



CERTIFICATE NUMBER	25-0278807-PDA
EFFECTIVE DATE	17-Jul-2025
EXPIRY DATE	16-Jul-2030
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

TX MARINE MESSYSTEME GMBH

located at

SANDKAMP 18, , KIEBITZREIHE, Germany, 25368

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: TORXmeter® digi
Endorsements:
Tier: 2 - PDA Issued

This Product Design Assessment (PDA) Certificate remains valid until 16/Jul/2030 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)

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Tier: 2 - PDA Issued

Product: Shaft Torquemeter

Model: TORXmeter® digi

Endorsements:

Intended Service:

For use on Marine vessels and offshore facilities in accordance with the listed ABS Rules and International Standards

Description:

The TORXmeter® digi is used the measurement principle utilizing magnetic scanning.

Two sensor units, each paired with a magnetic sensor belt, are installed at a defined distance along the shaft.

The system performs extremely fast magnetic scanning (EXFR) of the encoded patterns on the sensor belt, allowing for high-resolution angular displacement measurements.

The system calculates shaft torsion and shaft rotation.

The continuous resulting data – torque, speed, and shaft power – is displayed locally or transmitted to a repeater display or external systems.

Applicable to feature fuel and propulsion efficiency, engine and hull performance as well as to monitor shaft power limitation.

This system consists of following components:

- One Control Unit with pre-mounted EXFR sensor cables
- Two sensor holders with pre-mounted two sensors each
- Two sensor belts
- Two Welding bracket Optional available Repeater display, Shapoli Monitor and NMEA Converter

Rating:

Control Unit

Power Supply: 100-240 ACV / 50-60 Hz

Operating Temp.: 0-50°C

Protection degree Control Unit: IP 54

Protection degree EXFR Sensor: IP67

Service Restriction:

Unit Certification is not required for this product.

If the manufacturer or purchaser requests an ABS Certificate for compliance with a specification or standard, the specification or standard, including inspection standards and tolerances, must be clearly defined.

Comments:

The Manufacturer has provided a declaration about the control of, or the lack of Asbestos in this product. This certificate covers hardware only.

Installations are to be in accordance with the manufacturer's procedure.

Control Unit is to be connected with a ferrit sleeve on the power line (scope of supply).

Notes/Drawing/Documentation:

Drawing No. 401-24_V1U, EMC Test Report, TREO GmbH, Revision:0, Date: 9 December 2024, Pages: 84, issued by TREO,

Drawing No. 475-24_V1U, ENV Test Report, TREO GmbH, Revision:0, Date: 27 March 2025, Pages: 64, issued by TREO,

Drawing No. TXM900-10-001, TECHNICAL DOCUMENTATION, Revision 001, Date: 8 July 2025, Pages: 24,

Drawing No. 23738, TORXMETER DIGI Index B, Revision: C, Date: 30 June 2025, Pages: 21,

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Drawing No. 600-003-009, Sensor belt mkl Separate Part Drawing, Revision: 0, Date: 8 March 2021, Pages: 1,
Drawing No. 600-003-010, Welding Bracket Separate Part Drawing, Revision: 0, Date: 23 March 2021, Pages: 1,
Drawing No. 600-003-011, EXFR Sensor mkl Separate Part Drawing, Revision: 0, Date: 18 March 2021, Pages: 1,
Drawing No. 700-001-004-1-B, TM digi system overview complete white bearing, Revision: 0, Date: 19 September
2024, Pages: 1,
Drawing No. 700-003-005-A, Control Unit, Revision: 0, Date: 21 March 2024, Pages: 1,

Terms of Validity:

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STANDARDS

ABS Rules:

2025 Rules for Building and Classing Marine Vessel Rules: 1A-1-4/7.7, 1A-1-A3, 1A-1-A4, 4-9-9/13.1, 4-9-9/15.7
Table 1

National:

NA

International:

IACS UR E10, Rev.8, 2021

IACS Rec. 172 EEXI Implementation Guidelines of June 2022

Government:

NA

EUMED:

NA

OTHERS:

NA