



Certificate No:
TAP00002KT

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Ball Valve

with type designation(s)
Cryogenic Top Entry Ball Valves

Issued to
ORTON S.r.l.
Piacenza, Italy

is found to comply with
DNV rules for classification – Ships Pt.5 Ch.7 Liquefied gas tankers
DNV-OS-D101 – Marine and machinery systems and equipment, Edition July 2021
DNV class programme DNV-CP-0186 – Type approval – Valves

Application :

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

Temperature range: -196°C to +150°C
Max. working press.: PN50 / Class 300
Sizes: 1", 3", and 4"

Issued at **Høvik** on **2024-01-17**

This Certificate is valid until **2029-01-16**.

for **DNV**

DNV local station: **Italy/Malta CMC**

Approval Engineer: **Andreas Hansen**

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Bosman van der Merwe
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

Cryogenic ball valves with RF flanged connections and extended bolted bonnet designed according to ASME B16.34, manufactured from the following materials:

Body	: ASTM A182 F316/F316L / ASTM A995 GR.4A / ASTM B367 Gr.C3
Bonnet	: ASTM A182 F316/F316L / ASTM A182 F51 / ASTM B367 Gr.C3
Ball	: ASTM B348 Gr.2 / ASTM A182 F60 /
Stem	: ASTM B348 Gr.5 / ASTM A182 F60 /
Bolts	: ASTM A193 B8M CL.2 / ASTM A1080 UNS32205 / Titanium Gr.5
Ball seat	: ASTM B348 Gr.2 / ASTM A182 F60 / Graphitar 110 / Graphite
Sealings	: Graphite

Body thickness and bolting according to ASME B16.34 Class 300.

End connections: Flanges type RF Class 300 according to ASME B16.5.

Application/Limitation

Valves covered by this certificate may be used in:

- LNG/LPG applications and other liquefied gas in cryogenic applications
- Ship piping systems & machinery piping systems onboard ships and offshore mobile units.

The approval does not include actuator and/or other equipment for remote control of the valves.

The valves covered by this certificate are not fire tested and therefore shall not be installed wherever fire safe application is required.

Materials and material protection chosen for the specific system shall be suitable for intended medium and environmental conditions. Valves of austenitic stainless steel shall not be used in direct contact with seawater.

Type Approval documentation

Tests carried out

Pressure test, fatigue strength test, cryogenic test, and cold shock test.

Production testing

Production testing and certification for the actual intended application shall follow the latest applicable edition of the rules (as mentioned on the front page of this certificate).

Marking of product

The valves shall be marked in accordance with the design standard.

Periodical assessment

For retention of this 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 of the approval are complied with. Reference is made to DNV-CP-0338.