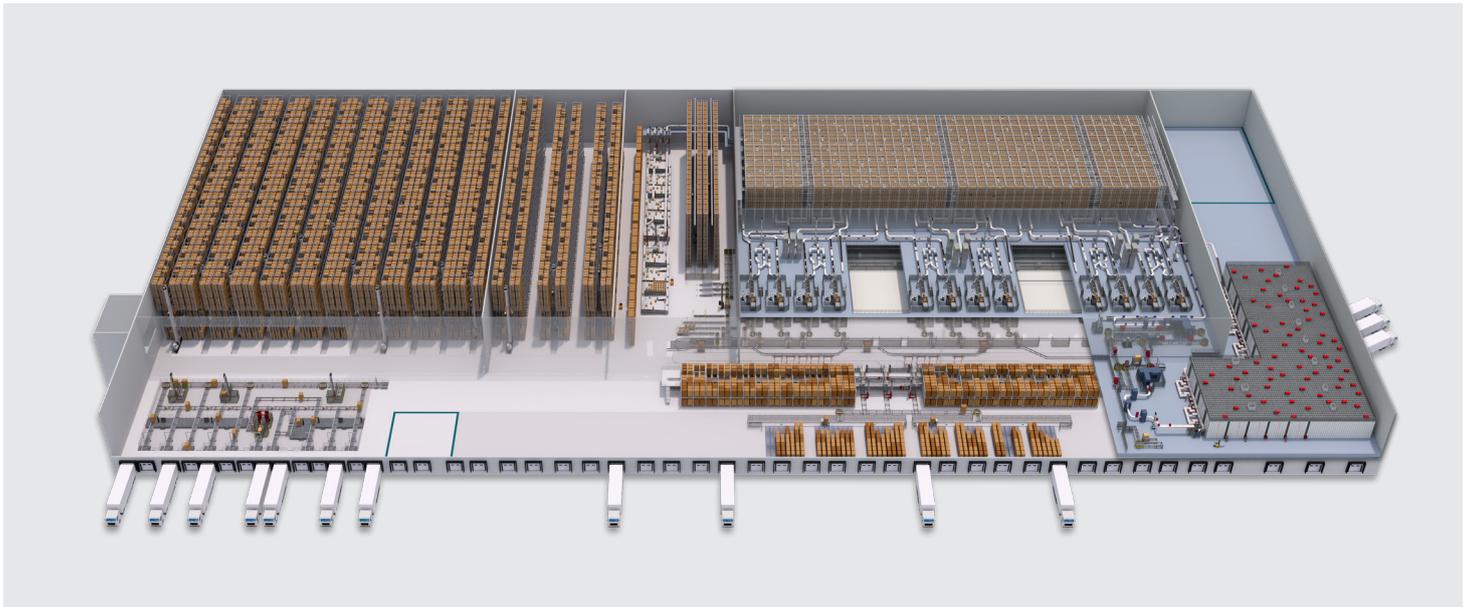


# Fully automated order picking of mixed case pallets



## Fast and reliable – automated case picking for the challenges of today and tomorrow

Retailers, beverage, FMCG industry and 3PL are facing many challenges today. The retail world has changed a lot in the last few years, creating new challenges. Rising business costs, increasing SKU volumes, fewer workers, and the need for scale all mean that companies are looking to adapt fast. If you're a large or mid-sized company with a complex fulfillment network, change may not be easy. That's why grocers and other retailers are using automated, mixed-case palletizing to meet their store- and aisle-friendly fulfillment goals.

ACPαQ is a universally applicable solution for fully automated order picking of mixed case pallets based on customers' requirements. It combines Swisslog's long-term experience in building logistics solutions and best-in-class KUKA robotics.

The solution is a combination of proven intralogistics technology. It is configured using modules and is scalable for small, mid-size and large distribution centers.

### Benefits

#### Reliable

Order picking by robots improves picking quality and quantity. Unique gripper type allows gentle handling of various package types.

#### Efficient

Optimized ROI and reduced labor costs thanks to compact solution design and best-in-class robotic performance. Special gripper allows picking of up to 4 cases per move.

#### Flexible

The modular design allows growing companies to increase their capacity and efficiently handle peak demands. The solution is suited for small, medium and large companies.

# Solution for high throughput and fast delivery

## The solution design

ACPaQ stands for our highly automated case picking solution, designed to create the 'WOW' pallet for our customers. This data-driven and software-integrated palletizing solution seamlessly combines automated depalletizing, light goods conveyors for safe transport, and a shuttle system for case buffering, along with fully automated palletizing robots.

Our system leverages advanced SYNQ Software and LBM Puzzle Software to orchestrate the entire solution, ensuring the creation of the 'WOW' pallet. We achieve exceptional performance by utilizing our proven, in-house manufactured components such as ProMove, Vectura, CycloneCarrier, and LightGoods, while seamlessly integrating AutoStore into the solution

## Robot solution RowPaQ and case buffer



## Software



### RowPaQ

The robot solution is designed for mixed row palletizing and consists of a KUKA palletizing robot and a finger row gripper.

- Builds store friendly pallets for further in-store efficiency gains
- Produces order pallets and roll cages on demand and in sequence
- Handles a wide range of case types safely and securely

### Gripper

The gripper is an unique 4 fork row gripper that can handle multiple cases. Not only single SKUs but also units of different dimensions can be processed simultaneously. This unique gripper type allows for gentle handling of multiple products and various package types such as cartons, crates, trays or shrink wrapped products. All 4 units can also be placed at different locations on the pallet.

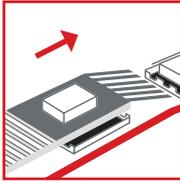
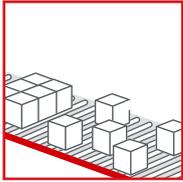
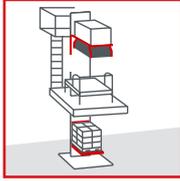
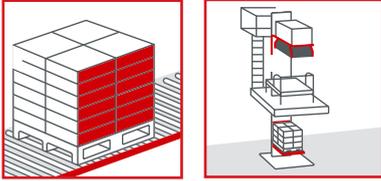
### Mixed case palletizing software

In order to build stable pallet loads in a defined sequence based on different customer requirements a mixed case palletizing software is applied. Thus palletizing can be organized in line with individual store layout to replenish store shelves in an optimized way to save time and cost. Depending on the customer's needs we can e.g. provide also store friendliness palletizing.

### SynQ

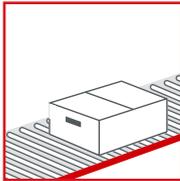
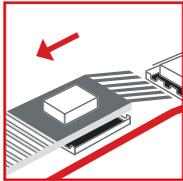
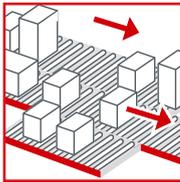
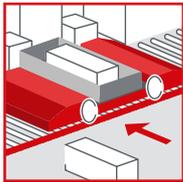
The entire ACPaQ system is managed by Swisslog's intelligent warehouse management software SynQ. It selects the cases required for order fulfillment and creates retrieval orders and activates and controls all movements within the system. The entire storage system, its components and software are perfectly integrated to ensure a reliable and transparent operation.

# Automated case picking process



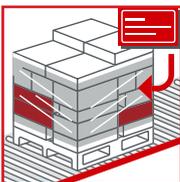
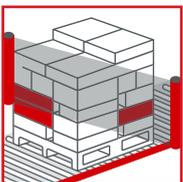
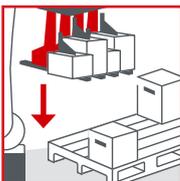
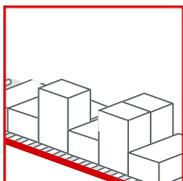
## Incoming goods, de-palletizing and descrambling

- 1 Goods arrive in homogenous pallets
- 2 They are automatically
  - a) stored in the pallet storage, or
  - b) depalletized layer by layer by a depalletizing robot for replenishment
- 3 The layers are descrambled
- 4 The single cases are loaded automatically into trays



## Case buffering and sequencing

- 5 The cases are stored in a multi-level storage served by CycloneCarrier for case buffering
- 6 After order assignment the cases are released from the case buffer and are put into the right sequence by the sequencer
- 7 The single cases are unloaded from the trays
- 8 Single case will be provided to the mixed case palletizing cell

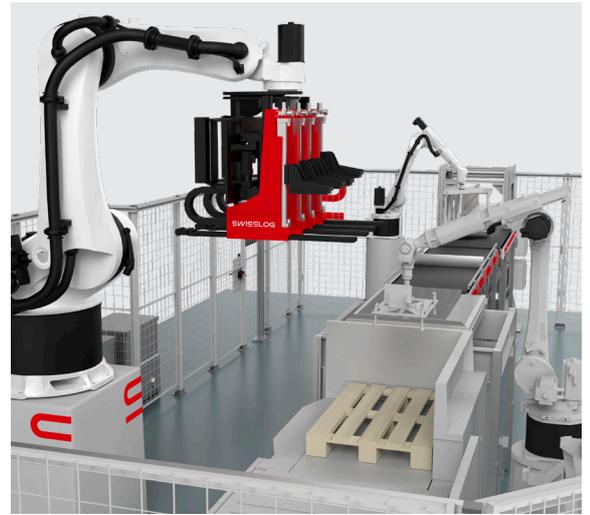


## Mixed case palletizing and wrapping

- 9 The conveyor between the tray unloader and the palletizer forms a row of cases according to the palletizing pattern which is released when the pick-up conveyor is empty
- 10 The RowPaQ palletizes up to four cases in a single movement allowing a row-by-row principle
- 11 The order pallets are load secured by a wrapping machine in the robot station
- 12 The secured pallet is labelled and transported to the dispatching area

**Facts**

Product range	Almost all types of cartons, plastic wrapped packages or bins.
Small tray load	up to 24 kg
Large tray load	up to 35 kg
Min. case dimensions (L x W x H)	125 mm x 125 mm x 50 mm
Max. case dimensions (L x W x H)	600 mm x 400 mm x 400 mm
Temperature range	Ambient environment: from 5 °C to 40 °C (41 °F to 104 °F)
Pallets	Various types of pallets and roll cages



# About Swisslog

**Design**

In today's competitive world, companies must be able to deliver the right orders to the right customers at the right time. Errors and delays in order fulfillment can have a lasting negative impact on the brand – but maintaining high stock levels ties up capital and affects flexibility.

**Develop**

As a full-service provider of automated intralogistics systems, Swisslog delivers everything companies need to optimize logistics from planning through implementation.

**Deliver**

Our order fulfillment and inventory solutions enable companies to achieve the highest throughput at the lowest cost, efficiently handle large catalogues of SKUs, and accurately meet delivery demands and requirements.



**Consult**



**Analyze**



**Design Variants**



**Select the Solution**



**Engineering**



**Integration**



**Installation**



**Ramp Up**



**Preventive Maintenance**



**24/7 Support**



**Optimization & Spare Parts**



**Modernization & Expansion**

