

## CERTIFICATE OF TYPE APPROVAL

This is to certify that

LLOYD'S REGISTER, specified as a "person" under the terms of The Merchant Shipping (Delegation of Equipment Approval) Regulations 1996, did undertake the relevant type approval procedures of the equipment identified below which was found to be in compliance with the essential pollution prevention requirements subject to any conditions in the Design Appraisal Document hereto.

<b>Producer</b>	MARTEK MARINE LTD Century Business Park Manvers Way Rotherham, S63 5DA United Kingdom (UK)
<b>Address</b>	
<b>Equipment Description</b>	Marine diesel exhaust gas monitoring system
<b>Type</b>	MariNOx ® <u>Comprising:</u> MNX-GA10 multi gas analyser; MNX-GC100 sample gas preparation and conditioning apparatus; MNX-HM1130 touch screen visual interface; MNX-PC140 data processor; MNX-ENG input sensors; MNX-FOP1 fuel flow transducer; MNX-HSP heated gas sample filter; MNX-HSL heated sample line.
<b>Specified Standard</b>	IMO Resolution MEPC.103(49) – Guidelines for On-Board NOx Verification Procedure – Direct Measurement and Monitoring Method.

The attached 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This certificate remains valid up to the expiry dated unless cancelled or revoked, or until such date where it is superseded by the requirements of the Marine Equipment Directive whichever is the earlier, provided the conditions in the attached schedule are complied with and the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 23 December 2005

Expiry date 24 April 2010

Certificate No. MCA 0500032

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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Issue number 1

### DESIGN APPRAISAL DOCUMENT

Date 23 December 2005	Quote this reference on all future communications LPA/DAPP/ENG/MCA/W00918641/PFM/O-66927
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#### ATTACHMENT TO CERTIFICATE OF TYPE APPROVAL No. MCA 0500032

The undernoted documents have been appraised for compliance with the relevant International Conventions and UK legislation for the Type Approval of Marine Equipment 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.

#### APPROVAL DOCUMENTATION

Request form	01.11.2005
Martek letter (JF261004L-1)	26.10.2004
Martek email message plus attachment	04.04.2005
Martek email message	21.03.2005
Martek email message plus attachment	24.03.2005
Martek email messages	17.03.2005
Martek email message plus attachment	17.03.2005
Martek email messages	11.03.2005
Mariner email	04.01.2005
Martek Marine Type Approval Documentation Submission (MariNOx® – Engine Emissions Monitoring Systems, case No. W00680514)	09.12.2004
Martek email message	20.04.2005
Martek email message	23.11.2004
LR Newcastle memo	04.03.2005
LR Newcastle email message	04.03.2005
MCA NOx monitoring approval number 001	13.12.2005

#### Data Sheets

Martek – MariNOx® (No. MariNOx1003/EF/ACM/0)	Undated
Ambient and Engine test data sheet No. 8 (University of Newcastle upon Tyne)	31.07.2001

#### Drawings

No. JF100105D-1	10.01.2005
No. MNX020205JFD-3	02.02.2005
No. JF1607044D-2	29.04.2004
No. JF160704D-1	15.07.2004
No. JF160704D-3	18.07.2004

#### TEST REPORTS

Mariner Systems Environmental Test Programme	23.03.2004
Mariner Systems Environmental Test Timetable (TL901)	04.03.2004
Mariner Systems Environmental Test File No. TL 901	02.03.2005
SIRA product conformity certificate no. Sira MC 040033/00	25.02.2004
MariNOx® System equivalency test report	07.04.2005
Functional Testing MariNOx® Marine Engines Emission Monitor (Schedule)	Undated

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#### TEST REPORTS (cont.)

MariNOx® system functionality test report	07.04.2005
Environment Agency Procedure and General Requirements for the Compliance Testing of Continuous Emission Monitoring Systems (version 2, Revision 1)	04.2003
NOx Emission Pre-Certification Test (Revision 5)	01.2003
Pre-Certification NOx Emission Testing Check List and Report (Revision 3)	03.2001
Micro GAS certificate of Conformity	15.07.2004
LRQA Certificate No. LRQ 4000988	24.07.2003
LR (Liverpool) visit report, Ref LIV 0536000	10.03.2005



P.F. Moysey  
Type Approval,  
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PFM

Part 10  
 Subject: Marine Equipment (MSA)  
 Product: Marpol Equipment (MCA)

Producer	Product	Type and Details	Standard(s)	Remarks	Cert. No.
MARTEK MARINE LTD, Century Business Park, Marvers Way, Rotherham, S63 5DA, United Kingdom (UK).	Marine diesel exhaust gas monitoring system for use for the direct measurement method of on-board monitoring of NOx emissions in accordance with MARPOL 76/73 Annex VI, Regulation 13 and the NOx Technical Code:	MariNOx® Comprising MNX-GA10 Multi gas analyser. MNX-GC100 Sample gas preparation & conditioning apparatus. MNX-HM1130 Touch screen visual interface. MNX-PC140 Data processor. MNX-ENG Input sensors. MNX-FOP1 Fuel flow transducer. MNX-HSP Heated gas sample filter. MNX-HSL Heated sample line.	IMO Resolution MEPC.103(49) – Guidelines for On-Board NOx Verification Procedure – Direct Measurement and Monitoring Method.	Expires: 24 April 2010	MCA 0500032

