

TYPE APPROVAL CERTIFICATE

This is to certify:

That the **Butterfly Valves**

with type designation(s)
Wafer type, Lug Type

Issued to

Dikkan Gemi ve Endustriyel Vana Sanayi Ticaret Anonim Sirketi
Izmir, Turkey

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 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.

Type:	Temperature range:	Max. working press.:	Sizes:
Wafer type	0°C to +180°C	up to 16 bar (see page 2)	DN50, 65, 80, 100, 125, 150, 200, 250, 300, 350, 400, 450, 500, 600, 700
Lug Type	0°C to +180°C	up to 16 bar (see page 2)	DN50, 65, 80, 100, 125, 150, 200, 250, 300, 350, 400, 450, 500, 600, 700

Issued at **Høvik** on **2022-10-03**

for **DNV**

This Certificate is valid until **2027-10-02**.

DNV local station: **Istanbul**

Approval Engineer: **Maheshraja Venkatesan**

.....
Sinisa Sedlan
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

Ductile iron butterfly valves with centric disc and one-piece shaft comprising of wafer and lug types with following material of construction:

Part	Wafer Type		Lug Type	
	DIKKAN Figure 282B.K67	DIKKAN Figure 282B.KA7	DIKKAN Figure 283B.K67	DIKKAN Figure 283B.KA7
Body	EN-GJS400-15 EN 1563			
Disc	AISI 316	CC333G EN 1982	AISI 316	CC333G EN 1982
Stem	1.4021 EN 10088-3 (or AISI 420)			
Seat	NBR/ EPDM/ VITON			

Application/Limitation

Valves covered by this certificate are approved to be used in ship and machinery piping systems (class II & III) with below maximum working pressure ranges:

Series	Sizes	Maximum allowable Pressure, bar(g)
Wafer/ Lug type	DN50(2") – DN150(6")	16
	DN200(8") – DN700(28")	10

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.

The valves covered by this certificate are to be considered fire safe and therefore can be installed wherever fire safe application is required.

Valves with EPDM seats shall not be used for hydrocarbon services.

Butterfly valves are not to be used as quick closing valves on fuel oil tanks or ship's side and bottom or as stop valves on fuel oil tanks.

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

Type Approval documentation

<u>Doc. ref.</u>	<u>Rev.</u>	<u>Description</u>
-	4	General arrangement drawing
DIKKAN Figure 282B.K67	-	Catalogue page 535 – Butterfly valve – wafer type with SS Disc
DIKKAN Figure 282B.KA7	-	Catalogue page 534 – Butterfly valve – wafer type with Al-Br disc
DIKKAN Figure 283B.K67	-	Catalogue page 541 – Butterfly valve – lug type with SS Disc
DIKKAN Figure 283B.KA7	-	Catalogue page 540 – Butterfly valve – lug type with Al-Br disc
-	-	Bill of materials
YMKVLGBK050PN1025	02	DN 50 KELEBEK V.LUG TIP (Bonded liner / Kaplama lastikli)
YMKVWGBX050PJA	02	DN 50 KELEBEK V.WAFER TIP
YMKVWMX050	05	DN 50 WAFER KELEBEK VANA
YMKVWKLA050	05	DN 50 KELEBEK V.WAFER TIP KLAPE
YMKVLGBK065PN1016	04	DN 65 KELEBEK V.LUG TIP (Bonded liner / Kaplama lastikli)
YMKVWGBK065PJA	04	DN 65 KELEBEK V.WAFER TIP
YMKVWM7065	04	DN 65 WAFER KELEBEK VANA
YMKVWKLA065	02	DN 65 KELEBEK V.WAFER TIP KLAPE
YMKVLGBK080PN16	02	DN 80 KELEBEK V.LUG TIP (Bonded liner / Kaplama lastikli)
YMKVWGBX080PJA	03	DN 80 KELEBEK V.WAFER TIP
YMKVWMX080	05	DN 80 WAFER KELEBEK VANA
YMKVWKLA080	01	DN 80 KELEBEK V.WAFER TIP KLAPE
YMKVLGBK100PN16	02	DN 100 KELEBEK V.LUG TIP (Bonded liner / Kaplama lastikli)
YMKVWGBX100PJA	02	DN 100 KELEBEK V.WAFER TIP
YMKVWMX100	06	DN 100 WAFER KELEBEK VANA
YMKVWKLA100	02	DN 100 KELEBEK V.WAFER TIP KLAPE
YMKVLGBK125PN16	02	DN 125 KELEBEK V.LUG TIP (Bonded liner / Kaplama lastikli)
YMKVWGBX125PJA	02	DN 125 KELEBEK V.WAFER TIP
YMKVWMX125	04	DN 125 WAFER KELEBEK VANA
YMKVWKLA125	01	DN 125 KELEBEK V.WAFER TIP KLAPE

<u>Doc. ref.</u>	<u>Rev.</u>	<u>Description</u>
YMKVLGBK150PN16	02	DN 150 KELEBEK V.LUG TIP (Bonded liner / Kaplama lastikli)
YMKVWGBX150PJA	02	DN 150 KELEBEK V.WAFER TIP
YMKVWMX150	03	DN 150 WAFER KELEBEK VANA
YMKVWKL150	-	DN 150 KELEBEK V.WAFER TIP KLAPE
YMKVLGBK200PN10	03	DN 200 KELEBEK V.LUG TIP (Bonded liner / Kaplama lastikli)
YMKVWGBX200PJA	03	DN 200 KELEBEK V.WAFER TIP
YMKVWKL14408200	-	DN 200 WAFER KELEBEK VANA KLAPE
YMKVWKL200	02	DN 200 KELEBEK V.WAFER TIP KLAPE
YMKVWKM200	02	DN 200 WAFER TIP KELEBEK V. KISA
YMKVWUM200	02	DN 200 WAFER TIP KELEBEK V. UZUN
YMKVLGBK250PN10	02	DN 250 KELEBEK V.LUG TIP (Bonded liner / Kaplama lastikli)
YMKVWGBK250PJA	02	DN 250 KELEBEK V.WAFER TIP
YMKVWKL14408250	-	DN 250 WAFER KELEBEK VANA PASLANMAZ KLAPE
YMKVWKL250P	-	DN 250 WAFER KELEBEK VANA
YMKVWKM250	03	DN 250 WAFER TIP KELEBEK V. KISA
YMKVWUM250	02	DN 250 WAFER TIP KELEBEK V. UZUN
YMKVLGBK300PN10	04	DN 300 KELEBEK V.LUG TIP PN10
YMKVWGBK300PJA	04	DN 300 KELEBEK V.WAFER TIP
YMKVWKM7300	03	DN 300 WAFER TIP KELEBEK V. KISA
YMKVWKL300	-	DN 300 KELEBEK V.WAFER TIP KLAPE
YMKVWKL14408300	-	DN 300 KELEBEK VANA WAFER TIP KLAPE
YMKVWUM7300	04	DN 300 WAFER TIP KELEBEK UZUN
YMKVWUM7350	02	DN 350 KELEBEK VANA WAFER UZUN
YMKVLGBK350PN10	02	DN 350 KELEBEK V.LUG TIP PN10
YMKVWGBK350	02	DN 350 KELEBEK V.WAFER TIP
YMKVWKM350	01	DN 350 KELEBEK VANA WAFER KISA
YMKVWKL350	02	DN 350 KELEBEK VANA LUG TIP KLAPE
YMKVWUM7400	02	DN 400 WAFER KELEBEK VANA Uzun
YMKVLGBK400PN10	02	DN 400 KELEBEK V.LUG TIP PN10
YMKVWGBK400PJA	02	DN 400 KELEBEK V.WAFER TIP
YMKVWKM400	02	DN 400 KELEBEK VANA WAFER TIP KISA
YMKVWKL400	01	DN 400 KELEBEK VANA KLAPE
YMKVWUM7450	-	DN 450 WAFER KELEBEK VANA Uzun
YMKVLGBK450PN10	-	DN 450 KELEBEK V.LUG TIP
YMKVWGBK450PJA	-	DN 450 WAFER KELEBEK VANA WAFER TIP
YMKVWKM450	-	DN 450 WAFER KELEBEK VANA Kisa
YMKVWKL450	-	DN 450 WAFER KELEBEK VANA KLAPE
YMKVWUM7500	02	DN 500 WAFER KELEBEK VANA WAFER TIP
YMKVLGBK500PN10	02	DN 500 KELEBEK V.LUG TIP PN10
YMKVWGBK500PJA	02	DN 500 KELEBEK V.WAFER TIP
YMKVWKM7500	02	DN 500 WAFER KELEBEK VANA WAFER TIP
YMKVWKL500	-	DN 500 WAFER KELEBEK VANA KLAPE
YMKVLGBK600PN10	02	DN 600 KELEBEK V.LUG TIP PN10
YMKVWGBK600PJA	02	DN 600 KELEBEK V.WAFER TIP
YMKVWKM7600	02	DN 600 WAFER KELEBEK VANA WAFER TIP
YMKVWKL600	-	DN 600 WAFER KELEBEK VANA KLAPE
YMKVWUM7600	02	DN 600 WAFER KELEBEK VANA WAFER TIP
YMKVLGBK700PN10	-	DN 700 KELEBEK V.LUG TIP
YMKVWGBK700PN10	-	DN 700 KELEBEK VANA WAFER TIP
YMKVWKM7700	-	DN 700 WAFER KELEBEK VANA WAFER TIP
YMKVWUM7700	-	DN 700 WAFER KELEBEK VANA WAFER TIP
YMKVWKL700	-	DN 700 WAFER KELEBEK VANA KLAPE
TLM.405	00	Burst Test Procedure for Butterfly Valves DNV-GL Type Approval
-	-	Burst test Table, body thickness control, lug type and wafer type butterfly valves witnessed by DNV dated 04/04/2022
-	-	Pressure Temperature rating for non-metallic materials used

Tests carried out

Burst testing as per EN 12516-3



Job Id: 262.1-036326-1
Certificate No: TAP00002HY

Production testing and Certification

Production Testing and Certification for the actual intended application shall follow EN 12266 (leakage rate A) and the latest applicable edition of the Rules (as mentioned on the front page of this certificate).

Marking of product

Minimum marking requirements shall be as outlined in the standard EN 19.

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.