



# Hänel Rotomat® storage carousels

## Efficient storage, optimized access times, ergonomic materials handling



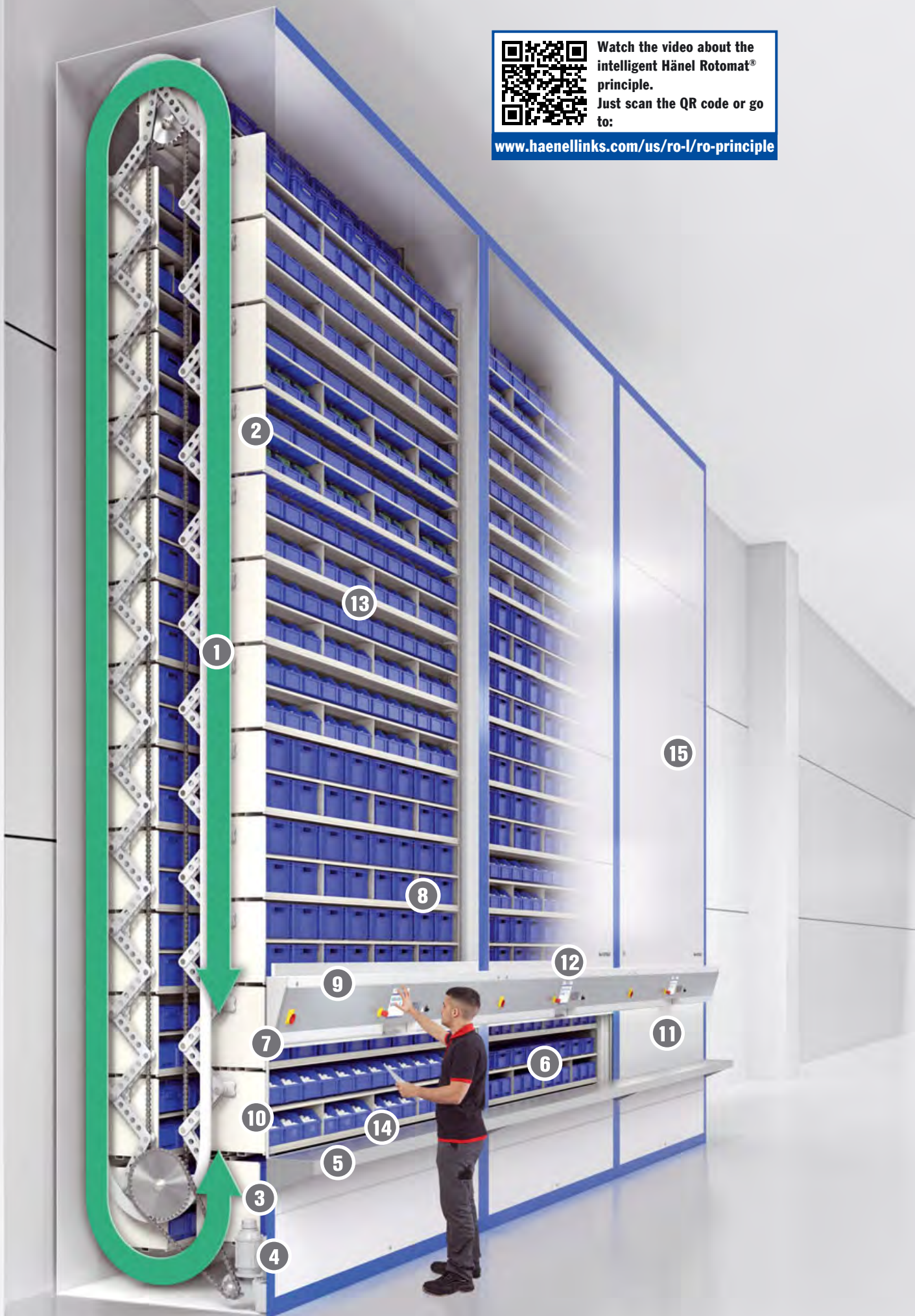
Ideas that move the world...





Watch the video about the intelligent Hänel Rotomat® principle. Just scan the QR code or go to:

[www.haenellinks.com/us/ro-l/ro-principle](http://www.haenellinks.com/us/ro-l/ro-principle)



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# Hänel Rotomat® storage carousels

## Optimizing procedures, increasing flexibility, lowering costs

**Rationalization, cost-cutting, efficiency: these are all demands that modern-day storage organizations must meet!**

### **Quality and leading-edge technology 'Made by Hänel'**

In 1953 Gerhard Hänel founded the office equipment company 'Hänel Bürosysteme'. By 1957 Hänel was series-producing filing carousels based on the Ferris wheel principle – the first manufacturer in Europe to do so.

Today Rotomat® carousels and Hänel Lean-Lifts® are produced in three manufacturing plants – and exported worldwide. Hänel has distributors in over 60 countries across the globe.

Innovation and performance, dynamics and ideas, new technologies and team spirit have made Hänel one of the leading providers of storage and organization systems.

With the Hänel Rotomat® storage carousel, we offer a flexible storage and provisioning system that adapts optimally to your needs.

### **More than 60 % space saving**

The Hänel Rotomat® storage carousel makes use of the available room height and creates up to 60 % more storage capacity thanks to its compact design. This means costly warehousing space can be used more efficiently.

### **This saves costs!**

### **Work time slashed**

The Hänel Rotomat® storage carousel brings the required parts to the retrieval area in just a few seconds.

### **Ergonomics**

No more bending, ladder-climbing or walking long distances to search for and store parts or articles. The required items are brought automatically to the optimum ergonomic retrieval height.

### **We are committed to environmental protection**

It goes without saying that production at our three plants meets the latest environmental guidelines. Only environmentally friendly, recyclable materials are used.

With the intelligent energy management feature Hänel EcoMode®, the Hänel storage systems can be switched to different standby modes. This allows energy consumption to be reduced to a minimum.

### **Our specialists will continue to work on the Hänel EcoConcept and develop further energy-efficient solutions for the Hänel storage systems.**

### **The right decision**

If you want to improve your intralogistics concept and reduce costs, you should talk to the specialists at Hänel first. They will work with you to develop your own 'tailor-made intralogistics concept'.



# The Hänel Rotomat<sup>®</sup> storage system – benefits that speak for themselves!

## More than 60 % savings in existing floor space

Maximum storage volume with a minimal footprint thanks to vertical system design and high storage density.

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## Enormous time savings

The Hänel Rotomat<sup>®</sup> enables extremely fast access to stored items – time-consuming retrieval is a thing of the past.

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## Maximum safety

Innovative features such as the Hänel safety switch and light-barrier curtain guarantee maximum user safety. Hänel goes far beyond the requirements of today's safety standards.

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## Robust carrier construction

The standard maximum carrier load is 750 kg/1,653 lbs. The total maximum load per Rotomat<sup>®</sup> is 14,000 kg/30,865 lbs.

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## Maximized ergonomics

The required items are brought automatically at the optimum ergonomic retrieval height. There is less physical stress and strain for employees.

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## Maximum order-picking performance

The Hänel Rotomat<sup>®</sup> is ideal for fast order picking. In some models the speed of rotation can be optionally increased by up to 70 % (high-speed version) depending on the application.

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## **Digital solutions that boost the efficiency of Hänel intralogistics**

Whether as stand-alone solutions or as genuine “team players” in a holistic production landscape managed by host ERP systems, Hänel offers intelligent control and software options for digital warehouse management.

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## **Optimized energy efficiency**

The Hänel Rotomat® is extremely energy efficient thanks to its vertical carousel design and the Hänel EcoLoad® system.

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## **Highest storage density**

Hänel multifunction carriers and flexible configuration options can increase storage density even further.

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## **Integrated storage management**

Complete warehouse management software for standalone operation is integrated as standard in all Hänel controllers.

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## **Very high availability**

The Hänel Rotomat® is tops when it comes to resilience and outage prevention. Redundant systems are available.

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## **High cost-effectiveness**

The tried and tested vertical carousel principle of the Hänel Rotomat® keeps lifecycle costs extremely low.

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You will find a number of interesting case studies from customers worldwide on our website under the heading "Solutions" – just scan the QR code or go to:

[www.haenellinks.com/us/solutions](http://www.haenellinks.com/us/solutions)



Hänel ROTOMAT

# Hänel multifunction carriers

## Adaptable and versatile



Multifunction carrier with different front edge variants



Multifunction carrier with intermediate shelves slotted into punched holes and with movable dividers



Multifunction carrier with front wall – trough version with movable dividers



Multifunction carrier with lowerable front walls

**No two Hänel Rotomats® are the same, because each task demands a precisely defined solution**

### The task defines the fittings

We provide customized interior fittings, tailored to the individual demands of production systems and storage logistics. The mechanical parts and carrier sets are configured according to the size and weight of the storage goods. It's this flexibility that makes the Hänel Rotomat® so cost-effective.

The Hänel multifunction carriers offer you customized, variable interior fittings that can be adapted effortlessly to your personal needs and the different article heights. This achieves maximum compaction of the storage volume.

And a wide range of accessories are available, such as plastic boxes, tool inserts, molded trays for small parts, holders for milling cutters, etc., which complement the Hänel Rotomat®, turning it into a complete logistics system that saves costs, makes optimum use of space, makes work easier and minimizes distribution times.

Hänel also offers customized special-purpose holders for SMD reels, cable drums, printing rollers, rods and tubes.

### The pluses

- ▶ Hänel multifunction carriers are absolutely stable and distortion-free.
- ▶ Variable fittings can be altered at a later date.
- ▶ Compartment dividers, bins, drawers or loose goods – the possibilities are endless.
- ▶ Long lifecycle and high load-bearing capacity up to 750 kg/ 1,653 lbs per carrier, depending on the model.

**Our specialists would be happy to develop a tailored solution for your storage requirements.**



Multifunction carrier with drawers of different heights slotted into punched holes

# Hänel ROTOMAT





### Safety light curtain

The Hänel light curtain guarantees maximum safety for the operators as they pick and put.

# Always well stocked with great ideas

## The Hänel Rotomat® access point

### Intelligent features for individual requirements



#### Durable V2A work counter

The wear-resistant V2A work counter of the Hänel Rotomat® is very durable and not only looks good, but also enables users to pick, put and slide the storage bins with ease.

Behind it is the **Hänel safety threshold** which allows level-sweep access to the inventory while ensuring optimal personal protection at the same time.



#### Lockable sliding doors

The Hänel Rotomat® is fitted with a smooth-action, lockable sliding door. This protects the goods from dust and dirt as well as from unauthorized access. The sliding door is split, with the upper and lower

halves providing a counterbalance to each other. This makes the door easy to open without the need for additional counter-weights.



#### Digital picking display

With its new digital picking display, Hänel offers yet another system feature for finding stored articles quickly and easily.

The digital picking display shows where the requested article is currently positioned and also provides additional information about the item itself and the storage location in direct proximity to it.

Input can be entered in the digital picking display via the touchscreen. Retrieval is confirmed directly on the location display. This is particularly useful on very wide storage systems as it eliminates long walking distances and saves time. All Hänel systems can be equipped with the digital picking display.



#### The compartment indicator ensures error-free access and quick storage and retrieval

The LED display is integrated elegantly into the work counter. The sub-level indicator in front of each storage compartment ensures error-free retrieval. The compart-

ment and sub-level are displayed on the LED strip as either one or two digits.

# Everything in balance

## High-tech for the storeroom

### Hänel EcoLoad® Energy-efficient loading

The Hänel Rotomat® also has a smart energy conservation concept – the Hänel EcoLoad®.

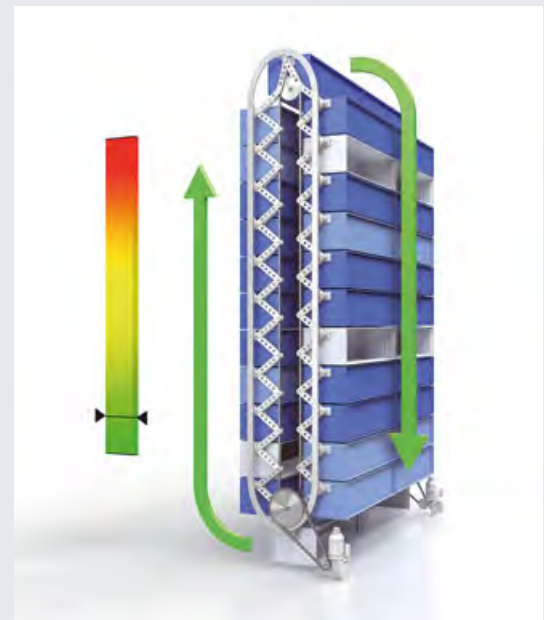
As the Rotomat® works on the principle of rotation, a lot of energy can be saved by ensuring even load distribution. So the load status of the Hänel Rotomat® is continuously monitored.

This enables the Hänel microprocessor controller to achieve optimum distribution of the storage items thanks to loading recommendations. If system operators follow the recommendations, the inventory items inside the storage system are kept in nearly perfect balance.

As a result, very little energy is required for the rotation movement.



Weight distribution in the Hänel Rotomat® is measured continuously so that if a load becomes uneven, a relocation of goods is recommended by the Hänel EcoLoad® warning device to optimize energy efficiency



When the load is evenly distributed in the Hänel Rotomat® very little energy is required for the rotation movement

### Accurate positioning of the shelf levels

The Hänel Rotomat® multifunction positioning system MFPS 1 is able to position each level of a carrier with exceptional accuracy when the load is evenly distributed. The intelligent Hänel microprocessor control systems, such as the MP 12 N, also have a brake path monitoring and correction system installed which records any push-on effect caused by a high load imbalance and carries out a correction when the carousel starts up again.

New stop positions can be programmed easily with the teach-in process.



Each retrieval level is precisely positioned and can be individually adjusted via the control unit

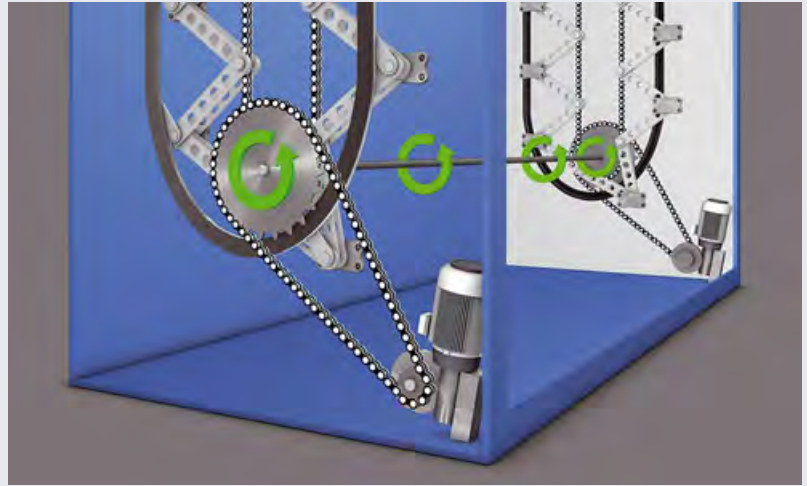
# Keeping the wheels of industry turning

## The Hänel Rotomat® drive components

### Twin-motor design

The drive systems of all Hänel Rotomat® carousels are housed inside the carousel casing. This ensures optimal freedom of movement in front of the carousel.

Almost all Hänel Rotomat® storage carousels are equipped with twin motors. This guarantees less wear and quieter running. The right and left drive motors are controlled in sync. The simultaneous acceleration and braking of the two drives means that the multifunction carriers are moved without distortion. The twin motor design also ensures optimal balance if the load on the carrier is distributed unevenly.



### Stable carrier suspension on 4-point sliding carriage principle

The Hänel Rotomat® carrier suspension is designed according to the sliding carriage principle so that the carriers are suspended from four levers on four rollers on left and right.

Suspension from four levers means that transverse forces are safely absorbed, reducing wear substantially and making running quieter.



### Safety Bypass System

Hänel Rotomat® storage carousels work reliably and failure-free. If a malfunction should arise, however, Hänel's optional Safety Bypass System comes into effect in certain cases.

If a light barrier curtain or door switch is defective, for example, the user can continue to operate the Hänel Rotomat® until the Hänel service technician arrives by activating the Safety Bypass System and closing the sliding door.





Item number	Item description
100-01-001	NUMERICAL TOOL 10 100
100-01-002	NUMERICAL TOOL 10 100
100-01-003	NUMERICAL TOOL 10 100
100-01-004	NUMERICAL TOOL 10 100
100-01-005	NUMERICAL TOOL 10 100
100-01-006	NUMERICAL TOOL 10 100

7 8 9 + - ↓ ↑ F1 F2  
4 5 6 \* / ← → F3 F4  
1 2 3 0 1  
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Leica

7044  
6373  
7137  
7065  
7778



# Less warehouse is more

## Distinct advantages over conventional rack storage and MLS

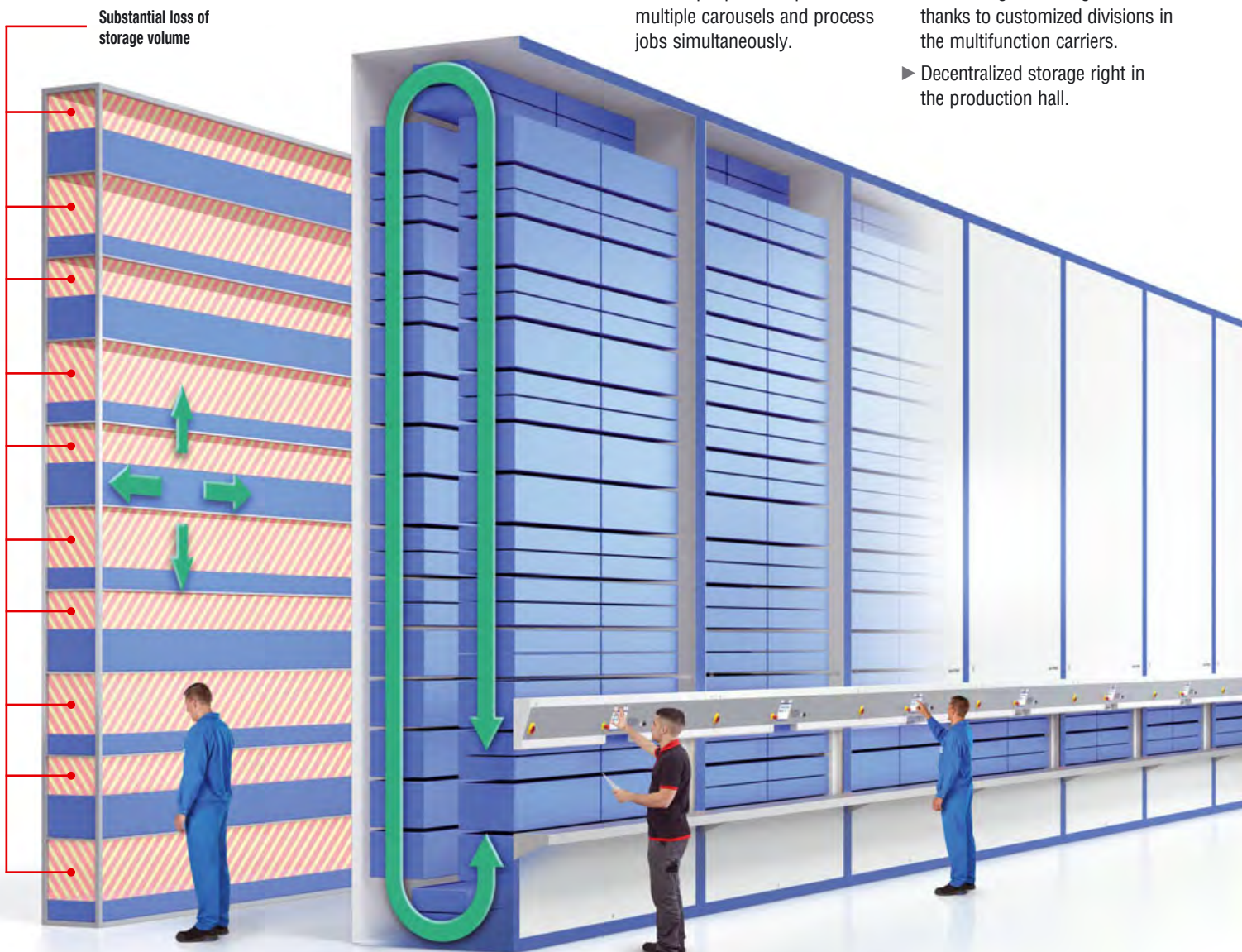
**The Hänel Rotomat® offers up to 60 % more storage capacity than a miniload system or conventional rack store on the same footprint**

One glance in the Hänel Rotomat® shows the advantages clearly: Adapting the multifunction carriers to suit the inventory items means that highly varied parts can be stored optimally without any loss of space!

**Key points speak in favor of the Hänel Rotomat® storage carousel:**

### The pluses

- ▶ Up to 60 % more storage capacity.
- ▶ Storage capacity can be adapted step by step.
- ▶ Several people can operate multiple carousels and process jobs simultaneously.
- ▶ Retrieval times are considerably shorter.
- ▶ Units can be added, expanded or separated at a later time.
- ▶ Better usage of storage volume thanks to customized divisions in the multifunction carriers.
- ▶ Decentralized storage right in the production hall.



Substantial loss of storage volume

**Miniload system/conventional rack storage**

**Hänel Rotomat® storage carousel**



**Free/unused storage capacity**



**Goods stored**





### **High picking performance in the dispatch warehouse**

The Hänel Rotomat® is designed for maximum efficiency and boosts picking rates thanks to parallel prepositioning.

# Maximum efficiency in order picking and shipping

## Top order-picking performance due to short travel paths

To meet the demands of a modern dispatch warehouse, a complex intralogistics concept needs to be implemented. The Hänel Rotomat® storage carousel is the ideal automated materials handling system for this purpose.

The vertical carousel with its short travel paths and therefore swift retrieval of requested articles enables top order-picking performance.

An operator can pick, put and fill orders at multiple Hänel Rotomat® storage carousels continuously. As the Hänel microprocessor control systems are linked up to the enterprise resource planning system, the orders are displayed directly at the microprocessor controllers and the Hänel storage carousels are pre-positioned in working groups.

Numerous customers worldwide use Hänel Rotomat® storage carousels, for example in spare parts provisioning, for logistics services and in the mail order business.

**Make use of our experience and talk to our specialists.**

## Optimal utilization of the available storage area on multiple floors

This dispatch warehouse consists of 13 Hänel Rotomat® storage carousels each with an overall height of 9 m/30 ft.



Large and small dispatch warehouses benefit from the high flexibility and performance of Hänel Rotomat® systems – the result is more storage capacity and optimized processes





# Hänel Rotomat® storage carousels in high-speed version

## Boost order picking performance with the Hänel Rotomat® high-speed version

The speed of rotation has been improved by up to 70 %, depending on the application. Special multifunction carriers have been developed for this purpose to give the storage goods added security.

Moreover, the user can pick articles from the lower section of the carrier as well as from the upper section. An additional integrated light curtain ensures that Hänel's high security standards are met.

A further storage location display for the upper section of the carrier has also been incorporated.

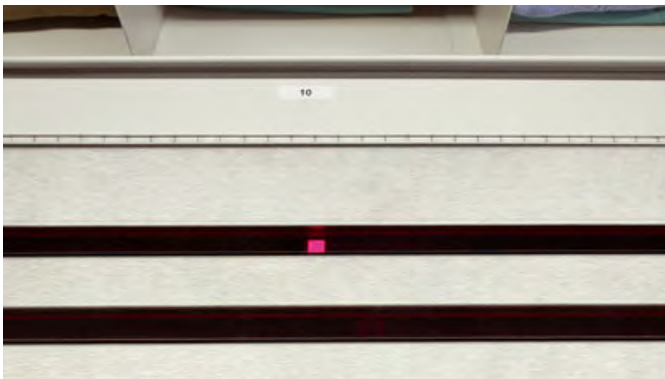
Barcode scanners are used to identify the items to be picked, and the Rotomat® moves to the storage position without any additional input at the control unit. This eliminates the need to enter a confirmation.

The average access time is consequently reduced by up to 40 %, so once again Hänel has succeeded in substantially improving order picking performance.

Customers are already using the high speed version of the Hänel Rotomat® storage carousel for their order picking with great success.



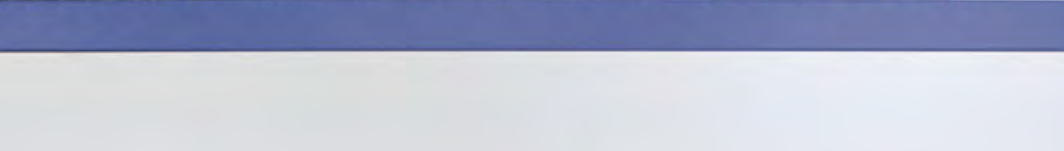
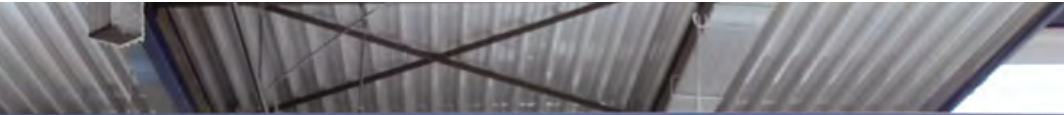
Rapid data entry for articles with the fixed-mount barcode scanner



The double-row compartment indicator reliably shows the correct storage location



Two light-barrier curtains ensure order picking is safe across the entire access area



Speed of rotation increased by up to 70 percent



**The Hänel Rotomat®  
storage carousel as  
a buffer store**

Protected interim storage of sensitive aircraft turbine shafts in the Hänel Rotomat® storage carousel. This buffer store also includes eight Hänel Lean-Lifts®.



# Handling heavy parts with ease

## The Hänel Rotomat® heavy-duty carousels

### Hänel has the right solution for heavy-duty requirements

Hänel Rotomat® storage carousels can also cope with heavy and bulky storage items. Offering standard widths up to 3,420 mm/135" (greater widths also possible), standard carrier payloads of up to 750 kg/1,653 lbs maximum and total payloads of up to 14,000 kg/30,865 lbs per unit, the Hänel Rotomat® is the ideal heavy-duty automated storage system.

Whether it's handling complete sub-assemblies, bulky components or tools – the Hänel Rotomat® storage carousel brings all the items to the ergonomic retrieval height on request. This means a large number of parts can be stored in a safe and protected environment on a minimal footprint.

The powerful 2-motor drive system and robust design of the multifunction carriers along with the 4-point sliding carriage suspension makes the Hänel Rotomat® the optimal system for the metal-working industry.

### The Hänel Rotomat® tackles the really tough jobs!



Safe and secure storage of heavy components in the Hänel Rotomat®



Drawers fitted with telescopic runners are also suited for heavy loads



Tool storage in the Rotomat® industrial storage system

Hänel ROTOMAT



# All parts safely in hand

## Orderly storage of small parts

### The Hänel Rotomat® with storage boxes and drawers on telescopic runners

Mail order businesses, production halls and spare parts centers all have one thing in common – they often need to store, retrieve and pick large numbers of highly varied small parts on demand.

Hänel offers different inserts and dividers for its carriers to make the job easier. Plastic boxes of various dimensions, for example, can be stored in the Hänel Rotomat®.

These boxes can be subdivided again, while the compartment sub-level indicator helps the user find and pick the required article quickly and without error.

Small parts can also be kept in drawers with telescopic runners to save space. These drawers are available in different heights, so that the compartment sizes can be adapted precisely to your stock.



Access to items stored in the drawers is very ergonomic



Small parts stored in drawers on telescopic runners



Loose parts are counted by weight on a scale near the storage system and then delivered to the assembly area





# Hänel Rotomat® ESD storage

## Protected storage in the electronics industry

**With its antistatic coating, the Rotomat® offers optimal protection for electronic components and devices**

To avoid damage caused by electrostatic discharge, electronic devices and components must be handled, packaged and stored in an ESD-protected environment. With this in mind, Hänel offers its Rotomat® storage carousels with a conductive work counter, multi-function carriers with an antistatic coating and mechanical systems of special ESD design.

Numerous companies in the electronics industry worldwide use the Hänel Rotomat® storage carousel to store sensitive electronic devices both in the production hall and in the dispatch warehouse.

Pick and put operations can be booked using a barcode scanner. This guarantees continuous inventory control.

If electronic components need to be stored in an antistatic, air-controlled environment, the ESD version of the Hänel Rotomat® storage carousel can be combined with systems like the Hänel ClimateStore® or the Hänel Clean-Store (for further information, turn to pages 32–33).



Storage of electronic components in the production hall



ESD buffer store for PC board assembly



Diverse SMD components are neatly, securely and safely stored in the Hänel Rotomat® system

# Hänel Lockomat®

## Safe and secure retrieval

**Compartment doors that are closed manually or automatically guarantee error-free retrieval and protect the stored articles from unauthorized access**

### User authorization

The user proves his authorization by means of an ID card, password or transponder, and the user interface set up for him personally appears on the display. All booking operations can then be traced to a specific user. Multiple users can be set up with different authorizations.

### Article management

Articles are requested or put into storage by entering an article number or using a barcode scanner. The digital LED display on the work surface indicates the compartment door behind which the article is stored. All pick and put operations are logged, which makes later verification and tracking easy. Similar-looking articles can't be confused.

### Inventory control

Continuous inventory control means that shortages in the supply of materials can be avoided. The intelligent microprocessor control system can be easily integrated into the customer's own IT system. This ensures you have an overview of the stock situation at all times.

### Protection of inventory

The closed storage system protects your stock from unauthorized access.

### Space and time savings

Optimum use of floor space. There are no upper limits to the Lockomat®. Systems can even span multiple floors.

**The Lockomat® is designed according to the tried-and-tested vertical carousel principle. That means:**

Goods to man is the motto instead of man to goods. Access times are slashed.

**The Hänel Lockomat® is the ideal storage system for safe and secure provisioning of small parts, tools, electronic components, medicines, and much more.**



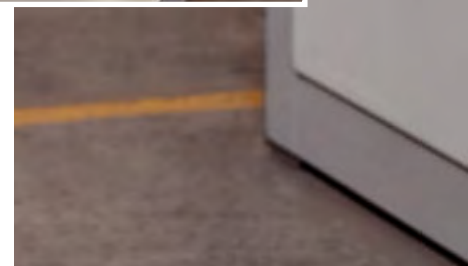
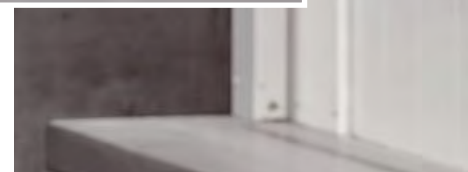
Articles are requested by entering a number on the controller or by using a barcode scanner



The compartment indicator shows where the article can be retrieved. These compartment doors open automatically



The Hänel RFID transponder: one of the many options for user authentication



Hänel LOCKOMAT







# Error-free access with article code input via keyboard or barcode scanner

**Compartment doors that are closed manually or automatically guarantee reliable access and protect the stored articles from unauthorized retrieval**



Only the compartment containing the requested article can be opened

When components that look identical, such as microchips, are to be stored and retrieved in the same system, the danger of mix-ups is high.

With the Hänel Lockomat® there is no need for time-consuming labeling of components. Each chip type is kept in a package marked with a barcode and put into a storage location with the same code in the Lockomat®. When the barcode has been scanned in from the pick list, the required package is brought to the user by a fully automated procedure.

## No mix-ups possible

Each package is safely stored behind a specific electromagnetically locked compartment door. And only this door opens.

Only when the retrieval process is completed, the package is back in its storage location and the door is closed, will the next door open.



Precise identification of articles via barcode scanner

# Tool storage in the Hänel Lockomat®: Safe, secure, fast and cost-effective!

**The Hänel Lockomat® is the ideal storage system for safe and secure provisioning of tools and measuring devices right in the production hall!**

Users confirm their authorization by means of an ID card, password or transponder. Then a personalized user interface appears on the display.

This means that all transactions can be traced to a specific user. Multiple users with various authorizations can also be set up.

## Tool management

Tools are retrieved or put into storage by manually entering a tool number or scanning a barcode. The digital LED indicator on the work counter indicates the compartment in which the tool is stored.

Then the specified compartment door opens automatically.

All pick and put operations are logged, which makes later verification and tracking easy.

There is also no confusion when retrieving similar-looking tools.



User authentication for each transaction – here via transponder



Absolutely no mix-ups!  
Only the requested tool can be removed



Fully automatic compartment doors for the retrieval of items in various sizes

Hänel LOCKOMAT

PFEIFFER  
Technik

# Automated storage in a controlled atmosphere

**Hänel CleanStore**  
**Hänel ClimateStore®**



Storage of contamination-sensitive products up to clean-room class 5 according to DIN EN ISO 14644-1

The quality requirements that consumer and industrial goods have to meet are becoming increasingly stringent and far-reaching. Many products today, ranging from highly sensitive components in the electronics industry (such as the surfaces of semiconductor products) to fragile substances in the chemical and pharmaceutical industries or medical supplies in hospitals and pharmacies, need to be stored under very specific, defined conditions.

With its automated **CleanStore** and **ClimateStore®** systems, Hänel offers future-oriented solutions suitable for air-controlled environments.

The systems are flexible, can be free-standing and operate as stand-alone solutions, or be integrated into existing rooms with air-controlled environments.

## **CleanStore** **particle-controlled:**

Low-particle storage of components in clean-rooms.

## **ClimateStore®** **temperature-controlled:**

Whether it's in the plus or minus range, goods are stored at a constant temperature.



Hänel *ROTOMAT*

120

STERN  
MITTELKUPPEL ODER  
BUTTERKUPPEL

1 2 3 4 5 6 7 8 9 0  
\* #

Diagram and safety instructions for the Rotomat system.

Warning label with a yellow triangle and text.

Technical specifications and safety information label.



# Intralogistics 4.0 – Digitization and network connectivity with Hänel solutions

## One control system – four operating modes

Four different modes of operation in one controller make integration in your network easy.

## The Hänel MP 14 N controller

New ease of operation and typical Hänel high quality with a 12-inch touch display. The virtual alpha keyboard is displayed clearly on the touchscreen.

## Direct integration of Hänel systems in various ERP solutions via SOAP protocol

Hänel has further enhanced its controllers with a SOAP web service interface. Web-based technology enables the implementation of a link between the Hänel controller and many ERP solutions – for example, SAP – without any middleware.

## Onboard warehouse management

The MP 12 N-S, MP 14 N and the central MP 100 D controllers all have full-scale integrated warehouse management functionalities – no additional PC is required.

## Integrated web server

All warehouse data can be called up via the IT network thanks to the integrated web server and standard browsers.



High picking performance with the Hänel Rotomat® makes it ideal for miniload applications



## HänelSoft®-N

The powerful software package that can be tailored to each customer's needs thanks to useful configuration options and a range of standard modules.

## Hänel Smart Picking

The perfect integration of Hänel industrial storage systems in **pick-by-light** and **put-to-light** applications is possible with HänelSoft®-N.

## Order picking with Augmented Reality

The storage system is operated remotely via AR eyeglasses – no other operator action is necessary. All relevant information is displayed in the data eyeglasses – system operation is initiated through **Pick-by-Voice**.

## Hänel Tool Management

Various manufacturers already offer a standard interface for Hänel solutions, for example: TDM, MAPAL, Gühring, E-Zoller, Datas, COSCOM, STB SystemTechnik, Seppone, and others.

## Warehouse Management System (WMS)

The complete solution for complex warehouse management with Hänel storage systems – from incoming goods to dispatch.

**Hänel's digital world offers innovative solutions that address the demands of tomorrow!**

# Everything under control

## The intelligent Hänel concept

**Our strength lies in our know-how – the practice-oriented microprocessor control units from Hänel can offer you a complete storage management system**

### MP 0 N

#### Single lift controller for the Hänel Rotomat®

The MP 0 N is designed as a single-lift controller for the Hänel Rotomat® with one access point. It offers three different operating modes:

##### MP 0 N-StandAlone

##### MP 0 N-HOST

##### MP 0 N-BARCODE

The high-resolution TFT display can handle virtually any language. A lift run graphic shows the movements of the lift.

The Hänel EcoLoad® can be integrated into the MP 0 N as an option. It ensures even load distribution in the Hänel Rotomat®.

#### The pluses

- ▶ TFT color display with 320 x 240 pixels.
- ▶ System control with direct shelf/container selection.
- ▶ Multilingual user interface with Latin, Cyrillic or Greek characters.
- ▶ LED storage location indicators.
- ▶ Hänel EcoLoad® for detecting unbalanced loads in Rotomat®/ Lockomat® systems.
- ▶ RS 232 interface for the connection of peripheral devices.
- ▶ Client control for connectivity with a HOST system via RS 232.



MP 0 N with four-line information display and easy-to-follow operator prompts

### MP 12 N

#### One control system – four operating modes

Whether you use the Hänel storage systems as stand-alone solutions with integrated inventory management or want to integrate the control units into a higher-level ERP system – the top controller MP 12 N from Hänel has everything already built in.

There are four different operating modes available, so you can choose the right one for your storage management:

##### MP 12 N-StandAlone

##### MP 12 N-HostWeb

##### MP 12 N-HostData

##### MP 12 N-HostCom

#### The pluses

- ▶ TFT color display with 800 x 600 pixels and touchscreen technology.
- ▶ Hänel EcoLoad® for detecting unbalanced loads in Rotomat®/ Lockomat® systems.
- ▶ USB and RS 232 interface for the connection of peripheral devices.
- ▶ Ethernet interface for fast and easy integration in existing IT networks.
- ▶ Ethernet connection for networking multiple storage systems.
- ▶ Easy linkup to ERP systems.



The Hänel MP 12 N-StandAlone top controller with touchscreen technology



## MP 14 N

### The new Hänel controller with 12-inch touch display

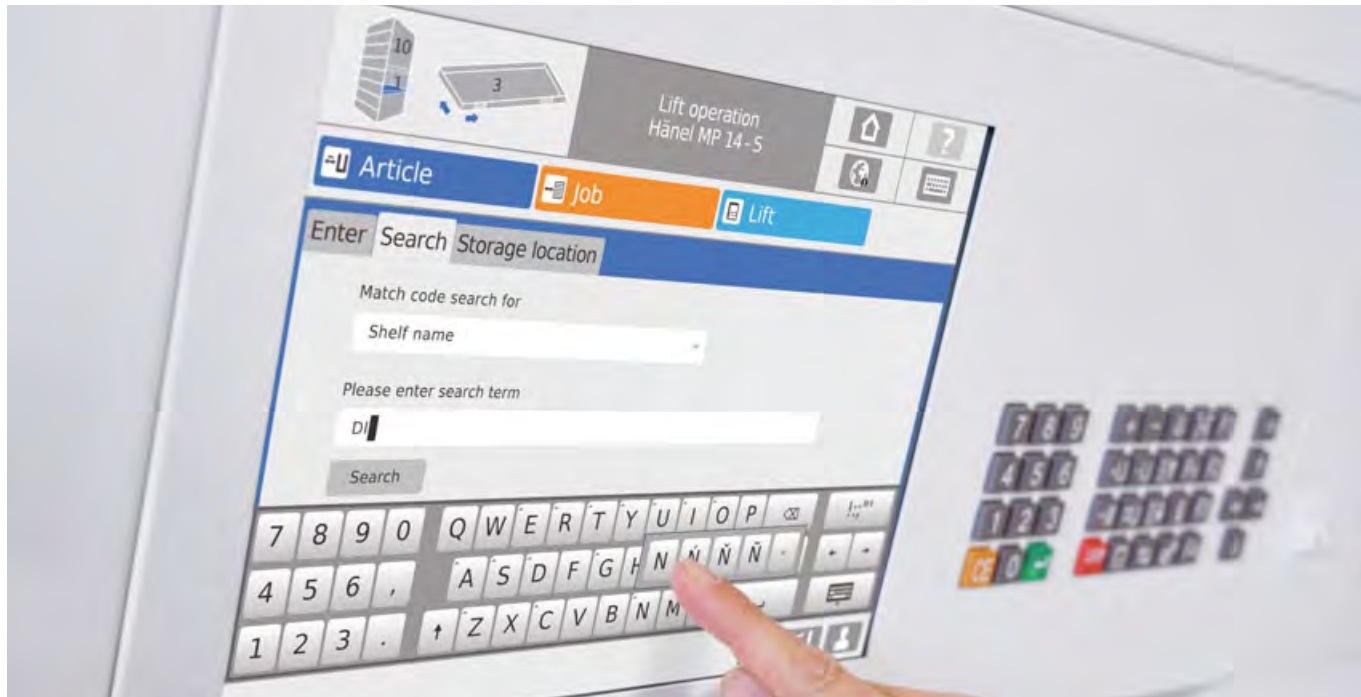
The MP 14 N uses the latest browser technology to display information. Integrating the MP 14 N in existing networks is completed quickly, just as it is with the MP 12 N.

Hänel has again taken a decisive step forward with the MP 14 N controller when it comes to functionality and ease of system operation.

All article images are displayed in optimized high-resolution and in great detail – better than ever before.

#### The pluses

- ▶ TFT color display with 1,024 x 768 pixels and touch-screen technology.
- ▶ The overview of the storage situation is outstanding thanks to the graphical presentation of articles and layout inside the system.
- ▶ Presentation of article master data in a lightbox.
- ▶ Overview of all storage positions on the multifunction carriers in the Hänel Rotomat®.
- ▶ Convenient searches via match codes or key words.
- ▶ USB and RS 232 interface for the connection of peripheral devices.



Maximum convenience and ease of use with the 12-inch touch display of the new Hänel MP 14 N controller

## MP 100 D

### The central controller

Hänel developed the central control system MP 100 D so that a large number of storage units can be managed effortlessly with the integrated storage management packages from Hänel. It manages the data of up to 99 storage units.

The client control system MP 12 N can be used as the control panel for each lift – this means each lift is operated independently of the others.

#### The pluses

- ▶ Management of data of up to 99 storage units (depending on the version).
- ▶ Route lists can be stored to ensure short walking distances.
- ▶ Integrated web server for data retrieval via the intranet/internet.
- ▶ Data conversion software.
- ▶ Ethernet interface for exchanging data with higher-level systems (HOST, ERP systems, etc.).
- ▶ All storage lifts can be operated independently and simultaneously.

### Digital Connection Networking with IT systems

Of course it is possible to hookup the Rotomat® to the customer's IT environment. The control systems are easily connected via the integrated Ethernet interface.

Article data, pick lists and booking information are exchanged via the integrated communication software.

### Hänel software made-to-measure

If you wish, the Hänel specialists will develop with you a tailor-made storage management concept that meets your requirements exactly!

You can find detailed information about Hänel microprocessor control systems in our brochure 'The Intelligent Hänel Control and Software Technology'.

# Digital Connection

## Interfacing with IT systems and peripheral devices

### Integration into IT networks and data exchange with a central host computer are hassle-free!

The modular architecture of the software and use of the latest programming tools guarantee easy adaptation of the software to growing demands. Even the basic versions of the MP 12 N-StandAlone, the MP 14 N-StandAlone and the MP 100 D control units are equipped with a standardized interface for data interchange. The controllers are hooked up to the customer's IT network via Ethernet.

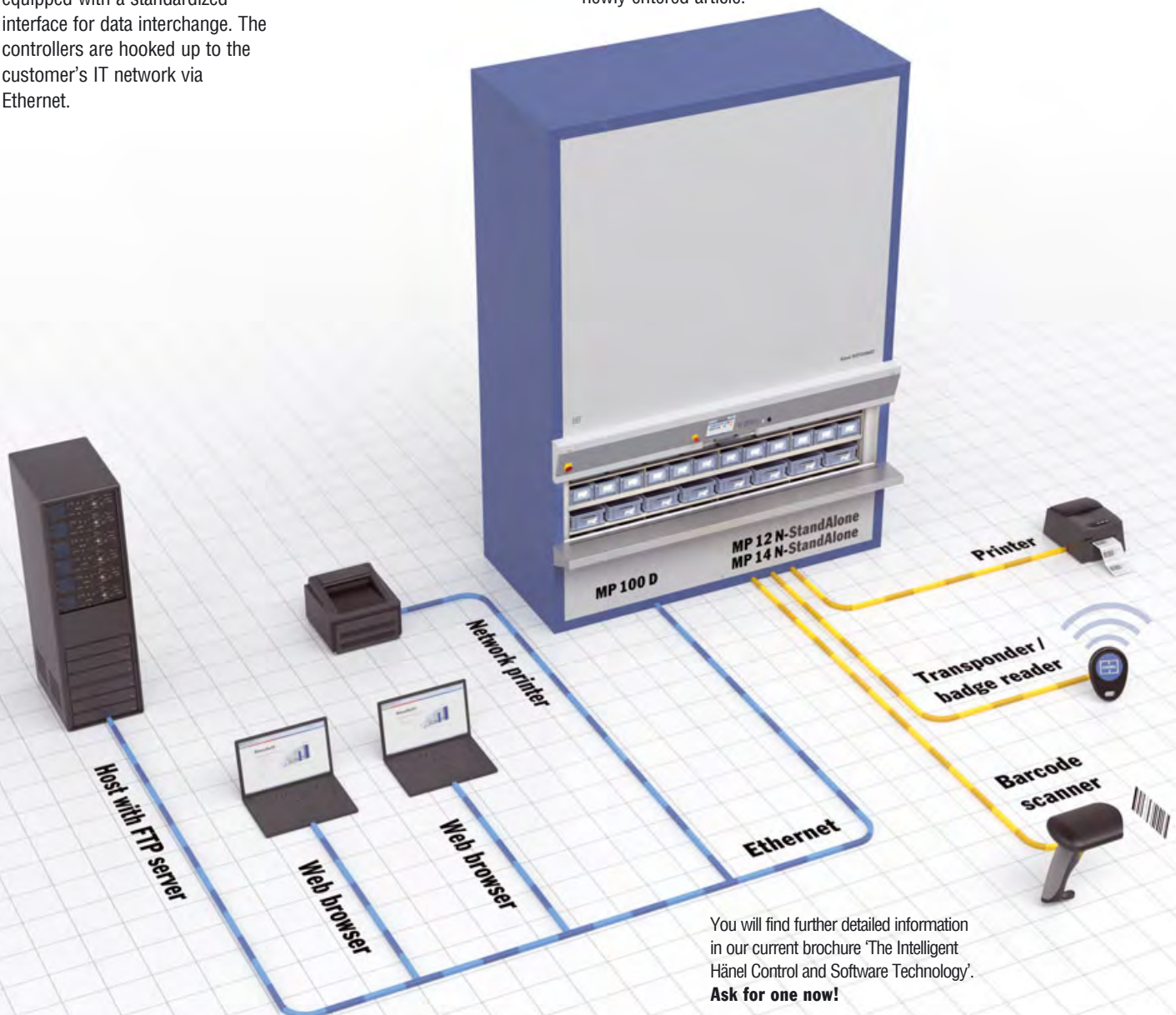
The integrated web server allows all the data for storage management to be displayed conveniently via the intranet using a web browser and also to be printed out.

### The Hänel control system offers a wide range of options for connecting peripheral devices

Additional interfaces enable peripheral devices such as barcode scanners, badge readers or label printers to be connected effortlessly to the intelligent Hänel microprocessor control units. The label printer, for example, can be used to print a label with barcode for each newly entered article.

#### The pluses

- ▶ Quick and easy connection of peripheral devices.
- ▶ Efficient work methods thanks to the ergonomic positioning of the peripheral devices.
- ▶ Smooth workflow resulting in saved time.



You will find further detailed information in our current brochure 'The Intelligent Hänel Control and Software Technology'.  
**Ask for one now!**

Hänel ROTOMAT

Hänel ROTOMAT

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# Hänel controllers integrate with IT systems

**Hänel controllers and their integrated storage management packages can be networked with existing IT systems**

The Hänel single-lift controller MP 12 N-StandAlone and MP 14 N-StandAlone such as the central controller MP 100 D are already equipped with a comprehensive range of storage management functions and therefore provide an ideal basis for connection to higher-level materials management systems.

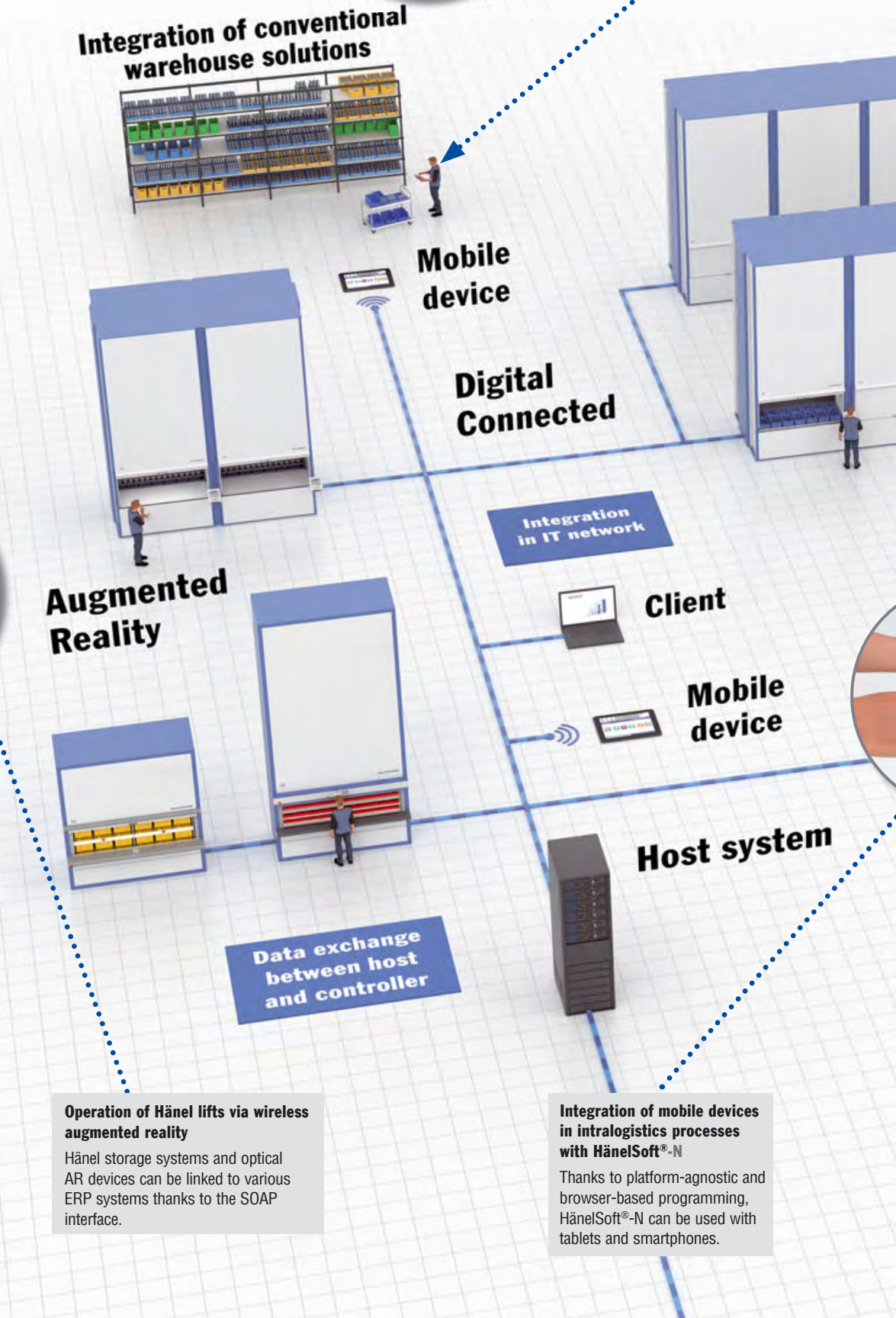
The MP 12 N-StandAlone, MP 14 N-StandAlone and the MP 100 D are integrated into the corporate network via the standard Ethernet interface.



- The Hänel advantages:**
- ▶ Hänel offers a qualified support service for customers who want to integrate the Hänel storage systems into their existing IT concept.
  - ▶ Platform independence.
  - ▶ Web applications for all clients – at the lift, for PC workplaces, for mobile devices/tablets.
  - ▶ Pick-o-Light® control via the network – no serial interface required for a PC.
  - ▶ No PCs required for operating lifts or optional lift equipment.

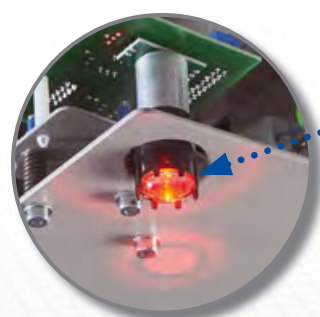


**HänelSoft®-N handheld for managing manual storage**  
 Mobile terminal devices with WLAN technology support online data communication between conventional warehouse storerooms and the HänelSoft®-N server. The HänelSoft®-N MobileClient add-on module makes work easy and user-friendly.



**Operation of Hänel lifts via wireless augmented reality**  
 Hänel storage systems and optical AR devices can be linked to various ERP systems thanks to the SOAP interface.

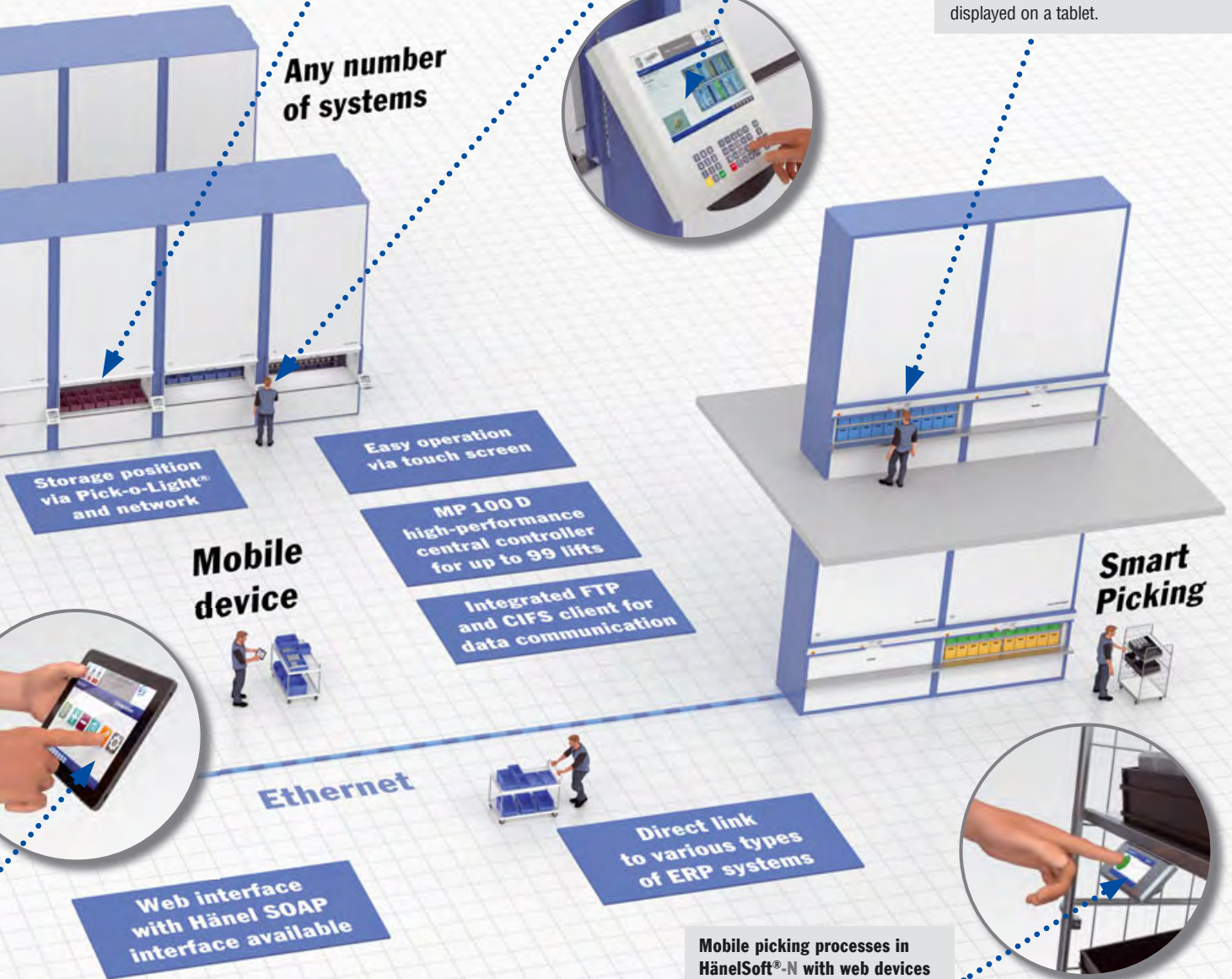
**Integration of mobile devices in intralogistics processes with HänelSoft®-N**  
 Thanks to platform-agnostic and browser-based programming, HänelSoft®-N can be used with tablets and smartphones.



**Hänel Pick-o-Light® Vario**  
LEDs at the access point identify the requested article unmistakably.

**Hänel Soft®-N Picture**  
**Visual display of container contents**  
Graphics data enables the display of items direct on the controller screen or in HänelSoft®-N.

**Web client directly on the controller**  
The browser functionality of the MP 12N-HostWeb and MP 14N-HostWeb controllers supports the presentation of an existing customer web interface on the controller display. The Hänel controller is then used to operate the lift systems.  
Alternatively customers can operate the lift systems via their existing software – the user interface could be displayed on a tablet.



**Hänel MP 12N and MP 14N controllers can be operated directly from a storage management system such as HänelSoft®-N or a customized software solution**

Customers can use their existing storage management software with the Hänel MP 12N and MP 14N controllers in the modes HostCom (MP 12N only), HostData and HostWeb.

The MP 12N and MP 14N controllers – in the HostData and

HostWeb versions – can be directly linked to the warehouse management system without the need for an additional PC.

The MP 12N-HostData and the MP 14N-HostData controllers are equipped with a data buffer and automatic host communication.

The following variants are available: CIFS, FTP (SFTP) or SOAP protocol. This is already included as standard.

# Smart Picking

## Optimized order picking with the Hänel Rotomat®

**With web devices that make order picking easy and flexible**

This future-centric and affordable order picking solution concept is based on **HänelSoft®-N warehouse management software** in conjunction with the aggregated order module. This approach means that several orders can be combined in one aggregated picking transaction.

The picking process conducted at the Hänel lifts and in the rack area typically involves the use of a transport cart which carries a bin for each individual order. The bins are fitted with web devices

that show employees which bins are to be used for each pick operation.

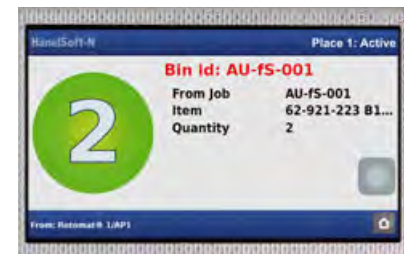
The allocation of bins and web devices is quite easy and fast thanks to the use of barcode scanners or direct data input via the web device.

The **put-to-light display** affixed to the storage bin in the picking cart shows the item number, order number, quantity, etc.

Aggregated picking is conducted in parallel at the lift controller supported by the web device – this saves time and keeps routing short.

All data and transactions are managed and booked by the HänelSoft®-N WMS. The use of commercially available web devices in this system application makes this solution very convenient, efficient and affordable.

**Intelligent systems for high-speed picking!**



The web device indicates which bin to use for the picking process. Retrieval is confirmed using the web device



The picking bins are allocated with a barcode scanner



Several orders are processed in parallel to save time and reduce routing



An image of the storage position is shown on the controller display...



... and it is identified optically on the container or tray



The new Smart Picking concept in conjunction with the Hänel Rotomat® – the optimal solution for high-speed picking

# Hänel Rotomat® storage carousels at a glance



Rotomat® model	900/100	900/115	900/125	936
Maximum payload per shelf in kg/lbs	150 / 331	150 / 331	150 / 331	250 / 551
Maximum payload per carousel in kg/lbs	3,400 / 7,496	3,400 / 7,496	3,300 / 7,275	5,400 / 11,905
Shelf depth in mm/inches	370 / 14.57	416 / 16.38	470 / 18.50	630 / 24.80
Shelf width in mm/inches	2,243 / 88.31 2,838 / 111.73	2,243 / 88.31 2,838 / 111.73	2,243 / 88.31 2,847 / 112.09	2,915 / 114.76
Standard carousel width in mm/inches (customized carousel widths possible)	2,600 / 102.36 3,270 / 128.74	2,600 / 102.36 3,270 / 128.74	2,600 / 102.36 3,280 / 129.13	3,420 / 134.65
Carousel depth in mm/inches	1,000 / 39.37	1,155 / 45.47	1,255 / 49.41	1,615 / 63.58

## Equipment features (standard)

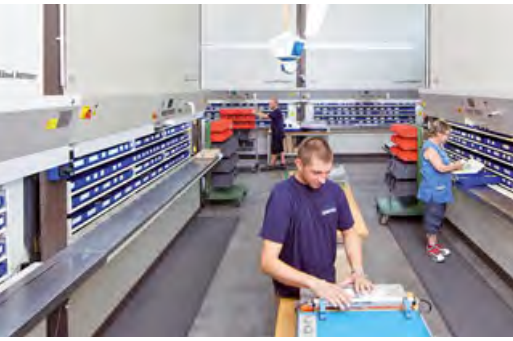
Twin motor design / Soft start with pole-switching motors	Depending on version	Depending on version	Depending on version	✓
Load imbalance warning device for payloads over 3 tons	✓	✓	✓	✓
Light-barrier curtains compliant with DIN EN 15095	✓	✓	✓	✓
Stable carrier suspension with 4-point sliding carriage principle	✓	✓	✓	✓
Networking with IT systems via the controller	✓	✓	✓	✓
Connection of barcode scanners	✓	✓	✓	✓

## Individual features

Integrated storage management (no PC required)	○	○	○	○
Customized finish	○	○	○	○
Multiple access points on different floors	○	○	○	○
2nd safety circuit / Safety Bypass package	○	○	○	○
Frequency converter for gentler, smoother start	○	○	○	○

This is only a sample from our versatile product portfolio of Hänel Rotomat® storage carousels. For special features and customized compartment divisions, speak directly to our specialists.





946	950	956	970	980	985 S	985	990
310 / 683	400 / 882	320 / 705	250 / 551	580 / 1,279	750 / 1,653	500 / 1,102	230 / 507
5,100 / 11,244	10,600 / 23,369	9,400 / 20,723	5,700 / 12,566	16,100 / 35,494	16,100 / 35,494	15,200 / 33,510	9,000 / 19,842
630 / 24.80	416 / 16.38	640 / 25.20	445 / 17.52	505 / 19.88	505 / 19.88	630 / 24.80	640 / 25.20
2,915 / 114.76	2,870 / 112.99	2,870 / 112.99	2,915 / 114.76	2,750 / 108.27	2,750 / 108.27	2,750 / 108.27	2,870 / 112.99
3,420 / 134.65	3,420 / 134.65	3,420 / 134.65	3,420 / 134.65	3,420 / 134.65	3,420 / 134.65	3,420 / 134.65	3,420 / 134.65
1,615 / 63.58	1,250 / 49.21	1,670 / 65.75	1,250 / 49.21	1,475 / 58.07	1,600 / 62.99	1,720 / 67.72	1,670 / 65.75

✓	✓	✓	✓	✓	✓	✓	✓
✓	✓	✓	✓	✓	✓	✓	✓
✓	✓	✓	✓	✓	✓	✓	✓
✓	✓	✓	✓	✓	✓	✓	✓
✓	✓	✓	✓	✓	✓	✓	✓
✓	✓	✓	✓	✓	✓	✓	✓

○	○	○	○	○	○	○	○
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✓ = Standard

○ = Optional

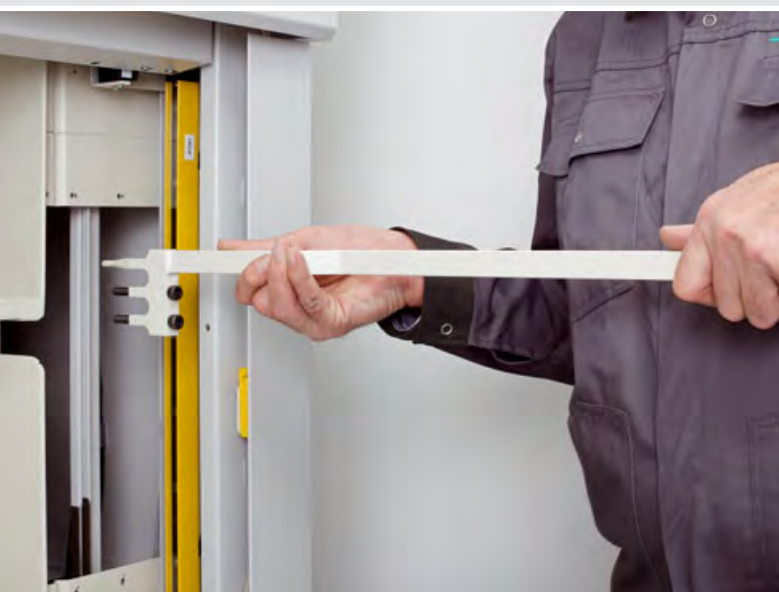
# Quality through competence

## The Hänel service team

**We see customer support and the legendary Hänel customer service as our obligation**



The electrical components are stowed centrally in the wiring cabinet



The Hänel arresting device for safe maintenance of the Hänel Rotomat® storage carousel

The employees in our support centers are factory trained by us to a high standard and approach their jobs in a highly professional manner. This is true whether they are developing a storage management concept, training operators or carrying out maintenance and repair work.

In recognition, the quality management system of Hänel Germany and Hänel Switzerland has been awarded the DIN EN ISO 9001:2015 certificate for production, design, development, installation, sales and service.



It's good to know there are people who understand their trade and who act responsibly.

### **Play it safe**

Only technicians trained and authorized by Hänel have the know-how and the technical resources to maintain Hänel storage systems quickly and safely.



# Quality signed and sealed

## Innovative developments and state-of-the-art production technology

### Hänel – a company committed to top quality

#### Quality starts with consulting

No two Hänel lifts are the same. Simply because each task requires a unique approach.

That's why, at Hänel, high quality of consultancy takes first place alongside product quality. On the basis of your requirements and our experience we develop a complete solution tailored to your needs.

#### High-tech production for high-end demands

Highly qualified specialists implement the ideas of the planning engineers using cutting-edge manufacturing techniques. They act in concert to incorporate their know-how and experience.

Despite automation, the focus at Hänel is on people. They are the ones who coordinate the different production steps and monitor quality constantly.

On September 1, 1993, Hänel Germany was awarded the international certificate of quality according to ISO 9001 by the 'German Association for Certification of Quality Management Systems'. It was the first company in its field (vertical lift technology) to achieve this distinction.

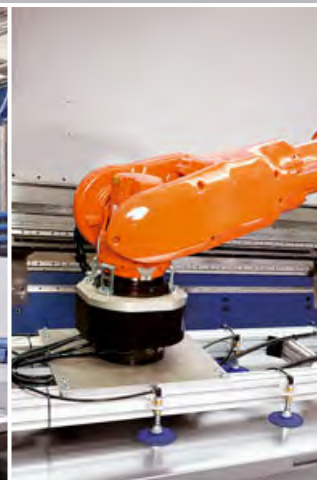
And in 2020 once again the process-oriented quality management of Hänel was acknowledged by the technical control board TÜV Hessen with the current DIN EN ISO 9001:2015 Certificate.

#### We care for the environment

It goes without saying that production at our three plants complies with the latest environmental guidelines. Only eco-friendly and recyclable materials are used.



suva pro  
CERTIFICATION



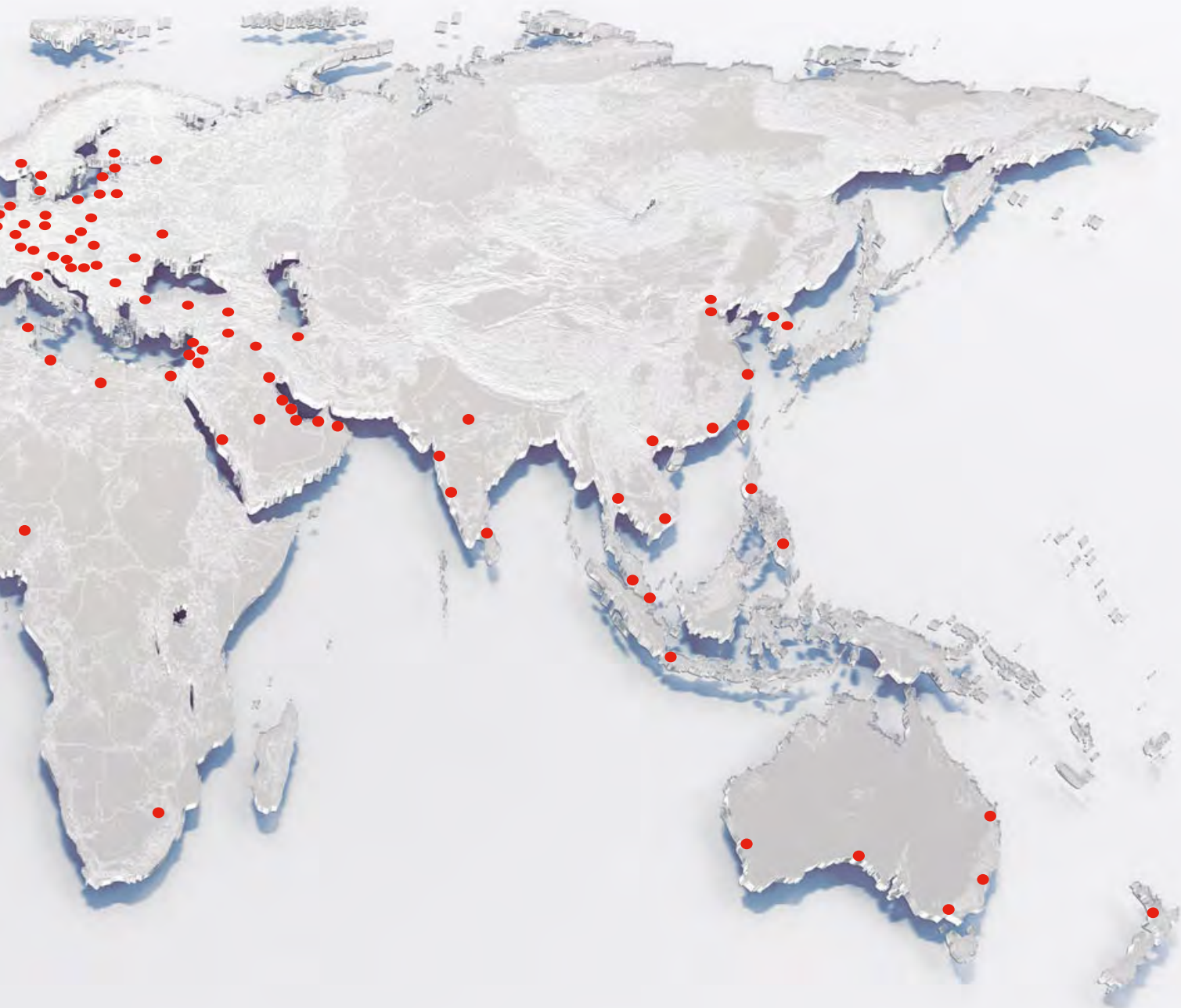


# The international Hänel network – our partners in more than 60 countries worldwide



The worldwide Hänel network is well organized. Our sales partners are always kept up to speed on innovations and trends in intralogistics by the dedicated export managers. Hänel specialists train all our partners in how to conduct service work and handle the technology of our products. This enables us to maintain the high quality we demand of our products and customer service worldwide.

**As one of the world's market leaders for vertical carousels and vertical lift modules, Hänel is continuously expanding its network.**



● Hänel distribution partners

# We have more in store . . .



The right file is found among thousands of hanging folders in seconds



## Hänel Rotomat® office carousels The optimal filing systems for office and administration

Hänel started series-producing filing carousels (the first manufacturer in Europe to do so) over 60 years ago – and you reap the benefits of this long experience!

With the Hänel Rotomat® office carousel, we offer a flexible organization and filing system that adapts optimally to your needs.

### The pluses

- ▶ Optimum use of floor space. There are no upper limits to the Rotomat®.
- ▶ High-performance controllers and interface with IT systems make the Rotomat® flexible and enable customized applications.
- ▶ The office worker no longer goes to the files, instead the files are brought automatically to the ergonomic retrieval height when requested.
- ▶ The Rotomat® protects all the files from dust, light and unauthorized access.

[www.haenellinks.com/us/ro-l/ro-office](http://www.haenellinks.com/us/ro-l/ro-office)



Hänel Lean-Lifts® are easily linked up to most ERP systems



## Hänel Lean-Lift® Vertical technology – simply brilliant

The Hänel Lean-Lift® is both storage rationalization and goods protection in one: At the center of this closed system is a computer-controlled positioning lift – the

‘extractor’. In front of it and behind it are the storage shelves. This is where the articles are stored in height optimized positions.

### The pluses

- ▶ Fast storage and retrieval times.
- ▶ High storage density, even when articles have different heights.
- ▶ Improved order-picking performance.
- ▶ Load-bearing capacity of up to 1,000 kg/2,205 lbs per tray.
- ▶ Load-bearing capacity of up to 60,000 kg/132,278 lbs per Lean-Lift® (higher payloads on request).
- ▶ Integrated warehouse management.

[www.haenellinks.com/us/ro-l/lean-lift](http://www.haenellinks.com/us/ro-l/lean-lift)



Two Hänel Multi-Space® units each 9.57 m/31.4 ft wide constitute the central store for the production hall



## Hänel Multi-Space® The new definition of vertical lift technology

The innovative 3-axis storage system from Hänel with the many advantages of time-proven Hänel Lean-Lift® technology. Whether it operates as a stand-alone solution, in a network

with other Multi-Space® units or in combination with Lean-Lifts® and Rotomats® – the Hänel Multi-Space® offers another innovative solution for your intralogistics!

### The pluses

- ▶ Unique extractor design in state-of-the-art lightweight construction (as used in bridge engineering) guarantees maximum stability.
- ▶ Variable container widths, different payload capacities and the Hänel multiple pitch ensure the optimal solution for any challenge to compact storage.

[www.haenellinks.com/us/ro-l/multi-space](http://www.haenellinks.com/us/ro-l/multi-space)



# The Hänel product portfolio – the right solution for every need!



## Hänel Rotomat® office carousel

The Hänel Rotomat® is the optimal filing system for office and administration.

Folders, index cards or files – the Hänel Rotomat® keeps them all in order. It finds the right file from among thousands of hanging folders and retrieves it in seconds. The powerful Hänel micro-processor control systems enable the Rotomat® to be networked directly with a PC.

All Rotomat® office carousels are also available in a version suitable for disabled operators.



## Hänel Rotomat® storage carousel

Each Hänel Rotomat® is designed according to the tried-and-tested Ferris wheel model (vertical carousel principle) which means: goods to man and not man to goods.

The compact construction enables up to 60% more storage capacity to be created on a minimal footprint by making use of the available room height. No two Hänel Rotomats® are the same, because each task demands a precisely defined solution.



## Hänel Lean-Lift®

The Hänel Lean-Lift® is both storage rationalization and goods protection in one. At the center of the 'cabinet' is a computer-controlled positioning lift – called the 'extractor'. In front of it and behind it are the storage shelves. This is where the articles are kept in containers.

The storage locations are accessed automatically under electronic control by means of the extractor, which stores or retrieves the requested container. The goods are then delivered to the retrieval area at the correct ergonomic height.



## Hänel Multi-Space®

Hänel has optimized the principle of three-axis storage systems with the Hänel Multi-Space®. In addition to the many advantages of the Hänel Lean-Lift® technology, the Hänel Multi-Space® offers maximum flexibility, speed and use of space.

With its advanced technology, Hänel is able to offer a three-axis storage system almost 9 m / 30 ft wide.

Even the number of retrieval points is variable and can be changed at any time.



## The intelligent Hänel control and software technology

Our strength lies in our knowledge. Because only object-related, practice-oriented microprocessor control units can offer you a complete storage management system. Hänel storage systems can also be controlled via computer interface, of course. Interface with enterprise resource planning systems is no problem.

Hänel also offers software solutions for individual requirements. HänelSoft®-N for example is a powerful software package that can be tailored to any customer's individual needs.



## Experiences of small and medium-sized enterprises

Tightening up operating procedures, increasing flexibility and lowering costs – these are the objectives of small and medium-sized enterprises if they are to be successful.

With Hänel storage systems, we offer you first-class high-tech systems for storage organization and materials handling that save time, storage space and costs and result in substantially improved workflow.

**Hänel****Storage Systems**

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