

Jsmea News

First Two CRP Azipod-Driven Hybrid Propulsion Plant High-Speed ROPAX Ferries



Mitsubishi Heavy Industries, Ltd. (MHI) has been awarded a contract by Shin Nihonkai Ferry Co., Ltd. to build two large, high-speed ro/pax ferries. Both vessels will be built at MHI's Nagasaki shipyard and delivered in June 2004.

The innovative concept of a single-shaft system that is the combination of contra rotating propellers (CRPs) and a pod drive units is a worldwide first.

Weighing in at 17,000 gross tons, the vessels will measure some 224.5 meters in length and 26 meters in breadth, and navigate a maximum speed of 31.5 knots, making them the largest and fastest vessels of their kind in Japan.

Instead of a twin-shaft propeller solution, these single-skeg vessels will each be equipped with a steerable Azipod unit supplied by ABB Azipod Oy.

This unit will be installed in a contra-rotating mode aft of the mechanically driven main propeller, thus reducing hull resistance from shaft-brackets and improving propeller efficiencies while gaining the contra-rotating principle.

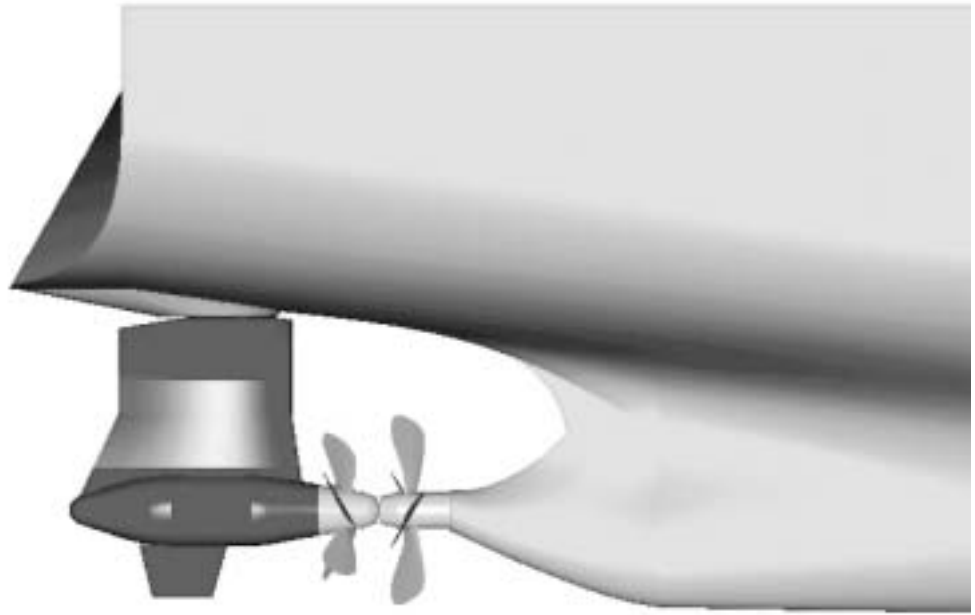
Compared with conventional twin-screw solutions, these single-skeg vessels will be more efficient.

In addition to fuel savings and reduced emissions, steerable Azipods provide a strong thrust in all directions, allowing the vessels to achieve increased harbor maneuverability.

More than 70 pod drive units have already been installed, mainly on passenger vessels around the world, but the sisters will be the first fleet on the globe to arrange CRPs in a single-shaft propeller system.

The two ro/pax ferries will adopt a hybrid system combining a mechanical drive plant comprising main diesel engines powering the main propeller and an electrical drive plant consisting of a main power-generating unit running a motor in a pod.

Making the most of this system, the vessels will be able to navigate at a maximum speed of 31.5



knots, making them the fastest ro/pax ferries in Japan. In addition, they will enjoy similar or even higher reliability than normal two-shaft-propeller ships by separately utilizing their propellers and pods in an effective manner.

This high-level system has been developed as a result of the technologies of MHI, which devotes itself in producing environment-friendly ships, in constructing passenger ships and high-speed vessels as well as its history of building many ferries. Having registered excellent business results for building car ferries at home, MHI will also focus on winning contracts for other types of ferries, taking advantage of receiving the recent order.

■ Principal Particulars

Length O.A.:	224.5m	Maximum Speed:	31.5 knots
Mould Breadth:	26.0m	Passengers:	820
Gross Tonnage:	about 17,000	Main Engine Power:	total 25,200kW
		Generator Power:	total 17,160kW
Cargo Carrying Capacity: Trailers: 158, Passenger vehicles: 66			



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JRC's JHS-180 Automatic Identification System

Japan Radio Co., Ltd. (JRC) has announced the continued success of its JHS-180 AIS (Automatic Identification System). Presently installed and operating on hundreds of oceangoing vessels, JRC's AIS is leading the way in compliance with the new SOLAS regulations, which have initiated the stepped implementation of mandatory fitting schedules.

The conference moved forward the deadline for fitting of AIS on ships engaged in international voyages. Now all such ships over 300 tons and not required to fit AIS at an earlier date, will have to fit AIS at the first safety equipment survey after July 1, 2004, but in any case not later than December 31, 2004. The original deadlines for these ships had been as late as July 1, 2007.

The JHS-180 AIS is a ship-borne system capable of regularly broadcasting its vessel's unique information

and continually receiving and displaying information broadcast from other vessels. All vessels and VTS operators within VHF range and equipped with an AIS transponder can continually receive and display information from other vessels.

New technology known as SOTDMA (Self-Organized Time Division Multiple Access) allows for interoperability and eliminates channel congestion. The VHF data link enables the AIS to "see around corners", allowing avoidance of danger before visual contact has been established. All forms of vessel information including Static and Voyage related data (such as the Ship's Name and Cargoes respectively), as well as its Dynamic Navigational information (i.e., Position, Course, and Speed) can be transmitted and received.

■ JHS-180 Standard Features

1. JRC's combined antenna and transponder design allows for space saving and easy installation on existing vessels. This unit employs the latest in digital processing and circuit integration technology, ensuring high performance and reliability.
2. Collision avoidance is enhanced when interfaced with ARPA Radar equipment and ECDIS.
3. JRC's unique Guard Ring feature with a guard zone setting gives the officer or crew on watch added warning of potential collision threat.
4. Targets masked by Land, Rain, or Sea clutter can be easily identified on a situational display.
5. Warnings to Navigators by the VTS or Coastal Authorities are displayed.
6. Built-in GPS can be used as second source of position data.
7. Long Range Data transfer Interface is available.



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MITSUBISHI SELFJECTOR SJ-G SERIES

Mitsubishi Kakoki Kaisha, Ltd. has unveiled its new Mitsubishi Selfjector SJ-G Series (Genius Series) oil purifiers. The SJ-G Series is the result of 60 years of accumulated oil purifier technology, the reliability of which is substantiated by record sales exceeding 65,000 units.

The SJ-G is its latest model, and it offers increased reliability of purification for low-grade heavy fuel oil due to its NEW HIDENS system, while the development of a super disk yields increased efficiency in the removal of small particles.

Furthermore, the SJ-G Series remains faithful to the development concept employed with the SJ-F Series: "More toughness, less maintenance."

■ Features of SJ-G Series Oil Purifiers

1. Adoption of "G-HIDENS System for high density (up to 1.01g/cm³) oil purifying" that offers high reliability
2. Bowl structure yields excellent separation performance.
3. Model layout matches large engine output.
4. Discharge mechanism delivers high sludge discharge performance.
5. Semi-unit for main body with adoption of new built-in manifold valve, etc.
6. Adoption of Multi-Monitor system integrating detection and display functions.
7. Combined mode for total/partial discharge using pilot valve discharge mechanism (Model GSH-1)
8. Adoption of double impeller method and spiral chute in all models.
9. Direct connection suction pump (Gear type) comes standard.
10. Adoption of graphic control panel. (Model GBC-1 / GBC-2)



SJ-G

Model		SJ10G	SJ20G	SJ30G	SJ50G	SJ60G	SJ70G	SJ100G	SJ120G	SJ150G
Actual Capacity*1	L/Hr	1150	1750	3200	4900	5700	6950	10000	11600	14600
Actual Capacity*2	L/Hr	1250	1950	3550	5450	6350	7750	11200	13000	16300
Motor Output	kW	3.7	5.5		7.5	11		15		18.5

*1: Fuel Oil (380mm²/s/50°C) at 60Hz *2: Lubricating Oil (100mm²/s/40°C) at 60Hz



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Level Watch III Water Ingress Alarm Systems for Bulk Carriers

Musasino Co., Ltd. has begun marketing water ingress alarm systems tailored to the different needs of different shipowners by developing and standardizing sensors that are differentiated according to installation environment. They embody the manufacturer's own proven technology, the quality and safety of its earlier products standing as proof of its reliability.

■ Product Development in Pursuit of Customer Satisfaction

Musasino is well experienced in the manufacture of many different types of level gauges and float switches, and has capitalized on this experience in producing highly reliable water ingress alarm systems that meet the needs of the market. The new products it has developed can be tailored to individual customers' specific requirements.

The sensor for the alarm system for use in a cargo holds with a lower stool is an electromagnetic float type detector (float switch) and that for use in the absence of a lower stool is a non-float type detector. The system for either type of sensor comes equipped with a display panel that includes an intrinsically safe explosion-proof circuit.

Most bulk carriers of the Panamax size and above have lower stools, while Handymax bulkers may or may not have lower stools, while lower stools are completely absent in vessels of the small Handy size and below.

For bulk carriers with lower stools, Musasino recommends the reliable, simple and less expensive float switch type whose performance is proven through use in engine room tanks and bilge wells, while its suggestion for bulkers without lower stools is the non-float

type sensor, such as electrostatic capacitors, many units of which have been successfully used in the cargo tanks of coasting tankers. The manufacturer has tried to optimally adapt, in terms of both reliability and cost, its products to different installation environments by a mixed use of float switches and non-float switches as sensors for the water ingress alarm system and to standardize them for different bulker classes.

■ Inquiry Earned at Sea Japan

During the international maritime exhibition Sea Japan, held in April 2002, where the company exhibited its products including level gauges and float switches, a Japanese shipping line placed an inquiry with Musasino about its water ingress alarm system. Musasino began a study to answer the inquiry. It undertook through research on the cargo hold structure, the type and properties of intended cargo, and the state of bilge discharge from bilge wells in the lower stools to determine the right type of sensors and the right positions and method of their installation.

In December 2002, when installation standards for water ingress alarm systems under the new safety rules were finalized, the company completed its project to develop a highly reliable and inexpensive product. Following the conclusion in March this year of the subcommittee on ships' Design and Equipment of the Maritime Safety Committee (MSC-DE) of the International Maritime Organization (IMO), Musasino started full-scale marketing efforts.

Note: "Level Watch II" units for high liquid level alarming and overflow alarming are now in extensive use, mainly in the cargo tanks of tankers. An outline of the water ingress alarm system is also accessible at Musasino's web site (www.musasino.co.jp/)

1) Float type (for use where there is a lower stool)

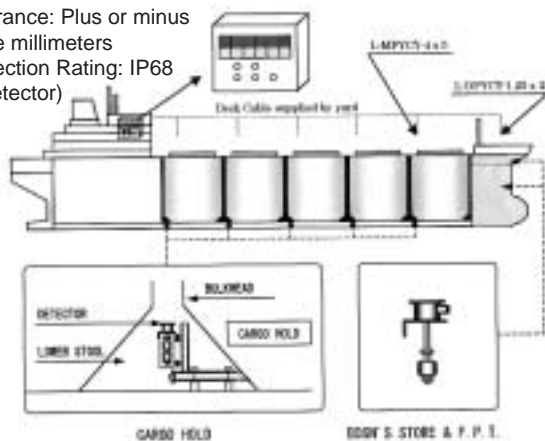
[Main Specifications]

Type: Electromagnetic Float Type

Explosion-Proof Structure: Intrinsically safe explosion-proof type Ex ia IIC T6

Tolerance: Plus or minus five millimeters

Protection Rating: IP68 (detector)



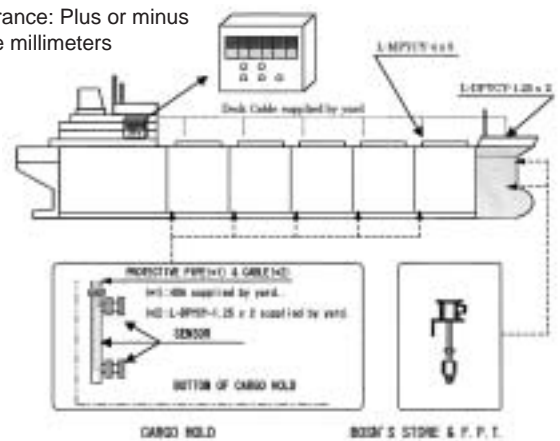
2) Non-float type (for use in the absence of a lower stool)

[Main Specifications]

Type: Electrode type

Explosion-Proof Structure: Intrinsically safe explosion-proof type Ex ia IIC T6

Tolerance: Plus or minus five millimeters



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Explosion-Proof Axial Flow Fan Meeting Exd IICT6 Requirements

Onishi Electric Industry Co., Ltd. has developed a series of axial flow fans, which qualifies for Exd IICT6, the highest explosion-proof class prescribed by the International Electrotechnical Commission (IEC).

Onishi is a leading manufacturer of fans for industrial use, capitalizing on technology and experience that it has built up over many years in tandem with the industrial development of Japan. The company has delivered a significant number of its products not only to Japanese customers but also to clients in many foreign countries. Its axial flow fans, in particular, are designed on the basis of the latest blade theory. They reflect the manufacturer's unceasing efforts to supply products of high quality meeting all conceivable user needs. Onishi's products embody:

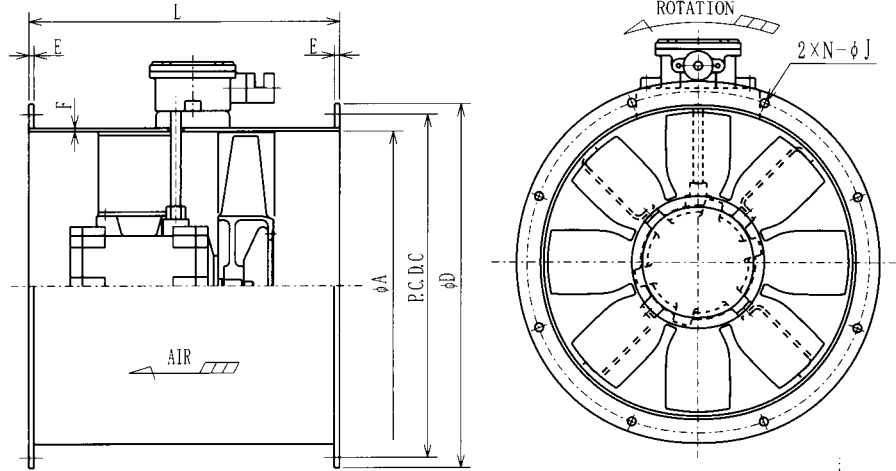
Containerships, which have to

- 1) Abundant delivery records and wide product variety
- 2) Low noise and high efficiency
- 3) Short lead time

be compatible with a wide variety of cargo, were previously limited in the choice of cargoes that could be safely stowed into their holds.

Given that they meet Exd IICT6 requirements, the installation of Onishi fans in cargo holds for ventilation purposes can eliminate restrictions on the types of cargo items that can be stowed in container holds (*see IACS SC79 3.5.), contributing to safer and quicker operation of container-ships.

These fans are already installed in newly built container-ships of major Japanese operators and are contributing to their safe operation.



CLASS	TYPE	OUTPUT kW	POLE	A	C	D	L	N	J	E	F	WT kg
Exd II CT6	3STM4-550	5.5	4	750	820	862	700	8	19	12	6	359
	3STM4-750	7.5		750	820	862	700	8	19	12	6	365
	3STM4-750	7.5		800	870	912	700	8	19	12	6	375
	3STM4-1100	11		900	970	1012	700	8	19	12	6	396
	3STM4-1500	15		950	1020	1062	700	8	19	12	6	411
	3STM4-1850	18.5		950	1020	1062	800	8	19	12	6	566
	3STM4-2200	22		1000	1070	1112	800	10	19	12	6	578

Details

Exd IICT6, providing for the following, is safely applicable to all hazardous gases;

Degree of protection	IP65
Surface temperature	max. 85°C
Temperature class	T6
Explosion group	IIC

kW x Pole	Fan Type	ABS	NK	TIIS*
22kW x 4P	3STM4-2200 (ø1000)	Product Design Assessment (PDA) Certificate Number 02-YO280574-PDA	Type Test	C15251
18.5kW x 4P	3STM4-1850 (ø950)		NO.01T605	
15kW x 4P	3STM4-1500 (ø950)		Type Test	C15250
11kW x 4P	3STM4-1100 (ø900)		NO.01T604	
7.5kW x 4P	3STM4-750 (ø800)			
5.5kW x 4P	3STM4-550 (ø750)			

*TIIS: The Technology Institution of Industrial Safety Japan



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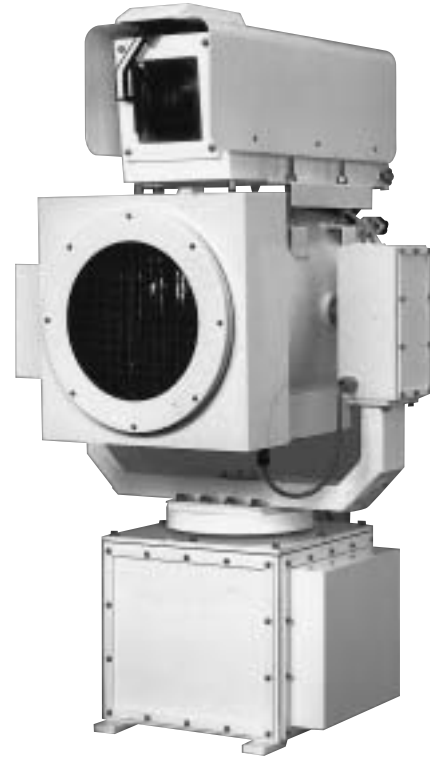
Marine Monitoring Apparatus

Xenon Searchlight with Snooperscopic Function

Sanshin Electric Corporation has developed this apparatus - fitted with a snooperscope camera at the top of a remote-controllable xenon searchlight - mainly for use in nighttime marine monitoring activities at a distance without being detected by the target of monitoring.

■ Features

1. The drive unit has an anti-oscillation function (with a tolerance of $\pm 0.2^\circ$ in oscillation follow-up accuracy at an oscillation angle range of $\pm 15^\circ$ and an oscillation cycle of 8 seconds) to prevent the optical axis of the xenon searchlight and the visual axis of the snooperscope camera from being disturbed by hull oscillation. This function makes stable light rays and images available on a constant basis, day or night, countering the impact of sea waves. Automatic drift correction with reference to the horizontal plane is also possible with signal inputs from a gyrocompass.
2. The light source is a xenon lamp (1.6 kW) with a powerful illuminating capability. It can illuminate not only objects at a long distance but also, with a light pillar angle diffusing device (cylindrical lens) provided in front of the lamp body, uniformly bright illumination in a range from the narrowest angle (2°) to the widest (10°).
3. The snooperscope camera is a high-sensitivity low-illuminance CCD camera compatible with near-infrared rays intended for use in nighttime guard and rescue duties. Equipped with a 33-power optical zoom lens, the camera can provide clear pictures of objects at a long distance. (It has an automatic function that switches between color pictures in the daytime and black-and-white pictures at night). Also, a near-infrared ray wavelength band filter can be installed via remote control in front of the xenon lamp bulb so that monitoring activities can be performed even in complete darkness (zero luxes) where nothing can be observed by the naked eye. The filter will also prevent targets from detecting the light.
4. The monitor unit, with its picture processing board, can display the images picked up by the CCD camera on a zoomed-in scale or as still pictures. It also displays the camera direction according to gyrocompass signals and positional information and date/hours entered from a satellite



5. The snooperscope control unit has a port to output pictures picked up by the camera, and can supply signals to other apparatuses on board, including picture recording devices and transfer devices.

■ Main Particulars

Model	PSX-3016H23W-FV
Operating system	Electric remote control
Xenon lamp capacity	1.6 kW
Maximum light pillar illuminance	Regular: 25,000,000 cd or more Wide angle: 2,500,000 cd or more
Light pillar angle	Regular: About 1.5° Wide angle: 2.5° or more vertically 10° or more laterally
Elevation angle	30° or more downward 30° or more upward
Turning angle	180° or more right and left
Elevation speed	About 0 to 10°/s (variable without interruption) Anti-oscillation type (automatic follow-up)
Turning speed	About 0 to 20°/s (variable without interruption) Anti-oscillation type (automatic follow-up)
Oscillation follow-up accuracy	Within $\pm 0.2^\circ$ (oscillation angle range: $\pm 15^\circ$, oscillation cycle: 8 seconds)
Bearable wind velocity	51.45 m/s or more
Protection type	IP 45
Mass	About 190 kg



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Shonan's Unique Observation Support System

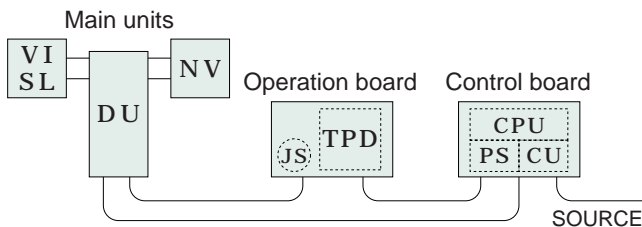
Shonan Co., Ltd. has developed this unique observation system - installed at seaports, airports, and other important facilities; on national borders; and on ships and other vehicles - that permits monitoring and recording of targets without being noticed by them.

It can be particularly useful in the prevention of poaching, smuggling of either personnel or goods, and terrorism.

■ Features

- Full remote control by an electric mechanism, which is easy to operate.
- Waterproof (main units: IP×6)
- Equipped with ultra-sensitive 1/2 CCD image sensor for use day and night.
- Active system using near-infrared radiation.
- Long-range monitoring - 1 km or farther
- Doubles as a powerful searchlight
- Equipped with anti-oscillation device - for use on board

■ Configuration



1 Main units

VI-SL: Radiation unit can be switched between visible light and near-infrared rays

NV: Image pickup unit

DU: Tilting/panning drive unit

2 Operating board

Equipped with all functions for operation of main units plus a color display unit

JS: Joystick for controlling the direction of main units

TPD: Touch panel color display on which commands for controlling VI-SL and NV are arranged; can display pictures on a real-time basis.

3 Control board

Relay device for conveying instructions from the



operating board to main units
 CPU: Arithmetic processor
 PS: Various power supply units
 CU: Various control units

■ Main particulars:

External protection system	IP×6 (for main units)
Operating system	Full remote control by electric mechanism
Power source	AC200~440V 50/60Hz 1/3ø
Lamp	Short arc xenon lamp
CCD image sensor	1/2 type interlacing type 768×494 (EIA) / 752×582 (CCIR)
Lens	500/1,000 mm 33-power zoom lens
Operating angles	Tilting: 30° both ways, up and down Panning: 185° both ways, right and left
Operating speed	0 to 20°/s for both tilting and panning (variable)

■ Expansibility

- Can be linked to radar, gyrocompass, GPS, etc.
- Automatic tracking function
- Minute vibration eliminating function
- VTR, DVD and monitor connectable
- Can be linked to FCS, ATP, etc.
- Can be mounted with image processing function, such as electronic zooming



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STABILO Develops STACON MX for Anti-rolling Tanks

STABILO Co., Ltd. has successfully developed STACON MX, a hybrid fully automatic control system for anti-rolling tanks (ARTs).

To overcome shortcomings of ARTs

The average value of the instantaneous rolling period, which varies from moment to moment under the impacts of such external forces as following wave, head sea, wind direction and wind velocity, tends to fluctuate more as the storm increases in intensity when calculated by the conventional methodology using Fourier analysis of rolling data accumulated over a long period (about 3 to 10 minutes). As a matter of practice, the data accumulated over this time are already past data when they are averaged, making instantaneous control impossible. Furthermore, it is also impossible to effect instantaneous control against the adverse impacts inflicted by free moving water in ARTs on the stability of the ship, which occurs when an outward constant heavy inclination arises in an urgent turning or when the rolling angle is small. Shipowners and crews alike have been calling for improvements in these respects.

Fully automatic system unparalleled in the world

STACON MX, receiving as it does inputs for wind velocity, wind direction, head sea, following wave, ship's speed and rudder angle command information, predicting as it can the states of rolling that the ship is likely to encounter, instantaneously actuates the device and achieves the maximum anti-rolling effect on a continuous basis. In some cases, it can make up for the adverse effect on stability of free moving water in ARTs, long considered the fatal shortcoming of ARTs. Thus STABILO has succeeded in making available for practical use an advanced hybrid control system unparalleled in the world.

Industrial properties acquired or applied for

Patents granted: 5

Utility model rights registered: 3

Patents pending

(including foreign patents): 7

Research commissioned to National Maritime Research Institute

With a view to obtaining experimental endorsement of the effectiveness of control by STACON MX, the company commissioned a research project on the following themes to the National Maritime Research Institute, in July 2002:

- (1) Assessment of the threshold angle for the on/off control of ARTs to improve riding comfort aboard ART-equipped ships during infinitesimal rolling;
- (2) Assessment of anti-rolling efficiency of ARTs against large-amplitude rolling;
- (3) Safety assessment of ART-equipped ships when riding on fair wave, and
- (4) Safety assessment of ART-equipped ships during high-speed turns.

These experiments demonstrated the validity of the sophisticated technologies embodied in the five patents and three utility model rights regarding STACON MX. By incorporating these technologies into the control method, the manufacturer has succeeded in achieving a high anti-rolling efficiency, improved riding comfort and significantly enhanced safety for ART-equipped ships—all of which remain unmatched by the competition.



Stabilo

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STERN KEEPER TYPE SKC

- Simple and Rugged Construction, Easy Installation and Maintenance, High Performance and Durability -

Stern Keeper Co., Ltd., established in April 1989 as a fully owned subsidiary of Keeper Co., Ltd., is engaged in the manufacture, marketing and servicing of marine shafting items, mainly stern seal devices and FRP binding for propeller shafts, which replaces rubber winding.

Stern Keeper Type SKC, in particular, is a (sea) water-lubricated type stern seal device that has been developed to replace gland packing type seals.

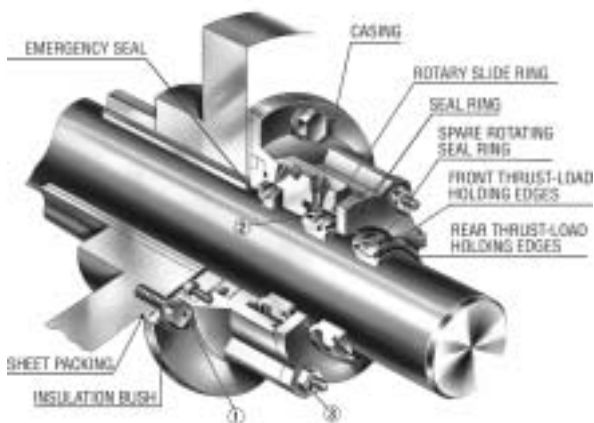
Type SKC, embodying the manufacturer's long experience and expertise, represents the complete solution to all the problems with stern tube seals tied to conventional mechanical seals. Featuring a reversible fixed slide ring and emergency seals offering excellent safety performance, Type SKC is easy to use and reassuring for users in many respects.

Fig. 1 illustrates Type SKC, which is now being used aboard many vessels operated by Japanese fishery laboratories and government offices, training ships deployed by universities and fishery high schools, as well as general merchant ships-all to the full satisfaction of its users.

Stern Keeper Co., Ltd. is moving ahead in pursuit of ever higher performance, greater safety, more practical utility, greater simplicity, lower cost and higher reliability.

Fig. 1 STERN KEEPER TYPE SKC

Features



• **Easy to fit**

Thread the shaft through the parts and tighten the bolts in the sequence of ①, ② and ③ in Fig. 1, and pipe the sealing. Fitting is now complete.

• **Secret of high performance lies in load bearing (Patented)**

The rotary slide ring made of specific synthetic rubber is unparalleled in terms of sealing performance.

• **Convenient fixed slide ring**

Just turn over the fixed slide ring and replace the rotary slide ring with a spare one. The seal is once again like new. The fixed slide ring can be adjusted for reuse.

• **Emergency seal offers excellent safety performance (Patented)**

The seal, consisting of a thick rubber ring contracted by compressed air in the radial direction, is remarkably improved in terms of safety.

• **Protection against galvanic corrosion**

Insulating bushes and packings serve to minimize galvanic corrosion.

• **Reduced installation space**

The reduced overall length of the sealing device contributes to saving installation space.

• **Keeping shaft free from wear**

The shaft is kept free from wear because no part of the sealing is in direct friction with it.

Piping and valve operation

Piping arrangement as illustrated in Fig. 2a ensures safe navigation of the vessel.

Fig. 2b shows valve operation while at sea, and Fig. 2c, valve operation when replacing the seal ring in use with a spare unit.

Fig. 2 PIPING and VALVE OPERATIONS

Fig.2a

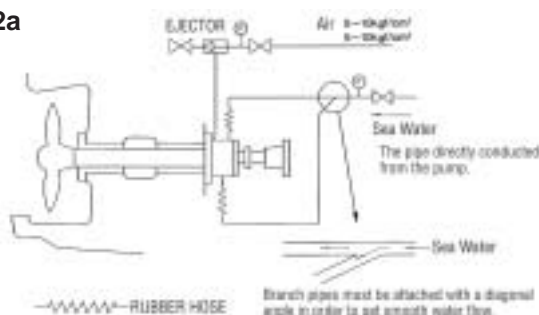


Fig.2b

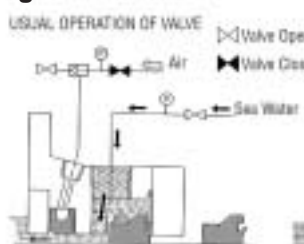


Fig.2c



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Volcano Incinerator

New Models 70, 130 and 200 Added to VIM and VIRM Series

The issue of waste disposal, typically the incineration of refuse and emission of dioxins, is attracting increasing concern not only in industry and on shore in general but also in the marine environment, and official controls in this regard are being tightened every year. In the marine equipment industry, too, regulation of marine incinerators has become more strict under the revised international convention MARPOL 73/78.

Under these tightened controls, standards as strict as those being applied to the disposal of waste on shore are now being applied to similar activities at sea, mainly to prevent the marine environment from becoming polluted with waste oil and other discarded matter as well as to suppress the generation of dioxins.

In the development of the VIM and VIRM series of Volcano incinerators, products meeting these official requirements have been worked out and are now installed in many vessels. In order to further strengthen its ability to address this issue, Volcano has developed several new Models: the 70, 130 and 200.

These new products have already acquired government type certification in nine countries (Japan, Panama, Marshall Island, Liberia, Bahama, Malaysia, Singapore, Vanuatu, Malta).

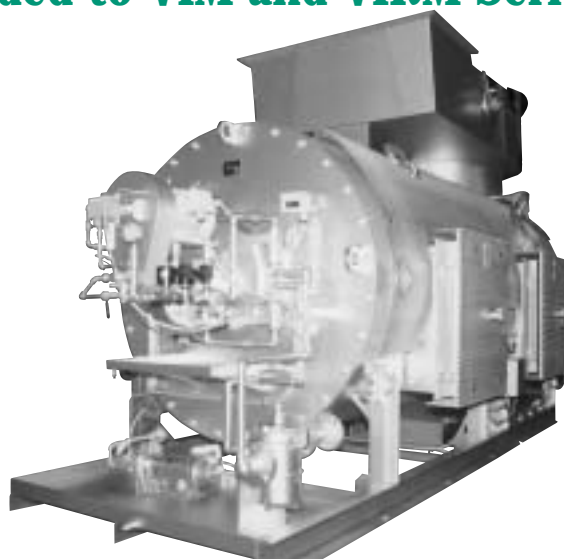
Main specifications and features of the new products are outlined below.

1. Specifications

These series consist of six types that differ in terms of capacity (of waste oil disposal), including 349 (30×10^4), 581 (50×10^4), 814 (70×10^4), 1,163 (100×10^4), 1,500 (130×10^4) and 2,323 (200×10^4) kW (kcal/h). For disposal of solid waste, consecutive charging type incinerators are available, each with a double-door input bucket. (Specifications are slightly different for the 2,326 kW model.) Once the incinerator is started, consecutive charging is possible thereafter. Therefore, the incinerator need not be stopped every time an input of solid waste is charged, resulting in remarkable ease of handling. Together with the waste oil and waste cleaning cloths generated in the engine room, refuse from the crew's everyday life on board can be easily disposed of.

2. Features

Choice of an air jet burner (for the VIM series) and a



rotary burner (for the VIRM series) is available for the incinerator for sludge oil and other oily wastes, matching the different needs of different users. Both burners can achieve satisfactory spray combustion, even when dealing with very coarse oily waste with a high water content.

3. Volcano's unique cylindrical furnace structure

Volcano's incinerator has a cylindrical double structure, with an air cooling jacket on the outer circumference, and an inside surface lined with a castable refractory material. The cylindrical shape of the furnace contributes to the durability of the refractory material, and facilitates maintaining the interior of the furnace at a relatively uniform high temperature, making it possible to incinerate waste in a short period of time.

4. Suppression of dioxins

Generally, some of the dioxins emitted from refuse incineration plants are generated by incomplete combustion of charged waste while others are re-synthesized in a gas temperature region of around 300°C during exhaust gas treatment. Volcano's incinerator series suppress the generation of dioxins by ensuring complete combustion, maintaining the temperature within the combustion chamber at 850°C or above and quickly cooling the exhaust gas to around 200°C at its outlet.

Type of Incinerator		VIM-30	VIM-50	VIM-70	VIM-100	VIM-130	VIM-200
		VIRM-30	VIRM-50	VIRM-70	VIRM-100	VIRM-130	VIRM-200
Max. Disposal Capacity	kW	349	581	814	1,163	1,500	2,323
	Kcal/h	300,000	500,000	700,000	1,000,000	1,300,000	2,000,000
Waste Oil Disposal Capacity	kg/h*(1)	40	58	81	116	151	230
Solid Waste Disposal Capacity	kg/h*(2)	17	30	42	60	60	15kg/batch/30min

Based on IMO standard fuel/waste specification *(1) CV 8600 kcal/kg, *(2) CV 2920 kcal/kg



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JSMEA International Activities Scheduled for 2003

- Participation in International Conference on Marine Technology

Technical experts on diesel engines will be sent to IMO meetings and the consultative meetings of engine builders' associations (EUROMOT, EMA, etc.)

- International Seminar on Shipbuilding and Ship Machinery in Thailand

A seminar concerning Japanese-built ship machinery and the current state of the Japanese ship machinery industry will be held in Bangkok, the Kingdom of Thailand, in September.

- Participation in International Maritime Exhibitions

To make the products and technologies of the Japanese ship machinery industry extensively known overseas, JSMEA will participate in the following prestigious international events:

• NOR-SHIPPING 2003

3-6 June 2003

Norway Trade Fairs, Lillestrom, Norway

• KORMARINE 2003

21-24 October 2003

Busan Exhibition and Convention Center (BEXCO), Busan, Republic of Korea



• Marintec China 2003

2-5 December 2003

Shanghai New International Expo Centre, Shanghai, People's Republic of China

- Publication of Promotional Periodical in English

The association publishes this promotional periodical in English, highlighting the latest technologies and products from the Japanese ship machinery industry, in an effort to make them extensively known to foreign shipowners and shipbuilders. Two issues are scheduled for 2003.

New Line-up of JSMEA's Top Management

The ordinary general meeting held on May 22 decided on the following new line-up of JSMEA's top management:

Chairman	Mr. Yoshio Tamura (Chairman, Daihatsu Diesel Mfg. Co., Ltd.)
Vice Chairman	Mr. Masahiro Tsuji (President, Tsuji Heavy Industries, Ltd.)
Vice Chairman	Mr. Zenshichi Akasaka (President, Akasaka Diesels Limited)
Vice Chairman	Mr. Toyohisa Andoh (Vice President, Yanmar Co., Ltd.)
Vice Chairman	Mr. Motoyoshi Nakashima (President, Nakashima Propeller Co., Ltd.)
Vice Chairman	Mr. Shinzo Yamada (President, Taiyo Electric Co., Ltd.)
Executive Managing Director	Mr. Gyo Yamashita
Managing Director	Mr. Tsuyoshi Yahagi
Managing Director	Mr. Hidetsugu Yoshida

JSMEA

Japanese Marine Equipment Association

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