



TYPE APPROVAL CERTIFICATE
No. ELE113617XG

This is to certify that the product below is found to be in compliance with the applicable requirement of the RINA type approval system.

<i>Description</i>	Electronic Ship Automation Equipment
<i>Type</i>	AutoChief C20 & C600 Remote Control System Propulsion and; K-Thrust 600 / K-Steering 600 Thruster and Steering Control
<i>Applicant</i>	KONGSBERG MARITIME AS BEKKAJORDET 8A N 3194 HORTEN NORWAY
<i>Manufacturer</i>	KONGSBERG MARITIME AS
<i>Place of manufacture</i>	BEKKAJORDET 8A N 3194 HORTEN NORWAY
<i>Reference standards</i>	Rules for the classification of ships.- Part C - Machinery, systems and fire protection. - Ch.3, Sect. 6, Table 1.

Issued in **Hamburg** on **June 16, 2017**. This Certificate is valid until **June 15, 2022**

RINA Services S.p.A.
Giuseppe Russo

This certificate consists of this page and 1 enclosure



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AutoChief C20 & C600 Remote Control System Propulsion and K-Thrust 600 / K-Steering 600 Thruster and Steering Control

Product description:

The AutoChief C20 &600 and K-Thrust 600 / K-Steering 600 is an integrated computer control system based on dual CAN protocol network architecture, configurable as: Main Propulsion Control; Tunnel and Azimuth Thrusters Control

Control Function:

Remote Control System for FPP and CPP
Engine Telegraph System
Engine Safety System
Digital Governor System
Thruster Control System
Steering Control System

Technical Data:

The AutoChief C20 &600 and K-Thrust 600 / K-Steering 600 system comprises the following modules:

Type	Item no.	Designation
13,3" AIPC, 13,3" AIPC-XXL	349997	Touch Screen Panel with integrated computer
13,3" TCP	349996	Touch Screen Panel
13.3" IPC	349998	Touch Screen Panel with integrated computer
8" AIPC	349993	Touch Screen Panel with integrated computer
8" TCP	350001, 344590	Touch Screen Panel
ABE11	355146	Touch Screen Panel
ACP	307939; 348100	AutoChief Control Panel
BWU09	321211	Bridge Wing Unit
Dual LAN	4604654	Dual Redundant Local Area Network
DGU	8100272	Digital Governor Unit
DPSC	8100183	Dual Process Segment Controller
DCEG	316335, 4604600	Dual two Channel CAN gateway
DSU	3900458, ..59, ..60	Digital Servo Unit
Dual CAN-Bus	301992, 302235, 338621, 4604392	Dual Redundant CAN-Bus
ELACT 0512, 1325, 1335, 2945	3900461 - 464	Electric Actuator
ESS	303260, 331916, 8100282	Electric Shaft System
ESU	8100275, 8100307	Engine Safety Unit
ESU-12	366666, 366539	Engine Safety Unit
IPC-KCC	349999	Kongsberg Compact Computer
L2C	404654	LAN to CAN gateway
LOS	8100255	Local Operator Station (alphanumeric user interface)
LTU	8100279, ..80, ..81, 364330	Lever Telegraph Unit
LTU11	364330	Lever Telegraph Unit
LTU11 ME	389505	Engine Telegraph Unit
MEI	8100276	Main Engine Interface
MOS	8200635	Midi Operator Station (graphic user interface)
MPD	8100292; 8100293	Multi purpose Display
MPP	8100290; 8100291	Multi purpose Panel
MSI-12	8100222	Multi Serial Interface
NQB100	352445	Metapower shaft power meter light fork



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**AutoChief C20 & C600 Remote Control System Propulsion and
K-Thrust 600 / K-Steering 600 Thruster and Steering Control**

Type	Item no.	Designation
PB4	400992	Push Button 4
PBT	8100278; ..318, ..333	Push Button Telegraph
RPMU - RPMC	8100274	RPM Units
RPMe	8100289	RPM Units
PSS	8100184	Process Segment Star Coupler
RAi-10tc, 10txce	334895, 8100161	10 ch. thermo - couple input
RAi-16, RAI-16xe	329714, 8100148	16 ch. analog input
RAo-8, RAo-8xe	333505, 8100153	8 ch. analog Input
RDi-32, RDi-32xe	333823, 8100154	32 ch. digital input
RDi-32A, RDi-32Axe	333824, 8100172	32 ch. digital input - individual galvanic isol.
RDo-16, RDo-16xe	329699, 8100155	16 ch. digital Ouput
RFU	402007	Rudder Feedback Unit
RIO-C1	8100181	21 analog or digital input and output channels
RIO-C2, C2xe	333346, 8100182	16 digital input or output channels
RIO-C3, C3xe	334393, 8100251	Generator protection module
RIO-C4, C4xe	334894, 8100226	Generator control module
RPC	393831	Pick up Unit
RTixe, RTi-2xel	345304, 351792	Remote Torque Interface Output Module
SCU	329785	Segment Controller Unit
SEFA 160	332014	Electric Actuator
SEFA 800	346504	Electric Actuator
SIU, SIUxe	343294, 350928	Sensor Interface Unit Input Module
SSDU	393267	Speed Set Dial Unit
TMI	398644	Torque Motor Interface
VCC440, VCC690	8100242, 8100269	Voltage Converter Controller
WCC600	373860	Watch Bridge Units

Item no.	Designation	HW version
416532	Lever K-Thrust Dual	B
416531	Lever K-Thrust Single	B
416534	Lever K-Thrust Display	A
405844	Lever K-Thrust Dual w/Display	B
405842	Lever K-Thrust Single w/Display	B
405846	Lever K-Thrust Azimuth w/Display	B
416533	Lever K-Thrust Azimuth	B
412364	Mini Wheel K-Thrust w/Display	A
417835	Mini Wheel K-Thrust	A
406412	Thruster Command Panel	A1

Documents:

- Instruction Manual AutoChief C20 AA - 00363 - P; Type Approval Test Procedure AO-14125-B Rev.B dated 9-June-2004;
- AA-00378-A dated 17-July-2004; AA-00372-A dated 23-June-2004;
- 311246; 386083; 331519/B; 351385/A; 367938/D; 398092/A; 322851/A; 405886/A; 406171/A; 406806/A; 409453/A;
- 409590/A; 409612/A; 412948/A dated February 2017; 419577/A; 419578/A; 419579/A; 419580/A; 425396/A;



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**AutoChief C20 & C600 Remote Control System Propulsion and
K-Thrust 600 / K-Steering 600 Thruster and Steering Control**

Test Reports:

Danak: - 195838 dated 13-November-2001; 197561 dated 09-August-2004; 197309 dated 19-January-2004;
- 197316 dated 27-January-2004; 197322 dated 30-January-2004; 197329 dated 30-January-2004;
- 1911137 dated of 23 Nov. 2010; 1913963; 1914404; 1914407; 1915712; 1915815; 1915862; 1916085
NEMKO AS: - 142846; E16203.00 dated 2017-03-29;

Remarks:

- The K-Thrust components fulfill EC-Code: EC31 and Thruster command Panel fulfill EC-Code: EC31/41.
- The EMC requirements for installation on the Bridge and Deck Zones will be fulfilled by the equipment.
- For each configuration, the following documentation is to be submitted for approval:
 - + System description / scope of supply
 - + System block diagram
 - + External connection block diagram
 - + Power supply block diagram
 - + Factory Acceptance Test procedure
- Factory acceptance test is to be carried out in order to verify the correct function of the whole system.
- Evidence of the software version installed is to be recorded.
- Compass safe distance is to be considered at installation on bridge zone.

This certificate annuls and replaces the previous one N° ELE083516XG. ^{SN}

Hamburg June 16, 2017

