

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Expansion Joint for Pipe, Slide Type and Flexible Type

with type designation(s)
SLG, SLF

Issued to

Shanghai Kangni Marine Electric Equipment Co., Ltd.
SHANGHAI SHANGHAI, China

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.

Type:	Temperature range:	Max. working press.:	Sizes:
SLG	-20°C to +200°C	1.6 MPa / 16 bar	DN 50 to DN 900
SLF	-15°C to +120°C	1.6 MPa / 16 bar	DN 65 to DN 900

This Certificate is valid until **2021-12-18**.

Issued at **Hamburg** on **2016-12-19**

for **DNV GL**

DNV GL local station: **Shanghai CMC**

Approval Engineer: **Christian Kaemmer**

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Olaf Drews
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

SLG: Packing gland type joint:

Materials:

Body:	Seamless steel pipe Q235-B (DN50~DN150) Q235-B (DN200~DN900)
Pipe:	Q235-B
Follower cover:	Q235-B
Flange:	Q235-B
Packing:	Carbonized fibre
Bolt:	Stainless steel (1Cr18Ni9Ti)

SLF: Gland type joint, fitted with a bolt to prevent axial movement of the joint:

Materials:

Body:	Seamless steel pipe Q235-B (DN65~DN150) Q235-B (DN200~DN900)
Gland:	Q235-B
Limit screw:	Stainless steel (1Cr18Ni9Ti)
Gasket:	Red copper
Sealing ring:	Fluorubber

Application/Limitation

The slip-on joints of type SLG and SLF are type approved for application in pipe class II and III piping systems, fire resistant type, as listed in DNV GL Ship Rules Pt. 4, Ch. 6, Sec. 9 Table 12 & 13. Regarding limitations refer to page 3.

o Flammable fluids (flash point < 60°C)

- Cargo oil lines⁽⁴⁾
- Crude oil washing lines ⁽⁴⁾
- Vent lines ⁽³⁾

o Inert gas

- Water seal effluent lines
- Scrubber effluent lines
- Main lines ⁽²⁾ ⁽⁴⁾
- Distributions lines ⁽⁴⁾

o Flammable fluids (flash point >60°C)

- Cargo oil lines ⁽⁴⁾
- Fuel oil lines ⁽²⁾ ⁽³⁾
- Lubricating oil lines ⁽²⁾ ⁽³⁾
- Hydraulic oil ⁽²⁾ ⁽³⁾
- Thermal oil ⁽²⁾ ⁽³⁾

o Sea Water

- Bilge lines ⁽¹⁾
- Water filled fire extinguishing systems, e.g. sprinkler systems ⁽³⁾
- Non water filled fire extinguishing systems, e.g. foam, drencher systems ⁽³⁾
- Fire main (not permanently filled) ⁽³⁾
- Ballast system ⁽¹⁾
- Cooling water system ⁽¹⁾
- Tank cleaning services
- Non-essential systems

o Fresh water

- Cooling water system ⁽¹⁾
- Condensate return ⁽¹⁾
- Non-essential system

o Sanitary/drains/scuppers

- Deck drains (internal) (6)
- Sanitary drains

o Sounding/vent

- Water tanks/Dry spaces
- Oil tanks (flash point > 60°C) (2) (3)

o Miscellaneous

- Service air (non-essential)
- Brine
- Steam (5)

Notes

- 1) Inside machinery spaces of category A - approved.
- 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) Approved.
- 4) In pump rooms and open decks – approved.
- 5) Approved. Provided that they are restrained on the pipes may be used for pipes on deck with a design pressure of 10 or less.
- 6) Only above bulkhead deck of passenger ships and freeboard deck of cargo ships.

For the assembly and the installation of the joints manufacturer's instructions are to be observed.

The materials used in the joints must be resistant to the fluid carried in the pipe and also to the surrounding fluid if the joints are mounted in a tank. Application of these joints inside tanks may be permitted only for the same media that is in the tanks.

For fuel oil, lubrication oil and flammable hydraulic oil of Class II systems, the following limitation applies:
 $P_{max.} = 16 \text{ bar}$, $t_{max.} = 150^{\circ}\text{C}$.

For use in fresh water cooling systems, bilge lines cargo holds and tanks, the joints must at any time be accessible.

Type Approval documentation

Tests carried out

Burst, vacuum, fire and hydraulic leakage 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
- Size
- Maximum design pressure or pressure class

Periodical assessment

For retention of the type approval certificate periodical assessments shall be carried out at production places by local DNVGL Surveyor.

Prior to the expiry date of this certificate a renewal assessment is to be carried out to verify that the conditions for the type approval are complied with and to witness burst pressure testing on select sizes.

The objective of the periodical assessment is to verify that the design and production conditions for the type approval have not been altered.

Main scope of the assessment:

- verification of the production and quality control system
- review of quality control documentation of recent deliveries



Job Id:
Certificate No: **TAP00000S7**

- review of drawings in production to verify any design changes which may have an impact on data specified in the type approval certificate, performance and range of application
- verification of the product marking.

End of certificate