DNV·GL

Certificate No:
TAP000000Y

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Butterfly Valves

with type designation(s)
Isoria 10, Isoria 16, Isoria 20

Issued to
AMRI-KSB
LA ROCHE CHALAIS, France

is found to comply with
DNV GL rules for classification – Ships Pt.4 Ch.6 Piping systems
DNVGL-OS-D101 – Marine and machinery systems and equipment, Edition July 2015
DNV GL class programme DNVGL-CP-0186 – Type approval – Valves

Application :

Butterfly valves approved for use in ship piping, machinery piping and cargo piping systems.

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

Temperature range:	**-35°C to 120°C dep. on matr. (see cert.)**
Max. working press.:	**10, 16 , 20 bar respectively**
Sizes:	**32mm to 1000 mm**

This Certificate is valid until **2019-06-30**.

Issued at **Høvik** on **2016-08-02**

for **DNV GL**

DNV GL local station: **Saint Nazaire**

Approval Engineer: **Simon Ratcliffe**

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.

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Product description

Butterfly valves; lug, wafer and double flange type. Rubber lined internal housing.
Torque transfer by splines for small valves and keys and keyways for larger valves.

Materials:
Body: Grey cast iron EN-GJL-250 EN1561,
Ductile cast iron EN-GJS-400-15 EN1563
Carbon steel 1.0619 EN10213-2
Disc: Ductile cast iron, Stainless steel or Aluminium bronze
Shaft: Stainless steel
Internal seat lining, standard: EPDM or High content nitrile

Size ranges:

ISORIA 10	PN10	DN40 to DN1000
ISORIA 16	PN16	DN40 to DN1000
ISORIA 20	PN20	DN32 to DN600

Application/Limitation

Maximum allowable working pressures shall be according to EN 12516-1 and EN 1092-2 for carbon steel and cast iron bodies respectively.

Minimum allowable temperature:
Cast iron valves: 0 °C
Carbon steel valves: -35 °C (-20 °C for nitrile rubber lined valves)

Maximum allowable temperature depending on coating/ encapsulation material:

EPDM	130°C
Nitrile	100°C

EPDM is not to be used for hydrocarbon applications.

The approval is valid for ship, machinery & cargo piping systems onboard DNV GL classed ships and mobile offshore units.

The valves are not considered fire safe.

The valves are not permitted in class I piping and shall not be used in piping subject to pressure shock, excessive strains and vibration.

Grey cast iron (EN-GJL-250 EN1561) valves shall not be used for class I and II piping with the following exceptions:

- components in hydraulic piping systems where failure would not render the system inoperative or introduce a fire risk

Grey cast iron may be used for class III piping, with the following exceptions:

- valves fitted on ship sides and bottom and on sea chests
- valves fitted on collision bulkhead
- valves under static head fitted on the external wall of fuel tanks, lub. oil tanks and tanks for other flammable oils
- valves for fluids with temperatures in excess of 120°C.

Ductile cast iron (EN-GJS-400-15 EN1563) valves may be used in class II and III piping and in pipes and valves located on the ship's side and bottom and valves on the collision bulkhead.

Butterfly valves are not to be used as quick closing valves or stop valves on fuel oil tanks.

These valves may be used for bilge suction when fitted in connection with a non-return valve.

Bilge valves and shipside valves should always be arranged for manual operation even if these valves are remote controlled. A portable hand pump is not accepted as equivalent to manual operation.

When used as shipside valves the disc must not extend outside the hull plating in open position.

The approval does not include operating gear for remote control of the valves.

Type Approval documentation

Tests carried out

N/A

Production testing

Each valve body shall be subjected to a hydrostatic pressure test at;

- 1,5 times the allowable pressure at room temperature

In addition each valve shall be subject to seat leakage testing as follows:

- 1,1 times the design pressure in the valve flow direction.
- 5 bar applied independently on each side of the disc.

Testing shall follow procedures and acceptance criteria in EN 12266-1.

Certification

DNV GL product certificates are required for valves with DN > 100 mm and PN > 16 bar and for ship side valves with DN > 100 mm regardless of pressure rating. For other valves the manufacturer's certificate may be accepted.

Valve bodies shall be delivered with material certificates according to DNV GL Ship Pt.4 Ch.6 Sec.2 Table 3

Marking of product

For traceability to this type approval, each valve is at least to be marked with:

- Manufacturer's name
- Type designation
- Size
- Max. design pressure or pressure class.

Periodical assessment

For retention of the Type Approval, a DNV GL Surveyor shall perform a survey - every second year and before the expiry date of this certificate - to verify that the conditions for the type approval are complied with.