NIPPON KAIJI KYOKAI

TYPE APPROVAL CERTIFICATE

Certificate No. TA18174M

This is to certify that the undernoted products have been approved in accordance with the requirements 12.3.3, Chapt.12, Part D of "Rules for the Survey and Construction of Steel Ships" and Chapt.9, Part 6 "Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use".

This certificate is issued to

Manufacturer	**SHO-BOND MATERIAL CO., LTD.**
Product description	**Slip on Joint – Grip Type**
Model	**316-Type, G-Type, GX-Type**
Approval No.	**17FV103B**
Valid until	**19 January 2022**

This certificate is subject to the conditions specified in the attached sheets.

Issued at Tokyo on 11 October 2018.

T. Shimada
General Manager
Machinery Department

・Particulars and conditions:

Model	Nominal Dia.	Design Press. (MPa)	Design Temp. (℃)	Casing Material	Kind of Fluid
316-Type	20A 25A 32A 40A 50A 65A 80A	1.6*1	80(EPDM) 70(NBR)	SUS316	Inert gases Flammable fluids Sea water Fresh water Sanitary Drains Scuppers Sounding Vents Compressed air
	100A 125A	1.4*1			
	150A	1.2*1			
	200A	1.0*1			
G-Type	20A 25A 32A 40A 50A 65A 80A 100A 125A 150A	1.6*2	90(EPDM) 80(NBR)	SUS304	Inert gases Flammable fluids Sea water Fresh water Drains Sanitary Scuppers Sounding Vents Compressed air
	200A 250A	1.4*2			
	300A	1.2*2			
	350A	1.0			
	400A	0.8			

***1. In case where the internal fluid is air, the design pressure is 0.7 MPa.**

***2. In case where the internal fluid is air, the design pressure is 1.0 MPa.**

・Particulars and conditions:

Model	Nominal Dia.	Design Press. (MPa)	Design Temp. (℃)	Casing Material	Kind of Fluid
GX-Type	20A 25A 32A 40A 50A 65A 80A 100A 125A	1.6*3	90(EPDM)	SUS304	Inert gases Flammable fluids Sea water Fresh water Drains Sanitary Scuppers Sounding Vents Compressed air
	150A 200A	1.3*3			

***3. In case where the internal fluid is air, the design pressure is 1.0 MPa.**

・Application:

The mechanical joints can be used for the following piping lines:

[Inert gases]

1. Inert gas lines for water seal effluent and scrubber effluent
2. Inert gas main lines outside machinery spaces of category A, accommodation spaces and pump room and on open deck
3. Inert gas distributions lines outside pump room and on open deck

[Flammable fluids]

4. Cargo oil lines, crude oil washing lines outside pump room and on open deck
5. Fuel oil, lubricating oil, hydraulic oil and thermal oil lines on exposed open deck*1

[Sea water]

6. Bilge, ballast, and cooling sea water lines outside machinery spaces of category A
7. Sea water lines for tank cleaning and non-essential services
8. Fire, water spray, sprinkler and foam lines on exposed open deck*1

[Fresh water]

9. Cooling fresh water and condensate return lines outside machinery spaces of category A
10. Fresh water lines for non-essential services

[Drains, Sanitary]

11. Deck drains (internal) lines above the free board deck
12. Sanitary supply and drains lines

[Vents]

13. Vent and sounding lines for flammable fluids tanks on exposed open deck*1

14. Vent and sounding lines for water tanks and dry spaces

[Compressed air]

15. Compressed air lines for non-essential services and brine lines

*1: Except for the cargo areas of tankers, ships carrying liquefied gases in bulk and ships carrying dangerous chemicals in bulk, or fuel oil lines, fire extinguishing systems and fire mains.

- **Limitations**

The installation of mechanical joints is to be in accordance with the manufacturer's assembly instructions and the requirements of 12.3.3, Chapter12 and 13.2.4, Chapter13 Part D of the Rules.

- **Documents**

Drawing No.:NK15-20, NK15-21, NK16-04, NK16-05, NK16-06, NK16-09, NK16-10
Test Plan, Test Report

- **Type Approval Tests**

Tightness test, Vibration (fatigue) test, Burst pressure test, Pull-out test, Vacuum test,
Repeated assembly test

- **Notice**

Any significant changes in design or construction of the above items may render this certificate invalid.

- The End -