



TYPE EXAMINATION CERTIFICATE (MODULE B)

Certificate No:
MERB00001Y7
Revision No:
0

This Certificate is issued by DNV UK Limited based on authorisation of the Maritime & Coast Guard Agency (MCA) as an UK Approved Body to undertake conformity assessments on marine equipment in accordance with the requirements of the Merchant Shipping (Marine Equipment) Regulations 2016 as amended.

This is to certify:

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

with type designation(s)

Roxtec sealing system with multidiameter technology: S-series (steel)

Issued to

Roxtec International AB
Karlskrona, Sweden

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

Regulation **MSN 1874 Amendment 6,**

item No. UK/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 **2027-06-13**.

Issued at **London** on **2022-11-30**

DNV local unit:
Denmark CMC

Approval Engineer:
Roland Priebe



Approved Body No.: **0097**

for **DNV UK Ltd.**

Christine Mydlak-Röder
MER Service Responsible



**Maritime &
Coastguard
Agency**

UK Approved Body Authorised
by the MCA

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-control phase module (D, E or F) of Schedule 2 of the Merchant Shipping (Marine Equipment) Regulations 2016, as amended is fully complied with and controlled by a written inspection agreement with an approved body. The product liability rests with the manufacturer or his representative in accordance with the Merchant Shipping (Marine Equipment) Regulations 2016.

This certificate is valid for equipment, which is conform to the approved type. The manufacturer shall inform DNV UK Ltd. of any changes to the approved equipment. 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. This certificate remains valid unless suspended, withdrawn, re-called, or cancelled.

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

“Roxtec sealing system with multidiameter technology: S-series (steel)”
 consisting of Roxtec S-series steel frames (S, SO, SF, SFO, SFOHK, SR, SK, SRC r20, SRC r40, SRC r60 and SBTB)
 in sizes 1-8, and combinations thereof, welded or bolted to a steel section.

The S frame is filled with Roxtec (standard or Ex, FOC, EMC, PE, ES, BG, BGB) halogen free RM modules. Standard RM, FOC, BG and BGB modules can be mixed in the same frame. Assembled with Roxtec Wedge kit, Roxtec ES Wedge kit or Roxtec EX Wedge kit.

For more details, see drawings listed under Type Examination documentation below.

Application/Limitation

Approved for use as empty, single or multiple cable penetration system in class A-0, A-15, A-30 and A-60 steel bulkheads and decks for approved ship cables, inc. continuously welded aluminium clad cables (e.g., CLX type) according to the tables below. Other applications are subject to case-by-case approval.

Class A-15 and A-30 shall be insulated as A-60 and in addition the division is to be insulated at least 200 mm around the penetration.

Table 1: Approved cable penetration in A-60 steel bulkhead.

Frame type	Size	Cable type	Max. cable diameter (OD) [mm]	Sleeve length [mm]	Sleeve thickness [mm]	Sleeve position	Sleeve insulation
S-series	1 – 8	Marine	86	60	10	Any	S1581027; No. 1
	1 – 8+8x3	Marine	86	60	10	Symmetric	S1581027; No. 2
	1 – 8+8x10	Marine	86	60	10	Symmetric	S1581027; No. 3
	1 – 8+8x3	Fiber optic*	18	60	10	Symmetric	S1581027; No. 1-2
	1 – 8+8x10	Fiber optic*	18	60	10	Symmetric	S1581027; No. 3
	1 – 8+8x3	CLX	98	60	10	Symmetric	S1574575; No. 1
SFOHK	2 – 8	Marine	82	200	10	Insulated side	S1574576; No. 1
	2 – 8	Fiber optic*	18	200	10	Insulated side	S1574576; No. 1
SK	2 – 8	Marine	82	100 – 200	10	Insulated side	S1578574; No. 1
	2 – 8	Fiber optic*	18	100 – 200	10	Insulated side	S1578574; No. 1
SBTB	2 – 8	Marine	82	200 – 400	10	Symmetric	S1578589; No. 1
	2 – 8	Fiber optic*	18	200 – 400	10	Symmetric	S1578589; No. 1

* Fiber optic cables can only be installed in FOC-modules.

Table 2: Approved cable penetration in A-0 steel bulkhead.

Frame type	Size	Cable type	Max. cable diameter (OD) [mm]	Sleeve length [mm]	Sleeve thickness [mm]	Sleeve position	Sleeve insulation
S-series	1 – 8+8x3	Marine	86	60	10	Symmetric	S1581922; No. 1-2
	1 – 8+8x10	Marine	86	60	10	Symmetric	S1581922; No. 3
	1 – 8+8x3	Fiber optic*	18	60	10	Symmetric	S1581922; No. 1-2
	1 – 8+8x10	Fiber optic*	18	60	10	Symmetric	S1581922; No. 3
	1 – 8+8x3	CLX	98	60	10	Symmetric	S1574720; No. 1
SFOHK	2 – 8	Marine	82	200	10	Insulated side	S1574713; No. 1
	2 – 8	Fiber optic*	18	200	10	Insulated side	S1574713; No. 1
SK	2 – 8	Marine	82	100 – 200	10	Insulated side	S1578669; No. 1
	2 – 8	Fiber optic*	18	100 – 200	10	Insulated side	S1578669; No. 1
SBTB	2 – 8	Marine	82	200 – 400	10	Symmetric	S1578672; No. 1
	2 – 8	Fiber optic*	18	200 – 400	10	Symmetric	S1578672; No. 1

* Fiber optic cables can only be installed in FOC-modules.

Table 3: Approved cable penetration in A-60 steel deck.

Frame type	Size	Cable type	Max. cable diameter (OD) [mm]	Sleeve length [mm]	Sleeve thickness [mm]	Sleeve position	Sleeve insulation
S-series	1 – 8+8x2	Marine	86	60	10	Any	S1581027; No. 4,6
	1 – 8+8x5	Marine	90	60	10	Top side, Symmetric	S1581027; No. 7
	1 – 8+8x5	Fiber optic*	18	60	10	Top side	S1581027; No. 5
	1 – 8+8x2	CLX	98	60	10	Any	S1574575; No. 2
SFOHK	2 – 8	Marine	82	200	10	Top side	S1574576; No. 2
	2 – 8	Fiber optic*	18	200	10	Top side	S1574576; No. 2
	2 – 8	CLX	60	200	10	Top side	S1575199; No. 1
SK	2 – 8	Marine	82	100 – 200	10	Top side	S1578574; No. 2
	2 – 8	Fiber optic*	18	100 – 200	10	Top side	S1578574; No. 2
	2 – 8	CLX	60	100 – 200	10	Top side	S1578673; No. 1
SBTB	2 – 8	Marine	82	200 – 400	10	Symmetric	S1578589; No. 2
	2 – 8	Fiber optic*	18	200 – 400	10	Symmetric	S1578589; No. 2
	2 – 8	CLX	60	200 – 400	10	Symmetric	S1578800; No. 1

* Fiber optic cables can only be installed in FOC-modules.

Table 4: Approved cable penetration in A-0 steel deck.

Frame type	Size	Cable type	Max. cable diameter (OD) [mm]	Sleeve length [mm]	Sleeve thickness [mm]	Sleeve position	Sleeve insulation
S-series	1 – 8	Marine	88	60	10	Top side, Symmetric	S1581922; No. 4
	1 – 8+8x3	Marine	88	60	10	Top side	S1581922; No. 7
	1 – 8+8x5	Marine	90	60	10	Top side, Symmetric	S1581922; No. 5-6
	1 – 8	Fiber optic*	18	60	10	Top side, Symmetric	S1581922; No. 4
	1 – 8+8x3	Fiber optic*	18	60	10	Top side	S1581922; No. 7
	1 – 8+8x5	Fiber optic*	18	60	10	Top side	S1581922; No. 5-6
	1 – 8+8x2	CLX	98	60	10	Any	S1574720; No. 2
SFOHK	2 – 8	Marine	82	200	10	Top side	S1574713; No. 2
	2 – 8	Fiber optic*	18	200	10	Top side	S1574713; No. 2
	2 – 8	CLX	60	200	10	Top side	S1575200; No. 1
SK	2 – 8	Marine	82	100 – 200	10	Top side	S1578669; No. 2
	2 – 8	Fiber optic*	18	100 – 200	10	Top side	S1578669; No. 2
	2 – 8	CLX	60	100 – 200	10	Top side	S1578674; No. 1
SBTB	2 – 8	Marine	82	200 – 400	10	Symmetric	S1578672; No. 2
	2 – 8	Fiber optic*	18	200 – 400	10	Symmetric	S1578672; No. 2
	2 – 8	CLX	60	200 – 400	10	Symmetric	S1578712; No. 1

* Fiber optic cables can only be installed in FOC-modules.

The insulation materials used have to be approved according to the UK Marine Equipment Regulation and bear the Mark of Conformity.

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

Type Examination documentation

Test report No. 09-344(E) dated 11 December 2009 from Research Institute of Marine Engineering, Tokyo, Japan.
Test report No. PX05454 dated 15 December 2010 from SP, Borås, Sweden.
Test report No. PGA10024 dated 21 December 2011 from DBI, Hvidovre, Denmark.
Test report No. PGA10025 dated 22 December 2011 from DBI, Hvidovre, Denmark.
Test report No. PGA10452 dated 28 May 2014 from DBI, Hvidovre, Denmark.
Test report No. PGA10453 dated 28 May 2014 from DBI, Hvidovre, Denmark.
Test report No. 4P07023 dated 4 February 2015 from SP, Borås, Sweden.
Test report No. 4P08662 dated 8 June 2015 from SP, Borås, Sweden.
Test report No. PGA10652 dated 3 July 2015 from DBI, Hvidovre, Denmark.
Test report No. PGA10723A dated 4 February 2016 from DBI, Hvidovre, Denmark.
Test report No. 6P02249 dated 17 August 2016 from SP, Borås, Sweden.
Test report No. PGA 10871A Rev.1 dated 31 October 2016 from DBI, Hvidovre, Denmark.
Test report No. 6P02516 dated 29 August 2016 from SP, Borås, Sweden.
Test report No. PGA10871A Rev.2 dated 31 October 2016 from DBI, Hvidovre, Denmark.
Test report No. 6P07563 dated 20 December 2016 from SP, Borås, Sweden.
Test report No. 6P10022 dated 7 March 2017 from SP, Borås, Sweden.
Test report No. RS-17/B-176/E dated 25 May 2017 from CTO, Gdansk, Poland.
Test report No. RS-17/B-177/E dated 26 May 2017 from CTO, Gdansk, Poland.
Test report No. 8P04039 dated 6 August 2018 from RISE, Borås, Sweden.
Test report No. 8P04040 dated 13 August 2018 from RISE, Borås, Sweden.
Test report No. RS-18/B-293/E dated 13 September 2018 from CTO, Gdansk, Poland.
Test report No. PGA11301A dated 22 November 2018 from DBI, Hvidovre, Denmark.
Test report No. RS-18/B-484/E dated 10 December 2018 from CTO, Gdansk, Poland.
Test report No. PGA11302A dated 19 January 2019 from DBI, Hvidovre, Denmark.
Test report No. RS-19/B-355/E dated 16 October 2019 from CTO, Gdansk, Poland.
Test report No. RS-19/B-356/E dated 18 October 2019 from CTO, Gdansk, Poland.
Test report No. RS-20/B-409/E dated 21 December 2020 from CTO, Gdansk, Poland.
Test report No. PGB10119A dated 15 November 2021 from DBI, Hvidovre, Denmark.
Test report No. PGB10172A dated 17 June 2022 from DBI, Hvidovre, Denmark.

Drawing No. S1578672 Rev. A dated 12 April 2022 from maker.
Drawing No. S1578373 Rev. A dated 12 April 2022 from maker.
Drawing No. S1578674 Rev. A dated 12 April 2022 from maker.
Drawing No. S1578589 Rev. A dated 12 April 2022 from maker.
Drawing No. S1578574 Rev. A dated 19 April 2022 from maker.
Drawing No. S1578669 Rev. A dated 19 April 2022 from maker.
Drawing No. S1578712 Rev. A dated 19 April 2022 from maker.
Drawing No. S1578800 Rev. A dated 19 April 2022 from maker.
Drawing No. S1474720 Rev. B dated 19 April 2022 from maker.
Drawing No. S1574575 Rev. B dated 19 April 2022 from maker.
Drawing No. S1574576 Rev. B dated 16 May 2022 from maker.
Drawing No. S1574713 Rev. B dated 16 May 2022 from maker.
Drawing No. S1575199 Rev. B dated 16 May 2022 from maker.
Drawing No. S1575200 Rev. B dated 16 May 2022 from maker.
Drawing No. S1581027 Rev. B dated 27 June 2022 from maker.
Drawing No. S1581922 Rev. A dated 2 August 2022 from maker.

Tests carried out

Tested according to IMO FTPC Part 3 and in compliance with IMO 2010 FTP Code Ch. 8 and according to IMO 2010 FTP Code part 3.

Marking of product

The product or packing is to be marked with name and address of manufacturer, type designation, fire-technical rating and the Mark of Conformity (see first page).

Appendix

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

Product description

“Roxtec sealing system with multidiameter technology: S-series (steel)”
consisting of Roxtec S-series steel frames (S, SO, SF, SFO, SFOHK, SR, SK, SRC r20, SRC r40, SRC r60 and SBTB)
in sizes 1-8, and combinations thereof, bolted or welded to a steel section.

The S frame is filled with Roxtec (standard or FOC, EMC, PE, ES, BG, BGB) halogen free RM modules. Assembled with Roxtec Wedge kit or Roxtec EMC Wedge kit.

Application/Limitation

Approved for penetration in steel bulkheads or decks limited to a pressure of 4.00 bar watertightness and 2.67 bar gastightness.

For penetrations incorporating FOC-modules, the pressure is limited to 2.00 bar watertightness and 0.67 bar gastightness.

For penetrations incorporation SFOHK frames, the pressure is limited to 2.67 bar watertightness.

For bolted versions with gasket and self-tapping screws, the pressure is limited to 3.33 bar watertightness and 1.67 bar gastightness.

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

Type Approval documentation

Test report No. MLM 020106 dated 19 December 2001 from DNV, Malmö, Sweden.
Test report No. MLM 020133 dated 26 February 2002 from DNV, Malmö, Sweden.
Test report No. MLM 020408 dated 3 June 2002 from DNV, Malmö, Sweden.
Test report No. SKM-04-4088 dated 16 June 2004 from DNV, Stockholm, Sweden.
Test report No. N141CR4U Rev.1 dated 23 March 2017 from DNV, Malmö, Sweden.
Test report No. N141805F dated 27 February 2018 from DNV, Gothenburg, Sweden.

Tests carried out

Pressure tests with water and helium according to DNV-CP-0165 Sec.2 Ch.4.