ECOCO CO.,LTD.

ECOCO BROCHURE

Ecoco will be Making Clear and Clean world.

Always thinking of environment

Creative Competitive Enterprise

Challenge

Challenge with courage
and creativity

Team work

Collaborate and rely on living

Ingrity

Basic attitude for customer
satisfaction

Innovation

Innovation is a cornerstone
for success

“We promise **clearer** and **cleaner environment** of World to you ”

How are you? This is Park, Myung-Ha,
CEO of ECOCO who wants to make our company as the most competitive one in the world, pioneering by creativity.

In order to make clear and clean environment since establishment as green specialized company, we have developed equipment discharging upper clear water (decanter) for which KT, NEP and patent was obtained, and installed in wastewater and sewage disposal plant domestically, of which excellent effectiveness has been achieved up to now. We have also developed water-bloom preventive equipment using sunlight (ECOCO) for which we obtained patent and green technology certification, and we are trying our best to prevent water-bloom and bad smell in lake or reservoir, etc., and protect our environment.
We will carry out our role as nature keeper with determination of “watching like tiger and walking like cow” in order for you to rest comfortably in beautiful nature.
We promise you that we will be growing to be a company that always gives value to you, and wish happiness to all of your company and home.

Thank you.

Representative Director
Park, Myung-Ha

CERTIFICATES


Water circulation device being applied to park & lake


Agitator for the treatment of water


Discharge pipe of supernatant


Discharge pipe of supernatant


Sampling system for checking water quality

USA patent registration certificate


water plant removal boats


Registered utility model for the fire-fighting machine


Japan patent registration certificate


China patent registration certificate


ECOCO trademark registration

CERTIFICATES


Green technology -specialized company


Green technology certification


New technology certification (NET)


Performance certification

Performance certification


Safety health system


Company affiliated laboratory


Venture company certificate


New product certification (New Excellent Product)


Quality management system certificate (ISO 9001)


Environment managemen system certificate (ISO 14001)


Maintenance qualification company certificate in by Korea South-East Power Co., Ltd.

CERTIFICATES


Minister of Science, ICT and Future Planning


Minister of Gender Equality and Family


Minister of Trade, Industry and Energy


Chief Procurement Officer


Excellent Women n Gyeonggi Province


Minister of Small Venture Business

HISTORY

2018
- 5 Awarded by Minister of Small and Medium Venture Enterprise
- 2 Hwaseong city women businessmen council chairperson elected

2017
- 12 Gyeonggi Province Excellent Women Company Award (Technology Innovation Division)
- 8 Patent registration of aquatic plant removal device (2 cases)
- 4 Recertification of venture business

2016
- 12 Received a commendation from Minister of Science, ICT and Future Planning
- 11 Nominated as development selected product of belt conveyor COAL CLEANER
- 5 Registered USA patent (US9, 260, 331 B2)
- 2 Selected as water plant removal system, National Benefits Promotion Technology Development Project of Ministry of Trade, Industry and Energy

2015
- 9 Developed a belt conveyor COAL CLEANER (coal disposal system) for Korea south-East Power Co., Ltd.
- 6 Received the grand prize for Korea Environment, Energy from Minister of Environment (Technology sector)

2014
- 12 Received an award for a good institution for the promotion of coaching culture
- 11 Received the grand prize at World Women's Invention Contests
- 5 Registered 'Water circulation device being applied to park & lake', China patent ZL 20108B0023655.0

2013
- 12 Registered Water circulation device being applied to park & lake', Japan patent No.5377761
- 12 Established ECOCO Co., Ltd, affiliated laboratory
- 11 Joongang Ilbo(Daily Newspaper) report (May 14, 2013)
- 4 Venture company confirmation no. 20130103120

2012
- 12 Received a commendation from Minister of knowledge Economy
- 7 Confirmed as green technology-specialized company
- 2 Water circulation device being applied to park & lake PCT/KR2012/001129

2011
- 7 Registered patent of water circulation device being applied to park & lake
- 5 Registered patent of agitator for the treatment of water

2010
- 7 Changed SM Tech Co., Ltd to ECOCO Co., Ltd.
- 6 Registered patent of water circulation device for the prevention of green algae using Sunlight
- 5 Certified as maintenance qualification company for Korea South-East Power, East-West Power, Central power, West power, South power plant
- 4 Registered trademark of ECOCO
- 2 Selected as vice-chairman of Korea Women Venture Association corporation

HISTORY

2009
10 Received an award of eco-friendly businessman for CITI-KOSBI
9 Applied patent (Water circulation device for the prevention of green algae using sunlight)

2008
12 Selected as Green Technology Certification
10 Technology support project (Water circulation device for the prevention of green algae using Sunlight) of Korea Parts Material Industry Promotion Institute
9 Technology Innovation Development Project (Discharger of supernatant using air pressure)
4 Recognized as research and development dedicated department

2007
9 Received a commendation from commissioner of Korean Intellectual Patent Office
5 Performance Certification from Small and Medium Business Administration
1 Confirmed as parts material-specialized company

2006
9 Selected as promising small and medium company in Gyeonggi-do Province
2 Succeeded in Technology Innovation Development Project

2005
11 Received a commendation from Minister of Trade, Industry and energy at promotion contests for new technology commercialization of Ministry of Trade, Industry and Energy
8 Received a commendation for excellent women venture businessperson from Minister of Gender Equality and Family
7 Registered patent a discharge pipe manufacturing method & discharge pipe of supernatant
1 Moved to a constructed factory

2004
4 Selected as Technology Innovation Development Company of Small and Medium Business Administration

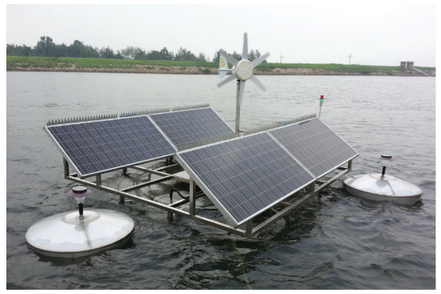
2003
12 Excellent Environment Facilities Quality Certification (EEC)
8 Received a commendation for an excellent venture businessperson from Administrator of Small and Medium Business Administration

2002
11 Registered patent of Diaphragm Decanter
3 Venture company confirmation
1 Selected as Good Product from Public Procurement Service
1 Increased capital to 300 million won(Korean currency)

2001
9 Obtained ISO certificate
9 Obtained KT mark (Supernatant discharge device using Diaphragm of bioliogical reactor)
9 Installed LG Construction's Noksan waste water disposal plant, Decanter
1 Applied Diaphragm Decanter patent

2000
10 Inaugurated Park Myung Ha as representative director
7 Established MS Tech Co., Ltd.

CONTENTS



ECOCO SOLUTION

Water plant removal boats

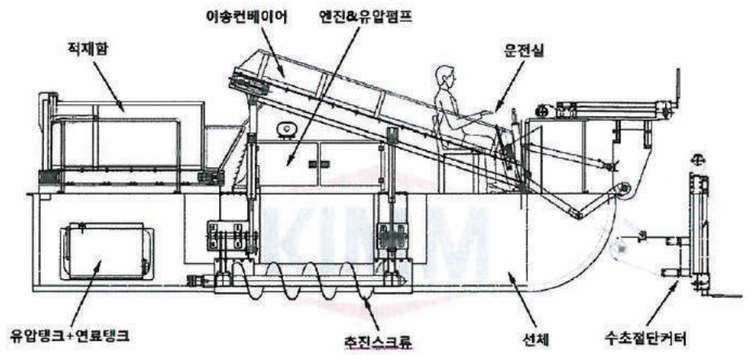
First, ECOCO will tell you about
the Clear Water of your dreams.

Summary of product

- The water removal line has been developed for the purpose of safely removing water and floating water from a lake or a reservoir, transportable equipment

Feature of product

- The hull size of the aqueduct removing line is 6,620mm in length, 2,335mm in width and 2,490mm in height. It is composed of hull, weeding cutter, conveying conveyor, loading box, propulsion screw, etc. Hydraulic drive method is applied by 75 hp class engine and hydraulic pump
- The weed removal line is moved by the propulsion force of the helical propulsion screw installed on both sides of the hull part and is moved at a sufficient speed
- The conveying conveyor is a device that feeds a few seconds cut by a water cutting cutter at the front of the water removing line to the loading tray at the rear



Application example of a water plant removal boat


Chungnam Seungyeon 2 Reservoir


Wando, Jeonnam


Gyeonggi-do Sindea reservoir


Cheongna Lake Park Incheon

Specifications of water plant removal boat

Product name	ECOCO 17		
Ship size	LENGTH	6620mm	
	WIDTH	2300mm	When loading a vehicle
	EXPAND WIDTH	3200mm	When expanding the propeller
	HEIGHT	2490mm	
	HULL SIZE	6000Lx2200Bx1000H	
Ship Weight	TOTAL WEIGHT	4500kg	
	LOADING WEIGHT	3200kg	
Propulsion speed		50m/min	
Diesel engine specification	POWER	75HP (55.9KW)	IVECO8045.05
	STATER VOLT	12V	
	FUEL & TANK	DIESEL 80LT	
Hydraulic device	Hydraulic pump (4EA)	MAX.180kg/cm²	
	Hydraulic tank	120 LT(ISO VG 46)	
Water transfer ability	Conveyor	min.1㎥/hr (8㎥/day)	
Water plant tank	Load capacity	1.5㎥	
Cutting method	Barricade type	Cutting width 1900mm	
Cutting ability		1.5㎥/min	
ETC	Safety equipment: drainage pump, fire extinguisher, life buoy, life jacket, anchor, etc.		

Specifications of water plant removal boat pontoon type

Product name	ECOCO P17		
PONTOON Size	LENGTH	4m	
	WIDTH	3m	
	HEIGHT	1.2m	
	사용푼툰	500x500x400H_48EA	
Propulsion speed		30m/min	
Diesel engine specification	POWER	4.8HP (3.6KW)	
	STATER VOLT	AC 220V	
	FUEL	DIESEL	
Hydraulic device	Hydraulic pump	MAX.180kg/cm²	
	Hydraulic tank	60 LT	
Outboard	HONDA BF4.5BK2	4.5HP	
Cutting method	Barricade type	Cutting width 1900mm	
Cutting ability		1.5㎥/min	
ETC	Safety equipment: drainage pump, fire extinguisher, life buoy, life jacket etc.		

Major performance

Date	Company	Business name
2017.05	Incheon Metropolitan City Facilities Management Corporation	2017 Cheongna Lake Park water plant removal service
2017.09	Suwon City Hall	Removal of aquatic plants at Shinda Reservoir
2017.11	Korea Rural Community Corporation Jeonnam Regional Headquarters	Pilot project for the removal of Wando water plant
2017.11	Korea Rural Community Corporation Chungnam Regional Headquarters	Removal of aquatic plants from reservoir No. 2

ECOCO SOLUTION

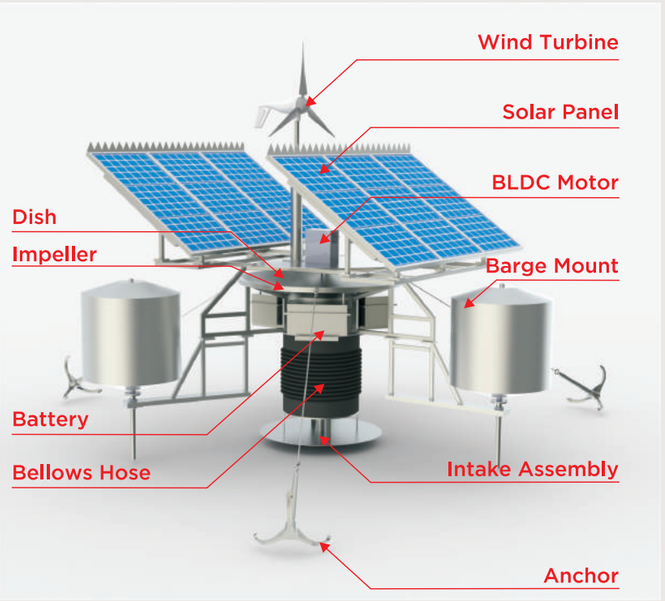
Water circulation device

for the prevention of green algae using sunlight

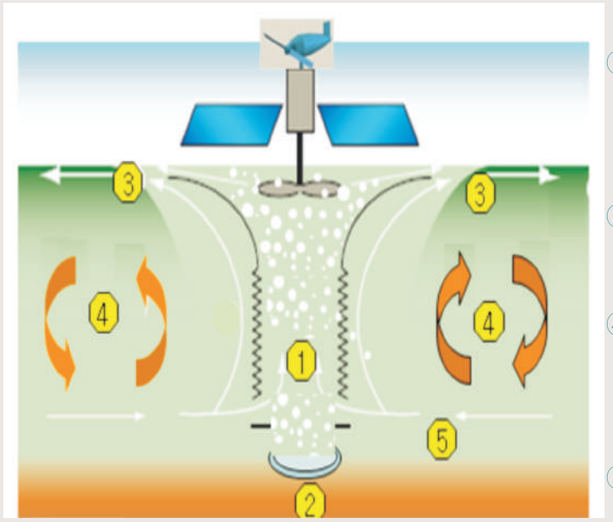
First, ECOCO will tell you about
the Clear Water of your dreams.

Structure of ECOCO

Item	Standard and Form		
Form	Floating type water circulation system using sunlight (barge type)		
Standard	Ø4200㎜		
Direct flow rate	12㎥/min		
Circulation diameter	460M		
Circulation area	170,000㎡		
Item	**Standard**	**Quality of material**	**Standard**
Solar Module	205W		6/unit
Battery	200AH		6/unit
Motor	BLDC 200W		1/unit
Impeller	Ø700㎜	STS304	1/unit
Barge Mount	Ø850㎜	STS304	3/unit
Dish	3t * Ø1900㎜	STS304	1/unit
Flexible bellows pipe	Ø800㎜	tarpaulin	1/unit
Blower	30L/min		1/unit
Controller	MPPT Type		1/unit
wind power	300W		1/unit



Principle of operation of ECOCO



ECOCO (0.3kW, 13m3/min) Aeration + forced convection

① Main Flow

- Generation of flow, 10~12㎥/min by dish and impeller

② Aeration

- Provides oxygen to bottom layer water with no oxygen
- Maximizing rate of utilization of dissolved oxygen

③ Horizontal Mixing

- Maximizing effectiveness of conveying surface oxygen

④ Vertical Mixing

- Induces mixing and circulation of water with oxygen and water with no oxygen
- Mixing of cold water and medium-temperature water (destruction of stratification)

⑤ Horizontal Mixing

- Inflow of bottom layer water with on oxygen
- Inflow of water with oxygen by circulation

Specification of ECOCO

			
Product name	MS-ES6000	MS-ESP6000	MS-EE6000
Operating time	24 hours in a row	24 hours in a row	24 hours in a row
Power	Solar 250W X 6EA	Solar 200W X 4EA	Electric power
	Wind power 300W		
Condenser	200AH X 6EA	200AH X3EA	N/A
Material	STS304	STS304	STS304
Motor	200W BLDC	200W BLDC	200W BLDC
AIR	30W Diffused	30W Diffused	30W Diffused
Direct rate of discharge	15㎥/min	12㎥/min	12㎥/min
Circulation area	192000㎡	170000㎡	170000㎡
Circulation diameter	500m	460m	460m

As a technology for water circulation device generating convection of lake water & expansion mixing by supplying bottom water to water surface through induction pipe using sunlight, this technology is used for the device improving the water quality by inhibiting algal growth and raising the self-purification capacity of water quality through the improvement of underwater dissolved oxygen since stratification is destroyed by the mixing of low temperature water and middle temperature water and oxygen is provided by HiOx diffuser, which enables the mixing of oxygen water and non-oxygen water to occur.

Efficacy of Product

Improve water quality

Increase the concentration of the dissolved oxygen of bottom water Inhibit the algal growth by the increase of critical water depth

Prevent algae

Perishment of algae & improvement of the ecological environment pursuant to the environment destruction of algal survival by water circulation.
Inhibit algal generation pursuant to the temperature control of water surface caused by an up-and-down circulation of water.

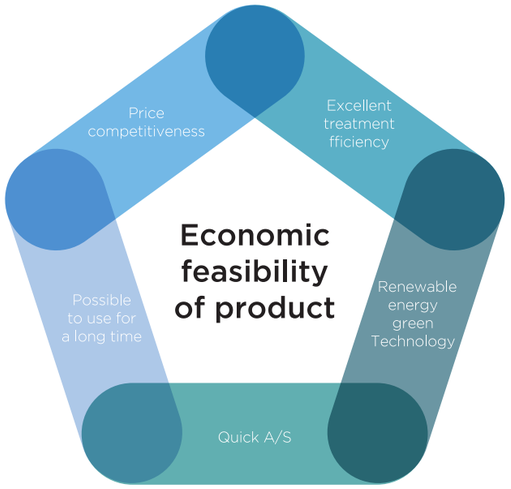
Remove odor

Emit the decomposed gas of organic material in the air by the increase of under water dissolved owygen to reduce odor. If water is stagnant even if the dissolved oxygen increases, odor is generated, but the even quality of water controls odor by the movement of water circulation.

Reduce nitrogen

Accelerate the biological nitrification action & denitrification action by circulation action.

Economic feasibility of technology of ECOCO product



Price competitiveness
Half price compared with import

Excellent treatment efficiency
Water-bloom reduced by more than 90%

Renewable energy green technology
Effect on energy saving and reduction in CO^2 by using solar energy

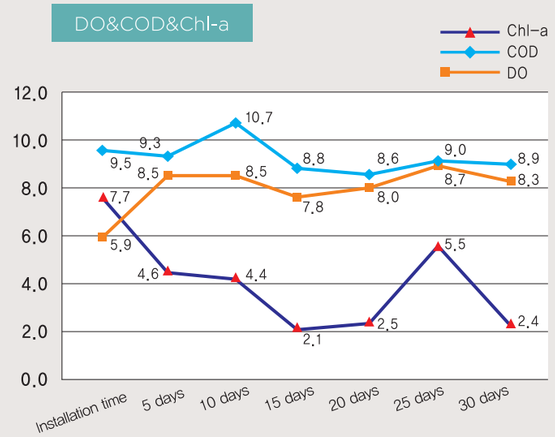
Quick A/S
Customer emotion service

Possible to use for a long time
Possible to use for more than 5 years with one-time installation

Result of environmental monitoring of Changlim reservoir, Gumi

Site survey was carried out one time before installation of water circulation system, and 6 times after installation of product.

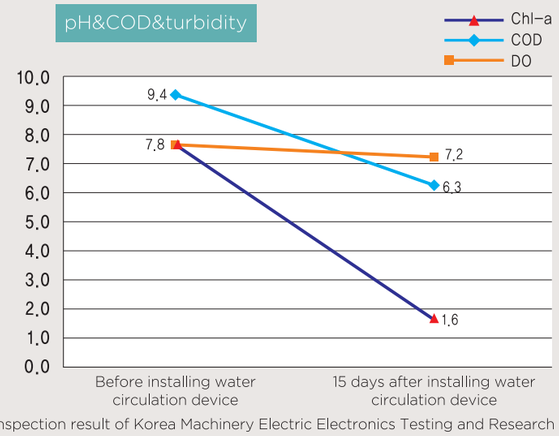
DO&COD&Chl-a



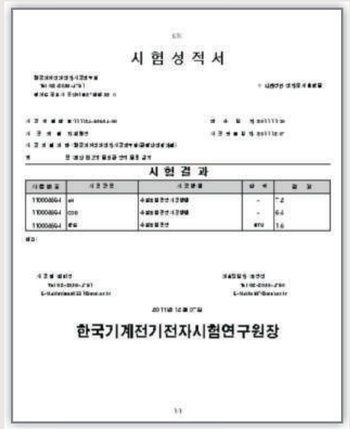
	DO (㎎/L)	COD (㎎/L)	Chl-a (㎎/L)
Before project implementation	5.9	9.5	7.7
Average value of 6 times survey after project implementation	8.3	9.2	3.6
Effectiveness of improvement	-40.5	3.5	53.6

Water environment monitoring in Upsungji, Cheonan

pH&COD&turbidity



Inspection result of Korea Machinery Electric Electronics Testing and Research Institute


시 험 성 적 서

시 험 결 과

한국기계전기전자시험연구원장

Performance certificate and Test report of ECOCO System

Performance certification
(Korea Institute of Machinery and Materials)

Test item	Performance
Power to be required	Below 0.2Kw at maximum
Consecutive operating time	round-the-clock operation
Discharge flow rate	13.67㎥/min at maximum
Size of micro bubble	Below 37㎛
Amount of water-bloom	Reduced by more than 90%

Density of chlorophyll

Density of Chl-a before operation of water circulation system	61㎎/L
Density of Chl-a after operation of water circulation system	11㎎/L
Remark	Before and after 24hours operation

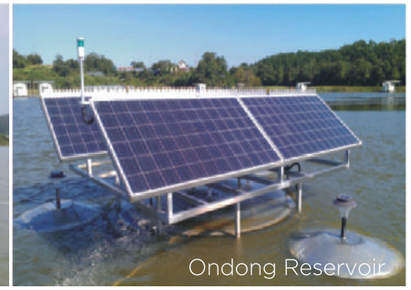
The exellence of technology of ECOCO product

- Environment friendly technology solar energy and wind power
- Providing oxygen to bottom layer using air diffuser
- Anti-icing system endurable to even bitter cold
- Barge mounting technology endurable in case of typhoon and wind & waves
- Controlled by video monitoring all the time by unmanned automatic operation by solar power


Mt. Bohyun Dam of Korea Water Resources Corporation


Imchun Reservoir

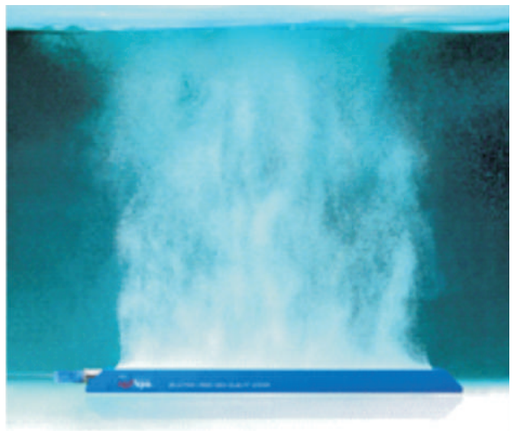

Homin Reservoir


Ondong Reservoir

Semi-permanent solar power generation

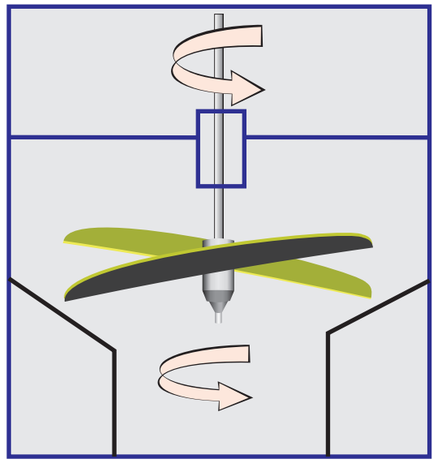
- Standard-alone type generation system using solar power generation in reservoir makes it easy to supply power in reservoir.
- Being semi-permanent product, it enables long-term control of quality water.
- Solar panel / 250W * 6EA / 200W * 4EA
- Charging in hybrid method, solar energy and wind power

Aeration in bottom layer and forced convection



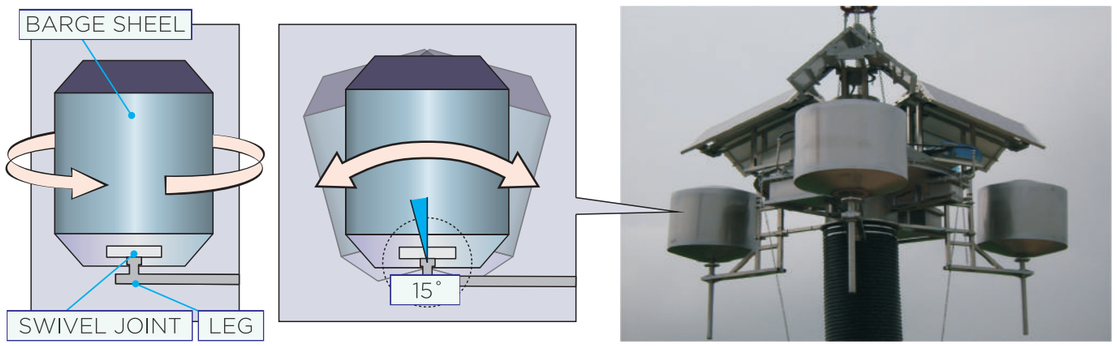
- Stratification is destroyed by mixing cold water with medium-temperature water by pumping and spreading oxygen water out to water surface with installation of micro oxygen bubble supplying device and sucking cold water through bottom of vertical suction pipe.
- It shows excellent effect as new technology combined with water-bloom protective method, that is aeration and forced convection.

Advantage by anti-icing system



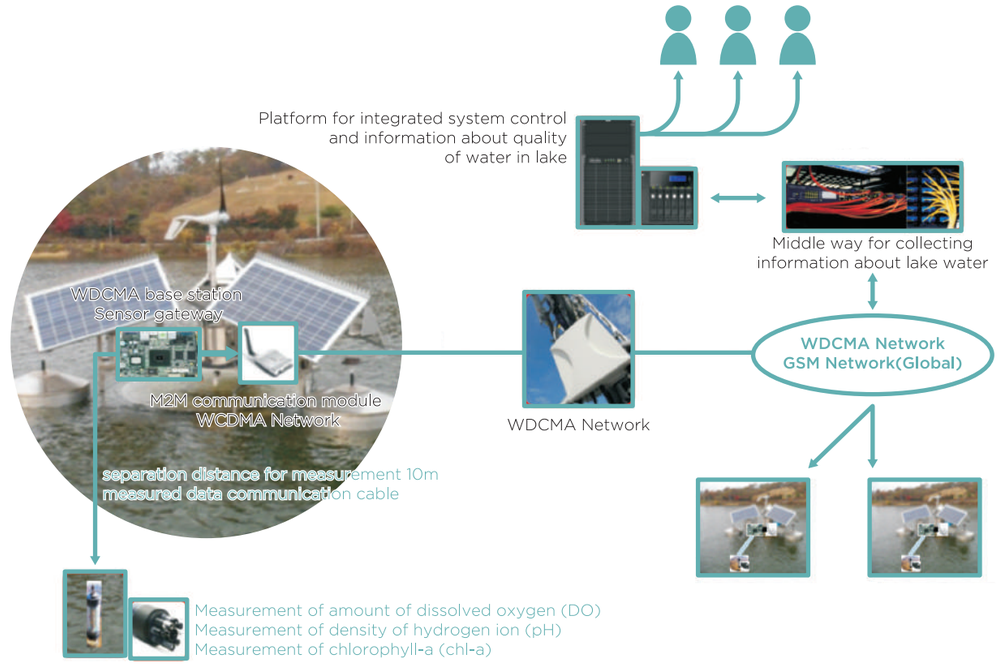
- It is possible to prevent shortage of oxygen due to freezing because freezing phenomenon does not occur even in winter season thanks to installation of anti-icing system.

Advantage by barge mount



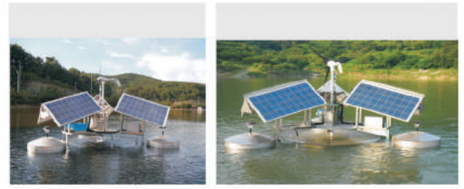
- Stable barge mounted system, being cylindrical type, is designed so as to make effect of typhoon and wind & waves be minimized by means of movement of horizontal rotation and movement of 15° angle to the left and right with installation of revolving joint at bottom, therefore it, being rotating cylindrical type, minimizes factor that prevents flow of water, and resistance to wind even though wind blows

Monitoring of water circulation system using M2M communication



Depth of water for sensor measurement of quality of water : 1.5m

Round-the-clock monitoring system



- **Speed dome camera**

  Having pan and tilt function, it controls equipment 1 & 2 remotely and conducts surveillance on surrounding situation.

- **Ultrahigh-speed internet modem**

  Network connecting equipment of internet ISP service provider

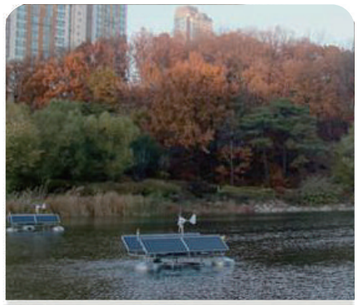
- **Channel equipment**

  Having function of network and saving video, it can save history of video and connect to internet network equipment

Ecoco solution major performance

Wonju Branch Heungup Reservoir

Gumi Branch Changlim Reservoir



Gwangyo Lake Park

Mt. Bohyun Dam of Korea
Water Resources Corporation

Cheongsong Yangsu Power Plant

Hwasung · Suwon
Governor Wonson Reservoir

Jeonnam Regional Division
Imcheon Reservoir

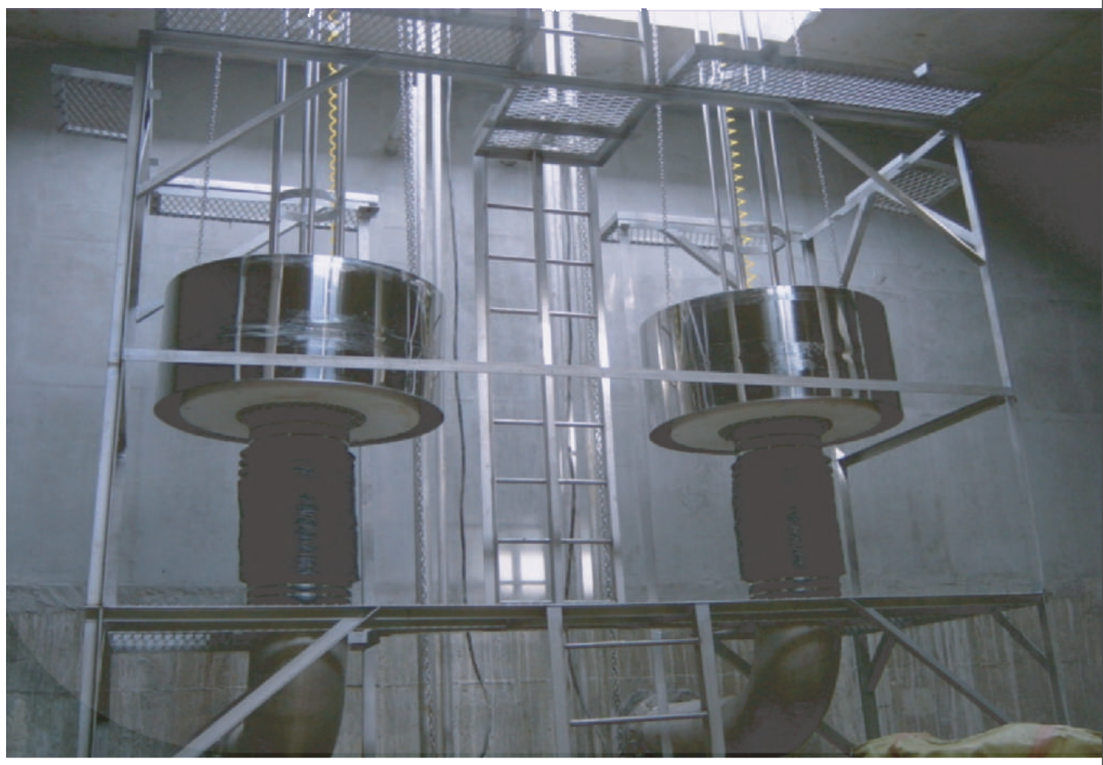
Jeonnam Regional Division
Imcheon Reservoir

KCC

Major performance

Application site	Date	Name of model
Hongseong Branch of Korea Rural Community Corporation	2018.07	MS-ESP6000 3Sets
Pyeongchang-gun Water and Wastewater Office Drinking Water Reservoir	2018.04	MS-ES6000 4Sets
Pungnun Reservoir at Cheonan Branch of Korea Rural Corporation (Cheongin construction)	2016.12	MS-ESP6000 3 Sets
Habin Reservoir at Dalsung Branch of Korea Rural Corporation (Nuri construction)	2016.09	MS-ESP6000 3 Sets
Gyeonggi Urban Innovation Coporation Shindae Lake	2016.09	ESP-6000IOT 2 Sets
Gyeonggi Urban Innovation Coporation Shindae Lake	2016.09	ESP-4600IOT 4 Sets
Bongjae District at Asan Branch of Korea Rural Corporation	2015.12	MS-ESP6000 3 Sets
Yunbong2 District at Goheung Branch of Kora Rural Corporation	2015.12	MS-ESP6000 3 Sets
Wangsong Reservoir at Hwangsung Suwon Branch of Korea Rural Corporation	2015.11	MS-ESP6000 3 Sets, MS-EE6000 2 Sets
Cheongsong Yangsu Power Plant of Korea Hydro & Nuclear Power Co., LTD	2015.11	MS-ESP6000 4 Sets
KCC (Keumgang country club)	2015.08	MS-EE6000 1 Set
KCC (Keumgang country club)	2016.07	MS-EE6000 2 Sets
Poongam Reservoir at Jeonnam District Division of Korea Rural Corporation	2015.07	MS-EE6000 5 Sets
Janghyun Reservoir at Gangwon District of Korea Rural Corporation	2014.08	ESL6000 1 Set
Baekma Reservoir at Choongbuk District Division of Korea Rural Corporation	2014.07	MS-ES6000 2 Sets
Aseungsaeng Second Reservoir at Water Resources Division of Jeju Special Self-Governing Province	2014.06	MS-ESP6000 3 Sets
Mt. Bohyun dam of Korea Rural Corporation (Hyorim Industry Co., Ltd.)	2014.06	MS-ES6000 5 Sets
Seoknam Reservoir at Gochang Branch of Korea Rural Corporation	2014.05	MS-ESP6000 3 Sets
Artificial Pond of Hyundai Motor Group Namyang Institute(Youngjin Environment Co., Ltd.)	2013.09	MS-ESP6000 1 Set
Gangsu Reservoir at Choongnam District Division of Korea Rural Corporation	2013.09	MS-ESP6000 4 Sets
Imcheon Reservoir at Jeonnam District Division of Korea Rural Corporation	2013.07	MS-ESP6000 2 Sets
Imcheon Reservoir at Jeonnam District Division of Korea Rural Corporation	2013.06	MS-ESP6000 1 Set
Shincheok Reservoir of Choongbuk Development Corporation (Geumsung Construction)	2013.06	MS-ES6000 1 Set
Bongdam Lake of Hwasung City Hall	2012.12	MS-ES6000 1 Set
Damyang Dam of Lotte Construction	2012.12	MS-EB6000 1 Set
Manbong Reservoir at Naju Branch of Kora Rural Corporation	2012.11	MS-EB6000 1 Set
Yongsan Reservoir at Hongcheon Chooncheon Branch of Korea Rural Corporation	2012.09	MS-EB6000 1 Set
Daemack Reservoir at Yecheon Branch of Korea Rural Corporation	2012.08	MS-EB6000 2 Sets
Daemack Reservoir at Yecheon Branch of Korea Rural Corporation	2012.06	MS-EB6000 5 Sets
Daesung Reservoir of Gyeonggi-do Province	2012.06	MS-EB6000 1 Set
Seongho Reservoir at Yeoju Icheon Branch of Korea Rural Corporation	2012.03	MS-EB9000 1 Set
Doonjeon Reservoir at Jindo Branch of Korea Rural Corporation	2012.01	MS-EB6000 3 Set
Daeho Reservoir at Naju Branch of Korea Rural	2012.01	MS-EB6000 1 Set
Dodeok Reservoir at Goheung Branch of Korea Rural Corporation	2012.01	MS-EB6000 2 Sets
Upseong Reservoir at Cheonnan Branch of Korea Rural Corporation	2011.11	MS-EB6000 2 Sets
Gangcheong Reservoir of Ashin Co., Ltd.	2011.10	MS-EB6000 1 Set
Byeokjeong Reservoir at Hongseng Branch of Korea Rural Corporation	2011.09	MS-EB6000 2 Sets
Baekyong Reservoir of Jinyang Construction Co., Ltd.	2011.09	MS-EB6000 1 Set
Changlim Reservoir at Gumi Branch of Korea Rural Corporation	2011.09	MS-EB6000 2 Sets
Ercheon Reservoir at Gumi Branch of Korea Rural Corporation	2011.08	MS-EB6000 2 Sets
Yongpoong Branch at yeoju Icheon Branch of Korea Rural Corporation	2011.07	MS-EB6000 2 Sets
Heungup Reservoir at Wonju Branch of Korea Rural Corporation	2011.06	MS-EB6000 2 Sets
Environment Business Place of Cheonan City	2011.12	MS-EM6000

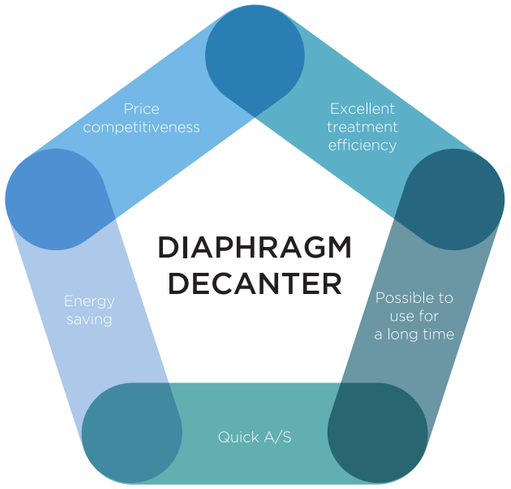
ECOCO DECANTER



DIAPHRAGM DECANTER

First, ECOCO will tell you about
the Clear Water of your dreams.

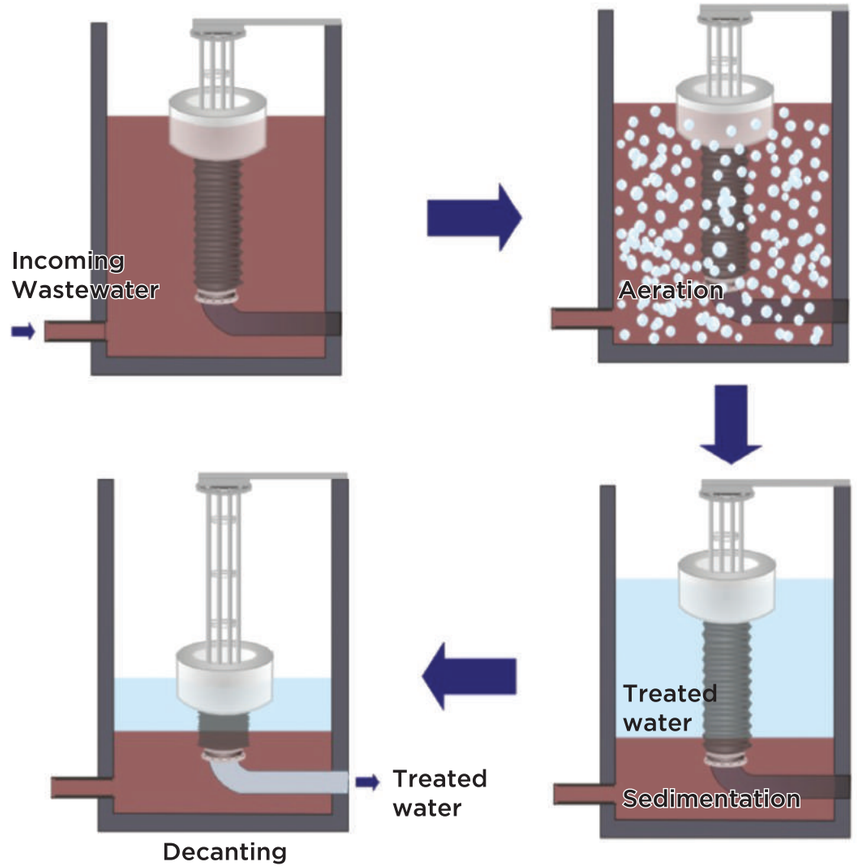
Feature of diaphragm decanter



The position of diaphragm decanter moves automatically up and down according to level of water surface of reactor, upper clear water is rapidly discharged by using compressed air, and level of water is adjusted automatically according to amount of discharge and speed can be adjusted according to amount of compressed air. This is product which maximizes, thanks to diaphragm, efficiency of biological reactor by means of complete sealing while making elasticity of opening/closing excellent and by adjusting amount of outflowing and inflowing water with perfect water tight.

Being a system discharging upper clear water after sedimentation of solid matters mixed in reactor (SBR), this system is decanter in diaphragm method which is adopted to prevent sedimentary floating solid matters from emerging again and being discharged with upper clear water and prevent scum generated during treatment from being discharged with upper clear water, and it also can discharged all upper clear water by natural pressure. Especially to maximize accuracy and speed of system, such a technology is used that maximizes efficiency or reactor thanks to diaphragm, by making it respond within shortest span of time and discharging only well-treated upper

Operation process



Degree of loss of sedimentary sludge

Quality of discharged water is excellent without stirring sedimentary sludge at all because water is discharged in perfect stationary state without underwater waves, after enough time has passed for sedimentation after aeration as SBR process. (SS 10mg/L)

Aeration in reactor

ECOCO decanter can be installed and operated without limitation.

Upper and bottom plate of main body of decanter is coupled and there is separating system in diaphragm type in the middle of decanter. Upper clear water is discharged by using air pressure through diaphragm and scum preventive plate is installed at side of main body to prevent scum from being discharged together with treated water. This system is composed of guide rod which consists of several pipes for main body to move up and down and jabara hose for main body to ascend and descend freely.

Diaphragm decanter

Classification	Upper clear water discharging system, using diaphragm
Floating fluid	Water pressure method
Discharging method	Opening/closing diaphragm valve
Composition of main body	STS304, PE, BOLT, DIAPHRAGM
Scope of application	Dirty water, sewage and wastewater disposal plant

Small capacity diaphragm decanter

Standard of decanter	disposal capacity of decanter	feature
MSD-50A	7㎥/hr	Being upper clear water discharging system that is used in single reactor below 500㎥, it is mostly used in FRP disposal plant and sewage, wastewater disposal plant with small capacity exclusively.
MSD-65A	12㎥/hr	
MSD-80A	18㎥/hr	
MSD-100A	28㎥/hr	

Medium capacity diaphragm decanter

Standard of decanter	disposal capacity of decanter	feature
MSD-125A	37㎥/hr	Being upper clear water discharging system to be used in sequencing batch single reactor (500㎥-2000㎥) among biological treatment technology to be used for sewage and wastewater disposal, this is discharging system of medium capacity which is mostly used in general sewage and wastewater disposal plant.
MSD-150A	75㎥/hr	
MSD-200A	125㎥/hr	
MSD-250A	200㎥/hr	
MSD-300A	290㎥/hr	
MSD-350A	350㎥/hr	

Large capacity diaphragm decanter

Standard of decanter	disposal capacity of decanter	feature
MSD-400A	400㎥/hr	This is upper clear water discharging system of large capacity which can discharge upper clear water 500㎥/hr~700㎥/hr that is treated in sequencing batch single reactor (500㎥-2000㎥) among biological treatment technology to be used for sewage and wastewater disposal.
MSD-450A	500㎥/hr	
MSD-600A	600㎥/hr	

Comparison with imported product on function

Classification of function	Applied product (our product) (Diaphragm Decanter)	Similar competitive product of Advanced country (Name of product : ABJICEAS Decanter)
Summary of decanter	This is cylindrical type discharging system which moves up and down along with guide rod in floating state on water surface, and it discharges upper clear water through space between guide rods, adjusting amount of discharge of upper clear water by controlling air pressure within diaphragm valve installed between internal inflowing/outflowing weir by means of opening/closing solenoid valve.	Being arm type decanter which is operated by power unit, discharging gutter is lifted outside of reactor except for discharging process, and it descends to limit depth by power unit at predetermined speed at the time of discharging process and discharges upper clear water. However, length of decanter should be adjusted to width of reactor.
Range of up and down movement of	Up and down movement, more than 40% of depth of	It is limited depending on length of electric, mechanical actuator.
Power to be required	about 1.0 kW.Set/day	about 7.5kW.Set/day
Degree of loss of scum	There is no loss of scum because system is always floating on water surface and scum preventive plate is equipped.	Even though there is scum preventive plate, it cannot prevent scum loss when it touches water surface every time discharge is processed.
Width of reactor	No limitation	to be adjusted to the length of decanter

Major performance

Date	Company	Site where it is applied
2000.11	Environmental Vision 21	Decanter installation project at Youngiung sewage disposal plant, Pocheon
2000.12	LG Construction Co.	nstallation of decanter at Nolsan dyeing sewage common disposal plant
2001.04	LG Construction Co.	Installation of decanter at Iljin D-2 project
2002.09	Seminis Korea	SKOC sewage disposal plant project
2002.12	Jungil Construction Environment Co	Supplied decanter 2 sets
2003.02	Environmental Vision 21	Supplied decanter sets for livestock wastewater disposal pubic facility, Gonjiam
2003.04	Taeyoung	Manufactured upper clear water discharging pipe
2003.05	Environmental Vision 21	Supplied decanter 4 sets for Chunjangdae sewage disposal facility, Seocheon
2003.11	Taeyoung	Manufactured and installed upper clear water discharging pipe
2004.03	Korea Institute of Science and Technology	Diaphragm Decanter 2set
2004.08	Godo NB	Construction of sewage disposal facility, Ganam-Myun, Yeoju-Gun
2004.12	KE & T	Manufactured decanter for sewage disposal plant in Jakdong, Pocheon-Si and Donghyang, Jinan-Gun
2005.01	Noksan Dyeing Business Cooperative Association	Supplied jabara of decanter
2005.01	KE & T	Manufactured and installed decanter for Boogui sewage disposal plant, Jucheon, Jinan-Gun
2005.09	Soo Tech E&C	Supplied 80A 2sets for livestock wastewater disposal public facility project, Euiwang-Si
2005.11	Bugang Tech	Supplied 350A 2sets for expansion of Choonjangdae sewage facility, Seocheon
2006.02	Bugang Tech	Supplied diaphragm decanter 150A 8sets to Jinan, Ancheon
2006.02	Bugang Tech	Installed decanter for sewage disposal plant, Shincheon, Gapyung-Gun
2006.03	Sennis Korea	Replaced diaphragm decanter, filter press of wastewater disposal plant and made contract for air control work
2006.04	Bugang Tech	Supplied and installed upper cleat water discharging system of Sanglim sewage disposal plant, Gimhae-Si
2006.04	Sennis Korea	Manufactured and installed wastewater tank of farmhouses, Ipjang, Gosung
2006.08	Jungil Construction Environment Co	Supplied diaphragm decanter 2 sets

Major performance

Date	Company	Site where it is applied
2006.09	Bugang Tech	Supplied decanter 4sets for Hanlim sewage disposal plant, Gimhae
2006.11	Bugang Tech	Supplied decanter 4sets for Hanlim sewage disposal plant, Gimhae
2007.03	Public Procurement Service	Supplied decanter 2sets for Choonjangdae Beach sewage disposal plant, Seocheon
2007.06	Hans Environmental Engineering	Supplied decanter 1set for village sewage disposal facility, Chooang district
2007.06	Hans Environmental Engineering	Supplied decanter 1set for village sewage disposal facility, Wanju Jangpyung district
2007.10	Bugang Tech	Upper clear water discharging system for Manripo sewage disposal plant, Taean-Gun
2007.10	HN Tech	Supplied decanter for village sewage disposal plant, Seoyeon district, Jeondo, Muju-Gun
2008.07	Monsanto Korea	Replacement project for 1st, 2nd sedimentation tank of MKOC sewage disposal plant
2008.06	Pocheon City Hall	Installed decanter diaphragm of Youngjong sewage disposal plant
2008.08	Bugang Tech	Upper clear water discharging system for white beach sewage disposal plant, Taean-Gun
2008.09	HN Tech	Supplied upper clear water discharging system, Jungupbanggyo
2008.09	Bugang Tech	Upper clear water discharging system for white beach sewage disposal plant, Taean-Gun
2008.09	Bugang Tech	Manufactured upper clear water discharging system for Yunpo sewage disposal plant, Taean-Gun
2008.10	Bugang Tech	Manufactured upper clear water discharging system for Mongsanpo sewage disposal plant, Taean-Gun
2009.05	Korea Institute of Science and Technology	Supplied decanter
2010.04	Pocheon City Hall	Supplied new bellows for upper clear water discharging system of Youngjung sewage disposal plant
2011.03	Bugang Tech	Supplied upper clear water discharging system of Gunwie sewage disposal plant
2011.05	CI Biotech	Supplied diaphragm decanter for Nammyun sewage disposal plant
2011.08	CI Biotech	Supplied diaphragm decanter for Yanggu sewage disposal plant
2011.11	Bugang Tech	Supplied upper clear water discharging system for Byungsulman sewage disposal plant, Taean
2013.12	Pocheon City Hall	Replaced new bellows for BCS tank upper clear water discharging system of Jikdong public sewage disposal plant, Pocheon
2014.06	Bugang Tech	Replaced Gimhae Saenglim Hanlim supernatant system newly built bellows
2014.09	Gunwi water supply sewage environment business place	Replaced Gunwi public sewage disposal plant Diaphragm
2015.05	Gwangju urban management corporation	Repaired main parts of BCS reactor(A,B) decanter (Replaced newly built belows)
2015.05	Yeoju city sewage business place	Replaced newly built belows of Ganam public sewage disposal plant bioreactor decanter
2015.05	Korea Water Resources Corporation	Replaced Jinan public sewage disposal plant Diaphragm
2015.09	Taean county water supply and sewage business place	Repaired reactor disposal water discharge system of Manlipo sewage disposal plant
2015.12	Bugang Tech	Additionally constructed the piping of Byeongsool bay sewage disposal plant
2016.03	Taean county water supply and sewage business place	Repaired reactor disposal water discharge system of sandy beach sewage disposal plant
2016.05	Pocheon city safety construction department water supply and sewage sector	Replaced supernatant discharge system of Naechon public sewage disposal plant

ECOCO WATER QUALITY IMPROVING SPRAY SYSTEM

Automatic spraying system for decontaminant to improve water quality

First, ECOCO will tell you about
the Clear Water of your dreams.

Summary of product

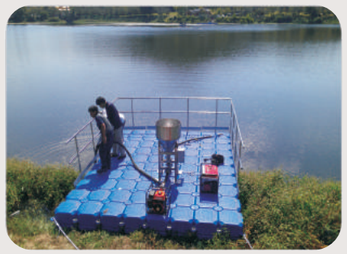
- System which improves water quality, applying medicine in powder or liquid form to contaminated lake water and river

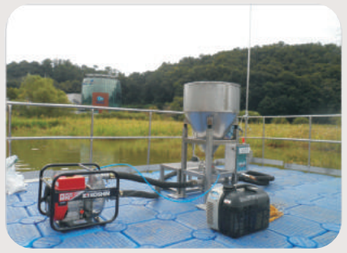
Feature of product

- Reduction in medicine expense required, by spraying it in even density
- Possible to spray manufactured medicine for microorganism in both powder and liquid form
- Reduction in waste of time and space due to long spraying distance of 15M~20M

Example of application of automatic spraying system for decontaminant to improve water quality





Delivery performance of automatic spraying system for decontaminant to improve water quality

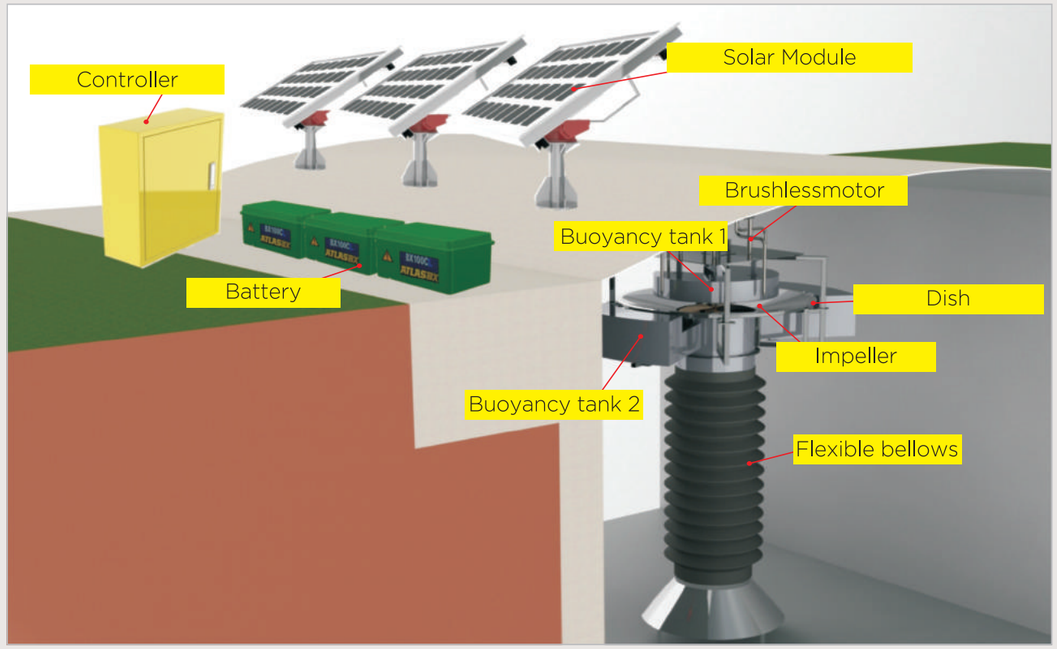
Date	Organization where product is delivered	Name of product
2013.09	Korea Rural Community Corporation, Pyungtaek branch	Automatic spraying system for decontaminant to improve water quality
2013.09	Korea Rural Community Corporation, Pyungtaek branch	
2013.09	Korea Rural Community Corporation, Pyungtaek branch	
2013.09	Korea Rural Community Corporation, Gangwon Regional Head Office, Gangrung branch	
2013.09	Korea Rural Community Corporation,Jeonnam Regional Head Office, Bannam branch	
2013.09	Korea Rural Community Corporation, Milyang branch	
2013.09	Korea Rural Community Corporation, Jeonbuk Regional Head Office	
2013.09	Korea Rural Community Corporation, Gyungbuk Regional Head Office	

ECOCO FLOATING MIXING SYSTEM

Agitator for water treatment

First, ECOCO will tell you about
the Clear Water of your dreams.

Design and Structure



Specification

Agitating system which mixes sewage / wastewater by driving impeller using solar energy

Item	Standard and Amount
Type	Agitating system using sunlight in buoyancy type
Flow Rate	4~15㎥/min
Solar heat collectors	250W x 6EA
Electric condenser	200AH * 2EA
Operating time	24 hour Operating
How to operate	Driving method using sunlight (AC changeover type)

ECOCO floating mixing system, being a system that is agitating in no oxygen tank or anaerobic tank of sewage/ wastewater disposal plant by using solar energy, can mix large amount of wastewater by one unit, and has no breakdown and does not make any noise. It has excellent effect on energy reduction because it uses solar energy and it is economical agitator of high efficiency which is, being buoyancy type, widely used regardless of depth of reactor.

ECOCO MACHINERY PARTS FOR POWERPLANT

Power Plant Facility

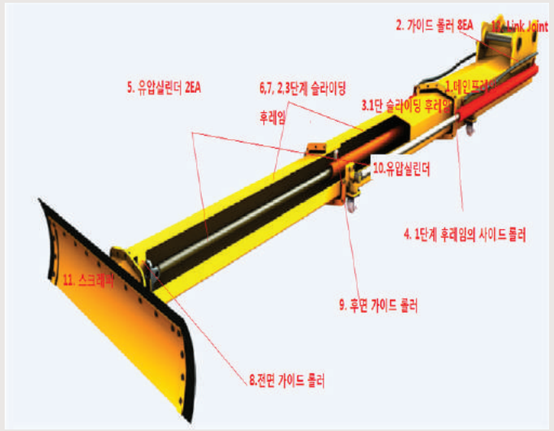
First, ECOCO will tell you about
the Clear Water of your dreams.

Belt Conveyor Coal Cleaner

Coal Cleaner Specification

Model name	MS-YH100
Product name	Coal Cleaner
Specification	▶Appearance : 900W × 310H × 2400L ▶Operation : Hydaulic type (300kg/㎠) ▶Storoke : 1750㎜ × 2 times forward
Weight	About 700kg
Amount of disposal	481kg/1 time

Coal Cleaner Composition



❶ Main frame
❷ Guide roller 8ea
❸ The first step sliding frame
❹ Side roller of the first-stage frame
❺ Hydraulic cylinder 2ea
❻ The two-stage sliding frame
❼ The third-stage sliding frame
❽ Front guide roller
❾ Rear Guide roller
❿ Hydraulic cylinder

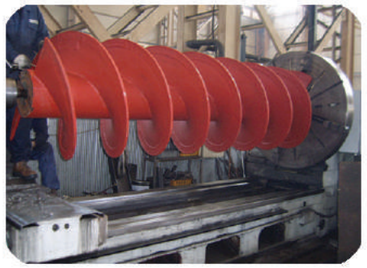
Coal Cleaner amount of disposal

Description	1st test	2nd test	3rd test	Average	Standard deviation
Weight (Kg)	514	430	481	481	36.42
Dimension(㎥)	0.605	0.506	0.586	0.565	0.04

*Performance test of Korea Imstitute of Machinery and Metals
(The weight of container used when measuring weight 20kg, 5e-4.2472kg, 1e – 0.001㎥)

VERTICAL SCREW

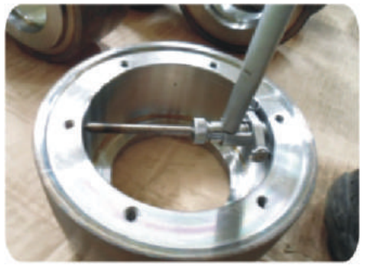




VERTICAL SCREW



IDLE ROLLER, STREERING ROD



BEND PULLEY



TRANSPORT SCREW





Major delivery performance of power plant facility

Date	Company	Application site
2016.03	Samchonpo fire division Korea South-East Power Co.,Ltd.	4th dirrerentiator grinding roll key plus 4 kinds
2015.06	Youngheung fire division Korea South-East Power Co.,Ltd.	Desulfurization limestone vertical screw 3 sets plus 2 kinds
2015.05	Youngheung fire division Korea South-East Power Co.,Ltd.	Belt conveyor coal cleaner 1set
2014.04	Taean power generation division Korea West Power Co.,Ltd.	Air conditioner driving damper & flexible joint 1 set
2014.03	Taean power generation division Korea West Power Co.,Ltd.	Transport screw maintenance dedicated worktable 1 set
2013.09	Youngheung fire division Korea South-East Power Co.,Ltd.	Coat handling facilities Bend Pulley
2013.05	Dangjin fire division of Korea East-West Power Co., Ltd.	5 kinds including bucket etc. (In addition to bucket, idle roller, shaft)
2013.01	Youngheung fire division Korea South-East Power Co.,Ltd.	Limestone unloader vertical screw
2012.05	Youngheung fire division Korea South-East Power Co.,Ltd.	Yearly unit price construction of coal unloader inlet screw carrying-out maintenance
2012.03	Youngheung fire division Korea South-East Power Co.,Ltd.	Coal unloader vertical screw carrying-out maintenance
2011.11	Youngheung fire division Korea South-East Power Co.,Ltd.	Coal unloader vertical screw carrying-out maintenance
2011.06	Youngheung fire division Korea South-East Power Co.,Ltd.	Coal unloader vertical screw carrying-out maintenance
2011.01	Youngheung fire division Korea South-East Power Co.,Ltd.	Manufactured vertical screw driving shaft of coal unloader
2010.10	Youngheung fire division Korea South-East Power Co.,Ltd.	Coal unloader vertical screw carrying-out maintenance
2010.09	Youngheung fire division Korea South-East Power Co.,Ltd.	Manufactured screw & worked block assembly (12 sets)
2009.08	Youngheung fire division Korea South-East Power Co.,Ltd.	Coal unloader vertical screw carrying-out maintenance
2009.08	Youngheung fire division Korea South-East Power Co.,Ltd.	Coal unloader vertical screw carrying-out maintenance

ECOCO MACHINERY PARTS FOR POWERPLANT

Rotary type Coal Cleaner

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