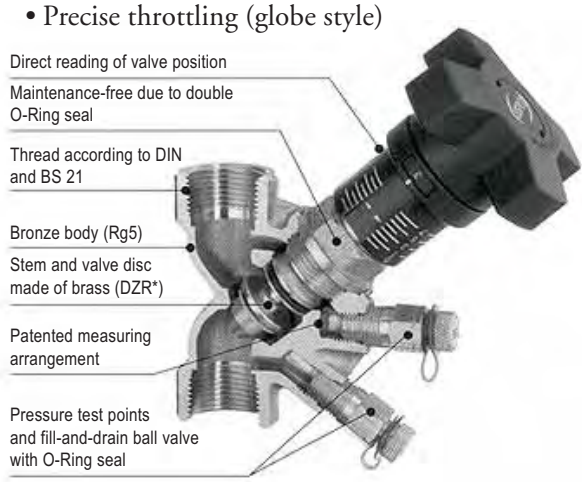
BALANCING VALVES

Each Grinnell® Model CB800 Balancing Valve, as manufactured by Mepco, offers the specifier, installer and owner the features necessary to achieve accurate and efficient balancing of hydronic heating or cooling systems.

Common features include:

- Location of handwheel and test points on the same side for easy access
- Location of test points on one end for even easier access
- Easy to reorient digital/vernier handwheel
- Self-sealing pressure/temperature test points use standard insertion probes to eliminate additional components
- One valve for five functions
  - – throttling – measuring (pressure & temp.)
  - – draining – filling – positive shutoff
- Optional hose connection with ball valve for either test point (drain the pipe you want regardless of whether the valve is in the supply or return piping)
- Low minimum pressure drop (Y-pattern)
- Precise throttling (globe style)



* DZR = de-zincification resistant brass

MATERIAL SPECIFICATIONS

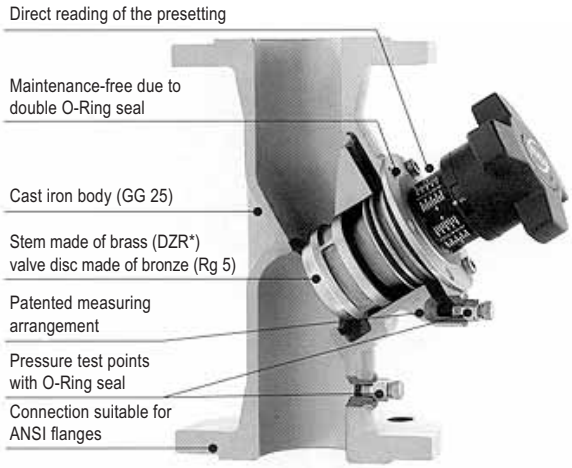
- Sizes 1/2" (DN15) through 2" (DN50), solder or NPT threaded connection - body is bronze
- Sizes 2 1/2" (DN16) through 12" (DN300), grooved or flanged connection is to #125 standards - body is cast iron equivalent to ASME/ANSI B16.5
- All wetted brass parts are alloyed to resist dezincification.
- Dielectric fittings are not required for installation.

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 to 3 ft. water.

- Minimum of 70 unique handwheel positions
- Install valve in the supply or return line - with flow in direction of arrow cast in body
- Install horizontally or vertically
- Install with handwheel up, down or on the side
- Rated for 235 psi (PN16) at 300 ℉ (150 ℃)
- Dezincification resistant brass and bronze components
- Built-in hidden memory stop ensures return to balanced position after shutoff
- Enclosed red handwheel lock cap prevents handwheel movement - easily defeated for authorized valve repositioning
- Thread and sweat connections for 1/2" - 2" sizes
- 125# flanges on 2 1/2" - 12" sizes
- Groove connections for 2 1/2" - 12" sizes

Tech Data: G450



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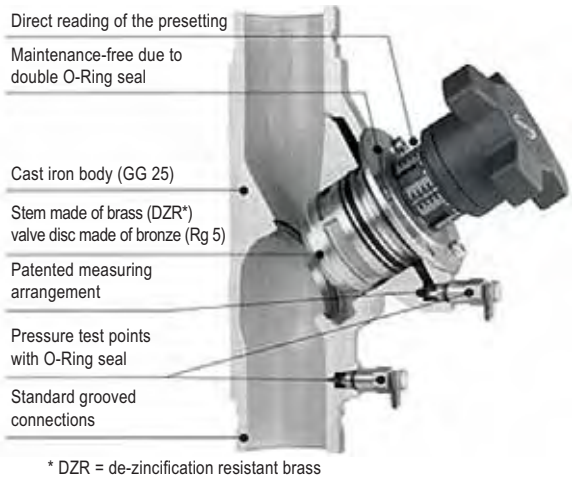

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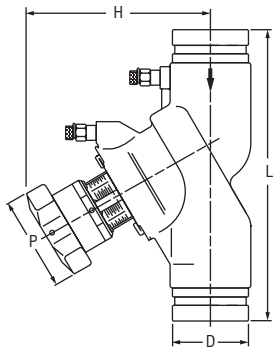
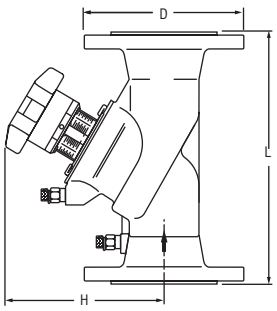


Size Inches	Connection	Nominal Dimensions L Inches mm	H Inches mm	D Inches mm	Approx. Weight Lbs. Kg.	Limits PSI / °F PN / °C	Hand-wheel Turns
2 1/2 65	Groove	11 7/16 290	2 7/8 73.0	7 3/8 188	18.7 8.5	235 / 300 16 / 150	8.0
3 80	Groove	12 1/4 310	3 1/2 88.9	8 203	27.5 12.5	235 / 300 16 / 150	8.0
4 100	Groove	13 3/4 350	4 15/16 114	9 1/2 240	45.1 20.5	235 / 300 16 / 150	8.0
5 125	Groove	15 3/4 400	5 9/16 141	11 1/4 283	70.4 32	235 / 300 16 / 150	8.0
6 150	Groove	18 7/8 480	6 5/8 168	11 1/4 285	95.7 43.5	235 / 300 16 / 150	8.0
8 200	Groove	23 5/8 600	8 5/8 219	18 3/8 467	255.2 116	235 / 300 16 / 150	12.0
10 250	Groove	28 3/4 730	10 13/16 273	18 15/16 480	376.2 171	235 / 300 16 / 150	12.0
12 300	Groove	33 7/16 850	12 3/4 324	20 1/4 515	519.2 136	235 / 300 16 / 150	12.0



Size Inches	Connection	Nominal Dimensions L Inches mm	H Inches mm	D Inches mm	Approx. Weight Lbs. Kg.	Limits PSI / °F PN / °C	Hand-wheel Turns
2 1/2 65	125# Flange	11 7/16 290	7 3/8 188	7 1/4 185	29.7 13.5	235 / 300 16 / 150	8.0
3 80	125# Flange	12 1/4 310	8 203	7 7/8 200	39.6 18.0	235 / 300 16 / 150	8.0
4 100	125# Flange	13 3/4 350	9 1/8 232	8 11/16 220	61.6 28	235 / 300 16 / 150	8.0
5 125	125# Flange	15 3/4 400	10 7/8 275	9 7/8 250	89.1 40.5	235 / 300 16 / 150	8.0
6 150	125# Flange	18 7/8 480	10 7/8 277	11 1/4 285	113.3 51.5	235 / 300 16 / 150	8.0
8 200	125# Flange	23 5/8 600	18 3/8 467	13 3/8 340	284.9 129.5	235 / 300 16 / 150	12.0
10 250	125# Flange	28 3/4 730	18 15/16 481	15 15/16 405	431.2 196.0	235 / 300 16 / 150	12.0
12 300	125# Flange	33 7/16 850	20 1/4 515	19 1/16 485	580.8 264	235 / 300 16 / 150	12.0

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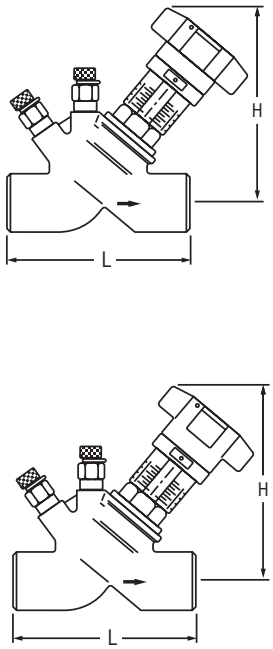

Size Inches	Connection	Nominal Dimen. L Inches mm	Nominal Dimen. H Inches mm	Approx. Weight Lbs. Kg.	Limits PSI / °F PN / °C	Hand-wheel Turns
1/2 15	Female NPT	3 1/8 80	4 1/4 114	1.37 0.62	235 / 300 16 / 150	7.0
3/4 20	Female NPT	3 5/16 84	4 9/16 115	1.44 0.65	235 / 300 16 / 150	7.0
1 25	Female NPT	3 3/8 97.5	4 11/16 119	2.20 1.00	235 / 300 16 / 150	7.0
1 1/4 32	Female NPT	4 3/8 110	5 3/8 136	3.00 1.36	235 / 300 16 / 150	10.0
1 1/2 40	Female NPT	4 3/4 120	5 7/16 138	3.86 1.75	235 / 300 16 / 150	10.0
2 50	Female NPT	5 5/16 150	5 13/16 148	5.64 2.56	235 / 300 16 / 150	10.0
1/2 15	Female Sweat	3 1/8 80	4 1/4 114	1.37 0.62	235 / 300 16 / 150	7.0
3/4 20	Female Sweat	3 5/16 84	4 9/16 115	1.44 0.65	235 / 300 16 / 150	7.0
1 25	Female Sweat	3 3/8 97.5	4 11/16 119	2.20 1.00	235 / 300 16 / 150	7.0
1 1/4 32	Female Sweat	4 3/8 110	5 3/8 136	3.00 1.36	235 / 300 16 / 150	10.0
1 1/2 40	Female Sweat	4 3/4 120	5 7/16 138	3.86 1.75	235 / 300 16 / 150	10.0
2 50	Female Sweat	5 5/16 150	5 13/16 148	5.64 2.56	235 / 300 16 / 150	10.0

ACCESSORIES

Valve Sizing & Selection Guide

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. water (5.7 kPa) in the full open position as shown in the table below:

Flow		Size		Connection
GPM	(l/h)	Inches	(DN)	Swt-thrd / Flng grv
0.5 - 4.1	(100 - 1000)	1/2	(15)	sweat thread
4.1 - 6.0	(1.0k - 1.5k)	3/4	(20)	sweat thread
6.1 - 9.2	(1.5k - 2.3k)	1	(25)	sweat thread
9.2 - 20	(2.3k - 5.0k)	1 1/4	(32)	sweat thread
20 - 29	(5.0k - 7.2k)	1 1/2	(40)	sweat thread
29 - 40	(7.2k - 10k)	2	(50)	sweat thread
40 - 102	(10k - 25k)	2 1/2	(65)	flanged grooved
102 - 125	(25k - 31k)	3	(80)	flanged grooved
125 - 210	(31k - 50k)	4	(100)	flanged grooved
210 - 300	(50k - 76k)	5	(125)	flanged grooved
300 - 430	(76k - 108k)	6	(150)	flanged grooved
430 - 760	(108k - 190k)	8	(200)	flanged grooved
760 - 1350	(190k - 340k)	10	(250)	flanged grooved
1350 - 1500	(340k - 377k)	12	(300)	flanged grooved

Valve Installation Guide

Accurate flow measurement requires that the velocity distribution near the balancing valve stays 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 worst, fully open, position. Minimum lengths (diameters, D) of straight pipe before and after the balancing valve prevent these errors. Follow the flow direction arrow on the valve body for best accuracy. Valves are designed for vertical, horizontal or inclined installation.

Minimum Pipe Diameters from Fittings