



# Hänel Lean-Lift®

## Standards in automated materials handling and warehousing



Ideas that move the world...



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inside**





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

[www.haenellinks.com/ex/II/II-principle](http://www.haenellinks.com/ex/II/II-principle)





# Hänel Lean-Lift®

## Flexibility, efficiency and cost-effectiveness

**Economy, efficiency and ecology – these are the demands that modern-day intralogistics must meet**

With the Hänel Lean-Lift® we offer you a first-class, high-tech system for storage organization and materials handling that saves time, storage space and costs, and enables a much more efficient workflow.

### Over 60% more space

The Hänel Lean-Lift® uses the available room height – in a similar way to a high-bay warehouse or miniload system. Unlike these, however, it stores parts in height-optimized positions so that no space is lost. This produces maximum storage capacity on a minimal footprint.

This in turn saves costs and helps to utilize the area dedicated to storage more economically.

### Ergonomic and safe

The ergonomic design minimizes the physical strain for employees at work. Hänel goes far beyond the requirements of today's safety standards.

### Efficiency

Countless companies throughout the world use the Hänel Lean-Lift® to increase the cost-effectiveness of their warehousing and materials handling.

Hänel also offers customized special features to get even more efficiency out of the Hänel Lean-Lift®.

One highlight is the Hänel EcoDrive® – efficient energy recovery with the Hänel Lean-Lift®.

### Work time slashed

The Hänel Lean-Lift® brings the requested item automatically to the access area in seconds, where it can be retrieved at the optimum ergonomic height.

Goods to man is the motto instead of man to goods. Access times are radically reduced and order-picking performance substantially improved.

### Optimal parts management

The state-of-the-art Hänel micro-processor controllers can be used as stand-alone inventory management systems or communicate with customers' own data processing systems.

An up-to-date overview of inventory is ensured at all times.

### 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.

But it's not only the production that lives up to Hänel's ecological principles – even the Hänel Lean-Lift® itself does so. Moreover, the Hänel EcoDrive® makes a contribution toward reducing CO<sub>2</sub> emissions.

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'.



# Vertical technology – simply brilliant

## The Hänel Lean-Lift® is the intralogistics solution for nearly every branch of industry – worldwide

**The Hänel Lean-Lift® is the logical compliment to the time-proven Hänel Rotomat® principle**

### **The automated ‘high-bay warehouse in a cabinet’**

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 containers in height optimized positions.

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.

This ingenious principle finds applications in a wide variety of industries. Used in the medical technology and electrical engineering sectors (for which ESD versions are possible) and also in the automotive, aircraft and pharmaceutical industries or in mechanical engineering, the mail-order and wholesale trades – the Lean-Lift® is the ideal buffer, production or tool storage system, to name but a few applications that demonstrate its versatility.

**Our specialists would be happy to show you references from your line of business – just send us an inquiry.**



Storage of valuable electronic components for the aerospace industry at Air Cost Control in France





Storage of heavy components for the oil and gas industries at the TAM International production facility in Texas, USA



Fast provisioning of spare parts for the gastronomy sector with 12 Hänel Lean-Lifts® at First Choice Catering in Great Britain



# The Hänel Lean-Lift® – Benefits that speak for themselves!

## More than 60% savings in existing floor space

The Hänel Lean-Lift® utilizes the vertical space available for height-optimized storage within a small footprint.

## Enormous time savings

The Hänel Lean-Lift® enables extremely fast access to stored items – time-consuming retrieval is a thing of the past.

## Maximum safety

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

## High levels of robustness

The maximum container payload is up to 1,000 kg. The load-bearing capacity per Lean-Lift® ranges up to 60,000 kg (higher payloads on request).

## Maximized ergonomics

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

## Maximum order-picking performance

The Hänel Lean-Lift® is ideal for fast order picking. Hänel also offers many special options that enable you to customize your storage systems in line with your requirements, thus boosting overall efficiency.







## 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.

## Optimized energy efficiency

Hänel EcoDrive® and Hänel EcoMode® are intelligent systems that considerably reduce CO<sub>2</sub> emissions.

## Highest storage density

Automatic height measurement ensures that the Hänel Lean-Lift® provides high storage density even when the stored items have different heights. Hänel’s ingenious space-saving pitch and slide technology optimizes the storage heights inside the Lean-Lift® even more.

## Integrated storage management

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

## Very high availability

The Hänel Lean-Lift® is unrivaled when it comes to resilience and outage prevention. Hänel’s ESB system is an intelligent redundancy solution that provides for even more availability.

## High cost-effectiveness

Space and time savings, along with protection for stored items and optimized ergonomics – these benefits increase the efficiency of your storage while reducing costs at the same time.









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/ex/ll/solutions](http://www.haenellinks.com/ex/ll/solutions)



# We've thought of everything

## Practical, variable, ergonomic

**The Hänel Lean-Lift® system offers unlimited variation possibilities**

Each Hänel Lean-Lift® can be used as a stand-alone system. By adding other Lean-Lifts® you can expand or alter your storage capacity at any time without any problem.

### Making maximum use of the available space

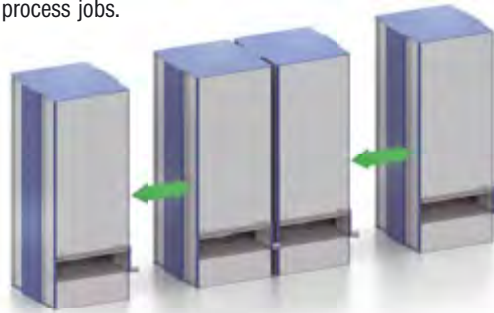
Hänel Lean-Lifts® can be installed next to each other and even span several building levels, with multiple access points one above the other. This creates the maximum possible storage space on a minimal footprint.

Height changes can be made post-installation using solid slot-in joints with plug welds.

The Hänel service team also takes care of relocations quickly and reliably.

### The pluses

- ▶ Every square meter is optimally used – the essence of economic efficiency.
- ▶ Easy adjustment to operational requirements.
- ▶ More than one person at a time can operate the lift and process jobs.
- ▶ Improvement in storage management.
- ▶ Greater flexibility with step-by-step expansion.
- ▶ Clearly definable and manageable investment.



Each Hänel Lean-Lift® can be used as a stand-alone system. The store is gradually expanded by adding further Lean-Lifts® as needs grow



The Lean-Lifts® can even be combined to span several floors!



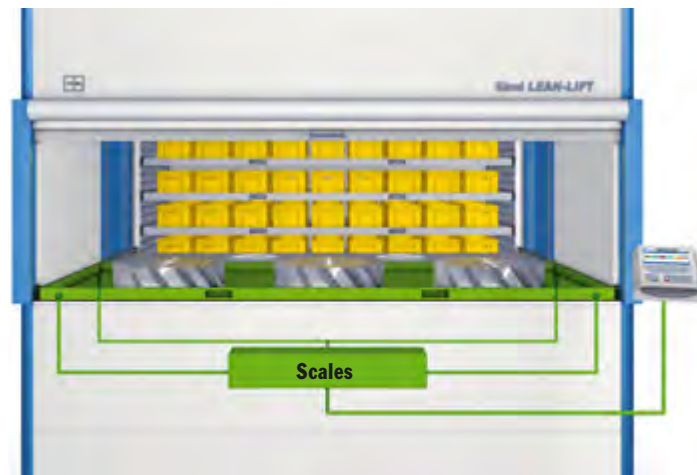




### Optimum storage assignment based on precise height measurement of goods

Accurate height measurement for storing containers in the optimal packing density. Height-measuring light barriers spaced at 25 mm, 37.5 mm, 75 mm or 90 mm. When the container is drawn in, the highly accurate light barriers measure the articles, and the Hänel microprocessor control system finds the optimum storage location in the Hänel Lean-Lift®. At the same time a protruding goods check is carried out.

With its height sensors, profile wall and Hänel container technology, the Hänel Lean-Lift® provides vertical optimization and height optimization in one!



### Accurate weights recorded with the Hänel weighing device

The Hänel Lean-Lift® is equipped with an overload protection/overload monitoring mechanism as standard.

As an option, the Hänel Lean-Lift® can be fitted with a container weighing device. Each tray is weighed in the access point by an electronic 4-point weighing system. The current weight is shown on the

keyboard display. The weighing device enables the operator to record and monitor the maximum load of each system container.

An easy-view table shows the weights of the individual trays.



### Safety light curtain

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

# Nothing is impossible!

## The Hänel Lean-Lift® offers a customized solution for every requirement

The Hänel Lean-Lift® is the ideal automated storage solution for all branches of industry and all kinds of stored items. Hänel specialists can customize Lean-Lift® systems in line with your specific needs. The height of every Lean-Lift® is precisely determined in accordance with the vertical space available in your warehouse (from floor to ceiling). This enables Hänel to fully utilize this vertical space for optimized storage. Hänel also offers a wide range of additional solutions to make sure that your specific warehousing and storage requirements are met.



### The fold-down support rail from Hänel

The support rail at the access point can be raised and folded down as required. Storage containers can then be pulled out of the access point on smooth-running plastic rollers.

This makes work at the Hänel Lean-Lift® even more ergonomic. Heavy parts can also be removed with a crane.

When it comes to extremely heavy items, the Hänel Lean-Lift® can also be fitted with robust non-folding container support rails.



### The Hänel transporter

With the Hänel transporter, complete containers can be taken out of the Lean-Lift®, as they can with the fold-down support rail. This means that even with particularly heavy parts (up to 1,000 kg per container) the container can be transported effortlessly to the required destination.



### The motorized ejector

Extremely heavy tools stored in the Hänel Lean-Lift® can be removed from the system with the help of a motorized ejection mechanism.

The tools can then be easily retrieved with a crane or hoist for maximum ergonomics.





### Extra-high access openings

The access point of the Hänel Lean-Lift® is variable and can be delivered in various heights. The standard ergonomic height is approx. 890 mm.

The standard height of items stored on each container can be up to 750 mm. If the items to be stored exceed or are below these dimensions, the access opening can be individually modified up to an item height of 1,350 mm. Thus even large and bulky items can be stored in the space-saving system.

If items are extremely flat, the access opening can be reduced in size to provide more storage volume.



### Extra-wide access openings

The extra-wide Hänel Lean-Lift® has a width of up to 5.02 m. What's more, the individual Hänel containers have a storage width of **3.66 m, 4.06 m or 4.46 m**. The entire container space can be utilized because the unique Hänel container design does not require any **cross-bracing**. Thus there is no limitation on the size of items in storage. The maximum container payload is **up to 700 kg**. The extrawide Hänel Lean-Lift® also features the extremely stable and precise profile wall, which is fixed to the rectangular profiles at the factory. Height sensors at the access point ensure that items are stored in height-optimized positions.

The system extractor is powered by the efficient **Hänel high-speed drive system**. This drive unit moves an extractor, without payload and depending on type, at speeds of **up to 1.60 m / sec**. The vertical speed of the extractor can reach speeds of up to 0.80 m/sec with maximum payloads.



### The Hänel high-speed door

The Hänel high-speed door enables several operators to work simultaneously at a Lean-Lift® with more than one access point. The access areas are blocked off from each other.

High travel speeds make for quick access. The aluminum profiles are highly robust and have a long lifecycle. A frequency converter ensures optimal flow of movement.



### Manual or automatic sliding doors

The access points of Hänel Lean-Lift® systems are equipped with lockable and smooth-sliding doors to protect stored items from dust and dirt, as well as from unauthorized access.

If requested, the Hänel Lean-Lift® can be fitted with automatic sliding doors.

The doors protect stored items and can also help regulate temperatures within the systems – the automatic doors open whenever the system receives a request for item retrieval.



### Pallet storage

For pallet storage, the Lean-Lift® access point is flush with floor level, and the system is equipped with a special extractor for pallet removal. Item batches on pallets are available for retrieval according to the same operating principle of all Lean-Lift® systems. The pallets can also be accessed on several different floors of a warehouse building. If pallets are to be removed with hand trucks or forklifts, the flush access opening of the Hänel system can be raised accordingly to accommodate such equipment. This makes it much easier to push hand trucks or forklifts under the system for easier pallet removal.



### Fire protection

When it comes to fire protection, Hänel solutions meet or exceed virtually all safety standards. Hänel storage systems can even be equipped with fire-resistant enclosure panels. Sprinkler systems and other types of fire extinguishers can also be integrated.





### Hänel systems installed externally in adjoining silos

Hänel storage systems can be integrated in existing buildings and extend upward through several floors. In some cases the systems can be adjoined externally to a building and then enclosed in a silo to protect them from wind and weather. These externally installed systems provide ample storage capacity without occupying any floor space inside the warehouse or production building.

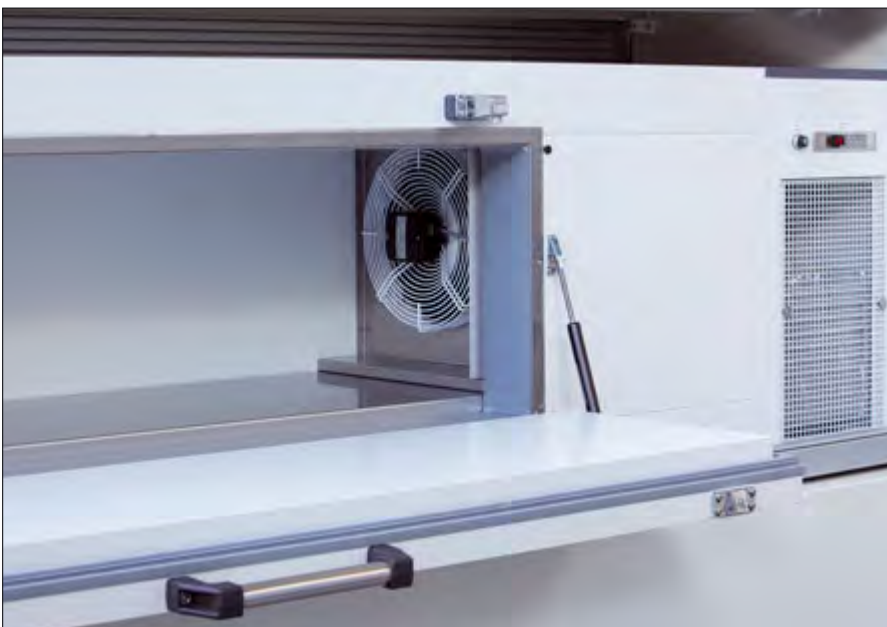


### Optimum solutions for storage in temperature-controlled and dry-air environments

With its automated **DryStore**<sup>®</sup> and **ClimateStore**<sup>®</sup> systems, Hänel offers future-oriented solutions that are suitable for all air-controlled environments. The systems are flexible and can be free-standing or installed so that they dock into existing rooms.

On the foto is a Hänel **ClimateStore**<sup>®</sup> Lean-Lift<sup>®</sup>, networked with other Lean-Lifts<sup>®</sup>. It is used to stock temperature-sensitive medicines at a constant 5 degrees Celsius.

The efficacy of the climate chamber is ensured by an automatically closing door and the Hänel high-speed door.



### Storage down to -80°C in cold boxes

Hänel offers another option for storage at extremely low temperatures, down to -80°C. For this purpose, Hänel storage containers with the electrification function are used.

These enable cold boxes to be put into storage and supplied with power while in the lift, ensuring constant cooling of the stored items.

# The ingenious Hänel profile wall

## Design outside, function inside

Hänel set the standard in vertical lift technology by inventing the Hänel profile wall. Precision hold for the containers and maximum compaction of the storage volume thanks to the integrated slot profile



The items are measured in the access point by the height sensors

The spacing of the height sensors corresponds to the slot profile. This enables height-optimized storage to be achieved

**The Hänel height sensors in steps of 25 mm, 37.5 mm, 75 mm and 90 mm**

Different height-measuring light barriers, designed to match each model's slot profile exactly, measure the inventory items and store the container according to the respective height without any loss of space!

With the Hänel space-saving pitch, the distortion-free Hänel multifunction containers and the optimization run (page 33) you will achieve maximum compaction of the storage volume.

**Let the air out of your storage!**

**An ingenious development!**  
The Hänel slot profile in 75 mm or 90 mm offers a multiplicity of options:

The slot profile is a built-in fixed wall with integrated slots in 75 mm or 90 mm steps, and is the ultimate solution for achieving optimal space-saving storage.

### The pluses

- ▶ Optimal and compact storage even when articles are of different heights.
- ▶ The Lean-Lift® consistently offers compact and variable storage – without the need for any mechanical or electronic adjustment.



The profile wall in the Hänel Lean-Lift® offers compact and variable storage

**Convincing simplicity: the high-stability Hänel profile wall!**

Hänel is the inventor of the profile wall – with over 30 years of experience!

The profile wall with its high stability and precision is fixed to the rectangular profiles at the factory.

**On the outside the typical Hänel design, on the inside a stable slot system!**

### Hänel multifunction containers

- ▶ Full-length, integrated supports offer optimum utilization of the storage height with maximum rigidity.
- ▶ Containers with the 75 mm single pitch or with space-saving 37.5 mm and 25 mm pitches in conjunction with the Hänel profile wall offer numerous possible combinations.



The Hänel multifunction containers with space-saving 25 mm pitch and the latest slide technology enable optimal utilization of the storage area







# Everything the user wants

## The Hänel multifunction container

100 % individuality for our customers – the right container for every requirement







### Different sizes of Hänel multifunction containers

Hänel offers a variety of container widths and depths. This means the containers can be adapted individually to the stored goods!

Width

840/1,300/1,640/1,860/2,060/  
2,300/2,460/2,860/3,060/3,260/  
3,660/4,060 or 4,460 mm

Depth

635/825/1,047 or 1,270 mm

And a wide range of accessories are available, such as tool inserts, molded trays for small parts, holders for milling cutters, and other separators, which complement the Hänel Lean-Lift®, turning it into a complete intralogistics system that saves costs, makes optimum use of space, makes work easier and minimizes distribution times!

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

Hänel offers special-purpose solutions to hold, for example, arbors, bars, rollers, sheet material, boards, SMT reels, hanging garments, rollable storage goods, sleeve rolls, and drawings of all formats right up to A0 size.

### Solutions for the electronics industry

The Hänel Lean-Lift® offers the electronics industry further advantages: The containers can be given an antistatic coating, if necessary, to protect sensitive electronic components. And Hänel supplies containers that can be electrified with an electronic plug-in contact at the rear.

### The pluses

- ▶ Hänel multifunction containers always retain their shape and are absolutely distortion-free.
- ▶ No limitation to their usability.
- ▶ Smooth running thanks to modern plastic slide technology.
- ▶ Integrated grips.
- ▶ Optionally available with slots punched round the inside for customized dividers.
- ▶ Variable attachments of different heights.
- ▶ Different container sizes to suit requirements.
- ▶ Payload capacity per container of up to 1,000 kg.
- ▶ Galvanized – with environmentally friendly powder-based finish on request.



Containers and dividers with an antistatic coating are ideal for applications in the ESD sector

# Speed is our driving force

## Fast, efficient and quiet

**High travel speeds, low noise levels and accurate positioning are characteristics of the Hänel Lean-Lift®**

### **The Hänel Lean-Lift® high-speed generation**

The Hänel Lean-Lift® is also available in a high-speed version. The vertical speed of travel, for example for containers with a load capacity of up to 500 kg, is up to 2.3 m per sec with an empty extractor, and up to 1.0 m per sec with a loaded extractor. Depending on type, the extractor travels horizontally and jolt-free at a speed of up to 0.5 m/sec.

Moreover each Hänel Lean-Lift® is equipped with a soft start control with frequency converter.

**The advantage:  
Gentle and rapid acceleration and braking.**



Highly efficient and powerful motors allow the extractor to achieve travel speeds of up to 2.30 m per sec

### **The vertical carriage (extractor) has 4-point suspension...**

This has enormous advantages:

- ▶ No tilting of the extractor.
- ▶ No problems with certain load imbalances, especially with heavy loads, and therefore a longer lifecycle.
- ▶ Easy maintenance access from the side.
- ▶ Easy attachment of the arresting device for the extractor.

### **... and time-proven, low-noise 4-chain technology!**

- ▶ Roller chains are durable, so no fatigue failures.
- ▶ Long lifecycle.
- ▶ No replacement necessary at fixed service intervals.
- ▶ Roller chains have a high rate of efficiency (98 %).
- ▶ Accurate positioning because of high rigidity.
- ▶ No slip on emergency stops.

### **The Hänel EcoDrive® – CO<sub>2</sub> reductions thanks to efficient energy recovery**

In the Hänel Lean-Lift® EcoDrive®, a frequency converter converts the kinetic energy of the descending extractor into electrical energy and feeds it back into the electrical supply system.

Depending on the travel rate, up to 40 % of the energy fed in for the upward run can be returned to the supply network.



Frequency converter in the Hänel Lean-Lift® EcoDrive®









# Intelligent systems for maximum efficiency



**Hänel EcoDrive®**  
CO<sub>2</sub> reductions thanks to efficient  
energy recovery



**Hänel EcoMode®**  
Intelligent energy  
management



**Hänel Lean-Lift®**  
High-Speed Generation



**Hänel PictureControl**  
Visualization of the container  
inventory



**Hänel Pick-o-Light® system**  
A new way to define storage  
locations!



**Hänel Pre-Store-Buffering®**  
Time saved by automatic  
prepositioning



**Augmented Reality**  
Operating the Hänel Lean-Lift®  
with AR devices



**Hänel MP 12N control system**  
One control system – four  
storage strategies



**Hänel Software Solutions**  
for boosting efficiency



**Hänel ESB**  
The redundancy system for higher  
availability



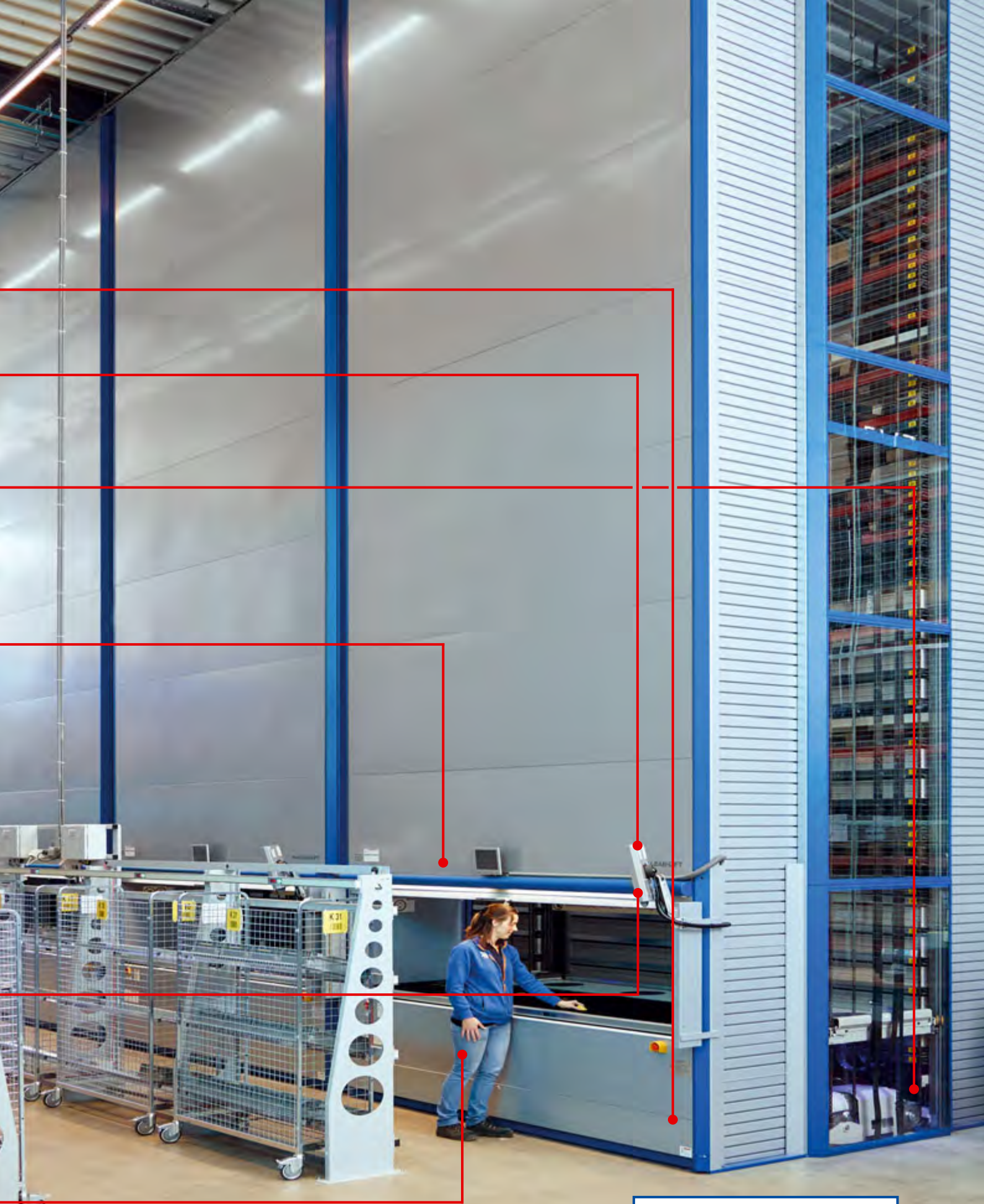
**Hänel Training**  
Efficiency through competence!

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

**For the sake of the environment!**







Watch the video about the Hänel Efficiency Program. Just scan the QR code or go to:

[www.haenellinks.com/ex/ll/efficiency](http://www.haenellinks.com/ex/ll/efficiency)

# Very high availability through redundancy with Hänel ESB



## Hänel ESB

The intelligent safety package for enhanced availability of the Hänel lifts

Hänel storage systems work reliably and failure-free. Should a malfunction arise, however, the Hänel redundancy systems kick in.

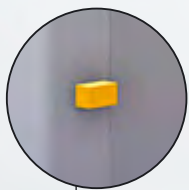
Lean-Lifts® can be fitted with a **second safety circuit**, for example. This means that if the safety

light barriers in the retrieval opening fail, it is still possible to continue operating the Lean-Lift® with the sliding door closed.

The Hänel Lean-Lift® can also have the Hänel **ESB (Expanded Safety Bypass)** package integrated.

By activating the ESB system directly at the microprocessor controller, the user can continue to operate the Hänel Lean-Lift® in defined cases despite a malfunction. This redundancy system consists of seven integrated safety circuits.

It means that in the following cases the Hänel Lean-Lift® can continue to be operated safely and reliably until the Hänel service technician arrives.



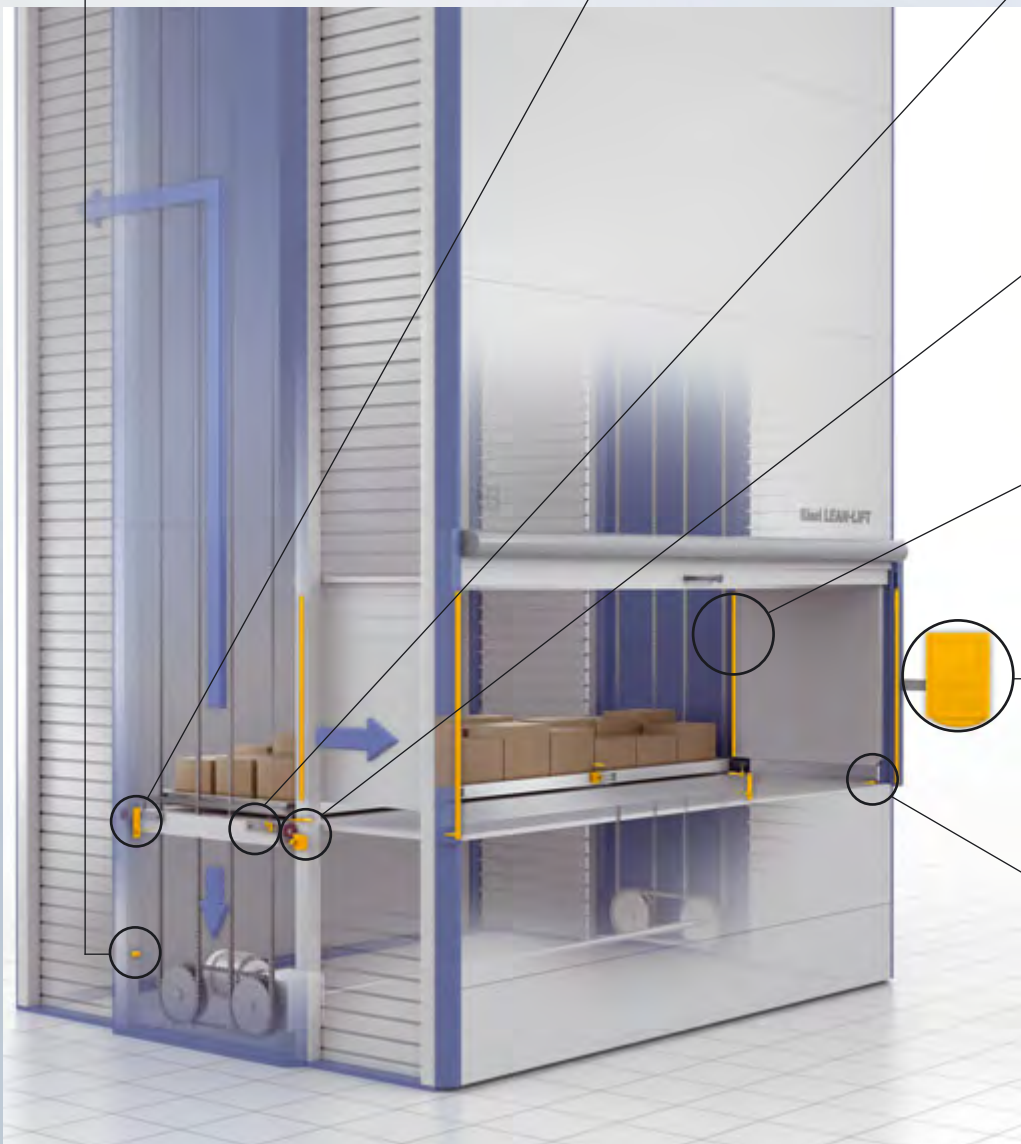
If a limit switch in the upper or lower storage area fails



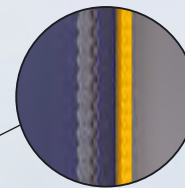
If a positioning sensor for the drive catch fails



If a sensor on the extractor fails



If a positioning system fails



If the height detection system fails



If the shelf memory is defective



If a sensor in the access point fails



# Maximum overall efficiency

## Control and energy management



### The Hänel optimization run

The Hänel Lean-Lift® uses its precision height sensors to store different items in the storage locations best suited to their height.

As a result of frequent storage movements, however, empty spaces can arise between the storage containers. When the integrated optimi-

zation run has been activated, it automatically eliminates the gaps, achieving the optimal packing density in the storage volume available.

In addition to this, the optimization run can optimize storage locations according to retrieval time.

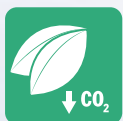
### Hänel APF Access Priority Factor

Containers that are frequently needed can be stored closer to the retrieval point so that the time required to access them is shorter.

With the Access Priority Factor, this can be done manually and the positions assigned directly on the

Hänel microprocessor control system.

It can also be done automatically by the Hänel optimization run according to retrieval time.



### Hänel EcoDrive® CO<sub>2</sub> reductions thanks to efficient energy recovery

**Depending on the travel rate, up to 40 % of the energy fed in previously for the upward run can be returned to the supply network!**

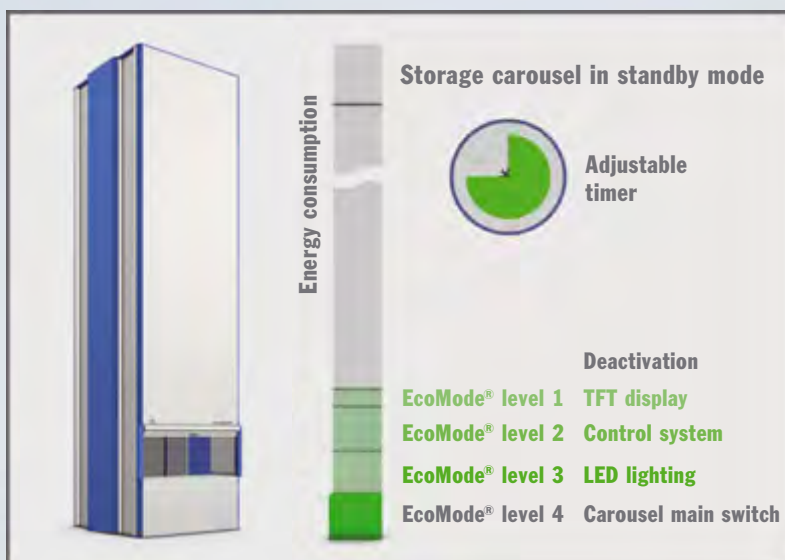
Hänel EcoDrive®, which was first unveiled at CeMAT 2008, is an integral part of the Hänel EcoConcept.

Since its launch, this system has been continuously developed and improved. Hänel EcoDrive® helps

to save energy and consequently to reduce costs. The frequency converter uses the energy of the descending extractor and converts it back into electrical energy.

This is then fed back into the supply system and can be used

elsewhere, for example on other Lean-Lifts® in a network.



### Hänel EcoMode® Intelligent energy management

With the Hänel EcoMode®, a storage system that remains at standstill for long periods without being operated can be switched automatically to

different levels of standby mode at freely configurable time intervals.

# Maximum overall efficiency

## Visual, digital, safe, secure and time-optimized

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

The LED display can be positioned above or below the access point as required. The compartment and sub-level indicators ensure the right article is accessed.

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



Error-free access with integrated compartment sub-level indicator

### 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 Hänel digital picking display indicates where the requested item is located in the system and also provides additional information about the item and its storage position





## Hänel Pick-o-Light® system

One component of Hänel's high-speed-picking concept is the Hänel Pick-o-Light® system for quickly finding requested items

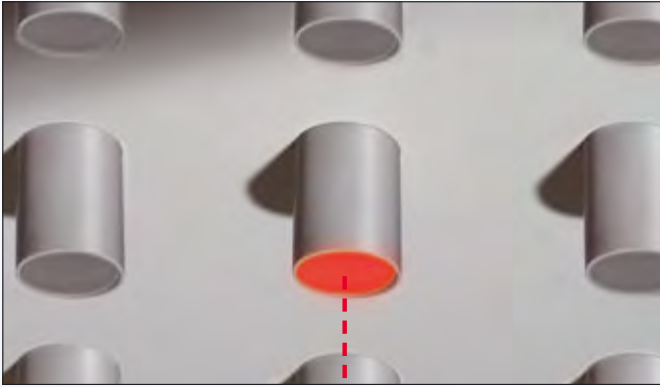
An LED array is integrated into the panel above the access opening of the lift. A colored LED directs a beam of light onto the requested article so that it is

identified unmistakably and unequivocally.

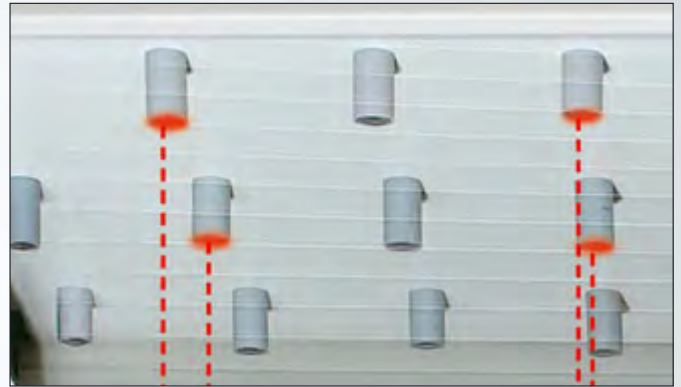
This ensures maximum efficiency and reliable selection during order picking.

The Hänel Pick-o-Light® with fixed raster can identify compartments of different sizes by lighting up the respective corner points.

The storage space needed for the unit size can span multiple compartments in width and depth, and is marked out by 4 LEDs.



LEDs in the access point . . .



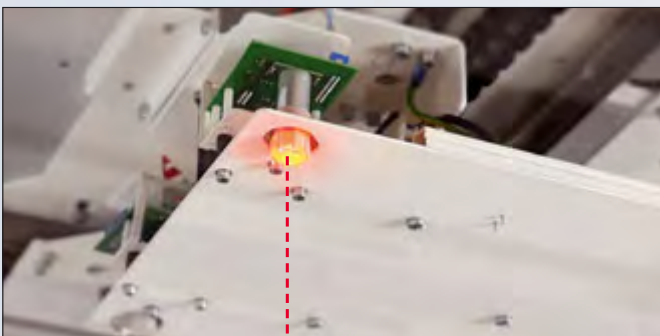
4 LEDs indicate . . .



. . . identify the requested article unmistakably



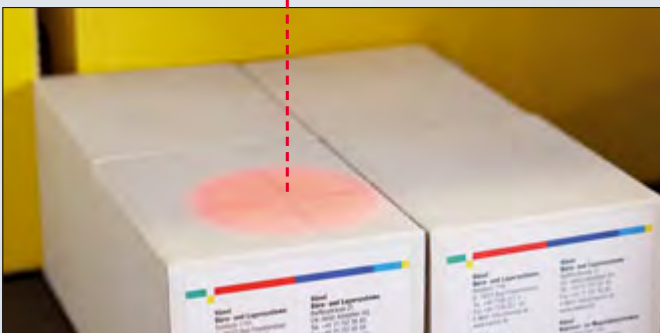
. . . the storage location required



## Hänel Pick-o-Light-Vario® for variable container divisions

Alternatively, if container divisions are variable, items can be identified via a free-moving Vario unit with 4 integrated LEDs.

Hänel Pick-o-Light-Vario® moves freely along two axes. An LED unit inside the top of the access point . . .



. . . identifies the requested item unmistakably. Pick-o-Light-Vario® can be fitted with an optional reticle for identifying extremely small items



## Augmented Reality

### High-tech picking via wireless augmented reality and pick-by-voice for Hänel industrial systems

Order picking with the Hänel Lean-Lift® and augmented reality devices (known as optical head-mounted displays) is being demanded by more and more customers. In response Hänel offers Lean-Lift® systems that can be operated exclusively with AR optical devices – no other input is required.

Data input and item selection is accomplished through voice commands in conjunction with the optical AR device. All data and information of relevance to the item, including a photograph of the item, are visible on the AR display worn by the system operator. Users can thus focus

their full attention on the picking process without having to handle lists or paper notes.

Once an item is requested via voice command, the storage system automatically brings the item to the access point for retrieval, and the item position is highlighted by

Hänel Pick-o-Light®. This minimizes the risk of human picking errors.

Hänel storage systems and AR optical devices can be linked to various ERP systems thanks to the SOAP interface.



All key item information and commands for voice control are displayed



## Hänel VendiShelf

### Safe and secure tool storage with the Hänel VendiShelf system in the Hänel Lean-Lift®

#### Access control and user authorization safeguard tool inventories

The Hänel VendiShelf system allows small to medium-sized tools to be stored on the multifunction container in compartments featuring automatic lock mechanisms.

Only the requested tool can be removed; all other compartments remain locked.

An LED identifies the compartment in which the required tool is stored. Various compartment

sizes and heights are available to ensure maximum flexibility.

Authorized access is possible using barcode scanners, transponders or access codes.

#### VendiShelf – the ideal solution for valuable tools!







## Hänel PictureControl

Visual presentation of the container inventory

### Hänel PictureControl, HänelSoft® and the new MP 14 N controller for innovative visual system operation!

You always see what you have on inventory thanks to **Hänel PictureControl**. A camera integrated in the storage system photographs all transactions.

In addition to inventory data, **HänelSoft® Picture** also manages the container photos. A specified number of pictures per container is archived so that inventory changes on the container can be tracked and allocated to specific users.

The MP 14 N is perfect for displaying item pictures at the control terminal.

The 12-inch touch screen of the **high-performance MP 14 N controller** sets standards for ease of use. Both item and container images are displayed in optimized high-resolution and in great detail. Based on this photographic infor-

mation, items on each container can be identified directly on the control unit and automatically brought to the access point.

The container photo also shows the system operator where each item should be “put or picked”.

**This innovative concept helps optimize warehouse operations and dramatically boost efficiency!**



A camera integrated in the lift system photographs every container transaction at the access point



A container image is created after item retrieval and confirmation on the control unit



## Hänel Pre-Store-Buffering®

Time saved by automatic buffering

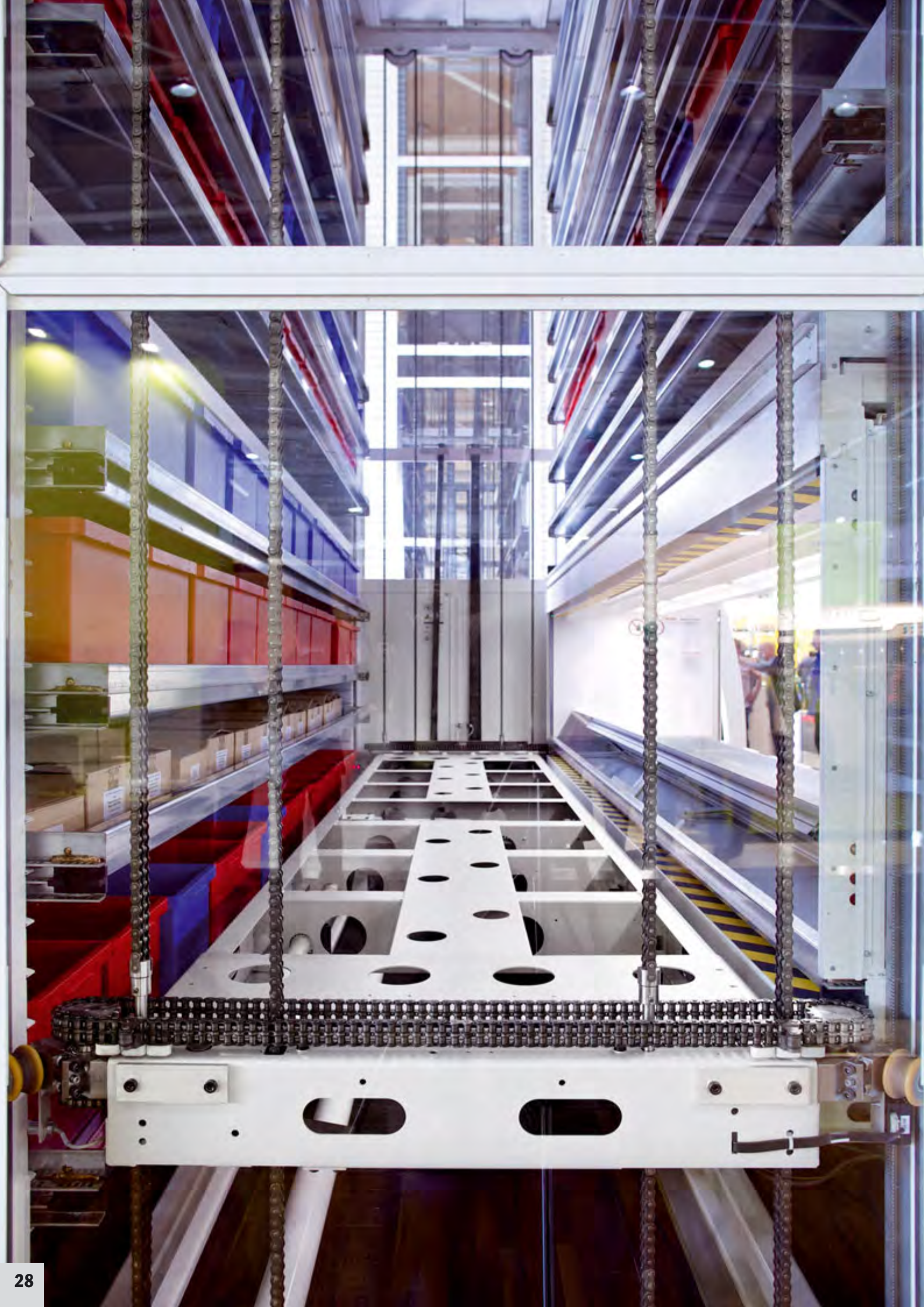
Usually the articles in a pick list are located on different storage containers. With Hänel's Pre-Store-Buffering®, the time needed to access consecutive containers is considerably reduced.

While the operator takes the required articles from container ① in the access point, the extractor is already bringing container ② to a storage location directly behind the access point (this location can be pre-defined as required).

**Maximum security of the storage articles, no limitation to the height of the storage goods, and optimal ergonomics – another stroke of innovative genius from Hänel!**









# Less warehouse is more

## Distinct advantages over conventional rack storage and MLS

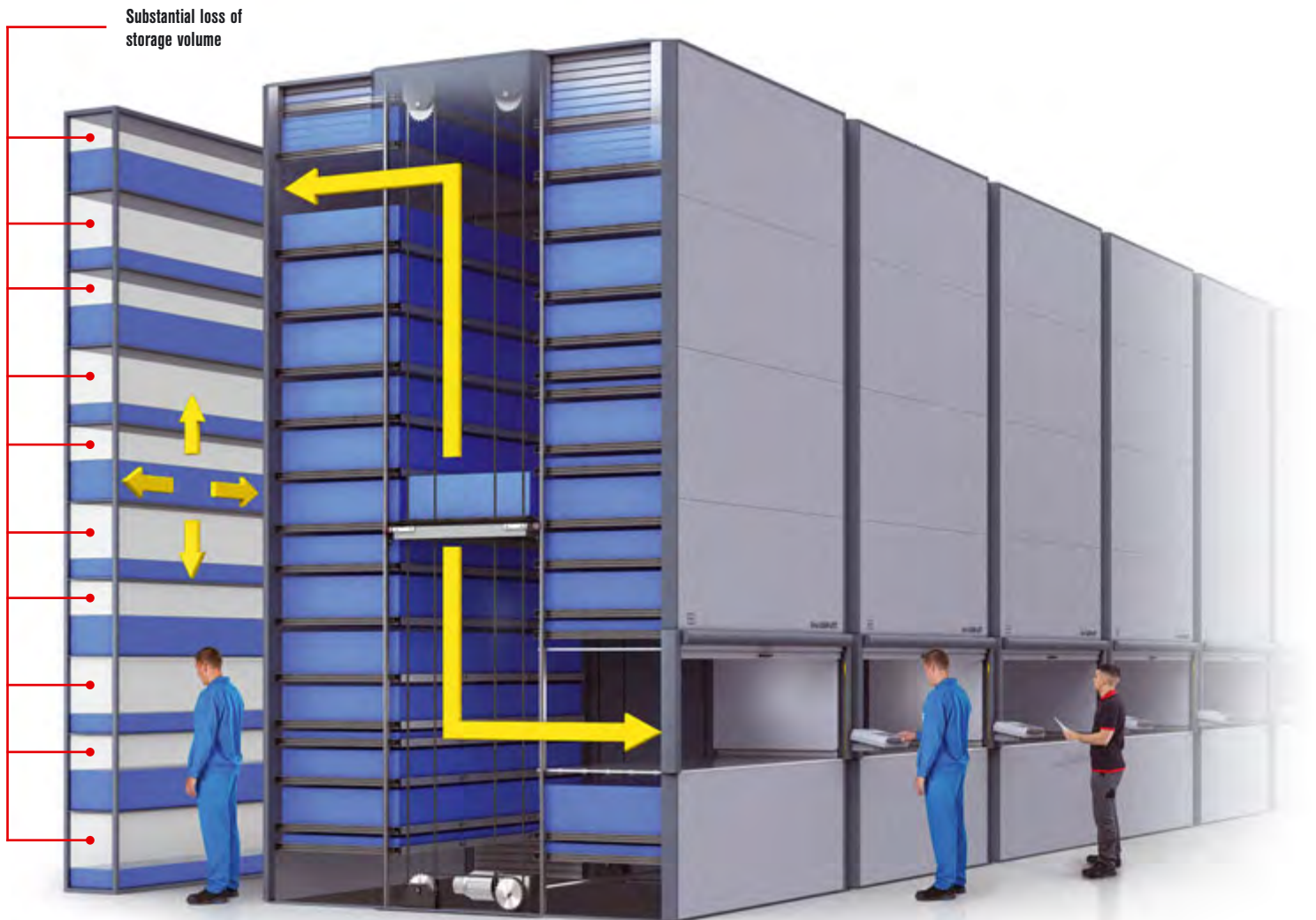
**The Hänel Lean-Lift® offers over 60% more storage capacity than a miniload system/rack store on the same footprint**

One glance in the Hänel Lean-Lift® shows the advantages clearly: Optimum storage of highly varied parts without any loss of space!

### Key points speak in favor of the Hänel Lean-Lift®:

#### The pluses

- ▶ Storage capacity can be adapted step by step.
- ▶ More than one person at a time can operate the lift and process jobs.
- ▶ Retrieval times are considerably shorter.
- ▶ Units can be added, expanded or separated at a later time.
- ▶ Better utilization of storage volume thanks to height-optimized storage.
- ▶ Decentralized storage right in the production hall.



Miniload system/conventional rack storage

Hänel Lean-Lift®



Free/unused storage capacity



Goods stored

# A clever solution

## Hänel multifunction containers for maximum load-bearing capacity

### Highly diverse storage articles put highly diverse demands on the container

The carrying capacity of automated storage and materials handling systems is determined by the weight and dimensions of the inventory.

### This is where the Hänel multifunction container performs the extraordinary

The containers are configured according to the size and weight of the storage goods.

The containers can take loads of 250 kg, 500 kg, 700 kg or 1,000 kg depending on the version.

Even the most varied and bulky goods such as pallets, engine

blocks, tools, crates and cable drums are no problem for the Hänel Lean-Lift®.

The total load capacity per Lean-Lift® can be 20,000 kg, 40,000 kg or 60,000 kg.

The maximum storage height is determined purely by the height of the access opening.

Depending on system type, the standard height of the access point can be modified to meet specific requirements.

### The payload per container can be up to 1,000 kg! An impressive performance by Hänel!

Heavy parts can be retrieved and transported effortlessly with the Hänel transporter







**The Hänel Lean-Lift® as a materials handling system**

Ergonomic retrieval of heavy loads from the fold-down support rails by crane.



# Intralogistics 4.0 – Digitization and network connectivity with the Hänel Lean-Lift®

## One control system – four operating modes

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

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## The MP 14 N new control system

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.

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## 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.

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## 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.

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## Integrated web server

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

## Storage management

Control software for Hänel storage units networked with host-supported ERP (Enterprise Resource Planning) systems.

## 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

The ideal solution for your tool management.

## 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 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.
- ▶ Optimization run in the Hänel Lean-Lift®
- ▶ 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 variable control keyboard for the Hänel Lean-Lift® is placed at the side of the access point – the most ergonomic position for operators. Tiring overhead work is no longer necessary!



## 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.

When used in conjunction with Hänel PictureControl, with its camera integrated in the Lean-Lift®, the large display of the MP 14 N is a great advantage.

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

In terms of functionality and ease of use, Hänel has again taken a decisive step forward with the development of the MP 14 N controller.

#### 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 Lean-Lift®.
- ▶ 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.
- ▶ File exchange for rapid connection.
- ▶ Ethernet interface for exchanging data with higher-level systems (HOST, ERP systems, etc.).
- ▶ All storage lifts can be operated independently and simultaneously.

### Digital Connected Networking with IT systems

Of course it is possible to hook up the Lean-Lift® to the customer's IT environment. The control systems are easily connected via the integrated Ethernet interface.

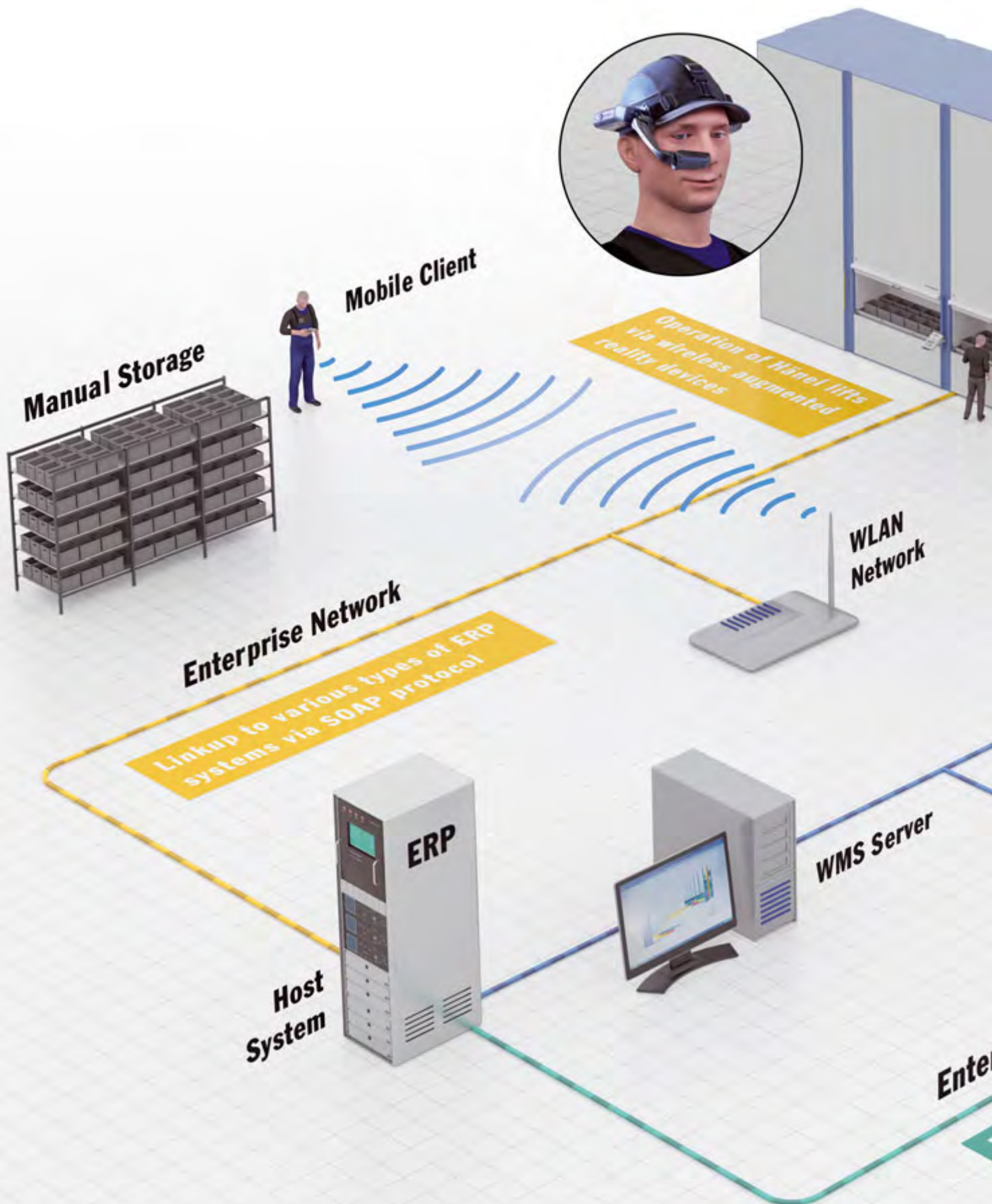
Article data, pick lists and booking information are exchanged via the integrated communication software.

### 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'.

# Efficient work process with storage management systems





## Maximum control over inventory with Hänel storage units

It doesn't matter whether you work with the software solutions from Hänel or other storage management software – Hänel storage units can be integrated effortlessly into the most varied of software environments through the microprocessor control units.

It allows not only Rotomat®, Lockomat®, Lean-Lift® and Multi-Space® units to be managed, but also other types of systems such as rack and pallet stores.

A standardized host interface enables data to be exchanged

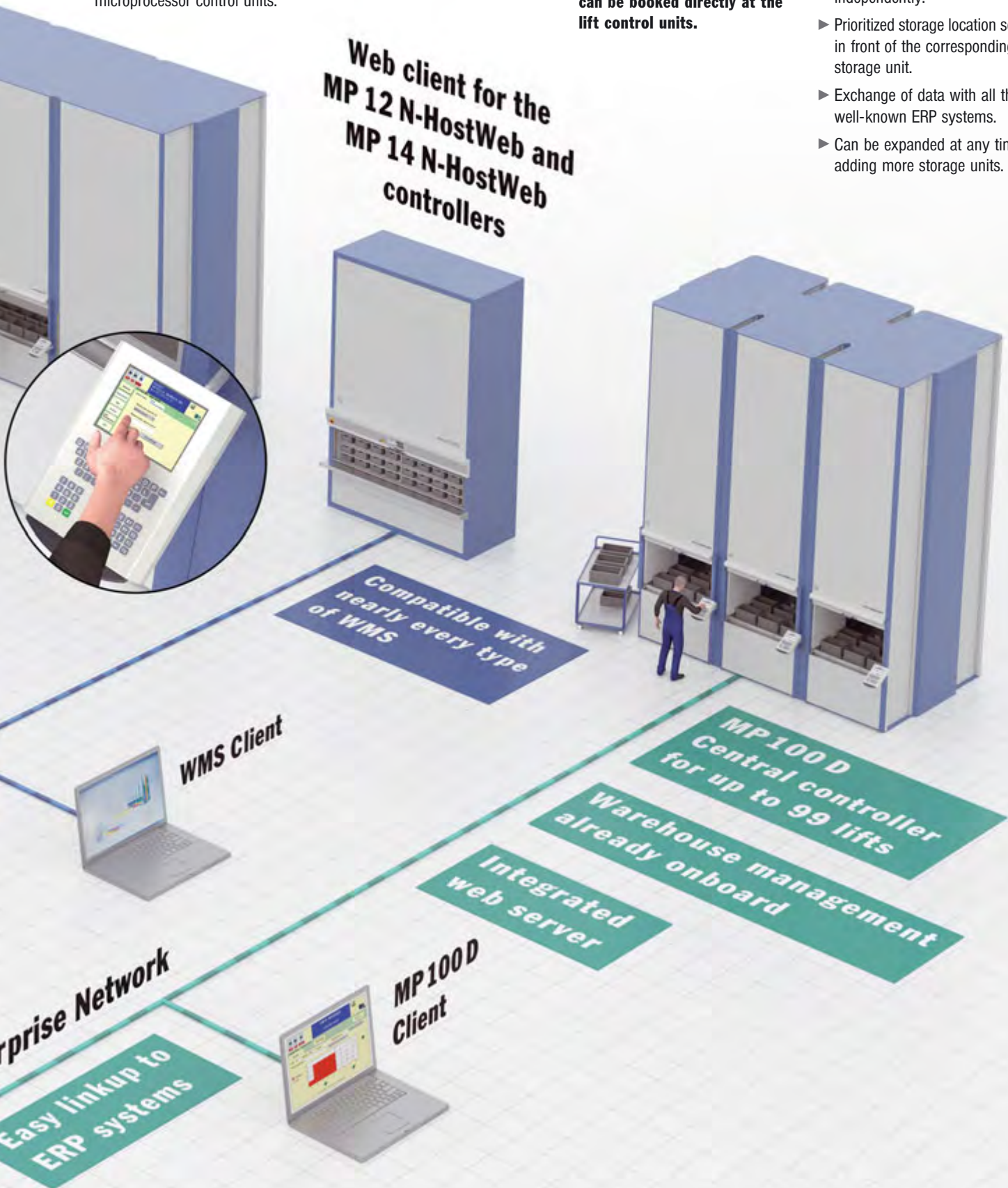
with any type of materials management system.

Please don't hesitate to request detailed information about Hänel software programs.

**All pick and put operations can be booked directly at the lift control units.**

### The pluses

- ▶ Operators work directly at the storage units – which is ergonomic, practical and time-saving.
- ▶ Asynchronous processes at the storage units – each lift works independently.
- ▶ Prioritized storage location search in front of the corresponding storage unit.
- ▶ Exchange of data with all the well-known ERP systems.
- ▶ Can be expanded at any time by adding more storage units.



# Augmented Reality and Pick-by-Voice – Storage strategies of the future that are now a reality with Hänel technology



## High-tech picking via wireless augmented reality and pick-by-voice for Hänel industrial systems

The Hänel Lean-Lift® can be operated remotely with augmented reality smartglasses and pick-by-voice as an alternative to the system control terminal.

The Hänel Lean-Lift® is connected to an SAP server via the integrated SOAP interface so that no additional middleware is required.

Data input and item selection is accomplished through voice commands in conjunction with the optical AR device.

All data and information of relevance to the item, including a photograph of the item, are visible on the AR display worn by the system operator. Users can thus focus their full attention on the picking process without having to handle lists or paper notes.

Once an item is requested via voice command, the storage system automatically brings the item to the access point for retrieval,

and the item position on the container is identified by Hänel Pick-o-Light®. This minimizes the risk of human picking errors.

This technology serves as the basis for many industrial applications – for example, MAN Diesel & Turbo SE in Oberhausen, Germany, has successfully implemented this concept to optimize processes.

More information about this solution is available in a video on our website.

Hänel storage systems and AR glasses can be linked to various ERP systems thanks to the SOAP interface.

## Hänel offers innovative solutions that address the demands of tomorrow!

Hänel Pick-o-Light® identifies the items that should be retrieved



The augmented reality monitor can be adjusted to fit every user



All key item information and commands for voice control are displayed



Watch this video about the Hänel Augmented Reality Presentation. Just scan the QR code or go to:

[www.haenellinks.com/en/II/ar-glasses](http://www.haenellinks.com/en/II/ar-glasses)





Watch this video about the application of data glasses and Hänel controllers at MAN Diesel & Turbo SE.

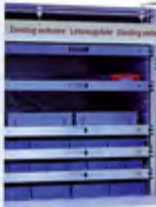
Just scan the QR code or go to:

[www.haenellinks.com/en/II/man](http://www.haenellinks.com/en/II/man)

**AUGMENTED REALITY**



Hänel LEAN-LIFT



Hänel



**POWERFUL FEATURES**



HÄNEL

Live presentation of the augmented reality storage solution at the Hänel stand







# Maximum customization options

## The right system model for every application

### Technical data

Model	Device dimensions in mm		Container sizes in mm		Load capacity in kg
	Depth	Width	Width	Depth	
<b>840 – 635</b>	2,240	1,185	840	635	300/500/700
<b>1300 – 635</b>	2,240	1,645	1,300	635	300/500/700/1,000
<b>1640 – 635</b>	2,240	1,985	1,640	635	300/500/700/900
<b>1860 – 635</b>	2,240	2,205	1,860	635	250/500/650/900
<b>2060 – 635</b>	2,240	2,405	2,060	635	250/500/650/850
<b>2300 – 635</b>	2,240	2,645	2,300	635	250/400/470/600/800
<b>2460 – 635</b>	2,240	2,805	2,460	635	250/400/470/600/800
<b>2860 – 635</b>	2,240	3,205	2,860	635	190/250/400/500/550/650
<b>3060 – 635</b>	2,240	3,405	3,060	635	190/250/350/450/550/625
<b>3260 – 635</b>	2,240	3,605	3,260	635	180/250/400/550/600
<b>3660 – 635</b>	2,351	4,220	3,660	635	500/700
<b>4060 – 635</b>	2,351	4,620	4,060	635	500/700
<b>4460 – 635</b>	2,351	5,020	4,460	635	400/600
<b>840 – 825</b>	2,810	1,185	840	825	300/500/700/1,000
<b>1300 – 825</b>	2,810	1,645	1,300	825	300/500/700/1,000
<b>1640 – 825</b>	2,810	1,985	1,640	825	300/500/700/900
<b>1860 – 825</b>	2,810	2,205	1,860	825	250/500/650/900
<b>2060 – 825</b>	2,810	2,405	2,060	825	250/500/650/850
<b>2300 – 825</b>	2,810	2,645	2,300	825	250/470/600/800
<b>2460 – 825</b>	2,810	2,805	2,460	825	250/470/600/800
<b>2860 – 825</b>	2,810	3,205	2,860	825	190/250/400/500/550/650
<b>3060 – 825</b>	2,810	3,405	3,060	825	180/325/425/450/550/625
<b>3260 – 825</b>	2,810	3,605	3,260	825	180/250/400/550/600
<b>3660 – 825</b>	2,910	4,220	3,660	825	500/700
<b>4060 – 825</b>	2,910	4,620	4,060	825	500/700
<b>4460 – 825</b>	2,910	5,020	4,460	825	400/600
<b>840 – 1047</b>	3,475	1,185	840	1,047	300/500/700/1,000
<b>1300 – 1047</b>	3,475	1,645	1,300	1,047	300/500/700/950
<b>1640 – 1047</b>	3,475	1,985	1,640	1,047	250/500/650/850
<b>1860 – 1047</b>	3,475	2,205	1,860	1,047	250/450/650/850
<b>2060 – 1047</b>	3,475	2,405	2,060	1,047	250/450/600/800
<b>2460 – 1047</b>	3,475	2,805	2,460	1,047	250/400/600/750
<b>2860 – 1047</b>	3,475	3,205	2,860	1,047	250/350/500/700
<b>3060 – 1047</b>	3,475	3,405	3,060	1,047	220/300/450/650
<b>3260 – 1047</b>	3,475	3,605	3,260	1,047	220/300/450/600
<b>840 – 1270</b>	4,150	1,185	840	1,270	300/500/700/1,000
<b>1300 – 1270</b>	4,150	1,645	1,300	1,270	300/500/700/900
<b>1640 – 1270</b>	4,150	1,985	1,640	1,270	250/500/650/800
<b>1860 – 1270</b>	4,150	2,205	1,860	1,270	250/450/650/800
<b>2060 – 1270</b>	4,150	2,405	2,060	1,270	250/400/600/750
<b>2460 – 1270</b>	4,150	2,805	2,460	1,270	250/400/600/700
<b>2860 – 1270</b>	4,150	3,205	2,860	1,270	200/300/500/700
<b>3060 – 1270</b>	4,150	3,405	3,060	1,270	200/250/450/650
<b>3260 – 1270</b>	4,150	3,605	3,260	1,270	200/250/450/600

Maximum device payload up to 60,000 kg depending on the model. A few examples from a multitude of possibilities

### Contact the storage specialists at Hänel

They will calculate the optimal system and container dimensions for your storage needs.

# Quality through competence

## The Hänel service team

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



The electronics in the Hänel Lean-Lift® are easily accessible and clearly arranged in the pull-out wiring box below the access point

The employees in our support centers are factory trained and approach their jobs in a highly professional manner.

This applies whether they are developing a storage management concept, training operators or carrying out maintenance or 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.







Reliable protection with the patented Hänel arresting device

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

### Maintenance access from the side

Maintenance or repair work can be carried out conveniently on the Hänel Lean-Lift® from the side – complex dismantling of device parts is unnecessary.

### 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 collaborate to incorporate their knowledge 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 2017 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 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.







# CERTIFICATE

Management system as per  
**DIN EN ISO 9001:2015**

Evidence of conformity with the above standard(s) has been furnished  
and is certified in accordance with TÜV PROFICERT procedures for



**Hänel GmbH & Co. KG**  
**Büro- und Lagersysteme**  
Kocherwaldstraße 25 - D-74177 Bad Friedrichshall  
Am Zollwasen 3 - D-97353 Wiesentheid  
**Hänel & Co. Büro- und Lagersysteme**  
Bafflesstraße 21 - CH-9450 Altstätten/SG

scope:

Design, Conception, Production, Distribution and  
Maintenance of Office and Storage Systems

ation No. **73 100 2545**  
1326 8955

Certificate valid from 2017-10-24 to 2020-10-23

**DAkks**  
Deutsche  
Akkreditierungsstelle  
D-ZM-14137-0\*



# Ideas that move the world...

## Cutting-edge technology 'Made by Hänel'

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

Hänel already has representatives in over 60 countries so that our customers can be given optimal support and the increasing demand for Hänel products can be met.

Hänel exhibits its innovations in intra-logistics at numerous international trade fairs. For an up-to-date overview of trade fair dates, visit us on the Internet at [www.hanelworldwide.com](http://www.hanelworldwide.com).

It's all part of Hänel quality: being there whenever you need us. Worldwide...

**The Hänel team is at your service.**



- |                |             |                    |                      |
|----------------|-------------|--------------------|----------------------|
| Australia      | Hungary     | New Zealand        | Spain                |
| Austria        | India       | Nigeria            | Sweden               |
| Bahrain        | Irak        | Norway             | Switzerland          |
| Belgium        | Iran        | Oman               | Syria                |
| Brazil         | Ireland     | Philippines        | Taiwan               |
| Bulgaria       | Italy       | Poland             | Thailand             |
| Canada         | Jordan      | Portugal           | Tunis                |
| Chile          | Kuwait      | Qatar              | Turkey               |
| China          | Latvia      | Romania            | Ukraine              |
| Czech Republic | Lebanon     | Russian Federation | United Arab Emirates |
| Denmark        | Libya       | Saudi Arabia       | USA                  |
| Estonia        | Lithuania   | Serbia             | Vietnam              |
| Finland        | Luxembourg  | Singapore          |                      |
| France         | Malaysia    | Slovakia           |                      |
| Germany        | Mexico      | Slovenia           |                      |
| Great Britain  | Morocco     | South Africa       |                      |
| Greece         | Netherlands | South Korea        |                      |





● 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/ex/II/ro-office](http://www.haenellinks.com/ex/II/ro-office)



Small parts are picked quickly and efficiently from 12 Hänel Rotomat® storage carousels



## Hänel Rotomat® storage carousels

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

Whether it's materials provisioning at the production line or computerized spare parts storage – the Rotomat® does the job. Its compact

design enables up to 60 % more storage capacity to be created on a minimal footprint by making use of the available room height.

#### The pluses

- ▶ Automated storage and materials handling technology for every application.
- ▶ The requested part is brought automatically to the ergonomic retrieval height.
- ▶ Perfect storage organization with MP control units and connection to IT systems.
- ▶ High economic efficiency and cost savings.

[www.haenellinks.com/ex/II/ro-storage](http://www.haenellinks.com/ex/II/ro-storage)



Two Hänel Multi-Space® units each 9.57 m 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.
- ▶ The Hänel Multi-Space® offers modular scalability in height and width – up to a total width of almost 9 m.
- ▶ Variable container widths, different payload capacities and the Hänel multiple pitch ensure the optimal solution for any challenge to compact storage.

[www.haenellinks.com/ex/II/multi-space](http://www.haenellinks.com/ex/II/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 over 9 m wide. The Hänel Multi-Space® can even be varied in width and height once installed – an innovation from Hänel!

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.



## 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.

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