

# CS2000

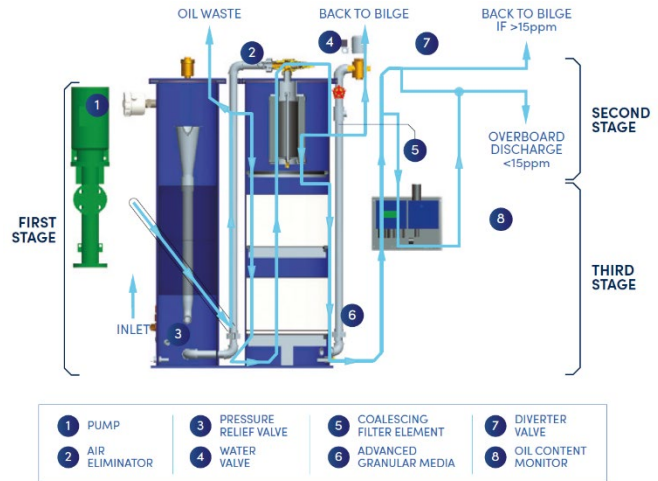
Oily Water Separator  
2.0m<sup>3</sup>/hour



# Victor Marine

## Description

The compact CS Series Oily Water Separator is designed to fit the smallest engine rooms and is easy to install. Its three stage separation system and fully automatic operation is both effective and reliable, whilst making it easy to use and maintain.



## Key Features

- Fully compliant with IMO regulation MEPC 107(49)
- Easy to operate
- No special training required
- Supplied as a complete turnkey package
- Economical to run
- No backwashing or cleaning cycle required
- Proven discharges below 5ppm oil content
- Worldwide support and service
- Our separators are approved by ABS, BV, UKCA, USCG, MED, and comply with DNV's 5ppm CLEAN-DESIGN notation. Other approvals such as CCS and RINA can be provided on request.
- High quality separation is achieved with a three-stage separation process. This involves a hydrophobic high viscosity removal system (Hi-VOR system), an oleophilic coalescing filter element and a final stage containing our Adsorption Granular Media (AGM filtration).

## Technical Information

Capacity	2.0 m <sup>3</sup> /hour 528 US gal/hour
Max Width* (Inc. Maint)	1300mm (2075)
Max Depth* (Inc. Maint)	832mm (1310)
Max height* (Inc. Maint)	1473mm (1750)
Weight	Dry - 500kg Wet - 950kg
Power (kw) – 50Hz (60Hz)	1.1 (1.1) – Inc heater 2.1 (2.1)
Connections (mm/inch)	Inlet Suction - 50 (2") Overboard - 25 (1") Return to Bilge - 25 (1") Recovered Oil - 40 (1.5") Flush Valve - 15 (0.5") Pressure Relief - 15 (0.5")
Pressure (Bar/psi)	Operation - 1.38 (20) Maximum - 3.45 (50)
Water Requirement	No back-washing required. Clean water required for OCM & commissioning. Recommended pressure 0.5 - 4 bar.
Air Requirement	Air Pressure of 4-7 bar for operation of pneumatic valves only.



Globally focussed on cleaner solutions

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## Scope of Supply

Design approved and type tested by Bureau Veritas to satisfy IMO resolution MEPC 107(49) requiring less than 15ppm of oil in the effluent discharge.

The bilge oily water separator system is internally piped and pre-wired with the following items, supplied as a standard unit:-

- 1<sup>st</sup> Stage Hi-VOR (High-Viscosity Oil Removal) System;
- Automatic oil discharge control probe;
- Spring loaded water valve (set @ 1.35bar/20psi);
- 2<sup>nd</sup> Stage Coalescer Cartridge;
- 3<sup>rd</sup> Stage AGM (Advanced Granular Media) filtration unit to handle emulsified oils;
- Pressure relief valve (set @ 3.45bar/50psi);
- Integral positive displacement feed pump;
- Oil Content Monitor;
- Three-Way Diverter Valve Set;
- Standard Direct-On-Line Starter Control Panel.

## Feed Pump and Gearbox Specifications

Type	Progressive Cavity Pump
Gearbox Motor	2.0 m <sup>3</sup> /hr
Electricity supply	380/3/50, 415/3/50, 440/3/60
Ingress Protection	IP 55
Insulation Class	F
Power Absorbed	1.1 kW
Max. Suction head	6 MWC
Max. Delivery head	30 MWC
Material - Casing	Cast Iron
- Rotor	Stainless Steel
- Stator	Nitrile
- Shaft Seal	Packed Gland

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## Painting Standard

Surface Preparation	Swedish standard Sa2½
Internal Paint	Interseal 670HS to @ 125µm
	Interseal 670HS @ 125µm
External Paint	Intergard 251 @ 75µm
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	Interthane 990 @ 50µm
Colour	Victor Marine Standard
	Cobalt Blue - BS5252 18E53

## 15ppm Bilge Oil Content Monitor

Rivertrace Engineering type SMART CELL Bilge Oil Content Monitor, specifically designed and fully compatible with Victor MiniSep™ Oily Water Separators handling marine bilge water discharge. Also includes data logging for 18 months, compliant with IMO resolution MEPC 107(49).

Monitor contains two sets “volt free” external alarm relay contacts to provide the following facilities/operation:-

J4 Alarm 1:	Operation of diverter valve set. (effluent <15ppm - Overboard discharge valve open, Return to bilge closed) (effluent >15ppm - Overboard discharge valve closed, Return to bilge open)
J5 Alarm 2:	Remote alarm facility for connection into ships alarm system. (effluent >15ppm - oily water dumped to bilge well) (For annunciation only)
User Interface:	LCD display 4 line x 16 alphanumeric back-lit LCD display and 3 button keypad

## Three-Way Diverter Valve Set

Should the bilge monitor read an alarm condition then the Diverter Valve Set which is fully assembled within the separator unit should stop discharging the effluent overboard. The Diverter Valve set installed allows the bilge monitor to control the discharge back to the bilge. Once the bilge monitor recognises the separator is within limits, it allows the Diverter Valve set to open again and discharge overboard.

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## Control Panel

### **Standard Direct-on-Line Starter Control Panel – Multi-Voltage**

Direct-on-Line pump motor starter installed in a weatherproof thermoplastic enclosure, protected to IP56, incorporating:

- 1 No Main interlock isolator switch;
- 1 No Contactor;
- 1 No Thermal overload;
- 1 No Low voltage control transformer;
- 1 No Start push button;
- 1 No Stop push button;
- 1 No Run light;
- 1 No Set of power supply terminals to Auto Controls Switch;
- 1 No Set of power supply terminals to Bilge Monitor;
- 1 No Set of terminals for remote start/stop control.

This multi-voltage starter includes all necessary power supplies for the separator. The only shipboard supply required is the incoming power to the interlock isolator. All internal controls are 24V AC.

## **Certification & Documentation**

### 1. **Bilge Oily Water Separator**

- SGS Institut Fresenius GmbH Test Type Approval according to IMO MEPC 107(49)
- Bureau Veritas (BV) Type Approval Certificate
- United States Coast Guard (USCG) Type Approval Certificate
- EC Type Examination (Module B) Certificate issued by Bureau Veritas (BV) for compliance to Marine Equipment Directive (MED)
- EC (Module D) Certificate of Conformity issued by Bureau Veritas (BV)

2.

### **Oily Water Separator System is compliant to and can be issued with (request on order):-**

- American Bureau of Shipping (ABS)
- China Classification Society (CCS)
- Det Norske Veritas (DNV) Bilge Water Separator - 5ppm 'Clean Design' notation
- Nippon Kaiji Kyokai (NKK)
- Russian Maritime Register of Shipping (RMRS)

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### 3. **Bilge Oil Content Monitor**

- Germanischer Lloyd (GL) Type Approval Certificate according to IMO MEPC 107(49)
- EC Type Examination (Module B) Certificate issued by Germanischer Lloyd (GL) for compliance to Marine Equipment Directive (MED)
- EC (Module D) Certificate of Conformity issued by Germanischer Lloyd (GL)
- United States Coast Guard (USCG) Type Approval Certificate

4. Equipment is supplied with a standard, hard copy, one (1) set of Installation, Operating and Maintenance Manuals and drawings in English language plus one (1) CD-ROM version. Additional copies and/or translated versions are chargeable.

## **Limitations**

The efficient performance of plant is limited by the fulfilment of the following conditions:-

1. The hydraulic loadings are within the design limits;
2. The separator is installed and wired in accordance with IMO MEPC 107(49) and the CS Series Manual;
3. The separator is commissioned in accordance with the CS Series Manual;
4. The separator is operated correctly as detailed in the CS Series Manual;
5. The oil content monitor is installed and operated correctly according to the SMART-Cell Manual.

## **Guarantees**

1. Any machinery which fails within 18 months of despatch or 12 months after installation, whichever is sooner, through faulty materials or workmanship, will be replaced free of charge in accordance with the above limitations regulations being fully and correctly complied with. The cost of labour is excluded.
2. All products are sold without liability for consequential loss of any description.

## **Storage**

Victor Marine systems are provided with preservation guaranteed for the duration of transportation. If a period of intermediate storage is foreseen before the system would be commissioned, then the system should be kept inside the original transportation packaging. The storage location should be free from moisture, frost, dust, extreme heat/sunlight (50°C and above), vibrations and shocks. For prolonged storage (over 6 months) please contact Victor Marine's UK office for detailed storage instructions.