



DET NORSKE VERITAS

EC-TYPE EXAMINATION CERTIFICATE

[2] EQUIPMENT OR PROTECTIVE SYSTEM INTENDED FOR USE IN POTENTIALLY EXPLOSIVE ATMOSPHERES DIRECTIVE 94/9/EC

[3] EC-Type Examination Certificate Number: **DNV 11 ATEX 04992X**

[4] Equipment or Protective System: **Hyde Guardian Ballast Water Treatment System**

[5] Applicant – Manufacturer or Authorized representative: **Hyde Marine**

[6] Address: **2000 McClaren Woods Drive
Coraopolis, PA 15108**

[7] This equipment or protective system and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

[8] DNV, notified body number 0575 in accordance with Article 9 of Council Directive 94/9/EC of 23 March 1994, certifies that this equipment or protective system has been found to comply with the Essential Health and Safety requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres given in Annex II to the Directive.


The examination and test results are recorded in confidential reports listed in section 14.

[9] Compliance with the Essential Health and Safety Requirements has been assured by compliance with:
EN 60079-0: 2009 and EN 60079-2: 2007

[10] If the sign “X” is placed after the certificate number, it indicates that the equipment or protective system is subject to special conditions for safe use specified in the schedule to this certificate.

[11] This EC-TYPE EXAMINATION CERTIFICATE relates only to the design and construction of the specified equipment or protected system. If applicable, further requirements of this Directive apply to the manufacturer and supply of this equipment or protective system.

[12] The marking of the equipment or protective system shall include the following:

 **II 2 G Ex c d e ia ib px T4 Gb 0°C ≤ Ta ≤ 45°C**

Høvik, 2011-12-09
for Det Norske Veritas AS

Marianne Spæren
Certification Manager



Notice: This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid.

The digitally signed and electronically distributed document is the original and valid certificate. Ref.: www.dnv.com/digitalsignatures

If any person suffers loss or damage which is proved to have been caused by any negligent act or omission of Det Norske Veritas, then Det Norske Veritas shall pay compensation to such person for his proved direct loss or damage. However, the compensation shall not exceed an amount equal to ten times the fee charged for the service in question, provided that the maximum compensation shall never exceed USD 300.000. In this provision "Det Norske Veritas" shall mean the Foundation Det Norske Veritas as well as all its subsidiaries, directors, officers, employees, agents and any other acting on behalf of Det Norske Veritas.



[13]

Schedule

[14] EC-TYPE EXAMINATION CERTIFICATE No.: DNV 11 ATEX 04992X

Certificate History

Revision	Description	Report no.	Issue date
-	Original certificate	2011-3432	2011-12-09

[15] Description of Equipment or Protective System

The Hyde Marine Ballast Water Treatment System (BWTS) consists of several components installed together to create a complete certified system. These components include the Power Supply Panel, Pump Control Panel, Control Panel, Pump, Filter, UV Vessel, and several Valves/Sensors/Switches/Solenoids.

The Power Supply Panel, Control Panel, and Pump Control Panel are all installed a non-hazardous location and provide power and control signals to the rest of the equipment in the system. The Pump Control Panel provides power to an ATEX certified pump in the hazardous location, while the Power Supply Panel provides power to the Control Panel and the UV lamps inside the UV Vessel. The Control Panel provides power and control signals to the remaining components in the hazardous location via ATEX certified barriers. The Pump, UV Vessel and all Valves/Sensors/Switches/Solenoids are all in the hazardous location. Each one is ATEX certified and has been evaluated for use in the completed BWTS system.

Type Identification

Hyde Guardian HG****, where **** equals the flow rate in m³/hr

Electrical Data

Power supply panels: 400-690VAC

Pump control panel: 200-690VAC

Degrees of protection (IP Code)

UV Vessel is IP4X

Purge data

Minimum Purging Rate	141 l/min
Protective Gas	Dry Air
Minimum Purging Duration	5 Minutes
Minimum Overpressure	62 Pa
Maximum Overpressure	995 Pa
Minimum Supply Flow Rate	0.5 l/min
Minimum Supply Pressure	0.3 MPa
Maximum Supply Pressure	0.7 MPa
Maximum Leakage Rate	10 l/min

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[16] Project No.: PRJC-281578-2010-PRC-USA

Descriptive Documents

Number	Title	Rev.	Date
G100362	Schedule Drawing, List of ATEX Critical Components, ATEX	5	2011-11-23
G100359	Schedule Drawing, System Overview, ATEX	4	2011-11-23
G100363	Schedule Drawing, System Configuration 1 of 5, ATEX	2	2011-11-23
G100364	Schedule Drawing, System Configuration 2 of 5, ATEX	2	2011-11-23
G100365	Schedule Drawing, System Configuration 3 of 5, ATEX	2	2011-11-23
G100366	Schedule Drawing, System Configuration 4 of 5, ATEX	2	2011-11-23
G100367	Schedule Drawing, System Configuration 5 of 5, ATEX	2	2011-11-23
G300039	UV Schedule 16" UV Detail, ATEX	4	2011-11-23
G300040	UV Schedule 20" UV Detail, ATEX	4	2011-11-23

[17] Special Conditions for Safe Use

1. The electrical earth bonding of all equipment shall be ensured during installation of the system.
2. All equipment has been evaluated as acceptable when assembled into a completed system. However, care must still be taken to ensure that all Special Conditions of Safe Use and installation requirements of the individual components are considered during installation of the system.

[18] Routine Tests

1. The manufacturer shall verify the correct operation of the purging system. Opening the enclosure during the purging cycle shall cause the purging system to reset. Power must not be connected until the purge cycle has completed.
2. The Manufacturer shall apply an overpressure of 1493 Pa for 2 minutes +/- 10s and verify no permanent deformation occurs in accordance with EN 60079-2:2007, Clause 16.1.
3. The Manufacturer shall apply a pressure of 995 Pa, at a maximum supply pressure of 0.7 MPa, and verify the leakage rate does not exceed 10 l/min. Test to be performed in accordance with EN 60079-2:2007, Clause 16.2.

[19] Essential Health and Safety Requirements

See part 9 of this certificate

END OF CERTIFICATE

If any person suffers loss or damage which is proved to have been caused by any negligent act or omission of Det Norske Veritas, then Det Norske Veritas shall pay compensation to such person for his proved direct loss or damage. However, the compensation shall not exceed an amount equal to ten times the fee charged for the service in question, provided that the maximum compensation shall never exceed USD 300.000. In this provision "Det Norske Veritas" shall mean the Foundation Det Norske Veritas as well as all its subsidiaries, directors, officers, employees, agents and any other acting on behalf of Det Norske Veritas.