



Marine & Offshore

Certificate number: 44876/B0 BV

File number: ACM 135/2769/02

Product code: 2161H

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

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TYPE APPROVAL CERTIFICATE

This certificate is issued to
HY-LOK CORPORATION
BUSAN - KOREA (REPUBLIC OF)

for the type of product
PIPE FITTINGS
24° Tube Fittings

Requirements:

- BUREAU VERITAS Rules for the Classification of Steel Ships

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

This certificate will expire on: 03 Mar 2027

For Bureau Veritas Marine & Offshore,

At BV PUSAN, on 03 Mar 2022,

Chang-Uk HONG



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

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BV Mod. Ad.E 530 June 2017

This certificate consists of 4 page(s)

THE SCHEDULE OF APPROVAL

1. PRODUCT DESCRIPTION

HY-LOK 24° Tube Fittings - DIN 2353 & ISO 8434-1

1.1 Design

Single ferrule bite type couplings

1.2 Models

DU, DL, DUR, DT, DC, DTR, DBU, DBUW, DBL, DOM-U/M, DMC-G, DMC-R, DMC-M, DMC-GED, DMC-MED., DMC-N, DLM-R/M, DFC-G/M, DLA, DBTA, DRTA, DEW, DET, DEL, DKOR, DR, DRED, DA-GED/MED, DEGE-G/M, DUE, DSWVE-G/M, DWH-G/M, DTH-G/M, DSVW-G/M, DSVT-G/M, DGC-G, DGE-G, DGA-G, DGMA, DEMA, DAS, DASK, DAK, H-MFAD, H-MFAE, H-MFAD-ED, H-MFAE-ED, DVSTI-GED/MED, DVSTI, DVKA, DCA, DIL, N, DKA, DKAZ, DKI, KP-B-S, KP-B-DS, DN & DS.

1.3 Design Pressure

| Serie | Size (mm) | Pressure (bar) |
|-------|-----------|----------------|
| LL | 4 - 12 | 100 |
| L | 6-18 | 315 |
| | 22-42 | 160 |
| S | 6-14 | 630 |
| | 16-30 | 400 |
| | 38 | 315 |

The design pressure depends on materials and temperature

1.4 Temperature range

| | |
|------------------------|--|
| Temperature range (°C) | Stainless steel: - 60 / 400 Brass: -60 / 175 Carbon Steel: -40 / 120 |
|------------------------|--|

1.5 Materials

| | |
|-----------------|--|
| Stainless steel | ASTM A479 Type 316 ASTM A182 F316 |
| Brass | KS/JIS H3250 C3604BD, C3771BE ASTM B16, B124, B283 |
| Carbon Steel | JIS G4051 S20C ASTM A105, A108 |

When other choices of materials are used per manufacturer's recommendations, the BV agreement is to be obtained.

2. DOCUMENTS AND DRAWINGS

- Design specification sheet N° 230TF-DS Rev.2 dated 15/07/2014
- Design plan N° 230TF-DP Rev.2 dated 08/07/2014
- Catalogue N° H-230TF dated 03/2016

No departure from the above documents shall be made without the prior consent of the Society. The manufacturer must inform the Society of any modification or changes to these documents and drawings.

3. TEST REPORTS

Tests carried out, witnessed by an IACS member surveyor:

- Tightness test reports dated 17/05/2010
- Repeated assembly test dated 07/10/2010
- Burst test at 4 times the max working pressure report dated 17/05/2010

- Vibration test and pressure pulsation test reports dated 15/10/2010, 10/11/2010, 29/10/2010, 18/11/2010, 26/11/2010 & 03/12/2010.
- Pull-out test report dated 10/11/2010 & 18/11/2010
- Vacuum test not performed

4. APPLICATION / LIMITATION

4.1 May be used on board for services of class I, class II & class III:

- **Flammable fluids (flash point $\leq 60^{\circ}\text{C}$)** - cargo oil (4), crude oil washing (4), vent lines (3)
- **Inert gas** - water seal/scrubber effluent, main lines (2+4), distributions lines (4)
- **Flammable fluids (flash point $> 60^{\circ}\text{C}$)** - cargo oil (4), fuel oil (2+3), lubricating oil (2+3), hydraulic oil (2+3), thermal oil lines (2+3)
- **Sea water** - bilge/ballast/cooling water (1), water/non-water filled fire extinguishing systems (3), fire main, tank cleaning/non-essential lines
- **Fresh water** - cooling water (1), condensate return (1), non-essential lines
- **Deck drains (internal)** (5) - sanitary drains, scuppers and discharge (overboard)
- **Sounding and venting** - water tanks/dry spaces, oil tanks (flash point $> 60^{\circ}\text{C}$) (2+3)
- **Miscellaneous** - starting/control air (1), service air (non-essential), brine, CO₂ system (1), steam

(1)- Inside machinery spaces of category A – only approved fire resistant types.

(2)- Not inside machinery spaces of category A or accommodation spaces. May be accepted in other machinery space provided the joints are located in easily visible and accessible positions.

(3)- Approved fire resistant types except in cases where such mechanical joints are installed on exposed open decks, as defined in SOLAS II-2/Reg. 9.2.3.3.2.2 (10) and not used for fuel oil lines.

(4)- Only in pump rooms and open decks – only approved fire resistant types.

(5)- Only above bulkhead deck of passenger ships and freeboard deck of cargo ships.

4.2 The reduction factors according to the manufacturer's specification are to be observed.

4.3 In all cases, the associated pipes are to be suitably supported and anchored. The joints are to be at any time accessible, excepting inside tanks where permitted by the BUREAU VERITAS Rules.

4.4 The wall thickness and material of the tubes are to be in accordance with BUREAU VERITAS Rules.

4.5 The selection of pipes, fittings and seals must be compatible with the fluid to be conveyed and the maximum working temperature according to the manufacturer's recommendations. The couplings are not to be used for suction line.

4.6 The use of stainless steel is restricted as per BUREAU VERITAS Rules.

4.7 Threaded bulkhead fittings are not approved through watertight or fire bulkheads.

4.8 Assembly instructions given by the manufacturer are to be complied with.

5. PRODUCTION SURVEY REQUIREMENTS

5.1 The products are to be supplied by **HY-LOK CORPORATION** in compliance with the type described in this certificate.

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

5.3 **HY-LOK CORPORATION** has to make the necessary arrangements to have its works recognised by Bureau Veritas in compliance with the requirements of NR320 for HBV products.

5.4 For information, **HY-LOK CORPORATION** has declared to Bureau Veritas the following production site:

HY-LOK CORPORATION
97, Noksansandan 27-ro, Gangseo-gu
46751 BUSAN,
KOREA (REPUBLIC OF)

6. MARKING OF PRODUCT

Each fitting shall be at least marked with:

- Manufacturer's name or logo
- Type designation
- Size
- Material

7. OTHERS

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

This certificate supersedes the Type Approval Certificate N° 44876/A0 BV issued by the Society.

*** END OF CERTIFICATE ***