



Side Event at the 7th World Water Forum
Solution for water challenges of non-urban area
with simple and low-cost technologies
(SE0089)
11:20 - 13:20, 15 April 2015, Teague



Solution for waste-water treatment with Bio Mesh and for drinking-water with Wakishimizu

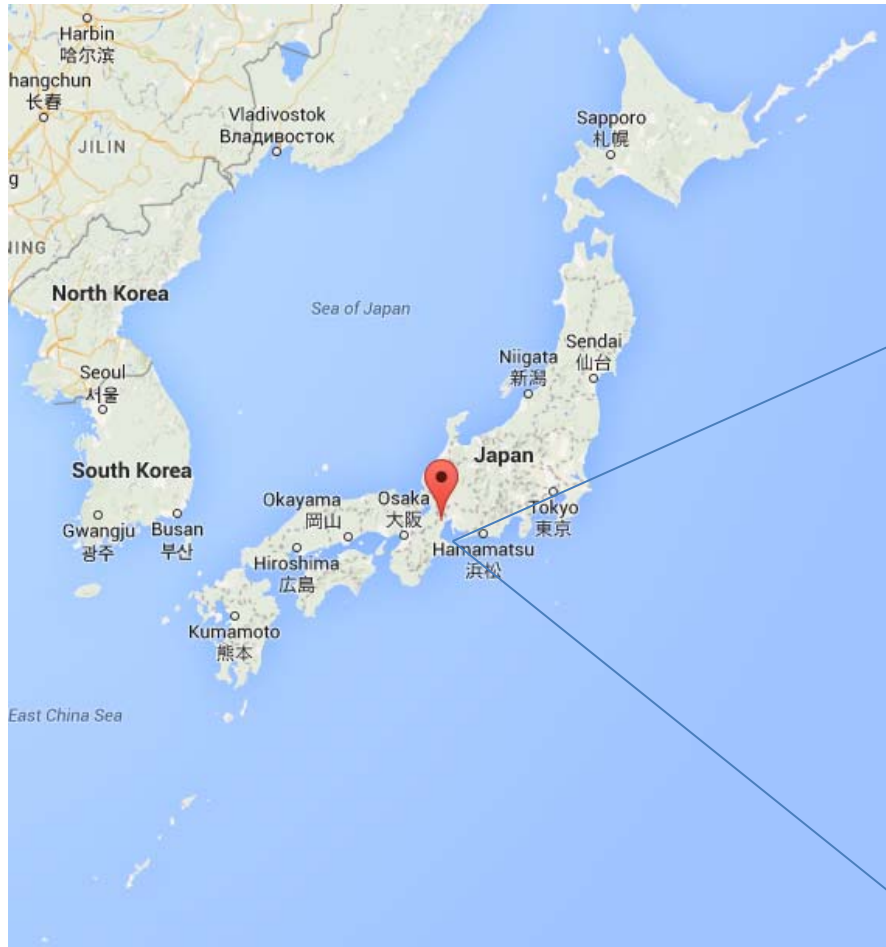
Katsumi Iida, Kassui Plant Co.Ltd.Japan

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Where we are?

Yokkaichi-city, MIE, Japan

About 40km from Nagoya

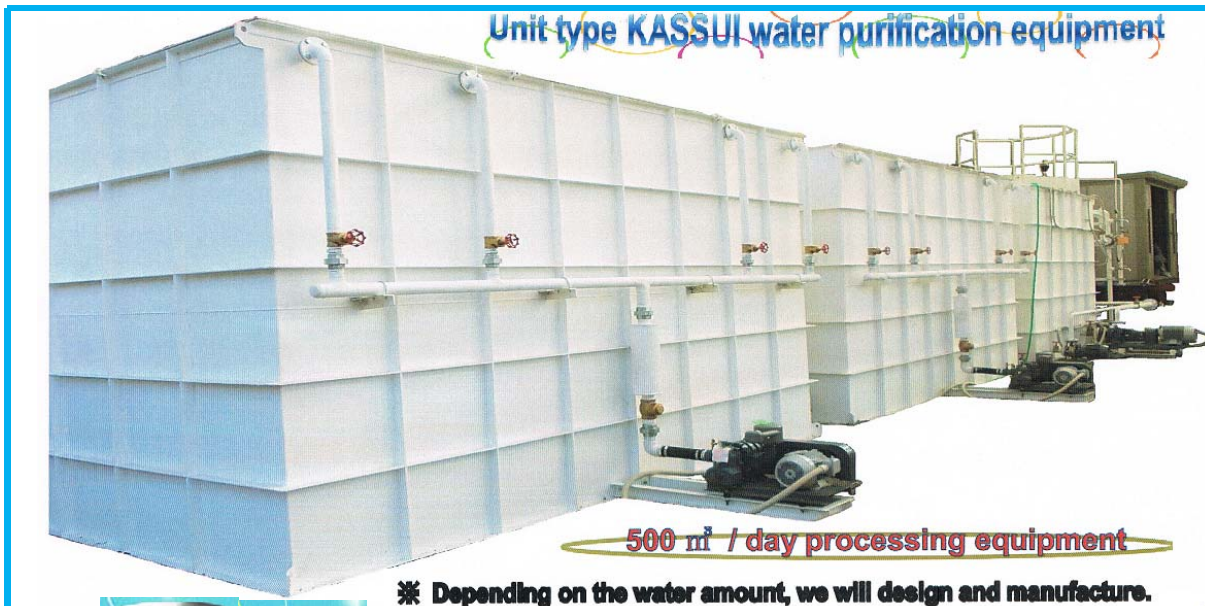


Since 1973

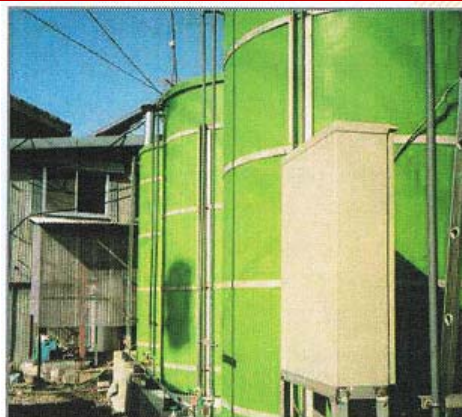
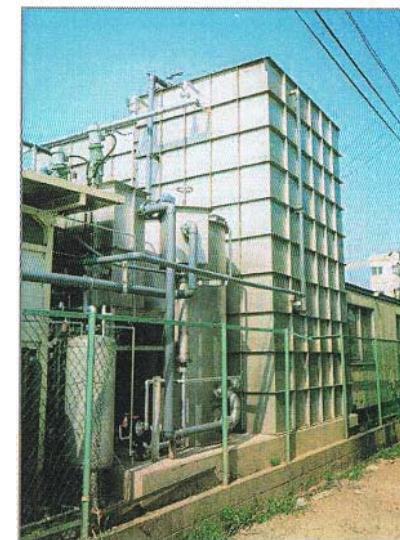
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Our products

drinking-Water



waste-water



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Harnett filter bed decomposes BOD and nitrate

Harnett Filter Bed

- Bamboo suspension type and surfacing type filter bed made from flat retiform tubes formed with thin polyethylene resin wire.
- The dimensions can be freely selected from standard width (W) 60-100cm and length (L) according to the depth of the processing tank.
- Because it is a hanging method and a float type, it is possible to set it up even if the water -lined.



Features

1. There is adhesiveness of a moderate biological slime.
2. The specific surface area and the void ratio are large.
3. There are no filter bed blockages, and the water pass resistance is little.
4. Flotage acquisition performance is high.
5. Hazardous substances are not eluted.
6. Contacting efficiency is good because of the water current's swinging effect.
7. Abrasion of the waste sludge is uniform and constant.
8. Improvements to existing tanks can be easily made.

Intended purpose

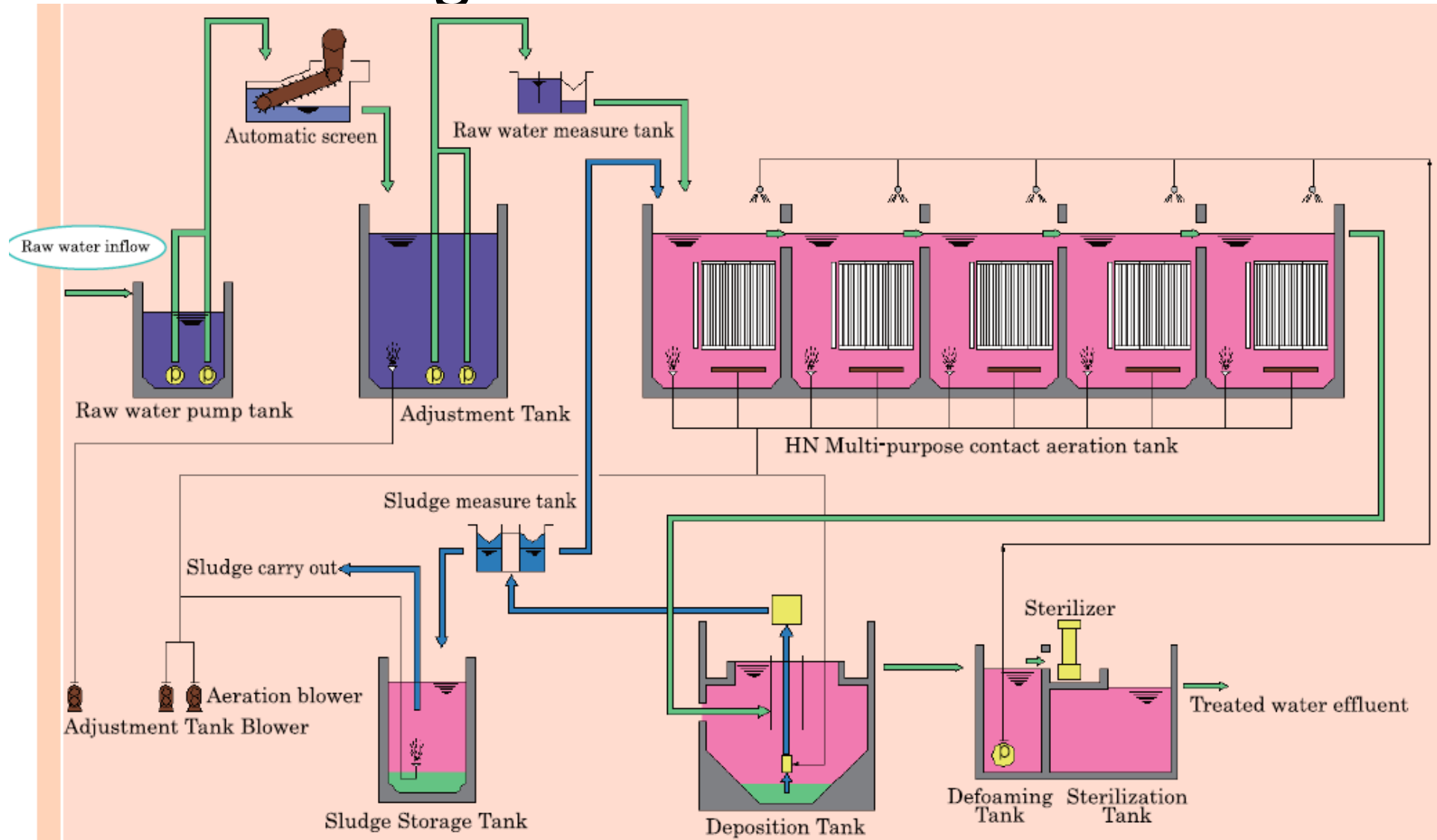
1. Secondary and tertiary treatment of industrial by-products and living drainage.
2. For the treatment of waterworks and drainage.
3. For the preprocessing of various rainwater
4. For the purification of lakes, marshes and rivers.
5. For the rectification net of the precipitation tank.
6. For the filling material of water-cooling.
7. For exhaust gas and malodor treatment.

useful for industrial and domestic waste-water treatment in low cost

waste-water

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Flow diagram of Harnett Multi-tank



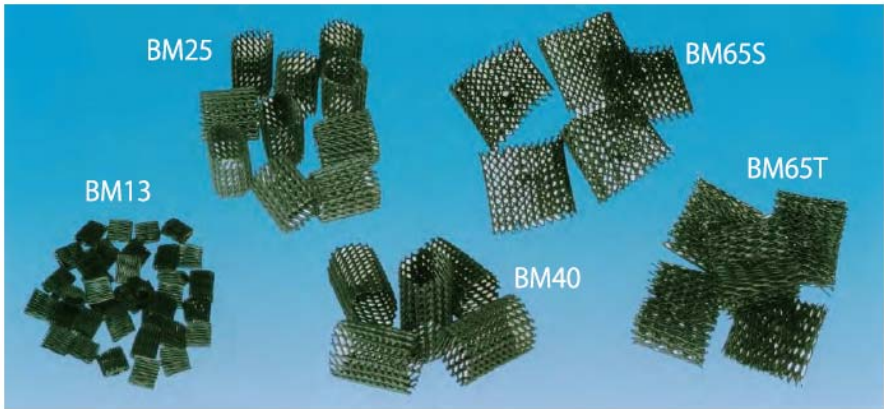
Surplus sludge generation is minimum with this system

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Bio-mesh creating contact filter-bed with low-cost

Biotechnology Mesh
Filling material for high performance sewer water treatment

- The concept of current waste water treatment is being greatly changed with "Biotechnology mesh"
- The contact filter bed is completed merely by pumping it to the processing tank at random with a netlike object
- Because the touch area is large, and turbulent flow comes in contact, the processing performance is outstanding.



Features

1. There is adhesiveness of a moderate biological slime.
2. The specific surface area and the void ratio are large.
3. The water pass resistance is a little.
4. Flotage acquisition performance is high.
5. There is no large specific gravity with water, and large loads are not generated in the aquatic structure or the bottom of the tank.
6. Low cost

Specifications	Product number	Dimensions (mm)	Quantity (number/m ³)	Proportional area (m ² /m ³)	Void ration (%)	Material
	BM13	13 × 18	300,000	1,000	80	
	BM25	25 × 35	33,000	160	90	
	BM40	40 × 60	10,000	90	95	
	BM65S	65 × 65 × 10	27,000	250	92	
	BM65T	65 × 65 × 30	10,000	450	94	

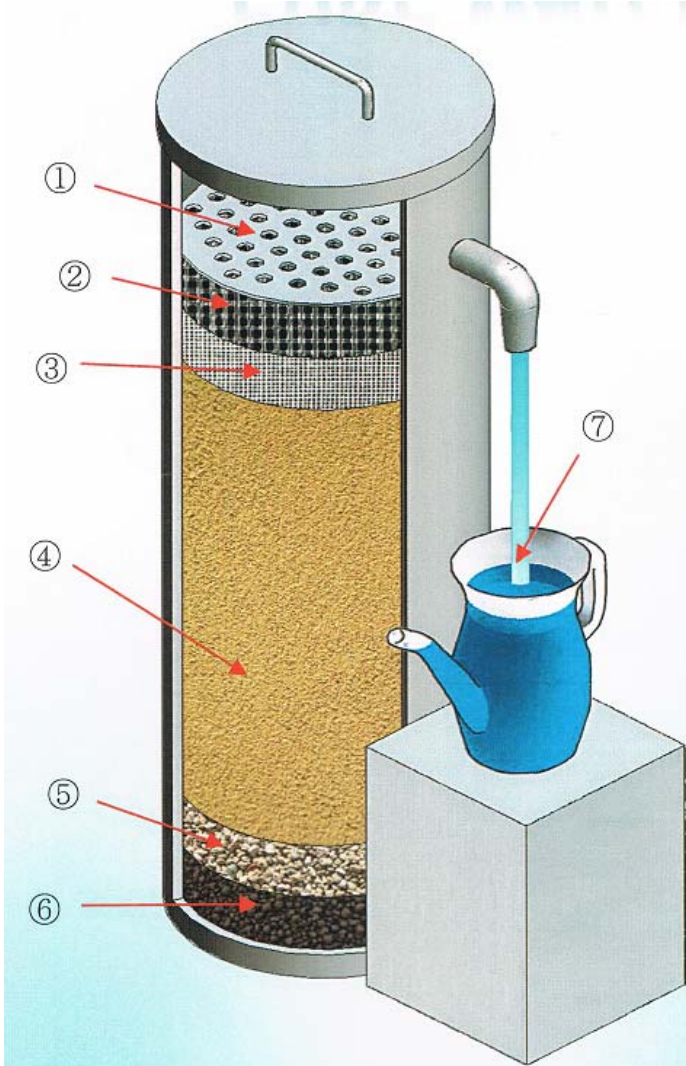
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Our advantages are obvious

Harnett multi-tank dip filter bed contact method	Comparisons	Standard activated sludge process
0.8 ~ 2.0kg/ m ³ · day Good BOD capacity load with small processing tank.	BOD capacity load	0.4 ~ 0.8kg/ m ³ · day The processing tank is large.
Approx. 20,000mg / Large treatment capacity.	Sludge density	2,500 ~ 6,000mg/ Small treatment capacity.
Number PPM of BOD can always be achieved The COD removal ability is outstanding. Tertiary treatment is possible.	Density of treated water	Under BOD20PPM is difficult. The removal of COD is inferior. Tertiary treatment is impossible.
State variation does not occur with a little oil, and is treatable.	Oil processing	If oil mixes, changes in state occur, and recovery takes time.
Flotage is caught.	SS Removal	Flotage is not caught
Deposition is good. Deposition tanks are small.	Deposition of polluted sludge	Deposition is bad. Deposition tanks are large.
The degree of clarification is outstanding.	Treat water clarification level	Degree of clarification is inferior. When sludge leaks, it becomes brownish red.
1-3% of the BOD removal amount · Expenditure is less than 1/10.	Amount of waste sludge	20% of the BOD removal amount · sludge treatment expenditure is high.
Cushioning properties are good. · Absorbency is good.	Load change temperature change	Cushioning properties are inferior · the balance goes out of order.
Many types of multicellular organisms and bacilli. The main types of organisms differ according to each tank.	Types of microorganisms	Mainly bacilli Each tank has the same organisms.
Does not occur.	Bulking phenomenon	Occurs frequently.
Not required.	Return sludge	Required.
Can easily be conducted by expanding the aerating.	Expansion	Cannot be conducted easily.
4-10%	Aeration efficiency	3-5%
Microorganisms that correspond to the amount of aeration proliferate naturally.	Overaeration phenomenon	The sedimentation property of dirt worsens.
Seasonal changes do not occur easily.	Operation condition	Changes occur easily at the turn of the season.

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WAKISHIMIZU(spring water) combines various purification systems



- ① Diffuser panel
I distributed spread the raw water was poured into the processing tank entire surface
- ② Bio-processing layer
Organic matter, ammonia, removal of pathogens
- ③ Heavy metal adsorption layer
Metal ion adsorption treatment
- ④ Fine particle layer
Odor, suspended solids, organic matter, bacteria, removal of pathogens
- ⑤ Redox potential layer
By the generation of weak alkaline negative ion water by special filter media, you will delicious mellow water.
- ⑥ Support catchment filter bed layer
Equally I catchment treated water from the filtration surface
- ⑦ PURE WATER drinking water

Two types of WAKISHIMIZU plant



- WAKISHIMIZU(spring water) produces natural purification system
- Provide natural water, which contains a lot of minerals
- By self-cleaning, exchange of filter media is not required
- Simple and low-price

Thank you for your attention

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