

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Class A and B Penetration

with type designation(s)

Sleev-it - Fire penetration seal (FC), Sleeve-it - Watertight penetration seal (WT)

Issued to

Roxtec International AB
KARLSKRONA, Sweden

is found to comply with

DNV GL rules for classification – Ships

DNV GL class programme DNVGL-CP-0165 – Type approval – Cable and pipe penetrations

DNV GL statutory interpretations DNVGL-SI-0364 – SOLAS interpretations

Application :

The Sleeve-it pipe penetration system is type approved for plastic pipes, penetrating bulkheads and decks of class A-0, A-15, A-30 and A-60. Refer to certificate.

Products approved by this certificate are accepted for installation on all vessels classed by DNV GL.

This Certificate is valid until **2021-12-14**.

Issued at **Hamburg** on **2016-12-15**

DNV GL local station: **Malmö**

Approval Engineer: **Hagen Markus**

for **DNV GL**

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Olaf Drews
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.

Job Id:
Certificate No: **TAF00000HK**

Product description

The Roxtec Sleeve-it penetration system is composed of a stainless steel tubular collar casing. This type approval includes two types:

Types	Casing design	Installation	Inserts
Fire penetration seal, type FC Drawing S1026329	Flange with break in the casing / flange	Spot welded or bolted to bulkhead / deck	Roxtec Sleeve-it layers of graphite intumescent material
Fire / Watertight penetration seal, type WT Drawing S1026339	Continuous casing / flange	Fully welded to bulkhead / deck	Roxtec Sleeve-it layers of graphite intumescent material plus Roxtec Sleeve-it grommet fitted on flange

Materials

Part	Specification		Notes
Flange	Mild steel	BS EN10130 / CR4	None
Steel collar	Stainless steel	1.4301	None
Grommet	Rubber	EPDM	Black Grommet for metric size pipes Red Grommet for inch size pipes
Intumescent	Roxtec data sheet	TRP 345 Promaseal - PL	Colour dark grey / black

Responsibilities

Roxtec International AB takes the responsibility that both design and production are in compliance with the Rules, Standards and / or Regulations listed on page 1 of this certificate.

Production place	DNV GL local station
Roxtec International AB	Office Malmö
371 23 Karlskrona	21143 Malmö
Sweden	Sweden

Application/Limitation

The Sleeve-it pipe penetration system is type approved for plastic pipes penetrating bulkhead and deck of class A-0, A-15, A-30 and A-60.

For A-0, A-15 and A-30 in addition to the collar insulation, minimum 200 mm around the penetration shall be insulated with A-60 insulation.

For all approved fire ratings for bulkhead, the whole length of the collar has to be insulated with approved A-60 insulation.

For all approved deck fire ratings, minimum 40 mm approved A-60 insulation shall be fitted around the fire collar.

Cold service piping insulated with Armaflex rubber insulation layer is to be locally interrupted through the penetration system.

For Multi-pipe penetration type "SLV75M", Roxtec Sleeve-it smoke seal putty shall be applied to fill openings around the pipes and between pipes and collar.

Standard design is that one pipe should be routed in each Roxtec Sleeve-it. In case two or more pipes are routed the gap between pipes and collar must be plugged with Roxtec smoke seal putty.

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

Bulkhead – General Application A - 60

Pipe material*	Pipe Diameter (mm)	Fitting of fire collar	Drawing
ABS	114	Either side	S1508739A
PB	16 to 160	Either side	S1508739A
PE	16 to 225	Either side	S1508739A
PE	226 to 315	Insulated side plus additional insulation	S1508746A
PP	16 to 200	Either side	S1508739A
PVC	12 to 200	Either side	S1508739A
PVC	201 to 271	Uninsulated	S1508739A
PVC	201 to 271	Insulated side plus additional insulation	S1508747A
PVDF	169	Either side	S1508739A
PE / ALU / PE	16 to 32	Either side	S1508739A
PE / ALU / PE	33 to 63	Either side plus additional insulation	S1516429A
Beverage multipipe	75 to 100	Either side	S1508739A

Deck – General Application A-60

Pipe material*	Pipe Diameter (mm)	Fitting of fire collar	Drawing
ABS	110 up to 219	Insulated side	S1508739A
PB	16 up to 24	Insulated side	S1508739A
PB	25 up to 125	Either side	S1508739A
PB	126 up to 200	Insulated side	S1508739A
PE	16 up to 24	Insulated side	S1508739A
PE	25 upto 225	Either side	S1508739A
PE	226 upto 320	Insulated side	S1508739A
PP	16 up to 19	Insulated side	S1508739A
PP	20 upto 110	Either side	S1508739A
PP	111 up to 320	Insulated side	S1508739A
PVC	16 upto 24	Insulated side	S1508739A
PVC	25 upto 160	Either side	S1508739A
PVC	161 up to 321	Either side plus additional insulation	S1508747A
PVDF	48 up to 166	Either side	S1508739A
PE / ALU / PE	16 up to 63	Either side	S1508739A
Beverage multipipe	75 up to 100	Either side	S1508739A

*Pipe reference list

ABS	Acrylonitrile Butadiene Styrene
PB	Polybutylene
PE	Polyethylene
PP	Polypropylene (including PP, PPr and three layer PP)
PVC	Polyvinyl Chloride (including cPVC and uPVC)
PVDF	Polyvinylidene Fluoride
PE / ALU / PE	Multilayer pipe Polyethylene/Aluminium/Polyethylene
Beverage multipipe	Bundle of plastic pipes covered with thermal insulation

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Deck – General Application A-60 – Roxtec Sleeve-it with smoke seal putty

Type	Pipe material*	Pipe Diameter (mm)	Fitting of fire collar	Drawing
SLV75M	PP, PVC	22, 48, 25,4	Uninsulated side	S1508739A
SLV75M	PE/ALU/PE, PVC, PP	50, 25,4, 22	Insulated side	S1508739A

Deck – General Application A-60 – Roxtec Sleeve-it WT-MAR type A

Pipe material*	Pipe Diameter (mm)	Fitting of fire collar	Drawing
PP	50 to 110	Insulated side	S1036417A

Bulkhead – General Application A-0

Pipe material*	Pipe Diameter (mm)	Fitting of fire collar	Drawing
ABS	114	Either side	S1508742A
PB	15 up to 124	Either side	S1508742 A
PB	125 up to 160	Either side	S1508740 A
PE	16 up to 225	Either side	S1508742 A
PE	226 up to 315	Insulated side plus additional insulation	S1508750 A
PP	16 up to 39	Either side	S1508742 A
PP	40 up to 169	Either side	S1508740 A
PP	170 up to 200	Either side	S1508742 A
PVC	20 up to 160	Either side	S1508740 A
PVC	161 up to 200	Either side	S1508742 A
PVC	201 up to 271	Insulated side plus additional insulation	S1508751 A
PE / ALU / PE	16 up to 63	Either side	S1508740 A
Beverage multipipe	75 up to 100	Either side	S1508742 A

*Pipe reference list

ABS	Acrylonitrile Butadiene Styrene
PB	Polybutylene
PE	Polyethylene
PP	Polypropylene (including PP, PPr and three layer PP)
PVC	Polyvinyl Chloride (including cPVC and uPVC)
PVDF	Polyvinylidene Fluoride
PE / ALU / PE	Multilayer pipe Polyethylene/Aluminium/Polyethylene
Beverage multipipe	Bundle of plastic pipes covered with thermal insulation

Water and or gas tightness

For applications where water and or gas tightness is requested Sleeve-it type WT is to be used exclusively. This type is approved for application in steel bulkheads or decks limited to a pressure of 2,33 bar water tightness and 0,67 bar gas tightness.

The penetration system is generally not to be used for penetrating boundaries of tanks.

For application on passenger ships and special purpose ships (SPS), the penetration system shall comply with the requirements given in SOLAS Ch. II-1 Reg. 13.2.3 (2014 issue). Penetrations passing through watertight bulkheads are subject for separate examination and approval (water tightness after a standard fire test).

The Society shall be contacted for separate details of performing such additional testing.

It is however be noted that use of such product on board passenger ships/SPS vessel, even if successfully tested as watertight after a standard fire test, is subject to separate case by case approval for each ship for which the product is intended to be used and may not be accepted at all for certain applications and / or flags.

Type Approval documentation

Installation instructions

ASS2012012001201 C – Installation instruction Roxtec Sleeve-it – Waterproof penetration seal

ASS2012012001301 C - Installation instruction Roxtec Sleeve-it – Fire penetration seal

Tests carried out

Fire test according to IMO RESOLUTION MSC.307(88) (2010 FTP Code),

Annex 1, Part 3 - *Test for "A", "B" and "F" class, Annex1, A.III Pipe and Duct Penetrations.*

Water and gas tightness according to DNV GL CP – 0165.

Marking of product

The sealing system is marked, amongst others, with:

- name of manufacturer
- type designation
- fire rating

Periodical assessment

For retention of the type approval certificate periodical assessments shall be carried out at production places.

The objective of the periodical assessment is to verify that the design and production conditions for the type approval have not been altered.

Main scope of the assessment:

- verification of the production and quality control system
- review of quality control documentation of recent deliveries
- review of drawings in production to verify any design changes which may have an impact on data specified in the type approval certificate, performance and range of application
- verification of the product marking

Periodical assessment is to be performed after 2 years and after 3.5 years. A renewal assessment will be performed at renewal of the certificate.

End of certificate