



S-Pipe Exhaust Heat Recovery Facility

EcoMerit

Energy conservation that gets results

—— System for heat recovery from unclean warm drainage ——

Makes heat recovery from warm drainage possible.

Thoroughly reducing energy consumption and costs for any kind of warm drainage.

Energy Conservation
Power Conservation
Cost Reduction

Makes heat recovery from cool drainage – which conventionally was just disposed – possible.

High durability

The equipment is made of durable materials, has excellent chemical and heat resistivities, and is built to last.

High efficient

Exhaust heat recovery efficiency is maintained as there are no clogs due to impurities in the drainage.

Easy cleaning
Maintenance-free

The facility is always open, so that even during operation, it can be cleaned with a specialty brush.

Quality control

Using this facility simplifies quantitative measurement of volume and temperature of cleaning water.

Cooler drainage, at temperatures below 60°C,
can also be used effectively.

Significant energy conservation and cost performance.

The exhaust heat recovery facility?

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If hot water is used in manufacturing, the drainage temperature will also be high.

Tossing drainage while its temperature is high is the same as throwing away energy.

If there are temperature restrictions for the biological treatment tank or local regulations, the water must be diluted with cool water.

The exhaust heat recovery facility captures heat from drainage and distributes it to pure water, thereby reducing boiler gas consumption and dilution water.

Conventional exhaust heat recovery facility

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Plate-type

- Heat exchange efficiency: About 80% (initial)
- The heat transfer area can be adjusted by adjusting the number of plates.
- Space-saving

Multi-pipe facility

- Heat exchange efficiency: About 75%
- The heat transfer area is fixed
- Installable in the middle of piping.

Each contributes to the excellent heat exchange efficiency.

However, if the drainage is dirty, the pipes can become clogged, so they have to be taken apart and cleaned. (Operation must be shut down.)

We looked at that problem, and tried to come up with a design that would handle impurities well and allow for easy maintenance. We came up with the S-Pipe Exhaust Heat Recovery Facility “EcoMerit”.

The feature of the S-Pipe Exhaust Heat Recovery facility "EcoMerit".

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- Enables heat recovery from warm drainage that normally would be disposed
- Capable of maintenance
- High durability
- Choice of either neo-rubber or SUS for housing material



The specification of the S-Pipe Exhaust Heat Recovery facility "EcoMerit".

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Durable space-saving box type

Made of the neo lumber (synthetic resin)



Perfect for industries which must maintain suitable appearance

Stainless



Material (Box body) Made of the neo lumber (synthetic resin) or SUS / (S-shaped pipe) Made of SUS304 - thickness 0.3t

Size [Made of the neo lumber] W2,350×D610×H780mm / [Made of SUS] W1,820×D625×H1,000mm

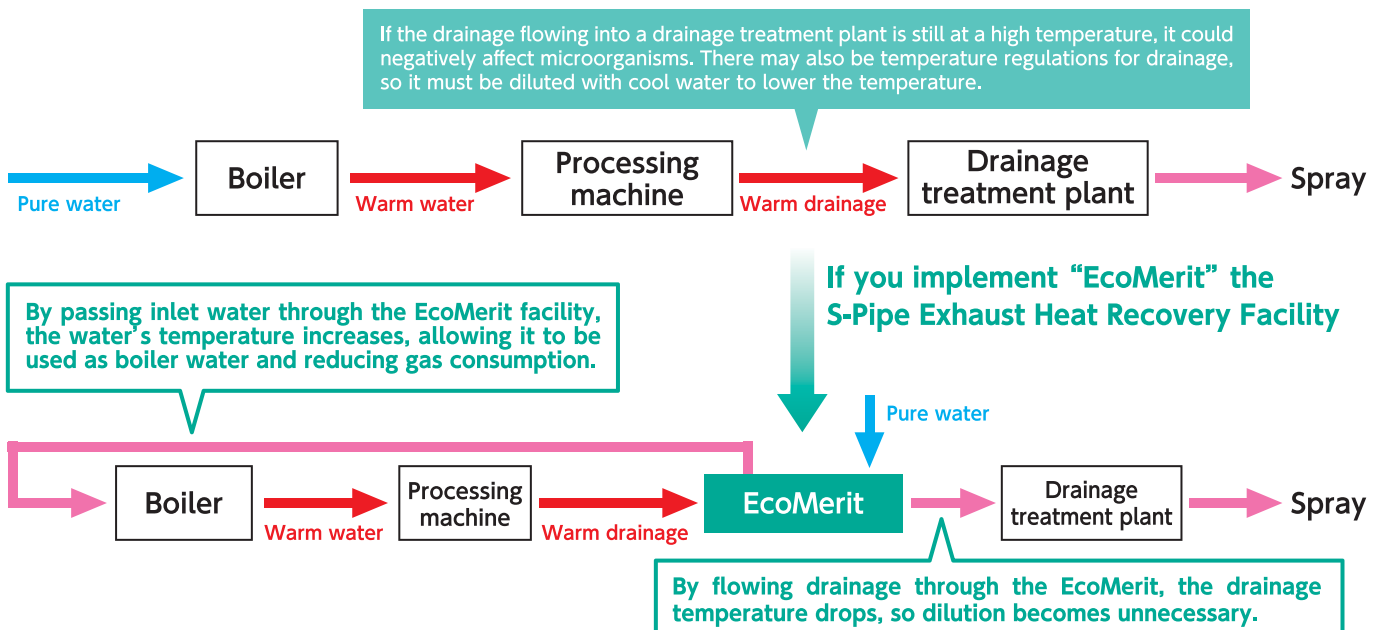
The heat transfer area 17.7m² **The biggest temperature of drainage** 90°C (Made of the neo lumber)

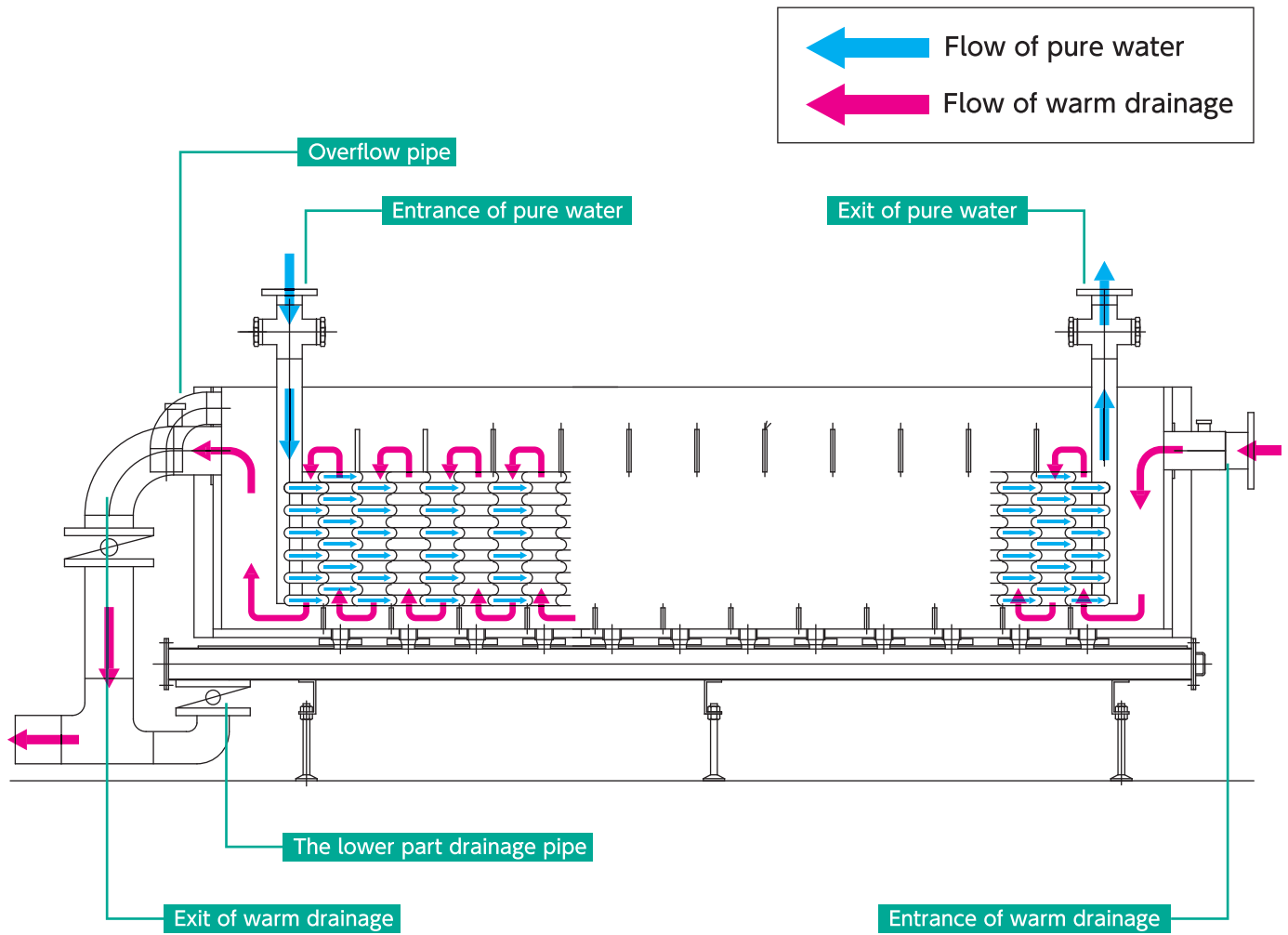
Allowable flow 10m³ /h in both water supply and drainage **Water supply pressure** below 2kg/cm²

Motor power is unnecessary (A pump may be necessary at longer distances)

Simplified Flow Diagram

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Maintenance method

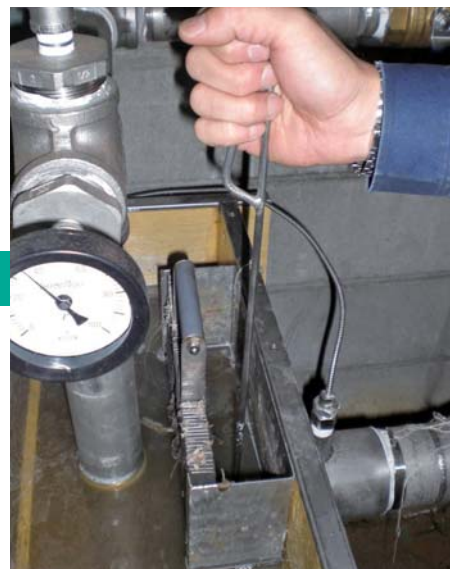
Frequency of maintenance depends on how dirty the drainage is, but brush cleaning at least once a week will sufficiently maintain performance.

Also, at least once a month, the drainage should be drained from the tub and the equipment cleaned with the attached nozzle gun.

Specialty brush



Dust Extractor



Comparison with Conventional Exhaust Heat Recovery Facilities

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		The S-Pipe Exhaust Heat Recovery Facility "EcoMerit"		Multitubular heat exchanger	Plate-type heat exchanger
		One	Two series		
Exchange amount of heat(kcal/h)		140,000	280,000	360,000	280,000
Heat-transfer area(m ²)		17.7	35.4	30	27.32
The amount of heat exchanged per square meter(kcal/m ² h)		8,200		12,000	10,250
Design heat exchange efficiency(%)		56	68	75	87.5
Maintenance procedure	Daily	Brush cleaning of in-operation heat exchanger		Backwash during operation (automatic) every hour, 3 minutes each time Stop heat exchange	Backwash during operation (automatic) every hour, 3 minutes each time Stop heat exchange
	Regular	Unnecessary		Shutdown chemical cleaning once every 3 months (4 hours each time)	Shutdown chemical cleaning once every 2 months (6 hours each time)

Main Industries and Uses

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Type of Industry	Primary Uses	Impurities present in wastewater
Dye industry	L box Drainage Refining machine Drainage	Sizing agents Lint
Linen industry	Continuous washing machine Drainage	Lint
Food industry	Noodle boiling machine Drainage Drinking water maker	Starches, etc. Pomace, etc.

Implementation Examples

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Linen Industry

Pure water temperature	24℃→40℃
Drainage temperature	52℃→40℃
Amount of water (supply and drainage)	8t/h
Heat captured	128,000kcal/h
Annual savings	2,770,000 yen

(Annual operating time is 2520 hours. Gas unit price is calculated at 80 yen / m³)



Dye Industry

Pure water temperature	13℃→35℃
Drainage temperature	50℃→28℃
Amount of water (supply and drainage)	5t/h
Heat captured	110,000kcal/h
Annual savings	2,540,000 yen

(Annual operating time is 2520 hours. Gas unit price is calculated at 80 yen/m³)





Ordinary construction business license No. 133142 received from the Prefectural Governor of Osaka

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