Testing Platen Presses Type P
Ramp-Programmable Presses Type P/M
# Testing Platen Presses Type P

## Special Features
- High degree of temperature accuracy
- High degree of pressure constancy
- Safety through totally enclosed platen area
- Double-acting cylinder for reliable return stroke
- Fully automatic press cycle with
  - 5-time, pressure and 4 temperature settings
  - one presettable heating and cooling ramp each
- RS 485 interface for data transfer
- Printout of a test report for quality control
- Suitable for upgrading a programmable ramp control type M

## Application
Platen presses are used in the production of mouldings for optical or physical testing purposes.
Collin presses guarantee:
- a high degree of temperature constancy
- a high degree of pressure accuracy
- optimum reproducibility by storing process-parameters

## Machine Design
The outstanding features of this 4-column type design are:
- ample clearance between tie bars for loading from 3 sides
- solid base plates suited to withstand high pressure forces thus keeping deformation to a minimum
- double-acting cylinders with chromium-plated piston rods ensuring reliable continuous operation.

## Hydraulic System
The following systems are available:
- multi-stage hydraulic system with one or two-stage units
- proportional-control hydraulic system for controlling high pressure ranges, ensuring a high degree of pressure constancy and high pressure build-up speeds
- combined hydraulic/pneumatic systems for pressure setting ranges up to 1 : 1000

![Testing Press Type P 200P with cassette-type cooling system](image)
Cassette-Type Cooling System

Function:
The moulding is placed onto a support plate (C).
During the hot press moulding process the cooling cassette is located at the left in extended position (A).
For fast cooling action the cooling cassettes are passed between the heater plates (B).

Advantages:
- high cooling rates of up to 300 K/min
- energy savings owing to the fact that the heated plates stay hot
- time savings of up to 70 %
- quality improvement of the product (e.g. for PP)

Heating and Cooling Plates
The Collin heating/cooling plate system guarantees:
- extremely high temperature accuracy over the platen surface ± 1 %
- high degree of parallelism
- high heating and cooling rates from 1 to 30 K/min, cooling rates of more than 100 K/min are possible with the Collin cassette system (see above)

Electrical Control
The power control as well as the microprocessor-controlled temperature regulators are located in a separate control cabinet. Control can optionally be performed in the semi-automatic or fully automatic mode via a PLC. The standard program permits digital presetting of 5 times, 5 pressure stages, 4 temperature stages as well as a heating or cooling ramp.

High-Temperature Presses
A special version machine, to be used for temperatures up to 500 degrees centigrade (normally: 300 °C) can be offered, featuring:
- cooling of base plates and columns
- heating plates made of special materials
- increased heating capacity
- cooling by means of an air/water mixture.

Testing Press 300 P
with simultaneous display of all setpoint/actual values
Examples of Temperature and Pressure Programs (Press Type P)

**Hot Mould Pressing with Direct Cooling**

Up to 5 pressure levels as well as 4 temperature levels and a cooling zone in phase 5 can be preselected (represented on the screen of a PC, printed out with record header for documentation purposes).

**Hot Mould Pressing with Cassette-Type Cooling**

After the pressing with several temperature and pressure levels, the press is opened, the cassette is introduced between the probe and the press-patens, thereafter the press is closed and the probe is cooled very rapidly.

**Ramp Cooling in Accordance with ASTM 1928**

When producing sheets to perform PE density tests, the procedure is as follows:

The temperature is to be maintained constant at 179 °C.

After a heating time of 5 min, cooling down to 70 °C at a rate of 15 K/min. with the machine closed.

Low pressure setting to be maintained for 1 min., subsequently to be raised to 200 bar.

**Programmed Heating and Pressures on Control Computer Type P/M**

Setpoint/actual value profiles of temperatures and pressures are visualised on the EL display of the control computer type M.
Ramp-Programmable Presses Type P/M

Special Features

- possibility to freely program up to 20 temperature and pressure ramps
- optimum assignment of parameters to temperature zones
- visualization of setpoint and actual values on a high-resolution EL screen
- multitasking operating system OS9

Application

- For tests for conformance with ASTM standards with continuous visual monitoring possibility of the testing procedure.
- For the production of fibre-reinforced resin mats involving long cycles and exact-processing requirements.
- For the processing of high-temperature materials.

Temperature Ramps

The type M program control enables temperature ramps from 1 to approx. 30 degrees/min. to be set.
Temperature range: 20 to 500°C.

Pressure Ramps

Any marches of pressure with pressure ramps and stages for increasing or decreasing pressure can be selected (by means of the proportional-control hydraulic system).
Pressure accuracy: 1 – 2 bar
Operating range: 2 to 250 bar.

Control Computer

- VME industrial computer with multitasking operating system OS9, rugged EL display and sealed keyboard
- window-oriented, menu-controlled user interface
- "thinking" program editor
- a program contains a maximum of 20 steps, for pressure and temperature each
- freely scalable line graphics (also during the process)
- adjustable temperature characteristic owing to state and range-dependent parameters.

Master computer with EL-display for laboratory press: type P/M
Additional Equipment

Moulds
Pressing plates, frames and compression moulds are produced to customer specifications.

Removal of Mineral Deposits
To maintain uniform cooling conditions, the mineral deposits have to be removed from the system at regular intervals.

Multi-Daylight Presses
For simultaneous compression moulding of several mouldings platen presses with 2, 3 or more daylight are available.

Closed Cooling System
The use of closed cooling systems prevents the formation of mineral deposits in the cooling channels (see photograph below: press 200P with closed cooling system).

Pneumatic Low Pressure System
The standard version already allows the setting of very low pressures (approx. 0.3 bar).
An additional pneumatic low pressure system enables variable extremely low pressures to be adjusted.
The total range selectable pressures is then 1 : 1000.

Roller Section for Mould Setting
Roller tables and sliding carriages are available to facilitate installation and removal of heavy moulds.

Measuring Systems
Additional measuring systems are available for:
- temperature of the heating plate
- temperature of the heating or cooling platen surface
- temperature of the probe
- ram stroke for generating a p-v (pressure-volume) diagram.

Special Presses
Stroke:
Presses with increased distance between tie-bars and longer strokes to install bulky moulds.

Speed:
Extremely high closing and working speeds are made possible with special hydraulic systems (e.g. for GMC pressing).
Examples of Platen Presses Available

Platen press 200 x 200 mm with proportional hydraulic control and programmed ramp control.

Platen press 400 x 400 mm, in high-temperature version with simple ramp-control.

Platen press 500 x 500 mm, high-temperature version for temperatures up to 450 °C; with programmed ramp control for the production of fibre-reinforced resin mats.
## Technical Data

<table>
<thead>
<tr>
<th>Presses Type P</th>
<th>200</th>
<th>300</th>
<th>400</th>
<th>500</th>
</tr>
</thead>
<tbody>
<tr>
<td>Useful platen size (mm)</td>
<td>196 x 196</td>
<td>296 x 296</td>
<td>396 x 396</td>
<td>496 x 496</td>
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<tr>
<td>Useful opening stroke (mm)</td>
<td>100</td>
<td>200</td>
<td>250</td>
<td>300</td>
</tr>
<tr>
<td>Pressing force (kN)</td>
<td>a 120</td>
<td>300</td>
<td>500</td>
<td>800</td>
</tr>
<tr>
<td></td>
<td>b 200</td>
<td>500</td>
<td>800</td>
<td>1300</td>
</tr>
<tr>
<td></td>
<td>c 300</td>
<td>800</td>
<td>1250</td>
<td>1800</td>
</tr>
<tr>
<td>Specific pressure (N/cm²)</td>
<td>a 320</td>
<td>350</td>
<td>320</td>
<td>320</td>
</tr>
<tr>
<td></td>
<td>b 500</td>
<td>570</td>
<td>500</td>
<td>460</td>
</tr>
<tr>
<td></td>
<td>c 800</td>
<td>920</td>
<td>800</td>
<td>730</td>
</tr>
<tr>
<td>Mot. driving power (kW)</td>
<td>0.8</td>
<td>2.5</td>
<td>/ /</td>
<td>/ /</td>
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<tr>
<td>Inst. heat output for 300 (kW)</td>
<td>2 x 3.6</td>
<td>2 x 8</td>
<td>2 x /8</td>
<td>2 x 28</td>
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<tr>
<td>Dimensions Type P</td>
<td>l x w (mm)</td>
<td>1000 x 500</td>
<td>1875 x 500</td>
<td>1760 x 670</td>
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<tr>
<td></td>
<td>Type P/M</td>
<td>l x w (mm)</td>
<td>1550 x 500</td>
<td>2225 x 500</td>
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<tr>
<td></td>
<td>Height (mm)</td>
<td>850</td>
<td>1625</td>
<td>1675</td>
</tr>
<tr>
<td>Weight (kg)</td>
<td>320</td>
<td>1000</td>
<td>1500</td>
<td>2300</td>
</tr>
</tbody>
</table>

## In addition, our product range also includes:

- twin screw kneaders
- roll mills
- calenders
- extruders
- mixers

Specifications subject to change!

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