Certificate No:
TAP00002FY

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Butterfly Valves

with type designation(s)
2-way Marine-Damper 2WMD-DNXXX

Issued to
Damper Technology Limited
Notts, **United Kingdom**

is found to comply with
DNV rules for classification – Ships Pt.4 Ch.6 Piping systems
DNV rules for classification – Ships Pt.6 Ch.7 Sec.7 Emission reduction system for NOx or SOx – ER
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:	**0°C to +430°C**
Max. working press.:	**50 mbar(g)**
Sizes:	**DN300 to DN3400**

Issued at **Høvik** on **2022-04-06**
This Certificate is valid until **2027-04-05**.
DNV local station: **Manchester**

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 butterfly damper assembly for installation within SCR and exhaust gas systems. The dampers are of a butterfly valve design, either single or double bladed, with additional mounted actuator.

For mounting purpose into an exhaust gas duct, all exhaust gas dampers are designed with a flange connection according to PN 2.5 EN 1092-1 or equivalent (DIN 86044-2/ JIS F7805/ JIS B2220/ CB/T-3766).

The dampers comprise of self-cleaning function in the form of a nozzle blower system which uses compressed air to clear the outer landing plates where the blades will be seating to make a seal.

Materials

Part		*Material grade*
Bypass damper seal air pipe and blade assembly	:	S355J0 EN 10025-2/ ASTM A242 Type 1/ ASTM A588 Grade A
Shaft assembly	:	AISI 304/ 1.4307 EN 10088-3
Pressure disc	:	AISI 304/ 1.4307 EN 10088-3

Application/Limitation

Valves covered by this certificate are approved for use in SCR and exhaust gas systems onboard ships.

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.

Exhaust dampers shall be fitted with a permanently connected soot cleaning arrangement for contact surfaces, or equivalent arrangements maintaining the valve operability.

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

Type Approval documentation

Production Testing and Certification

Each damper shall be subjected to NDE, dimensional and functional testing as per quality plan D2890-01 ITP. Certification for the actual intended application shall follow the latest applicable edition of the Rules (as mentioned on the front page of this certificate).

Tests carried out

Pressure test, tightness test, functional test, self-cleaning test

Marking of product

For traceability to this type approval the valves are to be marked as a minimum with:

- manufacturer's name or trademark
- valve type designation
- size
- maximum design pressure and temperature

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.