

A brand of
Aqseptence Group

Johnson Screens® Triton™ Underdrains

Application as reliable and efficient underdrains system in gravity filters in order to retain the granular filter media in place and also to optimize the collection of filtered effluent and distribution of air & water during backwash mode.



The TRITON™ Underdrains system offered by Aqseptence group is designed specifically for optimized collection and distribution with direct retention of the filtering media.

It utilizes world renowned Johnson's Vee-Wire® screen technology and our wealth of filtration technology experience.

With more than 30 000 m² of TRITON™ Underdrains installed, the Triton™ is the solution for all your filter beds needs.

Function

The TRITON™ Underdrains system is made of Vee-Wire® filtering media support profiles that offer fine slots to suit the selected filter media specifications and U shaped perforated supports to allow flow control for both air and water.

The TRITON™ scalloped shaped elements collects the filtered effluent and discharges it into a common flume, which in turn, routes the water out of the filter.

During backwash mode, the flow is reversed and air & water enter the flume and are directed into the underdrain.

Vee-Wire® filter media retaining surface



Benefits

- Improved backwash effectiveness
- Longer filter runs
- Increased Filter Capacity, Lower Power Consumption
- Smooth, robust and plug-free retention surface
- Cut major downtime costs
- Adapt to any filter design
- Filter bed upsets eliminated
- Installation faster and easier

Operators

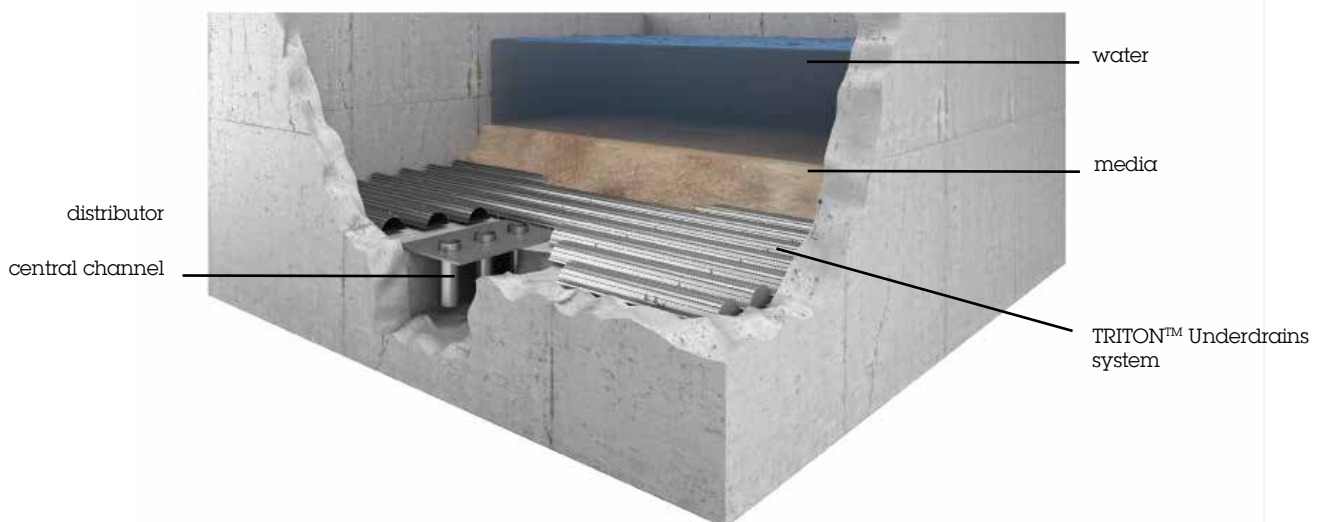
- Lower energy costs due to reduced headloss and backwash power consumption
- Longer filter runs due better cleaning of filter media
- Better water recovery due to less backwash water required
- Lower life cycle costs due to the cumulative effect of all of the above

Contractors

- Ease of installation compared to other underdrain designs
- No grouting
- No special tools or handling

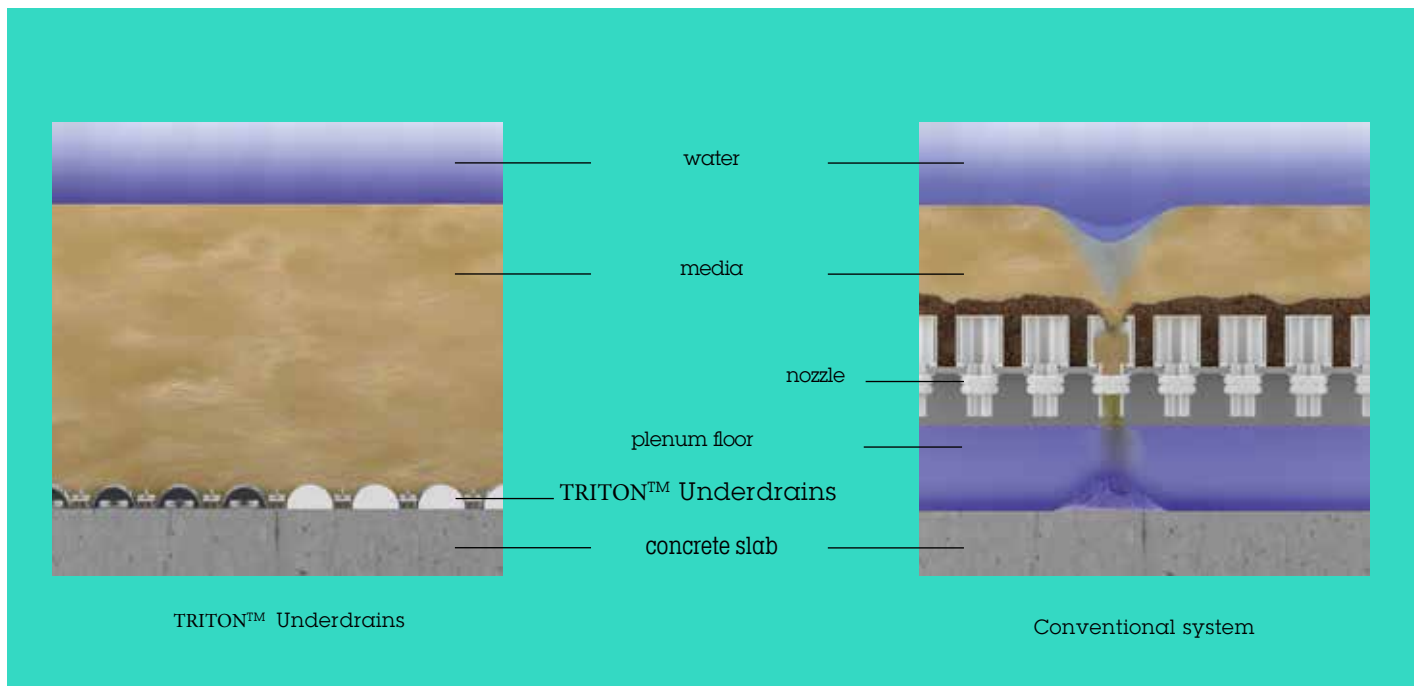
Consulting Engineers

- Proven design that delivers operational benefits for clients
- Ease of installation for contractors
- Computer modeling and process optimization based on computation fluid dynamics to insure installation operates as designed
- Process optimization after installation based on computation fluid dynamics analysis throughout the design process



Schématic overview

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Product variations :

Standard slot width is 0.3 mm (0.012in.) but can be adjusted to suit individual needs.

Design sizes

The TRITON™ Underdrain is available :

- Approximately 128 mm high (5 in.), 260 mm wide (10 in.), custom length based on filter basin application
- Note : factory should be consulted if lateral exceeds 6 m (20 ft)

Performances

Pressure drop across the underdrain :

- During backwash at $37 \text{ m}^3/\text{h}/\text{m}^2$: $\pm 0,5 \text{ m}$ (15 gpm/ft² : $\pm 1.64 \text{ ft}$)
- During filtration at $12,5 \text{ m}^3/\text{h}/\text{m}^2$: $\pm 0.05 \text{ m}$ (5 gpm/ft² : $\pm 0.164 \text{ ft}$)
- Application rates of 5-25 $\text{m}^3/\text{h}/\text{m}^2$ (2 gpm/ft² - 10 gpm/ft²) depending on media type and size.

Materials

The TRITON™ Underdrain system is available in:

- Stainless steel 304 / 304 L; 316 L
- PVC

Options

- Either center or end feed connections can be supported
- Air can be fed from the bottom or the top.

Applications

The TRITON™ Underdrains can be used for drinking water, Wastewater applications (tertiary filtration), Industrial pre-treatment or desalination applications.



Sand recovering Triton™ Underdrain



Bubble test

Unique Feature

Conventional systems require an intermediate layer of gravel between the treatment media and the underdrains. Vigorous backwashing can cause bed upset, reducing the hydraulic efficiency of the bed and allowing some media to migrate past the filter underdrain.

TRITON™ Underdrains systems retain the media directly, eliminating gravel as a potential problem.

TRITON™ Vee-Wire® media support surface has a larger open area, which provides plug-free and low headloss performance. The perforated slots of the louvered folded plate or block types with their centered plastic top underdrain systems do not provide the same area.

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The technical data stated in this brochure are indicative only and have to be determined for each individual case. Subject to technical changes.