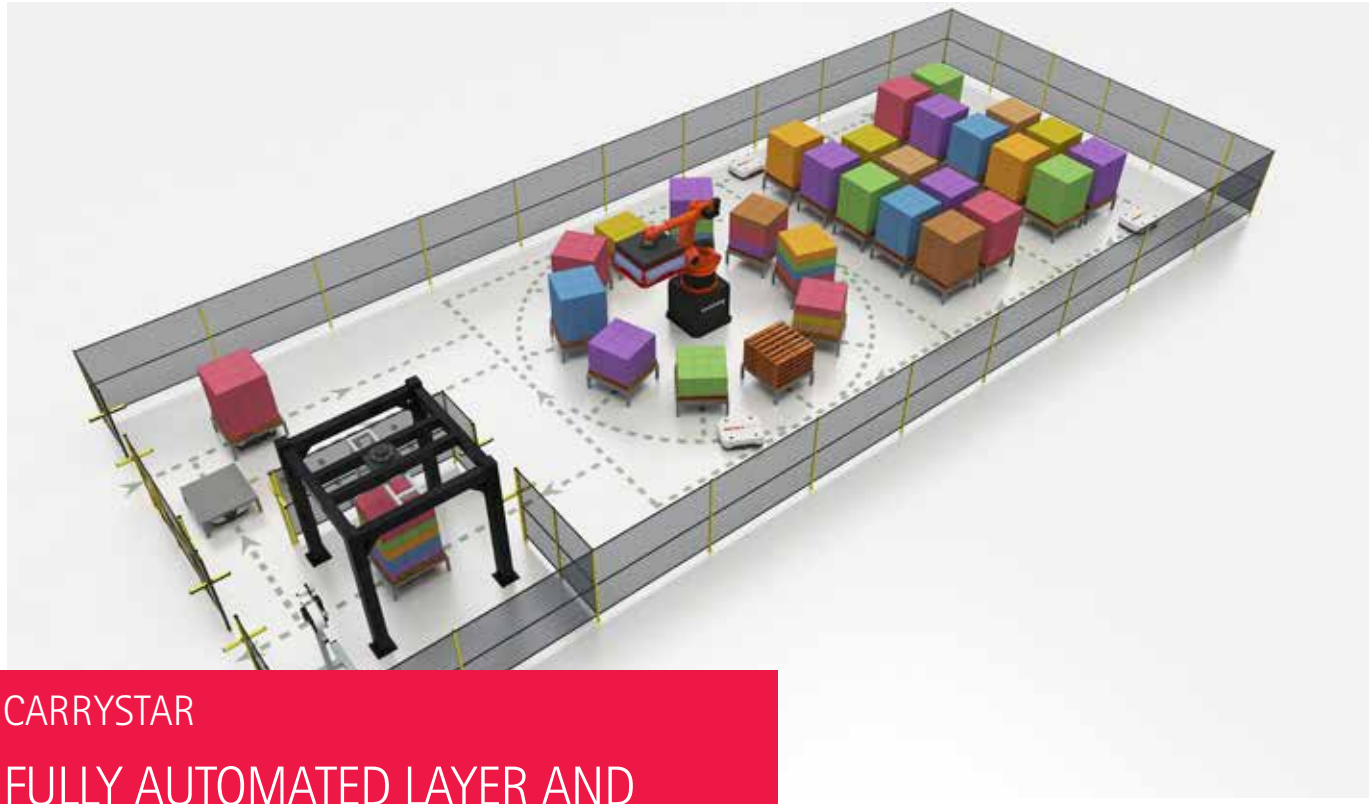
swisslog



CARRYSTAR

FULLY AUTOMATED LAYER AND STACK PICKING SOLUTION

FULLY AUTOMATED ORDER FULLFILMENT - WITH MINIMAL FIXED INFRASTRUCTURE AND MAXIMUM EFFICIENCY

CarryStar is a highly flexible and fully automated solution for order fulfillment without dependence on conveyors. This scalable and modular solution is suitable for small, mid-size and large layer and stack picking operations.

With minimal fixed infrastructure required and the ability to grow with your business CarryStar is perfect for Fast Moving Consumer Goods (FMCG) and Pharmaceutical companies looking for a hygienic and efficient warehouse automation solution for picking of crates and cartons.

The CarryStar solution is unique as it picks product directly from source pallet to order pallet(s), without the use of conveyors. Therefore, it is a clean, flexible and low-cost solution that caters to a wide range of warehouse applications.

Providing precise sequencing and high order accuracy, this system creates a reduction in warehouse labour costs and increases picking efficiency. CarryStar is a future-ready innovative, modular and scalable solution to improve intralogistic efficiencies in existing and new warehouses.

BENEFITS

Scalable
The modular and scalable solution is designed to grow with your business and ensure a continuously efficient warehouse operation.

Flexible
The solution requires minimal fixed infrastructure (i.e. no conveyors) and therefore is a very flexible, hygienic and cost-efficient set up.

Sustainable
A safe and energy efficient design provides excellent traceability of expiry dates and batches as pallets are scanned when they enter and leave the system.

Fast
Automated layer and stack picking increases picking quality and quantity as one robot palletizes up to 200 layers or stacks/cartons per hour.

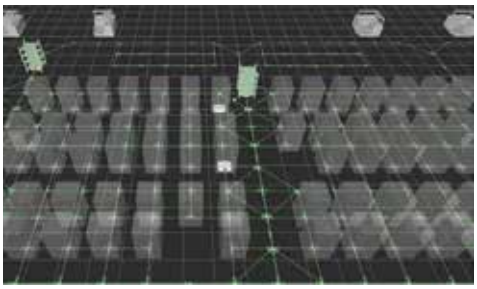
MAXIMISE YOUR PRODUCTIVITY WITH AN ATTRACTIVE RETURN ON INVESTMENT

THE SOLUTION DESIGN

CarryStar is a fully automated layer and stack picking solution for order fulfilment using four components:
(1) KUKA automated vehicles KMP600 or KMP1200 to transports pallets within the solution
(2) A pallet buffer that stores single SKU pallets ready for picking
(3) KUKA StarRobot order picking module
(4) Swisslog's dynamic SynQ software that manages all interfaces, processes, communication and inventory management between the sub-systems and host

CarryStar provides a high degree of flexibility and utilises the approach of KUKA's Smart Factory concept. The industry leading Smart Factory technology of KUKA enables production lines to be future-ready by intelligently and securely connecting all manufacturing machines to a cloud-based system. The CarryStar design follows this concept by connecting all sub-systems of the automated warehouse solution with SynQ, Swisslog's warehouse management software, to increase warehouse efficiency and process quality in a sustainable manner. CarryStar boasts a safe and energy efficient design that provides excellent traceability of expiry dates and batches/lots as pallets are scanned when they enter and leave the system. This solution is highly flexible and can easily be adapted to the business requirements of individual industries.

The fully automated process starts with a pallet infeed station from which KUKA automated vehicles receive the pallets and transport them to buffer positions or to the picking area around a KUKA robot. The StarRobot module is designed to pick layers, stacks or individual crates to create rainbow or base pallets to fulfil the orders. Once an order pallet is complete, the KUKA automated vehicles transport them to the pallet wrapper, where they are wrapped and labelled before they reach the dispatching area. Productivity is enhanced by negative picking, as CarryStar converts source pallets into order pallets.



ROBOT SOLUTION - CARRYSTAR

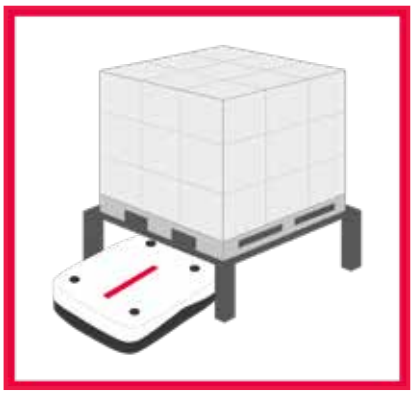
KMP600 and KMP1200 AGVs
An innovative transport system based on KUKA's high quality KMP600 and KMP1200 vehicles designed to efficiently manage the movement of pallets on tables. The vehicles are controlled by Swisslog's intelligent fleet management software, communicating via WLAN and navigating themselves using QR codes or a laser scanner. Their task is to deliver pallets of goods in stacks or layers from the buffer to the KUKA robot picking area and position them around the robot. Once the picking process is complete the vehicles move the source pallets back to the buffer area and the order pallets to the outfeed station for wrapping, labelling and shipping. These vehicles are intuitive, safe and maintain high efficiencies.

PA700 or KR 180/360 KUKA Robot
Swisslog utilises a KUKA robot equipped with the appropriate gripper for the picking requirements. The gripper is chosen based on SKU, volume and the type of picking that will be completed (i.e. crate stack or carton/tray layer). The KUKA robot is selected based on payload and reach capacities. Strong, fast and efficient, a single robot can palletize up to 200 layers or stacks per hour.

SOFTWARE

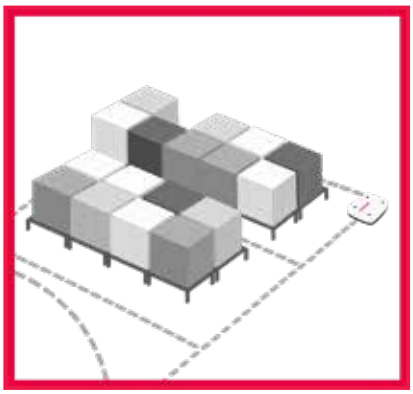
Swisslog SynQ Software
CarryStar is fully managed by Swisslog's intelligent management software SynQ platform. SynQ offers all warehouse management functionality, vehicle fleetmanagement and host interface with the option to include performance analytical tools. These tools help to better evaluate and make smart decisions in the warehouse. SynQ for CarryStar creates an intuitive, efficient and data-driven error-free operation. Furthermore, SynQ maintains the efficiency of the solution by sequencing order data to result in minimal pallet, layer and stack movements.

CARRYSTAR PROCESS



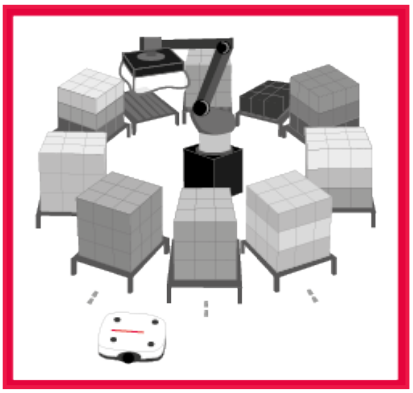
RECEIVING AND TRANSPORTING PALLETISED GOODS

1. Goods (i.e. single SKU pallets) are received into the fully fenced CarryStar area and placed onto tables via an infeed station
2. KUKA automated vehicle KMP600 or KMP1200 picks up and transports the pallet tables to the buffer area or directly to the KUKA robot



BUFFERING AND ROBOT REPLENISHMENT

3. If positioned in the buffer area they are held there until required for picking
4. When required for picking the vehicles transport the pallets to the correct location around a KUKA robot for picking



ORDER PICKING AND NEGATIVE PICKING

5. The StarRobot module picks layers or stacks in sequence to create mixed (rainbow or base) order pallets
6. In addtion, CarryStar converts source pallets into order pallets to enhance productivity by negative picking
7. Once pallets are completed the vehicles move the pallets to the pallet wrapper, after which the order pallets are labelled before they leave the CarryStar area via the outfeed station

FACTS

CARRYSTAR	
Performance	Up to 200 cycles per hour (layers or stacks)
Vehicle Type	KMP600 KMP1200
Robot Type	KUKA PA700 (layer picking robot) KUKA KR180/360 (carton and crate picking)
Pallet Type	AU/EU/US in wood or plastic pallet tables
Order Type	Case or Tray layer Crate Stack Other
Gripper	Riantics layer picker Schmalz layer picker Custom gripper
Temperature Zones	Chilled Ambient

ABOUT SWISSLOG

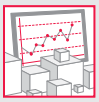
In today's competitive world, companies must be able to deliver the right orders to the right customers at the right time. Errors and delays in order fufilment can have a lasting negative impact on the brand - but maintaining high stock levels ties up capital and affects flexibility.

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

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.

DESIGN


Consult


Analyse


Design Variants


Select the Solution

DEVELOP

Engineering


Integration


Installation


Ramp Up

DELIVER


Preventive Maintenance


24/7 Support


Optimisation & Spare Parts


Moderni-sation and Expansion

swisslog

Swisslog
www.swisslog.com