



etrology Equipment





Your job is too important to use anything less than Edmunds Gages “lab standard” metrology equipment.

Gaging the gage

A critical, precise discipline. And one that is getting more exacting and more significant every day as manufacturing evolves into a zero-defect process. It's you they are relying on to ensure gage integrity. That's a big responsibility. If you're wrong, it could cost your company money in reject parts. You better be right. To be right you need extremely accurate and reliable instruments to measure your masters. That's where we come in. Edmunds Gages.

Measurement is our business

You may know us as a manufacturer of dimensional measurement gages, from fixed limit cylindricals to sophisticated custom gaging systems. Metrology laboratory equipment, specifically twin-head gage block comparators and internal/external comparators, is also a vital part of our product line. Successfully used in calibration labs and quality control rooms for over 40 years, these units have become known as the “lab standard” in the industry world-wide. The ones that others try to emulate. Many customers have even dubbed them the “gold standard” both for their measurement superiority and their metallic gold, automotive-quality finish.

If you're measuring to millionths or less, you need the best

The following pages describe our metrology equipment and software: twin-head gage block comparators with resolutions to .0000001", our universal comparator for precise calibration of ring gages and other internal or external applications, plus software packages for gage calibration and gage management. We invite you to read about our metrology products, and please call if you have questions or comments. And, if you're in the Farmington, Connecticut area, you are always welcome to stop by and meet us and tour our facility.

Ultra-Precision Twin Head Comparator Benefits

- Calibrates the full range of standard gage blocks — 0 to 20"
- Offers a choice of readout resolution as small as .0000001"
- Meets or exceeds all metrology equipment standards
- Easy to read digital display has CAL mode and auto zero function for easy setup
- Auto zero function permits instant zero setting without mechanical or electrical adjustment
- Optional information downloading for gage documentation
- Step cam allows swift calibration of Metric and English blocks
- Calibrate blocks from .100 through .150 in an 81-piece English set without adjusting lead screw
- Oversize platen reduces downtime by providing ample soaking area
- Accommodates square or rectangular blocks

This versatile amplifier combines simplicity with extremely high resolution and the option to download vital information via RS-232-C output



For calibrating the entire range of gage blocks at a resolution of one-tenth of one millionth of an inch — the Edmunds Gages Ultra-Precision Twin-Head Gage Block Comparator

You asked for it, and we listened

Our 20-inch Ultra-Precision Twin-Head Gage Block Comparator answered a great need in the industry for an ultra-precise comparator that could handle gage blocks from 0 to 20" — the full range of standard gage blocks. Before, users had to purchase multiple units. That extra expense has been eliminated with one excellent comparator featuring a resolution of .0000001". Customers who don't need that level can select resolutions of .0000002", .0000005", or .000001".

Other features and benefits include an oversize measuring platen of 6.5 x 4". It is large enough to hold multiple blocks for temperature soaking while others are being calibrated, diminishing downtime. Another timesaver is our "step cam" system for rapid head adjustment, permitting speedy calibration of English and Metric sets. The upper and lower diamond gaging contacts are retractable, enhancing swift changeover from block to block.

Adhere to industry and government gage reporting standards with ease

With today's emphasis on gage documentation for ISO and other quality requirements, our 20-inch Twin-Head Gage Block Comparator is equipped with an RS-232-C output. All the calibration information may be downloaded into Edmunds' gaging software for certification reports, record retention, and recall dates – a complete gage management system. With frequent specification updates from ANSI to ISO, this optional software feature alone will make activities in the busy metrology lab more organized and compliant.

Also with regard to requirements, this comparator meets or exceeds the current standards outlined by ANSI, ASME, ASQC, NCSL, and ISO.





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Ultra-Precision benefits in a smaller package — the 5" Twin-Head Gage Block Comparator

Big benefits for the small range

For users who don't need the full 20" calibration range, we offer the same bundle of benefits in our smaller Ultra-Precision Twin-Head Gage Block Comparator. Designed to calibrate up to 4" blocks, it too offers a readout resolution down to .0000001", the exclusive step cam system for swift English or Metric block calibration, the oversize measuring platen that reduces downtime, the retractable diamond gage contacts, information downloading, and more.

Both the 20" and 5" models operate in the same efficient and precise manner. They provide true point-to-point measurement. Each of the two gage heads has its own power supply, amplifier circuit, and controls. The signals are compared electronically to produce a precise differential reading, representing the true size of the block. Both diamond contacts are parallel reed-floated for low-friction response. A panel control can switch the comparator to single head operation when desired.

Simple, fast calibration

In the typical case of an 81 block set, the smallest block measurement, .100", is set up in the usual way by adjusting the hand wheel, locking the arm, pressing "auto zero" and offsetting to match the known deviation of the master block, and then comparing the block being measured. Once this initial process is complete, all remaining 50 blocks in the group from .101" through .150" can be measured without having to move the gage head. For each block, the user just advances the step cam one click, pushes the auto zero button for instant zeroing, and adjusts for master block deviation and compares. It's that simple and quick.

Plus, the group of blocks from .1001" through .1009" can be checked within the comparator's measuring range. The remaining blocks in the set are measured in the conventional manner, but with important time saved by instant push-button zeroing.



Ultra-Precision Twin-Head Gage Block Comparator Specifications:

CAPACITY:	ENGLISH	METRIC
#5020100	0 – 5"	0 – 127mm
#5022100	0 – 20"	0 – 508mm
Repeat Accuracy	.0000002"	.000005mm
Gaging Force:		
Downward	2.12 oz.	60 grams
Upward	1.06 oz.	30 grams
Gaging Contacts	Diamond	Diamond
Contact Radius	.125"	3.17mm
Size Stepping Range	.050"; .001"/Step	.54mm; .010mm/Step
AMPLIFIER:		
Display Range	± 1638 counts	± 1638 counts
Least Digit		
#5202200	.0000001"	.000002mm
Digital Output	RS232	RS232
Power Requirement	100 - 240 VAC 50/60Hz	100 - 240 VAC 50/60Hz
WEIGHT:		
#5020100 (0 - 5")	50 lbs.	22.7 kg
#5022100 (0 - 20")	70 lbs.	31.7 kg
Amplifier	5 lbs.	2.3 kg

Time-proven technology — measure O.D.s quickly and accurately with our high magnification comparator

Solves a common problem

Our Trendsetter,TM an electronic column equipped with a high speed peak detector module, detects and captures the dynamic peak of cylindrical parts instantly and accurately. Cylindrical pieces are simply and quickly swept past the measuring contacts of our single-head comparator. This measuring system is suited for close tolerance applications featuring selectable scales starting at .0001" full scale with .000001" resolution. The reset circuit can be activated manually or automatically by programming the time delays. Enhancing its versatility, it can operate in either English or Metric modes.



High Magnification Comparator



The preferred instrument for measuring internal and external dimensions to millionths — the Edmunds Gages Universal Comparator

The comparator you can count on day in and day out

Perhaps that's why it's the backbone of many calibration labs around the world. Its design, craftsmanship, dependability, and accuracy are simply unsurpassed. This comparator is primarily used to calibrate class X, XX, and XXX master rings, and it is also ideal for checking master plugs, discs, and high precision parts.

The rigidity you need

Our Universal Internal/External Comparator is ruggedly built from the ground up with a heavy-duty steel weldment, providing a stable base and excellent vibration dampening properties. Cross travel adjustment combined with free movement of the workpiece allows gaging contacts to locate precisely on the true diameter. Each diamond-tipped gaging contact is individually reed-float mounted for virtually frictionless response and positive equalization of gaging pressure. Gaging action is easily reversed and adjustable to any desired pressure from

0 - 8 ounces. The same gaging contacts accommodate both internal or external measurement, always applying positive gaging pressure throughout the range of measurement.

Edmunds Gages also offers a complete calibration kit for your convenience. It contains three class XXX ring gages, a long form certification traceable to N.I.S.T. and ISO - compliant procedures. With our kit you can calibrate your comparator in-house, saving the time and expense of employing outside calibration services.

In one convenient case, all the necessary items for setting up the Universal Comparator and mastering to gage blocks are organized.



Universal Internal/External Comparator Specifications:

	ENGLISH	METRIC
Capacity	Internal 12" External 11"	305mm 279mm
Repeat Accuracy	.000001"	.00002mm
Gaging Contacts	Diamond	Diamond
Gaging Pressure	Adjustable 0 - 8 oz.	Adjustable 0-227 grams
Finger Elevation Range	1 5/8"	41mm
Work Table	11" X 16"	279mm x 406mm
Floor Space	16" x 20"	406mm x 508mm
Overall Height	56"	1422mm
Weight	675 lbs. (approx.)	306 kg (approx.)
Amplifier:		
Display Ranges	± 1638 counts	± 1638 counts
Least Digit	.000001"	.00002mm
Digital Output	RS232	RS232
Power Requirements	100 - 240 VAC 50/60 Hz	100 - 240 VAC 50 - 60 Hz



Universal Internal/External Comparator



Benefits:

- ▶ Wide capacity internal measurement range of .040" - 12"; external up to 11"
- ▶ Excellent repeatability to within .000001"
- ▶ Dependable accuracy from same condition mastering and measuring
- ▶ Auto zeroing
- ▶ Clear indication of correct positioning
- ▶ English or Metric readout
- ▶ Digital downloading for measuring documentation



Metrology Equipment

The software technology you need for calibration and gage management

The total solution

In addition to sophisticated calibration equipment, we also offer dedicated calibration and gage management software. Many continuous improvement and manufacturing standards programs, such as ISO, require detailed documentation for every gage in your company. Our software conforms to all the current standards and makes this daunting task simple, efficient, and quickly retrievable. It can be used to track shop floor gages, laboratory gages, electronic meters, or any other device that needs to be calibrated.

For example, after calibrating a gage, you can instantly print a certification certificate or learn about its history. You can also find out which of your gages are due for calibration and exactly where those gages are located. Practically anything you need to know or do relative to gaging can be gleaned from this program, saving you time and maintaining compliance.



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