



# TYPE APPROVAL CERTIFICATE

Certificate no.:  
**TAP0000023**  
Revision No:  
**4**

## 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 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.

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

Issued at **Høvik** on **2023-11-29**

for **DNV**

This Certificate is valid until **2028-12-31**.  
DNV local unit: **Oslo Pressure Equipment**

Approval Engineer: **Sarah Miller**

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

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:

178	WaterLine channel	830	87,5° Branch
275	WaterLine channel	831	87,5° Double Branch 180°
470	Drain penetration, vertical	832	87,5° Double Branch 90°
471	Drain upper part with side inlets, Tiles, and concrete	834	Rear access branch
471.310	Drain upper part with side inlets, Tiles and concrete	836	45° Double branch 180°
472.300	Drain upper part, Tiles and concrete	837	45° Double branch 90°
472.310	Drain upper part, Tiles and concrete	838	45° Oblique branch pipe
472.320	Drain upper part, Resin floors	839	87,5° Combination Y and 1/8 bend
473	Drain upper part, Vinyl floors	840	Access pipe
474	Drain penetration, vertical	841	Double ring-seal socket
475	Drain penetration, horizontal	842	Sliding ring-seal socket
480	Flanged drain penetration (ALU)	843	Expansion socket
480.150.050	Vacuum drain	844	Plug
485	Flanged drain penetration (ALU)	847	Joint clamps
490	Group pipe penetration	850	Eccentric increaser / Concentric reducer
491	Cabin drain	854	Pipe with flange
499	Special pipe/drain penetration with push/fit connection	855	W.C. connector
502	Water trap, removable	859	System-x transition adaptor
503	Water trap, removable	866	Pipe penetration
505	Water trap, bottle	867	Toilet penetration for vacuum system
525	87,5° "P" water trap	868	Flange penetration
611	Extension pipe	868.910	Flanged penetration (non-weld)
651	MultiLine channel	869	Adjustment socket
660	MarineLine channel	870	Pipe penetration
662	MarineLine channel	872	Pipe penetration
670	MarineLine channel	873	Transport pockets
672	MarineLine channel	874	Goose neck
699	Special channels with push/fit connection	875	Pipe penetration
811	Straight pipe with 1 socket	878	Flanged pipe penetration (ALU)
812	Straight pipe with 2 socket	885	Adapter
820	15°, 22°, 30°, 45°, 68° and 87,5° Bend	886	Adapter
821	87,5° Long radius bend	899	Special fitting with push/fit connection
825	45° and 87.5° long radius bend		

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
82 mm	1,0 mm	868.910.xxx
110 mm	1,0 mm	490.900.xxx
125 mm	1,0 mm	<b>Pressure Peak Clamps</b>
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)
- Food waste systems

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.

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
- "Afrøvning af gummitætningsringe for rustfrit stålfløbssystem i bygning og jord", DTI Engineering 9. januar 1995
- "Vacuumprøvning af ø50 og ø75 mm samlinger på rustfaste afløbssystemer, type Europepe" 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
- Catalogue, Blücher Marine Product Catalogue for marine pipes and drains, dated 04-03-2022
- Catalogue, Blücher Marine Product Catalogue for channels, dated May 2021
- Renewal assessment report, dated 2023-10-03

### 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 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 DNV-CP-0338.