



Certificate No:
TAM00001AX

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Exhaust Gas Recirculation System

with type designation(s)
iCER

Issued to

Winterthur Gas & Diesel Ltd.
Winterthur, ZH, Switzerland

is found to comply with

DNV rules for classification – Ships Pt.4 Ch.3 Sec.1 Reciprocating internal combustion engines

Application :

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

Issued at **Hamburg** on **2023-05-22**

This Certificate is valid until **2028-05-21**.

DNV local unit: **Augsburg**

for **DNV**

Approval Engineer: **Sven Neddenien**

Olaf Drews
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.



Form code: TA 251

Revision: 2022-12

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Product description

The intelligent Control by Exhaust Recycling (iCER) is a low-pressure exhaust gas recirculation system with flow regulation and exhaust gas cooler for WinGD DF 2-stroke engines. The primary targets in gas mode are stabilization of combustion process, improvement of fuel gas efficiency and reduction of methane slip.

Application/Limitation

WinGD DF 2-stroke engines, LNG
Operation during gas mode, only

Type Approval documentation

Tests carried out

Initial type approval test, 5th to 6th December 2022 at IHI Power Systems Co. Ltd, Aioi Plant, Japan,
Test engine DU WinGD 7X62DF-2.1, engine no. 3B28
WinGD test report CL-22-067, TAT-Report_iCER_3B28

Marking of product

The product to be marked with manufacturer's name or trademark and type number identification.

Periodical assessment

Meetings on regularly basis and at least every second year with the Type Approval applicant (hereof: the Engine Designer) shall be arranged with the objective to verify that the conditions for the Type Approval are not altered since the Type Approval Certificate was issued, and to keep DNV updated with regard to:

- The latest development status and design as covered by the Type Approval certificate.
- Damages and failures of products certified by DNV leading to break down or other malfunctions in service.
The causes and reasons for the failure and results from investigations are to be made available to DNV upon request. Failure to inform DNV may lead to suspension of this Type Approval certificate.

In cases where the Type Approved design is manufactured at other companies, DNV shall verify that the Type Approval applicant has a quality control system for consistent production at their licensees/subcontractors.

Other Conditions

Engine safety, control and monitoring systems, including sensors and actuators, are not covered by this certificate. Documentation for engine safety, control (including speed governing), and monitoring systems shall be submitted for approval according to DNV GL Rules Ships Pt.4 Ch.9 Sec.1 Table 5 and/or as listed in relevant Type Approval certificates.

END OF CERTIFICATE