

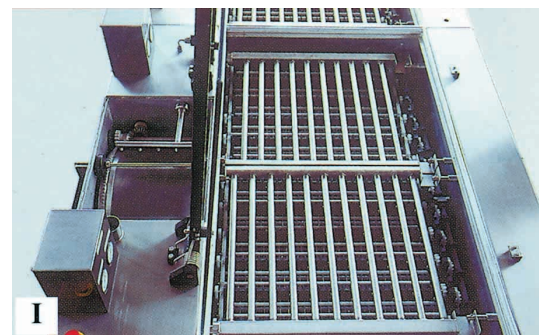
Filtration and removal of the resist from the stripping solution

One of the biggest problems has always been that during stripping large amounts of dry-film are continuously dissolved into small particles, thus quickly saturating the solution. It is absolutely necessary to remove such particles from the system in order to avoid the formation of sludge and to extend the life of the stripping solution.

According to the size of such particles which may greatly vary depending on the type of dry-film and stripping solution chemistry, I.S. offer various systems for filtration and dry-film extraction.

I – Drum filter (standard)

Top view showing the large tempered glass cover open, conveyor drive with torque bar and gears, wheel transport rollers, spray manifolds and rotating drum filter.



J – Drawer filter (standard)

When small amounts of particles are generated (as for example in the very first stripping chamber when the dry-film is only swollen but not yet removed) a simple drawer filter will collect the larger debris which is retained by the drum filter mentioned before.

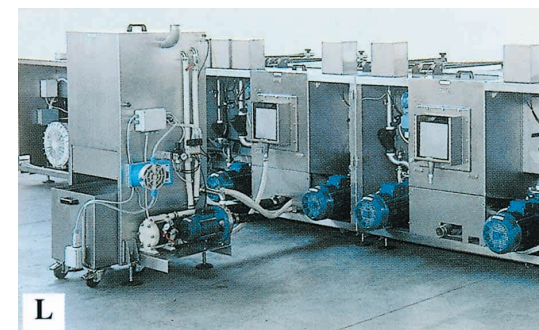
However such a simple filter finds very few applications and the large amounts of dry-film to be removed when operating in an industrial scale require more efficient solutions to the problem of dry-film extraction.



K – External Belt Filter (optional extra)

When working with pure alkaline solutions such as NaOH or KOH, the particles are large enough to be filtered out with the **External Belt Filter** (typical application would be the processing of innerlayers).

A running belt, transversally located inside the revolving drum, in place of the drawer filter, carries the resist particles out into a large volume bag where they are filtered, as can be seen on front page picture.



L – External Screen Filtration Unit (optional extra)

In the case of outerlayer stripping and in particular when fine line patterns are present, the use of formulated stripping solutions is mandatory: in this case the particle sizes of dry-film are very small and the **Screen Filtration Unit** is best suited to this purpose. **Standard Drum Filter** and **Drawer Filter** will retain larger particles and debris to avoid clogging of spray nozzles. A pump draws the solution from the stripping sump of the STIPMASTER and sprays it onto a fine mesh screen.

The filtered stripping solution flows back into the stripping chamber while all filtered dry-film residues slide down and accumulate into a filter bag.



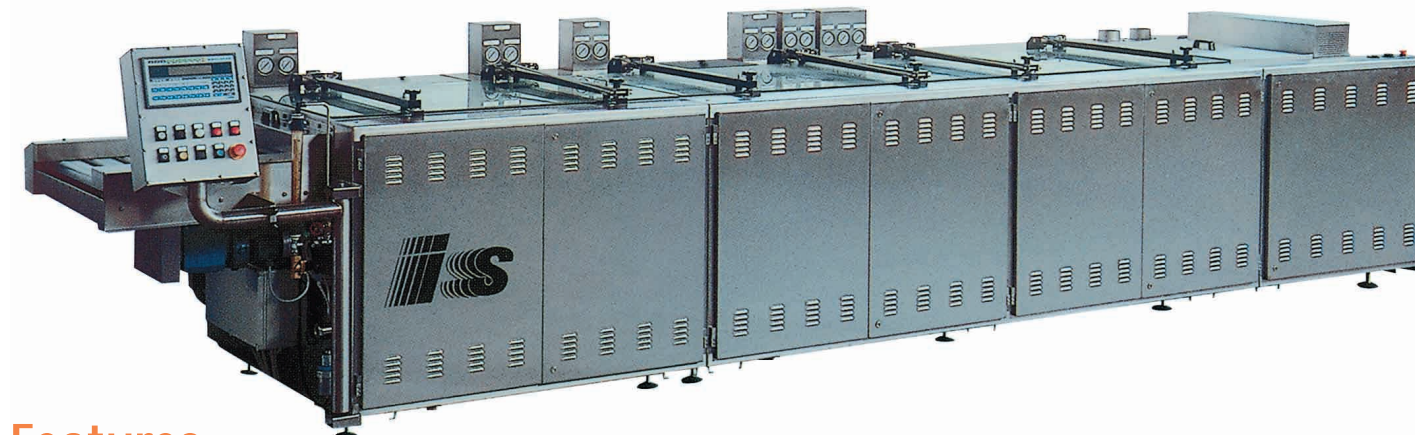
M – Close-up view of the filter bag used with both Belt Filter and Screen Filtration Unit options.

Disposal of the film residue is facilitated by the fact that it is collected in almost dry conditions.

GALILEO Imaging

This solid and reliable unit efficiently removes the alkaline soluble coatings used in the manufacture of printed circuit boards such as aqueous and semi-aqueous dry-films. The STRIPMASTER is the result of long experience in the removal of all different types of resists requiring stripping solutions of various kinds, and due to the particularly aggressive nature of

some of these, absolutely nothing has been left to change where quality and reliability are concerned. All stripping solution sprayed onto the boards is constantly forced to pass through a built-in, self-cleaning filtering system before flowing back down into the sump.



Features

- Stainless steel construction of machine structure, including doors and all internal metal parts in the stripping chambers. All materials used are resistant to aqueous and semi-aqueous solutions.
- Stripping temperature up to 75° C/167° F.
- Self cleaning automatic rotating drum filter with extractable drawer filter.
- Stainless steel strainers on pump outlet.
- Powerful centrifugal pumps 5 kW for spray pressure up to 4 bar. Pump capacity 340 l/min.
- Separate adjustment and reading of upper and lower spray pressure by means of valves and pressure gauges.
- Internal conveyor drive, with torque bar and gears.
- Guides for processing thin inner layers of multilayers down to 0.1 mm. For thinner materials see options available.
- Stepless adjustment of conveyor speed with inverter and digital speed display.
- Automatic feed and bleed of fresh solution in cascade, controlled by a board sensor on input conveyor.
- Possibility of fitting additional stripping modules to increase productivity.
- Sloped bottom construction and spray pipes to facilitate total drainage and flushing.
- "L" shaped heaters with flange above liquid level.
- Pump removal no longer necessitates sump drainage.

STRIPMASTER

WET SERIES

CONVEYORISED MACHINE
FOR THE STRIPPING OF
ALKALINE SOLUBLE COATINGS

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

Description

The basic machine includes: input conveyor, main stripping chamber, a further short section with recirculated stripping solution to minimize drag-out resist residues and three cascading rinse chambers with one booster pump each.

A very simple "feed and bleed" system for keeping the solution at a constant level of activity is included in the basic STRIPMASTER as standard.

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

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

In the main stripping chamber, two powerful centrifugal pumps and a large number of nozzles, transversally angled to the top and bottom surface of the panels, spray a huge amount of hot stripping solution (the stainless steel construction allows for temperatures up to 75°C/167°F) at a relatively high pressure (4 bar/56 p.s.i. approximately).

All the solution passes through a revolving drum filter as shown in picture "I" on the last page so that the larger particles are retained and clogging of the nozzles is avoided.

Stainless steel strainers at each pump outlet are a further safety measure to guarantee clog-free operations. See last page for additional filtration, removal and disposal of resist particles.

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 (please refer to "DEVMASTER" leaflet for photograph).

Modular design

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

The schematic drawing and picture in the front page show a Stripping line formed by a STRIPMASTER with extra modules and accessories as described below.

This is a typical working configuration to precede an Etching/Tin Stripping line for production of outerlayers.

Optional extras

A – Board Pacer

A conveyor system to feed a processing line consisting of numerous machines. The board pacer conveyor speed is automatically adjusted to coincide with the slowest conveyor speed in the line and therefore "paces" the boards to achieve maximum productivity whilst also eliminating the danger of boards overlapping. The conveyor speed of every single machine in the line is signalled by its relative PLC to the PLC of the Board Pacer whose conveyor speed is automatically set to comply with the slowest one.

B – Tanks for concentrated solution and antifoam

See "DEVMASTER" leaflet for further details.

C – Additional Stripping module for higher productivity

The basic machine includes all electrical, mechanical and hydraulic connections for future addition of this module.

E – High Pressure stripping

An external high pressure pump (rear left hand side of the picture) designed to spray at a pressure of 10 bar/140 p.s.i. (24") and 7 bar/100 p.s.i. (30") with formulated solutions replaces the conventional pump in the final stripping chamber. Practical results in the field have shown dramatic yield increases in the case of fine-line stripping with overplating. The same High Pressure Pump is also recommended in the first rinse: water has a "shrinking" effect on the film particles, which are easier to remove with the impact of high pressure spray.

F – Solution blow-off section

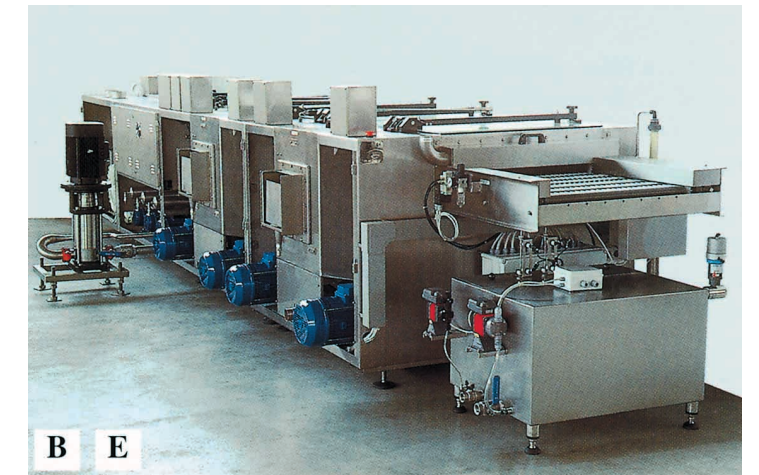
manifolds designed to blow all stripping solution out of the holes and backwards along the surface of the boards, down into the sump of the stripping section.

This option is to be recommended when using formulated stripping solutions, which are normally quite expensive: drag out and hence loss of solution into the rinsing section is dramatically reduced.

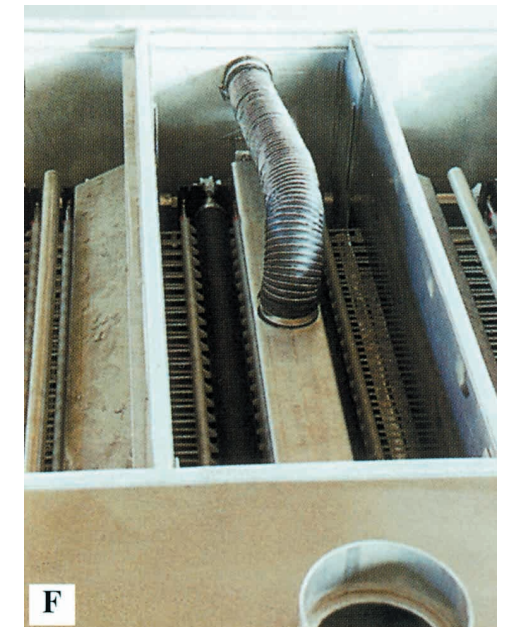
H – Water blow-off module

A large capacity blower, located underneath and additional conveyor, with filter at air intake and special air manifolds forces air through the holes of the boards and backward along their surface so as to prevent water drag-out into the subsequent sections.

TPC (Total Process Control): please refer to "DEVMASTER" leaflet for description and photographs.



B E



F

