

TYPE APPROVAL CERTIFICATE

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

with type designation(s)

**GK MC FC ROUND 89/127/140/168/219/244 and
GK MC FC OVAL 200x150/350x168/450x170/550x170**

Issued to

**Roxtec GmbH
Hamburg, Germany**

is found to comply with

DNV GL rules for classification – Ships**DNV GL offshore standards****DNV GL class programme DNVGL-CP-0165 – Type approval – Cable and pipe penetrations****Application :****Approved for use as cable penetration system for ship cables in class A-60 steel bulkheads and decks.****For further details see Application/Limitations on page 3 of this certificate.****Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.**Issued at **Hamburg** on **2017-06-27**for **DNV GL**This Certificate is valid until **2022-06-26**.DNV GL local station: **Hamburg**Approval Engineer: **Carsten Hunsalz**

**Duy Nam Le
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

"GK MC FC Single- and Multiple Cable Penetration System (steel)" Consisting of circular or oval sleeve(s) with or without flange, one side circumferentially welded to a steel division. Sizes GK MC FC ROUND 89 to 244 (circular) and GK MC FC OVAL 200x150 to 550x170 (oval). The GK MC FC cable 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 (with or without zipper) and the cable bundle is 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.

GK MC FC ROUND:

The coaming is welded symmetrically of the deck/bulkhead.

Insulation details according drawings Roxtec No. S1523166

Application	Size (mm) (Ø x L)	Tested minimum filling rate (%)	Tested maximum filling rate (%)	Coaming position in deck/bulkhead	Tested cable maximum diameter (mm)
Bulkhead	92 x 205	0	77	symmetrically	16,5
Bulkhead	247 x 205	0	68	symmetrically	41,5
Deck	92 x 205	0	77	symmetrically	16,5
Deck	247 x 205	0	68	symmetrically	41,5

GK MC FC OVAL:

The coaming is welded symmetrically of the deck/bulkhead.

Insulation details according drawings Roxtec No. S1523167

Application	Size (mm) (H x B x L)	Tested minimum filling rate (%)	Tested maximum filling rate (%)	Coaming position in deck/bulkhead	Tested cable maximum diameter (mm)
Bulkhead	150 x 200 x 205	0	67	symmetrically	29,5
Bulkhead	2x(170 x 250) x 205	0	68	symmetrically	41,5
Deck	150 x 200 x 205	0	67	symmetrically	29,5
Deck	2x(170 x 250) x 205	0	68	symmetrically	41,5

Accessories:

Textile Hose with Zipper acc. drawing S1523158, dated 2017-05-31

Job Id: **262.1-023296-1**
Certificate No: **TAF00000R7**

Application/Limitation

Approved for use as a single or multiple cables penetration system (combined in one or more cable bundle) in class A-60 steel bulkheads and decks. Other applications are subject to case-by-case approval. Approved for use in class A-0, A-15 and A-30 when the penetration system is insulated as A-60. In addition the division is to be insulated with A-60 insulation at least 200 mm around the penetration.

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.

Maximum filling ratio of 67%, the cable bundle shall be arranged in the center of the sleeve.

In general approved maximum cable diameter: 41,5 mm.

The systems must not be installed in bulkheads and decks if water- and gas- tightness is required.

Penetration systems are not to be used for penetrating boundaries of tanks.

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

Type Approval documentation

Test Reports A60 Fire Class:

No. DMT-DO-53-056, date 2016-08-01; No. DMT-DO-53-060, date 2016-11-17; No. DMT-DO-53-064, date 2016-11-21; No. DMT-DO-53-065, date 2017-01-19; No. DMT-DO-53-068, date 2017-05-10

Test Reports Cold Smoke:

Roxtec No. 29092016-01, dated 2016-09-29; No. 22032017-01, dated 2017-03-22; No. 14122016-01, dated 2016-12-14

Insulation Drawings:

Roxtec No. S1523166 + S1523167, dated 2017-05-29;

General Arrangement Drawings:

Roxtec No. S1523164, dated 2017-05-30

Sleeve Drawings:

Roxtec No. S1523137 and S1523655, dated 2017-05-31

Tests carried out

Fire Test acc. 2010 FTP Code, Annex 1: Part 3, IMO Resolution MSC.307(88)

Marking of product

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

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 DNVGL-CP-0338 Section 4.