

# pcb-Depaneling Machine

## General Information

## pcb - Depaneling Machine for scored pcb multiple platinen



In order to automatically assemble printed circuit boards in an economical way, the multiple printed circuit board technology is used nowadays. Delimitation of the single printed circuit board is achieved by mill-cutting, perforation or carving. The development tends more and more towards the technique of carving; it means low costs and a high degree of stability and has favourable effects on assembly and soldering. Conventional separation

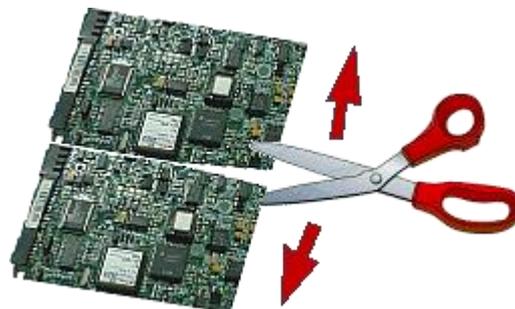
of printed circuit boards, however, creates problems like complicated handling, damaging of fine leads and electronic components, long-term failure. SMD-printed boards are especially endangered.

With **FROST Depaneling Machine** circuit boards can be separated efficiently, economically and in accordance with today's highest quality standards.

### The principle of operation:

The multiple printed circuit board is shoved from the front between the two wedge shaped separation tools, whereby it slides in its carving. The space between these separation tools is smaller than the thickness of the multiple printed circuit board. Triggered off by pedal the upper separation tool goes down and separates the board (effect of the wedge). The tools do not touch each other during the process. Damage to the components or conductors is ruled out altogether as the cutting forces only act upon the scored line. Furthermore, the cutting process is absolutely even and parallel along the entire length. Painstaking separation of this nature is of particular significance for SMD-type printed circuit boards.

Shearing separation procedures set free spreading forces between the already separated and not yet separated sections. These enormous spreading forces (see arrows) in the PCB have an impact even on the electronic components. They inevitably lead to damaging. The resulting failure ratio is therefore very high.



Only in our absolutely parallel separation procedures there is a clearly defined power transmission (of the tools) having an effect on the centre of the PCB. In our procedure no tensions can arise in the surface of the PCB or the electronic components.

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### Handling:

A further advantage of our procedure is that the carving is used as a guide which makes it possible to work universally without changing the stop. The tool opening can be adjusted (according to the thickness of the PCB/board) by means of an adjustment appliance or a coding switch.

Moreover the small distance between the separation tools allows accident free handling.

### Working space:

Due to the ample working space boards with rather high electronic components can also be separated. The board may be assembled on one or on both sides. Various cutting lengths ranging from 200 mm - 350 mm.

### The construction:

The device is built on a solid frame with a conductive table top (EGB norm, from a cutting length of 300 mm). Ergonomic aspects have been taken into account. An electromechanical, pneumatic or manual drive is possible. The separation tools are made of specially hardened tool steel and guarantee a long life without needing resharpening.

### Base material:

All conventional printed circuit board materials can be cut with this device (FR2 FR3 FR4-Circuit boards material .... etc.) from extremely thin boards to multilayer types, irrespective of whether the printed circuit boards carry components on one or both sides.

All carving measures correspond to the latest industrial standards.

