Huxley Bertram
Cambridge, UK

EP100 - THE MODULAR EARING MEASUREMENT SYSTEM

Reliable, Repeatable Earing Measurement – Now Modular

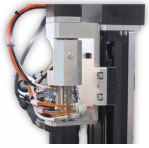
Start with **precision** – expand with **automation**:

Core Press

- Mini Earing Gauge (MEG)

- Cup Transfer

- Lubricator



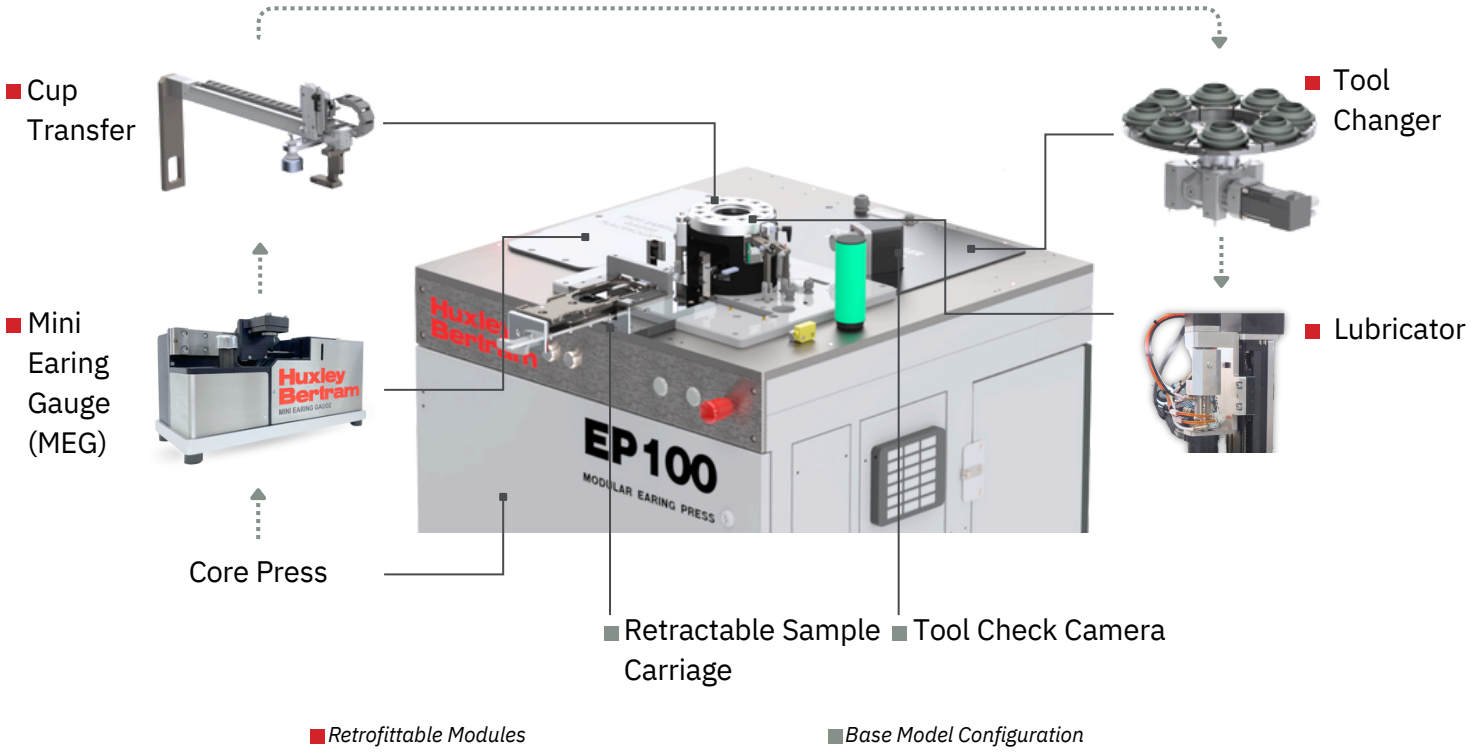
- Tool Changer

· ±3 µm repeatability
· repeatability 0.1% mean Earing
· ~30s/cup · EN1669 / ISO11531

EP100 base press shown. Add MEG and automation modules as you scale.

Discover the full upgrade path

Product Description



Reliable, Repeatable Earing Measurement

Unparalleled accuracy & repeatability

- Contactless laser measurement (~4 s per cup) designed for ±3 µm repeatability; typical accuracy ±10 µm.
- Tested against EN 1669 / ISO 11531; supports Ø 33–55 mm, 12–43 mm formats.

Eliminates probe-induced distortion seen with mechanical methods, preserving fine edge features.

Market-leading process expertise

- 30+ years of Earing measurement experience distilled into tooling, fixturing, and analysis workflows.
- Software classifications align to EN 1669 peak/valley positions and incorporate HB's methodology for validating profile symmetry.

Built with input from rolling mills and canmakers globally; designed for reliable process audits and faster coil/can acceptance decisions.

Software that measures - and judges validity - "Is this good Earing?" - Answered

- In-house algorithms automatically de-skew cups, detect peaks/troughs, and classify profiles; produce polar/cartesian plots, CSV outputs, and batch logs.
- Auto PDF Earing report generation - easily share results.
- Result integrity checks: flags asymmetry, mis-orientation, or anomalous peaks; helps teams **separate "a number" from a *valid* result**—a common gap in generic systems.
- Speed + depth: seconds per cup with comprehensive analysis and reporting for QA/traceability.

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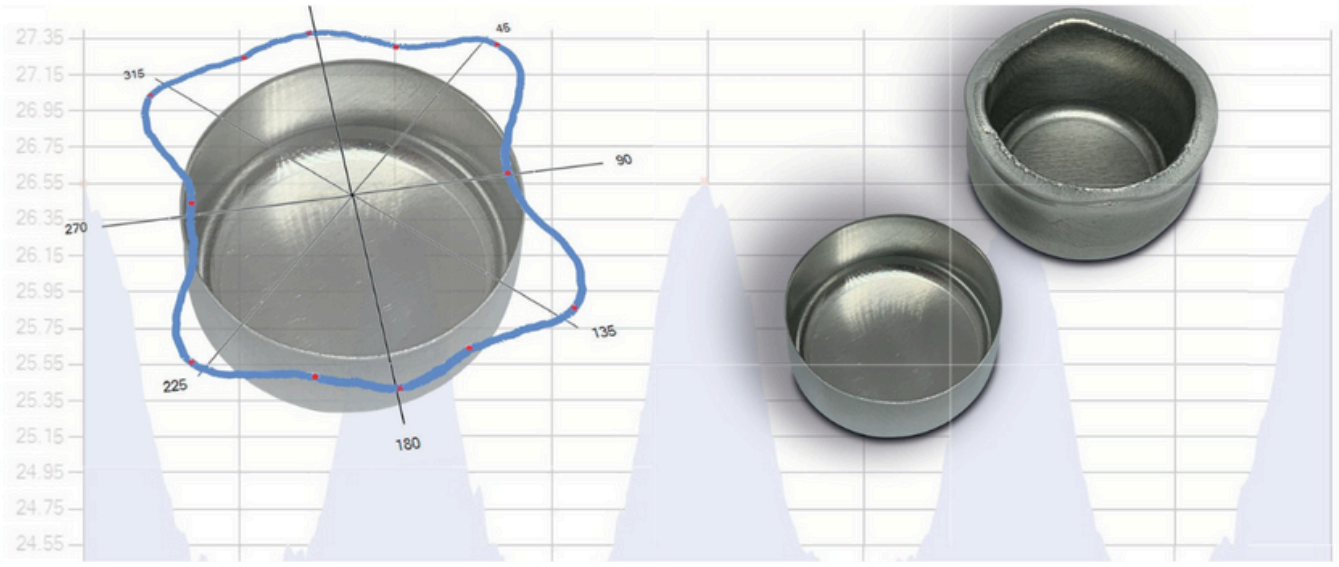
Configurations and Modules

Model	Configuration	What it adds	Why it matters
EP105	EP100 + Sample Thickness	<10s to make a Cup; in-machine thickness; tool check camera; cup blow-off; tight die-clearance philosophy	Repeatability first; prevents double-feed & tool errors; ready for modules
EP125	EP105 + MEG Measurement	<10s to make a Cup; manual transfer; + 4 seconds Contactless Earing measurement	Operator error reduced by 1/3
EP150	EP125 + Cup Transfer	<20s one press measurement and result analysis.	Remove operator error, remove throughput; 20s/cup
EP165	EP150 + Tool Changer	Auto die change < 30 s; no manual sample batching; collision protection	Faster format change, safer tooling, higher lab productivity
EP180	EP150 + Lubricator	<30s prep, lube make and measure; metered dosing; cleaner cell; H&S	Repeatable lube film → repeatable Earing; less rework; confident Earing result
EP200	Full Auto (Press + Thickness + MEG + Transfer + Tool Changer + Lubricator)	Fully automated forming-to-measurement flow	Hands-off Earing workflow, maximum repeatability & throughput



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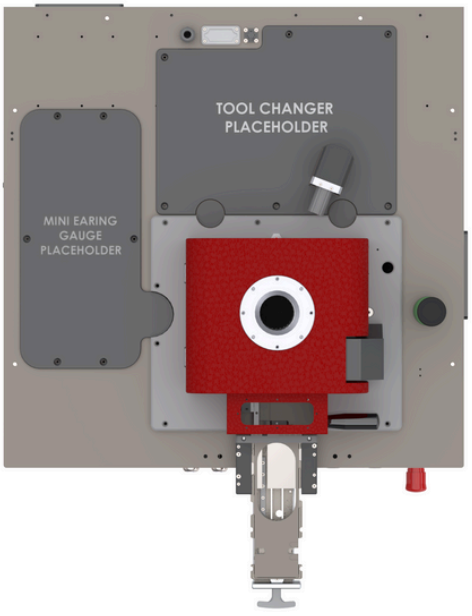
Huxley Bertram Earing Press - Base Configuration

Base EP105 – High-Repeatability Press + Sample Thickness Measurement

Non-hydraulic, cam-driven high-force press focused on **repeatability**
Designed for **EN 1669 & ISO 11531** workflows (Earing)

- **Sample thickness:** 0.08mm – 5mm.
- High-efficiency **Retractable Sample Carriage**
- **In-machine sample thickness measurement**
  - Prevents **double-feed** → protects the machine
  - **Validates nominal vs measured** thickness against the batch/label
- Air cup ejector" - Enables ejecting **ultra-thin cups** >0.15mm thick without damage. Unlike Hydraulic Ejectors.
- **Die set - beyond EN 1669 –**
  - Die Clearance granularity = less than 0.1% mean Earing variation across a die's range.
  - Whereas EN 1669 die set => 0.5% mean Earing variation across a die's range.
- **Error-proofing**
  - **Tool Check camera** — Ensures the right tool is always used.
  - **Cup blow-off** not ejector — prevents damage to thin cups during removal

EP105 is the **right base** for repeatable Earing measurement before adding automation modules to match your needs.



Top view of base EP 105

Vs. Generic Press

Description	Generic	Huxley Bertram
Die clearance variation	>0.8% Mean Earing (EN1669)	0.1% Mean Earing
Makeable minimum cup thickness	~0.15mm	< 0.08mm
Cup Ejection	Hydraulic	Air
Max Aluminium Sample Thickness (Earing)	6mm	6mm
Repeatability 0.1% Mean Earing		X
EN 20482 Cupping test	X	X
Makes Cups to EN 1669	X	X
Machine-led tool selection		X
Barcode Scanner, batch Data capture		X
Drawer Infeed		X
Tool Check Camera		X

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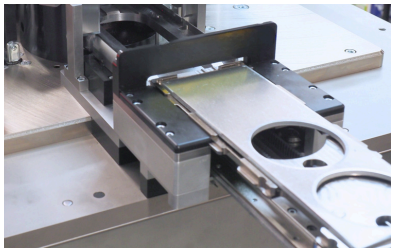
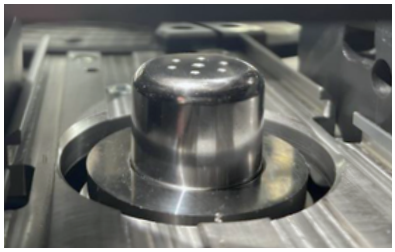
Air Cup Ejector, Retractable Sample Carriage & Tool Check Camera



Retractable Sample Carriage



Ejection of ultra-thin cups <0.15mm thick without damage.

Tool Check Camera

The Retractable Sample Carriage

Enables rapid insertion of pre-cut samples by:

- Eliminating operator manual punch-out positioning within the sample.
- Prevents punching an existing hole.
- Minimising Sample feed jams.
- Prevents hand-applied sample lubricant from being wiped off on the tooling as it is inserted.
- Barcode information acquired automatically on drawer close.
- Sample remains in the drawer, while tools are changed, preventing samples from being mixed up during die change.

Simply place the sample in the carriage, close the drawer, and press start. No mess, no fuss, just results.

Die Check Camera

Operators often use the wrong tools for drawing cups, and they frequently don't notice or don't care, as long as they still achieve a cup and an Earing result. But the wrong tool produces erroneous Earing results that could well allow a bad coil to go to the customer. The die check camera, which is standard on all HB Earing systems, ensures that the correct die is always used. A warning message will alert the operator if they insert a sample which is not compatible with the die loaded. This is achieved through each die being marked with a unique data matrix, which is read by the camera and matched with a list of known dies to confirm compatibility with the sample.

Air Cup Ejector

Traditionally, mechanical ejectors have been used to push cups off the draw punch. This is problematic with cups <0.18mm, as the ejector creates a raised imprint in the top of the cup, which invalidates the Earing result.

Our innovative air ejector releases the cup from the punch by injecting a small amount of air under the cup to gently separate the cup from the punch so that even the thinnest of cups are released to be accurately measured.

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Die Sets: Precision Beyond Standards

The EP100 platform includes a range of high-precision draw dies engineered for repeatable Earing measurement and minimal variability. These die sets go beyond EN 1669 standards, offering:

- Granular Die Clearance Control: Less than 0.1% mean Earing variation across a die's range—compared to the ~0.8% variation typical of EN 1669-compliant dies
- Unique 1-piece draw, blanking tool allowing unprecedented precision. Die Bore to Blanking bore concentricity tolerance better than 5 microns.
- Manufactured to tolerances of +/- 1 micron, ultra-fine surface finishes better than 0.1Ra.
- Taper mounting system allows micron precision mounting in the cup draw system in seconds, without manually placing multiple pieces of tooling.

Repeatable Earing Lubricant

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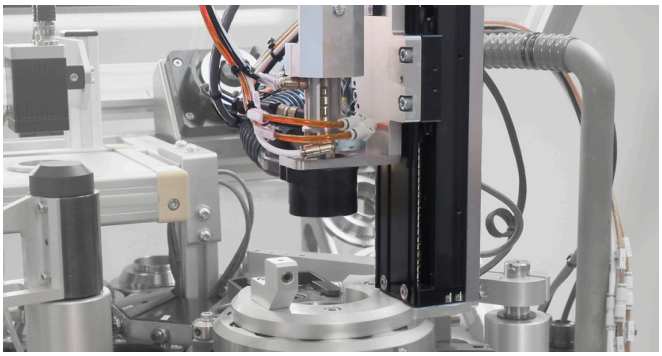
Die Set on the Automatic Tool Changer



Automatic Lubricator

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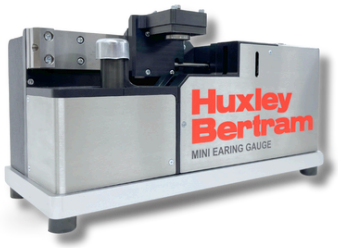
Modules Integration

+ Integrated Measurement Station

Integrate our cutting-edge Mini Earing Gauge (MEG) onto the deck of your press.

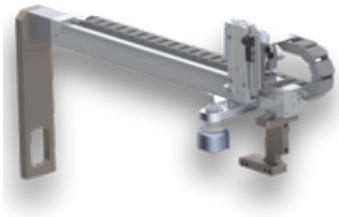


Precision contactless Earing measurement station on your press.

- **Streamlined workflow:**
  - One operator action: Pick a cup out of the press and place it onto the MEG.
  - Reduced sample mishandling opportunities from 3 to 1 per cup.
- **No more mixed-up sample barcodes between draw and measure.** Data captured by a handheld barcode scanner is automatically transferred from the press to the MEG and written to the results file.
- **Tooling and draw process data** automatically inserted into the data file.

+ Automatic Cup Transfer

Press one button from the flat sample to the Earing results.



- **Eliminate all operator data and cup mishandling –**
  - Batch data is automatically captured from the barcode on sample insertion into the machine, with our integrated industrial barcode capture system.
  - A wide range of 1D or 2D Barcodes are automatically read.
  - Operators never touch the cup.
  - The machine handles all data automatically.

Rapid sample processing: **make and measure in less than 20s per cup.**

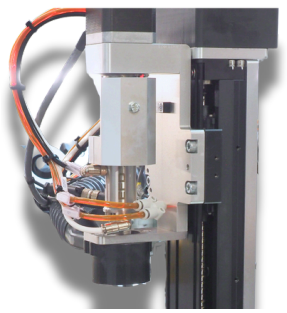
+ Tool Changer – EP165, EP200

Automatic tool change – Change dies in seconds.

- No sample size “batching” required, running mixed samples in any order.
- **Reduced tooling costs - damage from operator mishandling prevented.**

+ Automatic Lubricator – EP180, EP200.

Unprecedented Earing repeatability – The only way to eliminate operator variability in lubricant application.



- **Milligram precision dosing.**
- Consistent lubrication spread, not just consistent quantity.
- All the lubricants are kept in the machine.
- **No more hand applying messy and unsafe chemicals – Improved operator health and safety**
- **Reduced sample prep times**

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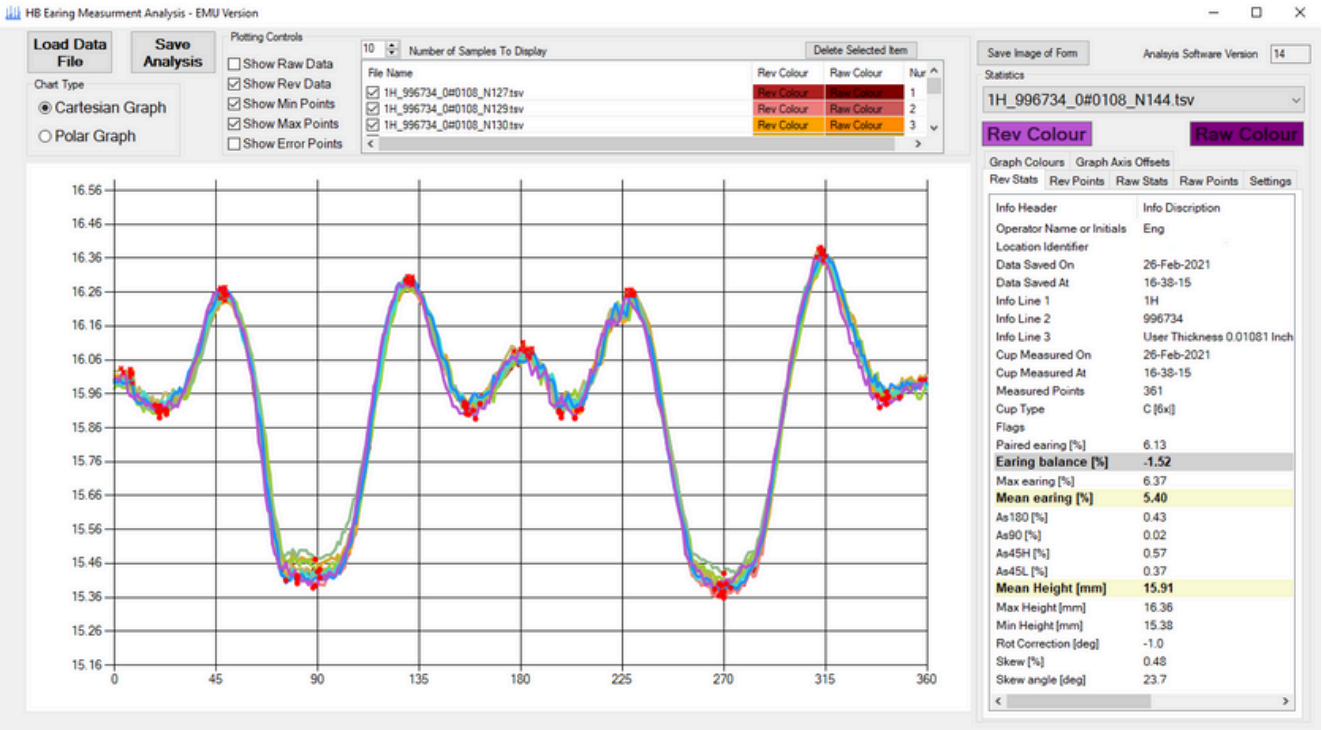
Huxley Bertram Earing Analysis Software



The EP100 platform is powered by Huxley Bertram's intelligent Earing analysis software—designed to transform raw measurements into actionable insights with minimal operator input. Once a sample is scanned, the software automatically processes the data, compensates for skew, and generates both raw and revised cup profiles for accurate formability evaluation.

Operators can compare multiple samples side-by-side, view interactive polar and Cartesian plots, and access key metrics like peak-to-trough symmetry, skew angle, and repeatability. All results are presented in a clean dashboard, with export options for CSV and PDF formats. Saved analyses are embedded directly into the original files for full traceability.

Whether used on-machine or standalone, the EP100 software delivers fast, repeatable, and traceable results—making it ideal for labs, mills, and R&D teams.

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Additional Tools and Accessories

The available additions for both models include:

- **Calibration Cups:** Precision references for height calibration of the laser micrometre system with the mini Earing gauge, ensuring accuracy and supporting traceable results. Kits include a validation cup and alignment tool. 1 set included with each MEG.
- **Master Earing Cups:** Precision-manufactured cups with known Earing values, CMM-certified references for system validation, included with the base machine to maintain repeatability.
- **Alternative Blank Cutter Sizes:** Allows for drawing cups from blanks between 55 and 66mm in diameter.
- **Additional Die Sizes:** Optional dies for different sample thicknesses or blank diameters. 8 draw dies are supplied with the machine as standard; further tools can be purchased as required.
- **Infeed Rack:** Automatic sample loading rack that processes 50 samples in 30 minutes, allowing multitasking.
- **Load Cell Measurement of draw forces:** This option allows the loads on the punch and clamp to be recorded during drawing with high accuracy. Useful in cup drawing R&D.
- **HB Earing Analysis Software:** Provided on the machine, with options for additional PCs via annual subscription.
- **Machine Spare Sets:** Tiered packages to minimise downtime, including quick-swap items and critical components for quick recovery.
- **Spare Punches:** Comply with EN 1669 / ISO 11531 standards, ensuring consistent forming conditions across different sites.
- **EN ISO 20482 Cupping Test tooling set.** Enables the machine to carry out the EN ISO 20482 test.

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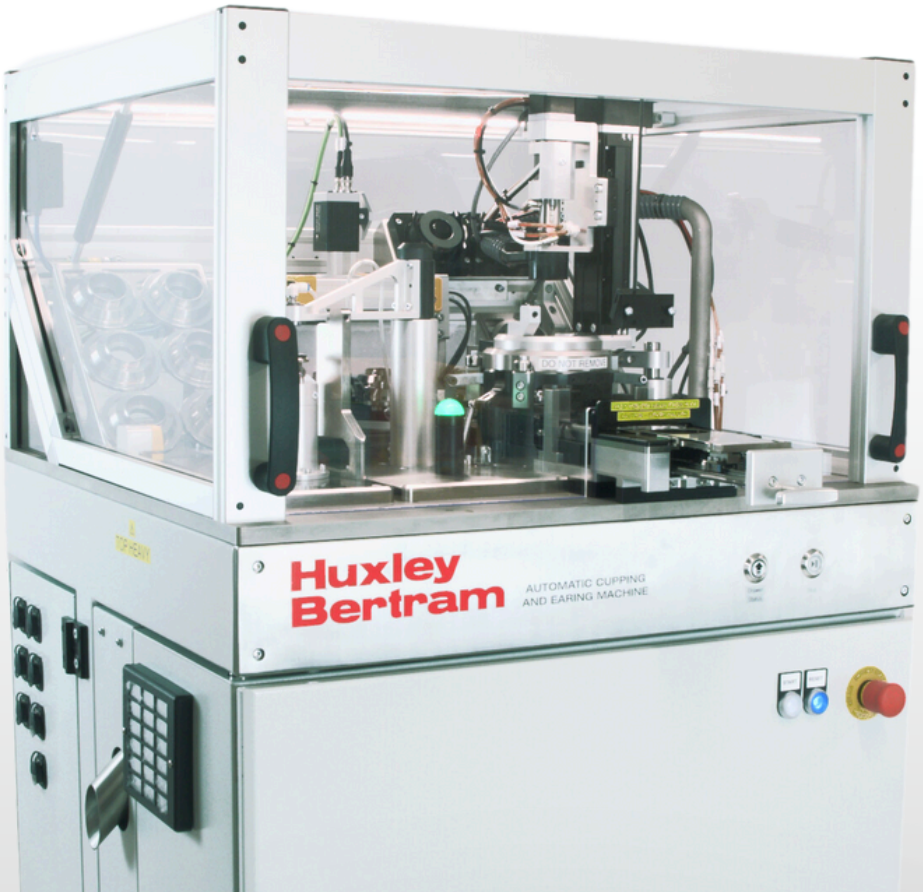
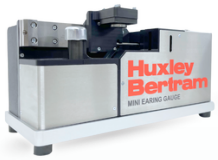
Want to see our Earing Measurement System in action?

👉 Request a live demo today and experience how EP100 transform your Earing measurements and simplifies your Earing analysis workflow.

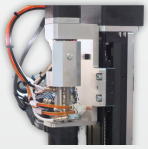


- Mini Earing Gauge (MEG)



- Cup Transfer

- Lubricator



- Tool Changer

HUXLEY BERTRAM MODULAR EARING MEASUREMENT SYSTEM

Reliable, Repeatable Earing Measurement

Contact us for a software Demo

Technical Specification

Description	EP105 +
Cup Make process time	<10 seconds
Cup Transfer process time EP150+	<5 seconds
Cup Measurement time EP125+	<5 seconds
Applicable Standards:	EN ISO 1669, ISO 11531
Blank diameter	EN1669 60mm (Max 66 mm & Min 55 mm)
Max. Aluminum Thickness	6* mm (0.236 Inch)
Min. Material Thickness	0.08mm (0.0031 Inch)
Blanking force max	175kN
Clamp force max	10kN**
Die Radius	EN1669 = 5 mm or 2.5 mm (8mm Max)
Number Provided as standard	8 dies
Number of blanking tools provided as standard	2 blank Cutters
Punch top radii	5 mm (EN1669)
Punch OD (EN1669)	33 mm
User Environment	Windows 10 LTS
Samples Size	75mm X 230mm samples (3 Cups per sample)
Electrical Supply	415-480 V, 50 / 60 Hz 3 Phase supply required
Pneumatic Supply	6-10 Bar clean dry compressed air
Weight	~400 kg
System Built to	UKCA (CE or UL on request)
1D Barcode Read	Code 11, Code 128, Code 39, Code 93,
2D Barcode Read	ECC200, Composite Codes, Data Matrix, MaxiCode, QR Code, PDF417

* Dependent on the Ductility and shear strength of the sample and blank size chosen.
** Dependent on Pnumatic supply pressure provided to machine 7bar required for 10kN, 6bar supply =8kN.

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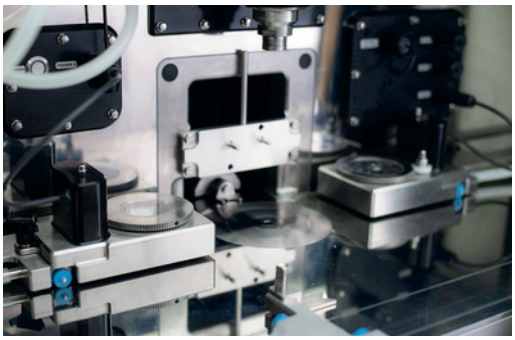


Huxley Bertram

Huxley Bertram Engineering Limited designs and builds mechanical solutions such as special purpose machines, automated equipment, and mechanical aids.

These solutions enable clients to increase throughput and provide new products and services around the world.

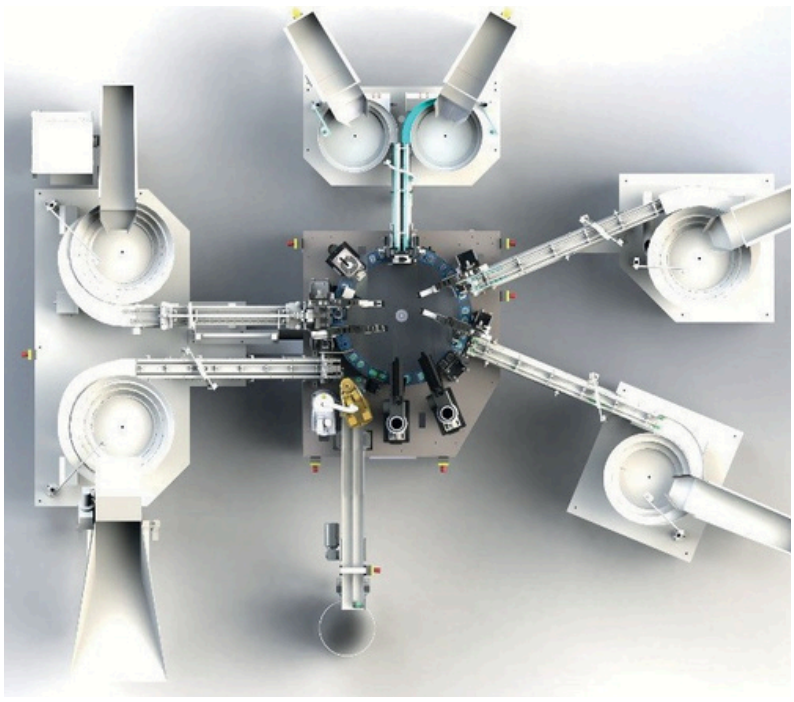
The company collaborates with clients to understand their needs to tailor the right solution and solve complex mechanical challenges, with the right mix of innovation, technology, and simplicity.

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.

Currently, the business is in Waterbeach, Cambridge, where it has been since 2014 and has over 25,000 sqft of facilities.

Much of the equipment supplied gives clients a competitive edge in their marketplace.

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



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