EAGOSH

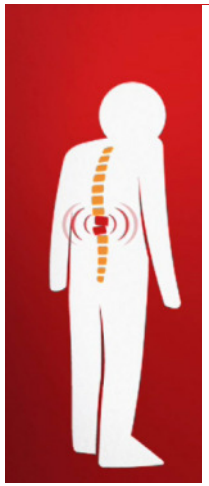
European Aviation Group for Occupational Safety and Health

34th EAGOSH Meeting

15 - 16 May 2013

Büttelborn, Germany

Loading and unloading of flight baggage



Physical disabilities / Musculoskeletal disorders

Back pain
Reduced performance
Increase of sickness absence

Objectives

- Sustained reduction of disability
- Reintegration of physically impaired employees

Approach: Lifting aids

Pros
- Competitive

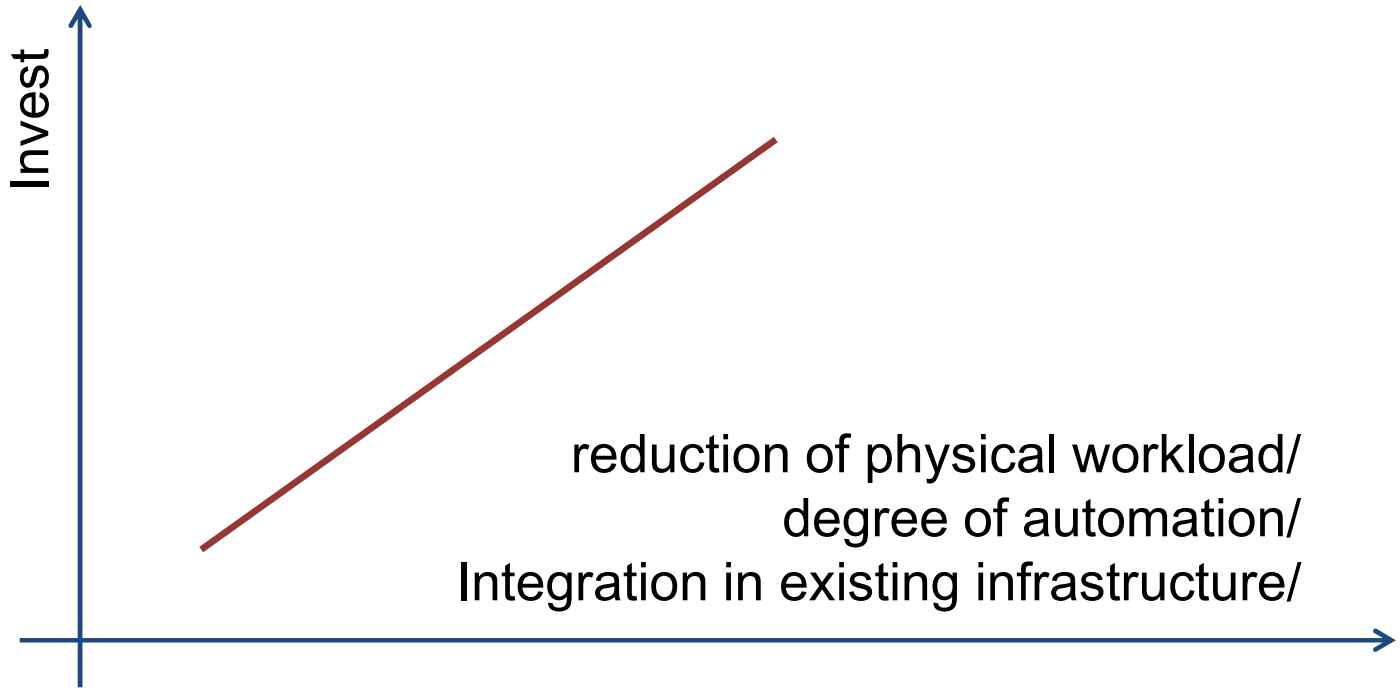
Cons
- Only loading/unloading in vertical direction possible
- Efficiency depends on baggage surface characteristics

Approach: Robots

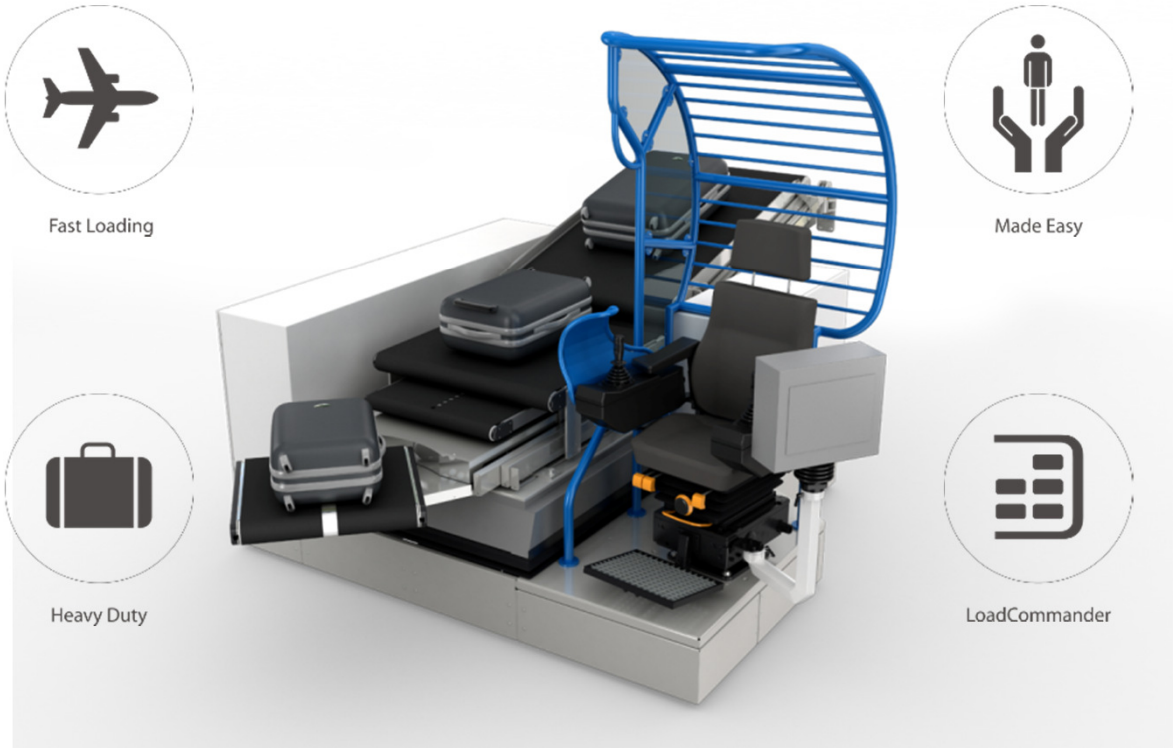
Pros
- Fully automated process

Cons
- High investments and maintenance
- Inflexible

Approach



Semi-automatic baggae handling system



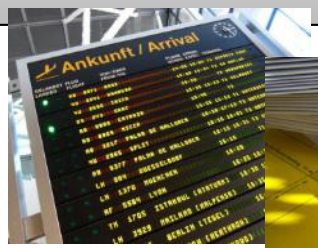
A joint development of WIPOTEC GmbH, Schmid Systemtechnik, and Eckelmann AG

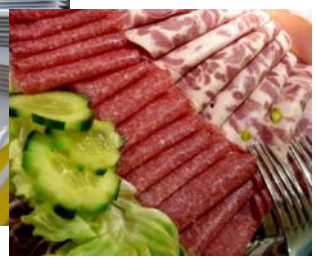
ECKELMANN
WIPOTEC
WÄGETECHNIK
SchmidSystemtechnik

Eckelmann AG

Wipotec GmbH

Schmid Systemtechnik GmbH

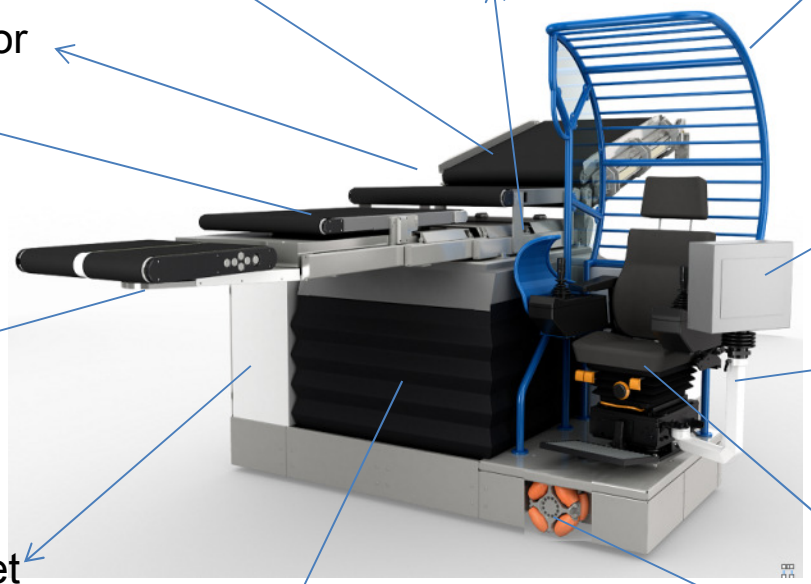




Semi-automatic baggage handling system

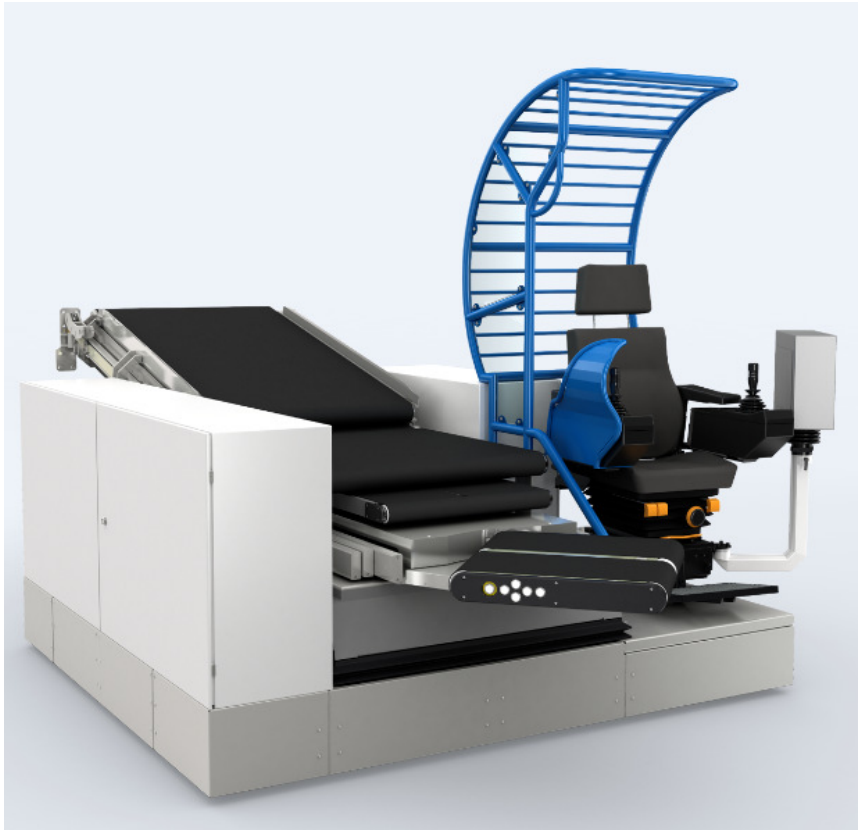
- Reduction of occupational health risks by reducing the loaders' physical workload
- Decreasing loading costs by increasing loading performance
- Decreasing loading time by introducing a higher level of automation
- Higher process stability by keeping the operator in the control loop
- Loading and unloading of trollies and ULD

Set-Up



Views

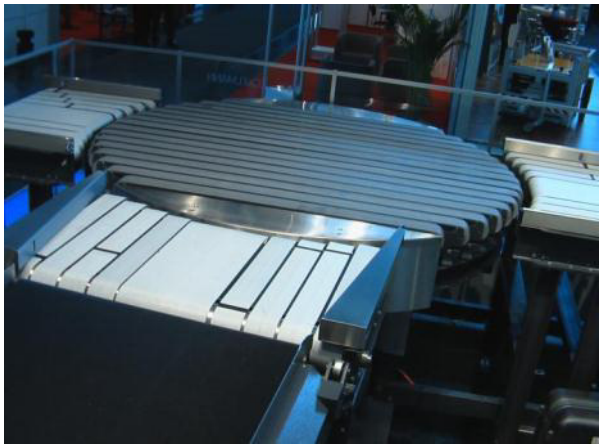
Views

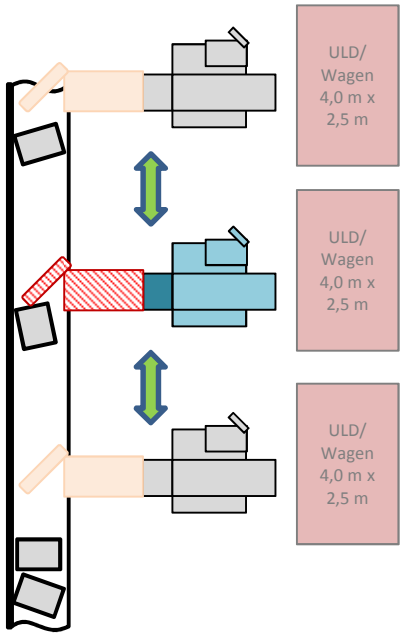


Options of integration

By rotary sorter

- LoadCommander coupled at pivoting point
- Rotatory movement

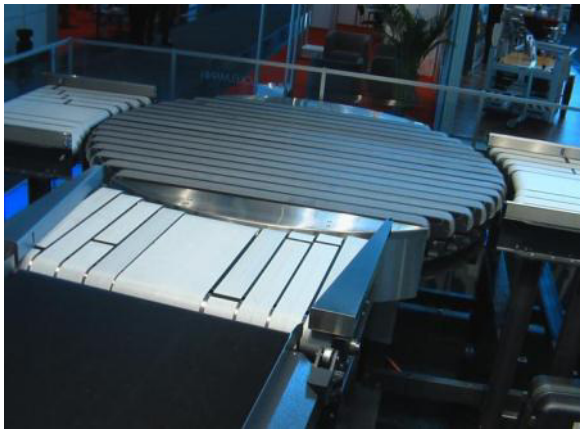


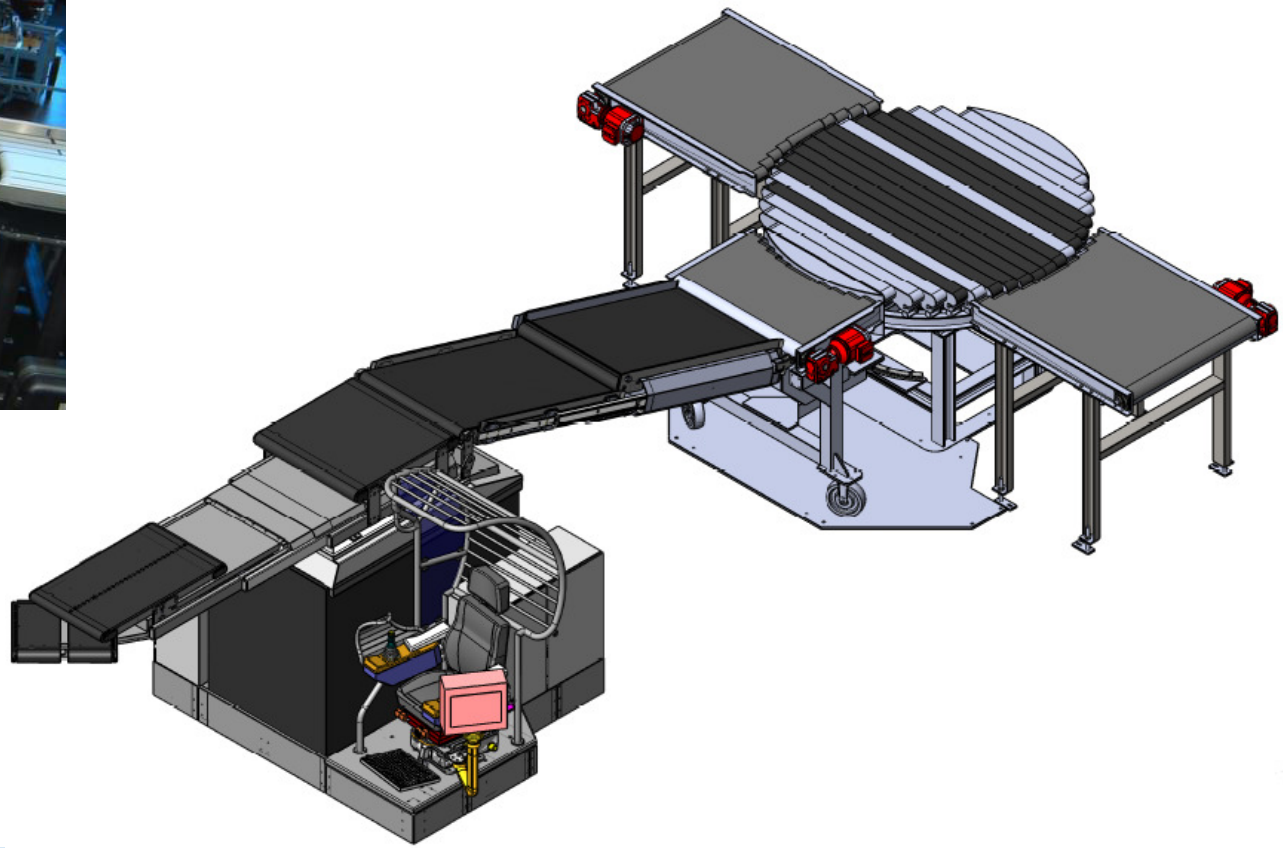


By diverter

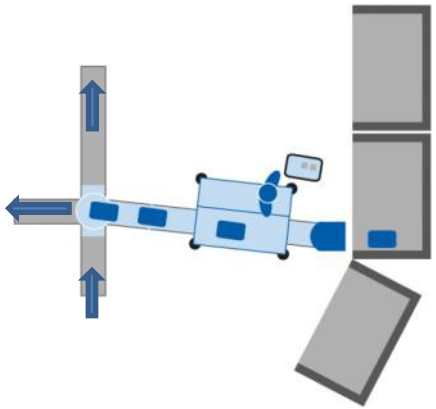
- LoadCommander coupled at baggage reclaim
- LoadCommander travels alongside conveyor

Integration with rotary sorter

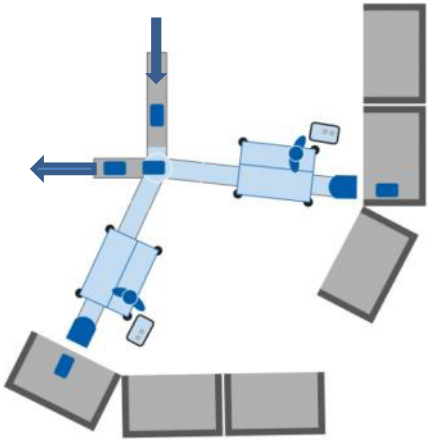




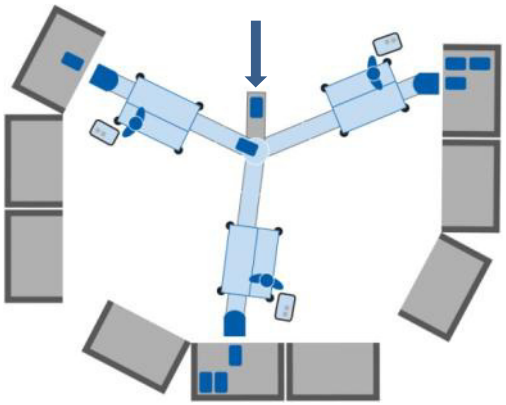
Integartion with rotary sorter



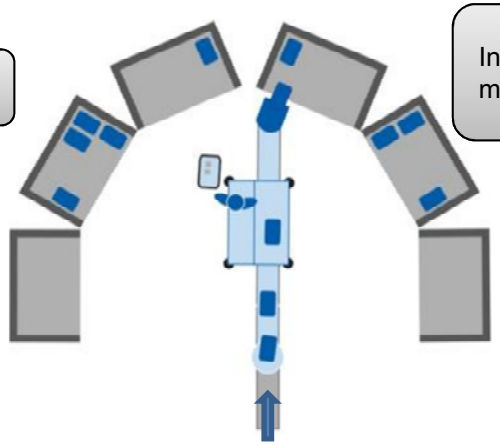
Integration of one LCO



Integration of two LCO



Intergation of three LCO



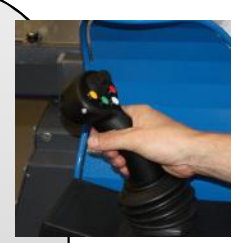
Integartion of one LCO with multiple loading targets

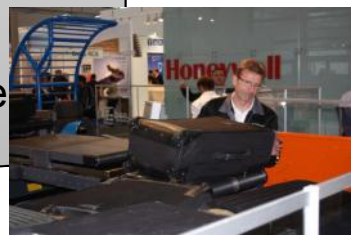
Facts

- Loading of multiple trolleys/ULD without moving trolley/ULD train
- Control in seated or in standing position
- Arbitrary position of LCO with respect to position of ULD/trollies
- Intuitive handling of LCO through controls

Facts

- High fill rate
- Arbitrary lay-down spots possible
- Three modes to lay-down pieces of baggage
- Manual intervention of loader possible
- Interface to reconciliation possible
- Hand scanner for no-reads if necessary
- All necessary information for loader on touchscre





Facts

- No components outside of LCO
- No security guards, e. g. fences or optical guards necessary
- Floor space free and accessible by vehicles
- Electric drives
- Works with standard floors
- LCO can be easily uncoupled from baggage handling system
- Deployment of LCO at multiple loading targets possible
- For maintenance LCO can be hauled to workshop

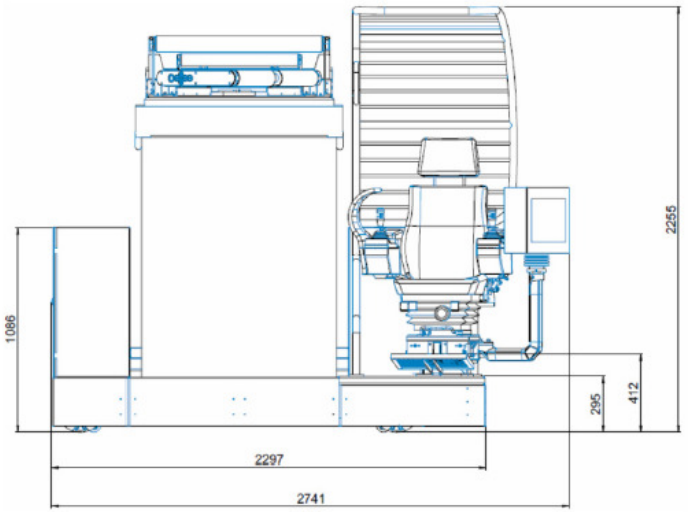
Options

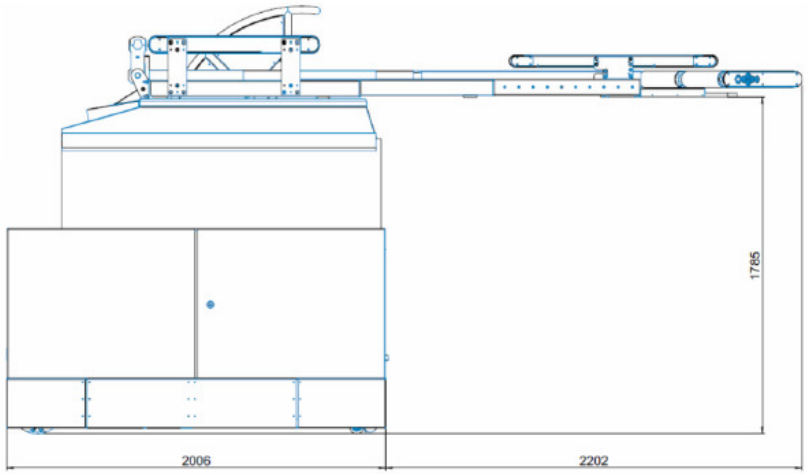
- Integration of weight scales
- Automatic orientation of baggage by rotary sorter
- Log files for baggage:
  # Photos
  # Position in ULD
  # Weight of piece of baggage
  # Total weight of ULD/trolley

Technical Details

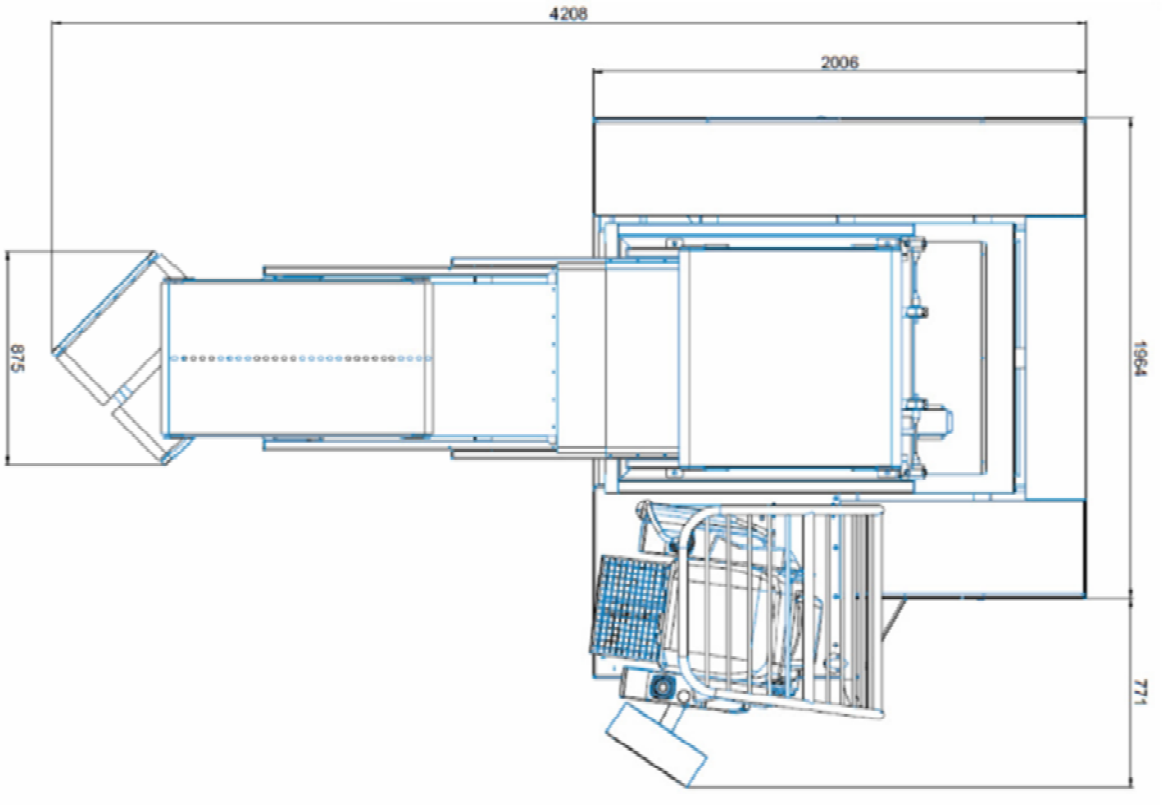
• Dimensions (L x W x H):	4.208 mm x 2.741 mm x 2.255mm
• Weight:	approx. 2.000 kg
• Floor:	Regular floor (no asphalt) no sharp-edged offsets
• Power:	< 10 kW
• Loading performance:	approx. 300 pph
• Presorting:	not necessary
• Baggage dimensions:	max. 850 mm x 650 mm x 450mm min. 210 mm x 140 mm x 70 mm
• Baggage weight:	max. 40 kg
• Interface:	Ethernet TCP/IP

Technical Details





Technical Details



Thank you for your attention!