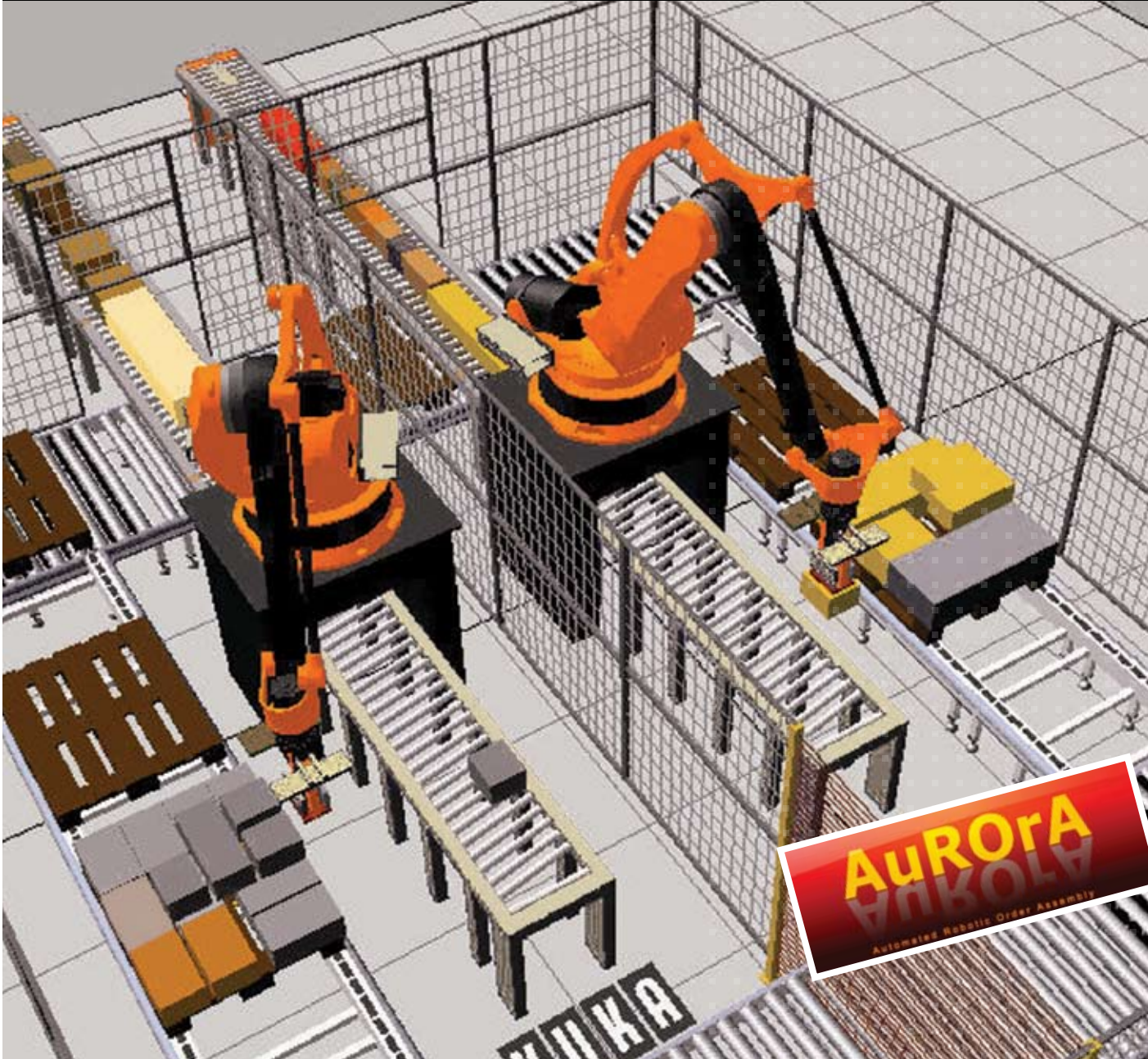


# KUKA

KUKA Systems Corporation North America

## MIXED CASE PALLETIZING MULTIPLE PACKAGE TYPES / SINGLE LAYER



## ■ MIXED CASE PALLETIZING

- ... if mixed case palletizing operations are too labor intensive and too inefficient!
- ... if increased quality of logistics services is very important for you!
- ... if floor space is limited and expensive!

In the past decade, true mixed package type palletizing has become proven technology. The economical justification of a palletizing system is mainly driven by the achievable throughput (cases per hour), the system availability, the required floor space and the utilization rate of the complete production line. As SKU proliferation has escalated, this task has also become very labor intensive as well.

The demands made on automated order picking in distribution centers grow by the day. Orders, articles, and a wide variety of containers must be picked and palletized, whether on pallets or push carts, right on schedule and with a minimum of errors.

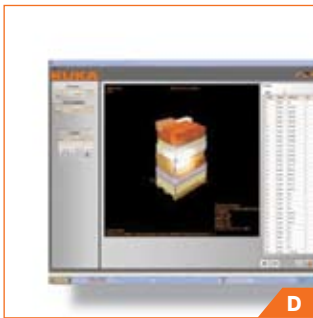
The range of articles and the dimensions and materials of the packaging units are virtually unlimited, be it open or closed trays or beverages wrapped in film. In response to these demands, KUKA has developed an application module called Pallet-MIX for automated mixed palletizing. The primary objective was the development of an application module using service, proven jointed-arm robots together with innovative software and gripper technology.

A conscious decision was made in favor of a jointed-arm robot with six degrees of freedom, in order to avoid the need for external turning of the packaging unit. This represents a significant advantage over gantry solutions. Performance and reliable palletizing of the packages were the prime criteria, with the aim of achieving high throughput rates.



### THE BENEFITS

- Single-source solution, from the planning to the world wide after sales support
- Wide range of palletizable packing units
- Short cycle times, giving maximum cost-effectiveness
- Gentle handling using a servo gripper
- Minimized number of pallets
- Maximized packing density
- High system flexibility through the use of jointed-arm robots (no additional turning station required)
- High level of standardization (reduction of costs)



### THE MIXED CASE PALLETIZING GRIPPER

- Counter plate horizontal movement
- Counter plate vertical movement
- Base plate horizontal movement (either as plate or as fork)
- Distance sensor to measure the drop height
- Part present sensor at left and right side
- Cable track for A6 turn +/-215

### MAIN SYSTEM COMPONENTS

- A** Mixed Case servo gripper with fork horizontal movement
- B** KUKA Robot (KR 180 PA or KR 100P)
- C** Human Machine Interface (HMI) and safety control with Teach Pendant
- D** KUKA.PickControl software for logistics process control
- D** KUKA.PalletMix software with KUKA.PalletViewer for easy pallet configuration design and pallet-building calculation
- E** KUKA Robot Control KRC 2

### THE GRIPPER SYSTEM

The Mixed Case Palletizing gripper technology enlarges the application spectrum for mixed palletizing. With three servo motors, the gripper works in tandem with a load station that elevates the product, allowing the gripper forks to gently lift the packages from the bottom. This design allows KUKA to handle various package types, including open top cases.

### THE SYSTEM CONTROLLER

The system control includes the KUKA.PickControl software of the KUKA AuRORa™ application framework and is the communication and control interface for the operator and the superior Warehouse Control System (WCS). It features commissioning support functions to simplify the product specific parameter identification as well as data connection to the storage management system. The communication method (e.g. fieldbus, Ethernet) can be customized to the customer's requirements and standards. All servo drives inside the grippers are controlled by the KUKA Robot controller.

### THE KUKA MIXED PALLETIZING SYSTEM

- 1** Incoming package conveyor
- 2** Target pallet in-feed
- 3** Mixed Case Palletizing Robot (KR 180 PA with servo gripper)
- 4** Mixed Case picking position
- 5** Mixed Case palletizing target pallet



TECHNICAL DATA	
■ Palletizing Performance:	Up to 8 cases/minute (depending on layout/package)
■ Supported Pallet Types:	43" x 18.5" (CooLift), 48" x 40", 52" x 44" (LxW)
■ Minimum Case Dimensions:	4" x 4" x 2"
■ Maximum Case Dimensions:	24" x 16" x 16"
■ Maximum Case Weight:	Up to 100 lbs
■ Energy Supply:	Local voltage and frequency

# KUKA

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