

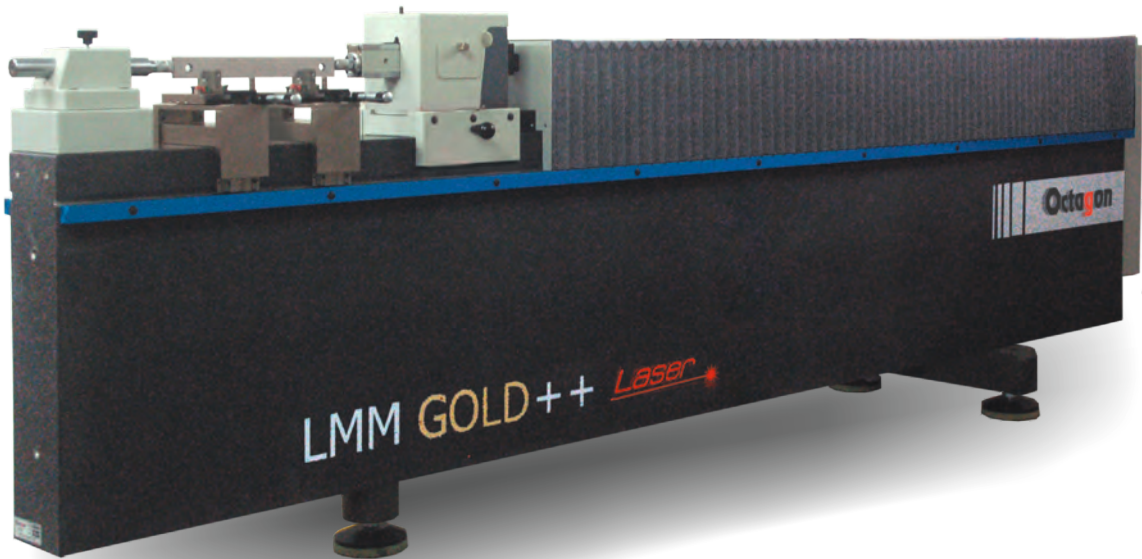
Gauge Block Measuring System

Gauge Calibration



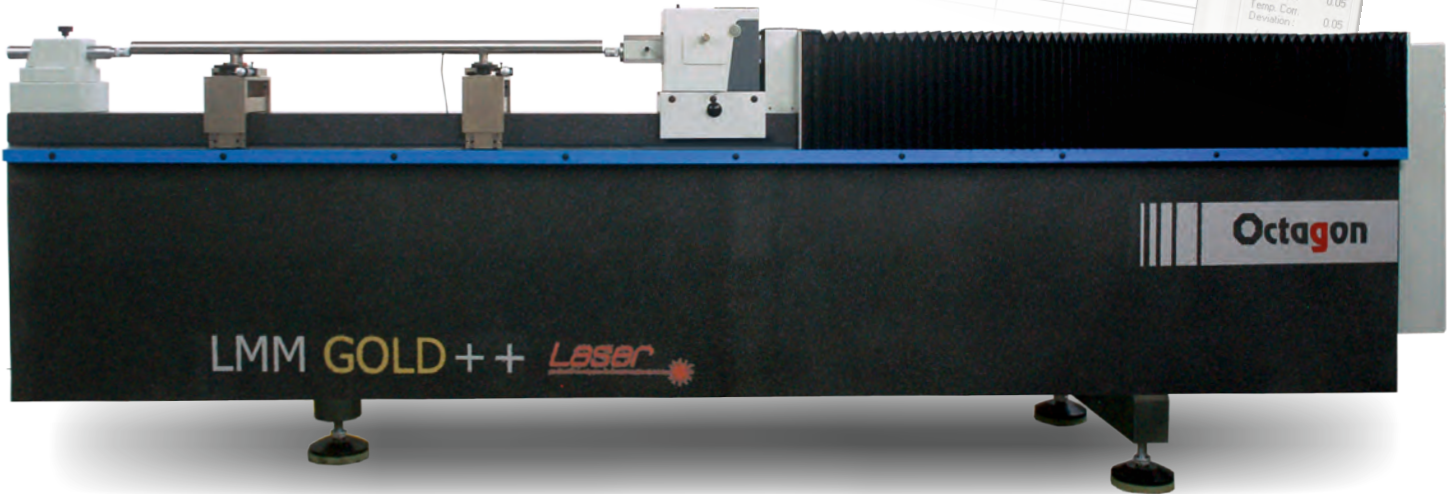
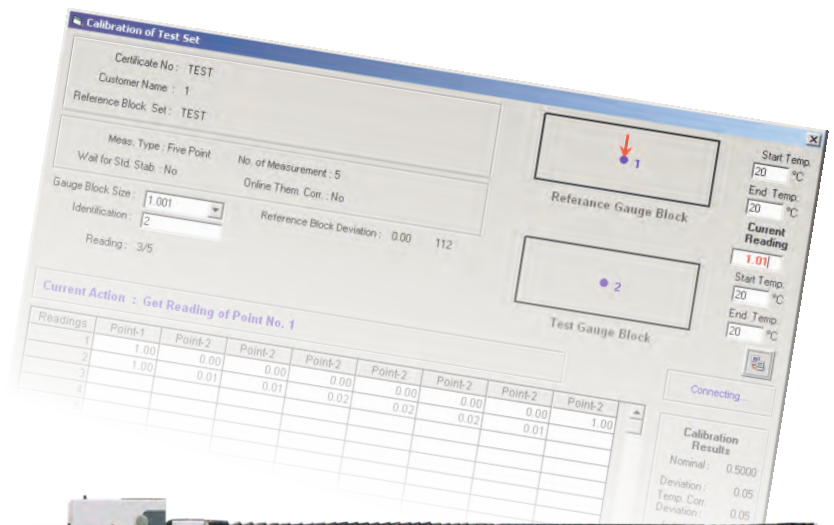
The software interface displays measurement data for a gauge block. It includes fields for Certificate No., Lot Name, Reference Block, and No. of Measurement. A table shows measurement points and their deviations.

Point-1	Point-2	Point-3	Point-4	Point-5	Point-6	Point-7	Point-8
1.00	0.99	0.99	0.99	0.99	0.99	0.99	1.00
0.00	0.01	0.01	0.02	0.02	0.02	0.01	0.00



LMM GOLD++

Length Measuring Machine



Technical Specifications:	
Measuring Range	
Absolute	1000mm/ 2000 mm/ 3000mm
Application Range	
Length bars, Gauge blocks	1000mm/ 2000 mm/ 3000mm
Performance data	
Resolution	0.01 μm
Measurement uncertainty	0.1 + 0.5 L / 1000 $\mu\text{m}^\#$
Measuring force	1N, 2N (Selectable)

Dimensions, weight and operational conditions	
L x W x H	2750 x 380 x 700 mm
Weight (kg)	650 kg
Power supply	230 V Single phase AC, 50 Hz
Display System	PC based
Compressed Air	3 bar

Features :

- Very high precision length measuring machine with highly stable He-Ne Laser interferometer specially designed for large direct measuring range.
- 100% Compliance with Abbe's comparator principle.
- Adjustable support for holding long gauge blocks and length bars.
- Granite horizontal base for structural stability and minimising effect of the temperature variations.
- Anti vibration mounts for protection from environment vibrations.
- Air bearing slides to ensure high precision performance and smooth & easy alignment of measuring carriage.
- Environmental error corrections for Laser interferometer temperature, air pressure, humidity. Online temperature measurement & computer aided correction facility.
- Display System : PC based software display with gauge management features and computer aided measurement including automatic reversal point recognition.

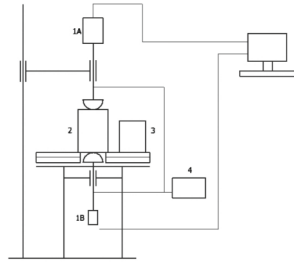
Note:

- Special accuracies, measuring ranges are available upon request.
- # Measurement Uncertainty subject to temperature control of $20 \pm 2^\circ\text{C}$ with gradient less than 0.5°C/hr and humidity control of $50\% \pm 10\% \text{RH}$.

GBC 150 Gold

Gauge Block Comparator System

with interferometric probe from SIOS, Germany



GBC 150 Silver

Gauge Block Comparator System

with Optical probe from Heidenhain, Germany



Octagon GBC 150 Gold* and GBC 150 Silver* are precision gauge block measuring systems with most advanced feature of longer comparison range of 20mm. Both Gauge block comparators used for precision gauge block measurement, designed with two electrical high resolution length indicators (summeasurements) as recommended in ISO 3650. Octagon Gauge block comparators

In this advanced method of Gage block comparison, the upper inductive probe used in traditional comparator (e.g. Octagon Gauge Block comparator - GBC 170) is replaced with a Interference or Optical length gauge. This Interference or optical length gauges used are with the high resolution, characterized by high linearity and high stability of measured value over a measuring range of 20mm, so that, gauge blocks of different lengths can be compared with each other.

This new comparison method of measurements of Gauge blocks is developed and validated by PTB Germany and is now widely adopted throughout the world-wide calibration laboratories of National metrology Institutes (NMIs) of various counties and ISO/IEC 17025 accredited laboratories .



GBC 150 Gold Gauge block comparator with SIOS - laser-interferometric gauging probe of long measuring range 20 mm, resolution 0.001 μm and linearity of $\pm 0.002 \mu\text{m}$ at top side and bottom one with the high precision inductive probe

GBC 150 Silver Gauge block comparator with Heidenhain Optical Incremental length gauge of long measuring range 20 mm, resolution 0.01 μm and consistently high accuracy $\pm 0.03 \mu\text{m}$ at top side and bottom one with the high precision inductive probe .

Main Advantage :

- Less number of reference standard gauge block pieces required : Instead of use of 122 piece set of reference standard gauge blocks only 15 pieces are required to cover complete the range.
- Measurements of any arbitrary size of gauge block possible with out availability of reference gauge block of same size.
- Measurements of Imperial (inch) gauge block possible with same 15 pcs of reference gauge blocks
- No special set required for the calibration of Gauge block comparator :
- Low costs of re-calibration of reference standards :

Features :

- Mikronix make Rigid cast-iron stand, making unit temperature stable
- Electro-pneumatic lifting of both top and bottom length gauges.
- Gentle, precise and extremely smooth operation carriage fixture due to slideways, which are impervious to dirt
- Ergonomical operation due to the optimally arranged gauge block holding fixture
- Movement of the gage blocks due to support consisting of hardened circular guide pins
- No zero setting required, since the set value is automatically related to the nominal value of the respective reference gage block
- Very effective protection from heat due to an acrylic glass screen
- Correction for measuring force
- Correction of differing thermal expansion coefficients
- Computation of mean values
- Calibration program for gage block measuring unit

Technical Specifications:	GBC 150 Gold	GBC 150 Silver
Measuring Range	0.5 mm to 150 mm	0.5 mm to 150 mm
Comprison Range	20 mm	20 mm
Resolution	0.001 μm	0.001 μm
Measurement uncertainty	0.01 μm *under specified conditions	0.03 μm *under specified conditions
Active table surface	60 mm x 60 mm (Carbide Line Contact)	60 mm x 60 mm (Carbide Line Contact)
Repeatability	$\pm 0.005 \mu\text{m}$	$\pm 0.01 \mu\text{m}$
Dimensions (mm)	300(L) X 400 (H)X 250 (W)	300(L) X 400 (H)X 250 (W)
Weight	38 kg	38 kg

For testing gage blocks beyond 100 mm , we recommend the Octaogn Gold Plus universal measuring machine

GBC 170 Gauge Block Comparator System

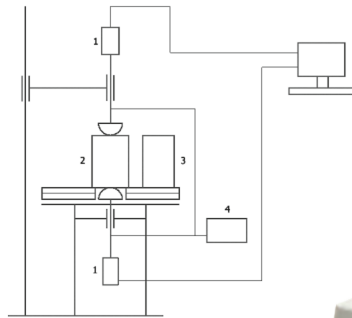
Octagon Gauge block comparators GBC 170 precision gauge block measuring systems designed with two electrical high resolution length indicators (sum measurements) as recommended in ISO 3650.

Main Advantages :

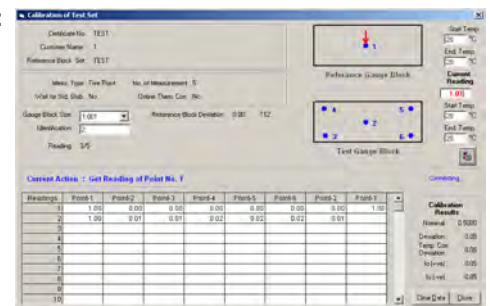
- Better measurement capabilities at comparatively lower investments.
- High reliability.
- Relatively low requirements of temperature regulation and temperature measurement.

Features :

- Mikronix make Rigid cast-iron stand, making unit temperature stable
- Easily adjustable vertical slide with upper probe
- Electro-pneumatic lifting of both top and bottom length gauges.
- Gentle, precise and extremely smooth operation carriage fixture due to slideways, which are impervious to dirt
- Ergonomical operation due to the optimally arranged gauge block holding fixture
- Movement of the gage blocks due to support consisting of hardened circular guide pins
- No zero setting required, since the set value is automatically related to the nominal value of the respective reference gauge block
- Very effective protection from heat due to an acrylic glass screen
- Correction for measuring force
- Correction of differing thermal expansion coefficients
- Computation of mean values
- Calibration program for gage block measuring unit
- Inherent Stabilization of temperature



Octa-Block :



Technical Specifications:	
Measuring Range	0.5 mm to 170 mm
Comprison Range	20 μ m
Resolution	0.01 μ m
Measurement uncertainty	0.03 μ m *under specified conditions
Active table surface	60 mm x 60 mm (Carbide Line Contact)
Repeatability	\pm 0.01 μ m
Dimensions (mm)	300(L) X 400 (H)X 250 (W)
Weight	38 kg

Computer-aided calibration program:

For computer-aided evaluation of the measuring values a laptop / PC can be used.

Software program system Octa-Block

The program realizes the computer-aided evaluation as per ISO 3650.

Octa-Block Features

- Selection and determination of measuring sequences
- Management of test piece and standard gage blocks
- Management of individual gage blocks
- Measuring program to perform gage block tests
- Control of all operations and inputs
- Automatically assigning the sequence of nominal dimensions for set tests
- Printer program for test records and for the printout of standard gage block sets
- Printout of calibration report in a format complying with ISO/IEC 17025 requirements Storage of measurement records.