

Lapping Machines

GMT started manufacturing lapping machines in 1971. It was built for in-house use and until then hand lapping process was used for finishing surface plates. Because the critical parts for our workholding devices required a finishing and buffing machine. Consequently, there was demand in the market for valve lapping and lapping plates. Since GMT had a captive ferrous foundry, castings for lap plate and lapping machine were easier to source.



Since then GMT has become one of India's largest lapping machine manufacturers and suppliers with over 350 installations throughout India mainly to the valve and pump industry. When a buyer in Japan wanted a super finishing machine for lapping large granite plates, GMT designed and supplied a 3000mm dia flat lapping machine. Hence, pump manufacturers, electronic industries, valve manufacturers, etc., have found a sure way of obtaining positive sealing.

Advantages Of Lapping

- A wide variety of materials can be lapped.
- Flatness to one light band (0.0003 mm) on 100 dia.
- Surface finish to less than 0.2 μ RA.
- Furthermore here are some reasons why lapping machines help to transform a costly, rarely used, hand operation to a fine accuracy economical process:-
- Parts of different shapes, thickness and material can be lapped.
- Because the lap plate continuously maintains its flatness, there is no interruption in production.
- Appropriate diameters of the conditioning rings result in optimum lapping area.
- Finally, automatic and adjustable digital display times control the lapping cycles.
- A partial list of the materials that lend themselves to lapping :

- Cast iron, Stainless Steel, Aluminium, Bronze
- Plastics, Tungsten, Ceramics
- Silicon, Carbon, Alumina, Ferrite, Stellite

Models Available (Lap Plate Dia)

300mm and 400mm DIA

300mm and 400mm dia lapping machines are bench models and are robust. The lap plate and conditioning rings are of special, close-grained, cast iron. Taper roller bearing supports the lap plate for maximum stability.

610, 900 & 1200 DIA

The structure for these sizes are heavy duty and with heavy ribbing. The design of the main spindle bearings, gives great axial load capacity, maximum stability, long life and smooth performance even under heavy eccentric loading. Lap plates are manufactured from close-grained alloy cast iron, stress relieved after pre-machining and finally finish-machined and lapped in position.

1500, 1800 and 2100 DIA

Sizes 1500, 1800 and 2100 mm dia machines are massive with robust bases. Large heavy duty roller bearings takes care of eccentric and other radial loads.

The drive is through the main motor through 'V' belts through a fluid coupling to ensure smooth working. The drive to the lap plate is through a heat-treated pinion and a high tensile spheroidal cast internal gear. Variable speed drive for lap plate, reverse mechanism for conditioning ring is a standard supply. Water cooling for the lap plate is optional.

Lapping Accessories

Monochromatic Lamp

With GMT Monochromatic Lamp one can measure flatness within 0.6 microns quickly and easily. These attractive and self contained units use sodium lamp to produce a brilliant glare free light of known wave length. You can observe contrasting light and dark bands on most reflective or semi-reflective surfaces. As a result when used with GMT optical flats, they measure surface flatness within 0.3μ on parts upto 75mm dia.

Optical Flat

GMT optical flats are made from clear fused quartz. Flats made of quartz are superior due to their very low thermal expansion and their greater resistance to abrasion. GMT optical flats are available in 50, 75, 100 and 150mm dia sizes.

Polishing Stand

In order to obtain utmost reflectivity from a lapped surface for light band interpretation, it is generally required to hand polish sample parts briefly after work has been lapped. GMT polishing stands effectively handle a fine grade polishing paper; holding it absolutely tight to prevent rounding the edges of the work, yet permitting easy access to a new section of paper when desired. The stand uses a standard roll of polishing paper.