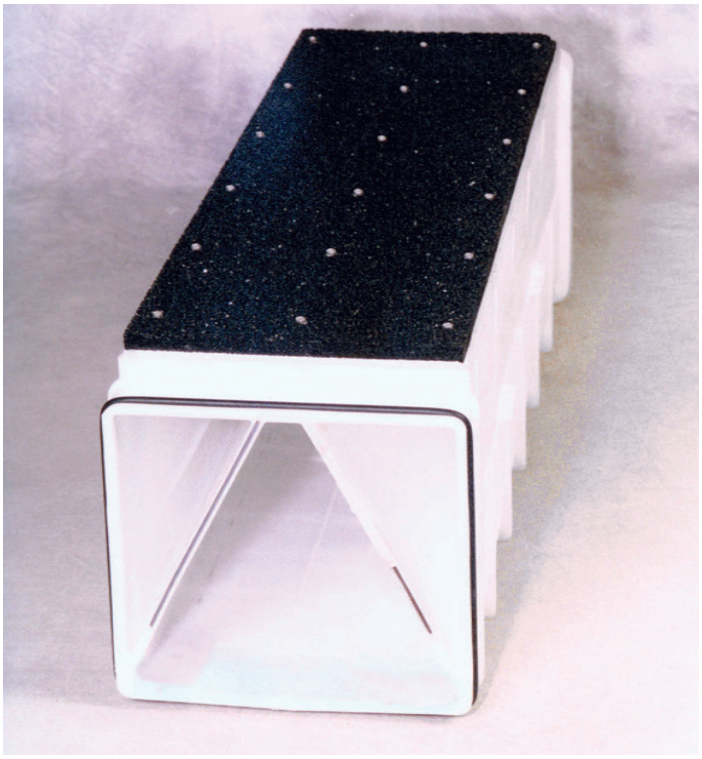
TETRA® UNDERDRAIN FILTER BLOCKS U BLOCKS™

De Nora Water Technologies offers the TETRA® U modular underdrain filters for a variety of applications including new filters and retrofit installations for drinking water and desalination pre-treatment.

The TETRA U Block is proven to provide superior distribution for both water and air, separately and concurrently. Air is distributed evenly across the entire filter bottom area to scour the media and to provide an air lift, which, with the water, removes the released solids from the filter. This dual backwash action provides intense washing energy throughout the filter bed.

Total media cleaning is the key requirement for a filter to function effectively and efficiently under all loading conditions. Backwashing the gravity filters is necessary to remove the solids collected by the media during the filtration run. An upward flow of water or a combination of air and water to fluidize and scour the media is required. The effectiveness of this backwash operation is determined by the resulting cleanliness of the media.



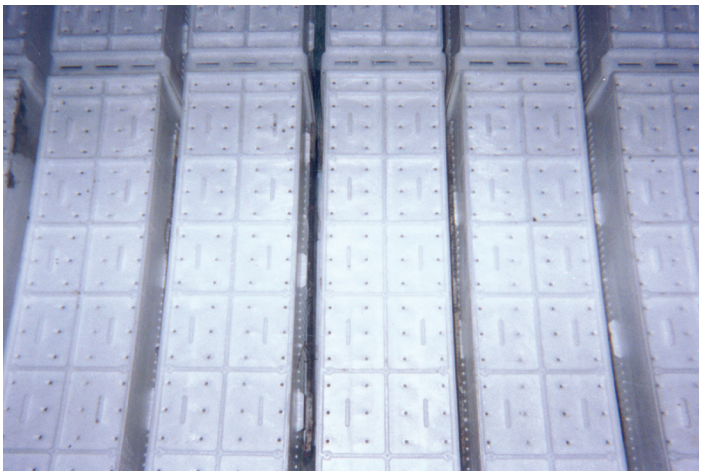
For more information on TETRA® Underdrain Filter Blocks visit **www.denora.com**

DE NORA
our research - your future

We Understand Underdrain Filter Blocks

The superior design of the TETRA® U Block™ allows for the following operating and costs advantages:

- Lightweight and easy-to-handle - reduces installation costs
- Snap fit, single gasket, bell and spigot joint assembly ensures a tight fit with no leaking
- Reduced installation time and costs due to simple assembly
- Long maintenance-free life
- No moving or wearing parts
- No corrosive materials used
- Easy-to-adapt to new and old filter designs for either hydraulic only or air/water backwash applications
- Even air and water distribution across the entire filter bed during backwash guarantees high efficiency backwash and a clean filter bed. No dead spaces, no mud balling and no filter failures
- Low headloss and non-clogging underdrain - no filter blow-ups



TETRA® Media Retention Plate

The TETRA media retention plate is designed and installed to ensure long-term stability and durability. It was designed as a replacement for the gravel supporting filter media beds equipped with the TETRA U Block underdrains.

The media retention plate is manufactured of ultraviolet resistant HDPE which is fitted to the top of the underdrain block. The plate is fastened to the block with three rows of stainless steel self-tapping screws (18 minimum per block) and the edges are sealed in place by NSF certified, gasket forming, polyurethane sealant. The exposed edges of the plate will also be covered with the sealant to prevent side leakage. The media retention plate will provide uniform distribution at headloss equivalent to, or less than gravel headloss.

The dual parallel lateral underdrain block provides flow distribution during backwash with a variation usually of no more than plus or minus five percent across the filter. Mounting the plate on the top of each individual underdrain block assures uniform flow distribution. The flow distribution of the plate, for both air and water, is equal to that of the standard reverse gradation support gravel. The headloss is the same as it is for the gravel it replaces. The headloss for the 12 inch depth of reverse gradation support gravel is 6 inches of water at 22.5 gpm/sf.

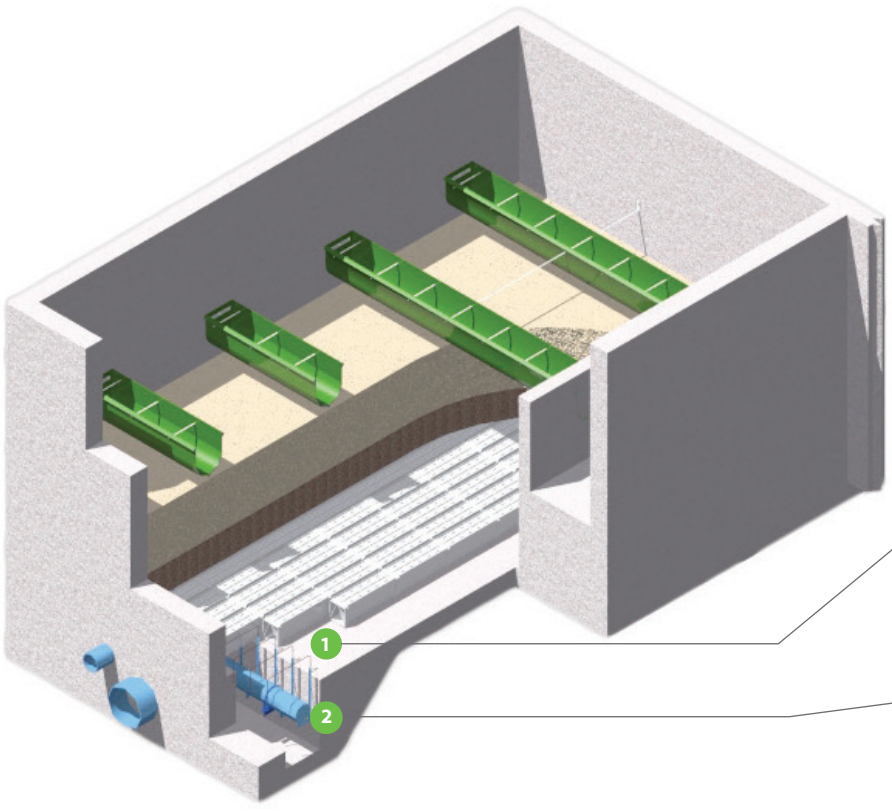
Most existing filters can be rehabilitated using the U Block with the integrally mounted plate. Since the need for support gravel is eliminated, a deeper media load can be installed in any shallow filter. Filters with the TETRA underdrain block can be retrofitted with any one of the TETRA media retention plates.

Media Retention Plate General Specifications

The TETRA® Media Retention Plate shall be a porous, single-molded, 500 micron plate.

- Lightweight, easy-to-install and removable for inspection
- Provide uniform flow distribution at a headloss equivalent to or less than gravel
- Compatible with water treatment chemicals
- Factory sealed and mounted

Specifications	
	S™ Plate (single molded)
Material	Size: 3/4" x 9.885" x 33.556" Weight: 3 lbs. /sq. ft.
Bulk Density	38-40 lbs. /cu. ft.
Porosity	40-50%
Modulus of Rupture	700 psi @ 70°F



Filter Structure

1. **TETRA® U Block™ Underdrain**
   - Air/water and water backwash
   - Provides even distribution during backwash
   - Easy-to-install, lightweight and corrosion-free construction
2. **Air Header Pipe**
   - Engineered for specific backwash requirements and fabricated to fit the filter design

DE NORA

De Nora Water Technologies
1000 Cliff Mine Road, Suite 600
Pittsburgh, PA 15275
United States

T: +1 412 788 8300
Toll: +1 800 364 1600
F: +1 412 788 8303
E: info.dnwt@denora.com

www.denora.com

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