



MARINE DIVISION

Certificate number: 31227/A0 BV

File number: AP 4362

Product code: 3797H

This certificate is not valid when presented without the full attached schedule composed of 7 sections

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TYPE APPROVAL CERTIFICATE

This certificate is issued to

GASTRON CO., LTD.
ANSAN - KOREA (REPUBLIC OF)

for the type of product

FIXED TOXIC GAS DETECTORS

GTD-2000Tx

Requirements:

Bureau Veritas Rules for the Classification of Steel Ships.

(주)가스트론 문서보안

This certificate is issued to attest that BUREAU VERITAS did undertake the relevant approval procedures for the product identified above which was found to comply with the relevant requirements mentioned above.

This certificate will expire on: 12 Apr 2018

For BUREAU VERITAS,

At BV PUSAN, on 12 Apr 2013,

Hwan Geuk Choi



This certificate remains valid until the date stated above, unless cancelled or revoked, provided the conditions indicated in the subsequent page(s) are complied with and the product remains satisfactory in service. This certificate will not be valid if the applicant makes any changes or modifications to the approved product, which have not been notified to, and agreed in writing with BUREAU VERITAS. Should the specified regulations or standards be amended during the validity of this certificate, the product(s) is/are to be re-approved prior to it/they being placed on board vessels to which the amended regulations or standards apply. This certificate is issued within the scope of the General Conditions of BUREAU VERITAS Marine Division available on the internet site www.veristar.com. Any Person not a party to the contract pursuant to which this document is delivered may not assert a claim against BUREAU VERITAS for any liability arising out of errors or omissions which may be contained in said document, or for errors of judgement, fault or negligence committed by personnel of the Society or of its Agents in establishment or issuance of this document, and in connection with any activities for which it may provide.

THE SCHEDULE OF APPROVAL

1. PRODUCT DESCRIPTION:

Toxic gas detector GTD-2000Tx was developed to prevent unfortunate accidents caused by detecting leak of toxic gas.

1.1 - Main Characteristics:

Items	Specifications
Measuring value display	Local digital LCD display
Approval	Ex d IIC GbT6
Detectible gas	Toxic gas
Measuring method	Electrochemical cell Heated-semiconductor cell
Operating temperature	-20°C to +60°C
Measuring signal output	4-20mA DC / Full scale
Power supply	18-31 Vdc
Ingress protection	IP 66/67

1.2 - Software version : v1.1x

2. DOCUMENTS AND DRAWINGS:

Gastron:

Instruction manual Model : GTD-2000Tx Rev.01, 2013.03.05
 Drawings Gas detection & Monitoring system No. G-10004 Rev. 0, dated 2012.08.02
 Test Procedure for Gas Detector, no date.

3. TEST REPORTS:

KOMERI:

Test Report No.KOMERI-0306-12T1276, dated 2012-10-23.
 Test Report No.KOMERI-0306-12T1566, dated 2012-10-25.
 Test Report No.KOMERI-0311-12T1278, dated 2013-01-07.
 Test Report No.KOMERI-0314-12T1277, dated 2012-11-30.
 Test Report No.KOMERI-CTA-12T1388, dated 2013-02-05.
 Test Report No.KOMERI-0602-12T1279-1, dated 2012-11-29.
 Test Report No.KOMERI-CTA-12T1468, dated 2013-01-30.
 Test Report No.KOMERI-0306-12T1566, dated 2012-10-25.

GASTRON:

Test Item standard regulation - EN 45544:2000 No. G1209-0001, dated 2012-11-12.
 Test Item standard regulation - IACS E10 No. G1209-0003, dated 2012-09-20.
 Software Quality Plan No. GTD2000Tx_SQP-C Issue A, dated 2013-03-11.
 Product Acceptance Test Specification Rev.: 1.01, dated 2012-11-22.
 Software Module Test Specification Rev.: 1.02, dated 2012-11-22.

DEOKYANG:

Certificate of analysis gas N2 No. N2-20120924-1 dated 2012-09-24.
 Certificate of analysis gas H2S/N2 No. 20122656 dated 2012-06-05.

RIGAS:

Certificate of reference material H2S (5.01µmol/mol) No. 12-06698 dated 2012-09-21.
 Certificate of reference material H2S (10.0µmol/mol) No. 12-06696 dated 2012-09-21.
 Certificate of reference material H2S (25.5µmol/mol) No. 12-06699 dated 2012-09-21.
 Certificate of reference material H2S (46.0µmol/mol) No. 12-06700 dated 2012-09-21.
 Certificate of reference material H2S (50.8µmol/mol) No. 12-06701 dated 2012-09-21.
 Certificate of reference material H2S (203µmol/mol) No. 12-06702 dated 2012-09-21.

sira:

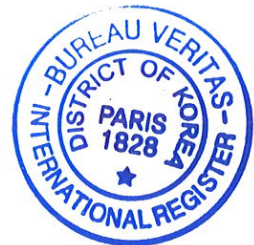
Ex certificate No. sira 08ATEX1003 Issue 1, dated 2009-01-20.

IEC

IECEx Certificate No. IECEx SIR 08.0003 Issue 2, dated 2010-07-15.

4. APPLICATION / LIMITATION:

- 4.1 - According to Manufacturer's instructions and BUREAU VERITAS Rules for the Classification of Steel Ships.
- 4.2 - BUREAU VERITAS Environmental Category: 31.
- 4.3 - The equipment fulfils the EMC requirements for an installation on the power distribution.
- 4.4 - Approval also valid for ships to be granted with the notations: AUT-UMS, AUT-CCS, AUT-PORT and AUT-IMS.
- 4.5 - Only Hardware and Software successfully tested together in compliance with the regulations as referred to in page one, according to the declaration of the manufacturer are covered by this certificate.



5 PRODUCTION SURVEY REQUIREMENTS:

5.1 - The above products are to be supplied by **GASTRON CO., LTD.** in compliance with the type described in this certificate.

5.2 - This type of product is within the category HBV of Bureau Veritas Rule Note NR320.

5.3 - **GASTRON CO., LTD.** has to make the necessary arrangements to have its works recognised by Bureau Veritas in compliance with the requirements of NR320 for HBV products:

GASTRON CO., LTD.
#18-8, Dogeumdanji 1-gil, Palgogi-dong
Sangrok-gu
ANSAN
KOREA (REPUBLIC OF)

6 MARKING OF PRODUCT:

- Maker's name or trade mark.
- Serial number of the units.
- Equipment type number or model identification under which it was type-tested
- Ex marking , as relevant

7 OTHERS:

This approval is given on the understanding that the Society reserves the right to require check tests to be carried out on the units at any time and that: **GASTRON CO., LTD. - #18-8, Dogeumdanji 1-gil, Palgogi-dong - Sangrok-gu - KOREA** will accept full responsibility for informing shipbuilders, ship-owners and/or their sub-contractors of the proper methods of fitting and general maintenance of the approved equipment and the conditions of this approval.

*** END OF CERTIFICATE ***

