

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Pipe Couplings

with type designation(s)
JYJT-S Follower Slip Type, JYJT-P Stuffing Box Slip Type

Issued to

Jingjiang Juyou Marine Facilities Co.,Ltd
Jingjiang, China

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 all vessels classed by DNV.

Type:	Temperature range:	Max. working press.:	Sizes:
JYJT-S Follower Slip Type	-10°C up to +170°C	1.8MPa	DN65 up to DN1000
JYJT-P Stuffing Box Slip Type	-10°C up to +170°C	1.6MPa	DN50 up to DN900

Issued at **Hamburg** on **2023-04-06**

This Certificate is valid until **2028-04-05**.

DNV local unit: **Jiangyin NB & CMC**

for **DNV**

Approval Engineer: **Hagen Markus**

Sven Klinger
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

Slip-on joint slip type coupling made of steel.

Reference Pt.4 Ch.6 Machinery piping systems, Section 9 Table 8 Examples of mechanical joints.

Type	Design standard	Manufacturers specification	Sizes DN ¹	Nominal pressure PN
JYJT-P	GB/T 4106-2008	JYJT-P Stuffing Box Slip Type Expansion Joints Drawing JYGX-03A-00	50, 65, 80, 100, 125, 150, 200, 250, 300, 350, 400, 450, 500, 600, 700, 800, 900 Fire resistant types up to DN600	1.6MPa
JYJT-S	GB/T 12465-2008	JYJT-S Follower Slip Type Expansion Joints Drawing JYGX-02A-00	65, 80, 100, 125, 150, 200, 250, 300, 350, 400, 450, 500, 600, 700, 800, 900, 1000 Fire resistant types up to DN800	1.85MPa

Note

¹ Applicable pipe outer diameter acc. to drawing JYGX-02A-00 (JYJT-P), JYGX-03A-00 (JYJT-S)

Materials³

JYJT – S Follower Slip Type Expansion Joints

Component	Material designation	Elongation A ₅	Impact Joule ³		Material standard
			RT	<0°C	
Cover Sleeve joint	#20	≥21%	≥27	≥18 ¹	GB9948/GB6479:2013
	Q235B	≥22%	≥27	n.a.	GB/T700:2006
	Q345B	≥20%	≥34	n.a.	GB/T8163:2018
	A106B	≥20%	n.a.	n.a.	A106/A106M-18
	A105	≥22%	n.a.	n.a.	ASTM A105/A105M-21
	SUS 304	≥40%	110	80 ²	ASTM A240/A240a:2020
	SUS 316L	≥45%	144	148 ²	

Component	Material designation	Manufacturer Specification
Gasket	PTFE	GB/T13404
Sealing	NBR	Density: 0.95 to 1.1g/cm ³ , Strength ≥ 19.2MPa
	FPM	Density: 1.8 to 1.9g/cm ³ , Strength ≥14MPa (275°C@24h)

JYJT-P - Stuffing Box Slip Type Expansion Joints

Component	Material designation	Elongation A ₅	Impact Joule ³		Material standard
			RT	<0°C	
Body Follower Expansion pipe	#20	≥21%	≥27	≥18 ¹	GB/T9948/GB6479:2013
	Q235B	≥22%	≥27	n.a.	GB/T700:2006
	SUS 304	≥40%	110	80 ²	ASTM A240/A240a:2020
	SUS 316L	≥45%	144	148 ²	

Component	Material designation	Specification
Sealing	Soft Graphite	Graphite strip density: 1.0±0.05 g/cm ³ Density of finished goods: 1.6±0.05g/cm ³ Carbon: ≥99%, Ash :≤1%, Strength: ≥4.5MPa

Component	Material designation	Strength class	Material standard
Bolts, nuts	CS (#45)	8.8	GB/T699:2015
	304	A2-80	GB/T1220:2007
	316L	A2-80	GB/T1220:2007
Limited stud	CS	8.8	GB/T699:2015

Notes

¹ -20°C GB/T 6479, ² -196°C

³ The values for Elongation, Impact Joule are taken from data base Total Materia.

Application/Limitation

The slip-on joint slip type couplings of types JYJT-S and a JYJT -P are type approved for piping systems of pipe class II and III as listed in the table below.

Reference Pt.4 Ch.6 – Section 9 - Table 8 - Slip on joint - Slip type - fire resistant type (wet condition).

Approved size range Fire resistance: JYJT-P up to DN600, JYJT-S up to DN800

Table – Approved applications

Reference Pt.4 Ch.6 Section 9 – Table 9 Application of mechanical joints

Piping systems	Notes
Inert gas	
Water seal effluent lines	--
Scrubber effluent lines	--

Flammable fluids (flash point > 60 °C)	
Fuel oil lines	2), 3)
Lubricating oil lines	2), 3)
Hydraulic oil lines	2), 3)
Thermal oil lines	2), 3)

Sea water	
Water filled fire extinguishing systems (e.g. sprinkler)	3)
Ballast systems	4)
Cooling water systems	4)
Tank cleaning services	--
Non-essential systems	--

Fresh water	
Cooling water systems	4)
Condensate return systems	4)
Non-essential piping systems	--

Sanitary/drains/scuppers	
Deck drains (internal)	5)
Sanitary drains	--

Sounding/vent	
Water tanks/dry spaces	--

Miscellaneous	
Service air piping systems (non-essential)	--

Footnotes - Fire resistance capability requirements

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 fire resistant types 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.

4) Fire endurance test shall be applied when mechanical joints are installed in machinery spaces of category A.

Footnotes - General:

5) Only above bulkhead deck of passenger ships and freeboard deck of cargo ships.

Media temperature range

Carbon steel	#20	-10°C up to +170°C
	Q235, Q345	-10°C up to +170°C
	A105	-10°C up to +170°C
Stainless steel	304, 316L	-55°C up to +170°C

Sealing materials:	NBR	up to +90°C
	FPM	up to +170°C
	Soft graphite	up to +200°C

The maximum media temperature of the pipe coupling is limited by the limit of components.

Examples

Coupling type	Coupling body	Sealing material	Temperature range
JYJT-S	Carbon steel	NBR	-10°C up to +90°C
JYJT-P	Stainless steel	Soft graphite	-55°C up to +170°C

Pressure reduction factors

For service temperatures above 50 °C (stainless steel) or above 120°C (carbon steel) the nominal pressure is to be reduced by the following pressure reduction factors:

Reference DNV CP-0185 – Table 1

Temperature	Carbon steels unalloyed	Low alloyed steels	Stainless steels
20°C	1.00	1.00	1.00
50°C	1.00	1.00	0.95
100°C	1.00	1.00	0.85
120°C	0.96	0.97	0.91
150°C	0.89	0.93	0.77
200°C	0.81	0.87	0.71
250°C	0.72	0.81	0.67

Sea water application

The stainless steel alloy SUS 304 is not considered suitable for use in seawater systems and installation on open deck. Stainless steel may be used SUS 316L but is prone to corrosion in piping systems with permanent stagnant sea water, e.g. sprinkler fire extinguishing systems.

For application in sea water systems or for installation on open deck stainless steels with higher contents of chromium, molybdenum and nitrogen with improved resistance to localised corrosion shall be used.

These include high molybdenum austenitic steels and ferritic-austenitic (duplex) steels. Even these steels cannot be considered immune to attack under all situations; avoidance of stagnant sea water conditions and removal of welding oxides are some of the important factors to the successful use.

For application in sea water systems stainless steel grades with a minimum pitting resistance equivalent number (PREN) ≥ 30 shall be used.

Material certificate shall include appropriate confirmation tests per ASTM A262, Practice E, Copper - Copper Sulphate - Sulphuric Acid Test or to another recognised standard.

Refer to DNV Rules Part 2 Section 3 – Corrosion testing.

Limitations

The number of mechanical joints in flammable fluid systems shall be kept to a minimum. Flanged joints conforming to recognised standards shall be used.

Mechanical joints, which in the event of damage could cause fire or flooding, shall not be used in piping sections directly connected to the ship's side below the bulkhead deck of passenger ships and freeboard deck of cargo ships or tanks containing flammable fluids.

Slip-on joints are in general not approved for the following installation locations and applications:

- as main means of pipe connection except for compensation of pipe expansion or shrinkage.
- in piping systems with impulse pressure load other than water hammer, e.g. pressure lines of hydraulic piping systems.
- pipe lines inside cargo holds, tanks and other spaces which are not easily accessible. Installation inside tanks may be permitted only in case pipe contain a medium of the same nature media that is in the tanks.
- piping systems containing oxygen (more than 25% by volume)

Reference DNV Pt.4 Ch.6 Section 9 – 5.2 Pipe couplings other than flanges, CP-0185.

Installation

For assembling and installation of the couplings the document “ Installation and operation manual” is to be observed.

Type Approval documentation

Tests carried out

Type tests to CP-0185

Tightness test, Burst test, Vacuum test, Fire resistance test

Marking of product

Each pipe coupling shall be provided with a name plate as follows:

松套式伸缩接头 SLIP TYPE EXPANSION JOINTS			
型 号 SPECIFICATION		通 径 DIAMETER	
设计压力 DESIGN PRESSURE	bar	设计温度 DESIGN TEMPERATURE	°C
产品编号 SERIES NO.		介 质 FLOWING MEDIUM	
试验压力 HYDRAULIC PRESSURE	bar	制造日期 MANUF. DATE	
靖江聚友船用配套设备有限公司 JINGJIANG JUYOU MARINE FACILITIES CO., LTD			

Periodical assessment

For retention of the Type Approval, a DNV Surveyor shall perform periodical assessment to verify that the conditions for the Type Approval are complied with. Refer to the Class Programme DNV-CP-0338, Sec.4.

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

End of certificate