Certificate No:
TAM000018A

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Explosion relief valve for engine exhaust line

with type designation(s)
ZRE-224, ZRE-320, ZRE-420, ZRE-565, ZRE-735

Issued to
Zi In Cheol Co., Ltd.
Suwon-si, Gyeonggi-do, Republic of Korea

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.

Issued at **Hamburg** on **2021-05-10**
This Certificate is valid until **2026-05-09**.
DNV local station: **Seoul**

Approval Engineer: **Sven Neddenien**

for **DNV**

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.

Product description
Explosion relief valve with flame arrestor

Application/Limitation
Quick acting and self-closing explosion relief valve with flame arrestor to pressure relief an exhaust line of a gas or dual fuel engine in the event of an internal explosion and to prevent passage of flames.
The installation orientation is vertical or horizontal.

Valve type	Free relief area (cm²)	Opening pressure (bar)	Max. operating temperature (°C)
ZRE-224	340	0.18 – 0.22	460
ZRE-320	731	0.18 – 0.22	460
ZRE-420	1257	0.18 – 0.22	460
ZRE-565	2299	0.18 – 0.22	460
ZRE-735	3904	0.18 – 0.22	460

Type Approval documentation

Tests carried out
Test reports issued by Physical Technical Testing Institute, Ostrava-Radvanice, National Authoity no. 210, EU Notified Body no. 1026:
- 21.0061-88, Explosion relief V/V for exhaust system, type ZRE-224
All tests have been performed in accordance with a test program proposed by Zi In Cheol and approved by DNV.

Marking of product
The product to be marked with manufacturer's name or trademark, designation, size, month / year of manufacture.

Periodical assessment
Periodical assessment is to be performed after 2 years and after 3.5 years. A renewal assessment will be performed at renewal of the certificate.
The objective of the Periodical Assessment is to verify that the conditions for the Type Approval are not altered since the Type Approval certificate was issued.
In case where the Type Approved product is manufactured at other companies, the Periodical Assessment shall verify that the Type Approval applicant has a quality control system for consistent production at their licensees/subcontractors. Furthermore, a Periodical Assessment shall be carried out randomly at these companies.

Other conditions
After an explosion in the exhaust duct, the flame arrester has to be exchanged according to the manufacturer's manual.