

The Intelligent Hänel Control and Software Technology



Ideas that move the world...



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Hänel storage management systems: Pure efficiency!

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

For over 50 years the name Hänel has stood for high-quality products in the sector of intralogistics and office organization.

Vertical carousels like the Hänel Rotomat® or vertical lift modules like the Hänel Lean-Lift® and the Hänel Multi-Space® are high-tech products in automated storage technology.

Up to 60% of the available floor space saved and drastic reductions in the time taken to access the stored goods.

Alongside ergonomic design, inventory protection and the many system advantages, we give top priority to the cost-efficiency of these systems.

The highest quality standards of the storage systems and the smart control technology from Hänel make these products a worthwhile investment for your company.

The operating procedures of Hänel storage systems are optimally designed to create additional space and time savings

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.

The perfect interplay between Hänel high-speed drive and microprocessor control unit enable travel speeds in the Hänel Lean-Lift® of up to 90'55" / 2.30 m per second!

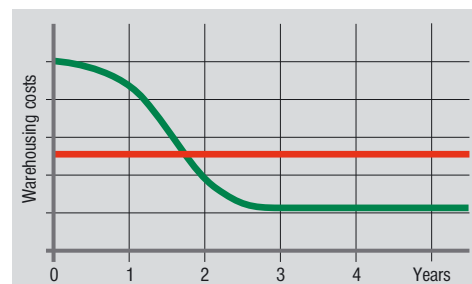
Numerous add-on modules and the various options for integrating the controllers into existing IT systems offer you optimal, customized storage management for your intralogistics.

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'.

Be sure to choose the intelligent control and software solutions from Hänel, as so many renowned companies worldwide have done!

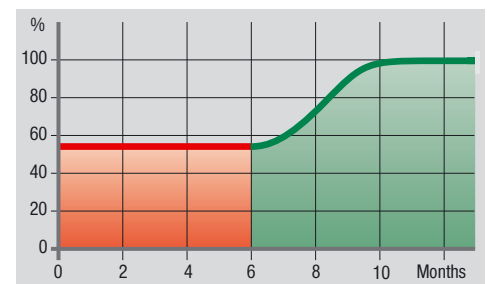
Amortization of Hänel storage systems



— Hänel storage systems
— Conventional storerooms

Example graphic

Stock overview and inventory control



— Hänel lift with Hänel storage management
— Manual storage system

Example graphic

Hänel microprocessor control systems at a glance



Model	MP 0 N	MP 12 N-Standard
Rotomat® office carousels	●	●
Rotomat® storage carousels	●	●
Lockomat®	—	●
Lean-Lift®	—	●
Multi-Space®	—	●
Display variants		
TFT color display, 320 x 240 pixels	●	—
TFT color display, 800 x 600 pixels, with touchscreen technology	—	●
Functions		
Device controller with direct selection of shelves/trays	●	●
Central controller for connecting up to 99 storage units (database server)	—	—
Integrated Hänel storage management packages	—	●
Numerous additional functions thanks to intelligent software modules	—	●
Integrated web server for direct access to storage data via web browser	—	●
User interface multilingual with Latin, Cyrillic or Greek scripts	●	●
User interface multilingual thanks to UNICODE e.g. for Chinese	—	●
Access authorization via RFID	—	●
Storage location display by compartment LED	●	●
Hänel EcoLoad® for displaying load imbalances on Rotomat®/Lockomat®	●	●
Optimization run on Lean-Lift® and Multi-Space®	—	●
Access Priority Factor on Lean-Lift® and Multi-Space®	—	●
Expanded Safety Bypass Package (redundancy package)	—	●
Integration of HänelSoft® with graphical user guidance via browser	—	—
Network/Periphery		
USB port for barcode reader	—	●
RS 232 interface for connecting peripheral devices	●	●
Ethernet interface for quick and easy integration into existing corporate networks	—	●
Intelligent multi-point connection for networking multiple storage systems	—	●
Networking of 2 control units with data exchange between the storage modules	—	●
Ethernet connection for networking multiple lifts	—	●
Client controller for connection to a host system via RS232	●	—
Controller for connection to a host system via Ethernet	—	●

- Configuration variant available ○ Features depend on the control software used
— Configuration variant not available



MP 12 N – One control system, four operating modes				MP 100 D	More information on page
Alone	MP 12 N-HostWeb	MP 12 N-HostData	MP 12 N-HostCom		
	●	●	●	●	4 – 16
	●	●	●	●	4 – 17
	●	●	●	●	6 – 17, 41
	●	●	●	●	6 – 17
	●	●	●	●	6 – 17
	—	—	—	No display. Display via MP 12 N-H	4 – 5
	●	●	●		6 – 13
	●	●	●	—	4 – 13
	—	—	—	●	14 – 15
	—	—	—	●	16 – 17
	—	●	—	●	18 – 19
	—	—	—	●	8 – 10, 12 – 15
	○	●	●	—	4 – 13
	○	●	●	No display.	6 – 13
	○	—	—		20
	●	●	●	—	25
	●	●	●	—	23
	●	●	●	—	8, 16
	●	●	●	—	8, 16
	●	●	●	—	26
	●	—	—	—	36 – 37
	●	●	—	—	20
	●	●	●	—	20
	●	●	●	●	6 – 15, 28 – 29
	—	●	—	●	8 – 10, 28 – 29
	—	—	—	—	8 – 9
	●	●	●	●	6 – 13
	—	—	—	—	4 – 5
	●	●	●	●	6 – 15

MPON

Single lift controller for the Hänel Rotomat®

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

MPON-StandAlone

MPON-HOST

MPON-BARCODE

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

The user-friendly menu structure for information and system services makes it easy to work efficiently. An RS 232 interface for connecting peripheral systems (PC, barcode reader, etc.) is also integrated.

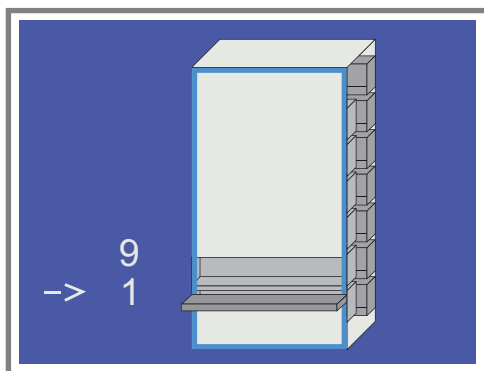
The Hänel EcoLoad® can be integrated into the MPON as an option. It ensures even load distribution in the Hänel Rotomat®. This helps to save energy and avoid dangerous load imbalances (further information on the Hänel EcoLoad® is available on page 23). The load status is depicted graphically on the display.

Storage locations are pinpointed by compartment LEDs, and sub-level indicators are also possible if required.

The 'Operation by remote control' module in conjunction with the requisite safety equipment can be used to control the Rotomat® directly from a PC or barcode reader.

The pluses

- ▶ Three different operating modes are possible.
- ▶ Direct selection of the shelf levels by entering the shelf number.
- ▶ Digital display of the shelf number in the access point.
- ▶ Messages displayed in plain text.
- ▶ When positioning system MFPS is used: Individually programmable stop positions, position monitoring.
- ▶ Different language versions can be set.
- ▶ RS 232 interface for PC and barcode reader.
- ▶ Keylock function.
- ▶ Emergency operation possible with retrieval hatch closed (optional).



With the MPON, the movements of the lift are shown via a lift run graphic





MPON with four-line information display and easy-to-follow operator prompts

On the Hänel Rotomat® office carousel, the MPON is integrated into the work counter.

MP 12 N

One control system – four operating modes

The MP 12 N – the compact controller for Rotomat[®], Lockomat[®], Lean-Lift[®] and Multi-Space[®]

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





MP 12 N-StandAlone

The top controller for Hänel storage systems

The MP 12 N-StandAlone – the compact controller for Rotomat®, Lockomat®, Lean-Lift® and Multi-Space®

MP 12 N-StandAlone

This is the compact controller for Hänel storage systems with comprehensive, integrated storage management for article numbers, storage locations, stock quantities, minimum inventory and other supplementary data fields.

Pick list and order management is already included. A range of storage management packages (article, tool and file management) are available and can be operated easily via touchscreen.

It has a USB interface and two serial RS 232 interfaces for barcode scanner, badge reader and other peripheral devices. The integrated Ethernet interface allows trouble-free connection to host systems.

The Access Priority Function ensures that frequently used containers are stored closer to the access point. This makes access to stored articles even faster.

The optimization run eliminates any unused space in the lift arising from inventory movements by resorting the trays automatically.

Data is stored on compact flash cards. Together with the intelligent backup functionality, this ensures that no data is lost even if there is a power outage or the storage system is switched off. The memory contents are always up-to-date.

The many configuration options give the customer a tailored range of functions.

Thanks to the Ethernet interface, the Hänel controllers can be easily integrated into the customer's corporate network. This allows data to be exchanged with any ERP system, and a network printer to be set up for list printouts, for example.

The integrated web server also enables storage data to be retrieved via a PC browser connected to the same local area network as the Hänel storage units.

The menu structure of the MP 12 N-StandAlone



A Interactive browser user interface

Easy and convenient handling of all functions via touchscreen. Clearly laid-out display of all the relevant information on inventory and storage locations in the web browser.

B Current lift information

Display of lift number, access point (where there are multiple access points) and shelf number.

C General display/ Input field

For entry of all control commands via keypad, such as direct selection of a shelf.

D Switchable view

Switch between browser view and camera view (on lifts with integrated camera).



View in camera shot mode. All inventory changes can be tracked using container photos

The MP 12N-StandAlone

Maximum functionality and user-friendliness

The pluses

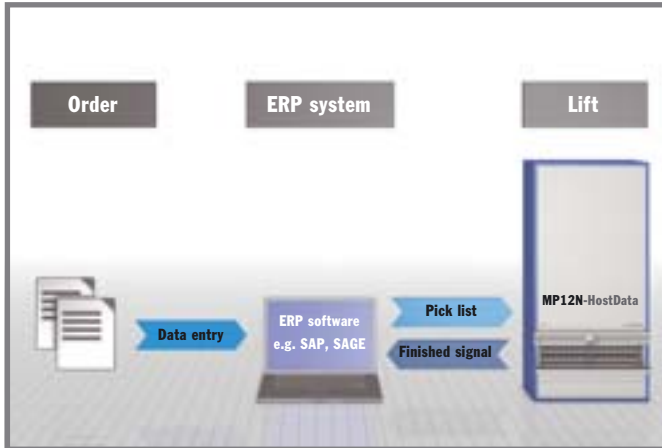
- ▶ The Unicode standard creates the basis for displaying the user interface in virtually any language.
- ▶ Integrated FTP and CIFS client for data exchange.
- ▶ The integrated web server also enables current storage data to be retrieved via the intranet/ internet.
- ▶ Ethernet interface is standard.
- ▶ The storage management package is already included.

A detailed description of the integrated storage management is given on pages 10 – 13.

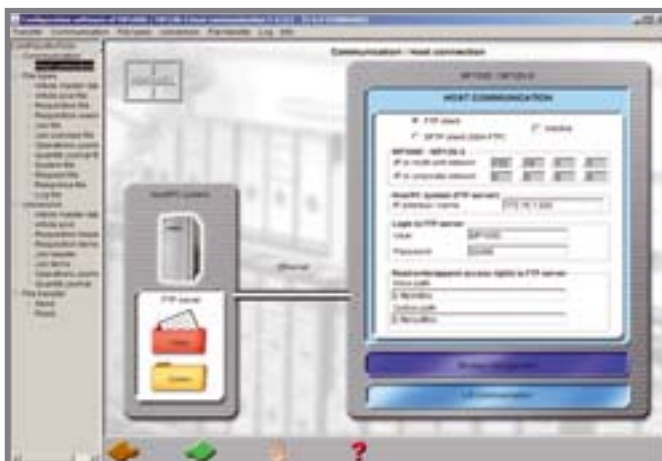
MP 12 N-HostData

The controller for fast connectivity to your inventory management system

The quick and easy way to connect our storage units to your inventory management system



Info	
Job	4567.123
Article number	0660528-923
Name	Engine block
Compartment	101
Total/Minimum inventory	20 / 10
Inventory	20
Priority	100
Cost center	21
Status	New
Goods in	20.09.05
Advisory Object	very heavy



The control keypad with touch-screen operation offers optimal ergonomics for processing jobs.

The pick and put orders are generated in the storage management system and passed on to the warehouse in data form. The orders are then processed at the storage lift(s) in route-optimized sequence.

The controller buffers up to 5,000 list items.

With the pre-positioning option, all the lifts in an order picking group are positioned simultaneously.

Each confirmed pick or put operation is reported back to the storage management system as an inventory booking.

Data is exchanged between the storage systems via FTP or CIFS file transfer.

Processing data records

The data records contain the storage and retrieval information such as job number, part number, storage location and quantity. Processing is sequential or priority-controlled.

Configuration software

The configuration software is used to enter the setup data (once only) for the MP 12 N-HostData:

- the parameters for integration into the network infrastructure
- adaptation of the interface to the customer-specific data format
- definition of the time intervals for each data import or export.

The integrated web server offers the option of displaying the buffer contents directly on the controller or via an external PC browser according to various criteria.

The pluses

- File interface for storage and retrieval orders (pick lists) or individual data records.
- Data conversion and automatic, time-controlled data exchange.
- Route-optimized processing of orders, even across multiple Hänel storage systems.
- Data field display or input at the lift can be individually configured.

MP 12 N-HostCom

Direct actuation of the Hänel storage systems by drive commands

The control system for local and mobile use

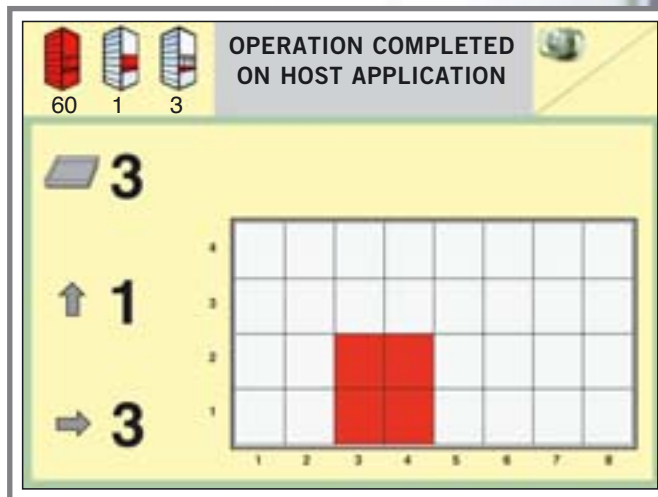
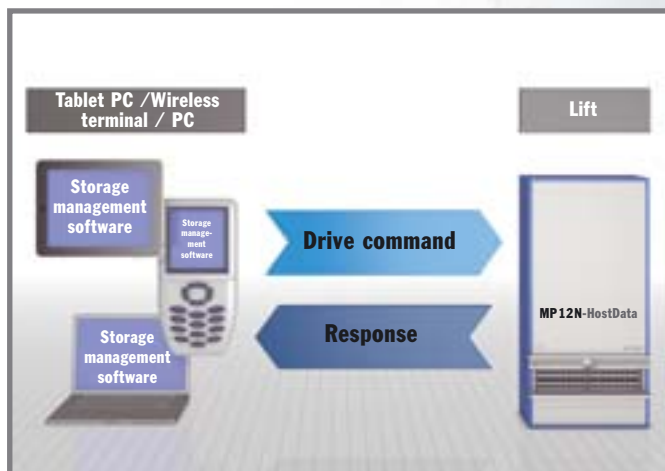
In this mode, storage management is performed in the higher-level host system. The lifts are controlled via the user interface of the external storage management software.

For storage and retrieval, a drive command is sent to the lift controller by the storage management software. Communication takes place via TCP/IP.

The control point for the lift can be a fixed PC workstation or a mobile terminal.

The pluses

- Customers can also use their existing storage management software for the Hänel machines.
- The units are then operated via the familiar user interface of the storage management software.
- The interface between storage management software and lift is reduced to a few commands using a TCP/IP connection.



The container overview graphic shows the storage location coordinates as defined in the drive command

MP 12 N-HostWeb

The control system for web applications directly at the lift

With this controller once again inventory is managed in the customer's storage management system.

The MP 12 N-HostWeb offers every tool needed to bring the user interface of the storage management system directly to the lift:

- an Ethernet interface for integration into the customer's network
- an integrated web browser to show HTML pages directly on the control display

- a color TFT display with touch-screen operation
- two serial and one USB interface for connecting peripheral devices

Customer solutions can be individually implemented on the control terminal by means of a web server. There are virtually no limits to the way the user interface is designed.

The HänelSoft® storage management software, for example, uses this technology to provide an

intuitive and modern user interface directly at every storage lift.

The pluses

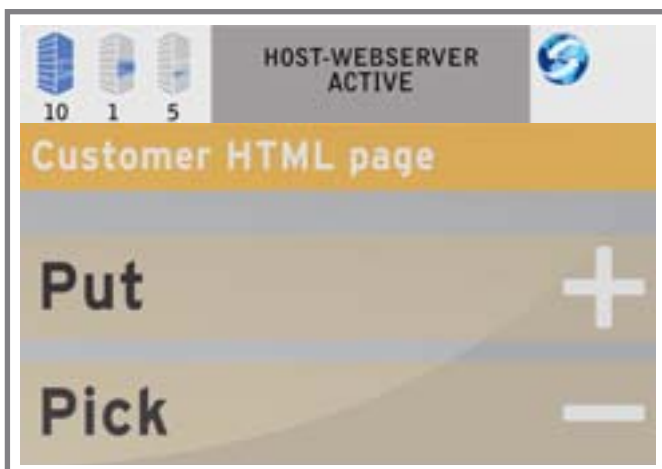
- The lift controller is simultaneously a full-scale operating terminal for the storage management system.
- Direct access to the storage management database from each storage lift.
- Easy-to-read color TFT touch display with integrated web browser for showing the storage management user interface.
- No additional PC hardware required to operate the lifts in the warehouse.



HänelSoft® uses the MP 12 N-HostWeb to bring the functionality of a tablet PC straight to the control unit



Information about the articles, such as sample pictures, are made available on the control unit by HänelSoft®



The integrated web browser is the basis for each customer's individual user interface



A wide range of information can be shown just like on a web page. There are virtually no limits to the design



HOST-WEBSERVER
ACTIVE

HänelSoft®

Choose action



MP 100 D

The central controller

The MP 100 D – high-performance central control system for up to 99 storage units

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

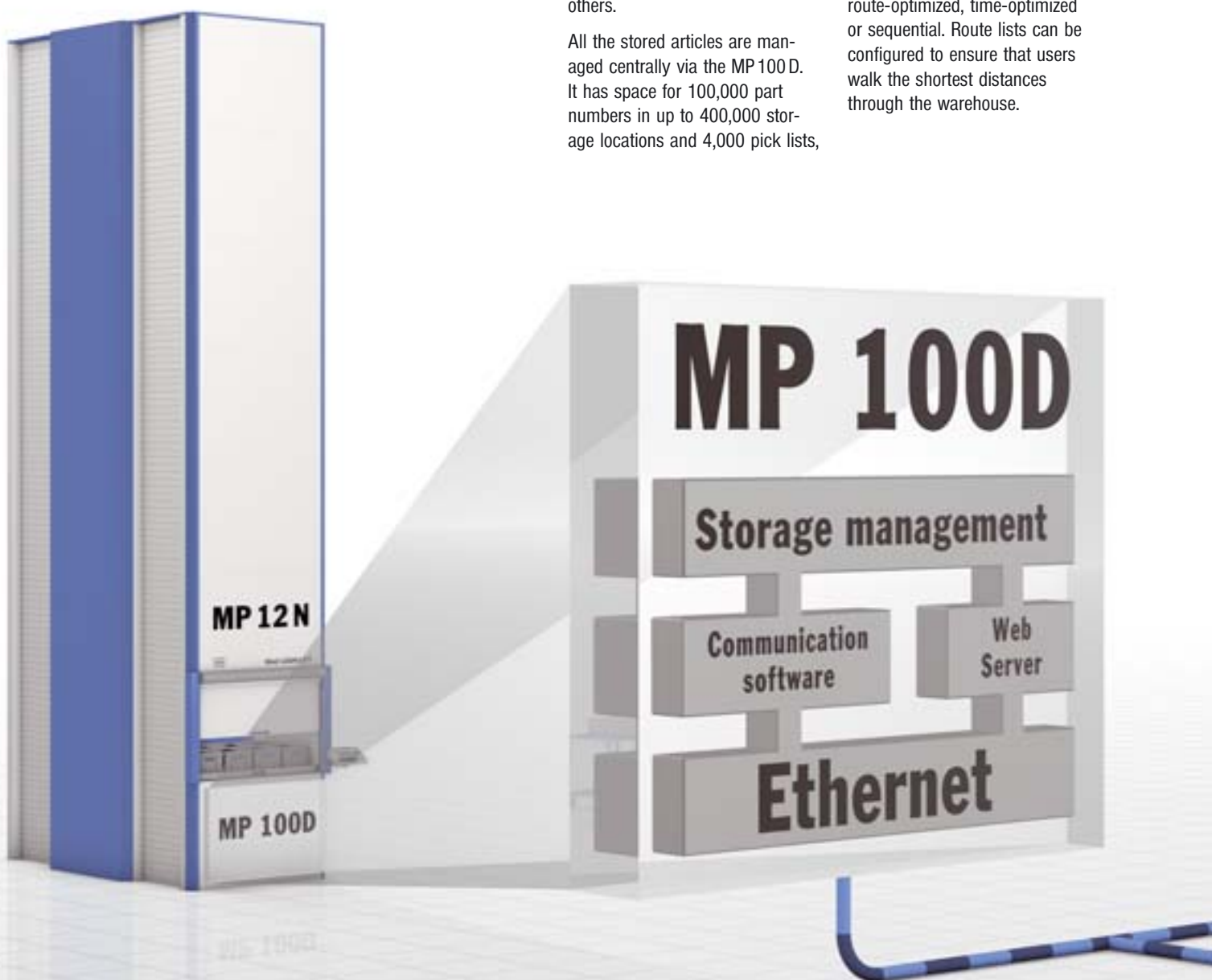
packages from Hänel. It manages the data of up to 99 storage units.

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.

All the stored articles are managed centrally via the MP 100 D. It has space for 100,000 part numbers in up to 400,000 storage locations and 4,000 pick lists,

job lists or parts lists with up to 100,000 items. Powerful order-picking functions make work in the warehouse easier.

Processing of the pick and put lists, for example, can be either route-optimized, time-optimized or sequential. Route lists can be configured to ensure that users walk the shortest distances through the warehouse.



A detailed description of the integrated storage management is given on pages 16-19.

To boost order picking speed, the shelf/tray pre-positioning option can be used, which simultaneously positions multiple lifts in an order picking group. The standard Ethernet interface enables data to be exchanged with higher-level host systems. **To ensure problem-free connectivity, the MP 100 D contains an FTP and FIFS client as well as a data conversion software.** The integrated web server

provides access to the storage data in the customer's corporate network.

The integrated Hänel storage management packages can be adapted to individual customer needs with numerous add-on modules.

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.



The integrated storage management packages of the MP controllers from Hänel

Intelligent inventory control with the storage management packages from Hänel

Contained in the compact controller MP 12 N-StandAlone and the central control system MP 100 D is a Hänel inventory control package. This means all the inventory control functions are already integrated.

The storage data are saved on compact flash cards that guarantee high data security and insensitivity to dust, dirt and vibration.

All inventory bookings are immediately written to the memory card by a secure procedure. Even if the control system is switched off unexpectedly, your data are still safe.

The MP 100 D also offers the option of using a second memory card as an automatic backup medium.

No additional PC is required!

Three storage management packages are available:

- Hänel article management
- Hänel tool management
- Hänel file management

All three packages boast easy-to-handle user interfaces and maximum storage management functionality.

Functions	MP 12 N-StandAlone	MP 100 D
All the lifts in the network can be operated simultaneously	—	●
Articles can be stocked across multiple lifts and managed centrally	—	●
The flash PC card has space for		
Max. no. of articles	10,000	100,000
Pick lists/orders	1,000	4,000
Pick list/order items	25,000	100,000
Max. no. of storage locations	100,000	400,000
No. of storage locations per article	255	255
No. of articles per storage location	255	255
Storage management package		
Article management	●	●
File management	●	●
Tool management	●	●
Storage of article names and 25 additionally definable special data fields in the stock list max.	● 40-character	● 40-character
Order picking management with 25 additionally definable special data fields in header and item max.	● 40-character	● 40-character
Job management (priority-controlled processing with acknowledgment of the quantity actually withdrawn)	●	●
Storage strategies such as FIFO, FIFO with re-storage, selective access to storage locs., fixed loc. storage and random storage	●	●
Storage loc. size (unit size) in width, depth and height (optional)	●	●
Automatic size-dependent storage loc. search (free space search)	●	●
Minimum inventory feature with low-stock warning and printout of a re-order recommendation list	●	●
Quantity factor and availability check for pick lists	●	●
Order picking strategies while processing		
Sequential (in defined sequence)	●	●
Route-optimized (shortest route covering all storage locations)	●	●
Route list for route optimization between multiple lifts	—	●
Time-optimized	—	●
Comprehensive printouts	●	●
Storage data retrievable via web browser, partially editable	●	●
Data exchange with host systems	Files via FTP and CIFS	Files via FTP and CIFS
Various add-on modules for package expansion	●	●

- Standard configuration
- Configuration variant not possible

066/528-923
ENTER QUANTITY

1 1 3 1 1 1 -1

INFO

REQUISITION NUMBER	125.547
ARTICLE NUMBER	066/528-923
ARTICLE NAME	Motor block
TOTAL MIN. INVENTORY	10 / 5
CONTAINER SIZE	1 / 1
ARTICLE NAME 2	--
ADDITIONAL INFORMATION	--
ARTICLE INFORMATION	--
SPECIAL DATA FIELD	--

Article selection storage/retrieval

When an article is selected, a detailed list of information about the item is displayed.

066/528-923
ENTER STORAGE LOC.
SHELF NUMBER

1 1 3 1

INFO

REQUISITION NUMBER	--
ARTICLE NUMBER	066/528-923
ARTICLE NAME	--
TOTAL MIN. INVENTORY	0 / 0
CONTAINER SIZE	1 / 1

Storage location search

When a container size is entered (optionally with a height specification) the control system suggests the next free storage location.

INFO BROWSER
[CE/↓/<-/->/↑/↑]

1 1 2

Info Back Menu

Lift: 1 Shelf: 1 Comp.: Comp. depth: Show contents

Shelf name: ELECTRICAL PARTS Apply name

h = 1

assigned free

Graphical overview of shelves

The graphic shows the current situation on each shelf. Tap on the marked compartment to display its contents.

INFO BROWSER
[CE/↓/<-/->/↑/↑]

1 1 2

Storage lifts Web server Menu

Article data

Article number	Article name	Lift	Shelf	Com.	Comp. depth	Inventory	Comp. size
101	--	1	2	3	1	20	003 02 02
101	--	1	2	5	1	20	002 02 02
101	--	1	1	1	1	220	001 01 01
101	--	1	1	2	1	200	001 01 01
102	--	1	3	4	1	100	003 03 03
102	--	1	2	7	1	200	002 02 02

Info on article data

When a search term is entered, the results are displayed in a table. Any data field can be selected as a search field, such as article number, article name, etc.



Add-on modules for the integrated storage management packages of the MP controllers

For optimal storage functionality tailored to customer requirements, there are many supplementary modules available

MP supplementary module 01

Management of external shelves

Complete trays with the articles on them can be removed from the Lean-Lift® and, say, conveyed to the production department by transport cart.

The relevant storage data remain stored in the lift. Once the tray has been returned to storage, the stored or retrieved articles are booked at the lift.

MP supplementary module 02

Access code management

Different user groups can be defined with the user management function. A user group is granted access rights to certain areas of the store (lift, shelf/tray and on the Rotomat® even to individual storage compartments).

Each user is given a user number and password along with allocation to a group and thus the permitted storage areas.

MP supplementary module 03

Item pool management

Item pool data are independent of storage location and contain information that describes the article, e.g. article number, name and/or additional fields defined by the customer.

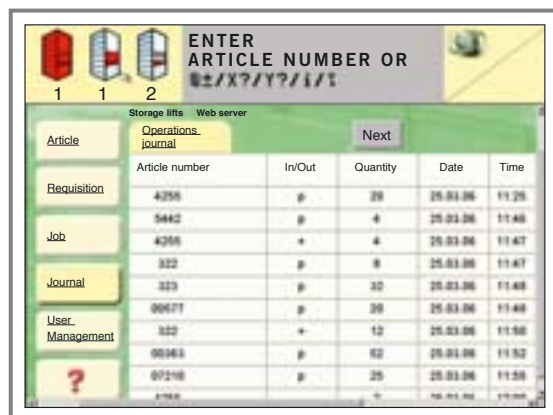
Item pool data can be transferred via the interface during operation and updated at any time.

MP supplementary module 04

Management of storage location height

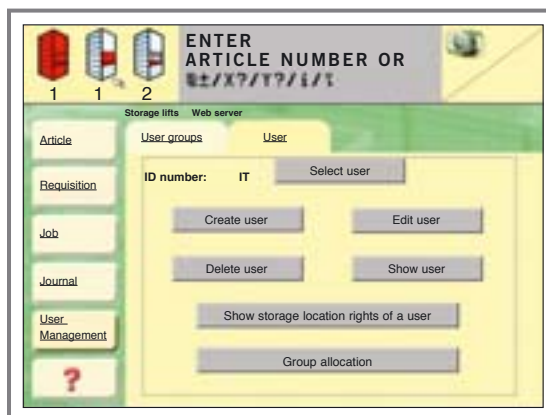
Each shelf/tray can be assigned a relative height. The automatic storage location search suggests a storage location with the requisite height to the user.

In the Lean-Lift® especially this ensures optimal space utilization as only parts with the same height are stored on one tray. Trays loaded with items that are too high, depending on the setting, are rejected by the lift.



Article	Requisition	Job	Journal	User	Management	Article number	In/Out	Quantity	Date	Time
						4255	p	29	25.03.06	11:25
						5442	p	4	25.03.06	11:46
						4255	+	4	25.03.06	11:47
						322	p	8	25.03.06	11:47
						323	p	32	25.03.06	11:48
						00671	p	39	25.03.06	11:48
						322	+	12	25.03.06	11:50
						00343	p	52	25.03.06	11:52
						00216	p	25	25.03.06	11:55
						3755	p	1	25.03.06	11:55

Operations journal for recording operating data



Access code management for different users



Camera module – photographic overview of shelf contents

MP supplementary module 08

Free space management

Articles can be stored in different container types of predefined size. These specified details are assigned to the individual shelves/trays as fixed structures.

Empty containers can be added or deleted at any time.

The automatic storage location search then suggests an empty container of the requested type.

Supplementary module camera

Integrated camera

A camera integrated in the Lean-Lift® takes a photo of the tray each time a transaction is carried out (MP 12N only).

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

With the photographic information, an article on a tray can be identified directly from the control unit and brought to the access point.

MP supplementary module 20

Shelf pre-positioning

Parallel and serial shelf pre-positioning boost order picking efficiency.

All the lifts in an order picking group are positioned at the same time, or the next lift is brought into position while the list item at the previous lift is being processed.

MP supplementary module 21

Inventory function

The inventory function supports continuous stock taking, i.e. all the storage locations of an article must undergo a physical inventory at least once a year and be recorded for documentation purposes.

MP supplementary module 05

Management of storage time

Retrieval is only possible after a defined period of time has elapsed.

Application example:

An item must remain in temporary storage until it has cooled or hardened, say, before it can be sent to production.

A maximum storage time starts when the item is placed in storage. Retrieval is on a FIFO basis. Expired articles are removed with specific retrieval functions.

MP supplementary module 06

Operations journal

For the purpose of collecting operating data, all the storage/retrieval operations, including the quantity, cost center, job number, storage locations, or freely definable data, can be recorded in the operations journal and printed out or sent to the host system.

MP supplementary module 07

Barcode cross-check

When an article is stored or retrieved, the user is prompted to enter the article number via barcode as a check.

This ensures the operator has deposited or withdrawn the right article.



ENTER ARTICLE NUMBER OR
 1 1 2
 Storage lifts Web server

Article Job data

Requisition Job list – all jobs:

Job number	Status	Priority	Date	Time of day
A1	00	100	28.03.06	13:40
A2	00	100	28.03.06	13:40
A3	00	100	28.03.06	13:40
A14052	00	100	28.03.06	12:23
A11020	00	100	28.03.06	12:23
A11070	00	100	28.03.06	12:23

User Management

Overview of current jobs

LENDING MANAGEMENT RELEASE/RETURN
 1 1 2
 Storage lifts Web server

Article Article data Order recommend. Lending data Reservation data

Requisition Lending overview list:

Article number	Quant.	USER	Lending date	Lending time
100	1	MULLER	28.03.06	11:40
100	2	IT	28.03.06	10:11
100	1	IT	28.03.06	09:43
W13-1	2	MAHER	28.03.06	11:37
W133	2	KLEIN	28.03.06	11:34
W16100	3	SCHMIDT	28.03.06	11:38

User Management

Lending management with identification of the person borrowing the item

MP supplementary module 23

Decimal input

Depending on the setting, there can be 0–3 decimal places in the quantity field. The use of decimal places can either be selected for each individual article or be permanently set for all articles.

MP supplementary module 24

Adjustable container speed

This feature allows sensitive goods to be transported gently. The maximum vertical and horizontal speed of the lift can be adjusted generally and, depending on this, the individual speed of the different containers.

If individual settings are chosen, the container speed is also used in the search for an empty storage location for the article.

MP supplementary module 26

Lending management

Lending management is useful for storing articles that are not consumables but are repeatedly returned to the lift.

With lending management the identity of the person borrowing the item is requested and logged.

The lending overview list shows the items that have been withdrawn, the withdrawal time and the users who have withdrawn them.

Easy connection of peripheral components

All Hänel control systems are equipped as standard with serial and/or USB ports for the connection of peripheral components

The central arrangement of all the peripheral devices needed for order picking, such as RFID systems, barcode and badge readers, printers and scales, ensures the best possible user comfort, saves time and guarantees smooth workflow.

The MP12N controllers also allow the connection of network components via the integrated Ethernet interface.

It is possible to connect:

- Printers for different list printouts: article lists, storage location lists; filtering and sorting of data according to different criteria is possible.
- Label printers for marking the stored and retrieved material with article numbers, names, quantities, etc.
- Barcode readers for identifying articles by their article number, and optionally for checking the article number (barcode cross-check) or entering a quantity.

- Transponder readers or badge readers for personal identification and access control at the storage lifts.
- Counting scales enabling the number of stored/retrieved items to be determined by weight when large quantities are involved. This eliminates the need to laboriously count the items individually.

The pluses

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



Storage and retrieval via barcode



Access control via RFID



Scales for counting the quantity by weight

Ergonomic integration of the control terminal

Maximum user comfort thanks to individual needs-oriented positioning of the control keypad

Hänel offers various solutions for ergonomic integration of the control terminal – depending on the needs of the customer.



On the Hänel office Rotomat® the control panel is integrated ergonomically into the work counter



Hänel Lean-Lift® control keypad on movable Vario arm (standard)



Control keypad permanently fixed on the container support (optional)



Control keypad on movable pedestal at working height (optional)



Control keypad flexibly mounted on universal arm (optional)



Control keypad mounted on swivel attachment on Lean-Lift® housing (optional)



Keyboard in the Rotomat® control box above the access point, keys positioned centrally at eye level (standard)



Pull-out keyboard housed beneath the Rotomat® work counter

Hänel EcoConcept

A system with the future in mind

Energy-efficient systems are the key to lowering energy consumption in your warehouse

The effective energy consumption of automated material and file handling systems has a major impact on operating costs, amortization and, critically, on environmental protection.

For this reason we have always placed great emphasis on continually optimizing the energy efficiency of our storage systems. This brings our customers many benefits, both from an economic and an ecological perspective!

The efficient design principle:

Hänel Lean-Lift®

The Hänel Lean-Lift® stores all items in height-optimized positions, which ensures extremely compact storage in a minimum of space. This optimal use of storage area inevitably results in energy savings.

Hänel Rotomat®

The vertical carousel principle of the Hänel Rotomat® is energy-efficient in its very design. Using the Hänel EcoLoad® system makes sure the weight distribution inside the Rotomats® is balanced out. As a result of this, very little energy

is required for a rotation or travel movement. And of course the unit always picks the shortest route automatically.

Design optimization

Careful selection of high-quality components and technologies brings more energy savings.

Energy-efficient drive systems

Motors controlled by frequency converter use considerably less energy than drives powered directly from the mains and running at full load.

Optimizing the energy balance with intelligent concepts

The goal of continually optimizing the energy efficiency of the Hänel storage systems is a challenge we embrace every day.

Under the heading **Hänel EcoConcept** we constantly develop components that contribute to improving energy efficiency.

EcoMode®

Intelligent energy management

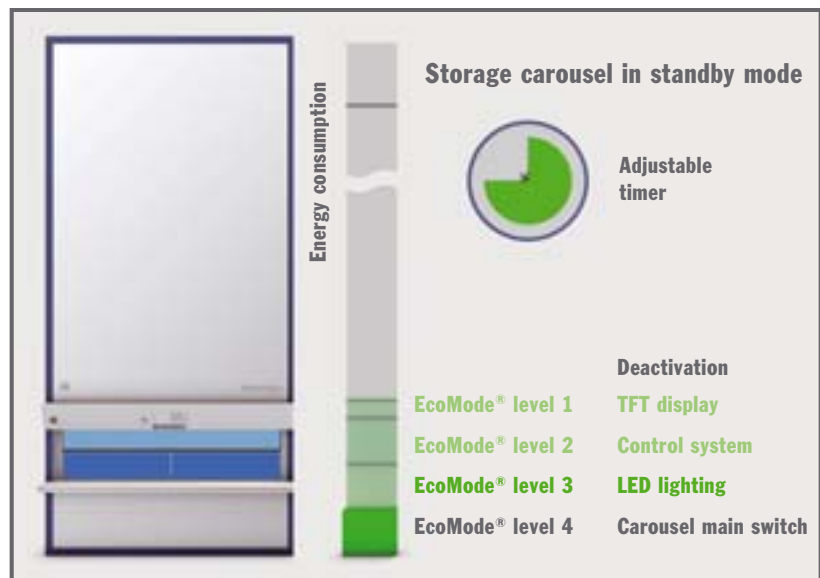
With the Hänel EcoMode®, a storage system that remains at standstill for long periods without being operated can be switched automatically to different levels of standby mode at freely configurable time intervals.

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.

EcoLoad®

Energy-efficient loading

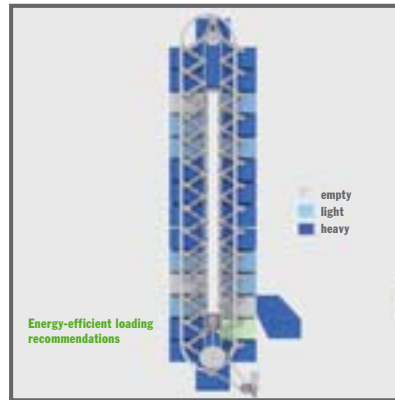
Hänel microprocessor controllers with new features

For the Hänel Rotomat® there is an additional smart energy conservation concept – the Hänel EcoLoad®.

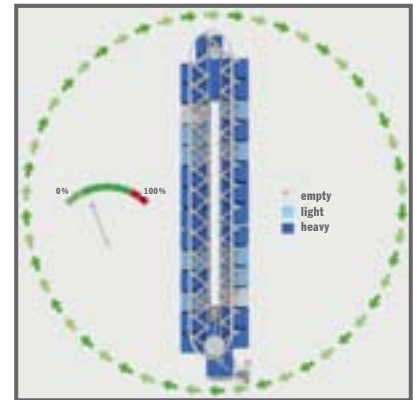
As the Rotomat® works on the principle of rotation, a lot of energy can be saved by ensuring even load distribution. So the load status of the Hänel Rotomat® is continuously monitored.

This enables the Hänel microprocessor controller to achieve optimum distribution of the storage items by means of loading recommendations. If the recommendations are followed by the operating personnel, the storage goods are always evenly distributed.

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



The weight distribution in the Hänel Rotomat® is measured continuously so that if a load becomes uneven, a relocation of goods is recommended to optimize energy efficiency



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

EcoDrive®

Efficient energy recovery

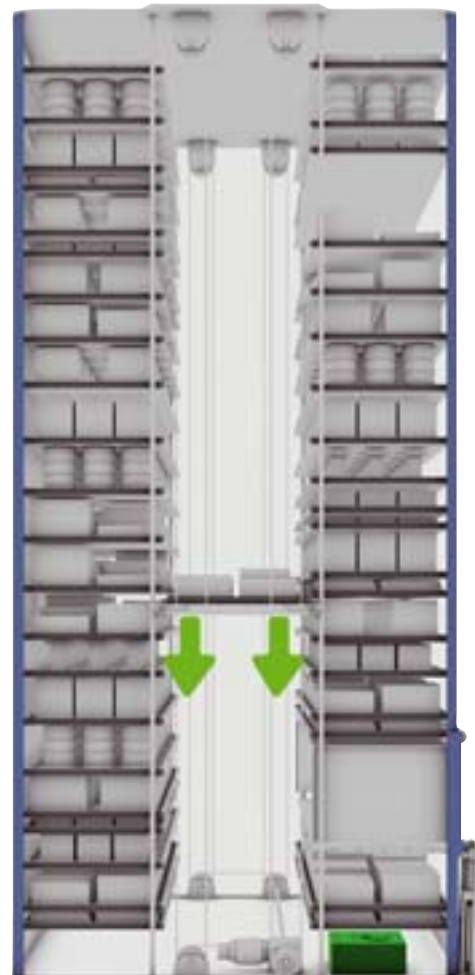
Energy recovery thanks to frequency converter with integrated feedback unit on the Hänel Lean-Lift®

The 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. The 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.

Depending on the rate of travel, up to 40 % of the energy fed in previously for the upward run can be recovered in this way.



Height sensors and weighing device

Hänel features for efficient storage

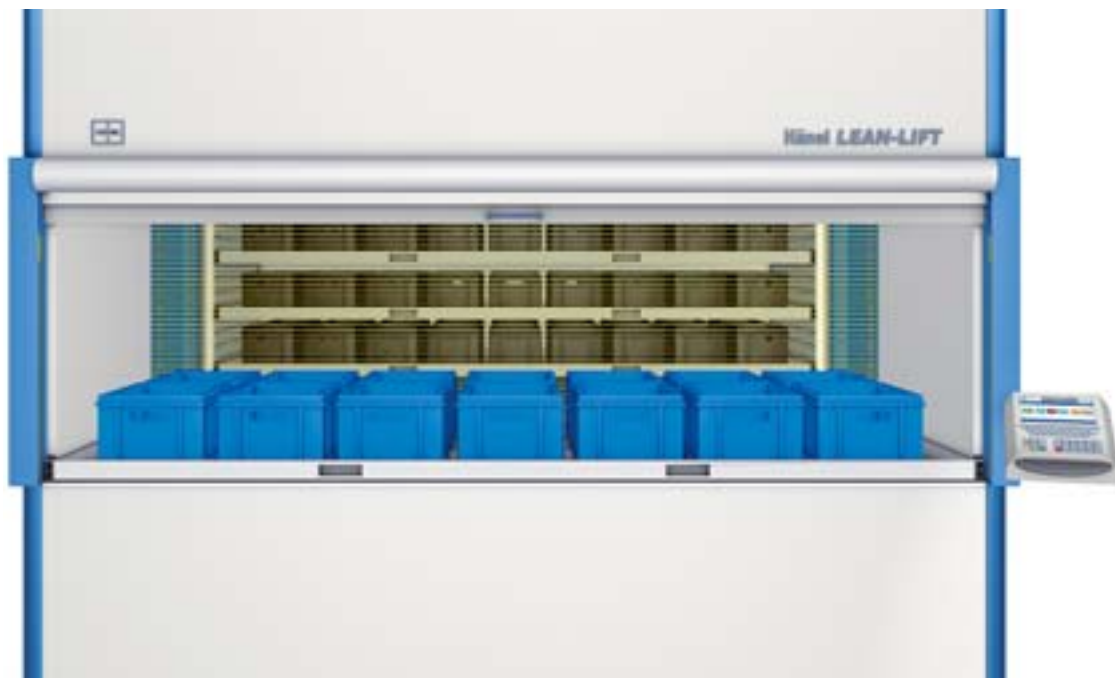
Space-saving storage based on precise height measurement of goods

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

Accurate height measurement when storing trays ensures optimal packing density.

Height-measuring light barriers spaced at 25 mm / 0.98", 37.5 mm / 1.47", 75 mm / 2.95" or 90 mm / 3.54" log the height of the storage goods.

When the tray is drawn in, the highly accurate light barriers measure the articles, and the Hänel microprocessor control system finds the optimal slot in the Hänel Lean-Lift® based on the height reading. At the same time a protruding goods check is carried out.



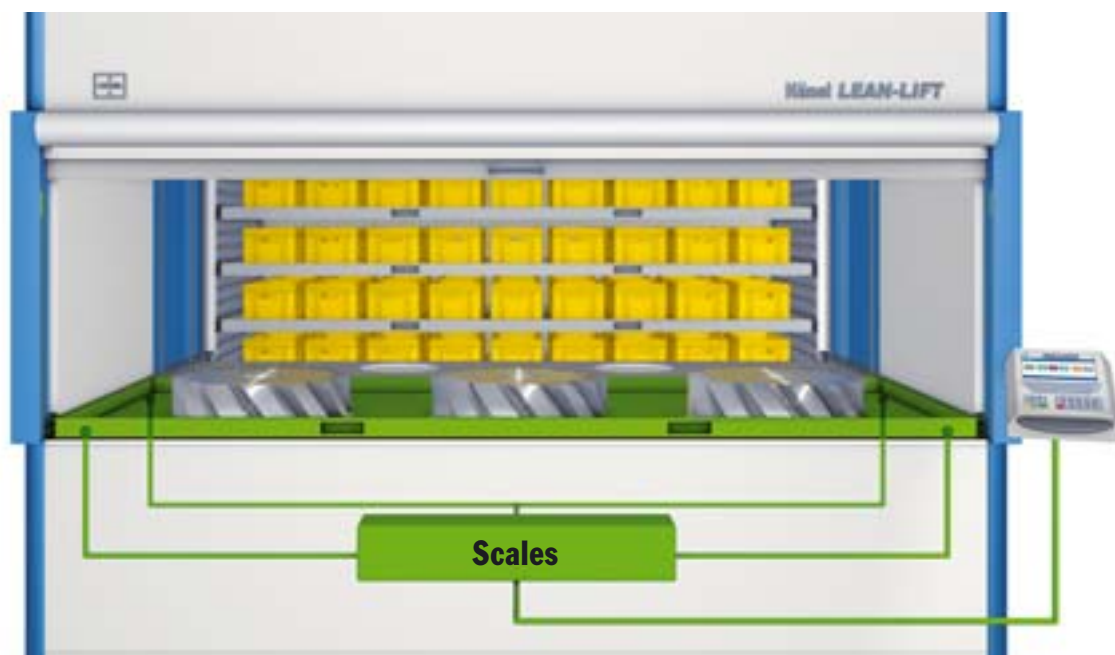
Precise measurement of the stored articles by height sensor technology

Accurate weight readings 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 allows the maximum load of the individual trays and that of the entire lift to be recorded and monitored.

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



Weighing device

Secure retrieval with the Hänel storage systems

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

The LED strip is integrated ergonomically into the work counter. The display in front of each storage compartment ensures error-free retrieval.

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



Hänel storage systems with digital picking display

With its new digital picking display, Hänel offers yet another system for finding the required storage goods more easily and quickly.

Not only does the digital picking display indicate where the requested item is, but it also gives additional information about the item and its storage location in direct proximity to it. Article names, article numbers or supple-

mentary data relating to the order are displayed right at the storage location.

Input can be made on the 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 can save time. Not only the Hänel Lean-Lift® but also the Hänel Rotomat®



storage carousel and the Hänel Multi-Space® can be fitted with the digital picking display.

Information about the article and the storage location used are displayed

Hänel Pick-o-Light® system for the Lean-Lift® The better way to identify storage locations

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

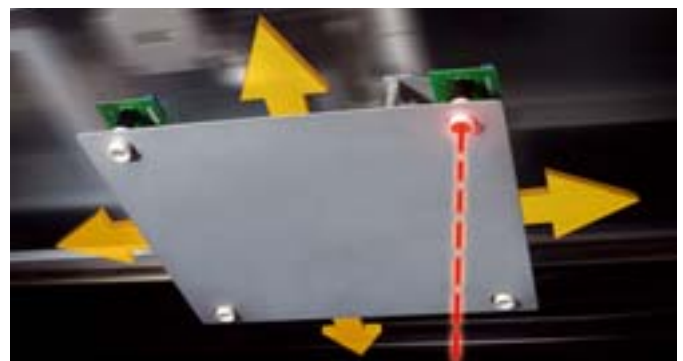
Integrated into the panel above the access opening of the lift is an array of LEDs. A colored LED directs a beam of light onto the requested article, so that it is identified unmistakably and unequivocally, so ensuring maximum efficiency and reliable selection during order picking.



LEDs in the access point . . .



... identify the requested article unmistakably



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

Alternatively, if tray divisions are variable, items can be identified by a free-moving Vario unit with four integrated LEDs.

Hänel features for efficient storage

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 eight 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:

- ❶ If the light barriers fail
- ❷ If the height detection system fails
- ❸ If a positioning system fails
- ❹ If a sensor in the access point fails
- ❺ If a sensor on the extractor fails
- ❻ If a limit switch in the upper or lower storage area fails
- ❼ If the shelf memory is defective
- ❽ If a positioning sensor for the drive catch fails



Accurate positioning of the shelf levels

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

New stop positions can easily be programmed individually for each multifunction carrier and for each level with the teach-in process!

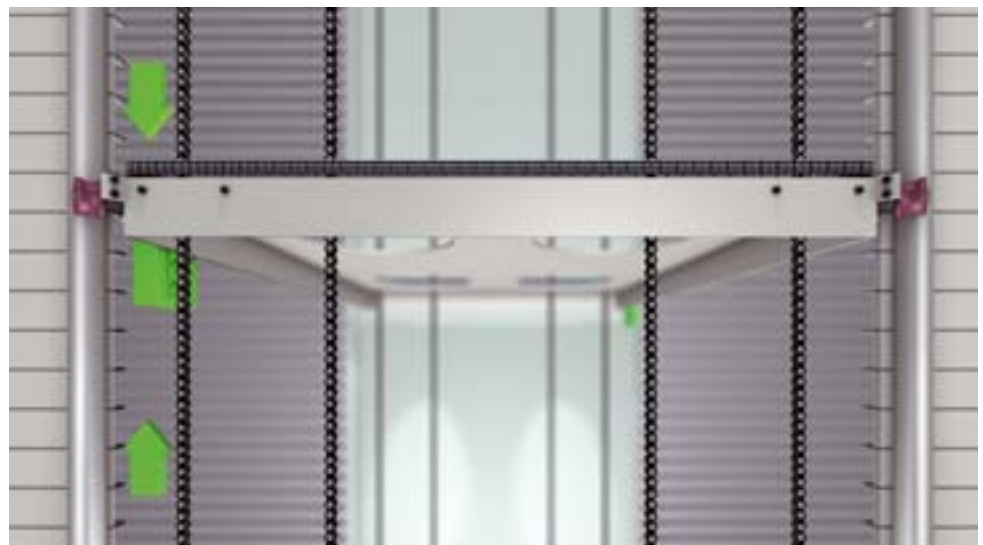


Each retrieval level is precisely positioned and can be individually adjusted via the control unit

Hänel MFPS 2 positioning system

The MFPS 2 positioning system in the Hänel Lean-Lift® and the Hänel Multi-Space® enables the trays to be positioned exactly.

With sensors on both sides of the transport system, deviations are within a maximum range of $\pm 0.04''$ (± 1 mm).



Hänel controllers integrate with IT systems

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

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

higher-level materials management systems.

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

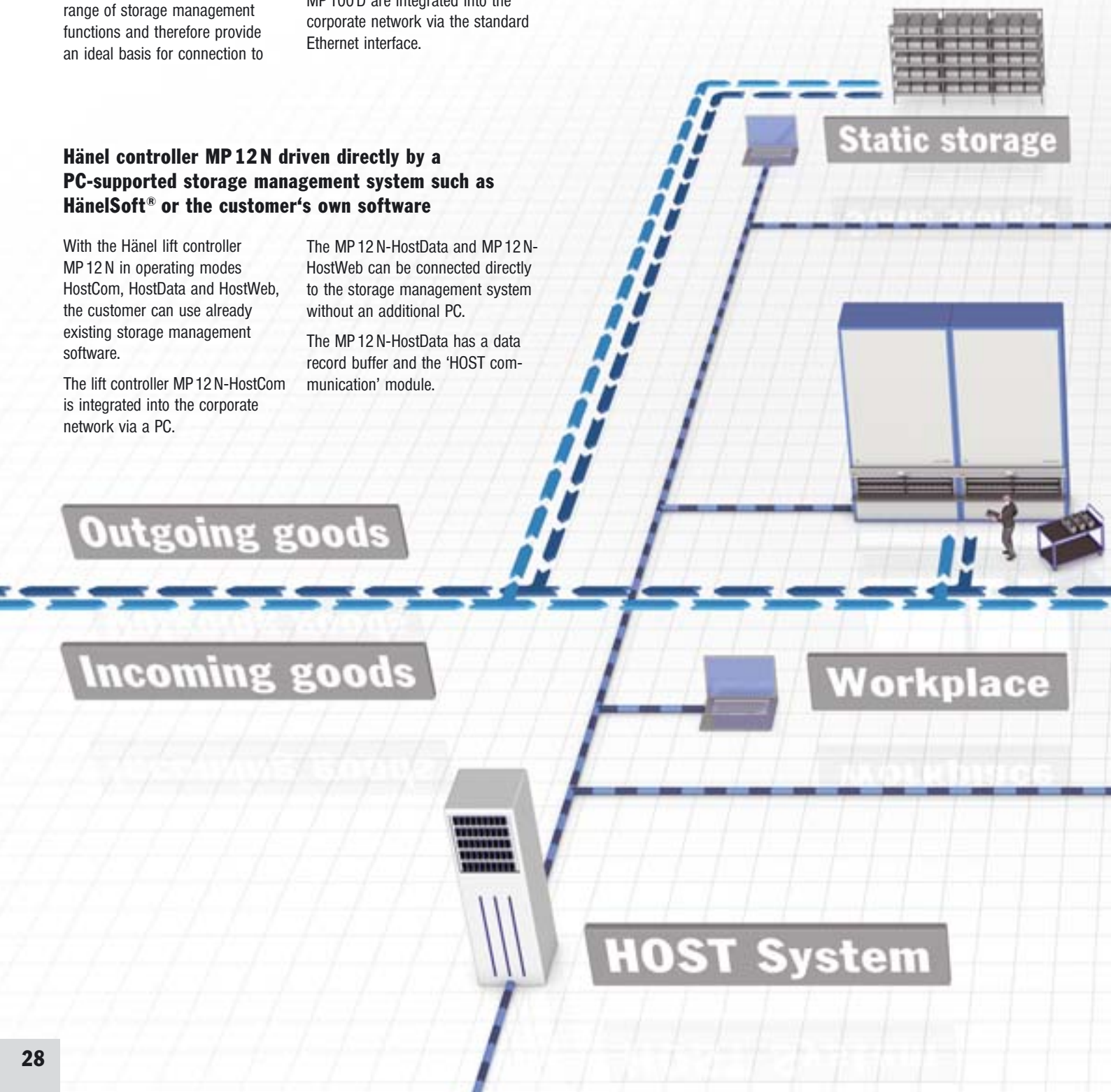
Hänel controller MP 12 N driven directly by a PC-supported storage management system such as HänelSoft® or the customer's own software

With the Hänel lift controller MP 12 N in operating modes HostCom, HostData and HostWeb, the customer can use already existing storage management software.

The lift controller MP 12 N-HostCom is integrated into the corporate network via a PC.

The MP 12 N-HostData and MP 12 N-HostWeb can be connected directly to the storage management system without an additional PC.

The MP 12 N-HostData has a data record buffer and the 'HOST communication' module.



Hänel offers a qualified support service for customers who want to integrate the Hänel storage systems into their existing IT concept.

Ethernet

10/16/2016

Our strength lies in our know-how

Hänel software solutions – flexibility is key

Hänel's inventory management software enables efficient, rationalized workflow

Hänel's 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 useful configuration options and a range of standard modules.

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.

Hänel TDM

The ideal solution for your tool management.

Warehouse Management System WMS

Complete warehouse management solutions including receiving, high-speed order fulfillment and shipping are possible with fully-integrated storage systems from Hänel.

In collaboration with our software partners, we offer powerful software solutions that meets the most stringent warehouse requirements.

The pluses

- ▶ Quick and reliable access during pick and put operations as the user works directly at the Hänel storage units.
- ▶ 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.

Hänel software systems rationalize storage operations and provide optimal transparency in the warehouse!



HänelSoft® – the high-performance, flexible inventory management system

HänelSoft® enables cost-efficient and forward-thinking work methods

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.

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

A standardized host interface enables data to be exchanged with any type of materials management system.

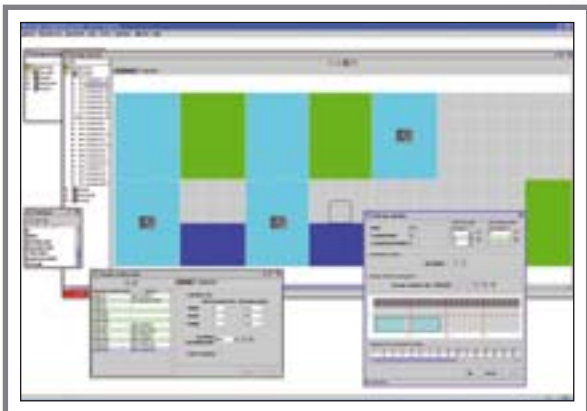
HänelSoft® basic package

HänelSoft® offers a wide range of functions for efficient storage management even in the basic version:

- ▶ Master data management for recording the article number, name and additional information, for defining storage strategies and for article properties.
- ▶ Definition of storage structures.
- ▶ Interface to the Hänel storage systems: requesting items/parts directly at the MP control unit.
- ▶ Pick and put operations based on article properties and storage strategy.
- ▶ Minimum inventory.
- ▶ Information and analysis on the screen or on printout.
- ▶ Host interface – for manual data import and export.
- ▶ Management of manual store-rooms.



Article master data determine the properties and data fields of the item



The store definition function is used to map the storage structure transparently



HänelSoft® 3-D storage visualization offers maximum storeroom transparency

The pluses

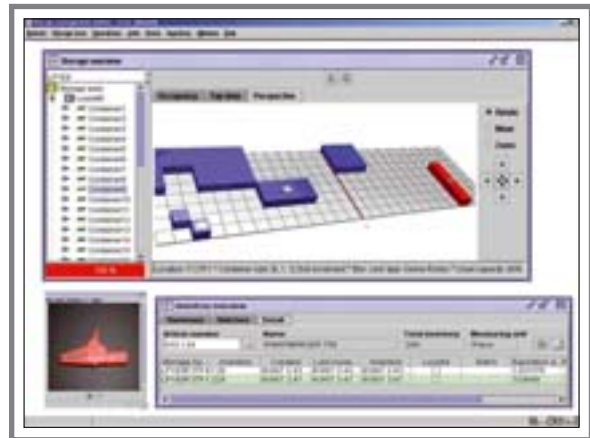
- ▶ HänelSoft® manages and controls any required number of storage units – minimum IT expense, maximum storage convenience.
- ▶ Operators work directly at the storage units – which is ergonomic, practical and time-saving.
- ▶ Asynchronous processes at the storage units – each lift works independently.
- ▶ Prioritized storage location search in front of the corresponding storage unit.
- ▶ Exchange of data with all the well-known ERP systems.

Intelligent add-on modules are available to meet a wide variety of storage management needs.

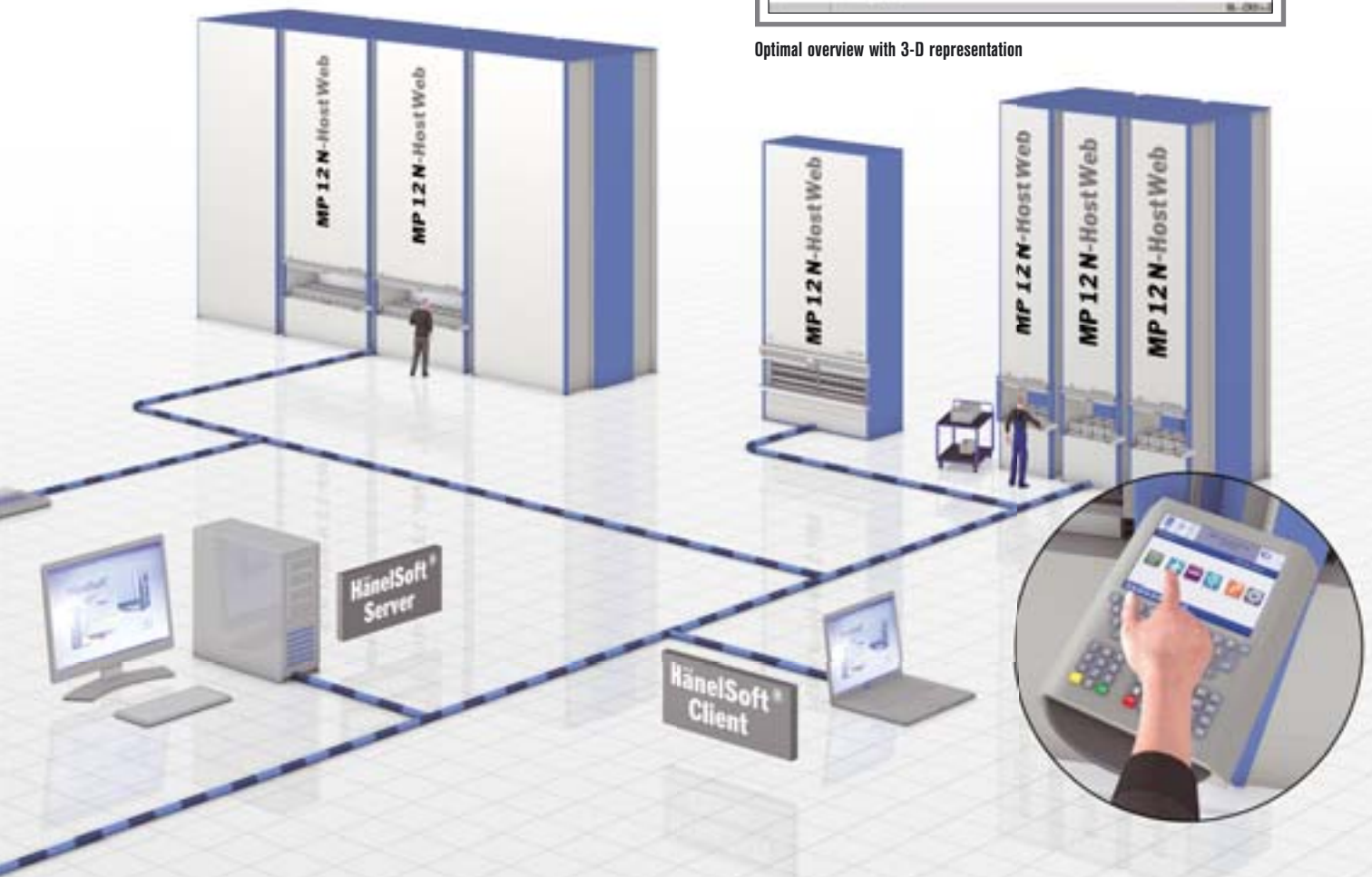
HänelSoft® and Hänel microprocessor controllers combine to make the perfect storage handling system!

The three-dimensional graphical storage overview shows the current situation on every storage level and this enables a visual search for storage locations.

Optimum use of storeroom capacity can be controlled by defining container types in different sizes.



Optimal overview with 3-D representation



HänelSoft® Picture

Optimal overview of shelf contents

Visual display of the stored articles

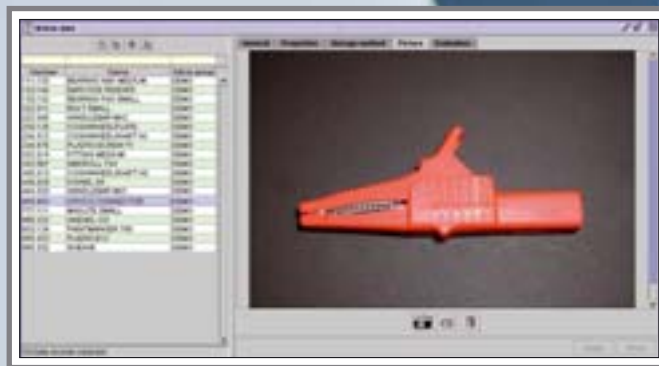
Module 400

Article picture

A picture (drawing, photo, etc.) can be assigned to the item in the article master record.

If a digital camera is connected to the HänelSoft® PC, the picture can be taken with this module and integrated directly in the article master data.

This photo is available in all the article and storage lists as well as in the graphical container view.



An article photo is assigned to each item



The article picture is also shown in the list view

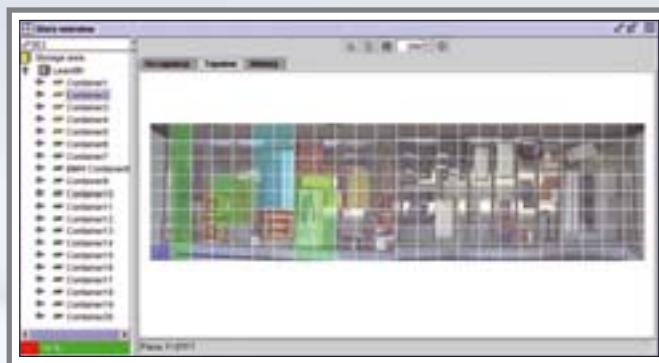
Module 410

Container picture

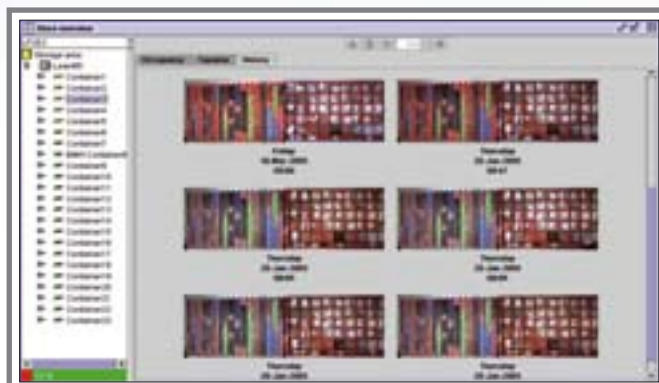
One or more cameras are integrated in the Lean-Lift® per access point. Each time a pick or put operation is performed, an up-to-date container photo is taken.

The container photo is displayed 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.



The container photo is displayed in the graphical storage overview



Pick and put movements can be tracked and verified by photographic documentation

Intelligent HänelSoft® add-on modules for a wide variety of storage management needs

Module / Function

010 Additional workstation (client)

License for additional screen-based HänelSoft® workstations.

020 License for connecting additional lifts

The basic package includes the license for two lifts.

100 Automatic article number assignment

New article numbers are automatically suggested by HänelSoft®.

110 Bin Types

Definition and assignment of bin types to shelves within the managed storage area, allowing the operator to request a specific bin type from the control system.

120 Inventory correction

All the inventory data for an article can be modified with this module. A special change journal is used to log these changes.

130 Inventory valuation

The "article status" of the stock is without units and can be used, for example, as the processing status of the articles. An article can have multiple stocks in the store with varying article statuses. Each article status can be assigned a value.

In the simplest case, the price of an article can be given as its value. In this way the statistical evaluation can be used to determine the value of the store in terms of certain articles or storage areas.

200 Job management including parts list management

Pick and put lists are created, imported and processed. Materials can be reserved and stockouts displayed.

201 Job optimization*

Boosts order picking performance by simultaneously positioning the shelves/trays of multiple storage units.

205 Collective orders

The module contains two variants for combining orders.

Collective order:

Multiple orders can be combined into one collective order. In this case the quantities requested for identical articles are added together and the total quantity retrieved.

Batch order:

Multiple single orders can be combined into one batch order. In this case the individual items remain assigned to the original orders. With the route-optimized retrieval strategy, the different retrieval quantities for an article are picked consecutively. The control system display shows the user the necessary information (job number, number of the picking container, etc.).

220 Automatic HOST communication

Time-controlled, automated data exchange with the host system.

230 Inventory

Generates count lists for continuous or periodic inventory that are processed directly at the lift control unit. Stock-taking journal for export to the HOST system.

240 Access code management

User management with the added feature of access rights to individual lifts or parts of lifts. Identification can be carried out at the lift keyboard.

Module / Function

250 Management of external shelves

Trays that have been removed can be buffered in an external storage place (e.g. assembly site). The article stocks remain assigned to these trays. Used quantities are subsequently booked in the system.

260 Article cross-check

This module helps to reduce the number of pick or put errors. For each storage lift and procedure it is possible to define whether the article number should be re-entered for verification purposes. The storage/retrieval quantity can only be booked if the article number is correct.

261 EAN code (also GTIN or UPC code)

HänelSoft® supports the EAN code. The EAN code can also be used as an alternative in the input field for the article number.

300 Batch management

Certain articles can be identified as batch articles and stored with the batch number. The articles can be retrieved with or without the batch number being specified.

310 Input of booking fields

Input of individually configurable booking fields directly at the lift control units.

320 Expiration date/time

An expiration date can be defined for each article. Articles that have expired are barred from retrieval.

330 Minimum storage time

A minimum storage time can be defined for each article. Only when this period has elapsed can the article be retrieved.

400 Article picture

A picture is assigned to the article master record. For more detailed information, turn to page 34.

410 Shelf picture

Each time a pick or put operation is booked, an up-to-date photo is taken. For more detailed information, turn to page 34.

500 HänelSoft® server for mobile terminals

Basic module for connecting mobile terminals via W-LAN. For more detailed information, turn to page 39.

510 Client license for mobile terminals

Workstation license for each portable terminal. For more detailed information, turn to page 39.

600 Label printing

Different label layouts can be defined in HänelSoft®. Each HänelSoft® user terminal (e.g. a lift keypad, a HänelSoft® screen or a mobile terminal) can have a corresponding label printer assigned.

For a high degree of flexibility, it is possible to select a specific label type for each operation (storage, retrieval, order picking, etc.). This label type is then printed at the respective printer. The label layout is freely selectable; graphics or logos can be incorporated.

*only in conjunction with job management

HänelSoft® in a new design

Web client directly on the controller

The time-proven storage management software
HänelSoft® with a new user interface



The functionality of a tablet PC directly
at the control unit with HänelSoft® stor-
age management

A modern and intuitive user interface guides the user through the software and can be operated directly from the Hänel microprocessor controllers via touchscreen.

The browser functionality of the MP 12 N-HostWeb control system allows HänelSoft® to bring the intuitive functionality of a tablet PC or smartphone straight to the lift controller.

All booking dialogs for the pick and put operations are available where the materials are being moved – directly at the lift!

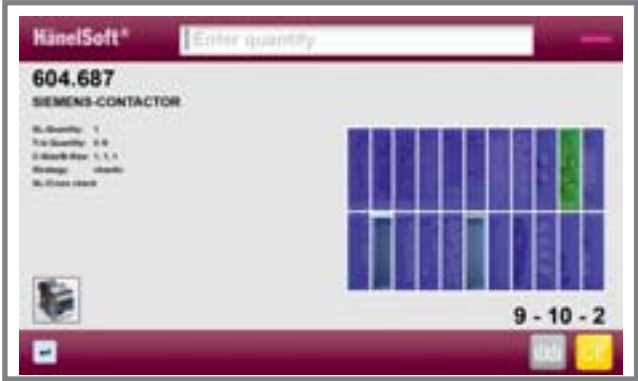
Clear layout of list view

All the stored articles are displayed clearly on the control unit. Attributes such as article number, article name and if required even article pictures are displayed in the list view and can be selected via touchscreen.



Graphical display

The user is shown the storage locations for pick and put operations on the graphical display. A flashing area indicates where items can be retrieved or put into storage.



Article information

All the data relating to an article can be accessed. This includes, for example, the storage location, storage level, inventory amount and the unit size.



Article picture

Pictures of the articles can also be called up. They can be enlarged on the control unit to enable comparison with the original article, for example.



Hänel Lean-Lift® with Hänel AutoIdent®

Optical monitoring for reliable storage and retrieval

Three cameras above the access opening record every storage and retrieval operation. Just before the operation and immediately after it a high-resolution photograph is taken of the storage situation on the relevant tray.

Intelligent image analysis detects the storage location from which an item was removed or to which it was returned. This procedure is then compared with the HänelSoft® storage management.

If the user has taken goods from the wrong storage location or returned them incorrectly, this error is shown immediately on the display.

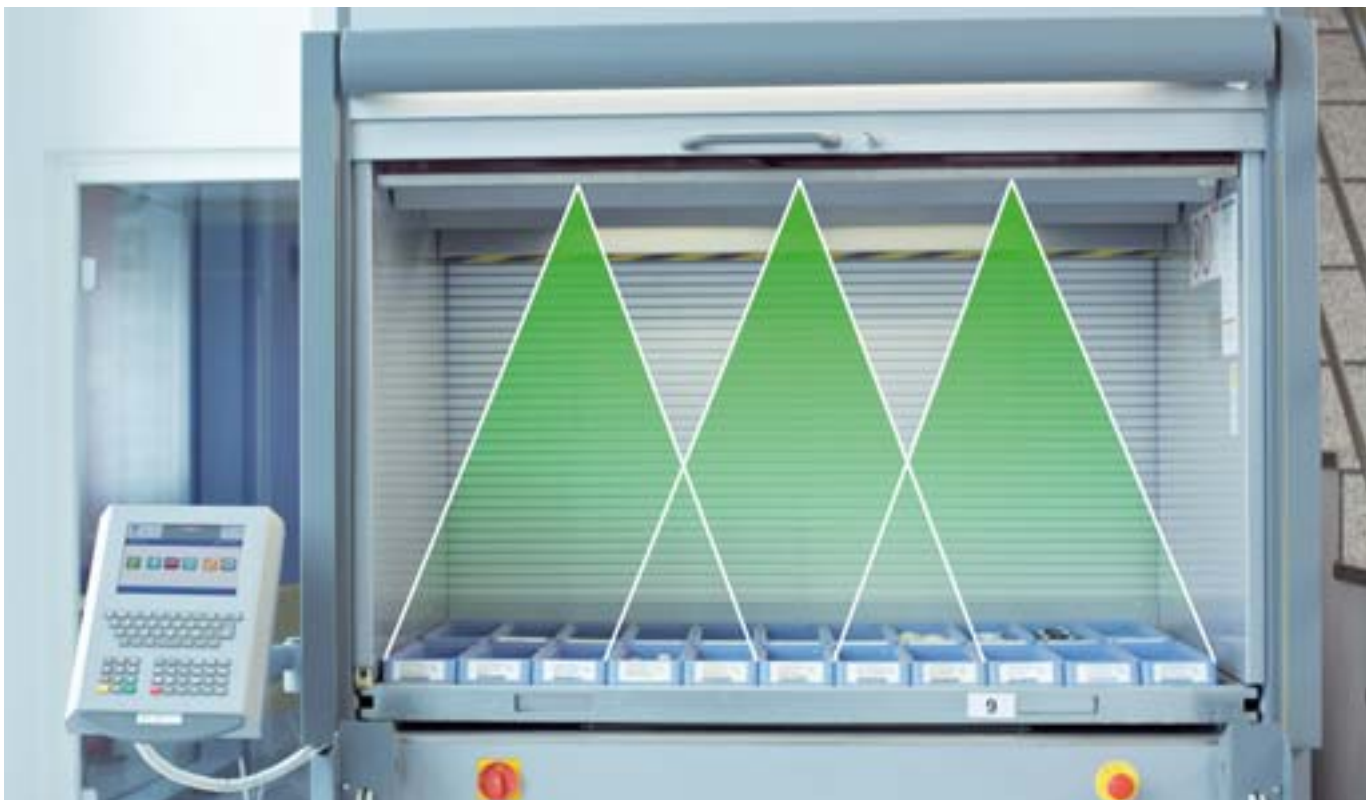
The entire tray is photographed and the changes analyzed automatically by the intelligent image recognition feature

Only when the storage or retrieval operation has been corrected can the procedure be continued. This provides an excellent control function for avoiding errors, especially in cases where near-identical articles are stored!

If the wrong item is taken by mistake, the operator is prompted to return it



The correct item is displayed for the operator

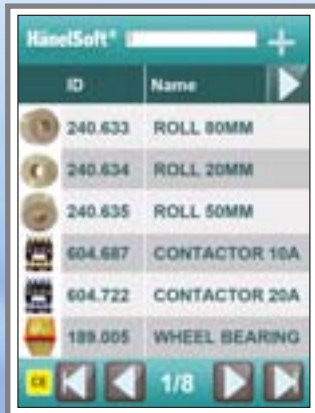


Wireless terminal for managing rack-based inventory

The intelligent solution for mixed-mode warehouses



The clear layout of the interactive user interface makes work easy and convenient



The HänelSoft® storage management software on the wireless terminal

Portable mobile terminals with W-LAN technology connect conventional storerooms online to the HänelSoft® server.

The supplementary module HänelSoft® MobileClient makes work easy and user-friendly. Storage and retrieval operations are recorded directly at the racks with the wireless terminal and transferred straight to the HänelSoft® server.

This ensures that a complete inventory overview is always available in real time. Terminals with integrated barcode scanner offer quick and secure data collection and prevent input errors.



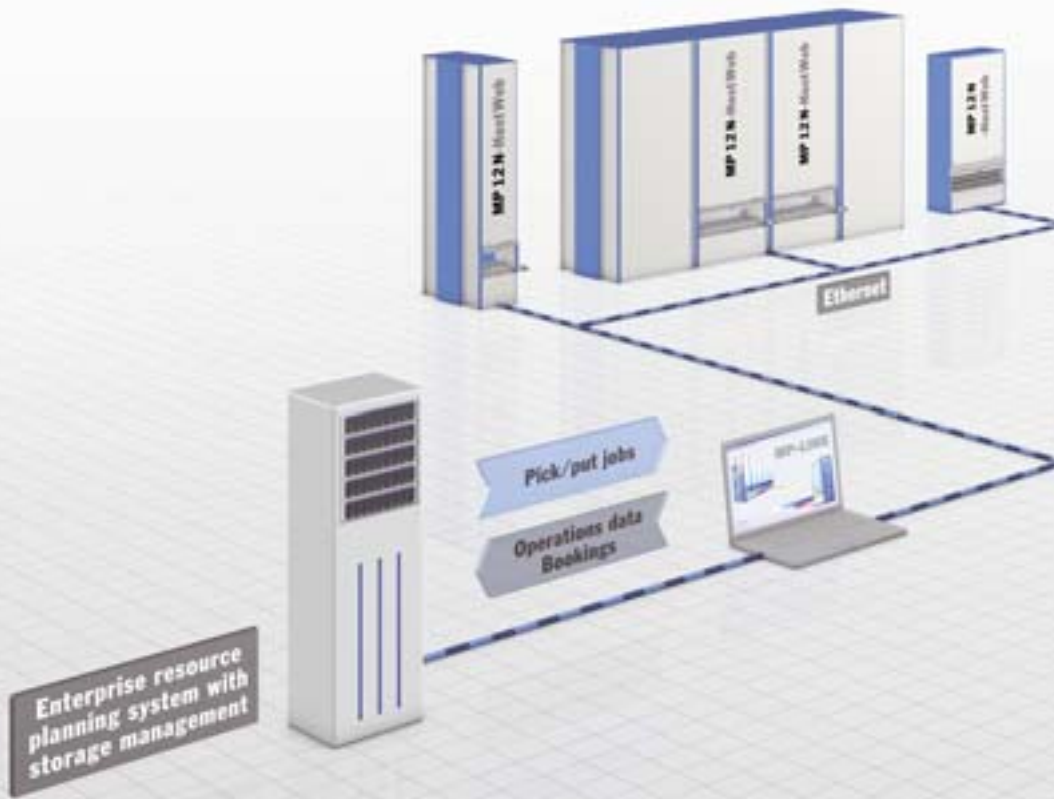
Accurate data collection via mobile terminal with barcode scanner



MP-Link

Automotive Dealer Management System Interface

A direct link between inventory stored in Hänel Lean-Lifts® and Rotomats® and the Automotive Dealer Management Systems (DMS)



Process Transactions from the DMS at the Hänel Unit

A direct link between inventory stored in Hänel units and the DMS.

Direct Communication with DMS Terminal

Pick orders and receiving reports are sent from the DMS terminal to the MP Link.

Connectivity between Hänel Unit and Off-site DMS

Synchronize transaction reports and inventory values between DMS and Hänel units.

MP Link establishes a valuable connection between Hänel units and DMS systems creating improved productivity and increased inventory accuracy

The Hänel MP Link was developed specifically for applications at automotive, truck and motorcycle dealerships.

While initially these customers embrace Hänel units for recovery of floor space, the benefits of increase inventory control and improved parts department employee productivity become apparent.

Parts department personnel process all transactions through the established DMS systems just as they did before installing Hänel units. Once the transaction is completed on the DMS system it is sent to the Hänel unit and parts can be stored and picked from one centrally located ergonomically correct position. In other words, parts are brought directly to the operator instead of the operator having to walk to the parts.

The pluses

- ▶ Utilize existing DMS terminals.
- ▶ No additional PC or middle-ware required.
- ▶ Data base reconciliation is done in real time.
- ▶ Easy connection with bar code scanners and other peripherals.
- ▶ Visibility to system via external PC's and common web browsers.



ADP, R & R and other popular DMS interfaces available



Parts department personnel interface with the Hänel MP Link utilizing existing DMS terminals

Hänel TDM software

The ideal solution for your tool management

Tool-related search criteria and filters allow quick and easy tool selection

Tools are requested or put into storage by entering an article number or using a barcode scanner. This means similar-looking tools can't be confused.

In addition to the numerical data, Hänel TDM processes and stores other information about components, complete tools and tool lists in all the customary data formats.

All storage and retrieval operations are logged, which makes later verification and tracking easy, and ensures traceability to the respective user.

This practical tool data management system can be adapted flexibly and effortlessly to different user environments.

The modular design and high flexibility of Hänel TDM means that this well-engineered tool management system can be efficiently used in small, medium and large production plants in a very short time.



Clearly laid-out, user-friendly tool management with the Hänel TDM software using touchscreen technology

Hänel TDM and Hänel Lockomat®

The Hänel Lockomat® in combination with Hänel TDM is the ideal storage system for safe and secure provisioning of tools right in the production hall.

The compartment doors of the Hänel Lockomat®, which are closed manually or automatically, guarantee error-free retrieval and protect the stored articles from unauthorized access.

The user proves his authorization by means of an ID card, password or RFID, and the TDM user interface set up for him personally appears on the display.

The required tool is requested and confirmed. The LED display indicates the compartment door behind which the tool in question is stored and only this door can be opened for tool withdrawal.

It couldn't be simpler!



Fully automatic compartment doors for the retrieval of different-sized parts

C-parts management

Tool management is a topic that has gained increasingly in importance over the years.

The demand for tool kitting as a service has grown steadily.

When manufacturing plants need to be supplied with tools around the clock, the Hänel Lockomat®

in conjunction with Hänel TDM software is the ideal tool management system!

Talk to us about your needs – we'll find the solution.



The Hänel Lockomat® system solution ensures 24-hour tool kitting for the production team

WMS – higher-level storage management with Hänel

Hänel optimizes your logistics processes with the integration of the WMS system

The **Warehouse Management System WMS** controls and optimizes the entire logistics chain, including the Hänel vertical lift and Rotomat® systems in both office and storeroom.

Thanks to its collaboration with the viastore company, Hänel Office and Storage Systems is able to offer solutions for complex intralogistics requirements with the viad@t software.

viad@t works with innovative technologies for real-time process monitoring and control:

wireless data transmission, pick-by-light, pick-by-voice, RFID, automatic weighing, control of conveyor systems, robotics, automated warehouse.

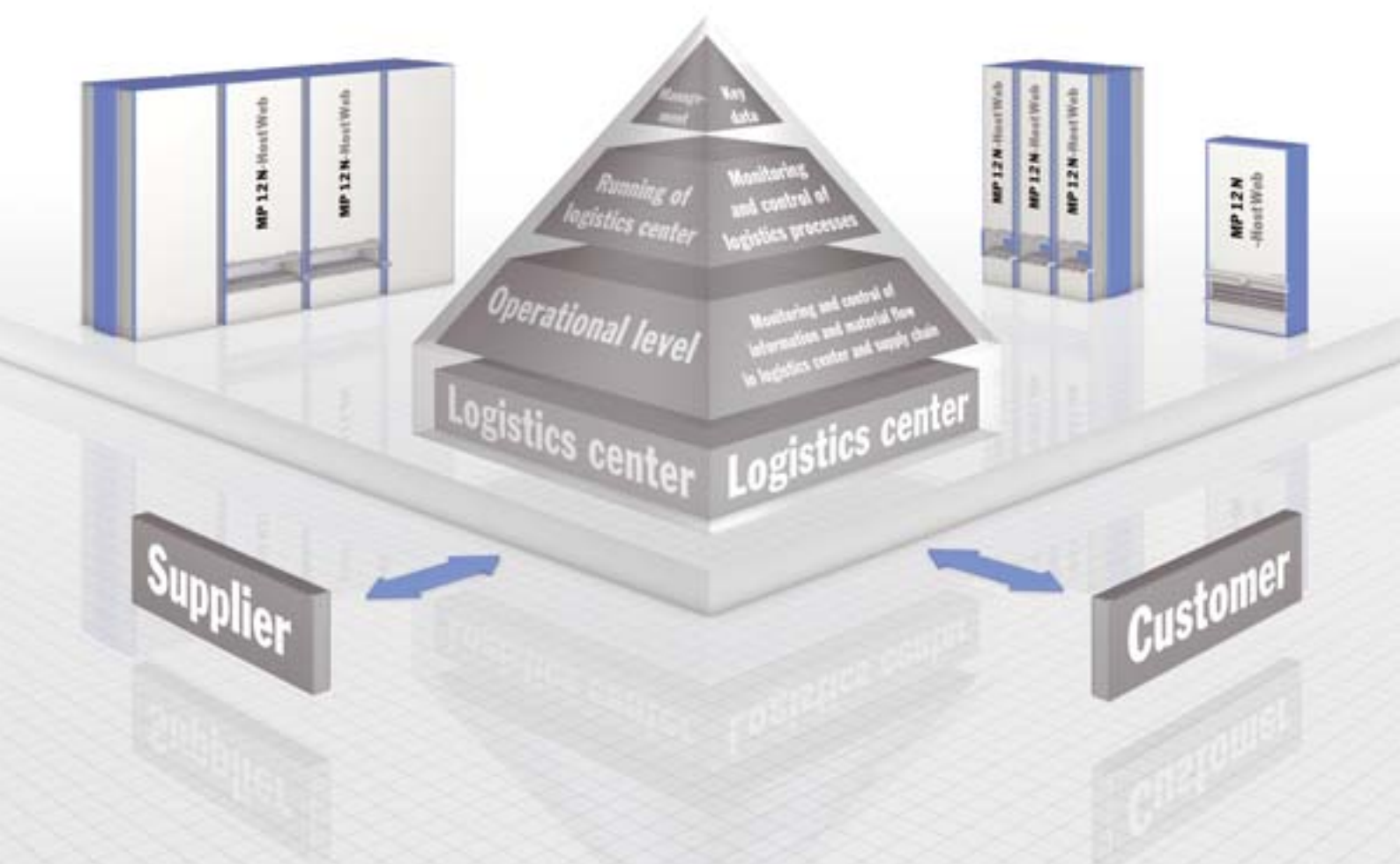
A control station is available for monitoring and controlling all the logistics business processes in the warehouse, logistics center and in the supply chain.

The viad@t software system can be integrated easily into leading ERP systems from SAP and many other ERP manufacturers. viad@t has proved its worth as a reli-

able subsystem for handling high volumes of goods with simple and practical operating methods.

viad@t controls and optimizes the flow of information, materials and work involved, including all storage and retrieval operations.

Hänel specialists will team up with you to develop customized storage solutions for your intralogistics!



Further customized software solutions

Integration of the Hänel storage lifts into customer-specific software systems

It doesn't matter whether the software systems are customer-specific or available on the market – all the Hänel storage systems are controlled efficiently via the Ethernet or RS 232 interface.

Hänel offers all its customers a qualified support service so that Hänel storage systems can be integrated into the most varied of storage management solutions.

Numerous projects have already been planned and implemented by the Hänel specialists.

These include connecting Hänel storage systems to many products on the market such as:

AUTOTAS, COSCOM, DATOS, FASYS, INFOR, SAP, TDM, TMS, viad@t, etc.

On this page we can only show you a few examples from the wide range of customer-specific solutions. We would be happy to tell you about more installations that have proven effective in practice.

Hänel supports your project implementation with comprehensive documentation, professional service and decades of experience in the integration of the Hänel storage systems into customer software!



Orders are displayed on the touch-screen terminals from viastore systems and processed directly at the Hänel Lean-Lifts®



The latest generation of the MP 12 N-H/ HostWeb controller can be used as an SAP terminal with the SOAP protocol. This prevents redundant data storage

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

Hänel storage management programs are software solutions made-to-measure

Hänel microprocessor control systems combined with tailored software programs from the Hänel company will improve the performance and efficiency of any storage and retrieval logistics.

The precondition for a successful logistics concept is a thorough analysis of the task at hand.

The experienced Hänel specialists develop the best possible combination of hardware and software, that meets individual customer requirements and ensures problem-free scalability.

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) worldwide to achieve this distinction.

And in 2014 once again the process-oriented quality management of Hänel was acknowledged by the technical control board TÜV Hessen with the current EN ISO 9001:2008 Certificate.

High-tech for high-end demands

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

Throughout the world our solutions contribute to the success of our customers. That's why so many renowned companies opt for quality 'Made by Hänel'.

One-stop solutions

Hänel offers the complete tailored solution. The advantage for customers: a single point of contact for all services – from storage lift to control software to logistics concept.



Current EN ISO 9001: 2008 certificate from the Technical Control Board TÜV HESSEN



Energy consumption



Storage carousel in standby mode



Adjustable
Timer

- EcoMode[®] level 1
- EcoMode[®] level 2
- EcoMode[®] level 3
- EcoMode[®] level 4

Deactivation

- TFT display
- Control system
- LED lighting
- Carousel main switch



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