TYPE APPROVAL CERTIFICATE

Certificate no.:
TAP00000A3
Revision No:
4

This is to certify:

that the Pipe Couplings, Bite and Compression Type

with type designation(s)
Hy-Lok Tube Fittings

issued to
Hy-Lok Corporation
Busan, **Korea, Republic of**

is found to comply with
DNV rules for classification – Ships Pt.4 Ch.6 Piping systems
DNV-OS-D101 – Marine and machinery systems and equipment, Edition July 2021
DNV class programme DNV-CP-0185 – Type approval – Mechanical joints

Application:

Product(s) approved by this certificate is/are accepted for installation on vessels classed by DNV.

Temperature range:	**See page 3**
Max. working press.:	**76 to 953 bar (size dependent, see page 3)**
Sizes:	**Tube OD: 1/8" to 1-1/2" (Imperial) / 3 to 38 mm (Metric), see page 3**

Issued at **Høvik** on **2026-02-26**

This Certificate is valid until **2030-12-31**.
DNV local unit: **Busan**

Approval Engineer: **Marc Avice**

for **DNV**
Digitally signed by Bosman van der Merwe

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid.
The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

Product description

Double ferrule Bite and Compression type Tube fittings with Type designation 'Hy-Lok' comprising of body, front ferrule, back ferrule and nut made of following material of construction along with optional O-ring sealing (Viton):

- Brass ASTM B16 C36000 or B283 C37700
- Stainless Steel ASTM A479 Type 316 or A182 F316

Application/Limitation

Mechanical joints covered by this certificate are only to be used in piping classes I, II and III in below applications (Mechanical joints without non-metallic sealings are considered fire resistant type):

	Systems	***Classification of Piping system***	***With O-ring***	***Without non-metallic sealings (fire-resistant type)***
Flammable fluids (flash point ≤ 60 °C)				
1.	Cargo oil lines	dry	+ 1)	+
2.	Crude oil washing lines	dry	+ 1)	+
3.	Vent lines	dry	+ 2)	+
Inert gas				
4.	Water seal effluent lines	wet	NP	+
5.	Scrubber effluent lines	wet	NP	+
6.	Main lines	dry	+ 1)	+
7.	Distribution lines	dry	+ 1)	+
Flammable fluids (flash point > 60 °C)				
8.	Cargo oil lines	dry	+ 1)	+
9.	Fuel oil lines	wet	+ 2)	+
10.	Lubricating oil lines	wet	+ 2)	+
11.	Hydraulic oil	wet	+ 2)	+
12.	Thermal oil	wet	+ 2)	+
Sea water				
13.	Bilge lines	dry/wet	+ 3) 5)	+ 5)
14.	Water filled fire extinguishing systems, e.g. sprinkler systems	wet	+ 2) 5)	+ 5)
15.	Non water filled fire extinguishing systems, e.g. foam, drencher systems	dry/wet	+ 2) 5)	+ 5)
16.	Fire main (not permanently filled)	dry/wet	+ 2) 5)	+ 5)
17.	Ballast system	wet	+ 3) 5)	+ 5)
18.	Cooling water system	wet	+ 3) 5)	+ 5)
19.	Tank cleaning services	dry	+ 5)	+ 5)
20.	Non-essential systems	dry, dry/wet, wet	+ 5)	+ 5)
Fresh water				
21.	Cooling water system	wet	+ 3)	+
22.	Condensate return	wet	+ 3)	+
23.	Non-essential systems	dry, dry/wet, wet	+	+
Sanitary/drains/scuppers				
24.	Deck drains (internal)	dry	+ 4)	+ 4)
25.	Sanitary drains	dry	+	+
26.	Scuppers and discharge (overboard)	dry	+	+
Sounding/vent				
27.	Water tanks/dry spaces	dry/wet	+	+
28.	Oil tanks (f.p > 60 °C)	dry	+ 2)	+
Miscellaneous				

Systems		***Classification of Piping system***	***With O-ring***	***Without non-metallic sealings (fire-resistant type)***
29.	Starting/control air	dry	+ 3)	+
30.	Service air (non essential)	dry	+	+
31.	Brine	wet	+	+
32.	CO_2 system (outside protected space)	dry	NP	+
33.	CO_2 system (inside protected space)	dry	NP	+6)
34.	Steam	wet	+	+

Abbreviations

+ Application permitted
NP Application not permitted

Footnotes

1) Not permitted in pump rooms and open decks.
2) Not permitted 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.
3) Not permitted in machinery spaces of category A.
4) Permitted only above bulkhead deck of passenger ships and freeboard deck of cargo ships.
5) Not permitted in stagnant seawater for mechanical joints with material grade SUS316.
6) Not permitted for mechanical joints made of Brass material grades and/ or utilizing O-ring sealing.

Pressure rating:

Allowable working pressure (bar)		
Sizes (inch)	Stainless Steel	Brass
1/8	886	225
1/4	820	194
-	-	-
3/8	527	153
1/2	503	123
5/8	474	119
3/4	434	103
7/8	366	87
1	352	76
-	-	-
-	-	-
1 1/4	200	-
1 1/2	200	-

Allowable working pressure (bar)		
Sizes (mm)	Stainless Steel	Brass
3	953	253
6	795	198
8	645	185
10	504	144
12	504	118
15	456	118
20	415	93
-	-	-
25	362	93
28	200	-
30	200	-
32	200	-
38	200	-

Temperature range:

- Brass : -54°C to +200°C
- Stainless steel : -55°C to +649°C
- Mechanical joints with O-ring seal : -20°C to +100°C

Mechanical joints covered by this Type approval certificate shall not be installed in piping systems subject to pressure below atmospheric.

Maximum allowable working pressure for mechanical joints at elevated temperatures shall be reduced with a reduction factor equal to ratio of allowable stress at elevated temperature to allowable stress at room temperature depending on the material used as per ASME B31.3.

Materials chosen for the specific system shall be suitable for the intended medium and environmental conditions.

Threaded connections shall follow limitations as stated in DNV-RU-SHIP Pt.4 Ch.6 Sec.9 [5.2.6].

The approval is only valid when the mechanical joints are assembled with tubing of correct temper and tolerances as recommended by the manufacturer. These mechanical joints should not be used on tubes in cold fabricated (hard temper) conditions.

Type Approval documentation

Test reports received with DNV-Pusan's letters dated 14.Jan. 1995.
Manufacturer's catalogue, Hy-Lok Tube Fittings no. H-200TF, Jan. 2014
Test report, TR-DNV-HYLOKPOT-071211, DNV witnessed 2007-12-11
Burst pressure test, report No. TR-DNV-HYLOK-BPT-111130-1, DNV witnessed 2011-11-30
Renewal burst pressure test, report no. TR-DNV-HYLOK-BPT-210708-1, DNV witnessed 2021-07-08
Tightness test report, TR-LT-24G05-S01, DNV witnessed 2024-07-05
Repeated assembly test report, REA-24G05-S01, DNV witnessed 2024-07-05
Burst test report, TR-BU-24G05-S01, DNV witnessed 2024-07-05
Pull-out test report, TR-PO-24H23-S01, DNV witnessed 2024-08-23
Vacuum test report, TR-VA-24G05-S01, DNV witnessed 2024-07-05
Type test report, TP-VI-24G05-S01, DNV witnessed 2024-07-18
Manufacturer's catalogue, Hy-Lok Tube Fittings no. H-200TF, Jan. 2020
Renewal burst pressure test, report no. TR-BU-26A22-S01, DNV witnessed 2026-01-22

Tests carried out

Leakage, repeated assembly, burst, vibration, pressure pulsation and pull-out test.

Marking of product

For traceability to this type approval the couplings are to be marked with:

- Manufacturer’s name or trademark
- Max. allowable working pressure
- Type designation
- Size

Periodical assessment

This certificate is only valid if required periodical assessments are carried out with satisfactory results.

For retention of the Type Approval, a DNV Surveyor shall perform periodical assessment after two years (+/- 90 days) and after 3.5 years (+/- 90 days) to verify that the conditions for the approval are complied with. Reference is made to DNV-CP-0338.

To check the validity of this certificate, please look it up in https://approvalfinder.dnv.com.

Manufactured by

Hy-Lok Corporation,
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