

### TYPE APPROVAL CERTIFICATE

Certificate No.

: HMB33980-PE002

**Initial Approval**: 21st October, 2016

Product

: Mechanical Joints

Manufacturer

: VOSS Fluid GmbH

Ludenscheider Str.52-54 D-51688 Wipperfurth, Germany

Product Description : Model : VOSSFormSQR

Kind: Compression Tube Couplings

- Temperature Range

-20 °C~ +120 °C Carbon Steel - Stainless Steel: -60 °C +200 °C - FPM/FKM : -25 °C +200 °C - Max. Working Pressure: 250 bar 800 bar (size and type dependent)

- Size : 6 mm ~ 42 mm

Material

Fitting Body, Clamping Rind and Nut: Carbon Steel and Stainless Steel (DIN 3859-1 table 2 or higher grades)

- Sealing Ring : FPM/FKM

" See Appendix 1 "

Approval Condition: "See Appendix 1 & 2

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, Sec. 1 of the Rules for Classification, Steel Ships.

This Certificate is valid until 20th October, 2021 Issued at Busan, Korea on 21st October, 2016

OREAN REGISTER OF SHIPPING

General Manager of Marine & Ocean 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

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Product Description ;

(1) Tube Couplings Specification \* L series (Light)

(mm)	Design Pressure	(bar)
	500	
	400	
	250	
avy)		
(mm)	Design Pressure	(bar)
	800	
	630	
	  	400 250 avy) (mm) Design Pressure 800

(2) Reviewed Test Reports;

- Tightness test, Burst Pressure test, Repeat assembly test, Pull out test : Report No. AEL 214/06/1 issued by VOSS dated 23 November 2006

- Vibration test, Vacuum test : Report No. C101/06 issued by IMA DRESDEN dated 7 December 2006

- Fire endurance test

Report No. 61070/106 issued by WTD 71 dated 20 September 2006

- (3) Approved Drawing Numbers ; 0004750000, 0014380000, 0784190000, 0784240000, 0784280000, 0784290000 0784340000, 0784380000, 0784390000, 0784440000, 0784480000, 0784490000 0784540000, 0784580000
- 2. Approval Condition ;
- (1) Intended for ; This mechanical joints can be used for the following pipine lines in easily visible and accessible positions;

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

Cargo oil lines, Crude oil washing lines and Vent lines

2) Inert gas

Water seal effluent lines and Scrubber effluent lines

Main lines and Distribution lines

3) Flammable fluids (Flash point > 60 °C) Cargo oil lines

Fuel oil lines, Lubricating oil lines, Hydraulic oil and Thermal oil

4) Sea water

Bilge lines, Ballast system and Cooling water system

Fire main and water spray, Foam system and Sprinkler system

Tank cleaning services and Non-essential system

5) Fresh water

Cooling water system and Condensate return

- Non-essential system 6) Sanitary/Drains/Scuppers
- Deck drains (internal) : Sanitary drains

-To be continued-

### Appendix 2

## Product Description and/or Approval Condition

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7) Sounding/Vent

Water tanks/Dry spaces lines

Oil tanks lines(flash point > 60 °C)

8) Miscellaneous

Service air (non-essential) and Brine

(2) Limitation;

These mechanical joints are not to be used for Class I piping system.
These mechanical joints are to be mounted in accordance with the manufacturer's

3) These mechanical joints are not to include any components which readily deteriorate in case of fire, they are to be of approved fire resistant type as required for slip-on joints.

4) 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 sea openings or tanks containing flammable fluids.

5) Piping in which these mechanical joints are fitted is to be adequately adjusted, aligned and supported. Supports or hangers are not to be used to force alignment of piping at the point of connection.

6) These mechanical joints are not used in those systems where pulsation other than water hammer is expected.

7) 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 joints inside tanks may be permitted only for the same media that is in the tanks.

8) Individual Product Certification is required where the mechanical joints are intended to be used for Class II piping system.

<End of Certificate>