Expert in Thread Measurement TIMI Optical Measuring Machine

Profession · Precision · Efficiency



TIMI Optical Measuring Machine for Thread

The TIMI system integrates hardware and advanced software technology to swiftly and precisely measure the physical dimensions of different screws and tools. It is a professional solution, especially suitable for thread measurements such as pitch diameter, screw concentricity, punch, plug gauge, and specialized threads like trilobular screws.





Scope of Applications

- $\cdot\,$ The full-dimension measurement of screws and tools below 40mm in diameter.
- · Replace traditional gauge like ring gauge, three-wire gauge, caliper, and projector.
- \cdot Suitable for in-line sampling inspection or mass inspection in the shop floor.

Applicable to the following screws and tools



Aerospace





Automotive



Construction/Furniture







Punch



Track Bolt Electronics/Trilobular Screws Plug Gauge

Medical Screw

Screw Rod

Features



Horizontal



Rotational Positioning



Large Field of View



Immediate frame selection measurement (Function Area \rightarrow Image Area \rightarrow Data Area)



Easily Place the part Three-jaw Chuck



Vertical



Parts can be measured vertically or horizontally, expanding their applications.

Rotate for geometry measurement



Auto Full-size Measurement



comparable to CMM measurement.

Precise • Automatic Quick full-size measurement



One-touch measurement





Complete measuring functions with quick function keys. Simple Operation and Easy to start.



Center vise

Magnetic Fixture



Statistical process control

Complete • real-time Complete recording of inspection data for traceability and production history querying.



Real-time saving of measuring data.

Inspection checklist output

Simple • Fast

Screw Feature



Precise automated measurements

Quick Measurement of Screw

- Measure over 10 items for a 30mm-length screw in 2 seconds.
- Measure all the major sizes on the head and thread of a screw.





Quick Measurement of Mechanical Thread

- Simultaneously measure O.D., I.D., P.D., pitch, thread angle and helix angle in one second.
- No multiple gauges needed. Saving time, labor, and providing speed and convenience.



Auto-Detect Thread Tips and First Thread

- Automatically search the initial bud of a thread and measure the effective length.
- Computerized automatic searching is more convenient and reliable than with a projector.



Precision tool thread measurement











Measure pitch diameter by digital simulation of three-wire gauge

Plug Gauge

Screw Tap

Ultra-precision measurement of thread

- The measuring uncertainty of the pitch diameter is ±1µm.
- The measurement result of thread is traceable to the certified plug gauge.
- Full inspection is available for gauging outer diameter, pitch diameter, pitch, and crest angle.

Precision measurement of trapezoidal thread

- Fast measurement of trapezoidal thread dimensions without a ring gauge.
- Fast measurement of trapezoidal thread dimensions without a ring gauge.

Precision measurement of PT threads Precisely measure pitch diameter and thread angle without using a three-wire gauge.

- \cdot Fast measurement of PT thread dimensions.
- Non-contact digital measurement for accuracy and speed.

Precision measurement of various screw rod's dimensions

- Precisely measure major, mean, minor diameters, and pitch of screw rods.
- Measure profile dimensions of screw threads accurately.
- Replace length measuring instruments with image automatic detection of full thread length.











Measurement of trilobular screws and coaxiality between thread and head

Features of patented measurement technology

- · No need for axial alignment to rotate shafts.
- · Automatic scanning of circumferential profile from images.
- · Analysis of C, D, and E values for trilobular screws.
- · Inspect roundness, coaxiality, and runout.



Trilobular screws



Telecentric image of trilobular screws

Measurement of trilobular screw

- Rotate and automatic scan for C, D, and E values without traditional gauges.
- Automatic measurement of triangular screw threads and the coaxiality of screws in seconds without precise centering.

Quick Measurement of Screw Coaxiality

- Automatically Measure the coaxiality of a 30mm-length screw in 5 seconds.
- Be easier to operate and more reliable than probe-type coaxiality meter.







Analysis of profile dimensions of trilobular screws





Measurement databank fully records production history for QA

- •View basic analysis of measuring data at any time in-process.
- •Export measuring data for process capability analysis.

MDB Database Application Software (Basic)



Manually enter product inspection information.

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Collate measuring data. Browse data for basic analysis.

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Measuring data is saved in real-time.



Print inspection checklist and save as a PDF report. Data can be exported in Excel format.

MDB Database Application Software (Advanced)

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Link ERP/MES for import or export of production/quality control information.



Query historical measurement data and analysis. (e.g. X bar, R chart \smallsetminus Cpk)



Hybrid data can be imported. (including data from other gauges)

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Print and export inspection checklist, as well as create your own.

Machine Specifications

Spec Model	TIMI12F	TIMI30F	TIMI40F						
Measuring Diameter (D)	ø12mm	ø30mm	ø40mm						
Measuring Length(Z)	100mm	100mm / 200mm							
Rotatable range (R)	360°								
Repeatability (D)[#1]	±0.2µm	±0.3µm	±0.4µm						
Uncertainty (D)[#2]		±(2+D[mm]/100)µm							
Image Resolution	7µm	15µm	19µm						
Minimum display unit	0.1µm								
Rotational Resolution (R)	≦0.1°								
Clamping Method	Three-jaw clamp								
Central Processing Unit (CPU)	Intel Core i5以上								
Memory Capacity	8GB RAM,128GB SSD,500GB HDD								
Monitor	22 " LCD								
Operating System	Windows10								
Weight (without computer)	50~70Kg(Depends on the measurable length)								
Power Supply	11	0~240V,50~60Hz,10	A						
Operating Ambient Temperature	0°~45°C								
Operating Ambient Humidity	≦ 80 %								

#1: Repeatability is calculated by measuring the fixed position of a standard gauge repeatedly without the connection of the motion mechanism and estimating the statistical value ±2σ. #2: The measurement uncertainty is calculated by arbitrarily measuring a standard gauge without the connection of the linear motion mechanism and estimating the statistical value ±2σ.

Machine size



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