

D6..N/D6..NL butterfly valves. Economical and efficient control.



Water is our element.

www.belimo.eu

Integrated solutions for medium-to-high volumetric flows.

Belimo butterfly valves are available as classic D6..N wafer types or D6..NL lug types. When motorised with modulating actuators, they offer integrated and remarkably cost-efficient solutions for controlling medium-to-high volumetric flows. Their exceptionally low pressure losses assure optimum energy efficiency, while the premium product quality and intelligent actuator concepts guarantee long-term protection for investments.

Broad spectrum of applications

The D6..N/D6..NL range of butterfly valves comprises nominal sizes from DN 25 resp. DN 50 to DN 350. In the opening angle range between 0 and 54°, they achieve an almost equal-percentage characteristic curve. Owing to the minimal pressure losses, significant energy savings are possible in applications like injection circuits with 2-way valves, open cooling towers or hot and cold water distribution systems. Both the butterfly valves and the actuators, have also demonstrated their unrivalled operational reliability in real applications under extreme conditions. In practice, this means a better cost effectiveness for the purchase and operation of Belimo's valve/actuator combinations.

New actuator range

A wide range of modulating actuators with torques from 18 to 500 Nm (up to 3500 Nm for retrofit business) is now available for motorising our D6..N/D6..NL butterfly valves for indoor (IP54) or outdoor (IP66/67) applications. Their fast running times improve the quality of control. Special MF types allow each actuator to be optimised on site for its respective control system application. Alternatively, our MP types permit up to eight actuators to be grouped together on an MP-Bus® line and integrated in any popular fieldbus system. The wiring costs for bus integration are reduced by up to 90 percent as a result.

**BELIMO**®

D6..N/D6..NL butterfly valves. Open-close and control mode.

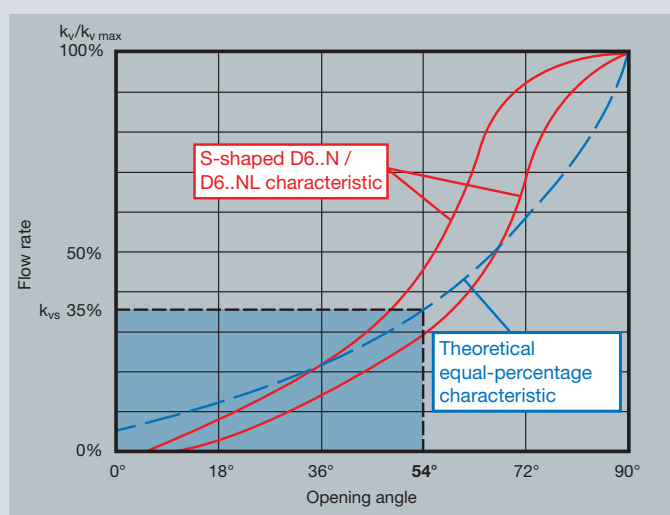
Valve range / table of media velocity and differential pressures



Nominal size	Max. permissible media velocity: 4m/s					
	DN [mm]	$k_{v \max}$ [m ³ /h]	Δp_{v100} ¹⁾ [kPa]	$k_{vs@54^\circ}$ [m ³ /h]	$\Delta p_{v@54^\circ}$ ²⁾ [kPa]	
D625N		25	45	1.6	16	2.9
D632N		32	55	2.5	19	5.0
D640N		40	70	3.4	25	6.8
D650N	D650NL	50	90	3.1	32	8.2
D665N	D665NL	65	180	2.4	63	6.6
D680N	D680NL	80	300	2.4	105	5.1
D6100N	D6100NL	100	580	2.1	203	4.8
D6125N	D6125NL	125	820	2.0	287	5.1
D6150N	D6150NL	150	1600	1.5	560	3.5
D6200N	D6200NL	200	2900	1.5	1015	3.1
D6250N	D6250NL	250	4400	1.4	1540	3.3
D6300N	D6300NL	300	7300	1.2	2555	2.6
D6350N	D6350NL	350	10900	0.8	3815	1.8

The differential pressures $\Delta p_{v@54^\circ}$ [kPa] indicated in the table must not be exceeded.

D6..N/D6..NL flow characteristics



The S-shaped characteristic of the D6..N/D6..NL butterfly valve approximates the equal-percentage characteristic described in VDI 2176. In the rotation angle range between 0 and 54°, it is accurate to refer to it as an equal-percentage characteristic curve. At an opening angle of 54°, k_{vs} corresponds to 35% of the $k_{v \max}$ value for a 90° opening angle. The equal-percentage valve characteristic has a factor of equivalence $n(ep) \approx 2.5$.

The effective volumetric flow is calculated as follows:

$$1) V_{100} = k_{v \max} \cdot \sqrt{\frac{\Delta p_{v100}}{100}}$$

$$2) V_{@54^\circ} = k_{vs@54^\circ} \cdot \sqrt{\frac{\Delta p_{v@54^\circ}}{100}}$$

Units:

- V_{100} , $V_{@54^\circ}$ [m³/h]
- $k_{v \max}$, $k_{vs@54^\circ}$ [m³/h]
- Δp_{v100} , $\Delta p_{v@54^\circ}$ [kPa]

Valve specifications:

- Butterfly valve with epoxy powder coating, valve disc/trim made of stainless steel
- Rated pressure ps: 1600 kPa
- Media: Cold or warm water (water containing glycol up to max. 50% vol.)
- Medium temperature: -20°C to +120°C (peaks: +130°C/1h)
- Leakage rate: A (tight shut-off acc. to EN 12266-1)
- Angle of rotation: 0° to 90°
- Flange dimensions D6..N (wafer types)
 - DN 25...DN 200: PN6, PN10, PN16
 - DN 250...DN 350: PN10 (on request), PN16
- Flange dimensions D6..NL (lug types)
 - DN 50...DN 150: PN10, PN16
 - DN 200...DN 350: PN16
- Maintenance-free

Modulating actuators for butterfly valves. Suitable for Belimo or third-party valves.

Electric rotary actuator range / protection



IP54	IP66/67	IP54 + 66	IP54 + 66	IP54	IP54 + 66	IP66/67	IP66/67
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Table of closing pressure Δ ps in kPa

SR..-5 [20 Nm]	SR..P-R [18 Nm]	GR..-5 [40 Nm]	GR..-7 [40 Nm]	DGR..-7 [60 Nm]	DR..-7/SY2.. [90 Nm]	SY3.. [150 Nm]	SY4.. [400 Nm]	SY5.. [500 Nm]
1200	1200							
1200	1200							
1200	1200							
1200	1200							
1200	1200							
1200	1200							
200		1200						
			600	1200	1200			
				600	1200*			
						1200		
							1200	
							600	1200
								600

* Closing pressure Δ ps in kPa 1200 does not apply to DR..-7

Motorisation of third-party valves (90 to 3500 Nm) / IP66/67 protection



F07	F10	F14	F16
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SY2../SY3.. [90/150 Nm]	SY4../SY5../SY6.. [400/500/650 Nm]	SY7.. [1000 Nm]	SY8.. [1500 Nm]	SY9.. [2000 Nm]	SY10.. [2500 Nm]	SY11.. [3000 Nm]	SY12.. [3500 Nm]
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Actuator specifications

- SR types: Non-parameterisable
- MF types: Angle of rotation, running time (not SY..) and control and feedback signals can be customised on site
- MP types: Integration in any popular fieldbus system, parameterisable similar to MF types
- Open-close/modulating, 24 V: SR..-5, SR..P-R, GR..-5, GR..-7, DR..-7, DGR..-7 and SY2..-SY5.. (available in -SR, -MF and -MP versions)
- Open-close/modulating, 230 V: SR..-5, SR..P-R, DR..-7, DGR..-7 and SY2..-SY5.. (available in -SR and -MF versions)

- SY actuators: Suitable for electrical installation with a 3 or 4-wire system. If a 4 wire system is used there is no restriction on cable length but note that the signal and power are to be grounded separately

Motorisation of third-party valves

- Compatible adapters for motorising rotary valves and butterfly actuators from other manufacturers available on request.
- SY2...SY12 actuators for 90...3500 Nm
- Versions:
 - 24 V: SY2..-SY5.. (available in -SR, -MF and -MP versions)
 - 230 V: SY2..-SY12.. (available in -SR and -MF versions)

All-inclusive.



5-year warranty



On site around the globe



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Tested quality



Short delivery times



Comprehensive support

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