

TYPE APPROVAL CERTIFICATE

Certificate no.:
TAM0000010
Revision No:
3

This is to certify:
that the Bulkhead Seal

with type designation(s)
Espey WDK-BHS

issued to
EagleBurgmann Espey GmbH
Moers, Nordrhein-Westfalen, Germany

is found to comply with
DNV rules for classification – Ships
DNV rules for classification – High speed and light craft

Application:

The bulkhead seal may be used for shafts with a diameter range from 40 mm to 800 mm.

Products approved by this certificate are accepted for installation on all vessels classed by DNV.

Issued at **Høvik** on **2024-10-28**

This Certificate is valid until **2029-10-27**.

DNV local unit: **Essen**

Approval Engineer: **Stanislav Avanesov**

for **DNV**



Digitally Signed By:
Svein-Olav Hannevik
Location: DNV Høvik, Norway

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid. The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to USD 300 000.

Product description

Watertight shaft seal for rotating shafts penetrating bulkheads.

Application/Limitation

The bulkhead seal may be used for shafts with diameter range from 40 mm to 800 mm.
Maximum eff. pressure 3 bar.
Maximum sliding velocity: 40 m/sec.
Radial play shaft: max. 5mm.
Shaft angular misalignment: max. 2°.

Leakage rates:
Shaft diameter up to 100mm: max. 0.195 l/min as tested.
Shaft diameter up to 320mm: max. 0.885 l/min as tested.
Shaft diameter up to 800mm: max. 2.385 l/min as calculated.

The seal is not to be used as gastight seal for shaft.

Type Approval documentation

The approval is based on the following documentation:

Drawing No. and technical information:	Title:
WD200-S	Operating-Maintenance-Instruction_Espey-WDK-BHS_e-Rev.3 EBES_Techn_Info_Bulkhead_Seal_WDK-BHS_2013_DE-EN Drawing ESPEY-WDK-BHS SiSt Data Sheet PTFE-Compound E49
HN2316164_2	d 320 Measured Leakage Rates HN2316164
HN2316164_1	d 320 Measured Leakage Rates HN2316164 ABS-RINA
HN2294452	d 100 Measured Leakage Rates HN2294452

Tests carried out

Type test for ø320 mm carried out at EagleBurgmann, Germany on 15-03-2013.

Type test for ø100 mm carried out at EagleBurgmann, Germany on 13-02-2013.

Marking of product

The product to be marked with manufacturer's name or trademark and type number identification

Periodical assessment

For retention of the Type Approval, a DNV surveyor shall perform a survey after 2 and 3,5 years after issue of certificate to verify that the conditions of the type approval are complied with.

The objective of the Periodical Assessment is to verify that the conditions for the Type Approval are not altered since the Type Approval Certificate was issued. The main scope of the Periodical Assessment will normally include:

- Verification of the Type Approval applicant's production and quality system w.r.t. ensuring continued consistent production of the Type Approved products at the Type Approval applicant's own premises and at other companies that are given the responsibility for manufacturing of the products.
- Review of the Type Approval documentation and that this is still used as basis for the production
- Review of possible changes to the design, the material and the performance of the product
- Verification of the product marking.

In cases where the Type Approved product is manufactured at other companies, the Periodical Assessment shall verify that the Type Approval applicant has a quality control system for consistent production at their licensees/subcontractors. Furthermore Periodical Assessment shall be carried out randomly at these companies.



Job ID: **262.1-017622-6**
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When a Type Approved product is manufactured at other companies, the Type Approval applicant takes the sole responsibility for the conformity of the product to the applicable requirements.

Other conditions

DNV product certificate is not required.

END OF CERTIFICATE