

# Tray sealer

## Machine Case Study



WITH INDEXING FLIGHT BAR DRIVE SYSTEM

- Easy axes positioning
- First-class temperature control
- S-curve motion control profiles

# Tray sealer with indexing flight bar drive system

## Machine description

Empty trays are loaded by a tray denester on the infeed line and conveyed up to the sealing station. The sealing operation consists in welding a thermoplastic film on the edges of the trays, the operation being performed in a vacuum or in a neutral gas atmosphere. Before any sealing operation, a new film is unwind, positionned over the trays, welded on the edge of the trays and wind again on a scrap roll.

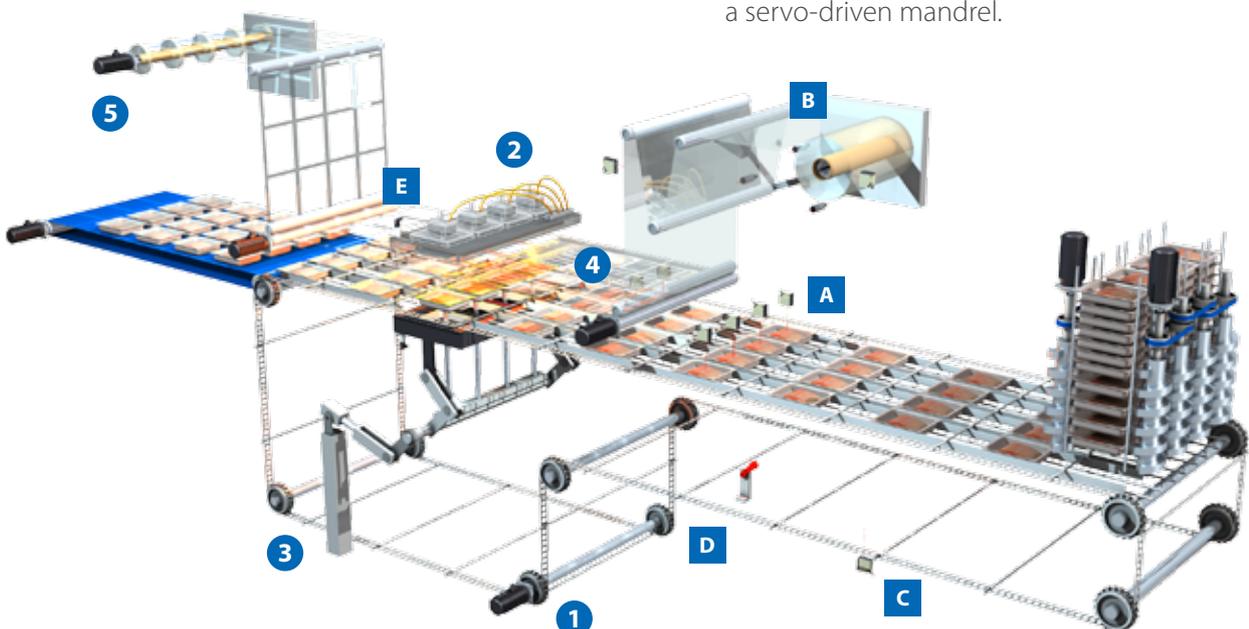
- A** Tray entry detection
- B** Upper and lower limit positions of the dancing arm
- C** Push-bar withdrawn position
- D** Position of maximum advance
- E** Differential pressure sensor

## Flight bar drive system

Trays are displaced over the entire length of the machine by a transport system provided with a series of transverse push bars which are equidistantly mounted between two lateral driving chains.

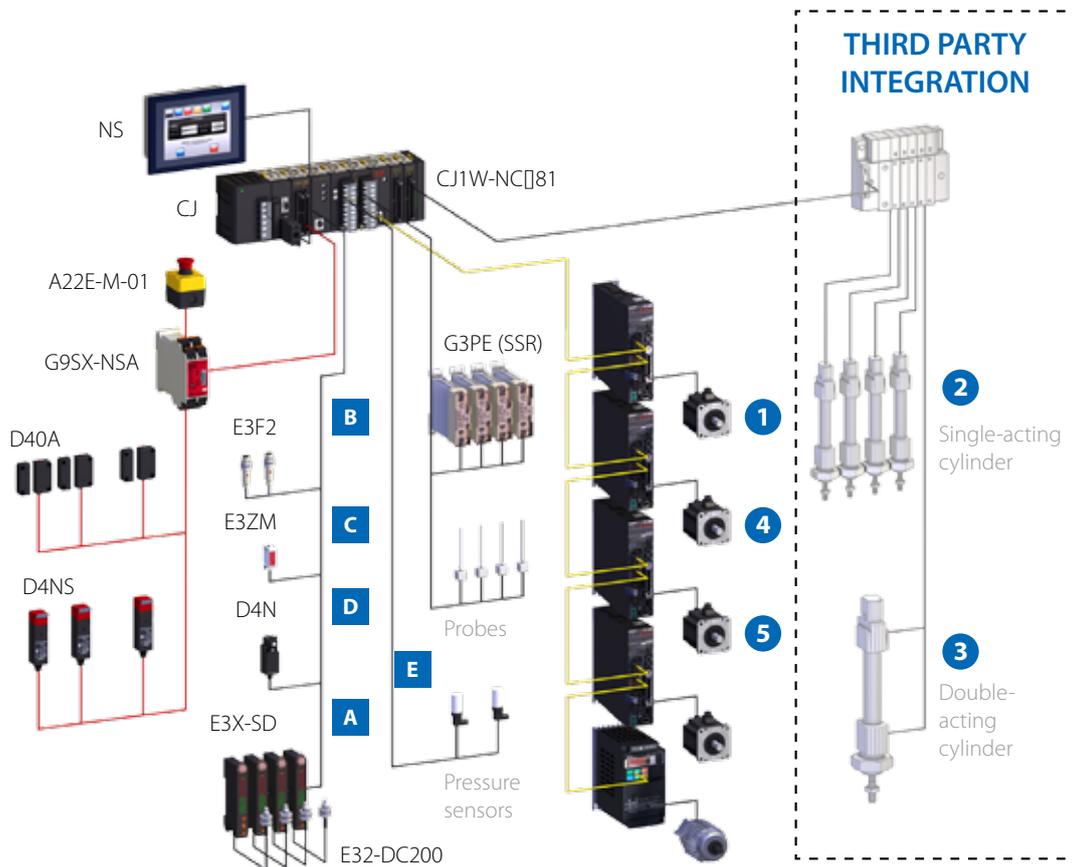
## Machine Function

- 1 Chain-Driven Indexer**  
Single conveyor comprising a series of transverse bars with two lateral driving chains.
- 2 Sealing Station**  
Top bell-housing which contains 4 welding heads, bottom tank and bridge plates.
- 3 Lifting System**  
The lower mould can be displaced upwardly by a pneumatic system.
- 4 Film Feeding**  
A dancing arm system ensures the film tension control. A servo-driven pinch roller drives the film.
- 5 Film Waste Rewinder**  
The skeleton of lidding material is re-wound onto a servo-driven mandrel.



## Your automation partner in packaging

We Automate Machines! We supply all the automation products for Tray sealers, including the logic and motion or hybrid controller. In addition we provide all motors, drives, position sensors, safety devices, temperature sensors and other panel components. All devices are easy to integrate and carry the Omron mark of quality and reliability.



### Easy axis positioning

A position control card (CJ1W-NC81) is used to connect and control all the drives of the machine with built-in EtherCAT as motion bus. No need for complex wiring and individual parametrisation. All information is available through one access point, one program.

### S-curve speed profile

The servo-drives (R88D-KN-ECT) speed profile can be programmed in the PLC with a standard PLCopen FB library in order to adapt, for example, the acceleration and deceleration of the push-bar according to the contents of the tray, in particular to avoid liquids slopping onto the seal area.

### First-class temperature control for perfect seal

A 4-loop temperature control unit (CJ1W-TC002) regulates individually the temperature of 4 heater plates. The 2-PID control and the auto-tuning function enable each temperature control loop to provide answers with minimal overshoot at startup as well as give a good response to disturbance during production. The result is a perfect seal right from the first tray which has an easy-peel film.

### The right sensor for the right function

The wide range of Omron sensors allows you to detect transparent trays (E3X-SD), index flight bar position (HL-5000 / E3ZM) and detect the limit positions of the dancing arm (E3F2).

*Would you like to know more?*

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