

Guide Specifications

At the option of the mechanical contractor and with the approval of the Engineer, automatic flow limit fittings as manufactured by Flow Design, Inc. (AutoFlow) or approved equal. These fittings shall be installed to regulate flow and provide shut-off services. When automatic flow limiters are installed with three-way control valves, a union and pressure/temperature port shall be on the entering line of the control valve. Valves shall have optional extended handles and test ports to clear insulation. Flow Design, Inc. models are used hereinafter for descriptive purposes and shall be as follows:

A. Manufacturers:

1. Flow Design, Inc., Models AB, AC, ACM, MC, YR, WB, WG, WR, WS and WT or approved equal.

B. Design:

1. All automatic flow control devices shall be supplied by a single source. The system shall be fully engineered by the fitting supplier.
2. The GPM for the automatic flow control shall be factory set and shall automatically limit the rate of flow to within 5% of the specified GPM over at least 95% of the control valve range.
3. For 1/2" - 2", the flow cartridge shall be removable from the Y or T-body housing without the use of special tools to provide access for the regulator change-out, inspection and cleaning without breaking the main piping. (Access shall be similar to that provided for removal of a Y or T- strainer screen).
4. PUMP HEAD REQUIREMENTS:
 - a) The permanent pressure lost added to the pump head shall not exceed seven (7) feet of water column.
5. Each valve shall have two P/T ports, arranged to provide a reading of the differential pressure across the flow limiting mechanism.
6. Fitting supplier shall provide a five year product warranty.

C. Material and Construction:

1. Internal wear surfaces of the valve cartridge shall be 303 stainless steel.
2. The internal flow cartridge body shall have machined threads so the spring free height may be compensated for without the use of fixed shims. A crimped sheet metal design is not acceptable.
3. The internal flow cartridge shall be permanently marked with a code to identify the gpm and spring range.
4. For 1/2" - 2" pipe size: An assembly shall consist of a Dezincification resistant brass (DZR) or bronze or Ametal Y or T- type body, integral chrome plated brass-body ball valve, and "O" ring type union fitting and shall be Flow Design Model AC or equal.
5. For 2 1/2" and larger flanged connection: Each valve body will be ductile iron body suitable for mounting wafer style between standard 150# or 300# flanges. Flange bolts and nuts shall be provided with each control valve. Fittings shall be Flow Design Model WS or equal.

D. Testing and Ratings

1. All valves 1/2" to 2" shall be factory leak tested at 100 psi air under water.

Minimum Ratings:

1. 1/2" through 2" pipe size: 400 PSIG at 250°F
2. 2 1/2" through 14" pipe size: 600 PSIG at 250°F.
3. 16" through 30" pipe size: 250 PSIG at 250°F

E. Flow Verification (Select one):

1. The differential pressure across the Automatic Flow Control Valve shall be measured for verification and to determine the amount of system over heading (excess pressure) or under pumping.
1. Flow shall be verified by measuring the differential pressure across the coil served or the wide-open control valve and calculating the flow based on the coil or valve CV.
1. A venturi shall be installed on the supply side of the coil to verify flow.

Guide Specifications (Cont'd)

F. Test Kit

1. To verify flow and measure over heading (excess pressure), Flow Design recommends AutoFlow Dual Hose Meter pressure test kit at an additional charge. The kit consists of a 4 1/2" gauge with three ball valves calibrated at 150 psi & 1000 kpa , two 10' hoses with shut-off valves and a pair of GA 18 std. P/T adapters.

G. Installation:

1. Install automatic flow control valves on the return lines of coils as indicated on the plans. A balancing valve on supply side is not acceptable.
2. The standard ports and handles shall clear 1" thick insulation. Handle and port extensions are required for over 1" thick insulation. Do not insulate flow control valves used on heating coils.
3. Install, on the supply side of coils, a Y or a T-strainer (20 mesh) with brass blow down valve with 3/4" hose-end connection with cap. Inline (basket) strainer is not acceptable.
4. All valves shall be installed in accordance with manufacturer's instructions.

H. Packaging

1. All fittings needed for each individual coil shall be shipped from the factory and labeled to indicate the appropriate terminal.
2. The packages for individual terminals shall further be grouped according to individual floors or regions of the building for easy routing to the appropriate location.

I. Quality Assurance

1. The producer of automatic or manual balancing fittings shall have current ISO 9001 certification.

Disclaimer:

All information on this guide may be subject to change by Flow Design, Inc. without prior notice or reasons being given.