Maintenance

No routine maintenance is required, however it is possible to tighten the gland packing should a leak occur between stem and gland nut.

1   Mark the radial position of the handwheel relative to the stem housing so that the handwheel may be replaced in the same position after the packing adjustment. The handwheel is connected to the stem with a splined drive

2   Remove the handwheel center cap covering the handwheel attachment screw. Remove the handwheel attachment screw, and handwheel to expose the stem packing gland nut or follower.

3   Tighten the packing sufficiently to stop the leakage. Over tightening the packing may result in a valve that is difficult or impossible to operate.
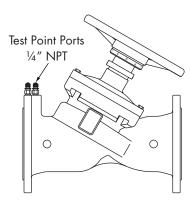
NOTE: The valves are not provided with back seats. Under no circumstances should the gland nut be removed without first isolating the valve and relieving any residual pressure.

4   Replace the handwheel in the marked position, replace handwheel attachment screw, and check that valve can be operated smoothly.

Valve Size	2½"	3"	4"	5"	6"	8"	10"	12"	14"	16"
Max. Closing Torque lbf ft	33	44	81	96	162	310	480	480	542	610

F739 Fixed Orifice Circuit Balancing Valve

Test Point Ports ¼" NPT

Fixed Orifice Circuit Balancing Valve

Fixed Orifice Circuit Balancing Valves (FOCBV) provide flow regulation, accurate flow measurement and isolation in a single product. The valve is a precision manufactured product and should be handled, installed and used with care as detailed in these instructions.

Valve Models

• Fig. F739 has flanged end connections as ASME/ANSI B16.42 Class 150.

• Valves are supplied with P/T ports fitted.

• The valve is manufactured in ductile iron.

Limits of Use

The valve rating is shown in the table below and it must be installed in a system where the normal pressure and temperature does not exceed this rating.

The valve is intended for non-shock operating conditions:

Water hammer, impacts, stress loads, corrosive or erosive external environmental elements and the transport of fluids with abrasive properties should be avoided.

Operating Pressure and Temperature

End Connections	Non-Shock Pressure at Temperature Range	Non-Shock Pressure at Max Temperature
Flanged	230 psi from 15°F(*) to 100°F	175 psi at 250°F

(*) = temperatures apply only when glycol additives used.

Layout and Siting

Prior to installation, it should be considered where the valves will be located to give access for operation, insertion of the test probes and for setting the required position.
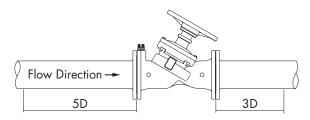
Installation

The FOCBV is a precision manufactured product and should not be subjected to misuse. The valve should be unpacked immediately prior to installation to avoid foreign particles entering the valve through the end ports. The valve and adjacent pipework should be checked for cleanliness and freedom from debris before installation. There should be no internal burrs in the pipe to be connected to the valve.

Confirm that the flanges on the pipes and on the valve are compatible.

It is important to ensure that the flow arrow on the valve body is coincident with the direction of flow in the pipeline.

5 pipe diameters of straight pipe upstream of the valve and 3 pipe diameters downstream of the valve are required to achieve a flow measurement accuracy of ±5%.

If the valve is located near the outlet from a pump a minimum of 10 pipe diameters must be allowed between the pump outlet and the valve.
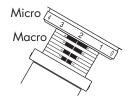
Flow Direction →

5D | 3D

Operating

When used for balancing water distribution systems, the valve will always be in the fully open position at the commencement of any flushing or commissioning procedure.

Regulation is accomplished by clockwise rotation the handwheel.

The valve position is indicated by macro and micro scales located below the handwheel.

Micro

Macro

The macro scale, located on the polymer stem sleeve, indicates the position of the closing members from the full closed position. The macro scale includes 8, 12, 18 or 24 rings depending up on valve size. Each ring on the macro scale represents one full turn of the handwheel.

The micro scale, located on the handwheel hub, is numbered from 0 to 9 and represents 1/10 of a handwheel turn.

During the commissioning stage, all entrained air must be removed from the system before accurate measurements of differential pressure signals can be taken at the P/T ports.

Handwheel Setting from fully closed to fully open;

Valve Size	2½"	3"	4"	5"	6"	8"	10"	12"	14"	16"
No of Turns	8	8	8	8	8	12	12	18	18	24

Operating

There are two P/T ports, each fitted with a colored strap and captive cap as shown in the drawing on the front page.

- Upstream (HP) Red
- Downstream (LP) Blue

For safety reasons, all manometer probe insertions of the P/T ports must be carried out with the system cold.

Remove the screwed cap and insert the test probe into the P/T port. Silicone oil or grease should be lightly applied to the shaft of the probe before insertion. No other type of lubricant must be used.

Refer to the flow data manual for individual flow charts, Cvs and Cv values.

Valve Setting

Flow regulation is achieved by adjusting the handwheel setting until the desired flow rate is obtained.

The flow rate may be derived from the pressure drop signal measured across the two pressure test points.

Flow charts are available from NIBCO® for all valve sizes showing the corresponding flow rate for the pressure drop measured.

The valve position indicator located below the handwheel will indicate the final setting which should be recorded during the balancing procedure from the pressure drop across the complete valve can be calculated using the Cv value.

Memory Stop Adjustment

The Memory Stop feature allows a valve that has been set to a desired flow rate to be closed and then returned to the desired flow rate position.

1 Determine the desired flow rate for each valve and adjust the handwheel until the flow rate is achieved.

2 Using a hexagon wrench loosen the set screws in the indicator limitation collar and slide the collar up until it contacts the plastic indicator.

3 Re-tighten the set screws in the collar.

4 Record the handwheel setting.

Hexagon wrench

Indicator limitation collar