

# Pal-Linear

High-speed in-line palletizer



**GEBO**

# Pal-Linear

IN THE **GEBO** RANGE, THE **PAL-LINEAR** IS THE MOST ADVANCED MODEL IN THE SECTOR OF HIGH-SPEED PALLETIZING (UP TO **660** LAYERS/HOUR). WITH HIGH-LEVEL INFEED AND A MOBILE PALLET, THIS MACHINE MAKES OPTIMAL USE OF FLOOR SPACE. THE **PAL-LINEAR** IS SUITABLE FOR PALLETIZING ALL KINDS OF PARALLELEPIPED PACKS: CARTONS, TRAYS, SHRINK-WRAPPED BUNDLES WITH OR WITHOUT PADS, HI-CONES AND MID-CONES.

Thanks to the in-line arrangement with the product fed from above, the Pal-Linear can reach very high speeds and at the same time guarantee gentle product handling. This is particularly important in handling items only packaged in thermoplastic film. Very popular in the world of beverage, the Pal-Linear can also meet palletizing requirements in other sectors, such as food and bakery.

The advantages of the Pal-Linear include very high outputs, reliability in terms of duration and sturdiness, high structural rigidity, low noise levels, user-friendly format changeovers, and simple direct access for inspection, cleaning, and maintenance. Pal-Linear is thus one of the most efficient, reliable and durable palletizers on the market today.





# Main features

- Main structure made of molded sheet-steel profiles with four uprights to give the system rigidity and user-friendly accessibility and cleaning
- Frame-type pallet lifter with four closed-circuit chains, driven by two mechanically coupled geared motors with oil bath
- Discharge cart with idle rollers divides in two to create any kind of pattern both long and cross ways in space
- Conveyor for transferring packs, suitable also for handling unstable products, with independent drive
- System of dividing into several rows with mobile plates
- Movement controlled by PLC to manage all the activities linked to the functioning of the machine, and to signal any malfunctions
- Control panel for operator interface providing indications in real time and allowing for manual execution of operations usually carried out by the machine
- Service platform to access work area
- Transparent covering over the whole conveying area enabling the operator to monitor the working stages
- Operator and control safety devices guaranteeing the proper functioning of the machine.



# How the machine works

Packs arrive from the packaging line in single or double rows on a rubber-covered belt to be separated by a plate divider according to the pattern required.

Having crossed the programming zone, the packs are brought together by lateral guides against a pneumatic halting device. This will only release the row of packs when the layer has been completed.

The layer is first fed into one or two accumulation zones and then onto the discharge platform. After being centered, the layer is released on the pallet by sliding open the platform in two halves; pads are inserted, if required.

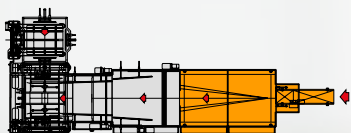
The lifter then goes down a layer to enable the platform to close again to begin a new cycle. Once the pallet has been completely stacked and deposited on the conveyor, the machine is ready for a new cycle.

## INFEEED/DIVIDER AREA

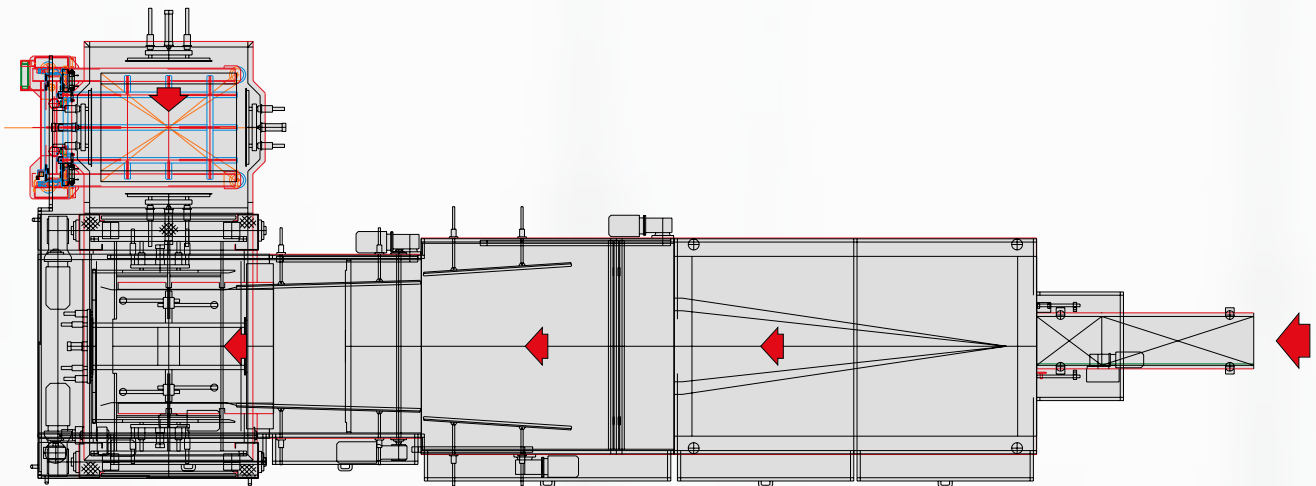
In the Pal-Linear, the product infeed may be configured as a single channel with seven exits or two entry channels and eight exits: the choice depends on production speed.

Both solutions have one or two rubber mat spacers, which count the products at the divider entry. Equipped with adjustable guides, the divider controls the formation of various rows making up the layer.

Guide adjustment can be carried out manually by setting countershafts, all on the operator side. They have a numerical indication of the correct position. Regulation can also be carried out automatically using micro gear motors equipped with a position controller.







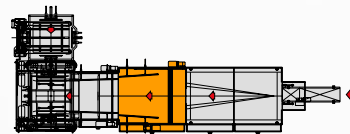
### ROTATION/LAYER PRE-FORMATION AREA

After the infeed stage, the packs are programmed according to the pattern required.

The various models of shock-absorbed rotation adopted (from below, above or the side) are chosen according to the kind of product/container being handled. The packs are then pushed up to the separation area barriers until the layer is completed. At the end of this operation they are compacted laterally and transferred to the next stage.

The conveyors for programming and layer formation are made up of small-diameter rollers and driven independently by flat belts; the motors are equipped with a frequency variator for better product handling.

Rotation adjustment can be effected either manually or automatically.



Pack rotation from above



Side Pack rotation



Pack rotation from below

## ACCUMULATION/LAYER DISCHARGE AREA

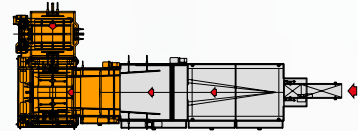
The newly-formed layer is conveyed and accumulated in one or two zones, depending on production requirements (i.e. two zones if there is a continuous flow of products to infeed during pallet changeover); a multibar device pushes the layer from one area to another maintaining the separation between the different sequence layers.

As in the previous sections, the conveyors have independent drives with flat belts.

At the end of operation, the layer is channeled onto the discharge platform, and squared up on all four sides. It is released onto the pallet by opening the platform into two halves. The pad, if required, is then placed in position, the pallet descends and the platform closes again, ready for the next cycle.

The table conveyor is made up of idle rollers to enable a change in direction without damaging the product bottom. Squaring is achieved by side guides controlled by pneumatic cylinders or geared motors.

The distribution of the pads is achieved by a suction head which picks up the pad from the magazine and places it on the newly released layer. Magazine recharging is automatic (with a motorized lifter) or manual (stationary magazine). The system can handle pads for whole or half pallets.



Multi-layer suction device



Layer compacting area



Layer Pusher



# Operator safety

## and control devices on the machine

The Pal-Linear is equipped with operator safety devices which stop the machine in the following conditions:

- Opening of upper channel doors
- Opening of interlayer doors
- Opening of palletizer doors
- Access to the lifter through the discharge conveyor
- Access to the pallet magazine
- Emergency button being pressed.

The control devices for the machine, managed by PLC and visualized on the operator interface have the following functions:

- Stop the machine if the product/pad/pallet are off-center
- Signal the need for maintenance operations.



## Technical description

Pack size limits	Min: 130x190 - Max: 550x450
Output	660 layers/h (according to product type and packs per layer)
Pallet load capacity	1500 Kg
Pallet size	1250 x 1250 mm
Pallet height	2000 / 2400 mm (including empty pallet)
Power	25 kW approx.
Free air consumption	200 N.L./1'
Air feed pressure	6 ATM
Controls	24 V DC
Polyurethane coating	RAL 7035
Motor and electric system guards	IP 54 C.E.I. UNEL

# First in line

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In a complex industry where know-how is everything, Gebo Cermex is formed from the union of two strong brands: Gebo & Cermex, gathering packaging line engineering experience across a range of market segments from beverages and food to pharmaceuticals, via home and personal care.

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**Gebo Packaging Solutions Italy**  
Via La Spezia, 241/A • 43126 Parma - Italy  
Tel.: +39 0521 9991

**Gebo Cermex Headquarters**  
Rue du Commerce, CS 73455 Reichstett • 67455 Mundolsheim Cedex - France  
Tel.: +33 (0)3 88 18 38 50

■ [contact.us@gebocermex.com](mailto:contact.us@gebocermex.com) ■ [www.gebocermex.com](http://www.gebocermex.com)



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