



DET NORSKE VERITAS

TYPE APPROVAL CERTIFICATE

CERTIFICATE NO. **P-14820**

This is to certify that the
Axial Restraining Pipe Couplings

with type designation(s)
316 GRIP SLIP-ON JOINT - STRAUB GRIP-L TYPE, .

Issued to
SHO-BOND Coupling Co.,Ltd.
Misato-city Saitama Pref., Japan

is found to comply with
Det Norske Veritas' Rules for Classification of Ships
Det Norske Veritas' Rules for Classification of High Speed and Light Craft.
Offshore Standard DNV-OS-D101, Marine and Machinery Systems and Equipment
Det Norske Veritas' Standards for Certification 2.9 No. 5-792.20

Application
The joints may be used for **Class II and III machinery piping systems as listed in the certificate.**

Type:	Temperature range:	Max. working press.:	Sizes:
316 GRIP SLIP-ON JOINT - STRAUB GRIP-L TYPE	-20°C to 70°C (NBR seal) -30°C to 80°C (EPDM seal)	size dependent, see certificate	50 A-150A (DN 60,5- 165,2 mm)

This Certificate is valid until **2018-06-30**.

Issued at **Høvik** on **2014-04-08**

DNV local station: **Yokohama**

Approval Engineer: **Tom Berg-Nielsen**

for **Det Norske Veritas AS**

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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.

If any person suffers loss or damage which is proved to have been caused by any negligent act or omission of Det Norske Veritas, then Det Norske Veritas shall pay compensation to such person for his proved direct loss or damage. However, the compensation shall not exceed an amount equal to ten times the fee charged for the service in question, provided that the maximum compensation shall never exceed USD 2 million. In this provision "Det Norske Veritas" shall mean the Foundation Det Norske Veritas as well as all its subsidiaries, directors, officers, employees, agents and any other acting on behalf of Det Norske Veritas.

Product description

Type: Slip-on joint GRIP TYPE, Corresponding Straub Grip-L
 Sizes: 60,5 to 165,2 mm

Design: Metal grip standard: Stainless steel plate casing, with inside rubber sleeve
 Materials:
 Casing: SUS 316
 Gripper ring: SUS301
 Gasket/ sealing: NBR/ EPDM

Application/Limitation

The slip-on joints are allowed for Class II and III piping systems.
 The slip-on joints are not to be used in cargo holds, tanks, and other spaces which are not easily accessible.
The joints are not a pressure pulsation resistant type

The joints are allowed for systems marked +,
 not allowed marked ÷(no).

Flammable fluids (Flash point ≤ 60 °C)			Fresh water		
1	Cargo oil lines	+ 5)	21	Cooling water system	+ 1)
2	Crude oil washing lines	+ 5)	22	Condensate return	+ 1)
3	Vent lines	÷ (no)	23	Non-essential system	+
Inert gas			Sanitary/Drains/Scuppers		
4	Water seal effluent lines	+	24	Deck drains (internal)	+ 4)
5	Scrubber effluent lines	+	25	Sanitary drains	+
6	Main lines	+ 2) 5)	26	Scuppers and discharge (overboard)	÷ (no)
7	Distribution lines	+ 5)			
Flammable fluids (Flash point > 60°C)			Sounding/ vent		
8	Cargo oil lines	+ 5)	27	Water tanks/Dry spaces	+
9	Fuel oil lines	÷ (no)	28	Oil tanks (flash point > 60°C)	÷ (no)
10	Lubrication oil lines	÷ (no)			
11	Hydraulic oil	÷ (no)			
12	Thermal oil	÷ (no)			
Sea Water			Miscellaneous		
13	Bilge lines	+ 1)	29	Starting/control air	÷(no)
14	Fire main and water spray	÷ (no)	30	Service air (non-essential)	+
15	Foam systems	÷ (no)	31	Brine	+
16	Sprinkler system	÷ (no)	32	C02 system	÷(no)
17	Ballast system	+ 1)	33	Steam	+ 6)
18	Cooling water system	+ 1)			
19	Tank cleaning services	+			
20	Non-essential system	+			

Limitations/remarks:

- 1) Not inside machinery spaces of category A .
- 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)
- 4) Above free board deck only.
- 5) Not in pump rooms and open decks.
- 6) Slip type joints, provided that they are restrained on the pipes, may be used for pipes on deck with a design pressure of 10 bar or less.

Max. working pressures:

Type designation	Pipe O.D. (mm)	Max. design pressure (bar)
316-50	60,5	16
316-65	76,3	16
316-80	89,1	16
316-100	114,3	14
316-125	139,8	14
316-150	165,2	12

Rubber elements and other parts subject to wearing are to be replaced by new parts in case of repeated use of the coupling.

The materials used in the couplings must be resistant to the fluid carried in the pipe.

The couplings are to be assembled and mounted according to the manufacturer's recommendations.

Type Approval documentation

- Drawing No. 03-07, 316 Type, Straub Grip
- Vibration test report , Straub.
- Type Approval Documentation 1, test results from prototype testing. DNV signed 2013-12-20
- Type Approval Documentation 2, product information
- Work Procedure Instruction, STRAUB Coupling.

Prototype tests carried out

Leakage test, Burst test, Vibration test, Pull-out Test, Vacuum test, Repeated assembly test.

Marking of product

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

- Manufacturer's name or trade mark.
- Type designation and size.
- Max. working pressure or pressure class.

Additional marking at manufacturer's option.

Periodical assessment

Periodical assessment after 2 years:

For retention of the Type Approval, DNV-GL Surveyor shall perform an assessment 2 years after issue of the Type Approval Certificate, according to DNV Standard for Certification No. 2.9 – 5-792.20, "Type Approval of Pipe Couplings" to verify that the conditions for the type approval are complied with.

Renewal assessment after 4 years:

Application for renewal shall be submitted to DNV not later than 3 months before expiry date of the certificate. Upon receipt of the application a periodical assessment will be carried out to verify the conditions for the type approval is still complied with. Any changes to the design are to be handled as for initial Type Approval, with regards to additional documentation and testing requirements. The Surveyor shall perform the following tasks on samples selected at random from stock or from the running production:

- Verify that the dimensions of the couplings comply with Type Approved documentation.
- Witness burst testing.

END OF CERTIFICATE