

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: pipe, duct, trunk, etc penetrations

with type designation(s)

A-60 Class Pipe penetrations through circular sleeve with GPG Marine martar 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/3.26b. SOLAS 74 as amended, Regulation II-2/9, IMO MSC.1/Circ.1276 and IMO 2010 FTP Code

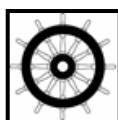
Further details of the equipment and conditions for certification are given overleaf.

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 Biever



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 This certificate remains valid unless suspended, withdrawn, recalled or cancelled.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-60 Class single pipe 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/deck.

All deck and 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]	Outer Sleeve Dimensions [mm]	Filling	Use	Sleeve insulation	Remarks
PG18	125	Ø486	Single steel pipe Ø406.4 mm	deck	Sleeve and pipe insulated with approved A-60 insulation covering the GPGM inside sleeve and pipe. The pipe is insulated up to 1200 mm on both below and above the deck	The total space between sleeve and pipe is filled up with GPGM Mortar.
PG19	125	Ø56	Single steel pipe Ø6 mm	deck	Sleeve and pipe insulated with approved A-60 insulation covering the GPGM inside sleeve and pipe. The pipe is insulated up to 1200 mm on both below and above the deck	The total space between sleeve and pipe is filled up with GPGM Mortar.
PG79	125	Ø486	Single steel pipe Ø406.4 mm	bulkhead	Sleeve and pipe insulated approved A-60 insulation covering the GPGM inside sleeve and pipe. The pipe is insulated up to 1240 mm unexposed side and 700 mm exposed side	The total space between sleeve and pipe is filled up with GPGM Mortar.
PG 80	125	Ø56	Single steel pipe Ø10 mm	bulkhead	Sleeve and pipe insulated with approved A-60 insulation covering the GPGM inside sleeve and pipe. The pipe is insulated up to 1240 mm unexposed side and 700 mm exposed side	The total space between sleeve and pipe is filled up with GPGM Mortar.

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

Application/Limitation

Approved for use as penetration system in A-60 steel bulkheads/decks. Other applications are subject to case-by-case approval.

Approved for use in class A-0, A-15 and A-30 when the penetration system is insulated as A-60 and in addition the division is to be insulated with A-60 insulation at least 200 mm around the penetration.

The insulation material used has to be approved according to the Marine Equipment Directive and bear the Mark of Conformity.

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 Nos.:



Job Id: **344.1-008894-1**
Certificate No: **MEDB00004W6**

- 150072-06A (A-60, steel deck) dated 2017-12-18
 - 150072-08B (A-60, steel bulkhead) dated 2018-09-14
- Both 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).