



CERTIFICATE NUMBER	20-2029761-PDA
EFFECTIVE DATE	24-Sep-2020
EXPIRY DATE	23-Sep-2025
ABS TECHNICAL OFFICE	Hamburg Engineering Department

CERTIFICATE OF Product Design Assessment

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

KTR SYSTEMS GMBH

located at

CARL-ZEISS STR. 25, D-48432 RHEINE, Germany

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 Couplings

Model REVOLEX, KX: Size 105 to 370, KX-D: Size 75 to 650

This Product Design Assessment (PDA) Certificate remains valid until 23/Sep/2025 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

Efstratios Maliatsos
Efstratios Maliatsos, 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: 5 - Unit Certification Required

Product: Couplings

Model: REVOLEX, KX: Size105 to 370, KX-D: Size 75 to 650

Intended Service:

Flexible couplings for propulsion and auxiliary drives. Suitable for use in hazardous locations.

Description:

The REVOLEX KX/KX-D is a torsionally flexible pin & bush coupling able to compensate for shaft misalignment. Subject couplings are designed to transmit torque between drive and driven components via an array of pins & elastomeric bushings. The combination of these components provide dampening and accommodation for misalignment.

Rating:

For approved ratings see attached file.

Service Restriction:

1. Tier 5 - Unit Certification via Survey during Fabrication (UC) is required for this product as per 4-1-1/Table 2 of the Marine Vessels Rules and Chapter 3 Section 2 Tables 1 and 2 of the Guide for the Certification of Drilling Systems as applicable..
2. Ice-Class aspects remain to be specially considered on basis of a case-by-case approval.
3. Couplings for generator set applications are to be capable of absorbing short time impact torque due to electrical short-circuit conditions up to six (6) times the nominal torque.
4. Couplings without torsional displacement limiter are not to be used in propulsion lines of single screw vessels.
5. 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.
6. Material Testing may need to be witnessed by the Surveyor as per applicable requirements in 4-3-2/3 of the Marine Vessels Rules and Chapter 5 of the Guide for the Certification of Drilling Systems.
7. Coupling to be used for drilling system equipment and/or component materials are to comply with the toughness requirements as per 6/5.1 of the Guide for the Certification of Drilling Systems.

Comments:

1. The Manufacturer has provided a declaration about the control of, or the lack of Asbestos in this product.
2. When using the coupling in hazardous locations please observe the special advice and instructions regarding safety in Enclosure A of manufacturer's operating/assembly instructions manual "KTR-N 49410" Edition 14 dated from 07/26/2019.
Additionally, and as per "KTR-N 49410", if intended for use in such locations, the size of coupling must be selected such that there is a minimum safety of $S=2.0$ between the torque of the machine and the rated torque of the coupling.
3. Order related details of the coupling hubs including shrink fit and key parameters remain to be submitted for case-by-case approval.
4. Propulsion couplings transmitting 375 kW (500 hp) or more are to be material tested in the presence of a Bureau's Surveyor.
5. The couplings are to be mounted in accordance with manufacturer's installation instructions.
6. Toughness test must be carried out to meet the requirements specified in 2020 Mobile Offshore Units 6-1-9/Table 1.
7. Coupling bolts will be accepted on the basis of the material manufacturer's certified test reports and a satisfactory surface inspection and hardness check witnessed by the Surveyor. Coupling bolts manufactured to a recognised bolt standard will not require material testing.
8. ATEX certified equipment is not to be installed in hazardous areas on U.S. Flagged Vessels, unless it can be proven to have been tested to the IEC 60079 series standards by an independent laboratory accepted by the U.S. Coast Guard.
USCG MI Notice 01-12 (February 7, 2012).

Notes/Drawing/Documentation:

Drawing No. 49410en000000, operating- and assembly instructions, Revision: 14, Pages: 27

Drawing No. 99417057DE, Test reports, Revision: -, Pages: 10

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Tier: 5 - Unit Certification Required

Drawing No. Act on Form alert, Act on Form alert, Revision: -, Pages: 3

Drawing No. Correspondence, email of August 19th, Revision: -, Pages: 2

Drawing No. IBExU06ATEXXB009X, ATEX Certificate, Revision: -, Pages: 3

Drawing No. Kalibrierzertifikate Pruefstand 10, calibration data, Revision: -, Pages: 2

Drawing No. REVOLEX KX-D_2017, Torque update table, Revision: -, Pages: 3

Drawing No. Revolex data & drawing list (1), old drawings list, Revision: -, Pages: -

Drawing No. complete, Catalog, Revision: -, Pages: 350

Terms of Validity:

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STANDARDS

ABS Rules:

- Marine Vessels Rules (2020): 1-1-4/7.7, 1-1-A3, 1-1-A4, 4-1-1/Table 6, 4-3-2/1.1, 4-3-2/1.5, 4-3-2/3.1, 4-3-2/3.7, 4-3-2/5.1, 4-3-2/5.3, 4-3-2/5.19, 4-3-2/9.7, 4-3-5/5.7.3
- Mobile Offshore Units Rules (2020): 1-1-4/9.7, 1-1-A2, 1-1-A3, 2-1-4/5/7/9, 2-1-7/11, 2-3-2/9, 4-1-1, 6-1-4/ Table 1, 6-1-7/3.1, 6-1-7/5.11, 6-1-9/9/ Table 1, 2,
- Facilities on Offshore Installation Rules, (2020) 1-1/A2, 1-1/A3, 3-2/Table 2, 5-1/3.3.3,
- Classification of Drilling Systems Guide (2020), 1-1/A2, 1-1/A3, Chapter 3 Section 2 Tables 1 and 2, 2-5/7.1, 2-7/9.7, 3-2/Table 2/3/4
- High-Speed Craft Rules (2020) 1-1-A2, 1-1-A3

National:

International:

EC Directive 2014/34/EU (ATEX), dated 26.02.2014

Government:

NA

EUMED:

NA

OTHERS:

NA