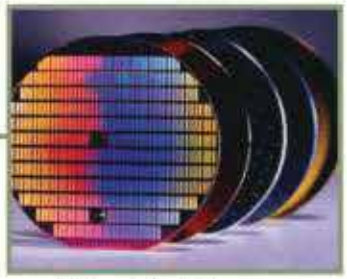
PLANETARY LAPPING MACHINES

Typical applications:



Electronic Industries

Pump Industries

Air Compressor Industries

Automotive Industries

ADVANTAGES :

GMT Planetary Lapping Machines can lap both sides of a work piece simultaneously. As a consequence work pieces are processed efficiently without manual interruption and improved parallelism.

Workpieces to be lapped are placed inside the work carriers. The work carriers are gear cut on the outer diameter and recessed to hold the component inside. Abrasive fluid is fed onto the lap plates continuously.

The planetary lapping machines are ideally suited to lap thin, fragile materials like silicon and germanium wafers extensively used in electronic industries. Other materials made of tungsten, ceramics, steel, bronze, carbon, aluminium, cast iron, plastics, stainless steel, stellite, ferrite and alumina can also be lapped on these machines.

ACCURACY :

- One light band to two light band over 75Ø component. (i.e. 0.3µ to 0.6µ over 75mmØ).
- Surface finish : 0.2µ Ra.
- Parallelism : 0.002mm over 75mmØ.

APPLICATIONS:

These machines can be very sucessfully used in

- Electronic industries for lapping silicon wafers, germanium wafers, ferrite and piezo electric ceramics.
- Pump industries for lapping mechanical seals made of tungsten carbide and ceramics.
- Air compressor industries for lapping compressor valve plates.
- Automotive industries for lapping thrust washers and distance pieces used in power steering.

FEATURES

- The machine is constructed on a rigid welded hollow section steel frame, which houses a AC motor offered with variable frequency drive and a worm and worm wheel reduction gear unit.
- The central gear, internal ring gear and work carriers are driven a AC motor.
- The drive from the AC motor is taken through a worm and worm wheel reduction unit and then goes centrally through the main spindle to the central gear to the internal ring gear, through the work carriers.
- The drive from reduction gear unit is through a unidirectional clutch arrangement. This arrangement ensures a smooth motion when the machine is started. This feature also eliminates breakage of fragile components like silicon and germanium wafers while starting and stopping the machine.
- Both the lap plates are stationary. The differential motion given to the work carrier results in a random figure of '8' motion. This ensures that the component comes in contact over the entire area of the lap plate in so far as is feasible in line with the geometry of the component.
- The lap plate is removed manually for loading / unloading the components in Model : 24 - 01. In Model : 24 - 02 and 24 - 03, the lap top plate is lifted by a pneumatic cylinder and swung out for loading and unloading workpieces.
- To achieve flatness of the required degree on the workpiece, it is critical to maintain the flatnessof the lap plates.
- A special camel back straight edge permits rapid and accurate assessment of the flatness of the lap plates.
- A set of special cast iron lapping gears are supplied with the machine for relapping the top and bottom lap plates.

- An independent slurry pump feeds the mixture of abrasive and oil to an abrasive feed assembly.It is then distributed through a spider to the working face by means of strategically located holes. A separate stirrer motor is attached with the pump to continuously stir the abrasive with oil.
- The main spindle bearings are sealed against ingress of the abrasive slurry. The used slurry is carried away by a suitable arrangement and is collected in a removable tank.

DIMENSIONAL SPECIFICATIONS

All dimensions are in mm

Sl.No.	Description	Model 24-01	Model 24-02	Model 24-03
1.	Lap plate OD	362	590	900
2.	No. of carrier plates	5	6	6
3.	Size of carrier plate	144	213	310
4.	Max. size of job that can be lapped in Ø	105	170	256
5.	Max. thickness of the job	40	50	70
6.	*Main motor AC (Kw/HP)	1.5/2	3.7/5	7.5/10
7.	Pump motor (Kw/HP)	0.2/0.26	0.2/0.26	0.2/0.26
8.	Stirrer motor (Kw/HP)	0.37/0.5	0.37/0.5	0.37/0.5
9.	Max. speed of carrier plates RPM	75	48	48
10.	Timer range	1-30	1-30	1-30
11.	Standard power supply	415V/3ph/50Hz		
12.	Working height of the machine in mm from floor level	1042	1162	1334
13.	Overall machine size Length mm (approx.) Width mm (approx.) Height mm (approx.)	 2100 1650 1500	 2350 2350 2350	 2950 2750 2250
14.	Net weight Kgs	700	1400	2000

*Main motor AC offered with variable frequency drive

GMT

Guindy Machine Tools Limited

214, Velachery-Tambaram Main Road, Pallikkaranai, Chennai-600 100, INDIA
Tel.: +91-44-22460627 / 28 / 29 Sales Dept.: +91-44-22460811 / 12
Fax. : +91-44-22460112 / +91-44-22460317
E-Mail : gmt@gmt.co.in Web : www.gmt.co.in