

TYPE APPROVAL CERTIFICATE

Certificate No:
TAP00000ZF
Revision No:
1

This is to certify:

That the Pipe Couplings, Bite and Compression Type

with type designation(s)
LET-LOK® Tube Fittings

Issued to
Ham-Let Group
Nof HaGalil, Israel

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

Application :

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

Temperature range: -55 °C to 50 °C (-67 °F to + 122 °F)
Max. working press.: See page 2
Sizes: 1/8" to 1" (see page 2)

Issued at **Høvik** on **2022-05-16**

for **DNV**

This Certificate is valid until **2026-12-31**.

DNV local station: **Haifa**

Approval Engineer: **Jane Lozanov**

Zeinab Sharifi
Head of Section

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.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.



Product description

Twin ferrule bite tube couplings in Stainless Steel AISI 304 and AISI 316 comprising of four parts:

- Body
- Front Ferrule
- Back Ferrule
- Nut

Configurations	Type Designations
Union	762L
Reducing Union	763L
Union Tee	764L
Reducing Union Tee	764LR
Union Elbow	765L
Reducing Union Elbow	765LR

Configurations	Type Designations
Female Connector	766L
Reducing Female Connector	766LR
Male Connector	768L
Male Elbow	769L
Female Elbow	770L
Union Cross	7102L

Application/Limitation

Maximum working pressures in PSI:

Tubing OD (mm)	Coupling size (inch)	Wall thickness of tube, inch							
		.028	.035	.049	.065	.083	.095	.109	.120
2	1/8	8550	10730	-	-	-	-	-	-
3	3/16	5500	7100	10150	-	-	-	-	-
6	1/4	4100	5200	7600	10150	-	-	-	-
8	5/16	-	4100	5900	7975	-	-	-	-
10	3/8	-	3350	4850	6525	-	-	-	-
12	1/2	-	-	3750	5150	6525	-	-	-
16	5/8	-	-	2950	4050	5250	5945	-	-
20	3/4	-	-	2450	3350	4250	4950	5655	-
22	7/8	-	-	-	2850	3650	4250	4843	-
25	1	-	-	-	2100	2700	3200	3700	3987

Couplings covered by this certificate may be used in below applications (as described in DNV ship rules Pt.4 Ch.6 Sec.9 Table 9 & 10):

- | | |
|---|--|
| <p><i>I.</i> Flammable fluids (flash point $\leq 60^{\circ}\text{C}$)</p> <ul style="list-style-type: none"> - Cargo oil lines ²⁾ - Crude oil washing lines ²⁾ - Vent lines <p><i>II.</i> Inert gas</p> <ul style="list-style-type: none"> - Water seal effluent lines - Scrubber effluent lines - Main lines ²⁾ - Distribution lines ^{1),2)} <p><i>III.</i> Flammable fluids (flash point $> 60^{\circ}\text{C}$)</p> <ul style="list-style-type: none"> - Cargo oil lines ²⁾ - Fuel oil lines - Lubricating oil lines - Hydraulic oil - Thermal oil | <p><i>IV.</i> Fresh water</p> <ul style="list-style-type: none"> - Cooling water system - Condensate return - Non-essential system <p><i>V.</i> Sanitary/drains/scuppers</p> <ul style="list-style-type: none"> - Deck drains (internal) ²⁾ - Sanitary drains - Scuppers and discharge (overboard) <p><i>VI.</i> Sounding/vent</p> <ul style="list-style-type: none"> - Water tanks/dry spaces - Oil tanks (f.p. $> 60^{\circ}\text{C}$) <p><i>VII.</i> Miscellaneous</p> <ul style="list-style-type: none"> - Starting/control air - Service air (non-essential) - Brine - CO2 system - Steam |
|---|--|

¹⁾ Only above bulkhead deck of passenger ships and freeboard deck of cargo ships.

²⁾ Only in pump rooms and open decks

Material of couplings covered by this certificate are not sea water resistant and shall not be used in direct contact with sea water.

The approval is only valid when the couplings are assembled with tubing of correct temper and tolerances as recommended by the manufacturer.

These couplings are not to be used on tubes in cold fabricated (hard temper) conditions.

Threaded joints in CO₂ systems shall be allowed only inside protected spaces and in CO₂ cylinder rooms.

Threaded couplings where pressure-tight joints are made on parallel thread shall be allowed only in class III piping systems.

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

For elevated temperatures the maximum allowable pressure shall be reduced according to DNV-CP-0185 Section 2 Table 1.

Type Approval documentation

- Manufacturer's catalog 2017 'LET-LOK® COMPRESSION TUBE FITTINGS'
- DNV Region Norway test report no. 00-1015 rev. 1 dated 18 January 2000
- Burst test report No. 211 witnessed by DNVGL Surveyor dated 2008-09-21
- Burst test report Nos.: 1311, 1312, 1313 and 1314 witnessed by DNV Surveyor dated 2013-03-14
- Test report no. K021/15 from IMA Dresden dated 2015-09-16
- Tightness test Rev 01 dated 2014-11-30 witnessed by ABS dated 2014-12-29
- Repeated assembly test Rev 01 dated 2014-11-30 witnessed by ABS dated 2014-12-29
- Burst pressure test Rev 01 witnessed by ABS dated 2014-11-30
- Burst pressure test witnessed by DNV Surveyor, dated 2021-12-21

Tests carried out

Tightness, Repeated Assembly, Burst, Pull-out, Vibration and Pressure Pulsation tests.

Marking of product

For traceability to this type approval the products are at least to be marked with:

- Manufacturer's name or trade mark
- Type designation
- Pressure rating

Periodical assessment

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.