



## CERTIFICATE OF FIRE APPROVAL


This is to certify that

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

<b>Manufacturer</b>	ILTA INOX S.p.A
<b>Address</b>	Strada Statale 45 Bis 1-26010 Robecco D'Oglio Cremona Italy
<b>Type</b>	<b>PIPE PENETRATION (STANDARD FIRE TEST)</b>
<b>Description</b>	Single Pipe Penetration – Type: "HERMETIC Spa Pipe Penetration" (6mm to 273mm pipe diameters)
<b>Specified Standard</b>	IMO Res. MSC.61(67)-(FTP Code) Annex 1 Part 3 IMO MSC/Circ.1120 IMO Res. MSC.307 (88)-(2010 FTP Code) Section 8

**The attached Design Appraisal Document forms part of this certificate.**

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

Date of issue	3 March 2014	Expiry date	2 March 2019
Certificate No.	SAS F140351	Signed	
Sheet No	1 of 6	Name	S. Abraham Surveyor to Lloyd's Register EMEA A Member of the Lloyd's Register Group

**Note:**

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

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## DESIGN APPRAISAL DOCUMENT

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3 March 2014	MTES/SFS/TA/SA/WP20806402

### ATTACHMENT TO CERTIFICATE OF TYPE APPROVAL No. SAS F140351

This Design Appraisal Document forms part of the Certificate.

#### APPROVAL DOCUMENTATION

Laboratorio Prevenzione Incendi srl. (LAPI), Via della Quercia, Italy; Fire Test Report No: 1073.4IM0150-09 dated 02 October 2009.

Registro Italiano Navale (RINA), Genova, Italy; Fire Test Reports No: 2008CS014752 dated 30 March 2009, 2009CS011893 dated 4 June 2009, 2009CS012436 dated 17 September 2009 and 2009CS013911 dated 19 October 2009

#### CONDITIONS OF CERTIFICATION

1. For applications in A-60 Class steel bulkheads and decks, with approved insulation arrangements (Please see Tables 1 and 2 below for details of penetrations tested in A-60 Class divisions and the maximum fire rating achieved in each case). Penetrations that achieved lower fire ratings such as A-0, A-15 or A-30 when tested in A-60 Class divisions are restricted for applications in such lower fire rated divisions and they shall be fitted with the same as-tested A-60 Class insulation arrangements (including any insulation fitted on the penetration and/or pipe) for a minimum distance of 200mm on both sides in bulkheads and at least on the underside in decks.
2. For applications in A-0, A-15, A-30 Class steel bulkheads and decks, all penetrations that achieved A-60 Classification in the A-60 Class fire tests (Please see Tables 1 and 2 in Appendix 1) shall be fitted with the same as-tested A-60 Class insulation arrangements (including any insulation fitted on the penetration and/or pipe) for a minimum distance of 200mm on both sides in bulkheads and at least on the underside in decks.
3. All penetrations tested separately for A-0 in A-60 Class steel bulkheads and decks are to be insulated as per Tables 3 and 4 below when fitted in A-0 Class steel bulkheads and decks.
4. The above mentioned A-60 Class insulation arrangements should be additional to any thermal or acoustic insulation, but may include any fire rated insulation (e.g. A-15, or A-30) already fitted on the bulkhead or deck and/or on the penetration itself, such that the total fire rating is A-60.
5. Hermetic Pipe Penetration Seal consisting of: stainless steel or carbon steel pipe passing through a firebreak collar comprising three metal disks and sealed with type "INFS 0811" Intumescent seal (manufactured by International Carbide Technology Co. Ltd) and EPDM rubber seals.
6. Pipe diameters to be within the range 6mm to 273mm.
7. Production items are to be manufactured in accordance with a quality control system which shall be maintained to ensure that items are of the same standard as the approved prototype.

#### NOTE

273mm pipe penetration was hydrostatically tested to 15 bar for a duration of 60 minutes and a 15mm pipe penetration was hydrostatically tested to 20 bar for a duration of 60 minutes as detailed in LR Genoa Factual Report No. GEN 9800344/1, dated 18 November 1998.



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**Table 1: Details of penetrations tested in A-60 Class steel bulkheads, maximum fire rating achieved and minimum insulation arrangements to be provided in all cases**

Penetration ID/Flange Material	Pipe Maximum Outer Dia (mm)/Pipe Material	Maximum fire rating achieved	Minimum insulation arrangements (Also see notes 1 to 2)	
			On the Fire Exposed Side	On the Fire Unexposed Side/Insulated side
Hermetic DN6/Stainless Steel	6/Stainless Steel	A-60	A 70mm thick layer of Type 1 insulation to fully cover the penetration and the pipe for 100mm	A 70mm thick layer of Type 1 insulation to fully cover the penetration and the steel pipe for 40mm
Hermetic DN15/Stainless Steel	15/Stainless Steel	A-60	A 60mm thick layer of Type 1 insulation to fully cover the penetration and the pipe for 60mm, followed by a 30mm thick, 40mm deep layer of the same Type 1 insulation	A 60mm thick layer of Type 1 insulation to fully cover the penetration and the pipe for 40mm
Hermetic DN219/Stainless Steel	219/Stainless Steel	A-15	A 70mm thick layer of Type 1 insulation to fully cover the penetration and the pipe for 100mm	A 70mm thick layer of Type 1 insulation to fully cover the penetration and the pipe for 40mm
Hermetic DN219/Stainless Steel	219/Stainless Steel	A-30	A 70mm thick layer of Type 1 insulation to fully cover the penetration and the pipe for 100mm	A 70mm thick layer of Type 1 insulation to fully cover the penetration and the pipe for 400mm
Hermetic DN219/Stainless Steel	219/Stainless Steel	A-60	A 70mm thick layer of Type 1 insulation to fully cover the penetration and the pipe for 500mm	A 70mm thick layer of Type 1 insulation to fully cover the penetration and the pipe for 500mm, additionally a 50mm thick layer of the same insulation fitted around the pipe insulation for 200mm
Hermetic DN273/Stainless Steel	273/Stainless Steel	A-15	No insulation may be fitted on the pipe or penetration	Penetration to be fully concealed within the bulkhead insulation, no additional insulation may be fitted on the pipe or penetration
Hermetic DN273/Stainless Steel	273/Stainless Steel	A-30	A 70mm thick layer of Type 1 insulation to fully cover the penetration and the pipe for 100mm	A 70mm thick layer of Type 1 insulation to fully cover the penetration and the pipe for 400mm

1. The minimum length of insulation on the insulated side and uninsulated side of the bulkhead is to be measured from the bulkhead insulation and from the bulkhead steel plate respectively, unless stated otherwise.
2. Type 1 Insulation: Paroc Marine Fire Slab 100 (100kg/m<sup>3</sup>)



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**Table 2: Details of penetrations tested and approved in A-60 Class steel decks, maximum fire rating achieved and minimum insulation arrangements to be provided in all cases**

Penetration ID/Flange Material	Pipe Maximum Outer Dia (mm)/Pipe Material	Maximum fire rating achieved	Minimum insulation arrangements (Also see notes 1 to 3)	
			On the Fire Exposed Side/ Insulated underside	On the Fire Unexposed Side/Topside
Hermetic DN6/Stainless Steel	6/Stainless Steel	A-60	Penetration to be fully concealed within the deck insulation	A 70mm thick layer of Type 1 insulation to fully cover the penetration and the steel pipe for 100mm
Hermetic DN15/Stainless Steel	15/Stainless Steel	A-60	A 70mm thick layer of Type 1 insulation to fully cover the penetration and the steel pipe for 400mm	No insulation may be fitted on the pipe or penetration
Hermetic DN15/Stainless Steel	15/Carbon Steel	A-60	Penetration to be fully concealed within the deck insulation	A 50mm thick layer of Type 1 insulation to fully cover the penetration and the steel pipe for 100mm
Hermetic DN108/Aluminium	108/Stainless Steel	A-30	Penetration to be fully concealed within the deck insulation	A 50mm thick layer of Type 1 insulation to fully cover the penetration and the steel pipe for 100mm
Hermetic DN219/Stainless Steel	219/Carbon Steel	A-60	Two layers of Type 2 insulation to fully cover the penetration and pipe for 500mm (when measured from the deck plate)	A 50mm thick layer of Type 1 insulation to fully cover the penetration and the steel pipe for 100mm. In addition, a 15mm thick layer of Type 2 insulation to cover the pipe for 500mm (when measured from the Type 1 insulation)
Hermetic DN219/Stainless Steel	219/Stainless Steel	A-60	A 70mm thick layer of Type 1 insulation to fully cover the penetration and the steel pipe for 250mm	A 50mm thick layer of Type 1 insulation to fully cover the penetration and the steel pipe for 50mm. In addition, a 15mm thick layer of Type 2 insulation to cover the pipe for 150mm (when measured from the Type 1 insulation)
Hermetic DN273/Stainless Steel	273/Stainless Steel	A-30	A 70mm thick layer of Type 1 insulation to fully cover the penetration and the steel pipe for 400mm	No insulation may be fitted on the pipe or penetration
Hermetic DN273/Stainless Steel	273/Stainless Steel	A-60	Two layers of Type 2 insulation to fully cover the penetration and pipe for 500mm (when measured from the deck plate)	A 50mm thick layer of Type 1 insulation to fully cover the penetration and the steel pipe for 100mm. In addition, a 15mm thick layer of Type 2 insulation to cover the pipe for 500mm (when measured from the Type 1 insulation)

1. The minimum length of insulation on the insulated side and uninsulated side of the deck is to be measured from the deck insulation and from the deck steel plate respectively, unless stated otherwise.
2. Type 1 Insulation: Paroc Marine Fire Slab 100 (100 kg/m<sup>3</sup>)
3. Type 2 Insulation: BIFIRE Microfibre insulation (300 kg/m<sup>3</sup>)



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**Table 3: Details of penetrations tested for A-0 in A-60 Class steel Bulkheads, maximum fire rating achieved and minimum insulation arrangements to be provided when used in A-0 Class steel bulkheads in all cases**

Penetration ID/ Flange Material	Pipe Maximum Outer Dia(mm)/Pipe Material	Maximum fire rating achieved	Minimum insulation arrangements
Hermetic DN6/ Stainless Steel	6/Stainless Steel	A-0	To be fitted with an A-60 Class insulation collar for a minimum distance of 200mm around the pipe and penetration on both sides in A-0 Class steel bulkheads
Hermetic DN15/ Stainless Steel	15/Stainless Steel	A-0	

**Table 4: Details of penetrations tested for A-0 in A-60 Class steel decks, maximum fire rating achieved and minimum insulation arrangements to be provided when used in A-0 Class steel decks in all cases**

Penetration ID/ Flange Material	Pipe Maximum Outer Dia(mm)/Pipe Material	Maximum fire rating achieved	Minimum insulation arrangements
Hermetic DN6/ Stainless Steel	6/Stainless Steel	A-0	The penetration or pipe may not be insulated for applications in A-0 Class decks
Hermetic DN15/ Stainless Steel	15/Stainless Steel	A-0	To be fitted with an A-60 Class insulation collar for a minimum distance of 200mm around the pipe and penetration on the underside in A-0 Class steel decks.
Hermetic DN273/ Stainless Steel	273/Stainless Steel	A-0	

**PLACE OF PRODUCTION**

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#### ATTACHMENT TO CERTIFICATE OF TYPE APPROVAL No. SAS F140351

Saji Abraham  
Senior Specialist  
Statutory Fire and Safety  
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#### Supplementary Type Approval Terms and Conditions

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