

# Mitutoyo



**WILLRICH PRECISION  
INSTRUMENT**  
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Mitutoyo **Quality**

## High-resolution Digimatic Measuring Unit LITEMATIC VL-50-B/50S-B

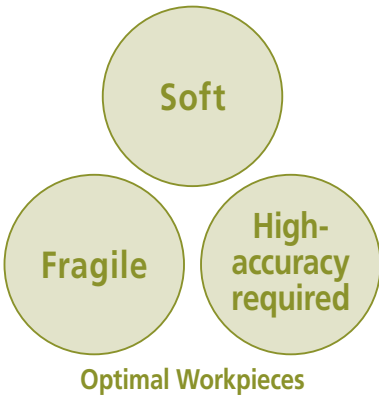
Sensor Systems



Bulletin No. 2374

Low measuring force of 0.01 N

Measure by Touching Gently



High-resolution Digimatic Measuring Unit

LITEMATIC VL-50-B/50S-B

Ideal for measuring the thickness or height of a workpiece that can be easily affected by the measuring force

- With a measuring force of only 0.01 N, the Litematic is ideal for measuring easily deformed workpieces or high-accuracy components.
- For workpieces for which 0.01 N is insufficient, either the 0.15 N or 1 N model (factory-installed option) is recommended.
- The spindle is motor-driven and stops when the contact point touches the workpiece. From then on, the maximum, minimum, or difference value can be measured using a constant measuring force.
- High resolution of 0.01 μm, and wide measuring range of 50 mm.
- The spindle is made of low thermal expansion material and the measuring table supplied with VL-50-B is ceramic, reducing deformation due to temperature.



NEW Products

VL-50-B



NEW Products

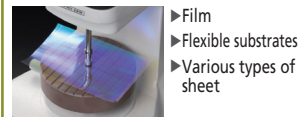
Separate type VL-50S-B

Because the measuring unit and the display unit are separate, they can be integrated into the user's measurement system.  
\*The stand in the photo (No.957460) is sold separately.

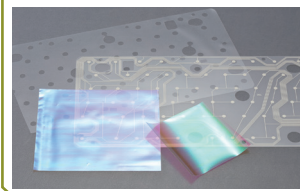
APPLICATIONS

Highly-Functioning Film

If the workpiece flexes, making accurate measurement impossible, using a type with a larger measuring force or adding a weight to the spindle may be effective.



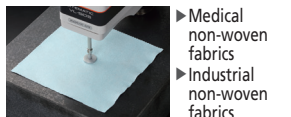
- Film
- Flexible substrates
- Various types of sheet



Non-Woven Fabrics

When measuring the thickness of non-woven fabrics, it is possible to change the specifications to meet the standard.

(Custom-made service. Please contact us.)

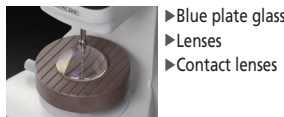


- Medical non-woven fabrics
- Industrial non-woven fabrics



Lenses and Optical Components

For this type of workpiece the smallest measuring force available is recommended.

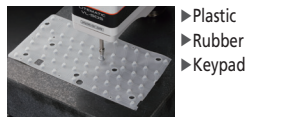


- Blue plate glass
- Lenses
- Contact lenses

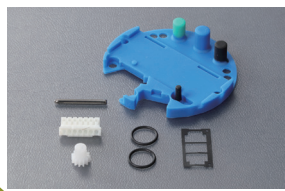


Rubber and Plastic Components

If the workpiece is soft the risk of indentation may be reduced by replacing the standard contact point with one of larger radius, such as an optional carbide ball type.



- Plastic
- Rubber
- Keypad



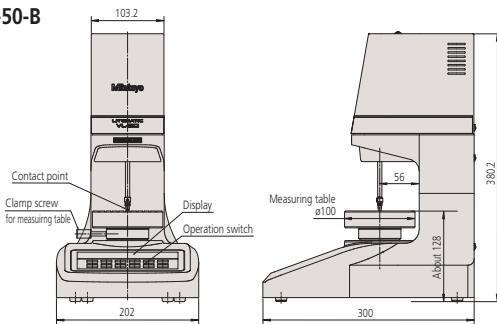
SPECIFICATIONS

Order No.	318-221-10A	318-222-10A	318-223-10A	318-226-10A	318-227-10A	318-228-10A
Model	VL-50-B	VL-50-15-B	VL-50-100-B	VL-50S-B	VL-50S-15-B	VL-50S-100-B
Measuring range	0 to 50 mm (0 to 2 in)					
Resolution	0.01/0.1/1.0 μm (0.000005 in/0.00005 in/0.0005 in)					
Display unit	8 digits/14 mm character height (without signs)					
Scale type	Reflection type linear encoder					
Stroke	51.5 mm (2 in) (when using a standard contact point)					
Measuring accuracy (20 °C)* <sup>1</sup>	(0.5+L/100) μm L=arbitrary measuring length (mm)					
Accuracy guaranteed temperature* <sup>2</sup>	20±1 °C					
Repeatability* <sup>1</sup>	σ = 0.05 μm					
Measuring force* <sup>3</sup>	0.01 N	0.15 N	1 N	0.01 N	0.15 N	1 N
Feed speed	Approx. 2 mm/s (0.08 in/s) or 4 mm/s (0.16 in/s) (changeable by parameter)					
Measurement Fast feed	Approx. 8 mm/s (0.3 in/s)					
Contact point	ø3 mm carbide ball (fixing screw: M2.5 (P=0.45)×5), standard contact point: 901312					
Measuring table	ø100 (ceramic, grooved, removable)			—		
Input	Foot switch input (when optional foot switch is used)					
Interface	Digimatic output/RS-232C (changeable by parameter), I/O					
Rating	Power supply AC100 to 240 V, 50Hz/60Hz					
Power consumption	Max. 18 W (12 V, 1.5 A)					
CE marking / UKCA marking	EMC Directive, Machinery Directive, and RoHS Directive					
Main unit mass	(NET) 16 kg			(NET) 5 kg		
Standard accessories	AC adapter: 357651, Grounding wire: 09CAA985, AC cable (USA): 02ZAA010, Hex wrench (No. A732-004: for attaching contact point, No. A732-003: for fixing plate)					

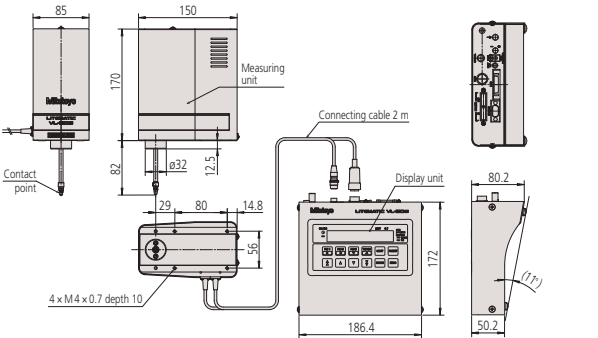
\*1 Normal measurement using standard contact point (with 16 times of smoothing).  
\*2 Under less temperature change, and hot or cold direct air flow should be avoided.  
\*3 0.15 N and 1 N types are factory-installed option.  
Note: Motor life is approximately 100,000 operations, after which replacement is advisable.  
This maintenance factor is particularly important to bear in mind when the machine is used frequently, such as on a production line.

DIMENSIONS

VL-50-B



VL-50S-B



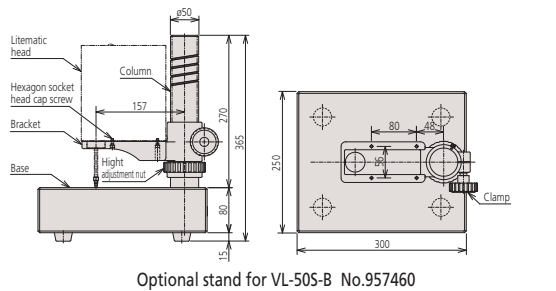
OPTIONAL ACCESSORIES

Order No.	Description
937179T	Foot switch
957460	Dedicated stand (only for VL-50S-B)
02ADB440	I/O connector (with cover) (for external control)
02ADD950	RS-LINK/Digimatic connecting cable (0.5 m)
936937	RS-LINK/Digimatic connecting cable (1 m)
965014	RS-LINK/Digimatic connecting cable (2 m)
02AZE375	VL weight parts Note: The above VL weights are not applicable to VL-50-100-B, VL-50S-100-B.
264-505	Digimatic mini processor DP-1VA LOGGER
	Applicable plug for I/O connector (commercially available) 10136-3000PE (3M: Plug) 10336-52AO-008 (3M: Cover) DX40M-36P (Hirose: Plug) DX30M-36-CV (Hirose: Cover)

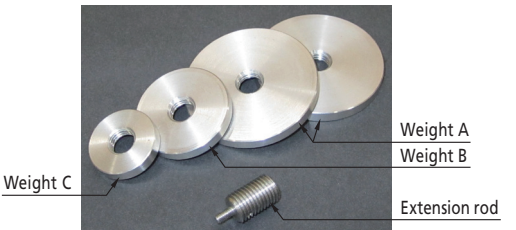
Interchangeable contact points

Order No.	Interchangeable contact points (Measuring force)
101118	Shell contact point (Measuring force: Approx. 0.02 N)
21AZB752	Carbide spherical contact point, ø7.5 (Measuring force: Approx. 0.03 N)
21AZB753	Carbide spherical contact point, ø10.5 (Measuring force: Approx. 0.06 N)
120066	Carbide needle contact point, ø0.45 (Measuring force: Approx. 0.01 N)

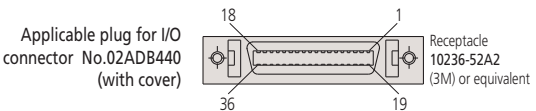
Note: If you use a flat contact point and wish to adjust the parallelism between the measuring surface and the reference surface, this will require a custom-made service. (Only integrated type is applicable. Separate type is NOT.)



Optional stand for VL-50S-B No.957460



External appearance of optional weights No.02AZE375

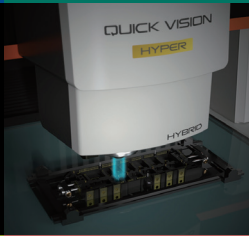




Coordinate Measuring Machines



Vision Measuring Systems



Form Measurement



Optical Measuring



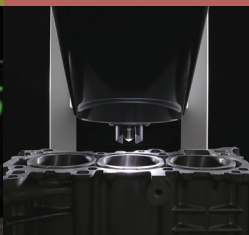
**Whatever your challenges are, Mitutoyo supports you from start to finish.**

Mitutoyo is not only a manufacturer of top quality measuring products but one that also offers qualified support for the lifetime of the equipment, backed up by comprehensive services that ensure your staff can make the very best use of the investment.

Sensor Systems



Test Equipment



Digital Scale and DRO Systems



Small Tool Instruments and Data Management



Apart from the basics of calibration and repair, Mitutoyo offers product and metrology training, as well as IT support for the sophisticated software used in modern measuring technology. We can also design, build, test and deliver measuring solutions and even, if deemed cost-effective, take your critical measurement challenges in-house on a sub-contract basis.



**Find additional product literature and our product catalog**

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