

ENDEVION

solutions and components for air and water treatment



SERVICE



EFFICIENT SOLUTIONS FOR WATER AND AIR TREATMENT

SERVICE AND SPARE PARTS

COOLING TOWERS
AND WATER TREATMENT

ENGINEERING.
DESIGN.
VISION.

www.endevion.com



ENGINEERING. DESIGN. VISION.

ENDEVION S.r.l. deals with **the design and production** of skids, packages and industrial components. Leader in the supply of solutions for **revamping of evaporative towers**, for **water treatment and purification**, industrial cooling and mass exchange. ENDEVION's products are ideal for the enhancement or revamping of sedimentation, clear-flocculation, oil removal, biological purification, process water cooling, revamping of cooling towers and air condensers, removal of pollutants from gaseous or liquid flows.

ENDEVION STRENGTHS ARE:

- ⌚ Internal production of materials in **polypropylene** (PP) or in polyvinyl chloride (PVC) according to customers' needs
- ⌚ Evaluation, together with the customers, of strategies for **energy efficiency**
- ⌚ Products designed to achieve ever greater **sustainability**
- ⌚ **Flexible configurations** adaptable to any situation



SERVICE TOWERS



ENDEVION RANGE OF SERVICES FOR COOLING TOWERS INCLUDES:

- ⌚ Inspection of plants and equipment with following reporting
- ⌚ Performance evaluation
- ⌚ Supply and replacement of fills
- ⌚ Revamping
- ⌚ Performance improvement and adjustment
- ⌚ Noise analysis and noise mitigation
- ⌚ Vibration analysis of motor, transmission and fan
- ⌚ Balancing of fan blades
- ⌚ Development of new cooling towers

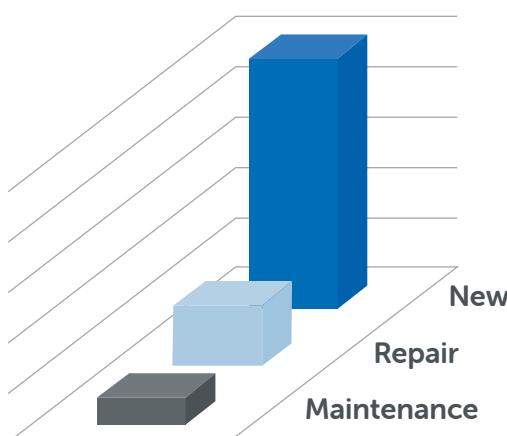


ENDEVION analyzes the performance and the possibilities of **improvement of existing systems**, in order to design an optimal and customized solution. The investments for the modernization of the plant are usually recovered in the short term, especially when **the revamping is accompanied by effective maintenance**.

Over the last few years, the technological development of the mechanical components of cooling systems has made it possible to obtain significant improvements in performance. New and more efficient electric motors for fans with different rotation speeds can significantly reduce noise emissions and energy consumption. Innovations in the fan design are also possible in order to increase air flow with the same absorbed power or to decrease the absorbed power with the same air flow.



Relative cost





The fan blades, made of reinforced fiberglass, must have a uniform surface coating and appropriate protection from atmospheric agents in order to move the required air flow. With the passing of time, the surface coating deteriorates due to humidity, UV rays and abrasion of the external profile.

If the deterioration is so significant as to expose the glass fibers, the structure of the blades can be damaged, resulting in a loss of stability. **The repair and reconstruction of the coating avoids a new and more expensive purchase of the whole fan unit and increases its service-life.**



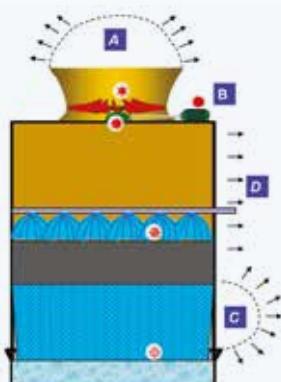
The cooling towers developed by ENDEVION are fan assisted and are the most advantageous product of all tower types. **They are compact, powerful and adaptable to very different operating and climate conditions.**

They are **equipped with forced or induced draft fans** and represent the ideal solution for industrial applications as energy production plants, chemical, petrochemical and air separation industries, steel plants, automotive industry, factories of timber and paper production and for cooling and air conditioning systems.

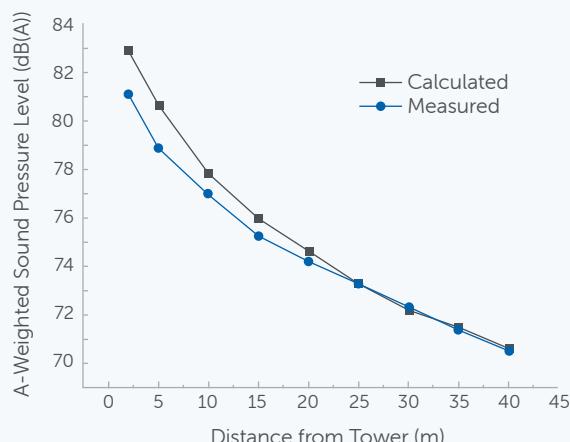
ENDEVION offers the most suitable heat dissipation for any application thanks to the possibility of combining individual cells and selecting individual components.

In addition, **the cell construction guarantees a high level of flexibility: the cells can be reconditioned and emptied individually while the plant is in operation.**

The robust construction of ENDEVION cooling towers can be adapted to any quantity of water and heat output. Highly efficient components ensure maximum performance, higher cooling performance, lower power consumption and noise reduction.



Noise sources



SERVICE WATER



ENDEVION RANGE OF SERVICES FOR WASTEWATER TREATMENT PLANTS INCLUDES:

- ⌚ Inspection of plants and equipment with relevant reporting
- ⌚ Performance evaluation
- ⌚ Supply of lamella modules and structured fills for biological treatment, coalescing media for oil removal
- ⌚ Revamping
- ⌚ Performance improvement and adjustment
- ⌚ Increase of existing plant capacity
- ⌚ New treatment skids



ENDEVION is equipped with all the instrumentation and equipment necessary to carry out the most complex works on wastewater treatment plants.

Thanks to many years of experience in selecting the tank equipment, in the piping design, in the definition of sedimentation speed and in the choice of lamella blocks or for biological purification, ENDEVION can provide the ideal solution for any type of system.

LAMELLA MODULES

Lamella modules represent the key element, adaptable to any application in the field of sedimentation. **Inclination, height and distance of the lamella can be adapted to specific needs.**

Made of polypropylene, the lamella modules can be used either in low and high temperature applications, or they can be made of stainless steel; ENDEVION lamella can be used in any condition and for the entire process, paying particular attention to the relationship between flow rate and available surface.

ENDEVION lamella prove their reliability even in overloaded circular tanks, in the absence of space for further plant expansion.

The solutions offered by ENDEVION combine the advantages of the parallel lamella separators with those of the sedimentation tanks with circular section. ENDEVION lamella separators **increase the sedimentation surface, thus improving the capacity of the system.**





TRICKLING FILTERS

The **trickling filters** are part of ENDEVION range of services for water treatment.

ENDEVION fills meet the severe standards of new treatment plants but can also be used as a **cost-effective addition to the existing plant** to decrease pre-treatment load, where existing plant capacity needs to be increased **or as a special treatment to meet the new standards imposed by legislation**. The versatility of ENDEVION product range allows existing plants and treatment systems to be upgraded to meet future needs with reduced costs and minimal interruptions of treatment capacity.



ENDEVION PROVIDES **REVAMPING** OF:

- ② **HIGH PERFORMANCE TRICKLING FILTERS** designed to **reduce BOD loads between 50% and 70%**. The vertical structure of ENDEVION fills has the optimal design to quickly and easily expel the excess sludge, especially when wastewater generates a strong growth of biomass.
- ② **SECONDARY TREATMENT TRICKLING FILTERS** to **reduce BOD and ammonia** in wastewater to levels that allow it to be discharged into waterways without compromising its conditions. ENDEVION filters can **work by gravity** without any additional energy.
- ② **TERTIARY NITRIFICATION TRICKLING FILTERS** to **improve an existing treatment process for ammonia discharge**. ENDEVION fills with a **cross-fluted structure** are particularly effective for this application thanks to high retention times and a high specific surface value.

UPGRADE OF EXISITING FILTERS

A cost-effective solution to increase the treatment capacity of a trickling filter plant is to **replace an existing mineral rock or random media with ENDEVION structured polypropylene fill**: the purification of waste water requires an active biofilm, a good supply of oxygen and nutrients and proper irrigation so that the sludge can be removed avoiding the clogging of the system. The correct choice of the fills (according to the application) ensures the required purification level while maintaining a good level of cleanliness (channels with adequate free passage) and guaranteeing energy savings for aeration.



ADVANTAGES OF ENDEVION STRUCTURED FILLS:

- Reduced risk of unpleasant odors thanks to the free and low resistance ventilation path
- Effective surface totally available for sludge growth, no overlap losses
- Variable sheet thicknesses to reach even very high load capacities
- No memory effect, no crushing during use
- Simple basic support structure, top layer can be walked on
- Respectful of the environment, resistant to shocks at room temperature and stable to aging thanks to the use of PP (PVC on request)

SKID SOLUTIONS

AMONG THE SKID SOLUTIONS, ENDEVION OFFERS:

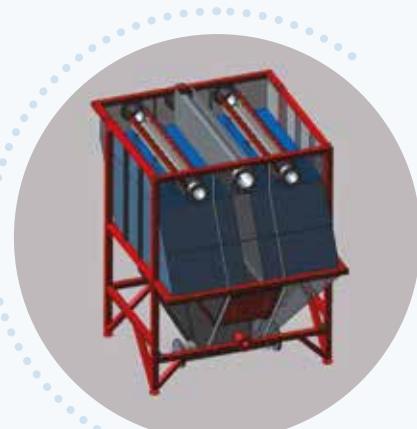
- **Supply and installation of QLD (Quick Lamella Decanter):** pre-assembled modular separators that **combine the advantages of parallel lamella separators with those of compact turnkey units ready for use.** The advantages of lamella modules are combined with the versatility of our free-standing QLD settlers, with tanks in treated carbon steel or stainless steel, stable and resistant, to guarantee **high performance, free installation and reduced maintenance.** All QLD models consist of rectangular tanks with a hopper on the bottom for collecting and thickening the sludge. QLD tanks are equipped with lamella modules for sedimentation and clarified collection channels to allow the clarified water, free from suspended solids, to be collected.
The big advantage of the new QLD series consists in being able to connect up to 3 tanks in series in order to manage even greater flow rates, thanks to the perforated inlet channel, specially designed to distribute the wastewater even over multiple tanks.

QLD sedimentation tanks are built in **3 sizes:**

Type	Material	Nominal plan view size (LxWxH)
QLD1	Fe/AISI 304/PP	1.6 x 1.4 x 2.2 m
QLD2	Fe/AISI 304/PP	2.3 x 1.4 x 2.2 m
QLD3	Fe/AISI 304/PP	2.6 x 2.2 x 2.8 m

ADVANTAGES OF ENDEVION QLD:

- **Better sedimentation efficiency** with ENDEVION lamella compared to conventional parallel plate packs
- **Volume and projected surface perfectly adapted** to the type of wastewater to be treated
- **Low installation costs**
- Sludge removal by **simple hydrostatic pressure** - no energy dispersion
- It does **not require oversized transport**



- **Supply and installation of IFAS (Integrated Fixed-film Activated Sludge)** which combines the advantages of fixed bed technology with the conventional activated sludge process and can lead to an increase in performance of up to 40% without the need to build new aeration tanks. Therefore, **ideal for upgrading existing plants**, the IFAS system solves secondary treatment problems, it allows energy savings due to reduced sludge recirculation, it is easy to install and transport and it **can be customized thanks to the module sizes that can be adapted to any specific need.**



ENDEVION

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The Company is certified according to
UNI EN ISO9001:2015 by IMQ SpA

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