

# Belimo New Range of Butterfly Valves

Multiple Butterfly Valves perfect for various demanding applications

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MY COLOR,





## Applications

Belimo has developed a wide range of Butterfly Valves and Actuators meeting all specific and stringent demands of HVAC applications requiring positive shut off and control for all kinds of flow media, with enormous efforts and continual innovation. Typical applications include chiller isolations, cooling tower isolations, large air handling units, boilers, change-over systems, water and ice storage systems, bypass and control applications.

## Features and benefits

- Double-D fit stem connected to the disc, gives a stronger and more compact structure. It can produce self-adjusting centring due to rotary movement, thanks to a unique design. It can also optimise and minimise interference-fit, resulting in low operation torque.
- Innovative double supports of trench seat without back can ensure positive assembly among valve body, valve seat and disc and can keep rotation of disc consistently running smoothly, minimising compressional deformation and seat brushing off.
- Advanced ball profile of disc with narrow sealing belt can provide complete 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 stem diameter is greater than the internal stem hole.
- The nylon coated disc features excellent anti-corrosion and low friction coefficient with exact casting, precision machining and advanced coated process which give a smooth rotation and close disc-to-seat relationship. The stainless steel disc is rust proof due to the hand polishing process which can decrease operation torque for the actuator and withstand higher HVAC flow media temperature.
- Three anti-corrosion RPTFE bushings (made of Reinforced PolyTetraFluoroEthylene), EPDM O ring (made of Ethylene Propylene Diene Monomer) and stainless steel stem circlip completely isolate flow media from top flange, synchronise rotation between stem and disc, decrease operation torque and ensure extreme long life cycle.
- Meet stringent and extensive HVAC flow media variations with wide and circular arc flange sealing surface. This can be suitable for all flange connection standards as ISO, JIS, AS without additional gasket in Asia Pacific.
- Belimo offers numerous advanced motorised actuators, along with high quality manual handle or worm gear drives, ensuring a highly reliable performance and value added Butterfly Valve combination solution is provided.

## Non-Linear DRVU.. Actuators Plug and Play Actuator with DRVU.. 90/110Nm

*(will be available on Q1 2011)*



Type		BU6..L..	BU6..
Butterfly Valve			
Nominal size DN [mm]	DN50...500	•	•
Nominal pressure	1600kPa	•	•
Max. close-off pressure	1200kPa	•	•
Flow media	Nylon coated disc SS304 disc	Cold and hot water Cold and hot water, Max.50% glycol	• •
Temperature of medium	Nylon coated disc SS304 disc	0...+95°C -20°C...+100°C	• •
Material			
Body	Ductile cast iron GGG40 (DN50...500)	•	•
Disc	Nylon coated ductile cast iron disc/stainless steel 304 disc	•	•
Seat	EPDM	•	•
Stem	Stainless steel 416	•	•
Bushing	RPTFE	•	•
Connections	For pipe flange: ISO 7005.2, AS 2129 PN6/10/16 & Table E for wafer (DN50...300) PN16 for wafer (DN350...500) PN16 for lug (DN50...500) For actuator: ISO 5211	• • • •	• • • •

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## Rotary Actuators (IP54)

Type	Non-Spring-Return										
	SRVU 24-5 (20Nm)	SRVU 24-S-5 (20Nm)	SRVU 230-5 (20Nm)	SRVU 230-S-5 (20Nm)	SRVU 24-SR-5 (20Nm)	GRVU 24-5/7 (40Nm)	GRVU 230-5/7 (40Nm)	GRVU 24-SR-5/7 (40Nm)	DGRVU 24 (72Nm)	DGRVU 230 (72Nm)	DGRVU 24-SR (72Nm)
Voltage AC/DC 24V AC 100...240V	•	•	•	•	•	•	•	•	•	•	•
Control signal Open/Close or 3-point Modulating	•	•	•	•	•	•	•	•	•	•	•
Integral, potential-free auxiliary switch 0...100% adjustable		•		•	•			•			•
Type	Fail-Safe Mechanical/Electronic										
	SRFU-5*1 (20Nm)	SRFU-S2-5*1 (20Nm)			SRFU24-SR-5*1 (20Nm)			GRKU24..*2 (40Nm)			
Voltage AC/DC 24V	•	•			•			•			
Control signal Open/Close Modulating	•	•			•			•			
Fixed 10%, adjustable 10...90% Modulating		•			•			•			
Fail safe	•	•			•			•			

\*1 will be available on Q4 2010  
\*2 will be available on Q1 2011

## Max. close-off pressure of BU6..(S)/L..(S) valves with Rotary Actuators (IP54)

Actuator \ Valve	(kPa)					
	SRFU..-5	GRKU..	SRVU.. -5	GRVU.. -5	GRVU.. -7	DGRVU..
BU650..	1200		1200			
BU665..	1200		1200			
BU680..	1200		1200			
BU6100..		1200		1200		
BU6125..		1200			1200	
BU6150..						1200

# Non-Linear DRVU.. Actuators Large Torque Multi-function Actuators

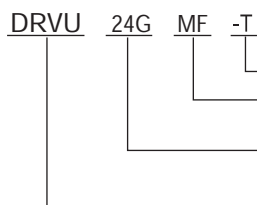


- Non-Linear Actuators for operation of DN125...150 Butterfly Valves
- Torque 90/110Nm
- Open/Close or 3-point control: DRVU24G-T, DRVU230G-T
- Modulating control: DRVU24G-MF-T



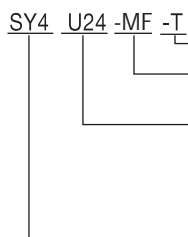
- Large Torque Multi-function Actuators for operation of DN50...500 Butterfly Valves
- Torque 35...1500Nm
- Open/Close or 3-point control: SY..24-3-T, SY..230-3-T
- Modulating control: SY1U24-SR-T, SY1U230-SR-T  
SY..U24-MF-T, SY..U230-MF-T
- MP models available on request

## Ordering example



With terminal  
 Default: Open/Close or 3-point control  
 "Multi-function": Modulating control  
 "24G": 24V nominal voltage  
 "230G": 230V nominal voltage  
 Model number

eg. Modulating control  
 DRVU24G-MF  
 Open/Close  
 DRVU24G-T



With terminal  
 "Multi-function": Modulating control  
 "-3": Open/Close or 3-point control  
 "U24": 24V nominal voltage (modulating)  
 "U230": 230V nominal voltage (modulating)  
 "-24": 24V nominal voltage (Open/Close, 3-point)  
 "-230": 230V nominal voltage (Open/Close, 3-point)  
 Model number

eg. Modulating control  
 SY4U230-MF-T  
 Open/Close, or 3-point control  
 SY4-24-3-T

## Rotary Actuators (IP66/67)

Type	Open/Close or 3-point				Modulating		
	DRVU24G*2 -T	DRVU230G*2 -T	SY.. -24-3-T	SY.. -230-3-T	DRVU24G*2 -MF-T	SY..U24 -SR/MF-T	SY..U230 -SR/MF-T
Voltage							
AC 230V		•		•			•
AC 24V	•		•		•	•	
Control mode							
Open/Close or 3-point	•	•	•	•			
Modulating					•	•	•
Control/Feedback signal DC 2(0)...10V (standard)					•	•	•
Degree of protection: IP66/IP67	•	•	•	•	•	•	•
2 auxiliary switches			•	•		•	•
Heater			•	•		•	•
Torque range: 35...1500Nm 2000...3500Nm (on request)	•	•	•	•	•	•	•

\*2 will be available on Q1 2011

## Max. close-off pressure of BU6..(S)/L..(S) valves with Rotary Actuators (IP66/67)

(kPa)

Actuator / Valve	DRVU24G -T* (90Nm) non-linear	DRVU230G -T* (90Nm) non-linear	DRVU24G -MF-T (110Nm) non-linear	SY1-24 /230-3-T SY1U24/230 -SR-T (35Nm)	SY2-24 /230-3-T SY2U24/230 -MF-T (90Nm)	SY3-24 /230-3-T SY3U24/230 -MF-T (150Nm)	SY4-24 /230-3-T SY4U24/230 -MF-T (400Nm)	SY6-230-3-T SY6U230 -MF-T (650Nm)	SY7-230-3-T SY7U230 -MF-T (1000Nm)	SY8-230-3-T SY8U230 -MF-T (1500Nm)
BU650..				1200						
BU665..				1200						
BU680..				1200						
BU6100..				1200						
BU6125..	1200	1200	1200		1200					
BU6150..	1200	1200	1200		1200					
BU6200..					600	1200				
BU6250..							1200			
BU6300..							1200			
BU6350..								1200		
BU6400..									1200	
BU6450..										1200
BU6500..										1200

Default: only SY and DRVU Actuators and its Butterfly Valves are pre-calibrated and pre-assembled in the factory.

### Electrical connections

All SY actuator control elements are wired to a terminal strip under the main cover. Remove the cover and insert the cables through the cable connector to reach the terminal strip. The connections should be made according to the diagram. Before beginning this procedure, make sure that the power supply voltage is in accordance with the actuator's name plate. After the terminal connections have been made, move the actuator manually to the half-open position and make a preliminary check of the wiring.

### Manual operation

Turn the override handwheel clockwise to close the actuator and counter clockwise to open it. This provides manual operation.

### Overload protection

If the actual running torque exceeds the nominal torque, the overload protection will operate to prevent the motor overload.

## Complementary Motorised Butterfly Valves and Manual Butterfly Valves



Seawater Application  
DN50...800



Large size Butterfly Valve  
DN600...1200



PN25 Butterfly Valve  
DN50...500



Manual Butterfly Valve  
DN50...500

\* Will be available on Q4 2010.



### Carefully matched valves range

Belimo also provides motorised 2-way and 3-way Globe Valves in its range for mixing application in HVAC systems. There are few different types in the carefully matched range covering a wide band of ratings from 1kW to 3MW.

The key feature of the valves is high performance and quality combined with low leakage rates. For the most popular pressure of PN16, they are available in nominal sizes from DN15 to DN150.

### Innovative actuators range

The specially developed Linear Actuators are based on the proven technology of Belimo Damper Actuators. They allow reliable operation of Globe Valves of up to 50mm stroke. The Linear Actuators are of extremely solid construction, powerful and very durable, and follow the same product philosophy as the actuators from the other ranges, including the methods of electrical connection, mounting, etc.

The Linear Actuators are available in capacity ratings from 1000(800)N to 2500N, the 800N version is also available with an emergency control function.

Valves and actuators are usually supplied as combined functional units. However, they can also be ordered separately.

### Optimum link-ups thanks to MFT Multi-Function Technology

Linear Actuators with MFT2 Multi-Function Technology incorporate intelligent electronics which allow the actuators to be matched precisely to the valves. This produces a functional unit of valve and actuator with extreme accuracy. MFT2 actuators are also able to transmit status and operating signals to a central plant control system. This means that they not only contribute to efficiency of operation but also reduce operating costs. Parameters are assigned to the actuators in the same way as to damper actuators. MFT2 actuators are easy to incorporate into field bus systems.



## Globe Valves

		External thread		Flange PN16			
		2-way ✕	3-way ✕	2-way ✕	3-way ✕	2-way ✕	2-way ✕
		H4..B 	H5..B 	H6..N 	H7..N 	H6..S 	H6..SP 
Only suitable as a mixing valve			•		•		
Nominal width [mm]		15...50	15...50	15...100	15...150	15...150	65...150
Pipe connection		External thread (ISO 228) Flange PN16 (ISO 7005)		•	•	•	•
Flow characteristic		A-AB equal-percentage (to VDI/VDE 2173) N(ep)=3 B-AB linear		•	•	•	•
Temperature of medium		5...120°C (-10°C with stem heating on request) 5...150°C		•	•	•	•
Leakage rate		Control pass <0.05%Kvs Bypass <1%Kvs		•	•	•	•
Areas of application		Cold and warm water Steam and hot water Closed water circuit With max. 50% volume of glycol Open water circuit (ph >7)		•	•	•	•
Material Housing		Red casting brass Rg5 Cast iron GG25		•	•	•	•
Valve cone/valve stem		Stainless steel/stainless steel		•	•	•	•
Valve seat/bypass seat		Red casting brass Rg5/stainless steel Cast iron GG25/stainless steel Stainless steel/Stainless steel		•	•	•	•
Stem gland seal		EPDM O-ring PTFE V-ring		•	•	•	•
Rated pressure [kPa]		1600	1600	1600	1600	1600	1600

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## Unions, flanges

### Pipe connect or for H4/5..B Globe Valve accessory



DN	G	Rp	Type	Material
15	G1 <sup>1</sup> / <sub>8</sub> "	1/2"	ZH4515	Mall.cast iron, galv.
20	G1 <sup>1</sup> / <sub>4</sub> "	3/4"	ZH4520	Mall.cast iron, galv.
25	G1 <sup>1</sup> / <sub>2</sub> "	1"	ZH4525	Mall.cast iron, galv.
32	G2"1	1/4"	ZH4532	Mall.cast iron, galv.
40	G2 <sup>1</sup> / <sub>4</sub> "1	1/2"	ZH4540	Mall.cast iron, galv.
50	G2 <sup>3</sup> / <sub>4</sub> "2"		ZH4550	Mall.cast iron, galv.

Included in delivery of ZR45...: female fitting, union nut, flat gasket.

### Blind screw fitting for H5..B Globe Valve accessory (for sealing the bypass)



DN	G	Type	Material
15	G1 <sup>1</sup> / <sub>8</sub> "	ZH515	Mall.cast iron, galv.
20	G1 <sup>1</sup> / <sub>4</sub> "	ZH520	Mall.cast iron, galv.
25	G1 <sup>1</sup> / <sub>2</sub> "	ZH525	Mall.cast iron, galv.
32	G2"	ZH532	Mall.cast iron, galv.
40	G2 <sup>1</sup> / <sub>4</sub> "	ZH540	Mall.cast iron, galv.
50	G2 <sup>3</sup> / <sub>4</sub> "	ZH550	Mall.cast iron, galv.

Included in delivery of ZH5...: blind flange, union nut, flat gasket.

### Blind flange for H7..N Globe Valve accessory (for sealing the bypass)



DN	Type	Material
15	ZH715	Blind flange, coated
20	ZH720	Blind flange, coated
25	ZH725	Blind flange, coated
32	ZH732	Blind flange, coated
40	ZH740	Blind flange, coated
50	ZH750	Blind flange, coated
65	ZH765	Blind flange, coated
80	ZH780	Blind flange, coated
100	ZH7100	Blind flange, coated

Included in delivery of ZH7...: blind flange, flat gasket, hexagon screws, nut.