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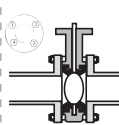
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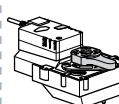
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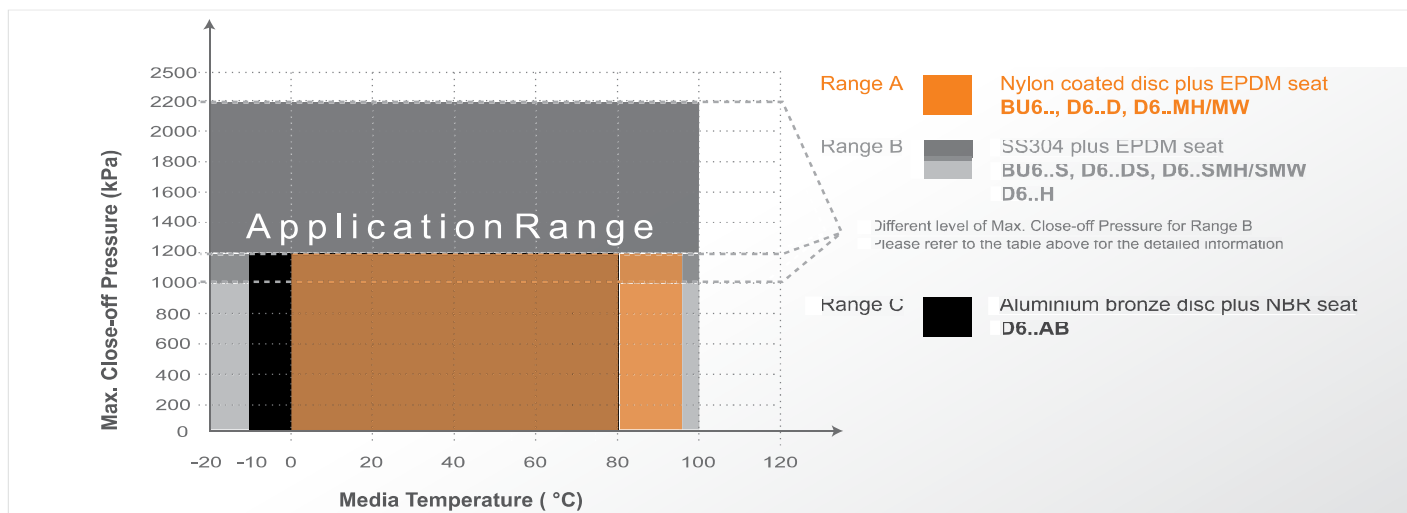
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## BFV and Actuators product range overview

Product Range	Valves	Applications	Actuators
	<b>Standard 2-way Motorised Butterfly Valve</b> <ul style="list-style-type: none"> <li>Shut off or control function</li> <li>General HVAC application</li> <li>Material:                             <ul style="list-style-type: none"> <li>Ductile cast iron body</li> <li>EPDM seat</li> <li>Nylon coated/Stainless steel disc</li> <li>Stainless steel shaft</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Media: Cold and hot water, glycol</li> <li>Nominal size and pressure: DN50...500, 1600kPa</li> <li>Max. Close-off pressure: 1200kPa</li> <li>Temperature: 0...+95°C -20...+100°C</li> <li>Pipe connection:                             <ul style="list-style-type: none"> <li>PN10/16 and Table E for wafer (DN50...300)</li> <li>PN16 for wafer (DN350...500)</li> <li>PN16 for lug (DN50...500)</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>General Rotary Actuators: SR..A..-5, GR..A..-5/-7, DR..A..-7, and SY series</li> <li>Fail-Safe control function: SRF(..) A..-5, GRK..A..-5/-7</li> </ul>
	<b>Complementary 2-way Motorised Butterfly Valve*</b> <ul style="list-style-type: none"> <li>Shut off or control function</li> <li>Special for sea water or brine media</li> <li>Material:                             <ul style="list-style-type: none"> <li>Ductile cast iron body</li> <li>NBR seat</li> <li>Aluminium bronze disc</li> <li>Stainless steel shaft</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Media: Sea water, brine</li> <li>Nominal size and pressure: DN50...800, 1600kPa</li> <li>Max. Close-off pressure:                             <ul style="list-style-type: none"> <li>1200kPa (DN50...600)</li> <li>1000kPa (DN700...800)</li> </ul> </li> <li>Temperature: -10...+80°C</li> <li>Pipe connection:                             <ul style="list-style-type: none"> <li>PN10/16 and Table E for wafer (DN50...300)</li> <li>PN16 for wafer (DN350...800)</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>General Rotary Actuators: SR..A..-5, GR..A..-5/-7, DR..A..-7, and SY and QB* series</li> </ul>
	<b>Complementary 2-way Motorised Butterfly Valve*</b> <ul style="list-style-type: none"> <li>Shut off or control function</li> <li>Special for large size pipe</li> <li>Material:                             <ul style="list-style-type: none"> <li>Ductile cast iron body</li> <li>EPDM seat</li> <li>Nylon coated/Stainless steel disc</li> <li>Stainless steel shaft</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Media: Cold and hot water, glycol</li> <li>Nominal size and pressure: DN600...1200, 1600kPa</li> <li>Max. Close-off pressure:                             <ul style="list-style-type: none"> <li>1200kPa (DN600)</li> <li>1000kPa (DN700...1200)</li> </ul> </li> <li>Temperature: -20...+100°C</li> <li>Pipe connection: PN16 for wafer</li> </ul>	<ul style="list-style-type: none"> <li>General Rotary Actuators: SY and QB* series</li> </ul>
	<b>Complementary 2-way Motorised Butterfly Valve*</b> <ul style="list-style-type: none"> <li>Shut off or control function</li> <li>Special for high Close-off pressure</li> <li>Material:                             <ul style="list-style-type: none"> <li>Ductile cast iron body</li> <li>EPDM seat</li> <li>Stainless steel disc</li> <li>Carbon steel shaft</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Media: Cold and hot water, glycol</li> <li>Nominal size and pressure: DN50...500, 2500kPa</li> <li>Max. Close-off pressure: 2200kPa</li> <li>Temperature: 0...+95°C -20...+100°C</li> <li>Pipe connection:                             <ul style="list-style-type: none"> <li>ISO 7005.2 PN25 for lug (DN50...500)</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>General Rotary Actuators: SY and QB* series</li> </ul>
	<b>Manual Butterfly Valve*</b> <ul style="list-style-type: none"> <li>Shut off or control function</li> <li>General HVAC application</li> <li>Material:                             <ul style="list-style-type: none"> <li>Ductile cast iron body</li> <li>EPDM seat</li> <li>Nylon coated/Stainless steel disc</li> <li>Stainless steel shaft</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Media: Cold and hot water, glycol</li> <li>Nominal size and pressure: DN50...500, 1600kPa</li> <li>Max. Close-off pressure: 1200kPa</li> <li>Temperature: 0...+95°C -20...+100°C</li> <li>Pipe connection:                             <ul style="list-style-type: none"> <li>PN10/16 and Table E for wafer (DN50...300)</li> <li>PN16 for wafer (DN350...500)</li> <li>PN16 for lug (DN50...500)</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Handle and worm gear: ZD6.. series</li> </ul>

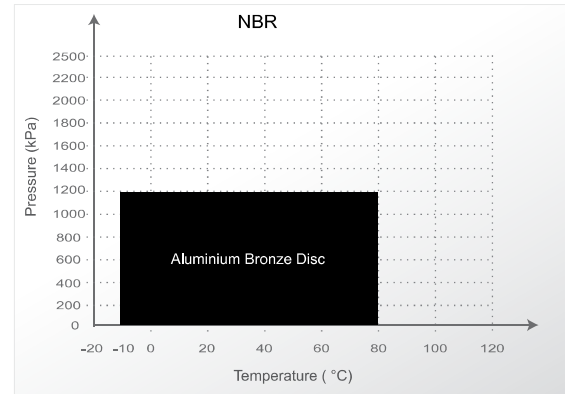
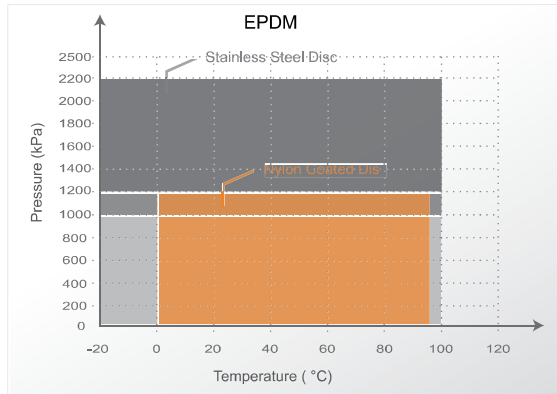
\*Trade selection by Belimo

## Pressure - Temperature Chart



## Pressure - Temperature Chart

Material \ Application		HVAC Medium Temperature	Close-off Pressure	HVAC Medium		
		-20...+100°C	0...1200kPa	Water	Sea Water	Glycol
Seat	EPDM	○	○	○	X	○
	NBR	-10...+80°C	○	○	○	○
Disc	Nylon	0...+95°C	○	○	○	X
	Stainless Steel (SS304)	○	○	○	X	○
	Aluminium Bronze	○	○	○	○	○



Product Series		Medium			Close-off Pressure(kPa)				Temp. of media(°C)				
	Seat + Disc	Water	Sea water	Glycol	2200	1200	600	400	-20	-10	0	80	100
Standard Motorised NC BU6.. Series*	EPDM + NC	○	▲	X									
Large Size Motorised NC D6..D Series		○	▲	X									
Manual NC D6..MH/MW		○	▲	X									
Standard Motorised SS BU6.. S*	EPDM + SS304												
Large Size Motorised SS D6..DS		○	X	○									
PN25 Motorised SS D6..H		○	X	○									
Manual SS D6..SMH/SMW		○	X	○									
Sea Water D6..AB	NBR + AB	○	○	●									

\*BU6200X/LX, BU6200SX/LSX is utilised at 600kPa only.

○ Excellent ● Good ▲ Poor X Not recommended

## Reference Standard:

ISO 10631:	Metallic Butterfly Valves for General Purposes
JIS B2032:	Wafer type rubber-seated Butterfly Valves
ASME B16.34:	Valves — Flanged, Threaded and Welding End
ISO 5208:	Industrial Valves - Pressure Testing of Valves
EN 593:	Industrial Valves - Metallic Butterfly Valves



# Butterfly Valves and Rotary Actuators for Open/Close or modulating control

## Nylon coated ductile cast iron disc (BU6..series)

### Key features

Nominal pressure: 1600kPa

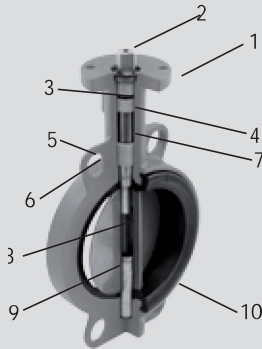
Other technical data see page 8...11

Kvs[m³/h]			80	170	290	560	870	1340	2690	5540	7540	10300	14300	18900	24200
DN[mm]			50	65	80	100	125	150	200	250	300	350	400	450	500
Type	Wafer	BU6..	BU650	BU665	BU680	BU6100	BU6125	BU6150	BU6200..	BU6250	BU6300	BU6350	BU6400	BU6450	BU6500
	Lug	BU6..L	BU650L	BU665L	BU680L	BU6100L	BU6125L	BU6150L	BU6200L..	BU6250L	BU6300L	BU6350L	BU6400L	BU6450L	BU6500L
		IP54	SR24A(-S)-5 SR230A(-S)-5 SRFA-5 SRFA-S2-5			GR..A..-5 GRK..A..-5	GR..A..-7 GRK..A..-7	DR..A..-7							
With Open/ Close actuator		IP67	SY1-24-3-T SY1-230-3-T			SY1..	SY2..		SY3..	SY4..		SY6..	SY7..	SY8..	
		IP54	SR24A-SR-5 SRF24A-SR-5			GR..A..-5 GRK..A..-5	GR..A..-7 GRK..A..-7	DR..A..-7							
With Modulating actuator		IP67	SY1U24-SR-T SY1U230-SR-T			SY1..	SY2..		SY3..	SY4..		SY6..	SY7..	SY8..	

Note: Stainless Steel disc (BU6..S series) is available on request.

Belimo BU6..series Butterfly Valves are designed to meet the stringent needs of HVAC applications requiring positive shut-off for liquids.

#### Valve design features



1. Mounting flange according to ISO 5211.
2. Square shaft head for form-fit attachment of the Rotary Actuator.
3. Shaft with EPDM O-ring seal.
4. RPTFE shaft bearing.
5. Full series of valve body made of ductile cast iron (DN50...500).
6. Hole pattern for PN10/16, Table E (wafer, DN50...300)  
PN16 (wafer DN350...500, Lug DN50...500)
7. Shaft made of stainless steel 416.
8. Double-D-fit attachment of the shaft to the disc.
9. The disc made of ductile cast iron nylon coated or stainless steel 304.
10. EPDM seat symmetrical, integrated flange sealing.

- Double-D-fit of two pieces of non-pin shaft connected with disc, a more compact and strong structure, can produce 4-way self-adjusting centralisation thanks to its unique design and optimise and minimise interference-fit, resulting in low operation torque.

- Innovative double supports of trench seat can ensure positive assembly among the valve body, seat and disc, and can keep rotation of disc smooth -going consistently minimising compressional deformation and seat brushing off.

- Advanced ball profile of disc with narrow sealing belt can provide isolation of HVAC flow media from valve body by double-prevention and can eliminate internal leakage and reduce seat tearing or fatiguing due to bunching. 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 shaft diameter is greater than internal shaft hole.

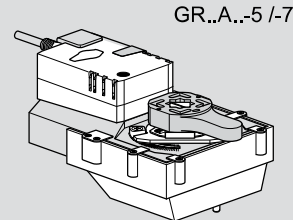
- The nylon-coated disc features excellent anti-corrosion and low friction coefficient with exact casting, precision machining and advanced coated process which gives a smooth rotation and close disc-to-seat relationship. The stainless steel disc is a rust proof with hand polishing process which can decrease operation torque for actuator and withstand higher HVAC flow media temperature.

- Three anti-corrosion RPTFE (Reinforced Poly Tetra Fluoro Ethylene), EPDM O-ring (made of Ethylene-Propylene-Diene Monomer) and stainless steel shaft circlip completely isolate flow media from top flange, synchronise rotation between shaft and disc, decrease operation torque and ensure extreme long life cycle.

- Meet stringent and extensive HVAC flow media with wide and circular arc flange sealing surface, which can be suitable for all flange connection standard as ISO, JIS, AS without additional gasket in AP easily and efficiently.

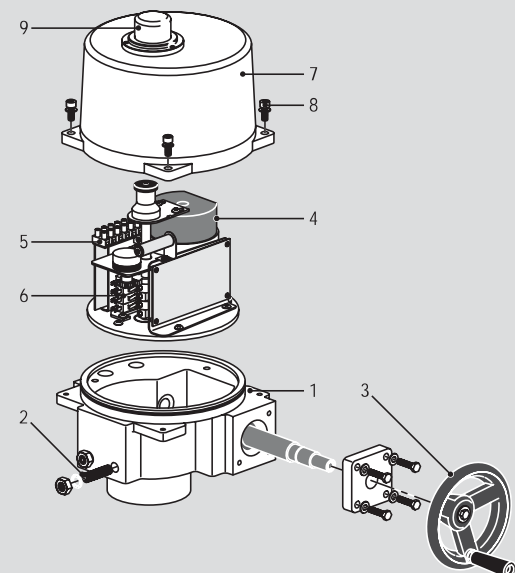
Belimo General Rotary Actuators, Fail-Safe Rotary Actuators designed for BU6.. Series BFV.

Belimo SRF..A...-5, GRK..A...-5/-7, SR..A...-5, GR..A...-5/-7, DR..A...-7 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 much easier.



To satisfy higher IP requirement and large size butterfly automation, Belimo offers SY..series Rotary Actuators which are designed to mate with the BU6..series Butterfly Valves and other quarter-turn valve applications.

#### SY.. Actuator design features



1. Gearbox with hardened planetary gear.
2. Two stop screws for limiting of manual operation.
3. Handwheel that acts directly on the planetary gear.
4. Motor protected by a thermostat.
5. Terminals.
6. Two limit switches and two auxiliary switches.
7. Housing made of cast aluminium (IP67).
8. 4xM5 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, two auxiliary 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...3500Nm.




## Kv Value [m3/h]

Type	Size		90°	80°	70°	60°	50°	40°	30°	20°	10°
BU650..	DN50	2"	80	75	57	39	27	21	16	6.9	1.09
BU665..	DN65	2.5"	170	142	99	64	42	30	19	7.5	5.2
BU680..	DN80	3"	290	278	205	139	87	51	34	21	7.7
BU6100..	DN100	4"	560	404	270	137	105	67	46	26	6.3
BU6125..	DN125	5"	870	744	502	306	186	113	60	33	15.6
BU6150..	DN150	6"	1340	1185	720	472	294	171	94	47	25.9
BU6200..	DN200	8"	2690	2360	1483	956	617	362	211	88	52.0
BU6250..	DN250	10"	5540	3948	2364	1502	911	588	334	193	84.5
BU6300..	DN300	12"	7540	6147	3607	2083	1229	706	401	164	4.13
BU6350..	DN350	14"	10300	9348	6233	3938	2380	1335	606	291	5.2
BU6400..	DN400	16"	14300	12856	8571	5416	3237	1836	847	400	6.9
BU6450..	DN450	18"	18900	17028	11352	7172	4334	2433	1122	530	9.5
BU6500..	DN500	20"	24200	21893	14596	9222	5573	3128	1443	682	12


Note: the maximum velocity in the butterfly valve is 6m/s (for Open/Close control).

## Max. Close-off Pressure $\Delta P_s$ and linkage — BU6.. series

Type	IP54 Actuator (Indoor Use)			
				
	SR..A..-5 [20Nm]	GR..A..-5 [40Nm]	GR..A..-7 [40Nm]	DR..A..-7 [90Nm]
	$\Delta P_s$ kPa	$\Delta P_s$ kPa	$\Delta P_s$ kPa	$\Delta P_s$ kPa
BU650, BU650L, BU650S, BU650LS	1200	-	-	-
BU665, BU665L, BU665S, BU665LS	1200	-	-	-
BU680, BU680L, BU680S, BU680LS	1200	-	-	-
BU6100, BU6100L, BU6100S, BU6100LS	-	1200	-	-
BU6125, BU6125L, BU6125S, BU6125LS	-	-	1200	-
BU6150, BU6150L, BU6150S, BU6150LS	-	-	-	1200

Type	IP54 Fail-Safe Rotary Actuator (Indoor Use)		
			
	SRF(..)A..-5 [20Nm]	GRK..A..-5 [40Nm]	GRK..A..-7 [40Nm]
	$\Delta P_s$ kPa	$\Delta P_s$ kPa	$\Delta P_s$ kPa
BU650, BU650S, BU650LS	1200	-	-
BU665, BU665S, BU665LS	1200	-	-
BU680, BU680S, BU680LS	1200	-	-
BU6100, BU6100S, BU6100LS	-	1200	-
BU6125, BU6125S, BU6125LS	-	-	1200

## Max. Close-off Pressure $\Delta P_s$ and linkage — BU6.. series (continued)

Type		IP67 Actuator (Outdoor Use)						
		SY1.. [35Nm]	SY2.. [90Nm]	SY3.. [150Nm]	SY4.. [400Nm]	SY6.. [650Nm]	SY7.. [1000Nm]	SY8.. [1500Nm]
		$\Delta P_s$ kPa	$\Delta P_s$ kPa	$\Delta P_s$ kPa	$\Delta P_s$ kPa	$\Delta P_s$ kPa	$\Delta P_s$ kPa	$\Delta P_s$ kPa
BU650, BU650L, BU650S, BU650LS		1200	-	-	-	-	-	-
BU665, BU665L, BU665S, BU665LS		1200	-	-	-	-	-	-
BU680, BU680L, BU680S, BU680LS		1200	-	-	-	-	-	-
BU6100, BU6100L, BU6100S, BU6100LS		1200	-	-	-	-	-	-
BU6125, BU6125L, BU6125S, BU6125LS		-	1200	-	-	-	-	-
BU6150, BU6150L, BU6150S, BU6150LS		-	1200	-	-	-	-	-
BU6200, BU6200L, BU6200S, BU6200LS		-	-	1200	-	-	-	-
BU6250, BU6250L, BU6250S, BU6250LS		-	-	-	1200	-	-	-
BU6300, BU6300L, BU6300S, BU6300LS		-	-	-	1200	-	-	-
BU6350, BU6350L, BU6350S, BU6350LS		-	-	-	-	1200	-	-
BU6400, BU6400L, BU6400S, BU6400LS		-	-	-	-	-	1200	-
BU6450, BU6450L, BU6450S, BU6450LS		-	-	-	-	-	-	1200
BU6500, BU6500L, BU6500S, BU6500LS		-	-	-	-	-	-	1200