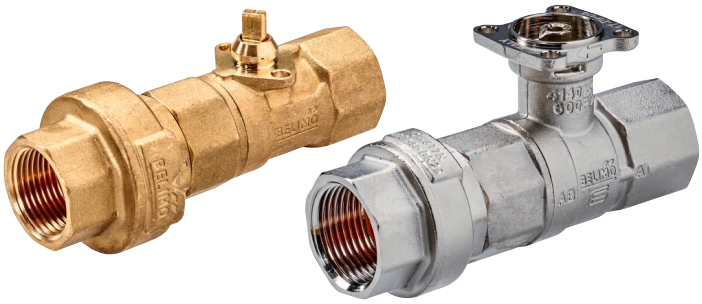
BELIMO

Technical data sheet C2..QFL-.. / R2..FL-..

Pressure Independent Flow limiting valve, 2-way, Internal thread

- For closed cold water systems
- For water-side on/off control of fan coil and cooling ceilings



Type overview

Type	DN	Rp ["]	V'nom [l/s]	V'nom [l/h]	V'nom [m³/h]	PN
C215QFL-C	15	1/2	0.08	290	0.29	25
C215QFL-D	15	1/2	0.13	470	0.47	25
C215QFL-E	15	1/2	0.18	650	0.65	25
C215QFL-F0	15	1/2	0.26	940	0.94	25
C215QFL-F	15	1/2	0.36	1300	1.3	25
C220QFL-F6	20	3/4	0.33	1200	1.2	25
C220QFL-G0	20	3/4	0.42	1500	1.5	25
C220QFL-G	20	3/4	0.52	1900	1.9	25
C220QFL-H0	20	3/4	0.65	2350	2.35	25
C220QFL-H	20	3/4	0.81	2900	2.9	25
R225FL-J	25	1	1.00	3600	3.6	25

Technical data

Functional data	Fluid	Cold water
	Fluid temperature	36...140°F [2...60°C]
	Differential pressure	20...280 kPa
	Close-off pressure Δps	520 kPa
	Differential pressure note	50 kPa for low-noise operation
	Pressure stability	±5% (with a pressure value of 100...280 kPa)
	Leakage rate	0% leakage, leakage rate A (EN 12266-1)
	Flow setting	See installation instruction
	Angle of rotation	90°
	Pipe connection	internal thread according to ISO 7-1
	Installation position	upright to horizontal (in relation to the stem)
	Servicing	maintenance-free
Materials	Valve body	Brass (DN 15, 20) Nickel-plated brass body (DN 25)
	Valve plug	Chrome-plated brass
	Stem	brass (DN 15, 20) nickel-plated brass (DN 25)
	Stem seal	EPDM O-ring
	Seat	PTFE, O-Ring EPDM
Terms	Abbreviations	V'nom = nominal flow with valve completely opened

Safety notes

- The valve has been designed for use in stationary heating, ventilation and air-conditioning systems and must not be used outside the specified field of application, especially in aircraft or in any other airborne means of transport.
- Only authorized specialists may carry out installation. All applicable legal or institutional installation regulations must be complied during installation.
- The valve does not contain any parts that can be replaced or repaired by the user.
- When back flushing the valve, the differential pressure should not exceed 150 kPa.
- The valve may not be disposed of as household refuse. All locally valid regulations and requirements must be observed.
- When determining the flow rate characteristic of controlled devices, the recognised directives must be observed.

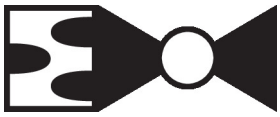
Product features

Mode of operation

The open/close ball valve is adjusted by a rotary actuator. The actuator is connected by an open/close signal. The ball valve opens counterclockwise and closes clockwise.

Constant flow volume

With a differential pressure of 20...280 kPa, a constant flow volume is achieved thanks to the integrated flow limiter. Even with pressure variations, the flow rate remains constant when open to an angle of 90° and ensures a steady control.



Accessories

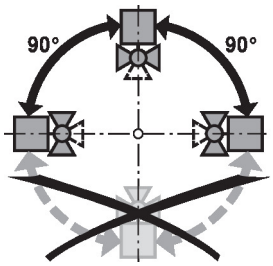
Mechanical accessories

Description	Type
Stem extension CQ	ZCQ-E
Pipe connector for ball valve DN 15	ZR2315
Pipe connector for ball valve DN 20	ZR2320
Pipe connector for ball valve DN 25	ZR2325

Installation notes

Recommended installation positions

The ball valve can be installed upright to horizontal. The ball valve may not be installed in a hanging position, i.e. with the stem pointing downwards.



Installation in return

Installation in the return is recommended.

Water quality requirements

The water quality requirements specified in VDI 2035 must be adhered to.

Belimo valves are regulating devices. For the valves to function correctly in the long term, they must be kept free from particle debris (e.g. welding beads during installation work). The installation of a suitable strainer is recommended.

Servicing

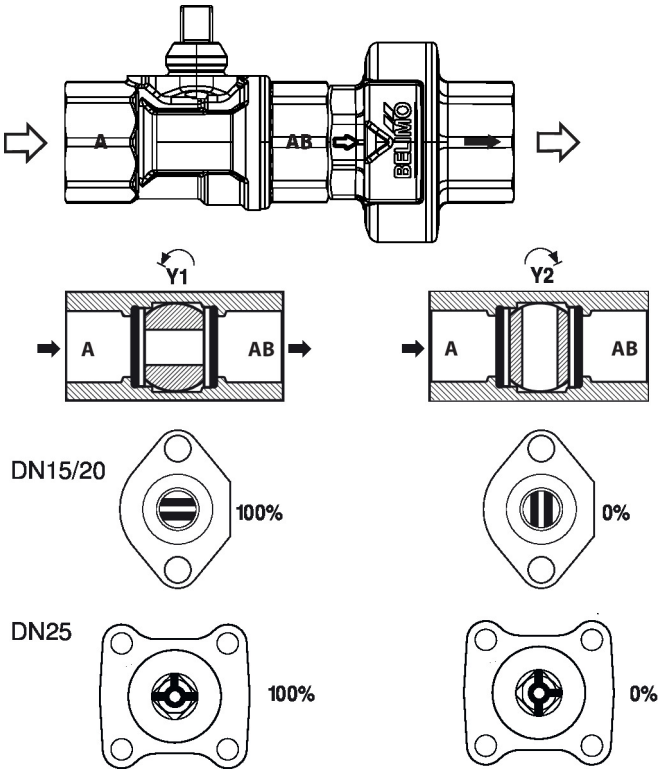
Ball valves and rotary actuators are maintenance-free.

Before any service work on the control element is carried out, it is essential to isolate the rotary actuator from the power supply (by unplugging the electrical cable if necessary). Any pumps in the part of the piping system concerned must also be switched off and the appropriate slide valves closed (allow all components to cool down first if necessary and always reduce the system pressure to ambient pressure level).

The system must not be returned to service until the ball valve and the rotary actuator have been correctly reassembled in accordance with the instructions and the pipeline has been refilled by professionally trained personnel.

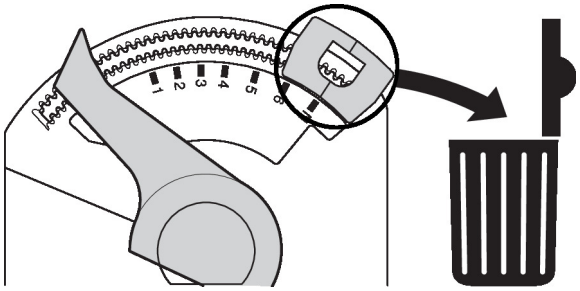
Flow direction

The direction of flow, specified by an arrow on the housing, is to be complied with, since otherwise the ball valve could become damaged. Please ensure that the ball is in the correct position (marking on the stem).



Flow setting

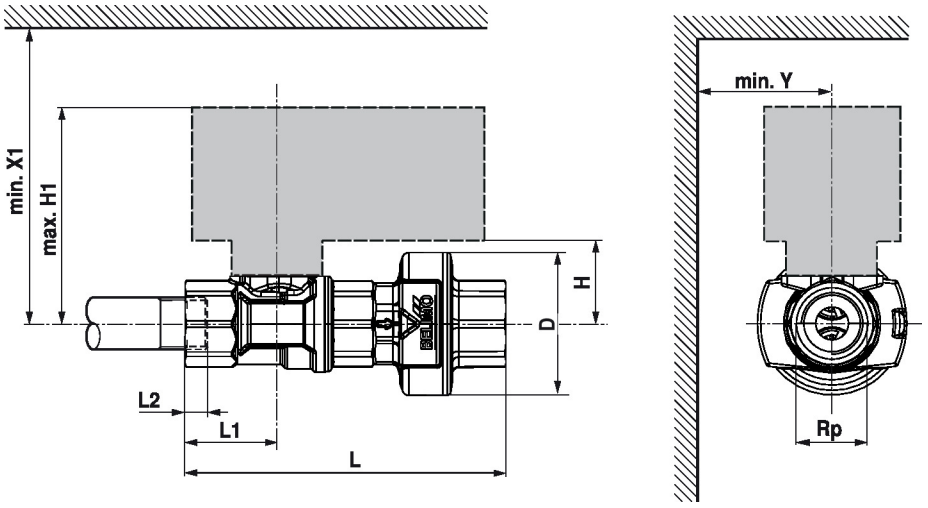
At the CQ-actuator the end stop clip has to be removed. This in order to get the angle of rotation of 90°, which is needed for the open/close functionality.



Remove end stop clip

Dimensions

Dimensional drawings

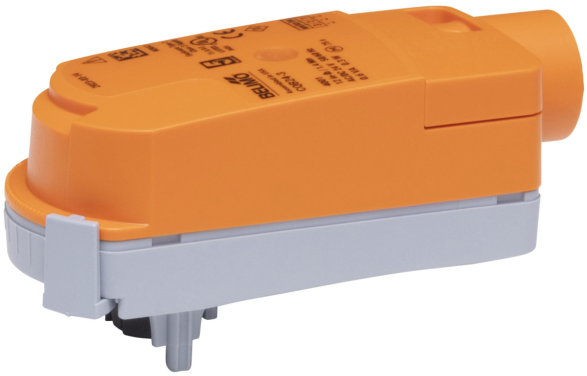


L2: Maximum screwing depth.

Type	DN	Rp [“]	L [mm]	L1 [mm]	L2 [mm]	H [mm]	H1 [mm]	D [mm]	X1 [mm]	Y [mm]	kg
C215QFL-C	15	1/2	100	29	13	24.5	69	44	110	35	0.34
C215QFL-D	15	1/2	100	29	13	24.5	69	44	110	35	0.34
C215QFL-E	15	1/2	100	29	13	24.5	69	44	110	35	0.34
C215QFL-F0	15	1/2	100	29	13	24.5	69	44	110	35	0.34
C215QFL-F	15	1/2	100	29	13	24.5	69	44	110	35	0.34
C220QFL-F6	20	3/4	111	35	14	26.5	71	46	110	35	0.45
C220QFL-G0	20	3/4	111	35	14	26.5	71	46	110	35	0.45
C220QFL-G	20	3/4	111	35	14	26.5	71	46	110	35	0.45
C220QFL-H0	20	3/4	111	35	14	26.5	71	46	110	35	0.45
C220QFL-H	20	3/4	111	35	14	26.5	71	46	110	35	0.45
R225FL-J	25	1	128	44	16	46	130	49	200	75	0.76

On/Off, Floating point, Non fail-safe, 24 V

- Nominal voltage AC/DC 24 V
- Control On/Off, Floating point



5-year warranty

Technical data

Electrical data	Nominal voltage	AC/DC 24 V
	Nominal voltage frequency	50/60 Hz
	Nominal voltage range	AC 19.2...28.8 V / DC 21.6...28.8 V
	Power consumption in operation	0.3 W
	Power consumption in rest position	0.2 W
	Transformer sizing	0.6 VA
	Electrical Connection	18 GA plenum cable, 3 ft [1 m], with 1/2" NPT conduit connector
	Overload Protection	electronic thoughout 0...90° rotation
	Electrical Protection	actuators are double insulated
Functional data	Angle of rotation	90°
	Angle of rotation note	adjustable with mechanical stop
	Running Time (Motor)	75 s / 90°
	Noise level, motor	35 dB(A)
	Position indication	pointer
Safety data	Power source UL	Class 2 Supply
	Degree of protection IEC/EN	IP40
	Degree of protection NEMA/UL	NEMA 2
	Enclosure	UL Enclosure Type 2
	Agency Listing	cULus acc. to UL60730-1A/-2-14, CAN/CSA E60730-1:02 CE acc. to 2014/30/EU and 2014/35/EU
	Quality Standard	ISO 9001
	UL 2043 Compliant	Suitable for use in air plenums per Section 300.22(C) of the NEC and Section 602 of the IMC
	Ambient humidity	Max. 95% RH, non-condensing
	Ambient temperature	35...104°F [2...40°C]
	Storage temperature	-40...176°F [-40...80°C]
	Servicing	maintenance-free
Weight	Weight	0.57 lb [0.26 kg]

Technical data

Materials	Housing material	UL94-5VA

Product features

Application

Non-Fail Safe On/Off/Floating Point ZoneTight actuator.

Valve selection should be done in accordance with the flow parameters and system specifications.

The actuator is mounted directly to the valve without the need for tools or additional linkage.

The actuator operates in response to AC/DC 24 V. Angle of rotation is adjustable with the integrated mechanical stop.

Accessories

Mechanical accessories	Description	Type
	Housing cover CQ for Belimo ZoneTight™, Color: white (RAL 9010)	ZCQB-W

Electrical installation

INSTALLATION NOTES

(A) Actuators with appliance cables are numbered.

(2) Actuators may be connected in parallel. Power consumption and input impedance must be observed.

(3) Actuators may also be powered by DC 24 V.

(18) Actuators with plenum cable do not have numbers; use color codes instead.

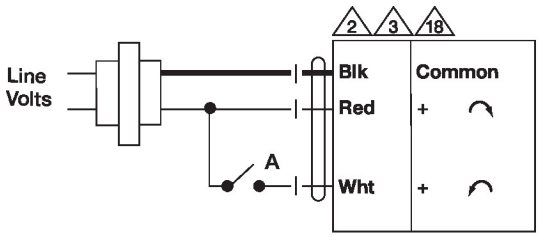
Meets cULus requirements without the need of an electrical ground connection.

(!) **Warning! Live electrical components!**

During installation, testing, servicing and troubleshooting of this product, it may be necessary to work with live electrical components. Have a qualified licensed electrician or other individual who has been properly trained in handling live electrical components perform these tasks. Failure to follow all electrical safety precautions when exposed to live electrical components could result in death or serious injury.

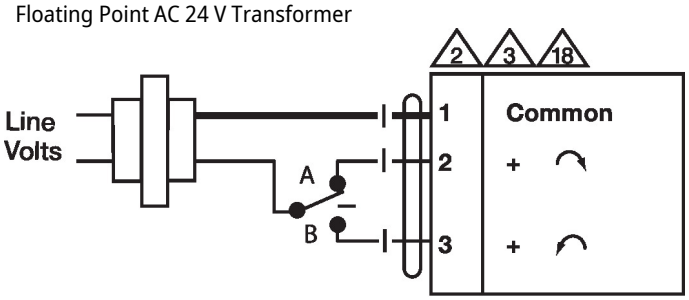
Wiring diagrams

On/Off AC 24 V / DC 24 V AC 24 V Transformer



Functions	A	
100%		
0%		

Floating Point AC 24 V Transformer



Functions	A	B	
0%			
100%			