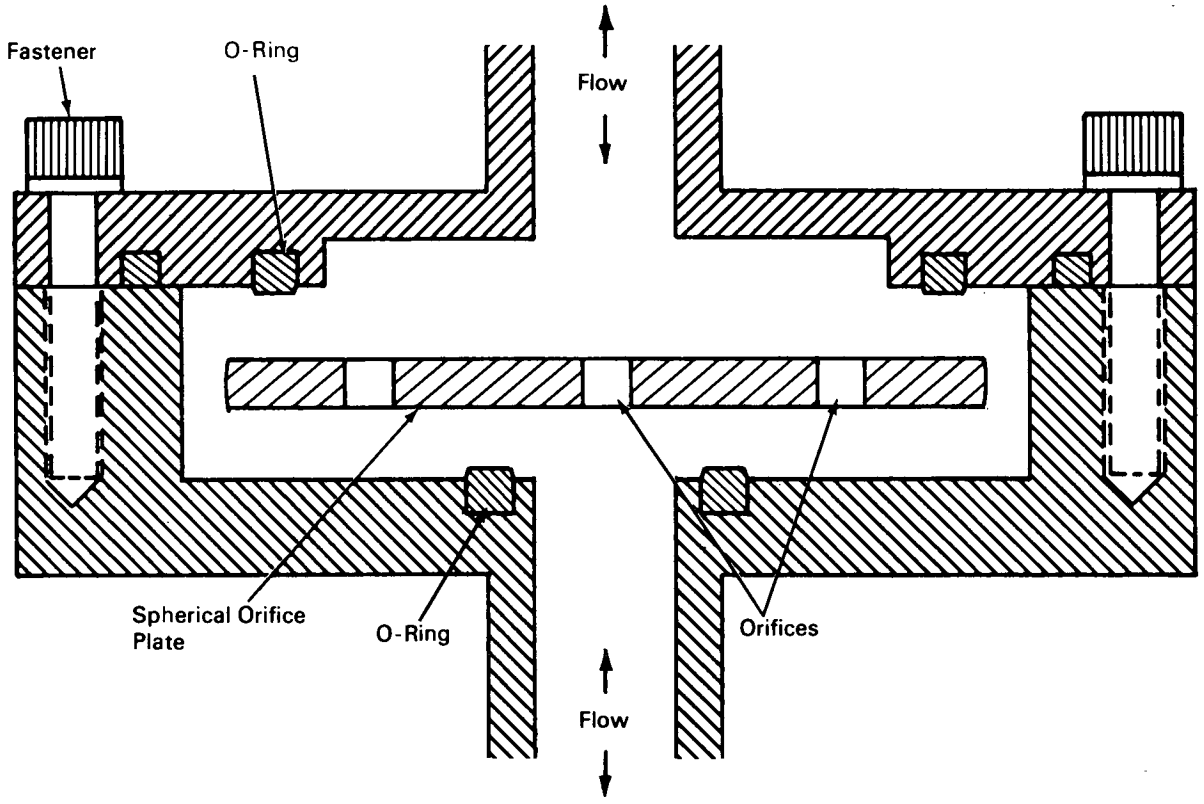
NASA TECH BRIEF

Bidirectional Flow Meter



In pneumatic or hydraulic systems where valve sequence and timing must be closely controlled, a number of pressure flow regulators and check valves have been used. A new and simple device (see fig.) can, through minor design modifications, provide a wide variety of flow metering on a volume demand basis, in either of two directions.

Pressure applied at either port creates a pressure differential which acts on the free-floating orifice plate. The plate moves toward the port on the opposite side of the control body and seats against the O-ring in that side. The amount of flow permitted through the orifice plate in either direction is controlled by the number, locations, and sizes of the orifices and the locations of the O-rings.

With pressure removed, the system reaches equilibrium and remains in that state until pressure is again applied to one of the ports. During system equilibrium, the position of the orifice plate is noncritical. Orifice plate movement may be limited by design features such as spring loading and plate material.

(continued overleaf)

Notes:

1. This device would be useful in pneumatic or hydraulic systems in which valve sequence and timing functions vary from point to point.
2. No additional documentation is available. Specific questions, however, may be directed to:

   Technology Utilization Officer
   Marshall Space Flight Center
   Code A&TS-TU
   Huntsville, Alabama 35812
   Reference: B70-10589

Patent status:

Inquiries about obtaining rights for the commercial use of this invention may be made to:

Patent Counsel
Mail Code A&TS-PAT
George C. Marshall Space Flight Center
Marshall Space Flight Center, AL 35812

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