

TYPE APPROVAL CERTIFICATE**This is to certify:****That the Pipe Couplings with Bolts Not Covered by a National Standard**with type designation(s)
Style 77

Issued to

Victaulic Company
Easton, PA, USA

is found to comply with

DNV GL rules for classification – Ships Pt.4 Ch.6 Piping systems
DNVGL-OS-D101 – Marine and machinery systems and equipment, Edition January 2018
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:** EPDM 0°C to +110°C / Nitrile: 0°C to +82°C
Max. working press.: 25 bar
Sizes: 2", 2 1/2", 3" 3 1/2", 4", 5", 6", 8", 10", 12"Issued at **Høvik** on **2019-04-12**for **DNV GL**This Certificate is valid until **2023-06-30**.DNV GL local station: **New York**Approval Engineer: **Iselinn Vindstad****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: **262.1-009291-23**
 Certificate No: **TAP0000029**
 Revision No: **3**

Product description

Victaulic Style 77 flexible coupling.

Design:

Machine grooved type fittings are joined by the coupling, which is comprised of a two piece cast housings. The sealing is provided by a rubber gasket, internal to the coupling.

Materials:

Coupling housings: Ductile iron to ASTM A-536 65-45-12
 Bolts and nuts: Carbon steel ASTM A-183
 Gasket: Grade "E" EPDM, Grade "T" Nitrile or Grade "T (Type A)" Nitrile

Manufacturing locations:

Victaulic Company
 4901 Kesslersville Road,
 Easton, PA 18040 USA

Victaulic Company
 Alburdis Facility
 8023 Quarry Road
 Alburdis, PA 18011 USA

Dalian Bingshan Metal Technology Co., Ltd.
 No.9 Northeastern 7th Street Economic and Technology Development Zone,
 Dalian, Liaoning, 116600, China

Victaulic Polska Sp. z o.o.
 ul. Niepodległości 8
 66-530 Drezdenko, Poland

Application/Limitation

The Victaulic coupling Style 77 may be used in the following systems:

Systems			Systems		
Flammable fluids (Flash point \leq 60 °C)			Fresh water		
1	Cargo oil lines	+ 2)	21	Cooling water system	+
2	Crude oil washing lines	+ 2)	22	Condensate return	+
3	Vent lines	+	23	Non-essential system	+
Inert gas			Sanitary/Drains/Scuppers		
4	Water seal effluent lines	+	24	Deck drains (internal)	+ 3)
5	Scrubber effluent lines	+	25	Sanitary drains	+
6	Main lines	+ 1) 2)	26	Scuppers and discharge (overboard)	-
7	Distribution lines	+ 2)	Sounding/ vent		
Flammable fluids (Flash point $>$ 60°C)			27	Water tanks/Dry spaces	+
8	Cargo oil lines	+ 2)	28	Oil tanks (flash point $>$ 60°C)	+ 1)
9	Fuel oil lines	+ 1)	Miscellaneous		
10	Lubrication oil lines	+ 1)	29	Starting/control air	-
11	Hydraulic oil	+ 1)	30	Service air (non-essential)	+
12	Thermal oil	+ 1)	31	Brine	+
Sea Water			32	CO ₂ system	-
13	Bilge lines	+	33	Steam	+
14	Sprinkel system	+			
15	Foam systems	+			
16	Fire main	+			
17	Ballast system	+			
18	Cooling water system	+			
19	Tank cleaning services	+			

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20	Non-essential system	+	
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The couplings are permitted for use in systems marked '+', not permitted for systems marked '-'.

Limitations/remarks:

- 1) 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.
- 2) Only in pump rooms and open decks
- 3) Only above bulkhead deck of passenger ships and freeboard deck of cargo ships.

The couplings with Grade E/EPDM and Grade "T (Type A)" Nitrile gaskets are of fire resistant types, and may be used in systems where fire safe application is required.

When used in systems where vacuum may occur, precautions shall be taken to prevent the internal gasket from being drawn into the gap of the two pipe ends.

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

EPDM may not be used for hydrocarbon services.

The couplings are approved to be used in piping systems of class II and III.

The couplings with sizes 8", 10", and 12" are not to be used in piping systems subject to impulse loading, e.g. hydraulic systems.

Type Approval documentation

- manufacturer's product catalogue no. 06.04 "Victaulic® Standard Flexible Coupling Style 77", rev. U
- Seal Selection Guide no. 05.01, rev. AC
- Nitrile Grade T (Type A) Gasket no. 8311, rev. B
- Renewal burst pressure tests witnessed by DNV GL
- Pull out and vibration testing, project ID 3041856, dated May 24, 2012
- Report of pressure pulsation test on Style 77, report number 12-5676-5, 12-5676-8
- IACS Fire test dated September 2006
- American Bureau of Shipping, miscellaneous survey report PA1979951 dated April 2011
- Fire test witnessed by DNV GL dated 2014-02-06 and 2014-03-06.

Tests carried out

Tightness test, repeated assembly test, burst pressure test, pull-out test, vibration (endurance) test, pressure pulsation test, vacuum test, fire test

Certification

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

Marking of product

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

- manufacturer's name or trade mark
- type designation
- size

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.