



DANIEL-LM s.r.o. | AquaTech North Bohemia

Advanced Catalytic Reduction of Combined Chlorine ACDeC

The ACDeC System – A breakthrough unattended technology for
microbial control and guaranteed compliance with legislative limits,
without chemical by-products

Why Replace Energy-Intensive UV Lamps

90% Reduction in Combined Chlorine

- Guaranteed breakdown of combined chlorine after a single pass through the catalytic reactor.
- Safe decomposition into harmless nitrogen and natural salts.

Reduced Water Replacement Costs

- Permanent compliance with Regulation No. 238/2011 Coll. (combined chlorine limit of 0.3 mg/l).
- Significant savings through the elimination of forced emergency top-up water replacement.

Passive Disinfection & Microbial Stability

- Prevention of biological overgrowth (e.g. in children's pools and whirlpools) without increased chemical load.
- Safe environment free from chlorine odour and eye or skin irritation for guests.





Compact Bypass System for Every Plant Room

The heart of the system consists of highly durable polypropylene columns (reactors) with a reinforced stainless steel structure, mounted vertically one above the other to minimise floor space requirements.

Technical Specifications:

Minimal Space Requirements

Footprint of just 1 × 1 m (height depending on number of columns).

Connection

Simple integration into the bypass of the main circulation circuit after sand filtration.

Line Components

Booster pump, protective mechanical pre-filtration, flow measurement, and pressure gauges.

Operation

Fully automated with adjustable flow rate according to current visitor occupancy.

Proven Results from Commercial Installations

Reduction of Combined Chlorine (Children's Pool)

Operational comparison: UV lamp alone was unable to consistently maintain combined chlorine below the threshold of 0.3 mg/l (average 0.316 mg/l).

AquaTech ACDeC deployment: Long-term average reduced to 0.234 mg/l (consistently below the statutory limit, even after the UV lamp was switched off entirely).

Microbial Control (Municipal Whirlpool)

Problem: Prolonged exceedance of bacterial limits (CFU 36 °C) reaching up to 3,000 CFU/100 ml.

Result: Following ACDeC installation, values dropped to near ZERO within 14 days and remained stable for over 3 months of operation.

Technology Comparison with Conventional UV Lamps

Parameter	ACDeC	UV Lamp
Reduction of combined chlorine	YES	YES
Formation of hazardous by-products (THMs, chloroform)	NO	YES – high risk
Electrical energy consumption	Minimal – booster pump only	Extremely high
Increase in total chlorine consumption	NO	YES – entire volume passes through
Environmental impact	Low / recyclable filter media	High / mercury vapour lamps

Real Operational Cost Savings

Model example for a 35 m³ pool operating 250 days/year

Parameter	ACDeC	UV Lamp
Electricity consumption	45,68 EUR/year	1 139,95 EUR/year
Annual servicing & consumables	1 032,57 EUR /year	619,54 EUR/year
Total annual operating costs	1 078,25 EUR/year	1 759,49 EUR/year

- ✔ NET ANNUAL SAVING PER UNIT: 681,24 EUR/year (Note: Savings multiply significantly as pool volume and UV lamp power input increase).

Engineering Tailored to Your Operations

"Bespoke development: You are not buying a compromise. Based on our proven experience, we configure the ideal ratio and density of nanofibres."

- 1 Design and dimensioning of the number of reactors precisely tailored to the hydraulic parameters of your pool.
- 2 Preparation of a complimentary techno-economic feasibility and payback study.
- 3 Complete installation, commissioning, and both in-warranty and post-warranty servicing.





We Will Prepare a Solution Proposal and Savings Calculation for You

Contact our expert advisers for a consultation or a free audit.

DANIEL-LM s.r.o. | AquaTech North Bohemia Division

Direct Contacts

Company Management:

+420 777 321 846

Technology Department:

+420 777 919 877

Sales Department:

+420 773 992 321

International Sales

· +420 730 330 353

Online

E-mail:

info@aquananotech.eu

Web:

www.aquananotech.eu

