DNV·GL

Certificate No:
TAP00001X3

TYPE APPROVAL CERTIFICATE

This is to certify:

That the 5 ppm Bilge Water Separator

with type designation(s)
ULTRA-SEP US250, ULTRA-SEP US500, US500C, US500G, ULTRA-SEP US1000, US1000C, US1000G, ULTRA-SEP US2000, ULTRA-SEP US3000, ULTRA-SEP US5000, ULTRA-SEP US7500, ULTRA-SEP US10000

Issued to
Compass Water Solutions
Tustin, CA, USA

is found to comply with
DNV GL class programme DNVGL-CP-0208 – Type approval – 5 ppm bilge water separators

Application :

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.

Type:	Capacity:
ULTRA-SEP US250	0.25 m3/h
ULTRA-SEP US500, US500C, US500G	0.5 m3/h
ULTRA-SEP US1000, US1000C, US1000G	1.0 m3/hr
ULTRA-SEP US2000	2.0 m3/hr
ULTRA-SEP US3000	3.0 m3/h
ULTRA-SEP US5000	5.0 m3/h
ULTRA-SEP US7500	7.5 m3/h
ULTRA-SEP US10000	10.0 m3/h

Issued at **Høvik** on **2019-07-08**
This Certificate is valid until **2024-07-07**.
DNV GL local station: **Long Beach**

Approval Engineer: **Thomas Grafton**

for **DNV GL**

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.

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Product description

The 5 ppm Bilge Water Separation System Type 'ULTRA-SEP' is intended for installation onboard ships or other marine units to reduce the oil content in bilge water to less than 5 ppm. The equipment is designed and tested to meet the requirements of DNVGL-CP-0208.

The 'ULTRA-SEP' system uses a duel stage separation process: i) incoming bilge water passes through a 'HELI-SEP' unit consisting of coalescers and a polishing pack, ii) the feed pump then pressurizes the partly treated bilge water for processing through a process filter. Then, the pressure and flow rate are adjusted by the process pump which drives the partly treated water into the 'SPIR-O-LATOR' membrane units at high velocity. The output is processed water with oil content less than 5ppm.

The waste oil from the 'HELI-SEP' unit is held in an oil separation chamber which is discharged occasionally through an oil discharge line. The concentrate with rejected oils and waste from the 'SPIR-O-LATER' units is recirculated back to the inlet of the process filter for reprocessing. A small proportion of this recirculate is continuously bled off to the bilge/bilge water holding tank.

Application/Limitation

Application:

Model:	***Max. Flowrate (m^3/h)***	***Supply Pump Capacity (*) (m^3/h)***
US250	0.25	0.25
US500, US500C, US500G	0.50	0.50
US1000, US1000C, US1000G	1.00	1.00
US2000	2.00	2.00
US3000	3.00	3.00
US5000	5.00	5.00
US7500	7.50	7.50
US10000	10.00	10.00

Applicable to all Models	
Operating Pressure:	345 – 690 kPa
Operating Temperature of Bilge Water:	1 – 50 °C
Power Supply:	440 – 480 V / 60 Hz, 3-phase 380 – 415 V / 50 Hz, 3-phase
Inclination Range:	0 to 22.5 degrees

(*) The 'ULTRA-SEP' Series are fitted with an integral centrifugal supply pump and associated control valves. The pump capacity is configured by adjustments to the control valves and the correct values are set during the factory acceptance test.

Limitations :

The equipment is not permitted to be installed in spaces subject to explosion hazards.

The 'ULTRA-SEP' Series are fitted with an integrated 5ppm Oil Content Monitor required by DNV GL optional Class Notation **Clean(Design)**. The 5ppm Oil Content Monitor shall be provided with separate DNV GL Type Approval Certificates (to standard DNVGL-CP-0485).

Pumps listed in the Type Examination Documentation may be exchanged for another manufacturer with the same pump speed delivery characteristics curve. The new and old pump speed delivery characteristics curve shall be included with the copy of this certificate delivered with the Separator.

Installation:

The following shall be verified after installation: -

1. An alarm in the 5ppm Oil Content Monitor is always activated whenever clean water is used for cleaning or zeroing purposes.
2. An alarm in the 5ppm Oil Content Monitor is always activated whenever no flow of sample through the oil content monitor is detected by the flow sensor
3. Any alarm in the 5ppm Oil Content Monitor will activate the automatic stopping device preventing overboard discharge and lead to recirculation
4. The overall response time (including the response time of the 5 ppm Bilge Monitor) between an effluent discharge from the 15 ppm Bilge Separator exceeding 5 ppm, and the operation of the Automatic Stopping Device preventing overboard discharge, shall be not more than 20 seconds.
5. Every access of the alarm (beyond check on instrument drift, repeatability of the instrument reading, and the ability to re-zero the instrument) requires breaking of a seal.

A copy of the Operation, installation and maintenance manual shall be available on-board the ship/marine unit at all times.

Type Approval documentation

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

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

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			

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			

US2000	2015-05-15	K	Installation
US2001	2015-05-15	L	General layout
US2005	2006-06-16	A	Spir-o-lator layout
US-UCB2015	2017-06-28	B	Control panel assembly
US2016-STD4	2014-07-10	A	Motor control center
US2019-STD4	2014-12-02	-	Cable schedule
US2036	2018-05-07	D	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

US3000	2015-05-15	J	Installation
US3001	2015-05-15	J	General layout
US3005	2005-09-27	-	Spir-o-lator layout
US-UCB2015	2017-06-28	B	Control panel assembly
US2016-STD4	2014-07-10	A	Motor control center
US2019-STD4	2014-12-02	-	Cable schedule
US2036	2018-05-07	D	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

US5000	2015-05-15	L	Installation
US5001	2015-05-15	H	General layout
US5005	2006-06-23	B	Spir-o-lator layout
US-UCB2015	2017-06-28	B	Control panel assembly
US2016-STD4	2014-07-10	A	Motor control center
US2019-STD4	2014-12-02	-	Cable schedule
US5036	2018-05-07	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
US5051	2015-05-15	J	P&id

US7500	2015-05-15	H	Installation
US7501	2015-05-15	G	General layout
US7505	2008-09-15	-	Spir-o-lator layout
US-UCB2015	2017-06-28	B	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	2018-05-07	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
US7551	2015-05-15	J	P&id

US10000	2015-05-15	J	Installation
US10001	2015-05-15	H	General layout
US10005	2009-09-09	A	Spir-o-lator layout
US-UCB2015	2017-06-28	B	Control panel assembly
US2016-STD4	2014-07-10	A	Motor control center
US2019-STD4	2014-12-02	-	Cable schedule
US5036	2018-05-07	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
US10051	2015-05-15	J	P&id

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 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

Retention survey to be performed according to Type approval program DNVGL-CP-0338:

- This certificate is valid for five years and periodical assessments will be required after 2 years (+/- 90 days) and 3.5 years (+/- 90 days).

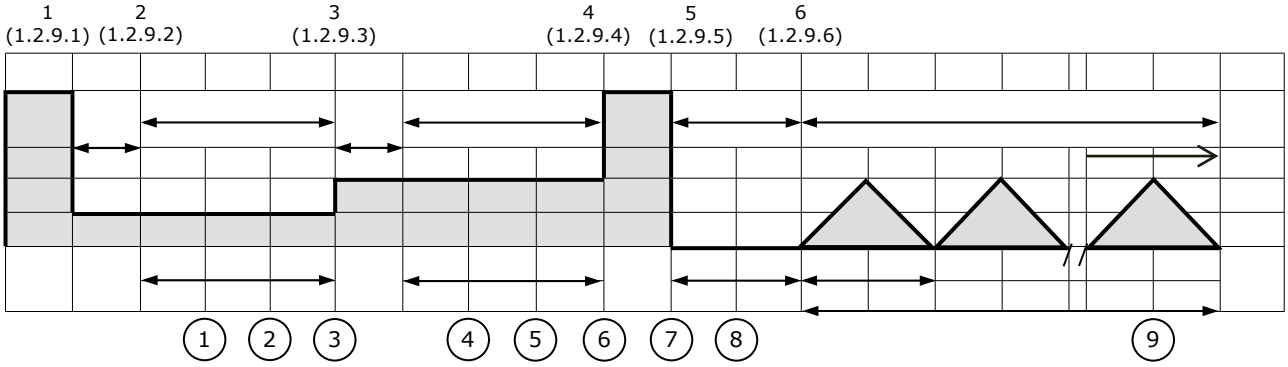
This certificate replaces previous Type Approval Certificate No. P-15303.

APPENDIX – ULTRA-SEP 500

Test data and results of tests conducted on a 5 ppm Bilge Separator in accordance with DNVGL-CP-0208.

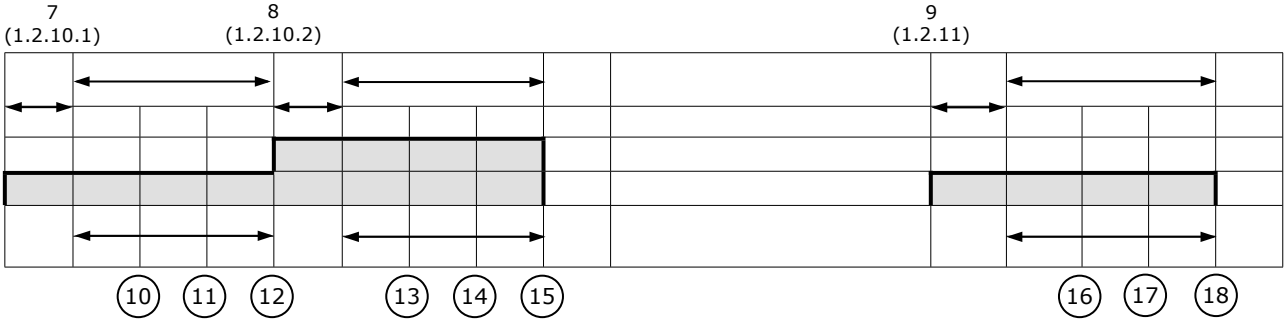
TEST RESULTS AND TEST PROCEDURES

TEST FLUID "A"



TEST FLUID "B"

TEST FLUID "C"

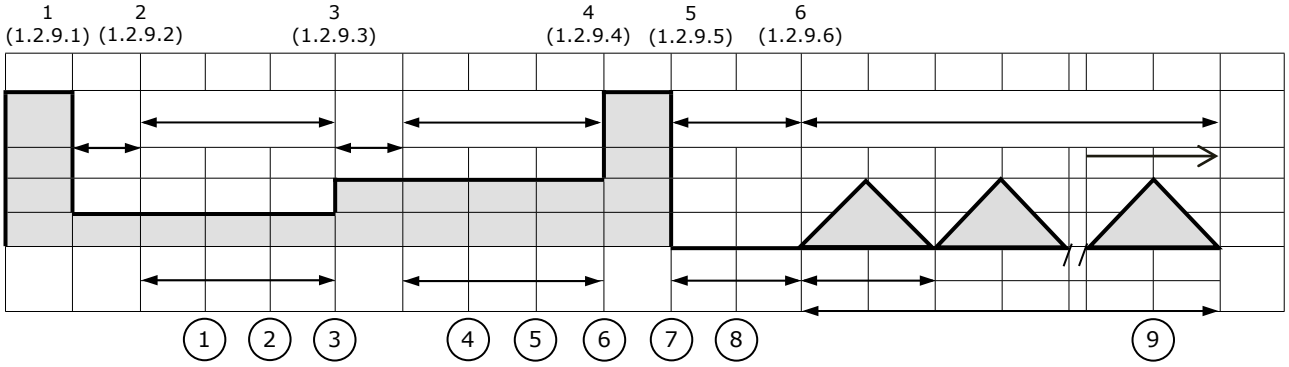


APPENDIX – ULTRA-SEP 7500

Test data and results of tests conducted on a 5 ppm Bilge Separator in accordance with DNVGL-CP-0208.

TEST RESULTS AND TEST PROCEDURES

TEST FLUID "A"



TEST FLUID "B"

TEST FLUID "C"

