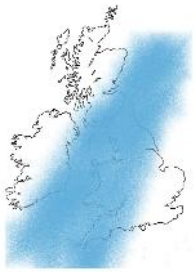
Arsenic Removal

Arsenic is found in waters in many parts of the UK and mainland Europe, Asia and the USA. The arsenic comes from the underground rocks through which the ground water percolates. The legal limit for arsenic has recently been reduced to 10ug/l. The arsenic can be removed with specially formulated filter media.

Arsenic Removal

Why Remove it ?

Arsenic compounds are toxic even at low levels. They can cause skin and liver disorders, circulatory problems and can be life threatening. The European Union has looked at the Arsenic levels in water and reduced the allowable limit to below 10ug/l (from 50ug/l). Arsenic is present in underground rocks and percolates in to the ground water and then up through boreholes or springs into the water supply.



Arsenic bearing rocks

Bayoxide Arsenic Removal Media

Severn Trent Water worked with Bayer As to develop an arsenic removal media; Bayoxide. This dry crystalline media is similar to amorphous iron hydroxide but specifically formulated to give a high arsenic removal capacity. The media is strong, reliable and easy to handle. Bayoxide is regulation 31 approved for use in both Municipal and Private water use.

These systems give long operating cycles and low operating costs. The exhausted media is non-hazardous and can generally be sent to landfill (local conditions do apply)l

Service flow: 15-18m/h
Backwash flow 25m/hr Backwash frequency: 14-28 days

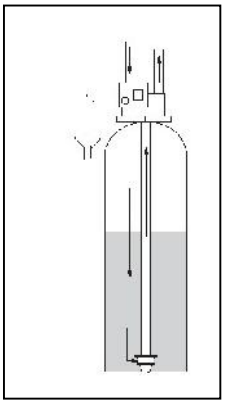
Requested raw water conditions

Iron:<200ug/l	pH: 6.5 – 8.5
Manganese: <50ug/l	SiO2: <40mg/l
Suspended solids: < 10mg/l	PO4: <200ug/l

Water outside the above must be pre treated.

How does it work?

Water flows into the valve at the top, down through the media and then up through the ‘riser’ tube in the middle of the vessel. As the water travels through the media the arsenic is removed and held within the system. There are timer options that can be set to automatically self clean (backwash) and wash away any of the accumulated sediment but hold on to the accumulated arsenic. When the media becomes full it can easily be replaced with fresh media (typically every couple of years or so depending on arsenic levels and local conditions).
Arsenic filters can also be used in conjunction with other filters such as sand filters, if the water has high turbidity, iron and manganese reducing filters or pH correction filters if the pH of the water very low.



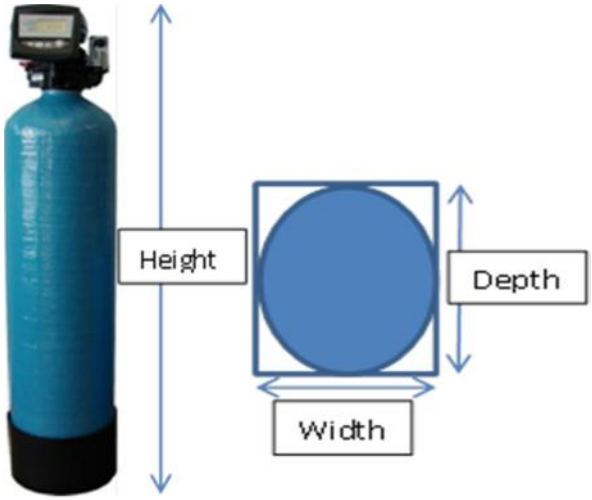
How to size.
On average 160 litres of water is used per person per day. This normally occurs in two peak periods, one in the morning and one in the evening. A family of four typically uses 700 litres of water per day but may use 300 litres in an hour in the morning. Larger households, farms, stables and irrigations systems all use more water.

When sizing a system the peak flow rate need to be taken into account. The size of the pump also needs to be taken into account as these filters normally use twice the service flow rate to lift the bed and backwash away the trapped iron and manganese. If the backwash flow is not available two smaller units running side by side is often a good solution. Where the Arsenic levels are above 50ug/l it may be necessary to use two systems in series (lead, lag) with one system to take out most of the contamination and then the second unit to polish up the water and remove the remaining Arsenic.

The vessel size is given as the diameter and the height (in inches). Recommended operating pressure range 20 to 120 psi. Water temperature range from 2 to 38°C.

Arsenic Removal System Specifications

Vessel	Service	Backwash	Connections	Max Footprint		
	Flow	m^3/hr	In / Out	Width	Depth	Height
	m^3/hr			mm	mm	mm
1044	1	1.1	1"	269	390	1334
1354	1.7	2	1"	341	390	1584
1465	2	2.3	1"	369	390	1870
1665	2.6	3.4	1"	406	406	1875
1865	3.4	3.9	1"	510	510	1997
2160	4.4	5.7	1½" or 2"	552	579	2112
2469	6	6.8	2"	610	640	2171
3072	9	11.4	2"	770	770	2341
3672	12	17.1	2"	927	927	2445



Softeners, Nitrate, pH, Iron & Manganese removal systems are also available as are other medias such as sand, carbon etc.
Sizes and dimensions are for indication purposes only and may change without notice.