

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Pipe Couplings, Flared or Welded Nipple Type

with type designation(s)
BO 3000, BO 6000, BO 6164

Issued to

Dalian Jierui Fluid Control Co., Ltd.
Dalian, 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 :

The pipe couplings of type BO are type approved for application in piping systems for mineral oil, water, steam, air, synthetic grease base oil and polyethylene.
Products approved by this certificate are accepted for installation on all vessels classed by DNV GL.

Temperature range: -45 °C up to +200°C (see certificate)
Max. working press.: 200 bar up to 420 bar (see certificate)
Sizes: 1/2 inch to 3 inches (12 to 76mm)

This Certificate is valid until **2021-10-25**.

Issued at **Hamburg** on **2016-10-26**

for **DNV GL**

DNV GL local station: **Dalian**

Approval Engineer: **Hagen Markus**

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

37° flare coupling made of C and C-Mn steel and stainless steel.
Design and sizes according to ISO 6162-1/2: 2002 and ISO 6164:1994.

Materials

Material standards

Forged materials: GB/T 1591-2008, GB/T1220-2007, GB/T 699-1999

O-ring: ISO 3601-1, NBR/FPM

Quality of forged pieces: GB/12363 II

Geometrical tolerance: GB/T 1184-K

Material specification of coupling parts

Coupling part	Material
37° Clamp	Q345B/316L
37° Insert cone	20#/316L
37° Sleeve	45#/316L
O-Ring	NBR/FPM
Bolt/Nut	45#/316L

Range of Application

Temperature range of rubber sealing material

Type of rubber	Minimum temperature	Maximum temperature		
		Dry air	Water, Steam	Hydrocarbons
NBR	-10 °C to -30 °C	Up to 100 °C	Up to 90 °C	Up to 90 °C
FPM	-20 C° to -45 °C	Up to 200 °C	Up to 150 °C	Up to 170 °C

Maximum working pressure

Size [inch]	Type	Max. Working Pressure [bar]	Design Pressure [bar]
1/2	BO 3000-1/2 ORF	290	350
3/4	BO 3000-3/4 ORF		
1	BO 3000-1 ORF		
1 1/4	BO 3000-1 1/4 ORF	230	280
1 1/2	BO 3000-1 1/2 ORF		
2	BO 3000-2 ORF		
2 1/2	BO 3000-2 1/2 ORF	175	210
3	BO 3000-3 ORF		

Job Id: **262.1-010279-3**
Certificate No: **TAP00000K2**

Maximum working pressure (continuation)

Size [inch]	Type	Max. Working Pressure [bar]	Design Pressure [bar]
1/2	BO 6000-1/2 ORF	350	420
3/4	BO 6000-3/4 ORF		
1	BO 6000-1 ORF		
1 1/4	BO 6000-1 1/4 ORF		
1 1/2	BO 6000-1 1/2 ORF		
2	BO 6000-2 ORF	330	400
2	BO 6164-2 ORF		
2 1/2	BO 6164-2 1/2 ORF		
3	BO 6164-3 ORF	290	350

Manufactured by

Dalian Jierui Fluid Control Co., Ltd.
No.51 Xinping Street, Ganjingzi District, Dalian,
China P.C.

DNV GL local station

Dalian CMC (MRCCN423)
147 Zhongshan Road, Xigang District
Rm 2104D/2101B, 21/F, Senmao Building
Dalian 116011
China P.C.

Responsibility

The Company (stated on the front page of this Certificate) takes the responsibility that both design and production are in compliance with Rules, Standards and/or Regulations listed on page 1 of this certificate.

Remarks

Maximum working pressure

In addition to the maximum working pressure specified in the above tables the instructions of the manufacturer's are to be observed.

Requiereements on tubes

For selection of the tubes the following is requiereements to be observed:

- wall thickness of the tubes are to be in accordance with the DNV GL Rules Pt.4, Ch.6, Section 9.
- pipe couplings shall be assembled with tubes with correct temper conditions and dimension tolerances as specified by coupling manufacturer specification.

Use of BO couplings on tubes in cold fabricated (hard temper) conditions is not approved.

- Internal reinforcement ring for the tube to be used according to manufacturers instructions.

Limitation

These couplings are not approved for application in high pressure fuel injection systems of combustion engines.

Type Approval documentation

- Test reports according to DNV Type Approval Programme No. 5-792.20, dated 2011.09.15
- Technical drawings according to ISO 6161-1/2:2002 and ISO 6164:1994
- Assembling drawing: B0300...ORF/BO6000...ORF, B03000...ORF, B06000...ORF, ICOR, ICFL, SL, B06164ORF, BO6164ORF, BO6164.
- Application for type approval certificate from DNV Dalian, dated 2011.03.29
- Initial survey report from DNV Dalian, dated 2011.03.29

Tests carried out

Burst pressure test, Leakage test, Repeated assembly test, Pull-out test, Vibration test, Pressure pulsation test, Fire resistance 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

Periodical assessment

The scope of the Periodical Assessment is to verify that the conditions stipulated for the Type Approval is complied with and that no alterations are made to the product design or choice of materials.

Periodical Assessment to be performed after two and a half year (2.5 years, certificate retention) and prior to renewal after five (5 years, certificate renewal).

The objective of the periodical assessment is to verify that the design and production conditions for the hose assemblies covered by this 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
- review of the type approval documentation and that this is still the basis for the production
- review of design changes , pre- material and performance of the product
- verification of the product marking

END OF CERTIFICATE