



AquaFlow™ AF200

The AquaFlow™ AF200 modular filter unit provides a convenient and easy-to-use solution to emissions from a variety of liquid applications, including process effluent water, groundwater treatment and process liquor purification.

The design of the AquaFlow™ AF200 ensures that the liquid is evenly distributed across the activated carbon filter bed. This allows the entire filter bed to be utilised, thus optimising operational life, and preventing channelling at low treatment rates. The bed is permanently flooded with liquid during operation to ensure the media is always prepared for service, even in intermittent use applications.

The configuration of the internal liquid distributor system means the AquaFlow™ AF200 can be easily serviced under backwash conditions.

The type of activated carbon used can be selected to provide the optimum adsorption capacity for multi-contaminant streams or for the specific removal of contaminants such as chlorine, ozone or halogenated compounds.



The AquaFlow™ AF200 is designed as a modular unit, which is arranged in parallel to increase treatment rates, or in series to improve the removal efficiency achieved. The unit is completely disposable and once the media is exhausted, the unit is disconnected and replaced with a new unit.

Technical Information

Parameter	Detail		
Height (mm)	870		
Diameter (mm)	580		
Inlet/Outlet	¾" BSP Male		
Weight (kg clean)	100kg		
Maximum flow (m³ h⁻¹)	1.2		
Minimum flow (m³ h⁻¹)	0.2		
Pressure drop (mbar)			
@ min. flow	30		
@ 1.0m³ h⁻¹	52		
@ max. flow	60		
Adsorption capacity (mg g⁻¹)**	1mg l⁻¹	10mg l⁻¹	100mg l⁻¹
Styrene	120	440	1700
Trichloroethylene	15	190	1400
Toluene	26	73	210

* based on use of 12x40USS particle size

** based on AquaSorb® 202 product

The filter contains 200litres of activated carbon and at peak volume flow rate of 1.2m³/h an Empty Bed Contact Time (EBCT) of 10 minutes is achieved. This design allows the efficient removal of a wide range of dissolved organic compounds.

This form of semi-static operation is particularly suited to temporary or emergency use. Typical applications include site remediation or spillage scenarios.

For full details on commissioning, configuration and operation of the AquaFlow™ AF200 units, please consult the appropriate technical bulletin, available from the local Jacobi Carbons's sales office.

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Preparation Instructions

1. The AquaFlow™ filter is supplied pre-filled with the appropriate grade of activated carbon. The media is dry filled to minimise shipping weight;
2. Following positioning on-site, remove the connector caps. The filter should be filled through the outlet port with sufficient volume (approximately 200 litres) of clean water or purified process liquor. The unit should then be left filled with water for a period of 12-24 hours to de-gas the carbon media.
3. After 24 hours, the filter is ready for use. Drain the filter and discard the water/liquor. Rinse the filter for approximately 30 minutes in reverse flow or until the wash water clears of entrained particles.
4. Connect the process and drain lines to the correct connections and start the process flow.

Note: Wet activated carbon depletes oxygen and entry into an enclosed vessel should only be made with an external breathing air supply.

Operation

During operation the filter does not require any maintenance. It is recommended that for units operated in series, that evaluation of the quality of the ongoing liquor is measured on samples withdrawn between the two filters.

Should an increase in flow resistance be evident, it is probable that either particulate is entrained in the inlet distributor or within the carbon itself.

In the case of entrainment within the inlet distributor, the following procedure should be employed:

1. Backwash water should be fed to the filter at a maximum rate of $1.5\text{m}^3\text{h}^{-1}$.
2. Backwash is continued for approximately 30 minutes or until the effluent is clear of entrained particles and dust;
3. The backwash flow should be reduced gradually over a period of 5-7 minutes.
4. Normal flow should be re-started.

In the case of entrainment on the carbon bed or if the above procedure does not clear the flow resistance, the filter is no longer serviceable.

It should be replaced immediately and consideration of the addition or improvement of mechanical filtration techniques be implemented upstream of the AquaFlow™ AF200 unit(s).

Backwashing should only be conducted with fresh water (not recirculated) and all effluent water from the backwashing process should be disposed of to prevent the re-introduction of carbon fines to the bottom of the bed.

Decommissioning & Disposal Instructions

Once the filter is determined to be exhausted, the process flow should be discontinued, the filter isolated and disconnected from the process flow. The connector caps should be replaced and the unit moved to an appropriate storage area. Care should be taken as the weight of the unit will have increased to approximately 250kg due to the content of untreated process liquor.

The AquaFlow™ AF200 filter is designed as a totally disposable unit and is manufactured in a UN approved container. Disposal should be considered in accordance with local, national and international regulations under Duty of Care guidelines.

Attempts to replace the activated carbon within the AquaFlow™ AF200 filter unit will negate and invalidate any process warranty and will not ensure effective operation following refilling.

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