

Answering the need for complete, cost-effective solutions for generating high-accuracy surfaces, UNIVERSAL PHOTONICS brings you the SOMOS MDF & TPM series of double-sided planetary machines.



Designed to simultaneously process both sides of flat components, these machines reliably deliver high-precision flat and parallel surfaces so productivity is increased.

Each series covers a variety of surfacing requirements from simple, low-cost, optical lapping and polishing, to laboratory research and high-pressure, high-speed, complex processes for sapphire and specialized applications. True to the SOMOS name, they are ruggedly built, versatile, easy to use and simple to maintain.

#### APPLICATIONS



##### OPTICS:

Filters, windows, substrates, discs, plates, sight glasses, beam splitters, balls, horology components, etc.



##### ELECTRONIC:

Crystals, wafers, quartz, electro ceramics, piezo-electric quartz crystals, optronic parts, sapphire, etc.

#### AVAILABILITY

##### MDF "N" & "PR" Series

MDF 320 N  
MDF 400 N  
MDF 320 PR  
MDF 400 PR  
MDF 500 PR  
MDF 600 PR  
MDF 800 PR

##### TPM Series

TPM 500  
TPM 500 R  
TPM 630  
TPM 630 R  
TPM 800  
TPM 800 R

UNIVERSAL PHOTONIC'S extensive line of premium equipment and consumables brings the precision of semi-conductor technology to the optics industry.

Engineered to consistently deliver higher tolerances and yields, our products have been at the forefront of innovative polishing applications for over sixty years.

UPI maintains a solid commitment to supporting your unique needs with cross platform research, state-of-the-art manufacturing facilities, and customized solutions that will optimize any polishing application.



**UNIVERSAL PHOTONICS**  
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A NEW GENERATION  
OF  
HIGH PERFORMANCE  
LAPPING & POLISHING  
MACHINES

## THE MDF "N" & "PR" SERIES

## OPERATING PRINCIPLE



MDF 400 PR with optional PC

The MDF Series of double-side planetary machines is designed to simultaneously process both sides of flat components from about Ø3 to about Ø230 mm (1/8" to 9"). With appropriate tooling, spherical and cylindrical parts can also be processed.

The Series will process very small to moderately large parts meeting the most exacting specifications of flatness, figure, parallelism, thickness, surface quality and if required, differential stock removal.

Accurate optical polishing may be carried out gently on low-pressure, low-speed machines, with cycle times of several hours. No coolant is required and the driving torque is low. Both plates and the sun gear can be

driven through a modestly sized bottom spindle. This is the principle of the "PR" & "N" series. High-power, high speed "PR" machines are available, under Ø800 mm (Ø32").

### FEATURE

- Unique slurry & polish media delivery system
- Rinse & cleaning cycles
- Plate temperature regulation
- Automatic lapping plate flatness correction
- Stainless steel work zone and gears
- Load/unload automation options
- Clean-room capability
- Quick-release base panels

### BENEFIT

- Simple to clean or change for new process
- Avoid staining & contamination
- Facilitates high precision
- Reduces truing time and problems
- Easy to clean; no contamination of parts
- Reduce labor costs
- Maintain clean-room environment
- Outstanding access to machine components

The MDF "N" machines have fixed plates and independently driven rotating inner and outer gears. This is the simplest form of planetary double-side machine and is best suited to high-accuracy lapping of parts down to about 1 mm (0.040") thick.

The MDF "PR" machines have independently driven top & bottom plates and center gear, which reduces the effort needed to drive carriers (work-holders) around the machine. Subject to aspect-ratio limitations, this enables parts as thin as 0.25 mm (0.010") and very fragile materials to be polished, and provides the facility for asymmetric stock removal, or equal stock removal from faces with different surface areas.



MDF 400 PR with analogue control pad



## THE TPM SERIES

SOMOS' TPM machines have many advantages starting with their unique footprint - mechanical, electrical and operational access is all in the front so the TPM requires less space. Even the slurry tank and pump are inside the housing.

Designed by optical specialists with practical applications experience, the TPM line incorporates many outstanding features, all at an extremely affordable price.



TPM 500 R

Excellent results have been achieved on visible optics, infra-red materials, crystals, ferrites, semi-conductor materials, quartz, electro ceramics, technical ceramics, carbides, sapphire, metals and alloys.

All MDF "N" & "PR" series machines are operator-friendly, easy to use, versatile, reliable, durable and simple to maintain.

## AUXILIARY EQUIPMENT



A wide range of auxiliary equipment, factory installed or optionally supplied, is available.

Note: Not all features available on all machines.