

Certificate No:
TAP00000KZ
 File No:
742.91
 Job Id:
262.1-009269-6

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Seamless Gas Bottle

with type designation(s)
CB0IA68.00DV01;CT0IA68.00DV01;CB0IA68.00DV02

Issued to

ENK Co., Ltd.
Busan, Republic of Korea

is found to comply with

Det Norske Veritas' Rules for Classification of Ships Pt.4 Ch.7, Pressure Vessels, 2012

Application :

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

Loading pressure: 150 bar
Operating media: N2, CO2 & Compressed air
Test pressure: 250 bar
Filling ratio 0.67 Kg/litre

This Certificate is valid until **2018-06-30**.

Issued at **Høvik** on **2016-10-12**

for **DNV GL**

DNV GL local station: **Busan**

Approval Engineer: **Zeinab Sharifi**

Marianne Spæren Marveng
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. If any person suffers loss or damage which is proven to have been caused by any negligent act or omission of the Society, then the Society shall pay compensation to such person for his proven direct loss or damage. However, the compensation shall not exceed an amount equal to ten times the fee charged for the service in question. The maximum compensation shall never exceed USD 2 million. In this provision the "Society" shall mean DNV GL AS as well as all its direct and indirect owners, affiliates, subsidiaries, directors, officers, employees, agents and any other person or entity acting on behalf of DNV GL AS.

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Product description

Seamless gas cylinders with following main data:
Design code: ISO 9809-1:2010
Corrosion allowance: 0 mm

Volume/dimensions

Volumetric capacity	Diameter	Length
68 L	267.4 mm	1495 mm

Material:

Chromium Molybdenum steel / Carbon Mn steel according to ISO9809-1 clause 6.3

Model No.:	Drawing No.:	Material	Rm (Mpa)	Re (Mpa)
CB0IA68.00DV01	2010-5201,R0	Cr-Mo	750 to 1030	Minimum: 675
CT0IA68.00DV01	2010-5301,R0	C-Mn	750 to 1030	Minimum: 675
CB0IA68.00DV02	2010-5202,R1	C-Mn	750 to 1030	Minimum: 640

Application/Limitation

Cylinders covered by this certificate may be used for fire extinguishing systems.

Cylinders under this type approval are not approved to be used in systems required corrosion allowance.

The cylinders shall not be used as accumulator.

The chemical composition of materials used shall be subjected to controls according to requirement of ISO 9809-1 clause 6.2.1 and Table 3

Maximum sulfur and phosphorus limit shall satisfy ISO 9809-1 Table 2

The materials used shall have certificates according to DNV Rules Pt.4 Ch.7 Sec.2 Table A1

Cylinders shall be tested according to requirement of ISO 9809-1 Clause 10

Each cylinder is to be certified by DNV GL Surveyor.

Type Approval documentation

Drawings 2010-5201 R0; 2010-5301 R0 and 2010-5202 Rev.1
Technical specification DTA-01/Rev.0
Prototype test report witnessed by DNV

Tests carried out

Prototype tests according to ISO9809-1/ EN1964-1

Marking of product

Each gas bottle is to be permanently and legibly marked according to ISO 13769.
The cylinders shall be documented by means of certificates identifying the serial No. of each cylinder.

Periodical assessment

For renewal of TA certificate periodical assessment shall be done by DNVGL surveyor to verify that the conditions for the TA are not altered since the certificate was issued.

The main scope of the periodical assessment shall be:

- review of the TA documentation and verification that this documentation is still used as basis for the production
- review of possible changes in design, material and performance of the product
- verification of the company's production and quality systems w.r.t. ensuring continued consistent production of the type approved products to the required quality



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— verification of that the product marking for identification and traceability to the TA Certificate is not altered.