

The HELMEL Family of CMM Products



CHECKMASTER • MICROSTAR • PHOENIX • GEOMET

Helmel Engineering Products has focused on designing and building coordinate measuring machines of the highest quality for over 30 years. We offer manual and DCC CMM systems that span the measuring range from 12" x 12" x 10" up to 120" x 60" x 40". We will also provide special systems, and we build products under OEM labels for several premier companies.

Reliability is our trademark, based on our long track record and on refining time proven concepts in the mechanical design of our machines. We have made it an art form. Some of our CHECKMASTER models have been in continuous use for 30 years.

Our core technologies include highly accurate 3 dimensional moving structures having precision ground ways and mechanical bearing motion, plus extremely simple motion control and 3D metrology software. We are vertically integrated to a high degree, with all operations, from concept through design, machining, finishing, electronics, software, testing, training, service and support under one roof. This allows us to be "fleet of foot", absolutely responsive, and innovative. Helmel led the industry, for example, with the incorporation of brushless linear motors and digital commutation in our original MICROSTAR CMMs. We are a *CAN DO* company that thrives while the higher and mightier have struggled and fallen.

Non-contact steel scales mounted on steel members insure uniform thermal behavior. Powerful bearing ratios on straight ways, and precision square assemblies insure *intrinsic mechanical accuracy* without the necessity for software error compensation. Machine ways, bearings, scales and motors are covered and enclosed to protect them against harsh factory conditions.

For over 20 years, our GEOMET CMM Software system has lead the industry with operating features and concepts that have been emulated by many others. The efficiency of our Keystroke Magic® keyboard user interface is favored by customers even with the full windows menus at hand. Simple self-teach programming, powerful and flexible editing, integrity of results, self-tailored output formatting, all combine to make GEOMET a truly "universal language", both for HELMEL CMMs, and as a retrofit to every other brand.

Contact Helmel for the full range of CMM and SMM products, accessories, software and training.

Call: 1-800-BEST-CMM (1-800-237-8266)



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Phone 716-297-8644 ? FAX 716-297-9405 ? website:www.helmel.com ? email:sales@helmel.com

AXIUM

Shaft Measuring Machine



Factory Floor Rugged
Operator Friendly
Reliably Precise
Measure, Scan, Digitize
Integrate to Automation



Automatic Shaft Analysis in the Factory Environment

The **Helmel AXIUM** Shaft Measuring Machine has been developed to provide precise automatic dimensional measurement of cylindrical and shaft-like or manufactured parts, and is especially well suited to crankshaft inspection. The machine is hardened for use in production on the factory floor, and requires minimal training for non-metrology employees.



Designed as a 4 axis system, the **AXIUM** can be configured with only 3 axes when suitable. System software is Helmel's own GEOMET Coordinate Measuring metrology software for measurement, verification and GD&T analysis, and includes a powerful controller with our versatile and proprietary motion control software.

The **Helmel AXIUM** presents a horizontal format, with the major cylindrical axis oriented left to right, duplicating the way most shafts are machined and ground. Parts are typically staged between centers,

or on solid or rotating Vees. The system employs the Renishaw Touch Trigger and Scanning probes for part sensing and can incorporate an automatic stylus changing system for totally automatic operation.

Measurement output can be made available for immediate accept/reject decisions based on nominal/tolerance feature comparisons, or it can be graphically compared to nominal CAD data. Manual or automatic feedback of deviations may be used to control the manufacturing process. Results can also be processed or stored for statistical analysis and process control, or for archived documentation.

The standard **AXIUM** is suitable for shaft lengths up to 36" (900mm), with a maximum diameter of 12" (300mm). Capacity for shafts up to 60" (1.5m) will be quoted on request.

Major features:

- Construction on a granite plate for dimensional and thermal stability.
- Precision ground steel ways and mechanical bearings for accuracy, reliable motion, durability, and long life.
- Intrinsic mechanical accuracy for true precision without the need for error compensating software correction.
- Steel scales with resolution of .00002" (0.5µm) for precise position feedback.
- Rotary resolution of .002° (7.2 arc seconds) for precise angular feedback.
- Brushless non-contact linear motors for carefree performance over years of use.
- Steel covers and sliding bellows to protect ways, scales, encoders, bearings, and drive system from dirt and debris, for the highest reliability and carefree operation.
- Optional protective enclosure with sliding doors for added protection in the toughest manufacturing environments. Doors extend into the top to facilitate vertical loading of heavy parts.
- Optional filtered fans circulate air to keep stable temperatures in the cabin for dimensional integrity, and positive air pressure to promote a clean measuring environment.
- Double isolation of stand to floor and granite to stand to defeat the effects of ambient vibration.

Typical Applications

camshafts
crankshafts
turbine shafts
gearshafts

compressor shafts
blower shafts
printing/paper path shafts
electric motor shafts

Aggressive Production Control Where You Need It

SPECIFICATIONS:

4 Axis DCC Coordinate Measuring Machine with horizontal rotary axis for shafts and other cylindrical parts. Features include:

- Complete GEOMET 301 Software/Computer System with Pentium Processor
- Industrialized control cabinet, keyboard, and multifunction joystick
- Rotary axis software integrated into the standard configuration with rotating coordinate system
- Brushless non-contact linear motors
- Air operated tailstock with center
- Brushless motor driven headstock with .002° resolution and removable center, allows 12" diameter swing
- Covered ways and scales for protection
- Mechanical bearings and hardened steel ways
- Non-contact metal scales with .00002" resolution
- Maximum speed: 25m/min (400mm/sec)

Measuring Range: X Axis 44" (1120mm)
36" between centers (915mm)
Y Axis 7" (180mm)
12" maximum diameter (300mm)
Z Axis 10" (250mm)
Overall size: 75" L-R, 37" F-B, 60" H
(1900mm x 940mm x 1525mm)
Computer Cabinet: 26" L-R, 33" F-B, 88" H
(660mm x 840mm x 2235mm)
Machine Weight: 3,000 lbs. (1,360 kg)
Utility: 120V/60Hz uninterrupted power supply

Performance (per ANSI B89.4.1a-1998)

Resolution: .00002" (0.5 µm)
Repeatability: .00014" (3.5 µm)
Linear Accuracy: .00013" + .000072" per foot
(3 µm + 6 µm per meter bandwidth)

OPTIONS:

Touch Probe System PH6/TP20
High Accuracy Touch Probe System PH6/TP200
Contact Scanning/Triggering Probe System SP25
Right Angle Stylus Change Rack for TP200 or TP20 – 6 Bays
Machine Enclosure with Sliding Doors and Lights
Air Pressure System
Air Conditioner for Controller
High Reliability Hand Control with Booted Joysticks
Various Center Choices
Expanding Arbor style Rotation Drive System for Positive Engagement of Flange Holes
Pair of V-blocks- Adjustable Horizontally and Vertically
Uninterrupted Power Supply
Training



Industrial Cabinet



Industrial Computer



Drawer mounted
Industrial Keyboard



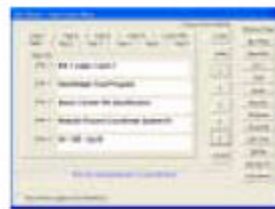
Headstock mounted
Auto-Stylus Changer



Air Actuated Tailstock



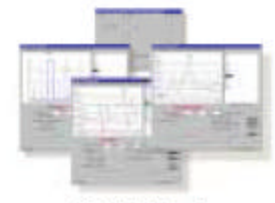
Joystick



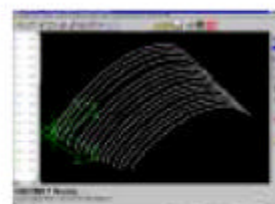
Simple User Interface



GEOMET®
Keystroke Magic



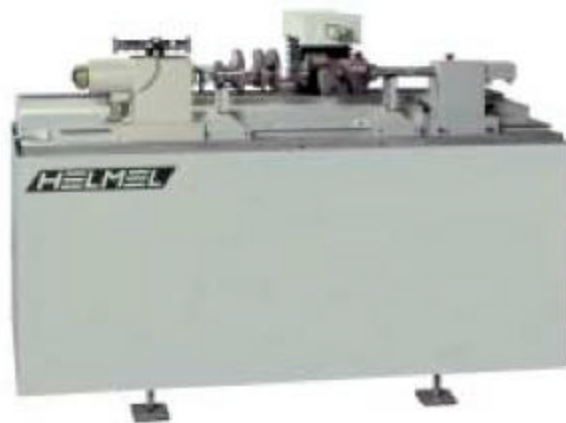
Statistical
Process Control



Dynamic Scanning

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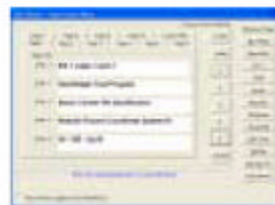
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Auto-Stylus Changer



Air Actuated Tailstock



Joystick



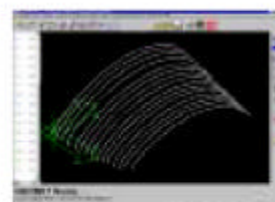
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