CERMEX ROBOTICS

PRODUCT HANDLING AND CASE PACKING

Performance through Understanding

Sidel

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PRODUCT HANDLING

Pre-collation / batch forming

- Batch preparation prior to case packing /shrink-wrapping Unstable but stackable products collated in a forming frame
- Products oriented according to configuration and display requirements
- Handling of individual or multiple products

Product flow management

- Continuous flow distribution between several gripping arms (from one to x number of connected plug & play robots) with no accumulation
- Machine operation by standard software controlling a wide variety of algorithms to permanently optimize flow management
  - Machine start-up, run-out...
  - Batch collation, case loading, assortment
  - Degraded modes for production continuity if an incident occurs
- Interfacing with detection systems (sensor, 2D vision, 3D scanner, etc.)

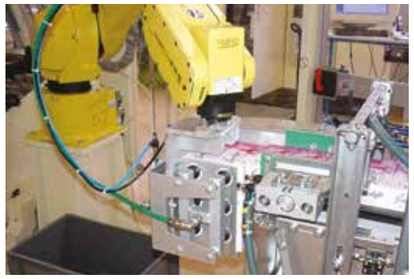
Lightweight tooling

- 30% reduction on average in relation to traditional gripping heads
  - Association of composite materials (carbon, aluminum in a honeycomb structure)
  - Agglomerated polymers by 3D printing
- Various types of gripping tooling to preserve products: membranes, suction cups, grippers
- Optimization of the choice of loading arms, saving in energy Protection of tooling by “intelligent” head safety mechanism, depending on the application

Product assortment

- Forming of mixed product batches
  - Directly in the robot tooling
  - Robotic preparation upstream from the case packer depending on the speed and number of lanes/product references
- Flexible solution for format changeovers
- All configurations can be parameterized on the Human Machine Interface (HMI)

CASE PACKING

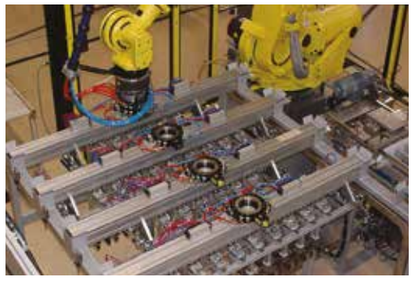


Complete range of loading arms

- Loading arms from 2 to 6 axes
- Optimization of the choice of arm depending on speed, payload and layout criteria
- Compliance with manufacturer guidelines for increased life span
- Smooth and accurate movements with optimum product protection
- Controlled presentation of products in the transit packaging

Flexible products

- Perfectly adapted to bags, stand-up pouches (Doypacks®), flowpacks, etc.
- Handling of products upright or lying flat
- Precise movements to protect products whatever their contents (liquid, solid, pasty, viscous) and features (cap, straw, etc.)
- Modular design allowing unit to be sized in accordance with the required speed and product contents/weight



Automatic format changeovers

- Easy-to-dismantle gripping tooling (as a whole or grippers only)
- Robot capable of changing automatically
  - its gripping tooling
  - other tooling on the machine (loading funnel, comb, etc.)
  - certain adjustments

HMI and additional operations

- Advanced PC-based Human Machine Interface allowing natural interaction between the operator, the robots and other peripheral elements, without expertise in robotics
- Trajectory configuration, step by step modes, help views centralized on the HMI
- Optional management of layer card and product wedge insertion
- Product quality control by 2D or 3D vision system and Track & Trace function for serialization

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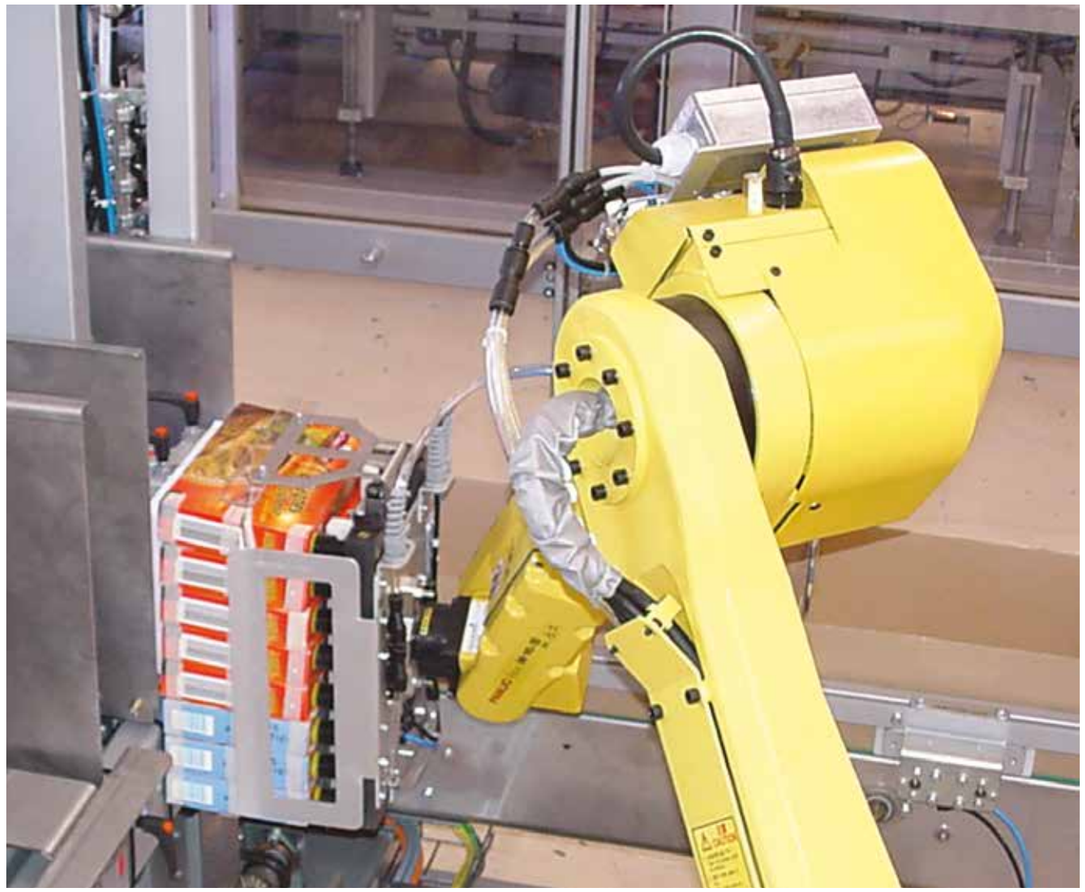

- Complete range of robot loading arms to meet all speed/payload/ layout requirements
- Simplification of product collation for improved access as well as greater speed/ease in format changeovers
- Customized, lightweight gripping tooling
- Flexibility and versatility of the robot concept

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FOR FLEXIBLE PACKAGING

ROBOTIZATION BROADENS YOUR HORIZONS FOR PACKING FLEXIBLE PRODUCTS INTO CASES:

ADVANTAGES

- Simplification of product collation for improved access as well as greater speed/ease in size changeovers
- Smooth and accurate movements thanks to Delta, 4 or 6-axis robots
- Pendulum design of robots giving maximum operator access
- Freedom in layout of product and case conveyors
- 2D or 3D vision system for robot guiding and product quality control (option)

PERFORMANCE

- Machine operation based on standard software controlling a wide variety of algorithms to permanently optimize flow management: start-up, run-outs, degraded mode for production continuity if an incident occurs
- Speed: 50 to 300 products per minute
- Customized, lightweight gripping tooling (with grippers, suction cups, etc.) in carbon/ aluminum or agglomerated polymers by 3D printing

- Solution perfectly adapted to products that are unstable, deformable or difficult to accumulate
- Principle based on the combination of standard plug & play modules (comprising a frame and robot gripping arm) and flow distribution intelligence
- Complete range of robot loading arms to meet all speed/payload/layout requirements

Sidel is a leading provider of equipment and services solutions for packaging beverage, food, home and personal care products in PET, can, glass and other materials.

With over 40,000 machines installed in more than 190 countries, we have nearly 170 years of proven experience, with a strong focus on the factory of tomorrow with advanced systems, line engineering and innovation. Our 5,500+ employees worldwide are passionate about providing solutions that fulfil customer needs and boost the **performance** of their lines, products and businesses.

Delivering this level of performance requires that we stay flexible. We continuously ensure we **understand** our customers' changing challenges and commit to meeting their unique performance and sustainability goals. We do this through dialogue and by understanding the needs of their markets, production and value chains. In turn, we apply our solid technical knowledge and smart data analytics to ensure lifetime productivity reaches its full potential.

We call it **Performance through Understanding**.

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