ELIQUO | HYDROK

Mecana

Pile Cloth Media Filtration

Mecana

ELIQUO HYDROK ARE THE SOLE DISTRIBUTOR FOR MECANA UMWELTTECHNIK TO THE UK WASTEWATER INDUSTRY. SWISS COMPANY MECANA HAS OVER 50 YEARS EXPERIENCE IN THE DEVELOPMENT OF TERTIARY FILTRATION SYSTEMS, WITH HUNDREDS OF REFERENCE SITES ACROSS EUROPE AND IN THE UNITED STATES.

MECANA
UMWELTTECHNIK

The ELIQUO HYDROK-MECANA PCMF

BENEFITS

The Mecana Pile Cloth Media Filter offers compact, efficient tertiary treatment for the removal of TSS, phosphorus, and micro-pollutant 'priority substance' with ultra-low power consumption, filtering full flow even during backwash.

WHAT IS PCMF?

A Pile Cloth Filter Media (PCMF) is a process for the removal of suspended solid particles from municipal waste water, industrial process water, or storm water. The filter comprises of a series of very fine fibres, only microns in diameter, which are woven into a filter cloth which is less than 10mm in depth.

ACTION

The Pile Cloth Media combination creates a very large surface area for particle interception and removal but also allows for easy backwashing.

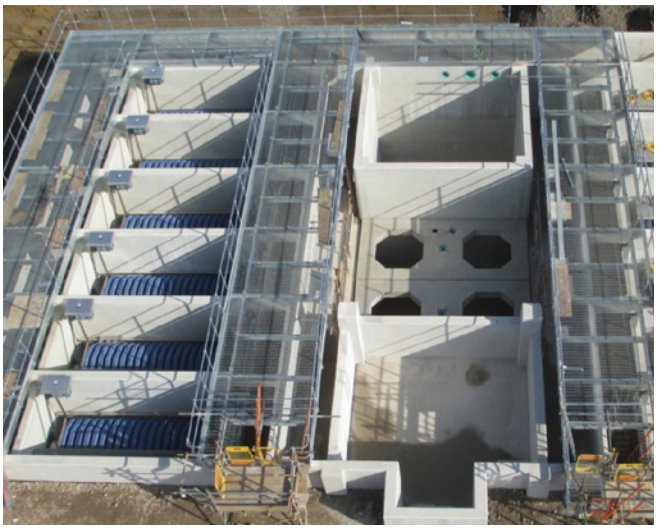
The Mecana range

DRUM FILTERS

For small to medium flows and loadings
(prefabricated in tanks)

DISC FILTERS

For medium to high flows (prefabricated in tanks, or
can be installed in concrete tanks)

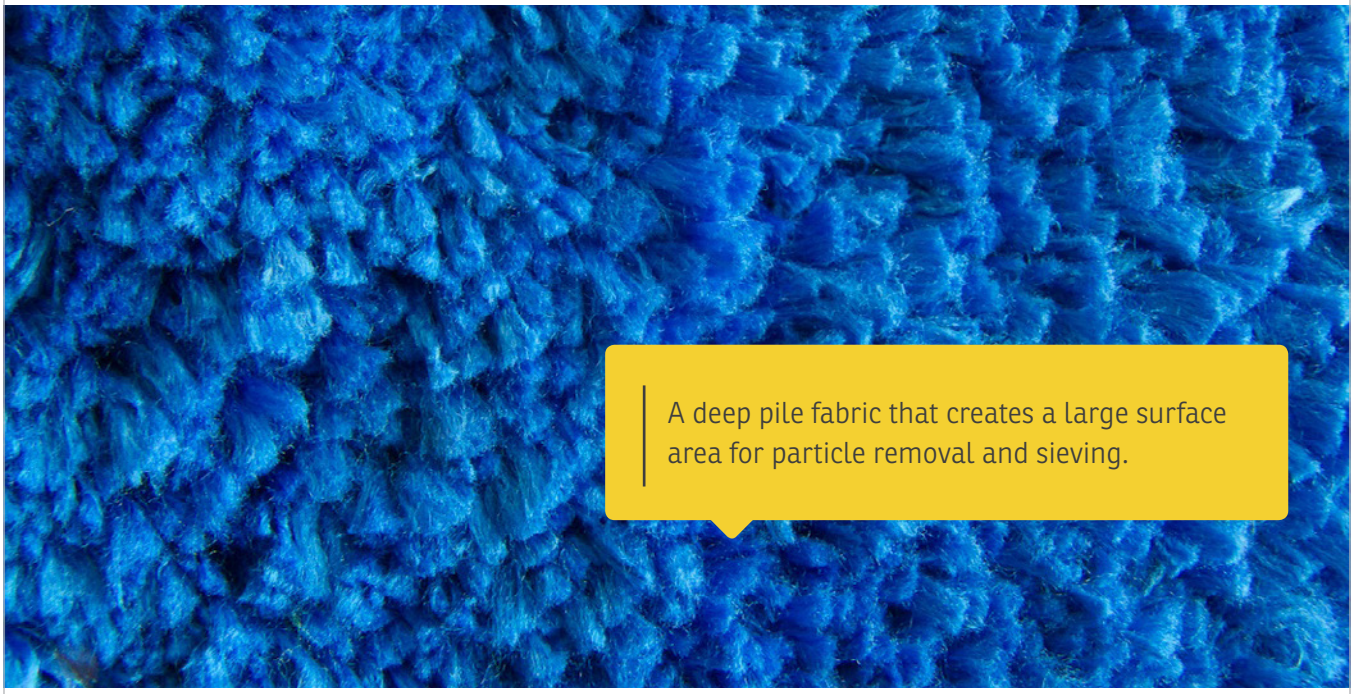


DIAMOND FILTERS

For very large flows or retro fitting into travelling
bridges in concrete tanks

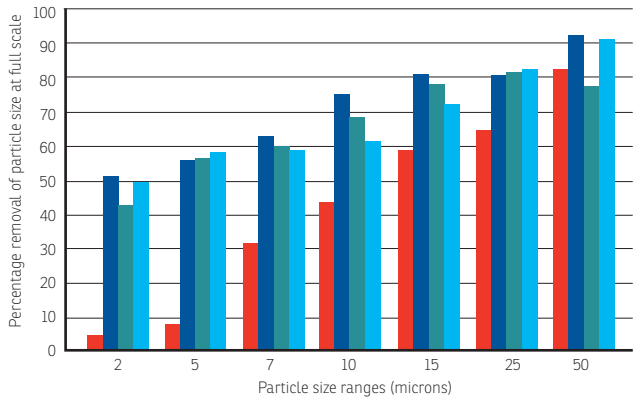
BESPOKE MANUFACTURED

The Mecana range of Pile Cloth Media Filters are available to treat flows ranging from 3 l/sec to 250 l/sec in steel tank units. The filters are normally installed in multiple concrete tanks, the largest flow being 9,250 l/sec to-date. Retrofit into existing tanks is possible. All units are produced to Swiss quality standards in Mecana's factory in Switzerland, with the stainless steel tanks and control systems manufactured in the UK by ELIQUO HYDROK. The Mecana Pile Cloth Media Filter offers a superior operational performance to that of any micro-screen or micro-strainer in the market today as it is a true filter with depth filtration being the dominant particle removal mechanism.



PERFORMANCE COMPARISONS

Difference in performance between micro-screens and REAL-filters



- Micro-screen
- Mecana Pile Cloth Media Filters
- Rapid gravity sand filter
- Pressure sand filter

KEY DATA

Media loading rate	8 - 10m/hr
Filter loading rate	24 - 65m/hr
TSS	< 5mg/l achievable
Backwash volumes of forward flow with low instantaneous flows	low at < 2%

APPLICATION

Tertiary filtration for TSS reduction downstream of humus or secondary settlement tanks (<5mg/l TSS achievable)

Tertiary phosphorus removal in combination with precipitation/flocculation - bespoke design for Ptot consent from 1mg/l to less than 0.1mg/l

Micro-pollutant 'Priority Substance' removal

As an alternative to fixed film biological treatment humus tanks for removal of TSS

Pre-filtration for fixed bed nitrification stages

Storm overflow filtration

ADVANTAGES

Highly efficient solids separation

High throughput and able to withstand shock loads

Continual operation during backwashing

Gravity flow typical - only 300mm head required

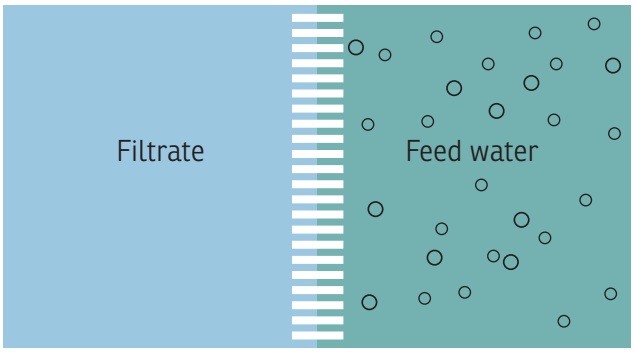
Filters full flow even during backwashing

Small footprint - 'off-site' build

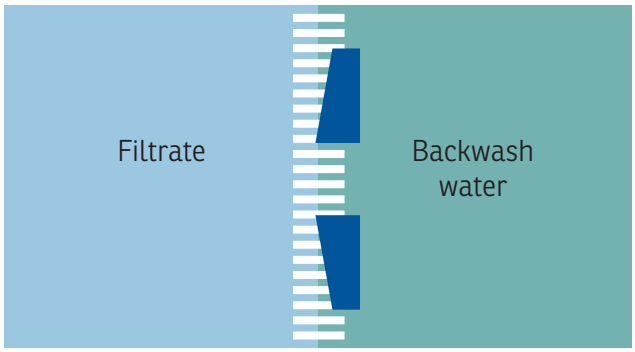
Easy cloth replacement

Low power costs and low maintenance costs

Backwashing is started when the head loss reaches 250mm. Typical backwash frequency is 1 minute every hour



Backwash volumes are typically around 2% of average flow. The vacuum pump returns the dirty water back to the head of the works.



Operating principle

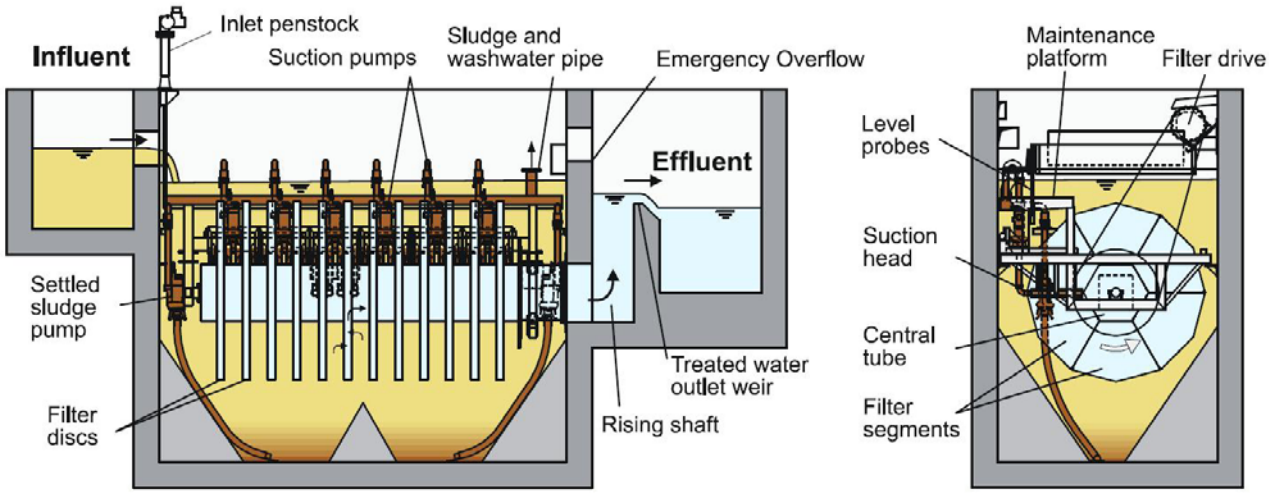


Diagram provided by Mecana Umwelttechnik GmbH

Suspended solids are removed from the water as it flows through the filter cloth into the filter segment, the solids being retained on the filter cloth. The filtered water then flows out of the unit through the central shaft, the rising chamber and finally over an overflow weir. With increasing solids build-up on the filter cloth, the hydraulic resistance across the filter unit, and thus the water level in the filter tank will increase.

When a water level is reached in the filter tank which corresponds to a level difference of 25 cm between the water level in the tank and the filtrate water level, the filter cleaning process will be initiated. At low filter loadings, the filter cleaning will also be initiated on time control (generally every 2 hours). The disc filter is slowly rotated (1 – 2 rpm) and the solids layer removed by means of a suction device. The filter cleaning process for a disc filter takes place in a number stages, in which one suction pump is switched on. The sludge removed by the suction cleaning process is returned to one of the preceding process stages (e.g. primary settlement,). Similarly, the solids precipitated in the filter tank are pumped back by means of the settled sludge pumps, on timer control. (Normal setting: every 2 hours for 30 seconds).

Efficient tertiary treatment for the removal of TSS, phosphorus, and micro-pollutant 'priority substance'.

Version 001

ELIQUO HYDROK LTD

Indian Queens Ind Estate, St. Columb | Cornwall, England | TR9 6TL
T +44 1726 861 900
sales@eliquohydrok.co.uk | **www.eliquohydrok.co.uk**