

# Precision Materials Processing

## Jig Range Specifications

						Standard jig information						
Jig with vacuum chuckface	Outside diameter	Total thickness variation (TTV) of sample post process	Range of jig loads applied to samples	Angular adjustment range	Total jig mass	Dimensions height x outside diameter	Standard leg length	Standard drive ring thickness	Total thickness standard drive ring assembly	Max sample thickness on standard jig with angular adjustment plate	Max sample thickness on standard jig without angular adjustment plate	Angular adjustment plate thickness
PP5	83mm	+/-1.5µm	0.2 - 2.8 kg	+/-1.5°	5.4kg	220 x 127mm	32mm	11mm	43mm	7.65mm	14mm	6.35mm
PP6	112mm	+/-2µm	0.2 - 4.8kg	+/-1.5°	8.4kg	233 x 152mm	42mm	11mm	53mm	9.75mm	19.75mm	10.00mm
PP8	160mm	+/-3µm	0.2 - 6.7kg	+/-1.5°	14.4kg	275 x 210mm	32mm	23mm	55mm	16.5mm	24mm	7.5mm
PP9	210mm	+/-4µm	0.2 - 9.5kg	NA	19.9kg	220 x 260mm	32mm	20mm	52mm	NA	17mm	NA

Jigs can be customised for specific sample dimensions. PP5 and PP6 Jigs can be supplied with extended legs to accommodate thicker/longer samples.

						Standard jig information											
Jig with fixture	Specimen parallelism achievable	Jig load with mounting pot fixture	Total jig mass with mounting pot	Angular adjustment range	Jig load with mounting pad fixture	Total jig mass with mounting pad fixture	Jig load with mounting plate & spacer ring	Total jig mass with mounting plate & spacer ring	Max sample thickness on standard jig with angular adjustment plate			Max sample thickness on standard jig without angular adjustment plate			Max sample diameter on a standard jig		
									Pot	Pad	Plate	Pot	Pad	Plate	Pot	Pad	Plate
PP5	<2° of arc	1.823kg	4.42kg	+/-3.0°	2.21kg	4.81kg	2.763kg	5.36kg	14.10mm	14.15mm	6.55mm	20.45mm	20.50mm	12.90mm	14.00mm	56.00mm	83.00mm
PP6	<2° of arc	2.900kg	6.50kg	+/-3.0°	3.289kg	6.89kg	4.68kg	8.28kg	18.80mm	18.85mm	8.65mm	28.80mm	28.85mm	18.65mm	14.00mm	56.00mm	83.00mm

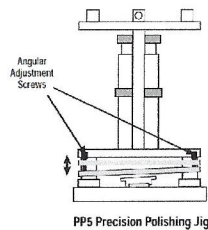
Lapping of larger wafers up to 200 mm (8") can be carried out using Logitech DL1 or DL4 systems with integrated PP9 jig.

### Sample Alignment on Logitech Jigs.

Once the sample has been successfully mounted on the jig, it is necessary to ensure that the sample is aligned with the jig's drive ring. The sample and drive ring must be aligned prior to starting the processing, to ensure the sample is not polished at an angle.

All Logitech jigs are equipped with angular adjustment plates that allow the mounted sample to be moved either up or down, changing the angle of alignment between the sample and the jig's drive ring.

The drawing opposite highlights the plate and screws that should be turned in order to achieve the desired angle of alignment (in this case the jig, a PP5, has an IC mounted on the angular adjustment plate).



### Vacuum Chuck Mounting Blocks

These mounting blocks are ideal for holding samples for polishing, where no thickness control or angular adjustment is needed.

Our precision engineered vacuum chucking facilities, VCB2 and VCB7, provide a choice of chuckface patterns. The supplied weights provide polishing speed control over a range of materials and polishing media.

Vacuum chuck mounting blocks are ideal for polishing thin sections such as soils, coals, rocks, concretes and wafer planarization.





### Application Process Example.

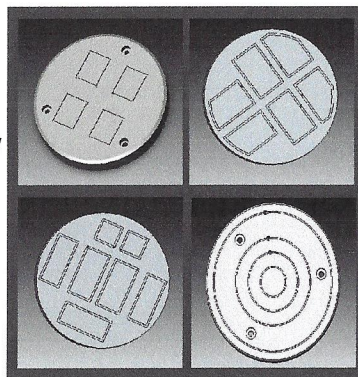
6" GaAs Wafer Backthinning is a highly used process within the semiconductor industry. Logitech has a full range of tried and tested products aimed at this process. The use of a DL system for the lapping process and DP system for the polishing process are ideal for this activity.

The use of a Logitech bonding unit is recommended for bonding glass substrates to the wafers. Once bonded the wafers are mounted by vacuum chucking on to the jigs. A digital gauge indicator on the jig shows the material removal during the process. This enables the user to process wafers to a predetermined, programmed thickness without the need to supervise. The system described here provides the user with the capability to take their materials 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:  $\pm 3\mu\text{m}$  over a 152mm (6") diameter wafer
- Flatness:  $5\mu\text{m}$  over a 152mm (6") diameter wafer
- Surface Roughness: Within 5nm Ra over a 500 $\mu\text{m}$  trace
- Minimum Thickness: Typically 80- 100 $\mu\text{m}$

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



Chuck face examples

### Accessories, Components & Consumables

A comprehensive range of accessories, components and consumables are available to support these systems, enabling optimum results and longevity of the machines. A selection of supporting products can be found below, for a more comprehensive listing please go to [www.logitech.uk.com](http://www.logitech.uk.com)

#### Accessories & Components

Micrometer angular adjustments heads  
Substrate stack clamping fixture for PP5  
Rotary vacuum adapter with tubing  
Programmable sample monitor (PSM), model available for NaClO processing  
Sample load gauge

#### Consumables

Logitech supply a vast range of consumables for lapping and polishing purposes. These tried and tested products ensure you achieve optimum results and maximum life-span from your Logitech products and systems.

### Logitech Limited

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Certificate No. FM12025

## Jigs

### Range of Precision Lapping & Polishing jigs

Logitech has a wide range of precision jigs, used to hold a diverse range of sample sizes and material types during lapping and/or polishing.

These jigs allow precise control of the sample orientation and fine adjustment of the load applied during processing.

Logitech jigs are precision made and hand finished to ensure the highest levels of accuracy. Planar adjustment of the samples is achievable through the use of an angular adjustment plate, sample retention is possible through either mechanical fixing, direct wax mounting or vacuum. Sample load can be easily varied from 200g to 9.5kg, depending on the jig used, catering for both fragile and hard material samples.

Logitech jigs are also available for use with sodium hydrochloride based polishing solutions, such as Logitech 'Chemlox' solution.

#### Easy Operation & Accuracy

All Logitech jigs have an easy to read LCD digital display gauge that is accurate to within  $1\mu\text{m}$ . The digital display and visual/audible alarm system informs the operator when the required amount of material has been removed from the sample.

#### Suitable Applications

Research and development work usually involves the processing of small numbers of specimens, often differing in shape and size. Logitech jigs enable specimens to be conveniently mounted for this type of work.

