



# TYPE APPROVAL CERTIFICATE

Polish Register of Shipping certifies that the undernoted product type

**AutoChief C20, AutoChief C600 and K-Thrust 600 / K-Steering 600  
PROPULSION CONTROL SYSTEM  
(including THRUSTERS AND STEERING CONTROL)**

**K-Chief 500 / K-Chief 600  
ALARM, MONITORING, CONTROL OF AUXILIARY MACHINERY AND POWER MAN-  
AGEMENT SYSTEM**

**BWMS C20  
BRIDGE WATCH MONITORING SYSTEM**

issued to

**Kongsberg Maritime AS  
Bekkajordet 8A  
NO-3189 Horten  
Norway**

is approved as complying with the requirements of the

PRS Rules and is suitable for use on board of ships classified by PRS or in appliances with PRS certificates.

Certificate No. **TE/1050/883027/22**

Expiry date **2027-08-05**

Issued at

**Gdańsk, 2022-08-16**



**C/020/57**

*[Handwritten Signature]*  
Signature

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Continued overleaf

Product description:

Various components and modules used to build propulsion control systems, alarm and monitoring systems, control of auxiliary machinery systems, automation systems and power management systems. Additional functions: safety system, speed governing, engine telegraph.

Systems components:

- as specified in Appendix -

Technical data:

Power supply voltage: 18 .. 32 VDC.

Ambient temperature: -15°C .. +55°C / +70°C \*

Maximum relative humidity: 96% non-condensing.

Enclosure protection degree: IP20/IP22/IP55/IP56/IP66 \*

\* see technical specification for each module/component

Basis of approval

1. The technical documentation approved by PRS on 2022-08-11.
2. The inspection of the production process and quality control system carried out on 2022-06-07.
3. The Quality Management System Certificate No. 900662 issued by Nemko AS.
4. Reports from environmental and EMC tests carried out acc. to PRS Publication 11/P Ed. 07.2021.
5. Tests carried out in presence of PRS Surveyor on 2022-06-07.
6. PRS Survey Report No. TM/PU/13/22 issued on 2022-08-11.
7. The previous PRS Type Approval Certificate No. TE/2281/883027/20.

Additional conditions and remarks:

1. This type approval is only for hardware and basic software.
2. The BWMS C20 system meets requirements specified in Resolution MSC.128(75) - „Performance standards for a bridge navigational watch alarm system (BNWAS)’’ and PRS Publication No. 35/P - „One Man Bridge Operated (OMBO) Ships’’. This system is suitable for use on board of Ships with NAV1 mark in PRS symbol of class.
3. Each system is to undergo tests (FAT) in presence of PRS Surveyor.
4. Each system is to be composed of hardware components specified in *technical data*.
5. Personal computers (PC) and Visual display units (VDU) applied in each K-Chief 500 / K-Chief 600 system are to be type approved by PRS.
6. The following technical documentation of each system is to be submitted to PRS for approval before FAT: general diagram of the system (block diagram), test programme (FAT procedure), list of I/O (for AMS systems).
7. The condition for maintain validity of this Certificate is to maintain validity of ISO9001 Certificates of all manufacturing places (see item 8 below).
8. Places of production:
  - Kongsberg Maritime AS, PO box 1009, 3194 Horten;
  - Kongsberg Maritime Korea Ltd, Road 9-7, Sandan 3-Ro, Junggwan-Eup, Gijang-Gun, Busan, 46027, Korea;
  - Kongsberg Maritime China Shanghai Ltd., 136 North Fute Road, China (Shanghai) Pilot Free Trade Zone 200131 Shanghai - China;
  - Kongsberg Maritime China Jiangsu Ltd, 1-2F No 711 Changjiang Road, Runzhoud district, Jiangsu Province, P.C. 212002 Zhenjiang, China.

Notes

- 1 The approval is valid only when the product is used in accordance with the manufacturer's conditions.
- 2 Changes of product design and materials which influence product quality are to be agreed with PRS.
- 3 Type Approval Certificate will be cancelled in the case of dissatisfactory service results, modifications made in the product structure or materials without PRS' consent, not advising PRS of the manufacturer's name change.

**Polish Register of Shipping** means Polski Rejestr Statków S.A., seated in Gdańsk, al. gen. Józefa Hallera 126, 80-416 Gdańsk, Poland, registered in the Register of Entrepreneurs of the National Court Register, under entry number 0000019880. Polish Register of Shipping, its affiliates and subsidiaries, their respective officers, employees or agents are, individually and collectively, referred to as Polish Register of Shipping or as PRS for short.

In carrying out survey activities, PRS makes efforts to ensure that they are conducted with conscientiousness and the principles of good practice, with due regard paid to the state-of-the-art technology. However, neither PRS nor its Surveyors shall bear any civil liability for damage, loss or expense which may arise in consequence or as the outcome of conducting these activities, or the result of information or advice given to the customer by PRS, irrespective of whether or not such were the result of neglect, error or lack of proper information. Nevertheless, should the customer prove that such damage, loss or expense was due to negligence on the part of the Society or its Surveyors, PRS will pay compensation to the customer for his loss up to but not exceeding the amount due for services provided, forming the basis of the customer's claim. In no cases will PRS be responsible for indirect losses (loss of prospective profits, loss of contract, inability to undertake activities) sustained by the customer and associated with the executing of a commission by PRS.



## Systems components:

Name	Type	Part Number	System
Touch Pad Panel	TPP	388010	KC600
Distributed Processing Units	RAi-16xe (Analogue Input Module, 16 channels) RAo-8xe (Analogue Output Module, 8 channels) RDo-16xe (Digital Output Module, 16 channels) C2 (Combination Module 8di,8do) PSS (Process Segment Star Coupler) RAi-10tc (Analogue Input Module, 10 channels) SCU (Segment Controller Unit) SIUxe (Sensor Interface Unit) C2xe (Remote digital Input-Output Unit) RDi-32xe (Remote Digital Input Unit) RDi-32Axe (Remote Digital Input Unit)	329714 333505 329699 333346 8100184 8100161 329785 350928 333346 333523 333824	KC600 KC600 KC600 KC600 KC600 KC600 KC600 KC600 KC600 KC600
Control Room Panel	CRP MK2 COP 05	330952	KC600
Integrated Navigation Panel	Panel Input MK2 COP05	330951	KC600
Panel ALC	Panel ALC K-chif 600	344687	KC600
Remote Operator Station	ROS		KC600
Touch Control Panel	CP12 w/KBE15(ABE11)	402586	AutoChief
Speed set dial unit	AC 600	393267	AutoChief
3 Buttons	ABE 11	355146	AutoChief
4 Buttons	PB4 (Push Button 4)	400992	AutoChief
Lever Telegraph Unit	LTU11 LTU11ME	364330 389505	AutoChief AutoChief
Push Button Telegraph	PBT	8100278, 8100318	AutoChief
Distributed Processing Units	DGU (Digital Governor Unit) DGU SIO (NMEA Serial Interface Unit to VDR) MEI (Main Engine Interface) ESU (Engine Safety Unit) ESU-12 (Engine Safety Unit) ESS (Electric Shaft System) RIO-C3GPxe (Generator Protection Module) RIO-C4xe (Generator Control Module) PSO-P (Power Switch Over Unit) C4 (Generator Protection Unit)	8100272 8100272 8100276 8100275 366539, 366666 8100282, 334893 334894 8100334 334894	AutoChief AutoChief AutoChief AutoChief AutoChief AutoChief AutoChief AutoChief AutoChief
RPM Detector	RPMU 4 RPME	326894 8100289	AutoChief AutoChief
Magneto-inductive rotation speed sensor	RPM	MDS-8-M18 -IM-SA-CO-KM	AutoChief
Multi Purpose Panel	MPP	8100290/8100291	AutoChief
Multi Purpose Display	MPD	8100292	AutoChief
Voltage Converter Controller	VCC		AutoChief
LAN to CAN Gateway	L2C	404654	AutoChief
LAN to CAN extender	L2C extender	458577	AutoChief
AutoChief C600 Electrical Fuel Actuator	ELACT 3812	468750	AutoChief
AutoChief C600 Electrical Actuator	ELACT 0516	442400	AutoChief
Digital servo Unit	DSU 38	468770	AutoChief
Bridge Wing Unit	BWU21	486233/486200	AutoChief
Automation Operating Panel	COP05 Panel ALC NAV Stand Alone	378937	HMI
Tracker ball panel	TBP	388930	HMI
K-Thrust lever Display	4 3" touch display	399324 & 416534	K-Thrust
K-Thrust mini wheel	Rudder/Thruster control	412364 & 417835	K-Thrust
K-Thrust azimuth lever	Control lever for azimuth thruster	405846 & 416533	K-Thrust
K-Thrust dual lever	Control lever for dual propulsion or tunnel	405844 & 416532	K-Thrust
K-Thrust single lever	Control lever for single propulsion or tunnel	405842 & 416531	K-Thrust