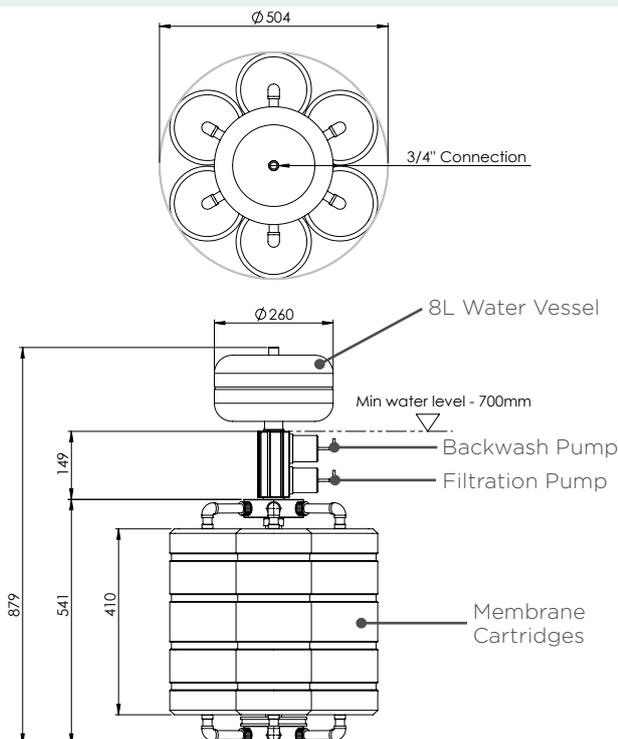


**Proud UK
Manufacturer**

Product Description

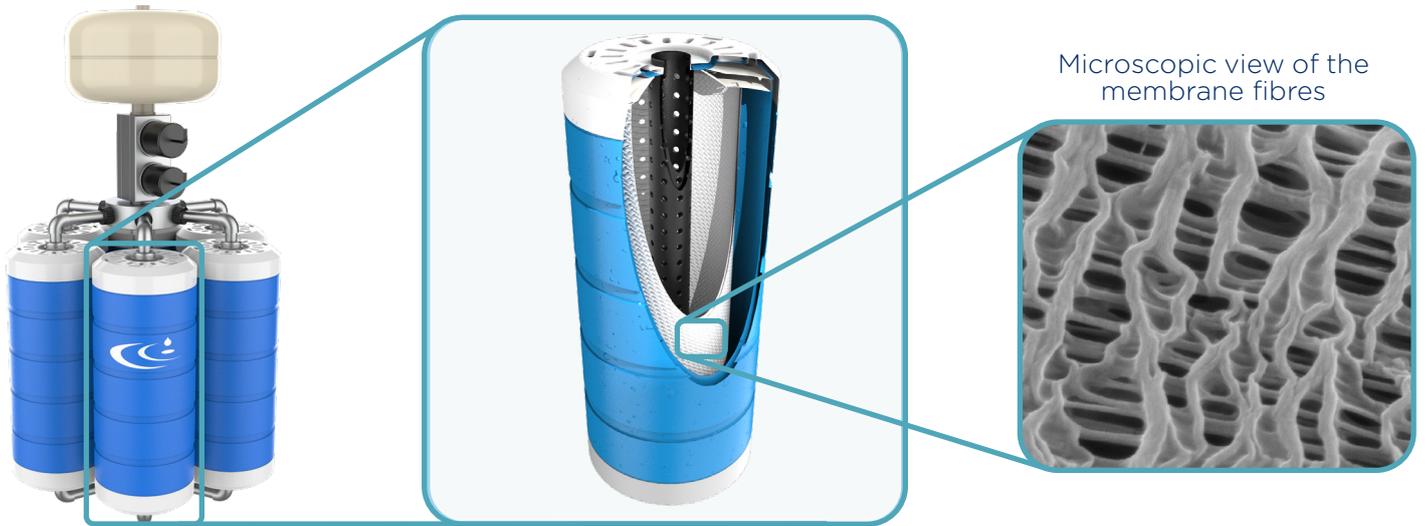
The Stormsaver Greywater Recycling System Membrane Station filters Greywater in the bioreactor tank and pumps filtered Greywater to the clean water storage tank. Each membrane cartridge can filter down to 0.02 micron, a maximum of 6 membrane cartridges can be attached to a membrane station unit. The membrane station performs an automatic backwash daily using a pressurised stream of air or pressurised water, which cleans the fibres of the membrane and supplies oxygen to promote bacteria growth within the bioreactor tank. The membrane station contains two integrated pumps, one for filtering Greywater and one for water backwashing using the water from the non pressurised vessel above.

Technical drawing - Standard Membrane station



Technical information

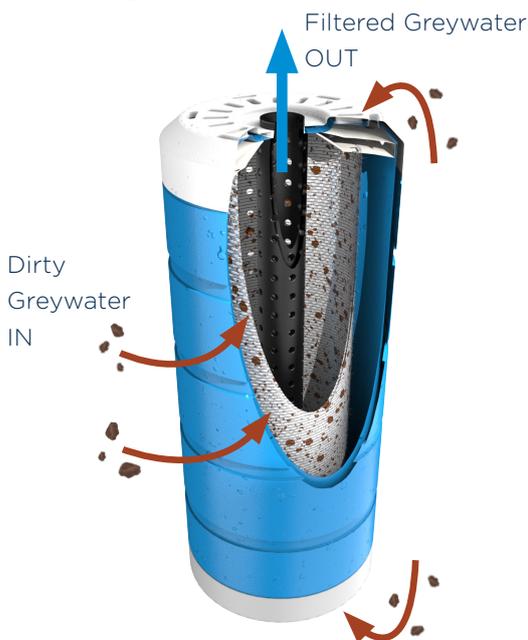
Micron Rating	0.02
Height	879mm
Diameter	504mm
Weight with membranes	22kg
Weight without membranes	12.5kg
Maximum number of cartridges per membrane station	6
Connection	22mm (3/4")
Power consumption	30 - 80W Dependant on the number of cartridges
Protection class	IP68
Materials	Fittings (PVC) Pump body (ABS) Pumps (PE) Pump axle (Ceramic)
Flow Rate per Cartridge	300L - 900L / Day - This can vary and depends on which maintenance schedule has been followed
Membrane stations in the Greywater system	5,400L - 1 10,800L - 2 16,200L - 3 21,600L - 4



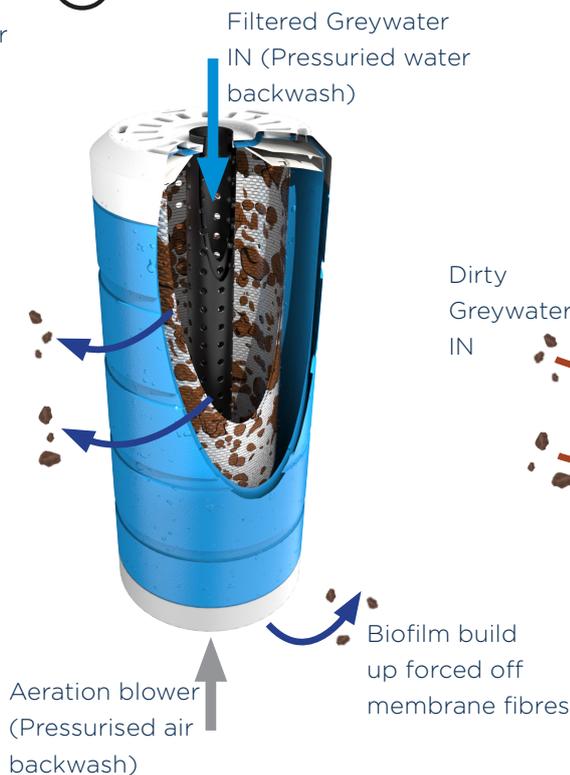
How it Works - Filtering Greywater and backwashing

Each cartridge contains several hundred hollow HDPE fibres, which are combined in bundles and wound around an internal frame. These fibres have a diameter of 0.5mm with micropores of 0.02 micron. The membrane station performs daily backwashes to clean excess sludge and biofilm build up on the membrane fibres. As the external side of the fibres become blinded through filtration, the micropores become blocked reducing performance. To ensure this build up doesn't become a significant issue for the system, an aeration blower pushes air through the fibres to loosen the debris and push it back into the bioreactor tank, the same process is repeated with a pressurised water supply. The debris is then transported out of the system via the sludge pump to drain (See separate sludge pump data sheet). The pressurised water and aeration backwash happen simultaneously and automatically. They continuously cycle throughout the day.

① Filtration Cycle



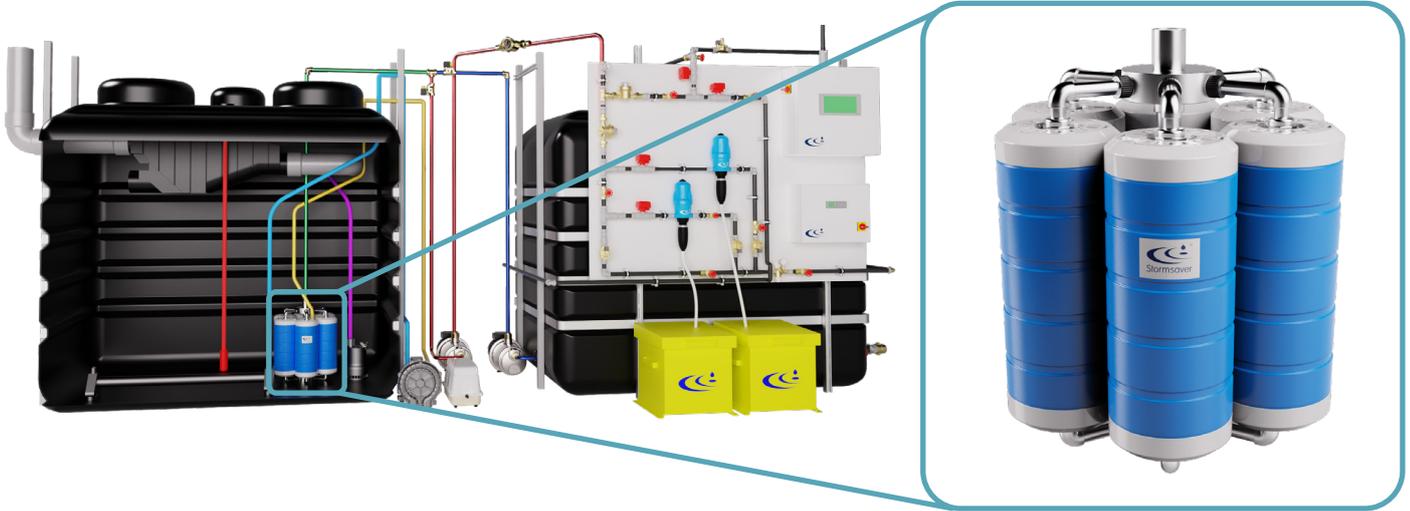
② Backwash Cycle



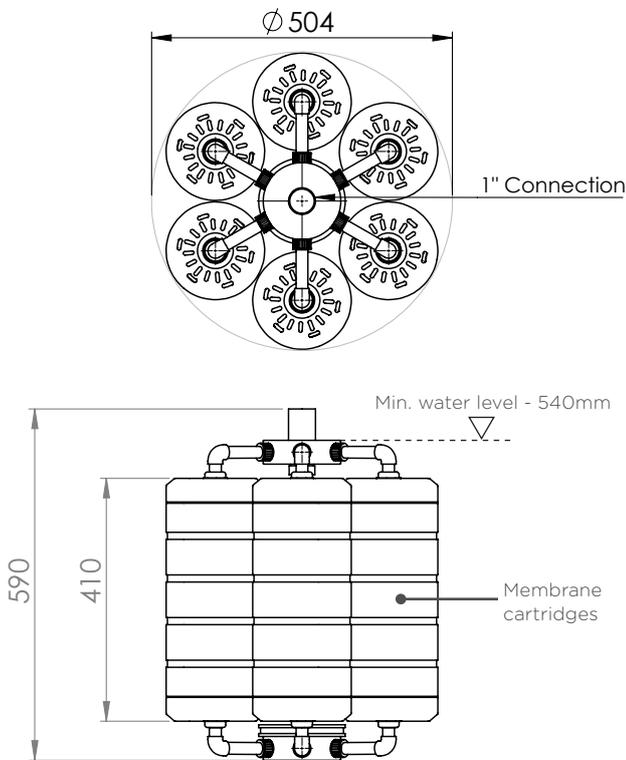
③ Cycle Repeats



Membrane station arrangement - 32,400L & 48,600L Greywater systems



Technical drawing - Basic Membrane station



(Drawing not to scale)

Technical information

For the larger capacity 32,400L & 48,600L Greywater systems, a different membrane station and pump configuration is used. This configuration uses external booster pumps as opposed to the integrated filtration and backwash pumps and water vessel on each membrane station in the 5400L - 21,600L Greywater systems. The two external pumps can filter Greywater and backwash multiple basic membrane stations in parallel.

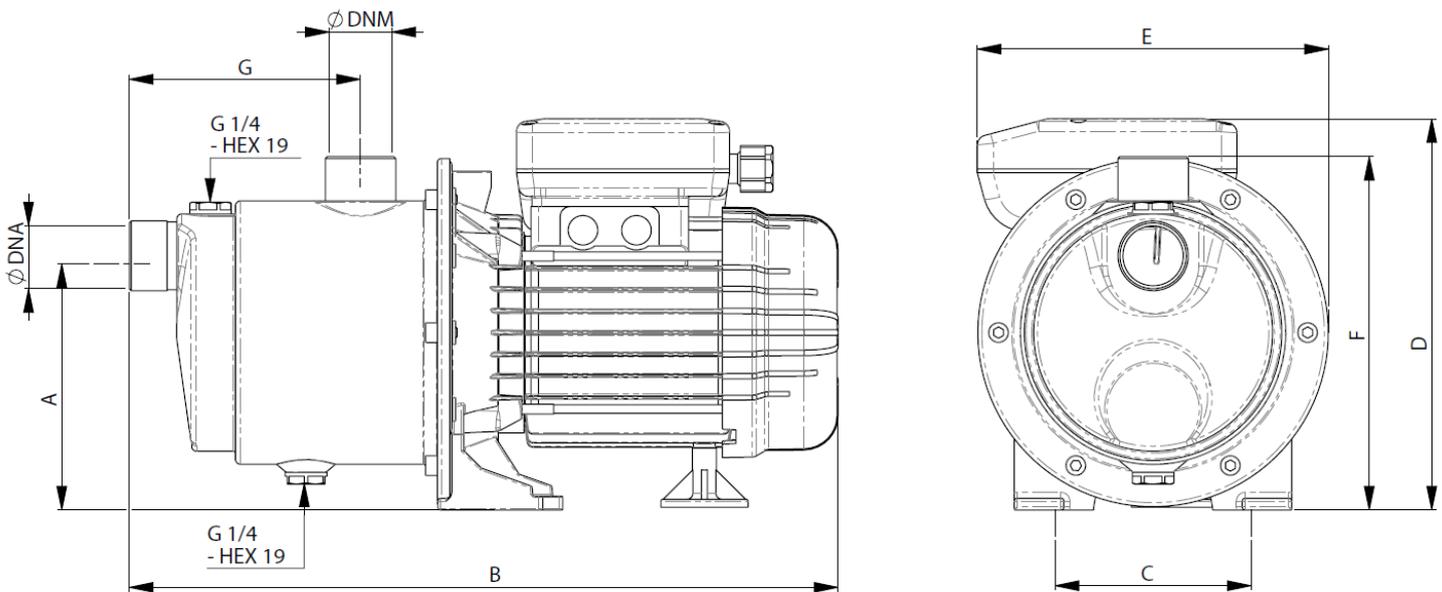
Micron Rating	0.02
Height	590mm
Diameter	504mm
Weight with membranes	20kg
Weight without membranes	10kg
Maximum number of cartridges per membrane station	6
Connection	28mm (1")
Protection class	IP68
Materials	Fittings (PVC)
Flow Rate per Cartridge	300L - 900L / Day - This can vary and depends on which maintenance route is followed
Basic membrane stations in the following Greywater systems	32,400L - 6 48,600L - 9

Membrane Station booster pumps - 32,400L & 48,600L systems



Operation	32,400L	48,600L
Filtration Pump	Multi EVO 3-60 M	Multi EVO 3-60 M
Backwash Pump	Multi EVO 5-60 M	Matrix 10-3T/1.3 M

Technical drawing - Filtration and backwash pumps

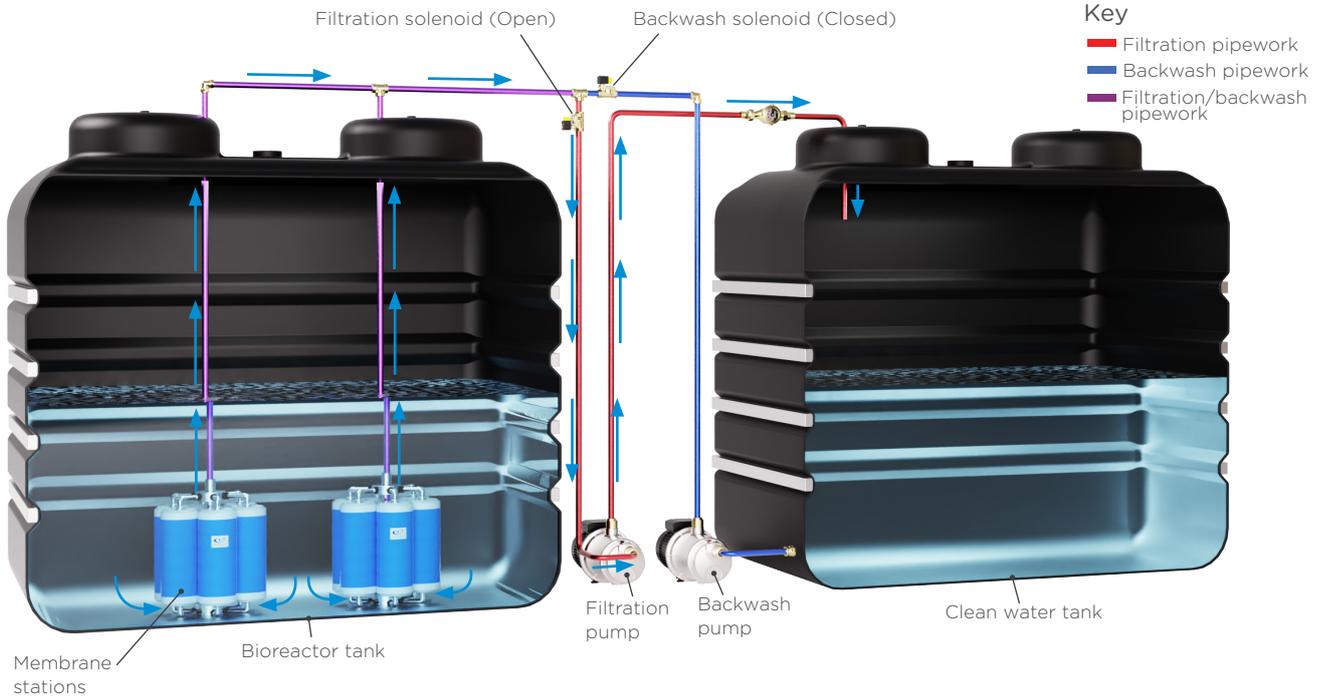


(Drawing not to scale)

Technical information - Filtration and backwash pumps

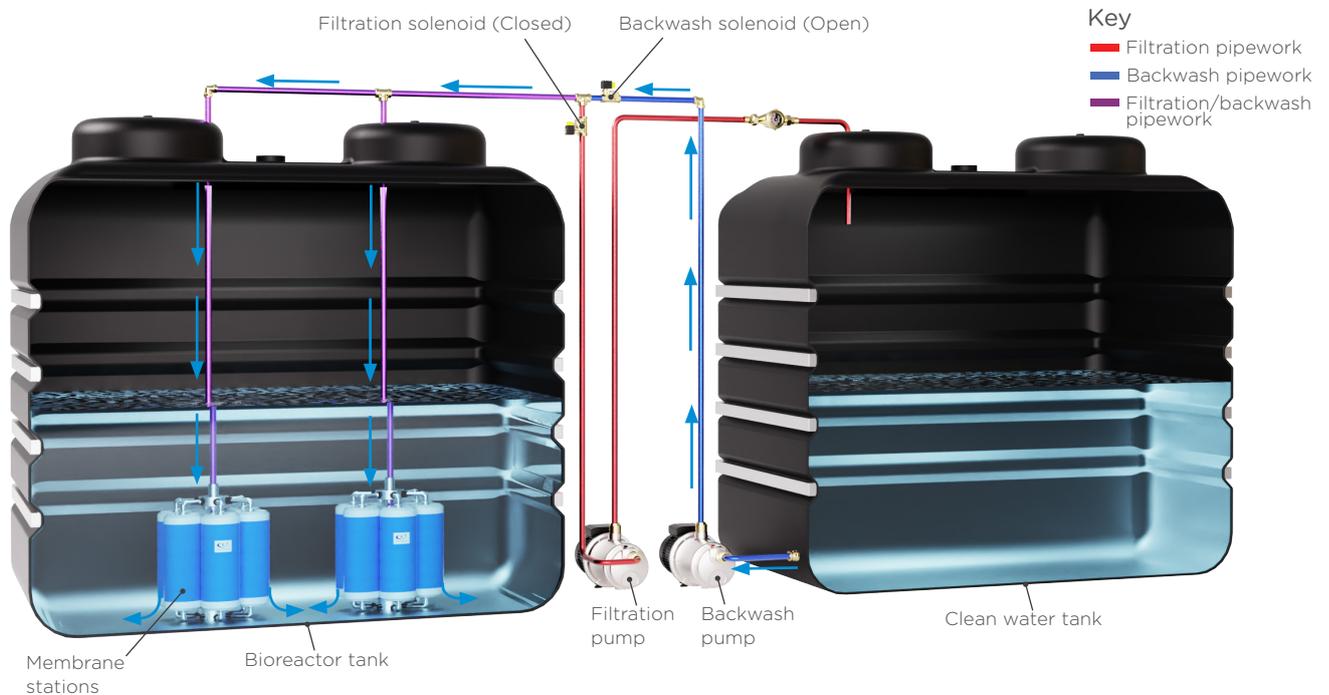
Model	Dimensions (mm)									Weight (Kg)	Voltage (V)	Amps (A)	Power (kW)
	A	B	C	D	E	F	G	DNA	DNM				
Multi EVO 3-60 M	129	422	100	207	177	180	161	1"	1"	10.8	230	5.8	1.25
Multi EVO 5-60 M	125	457	100	215	203	180	164	1-1/4"	1"	13.5	230	7.5	1.65
Matrix 10-3T/1.3 M	90	416	108	226	195	190	118	1-1/2"	1-1/4"	14.3	230	5.7	1.3

How it works - Filtering Greywater - 32,400L & 48,600L systems



During the filtering cycle, the filtration solenoid opens, and the backwash solenoid closes. The filtration pump draws water from the bioreactor tank through the membrane stations, this water is then filtered and pumped into the clean water tank.

How it works - Water backwashing cycle - 32,400L & 48,600L systems



During a backwash cycle, the filtration solenoid closes and the backwash solenoid opens. The backwash pump draws filtered Greywater from the clean water tank and pushes it backwards through the membrane filter fibres, cleaning out the filters and forcing any debris into the bioreactor tank where it is extracted by the sludge pump (see Stormsaver Sludge pump data sheet for more information). An aeration backwash cycle also happens from the separate blowers in the system, for more information please refer to the Stormsaver blowers data sheet.

Membrane Efficiency curve

Regular pipework cleaning is important to ensure the membrane station can perform to its optimum filter rate. The Stormsaver Greywater Recycling System sizes starting from 5,400L have a built in automatic cleaning technology which uses citric acid and chlorine to ensure no blockages build up between the membrane station and the clean water storage tank. A restricted filter pipe causes a restricted flow of filtered Greywater, reducing the amount of Greywater each membrane can filter per day. This chemical cleaning process is optional, manual cleaning is also available by physically removing the membrane stations.

- Automatic chemical dosing every 2 weeks = 900L/day
- Manual cleaning every 3 months = 600L/day
- Manual cleaning every 1-3 years = 300L/day

Below is a graph which shows how membrane performance can be affected by the time between cleaning intervals.

