TYPE APPROVAL CERTIFICATE

Certificate no.:
TAF00000SK
Revision No:
2

This is to certify:

that the Class H Penetration

with type designation(s)
GPG Marine

issued to
Firesafe Energy AS
Lørenskog, **Norway**

is found to comply with
DNV offshore standards

Application:

Approved for use as cable penetration system in H-Class bulkheads and decks.

Restricted application: Fire hazard from the insulated side only.

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 Biever**

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.

Product description

"GPG Marine"
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/dm^3.

For further details see drawings listed under Type Approval documentation.

Application/Limitation

Approved for use as a single or multi cable penetration system in H-0 and H-60 class bulkheads and H-0, H-60 and H-120 decks for approved ship cables. Other applications are subject to case-by-case approval.

Table 1: Penetration details for H-60 bulkhead

Type	Size [mm]	Max. cable Diameter (OD) [mm]	Filling ratio [%]	Sleeve length [mm]	Sleeve Thickness [mm]	Sleeve position	Penetration insulation
Square	116 x 116 – 532 x 240	52	0 – 35 1)	200	10	Symmetrical	Partially insulated.

1) Minimum distance between cable/cable and cable/sleeve: 16 mm and 20 mm

Table 2: Penetration details for H-0 bulkhead

Type	Size [mm]	Max. cable Diameter (OD) [mm]	Filling ratio [%]	Sleeve length [mm]	Sleeve Thickness [mm]	Sleeve position	Penetration insulation
Square	116 x 11 – 532 x 240	52	0 – 35 1)	250	10	Symmetrical	None.

1) Minimum distance between cable/cable and cable/sleeve: 16 mm and 20 mm

Table 3: Penetration details for H-120 deck

Type	Size [mm]	Max. cable Diameter (OD) [mm]	Filling ratio [%]	Sleeve length [mm]	Sleeve Thickness [mm]	Sleeve position	Penetration insulation
Square	116 x 116 – 532 x 240	52	0 – 35 1)	250	10	Symmetrical	Partially insulated on the underside.

1) Minimum distance between cable/cable and cable/sleeve: 16 mm and 20 mm

Table 4: Penetration details for H-60 deck

Type	Size [mm]	Max. cable Diameter (OD) [mm]	Filling ratio [%]	Sleeve length [mm]	Sleeve Thickness [mm]	Sleeve position	Penetration insulation
Square	116 x 116 – 532 x 240	52	0 – 35 1)	200	10	Symmetrical	Partially insulated on the underside.

1) Minimum distance between cable/cable and cable/sleeve: 16 mm and 20 mm

Table 5: Penetration details for H-0 deck

Type	Size [mm]	Max. cable Diameter (OD) [mm]	Filling ratio [%]	Sleeve length [mm]	Sleeve Thickness [mm]	Sleeve position	Penetration insulation
Square	116 x 116 – 532 x 240	52	0 – 35 1)	250	10	Symmetrical	None.

1) Minimum distance between cables/cable and cables/sleeve: 16 mm and 20 mm

The insulation material used has to be type approved.

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

Type Approval documentation

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

Test report No.150072-05 Version 1 dated 12 June 2017 from RISE, Trondheim, Norway.
Test report No.150072-03 Version 1 dated 6 January 2017 from RISE, Trondheim, Norway.

Drawing No. CG-23 H0 Bulkhead from manufacturer.
Drawing No. CG-25 H-60 Bulkhead from manufacturer.
Drawing No. CG-10 H0 Deck from manufacturer.
Drawing No. CG-19 H-60 Deck from manufacturer.
Drawing No. CG-15 H120 Deck from manufacturer.

Tests carried out

Tested according to IMO 2010 FTP Code part 3 with the hydrocarbon time-temperature curve specified in ISO 834-3.

Marking of product

The product or packing is to be marked with name of manufacturer, type designation and fire technical rating.

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.