

48 ABOP

LAPMASTER[®] WOLTERS

AIR BEARING OPTICAL POLISHING MACHINE



The Lapmaster Wolters Model 48 air bearing optical polishing machine is designed for production of large area, high quality plano optics, or where high outputs are required.

The machine has a 48" (1219mm) optical pitch annular lap, and three driven workstations that can be reciprocated.

As with other machines in the series, unlike conventional so called "worm and wheel" polishers, the pitch lap spindle is not mounted on a mechanical reduction gearbox. The unique air bearing feature has the pitch lap and its support plate riding on a very thin cushion of compressed air. This gap is only 50µm wide.

Drive is from an offset motor via a lay shaft, and is transferred to the lap using a multi vee drive belt located on the periphery of the support plate.

This approach considerably reduces the vibration at the polishing surface.

The pitch lap is manufactured and cast by Lapmaster Wolters to suit the requirements of the customer. This is specified by measuring the pitch hardness using the Twyman penetration test. Various groove patterns can be cut, but most commonly concentric grooves, but cross hatched or diamond patterns may also be specified.

The maximum depth of the pitch is 50mm. Externally it is retained by an aluminium band, internally a stack of removable aluminium rings is used. A full pitch lap recasting service is offered by Lapmaster international.

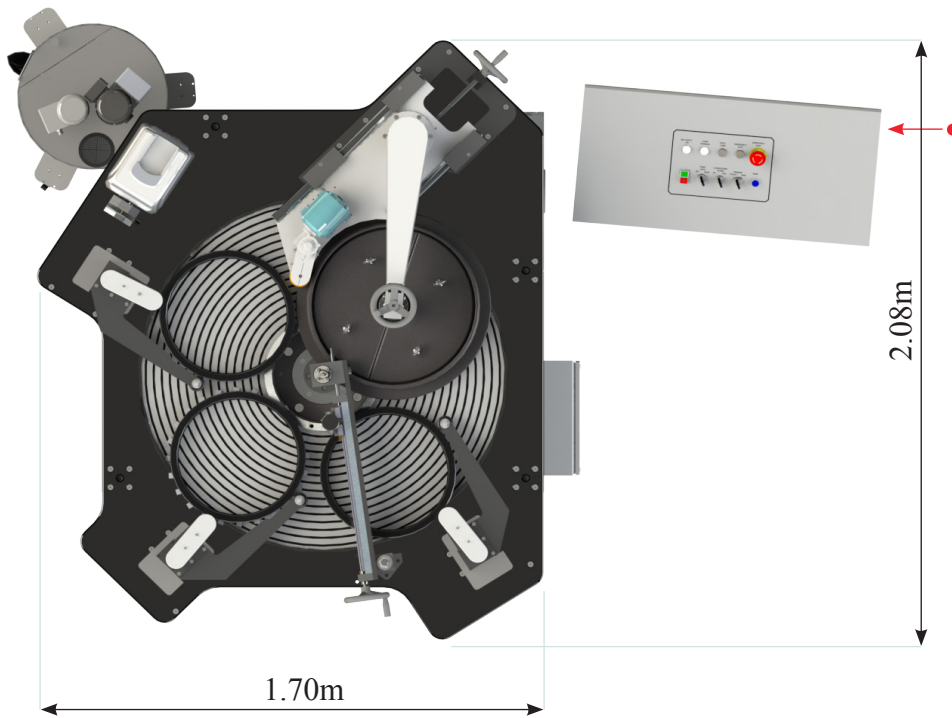
Machines can be provided in two different forms:
i) Plumbed ready for connection to an in-house water supply system or
ii) Complete with a freestanding temperature control system, which incorporates a thermostat and refrigerator and allows pumping of recirculated water through the support plate below the pitch lap.

PITCH LAP CONDITIONING

- A glass faced conditioning weight is fitted to the fourth workstation situated at the rear of the machine. The precise lateral position of this weight relative to the lap plate track can be controlled. This is positively driven to ensure continuous rotation of the weight and drive is applied to one of the yoke roller bar bearing assemblies. The conditioning load can be controlled by the addition or removal of semicircular weight plates which locate in a recess in the weight.
- A manually operated screw hoist is fitted which allows the weight to be suspended above the lap when the machine is not in use. It can also be swung clear of the worktable so that inspection or cleaning can be carried out.

PITCH TRIMMING BAR

- This tool can be fitted to the central recess of the lap and to the work table. It is fitted with a special pitch cutting tool which is automatically traversed across the lap surface.
- It is used for cutting concentric grooves, or facing off the pitch, following the fitting of a newly cast lap, or if significant damage should occur to the surface. The cutting tool can be raised or lowered to permit various depths of cut to be made.



WORKHOLDER RING

- The machine can accommodate unblocked and irregular shaped pieces, which are laid loose in the cut outs of the workholder. This consists of a plastic disc locating on a shoulder within the workholder ring to keep it clear of the pitch surface. The internal diameter of the workholder ring is 400mm, and is made of aluminium, faced with small squares of glass cemented in to a machined recess.
- The three workholder ring stations are fitted with friction drive, ensuring continuous rotation. The drive system incorporates a clutch mechanism so that the ring is only assisted where conditions are such that it stalls or cogs.
- As well as this feature an eccentric oscillating motion drive is incorporated allowing reciprocation of the work across the lap plate track. This has several benefits, particularly with larger work; it avoids tracking or shadowing marks, and allows greater flatness control as more of the pitch lap surface is used for polishing. The amplitude of the reciprocation is adjustable via a simple screwed mechanism.

DRIVE MOTORS

- Main drive: 2.2 kW
- Ring drives: 30W (DC)
- Oscillating drive: 30W (DC)
- Conditioner drive: 100W (DC)

APPROXIMATE WEIGHT

- 2800 kg.

SERVICES

- Electrical: 230/380V, 3 Phase, 50Hz
- Air: 400 kPa / 4 bar minimum.



Lapmaster Wolters Ltd

International Lapping and Polishing Machine Systems

Lee Mill Industrial Estate, Ivybridge, Devon, PL21 9EN UK

T: + 44 (0)1752 893191 F: + 44 (0)1752 896355 E: sales@lapmaster-wolters.co.uk

www.lapmaster-wolters.co.uk

