

MODEL CB800

Circuit Balancing Valves

Model CB800 Circuit Balancing Valves are designed to achieve accurate and efficient balancing of hydronic heating or cooling systems. Circuit Balancing Valves provide superior accuracy in measuring flows rather than ball type circuit setters.

The CB800 valve serves 5 functions:

- Throttling
- Measuring differential pressure
- Draining
- Filling
- Positive shutoff

These valves are rated at 300 psi (20.7 bar) at 300°F (150°C).

The valve is made of dezincification-resistant brass and bronze components. Threaded and solder connections are available for sizes 1/2" – 2" (15mm – 50mm) sizes with bronze bodies. Flanged (125#) and grooved connections are available for sizes 2 1/2" – 12" (65mm – 300mm) with cast iron bodies.

The Y-Pattern style provides low pressure drop. The globe style valve allows for precise throttling. The easy-to-adjust digital/vernier handwheel provides a minimum of 70 unique handwheel positions. The handwheel and test ports are located on one side for easy access. A built-in memory stop ensures the setting can be returned to a balanced position after shutoff. The self-sealing pressure/temperature test ports use standard insertion probes to eliminate additional components.

The Gruvlok Circuit Balancing Valve is installed with flow in the direction of the arrow, and may be in the horizontal or vertical position. The handwheel can be positioned up or down, or on either side.

MAXIMUM WORKING PRESSURE:

- 300 psi (20.7 bar) Grooved Connection
- 235 psi (16.0 bar) Flanged, NPT, Solder Connection

MATERIAL SPECIFICATIONS

BODY:

- 1/2" – 2" (15mm – 50mm) solder or NPT threaded connection: Dezincification resistant brass
- 2 1/2" – 12" (65mm – 300mm), grooved or flanged connection: Cast Iron

STEM: Dezincification resistant brass

VALVE DISC:

- 1/2" – 2" (15mm – 50mm) Dezincification resistant brass
- 2 1/2" – 12" (65mm – 300mm) Bronze

O-RING: EPDM

HANDWHEEL: Thermoplastic

For accessories and replacement parts contact an Anvil Sales Representative for details.

VALVE SIZING

All balancing valves are sized to perform in a normal operation range between 25% and 100% of the full open position, at a minimum differential pressure between 1 – 3 ft. (0.3m – 0.9m) of water. It is recommended that for improved accuracy, the valve is set to open 70%+.

When maximum flow is known but a pressure drop through the balancing valve is unknown, select a balancing valve for a maximum pressure drop of 2 ft. (0.6m) water 0.8 psi (0.06 bar) in the full open position as shown in the table to the right.

Accurate flow measurement requires that the velocity distribution near the balancing valve remains constant, regardless of the total flow through the pipe. Fittings, such as elbows and tees, disturb the normal flow profile which is established through straight pipe. Pumps create even greater disturbances. Failure to allow water flows around fittings and pumps to normalize can affect measuring accuracy by as much as 20% when the valve is in the fully open position. Minimum lengths (diameters, D) of straight pipe before and after the balancing valve prevent these errors.

Valves are designed for vertical, horizontal, or inclined installation.



CB800 CIRCUIT BALANCING VALVES

Valve Size	Flow Rate	Connection Type
In./mm	GPM/LPM	–
1/2	2.6 - 4.2	Thread
15	0.687 - 1.110	
3/4	3.4 - 6.2	
20	0.898 - 1.638	
1	6.2 - 9.6	
25	1.638 - 2.536	
1 1/4	9.4 - 21.0	Flanged or Grooved
32	2.483 - 5.548	
1 1/2	15 - 30	
40	3.96 - 7.93	
2	22 - 42	
50	5.812 - 11.096	
2 1/2	39 - 106	
65	10.30 - 28.01	
76.1mm	39 - 106	
65	10.30 - 28.01	
3	60 - 132	
80	15.85 - 34.87	
4	100 - 217	Flanged or Grooved
100	26.42 - 57.33	
139.7mm	112 - 317	
125	29.59 - 83.75	
5	112 - 317	
125	29.59 - 83.75	
165.1mm	220 - 437	
150	58.12 - 115.46	
6	220 - 437	Flanged or Grooved
150	58.12 - 115.46	
8	223 - 881	
200	58.92 - 232.76	
10	292 - 1298	
250	77.15 - 342.93	
12	616 - 1731	Flanged or Grooved
300	162.75 - 457.33	

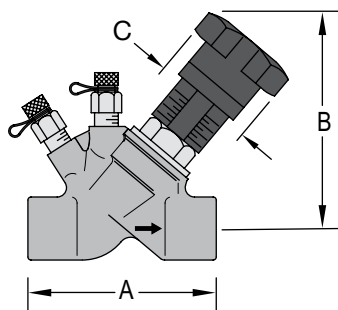
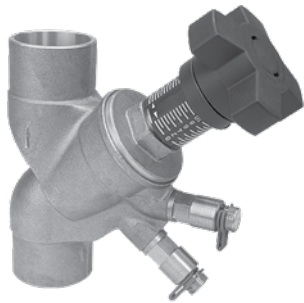
PROJECT INFORMATION

APPROVAL STAMP

Project:	☐ Approved
Address:	☐ Approved as noted
Contractor:	☐ Not approved
Engineer:	Remarks:
Submittal Date:	
Notes 1:	
Notes 2:	

MODEL CB800

Circuit Balancing Valves – Solder Ends



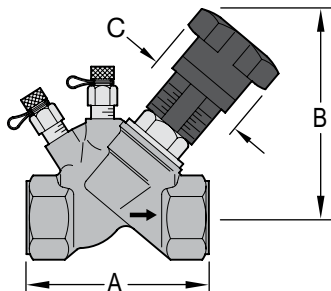
The Model CB800 Balancing Valve provides features for achieving accurate and efficient balancing of hydronic heating or cooling systems. One valve serves five functions: throttling, measuring (pressure and temperature), positive shutoff, draining and filling. The Gruvlok Solder-by-Solder Model CB800 Valve, available in sizes 1/2" to 2" (15mm to 50mm), is composed of dezincification resistant brass.

CB800 CIRCUIT BALANCING VALVES – SOLDER ENDS							
Valve Size	O.D.	Dimensions			Approx. Wt. Ea.	Limits	Handwheel Turns
		A	B	C			
In./mm	In./mm	In./mm	In./mm	In./mm	Lbs./Kg	PSI/F • PN/C	–
1/2	0.840	3.50	4.50	2.75	1.6	235/300	7
15	21.3	88.9	114.3	70.0	0.7	16/150	
3/4	1.050	3.81	4.56	2.75	1.4	235/300	7
20	26.7	96.8	115.8	70.0	0.6	16/150	
1	1.315	4.31	4.69	2.75	1.8	235/300	7
25	33.7	109.5	119.1	70.0	0.8	16/150	
1 1/4	1.660	5.06	5.38	2.75	3.1	235/300	10
32	42.4	128.5	136.7	70.0	1.4	16/150	
1 1/2	1.900	5.56	5.44	2.75	3.8	235/300	10
40	48.3	141.2	138.2	70.0	1.7	16/150	
2	2.375	6.56	5.81	2.75	5.2	235/300	10
50	60.3	166.6	147.6	70.0	2.4	16/150	

For information on larger sizes, contact an Anvil Sales Representative.
See circuit balancing valve specifications on previous page.

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Circuit Balancing Valves – Threaded Ends



The Model CB800 Balancing Valve provides features for achieving accurate and efficient balancing of hydronic heating or cooling systems. One valve serves five functions: throttling, measuring (pressure and temperature), positive shutoff, draining and filling. The Gruvlok Thread-by-Thread Model CB800 Valve, available in sizes 1/2" to 2" (15mm to 50mm), is composed of dezincification resistant brass.

CB800 CIRCUIT BALANCING VALVES – THREADED ENDS							
Valve Size	O.D.	Dimensions			Approx. Wt. Ea.	Limits	Handwheel Turns
		A	B	C			
In./mm	In./mm	In./mm	In./mm	In./mm	Lbs./Kg	PSI/F • PN/C	–
1/2	0.840	3.13	4.49	2.75	1.6	235/300	7
15	21.3	79.5	114.0	70.0	0.7	16/150	
3/4	1.050	3.31	4.56	2.75	1.8	235/300	7
20	26.7	84.1	115.8	70.0	0.8	16/150	
1	1.315	3.84	4.69	2.75	2.5	235/300	7
25	33.7	97.5	119.1	70.0	1.1	16/150	
1 1/4	1.660	4.38	5.38	2.75	3.0	235/300	10
32	42.4	111.3	136.7	70.0	1.4	16/150	
1 1/2	1.900	4.75	5.44	2.75	4.0	235/300	10
40	48.3	120.7	138.2	70.0	1.8	16/150	
2	2.375	5.94	5.81	2.75	6.0	235/300	10
50	60.3	150.9	147.6	70.0	2.7	16/150	

For information on larger sizes, contact an Anvil Sales Representative.
See circuit balancing valve specifications on previous page.

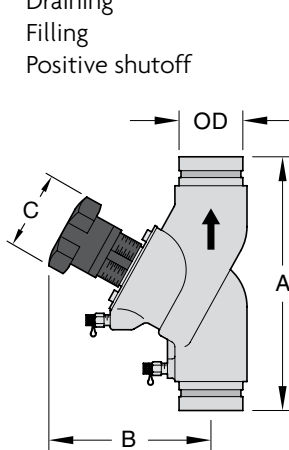
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Circuit Balancing Valves – Grooved Ends

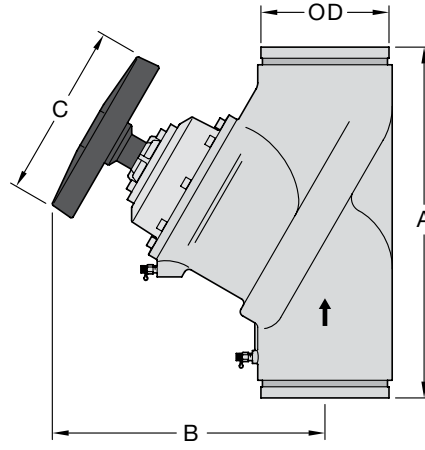
The Model CB800 Balancing Valve provides features for achieving accurate and efficient balancing of hydronic heating or cooling systems. The Gruvlok Groove-by-Groove Model CB800 Valve, available sizes 2½" to 12" (65 to 300mm), is composed of cast iron.

The CB800 valve serves 5 functions:

- Throttling
- Measuring differential pressure
- Draining
- Filling
- Positive shutoff



2½" to 6" (65 to 150mm)



8" to 12" (200 to 300mm)



CB800 CIRCUIT BALANCING VALVES – GROOVED ENDS							
Valve Size	O.D.	Dimensions			Approx. Wt. Ea.	Limits	Handwheel Turns
		A	B	C			
<i>In./mm</i>	<i>In./mm</i>	<i>In./mm</i>	<i>In./mm</i>	<i>In./mm</i>	<i>Lbs./Kg</i>	<i>PSI/F • PN/C</i>	–
2½	2.875	11.44	7.38	4.33	19.7	300/300	8
65	73.0	290.6	187.5	110.0	8.9	20.7/150	
76.1mm	3.000	11.44	7.38	4.33	19.7	300/300	8
65	76.1	290.6	187.5	110.0	8.9	20.7/150	
3	3.500	12.25	8.00	4.33	27.8	300/300	8
80	88.9	311.2	203.2	110.0	12.6	20.7/150	
4	4.500	13.75	9.44	6.30	45.3	300/300	8
100	114.3	349.3	239.8	160.0	20.6	20.7/150	
139.7mm	5.500	15.75	11.13	6.30	70.0	300/300	8
125	139.7	400.0	282.7	160.0	31.8	20.7/150	
5	5.563	15.75	11.13	6.30	70.0	300/300	8
125	141.3	400.0	282.7	160.0	31.8	20.7/150	
165.1mm	6.500	18.88	11.25	6.30	95.7	300/300	8
150	165.1	479.6	285.8	160.0	43.5	20.7/150	
6	6.625	18.88	11.25	6.30	95.7	300/300	8
150	168.3	479.6	285.8	160.0	43.5	20.7/150	
8	8.625	23.63	18.44	11.80	255.2	300/300	12
200	219.1	600.2	468.4	300.0	116.0	20.7/150	
10	10.750	28.75	18.88	11.80	377.3	300/300	12
250	273.1	730.3	479.6	300.0	171.5	20.7/150	
12	12.750	33.44	20.25	11.80	520.3	300/300	12
300	323.9	849.4	514.4	300.0	236.5	20.7/150	

For information on larger sizes, contact an Anvil Sales Representative.
See circuit balancing valve specifications on first page.

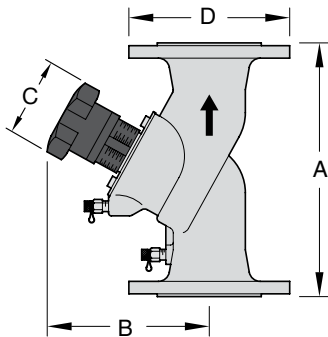
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Circuit Balancing Valves – Flanged Ends, ANSI Class 125#

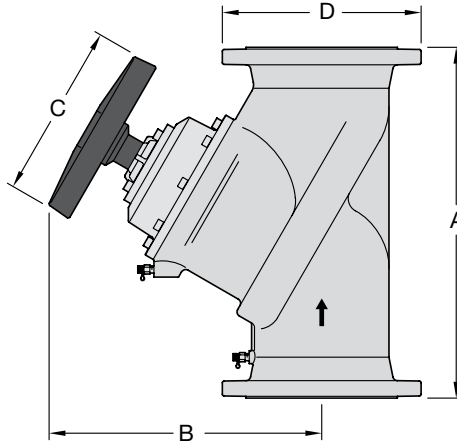
The Model CB800 Balancing Valve provides features for achieving accurate and efficient balancing of hydronic heating or cooling systems. One valve serves five functions: throttling, measuring (pressure and temperature), positive shutoff, draining, and filling. The Gruklok Flange-by-Flange Model CB800 Valve, available in sizes 2½" to 12" (65mm to 300mm), is composed of cast iron.

The CB800 valve serves 5 functions:

- Throttling
- Measuring differential pressure
- Draining
- Filling
- Positive shutoff



2½" to 6" (65 to 150mm)



8" to 12" (200 to 300mm)



CB800 CIRCUIT BALANCING VALVES – FLANGED ENDS, ANSI CLASS 125#

Valve Size	O.D.	Dimensions				Approx. Wt. Ea.	Limits	Handwheel Turns
		A	B	C	D			
<i>In./mm</i>	<i>In./mm</i>	<i>In./mm</i>	<i>In./mm</i>	<i>In./mm</i>	<i>In./mm</i>	<i>Lbs./Kg</i>	<i>PSI/F • PN/C</i>	–
2½	2.875	11.44	7.38	4.33	7.25	31.7	235/300	8
65	73.0	290.6	187.5	110.0	184.2	14.4	16/150	
76.1mm	3.000	11.44	7.38	4.33	7.25	31.7	235/300	8
65	76.1	290.6	187.5	110.0	184.2	14.4	16/150	
3	3.500	12.25	8.00	4.33	7.88	39.8	235/300	8
80	88.9	311.2	203.2	110.0	200.2	18.0	16/150	
4	4.500	13.75	9.50	6.30	8.69	61.3	235/300	8
100	114.3	349.3	241.3	160.0	220.7	27.8	16/150	
139.7mm	5.500	15.75	11.13	6.30	9.88	89.9	235/300	8
125	139.7	400.1	282.7	160.0	250.9	40.9	16/150	
5	5.563	15.75	11.13	6.30	9.88	89.9	235/300	8
125	141.3	400.1	282.7	160.0	250.9	40.9	16/150	
165.1mm	6.500	18.88	11.25	6.30	11.25	113.9	235/300	8
150	165.1	479.6	285.8	160.0	285.8	51.8	16/150	
6	6.625	18.88	11.25	6.30	11.25	113.9	235/300	8
150	168.3	479.6	285.8	160.0	285.8	51.8	16/150	
8	8.625	23.63	18.38	11.80	13.38	361.9	235/300	12
200	219.1	600.2	466.9	300.0	339.9	164.5	16/150	
10	10.750	28.75	18.94	11.80	15.94	431.2	235/300	12
250	273.1	730.3	481.1	300.0	404.9	196.0	16/150	
12	12.750	33.50	20.25	11.80	18.13	581.9	235/300	12
300	323.9	850.9	514.4	300.0	460.5	264.5	16/150	

For information on larger sizes, contact an Anvil Sales Representative.
See circuit balancing valve specifications on first page.

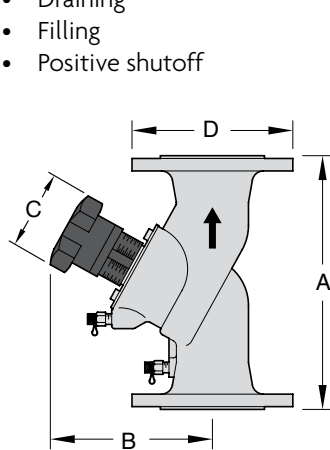
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Circuit Balancing Valves – Flanged Ends, PN16/PN10

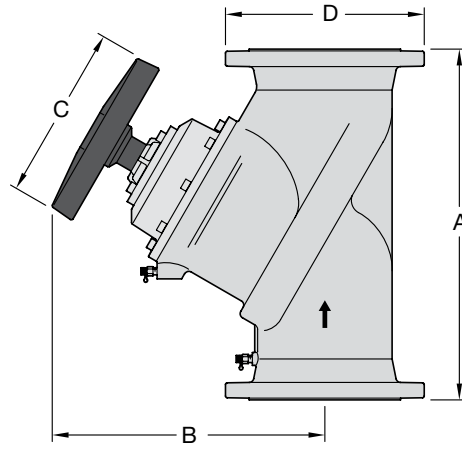
The Model CB800 Balancing Valve provides features for achieving accurate and efficient balancing of hydronic heating or cooling systems. One valve serves five functions: throttling, measuring (pressure and temperature), positive shutoff, draining, and filling. The Gruklok Flange-by-Flange Model CB800 Valve, available in sizes 2½" to 12" (65mm to 300mm), is composed of cast iron.

The CB800 valve serves 5 functions:

- Throttling
- Measuring differential pressure
- Draining
- Filling
- Positive shutoff



2½" to 6" (65 to 150mm)



8" to 12" (200 to 300mm)



CB800 CIRCUIT BALANCING VALVES – FLANGED ENDS, PN16/PN10

Valve Size	O.D.	Dimensions				Approx. Wt. Ea.	Limits	Handwheel Turns
		A	B	C	D			
<i>ln./mm</i>	<i>ln./mm</i>	<i>ln./mm</i>	<i>ln./mm</i>	<i>ln./mm</i>	<i>ln./mm</i>	<i>Lbs./Kg</i>	<i>PSI/F • PN/C</i>	–
2½"	2.875	11.44	7.38	4.33	7.25	31.7	235/300	8
65	73.0	290.6	187.5	110.0	184.2	14.4	16/150	
76.1mm	3.000	11.44	7.38	4.33	7.25	31.7	235/300	8
65	76.1	290.6	187.5	110.0	184.2	14.4	16/150	
3	3.500	12.25	8.00	4.33	7.88	39.8	235/300	8
80	88.9	311.2	203.2	110.0	200.2	18.0	16/150	
4	4.500	13.75	9.50	6.30	8.69	61.3	235/300	8
100	114.3	349.3	241.3	160.0	220.7	27.8	16/150	
139.7mm	5.500	15.75	11.13	6.30	9.88	89.9	235/300	8
125	139.7	400.1	282.7	160.0	250.9	40.9	16/150	
5	5.563	15.75	11.13	6.30	9.88	89.9	235/300	8
125	141.3	400.1	282.7	160.0	250.9	40.9	16/150	
165.1mm	6.500	18.88	11.25	6.30	11.25	113.9	235/300	8
150	165.1	479.6	285.8	160.0	285.8	51.8	16/150	
6	6.625	18.88	11.25	6.30	11.25	113.9	235/300	8
150	168.3	479.6	285.8	160.0	285.8	51.8	16/150	
8	8.625	23.63	18.38	11.80	13.38	361.9	235/300	12
200	219.1	600.2	466.9	300.0	339.9	164.5	16/150	
10	10.750	28.75	18.94	11.80	15.94	431.2	235/300	12
250	273.1	730.3	481.1	300.0	404.9	196.0	16/150	
12	12.750	33.50	20.25	11.80	18.13	581.9	235/300	12
300	323.9	850.9	514.4	300.0	460.5	264.5	16/150	

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