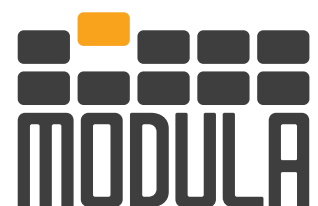# Modula HC

HORIZONTAL CAROUSEL

OUR PRODUCTS ARE
★ **MADE IN USA** ★
From US & Imported Components

MODULA

The Horizontal Carousel
New Generation from Modula:
Making a Proven Design Even Better

Our Diamond Phoenix Horizontal Carousel has been a workhorse in warehouses across the globe. Now we've taken everything we've learned from its 30 years of production and improved upon it with the Modula Horizontal Carousel New Generation.

New features

■ **Competitively priced due to standardization**
Based on 30 years of learning what our customers want, we've standardized our horizontal carousel product line to allow more efficient manufacturing. We pass on the savings by offering them at an even more competitive price.

■ **Safety equipment on all models**
Automatic doors and perimeter guarding are now standard on all horizontal carousels.

■ **A stronger framework for unmatched dependability**
The Modula Horizontal Carousel New Generation framework is built with structural steel, custom formed steel, and solid - not tubular - 304 stainless steel rail. This results in more strength, lower maintenance and long-term reliability.

■ **Modula controls platform and a new, user-friendly interface**
The same easy-to-use control system found in other Modula products is now part of our horizontal carousels.

■ **Proven, powerful drive systems**
All our carousels are driven by a single or dual 3HP drives to power high-capacity loads. Inverted drives are available to accommodate limited ceiling height.

High-performance order fulfillment in low ceiling environments

Modula horizontal carousels are the ideal solution when you need high-speed picking in a low ceiling environment. The carousel consists of carriers (bins) mounted on an oval track that rotate horizontally and deliver stored goods to the picker.

In either a production or distribution setting, the horizontal carousel is extremely effective in saving space, reducing labor costs, increasing throughput and improving accuracy and inventory control.

Main benefits

PRODUCTIVITY AND HIGH THROUGHPUT
Following the "goods to person" principle, items are brought directly to the operator. With no more hunting across a warehouse for items, productivity skyrockets, with picking rates of up to 550 lines per hour for each worker

SAFETY AND ERGONOMICS
No more ergonomic problems for workers caused by walking back and forth across a warehouse, retrieving and carrying parts. Additionally, workers are protected by safety doors and 8-foot-high protective fencing

PICKING ACCURACY
Thanks to visual picking aids, workers can quickly identify which item to pick and how many are required. This eliminates the risk of human error, improving accuracy up to 99%
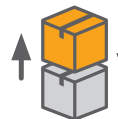
EFFICIENT SPACE UTILIZATION
Items are stored and organized in a high density, compact storage area

FULL TRACEABILITY AND REAL-TIME INVENTORY
All picking operations are monitored and documented, providing full traceability of orders and tracking stock levels in real time

FLEXIBILITY FOR EVERY STORAGE NEED
Shelf spacing can be easily adjusted to store different items. Pods can be reconfigured to meet seasonal peak ordering

FAST ROI
Companies see a return on investment in 6 to 18 months, depending on the size of the project
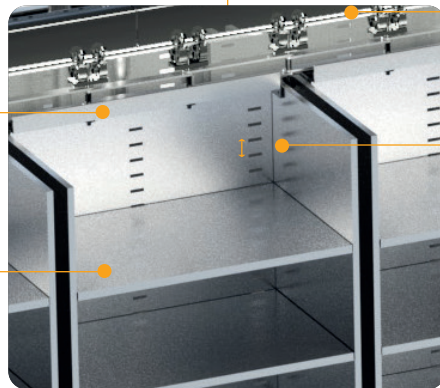
Reliable and flexible bins to meet any storage need

Robust and reliable, the Modula Horizontal Carousel's bins have a payload capacity of up to 1,200 lbs per bin and a shelf spacing adjustment of 2 inches, making them suitable for even the most demanding storage application.

SOLID STAINLESS STEEL TOP TRACK WITH SPECIALLY DESIGNED SEALED BEARINGS TO DISTRIBUTE LOAD ACROSS THE TRACK

URETHANE BUFFERS ENSURE EVEN WEIGHT DISTRIBUTION AND REDUCE SHOCK LOADS

ADJUSTABLE SHELF SPACING OF 2 INCHES

BIN CAPACITY UP TO 1,200 LBS WITH A LOAD CAPACITY UP TO 250 LBS PER SHELF

Ergonomic workstation to boost productivity

Following the parts-to-pickers principle, the horizontal carousel delivers the items directly to the operator, reducing handling times both in picking and replenishing. There's no walking back and forth to find and retrieve goods. Thanks to the visual picking aids, the user can quickly identify which item should be picked and the quantity requested, allowing picking rates of up to 550 lines per operator each hour. Accuracy jumps up to 99.9%, too!

Safety and security as a standard

The Modula Horizontal Carousel New Generation has been designed with safety and security in mind.
All models are equipped with safety doors and surrounded by 8-foot-high fencing. These features prevent accidents and protect the goods from unauthorized access.

Automatic safety doors

The fast opening and closing times of the automatic doors keep the operator away from the moving components of the carousel until the bin has come to a complete stop. The curved design provides optimal use of the space and more efficient pod-picking configurations. The full height door panels are made of Lexan, a highly impact-resistant polycarbonate resin that, despite its strength, offers clear visibility of the stored products and carousel activity.

Additional safety systems

OBSTRUCTION-DETECTING DOOR
SENSORS WITH AUTOMATIC REVERSE

DUAL CHANNEL INTERLOCKS
TO EACH DOOR

8' HIGH
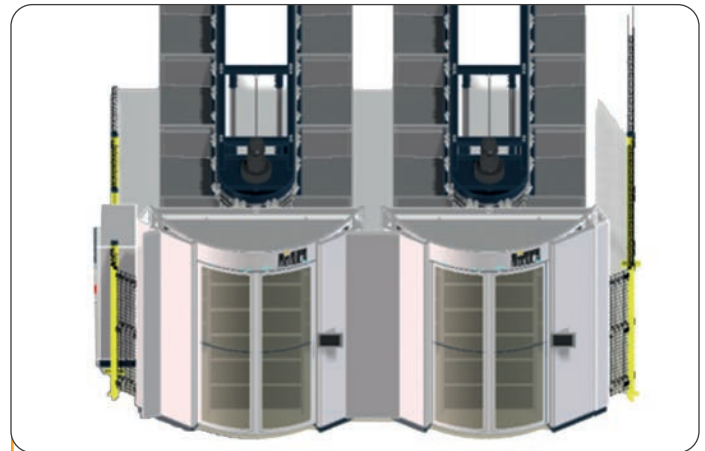PERIMETER FENCING

LIMITED DOOR CLOSING
FORCE TO PREVENT INJURY

Productivity & flexibility: Horizontal carousels in pods

To speed picking times, horizontal carouses are often used in an integrated workstation called a "pod."
Software and pick-to-light technology allows the carousels to work in conjunction with each other and speed productivity.
The Modula Horizontal Carousel is offered in in pre-configured groups of two, three, and four carousels per pod.

As the worker picks from one horizontal carousel in the pod, the other is pre-positioning the next pick.
This minimizes worker downtime and dramatically increases throughput. Moreover, horizontal carousels arranged in pods offer great flexibility. With a simple software adjustment, the pods can be easily reconfigured to meet seasonal peak order times.

2 Carousel Pod

3 Carousel Pod

4 Carousel Pod

Even more adaptability

- The distance between carousels can be modified to accommodate building columns and other obstructions.
- The control panel to operate the pods can easily be positioned in different locations to best fit the configuration.
- The perimeter of the safety fence can be customized to meet site requirements.

Everything controlled with user friendly interfaces

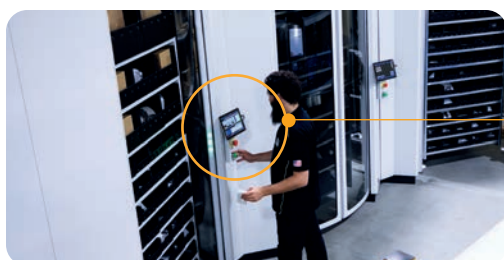The Modula Horizontal Carousel New Generation is controlled by:

- The Horizontal Carousel **Main Control Panel** is used to set up and maintain the carousel itself. It includes an emergency stop button and maintenance lockout key switch.
- The **HMI (Human Machine Interface tablet)** tablet is a full-color wireless tablet positioned in the picking area of each carousel, close to the automatic safety door. It's used to execute the tasks and can also provide emergency stops if needed.

MAIN CONTROL PANEL

MAINTENANCE LOCKOUT KEY

MULIT-PURPOSE TASK BUTTON

E-STOP BUTTON

HMI TABLET

E-STOP BUTTON

TASK COMPLETE BUTTON

Picking accuracy with the visual picking aids

To make picking and replenishment activities more accurate and reduce idle time, the edge of each automatic door is equipped with **LED light bars.** This visual picking aid guides the operator to visually identify where the item to be picked is located on the shelf in the presented bin.

The **HMI tablet** displays the item details and quantity and highlights the shelf compartments on a graphical diagram. This complete information simplifies the operator's work, resulting in accurate and quick picks.

LED LIGHT BARS INDICATE THE CORRECT SHELF

THE HMI TABLET DISPLAYS ITEM DETAILS AND QUANTITY

Modula WMS

Modula WMS is a complete inventory management software ideal for all Modula automated storage equipment, including vertical lift modules and horizontal carousels. It also works as stand-alone software to assist with traditional storage methods, such as shelving or racking.

MODULA LINK

Modula Link is a software tool that enables an external host system to control at low level a Modula Horizontal Carousel, using a set of commands managed through communication on a TCP/IP channel socket.

Modula WMS Premium & Advanced Picking

There are several levels and types of software available for inventory control and management, and many of these solutions can be tailored and customized. Modula WMS Premium Software, combined with the Advanced Picking option, can result in batch picking that greatly reduces workers walking to pick items and significantly increase picking rates and throughput.

MODULA WMS PREMIUM

The most complete package for warehouse management, Premium provides:
- automatic item-compartment allocation and dynamic location management
- lot and serial number management
- full management with custom tracking of automatic import/export in ASCII, ODBC, Excel and XML file formats
- management of free or tabled sub-codes
- material status management, pack type management and expiration date management advanced user management; configuration of enabled procedures for each individual user
- material management by FIFO or by sub-code priority (e.g., picking can be prioritized to first retrieve the lowest, and therefore oldest, lot code)
- reason codes for immediate requests.

ADVANCED PICKING

This module provides additional functionalities to improve picking and replenishing:
- order position management
- batch picking management
- warehouse management of materials in transit (packages, cartons, boxes)
- automatic creation of storage compartments during replenishing operations
- serial number management (management of multiple serial numbers for the same item associated with an individual compartment).

The advanced picking module is ideal for managing bays, picking carts, and Put to Light aids.

8

Even higher throughput with batch picking

To achieve even higher picking performance, the horizontal carousel can be used in combination with batch picking. Using Modula WMS software, an operator can create a batch of orders and fill them all at one time.

When the horizontal carousel presents an SKU for picking, the operator picks the total SKU quantity for all orders. The batch picking lights, located at each order position, will then direct the picker to the correct location and indicate the quantity that needs to be placed in each order. By using batch picking, the operator only visits an SKU location one time during picking.

This increases accuracy, reduces picking errors and retrieval time while increasing productivity by up to 65%. The put-away process can be automated much like the picking process in reverse.

BATCH PICKING LIGHTS

ORDER POSITION

WMS SOFTWARE TO CONTROL AND MANAGE ALL PICK OPERATIONS

Multiple operators

Multiple displays can be integrated in each order position to facilitate multiple picking operators (up to 3). This can be helpful for meeting higher throughput rates during peak times.

Graphical representation of orders

The WMS software provides the operator a graphical representation of the orders in the active batch, as well as information on the item that is being picked and the orders the item is associated with.

Technical specifications

BIN SPECIFICATIONS	MD	MG
Bin Inside Width	24"	36"
Bin/Shelf Depth	18" & 24"	
Shelf Adjustment Increments	2"	
Bin Nominal Heights[1]	84" & 96"	
Product Clearance	Shelf spacing minus 1.5"	
Maximum Bin Capacity[2]	1,200 Lbs	
Maximum Capacity per Shelf	250 Lbs	
Bin Volume 18" deep x 84" high	21 Cu Ft	31.5 Cu Ft
Bin Volume 18" deep x 96" high	24 Cu Ft	36 Cu Ft
Bin Volume 24" deep x 84" high	28 Cu Ft	42 Cu Ft
Bin Volume 24" deep x 96" high	32 Cu Ft	48 Cu Ft
Bin Wgt Cap per Cubic Ft 18" deep x 84" high	57 lbs/ft^3	38 lbs/ft^3
Bin Wgt Cap per Cubic Ft 18" deep x 96" high	50 lbs/ft^3	33 lbs/ft^3
Bin Wgt Cap per Cubic Ft 24" deep x 84" high	43 lbs/ft^3	29 lbs/ft^3
Bin Wgt Cap per Cubic Ft 24" deep x 96" high	38 lbs/ft^3	25 lbs/ft^3
Bin Construction	20 Gauge galvanized steel, solid sides and back wall	
Bin Weight Empty, 84" High, 18" Deep	115 Lbs	145 Lbs
Bin Weight Empty, 84" High, 24" Deep	124 Lbs	156 Lbs
Bin Weight Empty, 96" High, 18" Deep	126 Lbs	156 Lbs
*Bin Weight Empty, 96" High, 24" Deep	137 Lbs	168 Lbs
Bin Cover Weight, 18" Deep	3.7 Lbs	5.5 Lbs
Bin Cover Weight, 24" Deep	5.1 Lbs	7.5 Lbs
Shelf Construction	Solid surface, 18 gauge galvanized steel	
Shelf Weight, 18" Deep	7.9 Lbs	11.2 Lbs
Shelf Weight, 24" Deep	10.1 Lbs	14.3 Lbs
Reinforcement Bar Weight	1.5 Lbs	2.2 Lbs

CAROUSEL SPECIFICATIONS	MD	MG
Upper tracks	Ø1-1/4" Solid 304 SS	
Carousel Drive	Direct Drive, Cyclonic Gearing	
Drive HP	Single or Dual 3HP	
Max Live Load Capacity[3]	Single Drive 40,000 / Dual Drive 80,000 Lbs	
Carousel Maximum Speed	85 FPM	
Automatic Safety Doors	Standard	
Operator Inteface	Touchscreen Tablet	
Other Operator Controls	Muti-Function Button, E-stop	
Other Control Device	Product protrusion sensors, door open sensor	
Color - Carousel Frame Structure	RAL 7021 Black Grey	
Color - Door System	RAL 7035 Light Grey	

POD SPECIFICATIONS	
Carousels per Pod	1 to 4
Controls Platform	CoPilot Based Controls
Control Cabinet	Single NEMA 12 per pod
Control Cabinet Operter Controls	CoPilot Touchcreeen Master HMI, E-stop, Maintance Lockout Key
Power Options	230V 3-Phase or 480V 3-Phase
8 Foot High Perimeter Fencing	Standard (includes one access gate)
Fencing Color	Black Wire Mesh Panels with Safety Yellow Posts

OPTIONS
• Powder Coated Bins and Shelves
• Bin Top Dust Covers
• Door-Mounted LED Shelf Level Indicator Bars (Requires WMS software)
• Batch Picking Workstation
• Batch Picking Pick-To-Light System
• WMS Software Packages
• Perimiter fencing modifications
• Non-standard carousel center-to- center distances (to accommodate building columns and other restrictions)
• Special provisions for building columns within carousels

NOTES

1. Bin height of 96" may require a mobile step (by others) to access upper shelf elevations
2. Bin Capacity = shelves + reinforcement bars* + covers* + product (* if equipped)
3. Live Load Capacity = bin QTY (bin capacity + bin weight empty)

Options for different requirements

Thanks to the WMS software, it is easy to integrate additional options:
- Security devices, such as badge readers to control the access to your inventory.
- Productivity aids, including batch pick stations, label printers, barcode readers, and piece counting scales.

BATCH PICKING STATION

The ergonomic batch picking station is designed to maximize worker efficiency and rapidly process large volumes of small to medium-sized items. Used in conjunction with WMS order picking management and the Put to Light indications, this station provides intuitive instructions to maintain high throughput and ensure accuracy through organization and task confirmation.

USB BADGE READER

The USB badge reader, directly connected to the control panel by the USB port, is ideal for maintaining control of user log-ins.
The operators use their personal badges to access the machine. This prevents unauthorized accesses if the standard log-in procedure of employing a password isn't sufficient.

LABEL PRINTERS

Label printers are a great option to ensure that all items are properly labeled in real time. During picking or replenishment operations, the operators simply enter the desired information using the HMI tablet. Labels and tags containing the information of the materials are printed as operations take place. Label printers are available in a variety of models.
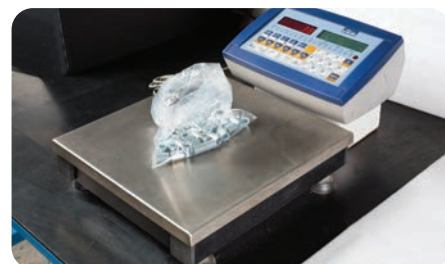
BARCODE READERS

Barcode readers can significantly improve picking accuracy and ensure that the correct item is picked or replenished. They can also be used to confirm orders or to log into the horizontal carousel with the operator's unique badge barcode. The devices are wireless units for ease of use and are available in both 1D or 2D versions to meet any application requirements.
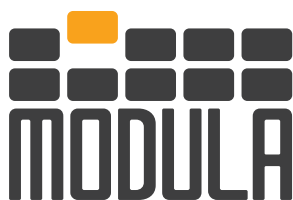
PIECE COUNTING SCALE

This device can count the number of items placed on the scale based on the unit weight of each individual piece. It's the ideal tool when large quantities of small-sized components are stored, helping the operator quickly select the required quantities. The scales come with a single platform with load capacities of 6, 13, 33 or 66 lbs or as a double platform to accommodate items of widely varying weights.

MODULA WORLD

SWEDEN
CZECH REPUBLIC
POLAND
GERMANY
FINLAND
DENMARK
BALTIC COUNTRIES
BENELUX
RUSSIA
IRELAND
BIELORUSSIA
CANADA
USA-ME
UK
SLOVAKIA
FRANCE
HUNGARY
CHINA
USA-OH
ITALY
ROMANIA
PORTUGAL
SPAIN
BULGARIA
SOUTH KOREA
MEXICO
TURKEY
PAKISTAN
SLOVENIA
GREECE
BANGLADESH
TAIWAN
COLOMBIA
SERBIA
COSTA RICA
CROATIA
THAILAND
VIETNAM
ECUADOR
INDIA
PHILIPPINES
ISRAEL
MALAYSIA
PERU
BRAZIL
MONTENEGRO
SINGAPORE
PARAGUAY
INDONESIA
ARGENTINA
URUGUAY
SOUTH AFRICA
AUSTRALIA
CHILE

Modula is present in **5 continents** with dealers and branches in more than **50 countries**

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