



Modula

水平回转货柜

Horizontal Carousel

全新一代 NEW GENERATION

Modula全新水平回转货柜

基于三十多年的市场经验，摩登纳推出了全新的水平回转货柜。她采用最先进的技术并充分考虑了人体工程学，操作安全性，使用效率，生产节拍等多重因素。

摩登纳水平回转货柜，适合在低矮环境中使用。无论是在物流中心还是制造工厂，她都是密集拣选的理想选择。

摩登纳水平回转货柜由料斗组成，物料存放在料斗中，料斗在不锈钢轨道上做水平回转，将相应的料斗呈现在操作者面前的存取区域，实现“货到人”。

The new Modula Horizontal Carousel

Based on **thirty years of experience** in the American market, the new Modula horizontal carousel was developed, taking into consideration, up to date safety, ergonomics, efficiency and productivity standards.

It is ideal for all intensive picking applications, in both distribution and production environments, or in facilities where it is not possible to use vertical space due to height restrictions.

Each carousel is composed of a series of bins that rotate horizontally on a stainless steel track and bring the products ready for picking to the operator in the picking area, using to the goods-to-person concept.

水平回转货柜的优点 The advantages of Carousels



提高生产效率

遵循“货到人”的设计理念，物料被直接送到操作员的面前。极大的减少了操作者行走的距离，和寻找物料的时间。

PRODUCTIVITY INCREASES

Following the “goods-to-person” concept, the products are brought directly to the operator, eliminating any waste of time compared to traditional manual picking methods.



降低风险，符合人体工程学

操作者在安全且符合人体工程学要求的环境下工作。安全系统可预防员工与货柜的移动部件发生危险接触。

REDUCES RISKS AND IMPROVES ERGONOMICS

Operators work in safe and ergonomic conditions. The safety systems prevent all contact with the moving parts of the carousel.



精确拣选

得益于货柜的视觉辅助系统，操作员可以快速确定待拣选的产品和数量。这样可以减少人为误差，将拣选精确度提高到99%以上。

PRECISION PICKING

Thanks to visual aid systems, operators can quickly identify which and how many products to pick. This reduces human error, increasing pick accuracy to over 99%.



最大限度地利用空间

物料被储存在高效且紧凑的储存区域

MAXIMIZES THE USE OF SPACE

Products are stored and organized in a compact and high density storage area.

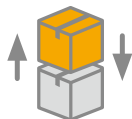


数据可追溯和实时库存管理

所有拣选操作都受到监控并予以记录，充分保证订单和库存数据的可追溯性。

FULL TRACEABILITY AND REAL-TIME INVENTORY

All picking operations are monitored and documented, enabling full traceability of orders and stock levels.



高度灵活，能够满足各种储存需求

系统可以提供多种组合方案及不同的料斗的尺寸，满足客户对不同物料的混合摆放的需求及临时性需求，如季节性订单。

FLEXIBILITY FOR EVERY STORAGE NEED

The management of the carousel units, as well as the distance between the shelves for the bins, can be easily adjusted to adapt them to changing product mixes or to meet temporary needs like seasonal orders.



快速获得投资回报

投资回报期在6至18个月之间，取决于具体的应用场景和对应的解决方案。

QUICK RETURN ON INVESTMENT

The ROI ranges between 6 and 18 months, depending on the size and characteristics of the design.



不锈钢轨道
TRACK MADE OF STAINLESS STEEL

库位高度可调 最小间距50毫米
SHELVES PITCH 50 mm

最大承载能力36吨
LOAD-BEARING CAPACITY 36 T MAXIMUM

最快回转速度
SPEED OF ROTATION 26 m / min

型号 Model	料斗宽度 Bin width (mm)	料斗高度 Bin height (mm)	料斗深度 Bin depth (mm)	货柜高度 Carousel height (mm)	电机离地高度 Inverted motor carousel height (mm)	料斗最大载重 Bin capacity (kg)	搁板最大载重 Shelf load capacity (kg)
MD84	610	2,134	457	3,023	2,743	550	110
MD84D	610	2,134	610	3,023	2,743	550	110
MD96	610	2,438	457	3,327	3,048	550	110
MD96D	610	2,438	610	3,327	3,048	550	110
MG84	914	2,134	457	3,023	2,743	550	110
MG84D	914	2,134	610	3,023	2,743	550	110
MG96	914	2,438	457	3,327	3,048	550	110
MG96D	914	2,438	610	3,327	3,048	550	110

安全至上

摩登纳水平回转货柜，为操作员和储存的货物提供了最高标准的安全设计。

每个单元都配有：

- 自动屏蔽门
- 2.4 米高的防护围栏，自动门和急停开关。



Maximum attention to safety

Horizontal carousels were designed to guarantee the highest safety standards for both the operators and for the goods stored in them.

Each unit is supplied with:

- automatic door
- 2.4 m high perimeter fence with safety door and key switch for the entire unit.



自动门

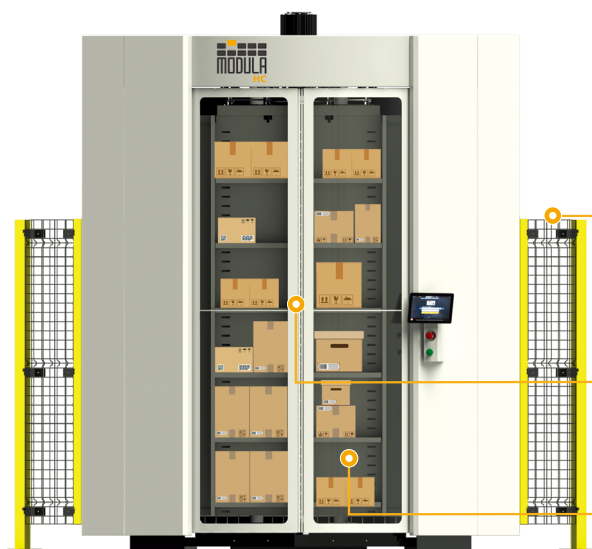
自动门，在货柜运转时保持关闭状态；只有货柜完全静止时，拣选状态就绪后，自动门才会打开。

门板由高强度的聚碳酸酯制成，采用半弯曲设计，符合人体工程学要求，便于操作人员进行拣选作业。自动门还配有传感器，以防止门在关闭过程中受到人员或者物体的干扰。关门的力度也经过了校准，以防止挤压事故的发生。

Automatic doors

The high-speed automatic doors (opening/closing) guarantee operator safety as they prevent access to moving parts until the carousel is completely still and ready for picking.

The doors are made of high-strength polycarbonate and were specially designed with a semi-curved and highly ergonomic design to facilitate picking operations for operators. The doors are also equipped with sensors to prevent foreign objects from accidentally interfering with the closing of the doors, the force of which is also calibrated to prevent crushing injuries.



金属护栏
PERIMETER PROTECTION

门板处的防夹检测传感器
OBSTACLE DETECTION
SENSORS NEAR THE DOOR

开关自如的自动门
AUTOMATIC DOOR WITH
CONTROLLED FORCE

灵活性

组合式水平回转货柜

为了提高效率，水平回转货柜可以采用不同的组合方式，包括2组，3组或4组回转货柜的组合。



2组回转货柜 2 CAROUSELS



3组回转货柜 3 CAROUSELS



4组回转货柜 4 CAROUSELS

当操作者在货柜组合中的一组货柜上进行拣选时，其他组货柜可以同时回转运行，以准备后续拣选的物料。这样可以最大限度地减少了操作者的等待时间，极大地提高了操作效率。单个工作站每小时最多可以拣选500次。

Productivity and flexibility

Carousel units

In order to increase productivity, horizontal carousels can be used in groups, also known as "pods". Different configurations are available, consisting of 2, 3 or 4 carousels.

While the operator picks from one carousel in a pod, the other carousels rotate and prepare the material for the subsequent picks. This minimizes operator downtime, exponentially increasing performance. Each picking station can allow up to 550 picks/hour.

可适应复杂的安装环境

水平回转货柜采用了高度灵活性的安装设计，可以安装在具有特殊几何结构的环境中，也可以安装在有建筑物障碍的地方。

- 回转货柜组间距可以根据现场情况制定，从而避开障碍物，如：支撑柱。
- 控制面板可以根据具体要求安装在不同的位置。
- 防护围栏可以按照现场情况进行设计。

Excellent adaptability

Horizontal carousels can be installed in environments with particular geometrical structures or in sites with architectural obstacles.

For this reason they were designed to ensure maximum installation flexibility.

- The distance between carousels can be adjusted to circumvent obstacles, such as support columns etc.
- The control panel can be positioned at different points of the installation, according to the specific requirements.
- The perimeter fence is normally designed to suit the specific installation site.



通过简单的图形界面， 让一切尽在掌握之中

水平回转货柜采用了摩登纳标准的控制系统和图形界面。无论是那些已经在使用摩登纳货柜的老用户，还是新用户，她都会让操作者觉得非常简单，友善。

其具体配置如下：

- 现场所有货柜配备一个主控制面板，用于控制货柜组的运行和维护。面板上有急停按钮和开关键。
- 每组货柜都配有专用的平板电脑，安装在自动屏蔽门的侧面，作为操作指示屏。
- 每组货柜还配有一个结束拣选按钮和一个急停按钮。



视觉辅助工具

操作屏有可以显示库位的分布情况，标注待拣选库位的具体位置，以及显示相应的物料描述和数量。为了实现更快，更精确的拣选和补货作业，每个自动门还配备了LED灯条。这种视觉辅助工具可以快速向操作员指示要从哪个货架，哪个物料盒上拣选物品。

Modula WMS软件

Modula WMS是摩登纳自主研发的仓库管理软件。她支持仓储系统的实时管理，以及用户和物品数据，库位、订单和库存的管理，可以与ERP系统进行集成。

Everything under control with a simple graphic interface

The horizontal carousel uses the control systems and graphic interfaces of all other Modula products.

This makes it extremely familiar and intuitive to use, for those who already use Modula vertical storage systems as well as for new users.

In particular, the following are supplied:

- A main control panel, used for assembly and maintenance of the carousels. An emergency stop button and a key switch for maintenance are available on the panel. Only one control panel is supplied for each pod.
- The operator interface consists of a tablet, positioned on the side of the door of each carousel. Each carousel is therefore equipped with a dedicated tablet. Each station is also equipped with an end picking button and an emergency stop button.

Precision picking with visual aids

The tablet placed next to the door has a graphic display which shows the compartment from which the item(s) should be picked, as well as the description and quantity of the items involved in the operation. For faster and more precise picking and replenishing operations, each automatic door is also equipped with LED light bars. This visual aid immediately indicates to the operator on which shelf the bin the item is to be picked from is located.

Modula WMS software

Modula WMS is the ideal warehouse management software for Modula automatic vertical and horizontal systems. It enables the real-time management of the storage system as well as the management of user and item data, locations, material handling, picking and placing orders, inventories, integration with ERP systems, and more.

更高效的拣选解决方案

播种式显示屏

“播种式显示屏”是多订单合并拣选模式下，最快捷、直观，准确且可扩展的解决方案。

在“播种式显示屏”系统中，每个订单都有准确的物理位置，每个位置的显示器都和系统的订单一一对应，操作员可以根据位置显示器的指引，准确的将物料放入相应的订单位置。

系统按照物料进行检索，一旦目标物料被确定，位置显示器会显示当前订单中的物料数量并指示操作人员将物料放在指定位置。Modula WMS软件可以部署不同的拣选策略，包括分批拣选或多订单拣选。

Even higher productivity with our picking solutions

PUT TO LIGHT

Put to Light solutions are the best choice for order preparation when a fast, intuitive, scalable and error-free process is required. In a Put to Light system, the displays visually guide the operator to the locations in which the items for each order must be put. A luminous display is associated with each location or bin assigned to an order. Sorting is carried out by item. Once an item has been identified, the displays visually indicate to the operator the bin in which it must be placed and the quantity required for each order. The Modula WMS software that manages the Put to Light system allows the implementation of different picking strategies, including batch picking or multi-order.



固定式拣选站

我们可以提供固定式的拣选站。她由坚固的涂漆钢结构，支撑物料盒的搁板和多个带控制电源的“播种式显示屏”组成。那些需要同时处理多个订单的用户，可以结合这些模块来对拣选站进行扩展。另外，我们还提供用于安装显示器、标签打印机、扫码枪或其他附件的中间模块。该系统必须配合Modula WMS软件一起使用。

PICKING STATION

A picking station is fixed, complete and modular, equipped with various picking positions. It is made of a sturdy painted steel structure, shelves to support the bins and a number of Put to Light displays with relative controller / power supply. The modules can be coupled to allow the expansion of the station for those who need to process many orders simultaneously. Intermediate modules are also available for the installation of monitors, label printers, barcode readers or other accessories. The system must be equipped with the Modula WMS software.



移动式拣选站

拣货小车是一个可移动的、模块化的工作站，可配备多个拣选位置。她由一个带万向旋转车轮的涂漆钢制手推车，物料盒搁板，一定数量的“播种式显示屏”，电源/备用电池和用于无线连接的WiFi系统组成。该系统必须配备Modula WMS软件。

PICKING CART

A picking cart is a mobile, complete and modular station, equipped with various picking positions.

It consists of a painted steel trolley equipped with 4 pivoting wheels for easy maneuverability, shelves for bins, a certain number of Put to Light displays with relative controller, power / backup batteries and WiFi system for wireless connectivity. The system must be equipped with the Modula WMS software.



附件 Accessories

激光打印机 / Label printer



工业电子秤 / Counting scale



磁条读卡器 / Magnetic badge reader

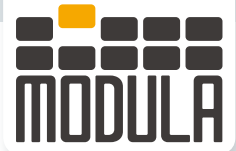


一维和二维条形码阅读器 / 1D and 2D barcode reader



我们的部分客户

Some Modula references



汽车行业 AUTOMOTIVE INDUSTRIAL

BMW China, Germany, Austria, UK, Belgium, USA, Mexico, Canada
VOLKSWAGEN China, Germany, Spain, Argentina
DAIMLER China, Italy, Germany, Mexico
FERRARI Italy
AUTOMOBILI LAMBORGHINI Italy
MASERATI Italy
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AUDI Spain, Mexico, Belgium
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3M Italy, Poland, Argentina
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BLACK & DECKER Italy, USA, Hungary
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生物医学 CHEMICAL PHARMACEUTICAL

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