

# TETRA™ Amoeba

## Packaged Tertiary Filtration Plant for Small Sized Works

The De Nora TETRA™ “Amoeba” Modular DeepBed™ Filter Plant is designed as a competitive filtration plant for tertiary effluent from small size sewage works. The Modular DeepBed™ Filter utilises the technology of DeepBed™ filtration that has made the TETRA™ filter such a successful tertiary treatment process over many years in Europe and the United States.

Available with one or two cells of 1m or 1.45 m diameter, the modular approach allows the Engineer and Operator to install a standard design for a tertiary

plant and to select the optimum unit to meet the performance standards required.

The TETRA™ tertiary technology is retained in the modular filter and consists of the nozzle-less underdrain using the TETRA™ SNAP T® Block and reverse gradation of gravel layers with stainless steel air distribution for backwashing, plus a deep bed of TETRA™ media to provide very effective filtration performance and long run times between backwashes, leading to lower operating costs.



TETRA™ SNAP T® Block



TETRA™ Media

**De Nora TETRA™ tertiary wastewater filters are proven in hundreds of installations globally to offer advantages for operators and owners including reliable and robust performance, lower operating costs and ease of operation.**

### Features and Benefits

- Minimum of 1.2 m deep-bed of coarse 2-3m TETRA™ media.
- The TETRA™ media is spherical and has a high uniformity coefficient to promote deep bed filtration.
- The filter is therefore capable of running for long periods between backwashes, which minimises the amount of backwash water produced.
- The powerful TETRA™ backwash is achieved without fluidising the media and so virtually eliminates media loss.

### Filter Configuration Examples

The Amoeba range of TETRA™ Modular DeepBed™ Filter is available in various configurations from 1 no. 1 m diameter cell, up to 2 no. 1.45 m diameter cells, which are designed to meet with your specific process requirements. Example filter configurations are given in table 1.

For higher capacity applications, De Nora offers a standard range of MDBFs - see brochure 650-0030EU.



TETRA™ Amoeba - Modular DeepBed™ Filter

MODEL NO.	Cell Diameter (mm)	No. of Cells	Filtration Area (m <sup>2</sup> )	Typical Footprint (m) (excl. b/w storage)	Max Flow to Filter (m <sup>3</sup> /d)
M1000/1	1000	1	0.79	2.5 x 2.5	275
M1000/2	1000	2	1.57	2.5 x 4.2	550
M1450/1	1450	1	1.65	3 x 3.5	575
M1450/2	1450	2	3.30	3 x 7	1150

Table 1

### Typical Performance

The De Nora TETRA™ Amoeba Modular DeepBed™ Filter is designed to treat the effluent flow to the required standard. Typical performance details are shown below.

	Performance
Suspended Solids Removal	Up to 90%
Backwash Water Produced	Typically < 5%
Rate of Backwash Water	2.7 l/s to 6.9 l/s
Duration of Backwash	20 to 30 mins/cell
No. of Backwashes/day/cell	1 (typically)

### TETRA™ Amoeba Modular DeepBed™ Filter Process Flexibility

TETRA™ Amoeba Modular DeepBed™ Filters (MDBF) offer process advantages:

- Treats infinitely variable flows up to the peak hydraulic flow of the filter plant. No requirement for recirculation at low flows.
- Filter cells can be taken off-line for backwashing or can be backwashed in run-on mode.
- Very high solids loading capacity and the ability to accommodate upstream works upsets in an emergency.
- Built in redundancy e.g. standby backwash pumps & blowers.
- Upgrade to TETRA™ Denite® for denitrification applications.
- No effluent strainer/screen required on the input to the filter.
- Standard modular build on steel skids can easily be connected when on site.
- MDBF units are wired, piped and commissioned prior to delivery, thereby only requiring connections to power and site pipework thus minimising on-site requirements.



TETRA™ Backwash



WATER MADE EASY

MARINE

ENERGY

MUNICIPAL

INDUSTRIAL



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