



Marine & Offshore

Certificate number: 50073/A0 BV

File number: AP4761

Product code: 4432H

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

Heinzmann GmbH & Co. KG
Schönau (Schwarzwald) - GERMANY

for the type of product

INTERNAL COMBUSTION ENGINE GAS CONTROL UNITS

Gas engine control units
KRONOS 20, PHLOX II IC-12, ARIADNE

Requirements:

Bureau Veritas Rules for the Classification of Steel Ships
EC Code: 33, for ARIADNE EC Code: 23

This certificate is issued to attest that Bureau Veritas Marine & Offshore 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: 17 Apr 2023

For Bureau Veritas Marine & Offshore,

At BV HAMBURG, on 17 Apr 2018,

Dirk Hoepfner



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 Marine & Offshore. 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 & Offshore 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 Marine & Offshore 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.

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BV Mod. Ad.E 530 June 2017

This certificate consists of 3 page(s)

THE SCHEDULE OF APPROVAL

1. PRODUCT DESCRIPTION :

KRONOS 20, PHLOX II IC-12 and **ARIADNE** are engine control and monitoring units for four-stroke spark-ignited auxiliary gas engines.

1.1 - Main characteristics:

Type	EDV No.	Description	SW
KRONOS 20-01 CL	620-00-118-01	Air Fuel Ratio (AFR) control unit	00.82.20
E-LES 80 SMC Marine	472-00-030-00	Electric positioner for gas valve - Stepper motor controller SMC (472-80-031-05) - Stepper motor (472-19-001-03 or 472-19-001-00)	00.02.03
IA02-76	600-00-006-01	Inductive speed sensor	N/A
PHLOX II IC-12	680-00-010-01	Ignition control unit	00.80.28
IA-M12-100/160	600-00-111-00	Inductive speed sensor	N/A
	Z00-17-006-00	Ignition coil, isolated with a fire proof insulation	N/A
	Z00-19-052-00	Ignition lead	N/A
ARIADNE KC-01	620-00-137-12	Knock monitoring unit	00.80.17
KS-1-K	010-80-095-00	Knock sensor (piezoelectric vibration)	N/A

- Units and positioner power supply: 24V DC

2. DOCUMENTS AND DRAWINGS :

- AFR 03 002-e dated 03-15
- 620-00-118-01 rev. f dated 25.03.2015; 320-90-163-14a dated 15.04.2008; 472-00-030-00 rev. a 02.09.2015
- 472-80-031-05 dated 08.12.2014; 300-90-170-08 dated 12.01.2012; 300-90-217-02 dated 22.01.2015
- 472-19-001-03 dated 04.03.2011; 472-19-001-00 rev. b dated 06.09.2007; 600-00-006-01 rev. d dated 19.07.2017
- DG 13 004-e dated 11-13
- 680-00-010-01 rev. a dated 30.10.2015; 320-90-228-01 dated 20.02.2018; 320-90-244-00b dated 23.07.2012
- 600-00-111-00 rev. c dated 25.08.2009; Z00-17-006-00 rev. c dated 11.12.2017; Z00-19-052-00 dated 02.08.2017
- DG 06 001-e dated 07-13
- 620-00-137-12 rev. b dated 09.03.2015; 320-90-207-01b dated 22.06.2013; A 261 230 027 rev. 7 dated 13.11.96

3. TEST REPORTS :

E&C Testlab: 15PB1040055-02 dated 27-01-2015; 15PBU04006801 dated 28.01.2015

KRIWAN: 008208_01_G dated 27May2008; 008208_01_H dated 28Apr2008,

LCIE: 151255-711137-A dated Oct 18, 2017; 151255-711137-C dated Dec 4, 2017;

CSA Group: C38989-00-01ME rev. 3.0 dated 2015-04-10; E39288-0002WA rev. 6.0 dated 2015-01-26

TÜV SÜD: 486871-23934-6 dated Sept 3, 2013; 486871-23934-7 dated 2013-07-24

Bureau Veritas CPS: 15-048 dated 03.Jul.2015

TÜV SÜD: 486871-23934-5 dated Aug 27, 2013; 486871-23934-2 dated 24 Jul 2013

Bureau Veritas CPS: 17-078 dated 07.Dez.2017; 17-241 dated 07.12.17; 17-081 dated 07.Dez.2017

Phoenix Testlab: S171924E1 dated 15.09.2017; S152278E1 dated 28 May 2015

Bureau Veritas CPS: 15-099 dated 24.04.15; 15-045 dated 26.Jun.2015; 15-047 dated 06.Jul.2015

TÜV SÜD: 486871-19426-01 dated 2013-04-11

Integration test on engine MAN E3262 LE 201, M171483 dated 22-11-2017

4. APPLICATION / LIMITATION :

4.1 - Bureau Veritas Rules and Regulations for the Classification of Steel Ships.

4.2 - Approval valid for ships intended to be granted with the following additional class notations: **AUT-UMS, AUT-CCS, AUT-PORT** and **AUT-IMS**.

4.3 - Bureau Veritas Environmental Category: **EC Code: 33**, for **ARIADNE EC Code: 23**

4.4 - Drawings and documents relating to each application are to be submitted to the Society's examination prior fitting on board.

4.5 - Factory Acceptance and On-board Tests are to be performed for each application in accordance with requirements for system category II or III equipment.

4.6 - Any modification of program contents and data, as well as a change of software version, shall be documented and submitted to the Society's examination.

4.7 - Functional/Integration tests of the units are to be performed at each engine under Type Approval Test.

4.8 - Each gas valve is to be hydraulic pressure tested to 1.5 times the maximum design pressure.

5. PRODUCTION SURVEY REQUIREMENTS :

5.1 - The above mentioned product is to be supplied by **Heinzmann GmbH & Co. KG** 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 and as such does not require a BV product certificate.

5.3 - **Heinzmann GmbH & Co. KG** has to make the necessary arrangements to have its works recognised by Bureau Veritas in compliance with the requirements of NR320 for HBV products :

Heinzmann GmbH & Co. KG
Am Haselbach 1
79677 Schönau
Germany

5.4 - Each system is to be supplied with manual (s) for installation, use and maintenance.

6. MARKING OF PRODUCT :

- Maker's name or trademark.
- Date of manufacture and/or serial number.
- Equipment type or model identification.
- The title and version of each software element included in the installed software system shall be either marked or displayed on command on the equipment.
- When the marking and the title and version of the software are indicated only on a display, such information shall also be included in the equipment manual.

7. OTHERS :

It is the responsibility of **Heinzmann GmbH & Co. KG** to inform shipbuilders or their sub-contractors of the proper methods of fitting, use and general maintenance of the approved equipment and the conditions of this approval.

*** END OF CERTIFICATE ***