



Certificate No:
TAM00001AS

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Gas Compressor

with type designation(s)
Low Duty Compressor

Issued to

Hanwha Power Systems Co.Ltd.
Changwon-si, Gyeongsangnam-do, Korea, Republic of

is found to comply with

DNV rules for classification – Ships

DNV rules for classification – Ships Pt.4 Ch.5 Rotating machinery – driven units

Application :

Product approved by this certificate is accepted for installation on all vessels classed by DNV.

Issued at **Høvik** on **2023-04-14**

This Certificate is valid until **2028-04-13**.

DNV local unit: **Gimhae Station**

for **DNV**

Approval Engineer: **Amir Dzaferi**

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

Low Duty Integrally geared Centrifugal type compressor with four compression stages used for injecting the BOG gas to the ship engines and re-liquefaction system etc.

Application/Limitation

The compressor is approved as a fuel gas compressor. The type approval is valid for compressor only. The approval does not cover driving member, control system, connected instrumentation and other connected components.

Model name:	SE-45G			
Max. shaft power:	661 kW			
Max. rotation speed:	3564 rpm			
Compression media:	BOG			
Max. inlet capacity: *1	2800 m3/h			
Compression stage:	1 st	2 nd	3 rd	4 th
Design *2 pressure (barG):	3	6.9	11.2	13.3
Design temperature (degree C):	Min. -120 Max. 45			

Note (*1) Compressor capacity will be variated based on gas composition and operating condition.

Note (*2) TA certificate is listing the max permissible pressure (relief valve setting) = design pressure. Maker may adjust the individual setting up to the stated max design pressure.

Type Approval documentation

Tests carried out

Shop test record on 4-stg LD compressor SE-45G/4, DNV witnessed on 03.02.2023.

Marking of product

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

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 Periodical Assessment shall be carried out randomly at these companies.

Other conditions

- For Compressor installed on liquefied gas tanker the piping shall be in accordance to (Pt.5 Ch.7 Sec.5)
- After installation on board, the compressor and the system to which it is connected shall be function tested under working conditions (Pt. 4 Ch.5 Sec.4 [8 Installation inspection onboard]).

END OF CERTIFICATE