

TYPE APPROVAL CERTIFICATE

Certificate no.:
TAF000014D
Revision No:
1

This is to certify:

that the **Class A and B Penetration**

with type designation(s)

A-60 Class Pipe penetrations through circular sleeve with GPG Marine Mortar sealing system

issued to

Firesafe Energy AS
Lørenskog, Norway

is found to comply with

DNV statutory interpretations DNV-SI-0364 – SOLAS interpretations, Edition July 2021
DNV rules for classification – Ships
DNV offshore standards

Application:

Approved for use as single pipe penetration system in A-0 steel bulkheads and decks.

This certificate is recognized by Transport Canada.

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV.

Issued at **Høvik** on **2024-08-30**

This Certificate is valid until **2029-08-29**.

DNV local unit: **Oslo Maritime and CAP**

Approval Engineer: **Tessa Bieber**

for **DNV**



Digitally Signed By:
Jowita Permoda

Location: **DNV Høvik, Norway**

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

'A-60 Class single steel pipe penetrations through circular sleeve with GPG Marine Mortar sealing system'
 Penetration composed of a square steel sleeve symmetrically welded to a steel bulkhead or deck. The sleeve is filled 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 0.7 kg/dm³. 20 mm of 'GPGM Mortar' is added on both sleeve ends for bulkheads and on top of sleeve end for decks.

Application/Limitation

Approved for use as single pipe penetration system in A-60 steel bulkheads and 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.

Table 1: Approved single pipe penetration in A-60 bulkhead.

Type	Size Ø [mm]	Pipe material	Pipe diameter (OD) [mm]	Sleeve length [mm]	Sleeve thickness [mm]	Sleeve position	Penetration insulation
PG79 PG80	56 – 486	Steel	10 – 406.4	125	10	Symmetrically	Fully insulated on both sides. The pipe is insulated 1240 mm on one side and 700 mm on opposite side

Minimum 15 mm between pipe and sleeve.

Table 2: Approved single pipe penetration in A-60 deck.

Type	Size Ø [mm]	Pipe material	Pipe diameter (OD) [mm]	Sleeve length [mm]	Sleeve thickness [mm]	Sleeve position	Penetration insulation
PG18 PG19	56 – 486	Steel	6 – 406.4	125	10	Symmetrically	Fully insulated on both sides. The pipe is insulated 1200 mm on both sides.

Minimum 15 mm between pipe and sleeve.

The insulation material used has to be type approved.

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

Type Examination documentation

Certification in accordance with Class Programme DNV-CP-0338, September 2021.

Test report No. 150072-06A dated 18 December 2017 from RISE, Trondheim, Norway.

Test report No. 150072-08B dated 14 September 2018 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 of manufacturer, type designation and fire technical rating.

Transport Canada Approval

Based on the procedures laid down in the Transport Canada Publication entitled "Procedures for Approval of Life-Saving Appliances, Fire Safety Systems, Equipment and Products (TP14612)", DNV confirms that the product listed in this certificate is in accordance with Transport Canada's requirements.

Periodical assessment

DNV's surveyor is to be given permission to perform Periodical Assessments at any time during the validity of this certificate and at least every second year. The arrangement is to be in accordance with procedure described in Class Programme DNV-CP-0338, Section 4.