

SAMKUN

CENTURY CO., LTD



■ Water Treatment Equipment

(BWTS, F.W. Generator, F.W. Supply Unit, H.P. Pump Unit, etc.)

■ On Shore Plant

(Water Treatment Sys, Waste Water Treatment Sys)

■ Pipe Coating

(PE, PA, Metalizing, Rubber Lining)



CEO Message

First of all, we would like to cordially express our gratitude for your continuing interest and support.

Samkun Century was established in 1989, and has since advanced the innovation of new technology for more than 30 years. Our willingness and ability to take on new challenges have driven our corporate success while contributing to the development of Offshore plant, Marine, Navy, and Onshore equipment package modules.

We have persevered in our efforts to supply the best quality and service to our clients while always following the motto, "Always, like the beginning". We will strive to make positive changes in the environment and contribute to humanity and society for future generations.

Thank you.

President *Jung Il Kang*





History

- 2019.07 Performance certification : Ministry of SMEs and Startups
- 2019.05 Maintenance qualification certificate
- 2019.03 Corporate certificate for parts and materials: Ministry of Trade, Industry and Energy

- 2018.08 PANAMA MARITIME AUTHORITY type approval (BWTS)
- 2017.07 Acquired RS type approval (BWTS)
- 2015.02 **Acquired BV type approval (BWTS)**
- 2014.10 **Liberian Registry type approval (BWTS)**
- 2014.01 UV sterilizer NIPH type approval (SK11-JSD)
- 2013.11 **Acquired KR Type Approval (BWTS)**
- 2013.10 **AMS Acceptance by USCG (BWTS)**

- 2012.07 **Type Approval by Korean Government (BWTS)**
- 2011.01 Acquired KUN MARK from KCL
- 2010.12 Selected as a membership of the exemplary medium enterpriser
- 2010.10 **Awarded a presidential citation**
- 2010.10 **Acquired FINAL Approval by IMO (BWTS)**
- 2010.03 **Acquired BASIC Approval by IMO (BWTS)**
- 2010.03 **Awarded an honor by the administer of NTS**
- 2010.01 Selected as an excellent cooperative company and gained a Suckryu medal by DSME

- 2009.10 Acquired AA Class of HMD
- 2009.10 Registered as a Qualified Supplier in KOSPO
- 2009.10 Acquired K MARK from KTL
- 2009.09 UV sterilizer NIPH type approval (JSC40)
- 2009.07 Selected as a clean work place by KOSHA
- 2009.07 Obtained a qualification of competitive bid Joining by the office of supply Administration
- 2009.01 Acquired ASME STAMP

- 2008.03 Approved for GL classification
- 2008.03 **Acquired ISO9001 & ISO14001**

- 2007.12 Awarded first prize of venture enterprise by DSME
- 2007.08 Dolomite NIPH type approval
- 2007.08 Moved Head Office
- 2007.06 Dolomite NSF type approval
- 2007.05 Acquired authentication of NSF
- 2006.07 **Selected as a technical innovation Enterprise**
- 2006.01 UV sterilizer NIPH (JSB-1,3,5,10,20,30)
- 2006.01 **Established a R&D Institute**

- 2004.09 **Technical cooperation with German specialized PA coating company**
- 2004.03 Registered as a cooperator along STX, SHI, DSME, HMD & HHI
- 2003.04 **Acquired ISO 9001:2000**
- 2003.04 **Technical cooperation with a Japanese specialized coating Company**
- 2002.07 Acquired "Water"Mark which means water purifier manufacturing approved
- 2002.06 Acquired DNV Classification
- 2002.04 Acquired KSA 9001:2001

- 2001.10 UV sterilizer NIPH type approval (JSA-5000)
- 2001.09 Established Samkun PNC
- 2000.12 **Acquired Europe Safety Standard CE Mark**
- 1998.06 Moved factory
- 1998.04 **Joined in the Korea Shipbuilding Material Industry Cooperative association**
- 1998.02 Converted into the Corporative Institution named Sam-kun century
- 1989.11 Established Su-Hyang Industry
(Producing Shipbuilding material & Water purifying system)





Local Factory Network

Republic of Korea



Main Factory (Headquarter)

- ▶ BWTS
- ▶ Pipe Spool
- ▶ Sterilizer (UV, Ozone, Silver Ion, Auto Chlorinator)
- ▶ Fresh Water Supply Unit
- ▶ PE/PA Coating
- ▶ Rubber Coating

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TEL : +82-55-338-3030
FAX : +82-55-325-0808
E-mail : sk@samkunok.com



R&D Center

- ▶ Technical Design
- ▶ Research & Development

8F, Sporex BD, 13, Geungok-
daero 285beon-gil, Buk-gu,
Busan, Korea
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FAX : +82-55-332-7123
E-mail : sk@samkunok.com



TSA Coating Factory

- ▶ Metalizing (TSA)

228, Yeocha-ro, Sangdong-
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TEL : +82-55-338-3030
FAX : +82-55-312-0685
E-mail : pnc@samkunok.com

Water
Treatmet
Factory

PE/PA
Coating
Factory

BWTS
Factory

Miryang

Gimhae

TSA

Busan

R&D
Center



Business

Samkun Century has been a professional company based on steady growth and a solid profit structure.

We have advanced the development of new technologies and have established a solid foothold in the marine equipment industry based on a solid profit structure. We started in water treatment equipment specializing by including many kinds of sterilizer for 30 years. Since then, to strengthen our competitiveness in the global market, our company has diversified into offshore plants, ballast water treatment systems, coating, painting and pipe spools.



ARA PLUS+ BWTS

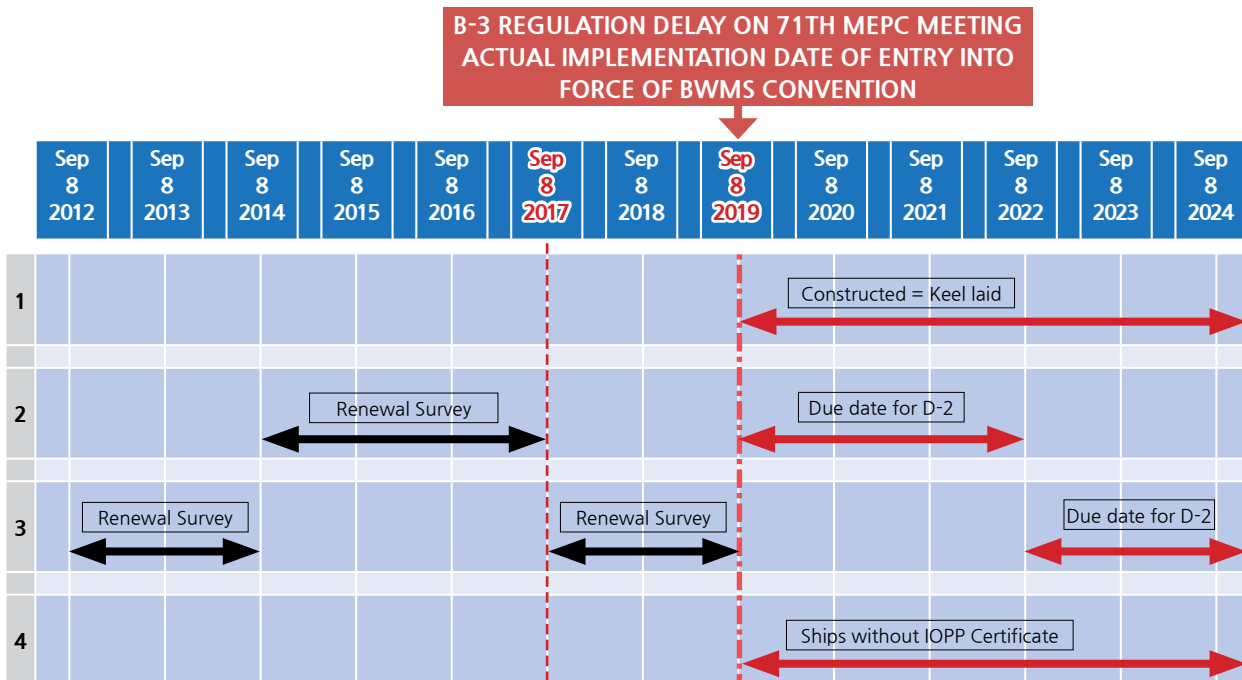
IMO Regulation

D-2 Ballast Water Performance Standard

- ▶ Over 50 μ m : Less than 10 inds/m³
- ▶ 10~50 μ m : Less than 10 inds/ml
- ▶ Bacteria
 - Escherichia Coli : Less than 250 cfu/100ml
 - Intestinal Enterococci : Less than 100 cfu/100ml
 - Vibrio Cholerea : Less than 1 cfu/100ml

B-3 Ballast Water Treatment Implementation Schedule

- ▶ New Ships shall be installs BWTS or BWMS before delivery
- ▶ Existed ship shall be installs BWTS from 8th September 2019 according to IOPP renewal period



1. Ships constructed on or after 8 September 2017 shall comply with D-2 standard as of ships delivery (Constructed = Keel Laid).
2. A case where previous IOPP renewal survey had been completed between 8 September 2014 and 7 September 2017, the ships shall comply with D-2 standard by the first IOPP renewal survey after entry into force of the Convention.
3. A case where previous IOPP renewal survey had been completed between 8 September 2012 and 7 September 2014, the ships shall comply with D-2 standard by the second IOPP renewal survey after entry into force of the Convention.
4. Ships not subject to IOPP renewal survey (normally less than 400GT) shall comply with D-2 standard by 8 September 2024.

ARA PLUS+ BWTS



■■■ FILTER

It removes large particles and organisms larger than $50\mu\text{m}$ in ballast water. It automatically removes any substances in filter cartridges by housing an internal pressure increase. It is highly accurate and reliable.

-Specifications (for $250\text{ m}^3/\text{hr}$)-

- ▶ Mesh size : $50\mu\text{m}$
- ▶ Design pressure : 6.6 bar
- ▶ Max. working temp : 50°C
- ▶ Power Source : 3Phase, AC 380/440V 50/60Hz



■■■ ULTRA-VIOLET

It has a high performance in disinfecting bacteria and viruses (which are smaller than $50\mu\text{m}$). There are no formations of residual toxins or harmful substances. Uses a wavelength of UV-C ($200\sim 280\text{nm}$) to sterilize microorganisms.

-Specifications (for $250\text{ m}^3/\text{hr}$)-

- ▶ UV sensor : $0\sim 500\text{ mW}/\text{cm}^2$
- ▶ Temperature sensor : PT-100
- ▶ Wiper Seal : EPDM
- ▶ UV chamber : STS 316L



■■■ CONTROL PANEL

Users conveniently operate “ARA PLUS+ BWTS” by touchscreen. The status of each module and any alarm messages are easily monitored in realtime. The control panel consists of four parts; monitoring & operating, main switch, emergency stop switch and cabinet ventilators.

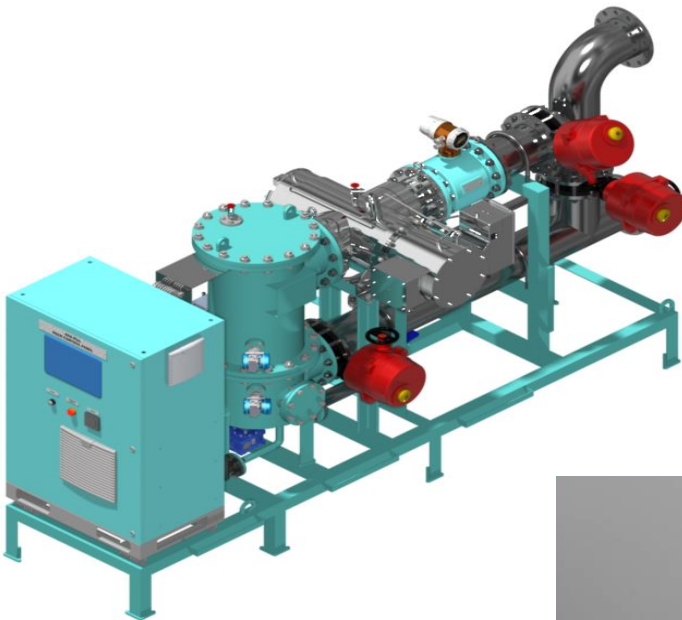
-Specifications (for $250\text{ m}^3/\text{hr}$)-

- ▶ Control panel type : PLC type(Auto)
- ▶ Power Source : AC 230V, 1Phase & DC 24V
- ▶ Frequency : 50/60 Hz

ARA PLUS+ BWTS

LINE UP

NO	MODEL	CAPACITY (m3/hr)	FILTER	DIMENSION (mm)	
				UV	CONTROL PANEL
1	AP-150 / AP-150 Ex	150	Ø406x1473	650 x 518 x 1016 / 1088	800 x 500 x 1350
2	AP-250 / AP-250 Ex	250	Ø406x1473	650 x 544 x 1016 / 1088	800 x 500 x 1350
3	AP-400 / AP-400 Ex	400	Ø660x1488	700 x 562 x 1016 / 1088	800 x 500 x 1700
4	AP-650 / AP-650 Ex	650	Ø762x1631	750 x 588 x 1016 / 1088	800 x 500 x 1700
5	AP-800 / AP-800 Ex	800	Ø1016x1998	APUV-400 x 2	APMCP-400(M) APMCP-400(S)
6	AP-1300 / AP-1300 Ex	1300	Ø1016x2198	APUV-650 x 2	APMCP-650(M) APMCP-650(S)



ARA PLUS+ BWTS

ARA PLUS+ BWTS, which was developed by the SAMKUN CENTURY Company, acquired Basic approval for the ballast water treatment system during the MEPC 60 (MEPC 60/2/15) in March 2010 and Final approval during the MEPC 61 (MEPC 61/2/5) in October 2010.

Basic Approval(Mar. 2010)

Documents for Basic Approval (Mar. 2010) include the IMO MEPC 60/2/15 decision and a technical report titled 'REPORT OF PRINCIPAL BOW APPROVAL OF ARA PLUS+ WATER TREATMENT SYSTEM FOR BALLAST WATER MANAGEMENT SYSTEMS THAT HAVE USE OF THE WATERWAYS'. The report details the approval process and technical specifications of the ARA PLUS+ BWTS system.



Final Approval(Oct. 2010)

Documents for Final Approval (Oct. 2010) include the IMO MEPC 61/2/5 decision and a technical report titled 'REPORT OF PRINCIPAL BOW APPROVAL OF ARA PLUS+ WATER TREATMENT SYSTEMS THAT HAVE USE OF THE WATERWAYS'. The report details the final approval process and technical specifications of the ARA PLUS+ BWTS system.

Korean Government(Jul. 2012)

Document for Korean Government approval (Jul. 2012), showing a certificate of approval for the ARA PLUS+ BWTS system issued by the Korean Maritime Administration.

KR Class(Dec. 2013)

Document for KR Class approval (Dec. 2013), showing a Type Approval Certificate for the ARA PLUS+ BWTS system issued by the Korean Register (KR).

BV Class(Feb. 2015)

Document for BV Class approval (Feb. 2015), showing a Type Approval Certificate for the ARA PLUS+ BWTS system issued by Bureau Veritas (BV).

RS Class(Jul. 2017)

Document for RS Class approval (Jul. 2017), showing a Certificate of Approval for the ARA PLUS+ BWTS system issued by the Russian Register of Shipping (RS).

USCGAMS&USCGT/AOI

Document for USCGAMS&USCGT/AOI approval, showing a Letter of Acceptance for the ARA PLUS+ BWTS system issued by the United States Coast Guard (USCG).

ARA PLUS+ BWTS

ADVANTAGES

ECO-FRIENDLY

- No chemical substances used
- No by-products generated
- No neutralizing agents used, therefore no secondary pollutants

CONVENIENCE

- Simple maintenance
- Easy installation to newly constructed and existing vessels
- Easy operation by an automatic control system

COST-EFFECTIVE

- Competitive Price
- Compact size with minimal foot print
- Low Power Consumption

ADVANTAGE

- Exceptional performance of the ARA PLUS+ BWTS in high levels of turbidity
- Differentiation of leakage sensor in UV chamber
- Use of inner polyethylene coating pipes

SAFETY

- Safety for the marine environment
- Safety for your assets and people

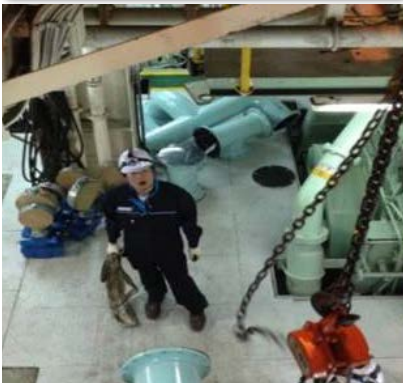


Retrofit

1. Pre-survey & Design



2. Installation on-board



3. Commissioning & Training



Offshore Plant Division

Since 1989, Samkun Century has manufactured and supplied Fresh water & Portable water treatment systems to our clients. We have always strived to be innovative by developing new products; products like our UV sterilizer, Re-hardening Filter and Silver Ion sterilizer. And because of our drive for excellence, we now supply tech-nology-intensive Fresh Water Supply Units.

UV Sterilizer



The UV sterilizer of Samkun Century has a superior operating system. It protects mineral components, but disinfects typical viruses, colitis germs and bacteria in water.
Emission of ultra violet rays : 253.7nm
(Most effective wavelength for removing bacteria)

Hot Water Calorifier



Hot Water Calorifier is designed to proper in environmental conditions of the vessel, and supply hot water. Setting temperature is automatically maintained by Steam heater (or Electric heater). Supplied hot water is used for shower, cooking, and feeding.

High Pressure Washing Pump Unit



High Pressure Washing Pump unit is washing machine for Deck and Tank by using over 160bar high pressure. It consists of HP pump, Tank and Spray Gun etc. If the self closing type connector is installed where cleaning is re uired from the vessel, It can operate in the desired area through a transportable hose reel.

Hydrophore Tank



The purpose of Hydrophore thank is to store fresh water and maintain its pressure.The Hydrophore tank is commonly made by Carbon steel, and the inside is coated with a harmless coating of paint. In addition the manhole of each tank keeps the inside clean. Destructive Test is done for all welding points to secure safety. (Hydrophore tank can be made by Stainless Steel as well).



Auto Filter (Sea water/Fresh water)



Our AutoFilter is pre-treatment filter system with automatic backwash. It consists of several Filter elements on a rotating plate with a drive shaft. Differential pressure is detected automatically and each filter element is back-washed without interruption of filtration process. Mainly it is used for pre-treatment of Seawater Cooling pipe line and BWTS in field of Marine, and also used for pre-treatment of Seawater Cooling pipe line in field of onshore plant.



Grease Trap



“Grease” is an industrial term for animal fats and vegetable oils from waste water in the kitchen. Specific gravity of Grease is 10~15% below water, so Grease doesn't mix with water. The Grease Trap is an essential component of sewage pipes designed to separates the grease from water.



Pressure Vessel



Based on our own design and production technology, we supply various Pressure Vessel in fi various fields, including Marine Shipbuilding, Offshore plant, Power Plant, and Refinery Plant.



Sea water Supply Plant (Sea water Auto Filter)



Personal Protection Cover





Offshore Plant Reference list

	OWNER	PROJECT	SHIPYARD
1	BP	Atlantis Rig	DSME
2	CHEVRON	Agbami FPSO	DSME
3	SEA DRILL	Drill Rig	DSME
4	ODF JELL	Semi-sub Rig	DSME
5	PETROSERV	Drill Rig	DSME
6	ODF JELL	Semi-sub Rig	DSME
7	TRANSOCEAN	Drillship	DSME
8	GRUPO R	Drill Rig	DSME
9	ODF JELL	DP Moored Rig	DSME
10	TMT	Drillship	DSME
11	ODBRECHT	Drillship	DSME
12	PETROSERV	Drill Rig	DSME
13	TOTAL	Pazflor FPSO	DSME
14	TOTAL	CLOV FPSO	DSME
15	RWEI	Wind Turbine Installation Vessel	DSME
16	STATOIL	Semi Rig	DSME
17	EXXONMOBIL	ARKUTUN-DAGI Fixed Platform	DSME
18	TRANSOCEAN	Drillship	DSME
19	ATWOOD	Drillship	DSME
20	VANTAGE	Drillship	DSME
21	ODBRECHT	Offshore Pipe Laying Support Vessel	DSME

	OWNER	PROJECT	SHIPYARD
22	SEA DRILL	Rig	DSME
23	PETRONAS	LNG FPSO	DSME
24	TRANSOCEAN	Drillship	DSME
25	TRANSOCEAN	Drillship	HHI
26	GLOBAL SANTAFE	Drillship	HHI
27	DOCKWISE, NETHERLAND	Semi sub heavy transport vessel	HHI
28	DEAWOO ENGINEERING	SHWE Field	HHI
29	WOODSIDE ENERGY LTD.	NRB Platform	HHI
30	NOBLE	Drillship	HHI
31	DIAMOND	Drillship	HHI
32	SEA DRILL	Semi sub drilling rig	HHI
33	DOLPHIN	Drillship	HHI
34	ROWAN	Drillship	HHI
35	SEA LION	Multi Purpose Off-shore Construction Vessel	HHI
36	EDDA	Offshore accommodation Vessel	HHI
37	DIAMOND	Drillship	HHI
38	TOTAL	Moho Nord FPU	HHI
39	COROCORO	FPSO	SHI
40	ENFIELD	FPSO	SHI





Offshore Plant Reference list

	OWNER	PROJECT	SHIPYARD
41	TANK PACIFIC	Drillship	SHI
42	STENA	Drillship	SHI
43	MOSVOLD	Drillship	SHI
44	TANK PACIFIC	Drillship	SHI
45	NEXUS	FPSO	SHI
46	PETROBRASS	Drillship	SHI
47	STENA	Drillship	SHI
48	PRIDE	Drillship	SHI
49	STENA	Drillship	SHI
50	TANK PACIFIC	Drillship	SHI
51	SAIPEM	Drillship	SHI
52	SCHAHIN	Drillship	SHI
53	BP	SKARV FPSO	SHI
54	VASHI	ONGC	SHI
55	QGOG	Drillship	SHI
56	SEA DRILL	Drillship	SHI
57	TEEKAY	Petrojarl Knarr FPSO	SHI
58	OCEAN RIG	Drillship	SHI
59	MAERSKDRILL- ING	Drillship	SHI
60	SEA DRILL	Drillship	SHI
61	ENSCO	Drillship	SHI
62	OCEAN RIG	Drillship	SHI
63	STATOIL	FSU	SHI

	OWNER	PROJECT	SHIPYARD
64	QGOG	Drillship	SHI
65	SEA JACKS	WTIV	SHI
66	ENSCO	Drillship	SHI
67	MARIER	FSU	SHI
68	PDC	Drillship	SHI
69	STATOIL	Drilling Jack-up	SHI
70	SHELL	Prelude LNG FPSO	SHI
71	TOTAL	Egina FPSO	SHI
72	ENI	Coral South Mozambique LNG FPSO	SHI
73	TECHNIP	Pipe Layer	SHI
74	IOOC	FSU	STX
75	NOBLE	Drillship	STX
76	PERTOSERV	FDPSO Dynamic Producer	STX
77	CHEVRON MODEC	FPSO	SINGAPORE
78	OCEAN APEX	Semi sub mersible drillship	SINGAPORE
79	SEADRILL	Drillship	SINGAPORE
80	TRANSOCEAN	MODU drillship	SINGAPORE
81	PETROBRASS	MV30 FPSO	CHINA
82	PETROBRASS	MV31 FPSO	CHINA
83	ENI,MEXICO	MV34 FPSO	CHINA
84	SHELL	Penguin FPSO	CHINA
85	PETROBRASS/ TANK PACIFIC	FSO	CHINA





Water Treatment Division



Fresh Water Supply Plant

- ▶ Simple Construction
- ▶ Easy Installation
- ▶ Easy Maintenance
- ▶ Easy Operation

The fresh water supply unit supplies fresh, warm and cold drinking water to the crew and consists of a technical system of a water tank, sterilizer, re-hardening filter(mineralizer), calorifier and pumps.

- ▶ Capacity : 1,000 ~ 10,000 L/hr



Auto Chlorinator (Sterilizer)



The function of the Auto Chlorinator is to provide chlorine to water in order to sterilize water which contains a variety of bacteria, bacillus, etc. HOCL & OH Radicals are formed when chlorine dissolves in water. And they have a strong oxidizing power to destroy microorganisms during disinfection. This method can disinfect water with ease and over long periods of time.

- ▶ Capacity : 1,000 ~ 200,000 L/Hr



UV Sterilizer



The UV sterilizer of Samkun Century has a superior operating system. It protects mineral components, but disinfects typical viruses, colitis germs and bacteria in water.

Emission of ultra violet rays : 253.7nm
(Most effective wavelength for removing bacteria)

- ▶ Capacity : 1,000 ~ 30,000 L/hr



F.W. Generator (RO Type)

Reverse Osmosis is most commonly known for its use in drinking water purification from seawater, removing salt and other substances.

Reverse Osmosis is the process of forcing a solvent through a membrane from a region of high solute concentration to a region of low solute concentration by applying a pressure in excess of the osmotic pressure.

▶ Capacity : 5 Ton/day ~ 200 Ton/day



Silver Ion Sterilizer



The bactericidal effect of silver has been useful knowledge since ancient times. Silver foils were used for treating wounds and silver vessels made it possible to store water. We supply a silver ion sterilizer which removes microorganisms by a catalytic method.

▶ Capacity : 1,000 ~ 30,000 L/hr



Ozone Generator (Sterilizer)



Ozone has been used for disinfection of drinking water in the municipal water industry for over 100 years. Ozone can be used for water and air treatment. When ozone disinfects or breaks down harmful bacteria or pollutants, there are generally no by-products. In a short period of time, all odors are simply removed.



Water Treatment Division



Mineralizer (Re-Hardening Filter)

The water which is generated by a freshwater generator in a vessel, can not be used as drinking water directly, because of its pH value, hardness and insufficient mineral components. Therefore using a mineralizer, increases hardness, pH-value and mineral components.

- ▶ Capacity : 1,000 ~ 30,000 L/hr



Hydrophore system of VFD (Variable Frequency Drive)



A specific type of hydrophore system is needed for the efficiency of maintenance and saving energy. Most conventional hydrophore tanks is too heavy and occupies too much space.

A VFD system is used to control process flow without the use of a separate controller. Suitable sensors and electronics are used to interface the driven equipment with the VFD.



Hydrophore Tank



The Hydrophore tank is a pressurized vessel that is used for drinking or the technical water supply. The hydrophore tank is a welded steel interior which is specially coated with epoxy (PE coating or Rubber coating), a manhole is provided on the tank for inspection or the cleaning of the interior. All products test the welding point by penetration inspection.

The Hydrophore unit is available in sizes from 100L to 5000L.

- ▶ Capacity : 1,000 ~ 5,000 L/hr



Hot Water Calorifier

In the galley, everytime hot water is needed, our Hot Water calorifier is the perfect solution. It is used for showers, cooking, feeding etc. Calorifiers supplied for ships are specially designed to be durable from corrosion and vibration, with a long life span and easy maintenance.

- ▶ Capacity : 50 ~ 66,000 L/hr
- ▶ Temperature : 30~ 97 °C



Air Dryer



Heatless Type Air Dryer

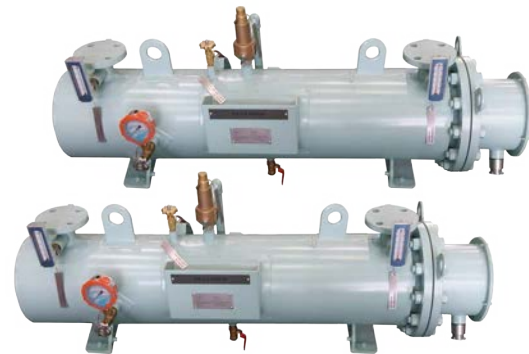


Refrigerated Air Dryer

Excessive water, and atmospheric contaminants in compressed air can cause a variety of operational problems for users of compressed air. These include freezing of outdoor airlines, corrosion in piping and equipment, malfunctioning of pneumatic process control instruments, fouling of processes and products and more. To prevent these problems, an air dryer is used for removing water vapor from compressed air.



Heater



LO PRE-HEATER

It makes proper viscosity of lubricating oil for the purifier and ME/GE by heating lubricating oil at a constant temperature.

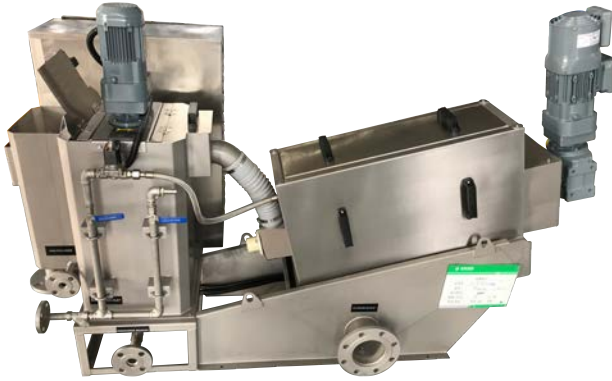
FO PRE-HEATER

Pre-heating lowers the viscosity of heavy fuel so that it can be properly atomized by the burner.

M/E JACKET PRE-HEATER

It keeps cooling water at a constant temperature, when the engine is stopped due to repairs. This is the way to prevent problems which can occur by lowered temperature.

 Water Treatment Division



■■■
Dehydrator

The multy plates is pressurized with screw, which is very compact compared to existing dehydrator, and power consumption is low, so operating cost can be saved. The automatic washing function enables continuous operation 24 hours a day without blockage and can be applied to various wastewater treatment.

- ▶ Water, Food
- ▶ Medicine
- ▶ Dyeing, Detergents
- ▶ Chemicals, Pharmaceutical industry

■■■
Wastewater Treatment Unit for Scrubber



It is Wastewater Treatment unit for Scrubber in Close mode or Hybrid mode for ships, and it purifies the waste water and resupply or discharge it out of ship (to meet the outboard discharge criteria). Our system is Membrane type which is very compact and easy to operate.

■■■
MGPS with strainer (Filter)



The Marine Growth Prevention System (MGPS) is designed to prevent marine life such as barnacle and shellfish by applying current to both copper and aluminum electrode rods. MGPS of SAMKUN CENTURY Co., Ltd. is integrated with STRAINER and is made COMPACT for the best effect in minimal space.



De-Ionizer(Demineralization Unit)

De-Ionizer is a device that removes all minerals that can be found in normal water. Usually, De-Ionizer is used when water is used in chemical processes or when minerals in the water can interfere with other chemicals. The device can be used extensively in many industries and is useful in handling boiler FEED WATER on ships.

Similar devices : ION EXCHANGER and MIXED BED POLISHER (MBP)

- ▶ Capacity : 1,000 ~ 50,000 L/hr



Drinking Water Fountain



The Drinking water fountain is composed of a compressor, condenser, evaporator, silver ion filter, etc. The drinking water provided from the drinking water fountain is directly connected to the fresh water line. Also, the drinking water fountain is able to provide healthy and fine tasting water due to a Silver Carbon Filter which consistently sterilizes its contents. Silver carbon is added to improve the continuity of sterilization.

- ▶ Floor stand type
- ▶ Wall mount type
- ▶ Cold water fountain
- ▶ Hot & Cold water fountain



Hot Water Boiler



The Hot Water boiler is a small electronic appliance used for boiling water and maintaining it at a constant temperature in the galley.

- ▶ Capacity : 10 L
- ▶ Wall mount type

Water Treatment Division

■ ■ ■ Fan Heater



The Fan heater works by using a fan to pass air over a heat element.

The Portable type is for ease in moving with a stainless steel heating element and all devices provide a dual protection against overheating. It has a built-in thermostat and regular power, and a powered whole metal casing cover to resist rust.

- ▶ Heating element : Stainless Steel
- ▶ Adjustable thermostat control Overheat protection
- ▶ With Fan & Cooling
- ▶ Free standing & Portable type

■ ■ ■ Emergency Eye Wash & Shower

The Emergency eye wash & shower is essential equipment when using chemicals and hazardous substances.

Its purpose is to reduce workplace injury and keep workers away from various dangers.

- ▶ Durable-Excellent raw materials / Anti corrosion
- ▶ Reliable-High quality
- ▶ Easy Installation

■ ■ ■ Grease Trap



The Grease Trap separates the grease and solids from waste water in the galley.

It is typically small enough to be installed beneath or adjacent to a sewer line.

- ▶ Capacity : 20 GPM





Water Softener

Water softening is the removal of calcium, magnesium, and certain other metal cations in hard water. Soft water extends the lifetime of plumbing(pipes) by reducing or eliminating scale build-up in pipes and fittings, and extends efficiency of heat exchanger. Water softening is usually achieved using lime softening or ion-exchange resins.



Ozone Generator



An ozone generator is placed inside a foodstuff storage(Vegetable etc) in ships, Ozone is especially efficient in prolonging the life of food materials.



Emergency Shut-Off Valve System (Quick Closing Valve System)



A device that allows you to quickly and remotely close the fuel line and the valves in the tank in case of an emergency, such as a fire.



Onshore Plant Division

Water Treatment System for Onshore Plant

Installation View



- ▶ Main Product : CPP System
- ▶ Project : S-Oil Residue Upgrading Complex Project
- ▶ Client : S-Oil



Installation View

- ▶ Main Product : Water Maker
(1,000m³/day*6train, BWRO)
PE Coating pipe etc.
- ▶ Project : Karbala Refinery Project
- ▶ Client : KOLON e Engineering



Installation View

- ▶ Main Product : Demineralized Water Package
- ▶ Project : NSRP Complex Project
- ▶ Client : KOLON e Engineering





Onshore Plant Division

Water Treatment System for Onshore Plant

Installation View



- ▶ Main Product : Side Steam Filter & Portable Water System
- ▶ Project : S-Oil Residue Upgrading Complex Project
- ▶ Client : S-Oil



Installation View



- ▶ Main Product : Demi Water Treatment System
- ▶ Project : S-Oil Residue Upgrading Complex Project
- ▶ Client : S-Oil

Waste Water Treatment System for Onshore Plant

Installation View



- ▶ Main Product : Biological Treatment
(3,000 m³/day*2train)
- ▶ Project : Karbala Refinery Project
- ▶ Client : KOLON e Engineering





Unit Module (SKID)

F.O. Supply Unit (for M/E)



F.O. Supply Unit (for G/E)



Fresh Water Supply Plant



Front Pipe Skid



F.O. Supply Unit (for M/E)



F.O. Supply Unit (for G/E)

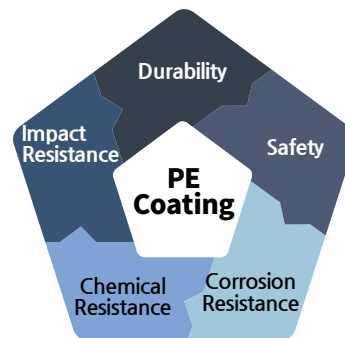
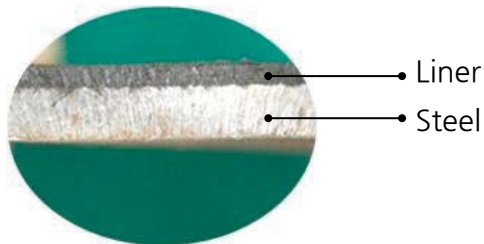


Coating Division

The Coating division supplies outstanding products which have both excellent mechanical properties from steel pipes and rust prevention properties from plastic. The Coating is resistant to seawater and organic solvents, and also doesn't contain dioxins and VOCs (Volatile organic compounds).

We maximize technical efficiency to expand usage of PE/PA coating from sea to land based on our core PE, PA Coating Technology.

PE Coating (Polyethylene)



PE Coating has been applied to Ships, Offshore plants, Power Plants, Water-Supply pipes and Steel tube plants. Main products especially have coated steel pipes for Vessels, Offshore plants and covered-steel pipes.

Applications

- ▶ Sea water line for Ship
- ▶ Offshore Plant
- ▶ Power Plant
- ▶ Cable Tray
- ▶ Water Pipe for Industrial
- ▶ Water Supply & Sewage Pipe
- ▶ Chemical Plant



Metalizing Coating

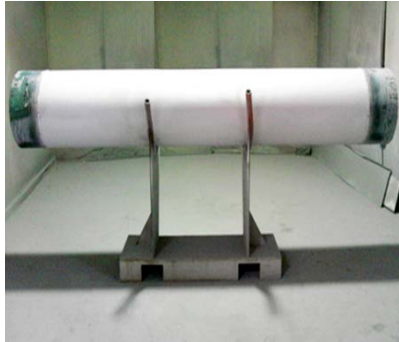


A Metalizing coating is an excellent way to protect iron and steel from corrosion. It is done at a reasonable cost, like painting, but with a long life span. Based on accumulated technological know-how and experience, we offer wind power parts to clients famous for wind power generation; businesses like Gamesa, Vestas Hyosung and Dongyang e&c.

CS PIPE
Shipbuilding & Offshore project



SUS PIPE
Shipbuilding & Offshore project



METALIZING PROCESS
Use : Wind power Size : 2MW



PA Coating (Polyamide)

The best merits of PA Coating are its high physical intensity and low gas permeability. Therefore, PA coating is suitable for high-quality products and is also capable of working on complicated compositions. At the same time, it is harmless to humans.

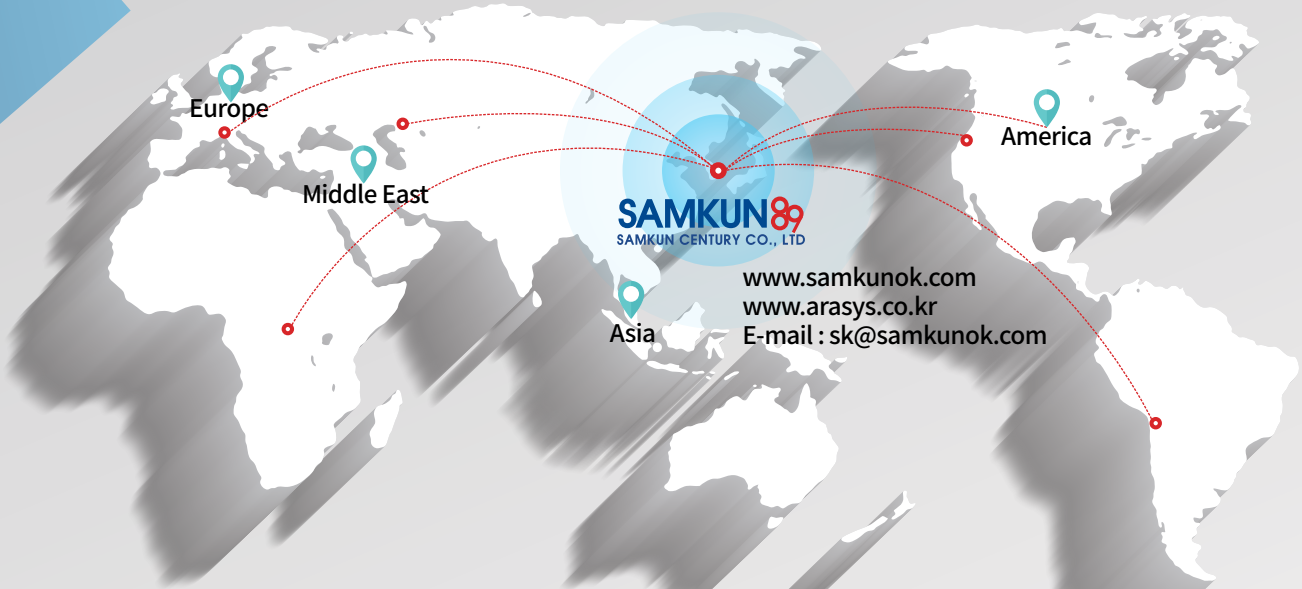


Teflon Coating

Teflon has unlimited application range from the general manufacturing industry, to high-tech semiconductors, to even the aerospace industry.



Worldwide Network



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All Marine Spares International
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USA (West)
Sammar Supply Co,
Tel : 1-909-628-9400

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Metalock
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