

TYPE APPROVAL CERTIFICATE

Certificate no.:
TAF000014F
Revision No:
1

This is to certify:

that the **Class A and B Penetration**

with type designation(s)

A-0 Class cable penetration through rectangular 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 and multi cable 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-0 Class cable penetrations through rectangular 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 and multi cable penetration system in A-0 steel bulkheads and decks for approved ship cables. Other applications are subject to case-by-case approval.

Table 1: Approved single and multi cable penetration in A-0 bulkhead.

Type	Size (W x L) [mm]	Cable Type	Max. cable diameter (OD) [mm]	Filling ratio [%]	Sleeve length [mm]	Sleeve thickness [mm]	Sleeve position	Penetration insulation
OPH1	1020 x 70	-	-	0	60	10	Symmetrically	None
OPV1	70 x 1020	-	-	0	60	10	Symmetrically	None
CG70 CG71 CG83 CG85	240 x 532	Marine	52	0 – 28 ¹⁾	60 – 90	10	Symmetrically	None
CG70 CG74 CG83	240 x 532	Bundle	90 ²⁾	0 – 28 ¹⁾	60 – 90	10	Symmetrically	None
CG70 CG83	240 x 532	Conduit	32 – 78 ³⁾	0 – 28 ¹⁾	60 – 90	10	Symmetrically	None

1) Minimum 20 mm between cable and sleeve.

2) Maximum cable bundle diameter is 90 mm. Firesafe FT Graphite 10 mm wide and 25 mm deep around the cable bundle on each side.

3) FS-steel cable conduit outside diameter is 32 mm to 78 mm. Length is 330 mm. The conduit is made of steel and lined at both ends with 2.5 mm thick, 50 mm wide Intumex L and filled with 100 mm insulation in the centre.

Table 2: Approved single and multi cable penetration in A-0 deck.

Type	Size (W x L) [mm]	Cable type	Max. cable diameter (OD) [mm]	Filling ratio [%]	Sleeve length [mm]	Sleeve thickness [mm]	Sleeve position	Penetration insulation
CG42 CG44 CG46	240 x 532	Marine	52	0 – 35 ¹⁾	60 – 90	10	Symmetrically	None

1) Minimum 20 mm between cable and sleeve.

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

Type Approval 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. 150072-08A dated 14 September 2018 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.