Huxley Bertram
Cambridge, UK

EP, THE MODULAR EARING MEASUREMENT SOLUTION

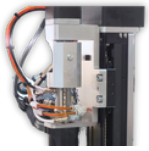
Reliable, Repeatable, Configurable Earing Measurement

Start with **precision** – configure with **automation**:

- Mini Earing Gauge (MEG)

- Automatic Cup Handling

- Automatic Sample Lubricator



- Automatic Tool Management System

- Sample Material Thickness Measurement

· ±10 µm Measurement Accuracy
· Repeatability 0.07% Mean Earing EN1669
· Process up to 120 Samples per hour

EP200 option shown

Discover the full EP Range

The Huxley Bertram EP Earing Measurement System

Designed exclusively for Reliable, Repeatable Earing Measurement for the Rolled Sheet Metal industry

Standards Supported
EN 1669
ISO 11531
ISO 20482
ISO 10113
ASTM E517

The premier solution for Earing Measurement

- Designed specifically to carry out Earing measurement to EN1669 and ISO11531 standards, the EP Earing Measurement range offers industry leading accuracy and repeatability - measurement to 0.07% repeatability [1] when measuring EN1669 Mean Earing.
- Earing focused design, developed in partnership with Rolling Mills and Can Makers, mean the EP range offers the features that are demanded by Industry.
- Flexible machine configuration allows users to build a machine that works with their production requirements - have confidence in your Earing testing results that is shared by your customers.

EP Core Press

- The heart of the EP System, the EP Core Press is manufactured to micron precision - press alignment allows material as thin as 0.08mm and as thick as 6mm [2] to be tested.
- Unique to Huxley Bertram machines, sample hold down force is controlled independently to the main press axis. Precision PLC control follows user-defined force profiles, allowing cups to be drawn without wrinkling or edge stretching.
- One-piece blank cutting and drawing tooling designed to exceed EN1669 requirements. Eliminate alignment errors associated with two-part tool designs.
- Completely electric press design - no hydraulic components are used in the press, meaning low maintenance, greater reliability and never any leaks.

EP100 Standard Machine

The EP100 Standard Machine includes the EP Core Press integrated with further key features:

- Proprietary Huxley Bertram Earing Analysis software gives operators not only Earing measurement results, but also insight into machine performance and even the rolling process itself
- Handheld barcode reader allows machine settings to be read from sample material barcode, eliminating Human Error in test setup.
- Press Dies are automatically validated when inserted, avoiding machine damage from inappropriate tool selection.
- Windows based HMI with LAN connectivity allows easy export of measurement data and reports.
- Guided Sample Material Carriage and automatic sample feed – Ensures operators correctly load sample material and automatically introduces sample material to the cutting and blanking die, eliminating risk to operators from hand-feeding material and increases process repeatability.

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[1] Typical high-low range for 10 measurements of identical material
[2] 6mm limit is for aluminium sheet material, blank diameter and alloy dependent

Machine Options

The EP Earing Measurement Solution range is designed to allow users to specify additional functionality for their EP100 Standard Machine, enabling greater throughput, eliminating operator error and further increasing measurement reliability.

EP100 Standard System

The entry point to the EP range - gives operators the ability to draw Earing cups from material ranging from 0.08 to 6mm thickness.

Automatic Sample Material Thickness Measurement

An automated measurement probe determines the thickness of the inserted sample material before the Cup is made. The required Draw die, and the associated machine settings, are automatically determined and communicated to the operator, who can choose between nominal or measured material thickness. Damaging double material feeds are also detected and prevented.

Mini Earing Gauge - precision contactless Earing Measurement System

A Huxley Bertram Mini Earing Gauge is built into the machine, allowing immediate measurement of Earing Cups. Non-contact laser technology allows measurement accuracy of 10 microns, and supports measurement of thin material where contact processes can cause damage to Cup walls. Data integrity is guaranteed as Earing Measurement data is tied to its drawn Cup identifier in the machine memory.

Automatic Cup Handling

Enables ‘one button press’ Earing measurement by automatically transferring a drawn Cup to the Mini Earing Gauge. Eliminates all human error associated with cup handling, guaranteeing data validity and integrity. Increases process reliability by removing cup placement error as a source of variation. Increases throughput to as high as 120 samples per hour.

Automatic Sample Lubrication System

Precision spray technology allows a metred dose of lubricant to be automatically applied to material samples at Cup draw. Variation in lubrication is a known and severe source of error in Earing measurement, and precise control of lubrication quantity allows for the highest levels of measurement repeatability. Eliminates mess associated with hand lubrication of sample material.

Automatic Tool Management

An autonomous Tool Carousel holds up to 8 Die Tools, and automatically inserts and removes the required Die for a given sample material thickness. Eliminates the need to ‘batch’ samples by thickness. Tools can be selected based on sample material barcode data, or from Automatic Sample Material Thickness Measurement. Tool ID is verified on insertion, eliminating machine damage traditionally caused by Tool misuse.

All machine options are retrofittable - expand the capabilities of your EP solution as your production requirements grow

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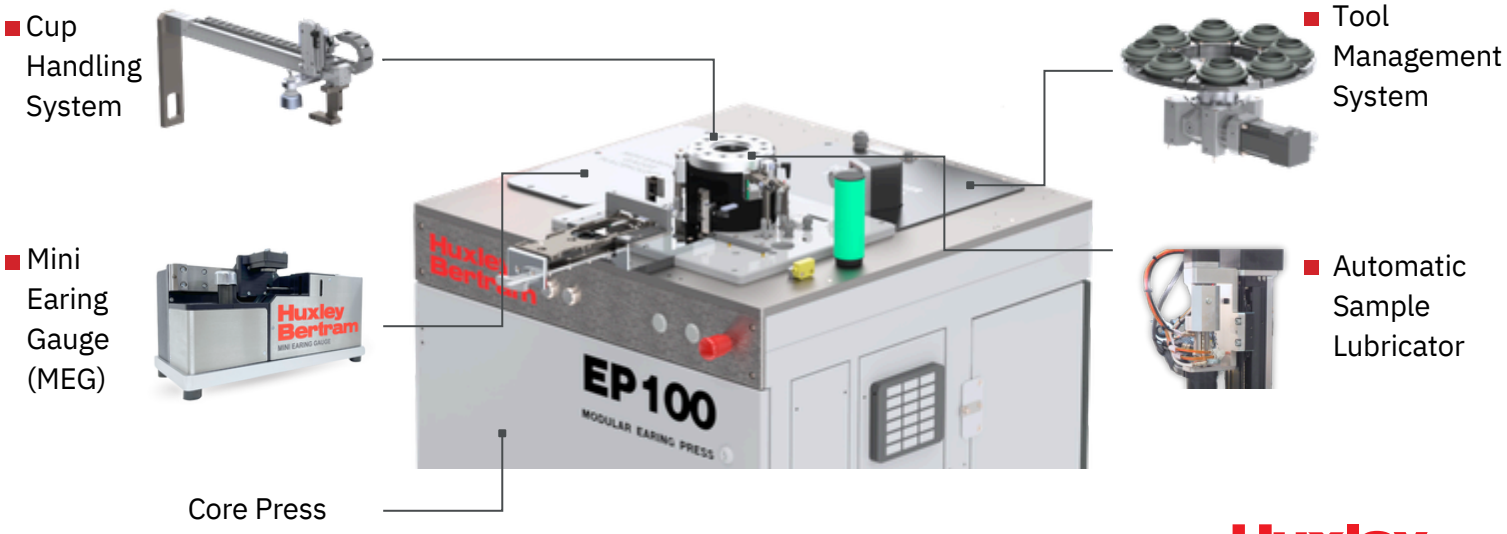
Recommended machine configurations

Huxley Bertram offer six recommended EP Machine Configurations, each designed to provide incremental improvements in machine functionality by selecting machine options that our experience shows work best for a range of user requirements.

Machine Configuration	Sample Thickness Measurement	Integrated Mini Earing Gauge	Cup Handling System	Sample Lubricator	Tool Management System
EP100					
EP105	✓				
EP125	✓	✓			
EP150	✓	✓	✓		
EP165	✓	✓	✓		✓
EP180	✓	✓	✓	✓	
EP200	✓	✓	✓	✓	✓

✓ - Included option



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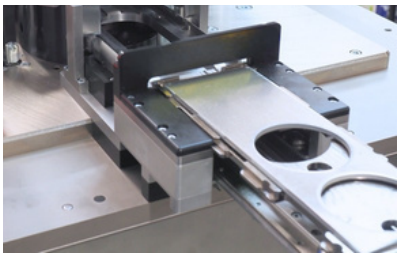
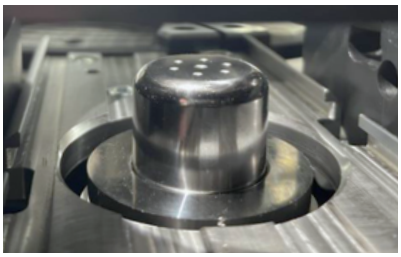
Designed to give confidence in your Earing Measurement

30 Years of Earing Measurement experience means that the EP Range gives the most repeatable Earing measurement available



Retractable Sample Carriage



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

Every machine in the EP range has been designed with attention to details that add up:

- Complete press automation - one button press is the only operator interaction required to create a Cup. Machine settings can be read automatically from sample coupon barcode data.
- Automatic tool alignment - a unique automatic Tool loading and alignment process minimises the chance of a misload. A camera automatically identifies the Tool and ensures correct machine settings are used, and ensures measurement validity.
- One piece blanking and drawing design - HB tooling is one piece, meaning the blank and die are concentric to better than 5 microns. Operators don't waste time and introduce errors aligning blanks to die tools.
- Air Cup ejection - traditional 'plunger' Cup ejectors can damage thin material and ruin results. Our Pneumatic system ejects cups with low pressure air, eliminating damage.
- Industrial PC Based Design - the 'brain' of an EP machine includes a Windows environment. Machine settings, data capture and analysis are all done from one terminal. No need to set up additional equipment just to see your results!
- Electro-mechanical press design - The EP range does not use hydraulic actuators. This means less maintenance, less breakdowns and less leaks.
- Automatic force and displacement data capture - by default, press and sample clamp force and displacement data is written to Earing measurement results files. Optional high-resolution force measurement available for R&D sites.
- Guided Sample Material Carriage and automatic sample feed – Ensures operators correctly load sample material and automatically introduces sample material to the cutting and blanking die, eliminating risk to operators from hand-feeding material and increases process repeatability. Ensures blank cut locations do not overlap and maximises material efficiency.
- Operator friendly setting storage - create pre-set press settings profiles that load automatically depending on sample material thickness.

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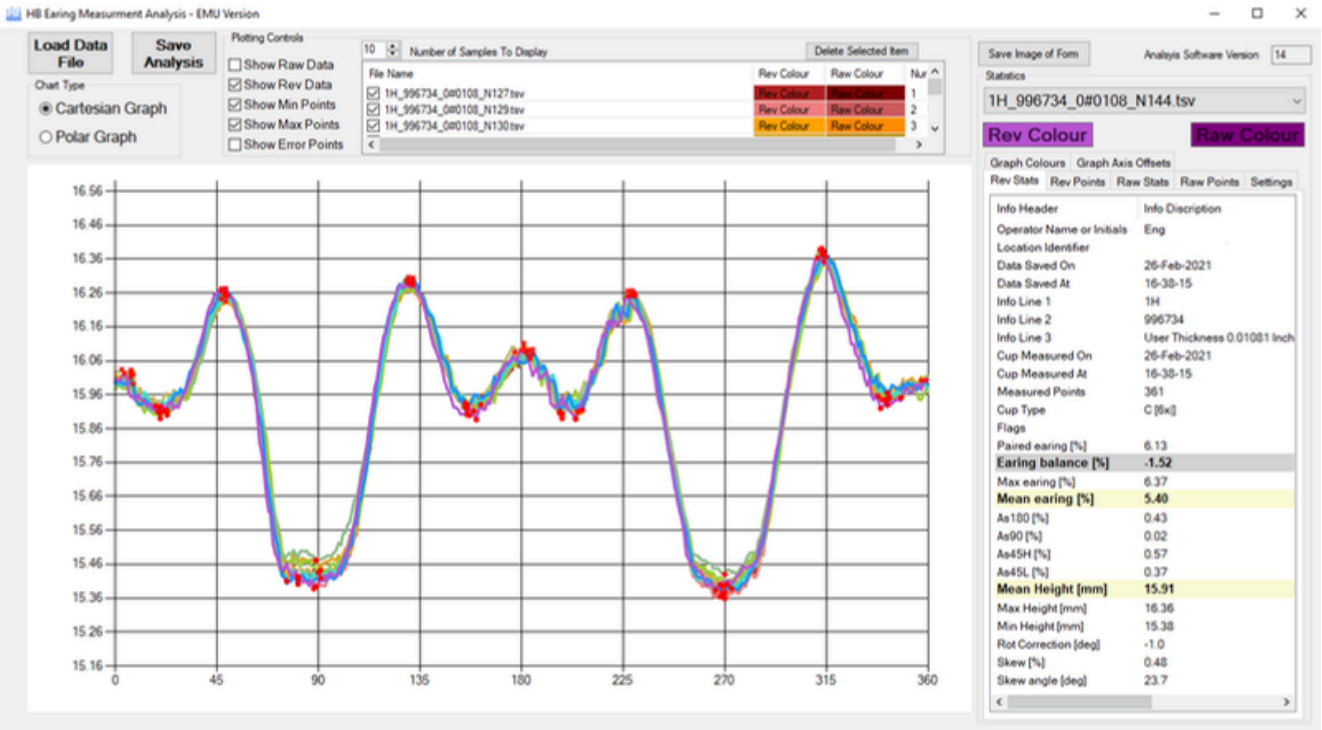
Huxley Bertram Earing Analysis Software



Huxley Bertram's proprietary Earing Analysis Software provides live, on-machine analysis of Earing measurements. Once a sample is measured, an advanced algorithm automatically corrects the data, removing and quantifying axial or radial misalignment and provides key machine and mill performance metrics.

Earing values are displayed according to EN1669 and ISO11531 standards, with the software able to instantly flag values falling outside definable acceptance criteria. Measurement quality can be quantified, and the operator advised to repeat the measurement where error is detected.

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 an EP machine, or on a standalone Mini Earing Gauge solution, Huxley Bertram Earing Analysis 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

- **Calibration & Alignment Cups:** Precision references for height calibration of the Mini Earing Gauge, ensuring accuracy and supporting traceable results. Kits include a validation cup and alignment tool.
- **Master Earing Cups:** Precision-manufactured cups with known Earing values, enables instant validation of machine measurement accuracy to 0.01% EN1669.
- **Alternative Blank Cutter Sizes:** Allows for drawing cups from blanks between 55 and 66mm in diameter.
- **HB Standard Die Set:** Order any number of dies for different sample thicknesses or blank diameters. The HB Die Tool Range supports material from 0.08 to 6mm.
- **EN ISO 20482 Cupping Test tooling set:** Enables the machine to carry out the EN ISO 20482 test.
- **Auxiliary Tool Set:** A set of critical maintenance, alignment and set up tools. Allows maintenance staff to confidently work with tools designed to work best with the EP range.
- **Infeed Rack:** Automatic sample loading rack allowing complete automation of batch Earing measurement.
- **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:** One-off licenses available with each EP machine. Further licenses are available for individual PCs.
- **Machine Spare Sets:** for critical production environments, pre-selected packs of Critical or Recommended spares are available to minimise downtime.
- **Spare Punches:** Comply with EN 1669 / ISO 11531 standards, ensuring consistent forming conditions across different sites.
- **Earing Lubricant:** Specially selected to give the most consistent Earing results possible, while being easy to use and safe for operators.

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Want to see our Earing Measurement System in action?

Request a live software or press demo today and experience how an EP Earing Measurement solution can transform your Earing measurements and simplify your Earing analysis workflow.

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Reliable, Repeatable Earing Measurement

Contact us for a software Demo

Technical Specification

Description	Specified Value
Maximum throughput	120 Cups per hour
Applicable Standards:	EN 1669, ISO 11531, ISO 20482, ISO 10113, ASTM E517
Blank diameter	Up to 1mm Thickness: 60mm (EN1669) Up to 6mm Thickness: 64mm (EN1669) Bespoke sizing: Between 55 and 66mm
Max. Aluminum Thickness	6 mm (0.236 Inch) *[1]*
Min. Material Thickness	0.08mm (0.0031 Inch)
Blanking force max	175kN
Clamp force max	10kN *[2]*
Die Radius	EN1669 = 5 mm or 2.5 mm (8mm Max)
Typical Earing Measurement Repeatability	0.07% Mean Earing EN1669 *[3]*
Mini Earing Gauge measurement Accuracy / Resolution	Accuracy: +/- 10um, Resolution +/- 1um
Punch top radii	5 mm (EN1669)
Punch OD (EN1669)	Standard: 33 mm (EN1669) (Non Standard between 32 to 35mm upon request)
User Environment	Windows
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 Formats Supported	Code 11, Code 128, Code 39, Code 93,
2D Barcode Formats Supported	ECC200, Composite Codes, Data Matrix, MaxiCode, QR Code, PDF417

[1] Dependent on the Ductility and shear strength of the sample and blank size chosen.
[2] Dependent on Pneumatic supply pressure provided to machine 7bar required for 10kN, 6bar supply =8kN.
[3] Typical max-min range for 10 repeat measurements of identical material, using HB lubrication

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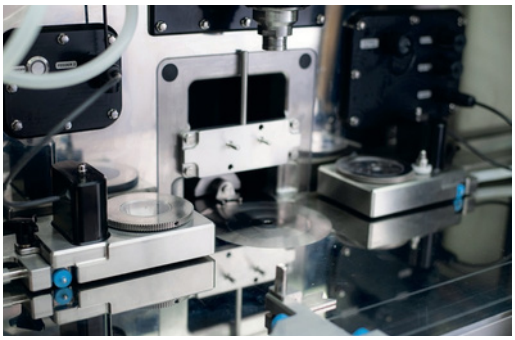


Huxley Bertram

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.

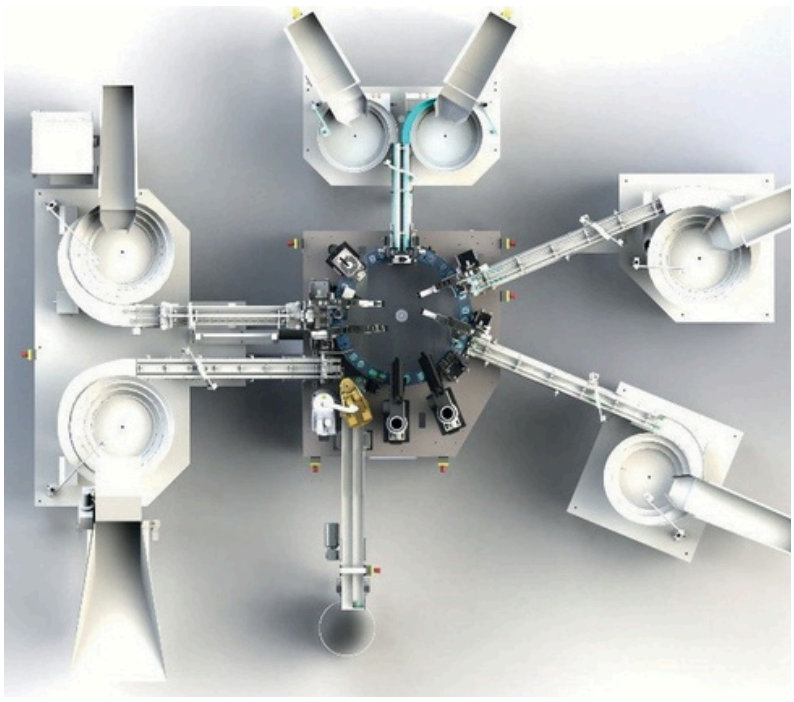
The company collaborates with clients to understand their needs to tailor the right solution and solve complex mechanical challenges, with the right mix of innovation, technology, and simplicity.

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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