

## Portable Double Clean (Above-Ground Installation)

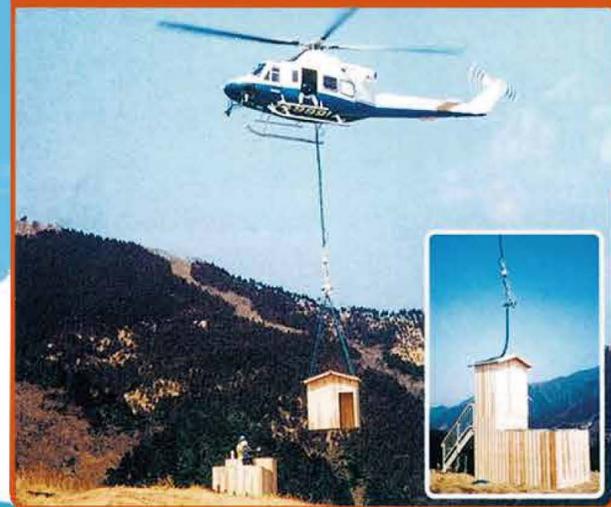
Above-ground purification apparatus: Utility model 3068334  
 Graywater treatment system: Utility model 3070308

We have developed a Double Clean that can be installed in places where excavation is difficult. Potential uses include portable toilets at mountain huts and construction sites. Use of a helicopter makes it possible to quickly and efficiently transport and install the Double Clean in mountainous areas and places vehicles cannot enter. We are confident that this will help improve work efficiency, so please do not hesitate to contact us.

### Transport by helicopter



### Drop-off by helicopter, in/out connection to toilets



### Installation



## Power Supply System for Portable Double Clean (Above-Ground Installation)

### Supplying the necessary electricity is easy even in mountainous areas.

We have focused on ensuring power for mountainous and remote areas, a long-held concern. This led to the completion of a Double Clean power supply system utilizing a generator based on an LPG-fueled engine developed by Daihatsu Motor Co., Ltd. (Daihatsu DM Series). As the LPG engine makes this system compact and quiet, it enables easy and inexpensive access to power even in previously unreachable mountainous and remote areas.



## DOUBLE CLEAN

Wastewater Recycling Equipment Graywater & Recycling

### Installation Examples

(1985~)

(Homes, offices, restaurants, economic agricultural cooperatives, public toilets, etc.)



Home use



JA country elevator [Type 15] (Fukushima Pref.)



Temple [Type 20] (Yamagata Pref.)



Public toilets for water environment improvement project [Type 25] (Kagoshima Pref.)



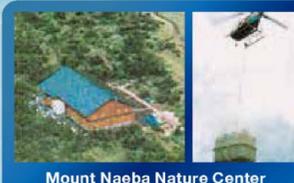
Log House Restaurant [Type 25]



Bansho Park public toilets [Type 40] (Kagoshima Pref.)



Japanese restaurant [Type 50]



Mount Naeba Nature Center [Type 50] (Nagano Pref.)



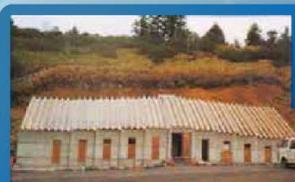
Arayu public toilets [Type 50] (Tochigi Pref.)



Waterfowl Observation Center [Type 50] (Hokkaido)



Nozoriko, Kunimura [Type 75] (Gunma Pref.)



Public toilets in Manza, Tsumagoi [150 Type] (Gunma Pref.)



Large drive-in [Type 200]

\*Beware imitation products.

Distributor Lifeline company since 1986

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# DOUBLE CLEAN

Wastewater Recycling Equipment  
 Graywater & Recycling



## Underground Double Clean

Flush toilets cannot be installed in areas such as those with no septic tank output or sewerage facilities, those where pollution to public water such as rivers, lakes, the sea, water for farming, etc. is a concern or mountainous areas with limited water, so some of these areas still rely on primitive pit toilets or simple flushing with a cup of water. Double Clean is a non-discharge (closed-loop) system that adds tertiary to quinary cleaning to conventional septic tank treatment and after-treatment of toilet water (BOD 13,000 ppm), purifying it to BOD 5 ppm or less and recycling it to be used for flushing.

## Portable/Above-Ground Double Clean

This type is installed in places where excavation is difficult (rocky areas, mountains, summits, etc.). It is protected against external pressure and low temperatures and fully compatible with exterior decoration and transport methods. Potential uses include portable toilets at mountain huts, river terraces, above-ground construction sites and national parks and installation is the only work required.

## Variant Double Clean

This product was designed by combining our system with conventional household septic tank expertise to process household wastewater into reusable water. In addition to toilet water, this recycled water can be used to water flowers, trees and gardens, prevent fires and as an emergency water source. It recycles this resource without waste.

Double Clean is a rigorous treatment system (BOD 5 ppm or less) that recycles wastewater as toilet water without discharge, allowing usage of flush toilets in any location. It carefully protects our living environments and natural habitats from sewage pollution.

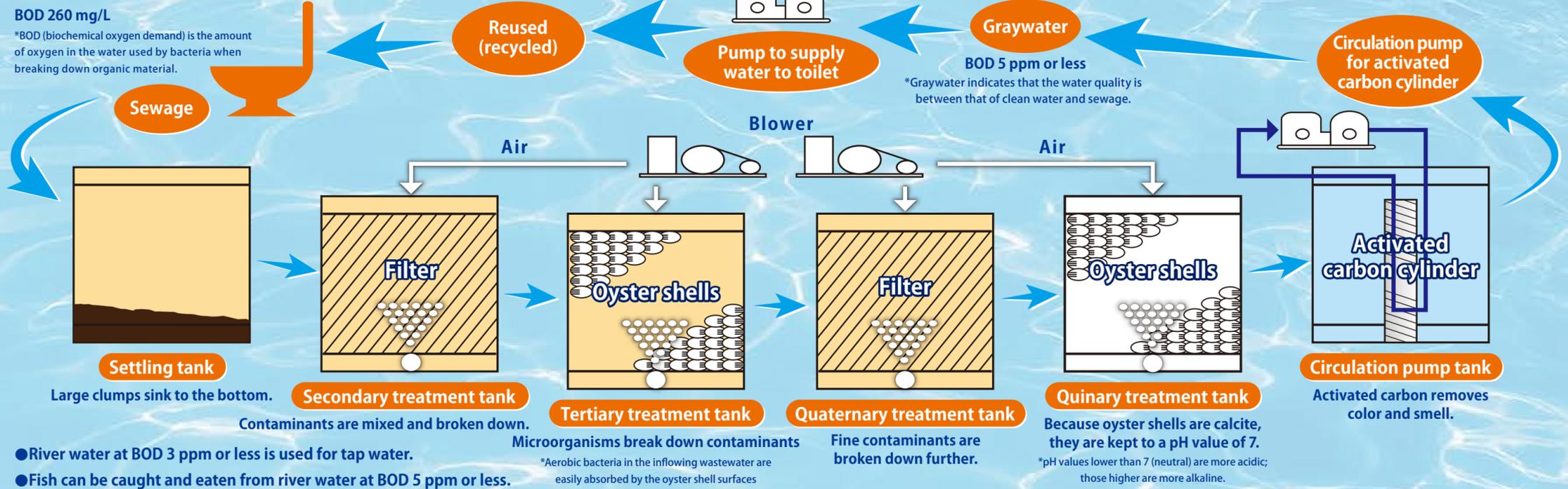
Double Clean is a non-discharge wastewater recycling system. It can flush toilets even in places with no sewer or other output.

## Double Clean Wastewater Recycling System Diagram (Underground/Portable)

The distinguishing feature of this toilet is that it purifies wastewater into reusable water in a closed loop (without discharge), meaning that it protects water resources and is environmentally friendly. Clean (freshly supplied) water is used for hand-washing (and can also be reused.) \*Miscellaneous wastewater is processed separately.

### Oyster shells for water purification

Oyster shells are incredible effective at purifying water, removing 90% or more of BOD, around 90% of COD and 95% or more of SS. Coliform bacteria in the inflowing water is adsorbed onto the surface of the oyster shells, greatly improving hygiene, and it is this property of oyster shells that Double Clean utilizes to produce recycled water with BOD 5 ppm.



## Double Clean Features

### Saves energy

Reusing the treated water makes daily water supply unnecessary. Furthermore, collection is only required about once a year.

### BOD 5 ppm or less

Double Clean adds bio (anaerobic/aerobic properties) to toilet water, purifies it further in an aeration chamber and, with a convection chamber and adsorption unit, produces reusable water with BOD 5 ppm or less.

### Secures water sources and environments

A flush toilet uses about 50 liters of water per person per day. Reusing this water protects water resources and not discharging it protects the environment.

### Non-discharge

Since the treated water is reused without being discharged, flush toilets can be installed even in places with no sewers or outputs.

### Commercial use

We offer a variety of products ranging from household (small) to commercial (large) use.

### Clean

The treated water is rigorously purified (BOD 5 ppm or less) with no trace of smell or color, keeping the flush toilet clean and fresh.

### Expansion/remodeling

Occupying only about 3.3 m<sup>2</sup> of household space, our products can be installed not only during new construction but also expansion and remodeling.

## Double Clean Wastewater Recycling Equipment

The portable version can be installed in the following locations:

- Places where below ground is impossible
- Rocky areas and other places with limiting or bad conditions
- Rest stops on hiking trails (mountain roads)
- Public toilets on river terraces (movable at a moment's notice if water rises)
- Park campgrounds in the spring, summer and fall, then moved to ski resorts in the winter

It can be used for portable toilets on construction sites – regardless of the length of the term, it can be installed in locations with no discharge outputs.

- When installed in a place where extraction treatment by a vacuum truck is not possible, the settling tank can be detached and transported away for processing.
- Treatment equipment can be prepared for a range of applications from a single person to various tank needs.

We can prepare an environmentally-friendly generator for places without electricity. The generator engine uses natural gas/LPG. Solar and wind power can also be added.

- High altitude installations can be done by helicopter.
- The exterior walls of the above-ground Double Clean are made of natural wood but can be designed according to your artistic preferences. Designs that match the natural environment of the site are also possible. In addition, specifications according to the local region can be finished by local industry.

## Specifications

### Specifications (for WK-5, 50 Hz)

	Capacity /material	Equipment specifications
Capacity	First tank	2.5m <sup>3</sup>
	Second tank	2.5m <sup>3</sup>
Material	Main body	FRP
	Manhole	PP composite
	Main body piping	VP
Equipment	Water supply pump	N3-135(0.13KW)
	Activated carbon cylinder pump	C3-135(0.13KW)
	Blower	LP-40(0.4KW)
	Blower	LP-80(0.85KW)

### Recycled water for business use m<sup>3</sup>/day (processing capacity)

Type	Processing capacity
WK-15	0.95m <sup>3</sup> /day
WK-20	1.10m <sup>3</sup> /day
WK-25	1.25m <sup>3</sup> /day
WK-30	1.50m <sup>3</sup> /day
WK-40	2.00m <sup>3</sup> /day
WK-50	2.50m <sup>3</sup> /day
WK-75	3.75m <sup>3</sup> /day
WK-100	5.00m <sup>3</sup> /day
WK-150	7.50m <sup>3</sup> /day
WK-200	10.0m <sup>3</sup> /day

### For commercial use

The amount of water used varies depending on the purpose – ground plan, cross-section, type of business, number of visitors, number of employees, business hours, etc. Please consult with us during planning.

### Recycling equipment

Calculations and/or reservoir size may vary depending on the building purpose or recycling purpose. Please consult with us during planning.

### When applying

Type of collection for non-discharge (closed loop) human waste recycling equipment

### Comprehensive after-sales service

Double Clean will provide comprehensive service, from sales to installation to maintenance, in partnership with trusted local dealers.