Design Approval Certificate

[Fuel Valve Train]

Initial Approval 17 May 2023

Manufacturer BMT Co., Ltd.

17 Sinsojaesandan 2-ro, Jangan-eup, Gijang-gun, Busan, 46031, Republic of Korea

Product Description Methanol Fuel Valve Train(FVT) for using with ME-LGIM engine.

- Type : BMT-FVTM2

" See Appendix 1 "

Approval Condition " 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.

Annex 5 of the Rules for the Classification of Ships Using Low-flashpoint Fuels

This Certificate is valid until 16 May 2028

Reissued at Busan, Korea on 21 February 2024

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(ME24008770717) and certificate No.(CSP35101-GV001).

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 : 21 February 2024

A. Product Description

1. Product Specification

1) FVT size : Methanol line - 2 inch(DN50)
   Purge and bleed line - 1 inch(DN25)
   Water line (option) - 1 inch(DN25)
2) Material : SUS 316/316L
3) Used media : Methanol for using engine (optional water-mixture)
   Nitrogen for purge
4) Design Press. : 16 bar
5) Working Press. : 13 bar
6) Design Temp. : -25 ~ 60°C
7) Flow rate : 19,000 kg/hr

2. Approved Drawings and documents

1) Approved drawings dated on 16 May 2023 as below;
   BMT-FVTM2-002(Rev.A), BMT-FVTM2-003(Rev.B), BMT-FVT-004(Rev.C), BMT-FVTM2-006(Rev.D),
   BMT-FVTM2-008(Rev.B), BMT-FVT-009(Rev.A), BMT-FVTM2-012(Rev.C)

3. Test Reports, etc.

- N/A

B. Approval Condition

1. Application & Limitation

1) As per the contacting media, materials used in piping system are to be provided by approved manufacturers and certified by the Society or to be satisfactory to the Surveyor.
2) The control system, sensors, actuators and solenoid valves are to be of a type that is approved by the Society, if applicable.
3) The pipes, valves and pipe fittings on FVT are to be individually certified by the Society.
4) The approval of welding procedure specifications and welder qualifications is to be maintained separately from this Approval.

2. Individual Product Cert. and Drawing Approval Requirement

1) Individual Product Certification is required.

3. Marking

1) The product is to be marked with manufacturer's name or trademark, a date of manufacture and type designation number.

4. Others

1) The operation and maintenance manual for FVT should be provided onboard.

< End of Certificate >