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Acu-Gage wins Patent for ACU-THIK™ Proprietary Thickness Measuring Technology

Hudson, New Hampshire – December 10, 2018: Acu-Gage Systems has been awarded Patent No. 10,088,304 by the United States Patent and Trademark Office for our ACU-THIK™ precision thickness measuring system. All 21 patent claims were approved readily because there is no other machine available that can match ACU-THIK™ for thin substrate thickness accuracy across all X, Y coordinates.

ACU-THIK™ is an automated thickness measurement tool incorporating dual contact probes for high accuracy inspection of semiconductor wafers and other thin substrates. Six **Heidenhain** measuring devices are integrated into the ACU-THIK™ system which can be configured to accommodate wafer diameters of 100mm – 400mm and larger.



Diagnosing as well as controlling thickness, bow and warp in semiconductor wafer production is now automated when ACU-THIK™ users preprogram multiple pattern operations to fulfill planned production cycles. Additionally, the system supports robotics integration to free up operators' time for other important tasks.

Acu-Gage president, Jack Kane recently remarked, "This is a tremendous breakthrough for Acu-Gage and the Semiconductor manufacturing industry as well as some others. Our customers can be confident in implementing the only truly automated and extremely accurate thickness measuring system in the world for their quality control. Some of our customers have known this for a while and having the technology patented now offers us new opportunities."

Among the numerous features that readied the approval of all patent claims, ACU-THIK's automated measurements can improve quality-assured production yields as indicated by the following facts:

- Calculates wafer **thickness** across X/Y points to resolution and repeatability of .00025mm/.00001 inch (10 millionths of an inch).
- The carrier which travels the surface to be measured can be sized and configured to match any sample specimen.
- Determines the amount of **bow** deviation in an unclamped wafer established by three or more points at equidistant locations.
- Examines the entire wafer for **warp** by incorporating more comprehensive data points to provide a more useful measurement of the full wafer shape.
- Accelerates throughput with 15 data points of X/Y thickness measurements in under two minutes as well as increasing accuracy of wafer thickness and flatness definitions.
- Validates pre- and post-measurement integrity of data collection for each wafer inspection - ACU-THIK™ calculates the thickness of a certified gage block prior to as well as after the wafer inspection routine is complete.
- The sample feed is designed for robotic loading & unloading, fully automating the process.



The X/Y location for each thickness data point automatically outputs to Excel for further analysis and implementation. Programming software runs on Windows 10. Both hardware and software come delivered as a turnkey system including installation and training.

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Acu-Gage Systems is a manufacturer of non-contact coordinate measuring machines (CMMs) serving medical, semiconductor, aerospace and other industries. Located at 12 Park Avenue, Hudson, NH, they can be contacted by telephone at (603) 622-2481 or on the internet at www.acu-gage.com.