

Company name : Toyobo Engineering Co., Ltd. Representative name: Daiichiro Maeda/Mr.

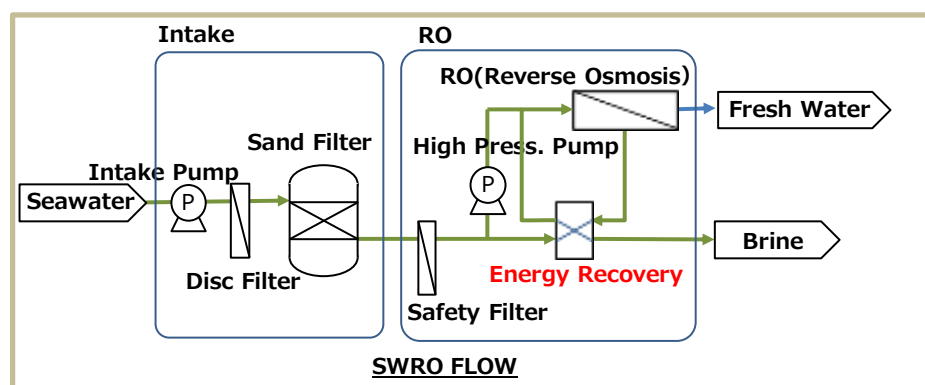
Business Field: Water Treatment

Area of Specialty: Seawater Desalination, Waste water Treatment

Technology / Product / Service PR Item No.1

【Category/name】Hollow Fiber RO Seawater Desalination System・Solar Power SWRO

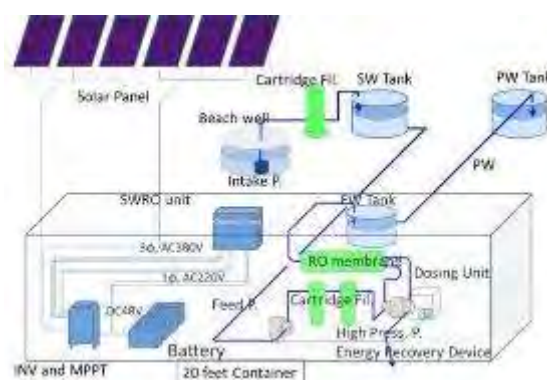
【Characteristics, performance and applicable areas】 Fresh water is obtained by permeating seawater fed with high pressure through Toyobo's unique (only one producer) Hollow Fiber Reverse Osmosis Membrane, "HOLLOSEP®" (Fig(below right)). The Membrane has superior chlorine tolerance and this characteristic achieves, preventing biological fouling, stable operation, and low production cost (low chemical cleaning and material cost, long membrane life, and low energy consumption with Energy recovery (Fig(below left)).



【Other Appeal Points】

We provide this system with Solar power to isolated islands with no electrical infrastructure. With introduction of this system, domestic/portable water can be self-supporting and the system also improves residents' health and living environment.

Using natural energy contributes to preventing global warming with decreasing greenhouse gas emission.



【Types of businesses interested in Indonesia in the future】

- A: Export and sale of products B: Local manufacturing of products (at its own factory, factory of cooperating company or other)
C: Seeking business partners for technical matters, etc. (including joint research)
D: Seeking information sources (local business coordinator/advisor) E: Other (description required)

【Detailed description of business expecting to the potentials in Indonesia】

- We make basic design, do engineering and technology support, and supplying main equipment.
- Other than our scope, such as other equipment procurement, civil/installation/mechanic/piping/electrical works etc., are conducted by local companies.

【Business type/line of company/organization that are targeted as possible business partner(s)】

- Proceed Joint R & D and its dissemination activity with Research Institute.
- Construction is done with local EPC/Engineering companies. Local company is main contractor and we do engineering and technology support and supplying main equipment.

【Record of Installation / Actual Performance】 (Use Application) Industrial water, Domestic water, Drinking water

【In Japan】 Many, Ex: Water to Power plant on sea shore **【Overseas】** Many in Middle East, Thailand

Technology / Product / Service PR Item No.2

【Category / name】(Applied to Livestock Farm) High-organic Wastewater Treatment System

【Characteristics, performance and applicable areas】

More than 10 systems are running in Japanese Livestock farms to recover fresh water from waste water Double pass RO system realizes up to 99.5% removal of total dissolved solid (TDS) including phosphorus, nitrogen, organic matter and chromaticity.

"HOLLOSEP®", Toyobo's RO membranes are adopted in this system which does NOT require chemical cleaning thanks to chlorine sterilization.

Example of Water Quality Measurements

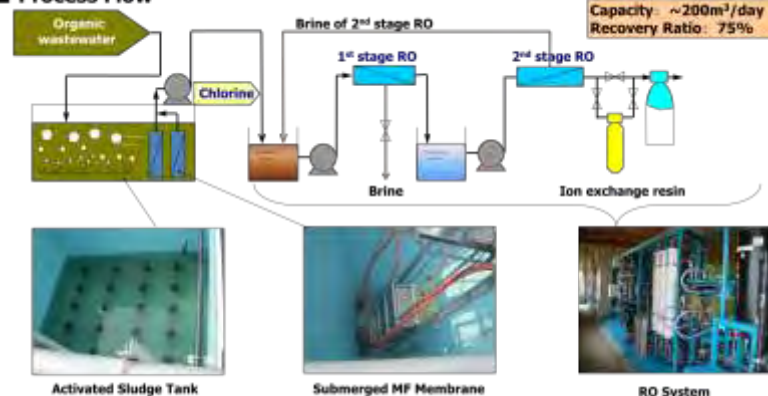


Water Quality	Unit	After 4 yrs. 9 mos. running	
		MBR treated (Feed water)	Product Water
Chromaticity	deg.	502	1
T-Nitrogen	mg/L	74.1	0.71
T-Phosphorus	mg/L	29.3	0.06
COD(Mn)	mg/L	177	1

【Other Appeal Points】

Decrease polluted water, and contribute environmental improvement, and moreover save water by recycling.

■ Process Flow



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【Detailed description of business expecting to the potentials in Indonesia】

- We make basic design, do engineering and technology support, and supplying main equipment.
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【Business type/line of company/organization that are targeted as possible business partner(s)】

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- Construction is done with local EPC/Engineering companies. Local company is main contractor and we do engineering and technology support and supplying main equipment.

【Record of Installation / Actual Performance】 (Use Application) Waste water recycling for Livestock Farm

【In Japan】 Many records in north-east Japan

【Overseas】 None

Main proprietary patents

Main awards received None

Other Special Mentions

- In progress of Discussion of Solar Power SWRO Joint R & D with BPPT.
- Started Promotion of Hollow Fiber RO Seawater Desalination System in 2013.

Company Profile

Company name(in English): Toyobo Engineering Co., Ltd. (in Japanese): 東洋紡エンジニアリング株式会社

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Tel: +81 (6) 6348-3935

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Email: Transmission can be sent by making inquiries with the website.

Whether direct contacts from Indonesian companies can be made or not:

Tel : Yes (language to be used Japanese • English • Bahasa Indonesia • Other(specify)) • ☒ No

Mail ☒ Yes (language to be used ☒ Japanese • ☒ English • Bahasa Indonesia • Other(specify)) • No

Department

New Business Project

(Title) Leader

(Name) Yoshinari Ohira / Mr.

to contact

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Business activities that have been conducted in Indonesia:

(Launching Date: Aug 2015) Preparing for sales

A: Export and sale of products B: Local manufacturing of products(at its own factory, factory of cooperating company or other)

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☒ D: Seeking an information source (local business coordinator/advisor) E: Other (description required)

Space for describing other business: