



Marine & Offshore

Certificate number: 46204/A1 BV

File number: ACI4010/030/004

Product code: 5301H

This certificate is not valid when presented without the full attached schedule composed of 7 sections

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TYPE APPROVAL CERTIFICATE

This certificate is issued to

ROXTEC International AB

KARLSKRONA - SWEDEN

for the type of product

PIPE PENETRATIONS IN FIRE DIVISIONS

Sleev-It Pipe Collars System for plastic pipes

Requirements:

Bureau Veritas Rules for the Classification of Steel Ships Part C Chapter 4

SOLAS 74, as amended, Regulations II-2/9.3.1

IMO Res. MSC.61(67)-(FTP Code) with IMO Res MSC.307(88) (2010 FTP Code) article 8

IMO Res MSC.307(88) (2010 FTP Code)

This certificate is issued to attest that Bureau Veritas Marine & Offshore did undertake the relevant approval procedures for the product identified above which was found to comply with the relevant requirements mentioned above.

This certificate will expire on: 08 Feb 2022

For Bureau Veritas Marine & Offshore,

At BV GOTHENBURG, on 01 Aug 2018,

Torbjorn Ygesjo



This certificate remains valid until the date stated above, unless cancelled or revoked, provided the conditions indicated in the subsequent page(s) are complied with and the product remains satisfactory in service. This certificate will not be valid if the applicant makes any changes or modifications to the approved product, which have not been notified to, and agreed in writing with Bureau Veritas Marine & Offshore. Should the specified regulations or standards be amended during the validity of this certificate, the product(s) is/are to be re-approved prior to it/they being placed on board vessels to which the amended regulations or standards apply. This certificate is issued within the scope of the General Conditions of Bureau Veritas Marine & Offshore available on the internet site www.veristar.com. Any Person not a party to the contract pursuant to which this document is delivered may not assert a claim against Bureau Veritas Marine & Offshore for any liability arising out of errors or omissions which may be contained in said document, or for errors of judgement, fault or negligence committed by personnel of the Society or of its Agents in establishment or issuance of this document, and in connection with any activities for which it may provide.

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BV Mod. Ad.E 530 June 2017

This certificate consists of 5 page(s)

THE SCHEDULE OF APPROVAL

1. PRODUCT DESCRIPTION :

"Sleeve-It Pipe Collars System for plastic pipes"

Each sealing system comprises a 60 mm long 0.7 mm thick tubular steel casing, welded or bolted to the bulkhead or to the deck by means of lugs (0.7 mm thick) or continuous flange (3 mm thick). A break is incorporated in the casing so that the collar can be sprung open to permit installation around a pipe. Several layers of intumescent material are inserted between the casing and the pipe, nominally 1.8 mm or 2.5 mm thick. The appropriate number of layers depending on the pipe diameter and the number of fixing points (welded or bolted) for collar fixation to the fire division is given in §4.1, unless otherwise indicated herebelow.

Penetration type	Pipe material	Pipe diameter	Installation	Collar Fixation to the fire division	Collars Fire rating
Single pipe collar	PB, PPr, PE, uPVC or ABS	16 to 225 mm	bulkhead (1 collar fixed to either side of the bulkhead) or deck (1 collar fixed to either side of the deck)	lugs (SLV-) or continuous flange (MAR-M)	A15, A30 and A60
Single pipe collar	PB, PPr, PE, uPVC or ABS	320 mm	deck : 1 special collar (120 mm long instead of 60 mm) fixed to the underside	lugs (SLV-)	A15, A30 and A60
Single pipe collar	Georg Fischer multi-layer PE/AL/PE I-Fit pipe -TAC N° 15590/B1 BV	16 to 32 mm	- bulkhead (1 collar fixed to either side of the bulkhead) or deck (1 collar fixed to the underside) - collar for 16 mm pipe can also be fitted on the top side of the deck.	continuous flange (MAR-M)	A15, A30 and A60
Double sleeve collar	PB, PPr, PE, uPVC or ABS	2 pipes : 16 mm each to 60 & 70 mm	in bulkhead (fixed to either side of the bulkhead) or deck (fixed to the underside): - collars continuously welded or bolted to rectangular steel plate (2x100x50 mm to 5x330x150 mm)	rectangular steel plate welded to the deck or bulkhead (2 to 6 welding points)	A15, A30 and A60
Collar for Multi-pipe with Armaflex AC lagging	Multi-flow pipe for drinks (15 PE pipes) surrounded by Armaflex AC lagging	PE pipes 12.5 mm each (totally 75 mm comprising 10 mm Armaflex)	- in bulkhead (1 collar fixed to the insulated side) or deck (1 collar fixed to either side of the deck) NOTE: Armaflex only for use as insulation of pipes fittings for refrigeration systems and chilled water piping for air-conditioning as per SOLAS II-2/5.3.1.1 and IMO MSC/Circ. 1120	lugs (SLV-) or continuous flange (MAR-M)	A15, A30 and A60
4-collars trapezoidal plate (2 tested dimensions: small / large)	uPVC and PB	2 pipes (50 mm) and 2 pipes (16 mm) / 2 pipes (75 mm) and 2 pipes (25 mm)	In deck only (fixed to the underside): - small : 2 collars for 50 mm pipe +2 collars for 16 mm pipe (with welded lugs) - large : 2 collars for 75 mm pipe +2 collars for 25 mm pipe (with welded lugs) - 1 trapezoidal steel plate 3 mm thick with overall dimensions : small 170x120 mm / large 250x185 mm - large dimension : fire insulated between pipes like the penetrated fire division	trapezoidal steel plate welded to the deck (6 welding points)	A15, A30 and A60
Combination collar	uPVC and PPr	3 pipes from 22 to 48 mm	In deck only : 1 collar for pipe diameter 75 mm fixed to either side of the deck, with 3 pipes inside.	continuous flange (4 fixing points)	A15, A30 and A60
Single pipe collar	uPVC	25mm	In deck only (fixed to the underside)	continuous flange (4 fixing points)	A0

PB= Polybutylene ; PPr= Polypropylene ; PE= Polyethylene ; uPVC= Unplasticied polyvinylchloride ; ABS= Acrylonitrile Butadiene Styrene plastic.

- When the collar is fixed to the insulated side of a bulkhead, the whole length of the collar has to be insulated.
- A0-class with additional 200mm fire insulation ring : pipe penetrations approved as "A-60" class pipe penetration may be used also in "A-0" class divisions, when additional approved A-60 insulation is fitted on the penetration itself and 200 mm around.

Materials and/or components :

- Collar steel casing manufactured by BASE Group SP z.o.o..
- 1.8 mm intumescent material layers : type TRP 345 manufactured by Trafford Rubber Products.
- 2.5 mm intumescent material layers : type Promaseal PL manufactured by Promat.
- As an option, collars may be fitted with an additional seal of Sleev-it Intumescent Acrylic sealant, as a smoke seal.
- As an option, collars may be fitted with an additional seal of Sleev-it EPDM rubber seal.

2. DOCUMENTS AND DRAWINGS :

- Drawings SLV187BV Rev. C , SLV188BV Rev. C , SLV189BV Rev. C , SLV190BV Rev. C , SLV191BV Rev. C , SLV192BV Rev. C (all dated 25th February 2011), SLV 262 DNV (revision date 27th November 2009), S1026329 H dated 10/11/2016 and S1026339 E dated 15/11/2016.
- Sleev-it EPDM rubber seal : Material data sheet ref. ZCOM 039 from Walker Rubber & Plastics Ltd.
- Manufacturing drawings for sizes MAR55M, MAR69M and MAR82M FL 130 : S1502386 Rev. A, dated 17/03/2015, S1502419 Rev. A, dated 17/03/2015 and S1035720, Rev. A, dated 03/10/2013.
- Insulation drawings for sizes MAR55M, MAR69M and MAR82M FL130 : S1531561 Rev. A, S1531629 Rev. A and S1531628, Rev. A, all dated 27/03/2018.

3. TEST REPORTS :

- 3.1- Test reports N° 208971 dated 12th February 2003, N° 208972 dated 20th March 2003, N° 223968 dated 5th September 2005 & N° 223969 dated 1st September 2005, as per IMO FTP Code Annex 1 Part 3 [test standard : IMO Resolution A.754(18)], from BRE Testing, UK.
- 3.2- Assesment CC 228739 dated 11th May 2006, from BRE Testing, UK.
- 3.3- Test reports 878/07/A/NP/R 102 (testing date 28th March 2007) and 881/07/A/NP/R 102 (testing date 21st March 2007), as per IMO FTP Code Annex 1 Part 3 [test standard : IMO Resolution A.754(18)], from Gerbam laboratory, France.
- 3.4- Test report N° 164476B dated 23 July 2007, N° 170080/B dated 30th April 2008, N° 175486/A dated 31st October 2008, N° 177105A dated 6th January 2009, N° 183387A dated 23rd October 2009 and N° 190890/A dated 26th may 2010, as per IMO FTP Code Annex 1 Part 3 [test standard : IMO Resolution A.754(18)], from Warrington Fire laboratory, UK.
- 3.5- Sleev-it Intumescent Acrylic sealant : Assesment Report N° 179590 dated 26th January 2009, from Warrington Fire laboratory, UK.
- 3.6- Test in Aluminium decks : Test report N° 184391/A dated 17th December 2009, as per IMO FTP Code Annex 1 Part 3 [test standard : IMO Resolution A.754(18)] and technical assesment 188626 dated 22nd December 2009, from Warrington Fire laboratory, UK.
- 3.7- Test with EPDM rubber seal : Test report N° 189958 dated 9th February 2010, as per IMO FTP Code Annex 1 Part 3 [test standard : IMO Resolution A.754(18)], from Warrington Fire laboratory, UK.
- 3.8- Roxtec internal Test for Sleev-it FC MAR55M, Sleev-it FC MAR69M and Sleev-it FC MAR82M FL130 : Test report N° DOC-002040 dated 4th April 2018, as per IMO 2010 FTP Code Annex 1 Part , witnessed by Bureau Veritas surveyor, as per attestation N° 071GTB18, dated 12th April, 2018, from Bureau Veritas Gothenburg, Sweden.

4. APPLICATION / LIMITATION :

4.1- Penetration seal specification:

Plastic Pipe diameter (mm)	Minimum number of Intumescent material layers	Number of Collar Fixing points
16	2 x 1.8 mm thick x 60 mm wide or 2 x 2.5 mm thick x 60 mm wide	2
50	3 x 1.8 mm thick x 60 mm wide or 3 x 2.5 mm thick x 60 mm wide	3
55	4 x 2.5 mm thick x 60 mm wide	3
63	4 x 1.8 mm thick x 60 mm wide or 3 x 2.5 mm thick x 60 mm wide	3
69	5 x 2.5 mm thick x 60 mm wide	4
75	4 x 1.8 mm thick x 60 mm wide or 4 x 2.5 mm thick x 60 mm wide	4
82 FL130	4 x 2.5 mm thick x 60 mm wide	4
90	5 x 1.8 mm thick x 60 mm wide or 4 x 2.5 mm thick x 60 mm wide	4
110	5 x 1.8 mm thick x 60 mm wide or 5 x 2.5 mm thick x 60 mm wide	4
125	7 x 1.8 mm thick x 60 mm wide or 5 x 2.5 mm thick x 60 mm wide	4
160	6 x 2.5 mm thick x 60 mm wide	6
169	6 x 2.5 mm thick x 60 mm wide	6
225	8 x 2.5 mm thick x 60 mm wide	8
320 (decks installations)	10 x 2.5 mm thick x 120 mm wide	8

4.2- The fitting aboard to be the same as used for the test.

4.3- Approved for use as pipe penetrations in A-0/A-60 class steel divisions, with limitations contained in §1.

4.4- Approved for use as pipe penetrations in A-0/A-60 class aluminium divisions (except for pipes with Armaflex lagging), when steel collars with continuous flange are bolted to the aluminium division. Arrangements are to be made to avoid galvanic corrosion.

4.5- The insulation material shall comply with the requirements of the relevant Bureau Veritas rules and be type approved. The fire tests were conducted with various types of insulation materials; alternative ones (duly type approved) may be used provided their insulation performance are equivalent/appropriate.

5. PRODUCTION SURVEY REQUIREMENTS :

5.1- The **Sleev-it pipe collars** are to be supplied by **Roxtec International AB** in compliance with the type described in this certificate.

5.2- This type of product is within the category HBV of Bureau Veritas Rule Note NR320 and as such does not require a BV product certificate.

5.3- **Roxtec International AB** has to make the necessary arrangements to have its office and production site(s) recognised by Bureau Veritas in compliance with the requirements of NR320 for HBV products.

6. MARKING OF PRODUCT:

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

7. OTHERS:

7.1- It is **Roxtec International AB**'s responsibility to inform shipbuilders or their sub-contractors of the proper methods of fitting, use and general maintenance of the approved equipment and the conditions of this approval.

7.2- Watertightness and Gastightness: Survey report LDN-08-045 dated 09-05-2008 from DNV :

- Tested watertightness (before fire exposure) with additional seal of Sleeve-it Intumescent Acrylic sealant (See end of §1) : 1 bar during 30 min.
- Tested gastightness (before fire exposure) with additional seal of Sleeve-it Intumescent Acrylic sealant (See end of §1) : 30 mbar during 30 min.

7.3- Watertightness and Gastightness: Survey report N°SOU 0901586/1 dated 08 January 2010 from LR :

- Tested watertightness (before fire exposure) with additional seal of Sleeve-it EPDM rubber seal (See end of §1) : 3.5 bar during 30 min.
- Tested gastightness (before fire exposure) with additional seal of Sleeve-it EPDM rubber seal (See end of §1) : 1 bar during 30 min.

7.4- This certificate supersedes the EC-type examination certificate N° 46204/A0 BV previously issued by the Society.

***** END OF CERTIFICATE *****