

TYPE APPROVAL CERTIFICATE

Certificate No:
TAM0000104
Revision No:
1

This is to certify:

That the Stern Tube Seal

with type designation(s)

Prime type Standard and Secure, Primair Standard and Secure, Primair Compact

Issued to

Aegir Marine B.V.

Wijk bij Duurstede, Utrecht, Netherlands

is found to comply with

DNV rules for classification – Ships

DNV rules for classification – High speed and light craft

Application :

The sterntube seals are approved for oil lubricated shafts. The sealing boxes meet the requirements to sealing boxes for TMON (Tailshaft Monitoring Survey Arrangement). The design of Primair sealing system satisfies the requirements for Clean(Design).

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

Issued at **Høvik** on **2022-06-13**

This Certificate is valid until **2023-12-13**.

DNV local station: **Netherlands CMC**

Approval Engineer: **Geir Olav Moen**



for **DNV**

Digitally Signed By: Hannevik, Svein-Olav

Location: DNV Høvik, Norway

on behalf of

Oddvar Deinboll
Head of Section

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 300,000 USD.



Product description

Stern tube shaft seal for oil lubricated propeller shaft.

The PRIMAIR Compact consist of an Air Management Unit (AMU) and a lubrication oil tank. The process is controlled through a separate PLC with touchscreen (part of the AMU), with dedicated alarm signal intended for the ships main alarm system.

Prime type Standard and Secure

Shaft diameter: 115 mm to 1250 mm.

PRIMAIR Standard and Secure

Shaft diameter: 450 mm to 1250 mm.

PRIMAIR Compact

Shaft diameter: 285 mm to 1150 mm.

Application/Limitation

The Stern Tube seal is approved for mineral oils.

Environmentally Acceptable Lubricants (EALs) may only be applied according to manufacturer's list. Manufacturer's confirmation should be obtained separately.

The aft sterntube sealing boxes satisfies the requirements to sealing boxes for TMON (Tailshaft Monitoring Survey Arrangement).

The design of PRIMAIR sealing system satisfies the requirements for Clean(Design), see DNV rules Pt.6 Ch.7 Sec.2 [3.3.9.1].

PRIMAIR Compact:

- In case of failure, the procedure specified in document "Procedure for emergency (V1)" shall be followed.
- Alarm for low lubricant tank level and flow shall be wired to the vessels main alarm system through terminal/contact 3K10-21 and 3K10-22 in the AMU. Correct functionality to be verified after installation onboard. The common alarm function is covered by the subject TAC through SW no. 01-04.
- Location classes for AMU:

Temperature	A
Humidity	B
Vibration	A
EMC	A
Enclosure	B / IP65

Type Approval documentation

DNV-		Drawing-		
Doc.	Dic.	No.	Title	Rev
	C1	1101-10000-00	AFT Prime Seal –Standard type	
	C1	1101-20000-00	FWD Prime Seal –Standard type	
	C1	1101-10000-13	AFT Prime Seal –Standard type with "APS" (Aft Protection System)	
	C1	1102-10000-00	AFT Prime Seal –Secure type	
	C1	Table No.: 1101-00000-00	Dimension table for Prime seal – Standard type	
	C1	Table No.: 1102-00000-00	Dimension table for Prime seal – Secure type	
	C1	A-03-1-0000-259-00	Air Management Unit	
	C1	A-03-1-0000-105-00	Piping diagram for PRIMAIR Secure/Standard	
	C1	A-03-1-0000-260-00	Drain Collection Unit	
	C1	A-06-1-0000-000-00	AFT SEAL PRIMAIR Standard + APS	
	C1	A-07-1-0000-000-00	AFT SEAL PRIMAIR Secure + APS	
	C1	Table no.: A-06-1-0000	Dimension table for PRIMAIR sea – Standard type	
		Table no.: A-07-1-0000	Dimension table for PRIMAIR sea – Secure type	

TAC renewal and extension 2022:

DNV-		Drawing-		
doc.	discipline.	no.	title	rev
26	C1		PRIMAIR Compact, Instruction manual	Dec. 21
2	C1, S1	A-06-0-0000-350-05	Primair Compact Schematic	
25	C1, I		Alarm list PRIMAIR Compact	1.2
5	I	SOX686-C-001	Cabinet AMU3.1	B
8	C1, S1, I		FMEA for PRIMAIR-Compact	3
9	I	19P04194.02 28-02-2020	AEGIR-Marine E-cabinet PRIMAIR Compact	
10	C1, S1, I		FAT AEGIR Marine PRIMAIR Compact V2 (002)	
11	C1, S1, I		Installation manual PRIMAIR Compact	
14	I		Appendix B Updating of PLC and HMI 20200414	
15	C1		Procedure for emergency	
16	C1, S1, I		Instruction manual PRIMAIR Compact	
18	I		FAT analyse AEGIR Marine PRIMAIR Compact V2 (002)	
20	I	2253247.0501-EMC	DEKRA EMC Test Report 2253247.0501-EMC - AEGIR Marine PRIMAIR Compact	
24	I	22532247.51	DEKRA ENV Test Report 22532247.51 Test Report - AEGIR Marine PRIMAIR Compact	

Tests carried out

TNO test report 43/03.007177/sec dated 2002-12-04
PRIMAIR Standard/Secure test report dated 2014-05-16
AMU tested towards DNV-CG-0339 Ed. August 2021

Other conditions

Material test report for sealing rings to be presented to DNV per installation, ref. Pt.4 Ch.4 Sec.1 [3.1.1] Table 8 (applicable from January 2019).

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 an assessment after 2 years and after 3.5 years, to verify that the conditions of the type approval are complied with. A renewal assessment will be performed at renewal of the certificate.

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.

END OF CERTIFICATE