

CONTACTLESS EARING MEASUREMENT UNIT

Contactless Earing Measurement

Huxley Bertram's highly versatile Contactless Earing Measurement Unit (CEMU) enables high speed earing measurement with options for additional wall thickness gauge and back end profile measurement.

Contactless laser measurements enable repeatable, laser accurate, rapid and flexible Earing measurement of Cups and Cans.

Measurement and cup swapping takes approximately

4 seconds. Huxley Bertram's CEMU has the capability of measuring hundreds of cans an hour, from 33-100mm internal diameter and 15-215mm deep. Changing format tooling is done with ease using only one bolt in a matter of seconds.

The Huxley Bertram Contactless Earing Measurement Unit is compliant with EN 1669 and ISO 11531. Huxley Bertram has over 30 years of experience, supplying earing measurement machines around the world.



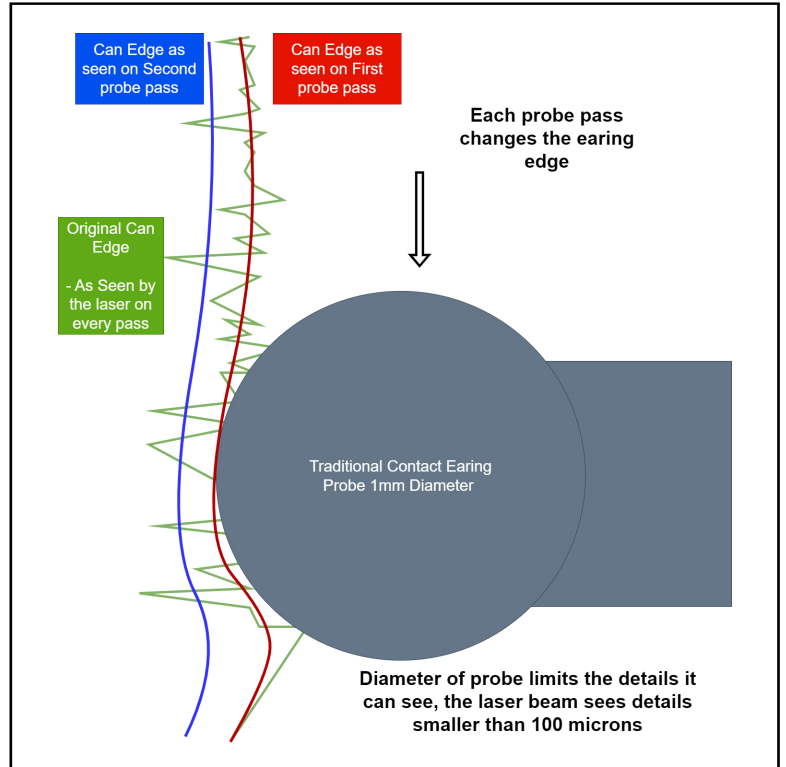
Product Description

Key Advantages

Rapid Precision Earing Measurement - without the drawbacks of physical probes.

Physical probes cause significant inaccuracies in Earing measurement. Due to the probe being physically pushed against the Earing rim, it often distorts the Earing profile, destroying delicate features. This is a problem particularly on thinner Cans and is characterised by a collection of aluminium fragments left around Earing probe during measurement. Physical probes are also limited by their diameter (typically around 1mm) which means smaller features cannot be captured; whereas the CEMU is capable of measuring these features. A typical rotation of 180deg/s results in 13 measurements per degree.

Diagram on the right describes the difference between HB Contactless Earing Measurement and Earing measurement using physical probe.



Automatic Grain Detection- eliminates the need for manual Can orientation. Traditionally, the operator of an Earing Measurement Unit had to place a Can with the grain orientated in a specific direction for correct peak identification. The CEMU uses a laser to detect the grain orientation during rotation and automatically corrects it.

Cup Size Flexibility

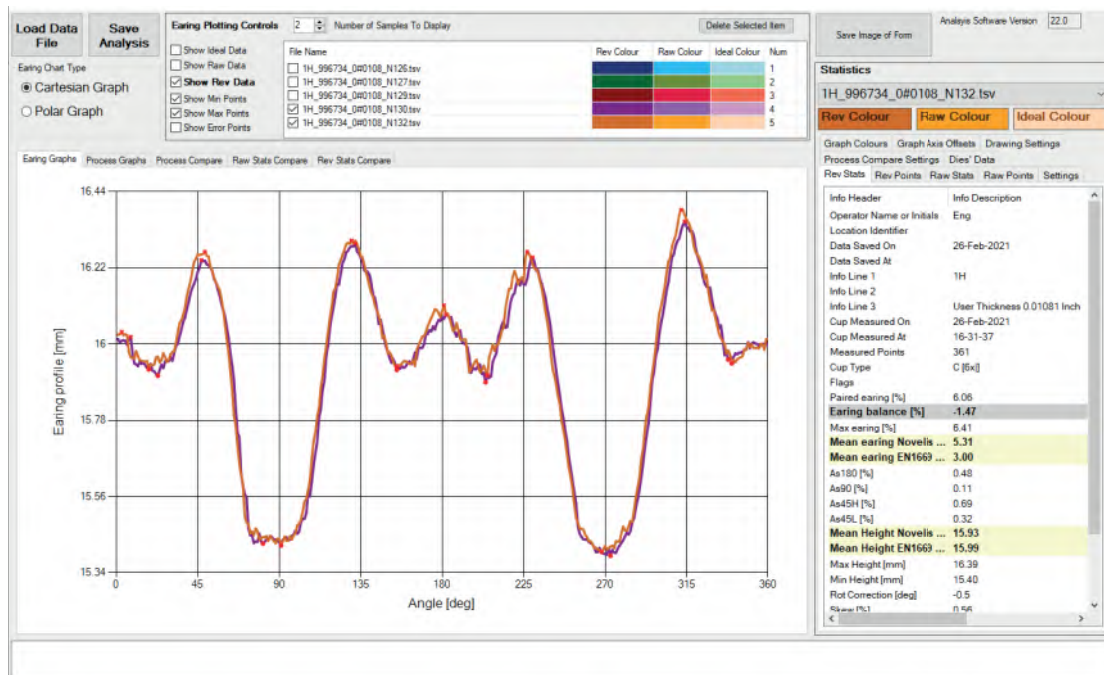
Measurement of virtually any Can is possible, with one machine being able to measure cups from 33mm to 100mm in diameter and heights from 15mm to 200mm. Simple hand wheels allow for reliable and precise position adjustment of the laser distance sensor. The only parts to change are the Can drive disks which are changed quickly with a single screw.

Huxley Bertram Advanced Earing Analysis Software - facilitates detailed and rapid evaluation of the Earing characteristics. The analysis automatically generates Polar or Cartesian plots of Earing profiles, algorithmically corrects for Can skew, and identifies peaks and troughs using algorithms developed over 30 years of Earing measurement experience. Multiple overlays of Earing profiles are overlaid for comparison.

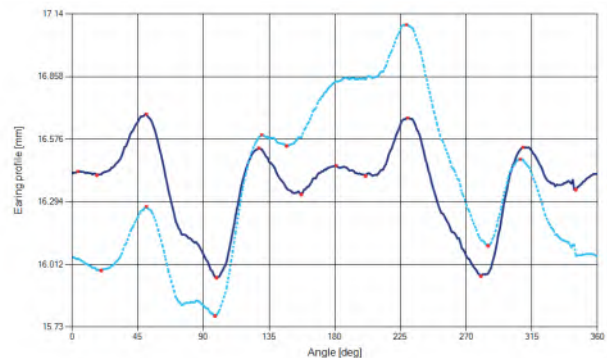
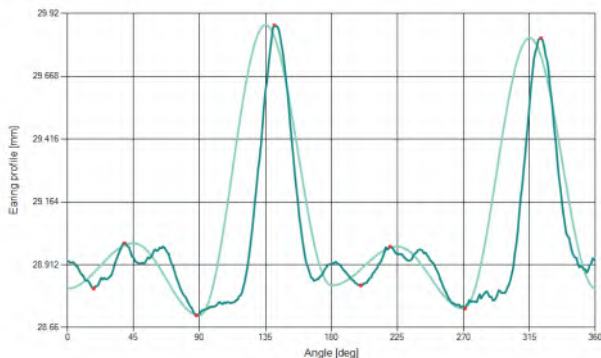
Based on calculations stipulated in EN1669:1997 and ISO11531:2015, the software automatically identifies peaks and valleys, and removes Cups skew (sugar scoop). The profile is then classified by the acceptable peak positions as set out in EN1669 and calculates the metrics from EN1669. This is then compared to the user set acceptable ranges to produce instantaneous sample acceptability data.

Plots for the original skewed data, the de-skewed data and the fitted idealised curve are automatically generated. This gives operators the ability to rapidly access the validity of the data and enable rapid batch release and quality assurance processes.

Automatic PDF results reports can be generated so that detailed results and graphs can be shared with colleagues and customers. Calculation results are saved to a CSV file, and directly sent to a network location for harvesting by a batch -release data warehouse system.



Automatic Profile De-skew



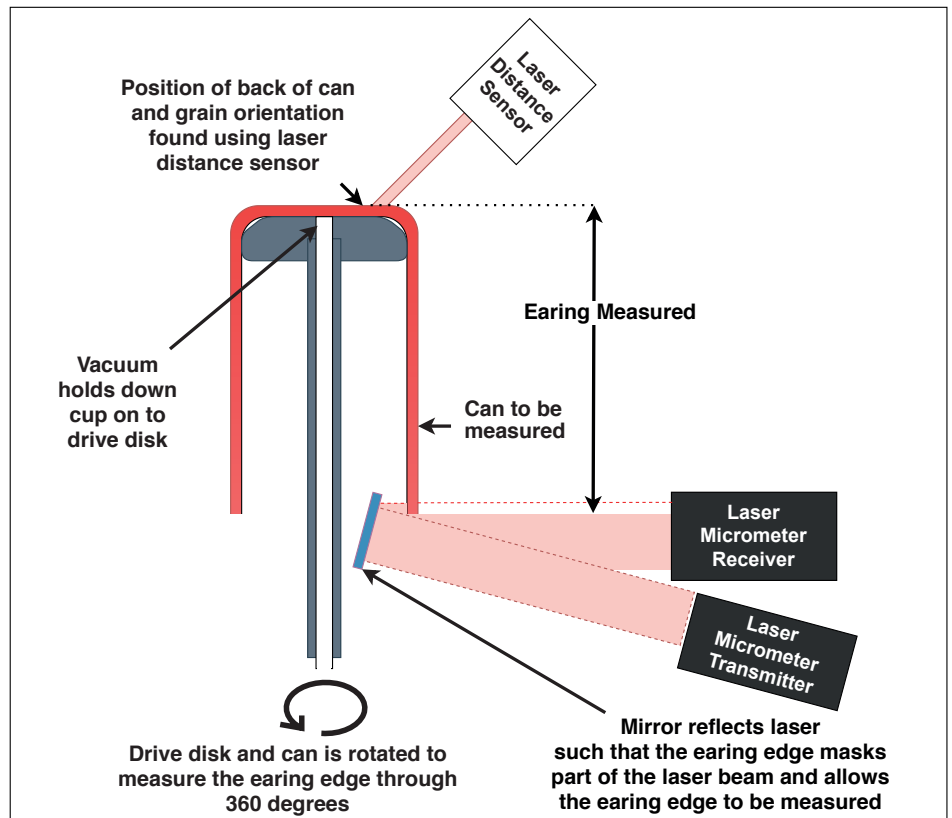
Display Against Scaled Ideal Profile

Principles of Operation

Contactless Earing Measurement

The Can is placed on the drive disk held on by vacuum to the drive disk. The drive disk and Can completes 1 whole rotation to record the Earing profile.

The Earing profile is measured by the portion of the laser beam masked by the Earing edge of the Can as shown in the diagram right. The height of the flat end of the Can is measured by the laser distance sensor. This is the basis for the zero position of the Earing measurement.



Functionality	Key Advantages
Contactless Rapid Earing Measurement	Rapid, Precision earing measurement
Manual Can size adjustment from 33 to 100 mm Internal diameter and from 15 to 200 mm tall. Other sizes available on request	Measure thin-walled Cans without deformation
Automatic Grain Direction Detection	Earing profile can be measured in less than 3 seconds
Huxley Bertram Advanced Earing Analysis Package	No Manual orientation of can grain direction
	Measuring Cans in seconds
	Measure hundreds of cans in an hour

Real world Repeatability against an aluminium reference surface better than ± 3 micron.

Real work accuracy against aluminum reference better than ± 5 microns.

Machine Specification

Earing Measuring Capabilities:

Can internal diameter:	33 mm to 100 mm ⁽¹⁾	Can height range:	13 to 200 mm
Max Earing peak trough distance:	30 mm	Earing measurement resolution:	+/- 1 micron
Total measurement file save time:	Less Than 4 sec at 180 deg/s	Earing Measurements per degree at 180 deg/sec ⁽⁴⁾	Greater than and 12 per degree
Typical Earing accuracy ⁽⁵⁾	+/- 10 micron	Rotational measurement accuracy to:	+/- 0.12° at 180 deg/s

Included: Huxley Bertram Advanced Earing Analysis Software Package

Physical Specifications:

Approximate footprint (excl. monitor) ⁽³⁾ :	540 wide x 460 deep x 720 mm high	Weight:	40 kg Earing measurement only
Electrical Power:	240/110 V AC 50/60 HZ ⁽⁶⁾	Pneumatic supply not required	

Wall Thickness Measurement Addition

Additional functionality of contactless wall thickness measurement at all positions up, down and around the can vertical wall is available for retrofit. See our **Contactless Can Wall Analysis Machine** brochure for more details.

(1) Maximum height of 33mm ID that is measurable is 150 mm. 200 mm long Cans must be at least 48 mm ID.

(2) Cans longer than 100mm or very thin Cans may require extra stabilising fixtures for wall thickness measurement. Please let us know your requirements.

(3) A standard 21 Inch computer monitor is supplied with the machine. A second monitor (not supplied) can also be connected as some customers find this easier for analysing results. A spare HDMI socket is provided for this.

(4) 180 deg/s is default but if more detailed results are required a slower rotation speed can be set. Halving the measurement speed doubles the samples per degree.

(5) This is the accuracy that we expect our customers will experience, and be able to verify, of our machines, providing they are well maintained and calibrated. Calibration tooling is provided with the machine. Tooling can be re-certified upon request.

(6) Please specify required voltage and frequency when ordering.



Huxley Bertram

Huxley Bertram Engineering Limited designs and builds special purpose machines, automation and test equipment; alongside a select line of products for specialised industries.

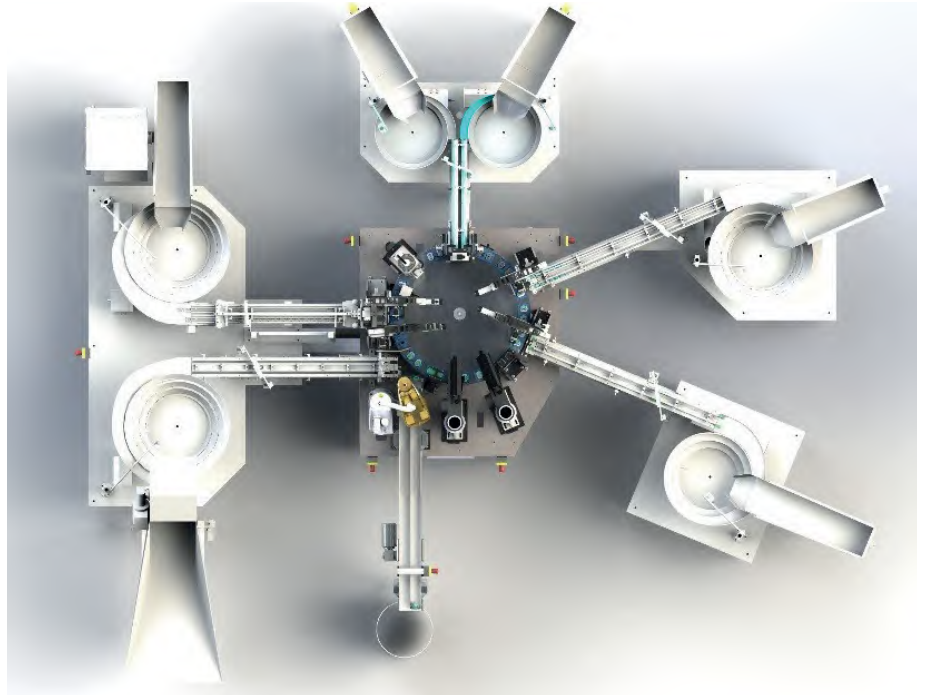
These innovative solutions enable companies to increase quality and throughput and reach new markets. Huxley Bertram regularly supplies equipment and supports customers all around the world.

The company collaborates with clients to solve complex challenges, with the right mix of innovation, technology and simplicity.

Huxley Bertram was founded in 1979. Since then it has delivered over 1,000 solutions, transforming clients' operations in industries from pharmaceutical and nuclear to research and academia.

Located in Waterbeach, Cambridge, with facilities measuring over 25,000 sqft.

For more information on Earing Measurement Machines or Huxley Bertram Special Purpose Machines visit www.huxleybertram.com.



Huxley Bertram Engineering Ltd.
53 Pembroke Avenue, Waterbeach,
Cambridge. CB25 9QP
England

Tel: +44 (0)1223 203160
Email: info@huxleybertram.com

**Huxley
Bertram**

www.huxleybertram.com