

TYPE APPROVAL CERTIFICATE

형 식 승 인 증 서

Certificate No. : NYK05774-PE002 **Initial Approval** : 2nd July, 1996.
Product : Pipe Fittings
Manufacturer : Victaulic Company of America
4901 Kesslersville Road, Easton, PA 18040, U.S.A.

Product Description : Mechanical Joints (Victaulic Style 07 Grooved Couplings)
- Size (inch) : 1 ~ 12" / 14" ~ 20" / 24"
- Design Pressure : 16 bar / 15.5 bar / 12.4 bar
" See Appendix 1 "

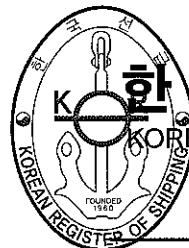
Approval Condition : The product certificate is required in case where these pipe fittings are used for Class I or II piping system.

" 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 and entered in the "List of Approved Manufacturers and Type Approved Equipment".

Pt. 5, Ch. 6, Art. 104 of the Rules for Classification, Steel Ships.

This Certificate is valid until 1st July, 2016.
Issued at Daejeon, Korea on 20th May, 2011.



국 선 급
KOREAN REGISTER OF SHIPPING


General Manager of
Materials and Equipment Team

Note :1 : The approval will be automatically suspended and the Certificate become invalid from the expiry date of the Certificate in the event that the extension has not been granted or the renewal of the Certificate is not underway.

2 : The manufacturer should notify this Society of any modification or changes that may affect the validity of this Certificate.

Appendix 1

Product Description and/or Approval Condition

Certificate No : NYK05774-PE002

Date of Issue : 20th May, 2011.

© Product Description :

1. Application

- Flammable fluids (flash point < 60 °C)
Cargo oil [5], crude oil washing [5], vent [3]
- Flammable fluids ((flash point > 60 °C)
Cargo oil [5], fuel oil [2,3], lubricating oil [2,3], hydraulic & thermal oil [2,3]
- Inert Gas
Water seal effluent, scrubber effluent, main [2,5], distributions [5]
- Sea Water
Bilge [1], fire main and water spray [3], foam [3], sprinkler [3], ballast [1],
cooling water [1], tank cleaning, non-essential systems
- Freshwater
Cooling water [1], condensate return [1], non-essential systems
- Sanitary / Drains
Deck drains internal [4], sanitary drains
- Sounding / Vent
Water tanks, dry spaces, oil tanks (flash point > 60 °C) [2,3]
- Miscellaneous
Service air (non-essential), brine

[Notes]

- [1] Inside machinery spaces of category A - only approved fire resistant types.
- [2] 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.
- [3] Approved fire resistant types.
- [4] Above freeboard deck only.
- [5] In pump rooms and open decks - only approved fire resistant types.

2. Limitation

The above pipe fittings can not be used for the following systems on board :

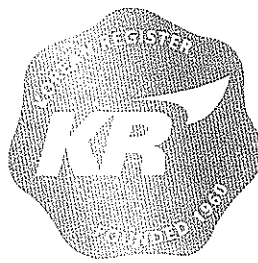
- Bilge lines inside ballast and fuel tanks.
- Overboard scupper and discharge systems.
- Fuel and oil lines including air and overflow pipes inside machinery spaces, cargo holds and ballast tanks.
- Sea water and ballast lines including air and overflow pipes inside cargo holds and fuel tanks.
- Not water filled pressure water spraying systems (dry pipe systems).
- CO2 fire extinguishing systems.
- Starting and control air systems.
- Piping sections directly connected to sea openings or tanks containing flammable liquids.
- These pipe fittings inside tanks may be permitted only if the pipes contain the same medium as the tanks.
- Unrestrained pipe fittings may be permitted only where required for compensation of axial, angular and lateral pipe movement.
- Bilge and sea water systems within machinery spaces or spaces of high fire risk, e.g. cargo pump rooms and car decks, must be flame resistant.
- The use of these pipe fittings out side the range of application is subject to individual approval by this Society.

© Approval Condition :

Products are to be marked as belows for traceability of this approval.

- Manufacturer's name or trade mark.
- Product style and size.
- Any additional marking, if required.

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TYPE APPROVAL CERTIFICATE

형식 승인증서

Certificate No. : NYK05774-PE003 **Initial Approval** : 2nd July, 1996.
Product : Pipe Fittings
Manufacturer : Victaulic Company of America
4901 Kesslersville Road, Easton, PA 18040, U.S.A.

Product Description : Mechanical Joints (Victaulic Style 75 Grooved Couplings)
- Size (inch) : 1 1/2" ~ 4", 4 1/2" ~ 8"
- Design Pressure : 16 bar
" See Appendix 1 "

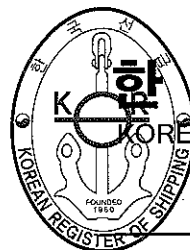
Approval Condition : The product certificate is required in case where these pipe fittings are used for Class I or II piping system.

" See Appendix 1 "


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Product Description and/or Approval Condition

Certificate No : NYK05774-PE003

Date of Issue : 20th May, 2011.

© Product Description :

1. Application

- Flammable fluids (flash point < 60 °C)
Cargo oil [5], crude oil washing [5], vent [3]
- Flammable fluids ((flash point > 60 °C)
Cargo oil [5], fuel oil [2, 3], lubricating oil [2, 3], hydraulic & thermal oil [2, 3]
- Inert Gas
Water seal effluent, scrubber effluent, main [2, 5], distributions [5]
- Sea Water
Bilge [1], fire main and water spray [3], foam [3], sprinkler [3], ballast [1],
cooling water [1], tank cleaning, non-essential systems
- Freshwater
Cooling water [1], condensate return [1], non-essential systems
- Sanitary / Drains
Deck drains internal [4], sanitary drains
- Sounding / Vent
Water tanks, dry spaces, oil tanks (flash point > 60 °C) [2, 3]
- Miscellaneous
Service air (non-essential), brine

[Notes]

- [1] Inside machinery spaces of category A - only approved fire resistant types.
- [2] 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.
- [3] Approved fire resistant types.
- [4] Above freeboard deck only.
- [5] In pump rooms and open decks - only approved fire resistant types.

2. Limitation

The above pipe fittings can not be used for the following systems on board :

- Bilge lines inside ballast and fuel tanks.
- Overboard scupper and discharge systems.
- Fuel and oil lines including air and overflow pipes inside machinery spaces, cargo holds and ballast tanks.
- Sea water and ballast lines including air and overflow pipes inside cargo holds and fuel tanks.
- Not water filled pressure water spraying systems (dry pipe systems).
- CO2 fire extinguishing systems.
- Starting and control air systems.
- Piping sections directly connected to sea openings or tanks containing flammable liquids.
- These pipe fittings inside tanks may be permitted only if the pipes contain the same medium as the tanks.
- Unrestrained pipe fittings may be permitted only where required for compensation of axial, angular and lateral pipe movement.
- Bilge and sea water systems within machinery spaces or spaces of high fire risk, e.g. cargo pump rooms and car decks, must be flame resistant.
- The use of these pipe fittings out side the range of application is subject to individual approval by this Society.

© Approval Condition :

Products are to be marked as belows for traceability of this approval.

- Manufacturer's name or trade mark.
- Product style and size.
- Any additional marking, if required.

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TYPE APPROVAL CERTIFICATE

형식승인증서

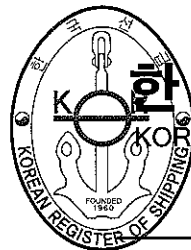
Certificate No. : NYK05774-PE004 **Initial Approval** : 2nd July, 1996.
Product : Pipe Fittings
Manufacturer : Victaulic Company of America
4901 Kesslersville Road, Easton, PA 18040, U.S.A.
Product Description : Mechanical Joints (Victaulic Style 77 Grooved Couplings)
- Size (inch) : 3/4" ~ 12" / 14" ~ 24"
- Design Pressure : 16 bar / 15.5 bar
" See Appendix 1 "

Approval Condition : The product certificate is required in case where these pipe fittings are used for Class I or II piping system.
" See Appendix 1 "

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Product Description and/or Approval Condition

Certificate No : NYK05774-PE004

Date of Issue : 20th May, 2011.

© Product Description :

1. Application

- Flammable fluids (flash point < 60 °C)
Cargo oil [5], crude oil washing [5], vent [3]
- Flammable fluids ((flash point > 60 °C)
Cargo oil [5], fuel oil [2,3], lubricating oil [2,3], hydraulic & thermal oil [2,3]
- Inert Gas
Water seal effluent, scrubber effluent, main [2,5], distributions [5]
- Sea Water
Bilge [1], fire main and water spray [3], foam [3], sprinkler [3], ballast [1], cooling water [1], tank cleaning, non-essential systems
- Freshwater
Cooling water [1], condensate return [1], non-essential systems
- Sanitary / Drains
Deck drains internal [4], sanitary drains
- Sounding / Vent
Water tanks, dry spaces, oil tanks (flash point > 60 °C) [2,3]
- Miscellaneous
Service air (non-essential), brine

[Notes]

- [1] Inside machinery spaces of category A – only approved fire resistant types.
- [2] 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.
- [3] Approved fire resistant types.
- [4] Above freeboard deck only.
- [5] In pump rooms and open decks – only approved fire resistant types.

2. Limitation

The above pipe fittings can not be used for the following systems on board :

- Bilge lines inside ballast and fuel tanks.
- Overboard scupper and discharge systems.
- Fuel and oil lines including air and overflow pipes inside machinery spaces, cargo holds and ballast tanks.
- Sea water and ballast lines including air and overflow pipes inside cargo holds and fuel tanks.
- Not water filled pressure water spraying systems (dry pipe systems).
- CO2 fire extinguishing systems.
- Starting and control air systems.
- Piping sections directly connected to sea openings or tanks containing flammable liquids.
- These pipe fittings inside tanks may be permitted only if the pipes contain the same medium as the tanks.
- Unrestrained pipe fittings may be permitted only where required for compensation of axial, angular and lateral pipe movement.
- Bilge and sea water systems within machinery spaces or spaces of high fire risk, e.g. cargo pump rooms and car decks, must be flame resistant.
- The use of these pipe fittings out side the range of application is subject to individual approval by this Society.

© Approval Condition :

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- Product style and size.
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TYPE APPROVAL CERTIFICATE

형식승인증서

Certificate No. : NYK05774-PE001 **Initial Approval** : 2nd July, 1996.
Product : Pipe Fittings
Manufacturer : Victaulic Company of America
 4901 Kesslersville Road, Easton, PA 18040, U.S.A.

Product Description : Slip-on threaded joints
 (Victaulic Grooved End Fittings : Elbow and Tee)

Product Style	Size(inch)	Design Pressure (bar)
No. 10 90° Elbow	3/4" ~ 12"	16
	14" ~ 24"	15.5
No. 11 45° Elbow	3/4" ~ 12"	16
	14" ~ 24"	15.5
No. 20 Tee	3/4" ~ 12"	16

Approval Condition : The product certificate is required in case where these pipe fittings are used for Class I or II piping system.

" See Appendix 1 "

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Appendix 1

Product Description and/or Approval Condition

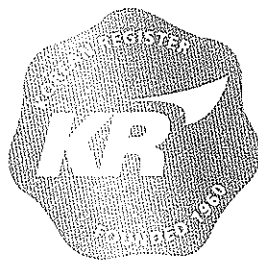
Certificate No : NYK05774-PE001

Date of Issue : 20th May, 2011.

© Approval Condition :

- (1) Slip-on threaded joints having pipe threads where pressure-tight joints are made on the threads with parallel or tapered threads, are to comply with requirements of a recognized national or international standard.
- (2) Slip-on threaded joints may be used for outside diameters as stated below except for piping systems conveying toxic or flammable media or services where fatigue, severe erosion or crevice corrosion is expected to occur.
 - (a) Threaded joints in CO₂ systems are to be allowed only inside protected spaces and in CO₂ cylinder rooms.
 - (b) Threaded joints for direct connectors of pipe lengths with tapered thread are to be allowed for:
 - (i) Class I, outside diameter not more than 33.7 mm.
 - (ii) Class II and Class III, outside diameter not more than 60.3 mm.
 - (c) Threaded joints with parallel thread are to be allowed for Class III, outside diameter not more than 60.3 mm.

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TYPE APPROVAL CERTIFICATE

형식 승인증서

Certificate No. : NYK05774-PE005 **Initial Approval** : 2nd July, 1996.
Product : Pipe Fittings
Manufacturer : Victaulic Company of America
 4901 Kesslersville Road, Easton, PA 18040, U.S.A.

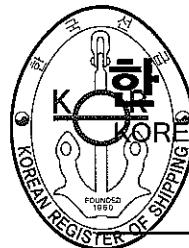
Product Description : Bolted Mechanical Branch Connection
 (Victaulic Style 920 Mechanical Tee)
 - Size (inch) : 3", 3" x 1 1/4", 3" x 1 1/2", 3" x 2",
 4", 4" x 1 1/4", 4" x 1 1/2", 4" x 2",
 4" x 2 1/2", 4" x 3",
 5" x 1 1/2", 5" x 2", 5" x 2 1/2", 5" x 3",
 6" x 1 1/2", 6" x 2", 6" x 2 1/2", 6" x 3",
 6 1/2" x 2", 6 1/2" x 4",
 8" x 2", 8" x 2 1/2", 8" x 3", 8" x 4".
 - Design Pressure : 16 bar
 " See Appendix 1 "

Approval Condition : The product certificate is required in case where these pipe fittings are used for Class I or II piping system.
 " See Appendix 1 "

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Product Description and/or Approval Condition

Certificate No : NYK05774-PE005

Date of Issue : 20th May, 2011.

© Product Description :

1. Application

- Flammable fluids (flash point < 60 °C)
 - Cargo oil [5], crude oil washing [5], vent [3]
- Flammable fluids ((flash point > 60 °C)
 - Cargo oil [5], fuel oil [2,3], lubricating oil [2,3], hydraulic & thermal oil [2,3]
- Inert Gas
 - Water seal effluent, scrubber effluent, main [2,5], distributions [5]
- Sea Water
 - Bilge [1], fire main and water spray [3], foam [3], sprinkler [3], ballast [1], cooling water [1], tank cleaning, non-essential systems
- Freshwater
 - Cooling water [1], condensate return [1], non-essential systems
- Sanitary / Drains
 - Deck drains internal [4], sanitary drains
- Sounding / Vent
 - Water tanks, dry spaces, oil tanks (flash point > 60 °C) [2,3]
- Miscellaneous
 - Service air (non-essential), brine

[Notes]

- [1] Inside machinery spaces of category A - only approved fire resistant types.
- [2] 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.
- [3] Approved fire resistant types.
- [4] Above freeboard deck only.
- [5] In pump rooms and open decks - only approved fire resistant types.

2. Limitation

The above pipe fittings can not be used for the following systems on board :

- Bilge lines inside ballast and fuel tanks.
- Overboard scupper and discharge systems.
- Fuel and oil lines including air and overflow pipes inside machinery spaces, cargo holds and ballast tanks.
- Sea water and ballast lines including air and overflow pipes inside cargo holds and fuel tanks.
- Not water filled pressure water spraying systems (dry pipe systems).
- CO2 fire extinguishing systems.
- Starting and control air systems.
- Piping sections directly connected to sea openings or tanks containing flammable liquids.
- These pipe fittings inside tanks may be permitted only if the pipes contain the same medium as the tanks.
- Unrestrained pipe fittings may be permitted only where required for compensation of axial, angular and lateral pipe movement.
- Bilge and sea water systems within machinery spaces or spaces of high fire risk, e.g. cargo pump rooms and car decks, must be flame resistant.
- The use of these pipe fittings out side the range of application is subject to individual approval by this Society.

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