

36 ABOP

LAPMASTER[®] WOLTERS

AIR BEARING OPTICAL POLISHING MACHINE



The Lapmaster Wolters Model 36 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 36" (914mm) optical pitch annular lap, and two 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 being only 50um 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, 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 rings is used. A full pitch lap recasting service is offered by Lapmaster Wolters.

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

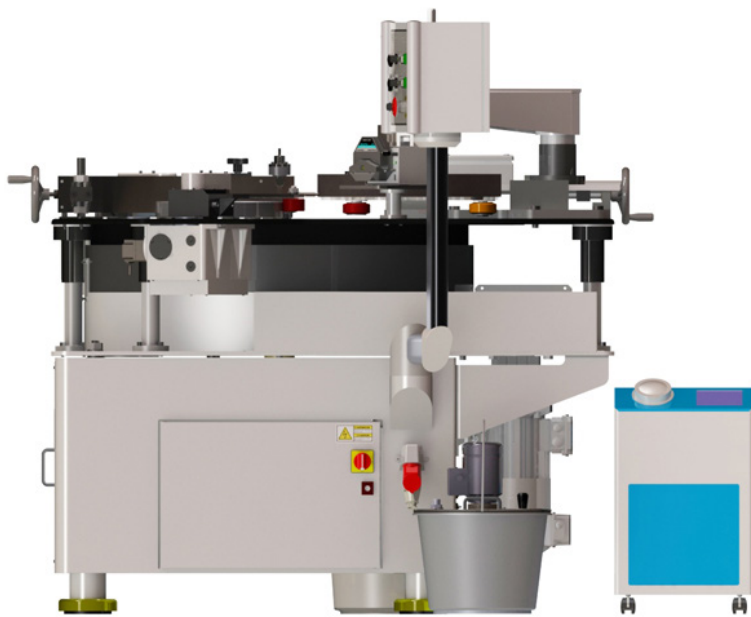
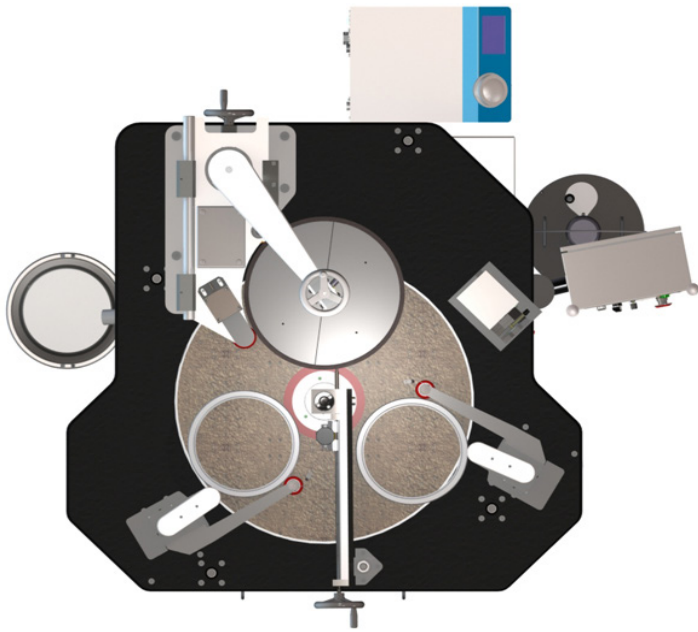
- A glass faced conditioning weight is fitted to the third workstation situated at the rear of the machine. The precise lateral position of this weight relative to the lap plate track can be controlled. This is positively driven to ensure continuous rotation of the weight. The conditioning load can be 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.

STANDARD FEATURES

- Rigid steel frame
- Operator controls at 24VDC
- Waste tank and compound system
- Peristaltic pump
- CE Compliant
- Emergency stop stations located around machine perimeter



WORKHOLDER RING

- The machine can accommodate irregular shaped pieces, which are laid loose in the cut outs of the workholder. The internal diameter of the workholder ring is 300mm, and is made of aluminium, faced with small squares of glass cemented in to a machined recess.
- The two 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 can be 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.

DRIVE MOTORS

- Main drive: 1.5 kW
- Ring drives: 30W (AC)
- Oscillating drive: 30W (DC)
- Conditioner drive: 100W (DC)

APPROXIMATE WEIGHT

- 1600 kg.

APPROXIMATE DIMENSIONS

- 1600mm (l)
- 1160mm (w)
- 1500mm (h)

SERVICES

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

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