# NASA TECH BRIEF

*Ames Research Center*


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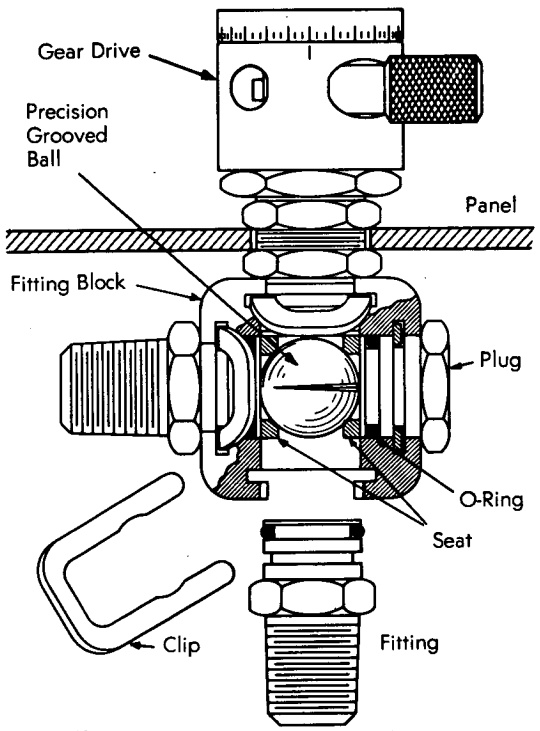
## Micro Regulating Ball Valve




### The problem:

Commercially available gas valves for metering the flow of minute quantities of gas (on the order of 0.03 ml per minute) usually perform unsatisfactorily in that they show early development of leaks, or exhibit hysteresis and instability of calibrations.

### The solution:

A ball valve of simple, rugged configuration overcomes leakage because there are no critical wear areas. Stable and precise calibration is inherent in the design; moreover, it can be assembled or disassembled in seconds and needs no lubrication.

### How it's done:

The diagram shows a valve assembly mounted on a panel and secured with jam nuts. The movable part of the valve is a mirror-finished metal ball cut with a precise, tapered groove and held between polytetrafluoroethylene seats. The ball is turned by a keyed shaft and can be precisely manipulated by a vernier thumb screw through a 20:1 reduction gear drive. The ball and seals are enclosed in a metal block which also carries appropriate fittings or connections.

In the "off" position, gas flow is blocked where the polymer seat conforms to the surface of the ball. When the shaft is turned, the groove provides an orifice which bypasses the seat, and enables delicate control of flow.

This reliable valve also performs well in high vacuum applications. Its capability for fine control and the repeatability of calibrations makes the valve especially attractive for laboratory use.

### Note:

Requests for additional information may be directed to:

Technology Utililzation Officer
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Moffett Field, California 94035
Reference: TSP72-10121

### Patent status:

No patent action is contemplated by NASA.

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