

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Expansion Joint for Pipe, Slide Type and Flexible Type**

with type designation(s)

Daicoup style 10, 10N, 11, 11N, RX10, 25, 25N, 53, 55, 56, 58 Fire Resistant types 10F, 11F and 38

Issued to

**Daido Kinzoku Kogyo K.K.
Amagasaki, Hyogo Pref, Japan**

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 vessels classed by DNV GL.****Temperature range:** Depending on material, see page 3**Max. working press.:** Depending on type, see page 2**Sizes:** DN25 to DN800 (see page 2)Issued at **Høvik** on **2019-06-25**This Certificate is valid until **2023-12-31**.for **DNV GL**DNV GL local station: **Kobe**Approval Engineer: **Maheshraja Venkatesan****Zeinab Sharifi
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.



Job Id: **262.1-001061-6**
Certificate No: **TAP00001NT**

Product description

Slip-on type expansion joint.

Dimensions and Materials:

	Style 10		Style 10N		Style 55	Style 56
Sizes	DN25-300	DN350-800	DN25-300	DN350-800	DN40-100	DN100-800
Follower	Nodular cast iron FCD 450 JIS-G5502	Carbon steel SS400 JIS-G3101	Nodular cast iron FCD 450 JIS-G5502		Nodular cast iron FCD 450 JIS-G5502	
Middle ring	Carbon steel SS400 JIS-G3101 or STKM13A JIS-G3445				Nodular cast iron FCD 450 JIS-G550	
Bolt and nut	Carbon steel SS400 JIS-G3101 Galvanized or SS400 JIS-G3101				Carbon steel SS400 JIS-G3101 Galvanized	Carbon steel SS400 JIS-G3101 Galvanized or SS400 JIS-G3101
Gasket	NBR, CR or FPM					

	Style 11		Style 11N		Style 25/25N	Style 53
Sizes	DN25-300	DN350 -800	DN25 - 300	DN350 -800	DN40 - 500	DN100 -800
Follower	Nodular cast iron FCD 450 JIS-G5502	SS400 JIS-G3101	Nodular cast iron FCD 450 JIS-G5502		Nodular cast iron FCD 450 JIS-G5502 or SS400 JIS-G3101	Nodular cast iron FCD 450 JIS-G5502
Middle ring	Carbon steel SS400 JIS- G3101 or STKM13A JIS-G3445					Nodular cast iron FCD 450 JIS-G5502
Bolt and nut	Carbon steel SS400 JIS-G3101 Galvanized				SUS304	Carbon steel SS400 JIS-G3101 Galvanized
Gasket	NBR, CR or FPM				NBR or CR	NBR, CR or FPM

	Style RX10	Style 58	Style 10F, 11F and 38
Sizes	DN150 - 800	DN100 - 800	DN40 - 800
Follower	Nodular cast iron FCD 450 JIS-G5502		Nodular cast iron FCD 450 JIS-G5502 or Carbon steel SS 400 JIS G3101
Middle ring	Nodular cast iron FCD 450 JIS-G5502		Carbon steel SS 400 JIS G3101 or STKM13A JIS-G344-5
Bolt and nut	Carbon steel SS400 JIS-G3101 Galvanized or SS400 JIS-G3101		Carbon steel SS400 JIS-G3101 Galvanized or SS400 JIS-G3101 Low alloy steel SCM 435 JIS-G3441 or Carbon steel S45C JIS-G-4051
Gasket	NBR, CR or FPM		NBR, CR or FPM

Maximum working pressure [MWP]:

Style	10, 10 N, 11, 11N, 53, 55, 56, 58, RX10	10, 10N, 11, 11N, 53, 56	25, 25N	10F, 11F, 38
Type	B, L	E	S, W	S, TP, L
MWP	16 bar	5 bar	5 bar	16 bar

Application/Limitation

Slip-on joints covered by this certificate are only allowed for the following class II and class III piping systems:

1) Flammable fluids (flash point $\leq 60^{\circ}\text{C}$) - Cargo oil lines ⁽⁴⁾ - Crude oil washing lines ⁽⁴⁾ - Vent lines ⁽³⁾ 2) Inert gas - Water seal effluent lines - Scrubber effluent lines - Main lines ⁽²⁾⁽⁴⁾ - Distributions lines ⁽⁴⁾ 3) Flammable fluids (flash point $> 60^{\circ}\text{C}$) - Cargo oil lines ⁽⁴⁾ - Fuel oil lines ⁽²⁾⁽³⁾ - Lubricating oil lines ⁽²⁾⁽³⁾ - Hydraulic oil ⁽²⁾⁽³⁾ - Thermal oil ⁽²⁾⁽³⁾ 4) Fresh water - Cooling water system ⁽¹⁾ - Condensate return ⁽¹⁾ - Non-essential system	5) 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 6) Sanitary/drains/scuppers - Deck drains (internal) ⁽⁶⁾ - Sanitary drains 7) Sounding/vent - Water tanks/dry spaces - Oil tanks (f.p. $> 60^{\circ}\text{C}$) ⁽²⁾⁽³⁾ 8) Miscellaneous - Service air (non-essential) - Brine - Steam ⁽⁵⁾
(1) Inside machinery spaces of category A - only approved fire resistant types Style 10F, 11F and 38 (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 - Style 10F, 11F and 38 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) Only in pump rooms and open decks - only approved fire resistant types - Style 10F, 11F and 38. (5) May be used for pipes on deck with a design pressure of 10 bar or less. (6) Only above bulkhead deck of passenger ships and freeboard deck of cargo ships.	

Minimum allowable working temperature is 0°C for slip-on joints having nodular cast iron FCD 450 and shall have a minimum elongation of 12%.

Temperature range for expansion joints with gasket material of:

Gasket Material	Temp. Range
NBR	-20 to 125°C
CR	-20 to 125°C
FPM	-20 to 125°C

The joints are to be assembled and mounted according to manufacturer's instructions.

Material in contact with seawater shall be properly protected. Surface preparation and coating procedure shall be approved by the society.

Materials chosen for the specific system shall be suitable for the intended medium and environmental conditions.

Certification

Material certification shall be as per DNVGL-RU-SHIP Pt. 4 Ch. 6 Sec. 2 Table 3.

No product certificate will be required.

Type Approval documentation

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Tests carried out

Tightness test, burst pressure test, vacuum test, fire test

Marking of product

For traceability with this type approval the couplings are at least to be marked with:

- Manufacturer's name or trade mark
- Size & Type designation
- Max. working pressure

Periodical assessment

For retention of the Type Approval, a DNV GL Surveyor shall perform periodical assessment after two years (+/- 90 days) and after 3.5 years (+/- 90 days) to verify that the conditions for the approval are complied with. Reference is made to DNVGL-CP-0338.