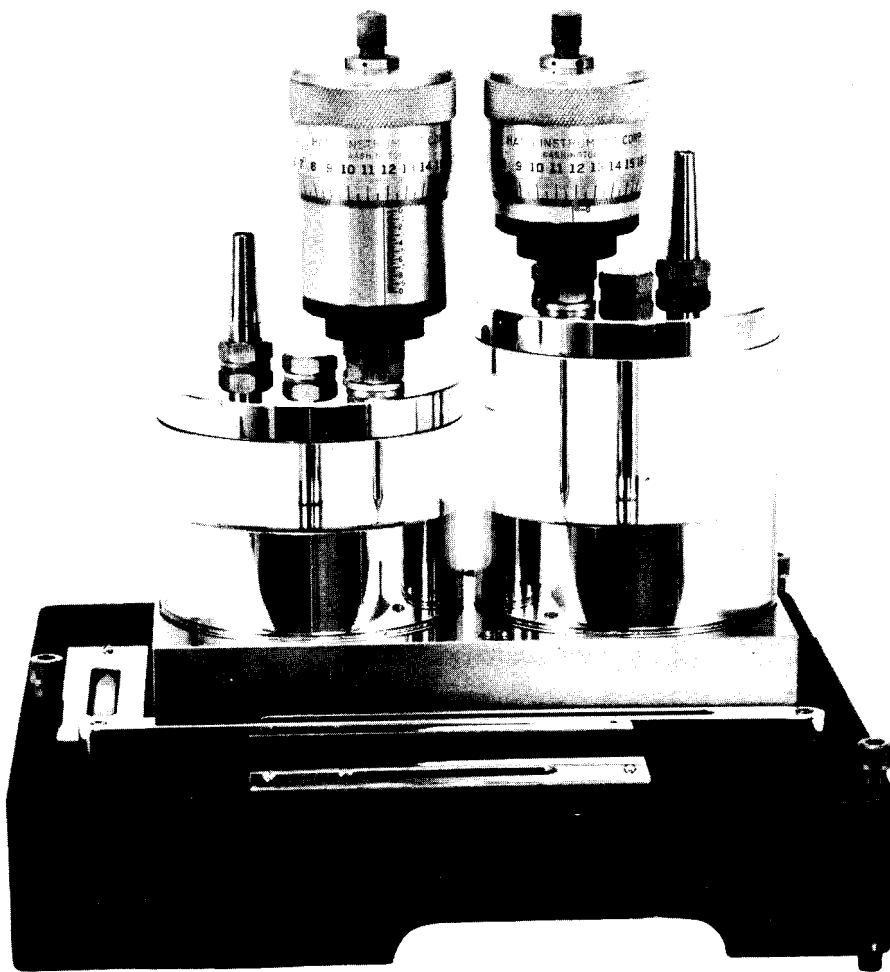


TYPE DMS-1

APR 14 1986

DUAL MICROMETER STANDARD



- TRUE PRIMARY PRESSURE STANDARD
- DESIGN ACCURACY: .0003"
- POSITIVE ACCURACY
Parameters verified without
disassembly
- SIMPLIFIED DESIGN
- RANGE: 0 to 2 or 0 to 4 Inches
Absolute or Differential
- CONSISTENT ACCURACY
No recalibration required
- MILITARY "TRACEABILITY OF
CALIBRATION"

HH
THE **HASS INSTRUMENT CORPORATION**

6711 Old Branch Avenue, Washington, D. C. 20031 Hickory 9-5454 • Area Code 301

DUAL MICROMETER STANDARD

The Type DMS-1 Dual Micrometer Standard is a primary pressure standard designed to measure pneumatic pressures within its range with a very high degree of accuracy.

Essentially, the DMS-1 is a U-tube design utilizing very large diameter legs. These large diameters effectively eliminate capillary depression as a source of possible errors. The legs themselves are constructed of precision bore glass having low expansion qualities. In the event that replacement should ever become necessary due to breakage, etc., this may be easily accomplished without affecting the basic accuracy of the instrument.

The lids and base are of precision machined and surface ground stainless steel which are then chromium plated. The interconnecting passage in the base is in the form of a "V" to eliminate the possibility of trapping a gas bubble between the two legs.

Due to the limited range and high accuracy of the DMS-1, reading the mercury height in the two legs is accomplished by means of two special micrometers rather than through the use of conventional scales and verniers. The 2" diameter micrometer heads read directly to .0001" with interpolation between points to one-half of this or less possible. Each of the micrometer heads is fitted with an adjustable, sharp index point which is pressure-sealed. This is a very precise detecting means. If the observer views the reflection of a regular line at the point of contact with the index point, the reflection of the line deviates sharply as the point dimples the surface of the mercury. This point of contact can be determined to as little as .00005". Thus, the uncertainty of sighting these large diameter legs would be $.00005" + .00005" = .0001"$.

Although the micrometer heads are specially manufactured and are of the highest precision (.0001"), their accuracy may be verified by means of a precision comparator and gauge blocks. This provides a means of tracing the accuracy of the DMS-1 (through the gauge block calibration) to basic units of length

at the National Bureau of Standards.

A platform with leveling provisions is also provided. Leveling is accomplished by means of three adjustable leveling screws used in conjunction with two precision level vials permanently mounted in the platform itself. The platform also contains a convenient drawer for accommodation of small tools, hose clamps, etc.

The Dual Micrometer Standard is offered in both absolute and differential pressure configurations. The absolute pressure version includes a vacuum pump for continuous pumping and a Lippincott McLeod Gauge for independent monitoring of back pressure. So equipped, this instrument is especially useful in aircraft and missile test applications where it is necessary to accurately simulate the high pressure-altitudes encountered in these fields today. It is equally useful in any application calling for precision measurement of low absolute pressures. The differential pressure version is intended for situations in which it is necessary to measure pressure differentials of less than two inches of mercury with utmost precision. The DMS-1 is readily adaptable for either type of application within its range.

When readings of primary standard accuracy are required in the higher ranges, we strongly recommend the use of the Type MS-3 Micrometer Standard Barometer. An instrument of thoroughly tested design and proven accuracy, the MS-3 is available in three pressure ranges: 0-31", 0-62", and 0-100" of mercury. (Please write or call for our bulletin describing this series of true primary pressure standards.)

SPECIFICATIONS:

Range: 0 to 2" or 0 to 4" Hg. Absolute or Differential
Sensitivity: Greater than .00005"
Design Accuracy: .0003"
Repeatability: Greater than .0002"
Micrometer Accuracy: .0001"
Least Count: .0001"
Size: 10.5" x 10.5" x 12"
Weight (Net): 33 lb. including Mercury



Instrument Engineering and Production

Precision Pressure Standards and Controls

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