



CERTIFICATE NUMBER	23-2481686-PDA
EFFECTIVE DATE	12-Dec-2023
EXPIRY DATE	11-Dec-2028
ABS TECHNICAL OFFICE	Yokohama Engineering Services

CERTIFICATE OF Product Design Assessment

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

KONGSBERG MARITIME AS, TRONDHEIM

located at

**SKONNERTVEGEN 1, 7053 RANHEIM, P.O. BOX 2434 ,
TRONDHEIM, Norway, 7005**

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: Shaft Torquemeter
Model: MetaPower Quad ShaPoLi
Endorsements:
Tier: 3 - Type Approved, unit certification not required

This Product Design Assessment (PDA) Certificate remains valid until 11/Dec/2028 or until the Rules and/or Standards used in the assessment are revised or until there is a design modification warranting design reassessment (whichever occurs first).

Acceptance of product is limited to the "Intended Service" details prescribed in the certificate and as per applicable Rules and Standards.

This Certificate is valid for installation of the listed product on ABS units which exist or are under contract for construction on or previous to the effective date of the ABS Rules and standards applied at the time of PDA issuance. Use of the Product for non-ABS units is subject to agreement between the manufacturer and intended client.

American Bureau Of Shipping

Motohiro Tamura,Engineer/Consultant

NOTE: This certificate evidences compliance with one or more of the Rules, Guides, standards or other criteria of ABS or a statutory, industrial or manufacturer's standards. It is issued solely for the use of ABS, its committees, its clients or other authorized entities. Any significant changes to the aforementioned product without approval from ABS will result in this certificate becoming null and void. This certificate is governed by ABS Rules 1-1-A3/5.9 Terms and Conditions of the Request for Product Type Approval and Agreement (2010)

KONGSBERG MARITIME AS, TRONDHEIM

SKONNERTVEGEN 1

7053 RANHEIM

P.O. BOX 2434

TRONDHEIM

Norway 7005

Telephone: +47 81573700

Fax: +47 73581001

Email: borge.havard.jenssen@km.kongsberg.com

Web: www.kongsberg.com

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Product: Shaft Torquemeter
Model: MetaPower Quad ShaPoLi
Endorsements:

Intended Service:

Marine vessels of any type and offshore installations.

Description:

Torqmeter measurements on propellers.

The system consists of an arrangement with slotted wheels and sensors fitted to, or in the proximity of the propeller shaft.

- Shaft Power Limitation (ShaPoLi) indication and logging
- Bridge panel with visual + audible alarm and override switch
- Compliance to EEXI by use of torquemeter only, ref. IACS 172
- Outputs engine power to EPL systems if required
- Digital output signal available
- Trending tools, logging capability for min. 10 years
- Automatic report functionality
- Full history stored in tamperproof central processing module
- Can be added to existing Metapower Quad systems
- Optional GPS input for position and clock sync.

Rating:

MetaPower Quad Cabinet

Power Supply: 24VDC

Power consumption: 12W

Protection: IP 65

Ambient Temperature: 70 °C

Service Restriction:

1. Unit Certification is not required for this product. If the manufacturer or purchaser request an ABS Certificate for compliance with a specification or standard, the specification or standard, including inspection standards and tolerances, must be clearly defined.
2. Each particular installation of the system is to be separately approved along with the vessels' specific Onboard Management Manual (OMM) ref. MEPC.335(76) par. 4. The Onboard Management Manual (OMM) for each vessel is not covered in this PDA.
3. The system without automatic power limitation in accordance with IACS EEXI implementation guidelines No. 172 (section 6.6) is being approved subject to the acceptance of the vessel's Flag Administration.

Comments:

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

Notes/Drawing/Documentation:

- DWG. NO. 110-0016316, FAT document, pages 13;
- DWG. NO. 110-0016317, ShaPoLi Function description, pages 18;
- DWG. NO. 110-0016328B, Metapower Data Sheet, pages 2;
- DWG. NO. 110-0016346, ShaPoLi Operation Manual, pages 14;
- DWG. NO. 110-0018627, Version 1A, pages 1;
- DWG. NO. 425213, Version 1E, pages 2;
- DWG. NO. 430609, Version 1G, pages 1;

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DWG. NO. 430610, Version 1B, pages 1;
DWG. NO. 434126, Version 1F, pages 1;
DWG. NO. 440640, Modbus Register, pages 20;
DWG. NO. 441098, Version 1D, pages 1;
DWG. NO. 442063, Pre-Com Checklist, pages 13;
DWG. NO. 444186, Service Manual, pages 350;
DWG. NO. 462119, Version 1B, pages 1;
DWG. NO. 464479, Version 1C, pages 1;
DWG. NO. 464907, Version 1B, pages 1;
DWG. NO. 465298, EMC report 001771B, pages 75, dated 22 November 2022, issued by Nemko;
DWG. NO. 467793, Version 1A, pages 1,
DWG. NO. 468291, Commissioning, pages 18,
DWG. NO. DANAK 1911279, EMC report NQB101, pages 99, dated 14 February 2021, issued by DELTA;
DWG. NO. Datasheet, NQB101, pages 1;
DWG. NO. Drawing 001-0015639, Version 1A, pages 1;
DWG. NO. Drawing 110-0014543, Version 1B, pages 1;
DWG. NO. Drawing 110-0015641, Version 1B, pages 1;
DWG. NO. Drawing 110-0016162, Version 1B, pages 1;
DWG. NO. EMC report, 461329 EMC report, pages 83, dated 22 April 2022, issued by Nemko;

Terms of Validity:

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STANDARDS

ABS Rules:

2023 Marine Vessels Rules: 1-1-4/7.7, 1-1/A3, 1-1/A4, 4-8-3/1.7, 4-8-3/1.9, 4-8-3/1.11.1, 4-8-3/1.17, 4-9-9/Table 1 and Table 2

National:

NA

International:

IMO Resolution MEPC.335(76) "2021 Guidelines on the Shaft / Engine Power Limitation System to Comply with the EEXI Requirements and use of a Power Reserve."

Government:

NA

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EUMED:

NA

OTHERS:

IACS Recommendation No. 172 (June 2022) EEXI Implementation Guidelines

IACS UR E10 Rev.7 (Oct. 2018) & Rev.8 (Feb. 2021)