

EC-TYPE EXAMINATION CERTIFICATE (MODULE B)

Application of: Directive 2014/90/EU of 23 July 2014 on marine equipment (MED), issued as "Forskrift om Skipsutstyr" by the Norwegian Maritime Authority. This Certificate is issued by DNV GL AS under the authority of the Government of Norway.

This is to certify:

That the Penetrations through "A" class divisions: electric cable transits

with type designation(s)

A-0 Class cable penetrations through circular sleeve with GPGM Mortar sealing system

Issued to

Firesafe Energy AS
Lørenskog, Norway

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

Regulation **(EU) 2018/773**,

item No. MED/3.26a. SOLAS 74 as amended, Regulation II-2/9 and IMO 2010 FTP Code

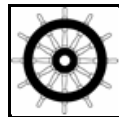
Further details of the equipment and conditions for certification are given overleaf.

This Certificate is valid until **2024-04-25**.

Issued at **Høvik** on **2019-04-26**

DNV GL local station:
Oslo Maritime and CAP

Approval Engineer:
Tessa Bieber



Notified Body
No.: **0575**

for **DNV GL AS**

Roald Vårheim
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), as allowed by the "Agreement between the United States of America and the EEA EFTA states on the mutual recognition of Certificates of Conformity for Marine Equipment" signed 17 October 2005.

The mark of conformity may only be affixed to the above type approved equipment and a Manufacturer's Declaration of Conformity issued when the production-surveillance 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 GL AS 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 This certificate remains valid unless suspended, withdrawn, recalled or cancelled.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.



Product description

'A-0 Class single cable penetrations through circular sleeve with GPG Marine Mortar sealing system'

Penetration composed of a 10 mm thick circular steel sleeve symmetrically welded to steel bulkhead.

The bulkhead penetrations are sealed with GPG Marine Mortar (GPGM Mortar) which is a powder mainly consisting of plaster, perlite and glass fibre. To be mixed with water to obtain desired consistency (see data sheet for correct mixing ration for application). The density of GPGM Mortar is 701 kg/m³.

See below table for penetration details:

Name	Sleeve length [mm]	Sleeve size [mm]	Filling	Sleeve insulation	Remarks
PG85 PG86	60	Ø56	Single cable Ø10- Ø20 mm	None	- Min. 20 mm additional GPGM Mortar on both sleeve ends - Min. 8 mm between cable and sleeve

For further details see drawings in the test report listed under Type Examination documentation below.

Application/Limitation

Approved for use as single cable penetration system in A-0 steel bulkheads. Other applications are subject to case-by-case approval.

Watertightness and gastightness is not covered in this certificate.

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

Type Examination documentation

Test report No. 150072-08A (A-0, steel bulkhead) dated 2018-09-14 from RISE, Trondheim, Norway.

Tests carried out

Tested in according to IMO 2010 FTP Code part 3.

Marking of product

The product or packing is to be marked with name and address of manufacturer, type designation, fire-technical rating, MED Mark of Conformity and USCG approval number if applicable (see first page).