



CERTIFICATE NUMBER
17-HG1614024-PDA

DATE
07 Apr 2017

ABS TECHNICAL OFFICE
Hamburg Engineering Department

CERTIFICATE OF DESIGN ASSESSMENT

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

KTR SYSTEMS GMBH

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: **ROTEX, Designs: No. 001, AFN No. 002, BFN No. 004, A-H, CF a. CFN No. 005, DF a. DFN No. 006, ZS-DKM-H, DKM No. 018, ZWN No. 017, ZR No. 037, BTAN No. 011, SBAN No. 013, AFN-SB spe...**

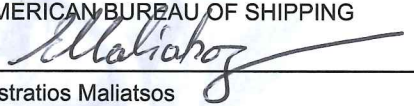
This Product Design Assessment (PDA) Certificate 17-HG1614024-PDA, dated 07/Apr/2017 remains valid until 06/Apr/2022 or until the Rules or specifications used in the assessment are revised (whichever occurs first).

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


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 the terms and conditions as contained in 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:** ROTEX, Designs: No. 001, AFN No. 002, BFN No. 004, A-H, CF a. CFN No. 005, DF a. DFN No. 006, ZS-DKM-H, DKM No. 018, ZWN No. 017, ZR No. 037, BTAN No. 011, SBAN No. 013, AFN-SB special, SD No. 015, FNN No. 021 and FNN with fan.**Intended Service:**

Torsionally flexible claw type couplings for thruster drives and other auxiliary purposes.

Description:

The ROTEX coupling is a torsionally flexible claw type coupling that compensates axial, radial and angular displacements of the connected machinery. The two congruent coupling halves with concave claws on the inside are peripherally offset in relation to one another by half a pitch. They are designed to enable an involute spider in-between. Three types of rubber qualities are available for the spider in order to tune the coupling to the various system requirements. The maximum twisting angle amounts to 5°. The couplings could be fitted horizontally or vertically.

Rating:

For approved ratings click on link 'Additional Product Details'.

Service Restriction:

1. Unit certification is required for this product for thruster applications with APS, PAS and DPS Class Notation.
2. Subject couplings are not to be used for any direct thrust transmissions.
3. Ice-Class aspects remain to be specially considered on a case-by-case basis approval.
4. 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.
5. The intermediate shaft of ZWN couplings is to be of at least grade S355J2G3 quality.
6. The ZR couplings are intended only for non-essential auxiliary services (i.e. pump-drives, compressors etc.) further the intermediate tube shaft is to be of at least grade S235G2T quality.
7. Production tolerance on torsional stiffness: $\pm 20\%$.
8. Permissible power loss P_{subKW} given in the catalogue is valid for ambient temperature of 30 °C. At higher ambient temperature a linear decrease from 0 to 100 °C should be used.
9. Use of subject couplings at ambient temperatures at or below -18 °C would require special impact testing.
10. Materials with elongation ($Lo/d = 4$) of less than 16% are not to be used for subject thruster applications.

Comments:

1. Couplings intended for thruster applications with APS, PAS and DPS Class Notation transmitting 375 kW (500 hp) or more are to be material tested in the presence of a Bureau's Surveyor.
2. Order related details of the coupling hubs including shrink-fit/key parameters (if any) and bolted input/output connections remain to be submitted for case-by-case approval as well as any deviation from series production and clamp type fixtures.
3. The couplings are to be operated and mounted in accordance with manufacturer's operating- /assembly instructions.

Notes/Drawing/Documentation:

See attached drawings list.

Terms of Validity:

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STANDARDS**ABS Rules:**

- Steel Vessel Rules (2017): 1-1-4/7.7, 1-1-Appendix 3 and 4, 4-1-1/Table 2, 2-3-2/9, 4-3-2/1.1, /1.5, /3.1, /3.7, /5.1, /5.3, 5.19, 4-3-5/1.3, 1.5, 3.1, 3.3, 5.7.3.
- Steel Vessels Under 90 Meters (2017): 1-1-4/7.7, 4-3-1/7.1, 4-3-1/7.3, 4-2-1/17.1, 4-3-1/19.3, 4-3-1/19.5, 1-1-Appendix 3 and 4
- Offshore Support Vessels (2017): 1-1-4/7.7, 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, 1-1-Appendix 3 and 4
- Mobile Offshore Drilling Units Rules(2017): 1-1-4/9.7, 1-1-Appendix 2 and 3
- Steel Barges (2017): 1-1-4/7.7, 1-1-Appendix 3 and 4
- Steel Vessels for Service on Rivers and Intracoastal Waterways (2017): 1-1-4/7.7, 1-1-Appendix 3 and 4

National:

NA

International:

NA

Government:

NA

EUMED:

NA

OTHERS:

NA