

# Punching Machine



## PAM S-series

- Punch via and registration holes in green tape
- Suitable to punch most via and cavity designs
- CAD input direct from NcDrill or DXF files
- Tool breakage detection
- Automatic sheet alignment for re-punching
- Combination with laser punch tool in one machine
- AOI system optional

---

For development and Production of LTCC/HTCC

The PAM S-series of punching machines are mainly designed for LTCC applications, where it's required to be able to punch all kinds of patterns. The PAM S-series uses single pin punching tools to punch via holes or registration holes in green ceramic tapes, either on carrier film or free-standing. Every hole size is punched using a different tool. Depending on the machine version, either up to 4 or up to 8 different punching tool dimensions can be installed on the machine. Special multiple pins (gang) punching tools are available in order to punch grid type pattern to increase productivity. Numerous versions are available, starting with the basic unit, where the operator places single sheet on an alignment table, the machine picks the sheet with a vacuum tool and punches it according to the program, up to the fully automatic version, where individual sheets are cut from a roll, punched and transferred to a magazine. Machine comes (standard) with pin breakage control and sheet vision alignment for sheet alignment against pre-punched registration holes.

**Available single pin punching tools:**

- pneumatically driven, diameters 0.1 (4 mils) to 1 mm (40 mils)
- pneumatically driven, square 0.2 x 0.2 to 1 x 1 mm; (8 x 8 to 40 x 40 mils)
- pneumatically driven, diameters 1.1 (43 mils) to 5 mm (200 mils)

**Available grid punching tools:**

- grid type tools available up to 24 round pins
- max. punch diameter not bigger than 0.5 mm (20 ml) depends on pattern

**Technical specification:**

Punching speed: 20-25 /s at 1 mm distance for selected tools with servo drive, pneumatical typically 13-20 /s.

Punching area: up to 225 mm x 225 mm or 9 by 9 inch; easily changeable by exchange of vacuum pincer.

Tape thickness: up to 500 microns (20 mils) (to be confirmed)

Mylar thickness: 30 to 75 microns; (1.2 to 3 mils)

X,Y drive: high precision ball screw and AC servo motors

Positioning accuracy: +/- 5 microns

Programming: manual on the machine or CAD file input (NcDrill or DXF)

Work (sheet) fixing: by vacuum, optional metal frames fixing

Carrier film thickness: 20 to 75 microns (0.8 to 3 mils)

Punching pin exchange: less than 2 minutes, no special alignment required

Control: PC

Pin breakage test: by camera and vision control (every hole, last hole)

Sheet alignment for re-punching: by camera and punching coordinate calculation

Tape handling: manual by operator,

Automatic from magazine to magazine

Automatic from roll to magazine

Safety: CE compliant

Dimensions: depend on version app. L=2.5 m

B=1.5 m

H=2.2 m

Electricity: app. 2 kW (connection custom)

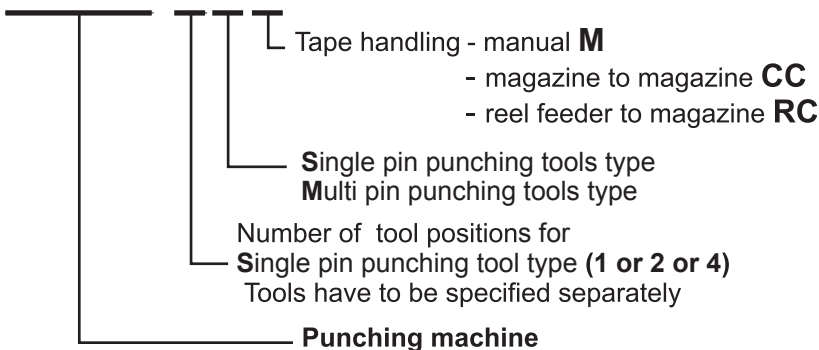
Compressed air: 0.6 MPa, 200 L/min

Vacuum: External vacuum source required.

Optional vacuum pump can be supplied

**How to order: \***

**PAM-xxx**



\* Options and other requirements have to be specified separately.



[www.haikutech.com](http://www.haikutech.com)

**HaikuTech**  
Multilayer Ceramics

**Americas**  
HaikuTech Inc.  
11025 NW 29th Street,  
Doral, FL 33172, USA  
T: +1 (305) 463-9304  
F: +1 (305) 463-8751

**Europe**  
HaikuTech Europe B.V.  
Sporweglaan 16  
6221 BS Maastricht  
The Netherlands  
T: +31 (43) 457-8080  
F: +31 (43) 457-8053