



TECHNICAL SPECIFICATION

ABP SERIES OF AUTOMATIC BLISTER PACKAGING SYSTEM

Ridat ABP series of machines are some of the most advanced models in the comprehensive range of RIDAT blister packaging equipment. These are designed for high volume users and in modular form to facilitate the use of the conveyor sections, as a standard fully automated blister sealing system.

It is a fully automatic inline blister packaging system which will feed the PVC or PET material from roll stock; form and separate the blister; transfer these blisters to sealing jigs; place backing card (or PVC/PET) onto the blister; heat seal the pack and finally transfer the completed pack to delivery conveyor

It consists of

- 1) FE Series Reel Feed High Speed Pressure Forming Machine
- 2) CE Series Precision Index High Speed Blister Sealing Conveyor

FE Series of Reel Feed High Speed Pressure Forming Machine

Forming capabilities

Model	1004FE	1607FE
Forming Area (Max)	10" x 4" 254mm x 102mm	16" x 7" 406mm x 178mm
Forming Depth (Max)	3 76mm	4" 102mm

Machine construction

The machine frame is constructed from substantial fully welded mild steel sections designed to provide solid and rigid chassis to avoid the need of special foundations. Front access via easy open doors for tool changing and maintenance. The machine is fully guarded and conforms to current European safety legislation.

The forming platen, heating platen and guillotine are of heavy duty fabrication mounted onto knife edge and roller tool bearing for smooth, easy adjustment of pitch lengths during changes. Two column constructions with linear ball bushing gives absolute die set accuracy.

Heating

Contact heating is employed to give rapid, precise heating of the plastic necessary for high speed forming. The heating elements used are the cartridge type and are embedded into the heating bolster. Accurate temperature of the platen is maintained by thermocouple via digital temperature controller.

Forming

Forming is by compressed air, normally between 0.7 and 2.7 atmospheres based on the product characteristic and material used. It can be fitted with plug-assist, if required. Ideally, the mould has 3 cavities.



Material Transport

The material is transported by a pair of moving clamps and is powered by pneumatic cylinder cushioned with shock absorbers. Moving clamps are air powered narrow edge clamp bars running the length of the machine.

As the edge flange (usually a minimum of 9mm on either side) is clamped for indexing the material, there is no waste.

Blister Separation

These are slit using standard Stanley knife blades fitted to adjustable holders. These are then guillotined.

Blister Pick up and Transfer

After forming the blister and individualising it by slitting and cross-cut guillotining, each blister is automatically picked-up by a vacuum shoe or sucker and transferred to the delivery station for standalone units or to the jigs on the conveyor sealer. During the transfer from the former, the blister centres are spread out to the new centres to line-up with the jig pockets. All these transfer motions use linear bushes with hardened guide rods actuated by pneumatic cylinders.

Comprehensive Controls

Close control of all stages is given by a particularly comprehensive range of controls embodying a microprocessor on a centralised panel and an operator HMI panel through which all the processing facets can be set.

CE Series of Precision Index High Speed Conveyor Blister Sealer

Tray Size

Model	1405CE	1607CE
	14" x 5"	16" x 7"
	356mm x 125mm	406mm x 178mm

This will enable the card to be placed across the tray with pin locators for card registration.

Number of Trays:

Typically, 30 - 36 trays are used to give a loading section of at least 4 trays of free accessible conveyor length. This would provide adequate space for an operator on each side of the conveyor to place the product(s) onto the blisters. For automatic product feeders, additional trays may be required.

Tray Construction & Indexing System:

Each tray is an aluminium plate, into which the actual wooden jigs are attached with quarter-turn fasteners for easy location and quick replacement. The trays are secured to the precision roller chain by proprietary angle bracket attachments on the trap centre-lines, which permit the trays to pivot and return along the outside of the conveyor.

The tray chain is indexed round the conveyor via large chain wheels. The exit end chain wheel shaft is driven by a parallel cam index box from a variable speed motor giving a controlled index and stop function.



Speed of Conveyor & Accessories:

The variable speed motor of the conveyor also drives the former, so that the two units are completely synchronised. Experience has shown that to permit the necessary heating, forming, transfers, card placement and sealing functions to operate a maximum speed of 22 cycles / min is the most practical maximum speed possible.

The accuracy of index at any speed between these two parameters is a maximum of + /- 0.5mm.

Card Selection & Placement:

The backing cards (or film) are manually stacked onto angled hoppers mounted across the conveyor, to hold approx. 1000 cards (or film) of 150 - 250 μ thickness. Selection and placement is once again via a heavy duty multi-venturi vacuum pump ensuring that sufficient vacuum is available for positive selection without having to set the card retaining lugs too fine. A simple 'out' and 'back' vacuum plate, operated by a pneumatic cylinder mounted to a rotating bar, is arranged to select and place the cards (or film).

Flat Platen Sealing Presses:

Due to the speed of operation, we employ a unique twin sealing presses to seal the blister to the card (or film). Each platen has its own electronic temperature controller and each platen can be switched in or out function, in the event of slowing the machine down to a speed where a double sealing action might not be necessary.

These presses are down stroke only, pressing against the jig tray, which in turn is positioned over a solid back-up plate, to support the jig tray during this function, at the station on the conveyor.

Automatic Unload of Finished Packaged Product:

The final packaged product is removed from the trays by vacuum pads, lifted and transferred beyond the confines of the conveyor where it is placed onto whatever medium the pack required for cartoning, etc.

Automatic Sensing:

Photo-electric detection ensures that the card placing section will not function if a blister is not present in the jig, & following from this, if card is not present, the platen Sealing Presses will not actuate. This ensures that a blister without a card will not stick to the heated platens, or a card or a card without a blister will not be stuck to the jig plates.

Overload Conveyor Protection:

To protect the conveyor against a 'jam-up' an overload protection clutch is fitted to the pin wheel shaft - any overload above the torque necessary to set the conveyor in motion will cause the drive to automatically disconnect. This unit is single position pick-up type, which once the article causing the jam has been removed, the conveyor can manually be pulled round via the jig trays until the clutch drops back into the locked position where it automatically ensures that the conveyor is in the correct position for its sequence function.

Auto Re-engagement & Disengagement:

The conveyor is fitted with a single position pick-up clutch and brake so that the former can be stopped at any time independently, allowing the conveyor to continue its tray feeding motion whilst the former is stopped. This enables the conveyor to be used as an independent conveyor sealing press should the need ever arise. Upon restarting the former, auto engagement of the former functions in the correct sequence is assured without the operator having to worry about it when the start button is pressed

Control Consul:

Centralised control using plc and user-friendly HMI operator panel is fitted as standard. Additional each heated platen has its own electronic temperature controller.



Guarding

Machine guarding is in accordance with the recommendations of the U.K. Health & Safety at Work Act and the whole system conforms to Machinery Directive 06/42/EC, Low Voltage Directive 06/95/EC and Electromagnetic Compatibility Directive 04/108/EC to harmonized standards. The machine will be CE marked in accordance with current European legislation and a Certificate of Conformity will be provided as part of the standard documentation

Proprietary components include

Servo drive system	-	Mitsubishi
Pneumatic Cylinders & Valves	-	Festo/SMC
Heating Elements	-	Hedin
PLC & HMI Panel	-	Mitsubishi
Control switch-gear	-	Siemens / Moeller

		1004ABP	1607ABP
Forming section (Maximum dimensions)			
Blister width	mm	254	406
	inch	10	16
Blister length	mm	102	178
Blister depth	mm	76	102
Material width	mm	254	406
Conveyor section (Maximum dimensions)			
Card length	mm	356	457
	inch	14	18
Card width	mm	127	178
Blister depth	mm	75	102
Total Power Consumption	kW	8.8	15.0
Air Consumption per cycle	litres	85	226
Floor area approximate	mm	457 x 122	793 x 152

The above figures should be taken as typical example only: layout drawings and complete specifications will be supplied for specific machines. Standard power supplies are 415 V 50 Hz phase 4 wire and clean, water-free air at 5.4 atrn (80 lbf/in2)