Pressure Sand Filter

Sand filters for turbidity and suspended solids removal

Overview

A pressure sand filter pushes water down through a bed of graded sand inside a closed vessel. Particles are trapped in the bed, and clear water leaves from the bottom. It is the usual first stage of RO, DM, softener and drinking water plants.

Arukal supplies pressure sand filters with MS or FRP vessels, internals, graded sand and gravel, and multiport or automatic valves. We also supply the media for refills.

8 – 12 m/h	Down to 20 – 40 µm	0.5 – 100 m³/h	MS or FRP
Filtration velocity	Removes	Capacity	Vessel

Key features

Removes turbidity Clears suspended solids so the next stage runs well.	**Right-sized** Vessel sized to flow at a safe filtration velocity.
Simple and rugged Few moving parts and low running cost.	**Complete filter** Vessel, media, valve and internals from one source.
Automatic options Timer or pressure-drop-triggered backwash.	**Spares and media** Refill sand, gravel and seals supplied.

Applications

RO and DM pre-treatment • Borewell and river water • Cooling tower side-stream • Swimming pools • Drinking water plants • Process water

How it works

1. Service	2. Pressure rises	3. Backwash	4. Rinse
Water flows down through the sand. Suspended solids stay in the bed.	As dirt builds up, the pressure drop across the filter rises.	Reverse flow lifts and cleans the bed; dirt goes to drain.	A short rinse settles the bed before service restarts.

Care and handling

Commission. Fill gravel and sand in layers, backwash well and run to waste until clear.
Backwash. Backwash on pressure drop or timer. Do not wait until flow collapses.
Inspect. Check for mud balls, channelling and lost media at least once a year.

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Technical specifications

Typical values. Values are typical for the product family and given for guidance. Exact figures depend on the make and model supplied; ask us for the data sheet of the specific model.

Filter (typical)

Filtration velocity	8 – 12 m/h
Backwash velocity	approx. 30 – 40 m/h for 10 – 15 min
Media	Graded silica sand (0.4 – 0.8 mm) on gravel support
Bed depth	600 – 1,000 mm sand + 200 – 300 mm gravel
Particle removal	approx. 20 – 40 µm
Design pressure	up to 6 bar

Construction

Vessel	MS epoxy-coated, MS rubber lined, SS, or FRP
Internals	Upper distributor, lower collector with strainers
Valves	Multiport or butterfly / diaphragm valves
Accessories	Pressure gauges, sampling and air vent

Typical filter sizes

Vessel (dia × height)	Flow at 10 m/h	Sand + gravel	Typical use
18 × 65 in	approx. 1.6 m³/h	approx. 100 L + 40 L	Domestic, small commercial
24 × 72 in	approx. 3 m³/h	approx. 180 L + 70 L	Commercial
36 × 72 in	approx. 7 m³/h	approx. 400 L + 150 L	Small industry
48 × 72 in	approx. 12 m³/h	approx. 750 L + 250 L	Industry, RO feed
72 × 72 in	approx. 27 m³/h	approx. 1,800 L + 600 L	Large plants

Flow shown at a typical filtration velocity of 10 m/h. Larger vessels and custom sizes on request.

To receive a recommendation, send us:

- Flow rate (m³/h) and hours of operation
- Raw water turbidity and source
- Manual or automatic backwash
- Vessel material (MS, FRP, SS) and pressure