Certificate No:
TAP00002KD

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Pipe Couplings, Bite and Compression Type

with type designation(s)
Bite Type Couplings- NE & NS Series

Issued to
IHARA SCIENCE CORPORATION
Nakatsugawa City,, Gifu Prefecture, **Japan**

is found to comply with
DNV rules for classification – Ships Pt.4 Ch.6 Piping systems
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 2**
Max. working press.:	**see page 2**
Sizes:	**see page 2**

Issued at **Høvik** on **2025-06-05**
This Certificate is valid until **2030-06-04**.
DNV local station: **Japan CMC**

for **DNV**

Approval Engineer: **Sarah Miller**

Bosman van der Merwe
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

Bite type couplings NE & NS Series are approved for application in piping systems.

Coupling Type	Outer Diameter Range	Design Pressure (MPA)	Maximum working temp.
NE	4 up to 25	34.3	300℃
	28 up to 35	24.5	
	38 up to 48.6	20.6	
NS	6 up to 25	34.3	300℃
	28 up to 35	24.5	

Component	Material	Standard
Body	Carbon steel 25C-S48C, Stainless steel SUS 304 & 316 acc.	
Nut	Carbon steel 25C-S48C, Stainless steel SUS 304 & 316 acc.	
Sleeves	Carbon steel and surface hardened Stainless steel	
O-Ring	NBR	

Manufacturing location:
Tsukechi No.1 Factory
10424 Arama, Tsukechi-cho, Nakatsugawa, Gifu, Japan 508-0351

Application/Limitation

Slip-on threaded joints having pipe threads where pressure-tight joints are made on the threads with parallel or tapered threads, shall comply with requirements of a recognized national or international standard. DNV-RU-SHIP Pt.4 Ch.6 sec.9 [5.2.6]. This limitation includes:

- Male Connector: KCT, Adapter KHA, Male Elbow: KLN, KLL
- Extended Male Connector: KCC, Stud Elbow: KMB, KMC
- Straight Thread Extended Male Connector: KCG
- Female Elbow: KLF, Male Run Tee: KTK, Male Branch Tee: KTN
- Female Run Tee: KTF, Female Branch Tee: KTH

Temperature range with metallic seal
Carbon steel: -20°C up to +300°C
Stainless steel: -55°C up to +300°C
For service temperatures above 50°C (stainless steel) and 120°C (carbon steel) the pressure reduction factures specified by the manufacturer are to be observed.

Temperature range with soft seal
-20°C up to +100°C (NBR)
-15°C up to +200°C (FPM)

For mechanical joints at elevated temperatures, the maximum working pressure shall be reduced with the following factors:

Temperature (°C)	Carbon Steels, Unalloyed	Stainless Steels
20ºC	1.00	1.00
50ºC	1.00	0.95
100ºC	1.00	0.85
150ºC	0.89	0.77
200ºC	0.81	0.71
250ºC	0.72	0.67
300ºC	0.65	0.63

This approval is not included the valves, pipe unions and other components that are not relevant to our class program CP-0185.

Couplings covered by this certificate are only to be used in piping classes I, II and III in below applications:

Systems		Classification of Piping system	Soft seal	Approved fire resistant type[5)]
Flammable fluids (flash point ≤ 60 °C)				
1.	Cargo oil lines	dry	NP	+[1)]
2.	Crude oil washing lines	dry	NP	+[1)]
3.	Vent lines	dry	NP	+[2)]
Inert gas				
4.	Water seal effluent lines	wet	+	+
5.	Scrubber effluent lines	wet	+	+
6.	Main lines	dry	NP	+[1)]
7.	Distribution lines	dry	NP	+[1)]
Flammable fluids (flash point > 60 °C)				
8.	Cargo oil lines	dry	NP	+[1)]
9.	Fuel oil lines	wet	NP	+
10.	Lubricating oil lines	wet	NP	+
11.	Hydraulic oil	wet	NP	+
12.	Thermal oil	wet	NP	+
Fresh water				
13.	Cooling water system	wet	NP	+
14.	Condensate return	wet	NP	+
15.	Non-essential systems	dry, dry/wet, wet	+	+
Sanitary/drains/scuppers				
16.	Deck drains (internal)	dry	+[4)]	+[4)]
17.	Sanitary drains	dry	+	+
18.	Scuppers and discharge (overboard)	dry	+	+
Sounding/vent				
19.	Water tanks/dry spaces	dry/wet	+	+
20.	Oil tanks (f.p > 60 °C)	dry	NP	+[2)]
Miscellaneous				
21.	Starting/control air	dry	+[4)]	+[3)]
22.	Service air (non-essential)	dry	+	+
23.	Brine	wet	+	+
24.	CO_2 system (outside protected space)	dry	+	NP
25.	CO_2 system (inside protected space)	dry	+	NP
26.	Steam	wet	+	+

Abbreviations

+ Application permitted (with limitations, if any, as in the footnotes below)
NP Application not permitted

Footnotes

1) Not permitted when mechanical joints are installed 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 when mechanical joints are installed in machinery spaces of category A.
4) Permitted only above bulkhead deck of passenger ships and freeboard deck of cargo ships.

Materials chosen for the specific system shall be suitable for the intended medium and environmental conditions. Couplings covered by this certificate shall not be used in seawater systems.

Pipe minimum wall thickness shall be as per DNV-RU-SHIP Pt.4 Ch.6 Sec.9 [1.2.1]. Requirements for pipe materials are further defined in DNV-RU-SHIP Pt.4 Ch.6 Sec.2 [1.8.1].

Couplings covered by this certificate shall not be installed in systems subject to pressure below atmospheric or vacuum conditions.

For use at elevated temperatures the maximum allowable working pressure shall be reduced as per DNV-CP-0185 Sec.2 [Table 1].

Threaded connections where pressure-tight joints are made on the threads with parallel or tapered threads shall not be used for piping systems conveying toxic or flammable media or services where fatigue, sever erosion or crevice

corrosion is expected to occur. For other applications threaded connections with pressure-tight joints on threads may be used for outside diameters:

- Threaded joints with tapered thread shall be allowed for class I systems only when the outside diameter is not more than 33.7mm
- Threaded joints with parallel thread shall be allowed only for class III systems.

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

Type Approval documentation

Tests carried out

Air tightness, Pressure proof, Burst, Impulse Pressure, Vacuum, Pull-out, Flexural bending stress, Vibration (fatigue) and Pressure pulsation test and Repeated assembly test

Marking of product

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

- Manufacturer's name or trademark
- 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 at https://approvalfinder.dnv.com.