

EC-TYPE EXAMINATION CERTIFICATE (MODULE B)

Certificate No:
MEDB00007BM

Application of: Directive 2014/90/EU of 23 July 2014 on marine equipment (MED). This Certificate is issued by DNV SE based on the notification of the Federal Maritime and Hydrographic Agency of Germany.

This is to certify:

That the Penetrations through "A" class divisions: pipe, duct, trunk, etc penetrations

with type designation(s)
BONDSTRAND - GRE Watertight Bulkhead Penetration

Issued to

NOV FGS Malaysia Sdn. Bhd.
Senai, Johor, Malaysia

is found to comply with the requirements in the following Regulations/Standards:

Regulation (EU) 2020/1170,
item No. MED/3.26b. SOLAS 74 as amended, Regulation II-2/9, IMO MSC.1/Circ.1276, IMO 2010 FTP Code and
IMO MSC.1/1488

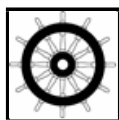
Further details of the equipment and conditions for certification are given overleaf.

This Certificate is valid until **2026-05-10**.

Issued at **Hamburg** on **2021-05-11**

DNV local station:
Kuala Lumpur Verification

Approval Engineer:
Hagen Markus



Notified Body
No.: **0098**

for **DNV SE**

Christine Mydlak-Roeder
Head of Notified Body

A U.S. Coast Guard approval number will be assigned to the equipment when the production module has been completed and will appear on the production module certificate (module D, E or F) of Annex B of the MED is fully complied with and controlled by a written inspection agreement with a Notified Body. The product liability rests with the manufacturer or his representative in accordance with Directive 2014/90/EU.

This certificate is valid for equipment, which is conform to the approved type. The manufacturer shall inform DNV SE of any changes to the approved equipment. This certificate remains valid unless suspended, withdrawn, recalled or cancelled.

Should the specified regulations or standards be amended during the validity of this certificate, the product is to be re-approved before being placed on board a vessel to which the amended regulations or standards apply.

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

The Bondstrand - GRE Pipe Penetration assembly consists of the "Penetration Steel Sleeve" provided with vent pipes made of carbon steel. The Bondstrand GRE pipe is sealed by epoxy sealant and rubber O-Ring at each end of the "Penetration Sleeve". Two 180° GRE saddle blanks are bonded on each side of the steel sleeve. The saddles are bonded against the edge of the steel sleeve and serve to anchor the GRE pipe at the bulkhead.

At fire side the pipe penetration is to be coated with PITT - CHAR PFP Coating of min. 5mm.

The "Penetration Steel Sleeve" is at fire and non-fire rated side to be fully insulated by MED approved A-60 insulation material.

Design drawings and installation drawings

Drawing pipe penetration	Pipe size
9046425 – 1" Penetration Test Assembly Class A-60 Fire test 9046438 – 1" Penetration Sleeve For A-60 Fire Test	1"
9051940 – 22" Penetration Test Assembly Class A60 Fire test 9051941 – 22" Penetration Sleeve For A-60 Fire Test	22"
904644 – 24" Penetration Sleeve For A-60 Fire Test 9046426 – 24" Penetration Test Assembly Class A-60 Fire test	24"
Design for GRE bulkhead penetrations – A-60 Bulkhead – Table 72	

Application/Limitation

Pipe Penetrations through 'A' class divisions.

Approved size range: 1" to 24" inch (25 to 600 mm)

Class A divisions

Drawings	Position of the sleeve
Design for GRE bulkhead penetrations – A60 Bulkhead	General application

For penetration of class A-0, A-15 bulkheads penetration system is to be insulated as A-60 and in addition the penetrated division is to be insulated with A-60 insulation at least 200 mm around the penetration.

Each pipe penetration system is to be supplied with its actual manual for installation and use.

Tests carried out

- Fire resistance tests acc. to IMO Res. MSC.307(88) - 2010 FTP Code, Annex 1, Part 3 – Appendix 1
- Watertight tests acc. to DNV GL CP-0165

Marking of product

Each packaging unit shall be labelled at least as follows:

Scope	Example
Manufacturer name and short sign	Fiber Glass Systems 
Type designation	Bondstrand - GRE Pipe Penetration
Size	1"
Fire Rating	A-60
Mark of Conformity ¹	 0098/2021
US Coast Guard Number	Acc. to MED Module D certificate

Note

¹ may only be affixed to the type approved equipment, in case the associated production surveillance module (D, E or F) is valid.



Job Id: **344.1-011375-1**
Certificate No: **MEDB00007BM**

Type Examination documentation

APPENDIX

Additional application / information for water tightness/gas tightness (not part of the Marine Equipment Directive requirement)

Watertight bulkheads and decks

Drawings	Position of the sleeve	Installation drawing
Design for GRE bulkhead penetration – Watertight Bulkhead	General application	Table 69

Test reports	Test pressure	Bulkheads	Tank boundaries ¹
		Approved pressure	Approved pressure
E051-11(S)(1) 1" Penetration Test Assembly --DWG 9046425	26 bar	17.2 bar	10.3 bar
E051-11(S)(2) 24" Penetration Piece External Pressure Testing DWG 9046433			
E065-11(M)(1) 40" Penetration Test Assembly - DWG 9046515			

Notes

¹ The penetration system may be used for penetrating of tank boundaries at top of the tanks, both vertically and horizontal and as high up as practical. The penetration system shall be compatible with the liquid medium in the tanks.

Water tightness – special cases

The Bondstrand GRE Pipe Penetration is not tested with regard to the requirements given in SOLAS Ch. II-1 Reg. 13.2.3 (combined fire and water tightness test, 2014 issue). Refer to DNV GL CP-0165, Sec. 2 - Ch.5.

Each product shall be supplied with its manual for installation and maintenance.

End of certificate