

**INDION® Auto Valveless Gravity Filter**



Ion Exchange, pioneer and leader in total water management for over five decades, offers INDION Auto Valveless Gravity Filter (AVGF). The AVGF is a highly efficient automatic filter that operates without any single valve, backwash pump, flow controller or any other instruments. There are no moving parts in the AVGF.

In India, our installations are successfully working in the fertiliser, petrochemical & power industries.

## Application

- Pretreatment of process water for the paper and pulp, metallurgical, refinery, food processing, automobile, fertiliser & petrochemical industries
- Ideal for side stream filtration. It is widely used to reduce suspended solids in cooling tower water to improve the efficiency of the cooling system as a whole and reduce maintenance and cleaning costs
- Treatment of potable water supplies. Internationally, AVGFs are approved and used by the majority of municipal corporations for treatment of potable water
- Polishing filter for domestic sewage as well as industrial effluent

## Features

- Automatic backwash
- No valves, instrumentation and backwash pumps
- No moving parts
- Compact and modular design
- Backwash can be initiated manually also
- Handles inlet suspended solids load up to 25 ppm while giving consistent high quality treated water of less than 5 ppm
- Rinsed water through a freshly backwashed AVGF is not discarded but stored and can be recycled to upstream

## Advantages & Benefits

- Reliable. No manpower required for monitoring
- Cost-effective
- Low maintenance
- Low installation and expansion costs
- Flexibility in operation
- Best suited downstream of clarifiers
- Saves water

## Process Parameters

- Suitable for inlet raw water suspended solids up to 25 ppm to give consistent treated water quality of less than 5 ppm
- Suitable for flow rates ranging from 4.5 m<sup>3</sup>/h to 335 m<sup>3</sup>/h (smallest filter diameter is 0.9 m)
- Depending upon media and type of treatment i.e. raw water, industrial waste water and sewage, the surface loading varies from 6.5 m/h to 8.0 m/h

## Principle of Operation

The AVGF operates automatically on the loss of head principle. This is technically accepted as being the most accurate control which eliminates the need for frequent analysis of filtrate quality. The head loss at which the AVGF initiates backwashing is determined by the height of the inverted U shaped backwash pipe. The level of water in this pipe is proportional to the head loss across the filter bed.

## Working

### Filtering

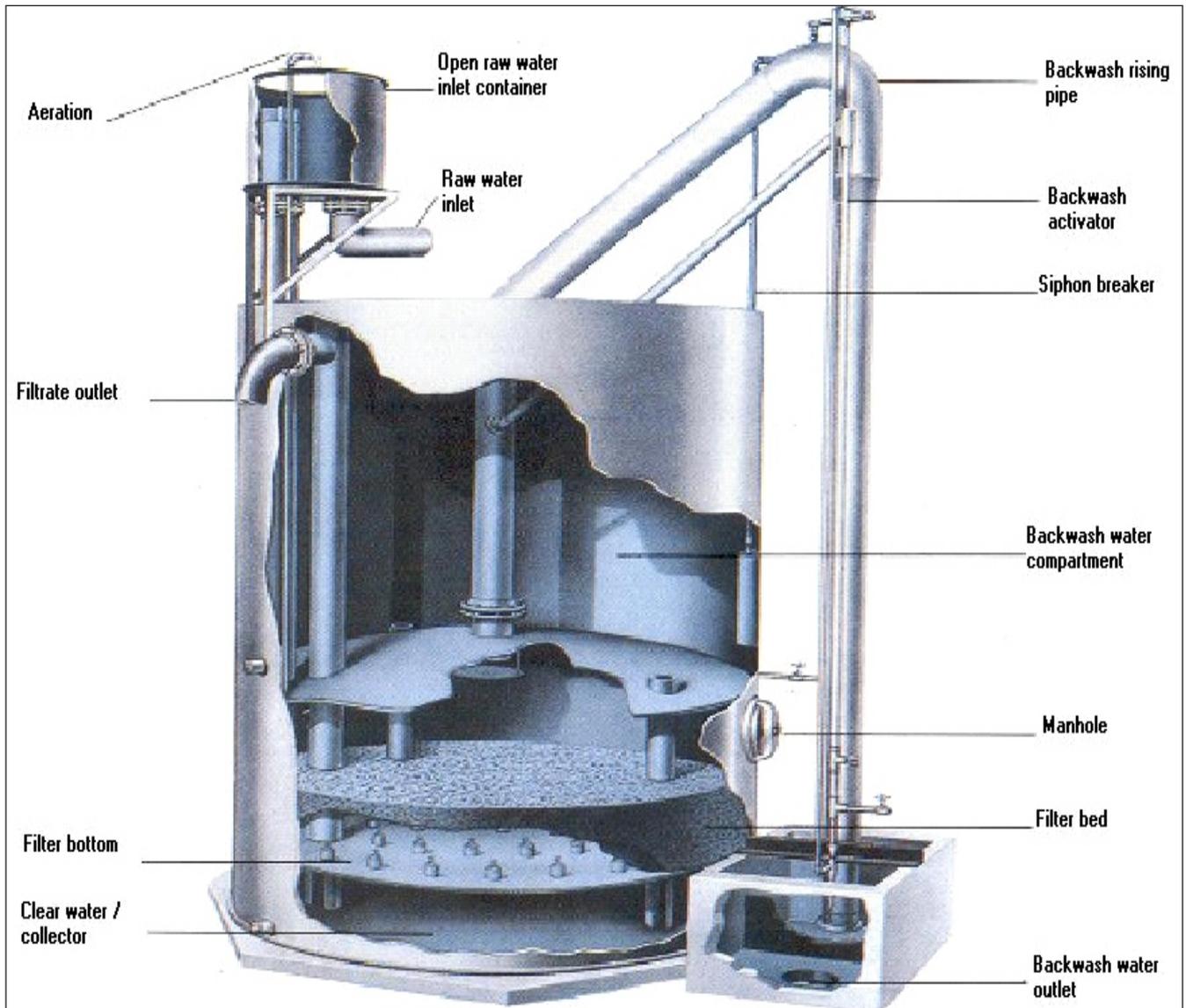
Raw water enters the filter chamber, flows down through the filter media into the collection chamber and up through the ducts to service.

As the filter bed collects dirt during the filter run, head loss increases and the water level rises in both the inlet and backwash pipes. When the water starts flowing over and into the downward section of the backwash pipe, a siphon action occurs and backwash begins.

### Backwashing

Flow through the backwash pipe reduces pressure immediately above filter bed. This draws water from the backwash storage compartment down through the ducts and up through the strainers, expanding the filter bed and cleaning it and then discharging it to waste. Backwashing continues until the backwash water level drops below the end of the siphon breaker. This admits air to the top of the backwash pipe, terminating the siphon action and backwash.

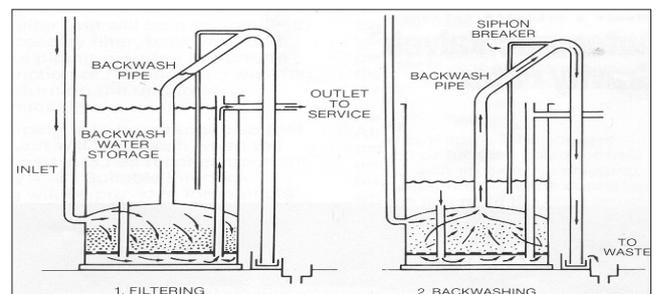
## Sectional view



## Rinsing

At this point, inlet water resumes its flow down through the filter chamber, automatically rinsing, settling and levelling the bed. The rinsed water then flows up into the backwash storage chamber where it is held for next backwash. When water rises to the filtered water outlet level, all filtered water then flows to service.

## Operations





18 units comprising 160 m<sup>3</sup>/h capacity at BHEL, Uttar Pradesh

To the best of our knowledge, the information contained in this publication is accurate. Ion Exchange (India) Ltd. maintains a policy of continuous development and reserves the right to amend the information given herein without notice. Please contact our regional/branch offices for current product specifications.

**INDION®** is the registered trademark of Ion Exchange (India) Ltd.



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