



Marine & Offshore

Certificate number: 53826/B0 BV

File number: AP4795

Product code: 4440I

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

Kongsberg Maritime AS
Horten - NORWAY

for the type of product

ALARM, MONITORING AND CONTROL SYSTEMS

K-Chief and K-Chief 700 marine automation system, K-Safe safety control and monitoring system

Requirements:

Bureau Veritas Rules for the Classification of Steel Ships, Offshore Units and Yachts.

EC Code : 31

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: 23 Aug 2028

For Bureau Veritas Marine & Offshore,

At BV OSLO, on 23 Aug 2023,

Rune MARSTEIN

This certificate was created electronically and is valid without signature



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 5 page(s)

THE SCHEDULE OF APPROVAL

1. PRODUCT DESCRIPTION :

K-Chief and **K-Safe** is an integrated system which can carry out the following functions:

K-Chief 700	K-Chief *	K-Safe
-Alarm and Monitoring -Power Management -Control of Machinery, Cargo, Ballast, Vessel Mode, Heating, Venting and Air Conditioning	-Alarm and Monitoring -Power Management -Control of Machinery, Cargo, Ballast, Vessel Mode, Heating, Venting and Air Conditioning	-Alarm Management -Emergency Shutdown -Process Shutdown -Fire and Gas Detection and Protection

* - The hardware components of K-Chief which are common with the KC600 and AutoChief , are listed in TAC 09413/XX BV
- K-Chief is based on AIM SW release from 8.8 and higher.

1.1 Hardware List :

Module	Type/Model	Part No.
Cabinets	FS400 cabinet	700933
	FS240 cabinet	701449
	Network Distribution Unit (NDU)	310123
	FS120 cabinet	318775
Console	Cabinet / OS-650-KM05	603495
	Wire Isolators / KM Damper kit	603185
	Deep line / Navigation OS	303399
	Rubber isolation / MS2040+	305083
COP	Panel Input Mk2 COP 05	330951
	Panel CRP Mk2 COP 05	330952
	ALC Panel	603526
	BU AUT Panel	603529
	Panel ALC K-chief 600	344687
EFI	EFI-16	321492
Printer	Matrix Printer /OKI ML280 ELITE	703654
	Printer / HP Laserjet Pro M401dn	380589
	Lexmark CS510 230/115 VAC	394774/394775
Watch Call	WCC 600	373860
Controller	RCU 502i	421768
	RCU 601	477601
	RCU 602	383962
IO Units	RMP420	306712
	RDIOR420	306713
	RDIO420S	316564
	RMP422i	408442
	RMP422Si	408406
	RMP200-8	603443
	RMP201-8	324400
	RSER200-4	603444
	RHUB200-5	603442
	RMC-ST	321520
	RTB420	326843
	BUS-TERM	310955
	RDUM200	302247

1.2 Software Version :

AIM Basis Software V8.3 V8.5 V8.6 V8.7 V8.8 and V8.10

2. DOCUMENTS AND DRAWINGS :**2.1 Technical documentation:**

Approved HW - List of Environmental Test Reports CDQM0021, No. 356372, Rev.E, dated 24.05.2018
 Product Description K-Chief 700 Integrated Control System, No. 304844, Rev.C, dated April 2017
 Product Description K-Safe Safety System, No.163875, Rev.H, dated May 2015
 Operator Manual K-Chief 700 Integrated Control System, No.338309, Rev.A, dated December 2015
 Operator Manual K-Safe Safety System, No.411129, Rev.A, dated March 2016
 Maintenance Manual KM05 OS-650 Operator Station, No.38919, Rev.B, dated April 2015
 COP-05 Input Panel Hardware Module Description, No.300987, Rev.D, dated October 2009
 COP-05 Controm Room Panel Hardware Module Description, No.300989, Rev.C, dated October 2009
 COP-05 Controm ALC Panel Hardware Module Description, No.300977, Rev.B, dated October 2006
 COP-05 Controm BU-AUT Panel Hardware Module Description, No.301028, Rev.B, dated May 2007
 Extension Alarm System Datasheet, No.375622, Rev.A, dated August 2013
 RCU602 Hardware Module Description, No.408644, Rev.B, dated October 2017
 OKI ML280 ELITE Hardware Module Description, No.179057, Rev.A, dated 10.03.2005
 OKI ML280 ELITE Printer Installation Manual, No.179056, Rev.B, dated 22.04.2005
 Printer A4 HP Laserjet Pro M401dn Hardware Module Description, No.384405, Rev.A, dated June 2013
 Printer A4 HP Laserjet Pro M401dn Installation Manual, No.380591, Rev.B, dated June 2013
 Printer A4 Lexmark CS510 230/115 VAC Hardware Module Description, No.397559, Rev.B, dated January 2015
 EFI Earth Fault Indicator Datasheet, No.353294, Rev.A, dated November 2010
 EFI-16 Earth Fault Indicator Datasheet, No.353295, Rev.A, dated November 2010
 WCC 600 outline Drawing, No.374548, Rev.D, dated 02.07.2013
 WCC 600 Watch Call Panels, No.381827, Rev.B, dated 02.07.2013
 RCU502i Hardware Module Description, No.429804, Rev.A, dated January 2018
 RCU502i Remote Controller Unit Datasheet, No.429810, Rev.A, dated January 2018
 RMP420 Hardware Module Description, No.311165, Rev.D, dated June 2014
 RMP420 Remote MultiPurpose Input/Output Datasheet, No.312743, Rev.A, dated January 2010
 RDIOR420 Hardware Module Description, No.311163, Rev.D, dated July 2016
 RDIOR420 Remote Digital I/O and Relay Channels Datasheet, No.312745, Rev.A, dated October 2010
 RDIO420S Hardware Module Description, No. 323936, Rev.F, dated September 2016
 RDIO420S Remote Digital Input/Output Datasheet, No.342966, Rev.A, dated January 2010
 RMP422i Hardware Module Description, No.424828, Rev.A, dated April 2017
 RMP422i Remote MultiPurpose Input w/Hart Datasheet, No.424830, Rev.A
 RMP422Si Hardware Module Description, No.424829, Rev.A, dated April 2017
 RMP422i Remote MultiPurpose Input Safety w/Hart Datasheet, No.424831, Rev.A
 RHUB200-4 Hardware Module Description, No.300993, Rev.G, dated June 2016
 RHUB200-4 Serial line communication interface Datasheet, No.312741, Rev.B, dated December 2010
 K-Chief Product Description, No. 493992, Rev.A, dated 11.02.2022.
 Release Not AIM -8.10 for K-Chief, K-Chief 700 and K-Safe, No. 110-0001444, Rev.A, dated 30-03-2022.
 RMC-ST Hardware Module Description, No. 325472/E, dated July 2018.
 RHUB200-5 General Arrangement drawing No. 487567 Rev.A, dated 12-10-2021.
 RMC-ST Outline drawing No. 323520 Rev.C, dated 21-01-2019.
 RDUM200 Module assembly drawing No. 302247 Rev1.1.3, dated 23-09-2009.
 RCU601 Remote Controller Unit Datasheet, No.110-0022770/A
 RCU601 Hardware Module Description, No.110-0026741/A, dated Jun 2023.

2.2 Software documentation:

Release Note AIM-8.3, No.342886, Rev.D, dated 21.08.2013
 Release Note AIM-8.5, No.368836, Rev.B, dated 21.08.2013
 Release Note AIM-8.6, No.387189, Rev.D, dated 13.03.2016
 Release Note AIM-8.7, No.418821, Rev.A, dated 04.10.2016
 Release Note AIM-8.8, No.418888, Rev.A, dated 11.09.2018
 Software Quality plan and Life Cycle activities for K-Chief and K-Safe, No.434902, Rev.A, dated 18.12.2017
 Engineering Guideline K-Chief 700 Software, No. GUI-2300, Rev.A, dated 22.12.2015
 IAT/FAT procedure for K-Chief, No. 499335 rev.A

3. TEST REPORTS :**DELTA:**

Vibration testing of KM05 with PC on wire isolators, Ref. DANAK-198575, dated 4.12.2006
 Vibration testing of KM05 with PC on rubber isolators, Ref. DANAK-198577, dated 4.12.2006
 IP22 tests of KM-05 Deepline and Slimline operator stations, Ref. DANAK-198637, dated 30.01.2007
 Test for Marine Type Approval of Panel Input Mk2 COP 05, Ref. DANAK-1910979, dated 13.07.2010
 Type approval testing of KM Common Operator Panels 2005, Ref. DANAK-198195 Rev.1, dated 15.06.2007
 Type approval testing Earth Failure Indicator, Ref. DANAL-1910264, dated 01.09.2008
 Supplementary environment test of EFI-16, Ref. DANAK-1910281, dated 14.10.2008
 Test for Marine Type Approval of EAP 200, Ref. DANAK-1912618, dated 21.11.2012
 Test for Marine Type Approval of WCC600, Ref. DANAK-19/12904 Rev. 1, dated 05.09.2013
 Comparison of vibration isolators for console PC, Ref. DANAK-198573, dated 01.12.2006
 Type approval testing of RIO New HW Line modules, Ref. DANAK-198508, Rev.1, dated 17.10.2006
 Type approval testing of RCU501, RHUB200-5 and RSER200-4, Ref. DANAK-1910541, dated 11.06.2009
 Test for Marine Type Approval of RCU502, Ref. DANAK-1911523, Rev.1, dated 26.10.2012
 Test for Marine Type Approval of RMP420, Ref. DANAK-1911658, Rev.1, dated 08.12.2011
 Type approval testing of RMP420 and RDIOR420, Ref. DANAK-198696, dated 15.03.2007
 Type approval testing of RTB420, Ref. DANAK-1910830, dated 19.03.2010
 Type approval testing of RDIO401S and RDIO420S, Ref. DANAK-1910121, dated 27.03.2008
 Type approval testing report of RMC-ST No. DANAK-1910280, dated 19-09-2008.
 Type approval testing of RTB400, Ref. DANAK-1910337, dated 25-11-2008.

Nemko:

IP22 test, Ref. Nemko 69187, dated 31.08.2006
 Environmental test report of RCU602 and RMC-ST, Ref. E15165.01, dated 28.04.2017
 EMC Test Report of OKI ML 280 Elite, Ref. 39760, dated 25.02.2005
 EMC Test Report of HP Laserjet Pro M401dn, Ref. E13012.00, dated 23.02.2013
 EMC Test Report of Lexmark CS510, Ref. .E14200.00, dated 13.08.2014
 EMC Test Report of WCC 600, Ref. E14127.00, dated 21.05.2014
 Environmental Test Report RCU502i, Ref. E18081.00, dated 23.04.2018
 Environmental Test Report of RMP422S, Ref.E13144.02, dated 11.03.2015
 Environmental Test Report of RMP422Si and RMP422i, Ref.E13144.03, dated 17.08.2017
 Test Report No. E21088.03, dated 28-10-2021.
 Test Report No. E22067.01, dated 20-04-2022.
 Test Report No. REP008558, dated 16-03-2023.

Tecknologisk institutt::

Verification Test of FS240, Ref. 310-02-0208, RevA, dated 24.05.2004
 Verification Test of FS120, NDU and NDU MINI, Ref.310-08-0107, RevA, dated 28.10.2004
 Environmental Test Report Vibration Resonance search WCC 600, Ref. 3010-13-014234, dated 17.10.2013

Kongsberg Fimas:

Verification Test on AIM Safe system, Ref. KLM1.00.061, Rev.B, dated 09.01.2002
 IAT/FAT report No. 463OSL22 witnessed by BV surveyor on 23-05-2022.

4. APPLICATION / LIMITATION :

- 4.1 - BUREAU VERITAS Rules for the Classification of Steel Ships, Offshore Units and Yachts.
- 4.2 - Approval also valid for ships to be granted with the notations: **AUT-UMS, AUT-CCS, AUT-PORT and AUT-IMS.**
- 4.3 - BUREAU VERITAS Environmental Category, **EC Code: 31**
- 4.4 - The equipment fulfils the EMC requirements for installation on the Bridge and Deck Zones.
- 4.5 - Only Hardware and Firmware / Software successfully tested together in compliance with the regulations as referred to in cover page, according to the declaration of the manufacturer are covered by this certificate.
- 4.6 - Any modification of the hardware, firmware or software having an impact on the product performance or functionality has to be validated with type testing.
- 4.7 - In accordance with IACS UR E22 and as applicable to programmable devices for computer based systems of Category II or III, for each ship application:
 - Ship specific documentation is to be submitted including software documentation and categorization of the computer based system.
 - Inspection and testing before installation onboard is to be performed under the surveillance of the Society.
- 4.8 - Equipment covered by this Type Approval certificate has been tested according to requirements of IACS UR E10 rev.8.

5. PRODUCTION SURVEY REQUIREMENTS :

5.1 - The above products are to be supplied by **Kongsberg Maritime AS** in compliance with the type and the requirements described in this certificate.

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

5.3 - BV product certificate is required.

5.4 - For information, **Kongsberg Maritime AS** has declared to Bureau Veritas the following production sites:

Kongsberg Maritime AS
P.O.Box 1009
3194 Horten
NORWAY

Kongsberg Maritime China Jiangsu Ltd.
No.711 Changjiang Road,
Zhenjiang, Jiangsu Province
212002 Zhenjiang
CHINA

Kongsberg Maritime China Ltd.
136 North Fute Road , China (Shanghai)
China (Shanghai) Pilot Free Trade Zone
Shanghai
CHINA

Kongsberg Maritime Korea (KMK)
9-7, Sandan 3-ro,
Jeongwan-eup, Gijang-gun
BUSAN
KOREA (REPUBLIC OF)

Kongsberg Maritime Ship Systems AS
Bekkajordet 8a,
P.O. Box 1009
N-3194 Horten
NORWAY

Kongsberg Maritime AS
POB 483
Kirkegårdsveien 45
3601 Kongsberg
NORWAY

6. MARKING OF PRODUCT :

6.1 - Trade name.

6.2 - Date of manufacture and serial number.

6.3 - Equipment type or model identification under which it was type-tested

6.4 - Bureau Veritas' Marks

7. OTHERS :

7.1 - It is **Kongsberg Maritime AS's** responsibility 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.

7.2 - This certificate supersedes the Type Approval Certificate No. 53826/A2 BV issued on 28 Nov 2022 by the Society.

*** END OF CERTIFICATE ***