



**TYPE APPROVAL CERTIFICATE**  
No. FPE152416XG

**This is to certify that the product identified below satisfies the requirements of the standard quoted under "Reference standard"**

<i>Description</i>	<b>Devices for the passage of electric cables through A or B Class divisions</b>
<i>Type</i>	<b>GK MC FC Penetration System</b>
<i>Applicant</i>	<b>Roxtec GmbH Neuer Höltigbaum 1-3 22143 Hamburg GERMANY</b>
<i>Manufacturer</i>	<b>Roxtec GmbH</b>
<i>Place of manufacture</i>	<b>Neuer Höltigbaum 1-3 22143 Hamburg GERMANY</b>
<i>Reference standards</i>	<b>IMO Res. MSC.307(88)-(2010 FTP Code)</b>
<i>Reference documents</i>	<b>Type approval and certification of marine products</b>

*Issued in* **HAMBURG** on **August 17, 2017**. *This Certificate is valid until* **August 16, 2022**

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**RINA Services S.p.A.**  
**Giuseppe Russo**

This certificate consists of this page and 1 enclosure





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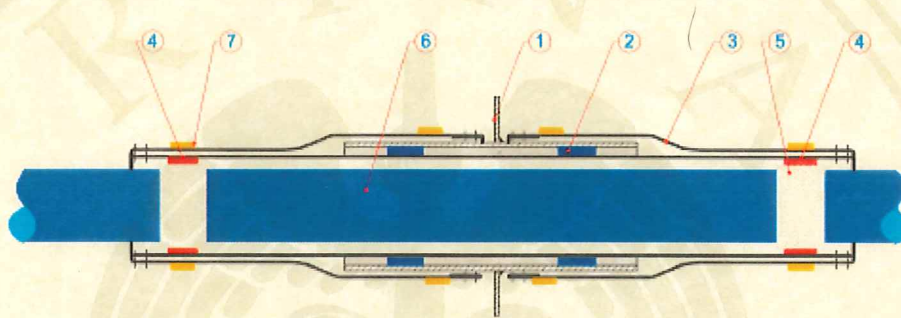
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### GK MC FC Penetration System

#### Product description:

The GK MC FC is a Single- and Multiple Cable and Busbar Penetration System for penetration through A-Class bulkhead and decks in dry constructions without any water or gas pressure requirements.

The GK MC FC system consisting of circular or oval sleeve(s) with or without flange, circumferentially welded to a steel division. The available sizes are GK MC FC ROUND 89 to 244 (circular) and GK MC FC OVAL 200x150 to 550x170 (oval). The GK MC FC cable and busbar penetration system is filled with intumescent material and a glass fiber tissue hose, folded back on each side of the sleeves. The glass fiber tissue hose and the cable bundle/ busbar are secured with a plastic covered metal strap on each side. On both sides of the cable transit, the cable bundle is secured with a cold smoke stop.



The System is made of different mild steel sleeves (1) with or without flanges. The material thickness is 3-5mm and the sleeves length is 205mm. The installation method of the sleeves is fully welded.

Each GK MC FC is routing all cables in one or more combined cable bundle (6).

The Glass Fiber Tissue Bag GFTB (3) is describing a defined surface of the penetration on both sides, prevents light and cold smoke emission and disables mechanical penetration of any objects.

In case of fire, the stripes of intumescent material (2) inside the sleeve (1) will react, as soon as the temperature reaches more than 160°C and ensure the fire safety acc. to the regulations.

The cold smoke tightness of the transit is given by the layer of soft sealant material (4) on both sides of the penetration.

Additional a fire sealing paint (5) is applied inside of the cable bundle to close all gaps between the cables on both sides of the penetration (app. 60mm).

Plastic coated metal cable straps (7) ensure a safe installation method and the final installed penetration requires hardware tools to be re-opened if needed.

#### Variants:

##### Circular sleeves:

Pos.	Description	Pipe x S diameter	Flange diameter
1	GK MC FC ROUND 89	88,9 x 3,2	152
2	GK MC FC ROUND 127	127 x 3,2	190
3	GK MC FC ROUND 140	139,7 x 3,6	203
4	GK MC FC ROUND 168	168,3 x 4,5	232
5	GK MC FC ROUND 219	219,1 x 4,5	262
6	GK MC FC ROUND 244	244,5 x 5	307

##### Oval sleeves with one or two openings:

Pos.	Description	Diameter/ Width	Diameter/ Height	Flange/ Width	Flange/ Height	Openings
7	GK MC FC OVAL 200	200	150	263	213	1
8	GK MC FC OVAL 350	168,3	168,3	413	231,3	2
9	GK MC FC OVAL 450	200	170	513	233	2
10	GK MC FC OVAL 550	250	170	613	233	2



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### GK MC FC Penetration System

Each penetration (Pos. 1 to 10) are fixed by circumferentially welding (with / without flange) to the bulkhead/deck. The use of the GK MC FC system may require single side A60 insulation in bulkhead or deck installation, depending on local situation. Penetrations are to be installed according to actual manufactures mounting instruction and insulation drawing.

#### Documents:

Mounting instruction: DOC-001381 Rev. A;

Insulation drawing: - S1523742 dated 29.05.2017; S1523743 dated 29.05.2017; S1523744 dated 29.05.2017;

#### Test Reports:

DMT GmbH & Co. KG: - 20669518-10 dated 22.03.2017; DMT-DO-53-056 dated 01.08.2016;

- DMT-DO-53-060 dated 17.11.2016; DMT-DO-53-064 dated 21.11.2016; DMT-DO-53-065 dated 19.01.2017;

- DMT-DO-53-068 dated 10.05.2017;

Roxtec GmbH: - 14122016-01 dated 14.12.2016; 22032017-01 dated 22.03.17; 25042017-01 dated 25.04.17;

- 29092016-01 dated 29.09.2016;

#### Marking of product:

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

#### Remarks/Limitation:

- Approved for use as a single or multiple cables (combined in one or more cable bundle) and busbar penetration system in class A-0, A-15, A-30 and A-60 steel bulkheads and decks without any gas or water pressure requirements.

- Mixing of cables and busbar in one opening is not allowed.

- Other applications are subject to case-by-case approval.

- Approved for busbar of type: KSA250 to KSA1000 and KNA63 to KNA160 by Schneider Group and the busbar system arranged in the center of the sleeve. The KSA busbar system shall include an inner fire stop as tested.

- For fire class A-0, A-15 and A-30, the cable transit is to be insulated as for class A-60, and in addition the division shall be insulated at least 200 mm around the penetration. For all A0 to A60 classified GK MC FC, the maximum approved cable size: 300 mm<sup>2</sup>. Minimum filling rate 0% (no cable), the maximum filling rate for penetration: 77%.

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

- Deck or bulkhead to be insulated with approved insulation according to insulation drawings specified in the actual installation manual.

- The insulation material used has to be approved according to the Marine Equipment Directive and bear the Mark of Conformity.

- This penetration system is not to be used for penetrating boundaries of tanks.

- This approval is granted only on the basis of positive outcome of verifications by a class surveyor on board to be carried out according to the all above mentioned remarks and to all other applicable RINA Rules.

HAMBURG August 17, 2017



A handwritten signature in blue ink, consisting of a stylized 'R' followed by a cursive name.