

EC-TYPE EXAMINATION CERTIFICATE (MODULE B)

Certificate no.:
MEDB00004AZ
Revision No:
1

Application of: Directive 2014/90/EU of 23 July 2014 on marine equipment (MED). This Certificate is issued by DNV 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: pipe, duct, trunk, etc penetrations

with type designation(s)

GK Packing System with fix diameter sealing technology: SPK and RM-series (for steel divisions)

issued to

Roxtec GmbH
Hamburg, Germany

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

Regulation (EU) 2024/1975,

item No. MED/3.26b. SOLAS 74 as amended, Regulation II-2/9, IMO MSC.1/Circ.1276, IMO 2010 FTP Code and IMO MSC.1/1488

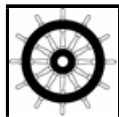
Further details of the equipment and conditions for certification are given overleaf.

This Certificate is valid until **2029-09-08**.

Issued at **Hamburg** on **2024-09-09**

DNV local unit:
Hamburg – CMC North/East

Approval Engineer:
Hagen Markus



Notified Body
No.: **0098**



for **DNV SE**

Digitally Signed By:
Christine Mydlak-Röder
Location: DNV Hamburg,
Germany

Mydlak-Röder, Christine
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) 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 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 This certificate remains valid unless suspended, withdrawn, recalled or cancelled.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.

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

GK sealing system consisting of rectangular or circular shaped metal frame filled with halogen-free sealing modules with fix-diameter technology for pipe transits in A-0 and A-60 class steel bulkhead and deck divisions.

Rectangular shape

SPK Series (SPK, SPKh) consisting of a rectangular shaped metal frame with outside radii 10-100mm, available in nominal sizes 2 up to 8 and chamber-width(s) 60 up to 180mm. Frames available as single-chamber or multi-chamber variants with or without flange and are either welded or bolted to the metal division.

The frames are filled with standard sealing modules, filling modules, stay-plates (plastic or metal), accessories and a wedge seal, which compresses the complete sealing arrangement inside the metal frame, thus closing the pipe transit with its intended properties. Standard system depth is 60mm.

Circular shape

RM Series (SLRM, SLRM-RED, RM) consisting of a metal sleeve with an elastomer RM-Frame insert, which provides a square packing space and an incorporated compression function. Sleeves with RM-Frame are available in nominal sizes 50-200 (SLRM-RED up to size 100) and are either welded or bolted to the steel division.

The square packing space is filled with standard fix-diameter sealing modules and filling modules and is compressed using the incorporated compression mechanism, thus closing the pipe transit with its intended properties. Standard system depth is 60mm.

| GK Sealing System | Frame Type ^{1,2} | Frame Sizes | Fixing Method |
|---|------------------------------------|--|-----------------------------------|
| GK-Type SPK (rectangular shape) Outside radii R=10 - 100mm | SPK SPK-R SPK-S30 SPK-S50 | Single and group frames nominal sizes 2, 4, 6 and 8, with chamber width(s) of 60mm and 120mm. Frames with or without flange and different combinations, incl. Back-to-Back. ² | Welded or bolted (flange only) |
| GK-Type SPKh (rectangular shape) Outside radii R=70 – 100mm | SPKh-120 SPKh-180 | Single frames nominal sizes 2, 4, 6 and 8 with chamber width(s) of 120mm and 180mm. Frames with or without flange, incl. Back-to-Back. ² | Welded or bolted (flange only) |
| GK-Type RM (circular shape) | SLRM | Sleeves with RM-Frame nominal sizes 50, 70, 100, 125, 150 and 200, with or without flange, incl. Back-to-Back. ² | Welded or bolted (flange only) |
| GK-Type SLRM-RED (circular shape) | SLRM-RED | Reduced sleeves with RM-Frame in nominal sizes 50, 70 and 100 for reduced cutout dimension and retrofit installations | Welded or bolted |

Notes

¹ Empty frame types SPK, SPK-F, SPK-S30, SPK-S50, SPK-F-R intended to be installed in non-watertight bulkhead or decks may be closed by using blank covers of type GK-BD.

² Recommended test procedures see Doc. GK20231114001

Penetration sleeve GK-Type RM

Minimum sleeves length and wall thickness: Standard System L ≥ 65mm and S ≥ 4mm.

Approved Packing Modules

Halogen-free fix diameter modules (Standard 3-Rib, green colour), filling modules and accessories.

Frames GK-Type "SPK" may also be fitted with Roxtec RM modules (blue) with Multidiameter™, accessory modules, compressions system and stay plates, however mixing of GK-components and Roxtec-Modules in one opening is not permitted.

Approved Maximum Frame Group Sizes

| GK-Packing System | Fire Rating | Maximum Combination Frame Size |
|-------------------|---------------------|--------------------------------|
| GK-Type "SPK" | A-0 Steel Bulkhead | 8x4 |
| | A-0 Steel Deck | 8x4 |
| | A-60 Steel Bulkhead | 8x4 |
| | A-60 Steel Deck | 8x4 |

Application/Limitation

Approved for use as pipe penetration system in class A-60 steel bulkheads and decks, general application.

For A-0, A-15 and A-30 applications, the penetration shall be insulated as for A-60 and the division is to be fitted with A-60 insulation for a minimum distance of 200 mm around the penetration
Other applications are subject to case-by-case approval.

The sealing system insulation material shall be approved according to the Marine Equipment Directive, bearing the Mark of Conformity.

Minimum Filling Rate 0%: no pipe installed - all modules are empty.
Maximum Filling Rate 100%: multiple pipes installed - pipe installed in every module.

Size range - media pipe

| Pipe material | Outer diameter | Frame types |
|------------------------------------|----------------|-----------------------|
| Carbon, Stainless Steel and Copper | 6 - 108mm | Rectangular, Circular |
| | 6 – 51mm | SLRM-Red |
| Bundle tubes | max. 29mm | Rectangular, Circular |

GK Packing System - Installation

The installation and insulation of the GK-Packing System is to be carried out according to the following manufacturer's instructions, actual versions apply.

Welding and mounting instructions

- GK-WELD-RECOMMANDATION_ST-AL_SEP2019(or newer)
- GK-INSTRUCTION_SPK_JAN2020 (or newer)
- GK-INSTRUCTION_RM_JAN2020 (or newer)
- GK-INSTRUCTION_BD_SPK_JUN2024 (or newer)
- GK-TEST_RECOMMENDATION_SPK-BTB_NOV2023 (or newer)

Penetrations through structural divisions should not impair the structural strength of the division.
Special consideration should be given to bulkheads and decks with high stress locations.
Reference IMO MSC.1/Circ.1488, where relevant.

Each pipe penetration system is to be supplied with its actual manual for installation and use.

Insulation instructions

| Drawing Title | Drawing | Transit |
|---|----------|------------------------|
| Steel Pipe Rectangular A-60 Steel B & D | Z2019005 | Rectangular |
| Steel Pipe Circular A-60 Steel B & D | Z2019006 | Circular |
| Copper Pipe Rectangular A-60 Steel B & D | Z2019007 | Rectangular |
| Copper Pipe Circular A-60 Steel B & D | Z2019008 | Circular |
| Blind Cover BD Rectangular A-60 Steel B & D | Z2019019 | Rectangular |
| Routing Combination Frames A-60 Steel B & D | Z2019030 | Rectangular |
| Routing BTB Frames A-Class Steel B & D | Z2019032 | Rectangular / Circular |

Tests carried out

- Fire tests according to IMO Res.MSC.307(88)-(2010 FTP Code).
- IMO MSC.1/Circ.1488

Type Examination documentation

MEDB00004AZ, Revision 1

Work scope

Standard renewal. Editorial update.

Documents

- GK-TEST-RECOMMENDATION_SPK_BT, Doc. GK20231114001, date November 2023
- GK-INSTRUCTION Blind cover_BD_SPK, date June 2024

MEDB00004AZ

Refer to Job Id: 344.1-008403-1

Marking of product

| Scope | Examples | |
|-------------------|-------------------------------|--|
| | Packaging unit – Modules | Frames |
| Manufacturer name | Roxtec GmbH | Roxtec GmbH |
| Type designation | GK Packing System FM-30/00 HF | GK Marine Packing System SPK-S50-6x2/1.0570-Sigmaweld |
| Fire Rating | A0, A15, A30, A60 | A0, A60 |

| | |
|--|---|
| Mark of Conformity ¹ according to Article 10 of the Council Directive (MED) |  0098/2024 |
|--|---|

Notes

¹ may only be affixed to the approved equipment, if the associated production surveillance module (D, E or F) is valid.

APPENDIX

Additional application / information for water tightness/gas tightness (not part of the Marine Equipment Directive requirement)

GK sealing system are generally not to be used for penetrating boundaries of tanks.
 Approval may be given on a case-by-case basis. The use in dry void spaces is approved.

| GK Packing System | Water Pressure | | Gas Pressure (air) | |
|---------------------------------|----------------|----------|--------------------|----------|
| | Tested | Approved | Tested | Approved |
| GK-SPK (with metal stay-plates) | 3.8 bar | 2.5 bar | 0.3 bar | 0.2 bar |
| GK-RM, size 50 up to size 150 | 3.0 bar | 2.0 bar | 0.3 bar | 0.2 bar |
| GK-RM, size 200 | 2.0 bar | 1.3 bar | 0.3 bar | 0.2bar |

Tests carried out

Pressure tests according to DNV CP-0165, Sec. 2 - Ch.4 Water tightness and gas tightness.

Water tightness – special cases

Penetrations with heat-sensitive materials in SPS and passenger ships

The GK Packing System is not tested regarding the requirements given in SOLAS Ch. II-1 Reg. 13.2.3 (combined fire and water tightness test, 2014 issue).

Penetration of tank boundaries

Penetration systems are generally not to be used for penetrating boundaries of tanks.
 When a penetration system is requested for penetrating tanks, an approval may be given on a case by case basis.

Refer to DNV CP-0165, Sec. 2 - Ch.5 Watertightness and gas tightness – special cases

Type Approval documentation

MEDB00004AZ, Revision 1

Work scope: Standard renewal, editorial update

Documents included

- GK-TEST-RECOMMENDATION_SPK_BTBT, Doc. GK20231114001, date November 2023
- GK-INSTRUCTION Blind cover_BD_SPK, date June 2024

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Refer to Job Id: 344.1-008403-1

End of certificate