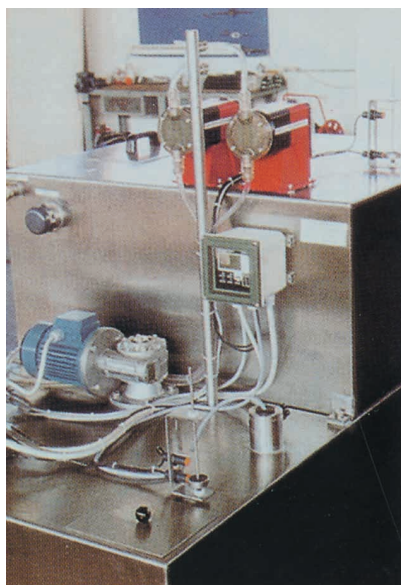


- **Special guides for processing thin core material** down to 0.05 mm (2 mils). This minimum thickness is an indication only, as this data depends on the nature of the material and hence can be determined only practical tests.

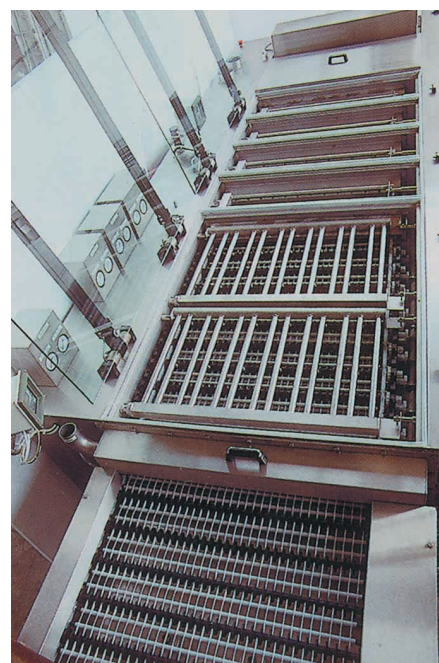
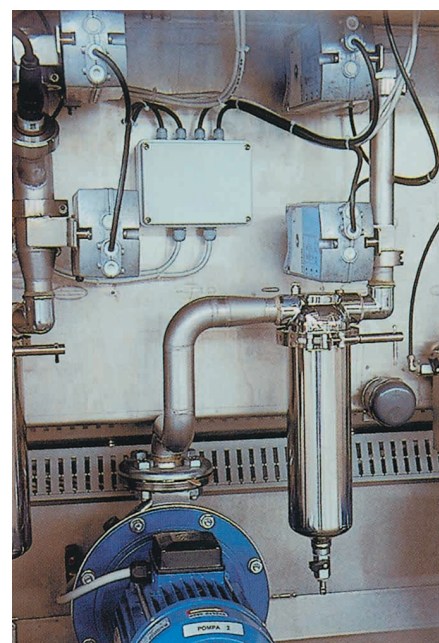
- **Spray pressure control system;** the pre-set pressure is automatically and separately controlled for the upper and lower spray manifolds at the exit of each pump after filtration. Suitable pressure probes feed back a signal thus allowing for the motorized valves to be regulated according to needs. Constant pressure is kept and minimum and maximum set points warn the operator when, for example, filters are clogged and pressure can no longer be maintained.



- **Solution preparation system with conductivity meter** which automatically mixes fresh water and concentrated solution. Suitable dosing pumps, level controls, agitators and thermostatically controlled heaters automatically provide a suitable supply of ready-to-use solution to the processing machine.

View of a Devmaster MK II with tempered glass covers fully open, showing the developing and rinsing chambers including conveyor drive with torque bar and gears, spray manifolds, conveyor system with rubber wheels and guides for processing thin inner layers of multilayers. The spray pipe and nozzle configuration has been studied in conjunction with leading manufactures of dry-film and leading PCB producers so as to meet the most stringent fine line production requirements.

- Tanks for concentrated solution and antifoam: please refer to "STRIPMASTER" leaflet for description and photograph.



STRIPMASTER



Ideally suited for the development of all kinds of aqueous dry-films and solder masks. The correct combination of spray pressure, flow of solution and type of nozzles, has been established after experience and tests in the field to allow for fast development and superior fine line resolution. Two basic models are available, while several combinations of developing, rinsing and drying modules are offered as optional extras.

Description

Two basic models are available (MK I and MK II) each one including: input conveyor, main developing chamber, a further short section with recirculated developing solution to minimize drag-out of resist residues and three rinsing chambers.

DEVMASTER

WET SERIES

CONVEYORISED MACHINES
FOR DEVELOPING ALL KINDS
OF ALKALINE SOLUBLE COATINGS

We reserve the right to carry out modifications without prior notice.

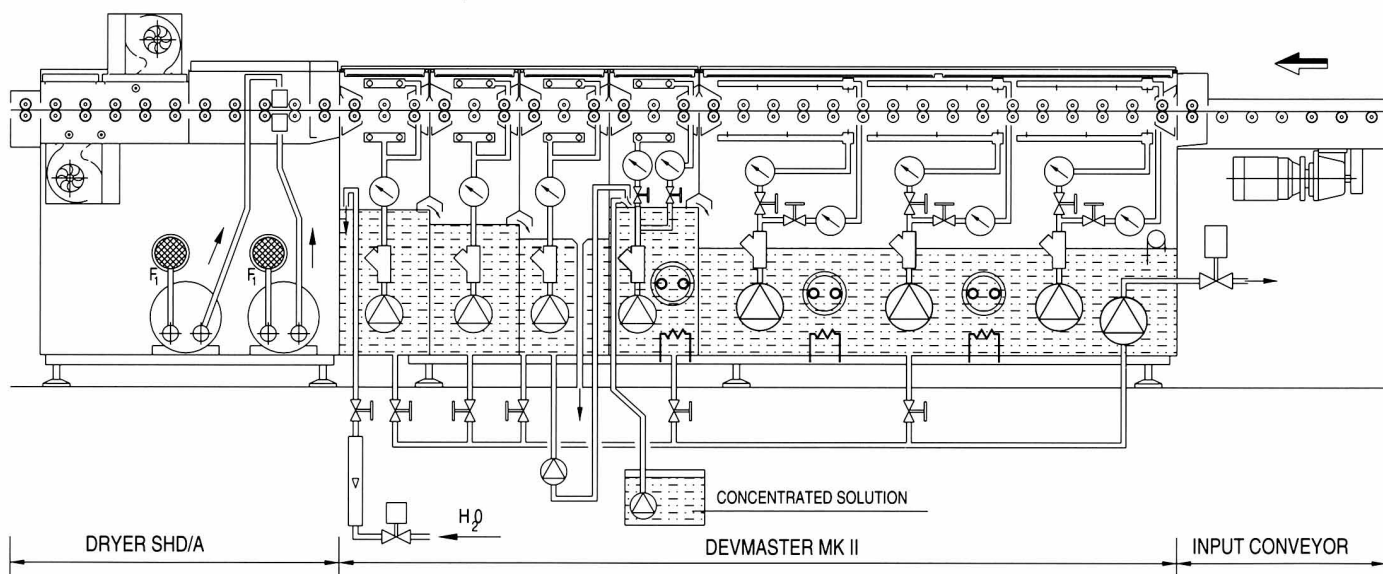
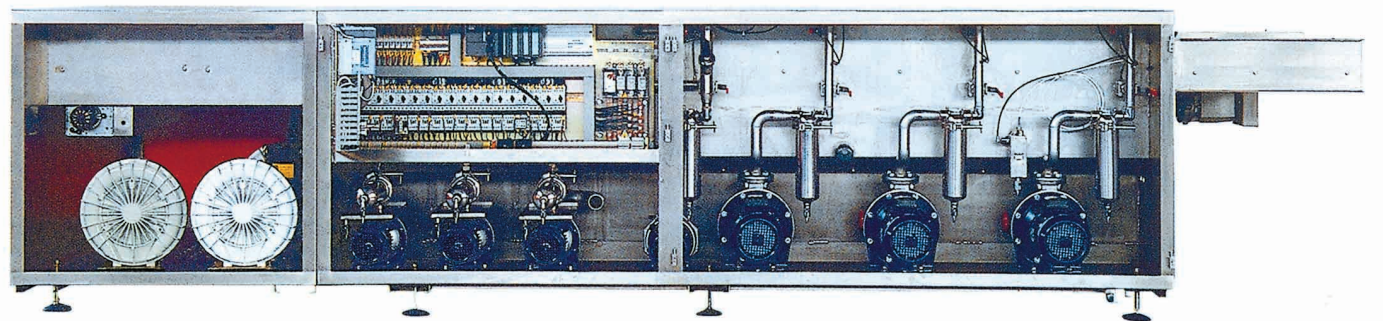
Features

- PLC control
- Stainless steel construction of machine structure and all internal metal parts in the developing chambers. All materials used are resistant to aqueous and semi-aqueous solutions.
- Guides for processing thin inner layers of multilayers down to 0.05mm (2 mils) are available as optional extras.
- Sloped bottom construction to facilitate total drainage.
- Separate adjustment and reading of upper and lower spray pressure.
- Internal conveyor drive with torque bar and gears.
- Horizontal centrifugal pumps.
- Stainless steel filter cartridges on pump outlet.
- Automatic feed and bleed of fresh solution in cascade controlled by a board sensor on input conveyor.
- A built-in containment tray prevents any liquid from falling on the floor.
- Possibility of fitting additional developing modules to increase productivity.
- Catch filter baskets beneath lower spray manifolds to prevent unwanted material from falling into sumps.
- "L" shaped heaters with flange above liquid level.
- Pump removal without sump drainage.

Modular design

This offers the possibility of adding various complementary modules to build processing lines to comply with different requirements and special requests.

Rear view (all doors removed) of a DEVMASTER MIKII with an additional SHD/A drying module for "resist fixing" with warm air and final drying (please refer to "SHD/A DRYING" leaflet for description and photographs).



Process control

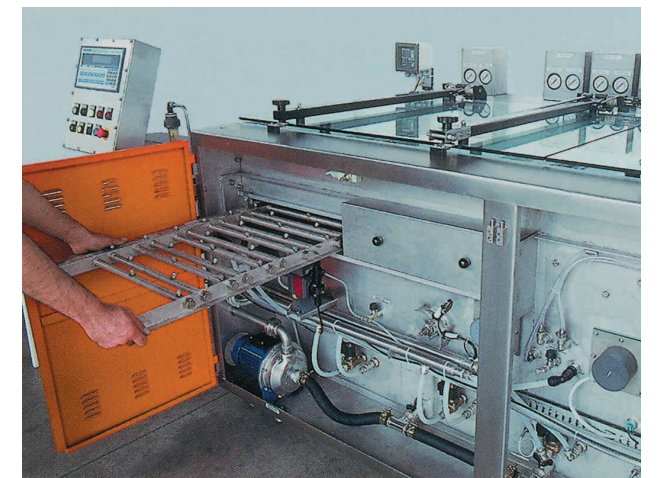
The market trend towards high density circuit boards with finer spacings and conductors, has underlined the need to maximize process control. Quality can only be achieved by keeping important process parameters such as temperatures, spray pressures, concentration of solution, and dry-film loads under strict control. This need has led us to design and implement systems to cater for such precision. Several options for achieving the above at various degrees of sophistication are available.

A very simple method for keeping the solution at a constant level of activity is to "feed and bleed" fresh solution into the system as shown in the schematic drawing on the previous page. This is included in the basic DEVMASTER as standard.

Whenever panels to be developed enter into the system a board sensor on the entry conveyor starts metering pumps feeding fresh solution and water into the last developing chamber.

This cascades backwards into the sump of the previous developing chamber and a suitable amount of solution is evacuated by means of a level control and a pump.

Whilst upper spray bars are easily accessible from the top of the machine, lower spray bars are directly accessed and removed from the side of the machine thus reducing preventive maintenance times to a minimum.



Optional extras

• pH Meter for developing solutions

This is particularly suitable in detecting dry-film load variations and hence may be employed together with the in-built solution make-up and dosing system. The reading is constantly fed to a PLC which thus regulated the feed and bleed of concentrated fresh solution and water.

• Conductivity meter

This detects liquid conductivity variations in the last processing chamber, hence variation in sodium carbonate concentration. A dosing pump connected to a concentrated solution tank is then activated until the pre-set conductivity value is restored. Although a pH meter is more widely used in the developing process than a conductivity meter, they may both be used together to achieve an extremely accurate dosing system.

• TPC (Total Process Control)

User-friendly control of many process functions is enabled through the use of one common office PC (Windows 95 or higher). Graphics, graphs recipes and schematic designs render this process control easy to use. Real time data feed-back, including trend graphs and alarm menus are available with a simple click of the mouse and a technical and operator manual is also available on screen.

Statistical data can be viewed on an intranet system. Examples of screen images can be see below.

