SENCON
SENSING • TESTING • GAUGING

Master Series™

Automatic Back End Gauge

Fully automatic, non-contact, optical measurement of key dimensions on finished (necked) beverage cans.

The fully automatic Master Series™ Back End (finished can) gauge uses optical scanning to allow repeatable measurement of all the specified features, including seaming clearance and flange angle.

- **More critical features measured with optical scanning**
- **Better process control with excellent R&R**
- **Well proven non-contact technology**
- **Multiple can sizes without change parts**
- **Fewer wear-parts with no mechanical transducers**
- **Very low lifetime costs with minimal maintenance**
- **Base Reform Measurement option**



The benefits of non-contact, optical measurement

Contact systems inevitably deform features like the flange and neck diameter as they are measured. Sencon's non-contact back-end gauge, however, avoids this issue, thereby reducing gauge variability. This improvement in process control (CPk) is increasingly crucial as cans become lighter, lines operate faster, and product designs become more varied.

MULTIPLE CAN SIZES: Non-contact technology allows switching can diameters or heights without change parts or adjustments. So standard can sizes and shapes can easily and quickly be tested with a single gauge.

LOW RUNNING COSTS: The system uses no mechanical transducers, which minimizes wear parts. So there is almost no maintenance required and running costs are very low.

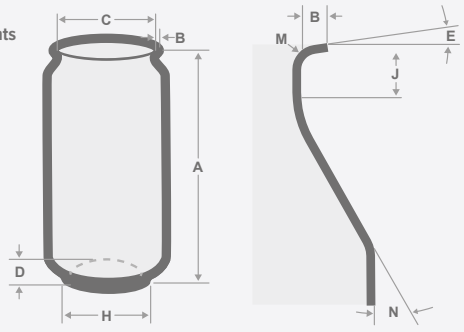
SELF MONITORING/CALIBRATING: All measurements are accurate to ±0.025 mm. Every measurement for every batch is automatically qualified using a UKAS approved setting master. The gauge constantly monitors its own performance and recalibrates if drift is detected.

KEY MEASUREMENTS

More critical features can be measured with Sencon's custom-developed CAN-SCAN™ technology, such as the Flange Angle and Seaming Clearance, which have always been part of the can specification but could not be reliably and repeatably measured until now. All measurements are made simultaneously, so additional measurements do not increase test time.

Standard Measurements
A. Can Height
B. Flange Width
C. Plug Diameter
D. Dome Depth
E. Flange Angle
J. Seaming Clearance
K. Dome Eccentricity*
L. Dome Tilt*

Other Measurements
M. Flange Radius†
N. Neck Angle†



*Not shown on diagram. †Measurement available in Scan Viewer.

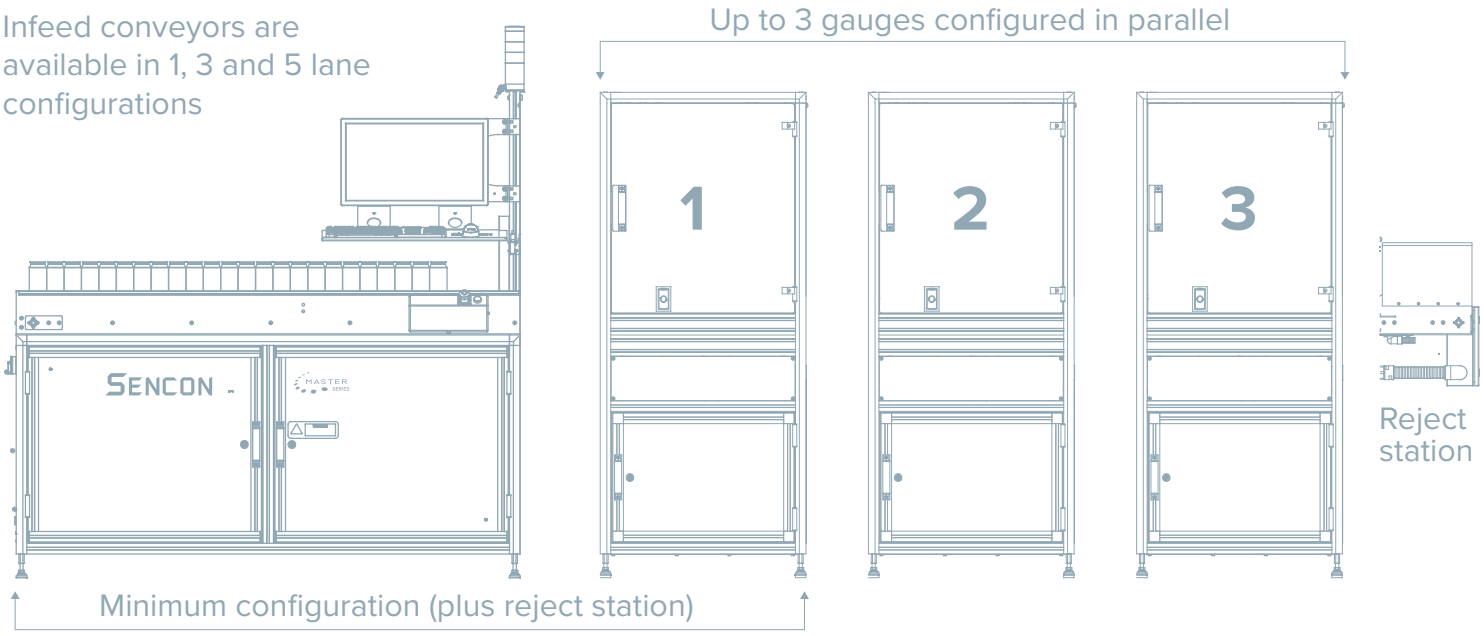
Base Reform Measurements (Cost Option)
A. Can Height
F. Reform Diameter
G. Reform Height
H. Minimum Stand Diameter



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CREATE YOUR PERFECT GAUGING SUITE

Infeed conveyors are available in 1, 3 and 5 lane configurations



TYPCAL SYSTEM CONFIGURATIONS

Back End Suite: Back End + Axial Load + Buckle

Coatings Suite: Film-Scan™ + Enamel Rater

Ordering Information

DESCRIPTION	CAN SIZE	NECK	HEIGHT
Master Series™ Back End Gauge: Standard	202 to 211 automatic adjustment	200 to 206	88mm to 196mm automatic adjustment
Master Series™ Back End Gauge: Large can variant	300 single size (no base reform)	206 to 209	88mm to 196mm automatic adjustment

Core Module & Conveyor Options

CODE	DESCRIPTION
210-22215-00	Master Series™ Core Module with Single Lane Conveyor
210-22240-00	Master Series™ Core Module with 3 Lane Conveyor
210-22250-00	Master Series™ Core Module with 5 Lane Conveyor

Each lane has a capacity of 24 cans (211 diameter). Automatic in-line feed is possible as special option on all lanes. Conveyor extensions are also possible.

Options & Accessories

CODE	ITEM	DESCRIPTION
395-16151-00	Bodymaker ID Camera	Optional ID camera for identifying the Bodymaker mark on the can. This is typically installed on the first Master Series™ module of a multi-gauge system.
096-24090-00E	Spray ID Camera	Optional ID camera for identifying the Spray Machine mark on the can. This is typically installed on the first Master Series™ module of a multi-gauge system.
OPC	OPC-UA Plug-in	Adds OPC-UA fuctionallity to Process Master ™ gauge software for machine-to-machine (M2M) communication within the Industry 4.0 digital factory.

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TECHNICAL SPECIFICATIONS

MEASUREMENT CAPABILITIES	
Can Material:	Aluminium and Steel
Cans Accepted:	Can body diameters 202 to 211 supported (no change parts required) Reform diameters supported: 44.2 – 47.0 mm Reform heights supported: 2.00 – 3.25 mm Neck diameters supported: 200, 202, 204 and 206 Can heights supported: 88 mm to 196 mm (necked cans only)
Maximum Batch Size:	255 cans (auto fed), 24 cans (manual fed)
Measurement Features:	Can height Flange width Plug diameter Dome depth Flange angle Seaming clearance (‘J dimension’)
Reform Measurements:	Reform Diameter (user defined height) Maximum Reform Diameter Reform Height Minimum Stand Diameter

CONTROL	
Controller:	Process Master™ gauge software running on an integrated PC within the Conveyor module
Measurement Reporting:	Batch results displayed on PC screen and optionally sent as report to network storage or network printer.

OPERATING PARAMETERS	
Temperature Range:	10°C to 50°C* (50°F to 122°F)
Relative Humidity:	0% to 80% non-condensing
Dimensions	Gauge cabinet (including rear chute) **Width:** 1053 mm (41.45”) **Depth:** 780 mm (30.70”) **Height:** 1840 mm (72.44”) For full system, add the following to the width: **Reject station:** 375 mm / 15.0” **Single Lane Conveyor:** 1941 mm (76.42”) **3 or 5 Lane Conveyor:** 2401 mm (94.53”)

DESIGN STANDARDS AND SAFETY	
Maintenance:	Routine cleaning: see manual Replacement of wear parts: refer to spares and servicing lists Scheduled servicing interval: 1 year
Calibration:	Gauge self-verifies using supplied setting piece (gauge identifies when this is required, after shift in laser readings or software restart) Annual calibration of setting piece and re-validation of gauge accuracy is strongly recommended
Compliance:	**CE:** Complies with relevant EU product directives **UKCA:** UK Conformity Assessed
Safety:	Red, amber and green beacons to indicate system status from a distance Relay outputs for flexible triggering of external (customer) warning systems

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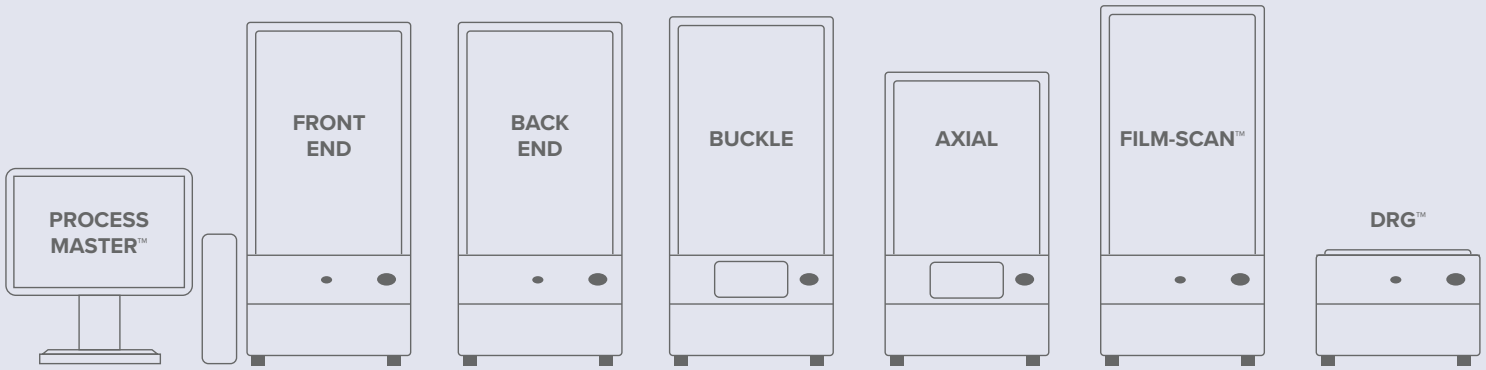
BENEFITS OF MASTER SERIES™

The modular design of our highly flexible and fully automatic Master Series™ gauges allows you to create the best combination of gauges to suit your individual requirements. This cost effective solution is the optimum fit for the modern can plant, saving time and floor space.

MULTI-SIZE CAPABILITY AS STANDARD: The gauges can handling system has been designed to accept standard beverage can sizes without change parts.

MODULAR SYSTEM: Allows gauges to be purchased individually or as integrated groups. Individual gauges can be added at a later date to increase throughput or add test features.

- Fully automatic, operator-free measurement
- Sampling on time or production basis
- Fully self-checking
- Data available on screen and exchanged via local area network
- Uses well-proven measurement techniques
- Modular design for cost effective expansion
- Future-proofed for changing requirements – easily update and reconfigure at any time
- Multi-lane capability – universal infeed conveyor



BIG ON CAPABILITY, SMALL ON SIZE

The Benchmark™ range of semi automatic benchtop gauges for the modern can plant

WORLDWIDE SUPPORT YOU CAN TRUST

We are committed to providing the best customer support worldwide with service engineers based in North and South America, Europe and Asia backed up with technical support from experienced industry specialists based at three technical support centers – you can trust Sencon.

Technical support is easily accessible through our 'Quick Assist' QR codes which offer support via WhatsApp*, email, web chat and telephone. Additionally, our online knowledge base provides support resources for all Sencon products.

*only available in Europe, Asia, Africa and Oceania



Industry specialists since 1976

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