

## Certificate Of Fire Approval

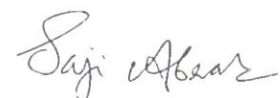
This is to certify that the product(s) detailed below will be accepted for compliance with the applicable Lloyd's Register Rules and Regulations for use on offshore units classed with Lloyd's Register, and for use on offshore units and onshore facilities when authorised by contracting governments to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

<b>Manufacturer</b>	<b>Hy-lok Corporation</b>
<b>Address</b>	97 Noksansandan 27-ro, Gangseo-gu, Busan, 46751, Republic of Korea
<b>Type</b>	Pipe Penetration (Standard Fire Test)
<b>Description</b>	Single and Multiple Stainless-steel Pipe Circular Penetrations – Types: "ACBUW" and "ADBUW", for applications in A-0 Class steel bulkheads and decks
<b>Trade Name</b>	ACBUW" and "ADBUW"
<b>Specified Standard</b>	IMO Res. MSC.307(88) – (2010 FTP Code) Annex 1 Part 3 IMO MSC.1/Circ.1488

This certificate is not valid for equipment, the design or manufacture of which has been varied or modified from the specimen tested. The manufacturer should notify Lloyd's Register EMEA 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.



**Saji Abraham**

Surveyor to Lloyd's Register EMEA  
A member of the Lloyd's Register group

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### **ATTACHMENT TO CERTIFICATE OF TYPE APPROVAL No.LR2004445SF-01**

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

Korea Marine Equipment Research Institute (KOMERI), 435, Haeyang-ro Yeongdo-gu, Busan, Korea, Fire Test Reports No. KOMERI-0402-17T2147 and No. KOMERI-0402-17T2148 both dated 14<sup>th</sup> March 2018.

Manufacturer's Drawings: 2017F25D01, 2017F25D03 and 2017F25D05 (For reference only; product installation and insulation arrangements to be in accordance with Conditions of Certification as described below)

#### **CONDITIONS OF CERTIFICATION**

- Hy-Lok Single and Multiple Stainless-steel Pipe penetrations may be accepted for use in A-0 Class steel bulkheads and decks, with approved arrangements described in Tables 1 and 2, associated notes and manufacturer's drawings listed below

**Table 1-Approved Single Stainless-steel Pipe penetrations in A-0 Class Steel Bulkheads and decks**

Penetration Sleeve (Union) Type/ Drawing Reference	Flange O.D	Connector (Cap) Type/O.D	Penetrating pipe O.D	Minimum insulation arrangements
ACBUW-38M/ 2017F25D03	250mm	ACCA-38M (38mm O.D)	38mm O.D	Penetrations or pipes need not be insulated for A 0 applications as per the tested configuration.
ADBUW 38S/ 2017F25D01		ADCA 38S (38mm O.D)		

- Approval of each penetration is limited to the fire tested configuration only, as described above

**Table 2-Approved Multiple Stainless-steel Pipe Penetrations in A-0 Class Steel Bulkheads and decks**

Penetration Type/ Drawing Reference	Flange O.D	Product description (Penetration Sleeve/Connector(Cap)/Stainless-Steel Pipe)	Minimum Insulation arrangements
AXBW-XXX/ 2017F25D05	280mm	1 x ADBW-06LL120 with ACDA-06L Caps and 6mm O.D pipes 1 x ADBW-15LL120 with ACDA-15L Caps and 15mm O.D pipes 1 x ACBUW-06ML120 with ACCA-06M Caps and 6mm O.D pipes 1 x ACBUW-15ML120 with ACCA-15M Caps and 15mm O.D pipes	Penetration or pipes need not be insulated for A-0 applications as per the tested configuration.



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1. Approval of each multi-pipe penetration is limited to the fire tested configuration with the as-tested pipe types only, as described above. The following deviations may be accepted: the number of pipes in the penetration may be reduced; also, the larger pipes may be replaced with smaller pipes of outside diameter not less than the minimum size pipe of the same type tested in the same penetration. All other deviations from the tested arrangements are subject to case-by-case approvals
2. Consists of: single or multiple stainless-steel pipe penetration sleeves (bulkhead/deck union) fitted symmetrically to a stainless-steel flange plate (250mm or 280mm O.D respectively) by continuous welding on both sides. The steel flange plate is then attached to the steel division, by continuous welding on at least one side of the division. Each pipe penetration sleeve is fitted with threaded stainless steel bite connectors (caps) at each end to connect stainless steel pipes (tubes)
3. The penetration weld 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 be complied with
4. Composition, application and installation of sub components, including adhesives, seals and any fire retardants, to be maintained in production and used in accordance with originally tested composition formula and method of application and installation, and manufacturer's instructions
5. 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
6. 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 and manufactured to the same quality and specifications as the prototype tested, including components that are designed and manufactured by third parties

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**PLACE OF PRODUCTION**

Hy-Lok Corporation  
97 Noksansandan 27-ro  
Gangseo-gu  
Busan 46751  
Republic of Korea



Saji Abraham  
Senior Specialist  
Fire & Safety, Statutory Discipline Team  
UK&I Technical Support Office, Marine & Offshore  
Lloyd's Register EMEA

**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).*