Certificate No:
**TAP00002HH**

# TYPE APPROVAL CERTIFICATE

## This is to certify:

**That the Ball Valve**

with type designation(s)
**GE Series, GB Series**

Issued to
## GEMELS S.p.A.
**Trescore Balneario BG, BG, Italy**

is found to comply with
**DNV rules for classification – Ships Pt.4 Ch.6 Piping systems**
**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.**

| Type: | Temperature range: | Max. working press.: | Sizes: |
|---|---|---|---|
| GE Series | -30°C to +100°C | 420 bar and 500 bar (see page 2) | 1/4", 3/8", 1/2", 3/4" and 1" |
| GB Series | -30°C to +100°C | 420 bar | 1-1/4", 1-1/2" and 2" |

Issued at **Høvik** on **2022-06-01**
This Certificate is valid until **2027-05-31**.
DNV local station: **Italy/Malta CMC**

Approval Engineer: **Maheshraja Venkatesan**

for **DNV**

**Zeinab Sharifi**
**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

2-way high pressure ball valves designed according to EN 12516-2 with threaded end connections as below:

- BSP threads according to ISO 228-1(or)
- NPT threads according to ASME B1.20.1 (or)
- SAE threads according to SAE J1926-1

Material of construction (for both series):

| | | |
|---|---|---|
| Body | : | ASTM A182 F316 |
| Plug | : | ASTM A182 F316 |
| Ball | : | ASTM A182 F316 |
| Stem | : | ASTM A564 TP.630 H1150D |
| Seat, stem ring | : | POM/ PTFE/ PEEK/ PA612/ GEMPTFE |
| Seal O-rings | : | NBR/ FKM/ EPDM/ HNBR |

## Application/Limitation

Valves covered by this certificate are approved to be used in Class III ship piping systems & machinery piping systems onboard ships and offshore mobile units under following design conditions:

| Series | Code | Size description | Design pressure |
|---|---|---|---|
| GE Series | GE2_T1 | ¼" (DN 6) | 500 bar(g) |
| | GE2_T2 | 3/8" (DN 10) | 500 bar(g) |
| | GE2_T3 | ½" (DN 13) | 500 bar(g) |
| | GE2_T4 | ¾" (DN 20) | 420 bar(g) |
| | GE2_T5 | 1" (DN 25) | 420 bar(g) |
| GB Series | GB1_T6 | 1 ¼" (DN 32) | 420 bar(g) |
| | GB1_T7 | 1 ½" (DN 40) | 420 bar(g) |
| | GB1_T8 | 2" (DN 50) | 420 bar(g) |

Valves covered by this certificate are not allowed for piping systems conveying toxic or flammable media or services where fatigue, severe erosion or crevice corrosion is expected to occur. Valves in $CO_2$ systems shall be allowed only inside protected spaces and in $CO_2$ cylinder rooms.

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

Valves with EPDM sealings are not allowed to be used in hydrocarbon services.

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

## Type Approval documentation

## Production Testing and Certification

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

Minimum marking requirements shall be as outlined in the valve design standard.

## Periodical assessment

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.