

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Class A and B Penetration**

with type designation(s)

A-0 Class cable penetration through square sleeve with GPG Marine Mortar sealing system

Issued to

Firesafe Energy AS**Lørenskog, Norway**

is found to comply with

DNV GL rules for classification – Ships**DNV GL offshore standards****DNV GL statutory interpretations DNVGL-SI-0364 – SOLAS interpretations****Application :****Approved for use as single cable penetration system in A-0 in steel bulkheads/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 GL.**Issued at **Høvik** on **2019-04-26**for **DNV GL**This Certificate is valid until **2024-04-25**.DNV GL local station: **Oslo Maritime and CAP**Approval Engineer: **Tessa Biever****Mårten Schei-Nilsson**
Head of Section

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

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

Penetration composed of a 10 mm thick square steel sleeve symmetrically welded to steel bulkhead/deck.

The 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 (w x l) [mm] | Filling | Use | Sleeve insulation | Remarks |
|--------------|--------------------|--------------------------------------|------------------------|----------|-------------------|---|
| CG43 CG45 | 60-90 | 116 x 116 | Single cable Ø52 mm | deck | None | 20 mm additional GPGM Mortar on top of upper sleeve end |
| CG72 CG73 | 60-90 | 116 x 116 | Single cable Ø52 mm | bulkhead | None | 20 mm additional GPGM Mortar on both sleeve sides |

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

Application/Limitation

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

Watertightness and gastightness is not covered in this certificate.

The penetration system shall not be used for penetrating boundaries of tanks.

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

Type Approval documentation

Certification in accordance with Class Programme DNVGL-CP-0338, September 2018.

Test report Nos.:

- 150072-06A (A-0, steel deck) dated 2017-12-18
- 150072-08A (A-0, 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 of manufacturer, type designation and fire technical rating.



Job Id: **262.1-029917-1**
Certificate No: **TAF000014E**

Transport Canada Approval

Based on the procedures laid down in the Transport Canada Publication entitled "Approval Procedures for, Life Saving Equipment and Structural Fire Protection Products (TP 14612)", DNV GL confirms that the product/s listed in this certificate is/are in accordance with Transport Canada's requirements.

Periodical assessment

DNV GL'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 DNVGL-CP-0338, Section 4.