CERTIFICATE NUMBER
15-LD1417724-PDA

DATE
01 Sep 2015

ABS TECHNICAL OFFICE
London Engineering Department

CERTIFICATE OF DESIGN ASSESSMENT

This is to certify that a representative of this Bureau did, at the request of

KONGSBERG MARITIME AS

assess design plans and data for the below listed product. This assessment is a representation by the Bureau as to the degree of compliance the design exhibits with applicable sections of the Rules. This assessment does not waive unit certification or classification procedures required by ABS Rules for products to be installed in ABS classed vessels or facilities. This certificate, by itself, does not reflect that the product is Type Approved. The scope and limitations of this assessment are detailed on the pages attached to this certificate.

Product: **Dynamic Positioning Control System, Position Mooring System ...**

Model: **cPos, K-Pos DP/PM/DPM, cJoy**

This Product Design Assessment (PDA) Certificate 15-LD1417724-PDA, dated 01/Sep/2015 remains valid until 31/Aug/2020 or until the Rules or specifications used in the assessment are revised (whichever occurs first).

This PDA is intended for a product to be installed on an ABS classed vessel, MODU or facility which is in existence or under contract for construction on the date of the ABS Rules or specifications used to evaluate the Product.

Use of the Product on an ABS classed vessel, MODU or facility which is contracted after the validity date of the ABS Rules and specifications used to evaluate the Product, will require re-evaluation of the PDA.

Use of the Product for non ABS classed vessels, MODUs or facilities is to be to an agreement between the manufacturer and intended client.

AMERICAN BUREAU OF SHIPPING

Roberto Alvarez
Engineer

KONGSBERG MARITIME AS
POSTBOKS 483
N-3601 KONGSBERG
Norway
Telephone: +47 32 28 50 00
Fax: +47 32 28 50 10
Email: km.certification.carpus@kongsberg.com
Web: www.kongsberg.com

Tier: 5 - Unit Certification Required

Product: **Dynamic Positioning Control System, Position Mooring System and Independent Joystick Control System**

Model: **cPos, K-Pos DP/PM/DPM, cJoy**

Intended Service:
ABS Classed Vessels and Offshore Facilities in accordance with the listed ABS Rules.

Description:
Dynamic positioning control system, position mooring control system and independent joystick control system for vessels and offshore units.

DP operational modes: Joystick, Joystick High-Speed, Auto Heading, Auto Position, Mixed Joystick/Auto, Follow Target, Anchor Assist, Auto Track, Track Line, Seismic Track.
PM operational modes: Joystick, Mixed Joystick/Auto, Anchor Handling, Position Mooring.
DP system is composed:
-K-Pos OS: Operator Station.
-K-Pos DP controller: control cabinet composed of Main processor - RCU502, I/O bus - RHUB200, I/O units - RMP200, Serial lines - RSER200
-cJoy DP Operator Terminal: remote joystick with automatic heading and position capability for DP operation.
-cWing Remote Joystick Terminal: remote joystick with automatic heading capability
-K-Master as alternative OS/Workstation.

Available configurations:
DP-11: Single stand alone DP control system composed of one DP controller unit (DPC-1) and one K-Pos OS, single network communication. Direct interface to the thrusters and includes the necessary interfaces to power plant, position-reference systems and sensors.
DP-12: Integrated single DP control system composed of one DP controller unit (DPC-1) and one K-Pos OS, double network communication. DP system can be integrated with the KONGSBERG K-Thrust and K-Chief systems.
DP-21: Stand-alone dual-redundant DP control system composed dual-redundant DP controller unit (DCP-2) and two identical K-Pos OS, dual high speed data network communication. Direct interface to the thrusters and includes the necessary interfaces to power plant, position-reference systems and sensors.
DP-22: Integrated dual-redundant DP control system composed of dual-redundant DP controller unit (DCP-2) and two identical K-Pos OS, dual high speed data network communication. DP system can be integrated with the KONGSBERG K-Thrust and K-Chief systems.
DP-31: Stand-alone triple-redundant DP control system composed of triple-redundant DP controller unit (DPC-3) and three identical K-Pos OS, dual high speed data network communication. Direct interface to the thrusters and includes the necessary interfaces to power plant, position-reference systems and sensors.
DP-32: Integrated triple-redundant DP control system composed of triple-redundant DP controller unit (DPC-3) and three identical K-Pos OS, dual high speed data network communication. DP system can be integrated with the KONGSBERG K-Thrust and K-Chief systems.

Rating:
Power supply: 115 / 230 VAC (+10%, -15%), (DP controller (cC-1, DPC-1, DPC-2, DPC-3) - 24 VDC version available)
Enclosure protection: Cabinet - IP 22, cWing - IP56, DP Controller - IP44
Operating temperature: -15 Deg. C to 55 Deg. C, cWing -25 to 70 Deg. C

Service Restriction:
Unit Certification is required for this product as indicated in ABS Rules for Building and Classing Steel Vessels (2015) 4-1-1/Table 3 item 30, ABS Rules for Building and Classing Offshore Support Vessels (2015) 4-1-1/Table 3 item 30, ABS Rules for Building and Classing Mobile Offshore Support Vessels (2015) 6-1-4/Table 1, ABS Rules for

KONGSBERG MARITIME AS
POSTBOKS 483
N-3601 KONGSBERG
Norway
Telephone: +47 32 28 50 00
Fax: +47 32 28 50 10
Email: km.certification.carpus@kongsberg.com
Web: www.kongsberg.com

Tier: 5 - Unit Certification Required

Building and Classing Steel Vessels under 90 meters (295 feet) in length (2015) 4-1-1/Table 3C item 15 and ABS Rules for Building and Classing Steel Vessels For Service On Rivers & Intracoastal Waterways (2015) 4-1-1/3.7.
Dynamic Positioning control system is categorized as computer based system of Category II or III depending on the project. Documentation stated in the ABS Steel Vessel Rules (2015), 4-9-1/7.3.9 must be submitted accordingly to ABS for every project.
Documentation as stated in the ABS Steel Vessel Rules (2015), 4-9-3/Table 2 must be presented accordingly of the assigned system category.
Test and evidence as indicated in the ABS Steel Vessel Rules (2015), 4-9-3/Table 3 must be followed accordingly of the assigned system category.
Documentation stated on ABS Guide for Dynamic Positioning Systems (Up-dated July 2014) subsection 1/7.7 must be submitted according to the requested DPS notation.

Comments:
The Manufacturer has provided a declaration about the control of, or the lack of Asbestos in this product.

Notes/Drawing/Documentation:
Drawing No. 1002734L, Hardware list, Revision: L, Pages: -
Drawing No. 2001-3438, EMC and Environmental testing of maritime disply computer HD 08T21 KMC-DQ1-CORP, Revision: -, Pages: -
Drawing No. 2006-3293, Environmental testing of Joystic type KM-MOD, Revision: 1, Pages: -
Drawing No. 2006-3459, IP22 testing of Heading Wheel, Revision: 1, Pages: -
Drawing No. 2010-3409, EMC and Environmental Testing of MXE-5104 MAartime PC, Revision: -, Pages: -
Drawing No. 2011-3416, EMC and Environmental Testing of Maritime Display, Revision: -, Pages: -
Drawing No. 3000-14-015548, Environmental test report qualification test of K-Master Pilot Chair for Kongsberg Maritime , KM Doc, Revision: -, Pages: -
Drawing No. 3000-14-016067, Environmental test report qualification test of KMX Pedestal-300 assembled with KMX monitor bracket, Revision: -, Pages: -
Drawing No. 3000-14-016343, Environmental test report qualification test of KMX Medium-800 Console for Kongsberg Maritime KM doc, Revision: -, Pages: -
Drawing No. 300967D, Kongsberg K-Pos interface manual, Revision: D, Pages: -
Drawing No. 3010-05-0052, Environmental Test Report Verification Test of KM-05 Operator Station-650, Revision: - , Pages: -
Drawing No. 3010-05-0232, Vibration test report verification test of computer Compaq MP530 on Damper Kit 603185, Revision: -, Pages: -
Drawing No. 3010-09-0221, Environmental Test Report Vibration Test of K-Master Chair, Revision: -, Pages: -
Drawing No. 310-04-0125, environmental verification test cWing and cJoy Kongsberg Maritime AS, Revision: -, Pages: -
Drawing No. 310-04-0270, Environmental Verification Test cPos Kongsberg Maritime AS, Revision: -, Pages: -
Drawing No. 321841B, Update Notes DP basis 8.2.2, Revision: B, Pages: -
Drawing No. 332991, Environmental tests for RMP201-8 based upon RMP200-8, Revision: -, Pages: -
Drawing No. 385576D, K-Pos DPM (OS) Operator Manual, Revision: -, Pages: -
Drawing No. 385581B, cPos (OS) operator manual, Revision: B, Pages: -
Drawing No. 385583B, Kongsberg cJoy DP-OT remote dp operator terminal, Revision: B, Pages: -
Drawing No. 385585B, cJoy OT operator manual, Revision: B, Pages: -
Drawing No. 385586A, Kongsberg cJoy WT (cWing) remote wing terminal, Revision: A, Pages: -
Drawing No. 385599B, cJoy OT seismic track mode, Revision: -, Pages: -
Drawing No. 401552A, K-Master 2.0.3, Update Notes K-Master Basis, Revision: -, Pages: -
Drawing No. 69187, IP22 test of COP-05 units: ALC, BU-NAV, utility, Revision: -, Pages: -
Drawing No. 9501029033xx 001, Environmental Test Report Joystick KC 06, Revision: -, Pages: -
Drawing No. DANAK-1910979, Test for Marine Type Approval of Panel Input Mk2 COP 05, Revision: -, Pages: -
Drawing No. Danak-1910612, Type approval testing of Tracker Ball Stand Alone Panel KM Doc nr 338108, Revision: -, Pages: -
Drawing No. Danak-198195, Type approval testing of KM common operator panels 2005, Revision: -, Pages: -
Drawing No. Danak-198574, Vibration testing of PC (MP7600) on wire-isolator (KM kit 603185) in KM05 Slim line

KONGSBERG MARITIME AS
POSTBOKS 483
N-3601 KONGSBERG
Norway
Telephone: +47 32 28 50 00
Fax: +47 32 28 50 10
Email: km.certification.carpus@kongsberg.com
Web: www.kongsberg.com

console for mari, Revision: -, Pages: -
Drawing No. Danak-198575, , vibration testing of KM05 Deep line console with PC (MP7600) on wire isolator (KM Kit 603185), for, Revision: -, Pages: -
Drawing No. Danak-198577, , Vibration testing of KM05 Deep line console with PC (MP7600) on rubber isolators (MS2040+305083),, Revision: -, Pages: -
Drawing No. Danak-198637, IP22 test of KM-05 Deepline and Slimline operator stations, Revision: -, Pages: -
Drawing No. E11024.00, EMC test report for K-Master Panel System, Revision: -, Pages: -
Drawing No. E12059.00, Test report for bridge workstation, Revision: -, Pages: -
Drawing No. MD27 test 368950-T200216-DANAK_1911425-ISIC, MD27 test, Revision: -, Pages: -
Drawing No. SP_3P00307, monitor test DuraMon 22, 24 & 27 inch test, Revision: -, Pages: -
Drawing No. TA-KPOS-2006-MM-CC_U, Maintenance manual, Revision: U, Pages: -
Drawing No. TL13074-EMC, Kongsberg MP8300 PC 3, Revision: -, Pages: -
Drawing No. TL13074-ENV, Kongsberg MP8300 PC 3, Revision: -, Pages: -
Drawing No. TL13075-EMC, Kongsberg MP8300 PC 4, Revision: -, Pages: -
Drawing No. TL13075-ENV, Kongsberg MP8300 PC 4, Revision: -, Pages: -
Drawing No. TL13130-ENV, Kongsberg MP8300_PC5, Revision: -, Pages: -

Terms of Validity:
This Product Design Assessment (PDA) Certificate 15-LD1417724-PDA, dated 01/Sep/2015 remains valid until 31/Aug/2020 or until the Rules or specifications used in the assessment are revised (whichever occurs first).

This PDA is intended for a product to be installed on an ABS classed vessel, MODU or facility which is in existence or under contract for construction on the date of the ABS Rules or specifications used to evaluate the Product.

Use of the Product on an ABS classed vessel, MODU or facility which is contracted after the validity date of the ABS Rules and specifications used to evaluate the Product, will require re-evaluation of the PDA.

Use of the Product for non ABS classed vessels, MODUs or facilities is to be to an agreement between the manufacturer and intended client.

STANDARDS

ABS Rules:
Steel Vessel Rules (2015): 1-1-4/7.7, 1-1-A3&A4, 4-9-3/5, 4-9-3/9.5, 4-9-3/11, 4-9-3/13, 4-9-8/7, 4-9-8/13.
Steel Vessels Under 90 Meters (295 Feet) in Length (2015): 1-14/7.7, 1-1-A3&A4, 4-7-4/3.9.
Offshore Support Vessels (2015): 1-1-4/7.7, 1-1-A3&A4, 4-9-3/5, 4-9-3/9.5, 4-9-3/11, 4-9-3/13, 4-9-8/7, 4-9-8/13.
Mobile Offshore Drilling Units Rules (2015): 1-1-4/9.7, 1-1-A2&A3, 6-6-1/9, 6-1-1/13.
Steel Vessels for Service on Rivers and Intracoastal Waterways (2015): 1-1-4/7.7, 1-1-A3&A
Guide for Dynamic Positioning Systems: 2/Table 1 (Control System), 2/11, 5/5.5, 5/5.7, 5/9.

National:
NA

International:
NA

Government:
NA

KONGSBERG MARITIME AS
POSTBOKS 483
N-3601 KONGSBERG
Norway
Telephone: +47 32 28 50 00
Fax: +47 32 28 50 10
Email: km.certification.carpus@kongsberg.com
Web: www.kongsberg.com

Tier: 5 - Unit Certification Required

EUMED:
NA

OTHERS:
NA