OMPEC

(The Organic Magnetic Pyrolysis Energy Conversion device)

The **only device approved by the Japanese Government** as an organic magnetic pyrolysis waste processing system that achieves fully autonomous operation using its own power generation.

18 November 2022

Bharat **J**apan **B**usiness **S**upport **I**nstitute Co., Ltd.

on behalf of

A · T Communications, Inc.

Most powerful combination

Magnetic Pyrolysis Technology + Stirling Engines

AT Stirling Engine

The Organic magnetic pyrolysis device is equipped with a "**Stirling engine**" that generates **electricity** using exhaust heat developed through the waste pyrolysis process.

Running cost → Almost “0”

only for initial ignition and simple maintenance

Heat

OMPEC

AT Stirling Engine

Electricity

1KW/h generation

0.6KW/h

Required electricity to run OMPEC

0.4KW/h ⇨ used for another purpose

Rest of the electricity

Max power generation capability

OMPEC can attach up to 2 AT Stirling Engines

used for another purpose

0.6KW/h

1KW/h

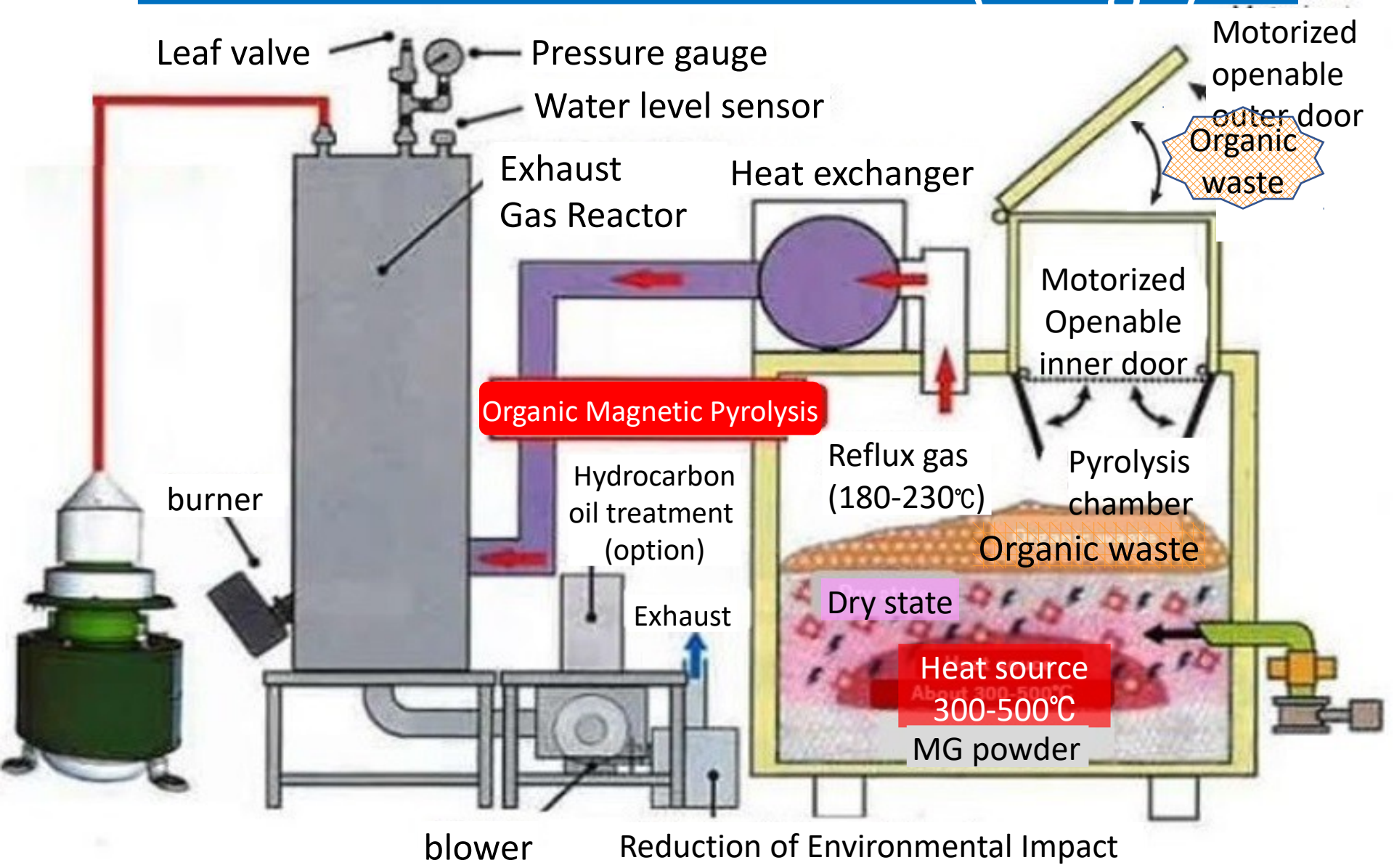
1KW/h

0.4KW/h

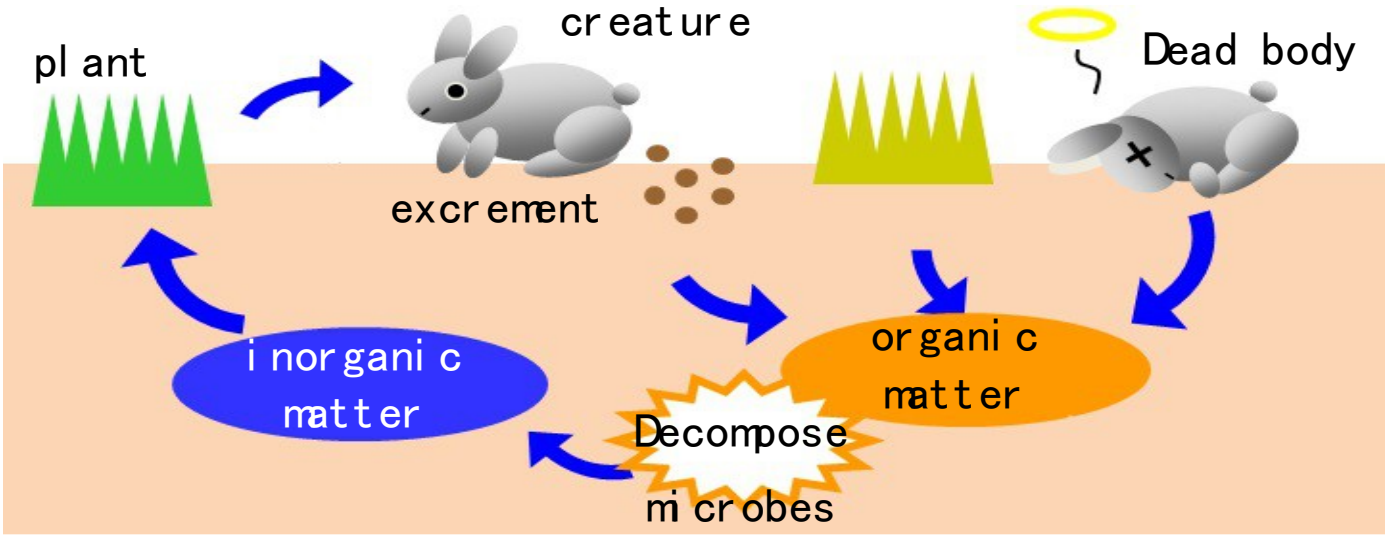
Maximum

1.4KW/h

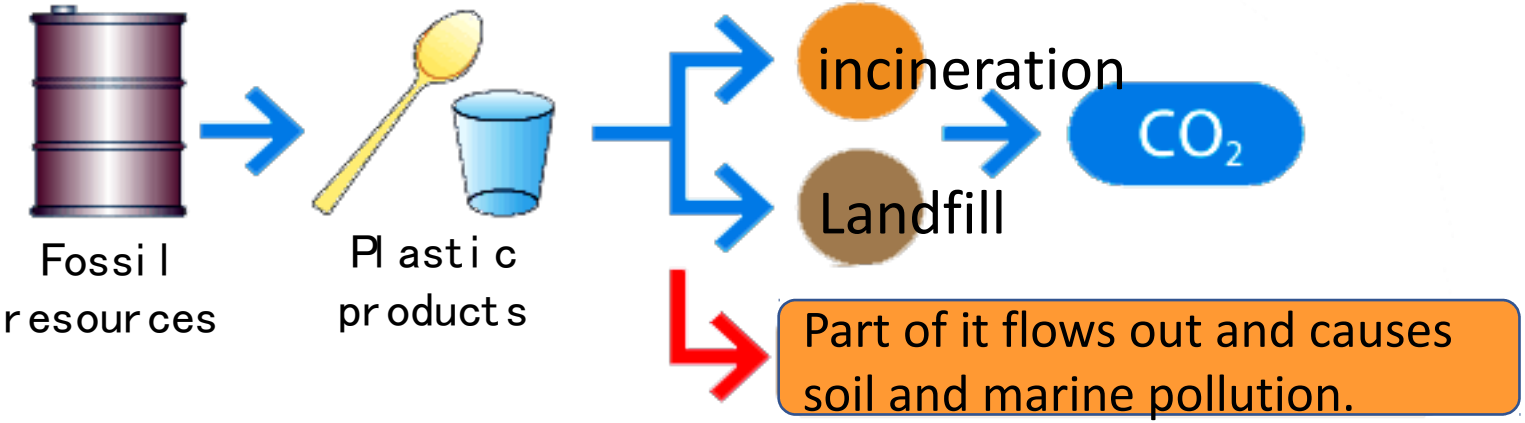
Structure of the device (image)



In the natural world, microbes decompose organic matter for natural circulation.



Industrial products such as plastics cannot be decomposed by microbes. Thus, those products remain uncirculated in the natural world which cause emissions of greenhouse gases such as CO_2.



The only technology in Japan that can completely decompose organic substances into inorganic substances.

Any waste can be thrown in without segregation

- Plastic materials
- Plastic bottles
- Styrene foam
- Medical wastes
- Corrugated board
- Solar panels
- Food waste

The processing capacity
5 m³ (5tons) per day.

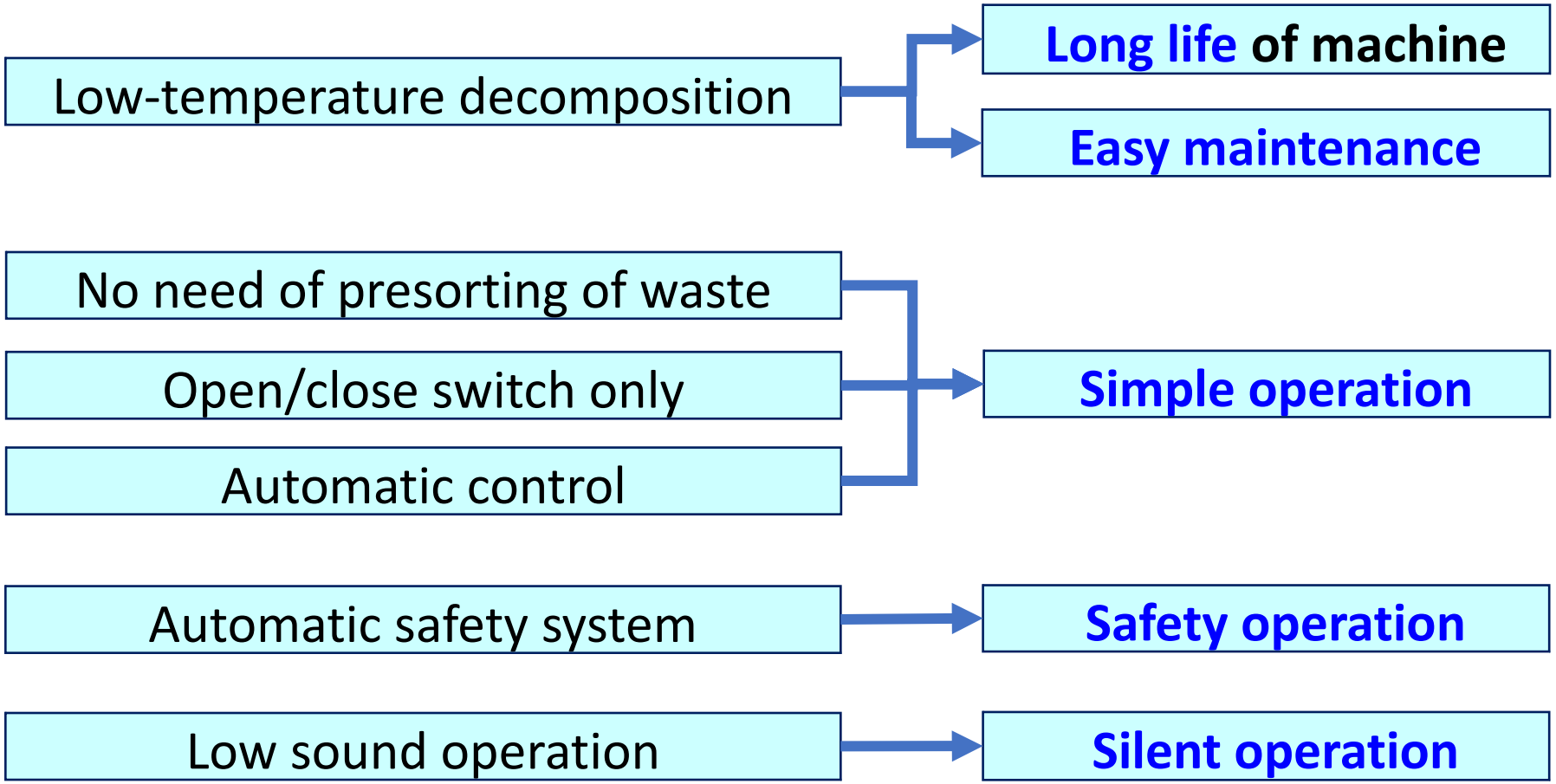
Back to nature

$\frac{1}{300}$

Harmless powder

- Back to nature
- Resource Recycling

Easy and Safety handling of OMPEC

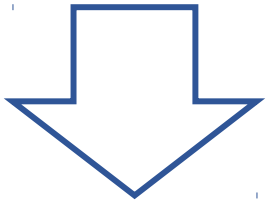


Usefulness of multi-purpose operation

Enterprise	Cardboard, Paper, Dried livestock manure, Dried food waste, Construction waste
Wood	Waste lumber, Dried pruning wood, Dead wood, Sawdust
Agriculture	Rice husk, Straw, Agricultural Polyethylene,
Chemistry	Pet bottle, Vinyl, Plastic, Artificial fibers, Paper diapers, etc. (excluding vinyl chloride)
Remarks	If the water content exceeds **30%**, the waste need to dry or mix with other dried materials.

Disposal of **solar panels** (1 day process)

Mechanical principals



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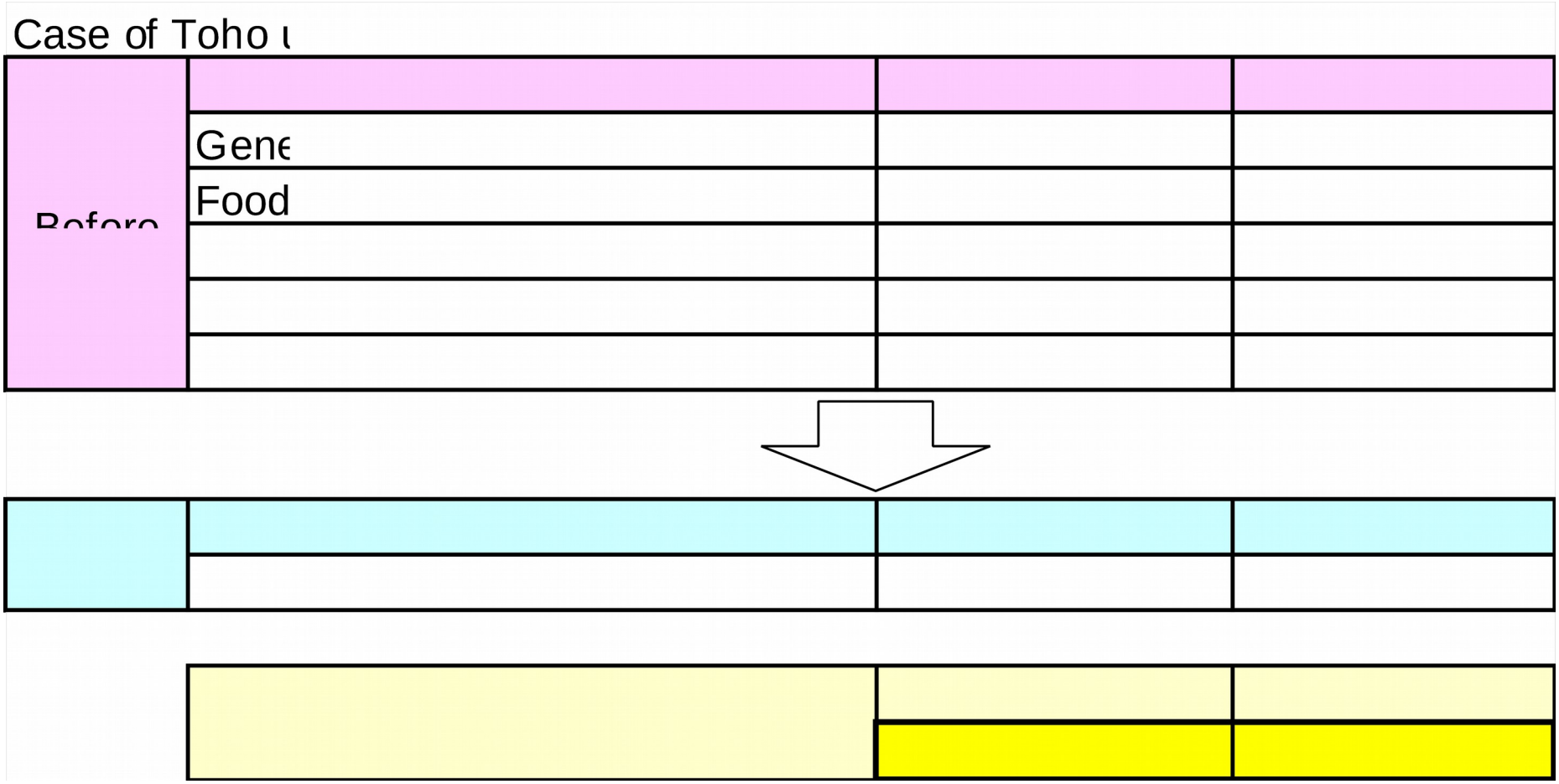
https://logoq.co.jp/rdg/sej/enqr/

Installation records
(Some examples in Japan)

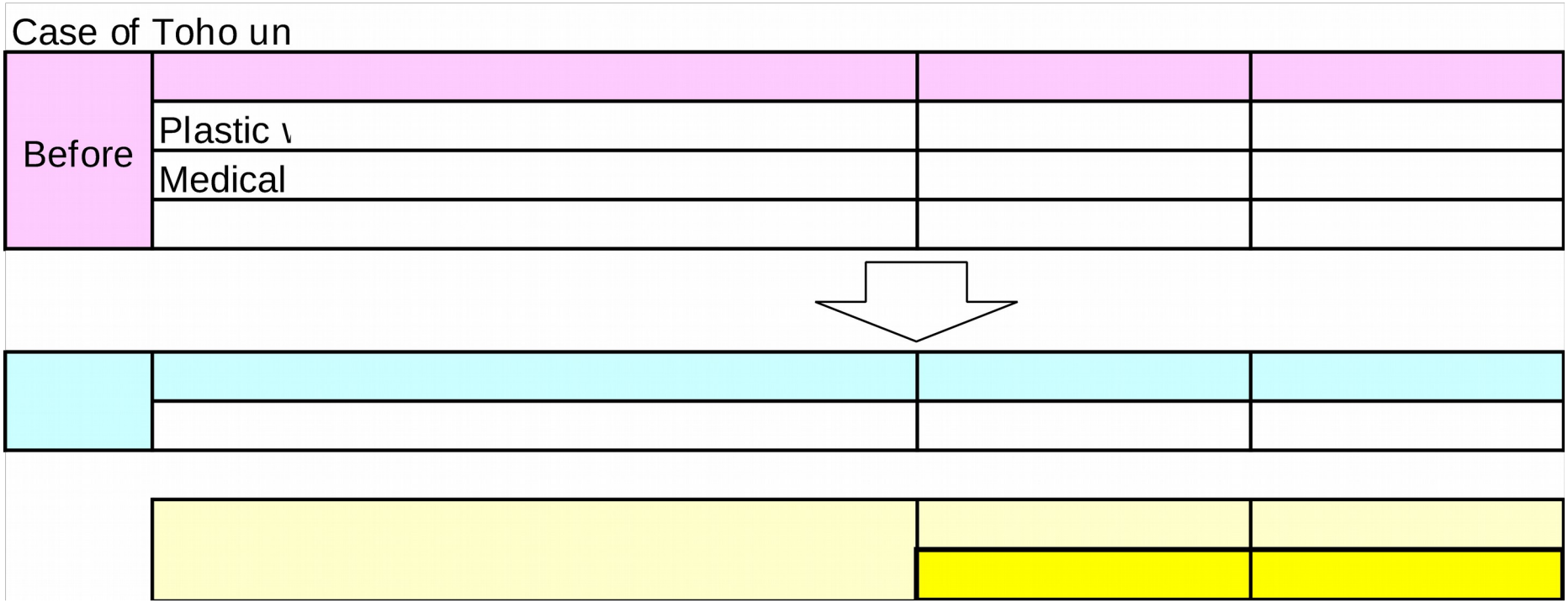
Example 1 Installation on Tokunoshim island in Japan

The first such installed device in Japan has been operating in Tokunoshima for the past **15 years** and is still in operation, thus contributing to the environmental protection of the island with its rich nature.

Example 2 Medical waste treatment (Toho university)



Example 3 Medical waste treatment (Toho university)



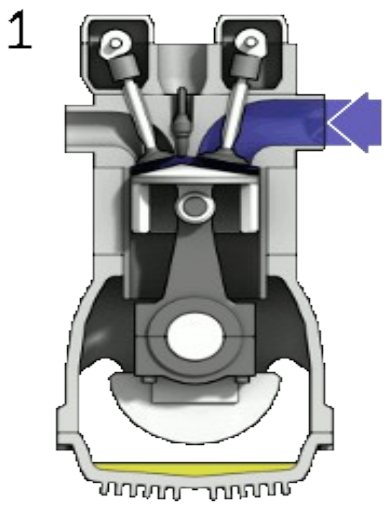
AT Stirling Engine

AT Stirling engine is the **only one in the world** that has two functions of **power generation** and **cooling**.

Internal combustion engine vs Stirling Engine

Internal combustion engine

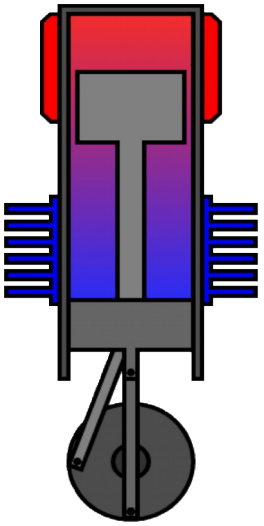
Explode the fuel in the cylinder to move the piston→need fuel



- High cost performance
- Powerful
- Explosion and exhaust gas
- Need lubricant

Sterling engine

The difference of temperature between outside and inside of the cylinder moves the piston → no fuel is required



- No explosion during operation
- No exhaust of freon gas
- No need of lubricant
- Cheap running cost

Two function of this sterling engine

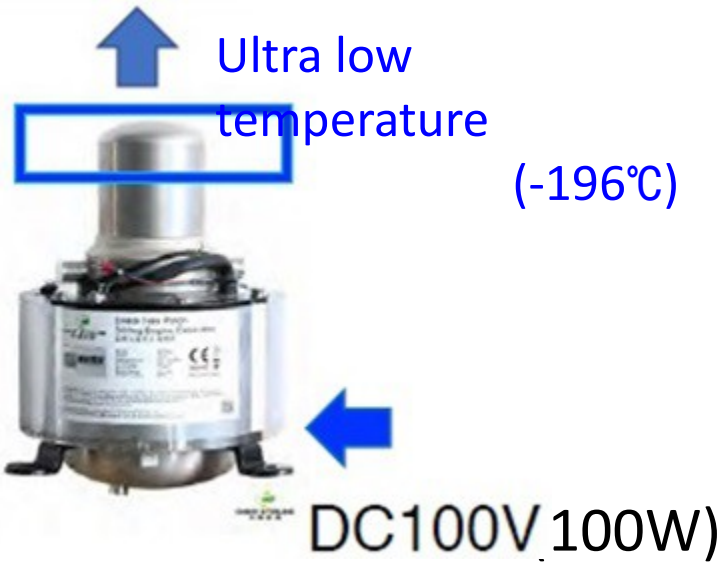
Power generation function

Generate electric power by heating the engine head

Sterling engine is
- able to utilize all heating sources
- able to use for air conditioning

Cooling function

Inject electricity to cool the engine head



Sterling engine is
- able to achieve cryogenic temperatures
- excellent maintainability and robustness.

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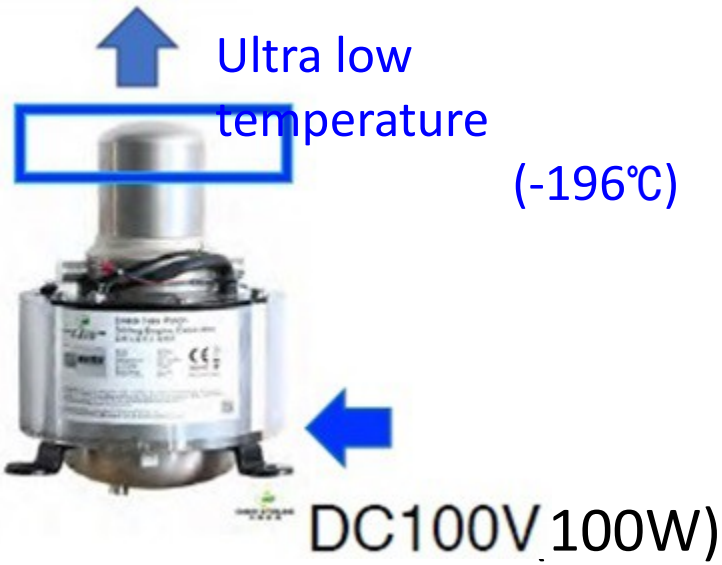

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- able to achieve cryogenic temperatures
- excellent maintainability and robustness.

Huge business opportunities

Multi purpose cooling box

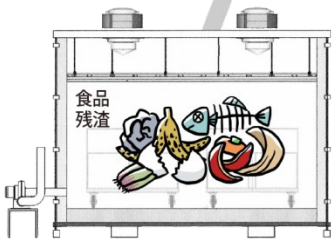
Cryogenic for quantum computer, semiconductor

AT Stirling Engine

Ultra low temperature cooling box (less than -80℃)

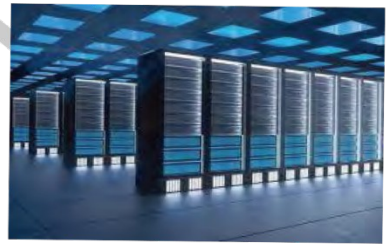
Cooling for CPU, ECU, battery of EV

Power generation for waste treatment device



Flush freezing

Stable cooling of dry containers



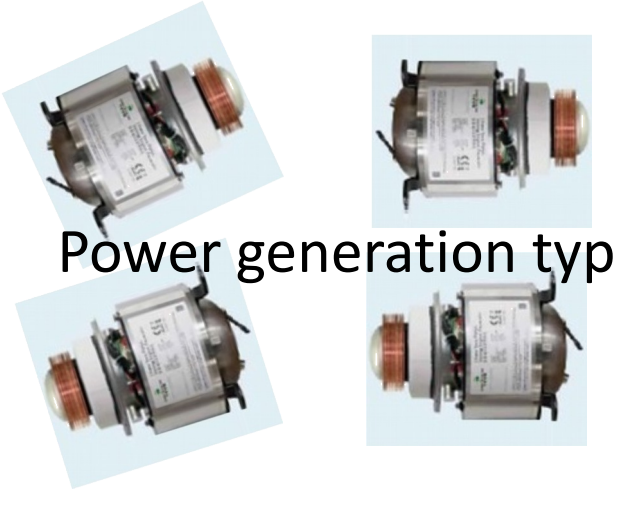
Server computer cooling

Flexibility of operation

AT Stirling Engine can be operated in any angle

Cooling type

Power generation type



Thank you!