

LEADING THE MATERIAL WORLD



**Pioneers in the discipline
of precision materials
processing for over
fifty years**

Logitech.uk.com



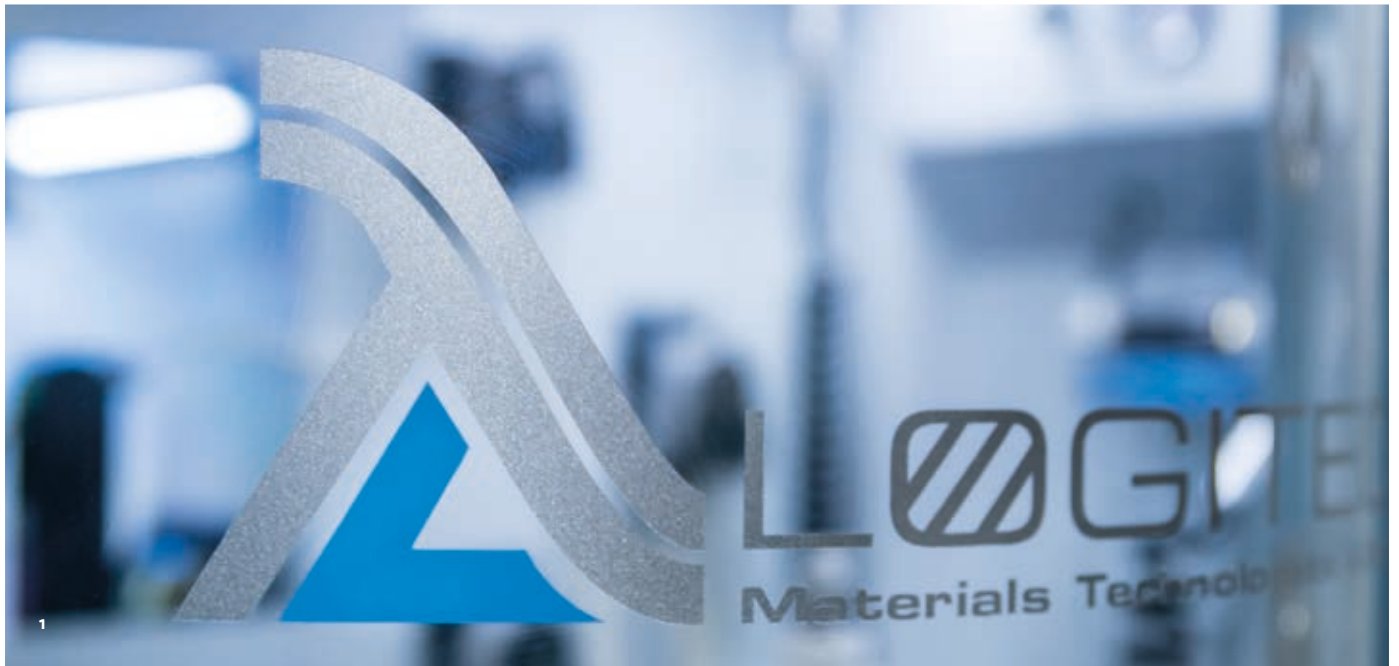


The labs:
Logitech's custom-built laboratories include a training lab, CMP lab, test & measurement lab and a Geological Thin Section Preparation lab.



ALOGITECH

Materials Technologists & Engineers



CLYDESIDE

PRIDE

WORLDWIDE

REACH

1: Precision engineering is at the heart of Logitech

2: Our HQ is situated on the banks of the River Clyde, under the Erskine Bridge, near the site of the original river ferry

3: Logitech maintains its status as one of the world leaders in materials processing technologies


4: The company was created from a project out of the prestigious University of Glasgow. We are proud to be part of its heritage

Logitech are world leaders in materials processing, shaping and surface finishing technologies. The business developed from a project into the research of advanced semiconductors at the University of Glasgow. One of the world's oldest and most respected academic institutions, the university is renowned for its contributions to the fields of science and engineering, and synonymous with names like Kelvin, Watt, Lister and Logie Baird.

We specialise in the design and manufacture of precision lapping & polishing, chemical or chemical mechanical polishing, cutting and bonding equipment. Our adaptable system solutions are aimed at applications with the need for high specification surface finishes, prepared with the most precise geometric accuracy. These system packages include high levels of technology transfer, from processes perfected for more than 50 years.

All of our equipment is designed and manufactured at our base on the banks of the River Clyde, near Glasgow in Scotland, where *Clydeside* shipbuilding was once a pioneer in the industry, building robustly engineered vessels which were admired throughout the world. We strive to reflect the Clyde-built tradition in the manufacture of our own equipment.

Logitech's expertly-developed products are built bespoke for each customer's application requirements, ranging from research into semiconductor wafer device fabrication, to the preparation of geological thin sections for petrographic analysis. We are proud of our Clydeside origins but equally proud of our global client base, comprised of industrial, academic and government agencies.

A man wearing safety glasses and a blue jacket is operating a large industrial machine. The machine is dark grey and has a large window with a grid pattern. The text "NLX 2500/700" is printed on the machine. In the bottom left corner, there is a control panel with a small screen and buttons.

NLX 2500/700

The workshop:
All of our machines are
precision engineered
on-site at our HQ on the
banks of the River Clyde
in the west of Scotland





1960s

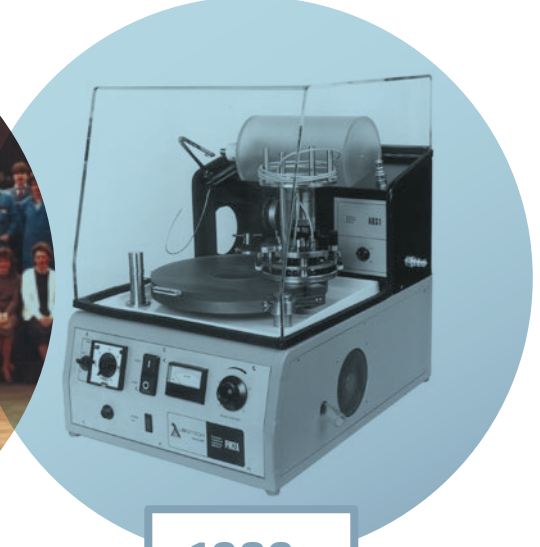
Logitech Ltd is founded in 1965 by Dr Bob Wilson and George Bennett, as a spin-off from a research project into advanced semiconductor materials at the University of Glasgow.



1970s

The first order placed at Logitech was an export, today 90% of our business is export.

Logitech's Technology Transfer Programme is devised by the in-house process development team at our manufacturing and training facilities.

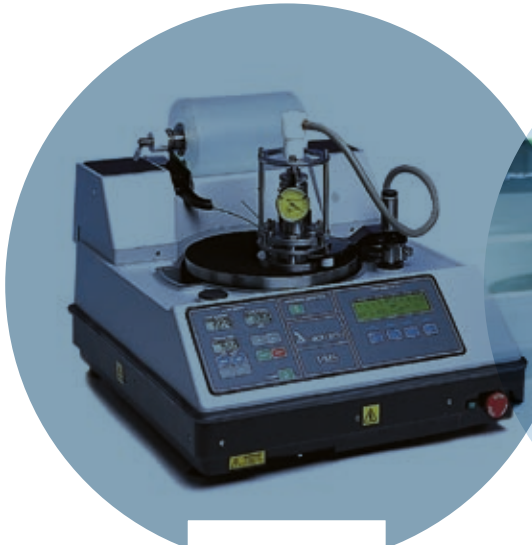


1980s

Global presence grows further with the introduction of the global distribution network.

Logitech develops III-V wafer back thinning system and electro optic waveguide & edge polishing systems.





1990s

PM5 Precision Lapping & Polishing System is developed, based on our previous staple lapping and polishing system, the PM2.



2000s

The PM5 goes on to be one of Logitech's staple machines for over 20 years.

Systems specifically for Chemical Mechanical Planarization (CMP) are launched alongside our CDP systems.



2010s

Logitech CMP dedicated lab is opened.

Ever-evolving customer needs are met with the introduction of highly automated processes and the launch of the market-leading PM6 and Akribis-air precision lapping & polishing systems.

DECADES OF DISTINCTION



Exacting standards:
All of our machines are
quality checked by our
process development
engineers to ensure our
high standards are met

 LOGITEC
Manufacturing Technologies & Engineering





TECHNOLOGY

TRANSFER

1: Logitech training programmes are carried out at our purpose built, in-house laboratories

2: Customers can expect hands-on, one-to-one training with a Logitech Process Engineer



3 & 4: Our in-house facilities include a CMP Lab, a Test & Measurement Lab, a Geology Lab and our Main Training Lab which is fully equipped for customer training sessions



Logitech's Technology Transfer programme is an integral part of our materials processing systems. Our training courses offer over 50 years of processing expertise and have proven to be the best method of providing information and guidance on the use and maintenance of our systems.

Our training courses are held at our purpose built laboratories at Logitech in Scotland. With over 50 years of combined experience, training will be given by our process development engineers, demonstrating the most up-to-date and advanced process techniques available. Trainees benefit from our continuous research and development, which means that process methods are improved and updated constantly.

Emphasis is placed on trainees producing their own work, allowing them to create the highest standard of specimen possible, adhering to strict application specifications, using process methods introduced and coached by our engineers. Each course is limited to just two or three individuals, usually with similar training needs, allowing for close, often individual, tuition.

As the course is tailored to your exact requirements, all of your specific needs and problems receive full attention. Our dedicated process team are always on hand, on-site, or reachable by email, to offer further advice and problem solving knowledge.



5 & 6: Our in-house Process Development Training Engineers have combined over 50 years of experience







The full process:
We provide full process
solutions from initial
sample bonding
through to test &
measurement stages

LAPPING & POLISHING

Lapping is a mechanical process involving counter rotating plates using a chemical abrasive with a defined grain size distribution for material removal with minimal specimen damage.

Polishing is the chemical, mechanical process often seen as the final material removal process that takes place after lapping, to reduce the amount of surface and sub-surface damage to the specimen.

Since our founding over half a century ago, Logitech has been a leader in providing complete, 2-in-1 lapping and polishing system solutions for customers worldwide.



PM6 precision lapping & polishing system

The PM6 precision lapping & polishing machine produces processing results typically found on production scale equipment. Highly flexible in use, the PM6 allows users to work with many different materials; including gallium arsenide, silicon, rock and soils.

Key features

- Single station machine with a wafer process capacity up to 100 mm / 4"
- Plate speeds up to 100 rpm facilitating faster lapping rates
- Bluetooth enabled features
- Automatic plate flatness control



LP50 precision lapping & polishing system

The LP50 precision lapping & polishing machine has three work stations offering variable speed settings for greater flexibility, with integral abrasive autofeed system and integral vacuum system.

Key features

- Triple station machine with a wafer process capacity up to 150 mm / 6"
- Plate speed up to 70 rpm
- Infra-red drip detector prevents plate running dry and damaging samples,
- Optional automatic plate flatness control



Akribis-air

This intelligent sample preparation system delivers the ultimate in processing innovations and is a highly automated stand-alone machine. Offering dynamic load control of Logitech's intelligent air jigs, the system offers fast, reliable and highly accurate results across a wide range of applications.

Key features

- Single station system with ability to process either 100 mm / 4" or 150 mm / 6" specimen
- Plate speeds of up to 100 rpm
- Bluetooth enabled features
- Automatic wafer thickness control
- Intelligent air-driven jigs
- Dynamic load control

CHEMICAL POLISHING

Chemical Polishing is widely used as a finishing process for applications that require stringent control over wafer geometry in terms of surface finish, flatness, specimen parallelism and thickness. This provides excellent surface polish with minimal sub-surface damage.



CP 3000 / CP 4000

The Logitech CP3000 and CP4000 have been developed as two systems that are resistant to the chemicals used in polishing processes for example: bromine methanol, hydrogen peroxide, ammonia, standard acid or alkaline etches.

The CP 3000 is a compact system designed to fit inside your existing fume extraction cabinet, with a wafer process

capacity up to 100 mm/4".

The CP4000 integrated fume hood allows for connection to a standard laboratory extract system

The CP4000 has a wafer process capacity of up to 200 mm/8", or multiple smaller wafers.

CMP Tribo

The Logitech CMP Tribo is a bench-top chemical mechanical polishing system ideal for Tribological or CMP applications. This system can achieve nanometer level material removal on a wide variety of wafers/substrate materials used in today's device fabrication processes.

Key features

- Wafer process capacity of up to 100 mm/4"
- Ra to subnanometer levels on substrates
- Ideal for tribological and chemical mechanical polishing applications
- Customisable carrier heads/templates: polish standard wafer diameters, unique diameters or shapes as well as small wafer dies

CMP Orbis

The Logitech CMP Orbis is a precision engineered, floor standing CMP tool ideally suited for R&D environments. Typically used in applications which conduct pilot production tests with optimum and analytical capabilities and enhanced processing performance.

Key features

- High capacity workspace for samples up to two 200 mm/8"
- Laboratory scale footprint
- Ideal for use in R&D environments and pilot process testing
- Downloadable data for analysis of process parameters



CHEMICAL

MECHANICAL

PLANARIZATION

DRIVEN HEAD LAPPING & POLISHING SYSTEMS

These high-speed driven head lapping & polishing systems were developed by Logitech to allow the creation of flat, thin and uniform samples — which can often be seen as a challenge for some material types. These systems have the largest sample process capacity of any Logitech system so are suited for small research laboratories through to production scale environments.



DL1 & DL44

The DL high-speed lapping systems process materials with high geometric precision. The capacity range of the DL systems make these ideal for small research laboratories through to production environments.

The DL also has the ability to process multiple smaller samples with the use of customised Logitech templates and chuck-faces.

Key features

- Process up to 200 mm / 8" samples
- Comes as a single or four station unit
- Ideal for the lapping of hard and soft materials
- The DL44 is designed especially for geological applications with high level throughput requirements

DP1 & DP4

The DP high speed polishing systems have been designed for semi-automated final stage polishing of hard materials. The systems are capable of applying up to 200 kg download on the DP1 and 50 kg download per carrier head on the DP4, resulting in the highest sample throughput of any Logitech polishing system.

Key features

- Process up to four 200 mm / 8" wafers or 48 50 mm / 2" wafers simultaneously
- Comes as a single or four station unit
- Designed for chemo-mechanical based polishing processes
- Ideal for polishing silicon carbide, gallium nitride and sapphire

BONDING & IMPREGNATION

Logitech offer a wide range of premium bonding & impregnation systems to prepare your specimens for processing.



Wafer substrate bonding units

The Logitech Wafer Substrate Bonding Units (wsbu) are premium bonders for the processing of a wide range of materials including fragile semiconductor wafers such as silicon and gallium arsenide.

The bonding units are utilised vacuum bonding and diaphragm pressure to minimise breakages when using these expensive materials, while retaining the highest quality of sample yield. The wsbu offers a highly automated and repeatable process, from bonding through to cooling, within the sample chamber.

Key features

- Available as single station or triple station bonding units
- 100 mm / 4", 150 mm / 6" or 200 mm / 12" wafer capacity
- Save and re-call recipes via the graphical user interface for easy process repeatability
- Excellent wafer support disc parallelism



Bonding jigs

Logitech bonding jigs are typically used in geological applications for permanently bonding thin sections to a glass microscope slide.

Our bonding jigs can also be used in semiconductor wafer applications for bonding wafers to a support substrate, for processing wafers down to a thickness of 300 µm.

These machines use 'zero bonding' and 'controlled thickness bonding' techniques, developed to enable bond orientation and thickness to be controlled easily.

Key features

- Accommodate a variety of sample sizes with 12, 9, 6 or 2-piston jigs
- Bond multiple samples at once
- Available for large or small scale operations

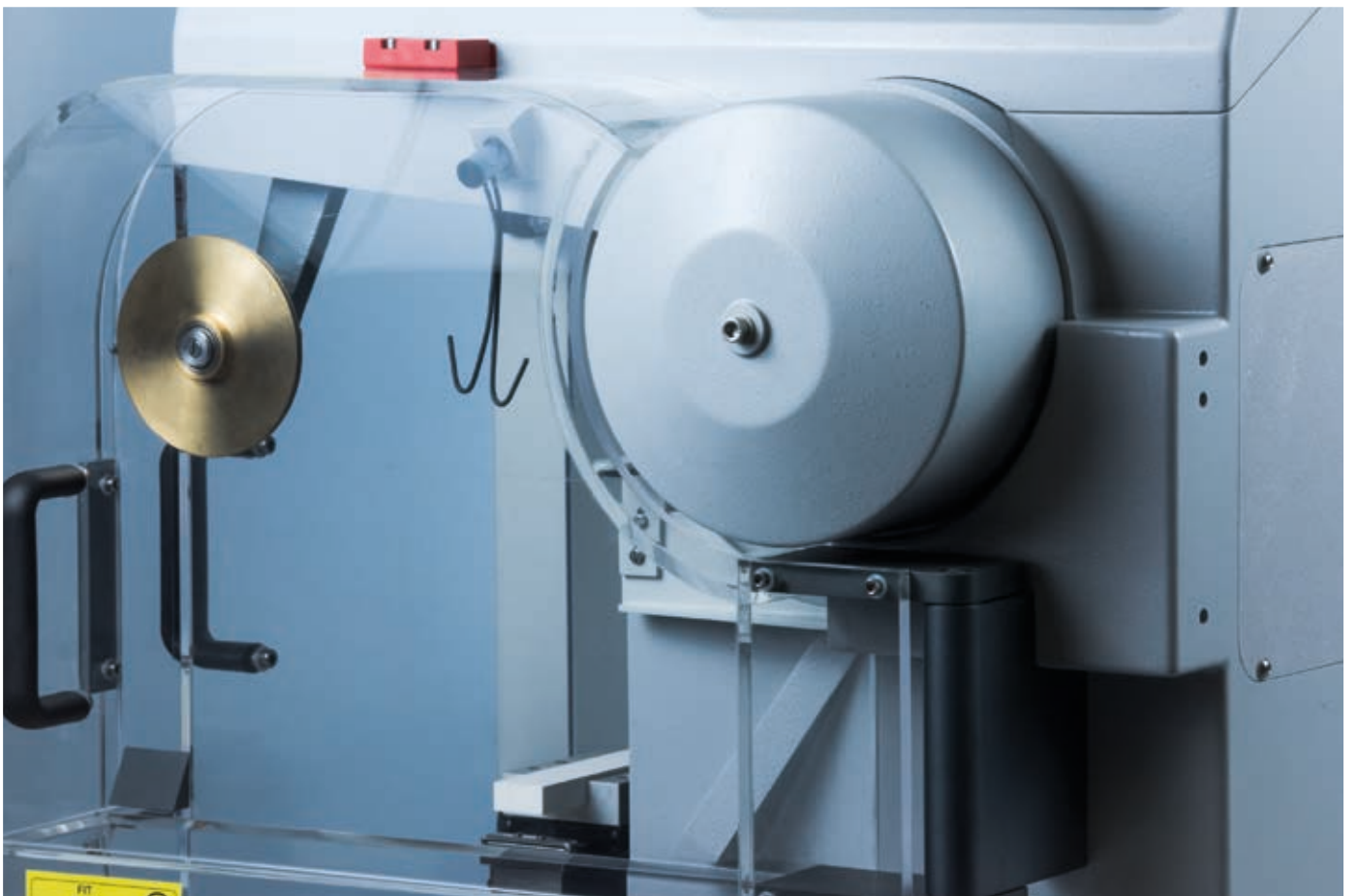


Iu30 impregnation unit

The Iu30 is a self-contained unit for high quality encapsulation and impregnation of specimens with synthetic resins. This user-friendly system is typically used in geological applications where the material is too soft or friable for processing from a raw state. The Iu30 allows both sample and resin to be evacuated separately and enables resin to be delivered to the sample while it remains under vacuum.

Key features

- Large sample capacity for samples of up to 150 mm x 100 mm (6" x 4")
- Beneficial for applications that require high quality impregnation and suitable for both low volume R&D labs through to high volume commercial labs
- Compact bench-top unit with integral vacuum pump



GTS1 thin section cut-off & trim saw

A compact, bench-top unit for the preparation of geological thin sections. The GTS1 is ideal for cutting bulk rocks and thinning mounted sections of rock.

Key features

- Pre-thinning of slides to selected thickness
- Accepts multiple slides up to 12 of 28 mm x 48 mm
- Automatic operating cycle
- Thin sections typically cut down to between 200 – 300 µm

CS30 compact trim saw

Logitech CS30 is a robust saw specifically developed for thin section preparation. The saw is fitted with a diamond blade which is suitable for cutting a wide variety of materials, ideal for thinning slide mounted specimens down to 500 µm, ready for second face lapping.

Key features

- Ideal for trimming rock, concrete, fossils and bone
- Accepts two of 28 mm x 48 mm or one of 26 mm x 76 mm slides
- Trims slide-mounted specimens down to 500 µm

Model 15 diamond & wire disc saw

A compact saw ideal for the precision slicing and dicing of materials from the most delicate crystals to the hardest ceramics. The diamond wire is used when there is a requirement to produce a cut with minimum surface and sub-surface damage, ideal for brittle and delicate specimens. Diamond discs are suitable for the cutting of harder materials when sub-surface damage is less important.

Key features

- Low surface damage wire cutting
- Quick and simple diamond disc cutting
- Fast wire-to-disc interchange
- Caters to a variety of specimen holding configurations

AWS abrasive wire saw

The AWS utilises standard steel or diamond wire to allow fragile or difficult materials to be cut, or wafered, with minimal sample damage and material loss.

Key features

- Variable wire speed and cutting load enables use for expensive materials such as CZT or YAG laser rods
- Simple, safe sample mounting
- Accepts samples of up to 100 mm x 100 mm (4" x 4")
- Compact, bench-top saw

APD1 – annular & peripheral saw

APD1 is ideal for slicing samples such as wafers, crystals or semiconductor components up to 55 mm in diameter with minimal kerf loss or precision dicing wafers of a diameter up to 100 mm.

This machine provides a unique combination of annular slicing and peripheral cutting facilities in one precision saw, meaning a semiconductor wafer can be sliced from the crystal boule and subsequently diced on the same machine.

Key features

- High precision, low damage slicing with minimal kerf loss
- Single or multiple cuts
- Automatic or manual operation
- Compact design
- Compact, bench-top saw

APD2 – annular or peripheral saw

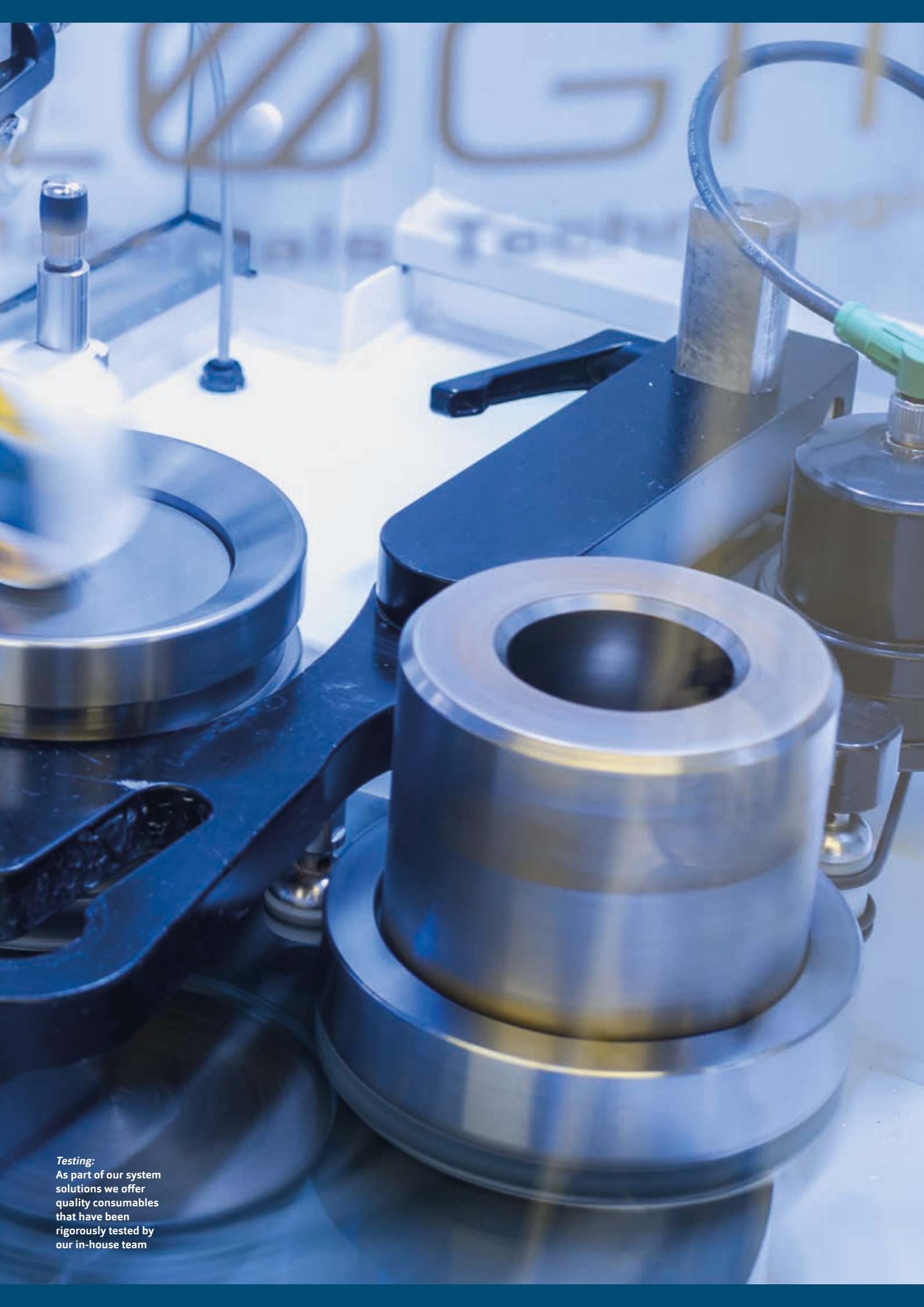
Ideal for both research and production purposes the APD2 is available in annular or peripheral modes. These extremely reliable systems provide versatility in material wafering or dicing.

Key features

- High positional accuracy
- Slice wafers up to 300 mm with minimal kerf loss
- Dice chips to 1 mm x 2 mm with minimal edge chipping
- Semi-automatic operations

The logo for SAWS, consisting of the word "SAWS" in a bold, blue, sans-serif font, enclosed within a blue rectangular border.





Testing:

As part of our system solutions we offer quality consumables that have been rigorously tested by our in-house team

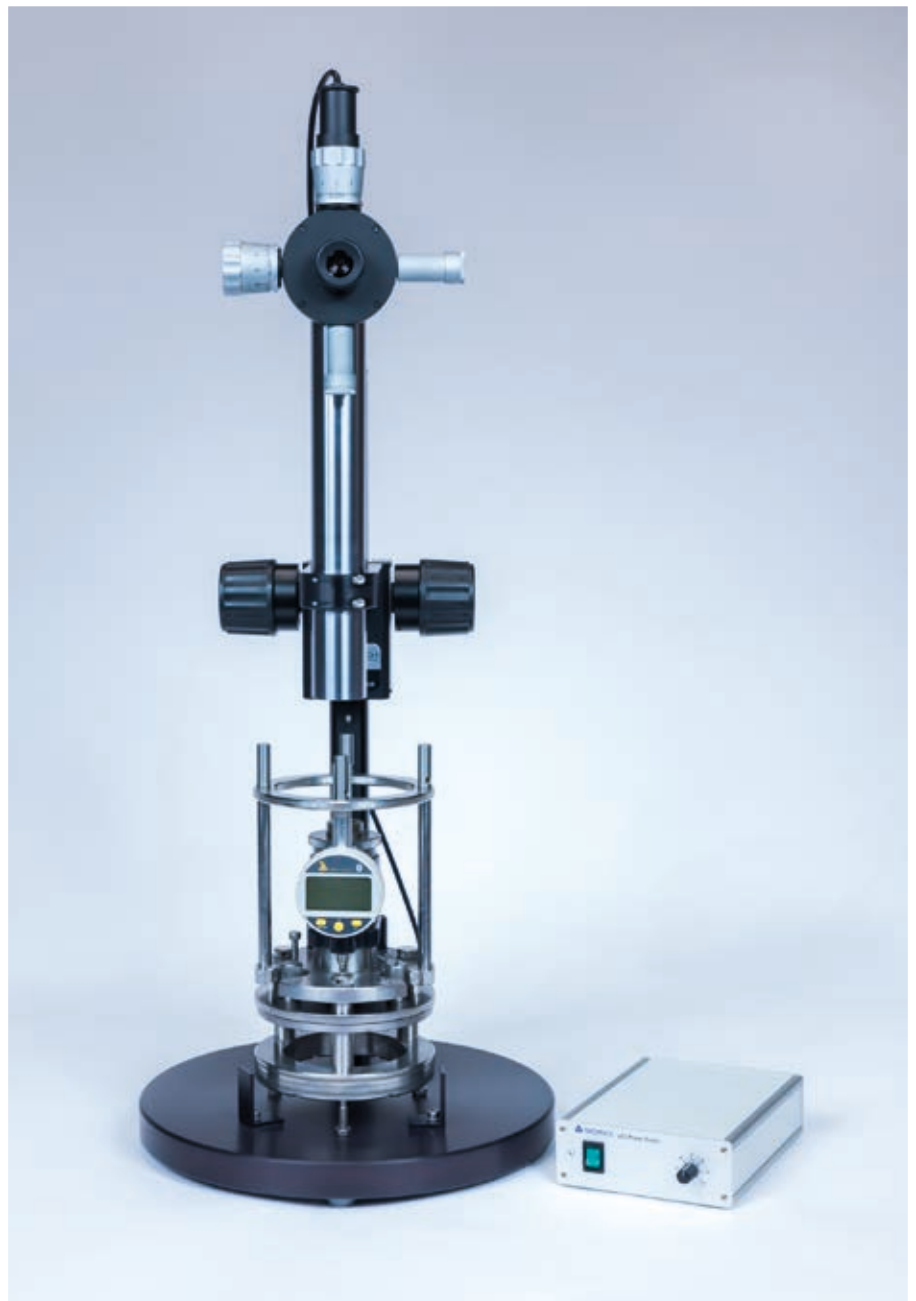
TEST &

MEASUREMENT

Logitech have a whole range of test and measurement equipment designed to complement our systems, providing our customers with a comprehensive solution for their applications requirements.

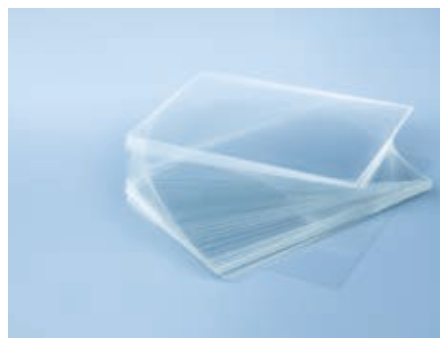
Our optical test and measurement equipment is widely used for the inspection of finished components, as well as the correct preparation of sample assemblies prior to lapping and polishing.

Our range includes contact and non-contact gauges for the accurate measurements of specimen thickness; quick and accurate measurement of component flatness during the process, and on completion, with our flatness measurement system; and angular measurement and setting for applications which require a high level of parallelism with our Autocollimator.





Logitech offers an extensive range of certified consumable products, carefully developed to work in unison with our range of sample processing systems and machinery. Our own research and analysis provides us with the expertise to achieve the best results from Logitech equipment using diverse material processing applications. Utilising Logitech's consumable range with your Logitech system will enable you to achieve optimal performance and maximise the lifespan of your Logitech equipment.



CONSUMABLES

QUALITY

DELIVERY

SERVICE

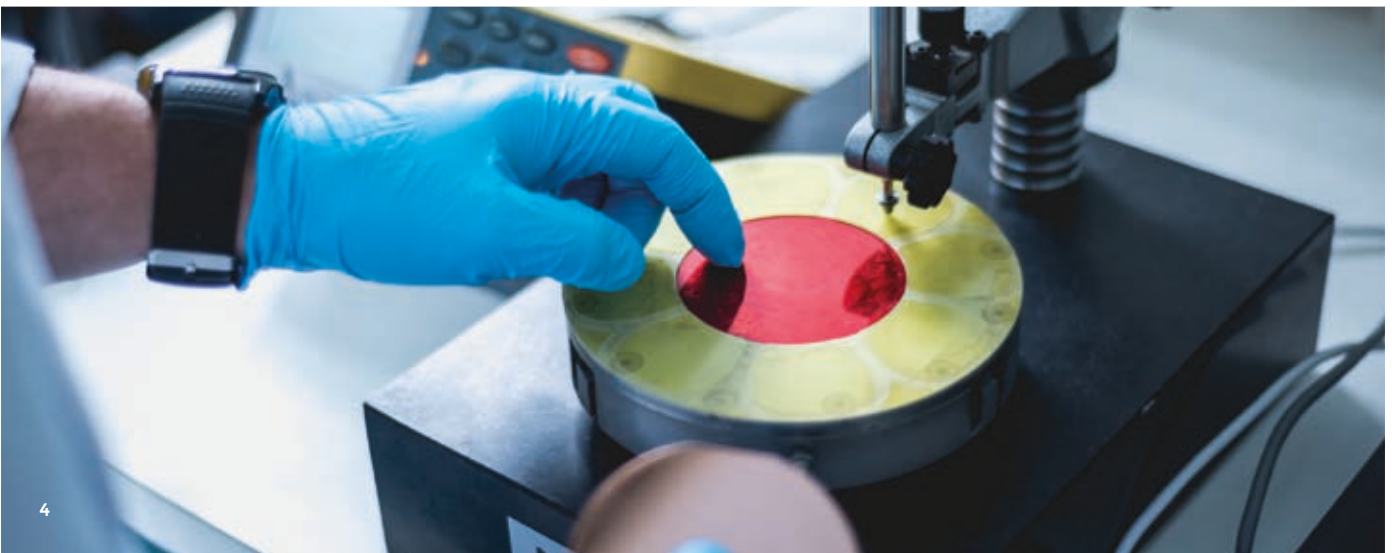
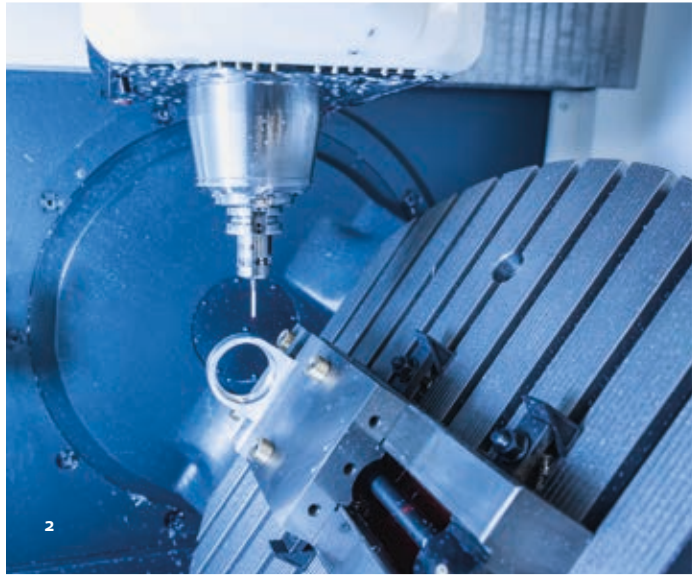
At Logitech, we pride ourselves on our active and continuous policy of new product development, in conjunction with constantly analysing our materials processing. This ensures that we support our clients effectively, while actively developing new systems and pioneering application processes for current and future materials.

Our approach is focused on achieving the highest level of customer satisfaction, by delivering the best-quality product and service in the eyes of our customers.

Logitech pursues customer loyalty through manufacturing excellence, dedicated to deliver the highest quality products and global support. To achieve this we focus on market-orientated design, precision-engineering and high-quality manufacturing. We provide access to considerable in-house materials processing expertise and top quality after-sales support.

We are committed to ensuring that our work is accredited to national and international standards. Logitech is quality certified to ISO 9001:2008 and working towards ISO 9001:2015.

1—4: Quality is at the heart of everything we do at Logitech from initial equipment specifications, to the precision engineering of the machine build right through to the processes we provide to our customers in our Technology Transfer Programme.





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