INSTALLATION & OPERATION INSTRUCTIONS

GENERAL INFORMATION

1. Clean the lines of particles larger than 1/16" diameter (welding slag, pipe scale & other contaminants). Upstream installation of a 20 mesh strainer is recommended. Provisions should be made for keeping the water clean. See Maintenance section for more information.
2. For optimum operation, air entrapment in the fluid MUST be eliminated. The Manual Balancing valve must remain full of fluid during flow setting and system operation.
3. The operation of the valve is dependent on the characteristics of the flowing medium (fluid). Therefore it is important that when ordering a valve for a fluid other than 100% water, complete fluid specifications are included. See Fluids section for more information.

INSTALLATION

1. Manual Balancing Valves are factory assembled and marked with the Valve Cv on the body tag. ***The body tag is located on the handle.*** The Venturi is not field changeable.
2. Manual Balancing Valves are marked to show direction of flow. The union end is the inlet and the body end is the outlet. ***The flow arrow must point in the direction of flow for proper operation.***
3. Manual Balance Valve body size should match the pipe size it will be installed in. Valve Cv should be matched to the flow required. Reducing Fittings or bushings may be attached directly to control valve.
4. Griswold balancing valves may be installed in the pipe line either horizontally or vertically. Straight sections of pipe upstream and downstream of the valves are not necessary for proper operation (1/2"–2" Only).

THREADED CONNECTIONS

1. Threaded connections are tapped with NPT threads. Seal connections per industry standards using approved pipe sealant. Torque should not exceed 75 foot pounds.
2. When installing threaded union end fittings, the fitting and union nut must be removed from the valve body. Slide the union nut over the pipe, then tighten the fitting to the pipe.

SWEAT CONNECTIONS

1. Sweat end connections will accept standard copper tubing per ASTM B88-71. Follow general directions and recommendations of the sweat fitting and tubing manufacturers when installing the valves.
2. Manual Balancing Valves are designed for soft solder only. Excessive heat (over 500°F) may damage Teflon seals. Manual Balancing Valves are to be soldered in the full closed position.
3. For Sweat end body connections, use of a heat sink (heat absorbing putty, wet rag, etc.) is highly recommended. Do not apply flame (heat) directly to the center of valve body or to the test ports as excessive heat can damage internal seals and cause leaks.
4. When installing sweat union end fittings, the fitting and union nut must be removed from the valve body. Slide the union nut over the pipe, then sweat the fitting to the pipe. Allow to cool to touch before assembling the union to the body to prevent heat damage to the o-ring seal.

UNION CONNECTIONS

1. The Union Nut connection is sealed using an o-ring. In normal use no other sealant is required. Tighten the union nut hand tight, hold body with a wrench to prevent it from twisting body connection and then tighten approximately an additional quarter turn.
2. Using silicon oil or grease lubricant at assembly helps protect the O-ring from damage by abrasion, pinching, or cutting. Do not use aerosol products or petroleum based lubricants. The lubricant should not excessively soften or harden.

FLANGED CONNECTIONS (2-1/2"–18" Only)

1. Assemble and then tighten the field furnished flanges to the Griswold QuickSet Valve. Then align and place the assembly to the mating field piping. Tack weld the field furnished flanges to the pipe. **WARNING: Do not finish welding the flanges to the pipe with the valve bolted between the flanges. This will result in serious heat damage to the valve seat.**
2. Remove the flange bolting and valve from between the field furnished flanges. Finish welding the field furnished flanges to the field furnished

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pipe and allow the flanges to cool completely before proceeding.

3. Next, reinstall the Griswold valve using field furnished approved gaskets between the Griswold valve flange and the field furnished pipe flange. Before tightening any bolts, on butterfly type valves, turn the disk of the butterfly to full open position. Center the valve and hand tighten all bolts. Slowly close the disk to check for adequate disk clearance. When properly aligned, return the disk to full open position and evenly cross-tighten all bolts. Make sure the disk opens and closes correctly.

GROOVED END CONNECTIONS
(2-1/2"–18" Only)

Metering Station

1. This style valve is joined together by housing clamps and rubber gaskets, which are field furnished and installed.
2. Clean the end of the valve and pipe past the grooved section. Grease the pipe ends, valve ends and rubber gasket lips with cup grease, graphite paste or similar grease recommended by the housing clamp manufacturer.
3. Slip the rubber gasket over the pipe end of each joint. **Note:** In 10" and larger valve connections, turn the gasket inside out and slip it over the pipe ends. Roll the gasket back after bringing the valve into position.
4. Position the grooved end valve between the pipe ends and slide the gasket back into central spanning position. Smear grease on the outside of the gasket.
5. Put housing clamps over gasket – insert bolts and nuts. Tighten nuts evenly, using socket or other wrench (The best speed of assembly is obtained with brace or T-handle wrenches). Tighten so the housing clamps come together evenly. This avoids gasket pinching. When housing clamps meet metal-to-metal, further tightening of bolts in not necessary or desirable.
6. Pre-assemble large diameter multi-segment housing clamps loosely, and install them as half-housings. Take up evenly from top to bottom on alternate bolts.

QuickSet Valve

1. The flanged-to-grooved connection furnished on the outboard side of the butterfly valve must be unbolted. The field furnished pipe with a grooved end is installed inside the unbolted flange-to-groove connection with a field-furnished gasket and grease in the same manner as described above in the Metering Station. The connection must then be rebolted.

WELD END CONNECTIONS(2-1/2"–18" Only)

Metering Station

1. Clean the end of the valve and pipe where the weld will be made. Make up the assembly butting the connections together.
2. Tack weld the assembly together and observe fit. If everything fits satisfactorily, the final complete welds can be made.

Quickset Valve

1. Clean the end of the valve and pipe where the weld will be made. Make up the assembly butting the connections together.
2. Tack weld the assembly together and observe fit **WARNING: Do not finish welding the flanges to the pipe with the butterfly valve bolted between the flanges. This will result in serious heat damage to the rubber gaskets and valve seat.**
3. Remove the bolting and flange from between the flanges. Finish welding the piping together and allow flanges to cool completely before reinstalling and bolting the butterfly valve in its original position.

OPERATION

1. Manual Balancing Valve(s) are ordered by line size and Valve Cv. The Cv is the flow coefficient of the Valve. Flow rates are set by adjusting the ball valve until the differential pressure reading across the Venturi corresponds to the required flow (GPM). Use the flow graphs (1/2"–2": Form #F-4040; 2-1/2"–18": Form #F-4090)
2. Once the Valve(s) has been installed and the system has been filled and purged, each valve loop must be set to the correct flow setting. Multiple passes are generally required to get the system in balance as the adjustment of each new valve affects the pressure drop (and flow) through the previously adjusted valves.
3. A meter kit can be purchased from Griswold Controls to take the differential pressure readings. The kit consists of either a 0-100" or 0-300" water column test gauge with the appropriate control

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valves, hoses and fittings. See Griswold Form F-4086B for more information on the Meter Kit.

4. Griswold offers a set of Transparent Overlays for use with a 6" test gauge (meter kit) scaled for 0-100" or 0-300" water column. These overlays allow the gauge to be read directly in GPM (gallons per minute) for each of the valves. See Griswold Form F-4045 for more information.
5. When all valves in the system have been correctly adjusted, the locking Memory Stop should be set to prevent changes in flow rate. To set the memory stop, loosen the handle hex bolt, rotate the memory stop against the valve body boss, and retighten the handle bolt.
6. The memory stop will allow the valve to be used for isolation (full closed) and then be reopened to the preset flow position.

FLUIDS

1. The operation of the Manual Balancing Valve is dependent on the characteristics of the flowing medium (fluid). Therefore it is important that when ordering and setting a valve for a fluid other than 100% water, complete fluid specifications are known. Flow rates must be corrected for the changes the fluid medium creates.

2. Specific Gravity

Specific gravity is the most important attribute of a liquid used in a Manual Balancing Valve. Correction will need to be made for any fluid with a specific gravity other than 1.0 (100% water). The specific gravities of fluids change as fluid temperature changes. Please consult Griswold for conversion.

3. Viscosity & Temperature

The viscosity of a fluid is mainly dependent on the fluid temperature. For fluids such as water, the viscosity change with temperature is negligible. In other fluids, such as petroleum oils, the change with temperature is quite noticeable. Both viscosity and operating temperature must be specified and known for proper setting of the corrected flow rate. Please consult Griswold for conversion.

MAINTENANCE

If the system experiences large amounts of pipe scale due to poor water conditions, as is sometimes found in older or retrofit systems, provision should be made to keep the system clean. Proper water treatment is also recommended by the use of a Griswold Separator. ***If a Griswold Separator is not used for system cleaning, the Manual Balancing Valve should be inspected annually.***

INSULATION

Griswold recommends that the Manual Balancing valve be insulated. However, insulation shall not block access to the memory stop and P/T taps.

LIMITED WARRANTY

When you purchase from Griswold Controls, you trust us to provide you with innovative, quality products that satisfy your need for profitable growth. We work hard to earn your business, not to give you a hassle. If you are not completely satisfied with something you have purchased or provided, just tell us. We will make it right by repairing or replacing the product. We want your business and we guarantee you: no hassle!

Claims under this warranty will only be honored if written notice is given to Griswold immediately upon discovery of the defect. A Product shall not be deemed defective unless it fails to perform in accordance with Griswold's written specifications. Customer shall pay freight charges for return. Griswold shall pay freight charges for return shipment to customer.

All requests for return of Products and the handling of credit or replacement shall be made in accordance with Griswold's return policy in effect at time of return. Griswold's obligation to repair or replace defective Products shall not apply to any Product that has been (1) subjected to misuse, neglect, or accident, or (2) altered or repaired (other than Griswold) in such a manner as to affect adversely its performance, stability or reliability.

The foregoing warranty is in lieu of all other warranties expressed or implied, in fact or at law, including implied warranties of merchantability and fitness for particular purpose.

This is Griswold's sole and entire liability to anyone for any claim in connection with the Product(s). In no event shall Griswold be liable for incidental, special or consequential damages, loss of profits, or damages in any amount exceeding the cost for any Product(s) even if Griswold has been told in advance of the possibility of such damages.

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