Certificate No:
TAM000018M

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Gas Valves Unit

with type designation(s)
GVU50ED-10B

Issued to
Shanghai Marine Diesel Engine Research Institute
Shanghai, **China**

is found to comply with
DNV GL rules for classification – Ships

Application :

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV.

Inlet pressure [bar]	**10**
Enclosure [enclosed/open]	**Enclosed**

Issued at **Høvik** on **2021-05-31**
This Certificate is valid until **2026-05-30**.
DNV local station: **Shanghai**

Approval Engineer: **Eivind Finne Riley**

for **DNV**

Dalibor Bukarica
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.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.

Product description
Gas pressure control unit.

Application/Limitation

Type	Inlet pressure [bar]
GVU50ED-10B	10

Requirements for fabrication and testing according to DNV Rules Pt.6 Ch.2 Sec.5 11.2, 11.3 and 11.4 shall be followed for each unit.

Type Approval documentation

Dwg/Doc No.	***Rev.***	***Title***
GDS-0032	V2.0	Risk Analysis Report of the Gas Valves Unit (GVU Type B)
GDS-0031	V3.0	Operation Manual of the Gas Valves Unit (GVU Type B)
GDS-0035	V2.0	List of EX Certified equipment
GDS-0037	V2.0	Installation Instructions: GVU Type B
GDS-0033	V2.0	GVU Type B Wall Thickness Calculation Sheet of the Pipes
GDS-0038	V1.0	GVU Type B Series Type and Certification List
G501-02-00B-V3	V3.0	GVU Type B Pipes Assembly
GDS-0036	V2.0	GVU Type B Hazardous Area Division
GDS-0028	V2.0	GVU Type B Calculation Sheet of Purging and Ventilation
G501-00B-V3	V3.0	GVU Type B Assembly
G501-BYL-V3	V3.0	P&ID Diagram of GVU Type B
GDS-0029	V4.0	Type Test Program of the Gas Valves Unit (GVU Type B)
GDS-0034	V2.0	Detail materials in pipes assembly of GVU Type B

Places of production

Tests carried out
Type Approval tests for complete unit carried out May 7th 2021, document ID: GDS-0029

Marking of product
For traceability the following marking is to be carried out on each product:
- Manufacturers name or mark
- Type designation (Serial Number)
- Additional marking at manufacturer’s option.

Periodical assessment
DNV’s surveyor is to be given permission to perform Periodical Assessments at any time during the validity of this certificate and at least every second year. The arrangement is to be in accordance with procedure described in Class Program DNV-CP-0338, Section 4.

Other conditions
The GVU control and monitoring systems, including sensors and actuators, are not covered by this type approval.