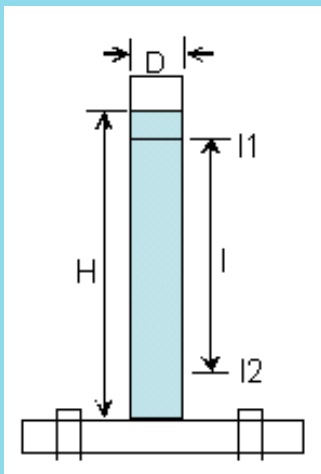


## LEMI-32 Measuring Liquid Viscosity- Falling Sphere Method

- *Photoelectric timing*
- *High accuracy*
- *Stable and reliable*
- *Affordable*



Schematic of experimental method

Viscosity coefficient is one of the important properties of liquid. Measurement of liquid viscosity coefficient using a falling sphere can reveal related physical phenomena clearly. Normally, the measurement accuracy of the falling ball method is not high by using a manual stopwatch considering the existing parallax errors of the sphere.

This apparatus is designed with the following benefits:

1. Using photoelectric sensor and electronic timer to avoid the parallax and timing errors caused by a stopwatch.
2. Improved mechanical design to ensure precise falling trace of the sphere.
3. Using laser ranging to accurately measure both the fall time and fall distance to avoid the parallax error.

## Experimental Objectives

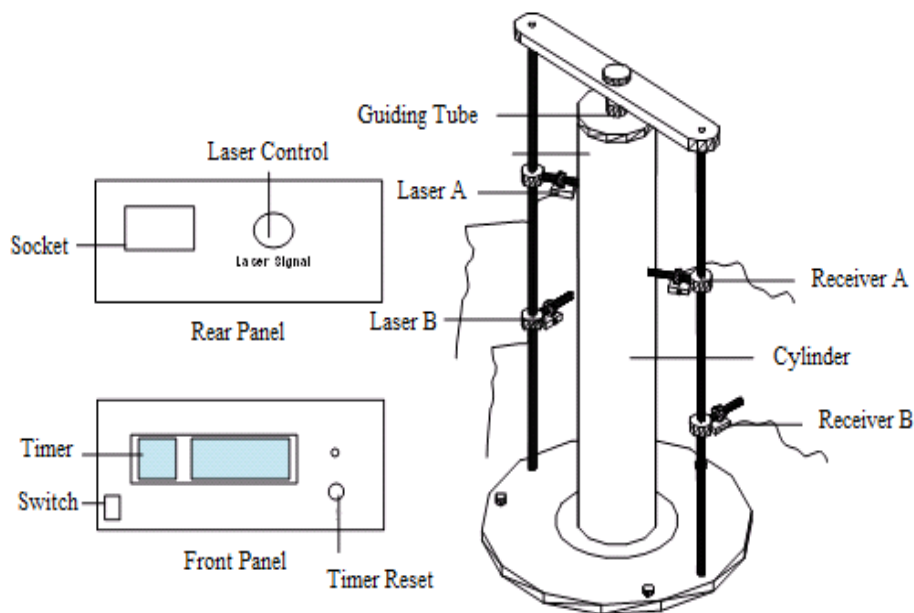
1. Measure time and speed of a moving object using a laser photoelectric sensor
2. Measure oil viscosity using falling ball method and Stokes formula
3. Understand the falling ball method and make proper corrections if necessary

## Specifications

Electronic timer	Displacement range: 400 mm; resolution: 1 mm
	Timing range: 250 s; resolution: 0.1 s
Measuring cylinder	Volume: 1000 mL; height: 400 mm
Measurement error	<3%

## Parts

Name	Qty	Note
Electronic unit	1	
Stand rack	1	
Laser emitter	2	
Laser receiver	2	
Cable	1	
Cylinder	1	
Small steel ball	1 set	diameter: 1.5, 2.0 & 2.5 mm, one bag each
Magnetic steel	1	
Power cord	1	



Schematic of system