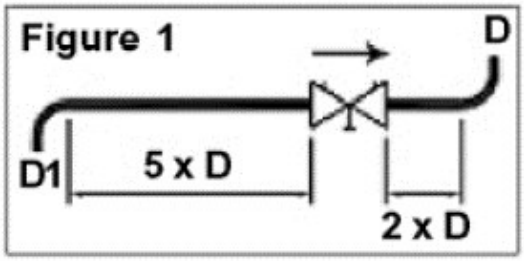
IO&M Guide

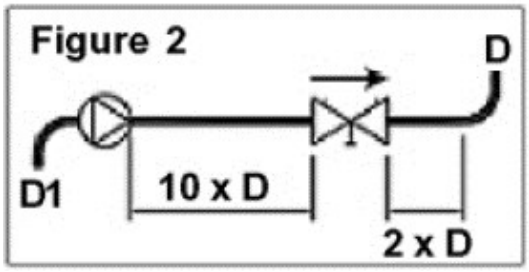
Lead Free Manual Balancing Valves • TGG

IMPORTANT
Please read the Connection Guidelines prior to installing these components. Failure to follow these instructions may damage the component and/or void the warranty.

Install the valve in the correct flow direction according to the arrow on the valve body and the distance parameters detailed in Figure 1. (Note: D = pipe diameter).

When used with a pump, it is recommended to use a straight length of pipe totaling 10 x D (instead of 5 x D) upstream or dow nstream to avoid turbulence that will affect the measuring accuracy. See Figure 2. Turbulence can influence the measurements by up to 20% if this recommendation is not followed.





Flow Measurement & Accuracy

Determined using the pressure drop diagram that is included in the operating instructions with each TGG balancing valve.

The accuracy is highest when the valve is fully open. Therefore, it is recommended to choose a valve that can be opened at least three turns at the calculated pre-setting value. Figure 3 represents the flow measurement deviation in relation to handwheel turns.

Correction for Liquids

Applies to liquids other than water. Correct the measured flow (q) by the density (Y) according to this formula. See Figure 4.

Sizing a Balancing Valve

When the differential pressure and design flow are known, use this formula to calculate Cv value.

See Figure 5.

Memory Stop

1. Set valves to desired position.

2. Turn the inner stem with a 3 mm Allen wrench

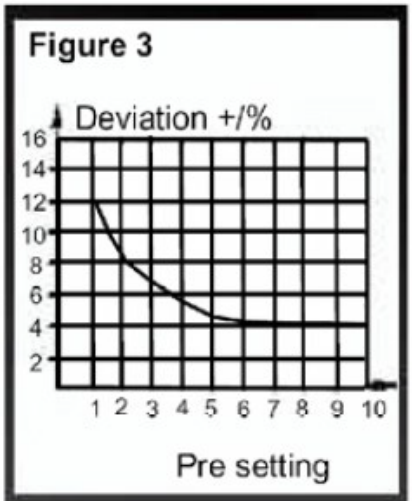


Figure 4

$$\text{Actual Flow} = \frac{q_{CBI}}{\sqrt{\gamma}}$$

Figure 5

$$C_v = 1.52 \frac{q}{\sqrt{\Delta p}}$$

q in GPM, Δ p in Ft. of H2O

$$C_v = \frac{q}{\sqrt{\Delta p}}$$

q in GPM, √ p in PSI

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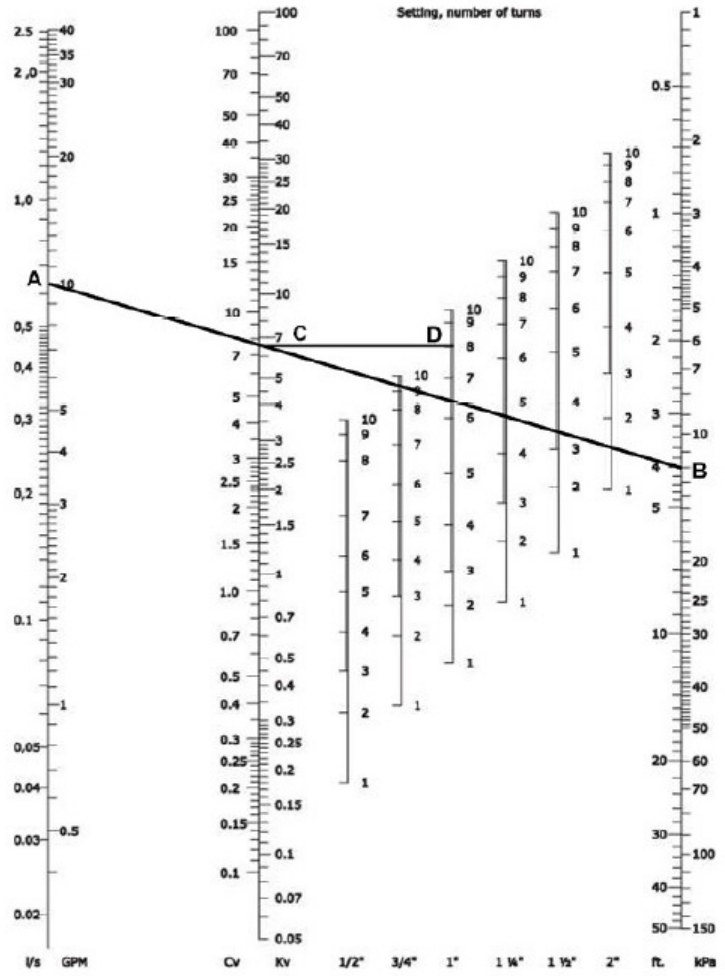
Pressure Drop Chart

The diagram below details the relationship between flow, pressure drop and valve preset points. Use the diagram to select the correct valve size and corresponding handwheel setting to fulfill the application requirements. Determine the required flow in the circuit (A) and the pressure drop (B). Draw a line between these two values. Read off the corresponding Cv value on the Cv scale.

Determine the valve setting, in handwheel turns, by drawing a horizontal line (D) from the intersection point on the Cv scale to the corresponding valve setting position. For the highest level of accuracy, it is recommended to choose a valve that has at least 3 open turns.

Example: A 1" valve is required to be open 8 turns for a Cv value of 7.5 at a flow rate of 10 gpm and a pressure drop of 4ft.



Flow coefficient values (CV's) at various handwheel settings						
Handwheel Setting	1/2" DN 15	3/4" DN 20	1" DN 25	1-1/4" DN 32	1-1/2" DN 40	2" DN 50
1	0.21	0.39	0.56	0.92	1.39	2.32
1.5	0.29	0.56	0.75	1.28	1.97	3.25
2	0.37	0.70	0.89	1.53	2.38	4.18
2.5	0.44	0.82	1.04	1.80	2.78	5.10
3	0.52	0.96	1.19	2.09	3.25	6.03
3.2	0.56	1.02	1.28	2.26	3.48	6.50
3.4	0.59	1.09	1.39	2.44	3.71	6.96
3.6	0.63	1.16	1.51	2.67	4.06	7.54
3.8	0.67	1.23	1.62	2.90	4.41	8.12
4	0.72	1.31	1.74	3.13	4.76	8.82
4.2	0.77	1.39	1.91	3.42	5.10	9.74
4.4	0.81	1.48	2.09	3.71	5.57	10.70
4.6	0.87	1.58	2.26	4.06	6.03	11.70
4.8	0.93	1.68	2.44	4.41	6.61	12.80
5	1.00	1.80	2.67	4.76	7.19	13.80
5.2	1.07	1.91	2.90	5.16	7.77	15.00
5.4	1.14	2.03	3.19	5.57	8.35	16.00
5.6	1.21	2.16	3.48	5.97	8.93	17.20
5.8	1.28	2.30	3.83	6.38	9.63	18.30
6	1.36	2.44	4.18	6.84	10.30	19.40
6.2	1.44	2.60	4.47	7.25	11.00	20.40
6.4	1.52	2.76	4.76	7.66	11.80	21.50
6.6	1.62	2.96	5.10	8.12	12.50	22.50
6.8	1.74	3.16	5.54	8.58	13.20	23.50
7	1.88	3.36	5.80	9.05	13.90	24.60
7.2	2.06	3.60	6.15	9.51	14.60	25.50
7.4	2.26	3.83	6.50	9.98	15.30	26.40
7.6	2.49	4.06	6.84	10.40	15.90	27.40
7.8	2.73	4.27	7.19	10.80	16.50	28.20
8	2.96	4.47	7.54	11.30	17.10	29.00
8.2	3.13	4.63	7.89	11.70	17.60	29.90
8.4	3.29	4.78	8.24	12.20	18.20	30.70
8.6	3.42	4.93	8.58	12.60	18.80	31.60
8.8	3.54	5.08	8.87	13.00	19.40	32.40
9	3.65	5.22	9.16	13.30	19.80	33.20
9.2	3.77	5.36	9.40	13.70	20.30	33.90
9.4	3.87	5.50	9.63	14.20	20.90	34.60
9.6	3.98	5.64	9.86	14.50	21.50	35.30
9.8	4.06	5.78	10.00	14.80	22.00	36.00
10	4.12*	5.92*	10.2*	15.2*	22.6*	36.5*

* Valve is fully open

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General Information

For proper operation, make sure that the system in which the valve is installed is free of debris, and that the water is devoid of entrained air. Air and debris will cause the balancing valves supplied by **Jomar Valve** to function improperly. A strainer with a minimum 20 mesh screen is recommended upstream of all balancing valves to prevent clogging. High point and inline air vents are also recommended to ensure all entrained air is removed.

On chilled water systems, the test ports may seep after a reading is taken. Re-install the port cap and wait approximately one minute. Check the port. If seepage is still present, re-insert probe and remove slowly to allow port to seal.

Performance Guarantee:
Jomar Valve guarantees to the original purchaser that the equipment of its manufacture will perform at the rated capacity as stated only when (1) properly installed, connected, started, operated and maintained in accordance with Company instruction(s) and/or information guide(s), as revised from time to time, (2) used for the applications specified and (3) used in the environments as specified or as limited. If equipment is part of a greater system, the Company accepts responsibility only for the equipment manufactured by it.

Water Treatment

Introduction of chemical cleaners, stabilizers and solvents into the systems may cause damage to the seats, seals, liners and gaskets or cause stress corrosion cracks in the product. Consult a water treatment specialist whenever introducing chemicals. It is important that you analyze all aspects of your systems components and the systems application with any introductions of chemicals into a system. It is solely the responsibility of the purchaser, contractor or engineer to review the material specification sheets for compatibility of these products. The documentation for the products described herein are subject to change at any time without notice. To obtain a copy of the current product specification sheets, **please visit www.jomarvalve.com or contact us at (586) 268-1220 or csr@jomar.com.**

Connection Guidelines

Threaded Connections

Teflon tape or pipe-joint compound (pipe dope) must be used when installing NPT threaded connections, however both tape and dope must not be used on the same connection. The use of Teflon tape in addition to a pipe dope compound can be dangerous. It can result in too much material between the flanks of the threads. Additionally, using both tape and dope can cause over tightening due to the lubricating effect of both materials.

Teflon Tape

Before installation, all mating pipe threads should be checked to ensure that there is no damage to the threads. Also make sure that all threads are clean from debris. PTFE tape should always be wrapped in the direction of the threads. Tape should be stretched tight around the threads to be ensured that it is securely attached. Each successive layer should overlap the previous layer by 1/2 to 2/3 and continue wrapping until the entire threaded portion of the pipe is covered. (minimum of 3 full turns). An excess amount of tape can prevent mating threads from fully engaging, therefore reducing the shear point of the threads. Be sure not to over torque the threaded valves during installation. Doing so could cause damage to be done to the valves or pipeline.

Pipe Dope

Be sure that the sealant is proper for the specific application in question and that all applicable codes are followed.

Factory Assembled Threaded Connections

All threaded bosses found on our components will contain either a PT port, accessory, accessory extension, or plug. All of the connections are made using Teflon tape or Loctite, and are factory tested up to 120 PSI to ensure a leak free joint. The removal or modification of any of these connections voids the warranty of the joint, as well as the warranty of the component. Contact us prior to modifying any factory assembled connections.

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