Certificate no.:
TAP00002ZN

TYPE APPROVAL CERTIFICATE

This is to certify:

that the Seamless Gas Bottle

with type designation(s)
DNV-229-20~60-300A

issued to
Sinoma Science & Technology (Jiu Jiang) Co., Ltd.
Jiujiang, Jiangxi Province, **China**

is found to comply with
DNV rules for classification – Ships Pt.4 Ch.7 Pressure equipment
DNV-OS-D101 – Marine and machinery systems and equipment, Edition July 2021

Application:

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

Loading pressure:	**300 bar**
Operating media:	**Compressed and liquefied gases excluding embrittling gases (Hydrogen)**
Test pressure:	**451 bar**
Filling ratio	**0.67 kg/litre (for CO2)**

Issued at **Høvik** on **2025-07-10**

This Certificate is valid until **2030-07-10**.

for **DNV**

DNV local unit: **Wuhan NB & CMC**

Approval Engineer: **Tobias Berntsen**

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 USD 300 000.

Product description

Seamless gas cylinders designed and tested according to ISO 9809-1:2019.

Designation	Outer Diameter (mm)	Water Capacity (L)	Length (mm)	Minimum Shell Thickness (mm)
DNV-229-20~60-300A	229	20 to 60	685 to 1800	7

Material: Chromium-Molybdenum alloy steel 34CrMo4 + QT

Application/Limitation

The cylinders covered by this certificate may be used in fixed fire extinguishing systems in temperature range of -50°C to +65°C.

Cylinders covered by this certificate are approved with no corrosion allowance and as DNV class I pressure equipment.

Only strength of gas cylinder bodies is evaluated. Strength and performance of ports and connections are not assessed in this Type Approval Certificate.

All materials used shall conform with Ch. 6 of ISO 9809-1:2019. (Chemical composition as per approved drawings)

All manufacturing, workmanship and testing shall be done in accordance with ISO 9809-1:2019.

Production Testing

Production tests on every seamless gas bottle shall be in accordance to Ch. 11 of ISO 9809-1:2019. Batch test reports shall be subject to review (with reference to ISO9809-1:2019 [10]) before issuance of each product certificate.

The mechanical properties resulted from batch tests shall be as below:

Type	Minimum guaranteed value of the yield strength	Minimum guaranteed value of the tensile strength	Percentage elongation after fracture
DNV-229-20~60-300A	850 MPa	1020 MPa	14%

Certification

Seamless gas bottles covered by this type approval certificate shall be delivered with a DNV product certificate.

Type Approval documentation

Tests carried out

Visual inspection and dimensions check, Hardness test, Burst test, Pressure cycling test, Tensile test, Impact test, bend tests, base check.

Marking of product

Each cylinder is to be permanently marked on the shoulder or on a reinforced part of the cylinder or on a permanently fixed collar or neck ring, in accordance with ISO 13769.

Periodical assessment

This certificate is only valid if required periodical assessments are carried out with satisfactory results.

For retention of the Type Approval, a DNV Surveyor shall perform periodical assessment after two years (+/- 90 days) and after 3.5 years (+/- 90 days) to verify that the conditions for the approval are complied with. Reference is made to DNV-CP-0338.

To check the validity of this certificate, please look it up in https://approvalfinder.dnv.com.