Certificate no.:
TAP00002XG

TYPE APPROVAL CERTIFICATE

This is to certify:

that the Butterfly Valves

with type designation(s)
GB (GBS, GBH, GBR, GBA) Type Butterfly damper valves, GBZ Type Butterfly damper valves

issued to
PARAVALVES, S.L.
San Sebastián, Guipúzcoa, Spain

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 rules for classification – Ships Pt.6 Ch.7 Environmental protection and pollution control
DNV class programme DNV-CP-0186 – Type approval – Valves

Application:

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

Type:	Temperature range:	Max. working press.:	Sizes:
GB (GBS, GBH, GBR, GBA) Type Butterfly damper valves	Up to 1100ºC	Up to 0.5bar	Up to DN2000
GBZ Type Butterfly damper valves	Up to 1100ºC	up to 3bar	DN1000

Issued at **Hamburg** on **2024-09-27**
This Certificate is valid until **2029-09-26**.
DNV local unit: **NB/CMC Team West**

for **DNV**

Approval Engineer: **Ana Cristina Do Carmo Insfran**

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

Butterfly dampers are used for control and shut-off in exhaust system applications. Thebutterfly dampers is of a butterfly valve design with additional mounted actuator (pneumatic, hydraulic, electric and manual).

PARAVALVES has 5 different models design:

- GBS: Standard butterfly damper
- GBH: High temperature butterfly damper
- GBR: Refractory concrete lined butterfly damper
- GBA: Air sealed butterfly damper
- GBZ: Zero leak butterfly damper

Design Conditions:
Design pressure and temperature conditions for models GBS, GBH, GBR, GBA and GBZ exhaust damper nominal sizes vary according to the different requirements of the applications:

Medium: Exhaust gas or air

Design Pressure: up to 0.5 [bar] except to model GBZ up to 3 [bar]

Size (inside diameter): Up to DN2000 except to model GBZ DN1000

Flange drillings: acc. to ASME B16.5 or EN1092-1

Face to face length:100 to 300 [mm]

Installation:
The installation of exhaust dampers can be made in horizontal, vertical and inclined position.

Materials:
All butterfly valves damper sizes are fabricated of either carbon steel or stainless steel depending on the operating requirements of the applied process.

Damper	**Material Type[1,2]**	**Material designation**	**Standard**	**Maximum allowable Temperature [°C]**
Body	Carbon steel	S235JR	EN 10025	300
	Stainless Steel	304, 304L, 316, 316L	EN1.4301, EN1.4307, EN1.4404, EN1.4404	600
	Austenitic Duplex	2205, 2507	EN1.4462, EN1.4410	600
Disc	Stainless Steel	304, 304L, 316, 316L	EN1.4301, EN1.4307, EN1.4404, EN1.4404	600
Shaft	Carbon steel	S235JR	EN 10025	300
	Stainless Steel	304, 304L, 316, 316L	EN1.4301, EN1.4307, EN1.4404, EN1.4404	600
	Austenitic Duplex	2205, 2507	EN1.4462, EN1.4410	600

Note 1
The selection of the materials shall be carried out according to the most severe service conditions (e.g. operating temperature) and installation conditions of the piping system.
Note 2
Material certification to be provided according to DNV
Rules Pt.4, Ch.6 – Section 2, Table 3 – Material certificates.
Material certification shall be carried under observation of the design temperature.

Application

Installation of Butterfly dampers valves models: GBS, GBH, GBR, GBA and GBZ for aeration, SCR and exhaust gas cleaning systems and HVAC ventilation systems.

Type Approval documentation
Tests carried out

- Function test
- Hydrostatic test
- Leak tightness test,
- Visual inspection for each component, dimensional inspection for each part

Production place

PARAVALVES, S.L.

C/Iribar 1, B-1, 20018, San Sebastián,
Guipúzcoa. SPAIN

Marking of product

Marking of Butterfly dampers valves.
For traceability to this type approval each butterfly damper valves shall be marked with:

Scope	Example
Manufacturer name or trademark	paravalves
Order	SO23044
SKU	02803
S/N	SO23044-2-1
Design pressure	0.3 bar
Actuator	Electric
Size	DN800
Drilling	ISO15138
Materials: Body/ Disc/ Seat	SS316L/ SS316L / EPDM
Production Date	March 2024

Periodical assessment

For retention of the Type Approval, a DNV Surveyor shall perform periodical assessment as per DNV-CP-0338, Sec.4 to verify that the conditions for the Type Approval are complied with.

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

End of Certificate