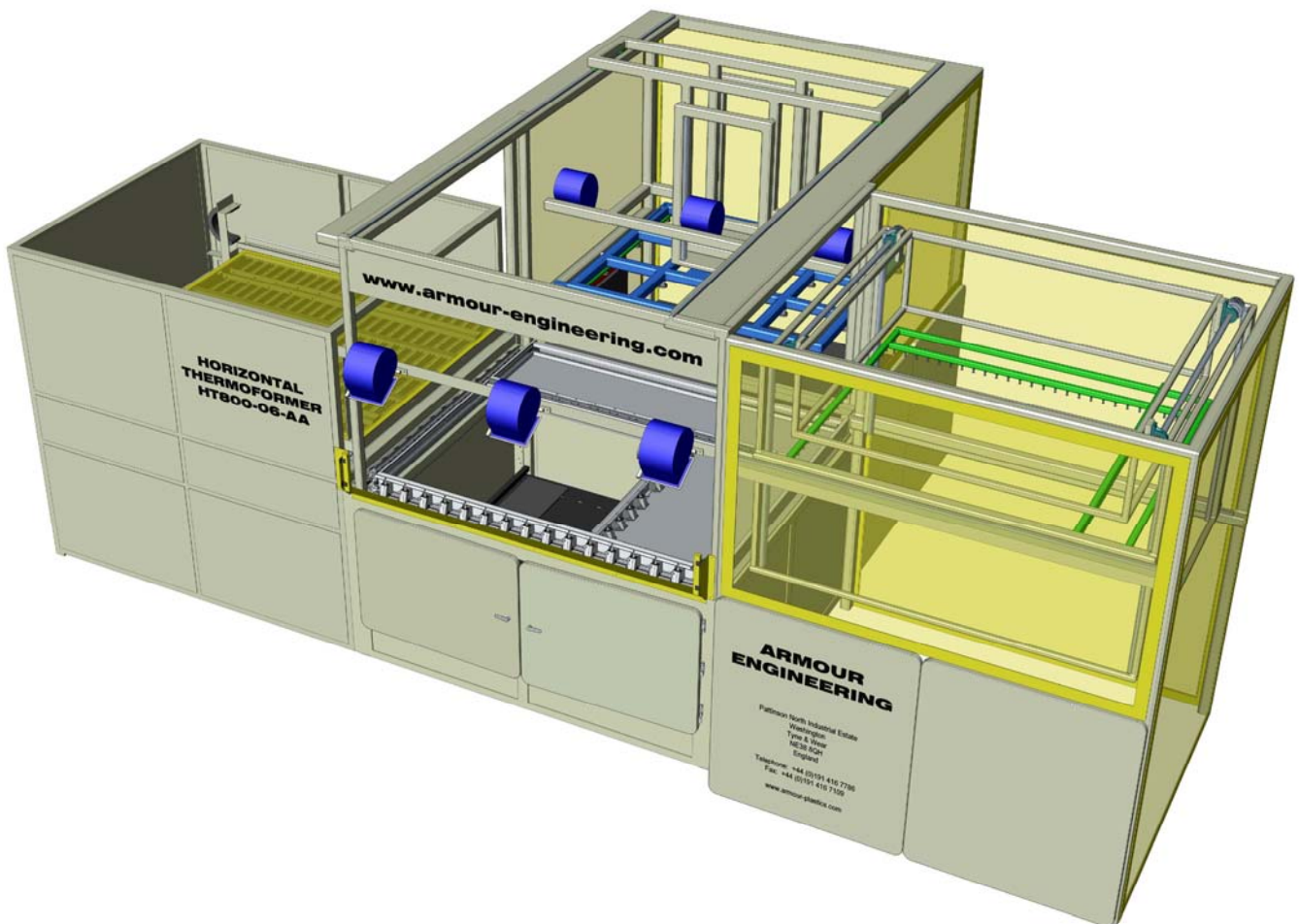




ARMOUR

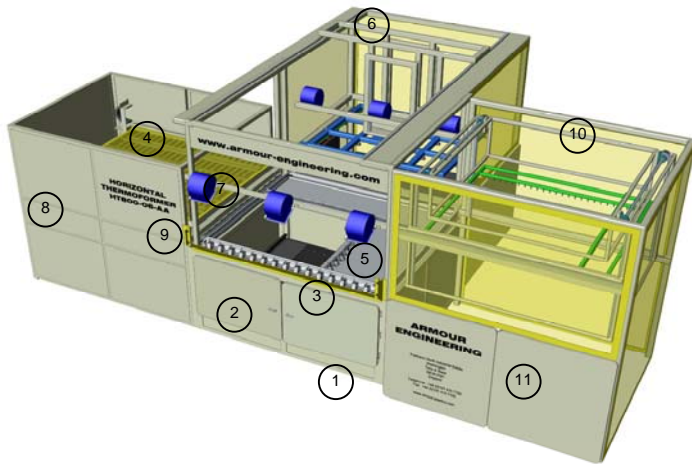
~ engineering for plastics

HT800-06-AA HORIZONTAL THERMOFORMER



Example image only

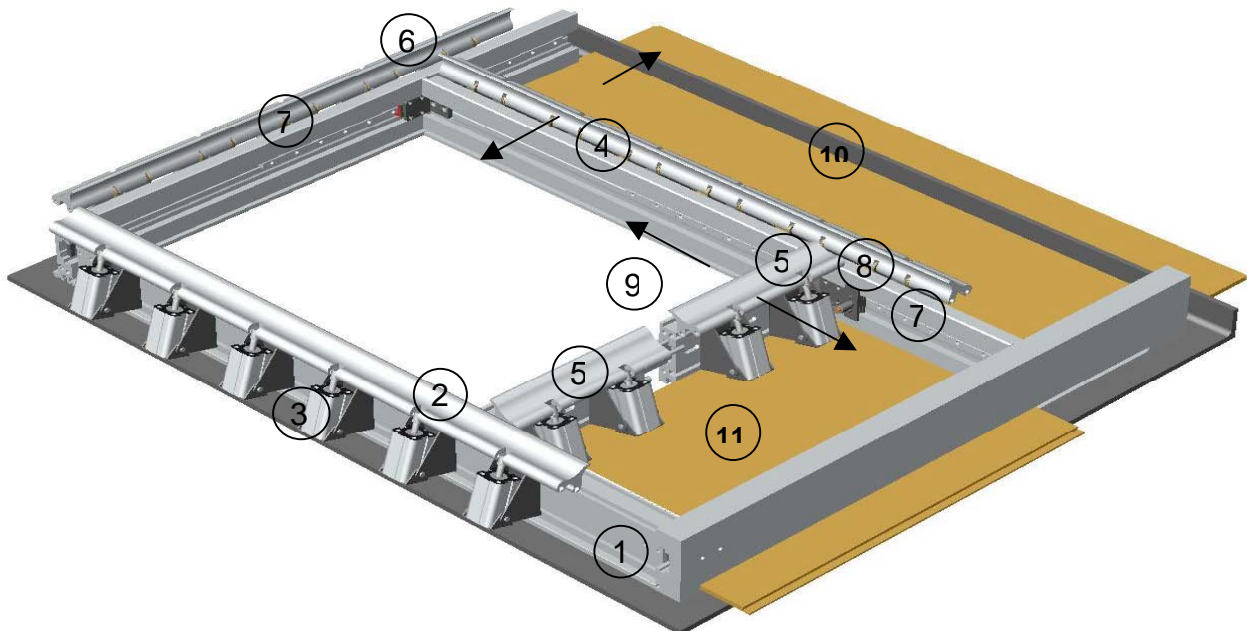
The HT800-06-AA Series Horizontal Forming Machine is designed to meet the needs of the General Vacuum Forming Industry across all major thermoforming applications. With automatic sheet load and product remove facilities integrated with many unique features, it provides a highly versatile and efficient production platform.



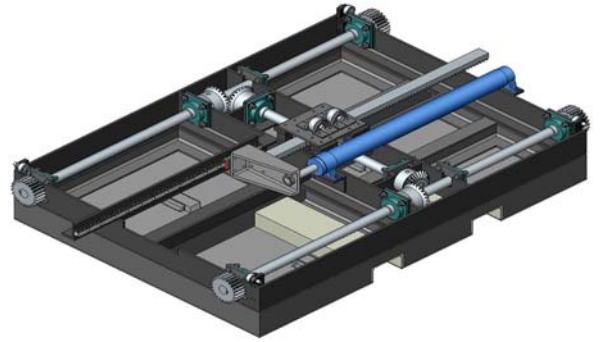
- | | |
|--------------------------|----------------------------|
| 1. Pressure cabinet | 7. Cooling fans |
| 2. Mould loading doors | 8. Heater retract position |
| 3. Clamping bars | 9. Light guard |
| 4. Heaters: Top & Bottom | 10. Product remove system |
| 5. Closing plates | 11. Product remove doors |
| 6. Sheet loader | |

All moulds datum to the front left corner of the machine, so it is easy for the operator to view and monitor the forming process. The heaters (4) are mounted in two banks, top & bottom for dual sided heating. A pyrometer is fitted to the machine to monitor the actual sheet temperature during the heating process (a second pyrometer monitors the product temperature during cooling). The sheet is loaded by the automatic sheet loader (6) and is prevented from sagging under gravity during the heating process by compressed air that is injected into the pressure cabinet (1). When the sheet has reached it's forming temperature the heaters switch off & retract to the standby position (8). The mould enters the sheet by means of the hydraulically operated table (if required the plastic can be pre-stretched to form a bubble by means of compressed air). The mould enters the plastic sheet and the vacuum is automatically applied. The cooling fans (7) are mounted on the front frame of the machine, and also on the leading edge of the sheet loader. When the cooling cycle is completed the clamps open and the automatic product remove then lifts and stacks the product. Operator safety is provided by light guards (9).

The Armour clamping bars have been specially designed for ease of set-up and fast tool changes. Each clamping bar is comprised of two high precision aluminium extrusions, a fixed bar (1) and a hinging clamping bar (2), which is actuated via a series of pneumatic cylinders (3). The size of the forming aperture can be varied by moving the main sliding bar (4) and the adjustable bar (5). Both of these are mounted on linear guides (6), and slide on high precision rails (7), and are locked in position with a locking handle (8). The forming length is infinitely adjustable along the slide. The forming width requires loose pieces to make up any gap (9) between the two adjustable bars. These can be easily fitted and are bolted in place using a steel brace. The aperture is sealed with the unique Armour sliding closing plates (10 & 11). The larger plate (10) is fixed to the main sliding bar and moves with it, covering the full width of the aperture, and (11) is made to suit the size of the mould. These plates can be made of high temperature plywood or aluminium. They seal automatically when the machine is operational by means of inflatable silicon seals that are fitted into the clamping bars.

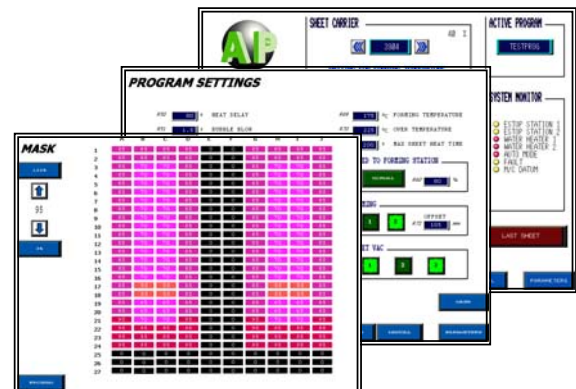


It is critical to the forming process that the progression of the mould into the sheet is smooth and controlled. Armour mould tables run on precision linear guides and rails, and are driven with hydraulic cylinders through large rack and pinion drive gears. Each machine is supplied with a self-contained hydraulic power pack incorporating an electrically driven hydraulic pump and oil reservoir, with solenoid valves controlling the cylinder movement. Variable table speed systems are also available as an option.



The top and bottom heater banks consist of a series of quartz infrared heating elements that are individually adjustable to allow complex heating patterns to be used. These heaters have a rapid response time and therefore energy is saved between cycles when the heaters switch off. The level of the acrylic sheet is maintained during the heating process by compressed air. The bottom heater bank is protected by ceramic glass.

Armour control systems use a Mitsubishi PLC to control the sequencing of the machine, and have a Proface touch screen as the user interface. Up to 1000 programs can be created and are stored on a Compact Flash card, allowing easy backup. Reporting facilities are available and .csv files can be exported for offline production analysis. The system is fitted with a modem to allow remote access by Armour Engineers for diagnostic checks and software upgrades. All machine software is written by Armour and therefore new versions and additional features can be developed.



MACHINE SPECIFICATION

| ELEMENT | SPECIFICATION | | | | | | | | | | | | |
|----------------------------|--|-----------------------|---------------|---------------------------|---------------|---------------------------|---------------|----------------------|--------|----------------------------|-------|------------------|-------------------------|
| Machine Capabilities | <table> <tr> <td>Maximum product size:</td> <td>3000 x 2500mm</td> </tr> <tr> <td>Maximum forming aperture:</td> <td>3014 x 2514mm</td> </tr> <tr> <td>Minimum forming aperture:</td> <td>2000 x 1800mm</td> </tr> <tr> <td>Maximum tool height:</td> <td>1000mm</td> </tr> <tr> <td>Maximum tool push through:</td> <td>700mm</td> </tr> <tr> <td>Cycles per hour:</td> <td>Dependant upon material</td> </tr> </table> | Maximum product size: | 3000 x 2500mm | Maximum forming aperture: | 3014 x 2514mm | Minimum forming aperture: | 2000 x 1800mm | Maximum tool height: | 1000mm | Maximum tool push through: | 700mm | Cycles per hour: | Dependant upon material |
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| Maximum tool push through: | 700mm | | | | | | | | | | | | |
| Cycles per hour: | Dependant upon material | | | | | | | | | | | | |

| | | |
|------------------------|--|---|
| Machine Construction | Main frame: Casing: Paint finish: | Rolled steel sections – BS EN 10025 material Sheet steel – BS EN 10025 material Textured powder coating |
| Clamping Bars | Material: Adjustment: | Extruded aluminium profile – Armour design By precision linear slides & make up pieces |
| Heating System | Front & rear banks of quartz infra-red heating elements Element size: Element power: Total elements per heater bank: Element distribution: Number of heating zones: Zone control: Maximum power rating: | 122 x 122mm 400W 480 24 wide x 20 deep 480 (each containing 1 top & 1 bottom element) Software controlled Power: 0 – 100% in 5% increments 384kW |
| Mould Table Movement | By hydraulic power through mechanical gearing Power-pack motor rating: Maximum pressure: | 7.5kW 2000psi |
| Vacuum System | Vacuum pump motor rating (when supplied): Vacuum pump flow rate: Vacuum tank: | 5.5kW 250m ³ /hr 850 litres |
| Product cooling | By cooling fans with directional adjustment Number of fans: Fan motor rating: Fan flow rate: Water mist: | 6 1000W 3500m ³ /hr 6 off – individually adjustable |
| Mould Heating Facility | Power rating (when supplied): On/Off timer from control system | 9kW |
| Control System | PLC controlled sequence. Touch screen user interface. Modem for remote diagnostic interrogation. | |
| Compressed Air | Minimum pressure: Dry filtered supply | 5.5 Bar |
| Electricity | 3 Phase supply + Neutral + Earth: Maximum power consumption: | 380/415V @ 50Hz 445kW |

example specification only - specification may be subject to change without notice

For further information contact
Armour Plastics Limited
 Engineering Division
 Pattinson Industrial Estate
 Washington, Tyne & Wear, NE38 8QH, England
 Telephone: +44 (0)191 416 7786 Fax: +44 (0)191 416 7109
sales@armour-engineering.com
www.armour-engineering.com