

Certificate Of Fire Approval

This is to certify that the product detailed below will be accepted for compliance with the applicable Lloyd's Register Rules and Regulations and with the International Convention for the Safety of Life at Sea, (SOLAS), 1974, as amended, for use on ships and offshore installations classed with Lloyd's Register, and for use on ships and offshore installations when authorised by contracting governments to issue the relevant certificates, licences, permits etc.

Manufacturer	Roxtec International AB
Address	Box 540, S-371 23, Karlskrona, Sweden
Type	Pipe Penetration (Standard Fire Test)
Description	Fire Resisting Plastic Pipe Penetration Seals for A Class Bulkheads and Decks
Trade Name	Roxtec Sleev-it Pipe Penetration Seals
Specified Standard	IMO Res. MSC.307 (88)-(2010 FTP Code) Annex 1 Part 3 IMO Res. MSC.61 (67)- (FTP Code) Annex 1 Part 3 IMO MSC/Circ.1120 IMO Res. MSC.307 (88)-(2010 FTP Code) Section 8 IMO MSC.1/Circ.1488

This certificate is not valid for equipment, the design or manufacture of which has been varied or modified from the specimen tested. The manufacturer should notify Lloyd's Register Canada Limited of any modification or changes to the equipment in order to obtain a valid Certificate.

The Design Appraisal Document and its supplementary Type Approval Terms and Conditions form part of this Certificate.

This certificate remains valid unless cancelled or revoked, provided the conditions in the attached Design Appraisal Document are complied with and the equipment remains satisfactory in service.

ATTACHMENT TO CERTIFICATE OF TYPE APPROVAL No. LR2090258SF-02

The undernoted documents have been appraised for compliance with the relevant requirements of International Conventions, and this Design Appraisal Document forms part of the Certificate.

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This Certificate is a renewal and update of SAS F150308/M4

TEST REPORTS

RISE, Research Institute of Sweden, P.O. Box 857, SE-501 15 Boras, Sweden;

5P00771 dated 25th November 2015; 5P00772-1 dated 10th December 2015, 5P08394 dated 2nd March 2016, 5P08395, dated 17th March 2016; 6P02249 dated 17th August 2017, 7P02024, dated 08th June 2017, 8P04040, dated 13th August 2018, 8P07092 rev 1 dated 16 January 2020,

DGA Techniques Aéronautiques Centre d'Essais Aéronautiques de Toulouse. 47 Rue Saint Jean, BP93123 Balma Cedex France ;

878/07/A/NP/R 102 dated 19th February 2008, 881/07/A/NP/R-102, 881/07/A dated 19th February 2008

Warrington Fire, Holmesfield Road, Warrington, Cheshire WA1 2DS, UK;

164476/A dated 23rd July 2007, 170080A dated 30th April 2008, 170080B dated 30th April 2008, 175486A dated 31st October 2008, , 177105A dated 6th January 2009, 180251A, dated 26th May 2009, 1883387A, dated 23rd October 2009, 1883387B, dated 23rd October 2009, 184391A dated 17th December 2009, 190890A dated, 28th May 2010, 198004A, dated 7th December 2010, 303584A dated 7th April 2011, 303585 dated 17th February 2011, 207171A dated 17th June 2011, 309638A dated 20th September 2011, 309855A dated 5th October 2011, 313700 dated 20th January 2012, 314669 dated 19th January 2011, 314670 dated 25th June 2012, 316943 dated 25th June 2012, 320402A dated 29th October 2012, 324083 dated 27th November 2012, 325332 dated 14th January 2013, 327509 dated 10th July 2013, 329449 dated 13th August 2013, 330891 dated 5th September 2013, 330891 dated 3rd July 2013, 334429 dated 17th December 2013, 337717 dated 13th May 2014

BRE, Bucknall's lane Garston, Watford Hertfordshire, UK;

223968 dated 5th September 2006, 223969A dated 15th September 2006

Danish Institution of Fire and Security Technology, Jemholmen 12, DK-2650 Hvidovre Denmark;

PGA10801A dated 29th August 2016, PGA10870A dated 13th December 2016, PGA 11388A dated 14th August 2019, PGA11611A 11 January 2020,

Centrum Techniki Okretowej S.A, 65 Szczecinska, 80-392 Gdasnk, Poland;

RS-19/B-356/E dated 18th October 2019, RS-19/B-424/E, dated 27th November 2019, RS-18/B-265/E, dated 17th September 2018, RS-18/B-423/E dated 19th November 2011, RS-20/B-081/E dated 31st March 2020.

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APPROVAL DOCUMENTATION

Lloyds Register witness statement on pressure testing

DNV witness statement on pressure testing LDN-08-045 dated 9th May 2008

CONDITIONS OF CERTIFICATION

1. Production items are to be manufactured in accordance with a quality control system which shall be maintained to ensure that items are of the same standard as the approved prototype
2. The certificate holder is solely responsible for the products supplied under this Certificate and to ensure that their products, whether manufactured by themselves or their licensee manufacturers, if agreed by Lloyd's Register, are fully compliant with the relevant statutory regulations and Lloyd's Register Class rules as applicable and designed, manufactured and installed to the same quality and specifications as the prototype tested, including components that are designed and manufactured by third parties
3. The penetration system is a steel collar which is welded (fully or tack welded) or bolted and fits around plastic pipes, the collar contains intumescent material which activates upon exposure to heat. The intumescent material closes the plastic pipe providing a fire-resistant seal. A layer of Sleev-it marine fire rated sealant or equivalent can be installed to fill the annular gap between the collar and the pipe.
4. Tables below give penetration details for inclusion in A-0 and A60 steel bulkheads and decks

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Steel Bulkheads A-60				
Pipe Material	Max Pipe O.D. range (mm)	Collar Installation Side	Insulation Details for A-60	Drawing Reference
ABS	114mm	Insulated or non-insulated	No additional insulation required	S1557740
PB	16mm-160mm	Insulated or non-insulated	No additional insulation required	S1557766
PE/HDPE	50mm-225mm	Insulated or non-insulated	No additional insulation required	S1559656
	226mm-315mm	Insulated or non-insulated	An additional 200mm ring of A60 insulation is to be installed around the collar or the pipe : see insulation drawing	S1559656
PP/PPR/PPML/PPFR	32mm-200mm	Insulated or non-insulated	No additional insulation required	S1560085
PVC (inc uPVC & cPVC)	12mm-200mm	Insulated or non-insulated	No additional insulation required	S1560092
	201mm-225mm	Insulated side only	No additional insulation required	S1560092
	226mm-270mm	Insulated side only	Additional insulation required to cover longer length of seal when installed on the insulated side - See Note 5 and insulation drawing	S1560308
	271mm-322mm	Insulated or non-insulated	Additional insulation required to cover longer length of seal when installed on the insulated side - See Note 5 and insulation drawing	S1560308

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Steel Bulkheads A-60 (cont.)				
PVDF	169mm	Insulated or non-insulated	No additional insulation required	S1560129
PE-AL-PE (multi-layer pipe which may or may not be insulated with an insulation jacket)	16mm-32mm	Insulated or non-insulated	No additional insulation required	S1560134
	33mm-63mm	Insulated or non-insulated	Additional insulation required along length of pipe : see insulation drawing	S1560134
Beverage multi-pipe (with outer insulated jacket passing through fire collar/seal)	75mm-99mm	Insulated side only	No additional insulation required	S1560148
	100mm	Insulated or non-insulated	No additional insulation required	S1560148
Preinsulated Pipes (Outer Diameter including outershell/jacket)	75mm-315mm	non-insulated side only	Additional wrap of A-60 rated insulation around the pipe on the insulated side. Complete length of insulation from the structure to equal 300mm : see insulation drawing	S1559819

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Steel Decks A-60				
Pipe Material	Max Pipe O.D. range (mm)	Collar Installation Side	Insulation Details for A-60	Drawing Reference
ABS	110mm-219mm	Underside	No additional insulation required	S1557740
PB	16mm-125mm	Topside	No additional insulation required	S1557766
	125mm-225mm	Underside or topside	No additional insulation required	S1557766
PE/HDPE	25mm-225mm	Underside or topside	No additional insulation required	S1559656
	226mm-320mm	Underside	Additional insulation required to cover longer length of seal when installed on the insulated side - See Note 5 and insulation drawing	S1561005
PP/PPR/PPML/PPFR	16mm-110mm	Underside or topside	No additional insulation required	S1560085
	111mm-225mm	Underside	No additional insulation required	S1560085
	226mm-320mm	Underside	Additional insulation required to cover longer length of seal when installed on the insulated side - See Note 5 and insulation drawing	S1561005
PVC (inc uPVC & cPVC)	21mm-225mm	Underside or topside	No additional insulation required	S1560122
	226mm-321mm	Underside or topside	Additional insulation required to cover longer length of seal when installed on the insulated side - See Note 5 and insulation drawing	S1561005

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Steel Decks A-60 (cont.)				
PVDF	40mm-169mm	Underside or topside	No additional insulation required	S1560129
PE-AL-PE (multi-layer pipe which may or may not be insulated with an insulation jacket)	16mm-63mm	Underside or topside	No additional insulation required	S1560134
Beverage multi-pipe (with outer insulated jacket passing through fire collar/seal)	75mm-100mm	Underside or topside	No additional insulation required	S1560148
Preinsulated Pipes (Outer Diameter including outershell/jacket)	75mm-315mm	Underside	Two additional 100mm rings of A60 insulation are to be installed around the collar and/or pipe : see insulation drawing	S1559819

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Steel Bulkheads A-0				
Pipe Material	Max Pipe O.D. range (mm)	Collar Installation Side	Insulation Details for A-0	Drawing Reference
ABS	114mm	Either	An additional 200mm ring of A60 insulation is to be installed around the collar or the pipe	S1557740
PB	16mm-125mm	Either	No additional insulation required	S1557766
	126mm-160mm	Either	An additional 200mm ring of A60 insulation is to be installed around the collar or the pipe	S1557766
PE/HDPE	50mm-225mm	Either	An additional 200mm ring of A60 insulation is to be installed around the collar or the pipe	S1559656
	226mm-315mm	Either	Additional insulation required to cover longer length of seal when installed on the insulated side - See Note 5 and insulation drawing	S1560308
PP/PPR/PPML/PPFR	20mm-169mm	Either	No additional insulation required	S1560085
	170mm-200mm	Either	An additional 200mm ring of A60 insulation is to be installed around the collar or the pipe	S1560085

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Steel Bulkheads A-0				
PVC (inc uPVC & cPVC)	12mm-160mm	Either	No additional insulation required	S1560092
	161mm-225mm	Either	An additional 200mm ring of A60 insulation is to be installed around the collar or the pipe	S1560092
	226mm-322mm	Either	Additional insulation required to cover longer length of seal when installed on the insulated side - See Note 5 and insulation drawing	S1560308
PVDF	169mm	Either	An additional 200mm ring of A60 insulation is to be installed around the collar or the pipe	S1560129
PE-AL-PE (multi-layer pipe which may or may not be insulated with an insulation jacket)	16mm-63mm	Either	No additional insulation required	S1560134
Beverage multi-pipe (with outer insulated jacket passing through fire collar/seal)	75mm-100mm	Either	An additional 200mm ring of A60 insulation is to be installed around the collar or the pipe	S1560148
Preinsulated Pipes (Outer Diameter including outershell/jacket)	75mm-315mm	Collar to be placed on the high fire risk side	An additional 200mm ring of A60 insulation is to be installed around the pipe plus an additional wrap of A-60 rated insulation around the pipe on the insulated side. Complete length of insulation from the structure to equal 300mm : see insulation drawing	S1560316

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Steel Decks A-0				
Pipe Material	Max Pipe O.D. range (mm)	Collar Installation Side	Insulation Details for A-0	Drawing Reference
ABS	110mm-219mm	Underside	An additional 200mm ring of A60 insulation is to be installed around the collar	S1557740
PB	16mm-124mm	Topside	An additional 200mm ring of A60 insulation is to be installed around the pipe	S1557766
	125mm-225mm	Underside or topside	An additional 200mm ring of A60 insulation is to be installed around the collar or pipe on the insulated side	S1557766
PE/HDPE	25mm-225mm	Underside or topside	An additional 200mm ring of A60 insulation is to be installed around the collar or pipe on the insulated side	S1559656
	226mm-320mm	Underside	Additional insulation required to cover longer length of seal when installed on the insulated side - See Note 5 and insulation drawing	S1561005
PP/PPR/PPML/PPFR	16mm-110mm	Underside or topside	An additional 200mm ring of A60 insulation is to be installed around the collar or pipe on the insulated side	S1560085
	111mm-225mm	Underside	An additional 200mm ring of A60 insulation is to be installed around the collar	S1560085
	226mm-320mm	Underside	Additional insulation required to cover longer length of seal when installed on the insulated side - See Note 5 and insulation drawing	S1561005

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Steel Decks A-0 (Cont)				
PVC (inc uPVC & cPVC)	16mm-50mm	Underside or topside	No additional insulation required	S1560122
	51mm-225mm	Underside or topside	An additional 200mm ring of A60 insulation is to be installed around the collar or pipe on the insulated side	S1560122
	226mm-321mm	Underside or topside	Additional insulation required to cover longer length of seal when installed on the insulated side - See Note 5 and insulation drawing	S1561005
PVDF	40mm-169mm	Underside or topside	An additional 200mm ring of A60 insulation is to be installed around the collar or pipe on the insulated side	S1560129
PE-AL-PE (multi-layer pipe which may or may not be insulated with an insulation jacket)	16mm-31mm	Underside	An additional 200mm ring of A60 insulation is to be installed around the collar on the insulated side	S1560134
	16mm-31mm	Topside	No additional insulation required	S1560134
	32mm-63mm	Underside or topside	No additional insulation required	S1560134
Beverage multi-pipe (with outer insulated jacket passing through fire collar/seal)	75mm-100mm	Underside or topside	An additional 200mm ring of A60 insulation is to be installed around the collar or pipe on the insulated side	S1560148
Preinsulated Pipes (Outer Diameter including outershell/jacket)	75mm-315mm	Underside	A 200mm ring of A60 insulation is to be installed around the collar/seal plus two additional 100mm rings of A60 insulation around the collar and/or pipe : see insulation drawing	S1560316

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5. When installed from the insulated side and when insulation is required (per the insulation drawing), the full length of the Fire Collar (seal) should be fully insulated. Should extra insulation be required, it should either be a 200mm ring of A-60 rated insulation fitted around the seal, or an A-60 rated insulation wrap around the Fire Collar. Please see applicable insulation drawing reference in the tables
6. Two pipes; 160mm dia. PB and 16mm uPVC fitted with Sleeve-it pipe penetrations and Sleeve-it marine fire rated sealant or equivalent, were subjected to a hydrostatic test and an air pressure test of 1 bar and 0.02 bar respectively and no leakage was reported after 30 minutes, as detailed in the DNV Test Report No.LDN-08-045 dated 31 January 2008. In all cases, the sealant was applied to seal the penetration on both sides of the penetration and the test pressures were applied from either side
7. Two pipes; 110mm dia. uPVC and 16mm PE fitted with Sleeve-it pipe penetrations, type: "Sleeve-it WT" comprising Sleeve-it EPDM rubber seals, type: "SLV EDPM Grommet", were subjected to a hydrostatic test and an air pressure test at 3.5 bar and 1 bar respectively and no leakage was reported after 30 minutes, as detailed in Lloyd's Register Test Witness Certificate No: SOU 0901586/1 dated 08 January 2010. The "Sleeve-it WT" may be fitted on any one side of the division
8. The above penetration systems are not to be used for penetrating tank boundaries
9. When requested to be used in watertight bulkheads on passenger ships and Special Purpose Ships (SPS), the above penetration systems should be verified for compliance with the requirements given in SOLAS Chapter II-1 Reg.13.2.3 (2009 issue). The above penetration systems have not been approved according to this paragraph
10. All sleeve-it collars are suitable for protection of B-15 penetrations.
11. A modified arrangement of the Roxtec Sleeve-it pipe penetration called the "Roxtec Sleeve-it Transition Collar" may be used to protect a plastic pipe transition / connection to a steel pipe. The Roxtec Sleeve-it Transition collar is secured to the steel pipe using a Sleeve-it Rising Clamp. The tables below detail both the horizontal installation when plastic pipe is transitioned to a steel pipe in close proximity to a steel bulkhead and also, deck installations when attached to a steel Scupper / Collecting / Drainage Pot as detailed within the applicable insulation drawings referenced within the tables

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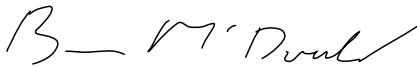
Steel Bulkheads A-60					
Pipe Material	Max Pipe O.D. range (mm)	Installation Description	Collar Installation Side	Insulation Details for A-60	Drawing Reference
PP/PPR/PPML/PPFR	50-75mm (steel) to 50-90mm (plastic)	Steel pipe to plastic pipe transition - installed less than 450mm away from a bulkhead penetration	Insulated side	Transition Collar and steel pipe up to the bulkhead insulation to be fully wrapped in A-60 insulation.	S1560502
			Non-insulated side	Steel pipe on the insulated side to be fully wrapped in A-60 insulation for a distance of 450mm mm.	S1560502
Steel Decks A-60					
Pipe Material	Pipe O.D. - Steel Pipe to Plastic Pipe (mm)	Installation Description	Collar Installation Side	Insulation Details for A-60	Drawing Reference
PP/PPR/PPML/PPFR	50-90mm (steel) to 50-90mm (plastic)	Steel pipe to plastic pipe transition where steel pipe forms part of or connects to a stainless steel Scupper / Collecting / Drainage Pot (with or without "drainage bell") - Both horizontal (elbow) and vertical (straight) connections	Underside	Scupper Pot to be fully insulated with A-60 insulation as well as steel pipe up to Roxtec Transition Collar	S1561386
Steel Decks A-0					
Pipe Material	Pipe O.D. - Steel Pipe to Plastic Pipe (mm)	Installation Description	Collar Installation Side	Insulation Details for A-60	Drawing Reference
PP/PPR/PPML/PPFR	50-90mm (steel) to 50-90mm (plastic)	Steel pipe to plastic pipe transition where steel pipe forms part of or connects to a stainless steel Scupper / Collecting / Drainage Pot (with or without "drainage bell") - Both horizontal (elbow) and vertical (straight) connections	Underside	Scupper Pot to be fully insulated with A-60 rated insulation as well as steel pipe up to Roxtec Transition Collar	S1561527

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1. Approved Installation Variations for Sleeve-it penetrations are given below;
- a) Drawing S1528866 Revision (A) and associated Amendment to Installation Instructions Roxtec Sleeve-it Fire Penetration Seal ASS2012001301 (DOC-001830 Rev A).
 - b) Drawing S1538623 Revision (A) - PVC insert sleeve.
 - c) Drawing S1036168 Revision (B) - Sleeve-it WT Deck Penetration (Wavin SI Tech PPr pipe). Design variation referenced by Information Drawing S1029962 revision (A)

PLACE OF PRODUCTION

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Supplementary Type Approval Terms and Conditions

This certificate and Design Appraisal Document relates to type approval, it certifies that the prototype(s) of the product(s) referred to herein has/have been found to meet the applicable design criteria for the use specified herein, it does not mean or imply approval for any other use, nor approval of any products designed or manufactured otherwise than in strict conformity with the said prototype(s).