



WESTERN GAGE

Western Gage Corporation - Fast-accurate, Cost Effective *Dimensional air gages to assure the quality of your precision parts since 1968. Western Gage makes,*

Air probes for precise measurement of internal diameters.

The air probe (also referred to as an air plug gage, air spindle or mandrel) consists of a precision ground hardened steel body incorporating two or more air gage nozzles. Air is passed through the probe body to the nozzles where a back pressure is produced by the surface of the workpiece. An air gage readout (air comparator) senses the resulting back pressure and displays the size of the workpiece.

As shown in the drawing, the nozzle tips are recessed a small amount below the body of the probe. This feature makes the air gage measurement essentially non-contact; consequently, wear does not directly affect the accuracy of the gage measurement. Moreover, the flow of air purges the gaging surface of contaminants making the measurements highly reliable.

Through the use of the opposed set of nozzles, the measurement is made independent of how the operator positions the probe radially within the test bore. This "differential" type of measurement makes it possible to obtain highly accurate measurements with limited operator skill.

Air probe styles vary depending on how close the air jets are to the leading edge of the probe body. "Thru-hole" style probes have gaging nozzles located near the center of the probe body. "Blind" or "Super-blind" probe styles have nozzles located near the leading edge.



Gages for precise measurement of external diameters.

Air Ring Gages has a precision ground hardened steel body with built-in air gage nozzles. When the ring is slipped over the workpiece, the resulting back pressure is sensed by the air gage readout and displayed as the diameter of the part. Air rings come in 2 and 3-jet configurations. The 3-jet air ring checks for 3-lobe out-of-round conditions prevalent in centerless ground parts that can not be detected with a 2-point gage.

Air ring styles Center-jet style air rings have gaging nozzles in the center of the body; shoulder type have the nozzles near the edge.

Air snap gages offer a convenient way to check crankshaft journals or similar parts.



Micro II Comparators (Model AEQ) feature digital displays and RS-232 serial data outputs for S.P.C. data logging. They incorporate precision ceramic pressure sensors that provide stability from drift not found in competitive instruments. Both single and dual master air gage members can be operated by these versatile instruments.

Micro II Features include Selectable gage sensitivity and range; Backlit LCD display; Tolerance indicator lights; Total indicator reading (TIR); Digital preset; RS-232 serial digital output; and are available in 1, 2 and 3 channel units.



Applications - Custom Gage Design.

Western Gage specializes in the design and manufacture of custom dimensional gages, instrumentation, precision components and automated inspection systems.

Computer Workstations with multi-channel Air Electric Converters (16 air channels total). Gaging fixture checks bearing housings by measuring and recording data for Diameter, Height, Flatness, Perpendicularity, Concentricity.

AIR GAGES FOR GUN BARRELS

Gage head for 22 caliber barrel.

AIR GAGES FOR MACHINE TOOL TAPERS Multi-circuit air gages measure internal and external diameters on No. 30 - No.50 machine tool tapers.

AIR TAPER GAGES FOR PROSTHETICS

Taper air probes and air rings are used to check internal and external prosthesis tapers.

MULTI CIRCUIT PROBES

Simultaneous measurement of multiple diameters within a workpiece provides a highly efficient means of inspecting critical production parts.

DUAL CIRCUIT AIR PROBES

Air probe with multiple jets checks average diameter in 2 places.

TAPER GAGES

Internal and external taper angles are efficiently inspected using custom designed taper gages. Western's multi-channel *Micro II* comparators provide a convenient means of displaying taper data.

CONNECTING ROD BEND & TWIST GAGE

Checks parallelism and center distance between piston end and crank end bores. Inspection system includes custom gaging fixture, quad AEK air-electric converter, and Gage-Chek Readout.

Gage calibration & master standards Air Gage Readouts

Master Gage Calibration

Plain cylindrical master gages are calibrated in Western's state-of-the-art gage lab. Size determinations are made by transfer measurement using electronic comparators and laboratory grade chromium carbide or ceramic reference standards. Special temperature instrumentation ensures that thermal errors are not present in the measurement.

Reference standards used for calibration are traceable to the National Institute of Standards and Technology (N.I.S.T.)

Calibrations are done using test methods and equipment conforming to **ISO/IEC 17025** and **ANSI/NCSL-Z540-1**.

Gage Engineering... Western's engineering staff has extensive experience in the design of dimensional gages, instrumentation, precision components and automated inspection systems.

Precision Grinding... Ultra precise grinding equipment with high resolution digital readouts are used to finish gage members.

Hard Chrome Plating & Heat Treating... Western's in-house capabilities include the hard chrome plating & heat treating of gage members.

Gage Lapping... Master gages are finished in Western's temperature controlled gage lab where proprietary I.D., O.D. and flat lapping equipment are utilized for finishing operations.
