



Ozzi Kleen – Key Factors for Professionals

The Ozzi Kleen wastewater treatment technology – Intermittent Decant Extended Aeration (IDEA) – is the most advanced available, overcoming the problems associated with all other sewage treatment technologies. Ozzi Kleen systems are available in a range of capacities - from 20,000 litres/day (factory/office) to 1,500,000 litres/day (small town).

Ozzi Kleen systems are compact, reliable, energy efficient and generate less sludge (0.25-0.5 %) than any other treatment technology available. Ozzi Kleen achieves in one tank what other systems need three or four tanks and much more space to do. The keys are Ozzi Kleen’s patented process (IDEA), long retention time and advanced control system.

Ozzi Kleen also manufactures containerised treatment systems. A complete 20,000 to 40,000 litres/day system in two reinforced 20 foot ISO standard containers. Systems are fully tested before shipping - the system can be fully operational within days of delivery.

Key Operational Factors

Factor	Performance Quantities
Treatment Capacities	Range - 20,000 litres/day to 1,500,000 litres/day
Aeration Tank Volume	~ 250-300 lt/EP (i.e. ~ 250-300 lt/200 lt effluent)
Decant Volume/cycle	< 20% of maximum tank volume
Retention Time	>24 hours (typically 30+ hours)
Sludge Concentration	> 5,000 mg/litre
Power Requirements	20-150 kW, 415 V, three-phase supply.
Power Consumption (ave.)	~ 1.12 kW per 1,000 litres treated
Operating Costs @ 10c/kWh	~ \$ 0.11 per 1,000 litres treated

Design and Installation

Ideally Ozzi Kleen systems use high-strength (18mm wall) Roto-formed polyethylene tanks up to 4.5 m in diameter and with capacities up to 50,000 litres. Where these tanks are not available, reinforced concrete tanks with a steel-troweled interior finishes are used. For all installations a reinforced concrete pad is required.

Ozzi Kleen provides customised design calculations and drawings for each system, and an experienced local structural engineers are engaged for engineering calculations and detailed design. If required, construction will be undertaken by an experienced local civil engineering contractor. Every aspect of installation, including commissioning and extended testing, will be supervised by an Ozzi Kleen engineer and EcoAsia’s local partner.

Effluent Standards

Factor	Standard (Class B)	Advanced (Class A)*
BOD	< 20 mg/li	< 10 mg/li
Suspended Solids	< 30 mg/li	< 10 mg/li
Total Nitrogen	< 30 mg/li	< 5 mg/li
Total Phosphorous	< 10 mg/li	< 5 mg/li
Thermotolerant Coliform	<10 colonies/100 ml (median)	<10 colonies/100 ml (median)
Residual Chlorine	0.5 Chlorine 2.0	0.5 Chlorine 2.0

❖ Note: The Advanced Treatment system costs about 10% more than the Standard Treatment system.

Please note: Ozzi Kleen systems are designed for treating domestic waste (sewage) *not industrial waste*.

Water Reuse and Recycling

Treated wastewater is suitable for reuse directly for irrigating ornamental gardens, lawns and tree crops; it should not be used for food crops without further treatment.

Disinfection using WaterFresh's technology allows reuse for many additional purposes.

For example, for hotel and resorts, housing complexes and condominiums, after being disinfected with WaterFresh, treated water can be reused for: topping-up air conditioning cooling systems, laundries, washing vehicles and equipment, interior cleaning, flushing toilets. WaterFresh eliminates the need for chlorine use for disinfecting water in swimming pools, spas and saunas.

Water Management

EcoAsia, in collaboration with Ozzi Kleen, WaterFresh and our local partner, also offer clients assistance in identifying and implementing practical and cost-effective means for managing water demand in large complexes.

Globally, clean water is becoming more scarce and expensive, and polluted sources of surface and ground water more common. Corporate environmental policies and consumer demand require more eco-friendly approaches, including efficient management of water resources, increased reuse and recycling and sharp cuts in use of chemicals like chlorine. Green rating systems have become mandatory and influence client and consumer choices.

EcoAsia can work with your architects and engineers to design for more efficient use of available water, reduce demand on local supplies, cut chemical use and maximise water reuse and recycling. A table is attached that illustrates some of the ways these goals and how EcoAsia can assist you and your team achieve them.

Design Factors

To assist Ozzi Kleen prepare a custom design and detailed quotation for your system we need some basic technical and operational factors. These are:

Technical Factor	Response
Type of establishment (e.g. hotel, office, hospital, residential)?	
Estimated number of people using the system per day?	
Daily treatment capacity required (litres or m ³ /day)?	
Includes restaurant, if yes how many seats?	
Level of treatment – standard or advanced?	
Disposal of treated effluent (drain, recycle, irrigation)?	
Civil works by Ozzi Kleen or local company?	
Planned date for operation (month, year)?	

Once you have provided the information above please copy and paste the table into an email and send it to EcoAsia (info@ecoasia.biz) or our country or regional partner.

Potential for Reuse and Recycling

Application	Issues	Technology	Water Source	Advantages	Notes
Aircon Cooling Tower Water	Bacterial colonies, bio-films, chlorine use, large volume	WaterFresh I + basic filters	Treated STP Effluent	Elimination of bio-hazards, no chlorine, water use efficiency improvements	Some additional plumbing may be required
Large swimming pool(s)	Bacteria, rhinoviruses, chlorine use, THMs, maintenance costs	WaterFresh I + basic filters	Main supply, water recycled	Elimination of chlorine & THMs, safer swimming	Replaces traditional chlorine treatment
Private villa swimming pools	Bacteria, rhinoviruses, chlorine use, THMs, maintenance costs	WaterFresh II + basic filters	Main supply, water recycled	Elimination of chlorine & THMs, safer swimming	Replaces traditional chlorine treatment
Spas & saunas	Bacteria, rhinoviruses, chlorine use, THMs, maintenance costs	WaterFresh II + basic filters	Main supply, water recycled	Elimination of bio-hazards, no chlorine & THMs,	Replaces traditional chlorine treatment
Laundries	Water use efficiency, bio-hazards, chlorine use	WaterFresh II + basic filters	Main supply, water recycled	Reduced water demand through reuse	Requires treatment of wastewater
Vehicle & equipment washing	Run-off HC pollution, water use efficiency	WaterFresh I post-STP	Reused treated STP effluent	Reduced water demand through reuse	Requires oil-trap(s) and proper disposal
Gardens	Water use efficiency, cost	WaterFresh I post-STP	Reused treated STP effluent	Reduced water demand & costs	Provides some additional nutrients
Flushing toilets	Large volumes, once through	WaterFresh I post-STP	Reused treated STP effluent	Reduced water demand, & costs	Requires additional, separate supply pipes