



Damon Group was founded in 20th anniversary, it change the world by virtue of technology, links the original intention of create the future, constantly explore the technology boundaries, solve the pain point of the logistics through the integration of technology. Become the leader of e-commerce intelligent logistics system in China.

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**i-Cube™**  
**3D DYNAMIC BUFFER**





APPLICATIONS

The three dimensional dynamic storage system i-Cube designed to store and handle an extensive range of products and is applicable in various environments and industries as fastmover consuming goods, electronics,fashion, automotive and tires. All based on special functional needs.

DISTRIBUTION

- Case and item picking in retail en E-commerce
- Consolidation buffering

MANUFACTURING

- Intermediate buffering
- Assembly buffering
- Finished product storage

POSTAL

- Pre sorting buffer
- Route consolidation

MODULAR UNIVERSAL DESIGN

STORAGE TYPES:	Tray 600x400 mm
	Tray 640x425 mm
	Tray 600x800mm
	Tote 600x400x various heights
	Stacks of totes
Special types:	Size on demand
Max product height:	600 mm Max
Max weight incl.tray:	50 kg Max
Max size i-collector:	15x15x12m Max (L x W x H)

ICS - CONTROL SOFTWARE

The included special i-Cube PC Control Software manages the registration of trays on dynamic locations in the system and provide an optimal choice of algorithms for moving trays in and out the system.

The software has an interface manager which connects to all type of other systems easily (f.e. ERP/WMS, WCS, terminals,remote control, HMI, Android/Mac)



MACHINE CONTROLS CONCEPT

The mechatronic modular design offers a high level of system reliability and maximum flexibility. HMI and remote control are provided to facilitate ease of operation and fast recovery procedures.

PLC	Lenze
Network:	Ethernet
Fieldbus:	Ethercat
Servo drives:	Lenze
	Lenze

GENERAL DATA

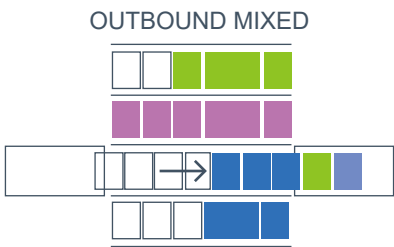
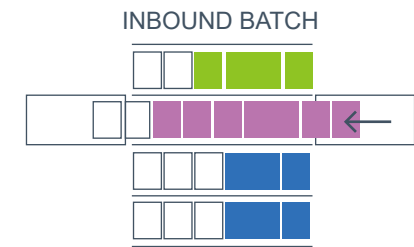
Main voltage	
China:	380V,50HZ+PE
Europe:	400V, 50Hz+N+PE
USA:	480V, 60Hz+PE
Control voltage:	24VDC
Installed power:	50 kVa (first estimate)

Environment

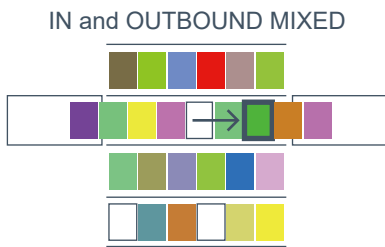
Min temperature : 0 degrees Celcius  
Max temperature : 45 degrees Celcius

CONFIGURATIONS

- Plug and play module with single or double devices
- Single or double depends on required capacity
- Transferdevices have one to three tray positions
- Vertical pitch is max product height +130 mm
- Horizontal pitch is tray length (lsl) + 140 mm
- Split level i/o
- I/o system works in a closed tray loop
- Storage strategy can be organised and/or random
- Tracking and tracing of trays by barcode or tags
- Cycles of batch in-and output and / or mixed in and batch
- Out are possible



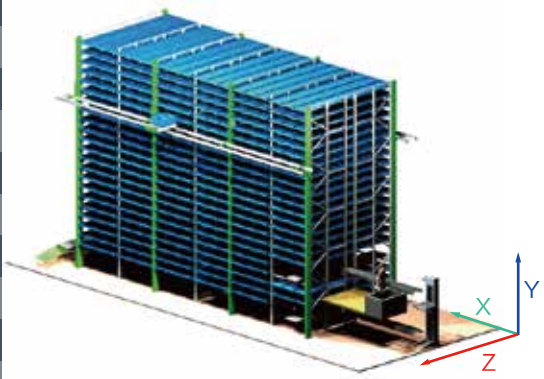
PRINCIPLE OF ORGANIZED BUFFER(OBS)



PRINCIPLE OF RANDOM BUFFER(OBS)

STANDARD SIZES AND CAPACITIES (trays/hour)

Tote Dimension	600x400x300mm		25KG per Tote		
Channel depth(z)	6		12		18
Columns(x)	12	18	12	18	18
Locations	1500	2250	3000	4500	6750
RBS	300	275	250	230	200
OBS					
Batch IN and OUT	500	480	500	480	480
Mixed IN/Batch OUT	350	340	350	340	340
Only Mixed IN	500	480	500	480	480
Only Batch IN	850	830	850	830	830

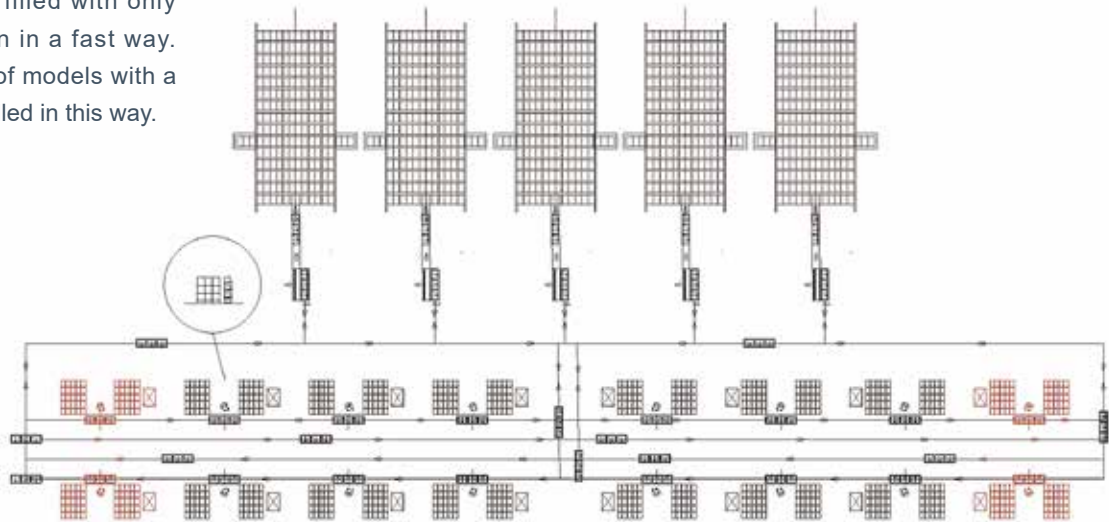


# CONCEPT FASHION ITEM PICKING

Automatic storage of cartons with items on trays stored in i-Collectors. Trays will be sorted by model in the i-Collector lanes. Picking is done at decentral located stations. AGV' s bring special picking racks in which SKU of models are stored to these picking-packing stations.

At the picking station orders will be picked batchwise. The picking racks with Trays will automatic be loaded and unloaded at the I/O loop of each i-Collector.

For efficient picking out of the racks the i-Collector is capable to organise the trays needed for a pick station in seperate lanes, so racks can be filled with only Trays of one pickstation in a fast way. Especially the products of models with a low turn over can be handled in this way.



## FACTS

- 4.500 SKU 600 to 800 Models
- 300 - 400 Store Deliveries a day
- 5.000 Ecom Orders a day, 1.500 return orders a day
- 75.000 to 85.000 lines a day
- Average 1.90 Piece per Line



## SYSTEM

- 5 i-Collectors total 2.000 lanes and 30.000 Tray locations, type Organized Buffer System [OBS]
- Tray dimension 640x425mm, SKU cartons on top of tray
- 32 AGV' s to move mobile picking racks to pick- pack and replenishment stations
- 40 Mobile picking racks
- 12 - 16 Pick/ Packstations for Pick to Light batchpicking
- Floorspace about 2.000 m2
- Height 12 mtr.

## BENEFITS

- Optimal usage of floorspace
- Efficient zone picking
- Easily Integration Ecom flow
- Modular and scalable storage and simple AGV use
- Simplicity of the system
- High productivity order pickers
- Pay Back less than 3 years
- Low cost of ownership

## SYSTEM DESCRIPTION

The customer needed a buffer system in a separate chilled store between the production area of meat bowls and the packaging despatch area. Blanc meat bowls (sealed without a lable), not yet assigned to a specific customer order, are stored in the i-Collector.

For the major part the production is done by forecast and therefore no longer order related. During the day the forecasted quantities are efficiently arranged the iCollector. In the afternoon the forcast for the next day will be produced. In the morning the articles will be produced of which the amount was too low forcasted according to the effective ordered volume. Through this method the production is more evenly and less chaotic which gives a big advantage to the productivity.

The meat bowls are stored in a highly efficient way on trays. On demand the trays come out of the i-Collector towards robot pickers. The needed bowls for the order are picked from the trays completely and the partially filled trays are brought back in the i-Collector, waiting for the next order. In this way a specific mixed customer order can be very quickly delivered to the outbound despatch area.

## FACTS

- Max. weight on one tray 10 kg
- 6 different bowls with 18 different heights
- Capacity 385 trays IN & OUT p/hr
- In working 16 hours p/day and 5 days p/week
- Temperature from 0 up to +2 degrees Celcius



## SYSTEM

- 1 i-Collector total 451 lanes and 1.804 Tray locations, type Random Buffer System [RBS]
- Tray dimension 800x600mm (double Transfer Device)
- 4 Trays in one lane
- 4 trays on the Transfer Device
- i-Collector dimension:
  - L 11,7 x W 5,6 x H 7,7 mtr
- Floorspace about 66 m2



## BENEFITS

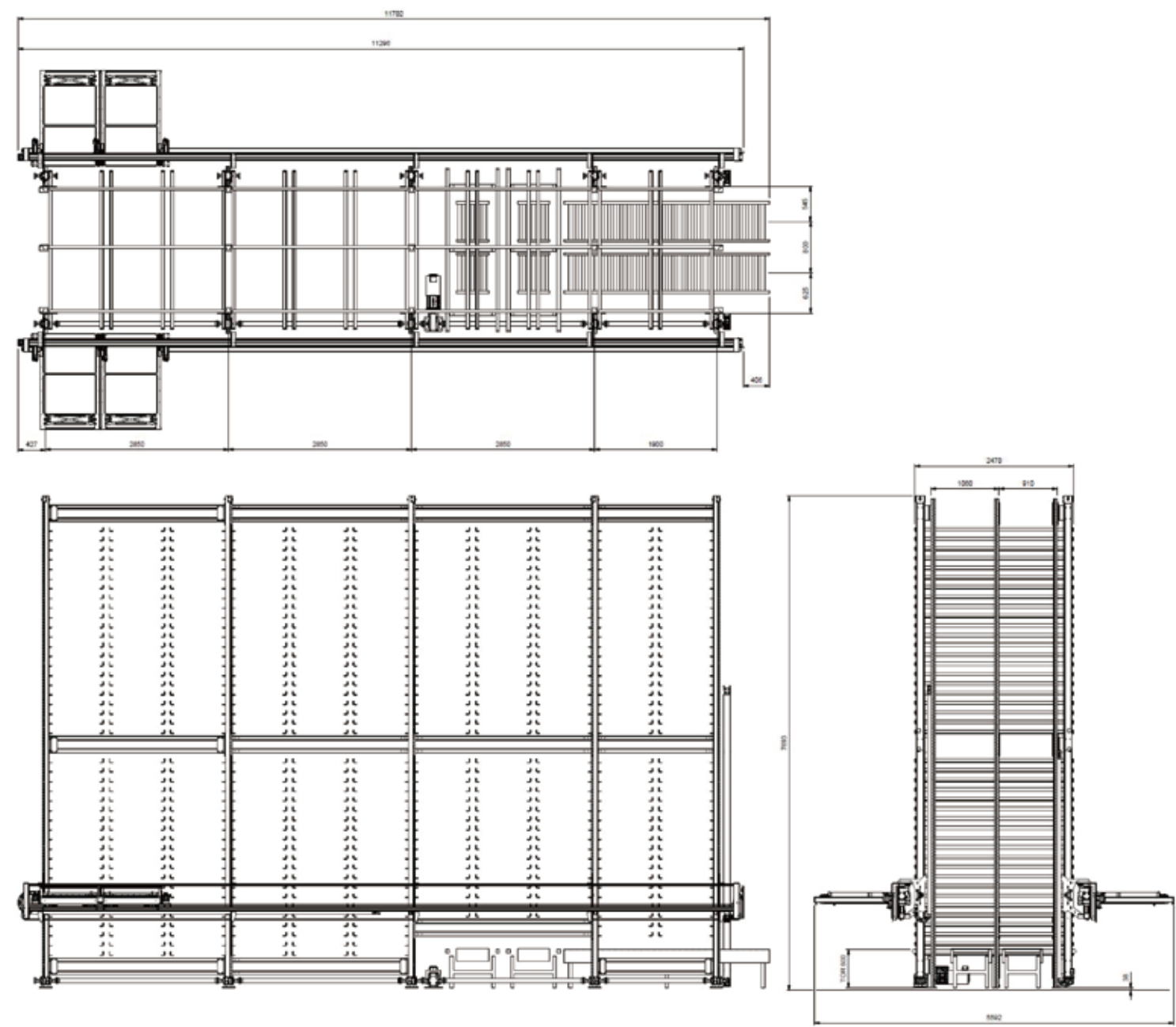
- Most optimal usage of floorspace
- Proven Technology
- Modular and scalable storage
- Simplicity of the system
- High productivity
- Pay Back less than 3 years
- Low cost of ownership





# MEAT PRODUCTION BUFFER

## SYSTEM DESCRIPTION



# Big Data Services for Industrial Machines

## SMART SERVICE & SUPPORT

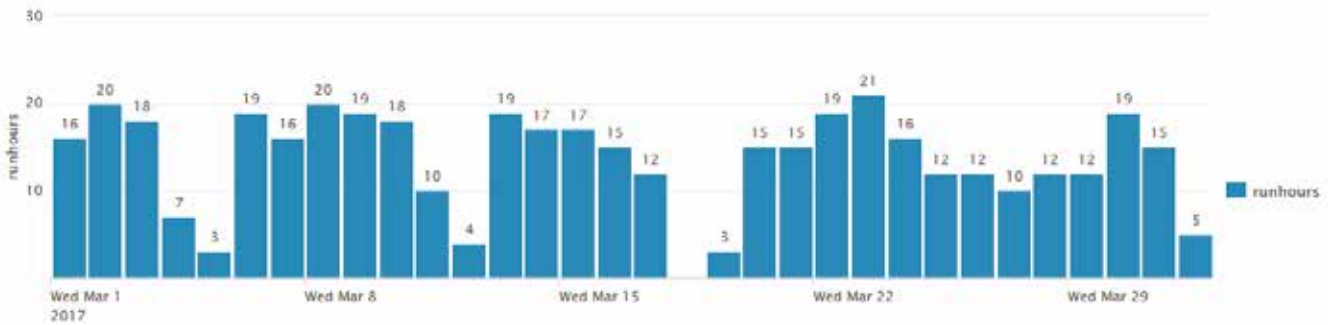
Whenever a new i-Cube installation goes in production i-Cube BV always stays fully committed to provide you the best return on investments (ROI) as possible.

Parallel to the development of the i-Collector we developed our own a special smart service & support concept around it, based on state-of-the-art BIG DATA techniques, continuous analysing your machine-data for the sole purpose of providing you with the highest possible level of service and support.

Because we are fully aware of the fact that he i-Cube is always running in a business critical environment. Therefore avoiding unexpected downtime is paramount in all our service and support efforts.



## Actual state



In case of an incident, fast response, knowing what and where to fix and reducing the time-to-fix is essential to our customers and therefore to us. In any 24x7 hours business critical environment a high-level of service and support is essential for protecting your ROI. And this can only be achieved by continuously monitoring the actual state and performance of your installation(s), all the time.

## Historical metrics

Beside knowing the actual state and performance of your installation(s) it has proven to be very valuable to do statistical analyses (BIG DATA) on the collected machine-data over time on your installation(s). Producing status and performance trends and metrics (KPI' s), ie. based on the FEM9.222 directives, provides you valuable operational insights and the highest possible ROI on you installation(s).

this_year	weeknumber	runhours	avg_p5d
2017	13	67	13.40
2017	12	109	21.80
2017	11	79	15.80
2017	10	103	20.60
2017	09	99	19.80
2017	08	101	20.20
2017	07	90	18.00
2017	06	91	18.20
2017	05	76	15.20
2017	04	80	16.00
2017	03	88	17.60
2017	02	96	19.20