Alfa Laval AS-H Rotary Distributors

Distributors for circular trickling filter systems

Applications
Alfa Laval AS-H offers a wide range of rotary distributors for circular trickling filter beds of all types and sizes. They are found in small rural sewage treatment works as well as the largest municipal works. Rotary distributors are used for primary or secondary filtration (for low, intermediate high and super high rate filters), carbonaceous and nitrification applications.

We provide equipment with flow rates between 5 and 200 litres per second and diameters ranging from 2 to 50 metres. Distributors are installed in a variety of applications, for example secondary water treatment, BOD removal and tertiary nitrification.

We supply new distributors for new or existing structures, or we can help you upgrade or refurbish your existing distributors, regardless of make or manufacturer.

Benefits
Alfa Laval AS-H Rotary Distributors are designed and built for low lifecycle costs and trouble-free operation with minimal service needs. Manufacturing and installation is done within narrow tolerances to minimize wear, and the robust component design ensures highest possible reliability.

Minimal maintenance requirements in combination with the possibility to replace all parts of the distributors if needed make total life cycle costs very low.

Compared to other types of biological treatment lines, such as aeration, trickling filter beds have:

- Low energy use
- Low re-circulation
- Long asset life
- Simple design and operation

Working principle
Trickling filters comprise a circular tank or bed with a filter medium, usually small stones or plastic, and a distributor with either two or four rotating arms.

The waste passes through the filter medium and is collected at the bottom of the tank before exiting it through a discharge pipe or channel.

Microbes on the surface of the filter stones consume contaminants in the wastewater as it passes through the filter bed, thereby cleaning the wastewater. The porous structure of the filter increases the available area for the microbes and, in turn, the filtering capacity.

The wastewater flows through pipework underneath the filter bed and into the distributor's centre column before flowing out into the arms. The column has a seal at its base that allows it to rotate, and the distributor arms distribute wastewater over the filter medium.

The lengths of the distributor arms and the spacing and size of the nozzles ensure the entire filter bed is covered and is given the correct dosage.
Design and serviceability
Alfa Laval AS-H Rotary Distributors have been designed for minimal maintenance routines under normal operating conditions, and strategic spare parts have been standardised to reduce holdings to a minimum.

Under normal conditions the seal at the base of the distributor column will remain effective for a considerable period without requiring replacement. However, when required, the seal can be replaced without dismantling the column.

Alfa Laval offers a full refurbishment service for our rotary distributors. We can supply replacements for every component of the centre column, or provide a complete refurbishment if required.

Materials
Alfa Laval AS-H Rotary Distributor centre columns are constructed from cast iron to BS 1452. This includes: the inner barrel, bearing cap, cover plate, outer barrel and bottom bearing housing.

The distributor arms are made from mild steel, fabricated and drilled as required for the design and then hot dipped galvanised to BS729.

The nozzles are made from black polyethylene.

The standard material for the arm support ropes and turnbuckles is galvanised mild steel BS302 198, with an option for the ropes to be manufactured from stainless steel.

Drive system
Alfa Laval AS-H Rotary Distributors are hydraulically powered, dependent on the hydraulic profile and flows available on site. Where the speed of the distributor rotation needs to be controlled in order to meet specific seeding rates, we can also offer motorised centre drives with local control panels.

The motorised centre drive unit is designed for continuous operation and comprises a drive ring that is normally fitted to the distributor arms. A set of wheels grip this drive ring by means of a clamp and control the speed of rotation. The wheels are also mounted in a pivoting frame assembly that allows the wheels to maintain correct alignment with the drive ring.

The motorised centre drive unit has been designed to control the rotational speed of rotary distributors continuously. However, upon power failure, the clamp disengages, allowing the distributor to operate on hydraulic flows.

There are several different methods for controlling the rotation speed of distributors. Our range of drives can suit many requirements e.g. centre or peripheral electric drives and centre electro-pneumatic.

Options
- Two or four distributor arms
- Weir boxes for distributor arms (for variable flows)
- Galvanised mild steel or stainless steel support ropes and turnbuckles
- Motorised centre drive

Alfa Laval AS-H Rotary Distributors are characterized by robust design, easy maintenance and low life cycle costs.

Alfa Laval reserves the right to change specifications without prior notification.

How to contact Alfa Laval
Up-to-date Alfa Laval contact details for all countries are always available on our website at www.alfalaval.com.