EC type-examination certificate (Module B)

192130009/AA/06

Item and designation: MED/3.26b

USCG Category No.: 164.138

CERTIFICATE

Issued	01 November 2024	**Date of expiration of validity**	31 October 2029
Page	1 of 50 This certificate has FOUR Annexes	**Last date of placement**	31 October 2029

In compliance with the procedure specified in the **Marine Equipment Scheme** RD_040, Kiwa Nederland B.V. declares as designated Notified Body 0063 for the Marine Equipment Directive, that the stated product complies with Directive 2014/90/EU and Implementing Regulation (EU) 2024/1975, based on the applicable international instruments and test standards as listed in Annex 2 of this certificate.

Product description:	**NOFIRNO sealing system**
Trademark:	**NOFIRNO**
Type designation:	**NOFIRNO**
Variants:	**See Annex 3**
Manufacturer:	**BEELE ENGINEERING**
Address:	**Beunkdijk 11**
City:	**7122 NZ AALTEN**
Country:	**Netherlands**

0063

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Chamber of commerce
08090048

PRODUCTS
RvA C 002

General conditions

- This EC type-examination certificate is limited to the Marine Equipment Directive.
- Each product to which this certificate relates shall be provided with The Mark of Conformity. The Mark of Conformity consists of symbol in the form of a wheel followed by the identification number of the responsible Notified Body for Module D, E, F or G, and by the last two digits of the number of the year in which the mark is affixed.
  The Mark of Conformity may only be affixed to the type approved product and a Manufacturer's Declaration of Conformity issued when the production-control phase module (D, E, or F) of the Directive is fully complied with and controlled by a written inspection agreement with a notified body.
- The holder of this certificate has drawn up a Declaration of Conformity to type with Directive 2014/90/EU and Implementing Regulations, declaring that the product(s) described in this EC type-examination certificate, satisfy the requirements that apply to them.
- The validity of this EC type-examination certificate is limited to products, which are equal to the one(s) assessed for this EC type-examination.
- Each product shall be identified by means of type, batch and/or serial numbers and the name of the manufacturer and/or importer.
- If the equipment is to be modified, Kiwa shall be notified immediately. Depending on the modifications, Kiwa may have additional examinations carried out in consultation with the applicant.
- Enforcement of a new amending directive or new Implementing Regulation may void the validity of this EC type-examination certificate regarding (re)placement of the product onboard ships.

Remarks and observations

The following conditions are applicable:

1. FIELDS OF APPLICATION

Penetrations through "A" Class divisions - pipe penetrations

The fields of application for the penetrations using the sealing systems included in this certificate are specified here.
In a separate annex the detailed drawings are presented.

The “A” class divisions (bulkheads and decks) are typically constructed of steel.
For the design of heat resistant constructions of non-insulated A-0 Class steel decks it is recommended to consult EN 1993-1-2 *"Eurocode 3 Design of steel structures - Part 1-2: General rules - Structural fire design"*.
“A” class divisions constructed of aluminium alloy are only permitted when properly insulated to protect for heat.
To comply with IMO Res.MSC.307(88)-(2010 FTP Code), the average temperature of the structural core shall not rise more than 200°C above its initial temperature at any time during minimum 60 minutes test duration.
Referring to EN 1999-1-2 “Eurocode 9 - Design of aluminium structures - Part 1-2”, the strength and stiffness of aluminium alloys severely decrease at temperatures above 150 °C.
It is therefore strongly recommended that aluminium divisions do not exceed a core temperature of 150°C in any location.
For fire from either side insulation is to be applied on both sides of aluminium divisions.

The type of pipes included in this certificate are:
• Steel: carbon steel grades for pipes
• SS: stainless steel grades for pipes
• CuNi: copper nickel alloys for pipes
• Copper: copper alloys for pipes
• GRP: glass fiber reinforced plastic grades for pipes based on thermoset resins including epoxy (GRE), vinyl ester (GRVE), polyester, isophthalic polyester and phenolic resins
• Plastic pipes: thermoplastic pipes (PE, PP, PVC-U, ABS, SAN/PVC-U, PVC-C)
• Insulated steel and copper pipes: pipes encased within AF/Armaflex foam insulation
• Insulated beverage lines (generally known as 'Python' lines), consisting of bundles of plastic tubes encased within foam

insulation with outside tape layer (PVC or fiberglass with aluminium foil)
• Sheathed tubes and tube bundles: SS/CuNi tubes with TPE-O thermoplastic elastomer (type PE HM2) outer sheathing

NOFIRNO sealing system
The sealing system consists of a combination of NOFIRNO filler sleeves and NOFIRNO sealant.
The aperture(s) inside the conduit sleeve(s) (or conduit frame(s)) between the penetrating pipe(s) and the inner surface of the conduit sleeve(s) is/are filled with NOFIRNO filler sleeves (40 mm shorter than the length of the conduit sleeve(s), leaving a space of 20 mm on each side). The remaining space in the conduit opening(s) on each side of the bulkhead is sealed with a layer of 20 mm NOFIRNO sealant

NOFIRNO/CRUSHER sealing system
For plastic pipes: the sealing system consists of a combination of one RISE/ULTRA CRUSHER sleeve or RISE/ULTRA CRUSHER wrapped sheets and NOFIRNO sealant: the RISE/ULTRA sleeve or wrapped sheets are installed around the pipe in the center of the
conduit frame, leaving a space of 20 mm on each side. The remaining space in the conduit opening on each side of the deck is sealed with a layer of 20 mm NOFIRNO sealant.
For insulated steel and copper pipes: the sealing system consists of a combination of RISE/ULTRA CRUSHER wrapped sheets, NOFIRNO filler sleeves and NOFIRNO sealant: the RISE/ULTRA wrapped sheets are installed around the Armaflex insulation on the pipe
in the center of the conduit, leaving a space of 20 mm on each side. The remaining aperture inside the conduit sleeve is then filled with NOFIRNO filler sleeves (40 mm shorter than the length of the conduit sleeve, leaving a space of 20 mm on each side). The remaining space in the conduit opening on each side of the bulkhead is sealed with a layer of 20 mm NOFIRNO sealant.

A-60 Class Steel / SS / CuNi / GRP pipe penetrations through bulkheads - NOFIRNO sealing system - Drawings NFN130E-Rev.2 (02-04-2020) and NFN156E-Rev.2 (26-10-2024)
• Penetration range:
Circular conduit sleeves minimum NPS 1¼" / DN 32 / OD 42,4 mm / ID 37,2 mm, maximum NPS 20" / DN 500 / OD 508 mm / ID 489 mm
• Conduit sleeve position symmetrical in the bulkhead or non-symmetrical with the longest length on the insulated side of the bulkhead
• Conduit sleeves length minimum 200 mm, conduit sleeves welded in or bolted to the bulkhead
• Bulkhead and conduit sleeve insulated with approved A-60 Class insulation on one side of the bulkhead
• Pipe(s) insulated with approved A-60 Class insulation (NFN130E-Rev.2),
or alternatively with FYLLOFYS* (NFN156E-Rev.2) on the insulated side of the bulkhead
FYLLOFYS* is coated with FISSIC** coating
• Type of pipes and dimensions:
Steel/SS/CuNi pipes - Minimum NPS 1/16” / OD 6 mm - Maximum NPS 16" / DN 400 / OD 408 mm;
GRP pipes – Minimum NPS 1” / OD 25 mm – Maximum NPS 16” / OD 408 mm

A-60 Class Steel / SS / CuNi / GRP pipe penetrations through decks - NOFIRNO sealing system - Drawings NFN131E-Rev.2 (02-04-2020) and NFN157E-Rev.2 (26-10-2024)
• Penetration range:
Circular conduit sleeves minimum NPS 1¼" / DN 32 / OD 42,4 mm / ID 37,2 mm, maximum NPS 20" / DN 500 / OD 508 mm / ID 489 mm
• Conduit sleeve position totally below deck up to fully above deck
• Conduit sleeves length minimum 200 mm, conduit sleeves welded in or bolted to the deck
• Deck insulated with approved A-60 Class insulation below deck
• Conduit sleeve insulated with approved A-60 Class insulation below deck
• Pipe(s) insulated with approved A-60 Class (NFN131E-Rev.2), or alternatively with FYLLOFYS* (NFN157E-Rev.2) below deck
FYLLOFYS* is coated with FISSIC** coating
• Type of pipes and dimensions:
Steel/SS/CuNi pipes - Minimum NPS 1/16” / OD 6 mm - Maximum NPS 16" / DN 400 / OD 408 mm;

GRP pipes – Minimum NPS 1” / OD 25 mm – Maximum NPS 16” / OD 408 mm

A-0 Class Steel / SS / CuNi / GRP pipe penetrations through bulkheads - NOFIRNO sealing system - Drawing NFN132E-Rev.2 (02-04-2020)

- Penetration range:
  Circular conduit sleeves minimum NPS 1¼" / DN 32 / OD 42,4 mm / ID 37,2 mm, maximum NPS 20" / DN 500 / OD 508 mm / ID 489 mm
- Conduit sleeve position symmetrical in the bulkhead, or in case of fire possible from only one side non-symmetrical with the longest length on the non-fire side of the bulkhead
- Conduit sleeves length minimum 250 mm, conduit sleeves welded in the bulkhead
- Bulkhead, conduit sleeve and pipe(s) non-insulated
- Type of pipes and dimensions:
  Steel/SS/CuNi pipes - Minimum NPS 1/16” / OD 6 mm - Maximum NPS 16" / DN 400 / OD 408 mm
  GRP pipes – Minimum NPS 1” / OD 25 mm – Maximum NPS 16” / OD 408 mm

A-0 Class Steel / SS / CuNi / GRP pipe penetrations through decks - NOFIRNO sealing system - Drawing NFN133E-Rev.2 (02-04-2020)

- Penetration range:
  Circular conduit sleeves minimum NPS 1¼" / DN 32 / OD 42,4 mm / ID 37,2 mm, maximum NPS 20" / DN 500 / OD 508 mm / ID 489 mm
- Conduit sleeve position symmetrical in the deck, or in case fire possible from only one side non-symmetrical with the longest length on the non-fire side of the deck
- Conduit sleeves length minimum 250 mm, conduit sleeves welded in the deck
- Deck, conduit sleeve and pipe(s) non-insulated
- Type of pipes and dimensions:
  Steel/SS/CuNi pipes - Minimum NPS 1/16” / OD 6 mm - Maximum NPS 16" / DN 400 / OD 408 mm
  GRP pipes – Minimum NPS 1” / OD 25 mm – Maximum NPS 16” / OD 408 mm

A-0 Class Multi Steel / SS / CuNi pipe penetrations through bulkheads - NOFIRNO sealing system - Drawing NFN134/1E-Rev.1 (02-04-2020)

- Penetration range:
  Conduit frames or circular conduit sleeves:
  the minimum ID (inner dimensions) shall provide the minimum allowed clearances between the pipes and between the pipes and conduit frame or conduit sleeve as indicated in the drawing;
  Conduit frames: maximum conduit frame OD 600 x 300 mm (w x h) or conduit frame with equivalent outer surface area of maximum 1800 cm² with width/height ratio between 0,5 and 2; minimum wall thickness 6 mm
  Circular conduit sleeves: minimum NPS 1¼" / DN 32 / OD 42,4 mm / ID 37,2 mm, maximum NPS 20" / DN 500 / OD 508 mm / ID 489 mm
- Conduit sleeve position symmetrical in the bulkhead, or in case of fire possible from only one side non-symmetrical with the longest length on the non-fire side of the bulkhead
- Conduit sleeves length minimum 250 mm, conduit sleeves welded in the bulkhead
- Bulkhead, conduit sleeve and pipe(s) non-insulated
- Type of pipes and dimensions:
  Steel/SS/CuNi pipes - Minimum NPS 1/16” / OD 6 mm - Maximum NPS 8" / DN 200 / OD 219,1 mm
- Multi pipes may be used in any number and in any combination within the allowed conduit frames, provided that the minimum clearances between the pipes and between the pipes and conduit frame are applied as indicated.

A-0 Class Multi Steel / SS / CuNi pipe penetrations through decks - NOFIRNO sealing system - Drawing NFN134/2E (08-04-2020)

- Penetration range:
  Conduit frames or circular conduit sleeves:
  the minimum ID (inner dimensions) shall provide the minimum allowed clearances between the pipes and between the pipes and conduit frame or conduit sleeve as indicated in the drawing;
  Conduit frames: maximum conduit frame OD 600 x 300 mm (l x w) or conduit frame with equivalent outer surface area of maximum 1800 cm² with length/width ratio between 0,5 and 2; minimum wall thickness 6 mm

- Circular conduit sleeves: minimum NPS 1¼" / DN 32 / OD 42,4 mm / ID 37,2 mm, maximum NPS 20" / DN 500 / OD 508 mm / ID 489 mm
- Conduit sleeve position symmetrical in the deck, or in case of fire possible from only one side non-symmetrical with the longest length on the non-fire side of the deck
- Conduit sleeves length minimum 250 mm, conduit sleeves welded in the deck
- Deck, conduit sleeve and pipe(s) non-insulated
- Type of pipes and dimensions:
  Steel/SS/CuNi pipes - Minimum NPS 1/16" / OD 6 mm - Maximum NPS 8" / DN 200 / OD 219,1 mm
- Multi pipes may be used in any number and in any combination within the allowed conduit frames, provided that the minimum clearances between the pipes and between the pipes and conduit frame are applied as indicated.

A-60 Class copper pipe penetrations through bulkheads - NOFIRNO sealing system - Drawing NFN160E-Rev.2 (15-10-2020)

- Penetration range:
  Circular conduit sleeves minimum NPS 1¼" / DN 32 / OD 42,4 mm / ID 37,2 mm, maximum NPS 6" / DN 150 / OD 168,3 mm / ID 159,3 mm
- Conduit sleeve position symmetrical in the bulkhead or non-symmetrical with the longest length on the insulated side of the bulkhead
- Conduit sleeves length minimum 200 mm, conduit sleeves welded in or bolted to the bulkhead
- Bulkhead insulated with approved A-60 Class insulation on one side of the bulkhead
- Conduit sleeve and pipe(s) insulated with approved A-60 Class insulation on the insulated side of the bulkhead***
- Type of pipes and dimensions:
  Copper pipes - Minimum NPS 1/16" / OD 6 mm - Maximum NPS 4" / OD 108 mm

A-60 Class copper pipe penetrations through decks - NOFIRNO sealing system - Drawing NFN161E-Rev.2 (15-10-2020)

- Penetration range:
  Circular conduit sleeves minimum NPS 1¼" / DN 32 / OD 42,4 mm / ID 37,2 mm, maximum NPS 6" / DN 150 / OD 168,3 mm / ID 159,3 mm
- Conduit sleeve position totally below deck up to fully above deck
- Conduit sleeves length minimum 200 mm, conduit sleeves welded in or bolted to the deck
- Deck insulated with approved A-60 Class insulation below deck
- Conduit sleeve and pipe(s) insulated with approved A-60 Class insulation below deck***
- Type of pipes and dimensions:
  Copper pipes - Minimum NPS 1/16" / OD 6 mm - Maximum NPS 4" / OD 108 mm

A-0 Class copper pipe penetrations through bulkheads - NOFIRNO sealing system - Drawing NFN162E-Rev.1 (09-10-2020)

- Penetration range:
  Circular conduit sleeves minimum NPS 1¼" / DN 32 / OD 42,4 mm / ID 37,2 mm, maximum NPS 6" / DN 150 / OD 168,3 mm / ID 159,3 mm
- Conduit sleeve position symmetrical in the bulkhead, or in case of fire possible from only one side non-symmetrical with the longest length on the non-fire side of the bulkhead
- Conduit sleeves length minimum 250 mm, conduit sleeves welded in the bulkhead
- Bulkhead, conduit sleeve and pipe non-insulated
- Type of pipes and dimensions:
  Copper pipes - Minimum NPS 1/16" / OD 6 mm - Maximum NPS 4" / OD 108 mm

A-0 Class copper pipe penetrations through decks - NOFIRNO sealing system - Drawing NFN163E-Rev.1 (09-10-2020)

- Penetration range:
  Circular conduit sleeves minimum NPS 1¼" / DN 32 / OD 42,4 mm / ID 37,2 mm, maximum NPS 6" / DN 150 / OD 168,3 mm / ID 159,3 mm
- Conduit sleeve position symmetrical in the deck, or in case of fire possible from only one side non-symmetrical with the longest length on the non-fire side of the deck
- Conduit sleeves length minimum 250 mm, conduit sleeves welded in the deck
- Deck, conduit sleeve and pipe non-insulated
- Type of pipes and dimensions:

Copper pipes - Minimum NPS 1/16” / OD 6 mm - Maximum NPS 4” / OD 108 mm

A-60 Class Multi Steel / SS / CuNi / Copper / GRP pipe penetrations through bulkheads - NOFIRNO sealing system - Drawings NFN134E-Rev.3 (26-10-2024) and NFN158E-Rev.2 (26-10-2024)

- Penetration range:
  Conduit frames:
  the minimum ID (inner dimensions) shall provide the minimum allowed clearances between the pipes and between the pipes and conduit frame as indicated in the drawing;
  maximum conduit frame OD 600 x 300 mm (w x h) or conduit frame with equivalent outer surface area of maximum 1800 cm² with width/height ratio between 0,5 and 2; minimum wall thickness 6 mm;
  alternatively, conduit frames with minimum 4 mm wall thickness up till maximum OD 450 x 170 mm (w x h) or equivalent outer surface area of maximum 765 cm² may be used
- Conduit frame position symmetrical in the bulkhead or non-symmetrical with the longest length on the insulated side of the bulkhead
- Conduit frames length minimum 200 mm, conduit sleeves welded in or bolted to the bulkhead
- Bulkhead insulated with approved A-60 Class insulation on one side of the bulkhead
- Conduit frame insulated with approved A-60 Class insulation on the insulated side of the bulkhead
- Pipes insulated with approved A-60 Class insulation (NFN134E-Rev.3) or alternatively with FYLLOFYS* (NFN158E-Rev.2) on the insulated side of the bulkhead
  FYLLOFYS* is coated with FISSIC** coating
- Type of pipes and dimensions:
  Steel/SS/CuNi pipes - Minimum NPS 1/16” / OD 6 mm - Maximum NPS 6" / DN 150 / OD 168,3 mm / ID 159,3
  Copper pipes – Minimum OD 6 mm - Maximum OD 108 mm
  GRP pipes – Minimum NPS 1” / OD 25 mm – Maximum NPS 6” / OD 150 mm
- Multi pipes may be used in any number and in any combination within the allowed conduit frames, provided that the minimum clearances between the pipes and between the pipes and conduit frame are applied as indicated.

A-60 Class Multi Steel / SS/ CuNi / Copper / GRP pipe penetrations through decks - NOFIRNO sealing system - Drawings NFN135E-Rev.3 (26-10-2024) and NFN159E-Rev.3 (26-10-2024)

- Penetration range:
  Conduit frames:
  the minimum ID (inner dimensions) shall provide the minimum allowed clearances between the pipes and between the pipes and conduit frame as indicated in the drawing;
  maximum conduit frame OD 300 x 1000 mm (w x l) or conduit frame with equivalent outer surface area of maximum 1800 cm² with width/length ratio between 0,5 and 2; minimum wall thickness 6 mm;
  alternatively, conduit frames with minimum 4 mm wall thickness up till maximum OD 450 x 170 mm (l x w) or equivalent outer surface area of maximum 765 cm² may be used
- Conduit frame position totally below deck up to fully above deck
- Conduit frames length minimum 200 mm, conduit sleeves welded in or bolted to the deck
- Deck insulated with approved A-60 Class insulation below deck
- Conduit frame and pipes insulated with approved A-60 Class insulation below deck
- Pipes insulated with approved A-60 Class insulation (NFN135E-Rev.3) or alternatively with FYLLOFYS* (NFN159E-Rev.3)) below deck
  FYLLOFYS* is coated with FISSIC** coating
- Type of pipes and dimensions:
  Steel/SS/CuNi pipes - Minimum NPS 1/16” / OD 6 mm - Maximum NPS 6" / DN 150 / OD 168,3 mm / ID 159,3 mm
  Copper pipes – Minimum OD 6 mm - Maximum OD 108 mm
  GRP pipes – Minimum NPS 1” / OD 25 mm – Maximum NPS 6” / OD 150 mm
- Multi pipes may be used in any number and in any combination within the allowed conduit frames, provided that the minimum clearances between the pipes and between the pipes and conduit frame are applied as indicated.

A-60 Class Multi-mix Steel / SS / CuNi / Copper / GRP / Plastic pipe and cable penetrations through bulkheads – NOFIRNO and NOFIRNO/CRUSHER sealing system - Drawing NFN136E-Rev.3 (26-10-2024)

- Penetration range:
  Conduit frames:

the minimum ID (inner dimensions) shall provide the minimum allowed clearances between the pipes and between the pipes and conduit frame as indicated in the drawing;
maximum conduit frame OD 300 x 1000 mm (w x h) or conduit frame with equivalent outer surface area of maximum 3000 cm² with width/height ratio between 0,3 and 3,3; minimum wall thickness 6 mm;
alternatively, conduit frames with minimum 4 mm wall thickness up till maximum OD 170 x 450 mm (w x h) or equivalent outer surface area of maximum 765 cm² may be used

- Conduit frame position symmetrical in the bulkhead or non-symmetrical with the longest length at the insulated side of the bulkhead
- Conduit frames length minimum 200 mm, conduit sleeves welded in or bolted to the bulkhead
- Bulkhead insulated with approved A-60 Class insulation on one side of the bulkhead
- Conduit frame and pipes (except plastic pipes and cables) insulated with approved A-60 Class insulation at the insulated side of the bulkhead
- Type of pipes and dimensions:
  Steel/SS/CuNi pipes - Minimum NPS 1/16” / OD 6 mm - Maximum NPS 6" / DN 150 / OD 168,3 mm / ID 159,3
  Copper pipes – Minimum OD 6 mm - Maximum OD 108 mm
  GRP pipes – Minimum NPS 1” / OD 25 mm – Maximum NPS 6” / OD 150 mm
  Thermoplastic pipes (PE, PP, PVC-U, ABS, SAN/PVC-U, PVC-C) – Minimum OD 16 mm – Maximum OD 125 mm
  Cables – maximum OD 105 mm
- Multi pipes may be used in any number and in any combination within the allowed conduit frames, provided that the minimum clearances between the pipes and between the pipes and conduit frame are applied as indicated. The multi-mix pipe penetrations may be used for additional transits of cables.

A-60 Class Multi-mix Steel / SS / CuNi / Copper / GRP / Plastic pipe and cable penetrations through decks - NOFIRNO sealing system - Drawing NFN137E-Rev.3 (26-10-2024)

- Penetration range:
  Conduit frames:
  the minimum ID (inner dimensions) shall provide the minimum allowed clearances between the pipes and between the pipes and conduit frame as indicated in the drawing
  maximum conduit frame OD 300 x 1000 mm (w x l) or conduit frame with equivalent outer surface area of maximum 3000 cm² with width/length ratio between 0,3 and 3,3; minimum wall thickness 6 mm;
  alternatively, conduit frames with minimum 4 mm wall thickness up till maximum OD 170 x 450 mm (w x l) or equivalent outer surface area of maximum 765 cm² may be used
- Conduit frame position totally below deck up to fully above deck
- Conduit frames length minimum 200 mm, conduit sleeves welded in or bolted to the deck
- Deck insulated with approved A-60 Class insulation below deck
- Conduit frame and pipes (except plastic pipes and cables) insulated with approved A-60 Class insulation below deck
- Type of pipes and dimensions:
  Steel/SS/CuNi pipes - Minimum NPS 1/16” / OD 6 mm - Maximum NPS 6" / DN 150 / OD 168,3 mm / ID 159,3 mm
  Copper pipes – Minimum OD 6 mm - Maximum OD 108 mm
  GRP pipes – Minimum NPS 1” / OD 25 mm – Maximum NPS 6” / OD 150 mm
  Thermoplastic pipes (PE, PP, PVC-U, ABS, SAN/PVC-U, PVC-C) – Minimum OD 16 mm – Maximum OD 125 mm
  Cables – maximum OD 105 mm
- Multi pipes may be used in any number and in any combination within the allowed conduit frames, provided that the minimum clearances between the pipes and between the pipes and conduit frame are applied as indicated.
  The multi-mix pipe penetrations may be used for additional transits of cables.

A-60 Class Blind penetrations through bulkheads - NOFIRNO sealing system - Drawing NFN138E-Rev.3 (15-10-2020)

- Penetration range:
  maximum conduit frame OD 600 x 300 mm (w x h) or conduit frame with equivalent outer surface area of maximum 1800 cm² with width/height ratio between 0,5 and 2, divided in
  sections of maximum OD 300 x 150 mm (w x h) (or equivalent of 450 cm²); minimum 5 mm wall thickness;
  alternatively, conduit frames with minimum 4 mm wall thickness up till maximum OD 450 x 170 mm (w x h) or equivalent outer surface area of maximum 765 cm² may be used;
- Conduit frame position symmetrical in the bulkhead or non-symmetrical with the longest length on the insulated side of the bulkhead
- Conduit frame length minimum 200 mm, conduit frames welded in or bolted to the bulkhead
- Bulkhead and conduit frame insulated with approved A-60 Class insulation on one side of the bulkhead

A-60 Class Blind penetrations through decks - NOFIRNO sealing system - Drawing NFN139E-Rev.3 (15-10-2020)

- Penetration range:
  maximum conduit frame OD 600 x 300 mm ((l x w) or conduit frame with equivalent outer surface area of maximum 1800 cm² with length/width ratio between 0,5 and 2, divided in sections of maximum OD 300 x 150 mm (l x w) (or equivalent of 450 cm²); minimum 5 mm wall thickness; alternatively, conduit frames with minimum 4 mm wall thickness up till maximum OD 450 x 170 mm (l x w) or equivalent outer surface area of maximum 765 cm² may be used
- Conduit frame position symmetric in the deck up to fully above deck
- Conduit frame length minimum 200 mm, conduit frames welded in or bolted to the deck
- Deck and conduit frame insulated with approved A-60 Class insulation below deck

A-60 Class Plastic pipe penetrations through bulkheads - NOFIRNO/CRUSHER sealing system - Drawing NFN144E-Rev.2 (02-04-2020)

- Penetration range:
  Circular conduit sleeves minimum NPS 1,25" / DN 32 / OD 42,4 mm / ID 37,2 mm, maximum NPS 8" / DN 200 / OD 219,1 mm / ID 206,5 mm
- Conduit sleeve position symmetrical in the bulkhead or non-symmetrical with the longest length on the insulated side of the bulkhead
- Conduit sleeves length minimum 180 mm for pipes up to OD 139 mm and minimum 200 mm for pipes OD 140 – 160 mm, conduit sleeves welded in or bolted to the bulkhead
- Bulkhead and conduit sleeve insulated with approved A-60 Class insulation on one side of the bulkhead
- Type of pipes and dimensions:
  Thermoplastic pipes (PE, PP, PVC-U, ABS, SAN/PVC-U, PVC-C) - OD range 16 - 160 mm

A-60 Class Plastic pipe penetrations through decks - NOFIRNO/CRUSHER sealing system - Drawing NFN145E-Rev.2 (02-04-2020)

- Penetration range:
  Circular conduit sleeves minimum NPS 1,25" / DN 32 / OD 42,4 mm / ID 37,2 mm, maximum NPS 8" / DN 200 / OD 219,1 mm / ID 206,5 mm
- Conduit sleeve position totally below deck up to fully above deck
- Conduit sleeves length minimum 180 mm for pipes up to OD 139 mm and minimum 200 mm for pipes OD 140 – 160 mm, conduit sleeves welded in or bolted to the deck
- Deck and conduit sleeve insulated with approved A-60 Class insulation below deck
- Type of pipes and dimensions: Thermoplastic pipes (PE, PP, PVC-U, ABS, SAN/PVC-U, PVC-C) - OD range 16 - 160 mm

A-60 Class penetrations of single and multi insulated beverage lines through bulkheads – NOFIRNO/CRUSHER sealing system – Drawing NFN164E (01-09-2020)

- Penetration range:
  Conduit frames:
  the minimum ID (inner dimensions) shall provide the minimum allowed clearances between the pipes and between the pipes and conduit frame or conduit sleeve as indicated in the drawing;
  Conduit frames: maximum conduit frame OD 400 x 255 mm ((l x w) or conduit frame with equivalent outer surface area of maximum 1020 cm² with length/width ratio between 0,6 and 1,6; minimum 5 mm wall thickness
- Conduit frame position symmetrical in the bulkhead or non-symmetrical with the longest length on the insulated side of the bulkhead
- Conduit frame length minimum 250 mm, conduit frame welded in or bolted to the bulkhead
- Bulkhead and conduit frame insulated with approved A-60 Class insulation on one side of the bulkhead
- Type of pipes and dimensions:
  Insulated beverage lines ('Python') - Maximum OD 94 mm

A-60 Class penetrations of single and multi insulated beverage lines through decks – NOFIRNO/CRUSHER sealing system – Drawing NFN165E (01-09-2020)

- Penetration range:
  Conduit frames:
  the minimum ID (inner dimensions) shall provide the minimum allowed clearances between the pipes and between the pipes and conduit frame or conduit sleeve as indicated in the drawing;

Conduit frames: maximum conduit frame OD 400 x 255 mm ((l x w) or conduit frame with equivalent outer surface area of maximum 1020 cm² with length/width ratio between 0,6 and 1,6; minimum 5 mm wall thickness
- Conduit frame position symmetrical in the deck up to totally above deck
- Conduit frame length minimum 250 mm, conduit frame welded in or bolted to the bulkhead
- Bulkhead and conduit frame insulated with approved A-60 Class insulation on one side of the bulkhead
- Type of pipes and dimensions:
  Insulated beverage lines ('Python') - Maximum OD 94 mm

A-60 Class penetrations of sheathed metal tubes and tube bundles through bulkheads - NOFIRNO sealing system - Drawing NFN180E (15-02-2021)
- Penetration range:
  Conduit frames:
  Circular conduit sleeves minimum OD 48,5 mm, wall thickness 5 mm
  Conduit sleeves with rounded corners OD 350 x 168 mm (l x w), radius 72 mm, wall thickness 4 mm
- Conduit sleeve position symmetrical in the bulkhead or non-symmetrical with the longest length on the insulated side of the bulkhead
- Conduit sleeves length minimum 200 mm, conduit sleeves welded in the bulkhead
- Bulkhead and conduit sleeve insulated with approved A-60 Class insulation on one side of the bulkhead
- Type of sheathed metal tubes and tube bundles and dimensions:
  Single SS/CuNi tubes 1 x (8 x 0,5) mm, OD 10 mm, with TPE-O thermoplastic elastomer (type PE HM2) outer sheathing
  SS/CuNi tube bundles 2 x (8 x 0,5) mm, OD 22 mm, with filler jacket and TPE-O thermoplastic elastomer (type PE HM2) outer sheathing
  Sheathing halogen free, flammability category A/F according to IEC 60 332-3-22
- Cicular conduit sleeves for one single tube or one tube bundle
  Conduit sleeves with rounded corners for multi tubes and/or tube bundles,
  minimum clearance between tubes and tube bundles 6 mm,
  minimum clearance between tubes/tube bundles and conduit sleeve 3 mm

A-60 Class penetrations of sheathed metal tubes and tube bundles through decks - NOFIRNO sealing system - Drawing NFN181E (15-02-2021)
- Penetration range:
  Conduit frames:
  Circular conduit sleeves minimum OD 48,5 mm, wall thickness 5 mm
  Conduit sleeves with rounded corners OD 350 x 168 mm (l x w), radius 72 mm, wall thickness 4 mm
- Conduit sleeve position symmetrical in the deck or non-symmetrical with the longest length above deck
- Conduit sleeves length minimum 200 mm, conduit sleeves welded in the deck
- Deck and conduit sleeve insulated with approved A-60 Class insulation below deck
- Type of sheathed metal tubes and tube bundles and dimensions:
  Single SS/CuNi tubes 1 x (8 x 0,5) mm, OD 10 mm, with TPE-O thermoplastic elastomer (type PE HM2) outer sheathing
  SS/CuNi tube bundles 2 x (8 x 0,5) mm, OD 22 mm, with filler jacket and TPE-O thermoplastic elastomer (type PE HM2) outer sheathing
  Sheathing halogen free, flammability category A/F according to IEC 60 332-3-22
- Cicular conduit sleeves for one single tube or one tube bundle
  Conduit sleeves with rounded corners for multi tubes and/or tube bundles,
  minimum clearance between tubes and tube bundles 6 mm,
  minimum clearance between tubes/tube bundles and conduit sleeve 3 mm

A-0 Class penetrations of sheathed metal tubes and tube bundles through bulkheads - NOFIRNO sealing system - Drawing NFN192E (29-04-2021)
- Penetration range:
  Conduit frames:
  Circular conduit sleeves minimum OD 48,5 mm, wall thickness 5 mm
  Conduit sleeves with rounded corners OD 350 x 168 mm (l x w), radius 72 mm, wall thickness 4 mm
- Conduit sleeve position symmetrical in the bulkhead, or in case of fire possible from only one side non-symmetrical with the longest length on the non-fire side of the bulkhead
- Conduit sleeves length minimum 250 mm, conduit sleeves welded in the bulkhead
- Bulkhead and conduit sleeve non-insulated
- Type of sheathed metal tubes and tube bundles and dimensions:

Single SS/CuNi tubes 1 x (8 x 0,5) mm, OD 10 mm, with TPE-O thermoplastic elastomer (type PE HM2) outer sheathing
SS/CuNi tube bundles 2 x (8 x 0,5) mm, OD 22 mm, with filler jacket and TPE-O thermoplastic elastomer (type PE HM2) outer sheathing
Sheathing halogen free, flammability category A/F according to IEC 60 332-3-22
• Cicular conduit sleeves for one single tube or one tube bundle
Conduit sleeves with rounded corners for multi tubes and/or tube bundles,
minimum clearance between tubes and tube bundles 6 mm,
minimum clearance between tubes/tube bundles and conduit sleeve 3 mm

A-0 Class penetrations of sheathed metal tubes and tube bundles through decks - NOFIRNO sealing system - Drawing NFN193E (29-04-2021)

• Penetration range:
Conduit frames:
Circular conduit sleeves minimum OD 48,5 mm, wall thickness 5 mm
Conduit sleeves with rounded corners OD 350 x 168 mm (l x w), radius 72 mm, wall thickness 4 mm
• Conduit sleeve position symmetrical in the deck, or in case fire possible from only one side non-symmetrical with the longest length on the non-fire side of the deck
• Conduit sleeves length minimum 250 mm, conduit sleeves welded in the deck
• Deck and conduit sleeve non-insulated
• Type of sheathed metal tubes and tube bundles and dimensions:
Single SS/CuNi tubes 1 x (8 x 0,5) mm, OD 10 mm, with TPE-O thermoplastic elastomer (type PE HM2) outer sheathing
SS/CuNi tube bundles 2 x (8 x 0,5) mm, OD 22 mm, with filler jacket and TPE-O thermoplastic elastomer (type PE HM2) outer sheathing
Sheathing halogen free, flammability category A/F according to IEC 60 332-3-22
• Cicular conduit sleeves for one single tube or one tube bundle
Conduit sleeves with rounded corners for multi tubes and/or tube bundles,
minimum clearance between tubes and tube bundles 6 mm,
minimum clearance between tubes/tube bundles and conduit sleeve 3 mm

A-60 Class penetrations for multi-layer PE/ALU/PE pipes through bulkheads - NOFIRNO sealing system - Drawing NFN 234E (22-03-2023)

• Penetration range:
Circular conduit sleeves maximum NPS 4" / DN 100 / OD 114,3 mm / ID 107,1 mm.

• Conduit sleeve position symmetrical in the bulkhead or non-symmetrical with the longest length on the insulated side of the bulkhead
• Conduit sleeves length minimum 200 mm, conduit sleeves welded or bolted in the bulkhead (see detail A of NFN 125E for more information on bolted conduit sleeves).
• Bulkhead and conduit sleeve insulated with approved A-60 Class insulation on one side of the bulkhead
• Type of multi-layers pipes: Multi-layer pipes based on PE/ALU/PE with a max. OD of 40 mm. The aluminum layer should be at least 0,44 mm thick.

A-60 Class penetrations for multi-layer PE/ALU/PE pipes through decks - NOFIRNO sealing system - Drawing NFN 235E (22-03-2023)

• Penetration range:
Circular conduit sleeves maximum NPS 4" / DN 100 / OD 114,3 mm / ID 107,1 mm.

• Conduit sleeve position symmetrical in the bulkhead or non-symmetrical with the longest length on the insulated side of the bulkhead.
• Conduit sleeves length minimum 200 mm, conduit sleeves welded or bolted in the bulkhead (see detail A of NFN 125E for more information on bolted conduit sleeves).
• Deck and conduit sleeve insulated with approved A-60 Class insulation below deck.

• Type of multi-layers pipes: Multi-layer pipes based on PE/ALU/PE with a max. OD of 40 mm. The aluminum layer should be at least 0,44 mm thick.

*: FYLLOFYS, Kiwa Telefication, NoBo No 0560, MED-B certificate 192130007/AA/00
**: FISSIC coating, Kiwa (ex- Telefication, NoBo No 0560), MED-B certificate 222130003/AA/00
***: guideline for insulation of copper pipes: minimum thickness / density: 75 mm / 128 kg/m3 or other combination providing at least equal thermal insulation.

Consult technical information of approved A-60 Class insulation. Consult the installation manual of the manufacturer.

Notes:
OD: Outer Diameter / Outer Dimensions
ID: Inner diameter / Inner Dimensions
NPS: Nominal Pipe Size
DN: Nomimal Diameter

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

A U.S. Coast Guard approval number will be assigned to the equipment when the production module has been completed and will appear on the production module certificate (module D, E or F) as allowed by the "Agreement between the European Community and United States of America on Mutual Recognition of Certificates of Conformity for Marine Equipment" signed 27 February 2004 and the "Agreement between the United States and the EEA EFTA states on mutual recognition of certificates of conformity for marine equipment" signed 17 October 2005.

2. ADDITIONAL APPLICATION / INFORMATION
(Not part of the Marine Equipment requirements)

Watertightness / airtightness
The NOFIRNO sealing system is watertight and airtight for penetrations of all types of pipes included in this certificate, except for insulated steel and copper pipe and insulated beverage line penetrations.
The water- and airtightness has the following limitations.
The maximum allowed hydrostatic pressure depends on the dimensions of the conduit sleeve/frame in the bulkhead or deck, the number and dimensions of the ducted pipes and the thickness of the sealant layers.
The relation between allowed pressure P and shape factor S is: P = 5 / S
The shape factor is the ratio of the sealant surface facing the pressure and the total adhesion surface of the sealant.
Reference: Kiwa assessment report 20180315HN02, March 2018.

The NOFIRNO sealing system is airtight for all configurations at low pressure from 0 to 33 mbar.

Watertightness after fire
The NOFIRNO sealing system is acceptable for use in watertight subdivision bulkheads on passenger ships and SPS vessels in accordance with SOLAS Chapter II-1, Regulation 13.2.3 (2014) and IMO MSC/Circular 736, Part B, Regulation 15, Paragraph 2.1 with the following limitations.

A-0 Class Plastic pipe penetrations in accordance with drawing SOLAS 06-Rev.1 (22-10-2019)
The sealing system consists of a combination of one RISE/ULTRA CRUSHER sleeve with a length of 90 mm and the NOFIRNO sealing system: the RISE/ULTRA sleeve is installed around the pipe in the center of the conduit. On each side of the CRUSHER
sleeve the aperture inside the conduit sleeve between the penetrating pipe and the inner surface of the conduit sleeve is filled with
NOFIRNO filler sleeves with a length of 60 mm. The remaining space in the conduit opening on each side of the deck is sealed with a layer of 20 mm NOFIRNO sealant

- Penetration range:
  Circular conduit sleeves maximum NPS 4" / DN 100 / OD 114,3 mm / ID 107,1 mm
- Conduit sleeves length 250 mm, position symmetrical welded in the bulkhead
- Bulkhead not insulated with the exception of 200 mm approved A-60 Class insulation around the conduit sleeve on both sides of the bulkhead
- Conduit sleeve insulated with approved A-60 Class insulation on both sides of the bulkhead
- Type of pipes and dimensions:
  Thermoplastic pipes (PE, PP, PVC, ABS, SAN/PVC, CPVC) maximum OD 75 mm

A-0 Class Plastic pipe penetrations in accordance with drawing SOLAS 07-Rev.1 (22-10-2019)

The sealing system consists of a combination of NOFIRNO filler sleeves and NOFIRNO sealant.
The aperture inside the conduit frame between the penetrating pipes and the inner surface of the conduit frame is filled with NOFIRNO filler sleeves (40 mm shorter than the length of the conduit frame, leaving a space of 20 mm on each side).
The remaining space in the conduit opening on each side of the bulkhead is sealed with a layer of 20 mm NOFIRNO sealant.
A split steel casing with length 150 mm is bolted to the conduit sleeve on one side of the bulkhead. In this casing one RISE/ULTRA CRUSHER plug with a length of 150 mm is installed around the pipe.

- Penetration range:
  Circular conduit sleeves maximum NPS 6" / DN 150 / OD 168,3 mm / ID 159,3 mm
- Conduit sleeves length 250 mm, position symmetrical welded in the bulkhead
- Bulkhead not insulated with the exception of 200 mm approved A-60 Class insulation around the conduit sleeve on both sides of the bulkhead
- Conduit sleeve insulated with approved A-60 Class insulation on both sides of the bulkhead
- Type of pipes and dimensions:
  Thermoplastic pipes (PE, PP, PVC, ABS, SAN/PVC, CPVC) – maximum OD 110 mm

A-0 Class Steel / stainless steel / CuNi pipe penetrations in accordance with drawing SOLAS 08-Rev.2 (22-10-2019)

The sealing system consists of a combination of NOFIRNO filler sleeves and NOFIRNO sealant.
The aperture inside the conduit frame between the penetrating pipes and the inner surface of the conduit frame is filled with NOFIRNO filler sleeves (40 mm shorter than the length of the conduit frame, leaving a space of 20 mm on each side).
The remaining space in the conduit opening on each side of the bulkhead is sealed with a layer of 20 mm NOFIRNO sealant.

- Penetration range:
  Circular conduit sleeves minimum NPS 1,25” / DN 32 / OD 42,4 mm / ID 37,2 mm, maximum NPS 8" / DN 200 / OD 219,1 mm / ID 206,5 mm
- Conduit sleeves length 250 mm, position symmetrical welded in the bulkhead
- Bulkhead not insulated with the exception of 200 mm approved A-60 Class insulation around the conduit sleeve at both sides of the bulkhead
- Conduit sleeve and pipe insulated with approved A-60 Class insulation on both sides of the bulkhead
- Type of pipes and dimensions:
  Steel / stainless steel / CuNi pipes - Minimum NPS 1/16” / OD 5 mm - Maximum NPS 6" / DN 150 / OD 168,3 mm / ID 159,3 mm

A-0 Class Blind penetrations in accordance with drawing SOLAS 09-Rev.1 (22-10-2019)

The sealing system consists of a combination of NOFIRNO filler sleeves and NOFIRNO sealant.
The aperture inside the conduit sleeve is filled with NOFIRNO filler sleeves (40 mm shorter than the length of the conduit sleeve, leaving a space of 20 mm on each side). The remaining space in the conduit opening on each side of the bulkhead is sealed with a layer of 20 mm NOFIRNO sealant.

- Penetration range:
  Maximum conduit frame OD 300 x 600 mm (or equivalent of 1800 cm²) / ID 290 x 590 mm, divided in sections of maximum OD 300 x 150 mm (or equivalent of 450 cm²)
- Conduit frame length 180 mm, position symmetrical welded in the bulkhead
- Bulkhead and conduit frame insulated with approved A-60 Class insulation on both sides of the bulkhead

Documentation lodged for this EC type-examination certificate

Test Reports:

- Efectis: Fire resistance tests 2019-Efectis-R001406, 30 September 2019
- Efectis: Fire resistance tests 2016-Efectis-R000934, 30 April 2017
- Efectis: Fire resistance tests 2016-Efectis-R000925, 31 December 2016
- Efectis: Fire resistance tests 2020-Efectis-R000319, 05 June 2012
- Slovenian National Building and Civil Engineering Institute | ZAG | : ZAG report 23/19-530-2, 06 April 2019
- BEELE ENGINEERING: Fire resistance test 2008-338, 27 August 2020
- Kiwa Nederland B.V.: Kiwa witness report 20200827 Beele fire test 2008-338, 27 August 2020
- BEELE ENGINEERING: Fire resistance test 2101-348, 28 January 2021
- Kiwa Nederland B.V.: Kiwa witness report 20210128 Beele fire test 2101-348, 28 January 2021
- BEELE ENGINEERING: Fire resistance test 2104-350, 06 April 2021
- Kiwa Nederland B.V.: Kiwa witness report 20210406 Beele fire test 2104-350, 06 April 2021
- BEELE ENGINEERING: Fire resistance test 2212-362, 09 December 2022
- Kiwa Nederland B.V.: Kiwa witness report 20221208 Beele fire test 2212-362, 09 December 2022
- BEELE ENGINEERING: Fire resistance test 2408-380, 26 August 2024
- Kiwa Nederland B.V.: Kiwa witness report 241025 Beele fire test 2408-380, 26 August 2024
- BEELE ENGINEERING: Fire resistance test 2409-383, 10 September 2024
- Kiwa Nederland B.V.: Kiwa witness report 240910 Beele fire test 2409-383, 10 September 2024
- BEELE ENGINEERING: Fire resistance test 2410-387, 24 October 2024
- Kiwa Nederland B.V.: Kiwa witness report 241025 Beele fire test 2410-387, 24 October 2024
- BEELE ENGINEERING: Fire resistance test 2006-333, 20 July 2020
- Kiwa Nederland B.V.: Kiwa witness report_20200624_Beele Fire Test_2006-333, 24 June 2020
- Kiwa Nederland B.V.: Beele_MSC1_circ1488_Assessment_Report_20180209HN01, 09 February 2018

Product Documentation:

- Assembly drawings
- Bill of materials
- Internal photos
- External photos
- Manual
- Technical description or data sheets
- Label and label placement
- Test setup photos
- Risk assessment
- Extra Annex including drawings

International Instruments and test standards

The product is compliant with:

MSC Resolution 307(88)	December, 2010
MSC.1/Circ. 1488	January, 2015

Technical features and characteristics

The product includes the following features and characteristics:

- not applicable

The product as described in this certificate includes the following type designations:

- Product description: NOFIRNO sealing system
- Trademark: NOFIRNO
- Type designation: NOFIRNO

- Product description: NOFIRNO sealing system and CRUSHER combinations
- Trademark: NOFIRNO and CRUSHER
- Type designation: NOFIRNO/CRUSHER

The following pages include the content of the extra annex for this certificate

Technical Drawings

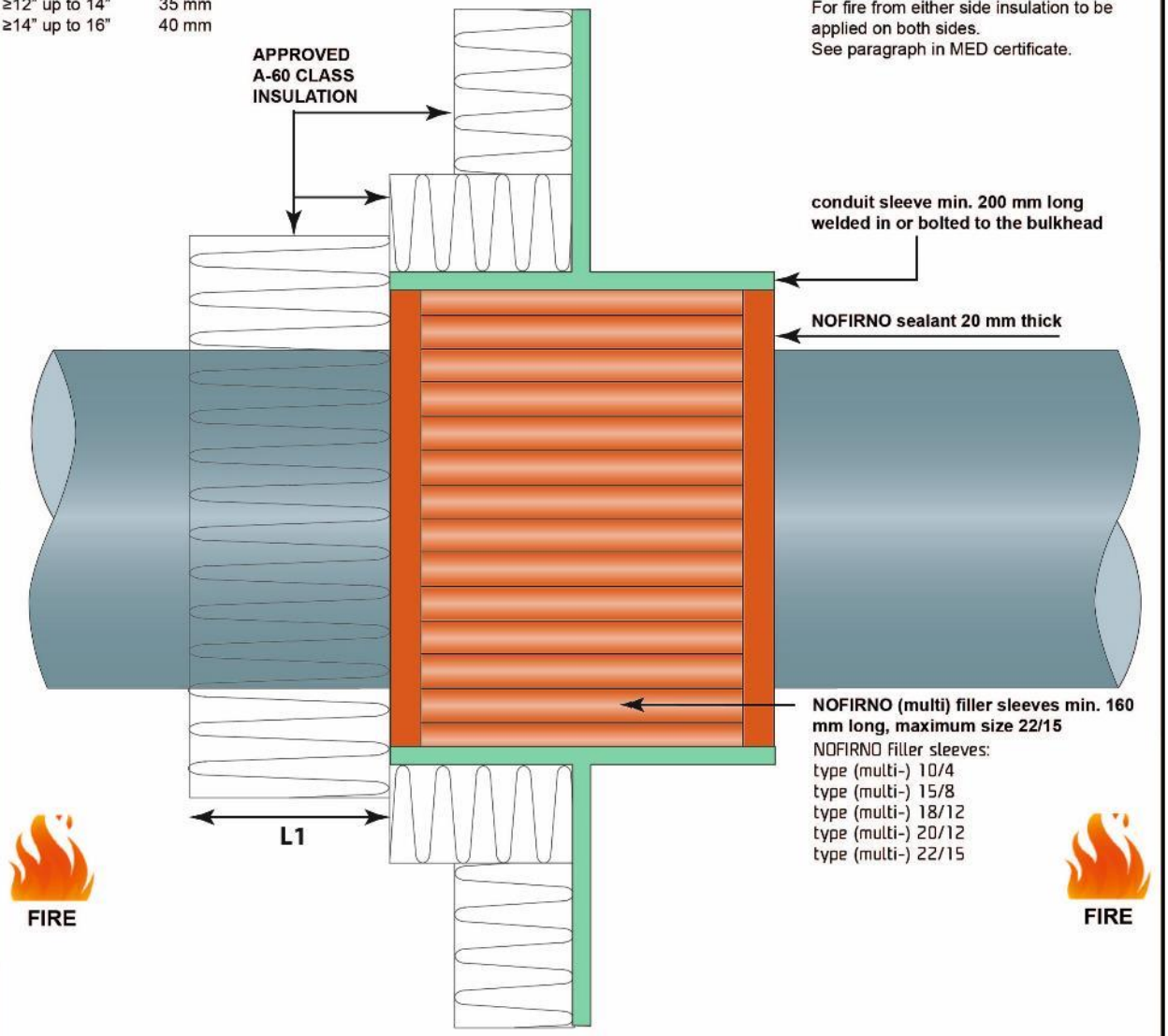
direction of exposure: fire from either side

NOFIRNO SEALING SYSTEM for steel/ss/CuNi & GRP pipes min. 1/16" - max. 16" NPS

Minimum clearance between conduit sleeve and ducted pipe:

OD pipe	
up to 3"	15 mm
≥3" up to 8"	20 mm
≥8" up to 12"	30 mm
≥12" up to 14"	35 mm
≥14" up to 16"	40 mm

For application in aluminium partitions:
Aluminium core to be insulated as not to exceed a core temperature of 150 °C.
For fire from either side insulation to be applied on both sides.
See paragraph in MED certificate.



L1 = min. length of Insulation around ducted pipe:

steel/ss/CuNi & GRP pipes

up to 1"	200 mm
≥1" up to 3"	350 mm
≥3" up to 6"	500 mm
≥6" up to 10"	700 mm
≥10" up to 14"	900 mm
≥14" up to 16"	1200 mm

conduit sleeve positioned:
- symmetrical
or
- non-symmetrical with longest length on insulated side

BEELE SAFETY SEALING SYSTEMS

Description: NOFIRNO sealing system for A60 class bulkheads

Mat.: NOFIRNO sleeves/sealant

Ref.: JAB | Date: 14-10-2019 | Scale:

Rev. 1 05-03-2020

Rev. 2 02-04-2020

NFN 130E

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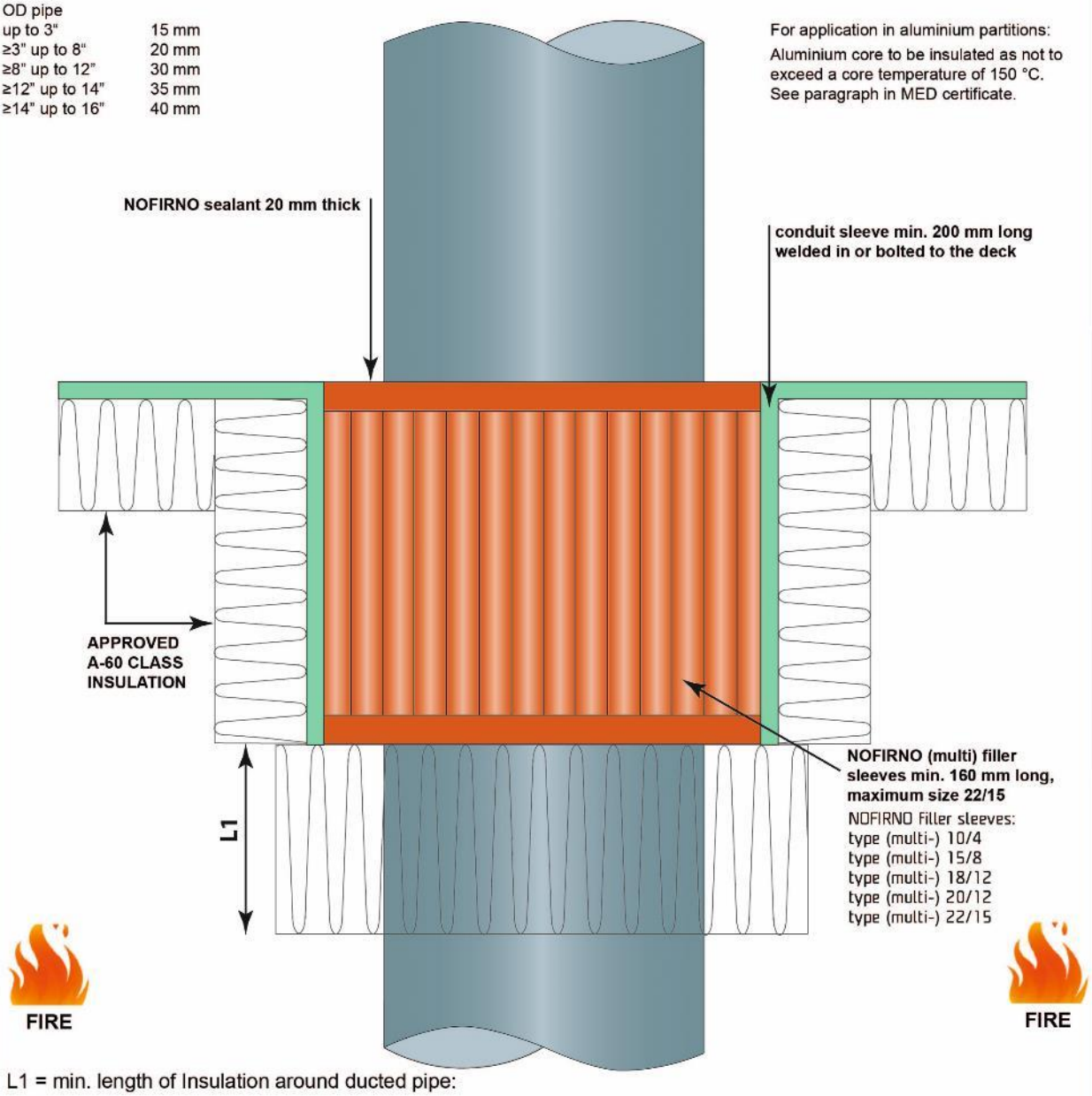
NOFIRNO SEALING SYSTEM
for steel/ss/CuNi & GRP pipes
min. 1/16" - max. 16" NPS

Minimum clearance between conduit sleeve and ducted pipe:

OD pipe	
up to 3"	15 mm
≥3" up to 8"	20 mm
≥8" up to 12"	30 mm
≥12" up to 14"	35 mm
≥14" up to 16"	40 mm

For application in aluminium partitions:
Aluminium core to be insulated as not to exceed a core temperature of 150 °C.
See paragraph in MED certificate.



L1 = min. length of Insulation around ducted pipe:

steel/ss/CuNi & GRP pipes

up to 1"	200 mm
≥1" up to 3"	350 mm
≥3" up to 6"	500 mm
≥6" up to 10"	700 mm
≥10" up to 14"	900 mm
≥14" up to 16"	1200 mm

conduit sleeve positioned totally below deck up to totally above deck

BEELE SAFETY SEALING SYSTEMS

Description: NOFIRNO sealing system for A60 class decks

Mat.: NOFIRNO sleeves/sealant

Ref.: JAB	Date:	14-10-2019	Scale:
	Rev. 1	05-03-2020	NFN 131E
	Rev. 2	02-04-2020	

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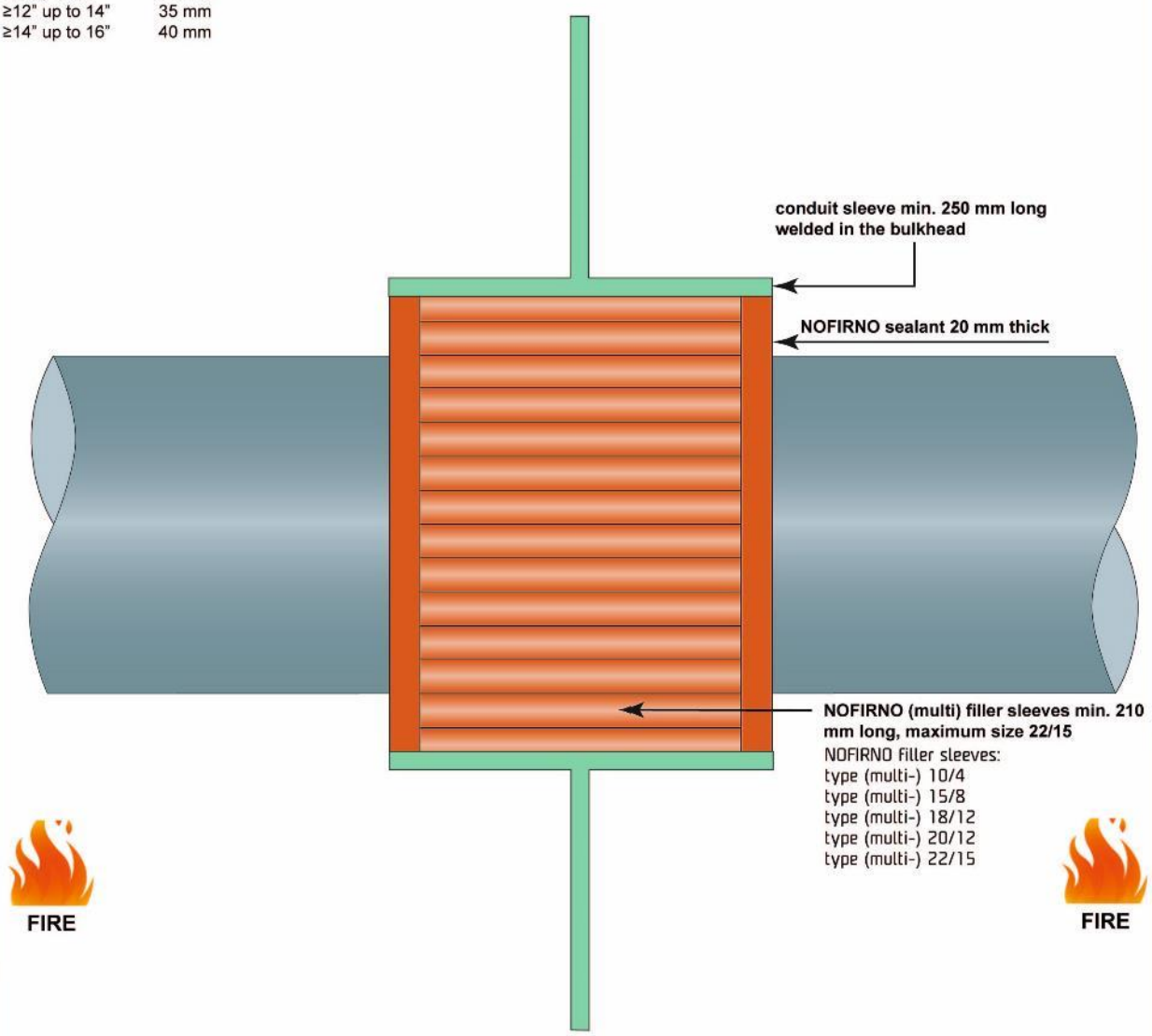
direction of exposure: fire from either side

NOFIRNO SEALING SYSTEM for steel/ss/CuNi & GRP pipes min. 1/16" - max. 16" NPS

Minimum clearance between conduit sleeve and ducted pipe:

OD pipe	
up to 3"	15 mm
≥3" up to 8"	20 mm
≥8" up to 12"	30 mm
≥12" up to 14"	35 mm
≥14" up to 16"	40 mm



conduit sleeve positioned:
- symmetrical
or in case of fire from only one side
- non-symmetrical with longest length on non-fire side

BEELE SAFETY SEALING SYSTEMS

Description: NOFIRNO sealing system for A0 class bulkheads			
Mat.: NOFIRNO sleeves/sealant			
Ref.: JAB	Date:	14-10-2019	Scale:
	Rev. 1	22-01-2020	NFN 132E
	Rev. 2	02-04-2020	

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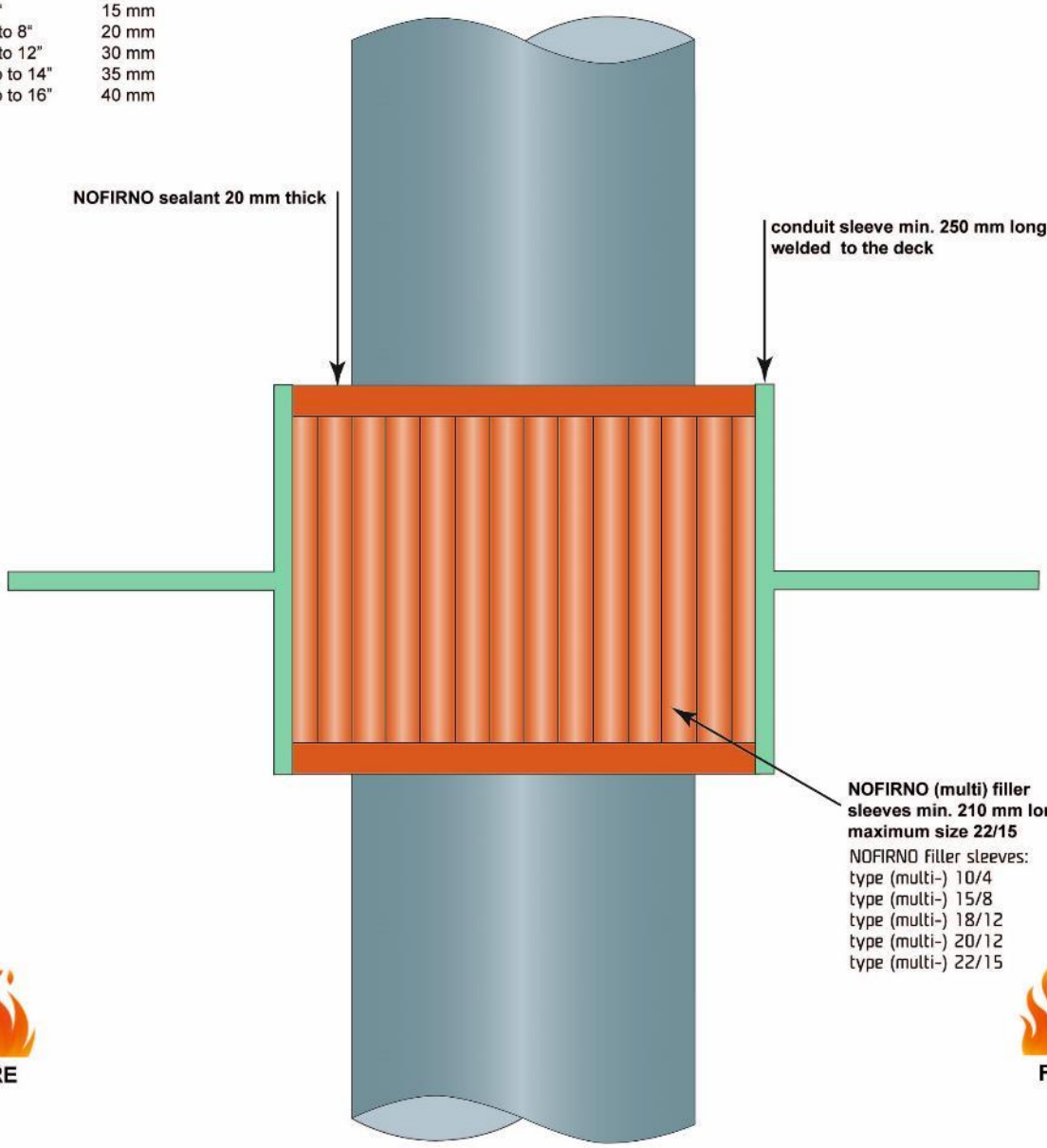
direction of exposure: fire from either side

NOFIRNO SEALING SYSTEM for steel/ss/CuNi & GRP pipes min. 1/16" - max. 16" NPS

Minimum clearance between conduit sleeve and ducted pipe:

OD pipe	
up to 3"	15 mm
≥3" up to 8"	20 mm
≥8" up to 12"	30 mm
≥12" up to 14"	35 mm
≥14" up to 16"	40 mm



conduit sleeve positioned:
- symmetrical
or in case of fire from only one side
- non-symmetrical with longest length on non-fire side

BEELE SAFETY SEALING SYSTEMS

Description: NOFIRNO sealing system for A0 class decks

Mat.: NOFIRNO sleeves/sealant

Ref.: JAB | Date: 14-10-2019 | Scale:

Rev. 1 22-01-2020

Rev. 2 02-04-2020

NFN 133E

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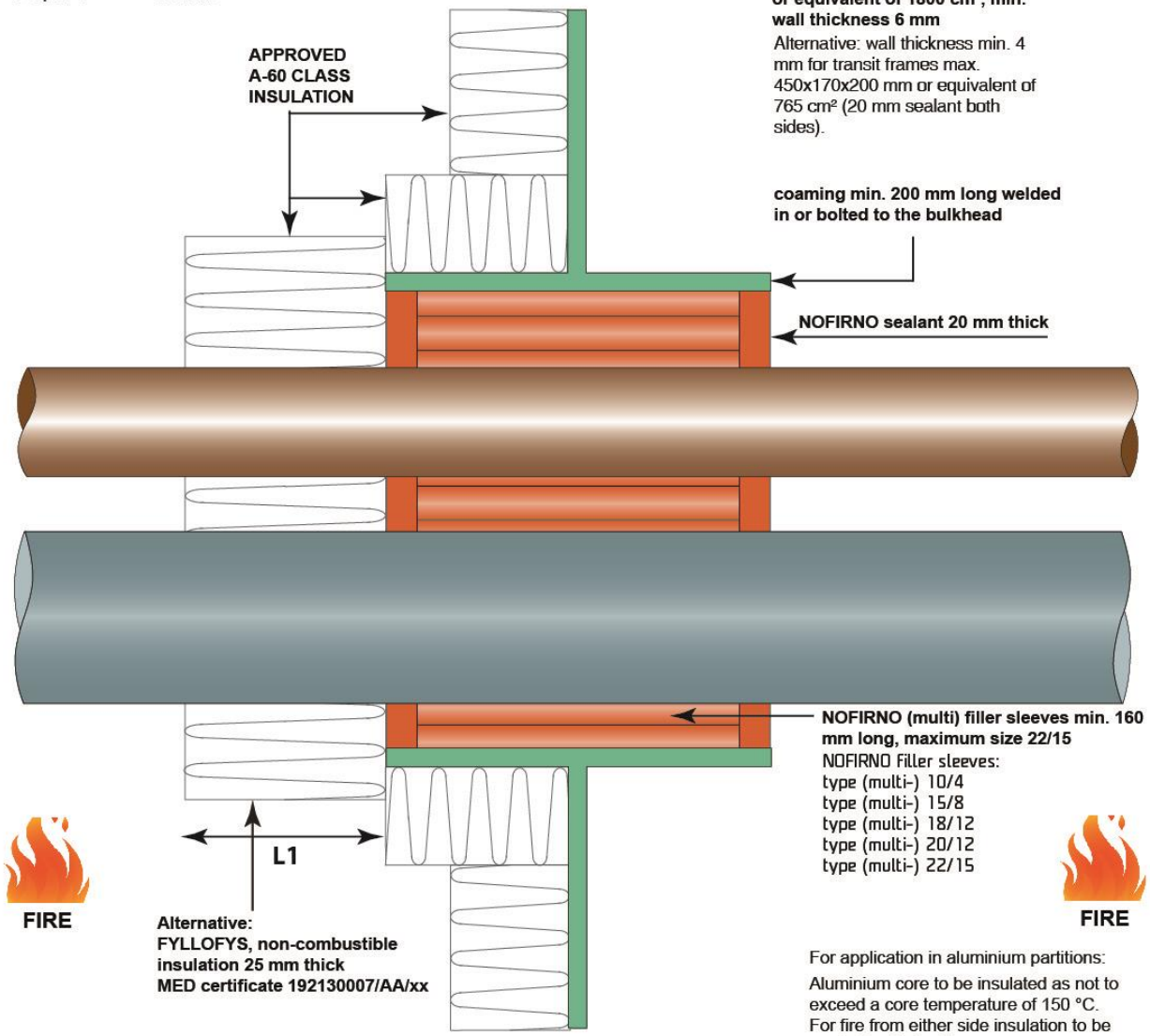
direction of exposure: fire from either side

NOFIRNO MULTI-SEALING SYSTEM for steel/ss/CuNi min. 1/16" - max. 6" NPS, GRP pipes min. 1" - max. 6" and copper pipes min. 1/16" - max 4" NPS

Minimum clearance between the conduit sleeve and the ducted pipes and in between the ducted pipes:

OD pipe	
up to 3"	15 mm
≥3" up to 6"	20 mm



For application in aluminium partitions:
Aluminium core to be insulated as not to exceed a core temperature of 150 °C.
For fire from either side insulation to be applied on both sides.
See paragraph in MED certificate.

L1 = min. length of Insulation around ducted pipe:

steel/ss/CuNi & GRP pipes		copper pipes	
up to 1"	200 mm	up to 1"	200 mm
≥1" up to 3"	350 mm	≥1" up to 2"	500 mm
≥3" up to 6"	500 mm	≥2" up to 4"	800 mm
		4"	1000 mm

conduit sleeve positioned:
- symmetrical
or
- non-symmetrical with longest length on insulated side

BEELE SAFETY SEALING SYSTEMS

Description: NOFIRNO sealing system for A60 class bulkheads

Mat.: NOFIRNO sleeves/sealant

Ref.: JAB	Date:	14-10-2019	Scale:
	Rev. 2	02-04-2020	NFN 134E
	Rev. 3	26-10-2024	

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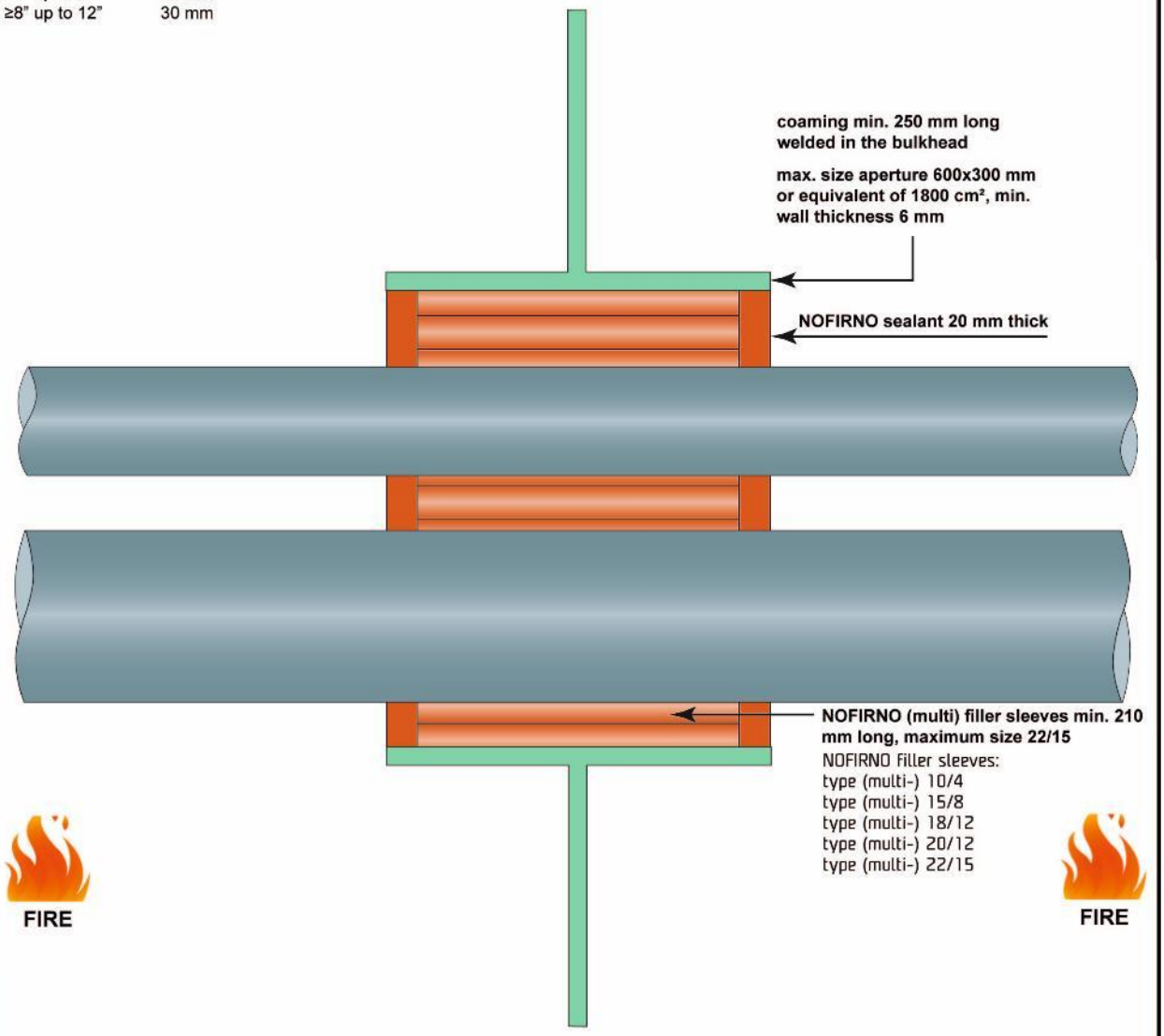
direction of exposure:
fire from either side

NOFIRNO MULTI-SEALING SYSTEM
for steel/ss/CuNi min. 1/16" - max. 8" NPS

Minimum clearance between the conduit sleeve and the ducted pipes and in between the ducted pipes:

OD pipe	
up to 3"	15 mm
≥3" up to 8"	20 mm
≥8" up to 12"	30 mm



conduit sleeve positioned:
- symmetrical
or in case of fire from only one side
- non-symmetrical with longest length on non-fire side

BEELE SAFETY SEALING SYSTEMS	Description: NOFIRNO sealing system for A0 class bulkheads			
	Mat.: NOFIRNO sleeves/sealant			
	Ref.: JAB	Date:	05-03-2020	Scale:
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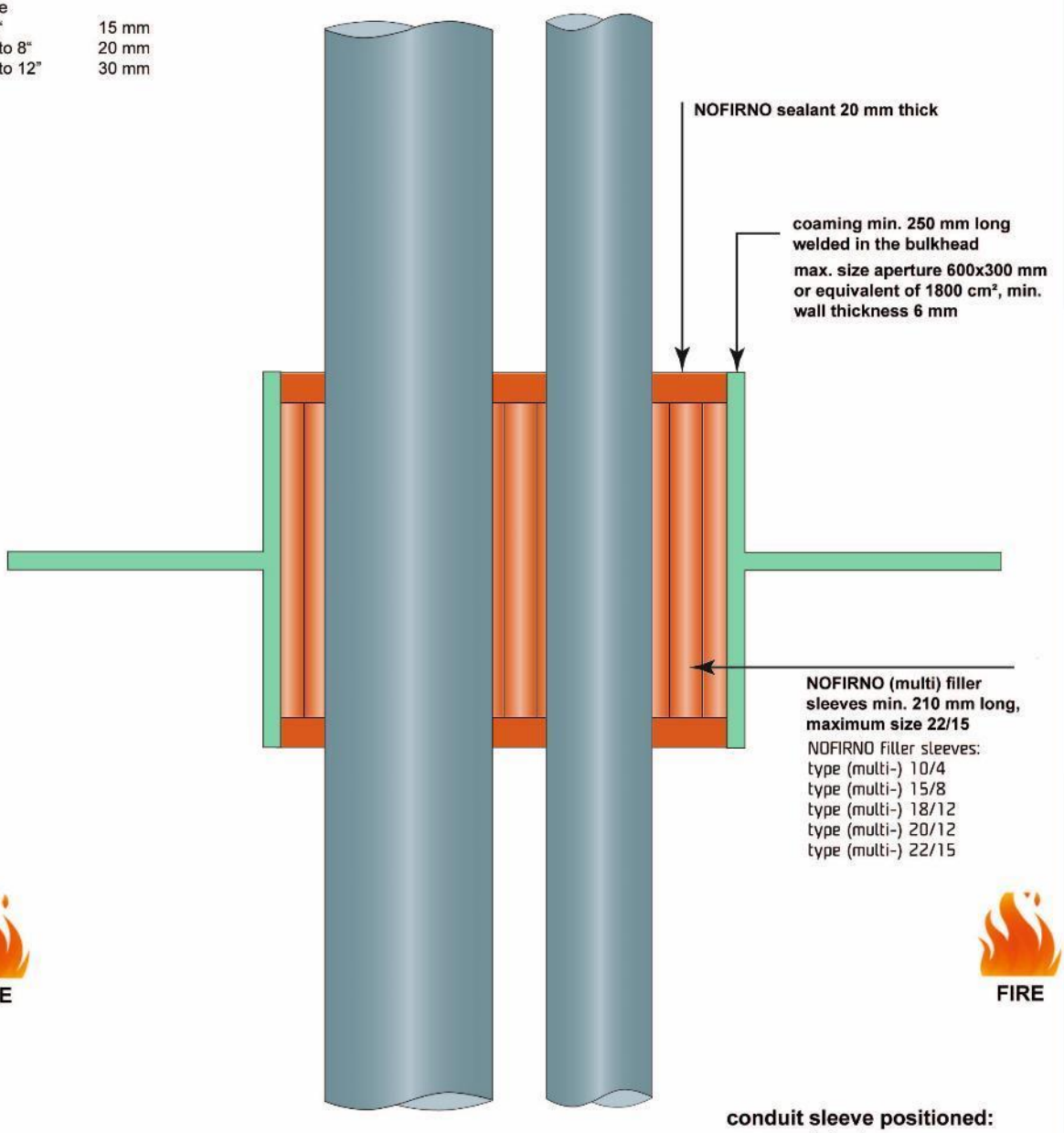
		Rev. 2		

direction of exposure:
fire from either side

NOFIRNO MULTI-SEALING SYSTEM
for steel/ss/CuNi min. 1/16" - max. 8" NPS

Minimum clearance between the conduit sleeve and the ducted pipes and in between the ducted pipes:

OD pipe	
up to 3"	15 mm
≥3" up to 8"	20 mm
≥8" up to 12"	30 mm



conduit sleeve positioned:
- symmetrical
or in case of fire from only one side
- non-symmetrical with longest length on non-fire side

BEELE SAFETY SEALING SYSTEMS	Description: NOFIRNO sealing system for A0 class decks			
	Mat.: NOFIRNO sleeves/sealant			
	Ref.: JAB	Date:	08-04-2020	Scale:
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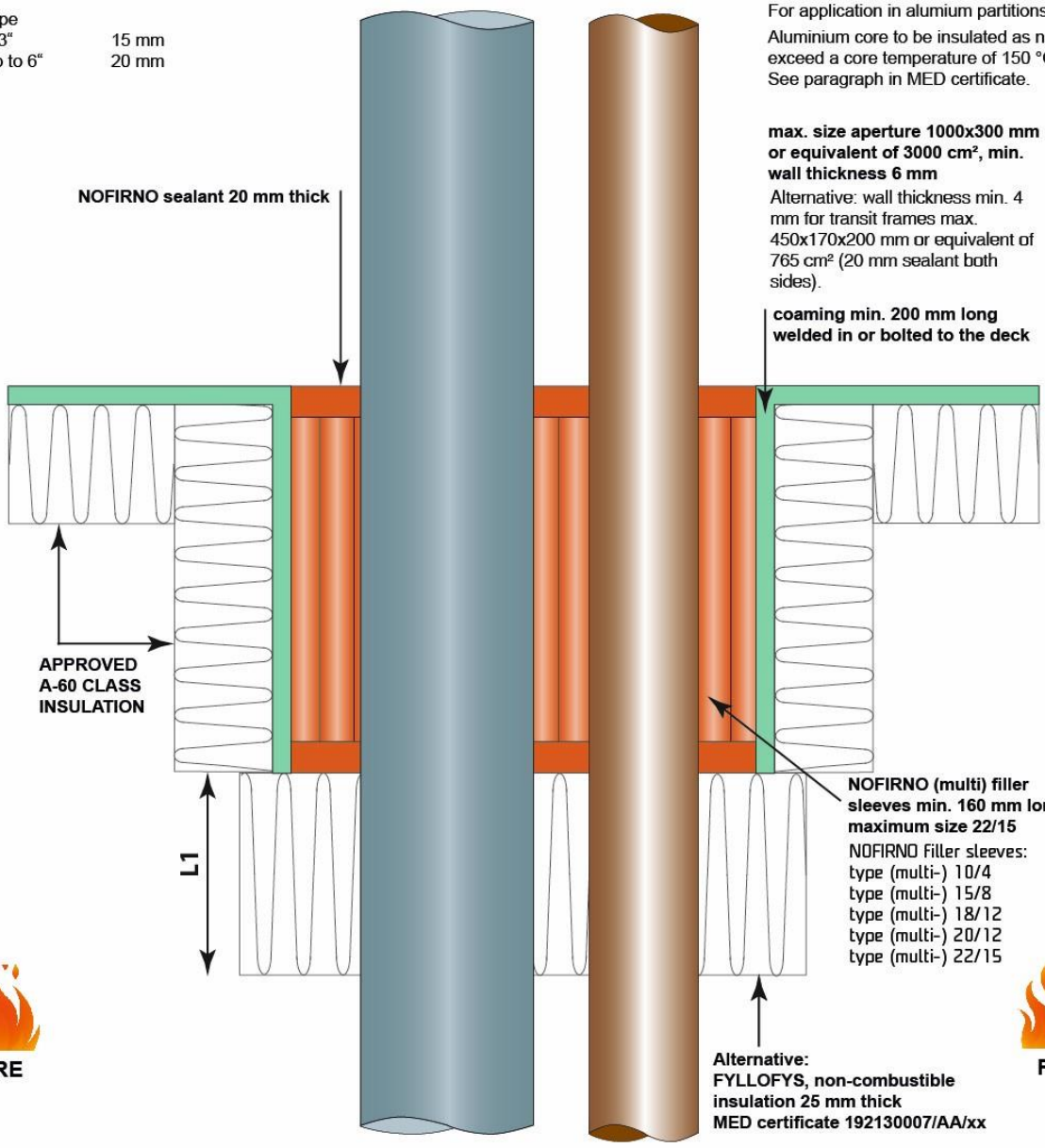
		Rev. 2		

NOFIRNO MULTI-SEALING SYSTEM for steel/ss/CuNi min. 1/16" - max. 6" NPS, GRP pipes min. 1" - max. 6" and copper pipes min. 1/16" - max 4" NPS

Minimum clearance between the conduit sleeve and the ducted pipes and in between the ducted pipes:

OD pipe	
up to 3"	15 mm
≥3" up to 6"	20 mm



For application in alumium partitions:
Aluminium core to be insulated as not to exceed a core temperature of 150 °C. See paragraph in MED certificate.

max. size aperture 1000x300 mm or equivalent of 3000 cm², min. wall thickness 6 mm
Alternative: wall thickness min. 4 mm for transit frames max. 450x170x200 mm or equivalent of 765 cm² (20 mm sealant both sides).

coaming min. 200 mm long welded in or bolted to the deck

NOFIRNO (multi) filler sleeves min. 160 mm long, maximum size 22/15
NOFIRNO filler sleeves:
type (multi-) 10/4
type (multi-) 15/8
type (multi-) 18/12
type (multi-) 20/12
type (multi-) 22/15

Alternative:
FYLLOFYS, non-combustible insulation 25 mm thick
MED certificate 192130007/AA/xx

L1 = min. length of Insulation around ducted pipe:

steel/ss/CuNi & GRP pipes		copper pipes	
up to 1"	200 mm	up to 1"	200 mm
≥1" up to 3"	350 mm	≥1" up to 2"	500 mm
≥3" up to 6"	500 mm	≥2" up to 4"	800 mm
		4"	1000 mm

conduit sleeve positioned totally below deck up to totally above deck

BEELE SAFETY SEALING SYSTEMS

Description: NOFIRNO sealing system for A60 class decks

Mat.: NOFIRNO sleeves/sealant

Ref.: JAB | Date: 14-10-2019 | Scale:

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Rev. 2 02-04-2020
Rev. 3 26-10-2024

NFN 135E

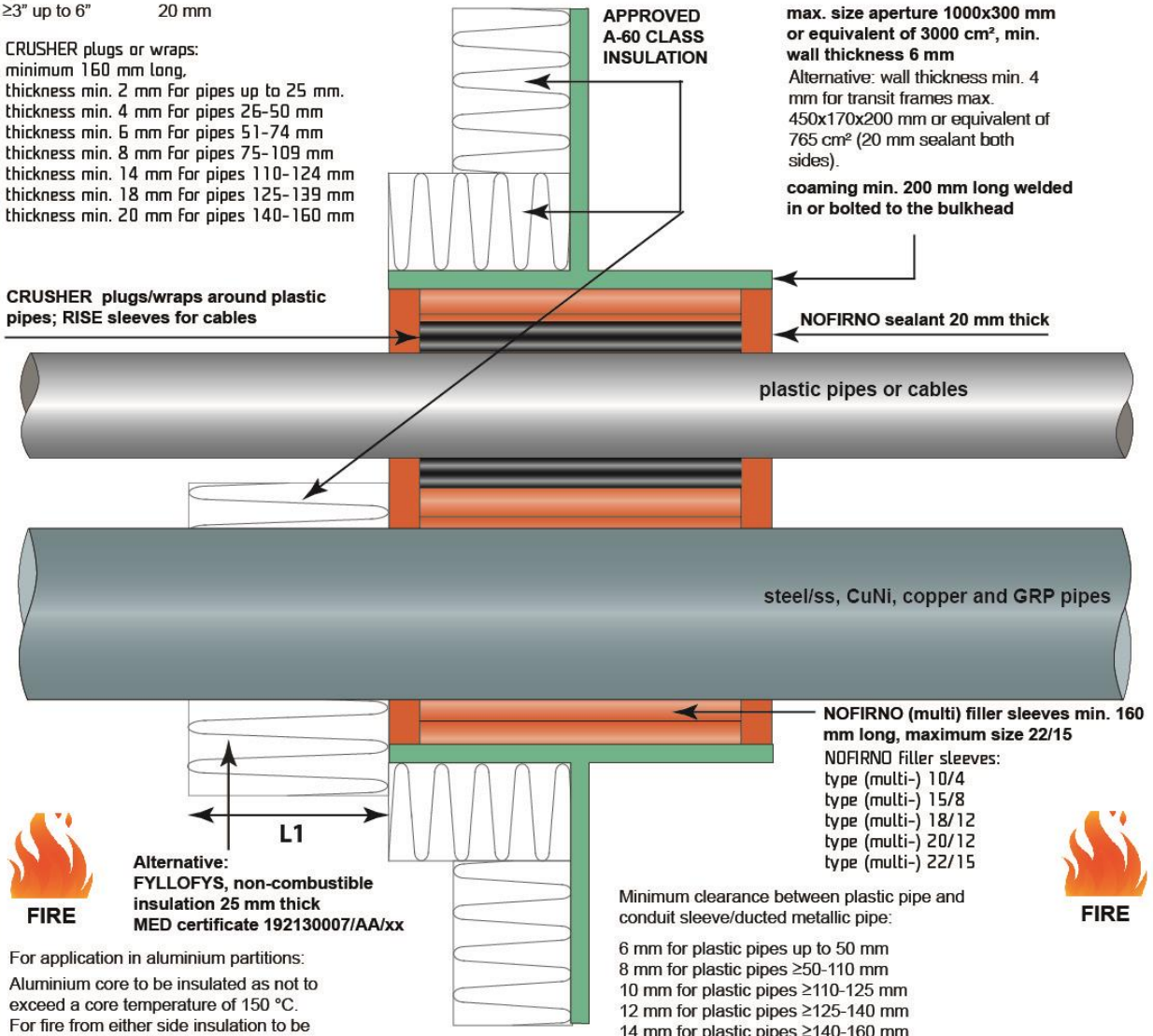
NOFIRNO MULTI-MIX SEALING SYSTEM for steel/ss/CuNi min. 1/16" - max. 6" NPS, copper pipes min. 1/16" - max 4" NPS, GRP pipes min. 1" - max. 6", plastic pipes max. 125 mm and cables max. 105 mm

direction of exposure: fire from either side

Minimum clearance between conduit sleeve and ducted metallic pipe:

OD pipe
up to 3" 15 mm
≥3" up to 6" 20 mm

CRUSHER plugs or wraps:
minimum 160 mm long,
thickness min. 2 mm for pipes up to 25 mm.
thickness min. 4 mm for pipes 26-50 mm
thickness min. 6 mm for pipes 51-74 mm
thickness min. 8 mm for pipes 75-109 mm
thickness min. 14 mm for pipes 110-124 mm
thickness min. 18 mm for pipes 125-139 mm
thickness min. 20 mm for pipes 140-160 mm



For application in aluminium partitions:
Aluminium core to be insulated as not to exceed a core temperature of 150 °C.
For fire from either side insulation to be applied on both sides.
See paragraph in MED certificate.

Minimum clearance between plastic pipe and conduit sleeve/ducted metallic pipe:

6 mm for plastic pipes up to 50 mm
8 mm for plastic pipes ≥50-110 mm
10 mm for plastic pipes ≥110-125 mm
12 mm for plastic pipes ≥125-140 mm
14 mm for plastic pipes ≥140-160 mm

Minimum clearance between cable and conduit sleeve/ducted metallic pipe:

15 mm for pipes up to 100 mm
30 mm for pipes up to 168 mm

conduit sleeve positioned:
- symmetrical
or
- non-symmetrical with longest length on insulated side

L1 = min. length of Insulation around ducted pipe:

steel/ss/CuNi & GRP pipes		copper pipes	
up to 1"	200 mm	up to 1"	200 mm
≥1" up to 3"	350 mm	>1" up to 2"	500 mm
≥3" up to 6"	500 mm	>2" up to 4"	800 mm
		4"	1000 mm

BEELE SAFETY SEALING SYSTEMS

Description: NOFIRNO sealing system for A60 class bulkheads
Mat.: NOFIRNO sleeves/sealant
Ref.: JAB | Date: 14-10-2019 | Scale:
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NOFIRNO MULTI-MIX SEALING SYSTEM for steel/ss/CuNi min. 1/16" - max. 6" NPS, copper pipes min. 1/16" - max 4" NPS, GRP pipes min. 1" - max. 6", plastic pipes max 125 mm and cables max. 105 mm

Minimum clearance between conduit sleeve and ducted pipe:

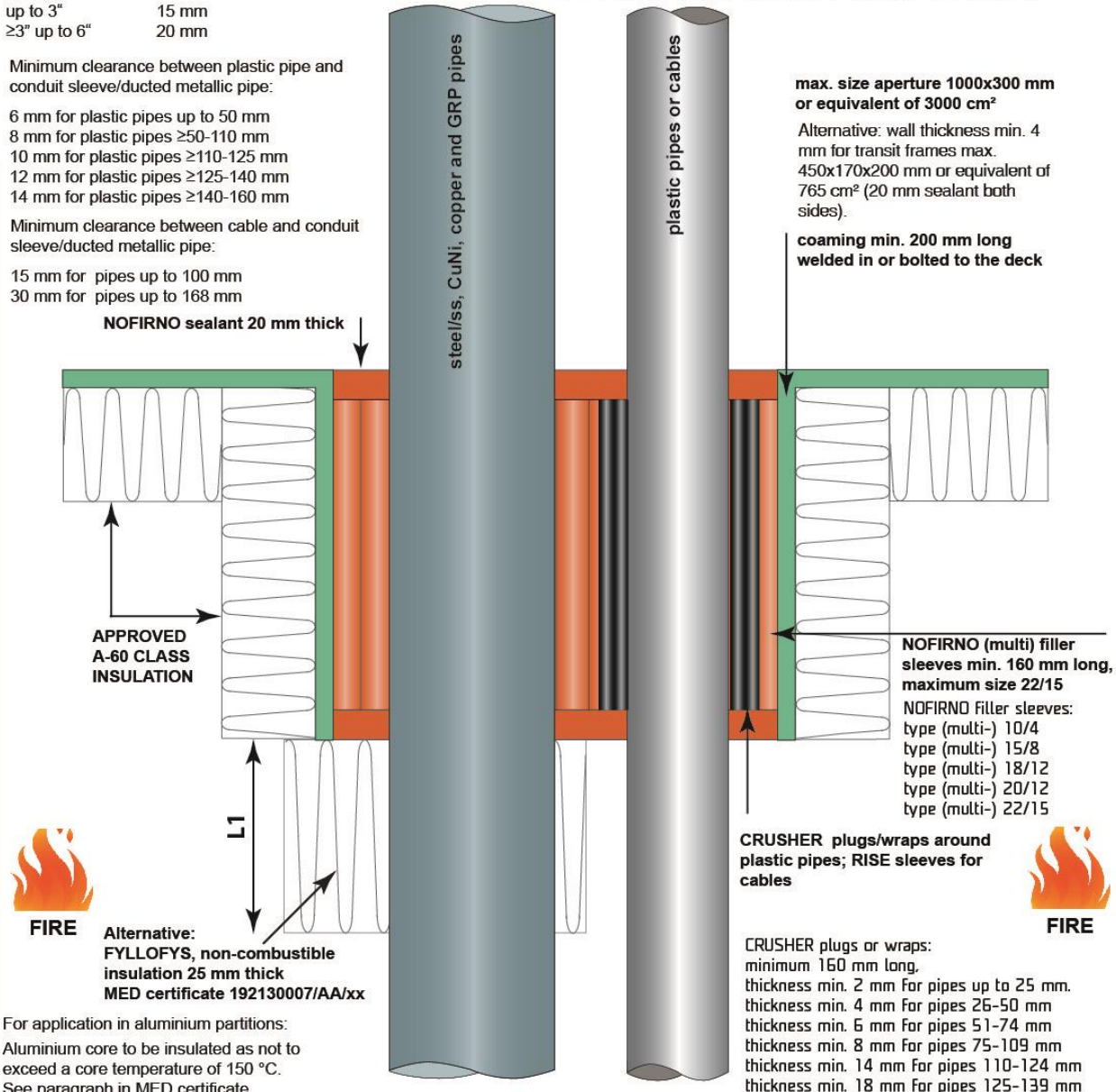
OD pipe
up to 3" 15 mm
≥3" up to 6" 20 mm

Minimum clearance between plastic pipe and conduit sleeve/ducted metallic pipe:

6 mm for plastic pipes up to 50 mm
8 mm for plastic pipes ≥50-110 mm
10 mm for plastic pipes ≥110-125 mm
12 mm for plastic pipes ≥125-140 mm
14 mm for plastic pipes ≥140-160 mm

Minimum clearance between cable and conduit sleeve/ducted metallic pipe:

15 mm for pipes up to 100 mm
30 mm for pipes up to 168 mm



CRUSHER plugs or wraps:
minimum 160 mm long,
thickness min. 2 mm for pipes up to 25 mm.
thickness min. 4 mm for pipes 26-50 mm
thickness min. 6 mm for pipes 51-74 mm
thickness min. 8 mm for pipes 75-109 mm
thickness min. 14 mm for pipes 110-124 mm
thickness min. 18 mm for pipes 125-139 mm
thickness min. 20 mm for pipes 140-160 mm

For application in aluminium partitions:
Aluminium core to be insulated as not to exceed a core temperature of 150 °C.
See paragraph in MED certificate.

L1 = min. length of Insulation around ducted pipe:

steel/ss/CuNi & GRP pipes		copper pipes	
up to 1"	200 mm	up to 1"	200 mm
≥1" up to 3"	350 mm	>1" up to 2"	500 mm
≥3" up to 6"	500 mm	>2" up to 4"	800 mm
		4"	1000 mm

conduit sleeve positioned totally below deck up to totally above deck

BEELE SAFETY SEALING SYSTEMS

Description: NOFIRNO sealing system for A60 class decks
Mat.: NOFIRNO sleeves/sealant
Ref.: JAB | Date: 14-10-2019 | Scale:

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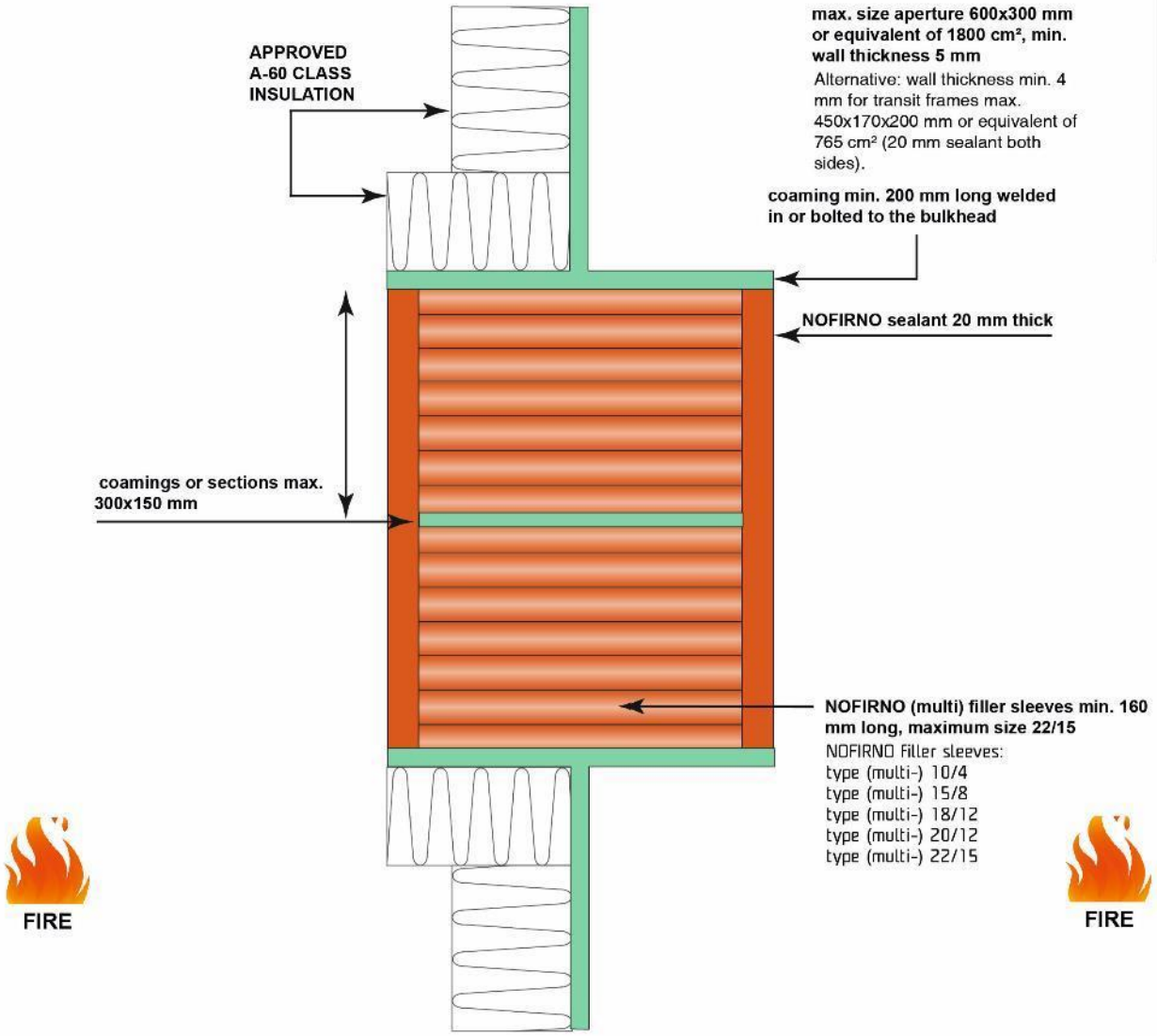
direction of exposure:
fire from either side

NOFIRNO SEALING SYSTEM
BLIND PENETRATIONS

For application in aluminium partitions:
Aluminium core to be insulated as not to exceed a core temperature of 150 °C.
For fire from either side insulation to be applied on both sides.
See paragraph in MED certificate.

max. size aperture 600x300 mm or equivalent of 1800 cm², min. wall thickness 5 mm
Alternative: wall thickness min. 4 mm for transit frames max. 450x170x200 mm or equivalent of 765 cm² (20 mm sealant both sides).



conduit sleeve positioned:
- symmetrical
or
- non-symmetrical with longest length on insulated side

BEELE SAFETY SEALING SYSTEMS	Description: NOFIRNO sealing system for A60 class decks			
	Mat.: NOFIRNO sleeves/sealant			
	Ref.: JAB	Date:	14-10-2019	Scale:
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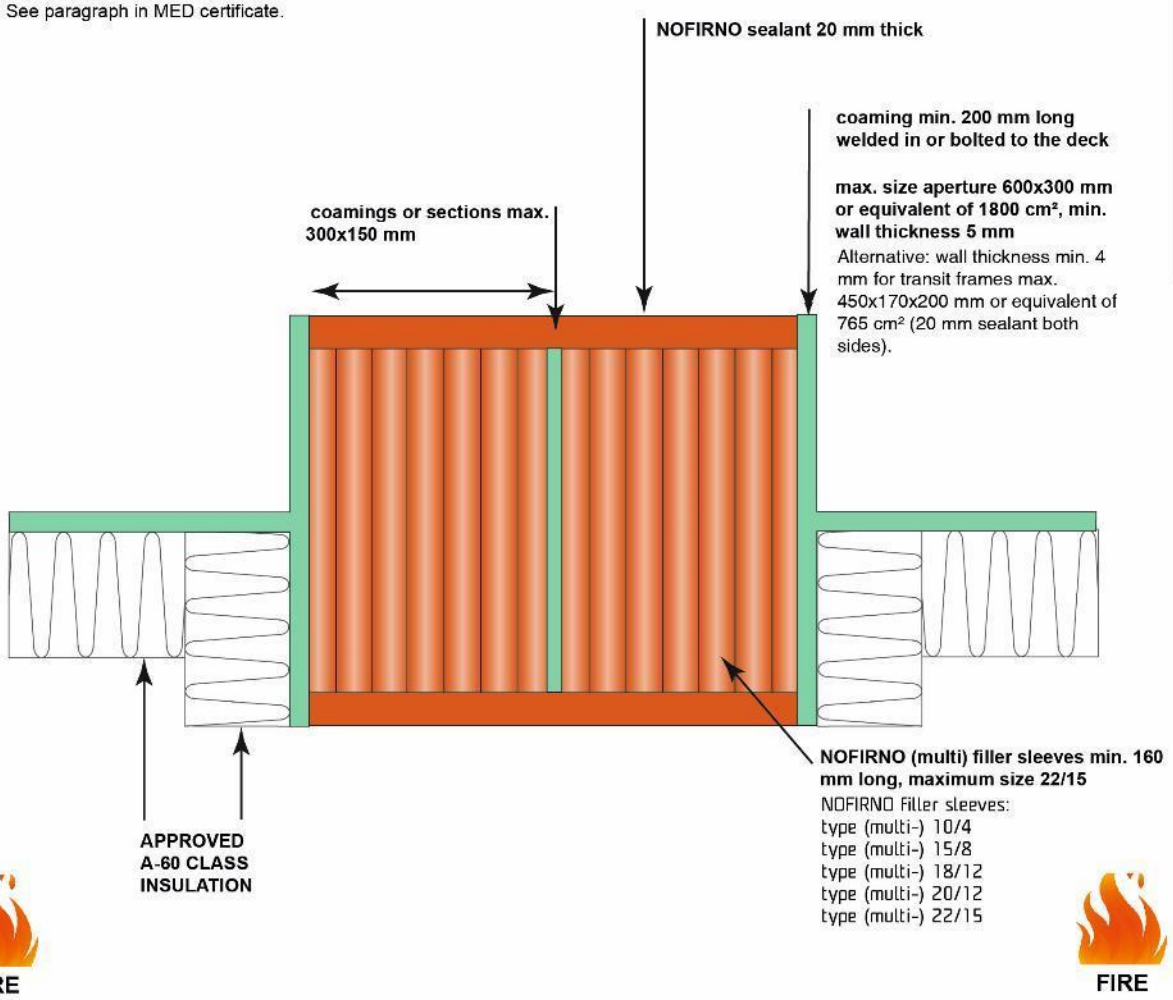
NOFIRNO SEALING SYSTEM
BLIND PENETRATIONS

For application in aluminium partitions:
Aluminium core to be insulated as not to exceed a core temperature of 150 °C.
See paragraph in MED certificate.



conduit sleeve positioned totally below deck up to totally above deck

BEELE SAFETY SEALING SYSTEMS	Description: NOFIRNO sealing system for A60 class decks			
	Mat.: NOFIRNO sleeves/sealant			
	Ref.: JAB	Date:	14-10-2019	Scale:
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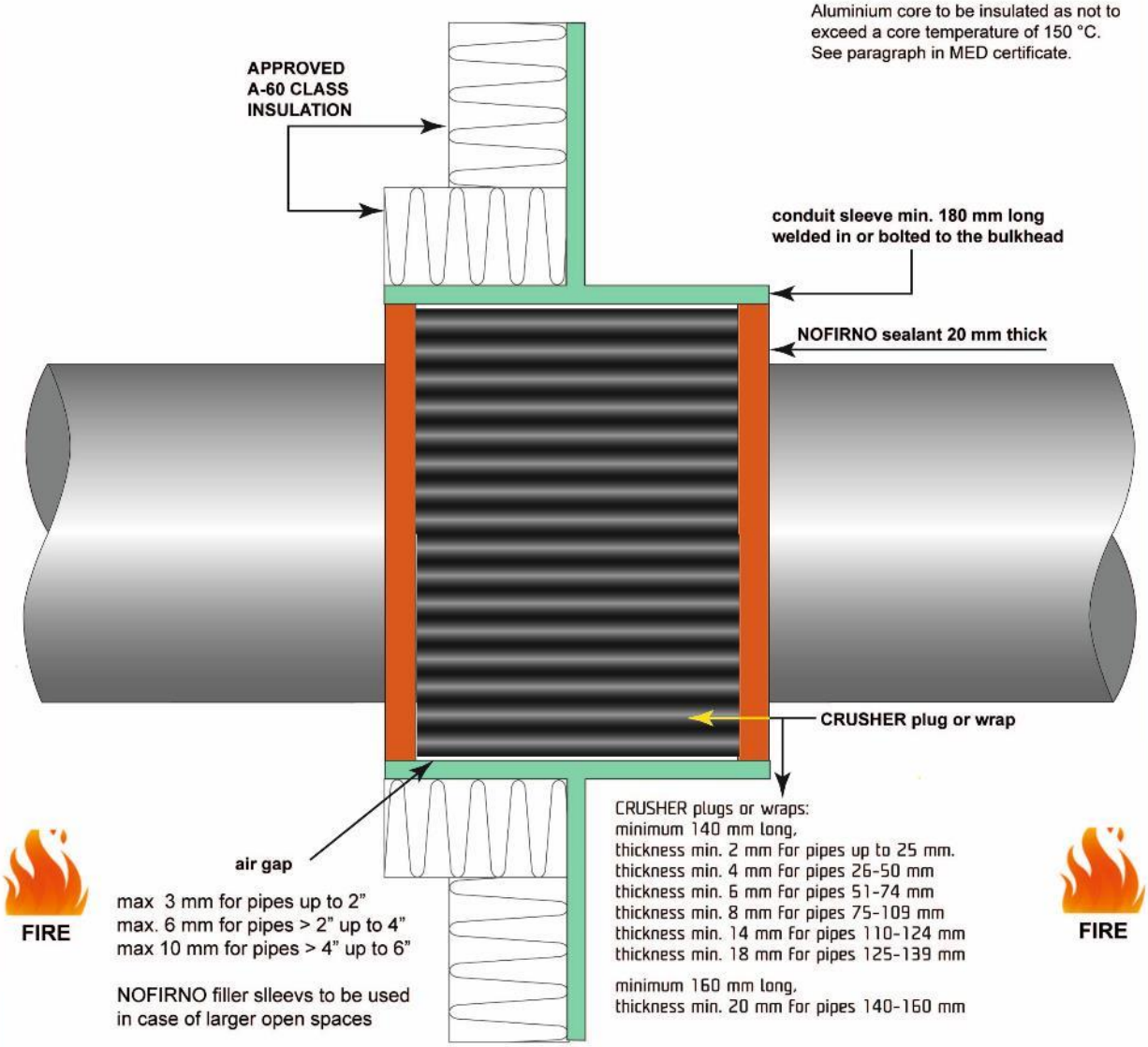
direction of exposure:
fire from either side

NOFIRNO/CRUSHER SEALING SYSTEM
for plastic* pipes 16-160 mm
* PVC, PP, PPR, PPFR, ABS, HDPE, PB, PVDF

For application in aluminium partitions:
Aluminium core to be insulated as not to exceed a core temperature of 150 °C.
See paragraph in MED certificate.



max 3 mm for pipes up to 2"
max. 6 mm for pipes > 2" up to 4"
max 10 mm for pipes > 4" up to 6"

NOFIRNO filler slleevs to be used
in case of larger open spaces

CRUSHER plugs or wraps:
minimum 140 mm long,
thickness min. 2 mm for pipes up to 25 mm.
thickness min. 4 mm for pipes 26-50 mm
thickness min. 6 mm for pipes 51-74 mm
thickness min. 8 mm for pipes 75-109 mm
thickness min. 14 mm for pipes 110-124 mm
thickness min. 18 mm for pipes 125-139 mm

minimum 160 mm long,
thickness min. 20 mm for pipes 140-160 mm

conduit sleeve positioned:
- symmetrical
or
- non-symmetrical with longest length on insulated side

BEELE SAFETY SEALING SYSTEMS	Description: NOFIRNO/CRUSHER sealing system for A60 class bulkheads			
	Mat.: NOFIRNO sleeves/sealant & CRUSHER			
	Ref.: JAB	Date:	14-10-2019	Scale:
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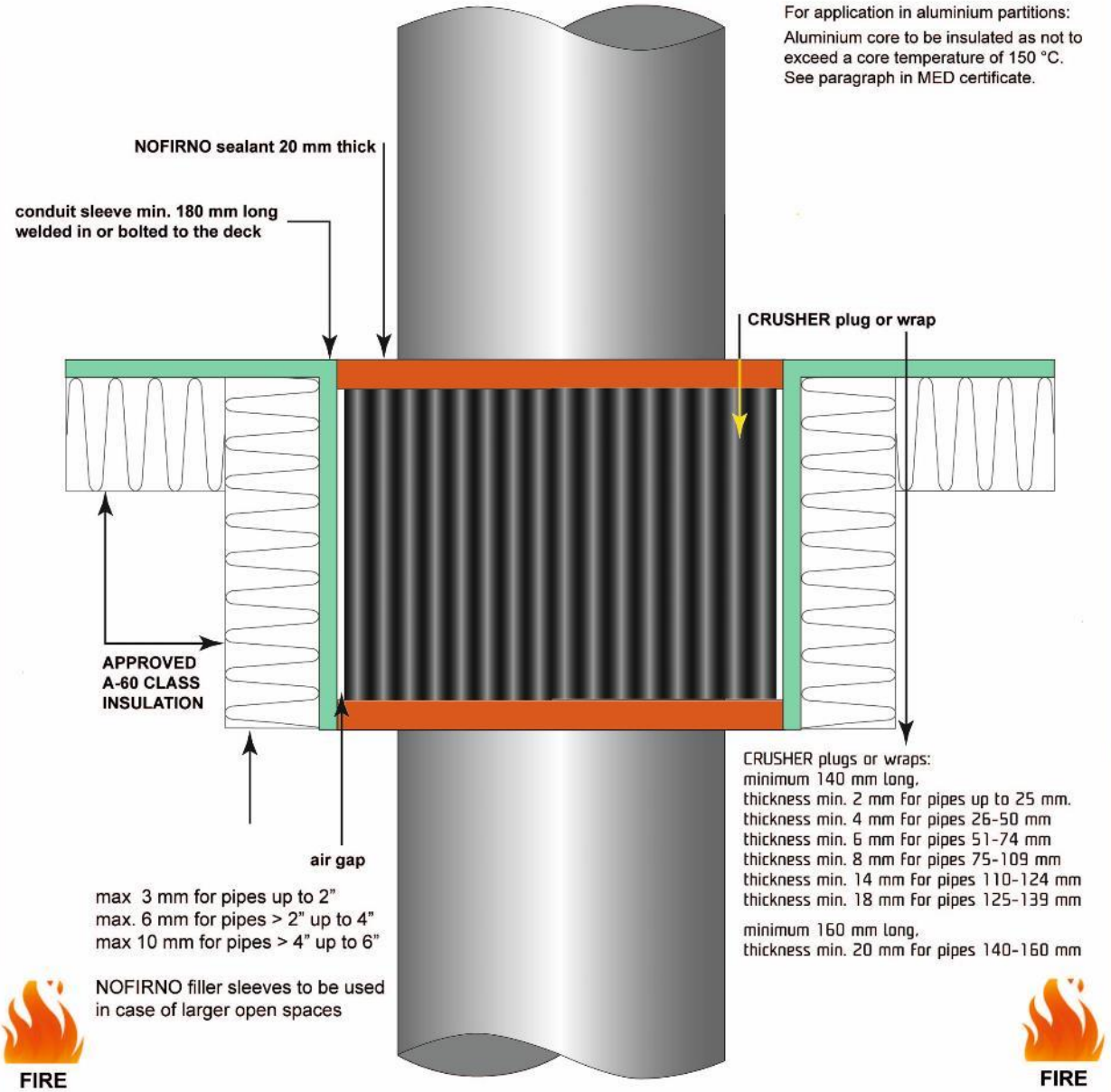
NOFIRNO/CRUSHER SEALING SYSTEM
for plastic* pipes 16-160 mm
* PVC, PP, PPR, PPFR, ABS, HDPE, PB, PVDF



conduit sleeve positioned totally below deck up to totally above deck

BEELE SAFETY SEALING SYSTEMS	Description: NOFIRNO/CRUSHER sealing system for A60 class decks			
	Mat.: NOFIRNO sleeves/sealant & CRUSHER			
	Ref.: JAB	Date:	14-10-2019	Scale:
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		Rev. 2	02-04-2020	

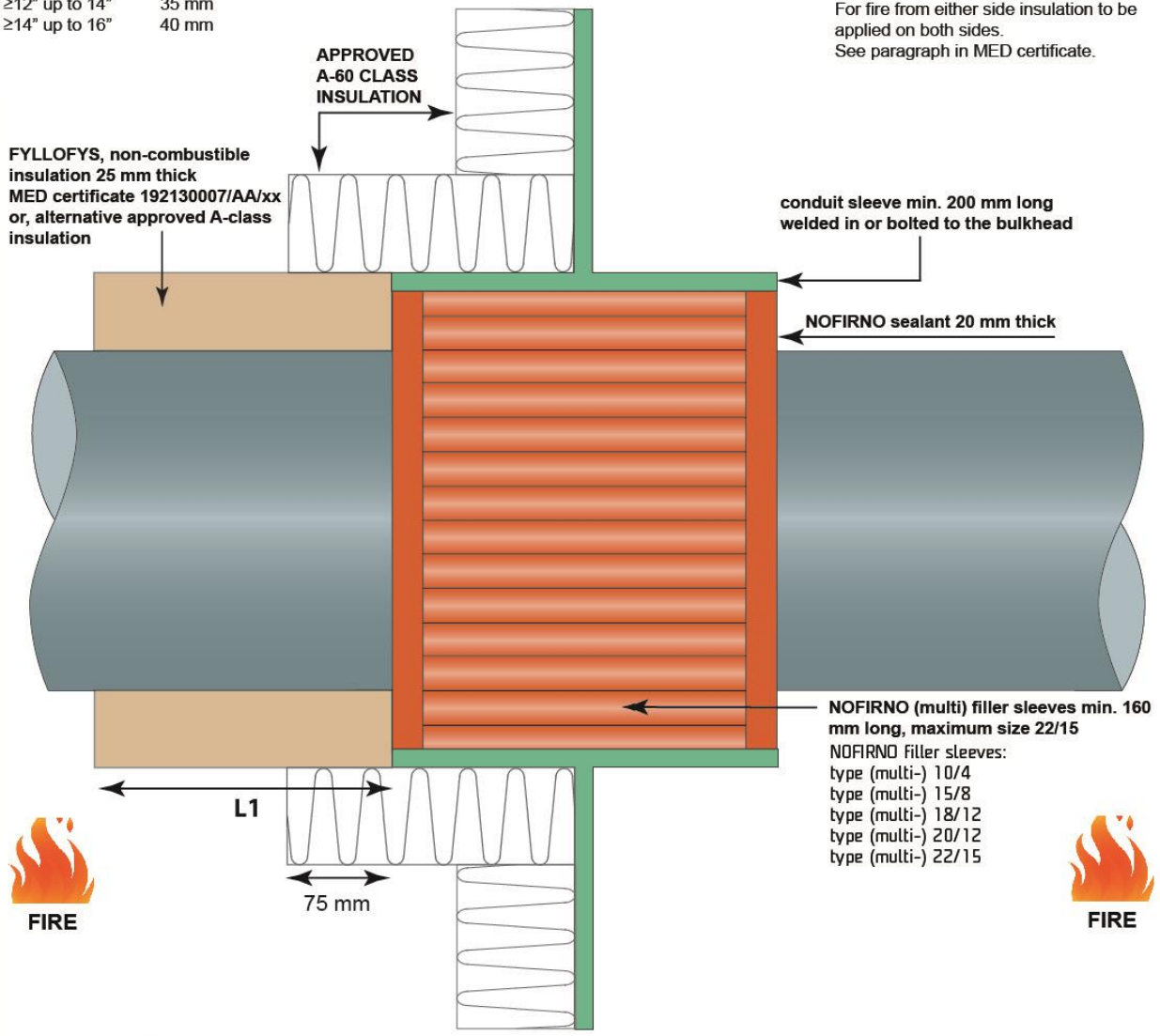
direction of exposure: fire from either side

NOFIRNO SEALING SYSTEM for steel/ss/CuNi & GRP pipes min. 1/16" - max. 16" NPS

Minimum clearance between conduit sleeve and ducted pipe:

OD pipe	
up to 3"	15 mm
≥3" up to 8"	20 mm
≥8" up to 12"	30 mm
≥12" up to 14"	35 mm
≥14" up to 16"	40 mm

For application in aluminium partitions:
Aluminium core to be insulated as not to exceed a core temperature of 150 °C.
For fire from either side insulation to be applied on both sides.
See paragraph in MED certificate.



L1 = min. length of Insulation around ducted pipe:

steel/ss/CuNi & GRP pipes

up to 1"	200 mm
≥1" up to 3"	350 mm
≥3" up to 6"	500 mm
≥6" up to 10"	700 mm
≥10" up to 14"	900 mm
≥14" up to 16"	1200 mm

conduit sleeve positioned:
- symmetrical
or
- non-symmetricay with longest length on insulated side

BEELE SAFETY SEALING SYSTEMS

Description: NOFIRNO sealing system for A60 class bulkheads

Mat.: NOFIRNO sleeves/sealant

Ref.: JAB	Date:	05-03-2020	Scale:
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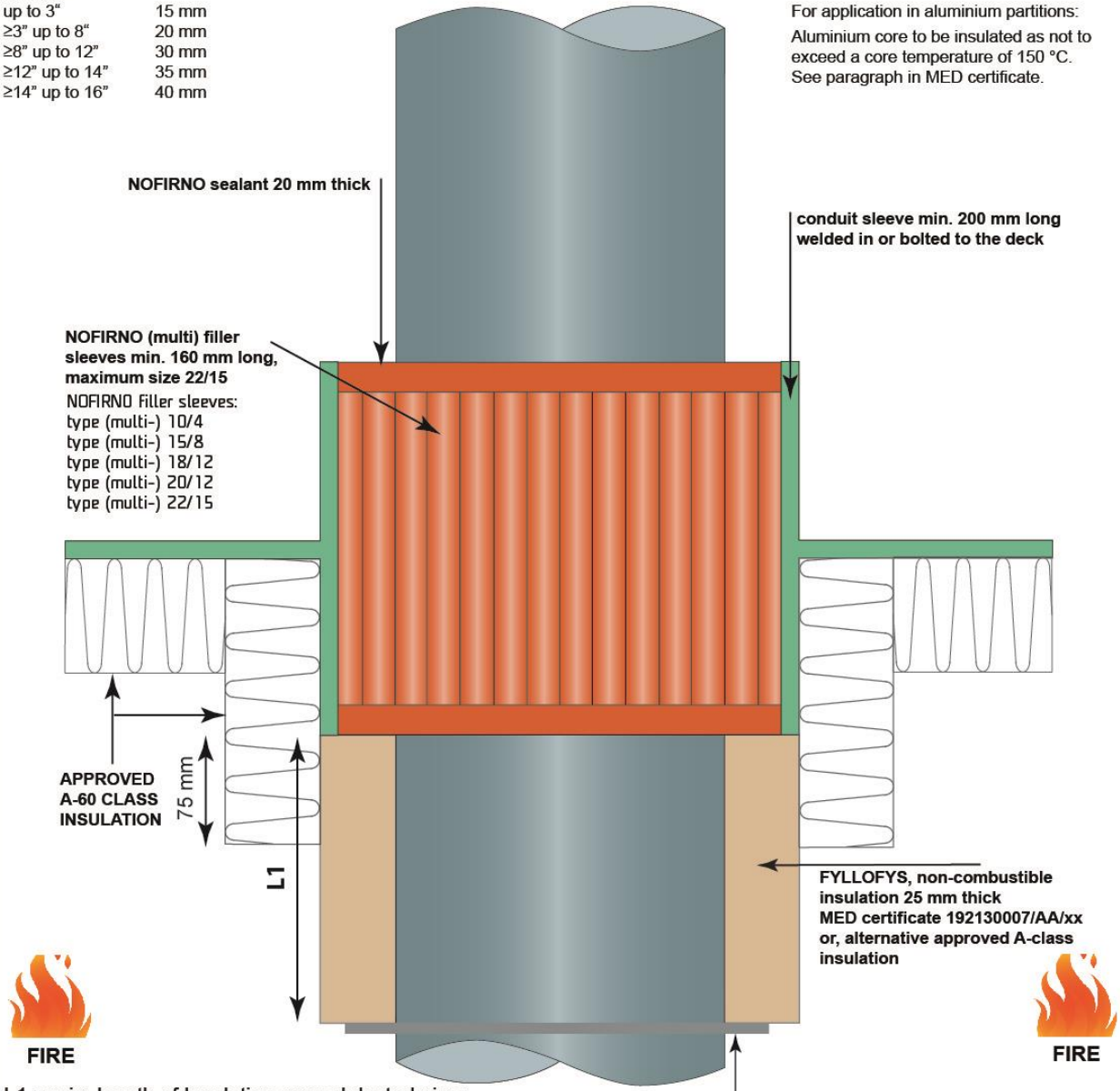
NOFIRNO SEALING SYSTEM
for steel/ss/CuNi & GRP pipes
min. 1/16" - max. 16" NPS

Minimum clearance between conduit sleeve and ducted pipe:

OD pipe	
up to 3"	15 mm
≥3" up to 8"	20 mm
≥8" up to 12"	30 mm
≥12" up to 14"	35 mm
≥14" up to 16"	40 mm

For application in aluminium partitions:
Aluminium core to be insulated as not to exceed a core temperature of 150 °C.
See paragraph in MED certificate.



L1 = min. length of Insulation around ducted pipe:

steel/ss/CuNi & GRP pipes

up to 1"	200 mm
≥1" up to 3"	350 mm
≥3" up to 6"	500 mm
≥6" up to 10"	700 mm
≥10" up to 14"	900 mm
≥14" up to 16"	1200 mm

NOTE:
FYLLOFYS shells to be fixed or supported to prevent from sagging down.

conduit sleeve positioned totally below deck up to totally above deck

BEELE SAFETY SEALING SYSTEMS

Description: NOFIRNO sealing system for A60 class decks

Mat.: NOFIRNO sleeves/sealant

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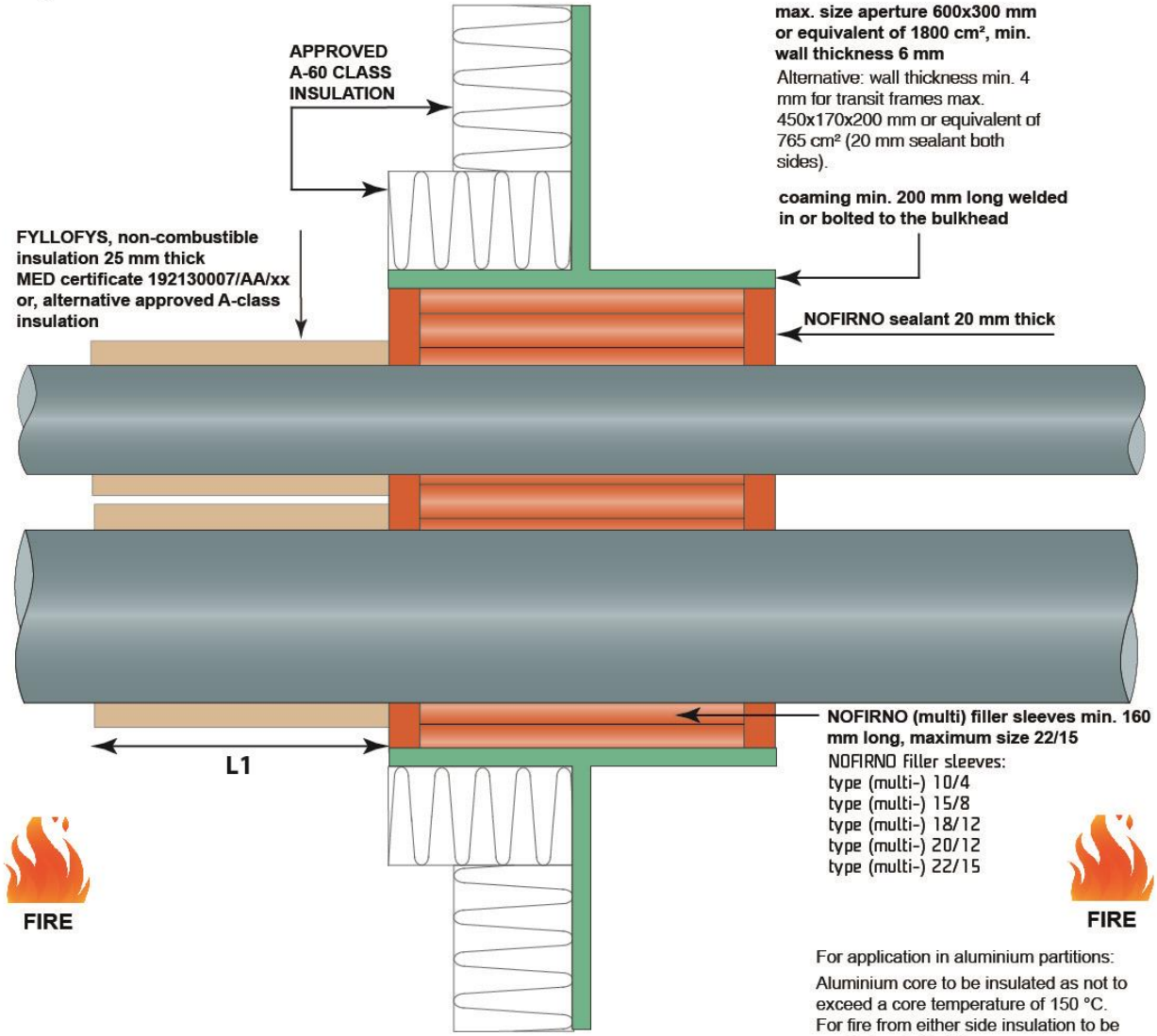
direction of exposure: fire from either side

NOFIRNO MULTI-SEALING SYSTEM for steel/ss/CuNi min. 1/16" - max. 6" NPS, GRP pipes min. 1" - max. 6"

Minimum clearance between the conduit sleeve and the ducted pipes and in between the ducted pipes:

OD pipe	
up to 3"	15 mm
≥3" up to 6"	20 mm



For application in aluminium partitions:
Aluminium core to be insulated as not to exceed a core temperature of 150 °C.
For fire from either side insulation to be applied on both sides.
See paragraph in MED certificate.

L1 = min. length of Insulation around ducted pipe:

steel/ss/CuNi & GRP pipes

up to 1"	200 mm
≥1" up to 3"	350 mm
≥3" up to 6"	500 mm

conduit sleeve positioned:
- symmetrically
or
- non-symmetrically with longest length on insulateded side

BEELE SAFETY SEALING SYSTEMS

Description: NOFIRNO sealing system for A60 class bulkheads

Mat.: NOFIRNO sleeves/sealant

Ref.: JAB | Date: 05-03-2020 | Scale:

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NOFIRNO MULTI-SEALING SYSTEM for steel/ss/CuNi min. 1/16" - max. 6" NPS, GRP pipes min. 1" - max. 6"

Minimum clearance between the conduit sleeve and the ducted pipes and in between the ducted pipes:

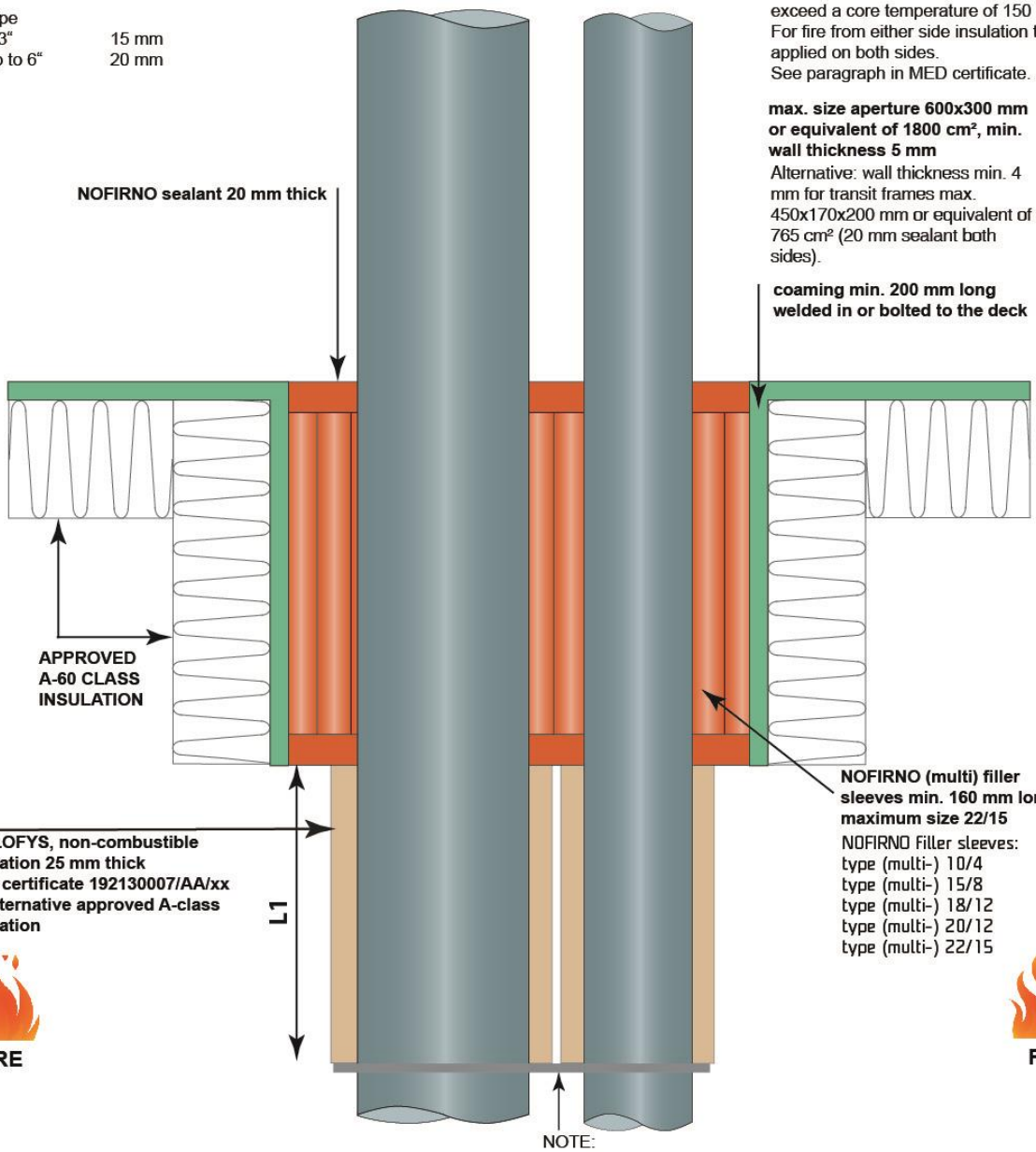
OD pipe	
up to 3"	15 mm
≥3" up to 6"	20 mm

For application in aluminium partitions:
Aluminium core to be insulated as not to exceed a core temperature of 150 °C.
For fire from either side insulation to be applied on both sides.
See paragraph in MED certificate.

max. size aperture 600x300 mm or equivalent of 1800 cm², min. wall thickness 5 mm
Alternative: wall thickness min. 4 mm for transit frames max. 450x170x200 mm or equivalent of 765 cm² (20 mm sealant both sides).

NOFIRNO sealant 20 mm thick

coaming min. 200 mm long welded in or bolted to the deck



L1 = min. length of Insulation around ducted pipe:

steel/ss/CuNi & GRP pipes

up to 1"	200 mm
≥1" up to 3"	350 mm
≥3" up to 6"	500 mm

conduit sleeve positioned totally below deck up to totally above deck

BEELE SAFETY SEALING SYSTEMS

Description: NOFIRNO sealing system for A60 class decks

Mat.: NOFIRNO sleeves/sealant

Ref.: JAB | Date: 05-03-2020 | Scale:

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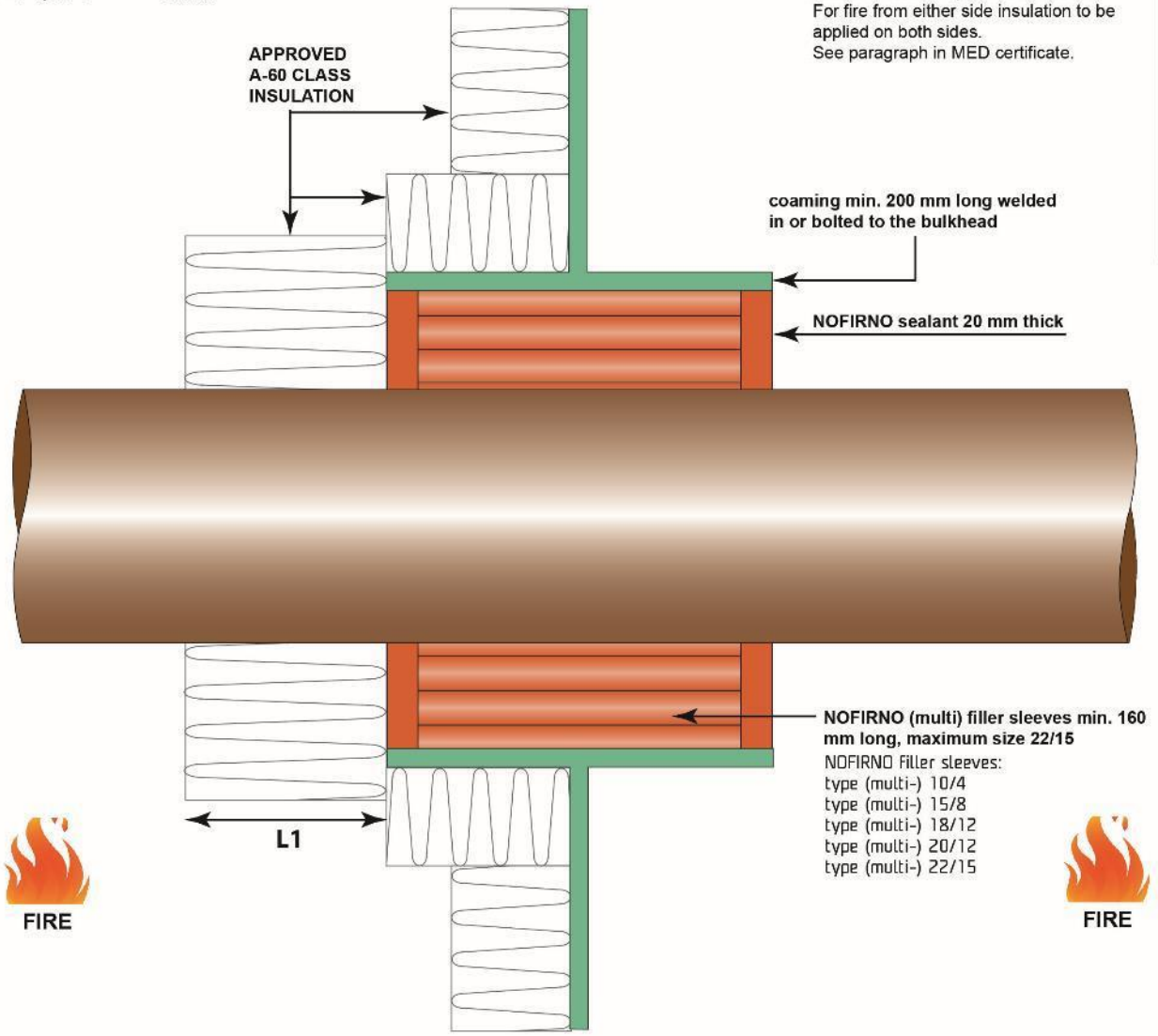
direction of exposure: fire from either side

NOFIRNO MULTI-SEALING SYSTEM for copper pipes min. 1/16" - max 4" NPS

Minimum clearance between the conduit sleeve and the ducted pipes and in between the ducted pipes:

OD pipe	
up to 3"	15 mm
≥3" up to 4"	20 mm

For application in aluminium partitions:
Aluminium core to be insulated as not to exceed a core temperature of 150 °C.
For fire from either side insulation to be applied on both sides.
See paragraph in MED certificate.



L1 = min. length of Insulation around ducted pipe:

copper pipes	
up to 1"	200 mm
≥1" up to 2"	500 mm
≥2" up to 4"	800 mm
4"	1000 mm

conduit sleeve positioned:
- symmetrically
or
- non-symmetrically with longest length on insulated side

BEELE SAFETY SEALING SYSTEMS

Description: NOFIRNO sealing system for A60 class bulkheads

Mat.: NOFIRNO sleeves/sealant

Ref.: JAB	Date:	05-03-2020	Scale:
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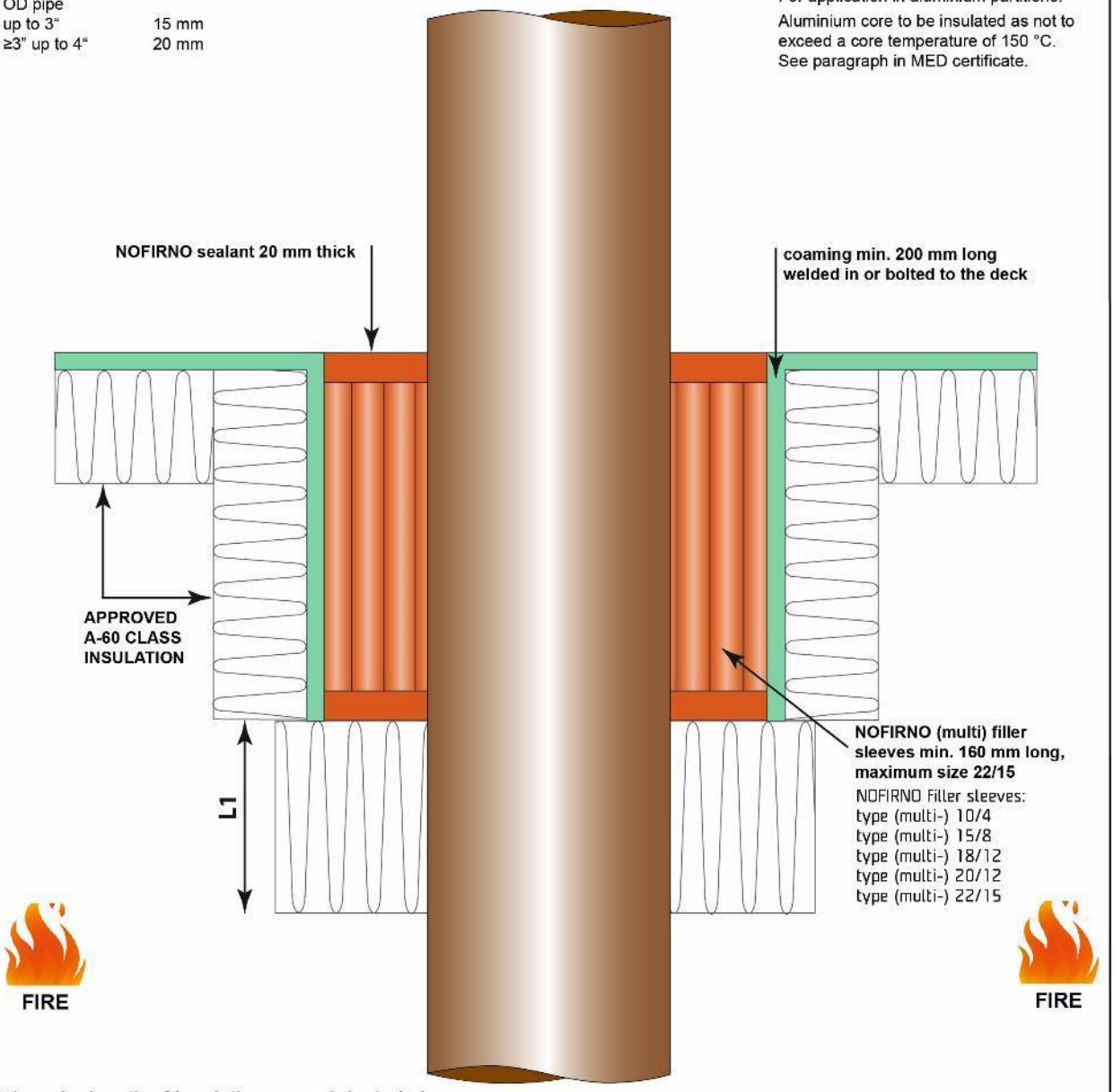
NOFIRNO MULTI-SEALING SYSTEM
for copper pipes min. 1/16" - max 4" NPS

Minimum clearance between the conduit sleeve and the ducted pipes and in between the ducted pipes:

OD pipe	
up to 3"	15 mm
≥3" up to 4"	20 mm

For application in aluminium partitions:
Aluminium core to be insulated as not to exceed a core temperature of 150 °C.
See paragraph in MED certificate.



L1 = min. length of Insulation around ducted pipe:

copper pipes

up to 1"	200 mm
≥1" up to 2"	500 mm
≥2" up to 4"	800 mm
4"	1000 mm

conduit sleeve positioned totally below deck up to totally above deck

BEELE SAFETY SEALING SYSTEMS

Description: NOFIRNO sealing system for A60 class decks

Mat.: NOFIRNO sleeves/sealant

Ref.: JAB	Date:	05-03-2020	Scale:
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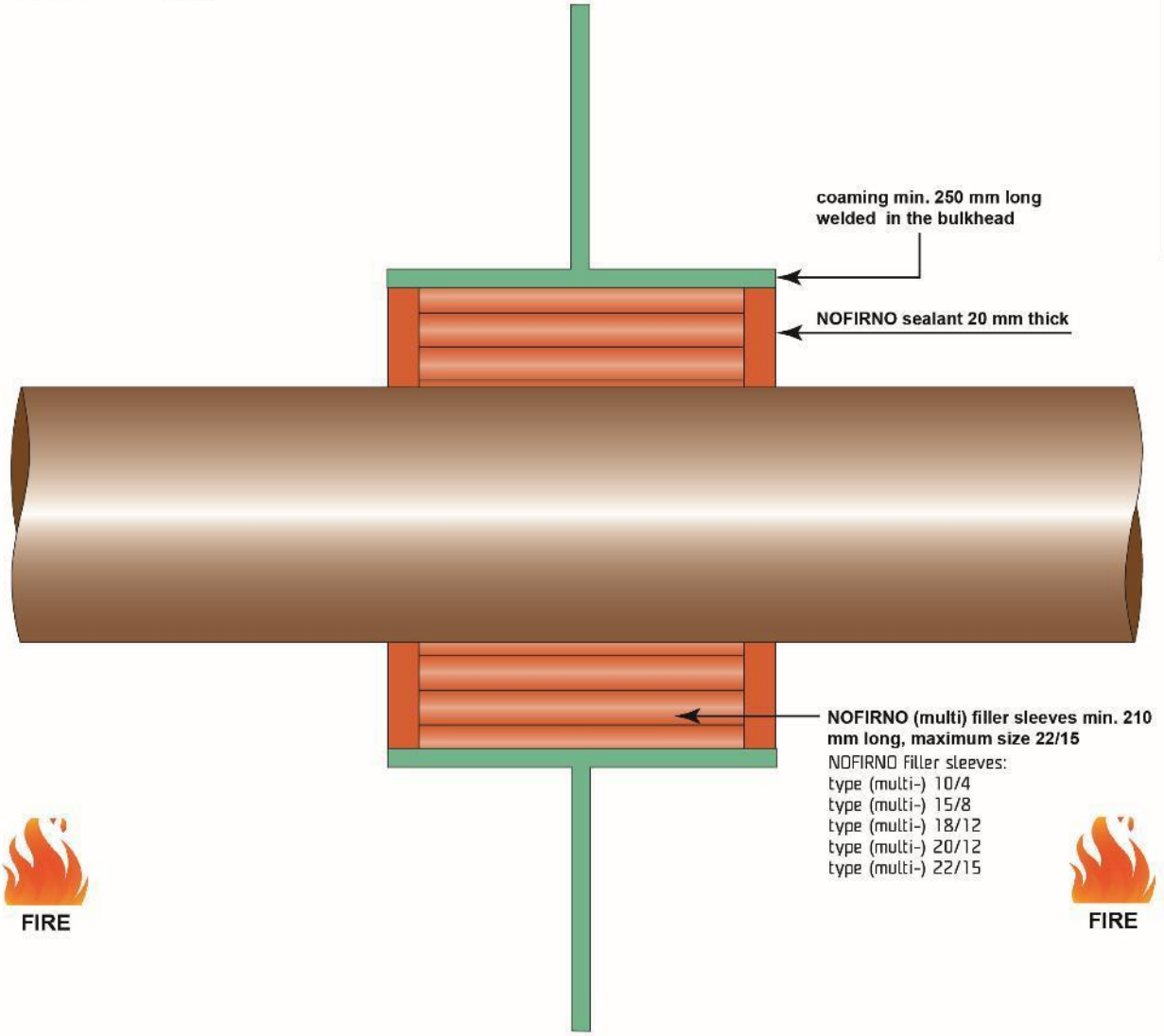
direction of exposure:
fire from either side

NOFIRNO MULTI-SEALING SYSTEM
for copper pipes min. 1/16" - max 4" NPS

Minimum clearance between the conduit sleeve and the ducted pipes and in between the ducted pipes:

OD pipe	
up to 3"	15 mm
≥3" up to 4"	20 mm



conduit sleeve positioned:
- symmetrically
or
- non-symmetrically with longest length on non-fire side

BEELE SAFETY SEALING SYSTEMS	Description: NOFIRNO sealing system for A0 class bulkheads			
	Mat.: NOFIRNO sleeves/sealant			
	Ref.: JAB	Date:	20-07-2020	Scale:
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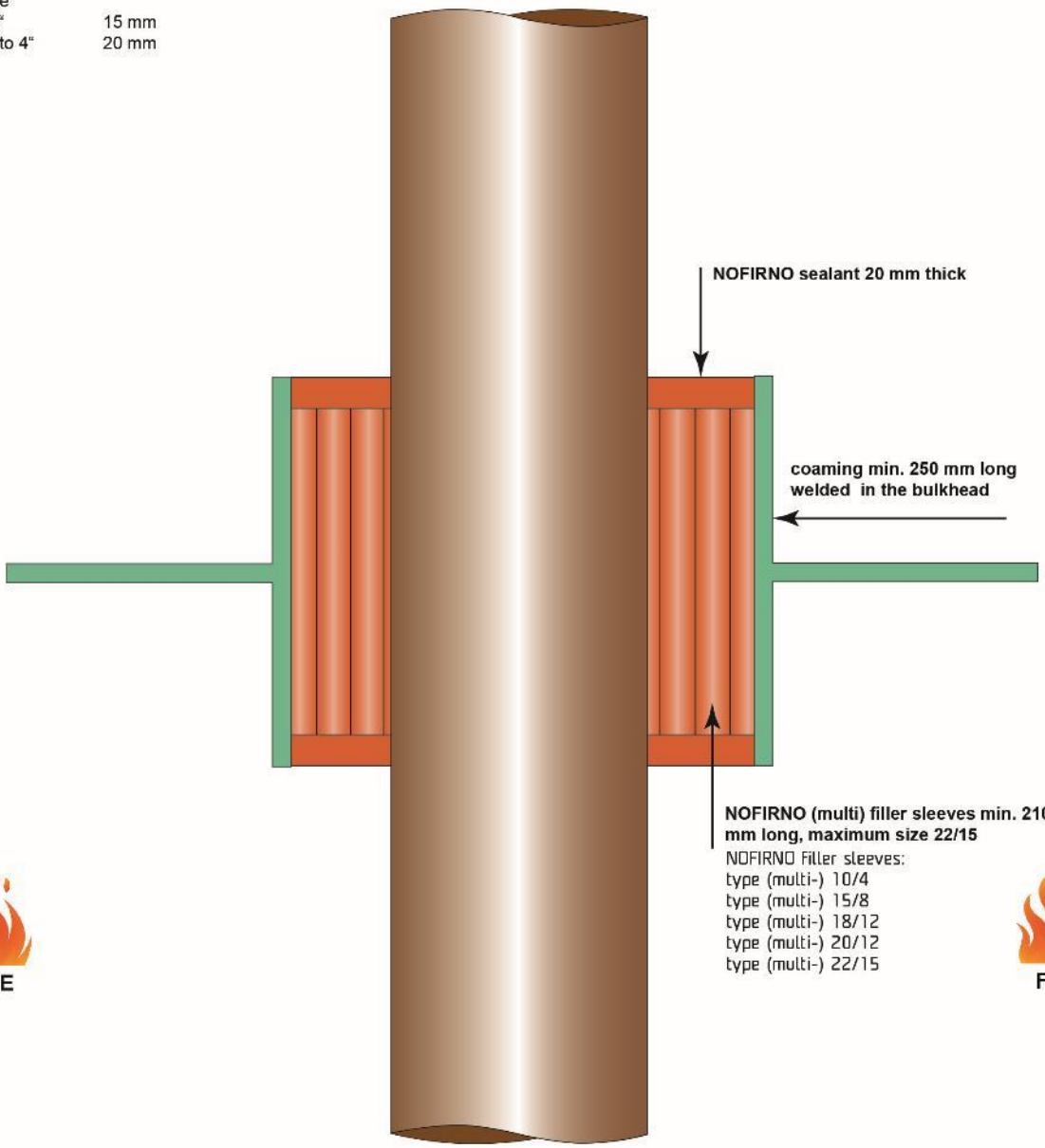
direction of exposure:
fire from either side

NOFIRNO MULTI-SEALING SYSTEM
for copper pipes min. 1/16" - max 4" NPS

Minimum clearance between the conduit sleeve and the ducted pipes and in between the ducted pipes:

OD pipe	
up to 3"	15 mm
≥3" up to 4"	20 mm



conduit sleeve positioned:
- symmetrically
or
- non-symmetrically with longest length on non-fire side

BEELE SAFETY SEALING SYSTEMS	Description: NOFIRNO sealing system for A0 class decks			
	Mat.: NOFIRNO sleeves/sealant			
	Ref.: JAB	Date:	20-07-2020	Scale:
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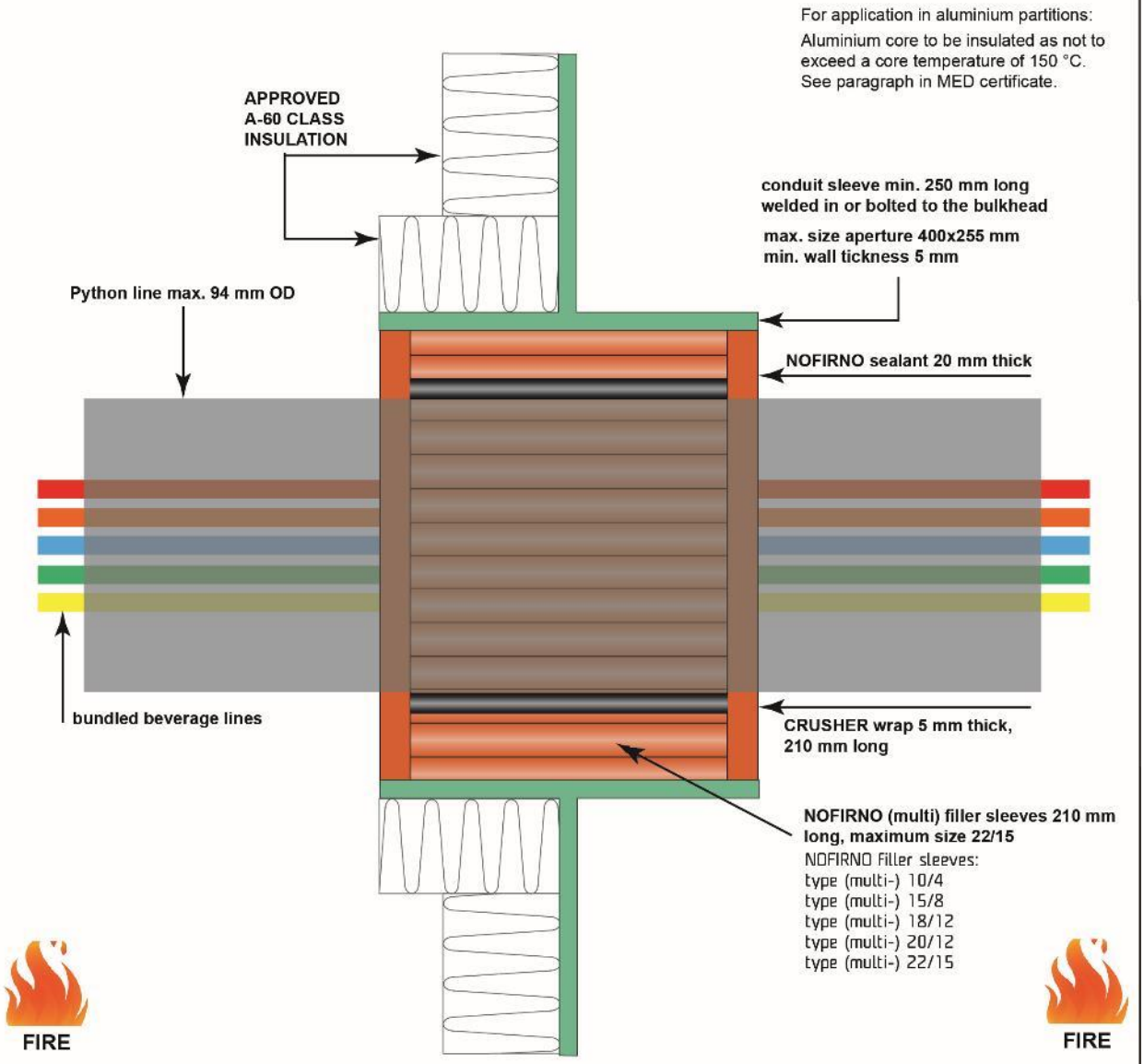
direction of exposure:
fire from either side

NOFIRNO SEALING SYSTEM for insulated Python beverage lines up to 94 mm single and multi penetrations



conduit sleeve positioned:
- symmetrical
or
- non-symmetrical with longest length on insulated side

BEELE SAFETY SEALING SYSTEMS	Description: NOFIRNO sealing system for A60 class bulkheads			
	Mat.: NOFIRNO sleeves/sealant & Crusher			
	Ref.: JAB	Date:	01-09-2020	Scale:
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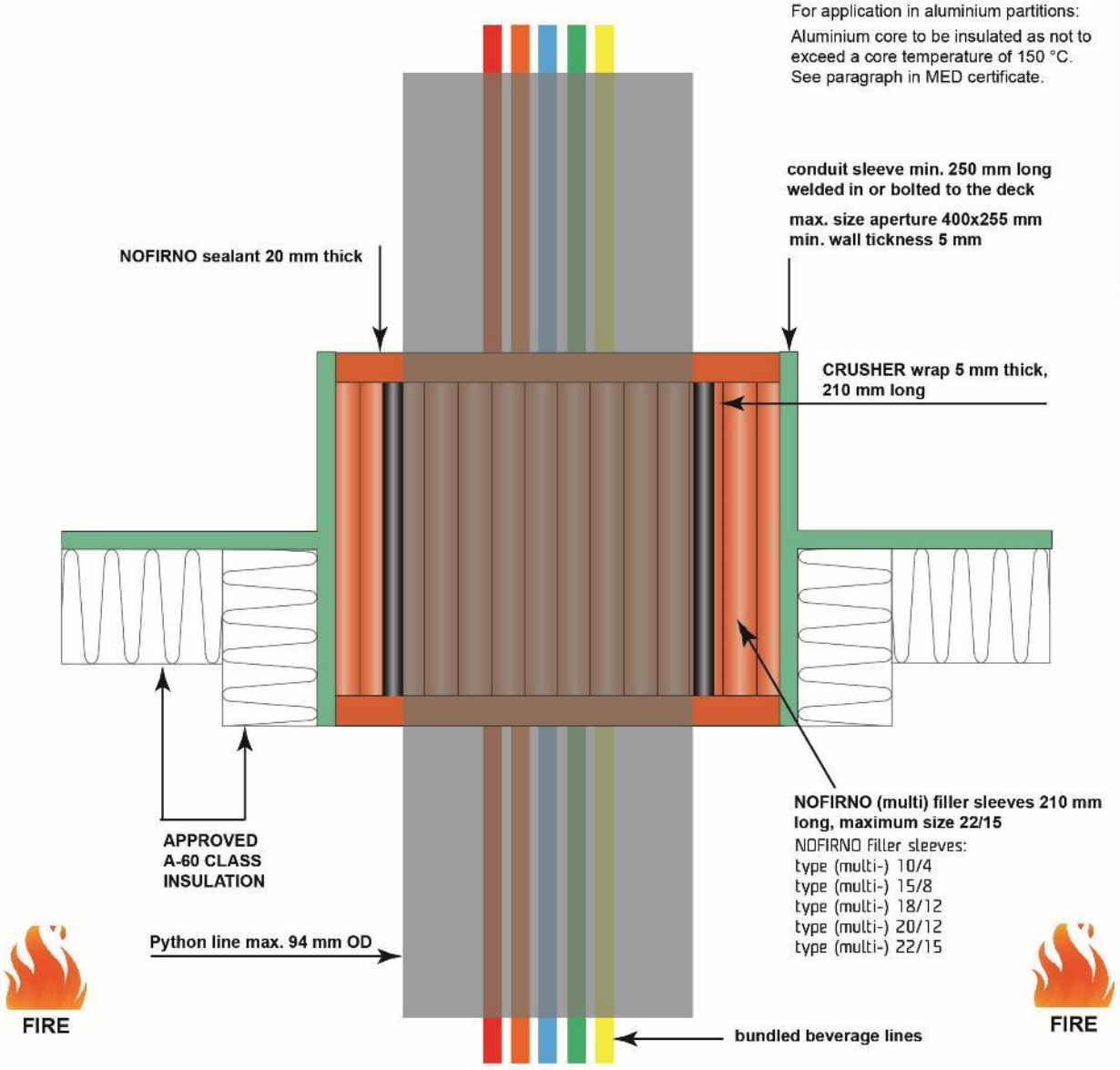
		Rev. 2		

direction of exposure:
fire from either side

NOFIRNO SEALING SYSTEM for insulated Python beverage lines up to 94 mm single and multi penetrations



conduit sleeve positioned symmetrical in the deck up to totally above deck

BEELE SAFETY SEALING SYSTEMS	Description: NOFIRNO sealing system for A60 class decks			
	Mat.: NOFIRNO sleeves/sealant & Crusher			
	Ref.: JAB	Date:	01-09-2020	Scale:
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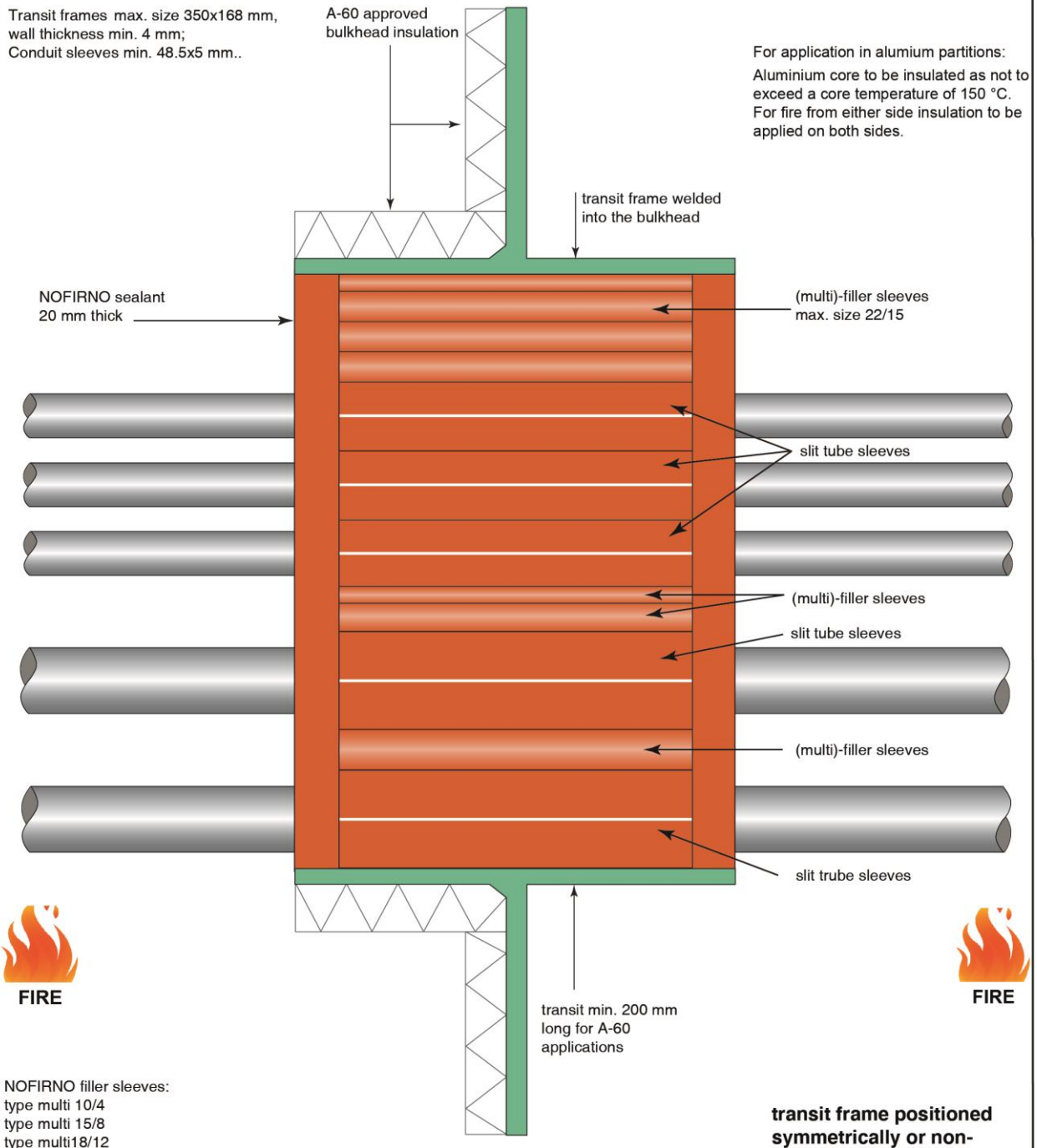
		Rev. 2		

direction of exposure:
fire from either side

A60 class transits with steel/ss/CuNi single and multi-tubes min. 10 mm/max. 22 mm OD sealed with the NOFIRNO sealing system



NOFIRNO filler sleeves:
type multi 10/4
type multi 15/8
type multi18/12
type multi 20/12
type multi 22/15

single sleeves can be torn off from the NOFIRNO multi sleeves

transit frame positioned symmetrically or non-symmetrically with longest length on insulated side

BEELE SAFETY SEALING SYSTEMS	Description: NOFIRNO sealing system for A-60 class bulkheads			
	Mat.: NOFIRNO sleeves/sealant			
	Ref.: JAB	Date:	15-02-2021	Scale:
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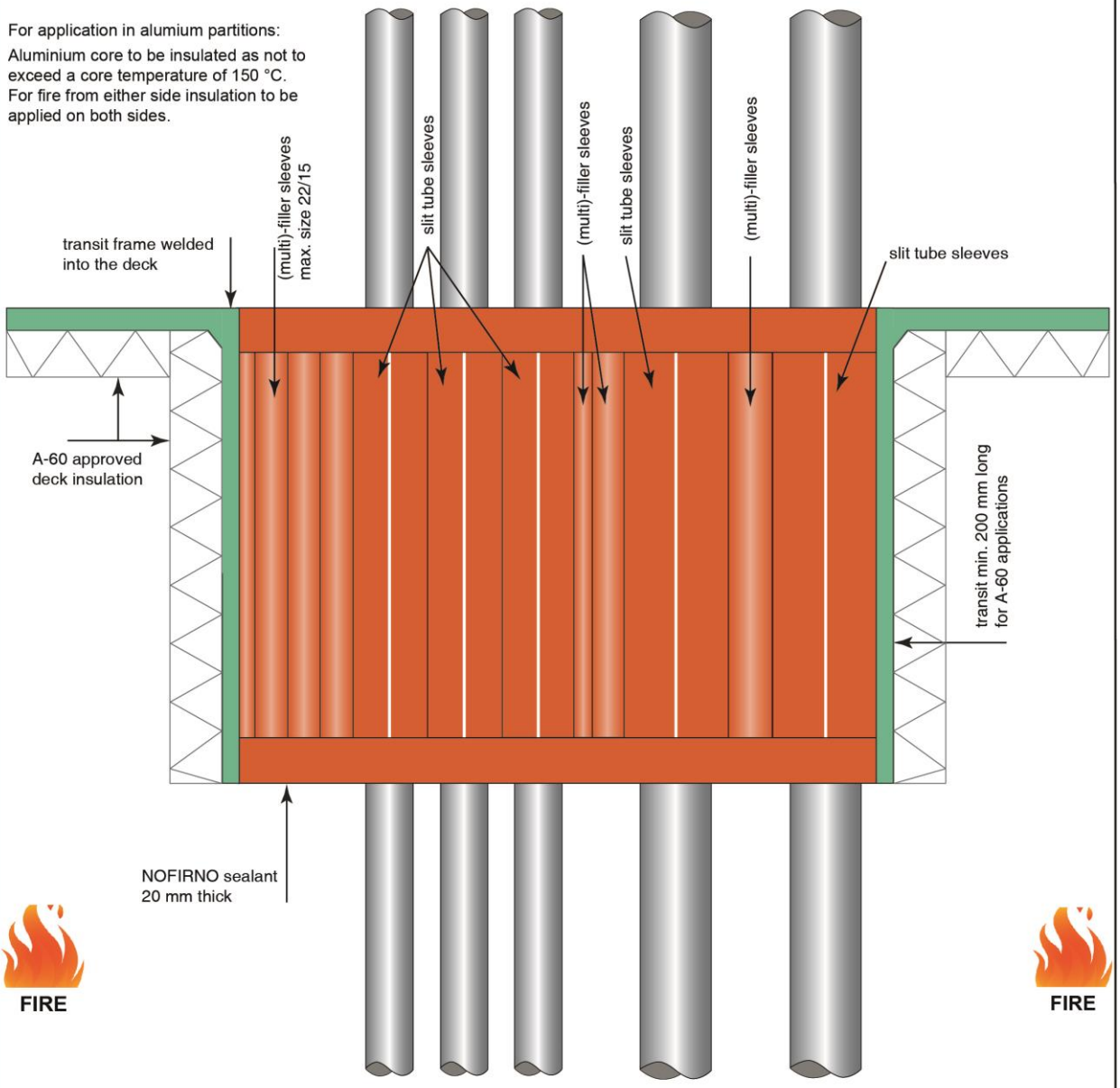
		Rev. 2		

direction of exposure: fire from either side

A60 class transits with steel/ss/CuNi single and multi-tubes min. 10 mm/max. 22 mm OD sealed with the NOFIRNO sealing system

Transit frames max. size 350x168 mm,
wall thickness min. 4 mm;
Conduit sleeves min. 48.5x5 mm..

For application in alumium partitions:
Aluminium core to be insulated as not to exceed a core temperature of 150 °C.
For fire from either side insulation to be applied on both sides.



NOFIRNO filler sleeves:
type multi 10/4
type multi 15/8
type multi18/12
type multi 20/12
type multi 22/15

single sleeves can be torn off from the NOFIRNO multi sleeves

transit frame positioned totally below deck up to totally above deck

BEELE SAFETY SEALING SYSTEMS	Description: NOFIRNO sealing system for A-60 class decks			
	Mat.: NOFIRNO sleeves/sealant			
	Ref.: JAB	Date:	15-02-2021	Scale:
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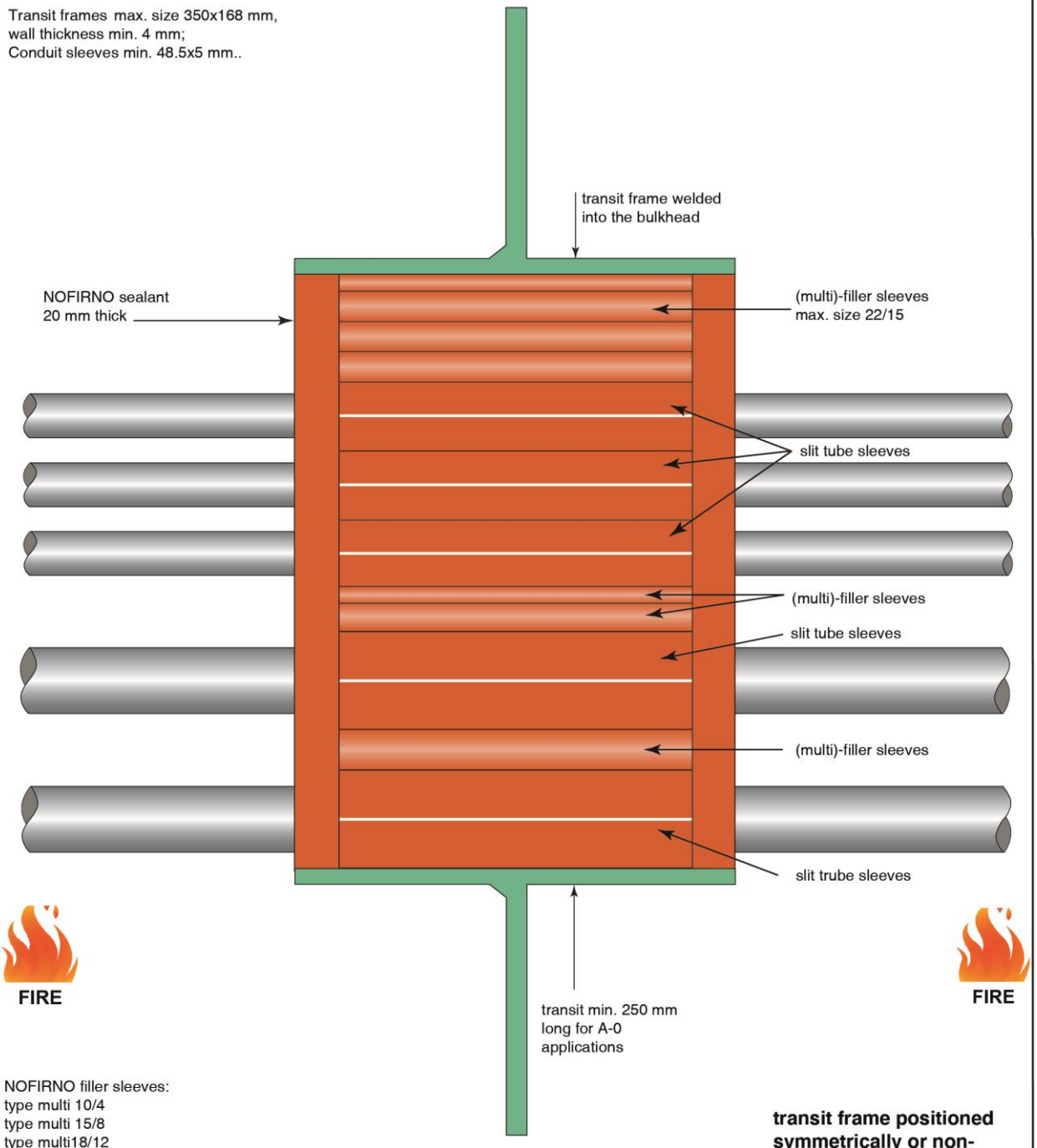
		Rev. 2		

direction of exposure:
fire from either side

AO class transits with steel/ss/CuNi single and multi-tubes min. 10 mm/max. 22 mm OD sealed with the NOFIRNO sealing system

Transit frames max. size 350x168 mm,
wall thickness min. 4 mm;
Conduit sleeves min. 48.5x5 mm..



NOFIRNO filler sleeves:
type multi 10/4
type multi 15/8
type multi18/12
type multi 20/12
type multi 22/15

single sleeves can be torn off from the NOFIRNO multi sleeves

transit frame positioned symmetrically or non-symmetrically with longest length on unexposed side

BEELE SAFETY SEALING SYSTEMS	Description: NOFIRNO sealing system for A-0 class bulkheads			
	Mat.: NOFIRNO sleeves/sealant			
	Ref.: JAB	Date:	29-04-2021	Scale:
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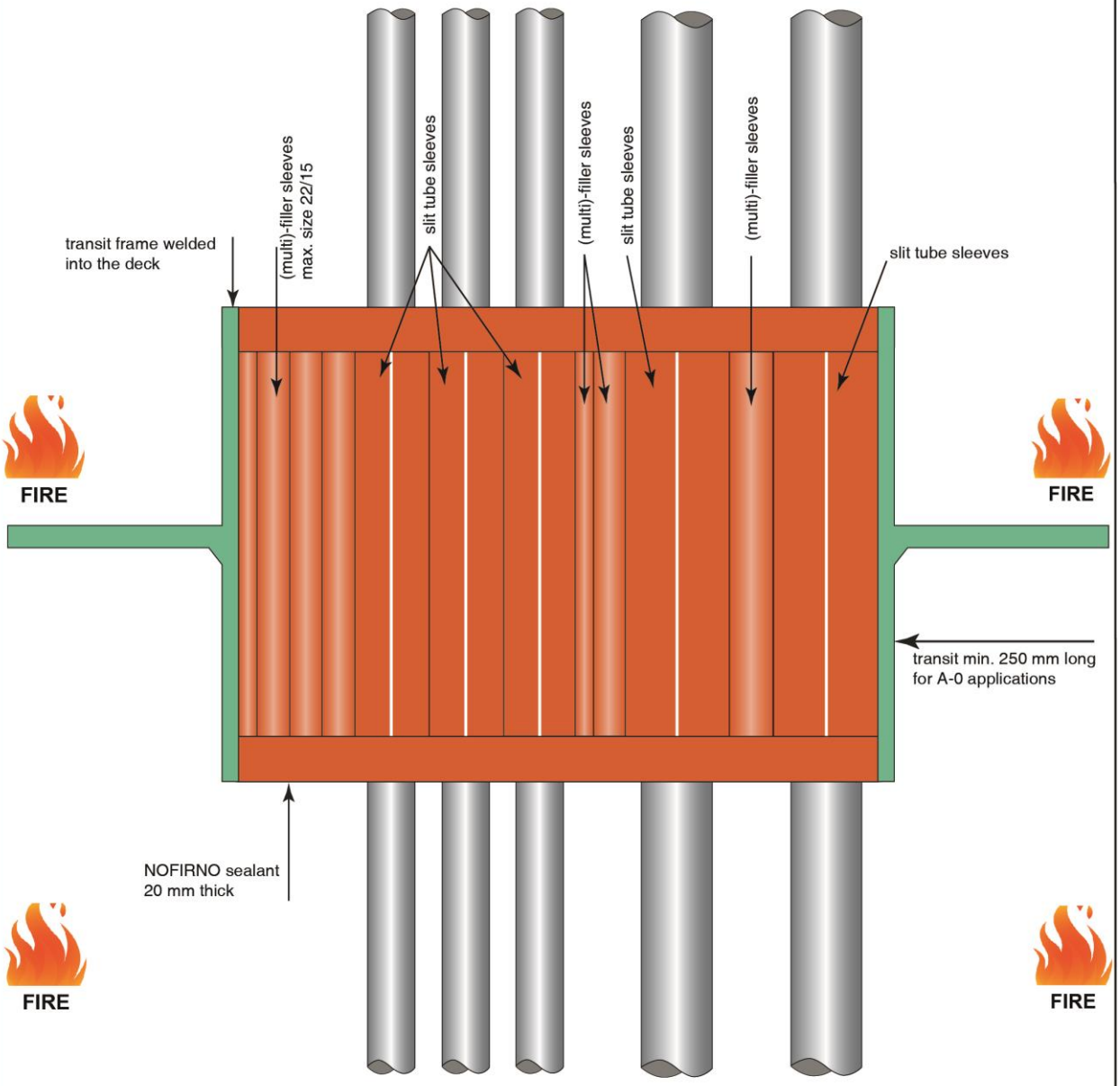
		Rev. 2		

direction of exposure:
fire from either side

AO class transits with steel/ss/CuNi single and multi-tubes min. 10 mm/max. 22 mm OD sealed with the NOFIRNO sealing system

Transit frames max. size 350x168 mm,
wall thickness min. 4 mm;
Conduit sleeves min. 48.5x5 mm..



NOFIRNO filler sleeves:
type multi 10/4
type multi 15/8
type multi18/12
type multi 20/12
type multi 22/15

single sleeves can be torn off from the NOFIRNO multi sleeves

transit frame positioned symmetrically or non-symmetrically with longest length on unexposed side

BEELE SAFETY SEALING SYSTEMS	Description: NOFIRNO sealing system for A-0 class decks			
	Mat.: NOFIRNO sleeves/sealant			
	Ref.: JAB	Date:	29-04-2021	Scale:
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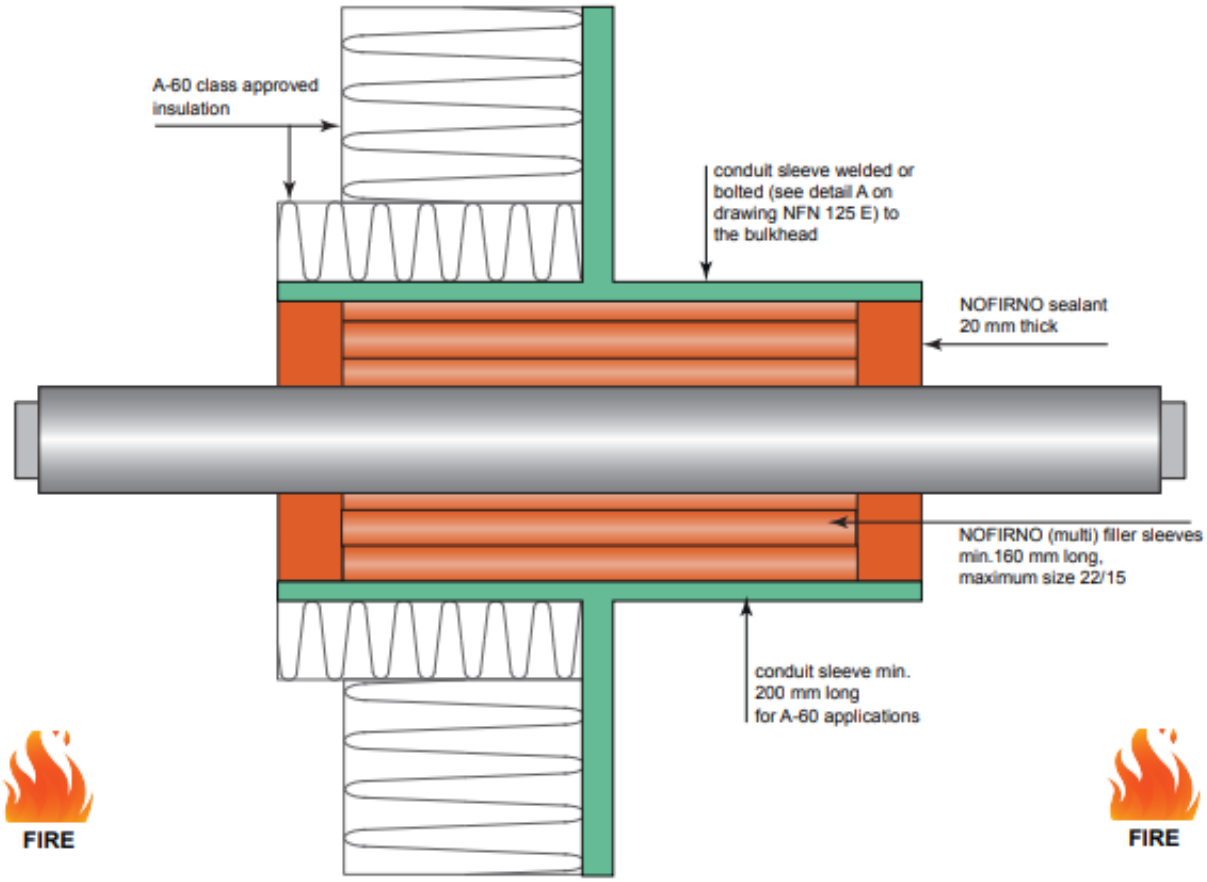
		Rev. 2		

direction of exposure:
fire from either side

A-60 class penetrations for multi-layer Pe/Alu/Pe, max. 40 mm OD, alu layer min. 0.44 mm sealed with the NOFIRNO sealing system (filler sleeves and sealant) conduit sleeve max. 4"

For application in aluminium partitions:
Aluminium core to be insulated as not to exceed a core temperature of 150 °C.
For fire from either side insulation to be applied on both sides.
See paragraph in MED certificate.



NOFIRNO filler sleeves:
type (multi-) 10/4
type (multi-) 15/8
type (multi-) 18/12
type (multi-) 20/12
type (multi-) 22/15

conduit sleeve positioned:
- symmetrical
or
- non-symmetrical with longest length on insulated side

BEELE SAFETY SEALING SYSTEMS

Description: NOFIRNO sealing system for A60 class multi-layer pipe transits			
Mat.: NOFIRNO sleeves/sealant			
Ref.: JAB	Date:	22-03-2023	Scale:
Rev. 1			NFN 234E
Rev. 2			

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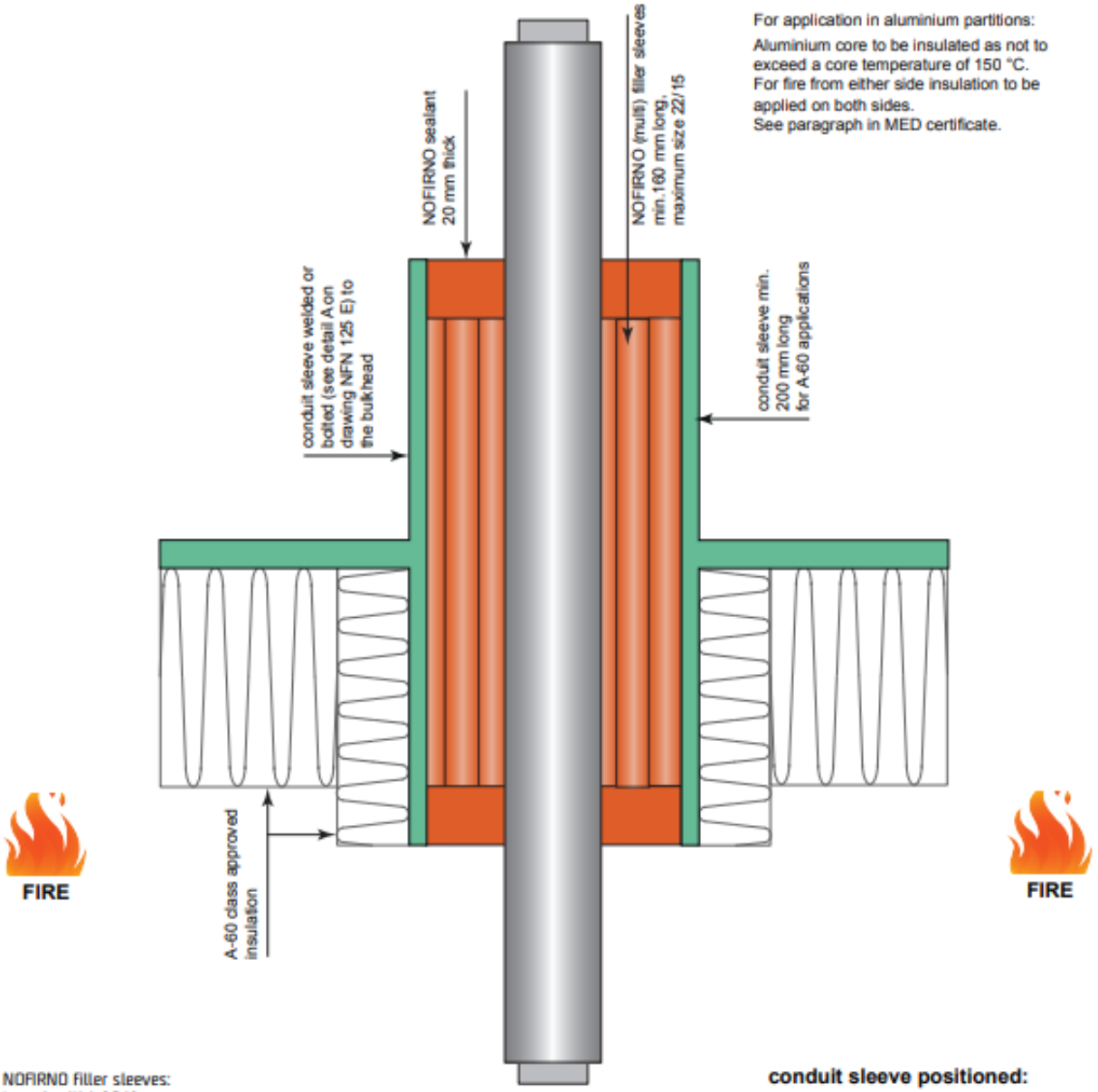
direction of exposure:
fire from either side

A-60 class penetrations for multi-layer Pe/Alu/Pe, max. 40 mm OD, alu layer min. 0.44 mm sealed with the NOFIRNO sealing system (filler sleeves and sealant) conduit sleeve max. 4"

For application in aluminium partitions:
Aluminium core to be insulated as not to exceed a core temperature of 150 °C.
For fire from either side insulation to be applied on both sides.
See paragraph in MED certificate.



NOFIRNO filler sleeves:
type (multi-) 10/4
type (multi-) 15/8
type (multi-) 18/12
type (multi-) 20/12
type (multi-) 22/15

conduit sleeve positioned:
- symmetrical
or
- non-symmetrical with longest length on insulated side

BEELE SAFETY SEALING SYSTEMS

Description: NOFIRNO sealing system for A60 class multi-layer pipe transits			
Mat.: NOFIRNO sleeves/sealant			
Ref.: JAB	Date:	22-03-2023	Scale:
	Rev. 1		NFN 235E
	Rev. 2		

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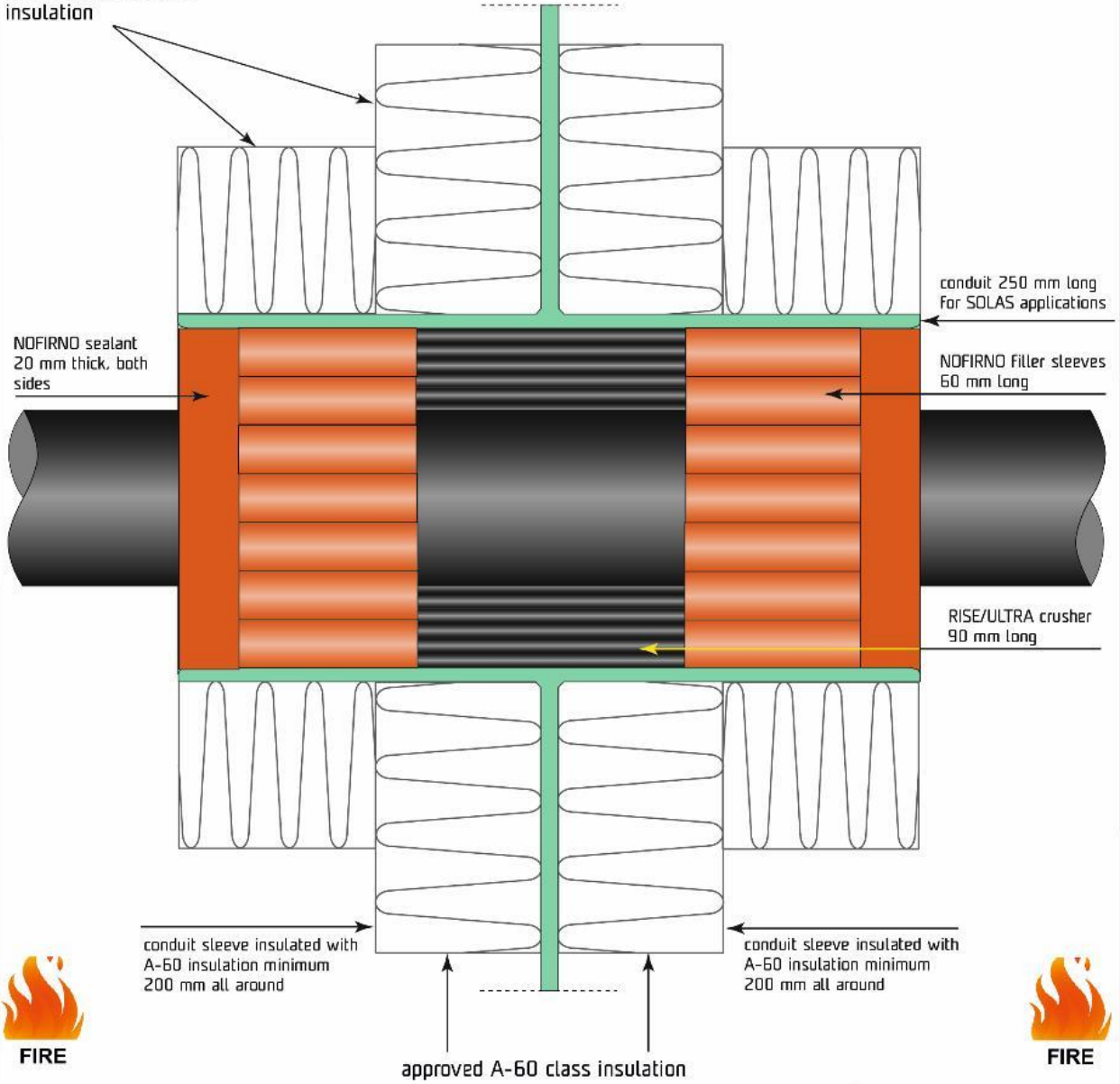
direction of exposure:
fire from either side*
* note: due to A-0 conditions insulation always to be placed on both sides

conduit sleeve positioned symmetrically

approved A-60 class insulation

NOFIRNO/CRUSHER SEALING SYSTEM for plastic pipes max. 75 mm OD for applications watertight after fire exposure acc. to SOLAS Chapter II-I, Regulation II.2.3 (2014)



A-0 bulkheads below deck

BEELE SAFETY SEALING SYSTEMS	Description: NOFIRNO sealing system for SOLAS Regulation 13			
	Mat.: NOFIRNO rubber and sealant & RISE/ULTRA rubber			
	Ref.: AG	Date:	18-04-18	Scale:
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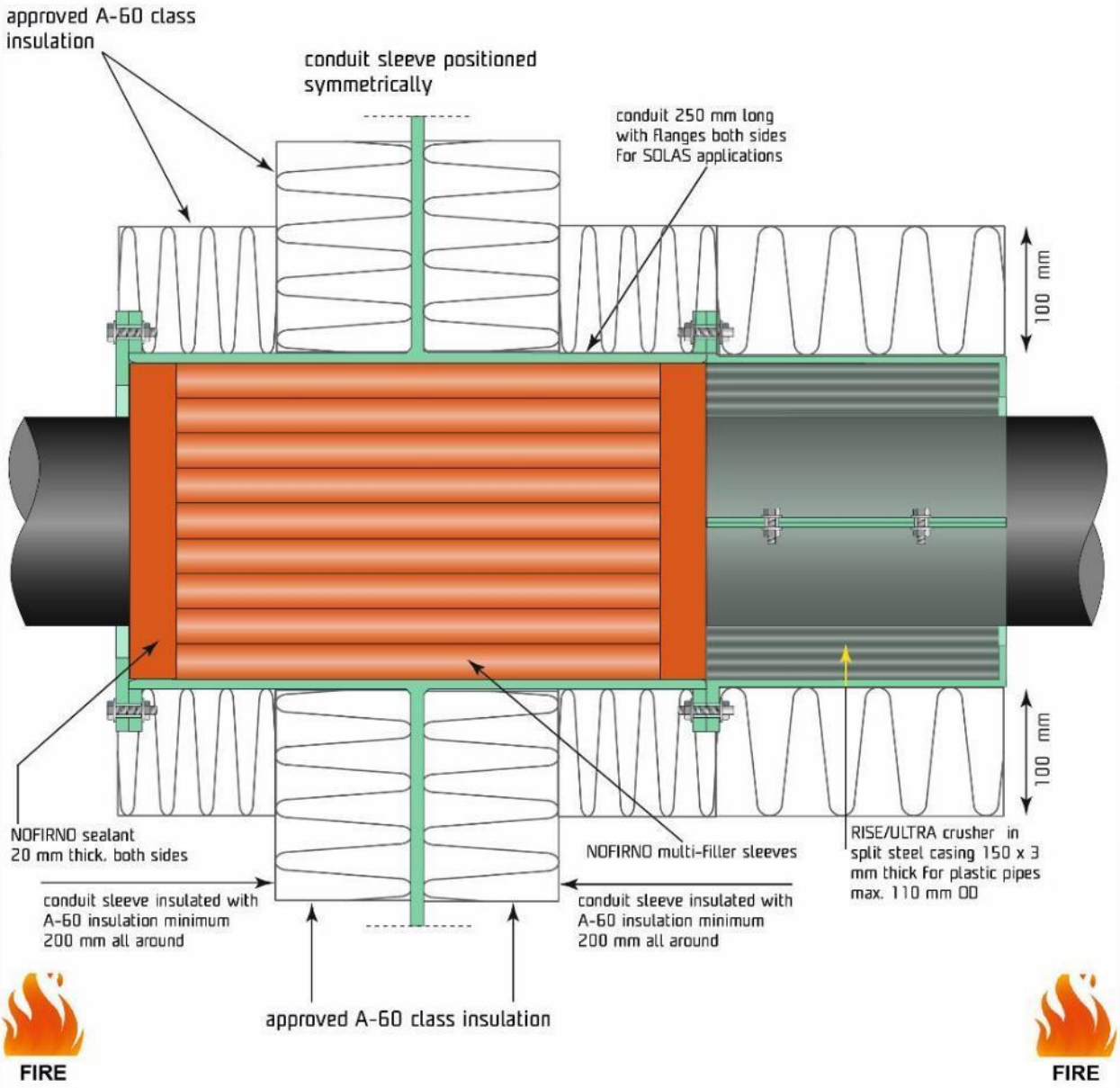
		Rev. 2		

direction of exposure:
fire from either side*
* note: fire either side only when RISE/ULTRA is placed on both sides
* note: due to A-0 conditions insulation always to be placed on both sides

NOFIRNO SEALING SYSTEM for plastic pipes max. 110 mm OD for applications watertight after fire exposure acc. to SOLAS Chapter II-I, Regulation 13.2.3 (2014)



A-0 bulkheads below deck

BEELE SAFETY SEALING SYSTEMS	Description: NOFIRNO sealing system for SOLAS Regulation 13			
	Mat.: NOFIRNO rubber and sealant & RISE/ULTRA rubber			
	Ref.: AG	Date:	18-04-18	Scale:
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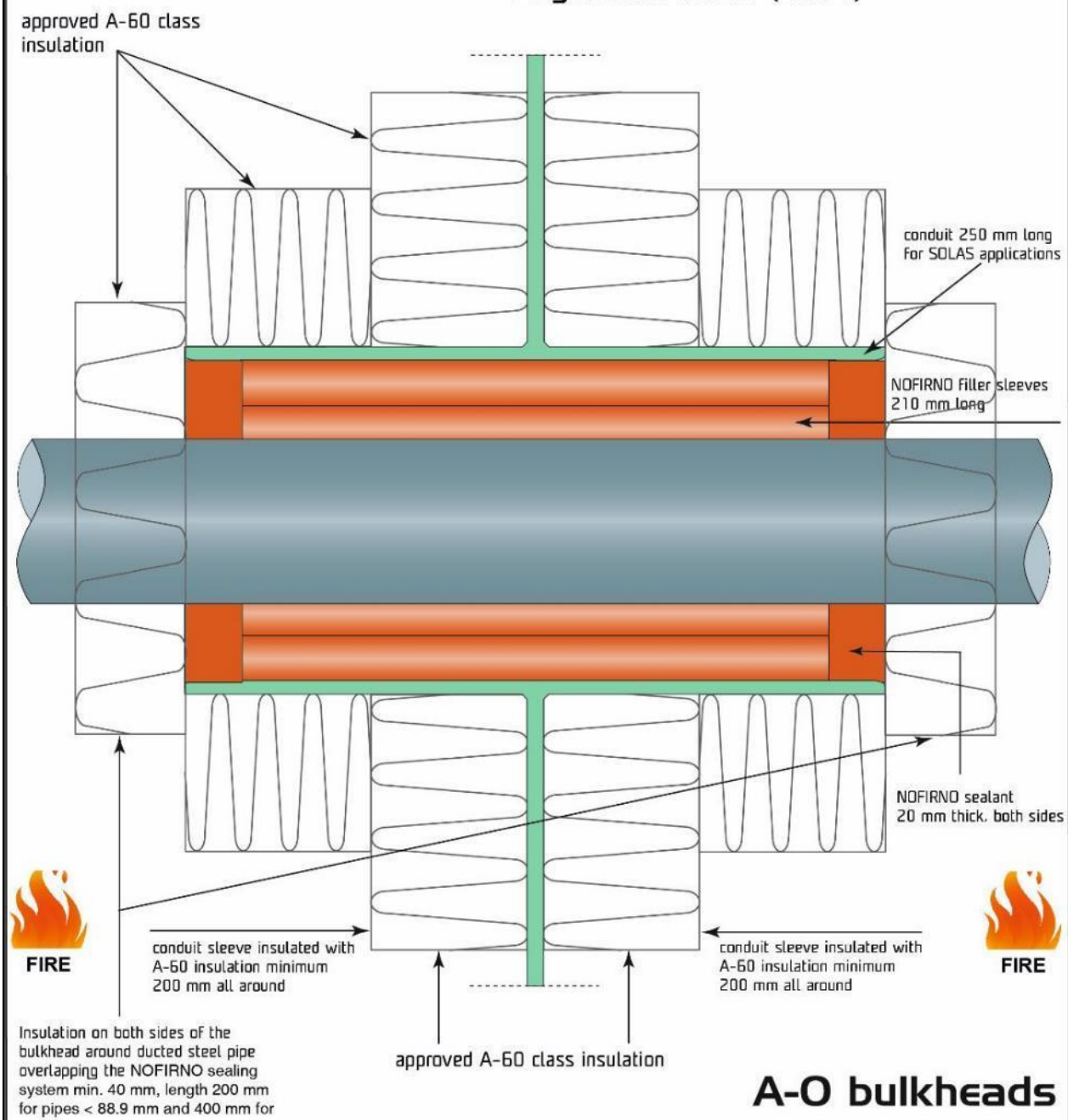
		Rev. 2		

direction of exposure:
fire from either side*
* note: fire either side only when insulation is placed on both sides

conduit sleeve positioned symmetrically

NOFIRNO SEALING SYSTEM for for steel/ss/CuNi pipes max. NPS 6" for applications watertight after fire exposure acc. to SOLAS Chapter II-I, Regulation 13.2.3 (2014)



A-0 bulkheads below deck

BEELE SAFETY SEALING SYSTEMS

Description: NOFIRNO sealing system for SOLAS Regulation 13			
Mat.: NOFIRNO rubber and sealant			
Ref.: AG	Date:	18-04-18	Scale:
	Rev. 1	20-07-18	SOLAS 08
	Rev. 2	22-10-19	

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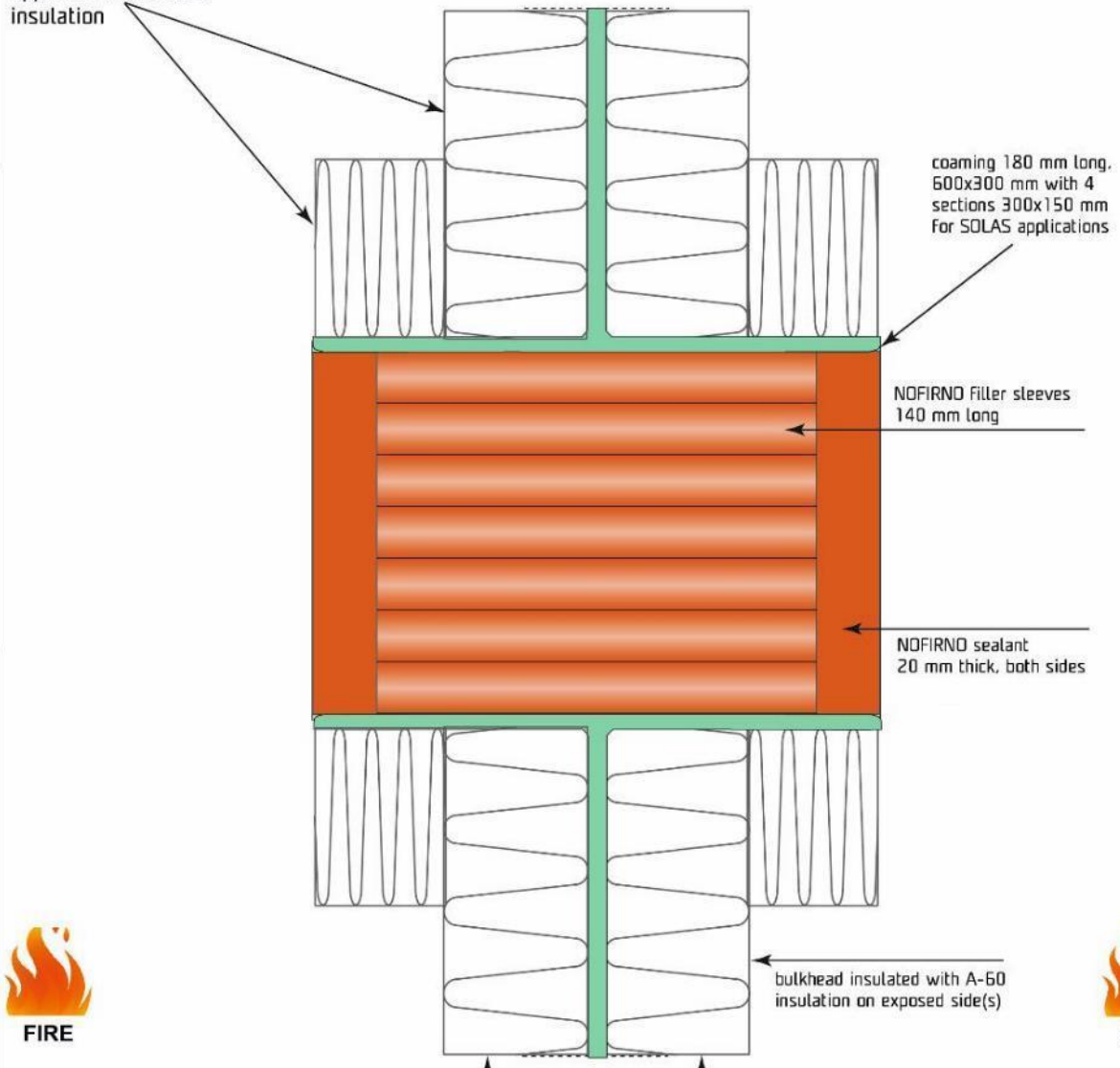
direction of exposure:
fire from either side*
* note: fire either side only when insulation is placed on both sides

conduit sleeve positioned symmetrically

approved A-60 class insulation

NOFIRNO SEALING SYSTEM for blind penetrations 600x300 mm for applications watertight after fire exposure acc. to SOLAS Chapter II-I, Regulation 13.2.3 (2014)



approved A-60 class insulation for fire exposure both sides or in case fire from one side insulation at the exposed side only

A-60 bulkheads below deck

BEELE SAFETY SEALING SYSTEMS	Description: NOFIRNO sealing system for SOLAS Regulation 13			
	Mat.: NOFIRNO rubber and sealant			
	Ref.: AG	Date:	18-04-18	Scale: 1 : 2
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		Rev. 2		