

Industrial Butterfly Valve

Series ZNX-ID03 · Wafer & Lug · DN50 – DN300

Designed by ZNX Fluid Control.

PRODUCT DATASHEET

Doc. ZNX-ID03-DS-01 · Rev. A



The ZNX-ID03 design focuses on durability and ease of maintenance:

- **Heavy-Duty Construction** — The one-piece cast body provides maximum strength with reduced weight, and the resilient-seated design is renowned as one of the most durable in the industry.
- **Maintenance-Free Performance** — Engineered for long-term service with a field-replaceable seat that requires no special tools, simplifying maintenance and reducing downtime.
- **Reliable Sealing** — The unique stem-hole design ensures a dry stem journal (minimizing corrosion risk), while the hard-backed seat allows for bi-directional, bubble-tight sealing at full rated pressure.
- **Space-Saving Design** — Ideal for applications where space is at a premium, with a lightweight wafer or lug body style.

DN50 – DN300

PN10 / PN16

Bi-directional

–10 °C ... +150 °C

1 Design Features

- **Bi-directional sealing** — the moulded cartridge seat seals against the disc from either flow direction; no preferred flow orientation.
- **Field-replaceable seat** — cartridge seat can be renewed in-line without special tools.
- **Blow-out-proof stem** — stem is retained by the seat and an upper circlip; cannot be ejected under pressure.
- **Dry stem design** — stem bushes and O-rings keep line media away from the stem and operator.
- **Low operating torque** — concentric disc with polished seating edge minimises break-away torque.
- **ISO 5211 mounting pad** — direct-mounting interface for gear operators, electric and pneumatic actuators.
- **10-position lever** — hand lever with spring-loaded lock device allows throttling at set positions.
- **Compact face-to-face** — short pattern keeps weight and installation space to a minimum.

Flow Characteristic & Kv Values

Approximate flow coefficient Kv (m³/h at ΔP = 1 bar) at fully open position:

DN	DN50	DN65	DN80	DN100	DN125	DN150	DN200	DN250	DN300
Kv	165	270	420	760	1,180	1,740	3,050	4,900	7,100

Kv values are approximate and based on water at 20 °C. For throttling duty, use the disc-position flow curve or consult ZNX for the sized selection.

Seat Material Selection Guide

Seat	Temperature Range	Typical Media	Notes
EPDM	–10 °C ... +120 °C	Water, seawater, dilute acids & alkalis, steam condensate	Best all-round seat for water service
NBR	–10 °C ... +80 °C	Compressed air, oils, fuels, water	Economical choice for air & oil
FKM	–10 °C ... +150 °C	Hydrocarbons, oils, many chemicals	Higher temperature resistance
PTFE	–30 °C ... +150 °C	Strong acids, alkalis, chlorinated media	Widest chemical compatibility

Media compatibility depends on concentration and temperature — always verify against the chemical resistance chart for your process.

Applicable Design Standards

Item	Reference Standard
Face-to-face dimensions	ISO 5752 short series · EN 558-1 series 20
Flange drilling	EN 1092-2 PN10 / PN16 · ASME B16.5 Class 150 · ASME B16.1 Class 125
Valve design & marking	ASME B16.34 · EN 593 (butterfly valves)
Actuator mounting	ISO 5211 top-flange pattern (F07 / F10 / F12)
Shell & seat testing	EN 12266-1 · API 598
Ductile iron material	ASTM A536 grade 65-45-12 · EN 1563 (QT450-10)
Stainless steel castings	ASTM A351 CF8 / CF8M · EN 10213
Cast iron material	ASTM A126 Class B · EN 1561 (GG25 / HT200)

Factory Inspection (100 % on every valve)

- **Shell test** — hydrostatic test at 1.5× rated pressure, 60 s hold, no visible leakage.
- **Seat test** — pneumatic / hydrostatic seat test at 1.1× rated pressure, bubble-tight shut-off.
- **Dimensional check** — face-to-face, flange bolt circle, stem height and torque at rated ΔP.
- **Material traceability** — heat-coded castings, batch-traced elastomer seat and stem material.
- **Visual & marking** — cast body grade, size, flow arrow and ZNX logo cast into body; nameplate per order.

2 Technical Data

Parameter	Specification
Nominal size	DN50 – DN300 (2" – 12")
Pressure class	PN10 / PN16; also suitable for ANSI 150 flanges
Body style	Wafer (standard) / Lug (optional, end-of-line capable)
Face-to-face	Short pattern, ISO 5752 / EN 558-1 series 20
Flange compatibility	EN 1092-2 PN10/PN16, ANSI B16.1 Class 125, ASME B16.5 Class 150
Body materials	Cast iron HT200 (GG25) · Ductile iron QT450-10 (ASTM A536 65-45-12)
Disc materials	Ductile iron (epoxy or nylon coated) · CF8 (A351 304) · CF8M (A351 316)
Seat materials	EPDM · NBR · FKM · PTFE
Stem	Stainless steel (2Cr13 / ASTM 420)
Flow direction	Bi-directional
Operation	Lever (DN50–150) · Gear (DN200–300) · ISO 5211 pad for actuators
Testing	100% shell and seat pressure test on every valve before shipment

Maximum Pressure vs. Temperature

Seat	–10 °C	20 °C	60 °C	100 °C	120 °C	150 °C
EPDM	16 bar	16 bar	16 bar	13 bar	10 bar	—
NBR	16 bar	16 bar	16 bar	10 bar	—	—
FKM	16 bar	16 bar	16 bar	14 bar	12 bar	10 bar
PTFE	10 bar	16 bar	16 bar	14 bar	12 bar	10 bar

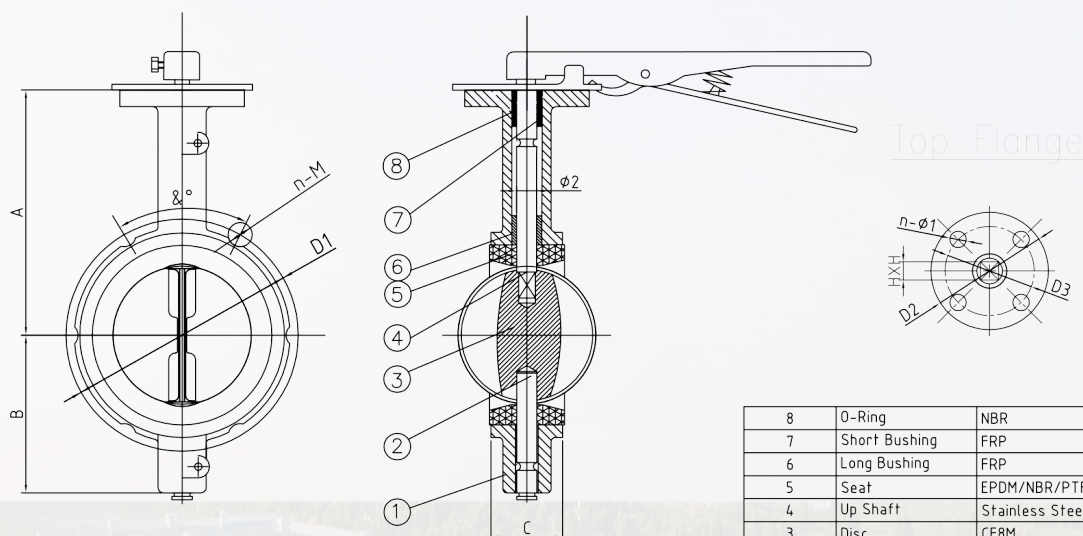
Ratings are for elastomer-seated service with non-shock fluids. Derate for throttling service above 70 % of travel or sustained temperature peaks.

Operating Torque (Nm, wet service · EPDM / NBR / PTFE seat)

DN	0.6 MPa	1.0 MPa	1.6 MPa
DN50	12	14	16
DN65	20	23	26
DN80	29	33	39
DN100	51	56	65
DN125	78	87	100
DN150	122	143	157
DN200	215	261	315
DN250	329	403	458
DN300	458	615	637

Values are break-away torque at rated differential pressure with EPDM/NBR/PTFE seat in wet service. Size actuators with a 1.3–1.5× safety factor for dry start-up or sustained throttling.

3 Dimensions & Weights



SIZE	A	B	C	Ø2	ISO5211	D2	D3	n-Ø1	D1	n-M	Ø°	HXH
2"	100	71	43	12.6	F07	90	70	4-10	108.4	4-9.6	90	11X11
3"	140	78	46	12.6	F07	90	70	4-10	124.7	6-9.6	60	11X11
4"	152	91	52	15.77	F07	90	70	4-10	178.5	6-12.7	60	11X11
5"	152	111	56	18.92	F07	90	70	4-10	192	6-12.7	60	14X14
6"	191	140	56	18.92	F07	90	70	4-10	232.6	8-12.7	45	14X14
8"	225	170	60	22.10	F10	125	102	4-12	297.6	8-15.7	45	17X17
10"	253	189	68	28.45	F10	125	102	4-12	348.4	8-15.7	45	22X22
12"	277	241	78	31.6	F10	125	102	4-12	422.1	12-12.7	30	22X22

8	O-Ring	NBR	1
7	Short Bushing	FRP	2
6	Long Bushing	FRP	3
5	Seat	EPDM/NBR/PTFE	1
4	Up Shaft	Stainless Steel 420	1
3	Disc	CF8M	1
2	Down Shaft	Stainless Steel 420	1
1	Body	Ductile Iron	1
NO.	NAME	MATERIAL	QTY
TEST PRESSURE	CWP:150/225PSI	SHELL	SEAL
	HYDROSTATIC	225/338PSI	165/250PSI
	AIR		
STANDARD	DESIGN	API 609	
	INSPECTION&TEST	API 598	
	END STANDARD	ASME B16.5 150LB	
	FACE TO FACE	API 609	
TITLE: BUTTERFLY VALVE			
2"-12"			
APPROVED		DWG NO.	REV
CHECKED		ZNX-D30	B01
DRAWN			
DESIGNED		UNIT	mm
		DATE	2026.09.09
ZNX FLUID CONTROL CO.,LTD			

Dimension Key

Label	Meaning	Label	Meaning
A	Overall height (top of pad to flange face)	C	Face-to-face length
B	Centre-line to bonnet-top height	Ø1	Stem bore diameter
D1	Bolt-circle (PCD) diameter	Ø2	Stem diameter at seat
D2	Upper stem journal diameter	n-Ø1	Number × Ø of ISO 5211 tap holes
D3	Lower stem journal diameter	n-M	Number × M of flange bolt holes
ISO 5211	Actuator top-flange pattern (F07/F10/F12)	HXH	Key size (width × depth)
Ø°	Bolt-hole angular spacing on the PCD	ZNX	Designed by ZNX Fluid Control

4 Installation & Maintenance

- **Check the nameplate** — confirm size, body, seat and pressure rating match the line conditions before installation.
- **Prepare the pipe ends** — flange faces must be clean, flat and parallel; use flat-faced flanges with cast-iron bodies.
- **Center the valve** — wafer valves locate on the flange bolts; ensure the disc can rotate freely inside the pipe bore.
- **Fit full-length bolts (wafer)** — through-bolts engage both flanges; tighten diagonally and evenly in at least three passes.
- **Mind the disc sweep** — keep the disc sweep area clear of weld spatter, gaskets and pipe linings.
- **Install at any angle** — the valve works in any pipeline orientation; for DN300 vertical lines, support the operator.

Maintenance

Under normal service the ZNX-ID03 is maintenance-free. We recommend: cycle valves that stay in one position at least once a year; inspect the seat and stem O-rings every 5 000 cycles or 24 months; replace the cartridge seat when leakage is observed — this can be done in-line. Always isolate and depressurise the line before any work on the valve.

Storage

Store valves in the fully-open position in a dry, covered area away from sunlight and ozone sources (motors, welders). Do not stack heavy items on valve bodies.

5 Ordering Code

Build the order code from the tables below.

ZNX-ID03	D	S	E	L
Series	Body	Disc	Seat	Operator

Code	Body	Code	Disc	Code	Seat	Code	Operator
C	Cast iron	I	Ductile iron	E	EPDM	L	Lever
D	Ductile iron	S	CF8 (304)	N	NBR	G	Worm gear
		M	CF8M (316)	V	FKM	B	Bare shaft (ISO 5211)
				T	PTFE		

Example: **ZNX-ID03-D-S-E-L** = ductile-iron body, CF8 disc, EPDM seat, lever-operated, DN50 – DN300 as ordered by size.

Contact

Company	ZNX FLUID CONTROL CO., LTD
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Products	Butterfly valve · Gate valve · Check valve · Y-strainer · Rubber joint · PTFE lined · UPVC