



**AIRSAF**

İÇME SUYU SİSTEMLERİ

**CHEMICAL-FREE WATER  
TREATMENT SYSTEM**

## Partner Technology Milestones

**2005**

- Remote internet control and monitoring technology for the AIRSAF system was successfully tested for the first time.
- New-generation physical reactors were developed that oxidize or precipitate difficult contaminants in drinking water with lower energy consumption.

**2017**

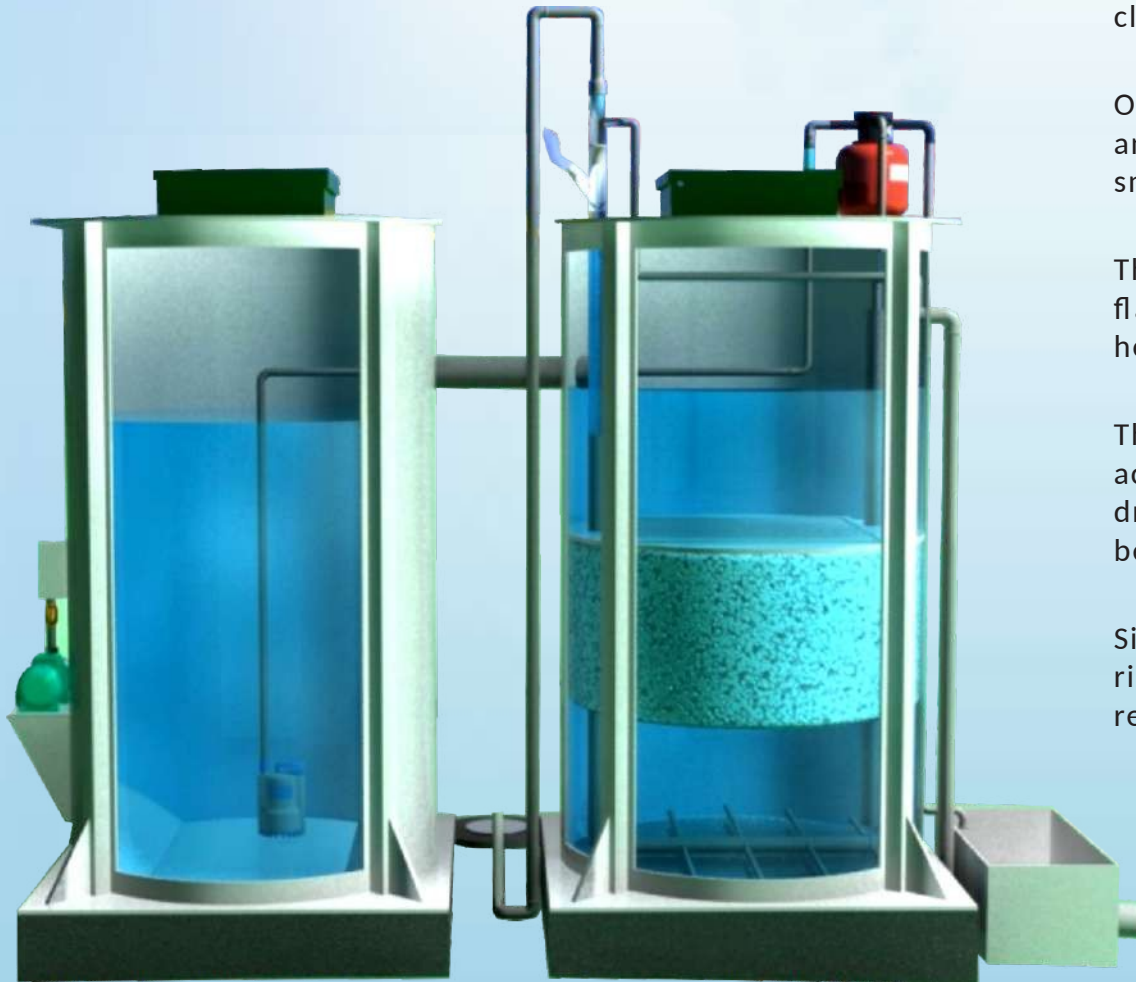
- The containerized AIRSAF was designed.
- Production began of high-capacity outdoor systems that require no dedicated building or enclosed space.
- AIRSAF was entered in the register of innovative products.

**2018**

- Our technology partner's R&D work was integrated into the product line, making AIRSAF a high-performance, chemical-free drinking water treatment system with minimal environmental impact.
- AIRSAF plants now supply municipal drinking water, including a 10,000 m<sup>3</sup>/day city plant.

- At the heart of the AIRSAF system, the **DOR (Dynamic Oxidation Reactor)** compactly reproduces the natural self-purification mechanisms of waterfalls higher than 50 meters (including degassing through low-temperature vacuum boiling).
- The degassed and oxidized water is exposed to strong multi-gradient magnetic fields that deform hydration shells. This converts hardness salt ions into insoluble molecules (crystal nuclei). After a growth period of about 10–20 hours in the clean water tank, these crystals can be removed by filtration or settled out and discharged during night-time recirculation.





Our system is equipped with a hydro-automatic self-cleaning filter that requires minimal backwash water.

Our floating-bed filter has a variable density gradient, and when the outlet layer is compacted its pores become smaller than 1 micron.

This filter performs the post-DOR filtration stage flawlessly. In addition, the space above the filter always holds the volume of clean water needed for self-cleaning.

The filter switches to self-cleaning mode only when it is actually clogged, not on a timer. This innovation dramatically reduces backwash water consumption to below 0.5% of the treated water volume.

Since no valves are used to start the cleaning cycle, the risk of mechanical failure is close to zero and system reliability is maximized.



- City and district water utilities
- Food and beverage production facilities
- Factories requiring recycled water
- Water supply for private properties and detached houses
- Villa communities
- Stand-alone apartment complexes





## SAFETY

Completely chemical-free treatment; no chemical reagents are used at any treatment or backwash stage.



## EFFICIENCY

Backwash water volume is only 0.4–1% of the treated water. The floating bed, where gravity helps pull coarse particles to the bottom, achieves maximum dirt-holding capacity.



## AUTONOMY

AIRSAF needs no electricity for treatment or backwashing. The system draws its energy directly from the inlet water pressure (e.g., installed beside a mountain river with a 35 m elevation difference, it can run in fully hydro-automatic mode).



## ECO-FRIENDLY

The housing and process equipment use eco-friendly polypropylene copolymers and food-grade stainless steel. The system has a service life of at least 50 years.



## ECONOMICAL

Treatment cost is extremely low. Its fully automatic design needs no daily maintenance, keeping operating costs to a minimum.



## PRACTICAL

No dedicated service team is needed full-time. For example, a 6,000 m<sup>3</sup>/day plant requires only 6 hours of routine maintenance per month by local operators.



AIRSAF's chemical-free technology fully complies with the strictest ecological standards.



Our technology consumes no additional electricity.



Because no external chemicals are used, there is no secondary pollution load in the discharge.

0.4-1%

AIRSAF keeps backwash discharge to a minimum, about 0.4-1% of the treated water volume



The standard AIRSAF configuration contains no electromechanical parts.



Potential failures or emergencies are monitored and prevented remotely by our internet-based Automatic Control System.



**A chemical-free drinking water treatment system designed specifically for detached houses.**

AIRSAF technology instantly eliminates the odor of hydrogen sulfide and other gases while reducing iron, manganese and hardness to ideal levels in a single process.



AIRSAF equipment scales as a single module or multiple modules, depending on the area's water consumption.

Capacity options: 170, 340, 500, 1,000, 1,500 m<sup>3</sup>/day and above, configured to demand.

Module dimensions: 1.5–2.0 m diameter, 5.5 m height (3.5 m transport height).





For metropolitan neighborhoods or district centers, switching to the AIRSAF system offers two key strategic advantages:

1. Ease of installation, integration and operation.
2. Maximum economic benefit and high-quality mains water for residents, with high ecological safety standards. This eliminates the cost of expensive under-sink filters in homes.



The FILTRA-PRO system was developed for pre-treating drinking water ahead of AIRSAF, especially when surface water is drawn from polluted rivers and lakes.

It saturates the water with oxygen, filters it, and delivers it under pressure to the DOR inside AIRSAF. It is also actively used for advanced wastewater treatment.

It covers a wide capacity range, from detached houses and boutique hotels to restaurants and large-scale plants.

An excellent alternative to ultrafiltration biofilters, FILTRA-PRO has a service life of at least 10 years without refurbishment. It backwashes itself automatically when clogged and offers at least 100 times more biofilm surface area than standard ultrafiltration systems.

Our expert engineering team supports you in designing and commissioning the water treatment system best suited to your site. Our full-scope services:



## DESIGN

Our specialists survey your site and design the system best suited to your capacity needs.



## SUPPLY

All equipment for the approved project is delivered to site within the agreed lead time.



## INSTALLATION

Our experienced engineering teams prepare the site and carefully complete the installation.



## COMMISSIONING

After installation, all tests are carried out and the system is commissioned at optimum efficiency.



## TECHNICAL SERVICE & MAINTENANCE

On request, we provide high-standard periodic maintenance to ensure a long service life for your plant.



The AIRSAF system's greatest operational advantage is that it runs entirely on hydro-automation principles, without electric valves.



Eliminating chemical costs and reagent supply logistics creates a major budget advantage for operators.



Thanks to corrosion-resistant polymer materials and self-backwashing floating-bed filters, the system is self-sufficient.



AIRSAF needs specialist service only once a year (or less often) to check for potential leaks or emergencies.



- City water treatment plant: 10,000 m<sup>3</sup>/day capacity.



- AIRSAF-1500 outdoor module installations.



- Municipal AIRSAF 10000 project.



- AIRSAF GRAND – 6000 plant installation.





# **İLERİ BİYOLOJİK**

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