



Certificate Of Fire Approval

This is to certify that the product(s) detailed below will be accepted for compliance with the applicable Lloyd's Register Rules and Regulations for use on offshore units classed with Lloyd's Register, and for use on offshore units and onshore facilities when authorised by contracting governments to issue the relevant certificates, licences, permits etc.

Manufacturer	MCT Brattberg AB
Address	SE-37 192 Karlskrona, Sweden
Type	Pipe Penetration (Hydrocarbon Fire Test)
Description	Single and Multiple Steel Pipe Circular Penetration System – Type: “MCT Brattberg RGS, SR, MSR and M Penetrations” in Mild Steel or Stainless Steel Frames, for restricted applications in H Class steel bulkheads and decks insulated on the fire exposed side
Trade Name	MCT Brattberg Pipe Penetrations Seal
Specified Standard	UK Department of Energy Hydrocarbon Time/Temperature Relationship and IMO Resolution A.517(13) and A.754(18)

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 North America, Inc. of any modification or changes to the equipment in order to obtain a valid Certificate.

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

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

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A member of the Lloyd's Register group

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**ATTACHMENT TO CERTIFICATE OF TYPE APPROVAL No. LR23317396SF**

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

This Certificate is Renewal of Certificate Number SAS F170225.

APPROVAL DOCUMENTATION

Manufacturer's Drawing Nos. 106180 Rev. 2, 1060182 Rev. 2, 1060187 Rev. 2, 1060190 Rev. 1, 1060191 Rev. 2 and 1060194 Rev. 2 and 1060404 Rev. 1

TEST REPORTS

BRE Testing, Garston, United Kingdom, Test Report No. 226820, dated 8 May 2006
 BRE Testing, Garston, United Kingdom, Test Report No. 228636, dated 18 August 2006
 Intertek Laboratory, Sweden, Test Report No. 1814340STO-001, dated 28 August 2018

CONDITIONS OF CERTIFICATION

- For use in restricted H-120 and H-60 Class steel decks and H-60 bulkheads that are insulated with approved insulation system of total thickness min 88mm on the fire exposed side; the penetrations and pipes are to be insulated in accordance with Tables 1-3, as described in MCT Brattberg drawings referenced in Tables 1-3.

Table 1: H-120 Deck

Transit type/ frame size	Maximum fire rating achieved	Tested Pipes configuration	Maximum pipes nominal diameter	Minimum insulation arrangements on penetrations and pipes
RGS 6* and RGS 8* with options: RGSC, RGSF, RGSF/B, RGSFO, RGSFO/B, RGSR, RGSK, RGSO, and RGS-btb	H-120	Multi Steel Pipe	30mm	insulation arrangement on penetration: min. 100mm thick <u>on fire hazard side</u> , insulation arrangement as on drawings 1060180 Rev. 2, 1060191 Rev. 2
MSR20, MSR40, MSR50 and MSR63	H-120	Multi Steel Pipe	8mm	insulation arrangement on penetration: min. 76mm thick <u>on fire hazard side</u> , insulation arrangement as on drawing 1060187 Rev. 2
SR25**, SR38, SR49, SR62, SR77, SR102, SR125 and SR150	H-120	Single Steel Pipe	90mm	<u>both side</u> insulation arrangement on penetration: min. 100mm thick on fire hazard side and min 300mm thick on non-hazard side, insulation arrangement as on insulation arrangement as on drawing 1060182 Rev. 2
M10, M16, M25, M35, M50, M60	H-120	Single Steel Pipe	50mm	insulation arrangement on penetration: min. 100mm thick <u>on fire hazard side</u> , insulation arrangement as on drawings 1060194 Rev. 2, 1060190 Rev.1

* Multiple or Combination frames are not approved under this certificate

** Insulation arrangement on penetration: min. 38mm thick on fire hazard side, insulation arrangement as on drawing 1060183 Rev.1

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**ATTACHMENT TO CERTIFICATE OF TYPE APPROVAL No. LR23317396SF****Table 2: H-60 Bulkhead**

Transit type/ frame size	Maximum fire rating achieved	Tested Pipes configuration	Maximum pipes nominal diameter	Minimum insulation arrangements on penetrations and pipes
RGS 6* and RGS 8* with options: RGSC, RGSF, RGSF/B, RGSFO, RGSFO/B, RGSR, RGSK, RGSO, and RGS-btb	H-60	Multi Steel Pipe	30mm	insulation arrangement on penetration: min. 100mm thick <u>on fire hazard side</u> , insulation arrangement as on drawings 1060404 Rev. 1

* Multiple or Combination frames are not approved under this certificate

- For use in H-0 Class steel bulkheads and decks with a ring of H-120 Class approved insulation system around the penetration for a minimum distance of 450mm and insulation fitted on the penetration itself in the same configuration as tested.
- EMP (Electro Magnetic Pulse) types also accepted.
- Pipe Penetration installation/welding arrangements must be as tested in accordance with manufacturer's specifications and to the satisfaction of the attending project surveyor. Any additional requirements specified by the project surveyors for special applications (for example, installations in high stress locations) must also complied with.
- Pipe Penetrations are to be fitted with the as-tested insulation materials in all cases. Any alternative insulation system proposed must be acceptable to the final Project Authority as being equivalent, as least in fire performance, material properties, thickness, and density as the fire tested insulation system. Final insulation arrangements onboard must be to the satisfaction of the attending project surveyor in all cases.
- Composition and application of insulation material, including any flame retardants, to be maintained in production and use in accordance with originally tested composition formula and method of application, and Manufacturer's instruction.
- The Certificate holder is solely responsible for the products supplied under this Certificate and to ensure that their products, whether manufactured by themselves or their licensee manufacturers, if agreed by Lloyd's Register, are fully compliant with the relevant statutory regulations and Lloyd's Register Class Rules as applicable and designed, manufactured and installed to the same quality and specifications as the prototype tested, including components that are designed and manufactured by third parties.
- 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.



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NOTE

RGS penetration transit when tested according to IEC 60529:2013 achieved IP 65 degree of protection s described in Intertek Laboratory, Sweden, Test Report No. 1814340STO-001.

PLACE OF PRODUCTION

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Technical Authority-Statutory
Lloyd's Register Americas

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)