TYPE APPROVAL CERTIFICATE

Certificate No:
TAP00000BZ
Revision No:
2

This is to certify:

That the Butterfly Valves

with type designation(s)
Dynaxe

Issued to
Wouter Witzel EuroValve B.V.
Losser, Overijssel, Netherlands

is found to comply with
DNV class programme DNV-CP-0186 – Type approval – Valves
DNV rules for classification – Ships Pt.4 Ch.6 Piping systems
DNV-OS-D101 – Marine and machinery systems and equipment, Edition July 2021

Application :

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

Temperature range:	**See certificate**
Max. working press.:	**Class 150 & 300 (acc. to ASME B16.34)**
Sizes:	**DN 50 to DN 900**

Issued at **Høvik** on **2023-05-12**

This Certificate is valid until **2028-02-18**.
DNV local unit: **Netherlands CMC**

Approval Engineer: **Jane Lozanov**

for **DNV**

Digitally Signed By: Zeinab, Sharifi
Location: DNV Høvik, Norway

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.

Product description

Double eccentric butterfly valves designed in accordance with ASME B16.34.

Type	Size range	Pressure rating/class	Design
Dynaxe-W201	DN 50-900	150	Flangeless wafer type with centring lugs
Dynaxe-W162	DN 50-600	150, 300	Flangeless wafer type (lugged)
Dynaxe-W921	DN 80-600	150	Flangeless wafer type
Dynaxe-L201	DN 50-900	150	Lugged type
Dynaxe-L162	DN 50-600	300	Flangeless wafer type (lugged)
Dynaxe-F131	DN 50-900	150	Double flange type
Dynaxe-F142	DN 50-600	300	Double flange type

Materials:

Body	Group
ASTM A216 WCB/ EN 10213 GP240GH	Cast carbon steel
ASTM A351 CF8M/ EN 10213 GX5CrNiMo 19-11-2	Cast stainless steel
ASTM B148 C95800/ EN1982 CC333G	Cast aluminum-bronze
ASTM A 995 4A/5A/6A	Cast duplex SS
ASTM B 265/348/381 Gr.2 (UNS R50400)	Forged titanium
ASTM B367 C-2 (UNS R50400)	Cast titanium

Disc:

ASTM A105N, forged steel
ASTM A182 F316 / X5CrNiMo 17-12-2, EN10088-3, forged stainless steel:
ASTM A216 WCB, UNS J03002 / GP240GH EN10213-2, cast carbon steel:
ASTM A351 – J92900, cast stainless steel:
ASTM B148, UNS C95800/ EN1982 CC333G, cast aluminium-bronze:
ASTM A 995 4A/5A/6A, cast Duplex SS
ASTM B 265/348/381 Gr.2 (UNS R50400), forged titanium
ASTM B 367 C-2 (UNS R50400), cast titanium

Body seat:

Stainless steel 1.4370, EN 12072 / Stellite 21 UNS W73041/W73021 or base material

Disc seat/seal:

RTFE/fire safe (RTFE / SS A182 F316)
Rubber elastometric (Rubber FPM, NBR, EPDM/ SS A182 F316)
Metal laminated - A182 F316 + graphite
Metal solid - stainless steel (A182 F316 / EN 10088-3 X5CrNiMo17-12-2)
Metal solid - Inconel 718/625, aluminium bronze

Application/Limitation

Pressure-temperature ratings shall be in accordance with the design standard (s) for the selected metallic material of the valve, also limited to the temperature ranges for sealings as following:

RTFE (fire Safe): -29°C to 204°C
Metal Laminated/solid: -29°C to 425°C
Non-metallic materials: acc. to DNV-CP-0186 Sec.2 Table 1

EPDM sealing shall not be used in Hydrocarbon applications.

Valves covered by this certificate may be used in general machinery service.

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

The valves covered by this certificate are not:

- to be considered fire safe and therefore shall not be installed wherever fire safe application is required, e.g., as shut off, quick closing or ESD valves. Except valves with fire safe seat ring (RTFE 15-12-3 and A182 F316),
- to be installed in LNG/LPG 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 (e.g., A351 CF8M, A182 F316) shall not be used in direct contact with seawater.

Copper and copper alloys (ASTM B148 C95800/ EN1982 CC333G) shall not be used for media having temperature above the following limits:

- copper and aluminium brass: 200°C

Type Approval documentation

Manufacturer's catalogue: Wouter Witzel EuroValve 04/2012 - revision 2.0

Drawing No.	Rev.	Title
D-CAEA010-F	F	Dynaxe F131 DN 50-900
D-CAEA006-C	C	Dynaxe F142 DN 50-600
D-CADA001-E	E	Dynaxe L162 DN 50-600
D-CADA015-E	E	Dynaxe L201 DN 50-900
D-CADA004-E	E	Dynaxe W162 DN 50-600
D-CAAA027-D	D	Dynaxe W201 DN 50-900
D-CAPA003-A	D	Dynaxe W921 DN 80-600

Product data sheets:
PDS03.01.001, PDS03.02.001, PDS03.05.001, PDS03.08.001, dated 2015-04/08-01
PDS03.03.001, PDS03.04.001, PDS03.06.001- dated 2014-09-01.

Design Calculation notes, dated 2018-02-22:
Dynaxe F131: TB-CDE0203, TB-CDE0401, TB-CDE0803, TB-CDE1600, TB-CDE2400, TB-CDE3601.
Dynaxe F142: TB-CDE0200, TB-CDE0401, TB-CDE0800, TB-CDE1602, TB-CDE2400.
Dynaxe-W162: TB-CDB0400, TB-CDB0800, TB-CDB1600, TB-CDB2400.
Dynaxe-W201/ L201: TB-CDA0400, TB-CDA0800, TB-CDA1600, TB-CDB2400, TB-CDC0200.
Dynaxe-W921: TB-CDA0301, TB-CDA0401, TB-CDA0801, TB-CDA1601, TB-CDP2401.

Southwest Research Institute fire test reports No 6-995 (2005-08-11), 6-1012 (2006-01-06), 6-1013 (2006-01-06), 6-1024 (2006-04-06) and 01.10933.01.719

Tests carried out

Fire Test according to ISO10497 2nd edition and API 607 4th edition.

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

For traceability to this type approval, the final products are to be marked with:

- manufacturer's name or trade mark,
- valve type designation,
- size,
- maximum design pressure and temperature,
- arrow to indicate direction of flow on one way flow valves.

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.