Application Process

GaAs Wafer Backthinning is a highly used process within the semiconductor industry. Logitech has a full range of tried and tested products aimed at this process. The use of a PM/LP/DL system for the lapping process and PM/LP/DF system for the polishing process, using a Logitech precision jig, are the rolling stones in this sphere of activity.

The use of a Logitech bonding unit is recommended for bonding glass carriers to the wafers. Once bonded the carriers are removed by vacuum sucking on to the jig. A digital gauge indicates on the jig shows the material removal during the process. This enables the user to process wafers to a pre-determined, programmed thickness without the need to stop or pause. The system operates here provides the means to control the process with the capability to take that material from the initial lapping stages straight through to the final polish using a Logitech system that has been produced especially for their processing needs.

Expected results from a Logitech 6” GaAs Wafer Backthinning System are:

- Thickness Uniformity: ± 3µm over a 152mm (6”) diameter wafer
- Flatness: ≤ 6 µm over a 152mm (6”) diameter wafer
- Surface Roughness: Within 30nm to 50nm over a 500µm trace
- Minimum Thickness: Typically 100µm

(process results will vary slightly according to the quality of sample being used)

Technology Transfer

Training and process technology transfer at Logitech cover equipment and wafer handling, cleaning, bonding, polishing and process adjustments, with which the operator needs to be familiar. Logitech is dedicated to complete success and through training at our purpose-built laboratories or at client premises, the team ensures that personal training is provided at a level relevant to the clients process requirements.

Years of experience has identified that instruction manuals alone do not provide operators with the levels of knowledge and success that are achievable through personal training and practical experience. Logitech are so committed to this programme of technology transfer that it provides a full three day training course, with all material processing systems purchased. Courses cover all aspects of system operation, maintenance and customer focused process trials. This unique approach ensures successful installation, optimum use and maintenance of Logitech systems.

Support is provided directly by Logitech and via an extensive global network of Logitech trained dealers. This enables us to provide a consistently high level of localised support and services from our technical base in Scotland.

A 12 month warranty is provided for all Logitech machines purchased. The client support policy of Logitech aims to resolve any client issues, be it mechanical, electrical or technological, in a fast and effective manner. The “no quibble” policy for replacement of faulty components ensures that any response to client difficulty is immediate.

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Complete Systems for the precise thinning of III-V Semiconductors, I.R., Opto-electronic & Other similar materials

Where applications demand precise tolerances and optimum surface finish. Complete with detailed operating technology, full technology transfer and comprehensive support.
Products & Services

Logitech offers systems which cover the complete range of production capacities and accuracies. From R&D applications processing a few high accuracy wafers to dedicated production units, processing high quantities of ultra-high accuracy wafers.

Logitech Systems

Logitech systems are designed to be flexible with changing production requirements in terms of accuracy and outputs. The family of products enables customers to start with a single workstation machine and add other single or multi-workstation machines as necessary. This approach provides two major benefits:

- Low initial investment during the development stages.
- Ability to create a multi-machine production line instead of relying on a single machine.

Gauging and inspection facilities to suit the required end result

Chemical Polishing:

- The Logitech APD range of standard single or multiple workstations which are suitable for high production rates. The Logitech range is ideal for use with aggressive polishing fluids such as Bromine, Methanol, or Hydrofluoric Acid.
- Equipment used for this process must resist chemical attack and rapidly reduce wafer damage, enabling users to cut very fine wafers with a greater yield per crystal line than is possible on other types of saw.

Wafer Bonding:

- High yield production of deliques, ultra-thin wafers (typically below 100µm) normally require temporary or permanent bonding of wafers to support discs. The techniques and equipment used depend on wafer thickness, uniformity requirements, sample diameter and whether there are fabricated devices on the wafer. Logitech supplies products to meet these demanding requirements. Options range from hand bonding to high volume precision bonding systems.

Wafer Lapping:

- Optimum geometric control is achievable through the use of high precision fixtures during lapping processes. Fine mechanical lapping is normally used as backlapping or thinning of wafers, such as bulk removal of material using Aluminium Oxide abrasives. Wafer lapping is used to ensure uniformity and edge flatness. The techniques and equipment used depend on wafer thickness, uniformity requirements, sample diameter and whether there are fabricated devices on the wafer. Logitech supplies products to meet these demanding requirements. Options range from hand bonding to high volume precision bonding systems.

Wafer Polishing:

- Processes involving chemical action are essential for polishing 2” and 4” silicon wafers where internal crystalline damage, under the polished surface, is required. Equipment used for this process must resist chemical attack and rapidly remove the exact amount.

Chemical Mechanical Polishing:

- The Logitech CP range of standard single or multiple workstations which are suitable for high production rates. The Logitech range is ideal for use with aggressive polishing fluids such as Bromine, Methanol, or Hydrofluoric Acid.
- Equipment used for this process must resist chemical attack and rapidly reduce wafer damage, enabling users to cut very fine wafers with a greater yield per crystal line than is possible on other types of saw.

The Logitech-Orbis and Tribo systems have been designed specifically for this process. A combination of automatic or manual process control and variable process parameters, the Tribo and Orbis Systems respectively provide maximum accuracy for most materials used in device fabrication processes. The precise engineered solutions utilizes cutting edge technology to enhance and testifies all your CMP research and analysis needs.

Chemical Polishing:

- The Logitech has a number of dedicated chemical polishing tools, culminating in the CP series of machines. The CP machines are constructed from corrosion resistant materials and are available for small or large scale production. Further support is available in help ensure user safety. The Logitech range is ideal for use with aggressive polishing fluids such as Bromine, Methanol, Ammonia or Persulphate. These products are largely used in the production of damage free surfaces and geometrical precision.

Further information can be found at www.logitech.uk.com.