

zygo

M E S A F L A T N E S S
M E A S U R I N G T O O L

zygo

Exacting flatness measurement is key to the success of your business. It gives you the critical information you need to improve and streamline your production process. Ultimately, this results in manufactured parts that are more consistent and functionally improved. The MESA Flatness Measuring Tool gives you the accuracy, throughput and repeatability you demand, in a cost-effective package that can be customized to fit your particular application.

Industrial strength metrology.





Industrial

Precision Flatness measurement

*Take control of your
production process.*

*MESA is a cost-effective
solution to flatness
measurement which
provides full surface
3D results in less than
5 seconds.*

MESA offers flatness measurement for a wide range of manufactured and machined part surfaces — whether automotive drivetrain components, fuel injection systems, medical valve seats, molds, or investment castings. It provides crucial feedback at many stages of the production process, from milling and turning to grinding and honing; from polishing to lapping and super-finishing. MESA's precision and reliability ensure that your parts meet your pre-defined parameters throughout your process. In less than 5 seconds, MESA

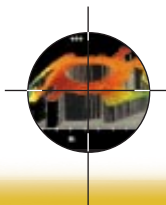
gives you a 3D image of your part's surface, displayed with all of the graphical and numeric data that can be used to accept or reject a part or improve the manufacturing process.

A shop-hardened system

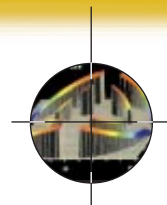
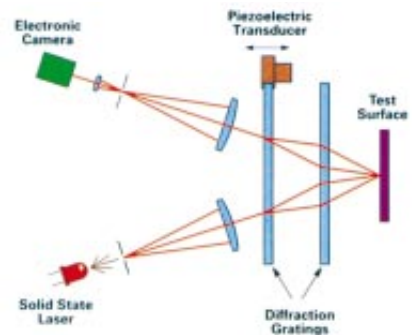
The speed at which a gaging system can provide effective process information can be increased dramatically if that system sits right on the production floor. MESA can and does. This allows your operators to instantly interact with the machining process and quickly identify scrap-producing flatness error sources. It is shop-hardened, so it can take the knocks that a hostile manufacturing environment can throw at it.

A flexible, automated system

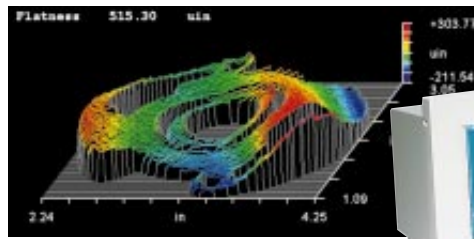
MESA is a flexible system that can easily be configured to meet the needs of both your manufacturing engineers and your line operators. The MESA system can be utilized manually or as an automated system. Combine this with a Zygo-supplied material handling



Problem: High Warranty Costs from functional surfaces exceeding flatness specification



Solution: MESA introduced, and surface production process is evaluated for the first time



that's at Home on the Production Floor.

system, and those configurations can handle your most intense throughput demands — from 30 to 30,000 parts per day. In addition, dedicated fixturing can be supplied to handle many types of parts. In just a few minutes, an automated MESA system can be optimized for you to regain control of batch operations and maintain an in-depth history on part by part flatness results.

A gage-ready proven system

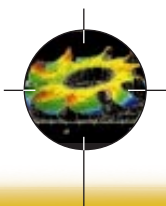
The true test of an outstanding measurement tool is its ability to repeat and reproduce results consistently over time, regardless of the operator. MESA was built with today's rigorous gage requirements in mind. MESA can use nearly 300,000 data points to characterize your surface and its robust design and strong structural loop provide the highest possible degree of repeatability and reproducibility. Not only does this give you more control over your manufacturing process, but it allows your technicians and engineers to make critical decisions concerning how your production line is operating. In turn, more immediate,

consistent, and meaningful feedback is provided to the machine tool personnel, quickly identifying potential scrap producing processes. Zygo tests extensively to certify gage capability, and guarantees the performance of each MESA system we produce.

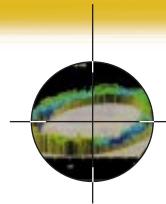
An easy-to-use system

MESA brings production line flatness measurement down to the push of a button. Powerful MetroPro software running in a Microsoft WindowsNT® environment allows you to set the parameters within which you want to measure using a protocol that is comfortable to most users.

MetroPro allows you to view parts with single slice profiles, 2D and 3D plots or just the numeric measurement data. The real-time, on-screen graphics help you quickly identify trends and variability within your production process. As an option, a simple "go" - "no-go" graphical user interface can be provided, minimizing the interpretation of data and redefining the role of the MESA from a process auditor to a pass-fail accountant. The data can be ported off-line or to a network for later evaluation according to a variety of existing protocols.



MESA monitors production process and provides necessary information to correct process



MESA fully integrated into manufacturing process, insuring compliance and reducing scrap and warranty costs

A system that works

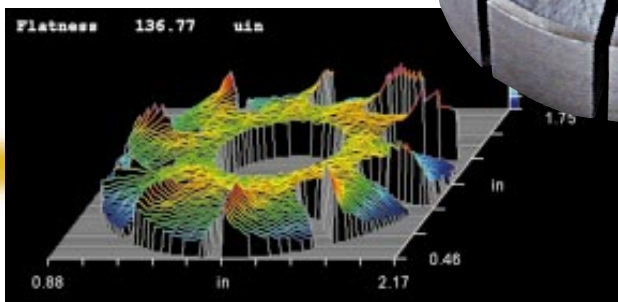
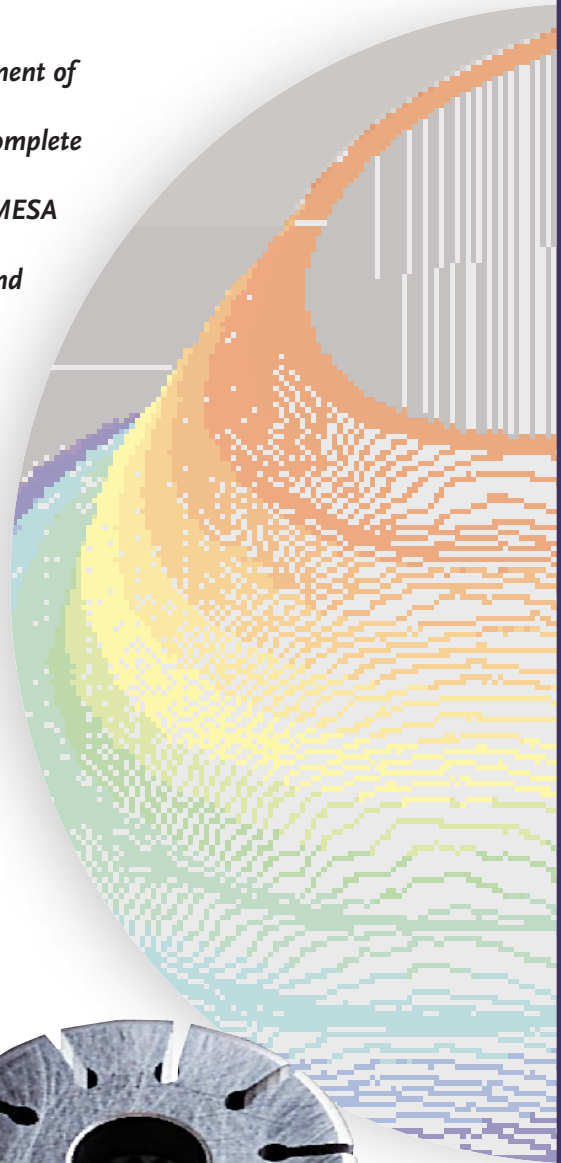
MESA uses geometrically desensitized interferometry to measure reflective surfaces with significant form departure at the highest level of accuracy and repeatability. Light from a solid state laser diode passes through carefully engineered optics and a pair of phase diffraction gratings to illuminate the test surface with two beams at different angles of incidence. The same pair of gratings recombines the two beams, resulting in an equivalent wavelength 20 times longer than the illuminating light.

During measurement, piezoelectric transducers mechanically displace one of the diffraction gratings, effecting a phase shift in the measurement beam that modulates the interference pattern. An electronic camera captures a sequence of phase-shifted interference patterns, and robust software algorithms are used to measure compliance to nominal form values. This results in an accurate map of the shape and topography of the surface. The resulting measurement data can be displayed as high-resolution, rotatable three-dimensional graphics, sliced cross sections, numeric displays and statistical plots.

More than a cost-effective system

MESA is not only a cost-effective flatness measurement tool. It is a complete manufacturing solution, providing you with the capability to continually improve your process through accurate, repeatable measurement. MESA's value is in its ability to fit into any stage of your process, and withstand the rigors of in-line manufacturing. It delivers the results your production process demands quickly, efficiently and safely, helping you increase the throughput and profitability of your business.

*For a free measurement of
your parts, and a complete
evaluation of how MESA
can help improve and
refine your process
to maximize
throughput and
enhance yield,
call Zygo today.*





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