



**2019**

Characterized Control Valve Product Range



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**BELIMO**<sup>®</sup>

# Control Valve Product Range

## Characterized Control Valve

C <sub>v</sub>	Valve Nominal Size		Type		Suitable Actuators						
	Inches	DN [mm]	2-way NPT	3-way NPT	Non Fail-Safe	NEMA 4X	Fail-Safe	NEMA 4X	Internet Protocol		
0.3	½	15	B207(B)	B307(B)	TR Series	LR Series	NR Series	LF Series	LR...-IP		
0.46	½	15	B208(B)	B308(B)							
0.8	½	15	B209(B)	B309(B)							
1.2	½	15	B210(B)	B310(B)							
1.9	½	15	B211(B)	B311(B)							
3	½	15	B212(B)	B312(B)							
4.7	½	15	B213(B)	B313(B)							
7.4	½	15	B214(B)								
10	½	15	B215(B)	B315(B)							
16	½	15	B216(B)*	B316(B)*							
4.7	¾	20	B217(B)	B317(B)	AR Series	AR Series	AFR Series	AFR Series	AR...-IP	AKR...-IP	AFR...-IP
7.4	¾	20	B218(B)	B318(B)							
10	¾	20	B219(B)								
14	¾	20	B220(B)*								
14	¾	20		B320(B)							
24	¾	20	B221(B)*	B321(B)*							
7.4	1	25	B222	B322							
10	1	25	B223	B323							
19	1	25	B224								
30	1	25	B225*	B325*							
10	1¼	32	B229		NEW						
19	1¼	32	B230*								
10	1¼	32		B329							
19	1¼	32		B330							
25	1¼	32	B231	B331							
37	1¼	32	B232*								
19	1½	40	B238	B338							
29	1½	40	B239	B339							
37	1½	40	B240*	B340							
46	1½	40		B341							
29	2	50	B248	B347							
37	2	50		B348							
46	2	50	B249	B349							
57	2	50	B250*	B350							
65	2	50	B251								
68	2	50		B351							
83	2	50		B352							
85	2	50	B252								
120	2	50	B253								
240	2	50	B254*								

\* Models without characterizing discs. plated brass stem

(B) Models with chrome plated brass ball and nickel



### Mode of Operation

The Characterized Control Valve is operated by a rotary actuator. The actuators are controlled by a standard voltage for on/off control, a modulating signal, or floating point control system which move the ball of the valve to the position dictated by the control system.

### Product Features

The equal-percentage characteristic of the flow is ensured by the integral characterizing disc. This characteristic provides linear heating or cooling output from the coil improving energy efficiency and comfort.

### Actuator Specifications

Control type	on/off, floating point, 2-10 VDC, multi-function technology (MFT)
Manual override	TR, LR, AR, NR, AFR series
Electrical connection	3 ft. [1 m] cable with ½" conduit fitting or covered screw terminal strip

### Valve Specifications


Service	chilled or hot water, up to 60% glycol
Flow characteristic	A-port equal percentage B-port modified for constant common port flow
Controllable flow range	75°
Sizes	½", ¾", 1", 1¼", 1½", 2"
End fitting	NPT female
Materials	
Body	forged brass, nickel plated
Ball	stainless steel or chrome plated brass
Stem	stainless steel or nickel plated brass
Seats	Teflon® PTFE
Seat O-rings	EPDM
Characterizing disc	
½"- 1 ½" (2-way)	Tefzel®
½"-1" (3-way)	Tefzel®
2" (2-way) B248-B249	Tefzel®
2" (2-way) B251-B253	stainless steel
1¼"- 2" (3-way)	stainless steel
Stem O-rings	EPDM
Media temp. range	0°F to 250°F [-18°C to +120°C]
Body pressure rating	
2-way	
All ½", ¾", and 1"	600 psi
1¼" up to B230	600 psi
1¼" from B231	400 psi
1½" - 2"	400 psi
3-way	
All ½", ¾", and 1"	600 psi
1¼"- 2"	400 psi
Close-off pressure	200 psi
Maximum differential pressure (ΔP)	50 psi
Leakage	0% for A to AB < 2.0% for B to AB
Cv rating	B port: 70% of A to AB Cv

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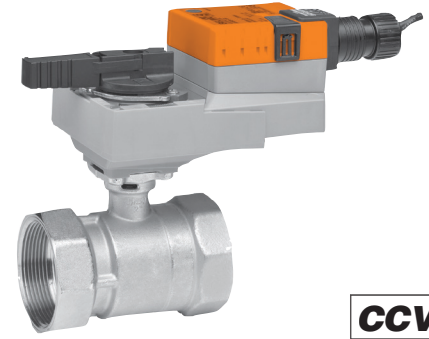
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# Control Valve Product Range

## Characterized Control Valve

C <sub>v</sub>	Valve Nominal Size		Type	Suitable Actuators						
	Inches	DN [mm]		2-way NPT	Non Fail-Safe	NEMA 4X	Fail-Safe	NEMA 4X	Internet Protocol	
60	2½	65	B261	AR Series	AR Series	AFR Series	AFR Series	AR...-IP	AKR...-IP	AFR...-IP
75	2½	65	B262							
110	2½	65	B263							
150	2½	65	B264							
210	2½	65	B265*							
70	3	80	B277							
130	3	80	B278	NEW 						
170	3	80	B280*							

\* Models without characterizing disc



### Mode of Operation

The Characterized Control Valve is operated by a rotary actuator. The actuators are controlled by a standard voltage for on/off control, a modulating signal, or floating point control system which move the ball of the valve to the position dictated by the control system.

### Product Features

The equal-percentage characteristic of the flow is ensured by the integral characterizing disc. This characteristic provides linear heating or cooling output from the coil improving energy efficiency and comfort.

### Actuator Specifications

Control type	on/off, floating point, 2-10 VDC, multi-function technology (MFT)
Manual override	AR and AFR series
Electrical connection	3 ft. [1 m] cable with ½" conduit fitting or covered screw terminal strip


### Valve Specifications

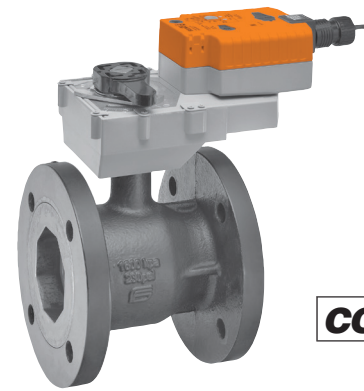
Service	chilled or hot water, up to 60% glycol
Flow characteristic	A-port equal percentage
Controllable flow range	75°
Sizes	2½", 3"
End fitting	NPT female
Materials	
Body	forged brass, nickel plated
Ball	stainless steel
Stem	stainless steel
Seats	Teflon® PTFE
Seat o-rings	EPDM
Characterizing disc	Tefzel®
Stem o-rings	EPDM
Media temp. range	0°F to 212°F [-18°C to +100°C]
Body pressure rating	400 psi
Close-off pressure	100 psi
Maximum differential pressure (ΔP)	30 psi
Leakage	0% for A to AB

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# Control Valve Product Range

## Characterized Control Valve

C <sub>v</sub>	Valve Nominal Size		2-way Flanged		Suitable Actuators						
	Inches	DN [mm]	ANSI 125	ANSI 250	Non Fail-Safe	NEMA 4X	Fail-Safe	NEMA 4X	Internet Protocol		
70	2½	65	B6250S-070	B6250S-070-250							
110	2½	65	B6250S-110	B6250S-110-250	AR	AR	AFR	AFR	AR...IP	AFR...IP	AKR...IP
110	3	80	B6300S-110	B6300S-110-250							
186	4	100	B6400S-186	B6400S-186-250							
290	5	125	B6500S-290	B6500S-290-250	GR		GKR	GR / GKR			
400	6	150	B6600S-400	B6600S-400-250							
				NEW		NEW 					



### Mode of Operation

The Characterized Control Valve is operated by a rotary actuator. The actuators are controlled by a standard voltage for on/off control, a modulating signal, or floating point control system which move the ball of the valve to the position dictated by the control system.

### Product Features

The equal-percentage characteristic of the flow is ensured by the integral characterizing disc. This characteristic provides linear heating or cooling output from the coil improving energy efficiency and comfort.

### Actuator Specifications

Control type	on/off, floating point, 2-10 VDC, multi-function technology (MFT)
Manual override	AR, GR, AFR and GKR series
Electrical connection	3 ft. [1 m] cable with ½" conduit fitting or covered screw terminal strip

### Valve Specifications

Service	chilled or hot water, up to 60% glycol max.
Flow characteristic	A-port equal percentage
Controllable flow range	75°
Sizes	2½", 3", 4", 5", 6"
End fitting	ANSI Class 125 flange, flat face* ANSI 250
Materials	
Body	cast iron GG25
Ball	stainless steel
Stem	stainless steel
Seats	Teflon® PTFE
Seat o-rings	EPDM rubber
Characterizing disc	stainless steel
Stem o-rings	EPDM
Media temp. range	0°F to 250°F [-18°C to +120°C]
Body pressure rating	ANSI 125 Class B, ANSI 250
Close-off pressure	100 psi
Maximum differential pressure (ΔP)	50 psi
Leakage	0% for A to AB

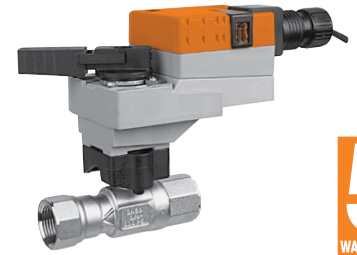
\*125 psi flanges have a plain flat face and should not be bolted to a raised face flange.

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# Control Valve Product Range

## High Temperature Characterized Control Valve

C <sub>v</sub>	Valve Nominal Size		Type	Suitable Actuators	
	Inches	DN [mm]		Non Fail-Safe	Fail-Safe
0.29	½	15	B215HT029	TR Series	TFR Series
0.46	½	15	B215HT046		
0.73	½	15	B215HT073		
1.16	½	15	B215HT116		
1.86	½	15	B215HT186		
2.90	½	15	B215HT290		
4.55	½	15	B215HT455	LR Series	LF Series
1.86	¾	20	B220HT186		
2.90	¾	20	B220HT290		
4.64	¾	20	B220HT464		
7.31	¾	20	B220HT731		
9.28	¾	20	B220HT928		
13.20	¾	20	B220HT1320		
4.64	1	25	B225HT464		
7.31	1	25	B225HT731		
11.60	1	25	B225HT1160		
18.56	1	25	B225HT1856		
28.00	1	25	B225HT2800		



### Mode of Operation

The control valve is operated by an electronic actuator that responds to a standard voltage for on/off, modulating or 3-point control system. The actuator will then move the ball of the valve to the position dictated by the control signal or voltage and change the flow.

### Product Features

Equal-percentage flow characteristic.

### Actuator Specifications

Control type	on/off, floating point, 2-10 VDC multi-function technology (MFT)
Manual override	only TR, LR series
Electrical connection	3 ft. [1 m] cable with ½" conduit fitting or covered screw terminal strip

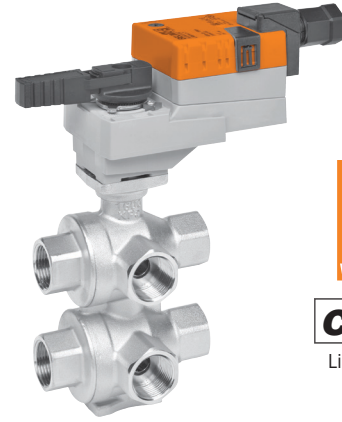
### Valve Specifications

Service	hot water, up to 60% glycol, steam
Flow characteristic	A-port equal percentage
Controllable flow range	75°
Sizes	½", ¾", 1"
End fitting	NPT female
Materials	
Body	brass (DZR) P-CuZn35Pb2
Ball	stainless steel
Stem	stainless steel
Seat	ETFE
Stem packing	Viton®
Characterizing disc	ETFE
Seat o-rings	EPDM
Body pressure rating	600 psi
Media temperature range	
Steam	250°F [120°C]
Water	60°F to 266°F [16°C to 130°C]
Close-off pressure	200 psi
Maximum differential pressure (ΔP)	
Steam	15 psi
Water	60 psi partially open ball 116 psi full open only (Model #B215HT455)
Maximum inlet pressure	
Steam	15 psi
Leakage	0%

# Control Valve Product Range

## 6-Way Characterized Control Valve

Sequence 1 C <sub>v</sub>	Sequence 2 C <sub>v</sub>	Valve Nominal Size		Type	Suitable Actuators
		Inches	DN [mm]	6-way NPT	Non Fail-Safe
0.29	0.29	½	15	B315-029-029	LRB24-SR LRX24-MFT
0.29	0.46	½	15	B315-029-046	
0.29	0.73	½	15	B315-029-073	
0.29	1.16	½	15	B315-029-116	
0.29	1.50	½	15	B315-029-150	
0.46	0.29	½	15	B315-046-029	
0.46	0.46	½	15	B315-046-046	
0.46	0.73	½	15	B315-046-073	
0.46	1.16	½	15	B315-046-116	
0.46	1.50	½	15	B315-046-150	
0.73	0.29	½	15	B315-073-029	
0.73	0.46	½	15	B315-073-046	
0.73	0.73	½	15	B315-073-073	
0.73	1.16	½	15	B315-073-116	
0.73	1.50	½	15	B315-073-150	
1.16	0.29	½	15	B315-116-029	
1.16	0.46	½	15	B315-116-046	
1.16	0.73	½	15	B315-116-073	
1.16	1.16	½	15	B315-116-116	
1.16	1.50	½	15	B315-116-150	
1.50	0.29	½	15	B315-150-029	
1.50	0.46	½	15	B315-150-046	
1.50	0.73	½	15	B315-150-073	
1.50	1.16	½	15	B315-150-116	
1.50	1.50	½	15	B315-150-150	
1.75	2.0	½	15	B315-175-200	
2.0	1.75	½	15	B315-200-175	
2.0	2.0	½	15	B315-200-200	
0.73	0.73	¾	20	B320-073-073	
0.73	1.16	¾	20	B320-073-116	
0.73	1.86	¾	20	B320-073-186	
0.73	2.9	¾	20	B320-073-290	
1.16	0.73	¾	20	B320-116-073	
1.16	1.16	¾	20	B320-116-116	
1.16	1.86	¾	20	B320-116-186	
1.16	2.9	¾	20	B320-116-290	
1.86	0.73	¾	20	B320-186-073	
1.86	1.16	¾	20	B320-186-116	
1.86	1.86	¾	20	B320-186-186	
1.86	2.9	¾	20	B320-186-290	
2.9	0.73	¾	20	B320-290-073	
2.9	1.16	¾	20	B320-290-116	
2.9	1.86	¾	20	B320-290-186	
2.9	2.9	¾	20	B320-290-290	
2.9	4.0	¾	20	B320-290-400	
2.9	4.7	¾	20	B320-290-470	
4.0	2.9	¾	20	B320-400-290	
4.0	4.0	¾	20	B320-400-400	
4.0	4.7	¾	20	B320-400-470	
4.9	2.9	¾	20	B320-490-290	
4.9	4.0	¾	20	B320-490-400	
4.9	4.7	¾	20	B320-490-470	
7.4	7	1	25	B325-740-700	



Linear Characteristic

### Mode of Operation

The control valve is operated by an electronic actuator that responds to a modulating VDC/4...20 mA control signal. The actuator will then move the ball of the valve to the position dictated by the control signal thus changing the flow.

### Product Features

Linear characteristic, complete close-off resulting in 0% leakage.

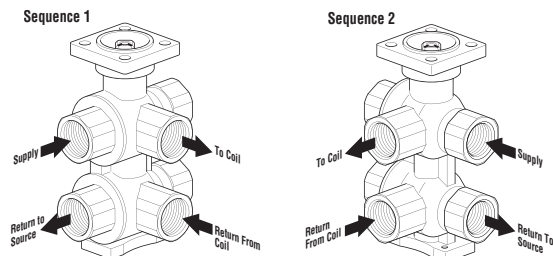
### Actuator Specifications

Control type	2-10 VDC multi-function technology (MFT)
Manual override	LR... ½" and ¾" NR... 1"
Electrical connection	3 ft. [1 m] cable with ½" conduit fitting

### Valve Specifications

Service	chilled or hot water, 60% glycol
Flow characteristic	linear
Controllable flow range	
Sequence 1	(0 to 30° angle) Dead zone 30° to 60°
Sequence 2	(60° to 90° angle)
Sizes	½", ¾", 1"
End fitting	NPT female
Materials	
Body	nickel plated brass
Ball	chrome plated brass
Stem	nickel plated brass
Seats	Teflon® PTFE
Seat O-rings	EPDM
Characterizing disc	chrome plated steel
Stem O-rings	EPDM
Media temperature range	43°F to 180°F [6°C to 82°C]
Body pressure rating	232 psi
Close-off pressure	50 psi
Maximum differential pressure (ΔP)	15 psi
Leakage	0%

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