



TYPE APPROVAL CERTIFICATE

Certificate No:
TAP000016J
Revision No:
2

This is to certify:

That the **Butterfly Valves**

with type designation(s)
GEMÜ 480, 481, 487, 488 and GEMÜ R480, R481, R487, R488

Issued to
GEMÜ Gebr. Müller Apparatebau GmbH & Co. Kommanditgesellschaft
Ingelfingen, Baden-Württemberg, Germany

is found to comply with
DNV rules for classification – Ships Pt.4 Ch.6 Piping systems
DNV class programme DNV-CP-0186 – Type approval – Valves

Application :

Products approved by this certificate are accepted for installation on all vessels classed by DNV.

Temperature range: -10°C to + 150°C
Max. working press.: Depending on valve nominal sizes: PN 10 - PN 16
Sizes: DN 25 to DN 600

Issued at **Hamburg** on **2023-04-03**

for **DNV**

This Certificate is valid until **2028-04-02**.

DNV local unit: **Augsburg**

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

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Sven Klingner
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

Centered disk butterfly valves sizes for installation in piping systems.
 Types: GEMÜ 480, 481, 487, 488
 GEMÜ R480, R481, R487, R488

Type 480 is the body with bare shaft.

Type 481 is the body 480 with pneumatic actuator.

Type 487 is the body 480 with manual actuator, i.e. hand lever or gear box.

The type 488 is the body 480 with electric actuator.

Valve design: ISO 5752/20, EN 558-1/20, API 609 Category A

Valve side flanges: DIN EN 1092, ASME B 16.5, AS 2129 (D/E), BS 10 (D/E), JIS K10

Valve top flange: EN ISO 5211

Butterfly valve design styles according to the following types:

Wafer type; - Lug type; - U-Type

Butterfly valve nominal sizes:

Wafer type DN 25 to DN 600

Lug type DN 50 to DN 400

U-Type DN 400 to DN 600

Pressure ratings: PN 3, PN 6, PN 10, PN 16 [Depending on valve nominal sizes]

Design temperature: -10°C to +150°C [Depending on seat material]

Butterfly valves may be equipped with manual, pneumatic or electric actuator.

Note:

Actuators and additional mountings are not included in this type approval.

Materials:

Valve part	Material type	Standard
Body	Nodular cast iron EN-GJS-400-15	EN-JS 1030 EN 1563
Stem	Stainless steel	AISI 420 / EN 1.4021
Disk	Stainless steel	ASTM A351 CF8M / EN 1.4408
	Nodular cast iron EN-GJS-400-15	EN-JS 1030 DIN EN 1563
	Super Duplex	1.4469 EN 10213-4
Seat	NBR, EPDM, FPM	

Seat material and operating temperature range:

EPDM	-10 to +130 °C
NBR	-10 to +100 °C
FPM	-10 to +150 °C

Application/Limitation

Butterfly valves for control and shut-off applications

Operating media: Non-flammable gases, sea water, water, air, oil.

Note:

Fuel oil, lubrication oil, hydraulic oil and thermal oil are in this context regarded as “Flammable liquids”.
 See DNV Rules, Pt. 4 Ch. 1, Section 3 – Design principles

Limitation

Butterfly valves may not be used for flammable gases and applications with flowing media specified as dangerous and toxic fluids.

Type Approval documentation

Type Approval Application dated on 2023-02-17
 Type Approval Assessment Report dated on 2023-03-30
 Operation Instruction GEMÜ R489 – Butterfly Valve with bare shaft dated on 2021-02-01
 ISO 9001:2015 – Nr.: 091004136 valid until 2023-08-15
 Datasheet – GMÜ 480 - Butterfly valve Victoria DN 25 – 600 dated on 2021-01
 Design drawings / Main assembly drawings and detail drawings
 Assembly drawing numbers:
 6-0270-0812-0000 dated on 2017-09-11 ;
 6-0270-2093-0000 dated on 2017-11-24 ;
 6-0270-2061-0000 dated on 2017-11-23
 Parts lists with material specifications
 Shanghai dated 2018-03-17; Germany dated 2018-04-25
 Quality Control Plan (QCP) and Inspection and Test Plan (ITP)
 Butterfly valve test documentation
 Excel Table: TechDoc Updated 2020102000925
 (List Drawings Assemblies - Modification) dated on 2020-10-20

Tests carried out / Production testing

The butterfly valves have been tested in accordance with the following standards:

DNV Pt. 4 Ch. 6 – Piping systems
 DNV CP-0186 – Valve
 DIN EN 12266-1 – “Industrial valves – Testing of metallic valves”, Part 1
 “Pressure tests, test procedures and acceptance criteria – Mandatory requirements

The butterfly valves are subjected to the following scope of tests:

Test standard: EN 12266-1 / DNV Pt.4 Ch.6 DNV CP- 0186		Purpose
Title	Test reference	
Shell strength	P10	To confirm the pressure containing capability of the shell against internal pressure Test pressure = 1,5 times the design pressure
Shell tightness	P11	To confirm the leak tightness of the shell including the operating mechanism sealing against internal pressure Test pressure = 1,5 times the design pressure
Seat tightness	P12	To confirm the capability of the seat(s) to comply with the specified leakage rate, Leakage rate A - at the time of manufacture - In the direction(s) for which the valve is designed Test pressure = 1,1 times the design pressure
Nominal size		Minimum test duration
All butterfly valve types		Type test -liquid or gas
From DN 50 up to DN 350 and above		10 Min

Certification

Application in machinery and piping systems
Valves intended to be installed in piping system listed in DNV Rules Pt.4,Ch.6 – Section 1
shall be certified according to DNV Rules Pt.4 Ch.6 – Piping systems, Section 9

Valve nominal size / Pressure rating

DN > 100 mm / PN > 16 bar
DN ≤ 100 mm / PN ≤ 16 bar

Ship side valves DN > 100 mm
regardless of pressure rating

Type of Product Certificate (PC) / Issued by

VL Certificate / DNV
W Works Certificate / Manufacturer

VL Certificate / DNV

Material certificates (valve bodies)

In accordance with DNV Rules Pt.4 Ch.6 – Piping systems, Section 2 – Table

Marking of product

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

- Manufacturers 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 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>.

Ende of Certificate