

# Boost your efficiency with the Hänel Lean-Lift®














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## The Hänel EcoConcept

We are constantly developing components based on the Hänel EcoConcept in order to improve overall energy efficiency. These include:

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# Hänel Lean-Lift®

## Maximum efficiency in intralogistics

**Flexibility, efficiency and cost-effectiveness –  
these are the demands that modern-day intralogistics  
must meet**

The Hänel Lean-Lift® is a first-class, high-tech system for storage organization and materials handling that saves time, storage space and costs, and it makes the overall workflow more efficient.

Hänel storage systems make optimal use of the available room heights. This produces maximum storage capacity within a minimum footprint. Hänel systems thus save costly warehousing space.

Goods are brought to the system operator, instead of having the employee go to retrieve the goods. Hänel storage systems

bring the requested items automatically to the retrieval area in record time. This means that access times are radically reduced.

Business enterprises around the world use the Hänel Lean-Lift® to increase the cost-effectiveness of their warehousing and materials handling.

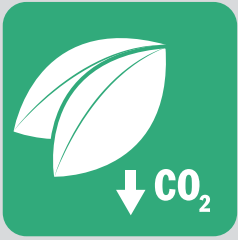
**This brochure provides an overview of the various custom features that – depending on the application – boost the efficiency of the Hänel Lean-Lift® even more.**

**Efficiency**

**Economy**

**Ecology**





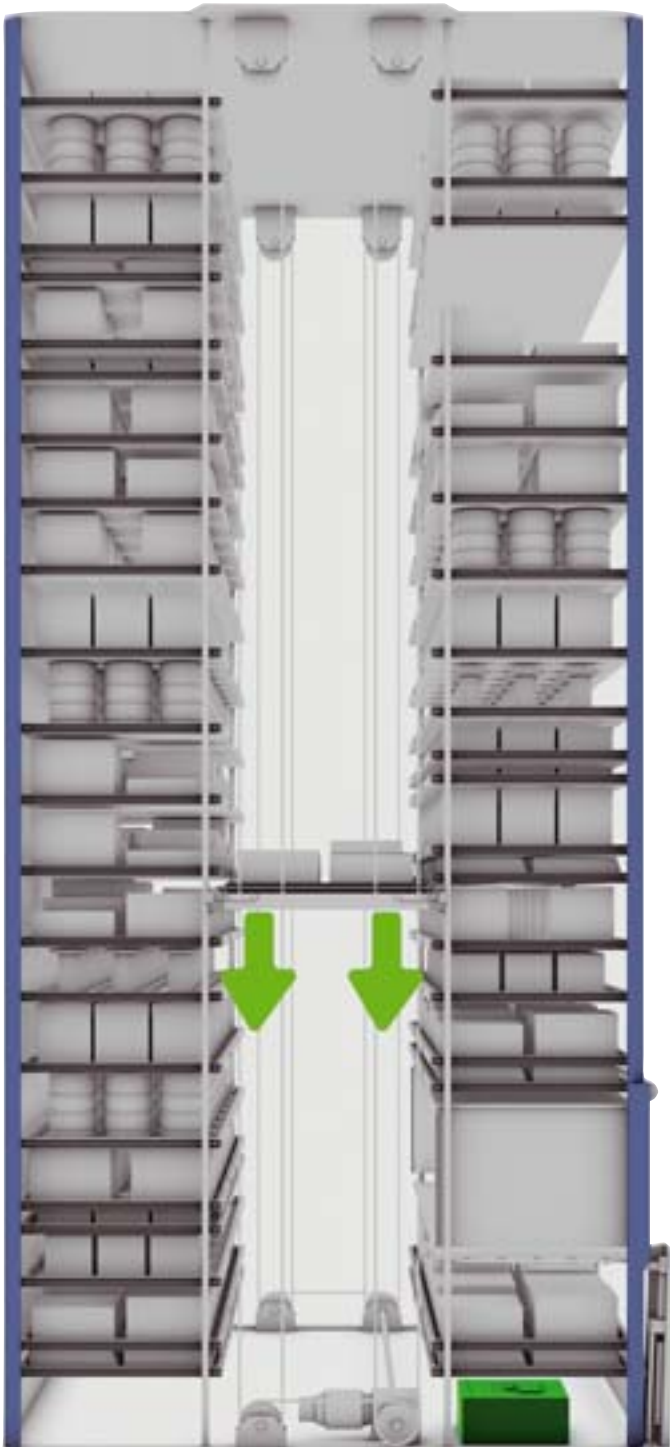
# Hänel EcoDrive®

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

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

Dwindling resources, increased environmental pollution and CO<sub>2</sub> emissions – along with rising energy prices – are problems that constantly challenge companies today.

The new Hänel EcoDrive® helps save energy and reduce costs. A new kind of frequency converter uses the energy of the descending extractor and converts it back into electrical energy. This is then fed back into the power supply system and can be used elsewhere, e. g., for other Lean-Lifts® in a cluster.



During the extractor's downward movement, electrical energy is returned to the power supply system



Live demonstration of CO<sub>2</sub> savings with Hänel EcoDrive® at the CeMAT trade fair in Hanover

# Hänel EcoMode®

## Intelligent energy management



### The intelligent energy management feature of the Hänel Lean-Lift® gradually shuts down idle systems in four steps

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.

All systems that consume energy even when at standstill are closed down by the control system in four EcoMode® levels

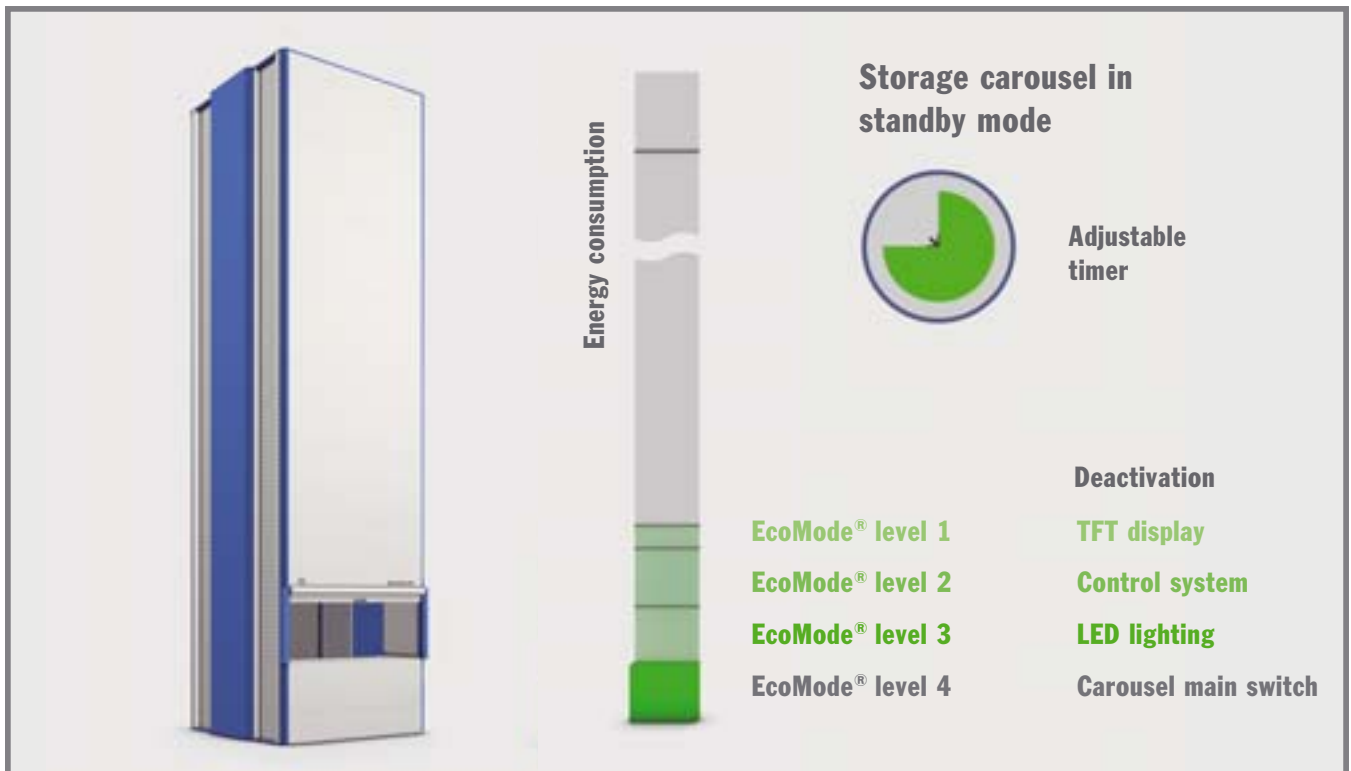
(energy-saving levels). The time intervals can be programmed as required and therefore adapted precisely to individual needs.

This reduces the energy intake of the Hänel storage systems to a minimum when they are not being used. Down to EcoMode® level 3, the system returns to full operational readiness in a very short time once the controller is actuated.

The last EcoMode® level switches the carousel off at the main switch.

**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!**



#### The Hänel EcoMode® levels:

- 1 The background lighting of the TFT display is switched off.
- 2 Components of the electrical control system are switched off.
- 3 The lighting is dimmed.
- 4 The carousel is turned off at the main switch.





# Hänel Lean-Lift®

## High-Speed Generation

### The high-performance drive system is one of the key components that boosts the efficiency of the Hänel Lean-Lift® High-Speed Generation

A basic prerequisite for high order-picking performance is high extractor travel speed that results in short access times for retrieving stored goods.

Lifts with container payloads up to 500 kg/ 1,104 lbs achieve the following speeds of travel:

**Vertical speed:**

with empty extractor	2.3 m / 7.5 ft / sec
with loaded extractor	1.0 m / 3.3 ft / sec

**Horizontal speed:**

jolt-free	0.5 m / 1.6 ft / sec
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Efficient and powerful motors move the extractor at extremely high speeds



# Hänel PictureControl

## Visual representation of the container inventory



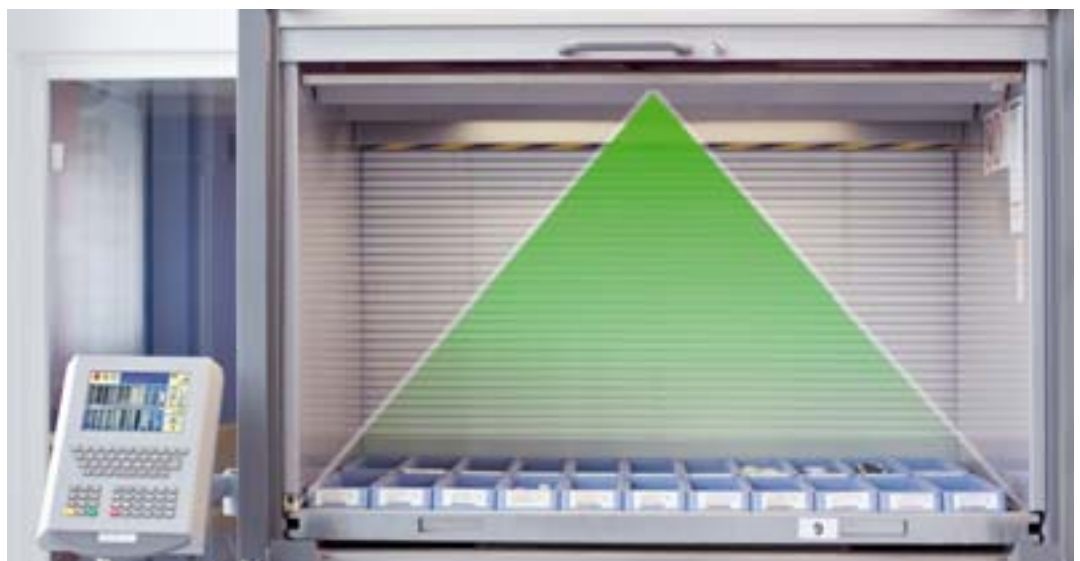
**The photographic information enables the identification of articles on the container directly at the control unit or in HänelSoft®**

One or more cameras are integrated in the Hänel Lean-Lift® per access point. An up-to-date container photo is taken each time a pick or put operation is performed.

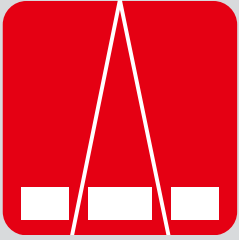
The container photo is displayed at the control unit or in the graphical storage overview of HänelSoft®.

This guarantees an optimal visual overview of the storage situation at all times.

A defined number of pictures is archived per tray so that inventory changes on the tray can be tracked.



Photographic view of the storage situation shown on the screen



# Hänel Pick-o-Light® system

## A new way to identify storage locations!

### The Hänel Pick-o-Light® system for quickly finding the required articles

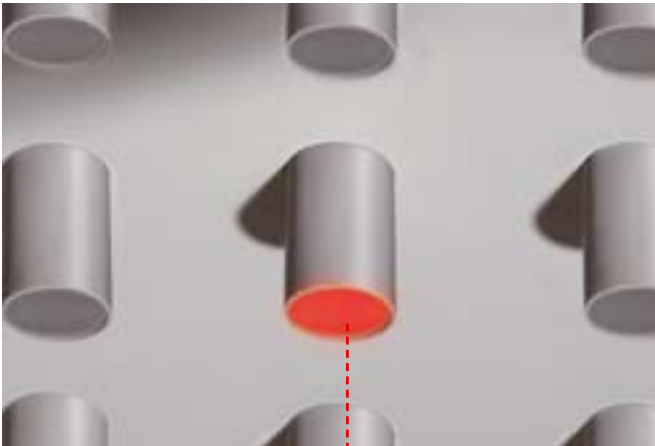
An array of LEDs is integrated in the panel above the access point. A colored LED directs a beam of light onto the requested article so that it is clearly and unmistakably identified.

This ensures maximum efficiency and reliable selection during order picking.

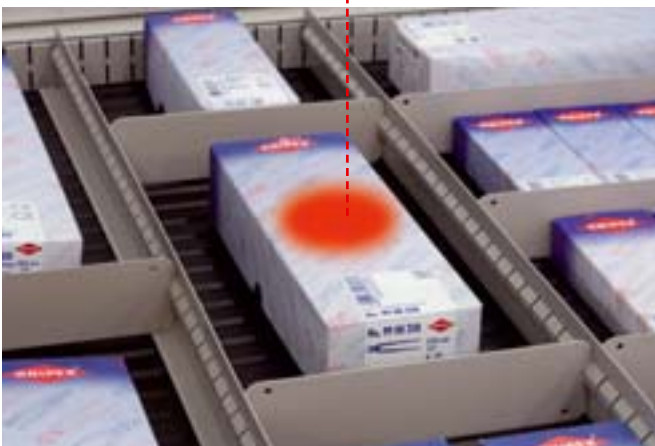
### Hänel Pick-o-Light® for varied compartment sizes

The Hänel Pick-o-Light® system can identify and indicate compartments of different sizes by lighting up the respective corner points.

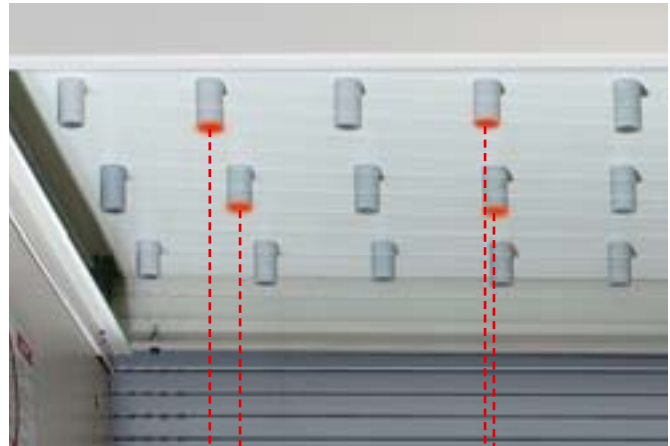
The storage space needed for the unit size can span multiple compartments in width and depth, and is marked out by 4 LEDs.



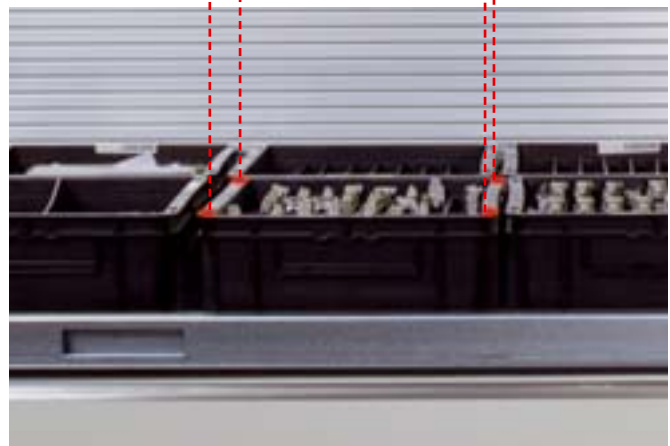
The LEDs in the access point ...



... identify the requested article unmistakably



4 LEDs mark ...



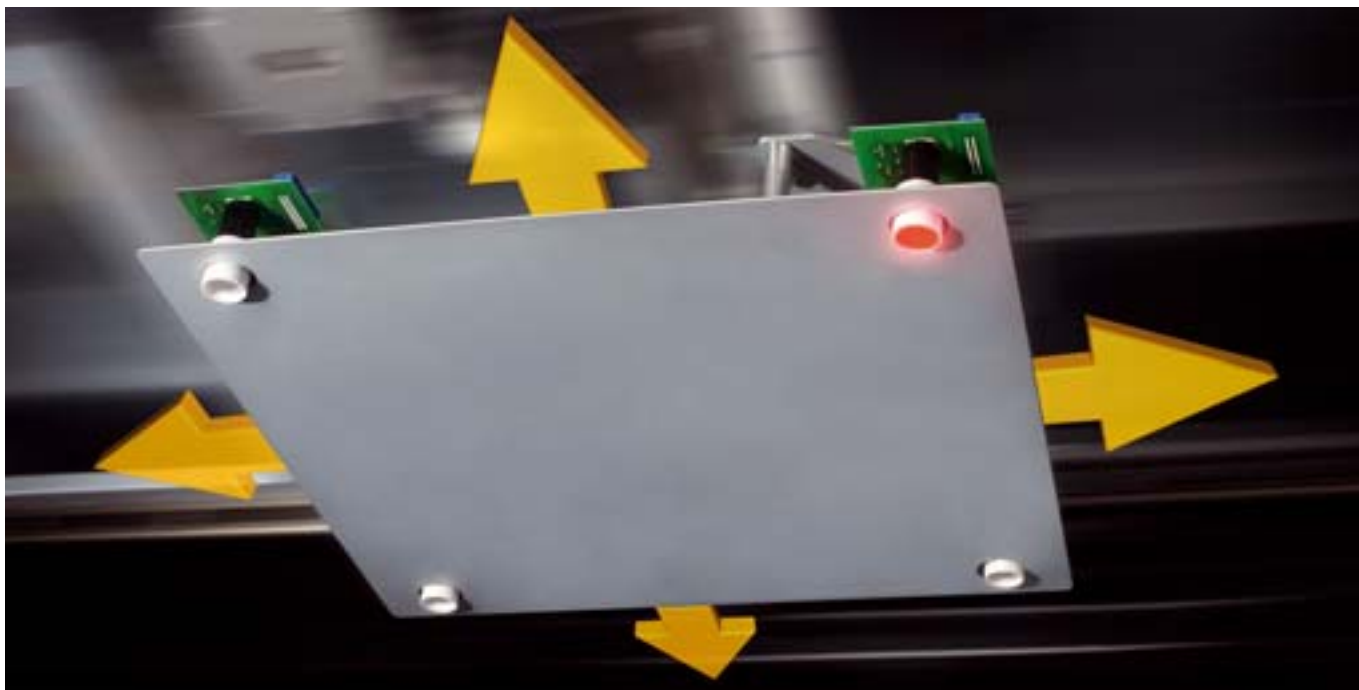
... the storage location required to accommodate the article size



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

Alternatively, if container divisions are variable, items can be identified via a free-moving Vario unit with 4 integrated LEDs. Small items are reliably identified using the optional reticle.

Depending on the application, Hänel Pick-o-Light-Vario® can be equipped with an optional reticle.



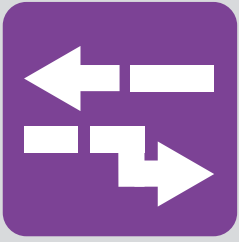
Pick-o-Light-Vario® with integrated LED for variable container divisions



Reliable identification of small items via reticle



Error-free identification of very small articles via reticle



# Hänel Pre-Store-Buffering®

## Time saved by automatic buffering

**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!**

Usually the articles on 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). The time needed to access the successive containers is reduced thanks to Hänel Pre-Store-Buffering®.

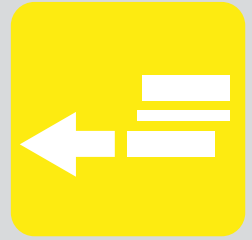
The Hänel high-speed door allows the extractor to move into position while work is being carried out in the access point. When container ① is no longer needed, it is returned to a defined storage location close to the access point, and container ② is brought out of the buffer straight to the access point.

While the picking procedure is being carried out from container ②, container ① is returned to its original storage location and the next container is delivered to the buffer location. Hänel's Pre-Store-Buffering® significantly increases storage efficiency.



# Hänel DualDrive®

## Double the performance



**Hänel, the inventor of the extractor with double container placement, has perfected this system and developed the Hänel Lean-Lift® in DualDrive® design**



While the operator picks items from the first requested container, the second is already positioned on the extractor. The Hänel DualDrive® extractor is moved so that the free extractor segment is positioned right behind the access point.



Once processing on the first container is completed, this is moved horizontally straight back onto the extractor and buffered there.



With a minimal downward movement, the next container is brought to access height in seconds...



... making it available to the operator quickly.

The new Hänel Lean-Lift with DualDrive® boosts order picking performance substantially. Pick lists with articles stored on different containers can be processed at a considerably higher speed.

**This saves time and therefore costs!**

Implementation of the Hänel DualDrive® concept in the well-proven Hänel extractor technology







# The Hänel MP 12N controller

## One control system – four operating modes

### Choose from four different modes of operation to meet your specific storage management needs

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

#### **MP 12N-StandAlone**

The complete storage management package is integrated in this device, so no additional PC is required. The Ethernet interface makes connectivity to your IT environment easy. A web server is also available so that the storage data can be displayed on the intranet.

#### **MP 12N-HostWeb**

Storage management is performed in the higher-level host system. An integrated web browser displays any required web page on the control unit via the HTML interface. The web applications are operated via touch screen on the control units.

#### **MP 12N-HostData**

The control system for quick and easy connection of our storage units to the customer's ERP system. This version offers a file interface for storage and retrieval orders (pick lists) or individual data records. Data conversion takes place in the controller. The exchange of data is automatic and time-controlled. Route-optimized processing of orders is possible across multiple Hänel storage units.

#### **MP 12N-HostCom**

In this mode storage management is performed in the higher-level host system, and the lifts are controlled via the user interface of the external storage management software. For storage and retrieval, a drive command is sent to the lift controller by the warehouse management software (WMS). Communication takes place via TCP/IP.

### Hänel ESB package – the intelligent safety package for higher 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 at the access point fail, it is still possible to continue operating the Lean-Lift® with the sliding door closed. The Hänel Lean-Lift® can also be equipped with an integrated Hänel ESB (Expanded Safety Bypass) package. 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 eight integrated safety circuits.

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

### The optimal operating procedures of Hänel storage systems save space and time

Control solutions such as the optimization run, which automatically eliminates any unused space that may have arisen, or the Access Priority Factor which stores frequently requested containers closer to the access point than those needed less often, are only two examples of the many highlights of Hänel control systems.

Numerous add-on modules and various options for integrating the controllers into existing IT systems offer you optimal, customized storage management for your intralogistics.





# Hänel software solutions for more efficiency



## Hänel's inventory management software enables efficient, rationalized workflow

Inventory management programs are intelligent software systems for computerized handling of warehouse processes on Hänel storage systems. These programs manage storage locations, articles, tools, stocks, pick and put jobs and orders.

Hänel offers special software solutions for every application:

### **HänelSoft®**

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

### **Hänel TDM**

The ideal solution for your tool management.

### **Integrated Control Software**

Hänel storage units, operating in one of the 4 distinct operating modes, integrate easily with existing ERP (Enterprise Resource Planning)

WMS (Warehouse Management System) and DMS (Dealership Management System) while taking into account custom data fields and processes.

Our Systems Integration staff stands ready to consult, plan and incorporate Hänel solutions in your environment.

### **Warehouse Management System WMS**

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

In cooperation with our partner viastore systems, we offer the viad@t software solution, an innovative application for intralogistics and warehouse management.

### **Hänel software systems rationalize storage operations and provide optimal transparency in the store-room!**

#### **The pluses**

- ▶ Quick and reliable access during pick and put operations by working directly at the Hänel storage access points.
- ▶ Modular functions for optimized adaptation to customer requirements.
- ▶ Standardized interfaces for simple data exchange with materials management/ERP programs.
- ▶ Interface to the Hänel lift controllers for pick and put operations directly at the storage units.
- ▶ Optimized order picking for all connected storage units.
- ▶ Rack storage systems, pallet stores, container stores, etc., can be managed in addition to Hänel storage units.





# HänelSoft®

## The high-performance and flexible inventory management system

### The proven warehouse management software from Hänel combines modern design with exceptional convenience and functionality

HänelSoft® is a powerful software package that offers practical configuration options and numerous add-on modules enabling it to be individually tailored to every customer's needs.

The smooth interaction between HänelSoft® and the Hänel lift controllers guarantees efficient storage operations.

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

#### The pluses

- ▶ The database and web server are integrated – that makes installation and maintenance tasks much easier.
- ▶ Open technology to accommodate other database systems.
- ▶ Operation via browser interface on the lift control unit.
- ▶ Flexible interfaces for ERP systems – csv, xml and web service.



#### User interface

Complex routines and processes are clearly and concisely visualized. Templates, icons and other convenient functionalities, such as the drag and drop function for shelf management, make system operation much easier and speed up data input as well.



#### Another highlight:

Mobile devices can be integrated with even more flexibility: Handheld terminals optimize storage processes in the warehouse. Tablet concepts in the storage area can also be applied to order picking trolleys and forklifts which can be routed directly to the Hänel storage systems.



#### Platform and location independence

Unlike a desktop application, HänelSoft® is based on browser technology so that it is available anytime and anywhere, permitting independent access to storage data regardless of location.



#### Realistic and flexible mapping of various storage scenarios

Using a configurator with an intuitive graphical interface, scenarios that involve Hänel systems, shelf storage, racks, pallet bays and other warehouse locations can be mapped very quickly.

# Hänel control units as SAP terminals



## Direct implementation of the SAP/Hänel storage management template in SAP using HTTP and SOAP

Hänel attaches great importance to enabling the storage lifts to interface directly with customer ERP software.

For many years now Hänel's MP 100 D and MP 12 N-HostData control systems have been supporting data exchange without the need for additional middleware. An FTP server is all that is required for data to be passed between the Hänel controller and the customer's ERP system.

### The multifunctional controller from Hänel

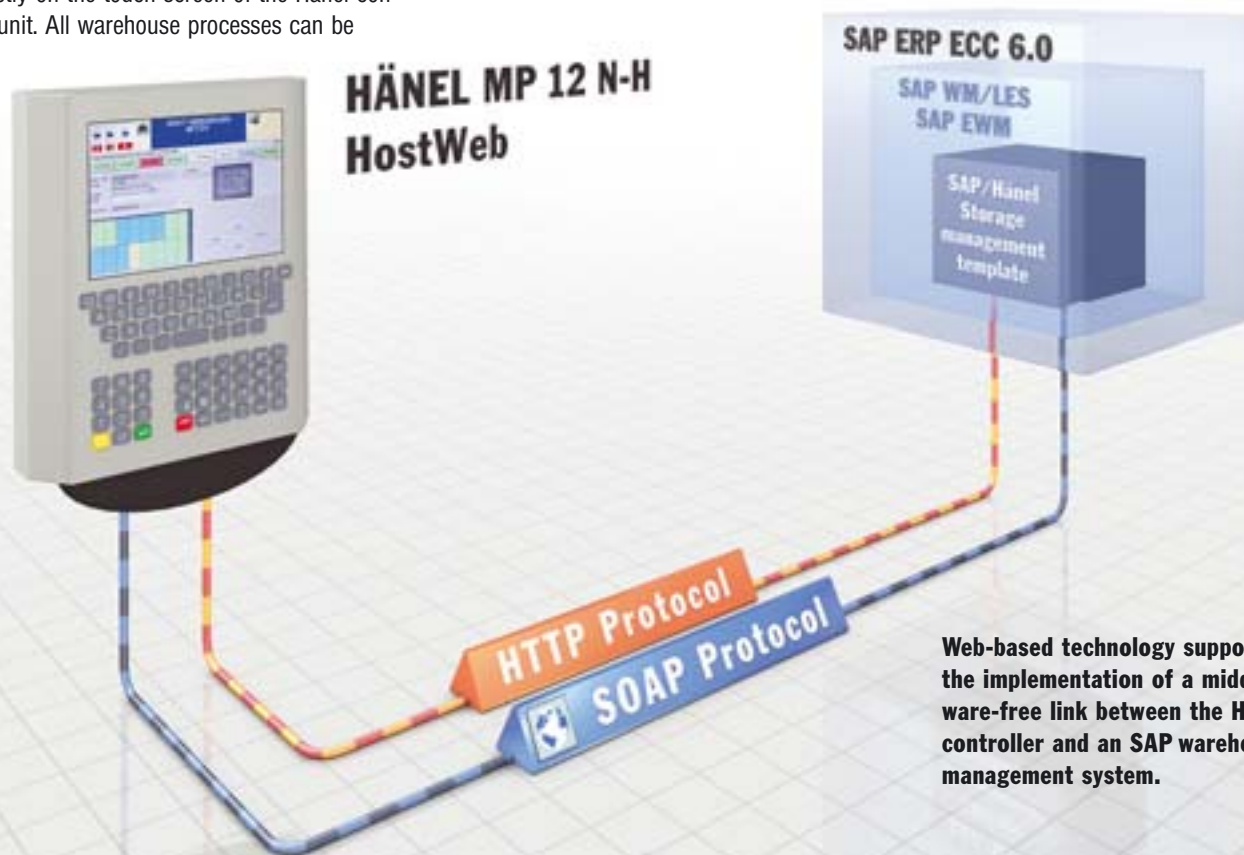
The latest generation of the MP 12 N-HostWeb controller has now become an SAP user terminal. Synchronization problems, such as those stemming from redundant data storage, are prevented.

Very soon SAP user dialogs will be displayed directly on the touch screen of the Hänel control unit. All warehouse processes can be

executed directly from the Hänel control unit. Data entries are booked in SAP in real time. Peripheral devices, such as barcode scanners and printers, are also supported. This solution also supports Hänel Pick-o-Light-Vario®.

Thanks to its close cooperation with viastore systems, a leading provider of warehouse management systems and SAP logistics solutions, Hänel has been able to further expand its MP 12 N-HostWeb control system and provide it with an SOAP web service interface. The communication via the SOAP interface includes data exchange as well as the transmission of drive commands sent from SAP directly to the Hänel system controller.

Web-based technology supports the implementation of a middleware-free link between the Hänel controller and an SAP warehouse management system.



Web-based technology supports the implementation of a middleware-free link between the Hänel controller and an SAP warehouse management system.



# We have more in store...

## 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 50 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 connection to 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.



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

## 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.



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

## 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 over 9 m/30 ft.
- ▶ Variable container widths, different payload capacities and the Hänel multiple pitch ensure the optimal solution for any challenge to compact storage.



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



# 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 Lockomat®

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

User authentication is provided by ID card, PIN code or optionally by transponder. The Hänel Lockomat® can be used in a wide range of sectors – the chemical industry, banking, pharmacies, etc. – wherever items that look the same on the outside but are entirely different on the inside need to be stored and retrieved quickly and without error.



## 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 3-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 3-axis storage system over 9 m/30 ft in width. 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 a computer interface, of course. Interface with enterprise resource planning systems is no problem.

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