



Type Approval Certificate

[Mechanical Joints]

Initial Approval 2 July 1996
Manufacturer Victaulic Company
 4901 Kesslersville Road, Easton, PA 18040, USA

Product Description Type : Victaulic Style 77 Flexible Couplings

- Design : Machine Grooved Type
- Size (inch) : 3/4" ~ 12" / 14" ~ 24"
- Design Pressure : 16 bar / 15.5 bar
- Design Temperature : -34 ~ +110 °C (EPDM), -29 ~ +82 °C (Nitrile)
- Materials ;
 Coupling housings : Ductile iron ASTM A-536 Grade 65-45-12
 Bolts and nuts : Carbon Steel ASTM A-183
 Gasket : Grade 'E' EPDM, Grade 'T' Nitrile

Approval Condition Individual Product Certification is required in case where the mechanical joints are used for Class I or II piping system.

" See Appendix 1 "

THIS IS TO CERTIFY that the above-mentioned product has been approved in accordance with the relevant requirement of this Society's Rules and / or of the recognized standards as follows.

Pt. 5, Ch. 6, Sec. 1 of the Rules for Classification of Steel Ships.

This Certificate is valid until 1 July 2026

Issued at Busan, Korea on 22 July 2021



This certificate is signed electronically in accordance with IMO FAL.5/Circ.39/Rev.2. Validation and authentication of the certificate can be confirmed from "<http://e-cert.krs.co.kr>" by using the tracking No(ME24016381346) and certificate No.(NYK05774-PE004).



KOREAN REGISTER

*General Manager of
Marine & Ocean Equipment Team*

- Note :**
1. This certificate will be valid subject to complying with the approval conditions described on the certificate and/or on the Rules of this Society.
 2. This certificate will be invalid from the expiry date aforementioned unless the extension or renewal has been granted to the applicant or the manufacturer.
 3. Any significant modifications or changes in design or construction to the above product without approval from this Society will render this certificate invalid.
 4. Should the specified rules, regulations or standards be amended during the validity of this certificate, the product is to be re-approved by this Society in accordance with the requirements as amended.

Product Description and/or Approval Condition

Date of Issue : 22 July 2021

1. Application

- 1) The mechanical joints can be used for the following pipe lines in easily visible and accessible positions ;

① Flammable fluids (Flash point ≤ 60 °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 °C)

- | | |
|-----------------------------|---------|
| - Cargo oil lines | (4) |
| - Fuel oil lines | (2) (3) |
| - Lubricating oil lines | (2) (3) |
| - Hydraulic oil/Thermal oil | (2) (3) |

④ 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/Cooling water system | (1) |
| - Tank cleaning services/Non-essential systems | |

⑤ Fresh water

- | | |
|------------------------|-----|
| - Cooling water system | (1) |
| - Condensate return | (1) |
| - Non-essential system | |

⑥ Sanitary/Drains/Scuppers

- | | |
|--------------------------|---------|
| - Deck drains (internal) | (4) (5) |
| - Sanitary drains | |

⑦ Sounding/Vent

- | | |
|-------------------------------------|---------|
| - Water tanks/Dry spaces | |
| - Oil tanks (flash point > 60 °C) | (2) (3) |

⑧ Miscellaneous

- | | |
|-------------------------------|--|
| - Service air (non-essential) | |
| - Brine | |
| - Steam | |

※ NOTES ;

- (1) Inside machinery spaces of category A – approved fire resistant types.
- (2) Not accepted 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 except in cases where such mechanical joints are installed on open decks, as defined in SOLAS II-2/Reg. 9.2.3.3.2.2(10) and not used for fuel oil lines.
- (4) In pump rooms and open decks – approved fire resistant types.
- (5) Only above bulkhead deck of passenger ships and freeboard deck of cargo ships.

Product Description and/or Approval Condition

Date of Issue : 22 July 2021

2. Approval Condition

- 1) Couplings with Grade E(EPDM) gasket are of fire resistant types, and may be used in systems where fire safe application is required.
(Fire endurance test reports "IACS Fire Test" dated on 24th September 2006)
- 2) Material of mechanical joints is to be compatible with the piping material and internal and external media.
- 3) These mechanical joints, which in the event of damage could cause fire or flooding, are not to be used in piping sections directly connected to the ship's side below the bulkhead deck of passenger ships and freeboard deck of cargo ships or tanks containing flammable fluids.
- 4) These mechanical joints are not to be used in pipelines in cargo holds, tanks and other spaces which are not easily accessible. Application of these inside tanks may be permitted only for the same media that is in the tanks.
- 5) Where the application of mechanical joint results in reduction in pipe wall thickness, this is to be taken into account in determining the minimum wall thickness of the pipe to withstand the design pressure.
- 6) EPDM may not be used for hydrocarbon services.

3. Marking

- 1) Products are to be marked as below for traceability of this approval.
 - Manufacturer's name or trade mark.
 - Product style and size.
 - Any additional marking, if required.

< End of Certificate >

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