

Filter Bed Distributors



Distributor Details

Key Features and Benefits:

- Jacopa offers an extensive range of filter distributors and arm options to match a wide range of applications and flow rates
- Electric or hydraulically powered drives guarantee rotation speeds
- Low OPEX self-propelled options are available
- Jacopa's filter distributors are a robust, proven technology with a 20-year design life

Creating Value for Customers:

- Jacopa can undertake a detailed site survey to assess all requirements
- Dedicated Design Engineer support can adapt standard designs to suit site-specific requirements
- Refurbishment and replacement options are available
- A fully-equipped specialist workshop enables speedy, compliant repairs
- All work is supported by a team with many decades of expertise



Designed for Success

Percolating filters are widely accepted as the most flexible and resilient way to biologically treat wastewater. Jacopa distributors are suited to almost every application, for filter beds between 3 and 50m in diameter, rectangular versions and varying flow rates.

Jacopa offers a full range of distributor types, both for new installations and as replacements for existing equipment. There are six main categories:

- Syphonic distributors
- Turbine distributors
- Waterwheel distributors
- Cascade distributors
- Tipping Trough distributors
- Rectangular (linear travel) distributors

Jacopa also provides associated equipment including cast-iron duckfoot bends, dosing siphons and powered drive options.



Circular distributor.

Filter Bed Distributors



Distributor Details

Most reaction driven distributors can be fitted with an electric drive, hydraulic drive and a hybrid drive to ensure they are able to rotate at a constant speed.

Syphonic distributors



Syphonic distributor basin assembly.

The Syphonic distributor has a maximum bed diameter of 50m and a maximum flow of 150 litres/sec. The design is simple in concept, producing a robust, well-engineered machine manufactured and protected to give a long and functional life. The flow distribution method has been shown to provide better distribution under low-flow conditions, and therefore improved treatment.

Installation

Syphonic distributors are intended for larger filter beds of up to 50m in diameter. The central columns have the option of a frictionless syphonic seal or a mechanical seal. They are intended for beds with feed pipe diameters of up to 450mm, and under bed feeds. They can be used for both high and low rate applications, at flows of up to 150 litres/sec.

Turbine distributors



Turbine distributors are suited to smaller rural treatment works with a maximum filter bed diameter of 8m and PE of less than 50. The low-maintenance, self-propelled units are positively driven by the weight of water in the overhead feed turbine, which rotates at the lowest of flows. They come with two open trough type arms and 'V' notched overflow weirs.

Installation

The bottom of the feed pipe must be a minimum of 512mm above the media at the centre of the bed. Distributors can be mounted on an existing base or pillar, or on special steel foundation anchor plates that are set in the media during installation.

Standard unit flows are up to 1.14 litres/sec, and modified units can achieve flows of up to 6.0 litres/sec.

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Waterwheel distributors



Waterwheel distributors were introduced to meet water industry demand for a low-maintenance distributor. They are suitable for works with a maximum filter bed diameter of 37m for a standard column or 45m for an extended column. Maximum flows are 24 litres/sec and 48 litres/sec respectively. They are positively driven by the effluent, which flows from the distributor arms on to paddle wheels that drive a knurled wheel onto a track fitted to the interior of the basin.

The Waterwheel distributor can improve humus tank performance and the quality of treated effluent by dispensing with the dosing syphon and creating a smooth continuous flow pattern through the filter media.

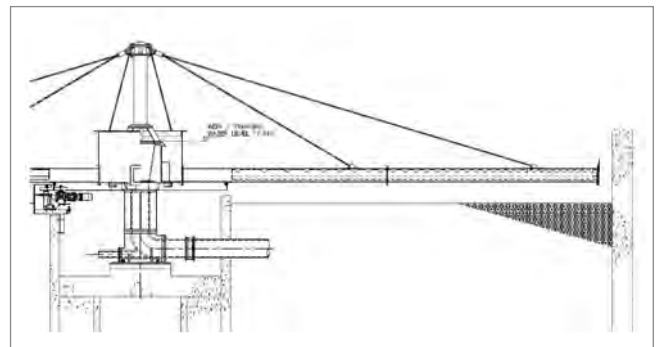
Installation

These units have an under bed feed and either open trough or tubular arms, with weir boxes and trays, and are suitable for 100mm, 150mm, 200mm and 250mm diameter feed pipes. The modified flow arm option enables an adjustable weir design, which can be set to increase or reduce flow to the paddle wheel.

Paddle wheel Arrangement



Cascade distributor



Generally suited to larger filter beds of up to 50m in diameter and 300 litres/sec capacity, these distributors are classed as high rate units.

A standard design includes open trough arms fitted with splash plates that evenly disperse the flow. These distributors are not reaction-driven unless tubular jetted arms are fitted – if they are not, a drive unit is normally required.

Installation

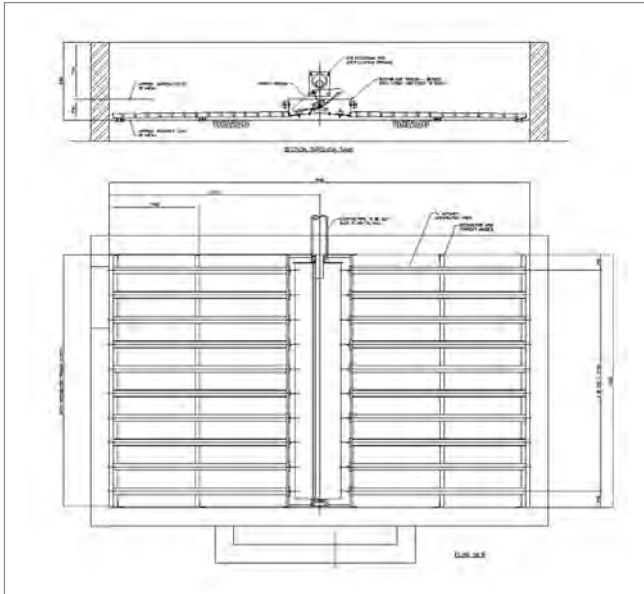
These units are best suited to plastic media and have an under bed feed. They can be mounted on pipe diameters from 200mm to 450mm.

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Tipping Trough distributors



These consist of a central basin, supported on the filter bed wall by stainless steel anchor bolts directly beneath the existing feed pipe. Within the basin is a tipping tray, mounted on plumber blocks so that the unit tips from side to side when a flow is introduced.

A number of open trough arms with a series of 'V' notched cuts along the length of their sides are extended from each side of the basin.

Installation

The Tipping Trough unit is suitable for lower flows and smaller, rural treatment works where flows may be intermittent. The distributors require an overhead feed.

Travelling Rectangular distributor



This motor-driven carriage unit straddles a central effluent channel, and comes with a central wall basin and cantilever arms to each side. The unit traverses the length of the filter bed on a set of rails fixed onto the top of the channel.

Installation

The effluent feeds from the central channel via a syphon pipe attached to the carriage. The open end of the pipe is below the effluent channel water level, thus maintaining the syphon. The influent is divided evenly via a manifold to the basins on either side.

There is an option for a knife gate valve between the basin and filter arms to temporarily isolate flows during cleaning. Power is supplied to the distributors via a 'C' channel, catenary wiring or similar, using flat form cable running along the length of each filter bed.

Distributor Details

Distributor Arms



Open Trough Arms



Weir Box and Tray



Tubular arms with jet nozzles



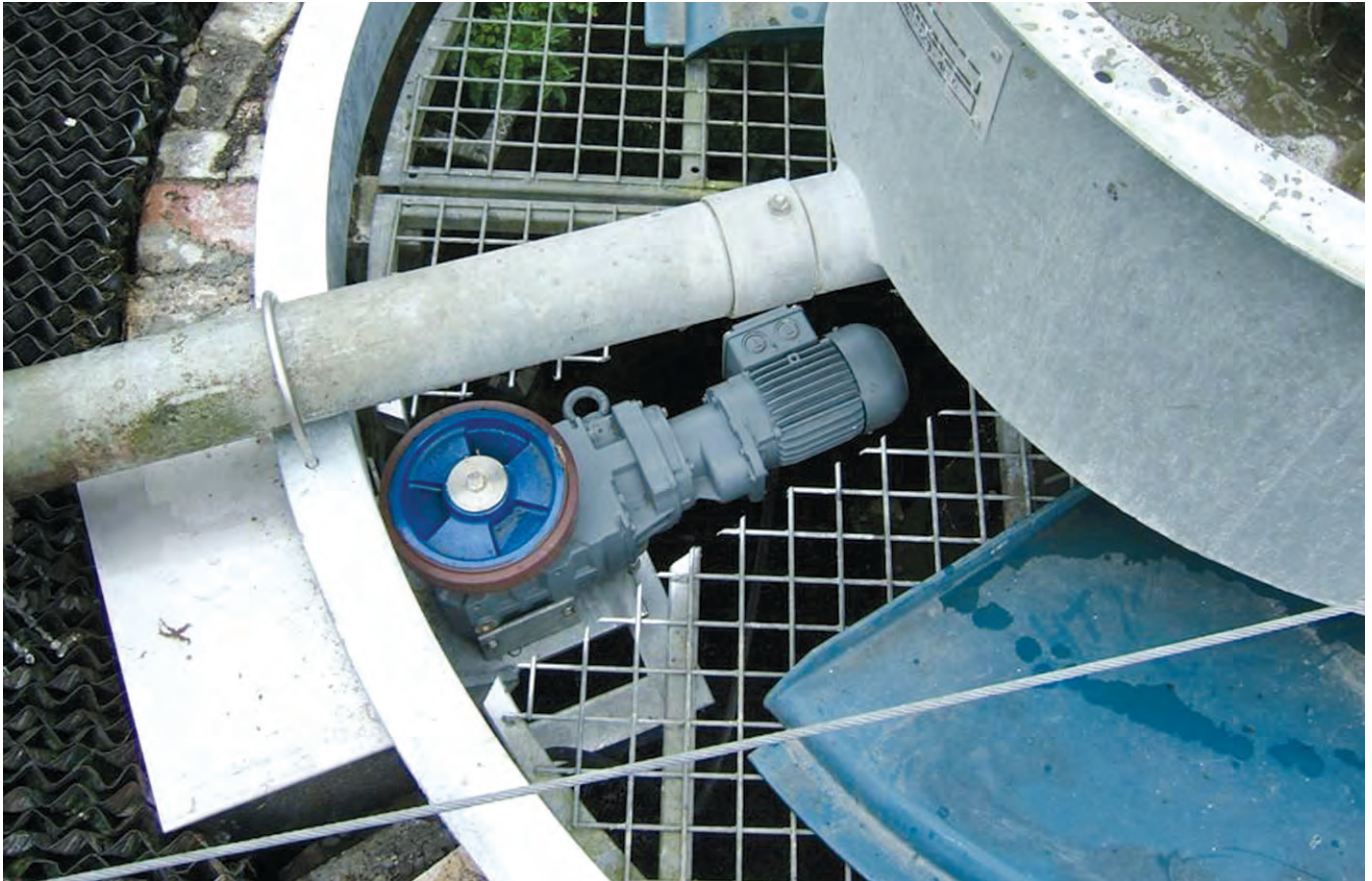
High rate box section

The types of distributor arm available are:

- Open Trough
- Weir Box and Tray (for tubular arms)
- Tubular Arms with Jet Nozzles
- High Rate Box Section

Distributor Details

Distributor Drives



Electric drive

Electrical or hydraulic drives are for use with non-reaction type distributors or to guarantee a particular rotation speed. The various types of drive are:

- Paddle wheels (for Waterwheel distributors)
- Hydraulic pinch wheel drive
- Electric pinch wheel drive
- Hybrid drive (electric pinch wheel drive with hydraulic release mechanism)

The Hybrid drive is able to disengage during a power failure, allowing the distributor to revert to a reaction drive.



Hybrid drive

Specification Comparison Table

Specification:				
	Turbine Distributor	Waterwheel Distributor	Syphonic Distributor	Highrate (Cascade Type) Distributor
Bed Size:				
Up to 8m dia.	●			
>5m, <45m dia.	●	●		
Up to 50m dia. (feedpipe 450mm)			●	●
Arm types:				
Open trough (up to 8m)	●			
Open trough (up to 15m)		●		
Weir box & tray arms		●		
Reaction arms			●	●
High rate arms			●	●
Drive options			Electric, Hydraulic, Electro-Hydraulic (Hybrid Drive) and Paddle Wheel Drive	