

EagleBurgmann Espey GmbH
Attn: Wolfgang Steuk
Thomas-Edison-Str. 19
47445 Moers

Lloyd's Register EMEA

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www.lr.org

Date 07 November 2013
Your ref
Our ref HPC 1310300/29972-
13/TS/hu

Dear Sir,

**THE LLOYD'S REGISTER'S TYPE APPROVAL SYSTEM, 2002
ISSUED TO: EAGLE BURGMANN ESPEY GMBH
FOR: WATERTIGHT SHAFT SEAL
TYPE: ESPEY WDK-BHS
TYPE APPROVAL CERTIFICATE NO. 13/20054**

Reference is made to your e-mail dated 26 July 2013 with documents electronically submitted for approval.

Enclosed please find original of Type Approval Certificate No.13/20054 and pertaining Design Appraisal Document (DAD) No. HDS/ENS 29972-13, issue No. 0, dated 31 October 2013.

You will find the List Entry on the Lloyd's Register web site <http://www.cdlive.lr.org/information> click on **Approvals** then on **Approved Products List**.

On the first occasion you log onto the site you will be requested to accept the Terms and Conditions and to complete a dialogue box with the following information: *Contact Name, Company Name, Email Address*.

Our invoice for the services rendered will follow in due course.

Yours faithfully,


Ute Hilberger
Senior Administrator
Hamburg Operational Business Support
Lloyd's Register EMEA

Encls.

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Type Approval Certificate

This is to certify that the undernoted product(s) has/have been tested with satisfactory results in accordance with the relevant requirements of the Lloyd's Register Type Approval System.

This certificate is issued to:

PRODUCER	EagleBurgmann Espey GmbH Thomas-Edison-Str. 19 47445 Moers Germany
DESCRIPTION	Bulkhead shaft seal, consisting of a radially split housing made of stainless steel with segmented sealing elements of carbon-PTFE with circumferential spring.
TYPE	ESPEY WDK-BHS
APPLICATION	Watertight shaft seal for rotating shafts penetrating bulkheads on board of ships classed or intended for classification with Lloyd's Register.
RATINGS	Shaft diameter range: 40 – 800 mm Operating pressure: 3 bar eff. Shaft sliding velocity: 40 m/s Radial play shaft: max. 5 mm Shaft angular misalignment: max. 2° Verified leakage rates: Shaft diameter up to 100 mm: max. 0,195 L / min. as tested, Shaft diameter up to 320 mm: max. 0,885 L / min. as tested, Shaft diameter up to 800 mm: max. 2,385 L / min. calculated value
OTHER CONDITIONS	The manufacturer's operating and maintenance instructions are to be sought.
STANDARDS	Lloyd's Register's Rules and Regulations for the Classification of Ships, 2013.
Certificate No.	13/20054
Issue Date	31 October 2013
Expiry Date	30 October 2018
Sheet	1 of 2



Torsten Schroeder
Hamburg Design Support Office
Lloyd's Register EMEA

Lloyd's Register EMEA
71 Fenchurch Street, London EC3M 4BS

"This Certificate is not valid for equipment, the design, ratings or operating parameters of which have been varied from the specimen tested. The manufacturer should notify Lloyd's Register EMEA of any modification or changes to the equipment in order to obtain a valid certificate."

The Design Appraisal Document No. HDS/ENS 29972-13, Issue No. 0 and its supplementary Type Approval Terms and Conditions form part of this Certificate.

Certificate No. 13/20054
Issue Date 31 October 2013
Expiry Date 30 October 2018
Sheet 2 of 2


Torsten Schroeder
Hamburg Design Support Office
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Marine Design Appraisal Document

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Email: hamburg-design-support@lr.org

Date
31 October 2013

Please quote this reference number on all future communications
HPC 1310300/29972-13/TS/hu

**THE LLOYD'S REGISTER'S TYPE APPROVAL SYSTEM, 2002
ISSUED TO: EAGLE BURGMANN ESPEY GMBH
FOR: WATERTIGHT SHAFT SEAL, TYPE ESPEY WDK-BHS
TYPE APPROVAL CERTIFICATE NO. 13/20054**

The undernoted documents have been reviewed for compliance with the requirements of the Lloyd's Register's Type Approval System, 2002 and this Design Appraisal Document forms part of the Certificate.

COMMENTS

1. The installation is subject to a proper shaft alignment. Both have to be carried out to the attending surveyor's satisfaction.

DRAWINGS

Drawing-No.	Rev.	Title	
-	-	ESPEY-WDK-BHS Dimension sheet	31.10.2013

APPROVAL DOCUMENTATION

Form 2571	Application for Type Approval	26.07.2013
-	Catalogue sheet - EBES/BHSE/1.00/05.13/9.74©EagleBurgmannEspey.Germany	2013
-	Data sheet for radial cut sealing rings	12.02.2013
-	Bulkheadseal – Operating and maintenance instruction	25.10.2012

FINAL ACCEPTANCE OF ACTUAL ITEM(S) DEPEND(S) ON SATISFACTORY SURVEY AND TESTING

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TEST REPORTS

HPC 1310300	LR-Visit Report - Inspection and surveillance of production facilities in Moers / Germany	07.10.2013
HN 2294452	BHS – Type Testing for ESPEY WDK-BHS diameter 100 – leakage rates at 1000, 3000 and 4000 rpm at 1.0, 2.0, 3.0 and 4.0 bar (abs)	13.02.2013
HN2316164	BHS – Type Testing for ESPEY WDK-BHS diameter 320 – leakage rates at 0, 1000, 1250 and 1500 rpm at 1.0, 1.5, 2.0 and 2.5 bar (abs)	15.03.2013



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Supplementary Type Approval Terms and Conditions

Type Approval certifies that a representative sample of the product(s) referred to herein has/have been found to meet the applicable design criteria for the use specified herein. It does not mean or imply approval for any other use, nor approval of any product(s) designed or manufactured otherwise than in strict conformity with the said representative sample.

Type Approval is based on the understanding that the manufacturer's recommendations and instructions and any relevant requirements of the Rules and Regulations are complied with.

Type Approval does not eliminate the need for normal inspection and survey procedures required by the Rules and Regulations.

Lloyd's Register EMEA reserves the right to cancel or withdraw this Type Approval Certificate in accordance with the LR Type Approval System Procedure.

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Part 1A

Subject: Main and Auxiliary Propulsion
Product: Bulkhead Seals

Description of Product				Cert. No.	
Producer/Licence No.	Type	Details of Approval	Application		Remarks
EagleBurgmann Espey GmbH Thomas-Edison-Str. 19 47445 Moers Germany	ESPEY WDK-BHS	<p>Bulkhead shaft seal, consisting of a radially split housing made of stainless steel with segmented sealing elements of carbon-FIFE with circumferential spring.</p> <p><u>Ratings:</u></p> <p>Shaft diameter range: 40 – 800 mm Operating pressure: 3 bar eff. Shaft sliding velocity: 40 m/s Radial play shaft: max. 5 mm Shaft angular misalignment: max. 2°</p> <p><u>Verified leakage rates:</u></p> <p>Shaft diameter up to 100 mm: max. 0,195 L / min. as tested, Shaft diameter up to 320 mm: max. 0,885 L / min. as tested, Shaft diameter up to 800 mm: max. 2,385 L / min. calculated value</p>	<p>Watertight shaft seal for rotating shafts penetrating bulkheads on board of ships classed or intended for classification with Lloyd's Register.</p> <p><u>Other Conditions:</u></p> <p>The manufacturer's operating and maintenance instructions are to be sought.</p>	Expires: 30 October 2018	13/20054