

# TYPE APPROVAL CERTIFICATE

**This is to certify:**

**That the 5 ppm Bilge Water Separator**

with type designation(s)

**ULTRA-SEP, models: US250, US500, US500C, US500G, US1000, US1000C, US1000G, US2000, US3000, US5000, US 7500 & US10000**

Issued to

**Compass Water Solutions  
Tustin CA, United States**

is found to comply with

**Det Norske Veritas' Type Approval Programme 771.60 5 ppm Bilge Water Separators**

**Application :**

**Installation of the equipment in spaces subject to explosion hazard is not permitted.**

<b>Type:</b>	<b>Capacity (m<sup>3</sup>/h):</b>
US250	0.25
US500, US500C, US500G	0.50
US1000, US1000C, US1000G	1.00
US2000	2.00
US3000	3.00
US5000	5.00
US7500	7.50
US10000	10.00

This Certificate is valid until **2019-07-07**.

Issued at **Høvik** on **2015-07-08**

for **DNV GL**

DNV GL local station: **Long Beach**

Approval Engineer: **Pål Evang Nundal**

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**Dag Sæle-Nilsen**  
**Head of Section**

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid. The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

## Product description

The equipment is intended for installation in machinery spaces onboard ships for oily bilge water separation: Maximum 5 ppm at discharge overboard. The 5 ppm bilge separators are designed and tested to meet the requirements of TAP 771.60.

The design is made up of two separation stages. The first stage consists of a two stage coalescer. The second stage consists of a pre-polishing five micron depth filter, followed by SPIR-O-LATOR membranes.

## Application/Limitation

Type:	Capacity (m <sup>3</sup> /h):	Max. pump capacity (m <sup>3</sup> /h):
US250	0.25	0.28
US500, US500C, US500G	0.50	0.55
US1000, US1000C, US1000G	1.00	1.10
US2000	2.00	2.20
US3000	3.00	3.30
US5000	5.00	5.50
US7500	7.50	8.25
US10000	10.00	11.00

The following shall be verified during installation:

1. The alarm is always activated whenever clean water is used for cleaning or zeroing purposes;
2. The alarm is always activated whenever no flow of sample through the oil-content meter is detected by the flow sensor;
3. Any alarm will activate the Automatic Stopping Device and lead to recirculation;
4. The overall response time (including the response time of the alarm) between an effluent discharge exceeding 5 ppm oil and to the Automatic Stopping Device preventing the overboard discharge is less than 20 s;
5. By-passing the alarm during normal operation shall by no means be possible;
6. Every access of the alarm (beyond check on instrument drift, repeatability of the instrument reading, and the ability to re-zero the instrument) requires the breaking of a seal.

Limitations:

Installation of the equipment in spaces subject to explosion hazard is not permitted.

A copy of the Operation, installation and maintenance manual shall be on board vessel at all times.

## Type Approval documentation

Listed drawings/ documents refer to all capacities, except as indicated.

### Model US250:

Dwg. No.:	Date:	Rev.:	Title:
US200	2015-05-15	G	Installation
US201	2005-09-12	E	General assembly
US515-TSP	2012-11-13	H	Control panel assembly
US516-TSP	2012-11-13	D	Motor control center
US536	2007-03-08	A	Spir-o-lator assembly
US540-TSP	2008-02-14	H	Schematic
US541	2005-03-08	B	Single line diagram
US550	2015-05-18	G	Process flow diagram
US251	2015-05-15	G	P&id
USMN250	2015-05	1.1	Installation, operation and maintenance manual

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Certificate No: **P-15303**

**Model US500, US500C, US500G:**

<i>Dwg. No.:</i>	<i>Date:</i>	<i>Rev.:</i>	<i>Title:</i>
US500-C	2015-05-15	L	Installation
US502-C	2015-05-18	G	General assembly
US515-C	2013-05-09	C	Control panel assembly
US519-C	2007-08-02	-	Cable schedule
US536-C	2010-05-04	A	Spir-o-lator assembly
US540-C	2013-05-08	B	Schematic
US541-C	2013-05-06	A	Single line diagram
US550-C	2015-05-15	C	Process flow diagram
US551-C	2015-05-15	K	P&id
USMN-SERIES C	2015-05	7	Installation, operation and maintenance manual

**Model US1000, US1000C, US1000G:**

<i>Dwg. No.:</i>	<i>Date:</i>	<i>Rev.:</i>	<i>Title:</i>
US1000-C	2015-05-15	L	Installation
US1002-C	2015-05-18	I	General assembly
US1015-C	2013-05-09	A	Control panel assembly
US1019-C	2007-08-07	-	Cable schedule
US536-C	2010-05-04	A	Spir-o-lator assembly
US540-C	2013-05-08	B	Schematic
US541-C	2013-05-06	A	Single line diagram
US550-C	2015-05-15	C	Process flow diagram
US1051-C	2015-05-15	K	P&id
USMN-SERIES C	2015-05	7	Installation, operation and maintenance manual

**Model US2000:**

<i>Dwg. No.:</i>	<i>Date:</i>	<i>Rev.:</i>	<i>Title:</i>
US2000	2015-05-15	K	Installation
US2001	2015-05-15	L	General layout
US2005	2006-06-16	A	Spir-o-lator layout
US-UCB2015	2012-12-18	-	Control panel assembly
US2016-STD4	2014-07-10	A	Motor control center
US2019-STD4	2014-12-02	-	Cable schedule
US2036	2006-06-29	C	Spir-o-lator assembly
US2040-STD4	2013-05-07	-	Schematic
US2041-STD4	2013-05-07	-	Single line diagram
US550	2015-05-18	G	Process flow diagram
US2051	2015-05-15	J	P&id
USMN2000	2015-05	1.1	Installation, operation and maintenance manual

**Model US3000:**

<i>Dwg. No.:</i>	<i>Date:</i>	<i>Rev.:</i>	<i>Title:</i>
US3000	2015-05-15	J	Installation
US3001	2015-05-15	J	General layout
US3005	2005-09-27	-	Spir-o-lator layout
US-UCB2015	2012-12-18	-	Control panel assembly
US2016-STD4	2014-07-10	A	Motor control center
US2019-STD4	2014-12-02	-	Cable schedule
US2036	2006-06-29	C	Spir-o-lator assembly
US2040-STD4	2013-05-07	-	Schematic

US2041-STD4	2013-05-07	-	Single line diagram
US550	2015-05-18	G	Process flow diagram
US3051	2015-05-15	J	P&id
USMN3000	2015-05	1.1	Installation, operation and maintenance manual

**Model US5000:**

<i>Dwg. No.:</i>	<i>Date:</i>	<i>Rev.:</i>	<i>Title:</i>
US5000	2015-05-15	L	Installation
US5001	2015-05-15	H	General layout
US5005	2006-06-23	B	Spir-o-lator layout
US-UCB2015	2012-12-18	-	Control panel assembly
US2016-STD4	2014-07-10	A	Motor control center
US2019-STD4	2014-12-02	-	Cable schedule
US5036	2006-06-29	B	Spir-o-lator assembly
US2040-STD4	2013-05-07	-	Schematic
US2041-STD4	2013-05-07	-	Single line diagram
US550	2015-05-18	G	Process flow diagram
US5051	2015-05-15	J	P&id
USMN5000	2015-05	1.1	Installation, operation and maintenance manual

**Model US7500:**

<i>Dwg. No.:</i>	<i>Date:</i>	<i>Rev.:</i>	<i>Title:</i>
US7500	2015-05-15	H	Installation
US7501	2015-05-15	G	General layout
US7505	2008-09-15	-	Spir-o-lator layout
US-UCB2015	2012-12-18	-	Control panel assembly
US2016-STD4	2014-07-10	A	Motor control center
US2019-STD4	2014-12-02	-	Cable schedule
US2036	2006-06-29	C	Spir-o-lator assembly
US5036	2006-06-29	B	Spir-o-lator assembly
US2040-STD4	2013-05-07	-	Schematic
US2041-STD4	2013-05-07	-	Single line diagram
US550	2015-05-18	G	Process flow diagram
US7551	2015-05-15	J	P&id
USMN7500	2015-05	1.1	Installation, operation and maintenance manual

**Model US10000:**

<i>Dwg. No.:</i>	<i>Date:</i>	<i>Rev.:</i>	<i>Title:</i>
US10000	2015-05-15	J	Installation
US10001	2015-05-15	H	General layout
US10005	2009-09-09	A	Spir-o-lator alayout
US-UCB2015	2012-12-18	-	Control panel assembly
US2016-STD4	2014-07-10	A	Motor control center
US2019-STD4	2014-12-02	-	Cable schedule
US5036	2006-06-29	B	Spir-o-lator assembly
US2040-STD4	2013-05-07	-	Schematic
US2041-STD4	2013-05-07	-	Single line diagram
US550	2015-05-18	G	Process flow diagram
US10051	2015-05-15	J	P&id
USMN10000	2015-05	1.1	Installation, operation and maintenance manual

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### **Tests carried out**

- TEi – Testing Services-Plumbing Laboratory, *Report of Test*, Report No.: *TS-P00322*, dated 2004-05-24.

### **Marking of product**

The marking shall give at least the following information:

- Identification of manufacturer.
- Equipment type designation or model identification.
- Maximum throughput and maximum influent pressure at which the separator is designed to operate.
- Serial number.
- Revision information, as applicable, for all firmware or software modules installed per hardware unit, necessary to identify the equipment.

### **Periodical assessment**

DNV GL's surveyor is to be given permission to perform Periodical Assessments at any time during the validity of this certificate and at least every second year. The arrangement is to be in accordance with procedure described in Standard for certification No. 1.2 Type Approval Item 4.