Certificate no.:
TAP00002UV

TYPE APPROVAL CERTIFICATE

This is to certify:

that the Pipe Coupling With O-Ring Seal

with type designation(s)
STL Slip Telescopic Joint (Dresser Type)

issued to
Jiangsu Kuize Machinery Industry Co., Ltd.
Nantong, Jiangsu, **China**

is found to comply with
DNV rules for classification – Ships Pt.4 Ch.6 Piping systems
DNV-OS-D101 – Marine and machinery systems and equipment, Edition July 2021
DNV class programme DNV-CP-0185 – Type approval – Mechanical joints

Application:

The slip-on joint slip type couplings of type STL are approved for compensation of axial movement of clamped pipes.
Approved for application in pipe systems with fire endurance test condition “wet”, "dry/wet“, “dry" as specified in
RU-SHIP Pt.4 Ch.6 Piping system, Sec. 9 - Table 9 Application of mechanical joints.
Usage of these types as the main means of pipe connection is not permitted.
Limitation regarding installation space see page 5
Products approved by this certificate are accepted for installation on all vessels classed by DNV.

Temperature range:	**Refer to certificate**
Max. working press.:	**25bar. Refer to certificate.**
Sizes:	**DN50 up to DN900**

Issued at **Hamburg** on **2024-09-02**
This Certificate is valid until **2026-06-16**.
DNV local unit: **Nantong**

for **DNV**

Approval Engineer: **Hagen Markus**

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

Mechanical joint: Slip-on Joints (slip type)
Design type: Slip Telescopic Joint (Dresser Type)
Fire endurance test condition “wet” ,“8 min. dry + 22 min. wet” and “dry”.

Assembly drawing	Fire endurance test condition	Design
KZ20240315-1 - DN50 up to DN600, PN16 STL-00001-C-1, -C-2, -C-3, C-4	wet	Without outer shield cover
KZ20201106-1 - DN650 up to DN900 STL-00001-A-1, A-2, -A-3, -A-4		
KZ20221109- 1- DN250, PN25 -STL-20221109-A-1, -A-2, -A-3, -A-4, -A-5		
KZ20201108-1 - DN400 up to DN550 (Marioly body) STL-00001-B-1, -B-2, -B-3, -B-4		
KZ20240320-1 - DN50 up to DN900 STL-00001-D-1, -D-2, -D-3, -D-4, -D-5	8min. dry + 22min. wet, dry	With outer shield cover

Materials

Component	Material designation	Drawing
Shell body	20#, Q235-A/B SUS 316L/321, 304	STL-00001-A-3, PN16, PN25 STL-00001-C-3, PN16 STL-00001-D-3, PN16 STL-00001-D-4, PN16
	Q235-A/B,20#	STL-20221109-A-3, PN25
	Mariloy S-400 1% Cr	STL-00001-B-3, PN16
Gland flange	20#, Q235-A/B SUS 316L/321/304	STL-00001-C-2, PN16 STL-00001-A-2, PN16, PN25 STL-00001-D-2, PN16
	Q235-A/B,20#	STL-20221109-A-2, PN25
	Mariloy S-400 1% Cr	STL-00001-B-2, PN16
Flange and Extension pipe	Q235-A/B,20#	STL-20221109-A-5, PN25
Outer shield cover	316L/321/304	STL-00001-D-5
Sealing Ring	NBR/EPDM[1]/FKM (FPM)	STL-00001-C-4, PN16
		STL-20221109-A-4, PN16, PN25
		STL-00001-B-4, PN16
		STL-00001-D-4, PN16
Nut and Bolt	20#, Q235-A/B SUS 316L/321, SUS304	Not applicable

Notes
[1] EPDM shall not be used for hydrocarbon-based fluids.

Selection of materials

It shall be noted that the selection of the materials considers the applicable service condition with respect to type of media, flow velocity, media temperature and installation area of the piping system.
In particular, the resistance to corrosion, erosion, oxidation and other deterioration during projected service life are to be considered.

Sea water application

The term sea water application includes piping systems conveying sea water and piping systems installed on the open deck.
The stainless-steel materials SUS 316L (AISI 316L) is approved for sea water piping systems, whereas the steel grades SUS304 (AISI 304/304L) and SUS321(AISI 321) are not.

Even the stainless-steel grade SUS 316L cannot be considered immune to attack under all situations, avoidance of stagnant seawater conditions and removal of welding oxides after welding are some of the key factors to the successful use in piping systems for sea water and installation on open deck.

Reference: DNV RU-SHIP Pt.4 Ch.6 – Section 2 – Materials and DNV-OS-D101 Ch.2 – Sec. 2 – Materials.

Size range and nominal pressures

Nominal diameter DN	Nominal Pressure PN	External pressure P_{ext}
50, 65, 80, 100, 125, 150, 200, 250, 300	16bar	3bar
350, 400, 450, 500, 550, 600, 650, 700, 750, 800, 850, 900		
250	25bar	3bar

Temperature range materials

The applicable service temperature range for the coupling is limited by the material of the sealing/gasket and metallic material selected for the pressurised parts.
In the following the approved service temperatures for the individual components are listed:

Sealing / Gasket material	Temperature range
NBR	-20°C up to +80°C
EPDM	-30°C up to +110°C
FKM (FPM)	-30°C up to +200°C

Pressurised components material	Temperature range
Carbon steel	
Q235-B/A	0°C up to +200°C
20#	0°C up to +200°C

Stainless steel	
SUS 316L, SUS321, SUS304	- 55°C up to +400°C
Mariloy S-400 A (1% Cr)	0°C up to +200°C

For application at elevated temperatures the following pressure reduction factors on PN are to be observed.

Service temperature	Carbon steel	Stainless steel
50°C	1.0	0.95
100°C	1.0	0.85
150°C	0.89	0.77
200°C	0.81	0.71

Approved media temperature range according to pipe class and component material configuration

For selection of the joint to a dedicated piping systems both, the pipe class and temperature range of the component material is to be observed.

Examples

Material configuration	Media	PN	Media temperature range	Pipe class[2]
20#, NBR sealing	Flammable oil	≤7bar	Up to +60°C	III
		≤16bar	Up to +80°C	II
SUS 316L, FKM sealing	Steam	≤16bar	Up to +200°C	II
	Fuel	≤16bar	Up to +150°C	II

Notes
[1] Environmental condition, [2] Reference DNV RU-SHIP Pt.4 CH. 6 Piping systems Section 1 - Table 2 Classes of piping systems

Requirements depending on pipe classes and application

The requirements of pressurised parts in view of material certificates depends on the pipe class applicable for the intended application.
The following DNV Rules are to be observed:
DNV-RU-SHIP Pt. 4 Ch. 6 Sec. 1 – Table 1 (pipe classes)
Sec. 2 - Table 3 (material certificates acc. to pipe classes)

Sec. 2 - Table 3 (material certificates acc. to pipe classes)

Application

The slip-on joint slip type couplings of type STL are type approved for installation in pipe systems classified “wet”, "dry/wet“ and “dry" as listed in the below table. Remarks in the column “Limitation” are to be observed.
Reference: DNV-RU-SHIP Pt.4 Ch.6 Section Table 9 Application of mechanical joints

Piping systems		Limitation	Classification of pipe system
Flammable fluids (flash point ≤ 60°C)			
1	Cargo oil lines	None	dry
2	Crude oil washing lines		dry
3	Vent lines	None	dry
Inert gas			
4	Water seal effluent lines	None	wet
5	Scrubber effluent line		wet
6	Main lines	Approved for installation in pump rooms and open decks. Not approved 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	dry
7	Distribution lines	None	dry
Flammable fluids (flash point > 60 °C)			
8	Cargo oil lines	None	dry
9	Fuel oil lines	Not approved 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	wet
10	Lubricating oil lines		wet
11	Hydraulic oil		wet
12	Thermal oil		wet
Seawater			
13	Bilge lines	None	dry/wet
14	Water filled fire extinguishing systems, e.g. fire main, sprinkler systems	None	wet
15	Non water filled fire extinguishing systems, e.g., drencher systems	None	dry/wet
16	Fire main (not permanently filled)		dry/wet
17	Ballast systems	None	wet
18	Cooling water systems		wet
19	Tank cleaning services	None	wet
20	Non-essential systems		wet
Fresh water			
21	Cooling water systems	None	wet
22	Condensate return systems		wet
23	Non-essential piping systems		wet
Sanitary/drains/scuppers			
24	Deck drains (internal)	Only above bulkhead deck of passenger ships and freeboard deck of cargo ships.	dry
25	Sanitary drains	None	dry
26	Scuppers and discharge (overboard)	Not approved	dry
Sounding/vent			
27	Water tanks/dry spaces	None	dry/wet
28	Oil tanks (flash point > 60 °C)		dry
Miscellaneous			
29	Starting/control air	Not approved	dry
30	Service air piping systems (non-essential)	None	dry
31	Brine		wet
32 33	CO2 systems	Not approved	dry
34	Steam	May be used for pipes on deck with a design pressure of 10 bar or less.	wet

Sealing configuration
For applications requiring fire resistance testing in accordance with Table 9 Application of mechanical joints, the following seal configurations are permitted depending on the coupling dimension.

Classification of pipe system	Coupling configuration	Size range and approved sealing material
wet	Without outer shield cover	DN50 up to 900 NBR, EPDM, FKM, FPM
dry/wet, dry	With outer shield cover	≤150: NBR, EPDM, FKM, FPM
		> DN150: FKM, FPM ≤DN400
		>DN400 NBR, EPDM, FKM, FPM

Limitation
In addition to the table on page 4 the following installation, application limitations apply

General limitation
The couplings
- shall be installed between clamped pipes for compensation of axial movement. The use as the main means of pipe connection is not approved.
- are not approved for installation in pipelines arranged in cargo holds and other spaces which are not easily accessible. and inside of tanks. May be permitted in tanks only for the same media that is in the tanks.
- are not approved in pipeline sections directly connected to sea openings or tanks containing flammable liquids which in the event of damage could cause flooding or fire.
- are not approved in piping systems with impulse pressure load other than water hammer, e.g., pressure lines of hydraulic piping systems.

Guidance notes
“easily accessible” as defined in MSC/Circ. 734.
That means during normal operating conditions:
.1 located in a space normally entered without the use of tools;
.2 clear of or protected from obstructions, moving equipment and hot surfaces that prevent operation or servicing
.3 within arm's reach, or, within reach of a normally employed remote control device".

Type Approval documentation

Tests carried out
DNV CP-0185
Tightness pressure test, Burst pressure test, Vacuum test, Fire resistance tests (wet, dry condition), external pressure test (9bar).

Installation
The joints are to be assembled and mounted according to manufacturer’s instructions.
Document “Slip on joint slip type coupling Installation and Maintenance Manual", Rev.4.

Installation in tanks
The STL couplings are approved for external pressure up to 3bar.
When installed in suction lines with negative pressure, the external pressure will be reduced accordingly.

Example
Service pressure in suction line is -0.7bar than approved external pressure is reduced to 2.3 bar.

Marking of product
Each pipe coupling shall bear legible and durable marking on the body or on a plate fixed securely to the body. Scope of marking shall be at least as follows:

Scope	Example
Manufacturer’s name	Jiangsu Kuize Machinery Industry Limited Company
Standard model	STL
Size	DN 600

Working Pressure	16bar
Sealing material	NBR
Manufacturing date	2024-08-26

Periodical assessment

For retention of the Type Approval, a DNV Surveyor shall perform periodical assessment as per DNV-CP-0338, Sec.4 to verify that the conditions for the Type Approval are complied with.
In addition, burst pressure testing on selected sizes to be carried out in the course of renewal of the certificate.

To check the validity of this certificate, please look it up in https://approvalfinder.dnv.com.

End of certificate