATA SHEET

M007-10 – Rev. 01 - 12/2012

The Culligan HE water softener is suited to a variety of industrial and commercial applications and is designed to remove hardness (specifically calcium and magnesium) by means of exchanger resins.

These resins are used because they are particularly suitable for use in water used in the preparation or production of food.

The cylindrical-shaped container is constructed from reinforced corrosion-resistant fibreglass.

The HE water softener offers users significant cost savings (up to 46% compared to conventional water filters) while being environmentally friendly.

Culligan proportional regeneration technology enables the water softener to regenerate only the spent part of the resin bed. This minimises the consumption of salt and the associated water consumption necessary for the regeneration.

The Culligan Dial-a-Softness® control system enables selecting the hardness of the water for the service without an additional external mixing device.

The exclusive Culligan Soft-Minder® monitors the daily use of water by flow meter and offers an advanced diagnostic program. It allows the regeneration program to be started according to:

- volume of treated water
- timed
- volume of treated water with timed regeneration (domestic volume)

The exclusive HE valve, which uses motor pistons, offers more reliability than conventional rotating valves. The design of the valve with several pistons provides for easier maintenance and longer life.

The brine container is constructed from corrosion-proof components and the Dubl-Safe system that controls the level and quality of the brine ensures excellent results.

Moreover, the HE valve is fitted with an automatic bypass system to supply untreated water to the service even when the water softener is being regenerated.

The HE valve is designed to work in conjunction with these options:

Modem function: Via telephone line. It emails an equipment status operation report to up to 2 settable recipients.

Smart brine tank: It evaluates the presence of salt in the brine system, the percentage of actual brine, the level of the brine and the correct operation of the suction system (suction time control).

Remote monitor: Via radio link. It transmits information relevant to water softener operation from the control unit to a remote display

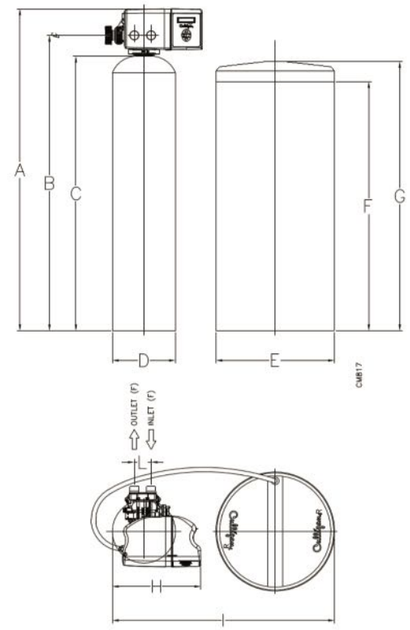
Progressive flow: It enables the management of several water softener columns operating in parallel in cascade to cover peak water demands without having to oversize the water softener.

Communication cable: It enables the display of data from control unit to PC or PLC/remote control network.

Service water stop: It allows water to be stopped to the service when the water softener is being regenerated.

OVERALL DIMENSIONS

Model		HE 60 1.5”	HE 90 1.5”	HE 120 1.5”	HE 150 1.5”	HE 210 1.5”
A	mm	1530	1530	1880	1550	1780
B	mm	1401	1401	1731	1426	1655
C	mm	1321	1321	1651	1346	1575
Ø D	mm	356	406	406	533	533
Ø E	mm	610	610	610	762	762
F	mm	934	934	1190	1190	1190
G	mm	1016	1016	1270	1270	1270
H	mm	415	440	440	506	506
I	mm	970	1020	1020	1300	1300
L	mm	61	61	61	60	61



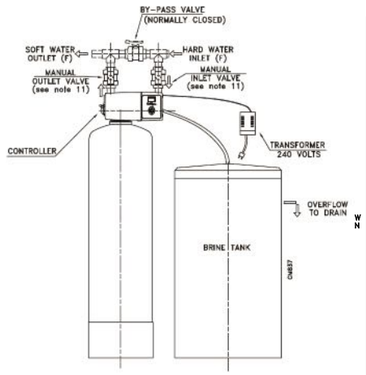
M007-10 – Rev. 01 – 12/2012

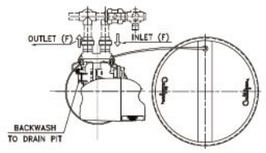
High-Efficiency Water Softener HE 1.5” *Continued*

INSTALLATION

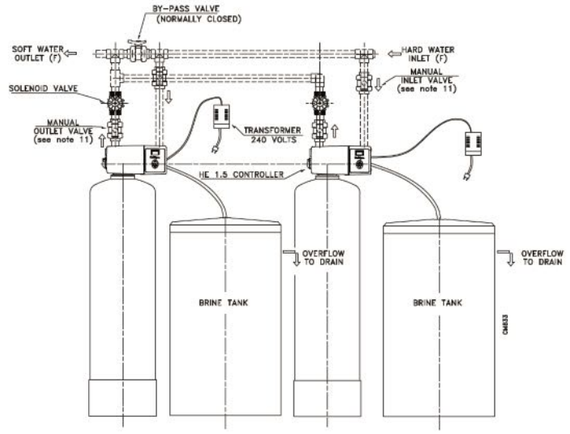
The water softener must be installed by qualified personnel, in compliance with the instructions given in the technical manual.

INSTALLATION DIAGRAM



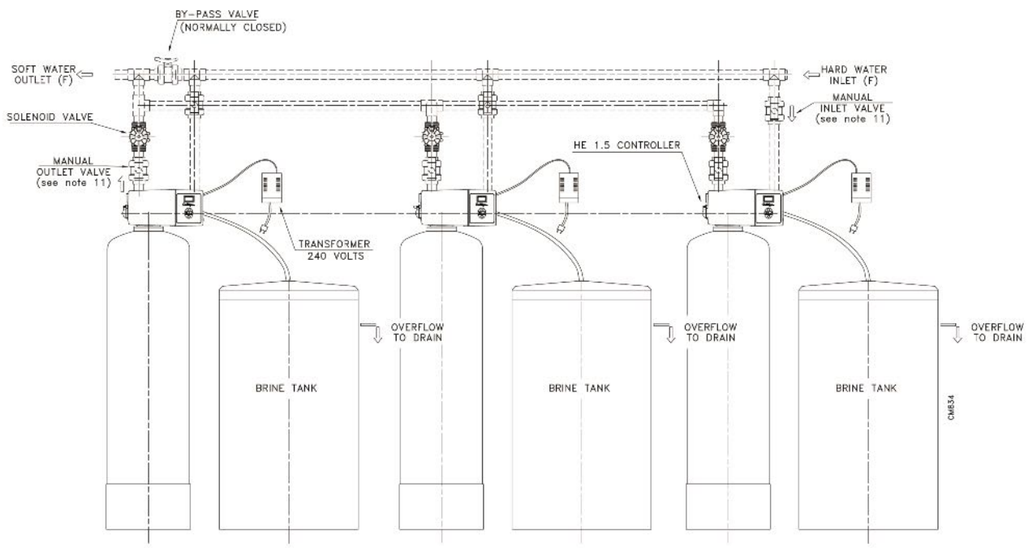


SIMPLEX installation diagram



DUPLEX installation diagram

PROGRESSIVE installation diagram



TECHNICAL SPECIFICATIONS

Model	HE 60 1.5”	HE 90 1.5”	HE 120 1.5”	HE 150 1.5”	HE 210 1.5”
Total dimensions (w x d x h) mm	970 x 610 x 1530	1020 x 610 x 1530	1020 x 610 x 1880	1300 x 770 x 1550	1300 x 770 x 1780
Tank type	FRP fiber-reinforced plastic				
Dim. Resin Tank (Dia x H) mm *(Dia x H) inch*	356 x 1321 14 x 52	406 x 1321 16 x 52	406 x 1651 16 x 65	533 x 1346 21 x 53	533 x 1575 21 x 62
Dim. salt container (DiaxH) mm *(DiaxH) inch*	610 x 1016 24 x 40	610 x 1016 24 x 40	610 x 1270 24 x 50	762 x 1270 30 x 50	762 x 1270 30 x 50
Resins, type and quantity	Cullex® 56 l	Cullex® 85 l	Cullex® 113 l	Cullex® 142 l	Cullex® 198 l
Underbed, type and quantity	Cullsan® 14 kg	Cullsan® 18 kg	Cullsan® 18 kg	Cullsan® 32 kg	Cullsan® 36 kg
Exchange capacity – Regeneration salt dosing	214 m^3x°f - 3.6 kg 265 m^3x°f - 5.4 kg 395 m^3x°f - 13.6 kg	343 m^3x°f - 5.4 kg 440 m^3x°f - 8.2 kg 621 m^3x°f - 20.4 kg	505 m^3x°f - 7.3 kg 641 m^3x°f -10.9 kg 887 m^3x°f - 27.2 kg	602 m^3x°f - 9.1 kg 764 m^3x°f - 13.6 kg 977 m^3x°f - 34.0 kg	744 m^3x°f - 12.7 kg 1081 m^3x°f - 19.1 kg 1521 m^3x°f - 47.6 kg
Salt container capacity	295 kg	295 kg	409 kg	636 kg	636 kg
Service flow rate - pressure loss	5.7 m^3/h - 1 bar	6.0 m^3/h- 1 bar	5.3 m^3/h- 1 bar	6.2 m^3/h- 1 bar	6.4 m^3/h- 1 bar
Peak flow rate - pressure loss	8.4 m^3/h - 1.7 bar	8.6 m^3/h - 1.7 bar	8.0 m^3/h - 1.7 bar	8.1 m^3/h - 1.7 bar	8.5 m^3/h - 1.7 bar
Operating pressure	Min 1.7 – Max 8.3 bar - WRAS Tested to 8 Bar				
Operating temperature	Min 4.4 – Max 38 °C - WRAS Tested to 23°C				
Room temperature	Min 0 – Max 55 °C				
Electrical power supply	230/24V – 50/60 Hz				
Electrical power input	Min 8.4 – Max 21.6 Watts				
Operating weight	525 kg	550 kg	735 kg	1030 kg	1180 kg
Shipping weight	112 kg	135 kg	170 kg	240 kg	295 kg
Inlet/outlet/discharge fittings	1.5”/1.5”/0.5”				
Water flow rate to the discharge, max	1.2 m^3/h	1.2 m^3/h	1.2 m^3/h	1.6 m^3/h	2.6 m^3/h
Volume of water to the discharge in Regeneration *	0.39 m^3	0.54 m^3	0.50 m^3	0.58 m^3	0.82 m^3

* Calculated on a backflushing time of 10 minutes. The average time for a complete reg. is about 70 minutes

M007-10 – Rev. 01 – 12/2012

High-Efficiency Water Softener HE Twin 1.5”

M007-12 – Rev. 01 - 12/2012

TECHNICAL DATA SHEET

The Culligan HE Twin water softener is designed to treat water hardness by removing calcium and magnesium ions through the use of exchange resins.

These resins are used because they are particularly suitable for use in water used in the preparation or production of food.

The cylindrical-shaped container is constructed from reinforced corrosion-resistant fibreglass.

The HE TWIN water softener offers users significant cost savings (up to 46% compared to conventional water filters) while being environmentally friendly.

The HE TWIN is able to supply treated water continuously 24 hours a day. Two independent columns produce a continuous flow of softened water. When the exchange capacity of one of the containers is exhausted, the second one comes into service while the first one is regenerated.

HE TWIN water softeners are equipped with a single GBE control unit installed in the main control valve.

The Culligan Dial-a-Softness® control system enables selecting the hardness of the water for the service without an additional external mixing device.

The exclusive Culligan Soft-Minder® monitors the daily use of water by flow meter and offers an advanced diagnostic program. It allows the regeneration program to be started according to:

- volume of treated water
- timed
- volume of treated water with timed regeneration (domestic volume)

The exclusive HE valve, which uses motor pistons, offers more reliability than conventional rotating valves. The design of the valve with several pistons provides for easier maintenance and longer life.

The brine container is constructed from corrosion-proof components and the Dubl-Safe system that controls the level and the quality of the brine ensures excellent results.

.

Moreover, the HE valve is fitted with an automatic bypass system to supply untreated water to the service even when the water softener is being regenerated.

The HE valve is designed to work in conjunction with:

Modem function: via telephone line. It emails an equipment operation status report to up to 2 recipients

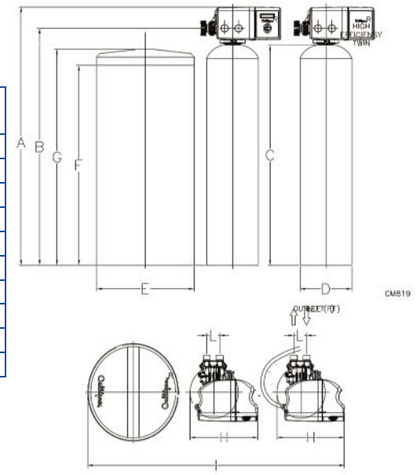
Smart brine tank: it evaluates the presence of salt in the brine system, the % of actual brine, the level of the brine and the correct operation of the suction system (suction time)

Remote monitor: via radio link. It transmits information relevant to water softener operation from the control unit to a remote display

Communication cable: enables the display of data from the control unit to PC or PLC/remote control network

OVERALL DIMENSIONS

Model		HE 60 Twin 1.5”	HE 90 Twin 1.5”	HE 120 Twin 1.5”	HE 150 Twin 1.5”	HE 210 Twin 1.5”
A	*mm*	1530	1530	1880	1550	1780
B	*mm*	1401	1401	1731	1426	1655
C	*mm*	1321	1321	1651	1346	1575
Ø D	*mm*	356	406	406	533	533
Ø E	*mm*	610	610	610	770	770
F	*mm*	934	934	1190	1190	1190
G	*mm*	1016	1016	1270	1270	1270
H	*mm*	415	440	440	506	506
I	*mm*	1470	1730	1730	2030	2030
L	*mm*	61	61	61	61	61



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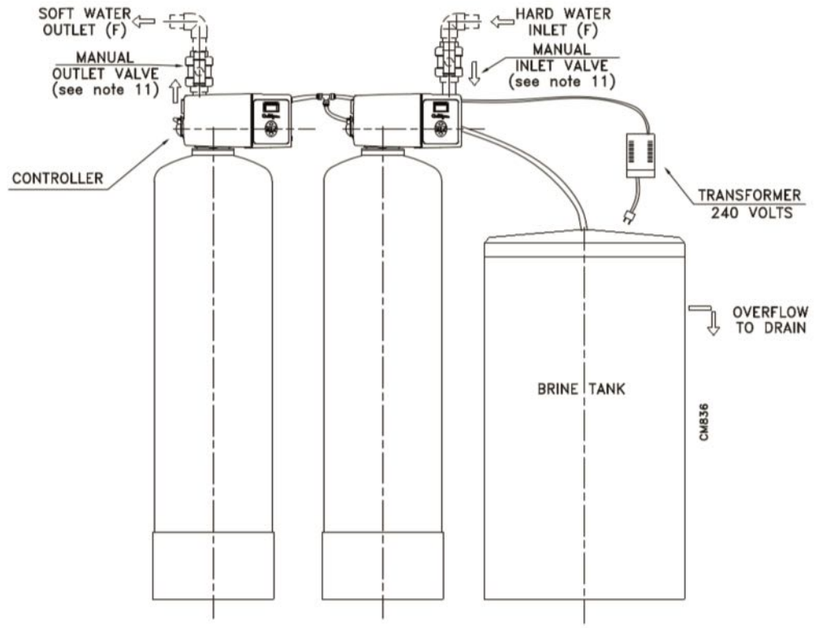
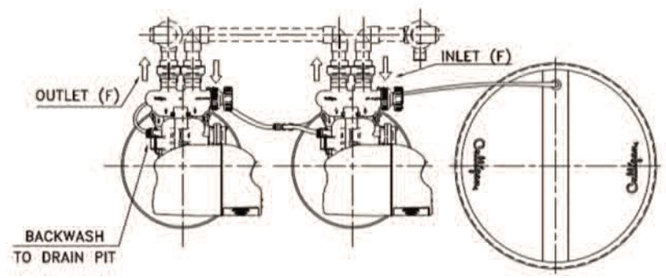
High-Efficiency Water Softener HE Twin 1.5” *Continued*

INSTALLATION

The water softener must be installed by qualified personnel, in compliance with the instructions given in the technical manual.

INSTALLATION DIAGRAM





TECHNICAL SPECIFICATIONS

Model	HE 60 1.5”	HE 90 1.5”	HE 120 1.5”	HE 150 1.5”	HE 210 1.5”
Total dimensions (w x d x h) mm	1470 x 610 x 1530	1730 x 610 x 1530	1730 x 610 x 1880	2030 x 770 x 1550	2030 x 770 x 1780
Tank type	FRP fiber-reinforced plastic				
Dim. Resin Tank (Dia x H) mm *(Dia x H) inch*	356 x 1321 14 x 52	406 x 1321 16 x 52	406 x 1651 16 x 65	533 x 1346 21 x 53	533 x 1575 21 x 62
Dim. salt container (DiaxH) mm *(DiaxH) inch*	610 x 1016 24 x 40	610 x 1016 24 x 40	610 x 1270 24 x 50	762 x 1270 30 x 50	762 x 1270 30 x 50
Resins, type and quantity per tank	Cullex® 56 l	Cullex® 85 l	Cullex® 113 l	Cullex® 142 l	Cullex® 198 l
Underbed, type and quantity per tank	Cullsan® 14 kg	Cullsan® 18 kg	Cullsan® 18 kg	Cullsan® 32 kg	Cullsan® 36 kg
Exchange capacity – Regeneration salt dosing per tank	214 m^3x°f - 3.6 kg 265 m^3x°f - 5.4 kg 395 m^3x°f - 13.6 kg	343 m^3x°f - 5.4 kg 440 m^3x°f - 8.2 kg 621 m^3x°f - 20.4 kg	505 m^3x°f - 7.3 kg 641 m^3x°f -10.9 kg 887 m^3x°f - 27.2 kg	602 m^3x°f - 9.1 kg 764 m^3x°f - 13.6 kg 977 m^3x°f - 34.0 kg	744 m^3x°f - 12.7 kg 1081 m^3x°f - 19.1 kg 1521 m^3x°f - 47.6 kg
Salt container capacity	295 kg	295 kg	409 kg	636 kg	636 kg
Service flow rate - pressure loss	5.7 m^3/h - 1 bar	6.0 m^3/h- 1 bar	5.3 m^3/h- 1 bar	6.2 m^3/h- 1 bar	6.4 m^3/h- 1 bar
Peak flow rate - pressure loss	8.4 m^3/h - 1.7 bar	8.6 m^3/h - 1.7 bar	8.0 m^3/h - 1.7 bar	8.1 m^3/h - 1.7 bar	8.5 m^3/h - 1.7 bar
Operating pressure	Min 2.7 – Max 8.3 bar - WRAS tested to 8 Bar				
Operating temperature	Min 4.4 – Max 38 °C - WRAS Tested to 23°C				
Room temperature	Min 0 – Max 55 °C				
Electrical power supply	230/24V – 50/60 Hz				
Electrical power input	Min 8.4 – Max 21.6 Watts				
Operating weight	690 kg	710 kg	960 kg	1560 kg	1600 kg
Shipping weight	206 kg	250 kg	315 kg	450 kg	555 kg
Inlet/outlet/discharge fittings	1.5”/1.5”/0.5”				
Water flow rate to the discharge, max	1.2 m^3/h	1.2 m^3/h	1.2 m^3/h	1.6 m^3/h	2.6 m^3/h
Volume of water to the discharge in Regeneration *	0.39 m^3	0.54 m^3	0.50 m^3	0.58 m^3	0.82 m^3

* Calculated on a backflushing time of 10 minutes. The average time for a complete reg. is about 70 minutes

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Automatic Softener CTM

Culligan Top Mount

CE

M011-14 – Rev. 00 - 10/2016

Technical Sheet

The Culligan CTM water softener, designed to satisfy the most varied professional and semi-industrial requirements, is a specific device for removing hardness (Calcium and Magnesium), by means of exchanger resins that are selected and suitable for contact with water and are foodsafe, such as Cullex strong cation exchange resins in a sodium cycle, normally able to be regenerated with sea salt.
The vertical cylindrical-shaped container is made of fiberglass reinforced corrosion-resistant material.
The Culligan control unit GBE allows an advanced system management.
The exclusive Culligan Soft-Minder® monitors the daily use of water by flow meter and offers an advanced diagnostic program. It allows the regeneration program to be started according to:

- volume of treated water
- timed
- volume of treated water with timed regeneration (domestic volume)

The exclusive Culligan CTM valve, endowed with hydraulic pistons, is more reliable than traditional rotation valves. The multiple pistons valve design allows a more simple service and a longer life.
The brine tank is realized by corrosion proof components. Furthermore, on the CTM valve is already installed an automatic by-pass to produce no treated water during regeneration.

The Culligan CTM valve is already arranged for the following accessories:

Remote monitor: via radio link it transmits information relevant to water softener operation from the control unit to a remote display.

Duplex system: it allows to manage two softeners in alternate run, producing treated water 24 hours a day. Two independent columns produce a continuous softened flow; when the exchange capacity of a softener is exhausted, the second starts working and the first regenerates.

Progressive flow: enables management of several water softener columns operating in parallel in cascade to cover peak water demands without having to oversize the water softener.

Communication cable: enables the display of data from control unit to PC or PLC/remote control network.

Service water stop: through this device it is possible to stop the water to the service when the water softener is being regenerated, thanks to an optional piston which may be installed inside the valve, or by means of an external product closing kit, optional as well.

TECHNICAL SPECIFICATIONS

CTM Flow Specifications

Model softener CTM			CTM 60	CTM 90	CTM 120	CTM 150	CTM 210	CTM 300	CTM 450	CTM 600
Service	Continuous minimum	(m^3/h)	0,36	0,48	0,64	0,32	0,32	1,36	2,27	3,18
	Continuous maximum	(m^3/h)	4,54	6,81	9,08	10,22	12,49	14,76	17,26	18,62
	Continuous @ 1 bar max. pressure loss		11,58	12,94	12,49	13,40	14,76	15,90	17,26	18,62
	Peak @ 1,7 bar max. pressure loss		15,67	17,03	16,58	17,26	19,30	21,58	23,62	24,76
Suggested Progressive Flow Trip Point		(m^3/h)	4,54	6,81	9,08	10,22	12,49	14,76	17,26	18,62
Drain	Backwash/Fast Rinse	(m^3/h)	0,79	1,13	1,82	1,82	2,72	3,40	5,68	6,81
	Brine Draw	(m^3/h)	0,12	0,12	0,24	0,24	0,26	0,37	0,47	0,47
	Slow Rinse	(m^3/h)	0,21	0,21	0,36	0,36	0,45	0,60	1,21	1,21
	Refill Standard [Fast Rinse]	(m^3/h)	0,09	0,09	0,09 [0,28]	0,28 [0,37]	0,28 [0,37]	0,28 [0,46]	0,28 [0,62]	0,28 [0,62]

Automatic Softener CTM *Continued*

Culligan Top Mount

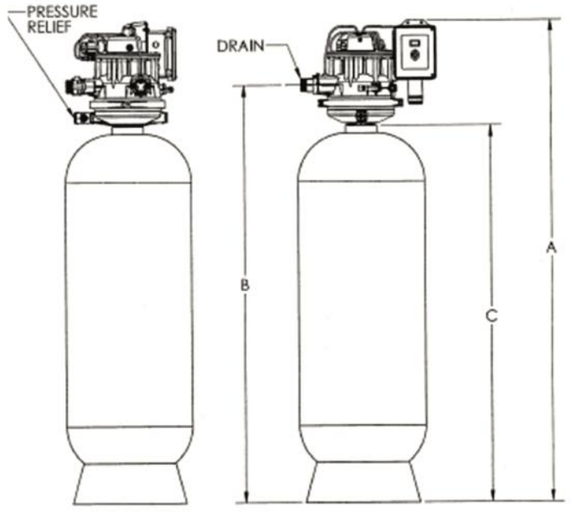
CTM Exchange capacity/Salt dosage

		CTM 60	CTM 90	CTM 120	CTM 150	CTM 210	CTM 300	CTM 450	CTM 600
Min.	m^3 x °f	*259*	*388*	*518*	*648*	*907*	*1296*	*1944*	*2592*
	kg - salt	5,9	8,2	11	14,5	20	30	40	52,2
Average	m^3 x °f	*324*	*486*	*648*	*810*	*1134*	*1620*	*2430*	*3240*
	kg - salt	9	13,6	18,6	24,5	34,7	50	64,9	90,8
Max	m^3 x °f	*388*	*583*	*777*	*972*	*1360*	*1944*	*2916*	*3888*
	kg - salt	13,6	20,8	27,2	34	47,4	74,7	104	136,2

Note: - *Electric Power : 230/24V~-50/60Hz.*
- *Operating temperature (°C) : min. 4.4 °C – Max 49 °C.*
- *Operating pressure (bar) : min. 2,4 – Max 8,6*
- *The real capacity exchange depends on the inlet water features, from temperature to flow and other factors (i.e. composition).*
- *For the Duplex CTM models, technical specs are referred to the single softener. Duplex models are composed by two tanks with a control valve for each column and a single brine system.*

CTM Softeners Dimensions

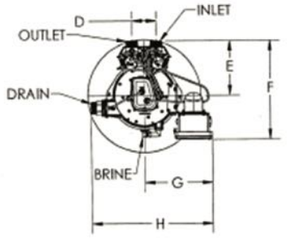
Model	Tank "	Tank Ø mm	Height A mm	Height In/Out/Drain B mm	Height Tank C mm	Brine System size Ø X Height "	Brine System size Ø X Height mm	CTM System Weight Shipping kg	CTM System Weight Operating kg
CTM 60	14" X 52"	355,6	1790,8	1500,8	1320,8	24 X 50	609,6 X 1270	125	500
CTM 90	16" X 52"	406,4	1790,8	1500,8	1320,8	24 X 50	609,6 X 1270	150	600
CTM 120	16" X 65"	406,4	2121,0	1831,0	1651,0	24 X 50	609,6 X 1270	180	720
CTM 150	21" X 53"	533,4	1816,2	1526,2	1346,2	21 X 53	533,4 X 1346,2	280	1120
CTM 210	21" X 62"	533,4	2044,8	1754,8	1574,8	21 X 62	533,4 X 1574,8	312	1248
CTM 300	24" X 72"	609,6	2298,8	2008,8	1828,8	30 X 50	762 X 1270	420	1680
CTM 450	30" X 72"	762,0	2298,8	2008,8	1828,8	42 X 50	1066,8 X 1270	655	2620
CTM 600	36" X 72"	914,4	2298,8	2008,8	1828,8	42 X 50	1066,8 X 1270	898	3592



Note: *Above the softener, 600 mm are needed to ensure standard service operations as filling and maintenance*

CTM Control valve – Dimensions for all model

Height Control valve mm	Distance D Inlet Outlet mm	Distance E Center of tank Inlet Outlet mm	Distance F Inlet-Outlet Controller mm	Distance G Center of tank Controller mm	Distance H Drain Controller mm
470	120,7	279,4	497,8	337,8	604,5



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Scaleout—CIS range

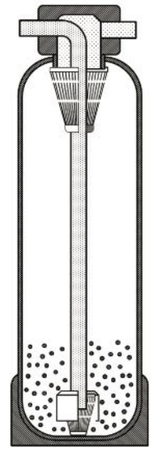
Commercial

- Commercial models are available for flow rates from 1–10 cubic meters an hour
- Models CIS144 to model CIS1084 are available ex-stock.
- Bespoke systems are available to design as determined by site conditions.

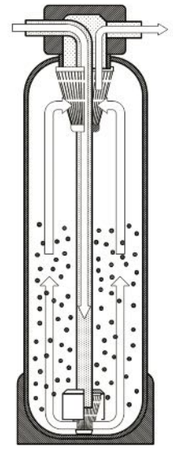
Model No	Approx Weight Dry Ship kg	Standard Connections*	Head	m3hr	Lpm	Assembly	Dimensions Approx *(DxWxH)*
CIS144	15	1"	SK1	1	16	pre-built	7" x 11" x 44"
CIS244	18	1"	SK1	2	33	pre-built	8" x 11" x 53"
CIS344	28	1"	SK1	3	50	pre-built	10" x 11" x 63"
CIS444	20	1"	SK1	4	66	pre-built	10" x 11" x 63"
CIS544	25	1"	SK1	5	83	pre-built	12" x 12" x 61"
CIS644	32	1"	SK1	6	100	pre-built	13" x 13" x 63"
CIS744	35	1"	SK1	7	116	pre-built	13" x 13" x 63"
CIS864	41	1.5"	SK2	8	133	pre-built	14" x 21" x 71"
CIS964	44	1.5"	SK2	9	150	pre-built	14" x 21" x 71"
CIS1084	49	2"	SK2	10	167	pre-built	16" x 21" x 71"

Bespoke simplex, duplex and triplex systems available—details on request.
All flow rates based on intermittent flow.
Continuous flow rates will cause piston effect and prevent unit working efficiently.
Please note there is no Pre or Post Filter on units unless specified.
***denotes 1" connections can be converted to ¾" mbsp (Code: SK1342)**

Monarch Scaleout



Scaleout at rest



Scaleout in service

Approvals & compliances:

NSF/ANSI-61: Drinking water system components

BS6920 Material compatibility

How it works

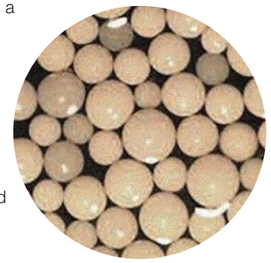
Water contains two different types of hardness ions, but only one causes scale. This is called a calcium ion. The scale causing calcium ion (dissolved limescale) passes through a bed of food grade ceramic beads within the unit, and is transformed into a non-scale causing calcium crystal. This process is called Nucleation Assisted Crystallization or NAC in short. The crystals attach themselves to the beads. When they reach a certain size, they release themselves from the beads back into the water, where the majority adhere themselves to the Post Filter (optional).

As a result of this physical change (permanent), scale no longer has the possibility of forming on surfaces including heating coils and elements, fittings, or the inside of pipes etc. The water becomes both non-scale forming and also descaling, offering many benefits to the homeowner in its performance.

Crystals, a by-product of Scaleouts operation, can in areas with high levels of water hardness, show themselves after water has evaporated. In aesthetic applications, we recommend they are simply wiped away before the majority are allowed to accumulate.

Additionally, Monarchs unique CBT ensures pH stability and corrosion control in all types of water. It is the only one available to give this guarantee.

A video showing more details is available to view on www.scaleout.co.uk Ref What is hard water?



Monarchs unique ceramic beads

FURTHER INFORMATION

The beads have a life expectancy of 2 years in commercial applications as determined by the cleanliness of the incoming water supply (not water hardness).

All models recommended for use on a potable water supply only.

In areas of high water hardness, a Post Filter is recommended.

The Post Filter has a low cost internal cartridge that is to be changed approx every 6 months as determined by the water quality required.

Post Filters can be connected directly to the outlet on all CIS models. A remote mounting kit is available – details on request.

A full technical brochure is available on request.

MONARCH
SCALEOUT
CERAMIC BEAD
CBT
TECHNOLOGY

Did you know?

- 15mm copper tube has a cross-sectional area of 176mm^2
- 22mm copper tube has a cross-sectional area of 380mm^2, which is 2.16 times greater than a 15mm!
- 28mm copper tube has a cross-sectional area of 615mm^2, which is 1.62 times greater than a 22mm!
- 35mm copper tube has a cross-sectional area of 962mm^2, which is 1.56 times greater than a 28mm!
- 42mm copper tube has a cross-sectional area of 1385mm^2, which is 1.44 times greater than a 35mm!
- 54mm copper tube has a cross-sectional area of 2290mm^2, which is 1.65 times greater than a 42mm, and an incredible 13 times more than where we started at 15mm!

Did you know these too?

Every UK gallon has 4.546 litres, but a US gallon only has 3.785 litres.

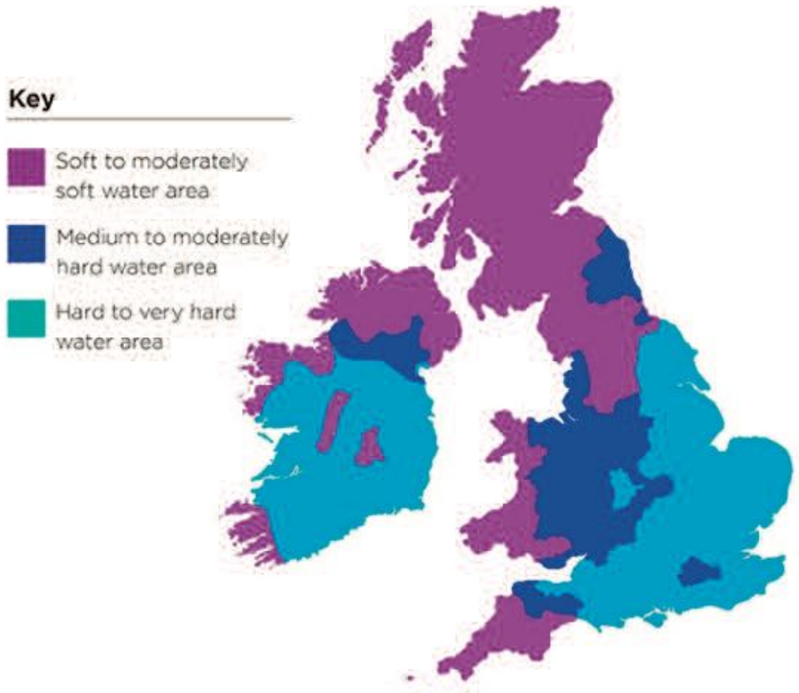
1psi water pressure is generated by approx. 2' in height (feet head). Therefore a water tank 30' above the ground, generates 15psi, and 15psi is approx. 1 bar in water pressure.

1 degree Clark (water hardness measurement) is approx. 14.3ppm (parts per million); and ppm and mg/l (milligrams per litre) are the same measurement.

In every litre there is 1000 millilitres (ml), which is the same as 0.22 UK gallons, which is actually 1.76 pints.

In every cubic metre of water there is 1000 litres, and 1000 litres is equal to 220 gallons.

UK Hard Water Map



Notes:

1. Where a male thread is stated it refers to male BSP in all instances.
2. All information, figures and specification are correct at time of printing and given in good faith. Omissions & Errors excepted.
3. As part of ongoing research and development, we reserve the right to alter design or specification without prior notice.
4. All guarantees are given in accordance with Monarch Waters National Service Coverage Area Agreement full details are available on www.monarchwater.co.uk or by calling Monarch directly for a printed version.
5. All water softeners need a dynamic operating pressures between 1.5–5 bars
6. All Scaleout units need a dynamic operating pressures between 1.5–5 bars.
7. All items to be protected from freezing.
8. All water softeners must be limited to water temperature not exceeding 50ºC.
9. All Scaleouts are to be limited to water temperature not exceeding 50ºC.
10. All dimensions shown are in millimetres.
11. Full installation kits and/or hose kits available for all GS/EDC/DS/CIS models—details on request.

MONARCH WATER

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Suppliers to H.M. the Queen's Estate at Sandringham

Culligan (UK) Ltd, Culligan House, The Gateway Centre,
Coronation Road, High Wycombe, Buckinghamshire, HP12 3SU
T 01494 441286 commercial@culligan.co.uk

*In the interest of product development we reserve the right to alter specifications without prior notice - E&OE