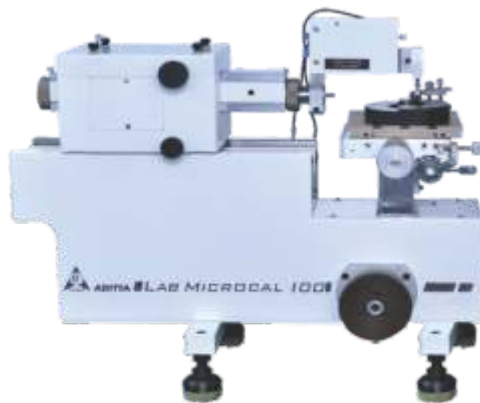
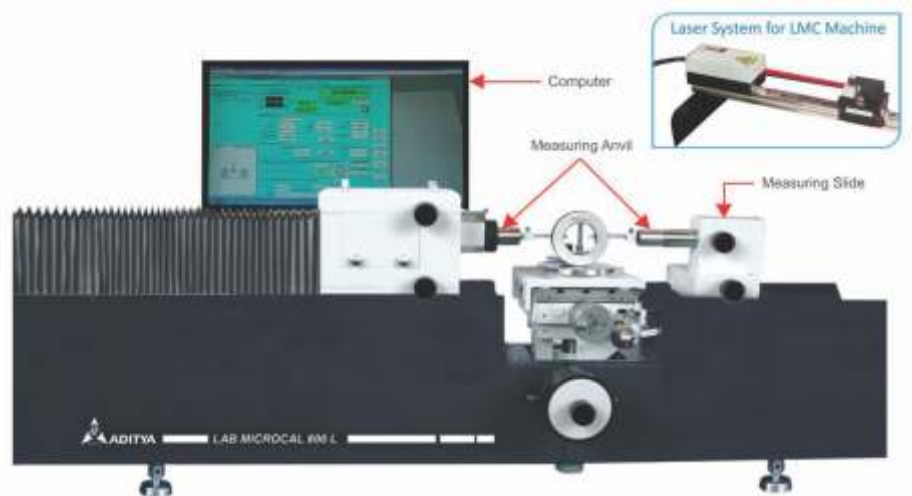




## Universal Length Measuring Machine



“ **ONE STOP!**  
Solution for Calibration Labs  
**ADITYA LABMICROCAL** ”



**DIMENSIONAL MEASURING SOLUTION**

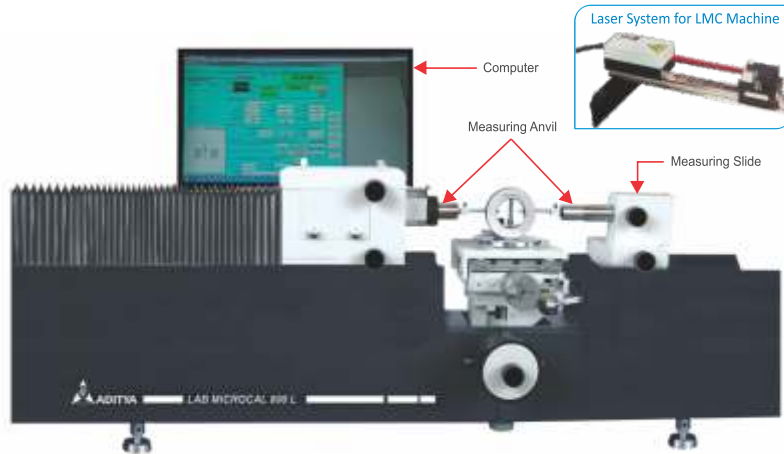
[adityaengg@adityaengg.com](mailto:adityaengg@adityaengg.com)

[www.adityaengg.com](http://www.adityaengg.com)

## LAB MICROCAL 800 L / 1200 L / 2000 L

### LAB MICROCAL 800 L

#### Precision Gauge Calibration Machine for Internal, External Dia. and Thread Measurement.



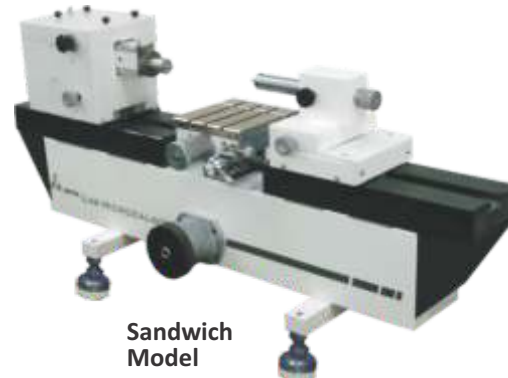
Lab Microcal 800L is high precision Universal Length Measuring machine designed specially for measuring large ranges directly with high accuracy and ideal for calibration laboratories for close measurements.

#### Features

- Granite Base provides structural stability and minimizes effect of temperature variations.
- High precision Air Bearings slide provides easy positioning and movement of measuring head with laser reflector and tail stock.

- Granite Base provides structural stability and minimizes effect of temperature variations.
- High precision Air Bearings slide provides easy positioning and movement of measuring head with laser reflector and tail stock.
- Highly stable He-Ne Laser Interferometer for precision measurements and separate laser generating unit with cover
- Constant measuring force over entire measuring range.
- High precision large work table guided with precision Z Axis provides 5 axis adjustments for precision measurement of heavy and long test pieces or components.
- 100 % compliance with Abbe's comparator principle.
- Air suspension support with leveling arrangements minimizes environmental and ground vibration effect.
- Wide range of application provides effective measurement of smallest and large test pieces.
- User friendly Window based  $\mu$ -CAL Software with gauge management and analysis features provides direct readings.
- Wide range of accessories to achieve the diversified measurements including threads, taper threads, tapers and gears.

### LAB MICROCAL 600



#### Features

- Suitable for very high precision measurement applications.
- 100 % compliance with Abbe's comparator principle.
- Constant measuring force over entire measuring range.
- High precision measuring spindle provides rigidity and straightness accuracy less than 1  $\mu$ m.
- Available in both the models - Cast iron Base model and Granite Base air bearing model.
- Optional manual and motorized vertical table lift.
- Optional Metallic Scale, Heidenhain Glass Scale, Laser Scale.
- User friendly Window based  $\mu$ -CAL Software with gauge management and analysis features provides direct readings.
- Wide range of accessories to achieve the diversified measurements including threads, taper threads, tapers and gears.

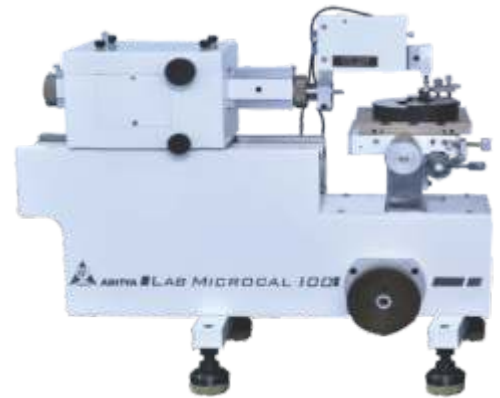
Option Available :-

- Base : Cast Iron Base, Granite & air bearing • Vertical table lift : Manual & motorized table lift
- Measuring Scale : Duplex metallic scale / Heidenhain glass scale / Laser scale

## LAB MICROCAL 100

### Features

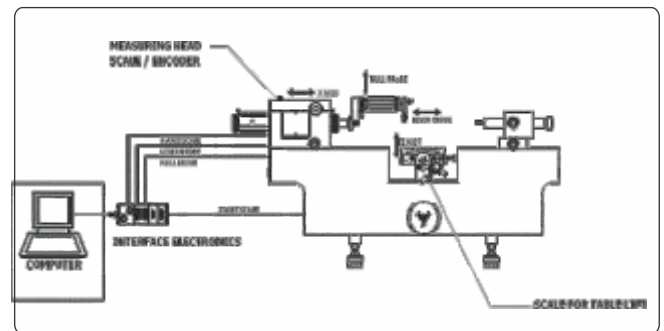
- High precision universal length measuring machine specially designed for single arm internal measurements.
- 100 % compliance with Abbe's comparator principle.
- Constant measuring force over entire measuring range.
- High precision universal work table
- German make duplex metallic scale provides high accuracy.
- Highly stable electronic incremental encoder system provides precision measurements.



## RETROFIT OF UNIVERSAL LENGTH MEASURING MACHINE

The up gradation retrofit consists of the following :

- Measuring Head :** Replacing the existing optical glass scale of measuring head with metallic or glass scale encoder assembly from Numeric Jena or HEIDENHAIN Germany
- Vertical ZAxis Table :** Normally all the old machine have a simple mechanical scale readout with a coarse least count. This is enhanced by fitting metallic scale & encoder on the vertical table movement ram/rack. This enables direct vertical table displacement reading in 0.001mm resolution. The ability to read the Z axis movement is required for making taper measurement
- Special Internal Measurement attachment** is added onto the measuring spindle
- New Interface** from IBR Messtechnik Germany to link the machine to software
- µ Gauge calibration and Management Software**



### Technical Specification :

Numeric Jena Scale/Encoder	Heidenhain Scale/Encoder
Accuracy : $0.7^* + L/1000 \mu m$	Accuracy : $0.5^* + L/1000 \mu m$
Resolution : $0.1$ or $0.01 \mu m$	Resolution : $0.1$ or $0.01 \mu m$

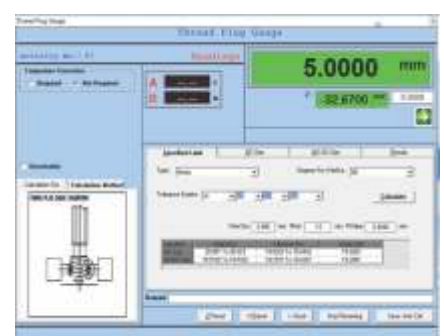
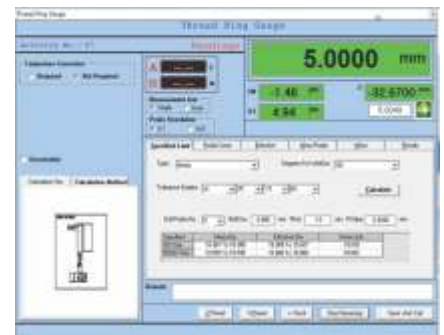
\* Accuracy depends on Original machine Accuracy i.e. Existing Accuracy.

## µ-CAL Software

**Features** µ-cal is window based measuring software with gauge management and analysis features.

Parameters	Option No. 1 (Lab Microcal Cal Version 3.0.0)	Option No. 2 : Qualisyst Thread Gauge (External / Internal)
<b>Limit Gauges</b>		
a1. Plain Plug Gauge		IS: 3455-1971/6137-1983
a2. Plain Snap Gauge		IS: 3455-1971/6137-1983
a3. Go/No-Go Ring Gauge		IS: 3455-1971/6137-1983
a4. Thread Plug Gauge & Thread Ring Gauge:	Metric, Metric-INTFIT and G-Thread	ISO Metric M, ISO Metric MJ, Unified UNJ, UNC, Whitworth, ISO pipe G threads, ISO Trapezoidal, ACME Trapezoidal, Stub Trapezoidal, Miniature, BSW, BSF, BSC, BA, Buttress, Helicoil, Knuckle, screw threads as per various National & International standards.
a5. Taper Thread Plug Gauge :		IS 8999-1979; Type-NPT & BSPT
a6. Taper Thread Ring Gauge :		ANSI B1.20.1-1983; Type-NPT & BSPT (Only standard sizes).
<b>b. Reference Gauges :</b>		IS: 2984-2003
b1. Gauge Block		IS: 7014-1973
b2. Length Bar		IS: 3485-1983
b3. Plain Ring Gauge		IS: 4349-1987
b4. Cylindrical Setting Master		IS: 11103-1984
b5. Measuring Pin		
<b>c. Measuring Instruments</b>		IS: 2092-1983
c1. Plunger Dial Gauge		IS: 11498-1985
c2. Lever Dial Gauge		-
c3. Bore Dial Gauge		IS: 2966-1964
c4. Internal Micrometer		IS: 2967-1983
c5. External Micrometer		

\*\*\* NOTE: Measurement / Calibration of Gauge Block & Measuring Pin are NOT set wise.



## APPLICATION OF LAB MICROCAL ALONG WITH ACCESSORIES

### Thread Ring Gauge Measurement (Single Arm Measurement / Dual Arm Measurement)



Calibration of Thread Ring Gauge



\*\*Gauge Clamp & Gauge Centering Fixture



\*\*Master Ring Gauge Dia, 8 mm, Dia 50 mm, Dia 100 mm



Attachment for Plain / Taper Internal Thread Measurement



Flexible Dual Arm Set For the Calibration Thread Ring Gauge



Ball Anvil



A Set of 13 Double Spherical Probes for Internal Thread (For Calibration of Thread Ring Gauge From M3.5-M100) A Set of Ruby / Carbide Ball Stylus Pair

### Ring Gauge Measurement (Single Arm Measurement / Dual Arm Measurement)



Calibration of Plain Ring Gauge



\*\*Fixed Arms Measuring Hook (Suitable for internal measurements)



\*\*Parallel Block Pair (2 Set)



\*\*Master Ring Gauge Dia, 8 mm, Dia 50 mm, Dia 100 mm



Attachment for Plain / Taper Internal Thread Measurement



Stylus Dia, 1 mm For 2 to 30 mm ID Measurement

### Thread Plug Gauge Measurement (Two Wire Method)



Calibration of Effective Diameter of an External Thread



\*\*External Measurement Flat Anvil Set (Face Dia .8 mm)



\*\*Master Gauge Block 100 mm & 200 mm



Thread Measuring Wire Set



Between Center Table (For Holding Between Center thread Plug Gauge)



Vee Holder for Plug Gauge

### Plain Plug Gauge/ Cly. Standard Measurement



Calibration of Precision Master Parts



Calibration of Cly. Master



Calibration of Plain Plug Gauge



\*\*External Measurement Flat Anvil Set (Face Dia .8 mm)



\*\*Master Gauge Block 100 mm & 200 mm



Vee Holder for Plug Gauge

### Snap Gauge Measurement



Calibration of Snap Gauge



\*\*Gauge Clamp & Gauge Centering Fixture



\*\*Master Ring Gauge Dia, 8 mm, Dia 50 mm, Dia 100 mm



Snap Gauge Holding Attachment

\*\*STANDARD ACCESSORIES WHICH COMES ALONG WITH BASIC MACHINE.



## Length Bar / Long Gauge Block / Setting Standard Measurement



Calibration of Length Bar



Calibration of End Standard



Length Bar Holding Attachment



\*\*Master Gauge Block 100 mm & 200 mm



Vee Holder for Plug Gauge

## Taper Plain Plug Gauge Measurement



Calibration of Taper Plug Gauge



\*\*Master Gauge Block 100 mm & 200 mm



Two Equal Size Pins



Two Equal Size Gauge Blocks

## Taper Ring Gauge Measurement



Calibration of Taper Ring Gauge



\*\*Master Ring Gauge  
Dia, 8 mm,  
Dia 50 mm, Dia 100 mm



\*\*Gauge Clamp & Gauge Centering Fixture

## Taper Thread Plug Gauge Measurement



Calibration of Taper Thread Plug Gauge



\*\*Master Gauge Block 100 mm & 200 mm



Thread Measuring Wire Set  
(For Measurement of Thread Plug Gauge)



Half Centres

## Taper Thread Ring Gauge Measurement



Calibration of Taper Thread Ring Gauge



\*\*Master Ring Gauge Dia, 8 mm,  
Dia 50 mm, Dia 100 mm



A Set of 13 Double Spherical Probes for Internal Thread (For Calibration of Thread Ring Gauge From M3.5-M100) A Set of Ruby / Carbide Ball Stylus Pair

## Dial Indicators, Dial Test Indicator & Bore Gauge



Plunger Dial



Lever Dial



Bore Gauge

## Micrometer External



Calibration of external micrometer

## Temperature Sensor DRO



Temperature Indicator with 2 nos.  
Sensor Having RS 232

## OBD & IBD Measurement



External Gear Measurement



Internal Gear Measurement

Technical Specifications		100	600	800 / 1200/ 2000
Measuring Range				
External Range	Absolute	---	100 mm	525 /825/1525 mm
	Differential	---	600 mm	800 /1200/2000 mm
Internal Range		3- 100 mm	3- 400 mm	0.5- 670 / 1100 / 1850
Application Range				
Taper Measurement	External Taper	---	0 - 600mm	up to 780 / 1100 / 1850 mm
	Internal Taper		4 - 450 mm	4 - 525/ 825 / 1525 mm
Thread Measurement	External Thread (Pitch: 0.2 - 6mm)	---	M1- M550	M1-M780 / M1100 / M1850 mm
	Internal Thread (Pitch: 0.5 - 6mm)	M3 - M100	M 3 - M400	M3-M675 / M1100 / M1850 mm
Taper Thread	Taper Thread External	---	M1 - M550 mm	up to 780 / 1100 / 1900mm
	Taper Thread Internal	M10 - M100mm (option)	M10 - M100mm (option)	M10 - M525/ M825 M1525
Gear Measurement	Gear External (MdK)	---	7 to 630 mm	7 - 820 / 1100 / 1850 mm
	Gear Internal (MdK)	---	20 - 490 mm	3 - 675 / 1100 / 1850mm
Measuring Instruments	Micrometers,	---	3 - 600 mm	0.5 - 550 / 1050 / 1850mm
	Dial Indicators, Bore Gauge and Lever Dial	Up to 100 mm (Dial Indicators & Lever Dial)	Up to 100 mm	Up to 100 mm
	Bore gauges	---	0 - 360 mm	up to 615 / 850 / 1550 mm
	3 Point Micrometer	---	Up to 100 mm	
	Internal micrometers - 2 point	---	0 - 600 mm	up to 800 /1050 /1850 mm
Performance data				
X axis resolution		0.1 (0.01 Optional) * $\mu$ m	0.1 (0.01 Optional) * $\mu$ m	0.01 $\mu$ m *
Measurement uncertainty		0.5 + L /1000 * $\mu$ m	0.5 + L /1000 * $\mu$ m	$\leq$ 0.1 + L / 2000 $\mu$ m *
Measuring force		0.2N - 4.5N, 11N (optional)	0.2N - 4.5N, 11N (optional)	0.2N - 4.5N, 11N (optional)
Work Table / Vertical Axis				
Work table dimension		160 x 160 mm	160 x 160 mm	160 x 160 mm
Height adjustment		70 mm *	70 mm *	100 mm
Resolution		0.1 $\mu$ m *	0.1 $\mu$ m *	0.1 $\mu$ m *
Float		25 mm	25 mm	25 mm
Rotation		$\pm$ 1.5°	$\pm$ 1.5°	$\pm$ 1.5°
Tilt		$\pm$ 1.5°	$\pm$ 1.5°	$\pm$ 1.5°
Load Capacity		25 kg	25 kg	25 kg
Weight & Dimension				
L x W x H				1550 / 2050 / 2850 X 380 x 500 mm
Weight (kg)		100 Kg	200 Kg	250 / 350 / 450 kg
Power supply		230 VAC, 50 Hz	230 VAC, 50 Hz	230 VAC, 50 Hz
Display System		PC based	PC based	PC based
Compressed Air		NA	NA	4 Bar
Notes:				
• In some cases additional standards & optional accessories are required to archive the measuring range.				
• Special accuracies, measuring ranges are available upon request.				
* Higher range possible with additional accessories on request.				

**Notes :**

- In some cases additional standards & optional accessories are required to archive the measuring range
- \* Special accuracies, measuring ranges are available upon request
- \* Higher range possible with additional accessories on request



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**Note :** Due to continuous R & D activities at our end, Specifications are subject to change without prior notice.