DNV·GL

Certificate No:
TAP00000VW

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Pipe Couplings, Bite and Compression Type

with type designation(s)
DK-Lok Compression Bite type couplings

Issued to
DK-Lok Corporation
Gimhae-si Gyeongsangnam-do, Republic of Korea

is found to comply with
DNV GL rules for classification – Ships Pt.4 Ch.6 Piping systems
DNV GL class programme DNVGL-CP-0185 – Type approval – Mechanical joints

Application :

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

Temperature range:	**-20°C to 300°C**
Max. working press.:	**Dependent on size and temperature, see cert.**
Sizes:	**6, 8, 10, 12, 15, 16, 18, 20, 25, 28 and 30mm**

Issued at **Høvik** on **2017-07-27**
This Certificate is valid until **2021-12-31**.
DNV GL local station: **Gimhae**

Approval Engineer: **Mehdi Rowshan**

for **DNV GL**

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.

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Product description

Pipe couplings. Single bite type.

BU	Straight Union
BBU	Straight Bulkhead Union
BMC-R	Male Connector
BLMC	Long Male Connect.
BMC-G	Male Conn. Cu-Gasket
BOM	Male Conn. O-Seal
BFC	Female Connector
BBFC	Bulkhead Female Connector
BGC	Gauge Connector
BC	Cap
BHUM	Hose Male Union
BHUF	Hose Female Union
BHBM	Hose Bulkhead Male Un.
BHBF	Hose Bulkhead Female U.
BCW	Welding Connector
BBUW	Welding Bulkhead Union
BA-R	Adapter
BA-G	Adapter
BR	Reducer
BL	Union Elbow
BLM	Male Elbow
BLLM	Long Male Elbow
BBL	Bulkhead Elbow
BOLM	O-Seal Male Elbow
BLF	Female Elbow
BSLM	Banjo Elbow
BHLM	Hose Male Elbow
BHLF	Hose Female Elbow
BHBLM	Hose Bulkh. Male Elbow
BHBLF	Hose Bulkh. Female Elbow
BLA	Positionable Elbow
BT	Union Tee
BBTM	Male Branch Tee
BRTM	Male Run Tee
BBTF	Female Branch Tee
BRTF	Female Run Tee
BBTA	Positionable Branch tee
BRTA	Positionable Run Tee
BX	Cross

Materials:

Forged Bodies:	Carbon steel S20C-S48C,Stainless steel SUS316- SUS304
Barstock Bodies:	Carbon steel S20C-S48C,Stainless steel SUS316- SUS304
Cold Formed Nuts:	Carbon steel S10C-S20C
Barstock Nuts:	Carbon steel S20C-S48C,Stainless steel SUS316- SUS304
Sleeves:	Carbon steel S10C,Stainless steel SUS316- SUS304

Application/Limitation

Couplings covered by this certificate may be installed in piping system classes I, II & III in below applications:

• Flammable fluids (flash point ≤ 60°C)
  - Vent lines (1)
• Inert gas
	• Fresh water
	  - Cooling water system (3)
	  - Condensate return (3)

- Water seal effluent lines - Scrubber effluent lines • Flammable fluids (flash point > 60°C) - Fuel oil lines (1) (2) - Lubricating oil lines (1) (2) - Hydraulic oil (1) (2) - Thermal oil (1) (2) • Sea water (5) - Bilge lines (3) - Water filled fire extinguishing systems, e.g. sprinkler systems (1) - Non water filled fire extinguishing systems, e.g. foam, drencher systems (1) - Fire main (not permanently filled) (1) - Ballast system (3) - Cooling water system (3) - Tank cleaning services - Non-essential systems	- Non-essential system • Sanitary/drains/scuppers - Deck drains (internal) (4) Sanitary drains Scuppers and discharge (overboard) • Sounding/vent - Water tanks/Dry spaces - Oil tanks (f.p. > 60°C) (1) (2) • Miscellaneous - Starting/Control air (3) - Service air (non-essential) - Brine - CO2 system (3) - Steam

(1) 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.
(2) Not inside machinery spaces of category A or accommodation spaces. May be accepted in other machinery spaces provided the joints are located in easily visible and accessible positions.
(3) Not inside machinery spaces of category A
(4) Only above bulkhead deck of passenger ships and freeboard deck of cargo ships.
(5) Material in contact with seawater shall be properly protected. Surface preparation and coating shall be approved by society. Traditional stainless steel (grades 304, 304L, 316, 316L) shall not be considered as seawater resistant material.

Normal working pressure defined at 20°C:

Pipe O.D.	Design pressure	Pipe O.D.	Design pressure
mm	Bar	mm	Bar
6	470	16	392
8	441	18	343
10	431	25	323
12	426	28	245
15	412	30	245

The maximum allowable pressure have to be reduced at elevated temperatures according to DNVGL-CP-0185 Section 2 Table 1.

The temperature range is limited by sealing material as below:
- NBR: 20°C to +100°C
- FKM: -20°C to +200°C

The approval is only valid when the couplings are assembled with tubing of correct temper and tolerances as recommended by the manufacturer.
Couplings covered by this certificate shall not be installed in systems subject to pressure below atmospheric or vacuum conditions.

Type Approval documentation

Tests carried out

Leakage, Repeated Assembly, Burst Pressure, Pull-Out, Vibration and Pressure Pulsation Test

Marking of product

For traceability with this type approval, each fitting is at least to be marked with:

- Manufacturers name or trademark
- Size

Periodical assessment

For retention of the Type Approval, a DNV GL Surveyor shall perform a survey - every second year and before the expiry date of this certificate - to verify that the conditions for the type approval are complied with and to witness burst testing on samples of fittings selected at random from stock or from the running production.