



Laser Measurement System

Model LMS-100

- Laser Technology
- Non-Contact Method
- Two Modes of Operation:
gas or water pressure
- Windows Based Software
- Quick Exchange Attachments
- Extensive Report Generating Capability
- Two Types of Laser Micrometers Offered
- Balloon Profile Mapping at Multiple Pressure Levels

GENERAL INFORMATION

Designed specifically for catheter balloons, the **Laser Measurement System, LMS-100**, offers a highly accurate, non-contact technique for multi-point inspection of balloon dimensions. It reduces errors associated with manual contact measurements and eliminates variations due to operator skills.

The LMS-100 includes a variety of clamping devices and attachments that allow balloon pressurization by gas or water. The hydraulic testing is conducted with the balloon submerged in a custom designed heated water bath. The system accurately controls balloon axial movement and rotation with respect to the laser beam. It also maintains the pre-programmed balloon pressure and controls the temperature of the water bath.

The LMS-100 will deliver the most accurate and repeatable results and ensuring unsurpassed quality in your balloon development and production.

USER INTERFACE

Test programs can be executed and test data automatically collected using a PC. During the measurement process the LMS-100 scans and maps the entire balloon outline. The test results are presented in both graphical and tabulated form.

MINIMUM SYSTEM REQUIREMENTS:

1. For Dimensional Balloon Inspection in the Air

- a) Laser Micrometer (Mitutoyo or Keyence)
- b) LMS-100C Controller
- c) LMS-100A Axial Drive
- d) LMS-100R Rotary Drive
- e) PC computer with data acquisition and control software

2. For Balloon Compliance Measurements and Burst Testing in 37° C water

- a) Laser Micrometer (Mitutoyo or Keyence)
- b) LMS-100C Controller
- c) LMS-100A Axial Drive
- d) LMS-100W Temperature Controlled Water Bath
- e) PT-3070 Hydraulic Burst Pressure Tester
- f) PC computer with data acquisition and control software

3. Full-up System

Includes all components listed under 1 and 2

The LMS-100 integrates with the Mitutoyo Laser Micrometer Model 9506 or the Keyence Laser Micrometer Model LS-7000. The system consists of four separate components that can be configured depending on the intended use.

LMS-100C - The System Controller Unit provides interface with a Micrometer, a Microsoft Windows™ personal computer and an optional Model PT-3070 Hydraulic Pressure Tester. It also contains control modules for motor positioning, temperature and gas pressure settings.

LMS-100A - The Axial Motion Drive mounts to a main baseplate and straddles the measurement area of the Laser Micrometer. Either of the two holding and movement fixtures described below attach to the axial movement platform on top of the Axial Motion Drive. The unit accepts input commands and provides positional feedback to the System Controller. It also acts as a conduit and control for the clamping pressure used with one of the fixtures.

LMS-100R - The Rotary Drive is one of two holding and movement fixtures which mount to the Axial Motion Drive. The Rotary drive is designed to hold a balloon with variable inflation pressure and rotate it upon its' axis. As the rotation occurs, the entire fixture can move incrementally across the measurement window of the Laser Micrometer. This allows the entire working length of the balloon to be measured.

LMS-100W - The Heated Water Bath is the other of the two holding and movement fixtures. As the name implies the fixture holds up to two liters of water and incorporates a long heater cartridge along the length of the bath at the bottom. The sides of the fixture are of optical grade glass and allow the laser light to pass. The heater cartridge is powered and controlled by the System Controller Unit. The balloon is inflated with distilled water delivered by the Model PT-3070 pressure tester. Water pressure and flow is varied according to a pre-programmed test protocol.

Together the above modules provide the most accurate and reliable balloon measurement systems in the industry today.

SPECIFICATIONS

Bench Top Space Required	72" W x 30" D
Weight	19.5 Kg (43.0 lbs)
Electrical Power	100/110/220/240 VAC +/- 10%, 50 - 60 Hz, < 500 W
Air Supply	80-110 (0.7 M)Pa)
Output Pressure Connector	Compression fitting with collet and mandrel see 506005
Output Pressure Range	0 - 68 ATM (1.0 to 1000 PSI)
Output Volume Range	.002 cc to 1000 cc *
Output Flow Rate Range	0.2 to 10 cc / s *
Pressure Accuracy	0.5 bar
Pressure Resolution	0.1 bar
Flow Rate Resolution	0.01 cc / s
Water Bath Volume	2 liters - de-ionized water
Water Temperature	Ambient to 50 degrees C
Axial Movement Range	0 - 200 mm
Axial Movement Resolution	+/- .1 mm
Axial Movement Speed	0 - 200 mm / sec
Axial Acceleration	0.1 to 1000 mm / s / s
Axial Deceleration	0.1 to 1000 mm / s / s
Rotational Range	0-360 degrees CW and CCW
Rotational Accuracy	+/- 1.0 degree
Rotational Speed	0.36 to 600 rpm
Environmental Operating	Indoor use only
Altitude	-500 to 2000 meters
Temperature	5- 40 degrees C
Relative Humidity	10-80 % non-condensing to 40 degrees C
Pollution Category Degree	2

* when in use with Interface Associates Model PT-3070



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