

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Pipe Couplings, Bite and Compression Type**with type designation(s)
I-lok Bite type tube fittings

Issued to

SHIN IL ACE CO., LTD.
Busan, Korea

is found to comply with

DNV GL class programme DNVGL-CP-0185 – Type approval – Mechanical joints
DNVGL-OS-D101 – Marine and machinery systems and equipment, Edition January 2018
DNV GL rules for classification – Ships Pt.4 Ch.6 Piping systems**Application :****Products approved by this certificate are accepted for installation on vessels classed by DNV GL.****Temperature range:** -60 °C to +400 °C (see limitations on page 2)**Max. working press.:** 0 barg to 250 barg (see limitations on page 2)**Sizes:** 6 to 42 mmIssued at **Høvik** on **2018-05-24**This Certificate is valid until **2022-12-31**.for **DNV GL**DNV GL local station: **Gimhae Station**Approval Engineer: **Morten Engnestangen****Marianne Spæren Marveng**
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.



Product description

Bite type tube fitting. Manufacturers type designation is "i-LOK".

Materials: Stainless steel ASTM A479 316 and 304, JIS G4303 SUS316 and SUS304

Sizes covered (tube OD): 6, 8, 10, 12, 14, 15, 16, 18, 20, 22, 25, 28, 30, 32, 38 and 42 mm

Application/Limitation

When elastomer seals are used in the fitting the working temperature is not to exceed the following:

Type of elastomer seals	Temperature range, °C
NBR (Nitrile butadiene rubber, e.g. Perbunan)	-30 to 100
FKM (Fluorelastomers, e.g. Viton)	-25 to 170
PTFE (Tetrafluorethylene, e.g. Teflon)	-60 to 190

For couplings at elevated temperatures, the maximum working pressure has to be reduced with the following factors:

Temp.	< 50 °C	50 °C	100 °C	150 °C	200 °C	250 °C	300 °C	350 °C	400 °C
Stainless Steel	1	0,95	0,85	0,77	0,71	0,67	0,63	0,6	0,58

The couplings may be used for:

- Hydraulic oil
- Fuel oil
- Lubrication oil
- Fresh water cooling
- Sanitary
- Compressed air

Couplings with elastomer seals shall not be used in following systems:

- Hydraulic oil (can be used when installed on Open decks)
- Fuel oil
- Lubrication oil (can be used when installed on Open decks)
- Cooling water inside machinery space of category A
- Starting and control air for functions required by statutory requirements or guidelines

Definition of Open decks is as defined by SOLAS II/2 Part C Regulation 9 Chapter 2.3.3.2.2 (10):

Open deck spaces and enclosed promenades having little or no fire risk. To be considered in this category, enclosed promenades shall have no significant fire risk, meaning that furnishings shall be restricted to deck furniture. In addition, such spaces shall be naturally ventilated by permanent openings. Air spaces (the space outside superstructures and deckhouses).

The couplings are to be mounted according to the manufacturer's instructions.

The approval is only valid when the couplings are assembled on tubing with Brinell Hardness HB ≤ 70.

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

The type approval does not cover threads and threaded joint for connection of the fittings, ref thread designator: N, R, NO, G, GP, GG, GR, GY, UO, UEO, UP.

For couplings with threaded ends where the pressure tightness is on threads, the limitations in DNVGL Pt.4 Ch.6 Sec.9 [5.2.6] shall be fulfilled.

Job Id: **262.1-009073-8**
Certificate No: **TAP000017H**

Type Approval documentation

Tests carried out

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

Marking of product

For traceability to this type approval, each coupling is to be marked with:

- Manufacturer's name
- Type designation
- Size

Periodical assessment

For retention of the Type Approval, a DNV GL 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 DNVGL-CP-0338.