

EC-TYPE EXAMINATION CERTIFICATE (MODULE B)

Application of: Directive 2014/90/EU of 23 July 2014 on marine equipment (MED). This Certificate is issued by DNV GL SE based on the notification of the Federal Maritime and Hydrographic Agency of Germany.

This is to certify:

That the Penetrations through "A" class divisions: electric cable transits

with type designation(s)

GK Packing System - GK-SPK, GK-SPKh, GK-EMC-SPR, GK-RM and GK-EMC-RM

Issued to

Roxtec GmbH
Hamburg, Germany

is found to comply with the requirements in the following Regulations/Standards:

Regulation **(EU) 2018/773**,

item No. MED/3.26a. SOLAS 74 as amended, Regulation II-2/9, IMO 2010 FTP Code and IMO MSC.1/1488

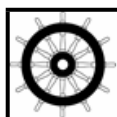
Further details of the equipment and conditions for certification are given overleaf.

This Certificate is valid until **2024-09-26**.

Issued at **Hamburg** on **2019-09-27**

DNV GL local station:
Hamburg

Approval Engineer:
Carsten Hunsalz



Notified Body
No.: **0098**

for **DNV GL SE**

Gerhard Aulbert
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 European Community and the United States of America on Mutual Recognition of Certificates of Conformity for Marine Equipment", signed February 27th, 2004.

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 SE 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 This certificate remains valid unless suspended, withdrawn, recalled or cancelled.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

GK Packing System for cable- transits in A-60 Class ALUMINUM Bulkheads and Decks

GK-SPK/ SPKh system consisting of rectangular shaped frames, compression-wedge, standard modular cable and/or filling modules, accessories and metal/plastic anchor plates. GK-EMC-SPR system consisting of frame with compression-screw, EMC modular cable and/or filling modules, accessories and metal anchor plates. Module System length: GK-SPK/ SPKh is 60mm; GK-EMC-SPR is 80mm.

GK-RM and GK-EMC-RM system consisting of circular sleeves, Round Module type RM (Halogen-free and green) with square packing space including compression function and modular cable and/or filling modules. Module System length: GK-RM is 60mm; GK-EMC-RM is 80mm.

Approved Frame Types

GK Packing System	Frame Type	Frame Sizes	Fixing Method
GK-SPK (rectangular shape)	SPK	single and group frames in nominal sizes 2, 4, 6 and 8 with chamber width(s) of 60mm, and 120mm. Frames available in different combinations incl. Back to-Back.	welded
	SPK-F		bolted+welded
	SPK-S30		welded
	SPK-S50		welded
	SPK-F-R		bolted+welded
	SPK-BTB		welded
GK-SPKh (oval shape)	SPKh-120 SPKh-180	single frames in nominal sizes 2, 4, 6 and 8 with chamber width(s) of 120mm and 180mm incl. Back to-Back.	welded
GK-EMC-SPR (rectangular shape)	EMC-SPR	single and group frames in nominal sizes 2, 4, 6 and 8 with chamber width(s) of 60mm, and 120mm. Frames available in different combinations incl. Back-to-Back	welded
	EMC-SPR-S50		welded
	EMC-SPR-50		welded
	EMC-SPR-F		bolted+welded
GK-RM GK-EMC-RM (circular shape)	SLRM	nominal sizes 50, 70, 100, 125, 150 and 200. incl. Back-to-Back	welded
	SLRM-F		bolted+welded
	SLRM-BTB		welded
	EMC-SLRM		welded
	EMC-SLRM-F		bolted+welded
	EMC-SLRM-BTB		welded
	SLRM-RED	nominal sizes 50, 70 and 100.	bolted+welded

Approved Blank Covers

Frame types SPK, SPK-F, SPK-S30, SPK-S50 and SPK-F-R can be closed using blank covers of type GK-BD when empty in non-watertight bulkhead and deck applications.

Approved Packing Modules

Halogen-free (green) cable modules, filling modules and accessories (Standard 3-Rib or EMC). GK-SPK-Frames may also be fitted with Roxtec international (blue) modules, compressions system and stay plates, however mixing of GK-components and Roxtec-Modules in one opening is not permitted.

Job Id: **344.1-008404-3**
Certificate No: **MEDB00005S1**

Approved Maximum Frame Sizes

GK-Packing System	Fire Rating	Maximum Combination Frame Size
GK-SPK	A-0 Aluminum Bulkhead	-
	A-0 Aluminum Deck	-
	A-60 Aluminum Bulkhead	SPK-8x4
	A-60 Aluminum Deck	SPK-8x4
GK-EMC-SPR	A-0 Aluminum Bulkhead	-
	A-0 Aluminum Deck	-
	A-60 Aluminum Bulkhead	EMC-SPR-8x4
	A-60 Aluminum Deck	EMC-SPR-8x4
GK-RMGK-EMC-RM GK-EMC-RM	A-0 Aluminum Bulkhead	-
	A-0 Aluminum Deck	-
	A-60 Aluminum Bulkhead	SLRM 200
	A-60 Aluminum Deck	SLRM 200

The minimum length and wall thickness for sleeves used for GK-RM Packing System is:

length: min. 65mm / thickness: min. 4mm

The minimum length and wall thickness for sleeves used for GK-EMC-RM Packing System is:

length: min. 85mm / thickness: min. 4mm

Application/Limitation

Approved for use as cable penetration system in class A-60 aluminum bulkheads and decks. Approved for use in A-0, A-15 and A-30 division, the penetration system is to be insulated as for class A-60, and in addition the division shall be insulated at least 200 mm around the penetration. Other applications are subject to case-by-case approval.

The insulation material used has to be approved according to the Marine Equipment Directive and bear the Mark of Conformity. Each product is to be supplied with its actual manual for installation and use.

Minimum Filling Rate 0%: no cable installed - all modules are empty.

Maximum Filling Rate 100%: multiple cables installed - cable installed in every module.

Approved for maximum diameter: Cables 88 mm, metal bundle pipes 29 mm.

Penetration systems are not to be used for penetrating boundaries of tanks, the use in dry void spaces is applicable.

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

Installation of all GK Packing Systems components is to be done in accordance with actual version of manufacturer's welding, mounting and insulation instructions listed below.

Type Examination documentation

Test Reports Fire Class:

DMT-DO-53-099 dated 2019-01-24, DMT-DO-53-100 dated 2019-01-24, DMT-DO-53-103 dated 2019-02-27, DMT-DO-53-104 dated 2019-02-26, DMT-DO-53-110 dated 2019-03-27, DMT-DO-53-111 dated 2019-03-27, DMT-DO-53-112 dated 2019-05-22,

PGA10517 dated 2014-11-20, PGA10518 dated 2014-11-20, PGA10568 dated 2015-03-04, PGA10569 dated 2015-03-04, PGA11387A dated 2019-07-05, PGA11388A dated 2019-08-14

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RS-19/B-017/E dated 2019-05-27, RS-19/B-018/E dated 2019-06-17, RS-19/B-019/E dated 2019-05-27, RS-19/B-020/E dated 2019-05-27, RS-19/B-224/E dated 2019-08-01, RS-19/B-225/E dated 2019-08-01,

GV 09/6415 dated 2009-06-15, GV05/4113.1 dated 2005-02-11, GV05/4113.2 dated 2005-02-11, GV05/4237.1 dated 2005-04-28,

4P06068 dated 2015-01-17, 4P00572 dated 2014-05-06, 4P00576 dated 2014-05-07, 4P07023 dated 2015-02-04,

N141TXUX dated 2019-07-05, N141UMGR dated 2019-07-16, N141UMHA dated 2019-07-16,

Installation

The installation and insulation of the GK-Packing System is to be carried out according to the following manufacturer`s welding, mounting and insulation instructions:

Welding & Mounting Instructions

GK_Welding_Instruction_Steel&Alu, from October 2018 or newer
GK_SPK_Mounting_Instruction, from August 2018 or newer
GK_RM_Mounting_Instruction, from February 2016 or newer
GK_EMV-SPR-RM_Mounting_Instruction, from January 2015 or newer

Insulation Instruction

Drawing Titel	Drawing Number	Transit
Cable Rectangular A-60 Alu B & D	Z2019003, Rev. A or newer	Rectangular
Cable Circular A-60 Alu B & D	Z2019004, Rev. A or newer	Circular
Blind Cover BD Rectangular A-60 Alu B & D	Z2019020, Rev. A or newer	Rectangular
Routing Combination Frames A-60 Alu B & D	Z2019031, Rev. A or newer	Rectangular/Circular
Routing BTB Frames A-Class Alu B & D	Z2019033, Rev. A or newer	Steel, Copper, CuNiFe
		Rectangular/Circular
		Steel, Copper, CuNiFe

Tests carried out

- IMO Res. MSC.307(88)-(2010 FTP Code), Annex 1: Part 3,
- MSC.1/Circ. 1488

Marking of product

For identification to this type examination certificate the product or packing is to be marked with:

- Manufacturer's name
- Type designation and fire-technical rating
- Mark of Conformity

According to Article 10 of the Council Directive (MED):

- The wheel mark shall be affixed visibly, legibly and indelibly to the product or to its data plate and, where relevant, embedded in its software. Where that is not possible or not warranted on account of the nature of the product, it shall be affixed to the packaging and to the accompanying documents.
- The wheel mark shall be affixed at the end of the production phase.
- The wheel mark shall be followed by the identification number of the notified body, where that body is involved in the production control phase, and by the year in which the mark is affixed.
- The identification number of the notified body shall be affixed by the body itself or, under its instructions, by the manufacturer or the manufacturer's authorized representative.

For specific products, manufacturers may use an appropriate and reliable form of electronic tag instead of, or in addition to, the wheel mark.

Appendix

Additional application/information for watertightness/gastightness (Not part of the Marine Equipment Directive requirement)

Application/Limitation

Approved for air tightness

GK-SPK (with metal stay-plates) and GK-EMC-SPR (with metal stay-plates) and
GK-RM as well as GK-EMC-RM
up to a design pressure of 0.02 MPa (0.2 bar), test pressure - 0.03 MPa (0.3bar)

Approved for water tightness

GK-SPK (with metal stay-plates) and GK-EMC-SPR (with metal stay-plates)
up to a design pressure of 0.25 MPa (2.5 bar), test pressure - 0.38 MPa (3.8 bar)

GK-RM and GK-EMC-RM size 50 - 150
up to a design pressure of 0.2 MPa (2 bar), test pressure - 0.3 MPa (3 bar)

GK-RM and GK-EMC-RM size 200
up to a design pressure of 0.13 MPa (1.3 bar), test pressure - 0.2 MPa (2 bar)

Type Approval documentation

Pressure tests: Documents no. GK 20190815 dated 2019-08-15, GK 20190730 dated 2019-07-30,
GK 20190606 dated 2019-06-06, GK 20190526 dated 2019-05-16, GK 20190424 dated 2019-04-24,
HBG 0200283-1

Tests carried out

Pressure tests according to DNVGL-CP-0165 Sec. 2 Ch. 4.

END OF CERTIFICATE