

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Pipe System with Couplings

with type designation(s)
Push fit Pipe and drain system

Issued to
Blücher Metal A/S
Vildbjerg, Midtjylland, Denmark

is found to comply with
DNV GL rules for classification – Ships Pt.4 Ch.6 Piping systems

Application :

Product(s) approved by this certificate is/are accepted for installation on vessels classed by DNV GL.

Temperature range: - 40°C to 200°C, dependent on sealing type
Max. pressure: Dependent on pipe sizes and fixations
Design: The pipes are longitudinal welded thin wall pipes with a pressed-out bulb at one end. The bulb gives room for a lip seal

Issued at **Høvik** on **2019-01-14**

This Certificate is valid until **2023-12-31**.
 DNV GL local station: **Oslo Pressure Equipment**

Approval Engineer: **Adel Samiei**



for **DNV GL**
 Digitally Signed By: Marveng, Marianne Spæren
 Location: DNV GL Høvik, Norway

Marianne Spæren Marveng
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: **262.1-002390-7**
 Certificate No: **TAP0000023**
 Revision No: **2**

Product description

The pipes are longitudinal welded thin wall pipes with a pressed-out bulb at one end. The bulb gives room for a lip seal ring of EPDM, NBR or FPM. A length of same end of pipe is rolled to a diameter exceeding outside nominal diameter of rest of pipe. Assembly of pipes is performed by pushing the small end of pipe through the lip seal into the big end.

Type designations:

490	Group pipe penetration	842	Sliding ring-seal socket
525	87,5 ° "P" water trap	843	Expansion socket
811	Straight pipe with 1 socket	844	Plug
812	Straight pipe with 2 socket	850	Eccentric increaser / Concentric reducer
820	15 °, 30 °, 45 ° and 87,5 ° Bend	854	Pipe with flange
821	87, 5 ° Long radius bend	855	W.C. connector
830	87, 5 ° Branch	885	Adapter
831	87,5 ° Double Branch 180°	886	Adapter
832	87,5 ° Double Branch 90°	866	Pipe penetration
834	Rear access branch	867	Toilet penetration for vacuum system
836	45° Double branch 180°	868	Flange penetration
837	45° Double branch 90°	869	Adjustment socket
838	45° Oblique branch pipe	870	Pipe penetration
839	87,5° Combination Y and 1/8 bend	872	Pipe penetration
840	Access pipe	873	Transport pockets
841	Double ring-seal socket	470	Drain penetration, vertical
874	Goose neck	475	Drain penetration, horizontal
474	Drain penetration, vertical	472.300	Drain upper part, Tiles and concrete
471	Drain upper part with side inlets, Tiles	473	Drain upper part, Vinyl floors
472.320	Drain upper part, Resin floors	503	Water trap, removable
502	Water trap, removable	611	Extension pipe
505	Water trap, bottle	480.150.050	Vacuum drain
491	Cabin drain	899	special fitting with push/fit connection

Materials: Stainless steel AISI304 or AISI316L

Ext. dia. of pipe	Thickness	Non welded drain penetrations
40 mm	1, 0 mm	470.900.xxx
50 mm	1, 0 mm	475.900.xxx
75 mm	1, 0 mm	868.900.xxx
110 mm	1, 0 mm	490.900.xxx
125 mm	1, 0 mm	Pressure Peak Clamps
160 mm	1, 25 mm	847.001.xxx
200 mm	1, 50 mm	

xxx = Nominal pipe diameter

Application/Limitation

The pipe system may be used for non-pressurized and vacuum:

- sanitary discharge systems above freeboard deck and in enclosed spaces below (including machinery rooms),
- vent pipes for sanitary discharge systems (and for central vacuum cleaning system - CVC),
- lines in tanks not forming part of the ship structure,
- outside drainage (Scupper and pipes which are located on weather decks or balconies)

Pipe penetrations through watertight bulkheads, fire bulkheads or shell plating shall be approved in each separate case. When penetrating a watertight bulkhead there shall be remotely operated valves secured to each bulkhead. The valves and control system shall be located outside the damage zone of the ship.

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Temperature range according to sealing material:

Sealing material	Temperature range
EPDM	-40°C to 100°C
NBR	-30°C to 80°C
FPM/FKM	-25°C to 200°C

Type Approval documentation

- Catalogue, Blücher Marine Product Catalogue for marine pipes and drains
- "Afpøvning af gummitætningsringe for rustfrit stålafløbssystem i bygning og jord", DTI Engineering 9. januar 1995
- "Vacuumprøvning af ø50 og ø75 mm samlinger på rustfaste afløbssystemer, type Europipe" DTI Engineering 30. januar 1995
- Type test report dated 2010-12-17
- Vibratiion test report no. DANAK 19-12350 from Delta, Denmark dated 2012-08-16
- DNV GL statement regarding type approval certificate P-15027 with reference MOANO378/SADEL/262.1-002390-J-41 dated 2015-11-20
- Technical datasheet FKM Green B5-5560 dated 2013-09-03

Tests carried out

Pressure test, Vacuum test, Vibration test

Marking of product

For identification to this type approval the products are to be marked with:

- Manufacturer's name or trade mark.
- Type designation

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.