## Technical Characteristics

| CONNECTION-POWER | |
|---|---|
| Air heater | 16 KW |
| Solder-pot | 33 KW |
| Other consumers (incl. conveyor belts) | 4 KW |
| Air consumption | 18 KW |
| Exhaust | 2800 cbms/h at 800 – 1000 suction capacity |
| Air connection | R 1½" |
| Pipe cross-section | min. 40 mm |
| Solder-pot capacity | 430 kgs |
| Clamp-cross-drive | controlled 3-phase-current |
| Lift/Gear rim | controlled 3-phase-current<br>- various speeds/adjustable in users` menue |
| Loading drive | air-pressure cylinder |
| Unloading drive | controlled 3-phase-current |
| Pump drive | controlled 3-phase-current |

### Solder Coater for Printed Circuit Boards Penta Automatic

**Function**

The machine is working with 4 rotating titanium clamps.
The loading which can be started up from any side
and the outputmodule is on the left side of the machine.
This allows a very variable utilization. The loading,
the solder dip process and the output happen at the same time.
Because of this, cycles up to 300 panels per hour
can be reached. The machine is very good get-at-able
– the solder-pot can be swung up to 80 and is easy to maintain
from the front. The electrical equipment is located
on the machines outside in a switchbox. Our own software
„PCON Automatic" for steering the machine is
inside the switchbox. Due to the touch-screen our programm is
very easy to handle.

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## Partl Mechanics

1.0 Supply - and loading unit
The loading is done on the left by a loading arm which automatically switches from horizontal position into vertical.
The boards are pre-fluxed and get pushed and centered before loading.

2.0 Conveying system
4 rotating titanium-clamps in star-shaped arrangement.

3.0 Elevating System Soldering
The movement UP and DOWN of the clamp is done by a graduable 3-phase-current motor that runs a gear rim around 2 return pulleys parallel to the elevating direction. An automatical way and time measurement is integrated and gets evaluated constantly.

4.0 Solder-pot
The swingable solder-pot has a solder capacity of about 430 kgs. The circulation is done by a frequently regulated submersible pump.
This is locked by the temperature regulation

5.0 Airknives
Two parallel airknives might be swung over a scale. The airpressure while blowing is recorded. – Air pressure regulating valves with control cards for regulating control through memorized programs.

6.0 Waste Air System
The waste air system with absorber tank is on the backside of the solder-tank. The central waste air heater is regulated by a pneumatical throttle. The aeration of the output-module is running continuously.

7.0 Unloading- station
Discharging-arm with non-piston-rod magnetic valve. The unloading happens on right hand side onto a stainless steel-wire guard conveyor.

8.0 Waste air cleaning (Option)
Packing-Wet-Cleaner with drop-seperator.

## Part II Control Unit

1. PC
Data processing, parameter- and status-surveillance by Industry-Pentium-PC with touch-screen
Color graphic card with two serial and one parallel output
Option network-card and modem

1.1 SPS/ PLC
Type A1S CPU with 8Ks EE-Prom MITSUBISHI
1 input card with 32 entries
3 output cards with 16 exits each
1 AD-convertor card with 8 entries
1 DA-convertor card with 8 exits each
1 Computer-link-module with RS232 interface

2.0 Software
Windows-compatible usersoftware "PENTA CONTROL" written in C++. With ODBC-compatible data bank connection, e.g. MS Access.
Any number of programs is memorizable. Input by AV or user.
The software contains many tests and drawings of functions of nearly all moveable parts.

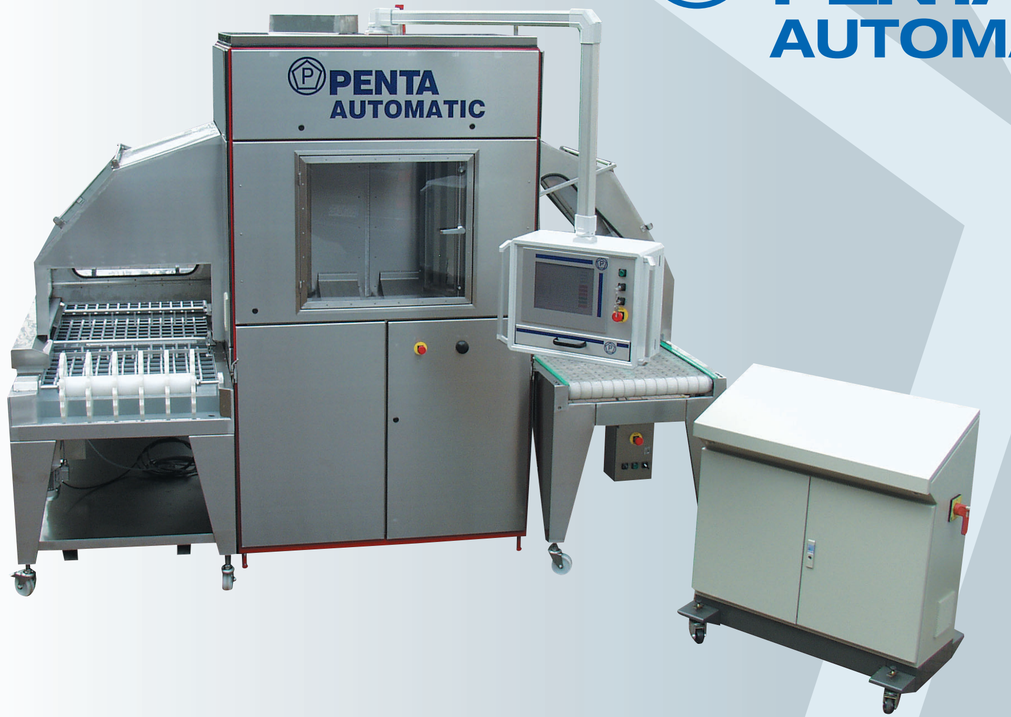
3.0 Error-Surveys
Arising errors get recorded continuously and transmitted into error-surveys.

3.1 Storeable parameters
Temperature-airheater
Temperature-solder
Pump: /Run/Stop
Diptime Pb/Sn-tank
Pressure Airknives
Clamp speed : up/down
type of boards and ordernumbers

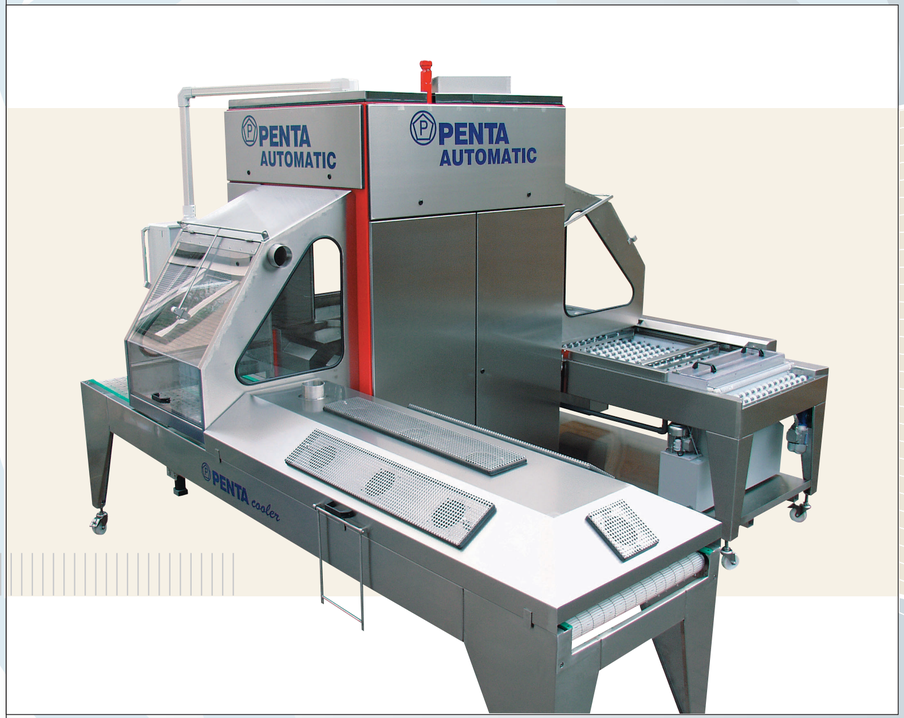
4.0 Production Survey
The prescribed production data for every soldering job get recorded and filed under the referring order. A survey about changes in processes informs about long-term changes and tendencies in parameter-choice. The program module „PCON-CHART" allows a graphical diagram of operation merits and parameters for each cycle. - Can be shown on screen and issued by printer.

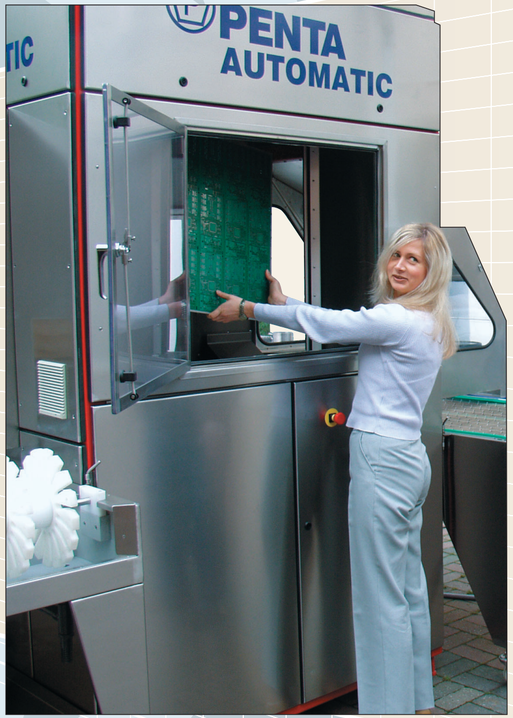
5.0 Statistics-program - data-registration
The statistics-program can be printed as demanded or automatically after code.

PENTA AUTOMATIC



PENTA AUTOMATIC design in
U-configuration with view on
the connection-side
post- and precleaning-lines.




Alteration to manual
operation possible.
E. g. for restorings (redos) and
special panels.

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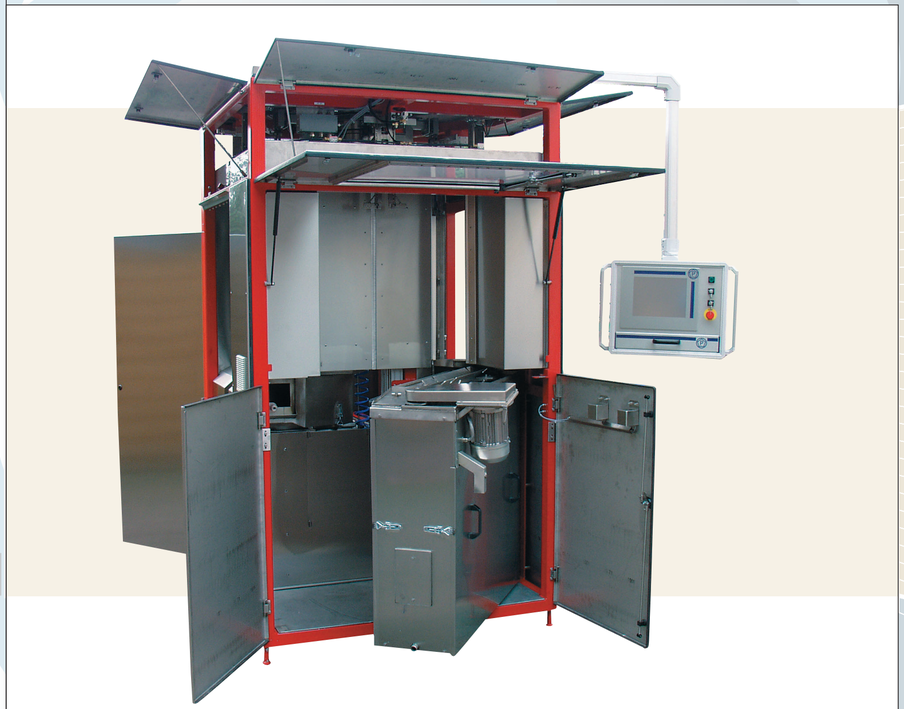
Mainmodule PENTA AUTOMATIC.
All units within good reach.

**Other Side**
Flux- and Centermodule
For coupling to
PENTA AUTOMATIC.
Fluxconsumption: 50 g/m²





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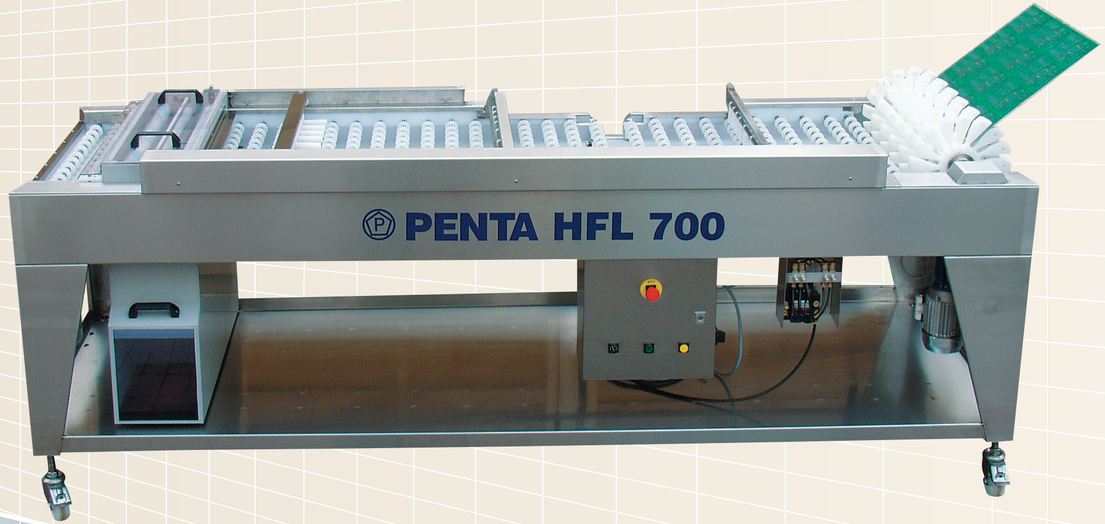
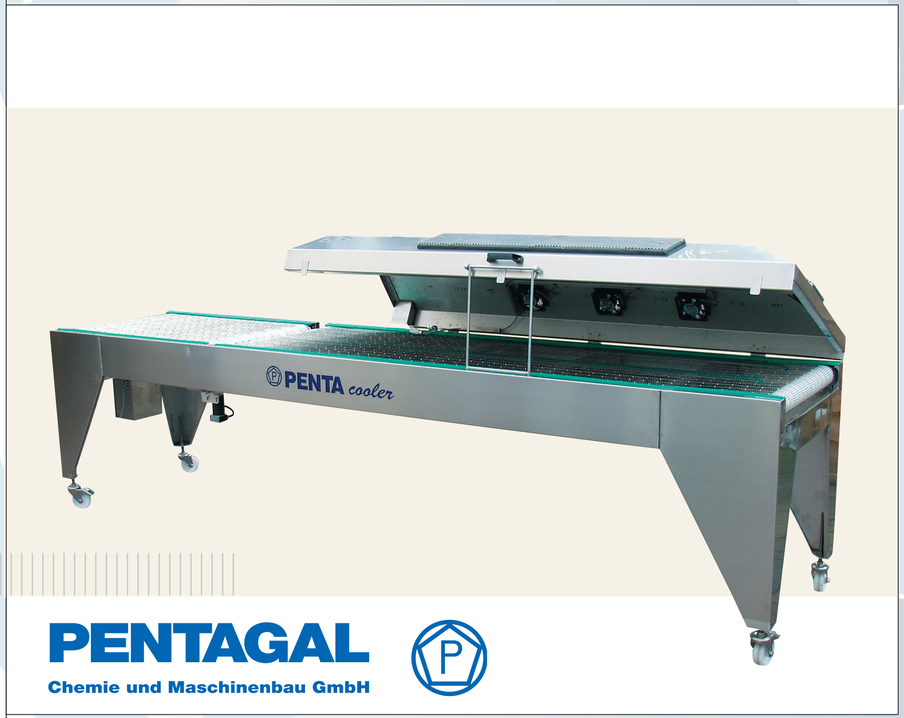


PENTA Cooler Module
for coupling to
PENTA AUTOMATIC.
Max. PCB-temperature > 100° C




## TECHNICAL DATAS - PENTA AUTOMATIC

| | |
|---|---|
| Dimensions (W x D x H) | 1440 x 1340 x 2350 /mm |
| Weight | 1200 kg Mainmodul |
| Cycles | 250 ... 320 |
| Max. dimensions of PCB | 720 x 700 x 5 /mm, 28" x 28" |
| Air pressure | 6 ... 8 bar, appr. 280 NI/cycle |
| Exhaust | 2500 m³/h 700 pA |
| PbSn capacity | 440 kg |
| Electr. Installation | 50 kW, 3 line 400 V/80 Amp, USA: 480 V |
| Consumption | 35 kW/h |
| Airknife | 735 mm, 29" |
| PLC | Mitsubishi A1S-H-CPU<br>32 digital - input, A1SX81<br>48 digital - output, A1SY80<br>4 analog - input (0 – 20 mA, 0 – 10 VDC), A1S64 AD<br>8 analog - output (0 – 10 VDC), A1S68DAV<br>1 RS232 - interfacemodul, A1SJ71 |
| Computer Control Unit | Industry-Pentium-PC,<br>Resistiv-Touch, Super-TFT-Display<br>12,1", 800 x 600 Pixel<br>Software: PCON-Automatic, C++, MS-Access<br>Databae, System Windows 98 |