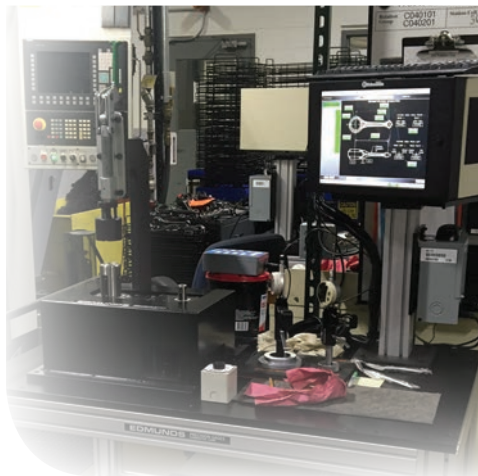




# CUSTOM GAGING

Designing and Building the Right Measurement Solution

DESIGN & BUILD



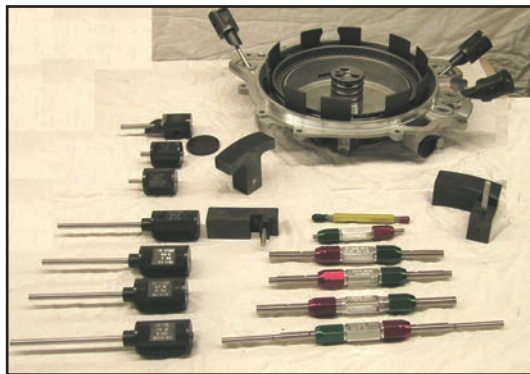
# Custom Gaging

## OFTEN A CATALOG GAGE JUST WON'T CUT IT

Since 1950, Edmunds Gages has been designing and building custom measurement solutions to fill a specific niche in the market. High volume manufacturing requires gaging devices that can stand the test of time, often in harsh environments, with very accurate and repeatable results. Checking one or two features after machining multiples won't give you the entire story. And waiting on a CMM report hours later typically will have allowed too many parts to go downstream. So to bridge that gap, Edmunds Gages employs a team of highly focused metrology engineers dedicated to conceive, design, build, and implement the right design & build solution for your application.

## SINGLE ELEMENT GAGES - ONE FEATURE, ONE GAGE

From manual plug and ring gages, to flush pins, to air gaging and more, Edmunds Gages is a world leader in custom gaging. We can make or modify a standard gage, implement multiple gages, or start with a blank sheet of paper to design a gage to check that single feature of your part that gives you the most trouble. Single element gages are commonly used to "audit" a process. Our single element gages can provide a Go/No-Go indication, a variable data result, or with full statistical Process Control (SPC) analysis, depending on your specific need.



*Array of Go/no-go gages, single element with SPC*

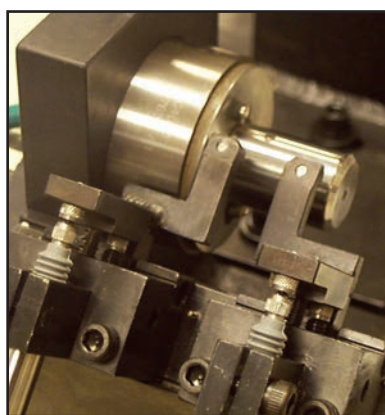
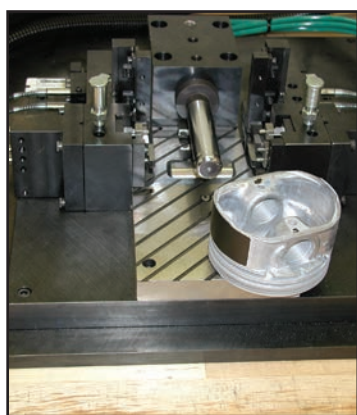


*Single element with variable data.*

# Custom Gaging

## MULTI-DIMENSIONAL GAGES - ONE GAGE, MULTIPLE FEATURES

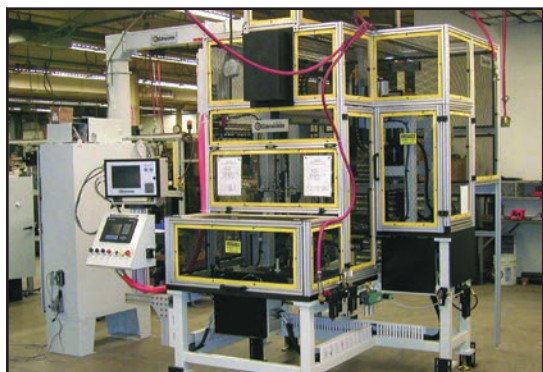
Manufacturing a part is not always a one-to-one relationship of a process to a single feature. Depending upon the machining process, once a part is held in the machine, multiple cuts, or passes, with one, or multiple tools may be made to partially complete, or fully complete, many different features in a single chucking. So the inspection of multiple dimensional features also can be more economical to inspect in a single seating of the part. Edmunds Gages has perfected multi-dimensional gages by incorporating air gaging, and or LVDT contact gaging, to best suit the requirements of the process. Now we can tell you more about your parts, and more about your process than ever before. Normally combined with our variable data readouts, understanding the measurement results becomes easy, with a very quick glance of dials, bargraphs, or analytic charting of each feature measured. This level of sophistication can be used to audit a process or specific operation, or use for 100% inspection depending upon the volume, with the user loading and unloading parts from the gage.



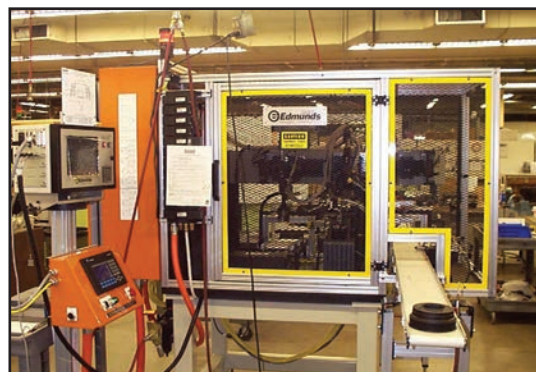
*Examples of multi-dimensional gages*

## AUTOMATED GAGING - NO NEED TO TOUCH THE PARTS

When volumes of parts produced exceed your available labor, or lab inspection time, Edmunds Gages can help with automating the measurement process. Don't think in terms of hours per parts, we can bring this to parts-per-seconds! Utilizing servo motions, electro-mechanical arrangements, and pneumatics, our design and build automatics utilize the same basic principals of metrology found within a gage lab, to your shop floor for fast ,accurate, repeatable measurement. We can even pull the bad parts from the process flow. Hot parts. Wet parts. Cool parts. Dry. We have dealt with them all, with resounding success. It starts with a part print and and a conversation about your process, and our sales engineers take it from there.



*Fully automated gage for crank cases*



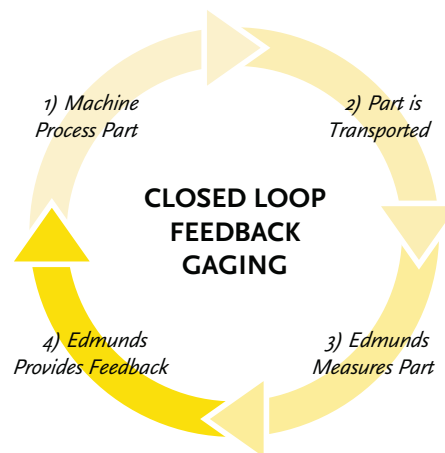
*Automated gage for pulley dampers*



# Custom Gaging

## POST PROCESS CONTROL GAGING

The latest trend in metrology is called process control gaging. Edmunds Gages has built numerous automated gages that can “talk” back to the part producing machine, giving size compensation signals to the machine to control the next part machined. Some of our competitors try to do this right in the machine, but when is the last time you took a hot, coolant dripping, part into your gage lab to be measured? Edmunds Gages produces what we call “Post Process gages” which measure the part immediately after the machining process, but in many cases before the next part is machined. We do this in an environment that is conducive to measurement, thus providing not only process control, but also sort your parts by the part print limits allowable. Controlling the individual tools, or advising when to dress the grinding wheel, can save thousand of dollars over time, and without an operator needing to make a judgment decision.



## FINAL INSPECTION & CLASSIFICATION

Edmunds Gages is known for gaging tight tolerances. However many times the tolerances may prohibit typical gaging processes, or the end users need to select ranked parts based upon size, from individual bins. In these batch manufacturing examples, Edmunds Gages engineers design sorting and ranking systems to place the part directly into the customers preferred dunnage, based upon their measured size. These units are typically found at the end of the manufacturing line and are called Final Inspection or Classifying Gages.



*Final Inspection Classifying Gage*

## SELECT FIT, MATCH GAGING

Many assembly processes require the selection backing spacers, shims, or retaining rings based upon the actual size of the components being assembled. Or, as the case with fuel injector components, parts are “matched” based on a desired clearance between two moving pieces. Edmunds Gages has developed hundreds of such select fit stations for customers that go to the extreme of including the logic of “pick-to-light” system to fool proof the process.



*Air “match” gaging for clearance.*



*Pick-to-light select fit stations.*



## OTHER EDMUNDS GAGES PRODUCTS AND SERVICES

**Air Gage Tooling** Air gaging is one of the easiest and most accurate non-contact measurement methods. We make tooling for our own and other air gaging systems. We offer many tooling styles in standard and special designs, plus system accessories.

**Electronic Bore Plugs** Our durable, highly precise LVDT plugs are available in a choice of styles. They are ruggedly designed for demanding production use.

**Accu-Touch™** The industry leader in easy-to-use, intuitive, touch screen gaging readouts. Capable of displaying 1 to 4 single element gages, or a combination of input for as many as (4) features. Fully compatible with all Edmunds LVDT or AM based gaging devices.

**The Trendsetter™ II** column has quickly interchangeable plug-in modules for a variety of gaging needs. The ten-inch scale has digital scale values and a choice of inch or metric ranges. It works with most every make of air tooling.

**Gage Heads** Compatible with all Edmunds electronics, our LVDTs are available in cartridge, lever, and reed float styles.

**Computer Aided Gaging (CAG™) Microprocessors** Our CAG™ system offers a computer-based readout and SPC data gathering ability environments. This proven system can be applied to manual or automatic gages requiring up to 32 inputs. The ultimate CAG software provides closed-loop feedback when networked with CNC machine tools, providing continuous process control.

**Gage Block Comparators** We offer single-head and twin-head comparators, capacities up to 20", and resolution to .000001". Unique functional features, such as "click stop" for rapid head positioning and auto zeroing save time.

**Universal Comparator** The standard of accuracy, our comparator is universal for comparative ID and OD, measurement with a resolution of .000001". Auto zeroing eliminates time-consuming setting of meters. The preferred instrument in most calibration labs.



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