



Type Approval Certificate of Ballast Water Management System


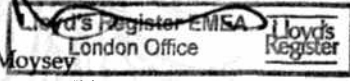
This is to certify that the Ballast Water Management System listed below has been examined and tested in accordance with the requirements of the specifications contained in the Guidelines contained in IMO resolution MEPC.174(58). This certificate is valid only for Ballast Water Management system referred to below.

This certificate is issued to

Producer	Hyde Marine Inc.	
Address	28045 Ranney Parkway, Cleveland, Ohio 44145, United States of America (USA)	
Ballast Water Management System supplied:	Hyde Marine Inc.	
Under type and model designation and incorporating:	Hyde GUARDIAN™, Type HG 300, incorporating types HG 60 to HG 6000	
Ballast Water Management System manufactured by:	Hyde Marine Inc.	
To equipment/assembly drawing No:	E5868-00, Rev. J	Date: undated
Other equipment manufactured by:	Berson Milieutechniek BV Arkal Filtration Systems	
To equipment/assembly drawing No:	E5868.1, Rev. A E5868.3, Rev. A	Date: undated undated
Treatment Rated Capacity:	60 to 6000	m ³ /h

A copy of this Type Approval Certificate should be carried on board a vessel fitted with this Ballast Water Management System at all times. A reference to the test protocol and a copy of the test results should be available for inspection on board the vessel. If the Type Approval Certificate is issued based on approval by another Administration, reference to that Type Approval Certificate shall be made.

Limiting Conditions imposed as described in the Design Appraisal Document forms part of this certificate. This certificate remains valid up to the expiry dated unless cancelled or revoked, or until such date where it is superseded by the requirements of the Marine Equipment Directive whichever is the earlier, provided the conditions in the attached schedule are complied with and the equipment remains satisfactory in service.

Date of issue	29 April 2009	Expiry date	28 April 2014
Certificate No.	MCA 0900032	Signed	
Sheet No	1 of 1	Name	 P. F. Moysey Surveyor to Lloyd's Register EMEA A Member of the Lloyd's Register Group

Note:

This certificate is not valid for equipment, the design or manufacture of which has been varied or modified from the specimen tested. The manufacturer should notify the nominated body named on this certificate of any modification or changes to the equipment in order to obtain a valid Certificate.



Maritime and Coastguard Agency
An Executive Agency of the Department for Transport

This certificate is issued under the authority given in Merchant Shipping Notice No MSN 1735 (M+F) as amended to date.

Lloyd's Register, its affiliates and subsidiaries and their respective officers, employees or agents are, individually and collectively, referred to in this clause as the 'Lloyd's Register Group'. The Lloyd's Register Group assumes no responsibility and shall not be liable to any person for any loss, damage or expense caused by reliance on the information or advice in this document or howsoever provided, unless that person has signed a contract with the relevant Lloyd's Register Group entity for the provision of this information or advice and in that case any responsibility or liability is exclusively on the terms and conditions set out in that contract.

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DESIGN APPRAISAL DOCUMENT

Date 29 April 2009	Quote this reference on all future communications LDSS/PAS/W002001213/PFM/O-99220
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ATTACHMENT TO TYPE APPROVAL CERTIFICATE OF BALLAST WATER MANAGEMENT SYSTEM
No. MCA 0900032

The undernoted documents have been appraised for compliance with the relevant international Conventions and UK legislation for the Type Approval of Ballast Water Management Systems for use on Merchant Ships Registered in the United Kingdom.

This Design Appraisal Document forms part of the Certificate that is issued under the authority given in the MCA merchant Shipping Notice no. MSN 1735.

APPROVED RATINGS

Model	Flow rate	Filter unit	UV unit
HG 60	60	3"x8	080620
HG 150	150	4"x4	160620
HG 250	250	4"x6	160635
HG 300	300	4"x6	160835
HG 350	350	4"x8	161235
HG 400	400	4"x8	161235
HG 450	450	4"x10	161235
HG 500	500	4"x12	201235
HG 600	600	6"x8	201235
HG 700	700	6"x10	201835
HG 800	800	6"x12	201835
HG 900	900	6"x12	201835
HG 1000	1000	6"x14	201850
HG 1250	1250	6"x16	201850
HG 1350	1350	6"x18	201850
HG 1400	1400	6"x20	201850
HG 1500	1500	6"x20	201835x2
HG 1600	1600	6"x24	201835x2
HG 2000	2000	6"x28	201850x2
HG 2500	2500	6"x32	201850x2
HG 3000	3000	6"x42	201850x3
HG 4000	4000	6"x56	201850x3
HG 5000	5000	6"x64	201850x4
HG 6000	6000	6"x80	201850x5

Filters:

Filtration grade (µm): 55

UV-C Light Source:

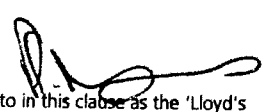
Size of chamber (inch): 8, 16 & 20

Number of lamps: 6, 8, 12 & 18

Lamp power (kW): 2, 3.5 & 5

Max. water pressure (bar): 10

Max. water temperature (°C): 80



DESIGN APPRAISAL DOCUMENT

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APPROVAL DOCUMENTATION

Request form	07 Apr 209
Hyde Marine drawing no. E5868-00, rev. J	undated
Hyde Marine drawing no. E5868.1, rev. A	undated
Hyde Marine drawing no. E5868.3, rev. A	undated
Hyde Guardian Ballast Water Treatment System, Operation and Maintenance Manual, CGS Manual Iss. 1	undated
Hyde Guardian Filter Service and Maintenance Manual	undated
Hyde marine InLine UV System Operations and Maintenance Manual, Version 2.0	July 2008
Hyde Guardian Electrical Components by Location	undated
Hyde Marine email	08 Apr 2009
Hyde Marine letter	07 Apr 2009

TEST REPORTS

Environmental acceptability evaluation of the Hyde Guardian Ballast water Treatment System as part of the Type Approval Process, Version 2	13 Feb 2009
Royal Netherlands institute for Sea Research (NIOZ) final report of the land-based testing of the Hyde-Guardian™ system	January 2009
University of Maryland Center for Environmental Sciences report of shipboard trials of the Hyde 'Guardian' system in Caribbean Sea and Western Pacific Ocean	January 2009
Lou Baxter & Associates report	06 Mar 2009
Lou Baxter & Associates report	30 Mar 2009
Summary of the test results for the shipboard and land based trials of the Hyde GUARDIAN™ Ballast Water Treatment System	27 Apr 2009
LR Chicago visit report, ref CGO 0951042	28 Apr 2009

CONDITIONS OF CERTIFICATION

1. Within five years, the licensee must submit a report to the United Kingdom's competent authority, the Maritime and Coastguard Agency (MCA), detailing all experiences with the operation of the ballast water system, including results and analysis of any scientific research relevant to the safe operation and environmental impact of the system.
2. Notwithstanding the requirement to report before the fifth anniversary of the date of the type approval certificate the licensee is required to comply with the following additional provisions:
 - 2.1 The licensee must report immediately all events to the MCA leading to harm either to human health or the environment as a result of the operation of the ballast water management system.
 - 2.2 Any indications that the ballast water management system is not performing to the standards of the ballast water convention must be reported to the MCA including any deficiencies identified by port State control.

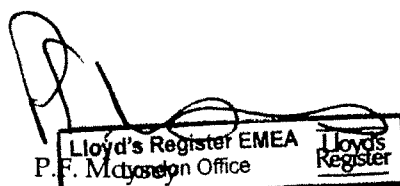


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- 2.3 All accidents (e.g., accidental exposure to UV) in connection with the ballast water management system must be reported immediately to the MCA.
- 2.4 Significant changes in the construction of the ballast water management system must be reported to both the MCA and the recognised organisation that issued the type approval certificate on behalf of the MCA; if they potentially affect the efficiency of the system, they must be approved by the MCA.
- 2.5 The licensee must take reasonable measures to ensure that the operator of the system is familiar with the operation of the system and is capable of operating and maintaining the system in accordance with the operating manual.
- 2.6 If the licensee does not comply with these additional provisions, the type approval may be revoked by the MCA.
3. Details of the location of the Hyde GUARDIAN™ ballast water treatment system, and its connection into the ship's ballast system are to be shown on the ship's plans, which are to be submitted for approval.
4. The Hyde GUARDIAN™ ballast water treatment system is not approved for use in hazardous areas.


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Product Approval Services,
London Design Support Services
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Part 10

Subject: Marine Equipment (MSA)
 Product: Marpol Equipment (MCA)

Producer	Product	Type and Details	Standard(s)	Remarks	Cert. No.
Hyde Marine, 28045 Ranney Parkway, Cleveland, Ohio, 44145, United States of America (USA).	Hyde GUARDIAN™	Ballast water treatment system using filtration and UV-C light, in accordance with the requirements of IMO resolution MEPC.174(58): Types: HG 60 to HG 6000 Flow rate (M ³ /hr): 60 to 6000 Filtration grade (µm): 55 Filter unit diameter (inch): 3, 4 & 6 UV-C light source Size of chamber (inch): 8, 16 & 20 Number of lamps: 6, 8, 12 or 18 Lamp power (kW): 2, 3.5 or 5 Max. water pressure (bar): 10 Max. water temperature (°C): 80	Treatment of ship's ballast water in accordance with the requirements of IMO resolution MEPC.174(58)	Expires: 28 April 2014	MCA 0900032

