



LMM 600

Gauge Calibration

Universal Length Measuring System



Designed for Perfection

LMM 600

Universal Length Measuring Machine



Features :

- A model of Universal measuring machine specially designed as standard quality assurance tool in general engineering industry & reference instrument for gauge and test equipment calibration.
- Compliance with Abbe's comparator principle
- A robust cast Iron bed
- Precision work table provided with 5 axis adjustments for easy location of inversion point.
- Constant measuring force over entire measuring range
- High precision electronic incremental encoder system.
- Provided with variety of accessories to cater wide measurement applications.
- Most affordable price
- Taper measuring facility available as an option which facilitates taper thread measurements also
- A machine can be interfaced with Gauge measurement and management software.
- Optional facility for real time thermal error corrections through software.

Technical Specifications:	
Measuring Range	
Absolute	100 mm
Differential	680 mm
Application Range	
External Plain	0-680 mm
Internal Plain	1 - 400 mm
External Thread	upto 200 mm
Internal Thread	above 13 mm
Internal Thread (With optional accessory)	above 3 mm
Performance data	
X axis resolution	0.1 μm
Repeatability (External Measurement)	0.3 μm (2σ)
Repeatability (Internal Measurement)	0.5 μm (2σ)
Measurement uncertainty (External Measurement)	0.4 + L / 2000 μm
Measurement uncertainty (Internal Measurement)	0.7 + L / 2000 μm
Measuring force	0, 1.5, 2.5N

Technical Specifications:	
Work Table / Vertical Axis	
Work table dimension	160 x 160 mm
Height adjustment	100 mm
Float	20 mm
Rotation	$\pm 4^\circ$
Tilt	$\pm 3^\circ$
Load Capacity	15 kg
Dimensions, weight and operational conditions	
L x W x H	1150 x 250 x 470
Weight (kg)	120 kg
Power supply	230 VAC, 50 Hz
Display System	PC based

Notes:

- In some cases additional standards & optional accessories are required to archive the measuring range.
- Special accuracies, measuring ranges are available upon request.

Octagon ULM Inspect Gauge Measurement and Management Software



Octagon ULM Inspect.

Features :

- Online Data acquisition from ULM
- Facility for thermal error corrections (Manual / Online)
- Automatic Reversal Point detection for dynamic data
- Operator guided measurement program for plain gauges, thread gauges, spline gauges and inspection / calibration measuring instruments like dial indicators, bore gauges and micrometers.
- Calibration report generation in the format complying to ISO/IEC 17025.
- Gauge record management including calibration date, user details, gauge type, due dates etc.



Basic Module:

- Operator guided measurement program for plain and thread gauges.
- Automatic Tolerance calculations for Plain gauges as per IS 3455 & ISO 919 metric thread gauges as per IS 4218, IS 2334 & ISO 965.
- Thread formulae evaluation for over wire / ball measurements.
- Facility for thermal error corrections (Manual / on-line), correction of systematic machine errors.
- Maintenance of Gauge records

Add-on Module 1

- Thread Gauge inspection program.
- This add-on module facilitates automatic tolerance calculations and measurement program for various types of thread gauges including ISO metric M, ISO metric MJ, Unified UN -UNR -UNJ, Withworth, ISO pipe G threads, ISO Trapezoidal, ACME Trapezoidal, Stub trapezoidal, Miniature, Buttress, Knuckle screw threads as per various National & International standards.

Add-on Module 2

- Inspection program for Gauge block / length Bar. This add-on module facilitates automatic tolerance calculations and measurement program for gauge blocks as per ISO 3650, IS 2984 and length Bars as per IS 7014.

Add-on Module 3

- Inspection program for Internal / external micrometers. This add-on module facilitates automatic tolerance calculations and measurement program for Internal micrometer as per IS 2966 and external micrometers as per IS 2967 standards.

Add on Module 4

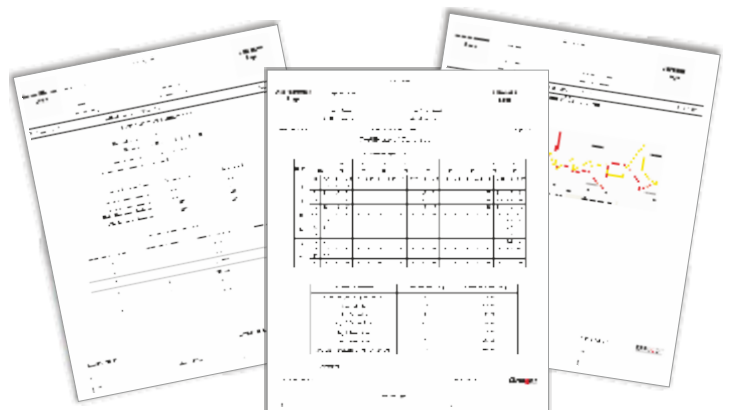
- Inspection program for Dial indicators & Cy. Bore Gauges. This add-on module facilitates automatic tolerance calculations and measurement program for Dial Indicators as per IS 2092, Dial test indicators as per IS 11498 and Cy. Bore Gauges as per JIS 7515 Standard.

Add on Module 5

- Inspection program for Spline Gauges This add-on module facilitates automatic tolerance calculations and measurement program for spline gauges as per ISO 4156.

Add on Module 6

- Inspection program for Taper Gauges. This add-on module facilitates automatic tolerance calculations and measurement program for Taper gauges as per IS 9475, IS 2251 and Taper thread gauges as per BS 21, ANSI / ASNE B1.20.1 (NPT)



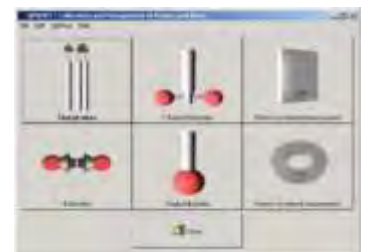
QMSOFT® Gauge Management Software

Octagon Length Measurement machines can also be offered with QMSOFT® Software package from L&W GmbH as an alternative option.

Features :

- All nominal sizes and tolerances for all related DIN or ISO standards as well as for ANSI standards, British standards and partly for Japanese, French or Korean standards are calculated by the program system.
- Gauge inspections will be started directly from the gauge management system and will be performed with inspection programs specially designed for the gauge type selected.
- Predefined inspection procedures does the following exactly the given rules and standards. So you do not need any preparation before starting a measurement.

Optional



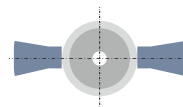


Plug Gauge (below 40 mm) measurement : Hold in Vee block holder

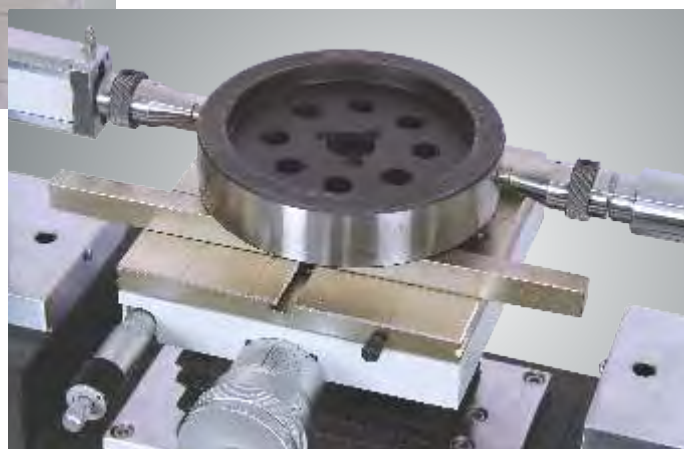
External Measurements

Plain Plug Gauge / Cy. Standard Measurement :

By using a pair of Flat Anvils 8 mm dia.



Measurement of cylinder diameter across flat anvils



Plug Gauge (above 40 mm) measurement : Hold on parallel blocks

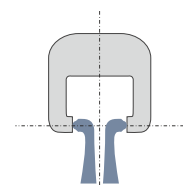


Snap Gauge (below 300 mm) measurement : Hold on snap gauge holding attachment

Internal Measurements

Snap Gauge Measurement :

By using fixed dual arms



Measurement of gap by using spherical contact fixed dual arms



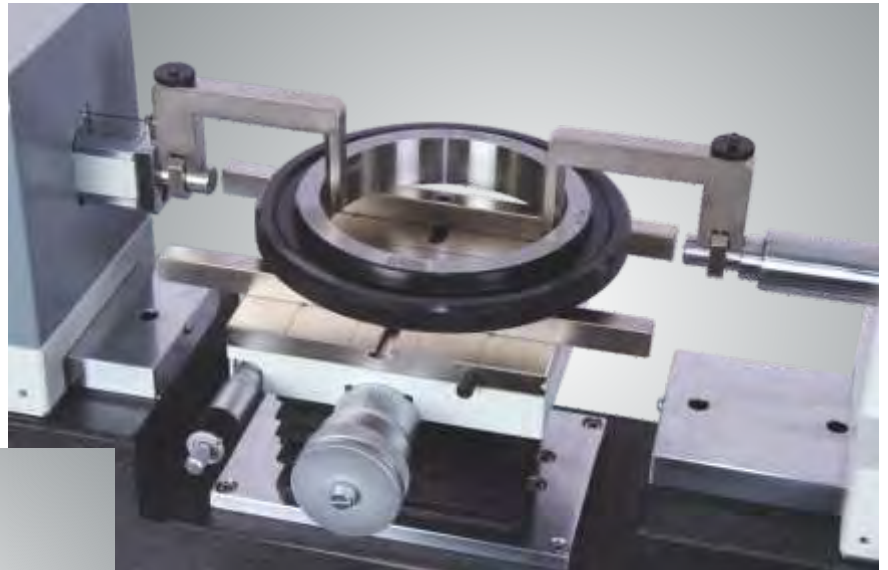
Snap Gauge C Type (above 300 mm) measurement : Hold on universal holder

With Optional Accessory

Internal Measurements

Ring Gauge Measurement :

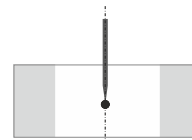
By using Single Arm measuring attachment and / Or by using a pair of fixed dual arms.



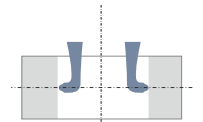
Plain ring diameter (above 12 mm) measurement : Using a pair of fixed arms



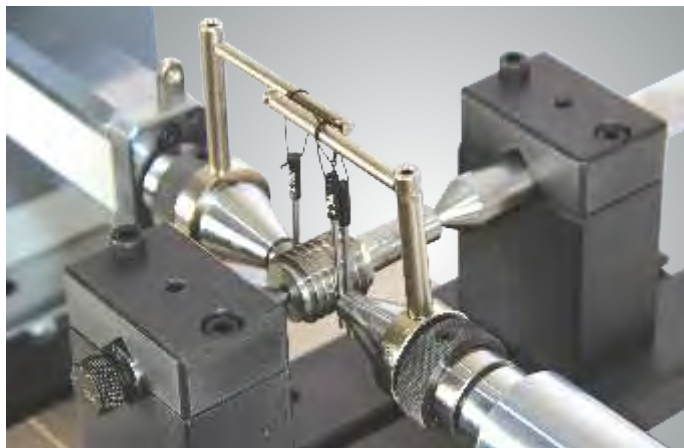
Plain ring diameter (above 1 mm) measurement : Using electric measuring arm.



Measurement of internal diameter by using electric measuring arm.



Measurement of internal diameter by using spherical contact fixed dual arms



Cy. Thread Plug Gauge measurement : Hold between center table

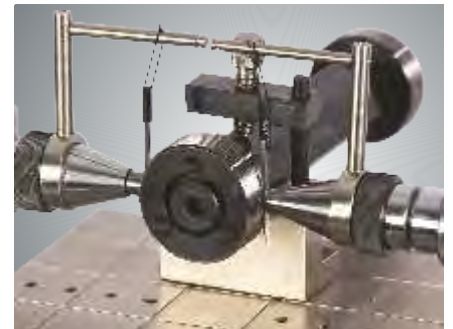
Cylindrical Thread Measurement (External)

Thread Plug Gauge Measurement :

By using three wire method : a pair of Flat Anvils 8 mm dia. & Thread measuring wires



Three Wire Method For Measurement Of Effective Diameter (d2) Of External Thread



Cy. Thread Plug Gauge Measurement of Effective diameter : Hold in Vee block holder

Cylindrical Thread Measurement (Internal)

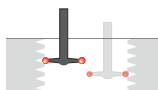
Thread Ring Gauge Measurement :

Single Arm Measurement /Dual Arms Measurement

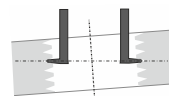
With Optional Accessory



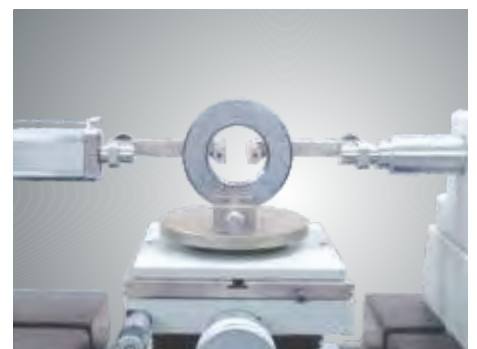
Cy. Measurement of effective diameter by using single arm measuring attachment & Precision Ruby T-Shape styli



Thread ring gauge measurement of Effective Diameter (D2) by using single arm measurement attachment with single axis bi-directional probe & T-shape stylus



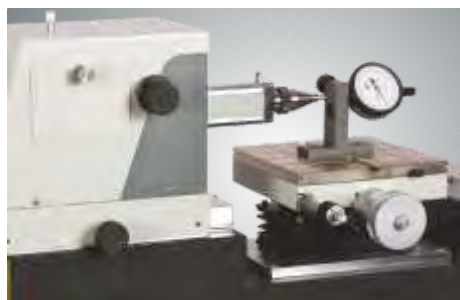
Thread Ring gauge measurement of effective diameter by Precision ball styli-Inclined method.



Cy. Thread Ring gauge measurement of effective diameter by Precision Thread measuring ball stylus - Inclined method.

Calibration / Inspection of measuring instruments :

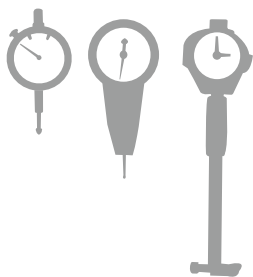
Dial Indicators, Dial Test Indicators, Bore Gauge



Dial Indicator Calibration : Hold on table by using holding attachment



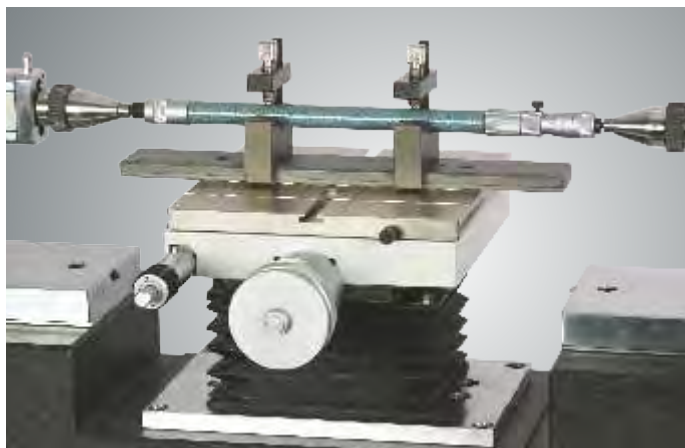
Bore Gauge Calibration : Hold on table by using holding attachment and machine spindle drive unit.



Dial Test Indicator Calibration : Hold on table by using holding attachment

Calibration / Inspection of measuring instruments :

External Micrometers / Internal Micrometers, Calipers.



Internal Micrometer (2 point) Calibration : Hold on table by using holding attachment



External Micrometer (Below 150 mm) Calibration : Hold on table by using C clamp and measurement by using universal measuring arm