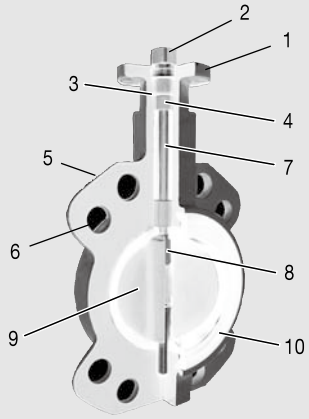
Belimo D(U)6.. series Butterfly valves are designed to meet the stringent needs of HVAC and commercial applications requiring positive shut-off for liquids.

Valve design features

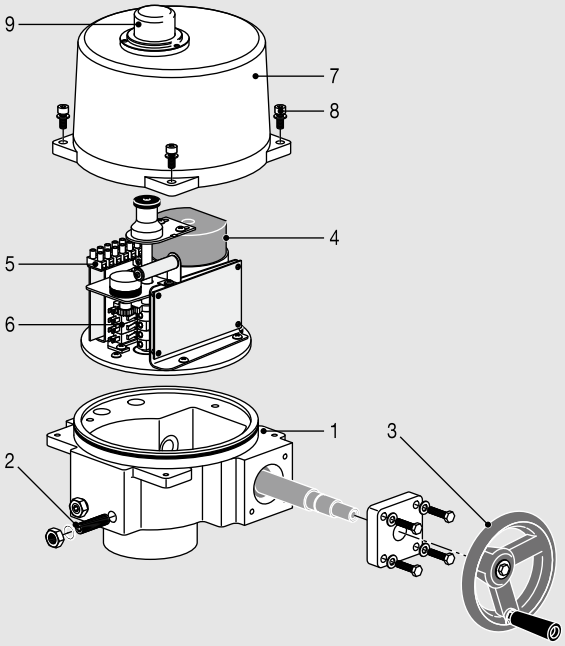


1. Mounting flange according to ISO 5211.
2. Square stem head for form-fit attachment of the rotary actuator.
3. Stem with EPDM O-ring seal.
4. RPTFE stem bearing.
5. Valve body made of cast iron (DN50...300), spheroidal ductile iron (DN350...500).
6. Hole pattern for PN 6/10/16 (wafer type), PN16 (lug type).
7. Stem made of stainless steel 416.
8. Double-D-fit attachment of the stem to the throttling element.
9. Throttling element made of spheroidal ductile iron nylon coated or stainless steel 316 (on request).
10. EPDM seat lining, integrated flange sealing.

- Double-D-fit of valve stem connecting with the valve disc produces close tolerance, easy disassembly. The disc can be self-adjusting to centralize due to this unique design. (DN50...300)
- The integrated flange sealing ensures positive connection of the valve body, seat and disc, and provides complete isolation of the media from the body.It makes field replacement simple and fast, can seal with socket welding or welding neck flanges and without additional gaskets.
- The ball profile style seat eliminates elastomer movement and reduces seat tearing or fatiguing due to bunching.
- Double seals prevent media coming into the valve. The primary seal is achieved by an interference fit of the molded seat flat with the disc hub. The secondary seal is created when the stem diameter is greater than the seat stem hole.
- The disc casting is precision machined, hand polished then coated with nylon layer which gives a smooth and close disc-to-seat relationship.
- The three non-corrosive RPTFE (Reinforced Poly Tetra Fluoro Ethylene) bushings completely isolate the valve shaft from the body, resulting in increased control of the valve disc, lower valve seating torque and longer valve life.
- The nylon coated disc features a very good corrosion resistance - superior resistance to a broad range of chemical environments, as well as very low coefficient of friction and excellent resistance to impact and ultra-violet radiation. The stainless steel 316 disc(on request) is rust proof, and can with stand higher temperature than nylon coated disc.

Additionally to satisfy higher IP requirement and large size butterfly automation, Belimo offers SY.. series rotary actuators being designed to mate with the D(U)6.. series Butterfly valves and other quarter turn valve applications.

SY.. actuator design features



1. Gearbox with hardened planetary gear.
2. Two adjusting stop screws for limiting of manual rotation angle.
3. Handwheel that acts directly on the planetary gear.
4. Motor protected by a thermostat.
5. Terminals.
6. Limit switches and two auxiliary switches.
7. Housing made of cast aluminum (IP67).
8. 4 x M5 hexagonal screws for cover of housing.
9. Sight glass for position indicator (rotary cylinder).

- The patented gear drive mechanism provides efficient, smooth operation while allowing easy manual override at any time.
- With IP67 rating, easily visible position indicator, international standard ISO 5211 mounting system, internal thermal motor overload protection, heater, dual auxiliary Form C switches, and easily accessible wiring termination points.
- The units are easily visible in mechanical rooms with their characteristic Belimo orange color. Wiring diagrams included in all printed documentation, are also affixed to the outside of the housing on the permanently attached product label.
- The torque ranges are available from 35 to 3500 Nm.

Actuators designed for D(U)6 valves

Belimo AF.., NRVU.., SRVU.. and GRVU.. series rotary actuators use the best possible electric motors and gearings and also employ highly sophisticated electronics for the control. The universal product design makes installation, operation and service so much easier.

BELIMO

Kv Value [m³/h]

Type	Size		90°	80°	70°	60°	50°	40°	30°	20°	10°
DU650/L	DN50	2"	80	75	57	39	27	21	16	6.9	1.09
DU665/L	DN65	2.5"	170	142	99	64	42	30	19	7.5	5.2
DU680/L	DN80	3"	290	278	205	139	87	51	34	21	7.7
DU6100/L	DN100	4"	560	404	270	137	105	67	46	26	6.3
DU6125/L	DN125	5"	870	744	502	306	186	113	60	33	15.6
DU6150/L	DN150	6"	1340	1185	720	472	294	171	94	47	25.9
DU6200/L	DN200	8"	2690	2360	1483	956	617	362	211	88	52.0
DU6250/L	DN250	10"	5540	3948	2364	1502	911	588	334	193	84.5
DU6300/L	DN300	12"	7540	6147	3607	2083	1229	706	401	164	4.13
DU6350/L	DN350	14"	10300	9348	6233	3938	2380	1335	616	291	5.2
DU6400/L	DN400	16"	14300	12856	8571	5416	3237	1836	847	400	6.9
DU6450/L	DN450	18"	18900	17028	11352	7172	4334	2433	1122	530	9.5
DU6500/L	DN500	20"	24200	21893	14596	9222	5573	3128	1443	682	12

The maximum velocity in the butterfly valve is 9m/s (for Open/Close control)

Closing Pressure ΔPs and linkage — D(U)6../L nylon coated disc series

Type	IP54 Actuator								IP67 Actuator							
	NRVU.. [10Nm]	AF.. [15Nm]		SRVU.. [20Nm]	GRVU.. [40Nm]		2XGRVU.. [72Nm]		SY1.. [35Nm]	SY2.. [90Nm]	SY3.. [150Nm]	SY4.. [400Nm]	SY6.. [650Nm]	SY7.. [1000Nm]	SY8.. [1500Nm]	SY9.. [2000Nm]
	ΔPs kPa	ΔPs kPa	Linkage WD6..	ΔPs kPa	ΔPs kPa	Linkage WD6..	ΔPs kPa	Linkage WD6..	ΔPs kPa	ΔPs kPa	ΔPs kPa	ΔPs kPa	ΔPs kPa	ΔPs kPa	ΔPs kPa	ΔPs kPa
DU650/L	1200	1200	-AF	-	-	-	-	-	1200	-	-	-	-	-	-	-
DU665/L	1200	1200	-AF	-	-	-	-	-	1200	-	-	-	-	-	-	-
DU680/L	-	1200	-AF	1200	-	-	-	-	1200	-	-	-	-	-	-	-
DU6100/L	-	400	-AF	600	1200	-GR	-	-	600[1]	-	-	-	-	-	-	-
DU6125/L	-	-	-	-	1200	-GR	-	-	-	1200	-	-	-	-	-	-
DU6150/L	-	-	-	-	400	-GR	1200	-2GR	-	1200	-	-	-	-	-	-
DU6200/L	-	-	-	-	-	-	600	-2GR	-	600	1200	-	-	-	-	-
DU6250/L	-	-	-	-	-	-	-	-	-	-	600	1200	-	-	-	-
DU6300/L	-	-	-	-	-	-	-	-	-	-	-	1200	-	-	-	-
D6350/L	-	-	-	-	-	-	-	-	-	-	-	-	1200	-	-	-
D6400/L	-	-	-	-	-	-	-	-	-	-	-	-	-	600	1200	-
D6450/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1200	-
D6500/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1200

Closing Pressure ΔPs and linkage —D(U)6../S stainless steel disc series(on request)

Type	IP54 Actuator								IP67 Actuator						
	NRVU.. [10Nm]	AF.. [15Nm]		SRVU.. [20Nm]	GRVU.. [40Nm]		2XGRVU.. [72Nm]		SY1.. [35Nm]	SY2.. [90Nm]	SY3.. [150Nm]	SY4.. [400Nm]	SY6.. [650Nm]	SY8.. [1500Nm]	SY9.. [2000Nm]
	ΔPs kPa	ΔPs kPa	Linkage WD6..	ΔPs kPa	ΔPs kPa	Linkage WD6..	ΔPs kPa	Linkage WD6..	ΔPs kPa	ΔPs kPa	ΔPs kPa	ΔPs kPa	ΔPs kPa	ΔPs kPa	ΔPs kPa
DU650..S	1200	1200	-AF	-	-	-	-	-	1200	-	-	-	-	-	-
DU665..S	1200	1200	-AF	-	-	-	-	-	1200	-	-	-	-	-	-
DU680..S	-	1200	-AF	1200	-	-	-	-	1200	-	-	-	-	-	-
DU6100..S	-	400	-AF	600	1200	-GR	-	-	600[1]	-	-	-	-	-	-
DU6125..S	-	-	-	-	600	-GR	1200	-2GR	-	1200	-	-	-	-	-
DU6150..S	-	-	-		-	-	1200	-2GR	-	1200	-	-	-	-	-
DU6200..S	-	-	-	-	-	-	400	-2GR	-	600	1200	-	-	-	-
DU6250..S	-	-	-	-	-	-	-	-	-	-	400	1200	-	-	-
DU6300..S	-	-	-	-	-	-	-	-	-	-	-	1200	-	-	-
D6350..S	-	-	-	-	-	-	-	-	-	-	-	-	1200	-	-
D6400..S	-	-	-	-	-	-	-	-	-	-	-	-	-	1200	-
D6450..S	-	-	-	-	-	-	-	-	-	-	-	-	-	1000	-
D6500..S	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1000

1) For 1200 kPa application, contact Belimo sales representative.

2-way Butterfly valves flanged
DN50...500

For 2-point or modulating control of cold and hot water.

Applications

Typical applications include chiller isolation,cooling tower isolation, change-over systems, large air handling coil control, bypass and process control.

Technical data

Flow media	Chilled and hot water, sea water
Temperature of medium	- 20°C... + 100°C
Rated pressure	1600 kPa (PN16)
Flow characteristic	Modified equal-percentage
Rangeability	10:1 (for 30° to 70° range)
Leakage rate	Bubble tight (to DIN 3230)
Pipe connections	Flange ISO 7005-2 PN6/10/16 for wafer and PN 16 for lug
Closing pressure	See page 4
Mounting position	Vertical to horizontal
Maintenance	Maintenance-free
Angle of rotation	90° rotation
Materials	
Valve body	Cast iron GG25(DN50...300) / Ductile iron GGG40 (DN350...500)
Disc	Nylon coated ductile iron / Stainless steel 316 disc (on request)
Seat	EPDMboot seat
Shaft	416 Stainless steel
Bushing	RPTFE

Ordering example

DU6 125 L / GRVU230

Actuator:	GRVU230 actuators, open/close, 100...240V AC
Package*:	"/" Valve and actuator supplied separately (actuator pre-assembled on request)
Disc & flange pattern:	L - Lug, Nylon coated disc default - Wafer, Nylon coated disc
Size:	DN125
Butterfly valve	DU6 Low torque series D6 General torque series

* For linkage please refer to page 4.

Mode of operation

The Butterfly valve is operated by a rotary actuator. Both spring return or non-spring return actuators are available. Select the actuator according to required close-off pressure and environmental condition of installation. The actuators are controlled by a standard Open/Close or modulating control system and move the disc of the valve to the position dictated by the control signal.

Product features

The large Kv values provide an economical control valve solution for larger flow applications.

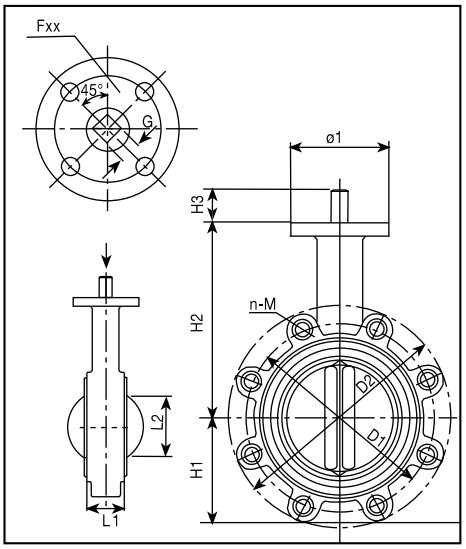
Manual operation

Turn the valve by using a 20mm wrench with the manual button of NRVU.., SRVU.. or GRVU.. actuator pressed. The valve matched with SY actuator can be operated by turnning the wheel of SY2...9.. or via an 8mm wrench (SY1..).

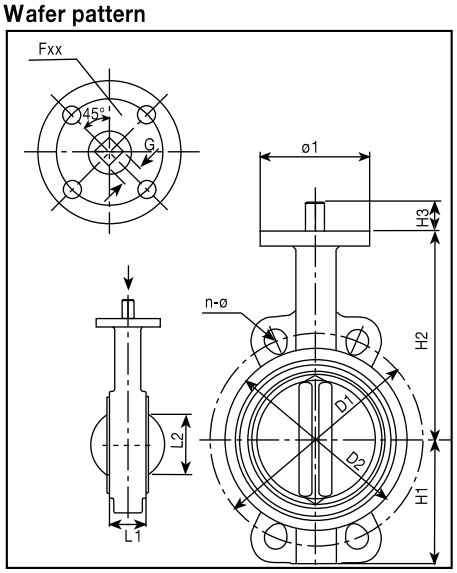
Dimensions of Butterfly valves

BELIMO

Lug pattern



Wafer pattern



Dimensions for PN16 lug pattern Butterfly valve

Type	Size DN [mm]	Top flange Fxx	D1	D2	L1	L2	H1	H2	H3	G	ø1	n-M	Weight (Kg)
DU650L	50	F05	125	155	43	33	70	134	13	14	65	4-M16	3.2
DU665L	65	F05	145	175	46	48	76	147	13	14	65	4-M16	3.8
DU680L	80	F05	160	190	46	66	89	158	13	14	65	8-M16	5.0
DU6100L	100	F05	180	214	52	91	104	173	13	14	65	8-M16	9.0
DU6125L	125	F07	210	252	56	115	118	195	19	17	90	8-M16	11.3
DU6150L	150	F07	240	282	56	142	132	213	19	17	90	8-M20	15.0
DU6200L	200	F07	295	337	60	194	167	247	19	17	125	12-M20	20.0
DU6250L	250	F10	355	405	68	245	197	287	38	22	125	12-M24	30.0
DU6300L	300	F10	410	460	78	294	239	316	24	22	125	12-M24	46.0
D6350L	350	F10	470	524	79	328	265	345	24	22	125	16-M24	66.5
D6400L	400	F14	525	585	105	374	293	377	38	36	175	16-M27	96.0
D6450L	450	F14	585	645	112	425	327	412	38	36	175	20-M27	122.0
D6500L	500	F16	650	714	129	472	357	440	38	36	210	20-M30	202.0

Dimensions for PN6/10/16 wafer pattern Butterfly valve

Type	Size DN [mm]	Top flange Fxx	D2	L1	L2	H1	H2	H3	G	ø1	PN6		PN10		PN16		Weight (Kg)
											D1	n-ø	D1	n-ø	D1	n-ø	
DU650	50	F05	93	43	33	70	134	13	14	65	110	4-14	125	4-19	125	4-19	2.3
DU665	65	F05	107	46	48	76	147	13	14	65	130	4-14	145	4-19	145	4-19	2.8
DU680	80	F05	123	46	66	89	158	13	14	65	150	4-19	160	8-19	160	8-19	3.5
DU6100	100	F05	151	52	91	104	173	13	14	65	170	4-19	180	8-19	180	8-19	5.5
DU6125	125	F07	177	56	115	118	195	19	17	90	200	8-19	210	8-19	210	8-19	7.4
DU6150	150	F07	204	56	142	132	213	19	17	90	225	8-19	240	8-23	240	8-23	9.0
DU6200	200	F07	260	60	194	167	247	19	17	125	280	8-19	295	8-23	295	12-23	15.0
DU6250	250	F10	314	68	245	197	287	38	22	125	335	12-19	350	12-23	355	12-28	21.5
DU6300	300	F10	370	78	294	239	316	24	22	125	395	12-23	400	12-23	410	12-28	32.3
D6350	350	F10	422	79	328	265	345	24	22	125	445	12-23	460	16-23	470	16-28	43.5
D6400	400	F14	473	105	374	297	377	38	36	175	495	16-23	515	16-28	525	16-31	64.0
D6450	450	F14	526	112	425	331	412	38	36	175	550	16-23	565	20-28	585	20-31	83.25
D6500	500	F16	577	129	472	361	440	38	36	210	600	20-23	620	20-28	650	20-34	165.1