

The Intelligent Hänel Control and Software Technology



network
web
safety

Innovative ideas. Sound technology. Flexible systems



Hänel storage management systems: cost efficiency pure and simple!

Flexibility, efficiency and cost effectiveness – these are the requirements that today's intralogistics must fulfill!

For over 50 years the name Hänel has stood for high-quality products in the storage technology sector.

Vertical carousels like the Hänel Rotomat® or vertical lift modules like the Hänel Lean-Lift® and the new Hänel Multi-Space® set the standard in the world of intralogistics.

60 % savings in available floorspace and drastic reductions in the time it takes to access the stored items.

In addition to ergonomic work processes and extra protection for the stored articles, not to mention the wide range of other system advantages, the cost-efficiency of these systems is of prime importance.

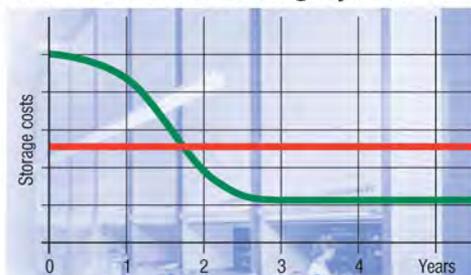
The most stringent quality standards are applied to the storage units and the intelligent control technology from Hänel, making these products a worthwhile investment for your company.

Optimal processes in the Hänel storage units bring additional space and time savings

Control solutions such as the optimization run which automatically eliminates empty space arising from storage movements, or the Access Priority Factor which stores frequently needed containers closer to the retrieval point, are only two examples of the many highlights of Hänel control systems.

The smooth interaction of Hänel high-speed drives and microprocessor controllers allows the Hänel Lean-Lift® to achieve travel speeds up to 2.3 m per second.

Amortization of Hänel storage systems



— Hänel storage systems
— Conventional warehouse

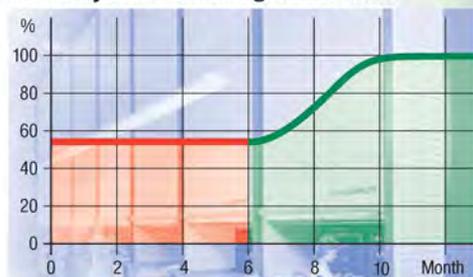
Example illustrated

Numerous add-on modules and the varied options for incorporating the control systems in existing IT installations offer you the optimum storage management package for your individual intralogistics needs.

The right decision

If you want to improve your intralogistics concept and save costs, you should first speak to the specialists from Hänel – with your cooperation they will develop 'your made-to-measure intralogistics concept'.

Inventory overview and goods control



— Hänel storage unit with Hänel storage management
— Manual storage system

Example illustrated

Join the many renowned companies worldwide who have decided on intelligent control and software solutions from Hänel!





MP OA – the compact standard control system for the Hänel Rotomat® with 2-line VF display

- ▶ Direct selection of shelf levels by entering the shelf number.
- ▶ Digital display of shelf number at the retrieval point.
- ▶ Messages displayed in plain text.
- ▶ When the MFPS positioning system is used: individually programmed stop positions, position monitoring.
- ▶ Automatic load imbalance warning with shelf recommendation integrated in the display.
- ▶ 16 different language versions available.
- ▶ Optional interface card with RS 232 port for PC.
- ▶ Operating mode can be set for manual or computer operation.
- ▶ Activation of compartment and sub-compartment displays.
- ▶ Key lock function.
- ▶ Operation with 2 access openings possible.
- ▶ Emergency operation with closed access opening.



The MP OA standard controller in the Hänel Rotomat® Industrial Carousel



The powerful microprocessor controller MP OA is integrated ergonomically into the work counter of the Hänel Rotomat® Office Carousel



The MP OA with 3-character digital display

The MP OA with 3-character digital display plus numeric keypad and additional function keys

- ▶ Direct selection of shelf levels by entering the shelf number.
- ▶ Digital display of shelf number at the retrieval point.
- ▶ Numerical message display with error codes.
- ▶ When the MFPS positioning system is used: individually programmed stop positions, position monitoring.



The Hänel compact control system MP 12 D-S

The MP 12 D-S – the compact control system for Rotomat®, Lockomat®, Lean-Lift® and Multi-Space®



MP 12 D-S controller with TFT touchscreen colour display and 800 x 600 pixels

MP 12 D-S

The high-performance Hänel compact controller MP 12D-S enables different modes of operation and is available in 3 different display variants.

It is the compact controller with extensive integrated storage management functions for article numbers, storage locations, stored quantity, minimum inventory and other additional data fields. Management of job lists and parts lists is also included.

There are four serial RS 232 interfaces for the connection of computers, barcode scanners, badge readers and other peripheral devices.

Messages are displayed in plain text. The storage locations are identified in the display and by way of LEDs in front of the shelf.

The Access Priority Factor stores frequently required containers close to the retrieval point. This enables even quicker access to the stored items.

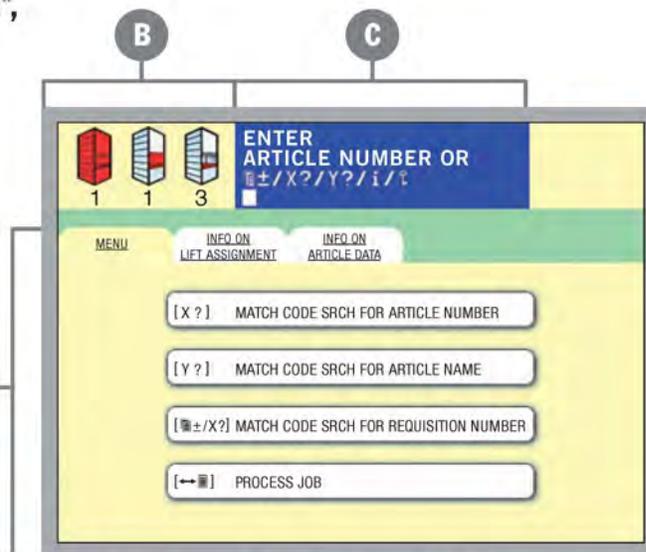
The integrated optimization run automatically eliminates empty spaces that have arisen following storage movements and so achieves optimal packing density in the storage space available.

The pluses

- ▶ Memory available for pick lists.
- ▶ Storage lists can be displayed on the screen or printed out.
- ▶ Graphical display of the lift run on the TFT screen.
- ▶ Display texts and messages can be selected from 17 languages.
- ▶ Different system settings for printouts, control and operating functions, and storage management functions.
- ▶ Serial interface for exchanging data with higher-level systems.
- ▶ Up to 4 retrieval openings per device are possible.



MP 12 D-S device controller with CSTN colour display and 320 x 240 pixels



Quick-start user interface for storing and retrieving parts by article number. Function keys for the different match code searches and for processing jobs by keyboard or via the touchscreen

The menu structure of the MP 12 D-S touchscreen version

A Interactive user interface

Easy, user-friendly operation of all the functions via the touchscreen. Clear display of all the relevant information about the stored items and storage locations.

C General display/ input field

For entering all control commands using the keyboard, such as direct shelf selection.

B Up-to-date device information

Display of device number, retrieval point (if there are multiple retrieval points) and shelf number.

A detailed description of the integrated storage management can be found on Pages 10–13.



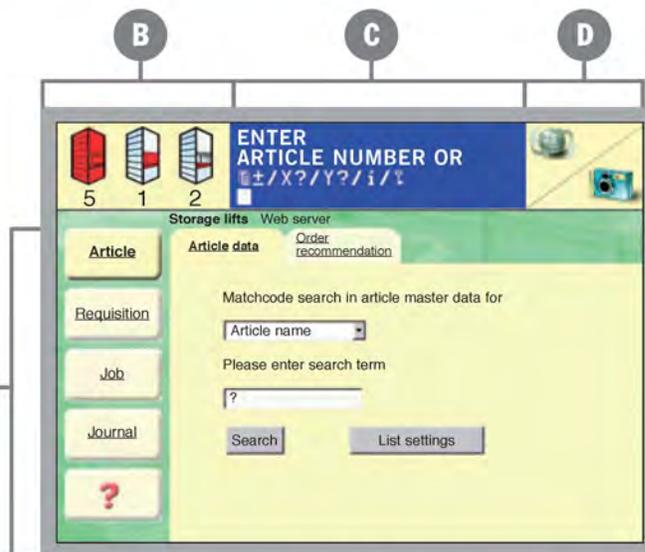
MP 12 D-S device controller with VF display with 4 x 20 characters for high-contrast display

The top control system from Hänel MP 12 N-S

The MP 12 N-S with integrated Ethernet interface:
the top controller for Hänel storage units!



The Hänel MP 12 N-S top controller with container photo view



Main menu of storage management package 'Item storage management'

MP 12 N-S

The MP 12 N-S offers numerous features in addition to the functions of the MP 12 D-S. The integrated Ethernet interface allows trouble-free hook-up to host systems.

Different storage management packages (article, tool and file management) are available and can be operated easily via the touchscreen.

The optional camera in the Hänel Lean-Lift™ takes a current container photo after every S/R operation.

**The MP 12 N-S:
The ultimate in user
convenience and func-
tionality!**

The pluses

- ▶ The integration of the Unicode standard means the user interface can be displayed in virtually any language.
- ▶ Two MP 12 N-S controllers can be networked with each other for joint storage management. This allows each controller to show the inventory overview of both units.
- ▶ Integrated FTP client for data exchange.
- ▶ Up-to-date storage data can be called up via the web server on the intranet or Internet.
- ▶ Ethernet interface as standard.
- ▶ Up to 8 retrieval points per storage unit are possible.

The menu structure of the MP 12 N-S touchscreen version

A Interactive browser interface

Easy, user-friendly operation of all the functions via the touchscreen. Clear display of all the relevant information about the stored items and storage locations in the web browser.

B Up-to-date device information

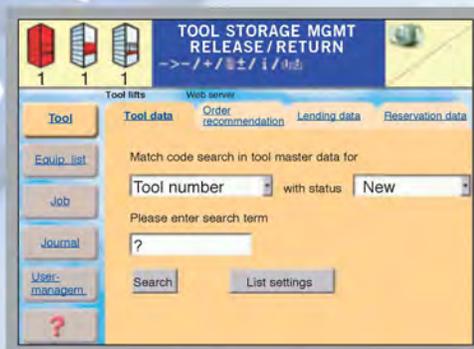
Display of device number, retrieval point (if there are multiple retrieval points) and shelf number.

C General display/ input field

For entering all control commands using the keyboard, such as direct shelf selection.

D Switchover of view mode

For switching between browser view and camera view (if there is a camera integrated in the storage unit).



Main menu of the MP 12 N-S with integrated tool management module



View in camera mode. All storage changes can be tracked on the basis of container photos

A detailed description of the integrated storage management can be found on Pages 10-13.

The client control systems MP 12 D-H and MP 12 N-H

The client control systems MP 12 D-H and MP 12 N-H for Hänel storage units with central storage management

MP 12 D-H

The MP 12 D-H offers the same functionality as the MP 12 D-S. It is an operating controller that accesses a central storage management system. The internal storage management modules from Hänel are not included.

In a network of up to 99 storage units, each unit can be controlled individually and independently of the others at its own operating (client) controller.

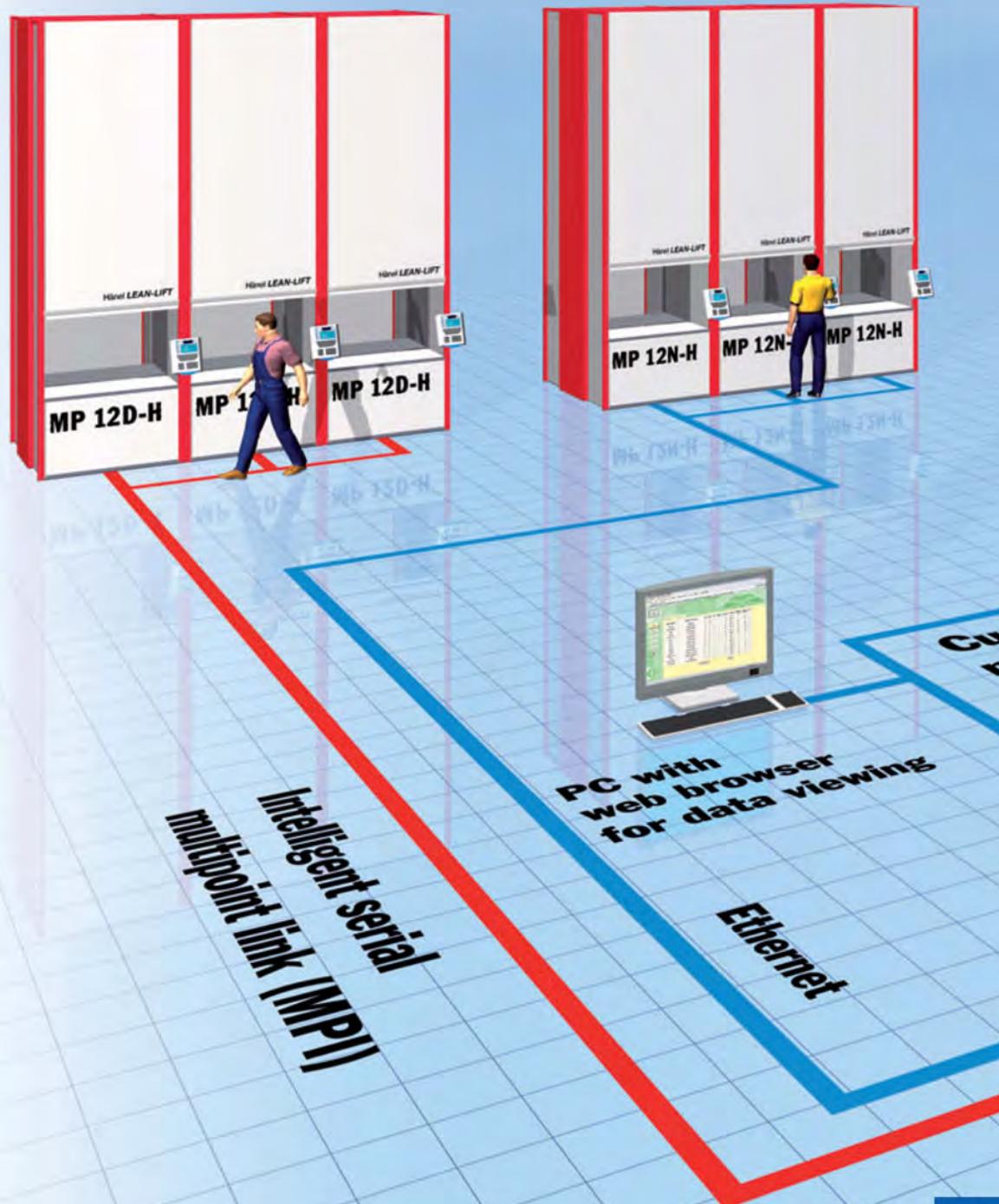
The storage management of all the units in the network is performed centrally via an MP 100 D control system or a PC-supported storage management program.

The MP 12 D-H is connected via the integrated serial multipoint link.

MP 12 N-H

The MP 12 N-H is networked with its host system either via the serial multipoint link or the integrated Ethernet interface.

In conjunction with the TFT touchscreen, the graphical user interfaces of different storage management systems can be displayed via web browser.



The central control system MP 100 D

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

The central control system MP 100 D was developed so that large-scale storage installations can be managed comfortably with the integrated storage management packages from Hänel. It manages the data of up to 99 storage units (depending on the version).

The client controllers MP 12 D-H or MP 12 N-H are used as the operating units at each carousel/lift – this means each storage unit can be operated independently of the others.

All the articles in storage are managed centrally via the MP 100 D. The PC flashcard has enough space for 100,000 part numbers in up to 400,000 storage locations and 4,000 pick/job/parts lists containing up to 100,000 items.

Powerful order picking functions make work in the storeroom much easier. Pick and put lists, for example, can be processed either sequentially or according to route-

optimized or time-optimized considerations. Route information is memorized to ensure the user covers the shortest distances.

For high-speed order picking, the optional shelf/container pre-positioning function is used, which positions all the storage units simultaneously.

The standard Ethernet interface provides for data exchange with higher-level host systems. Hook-

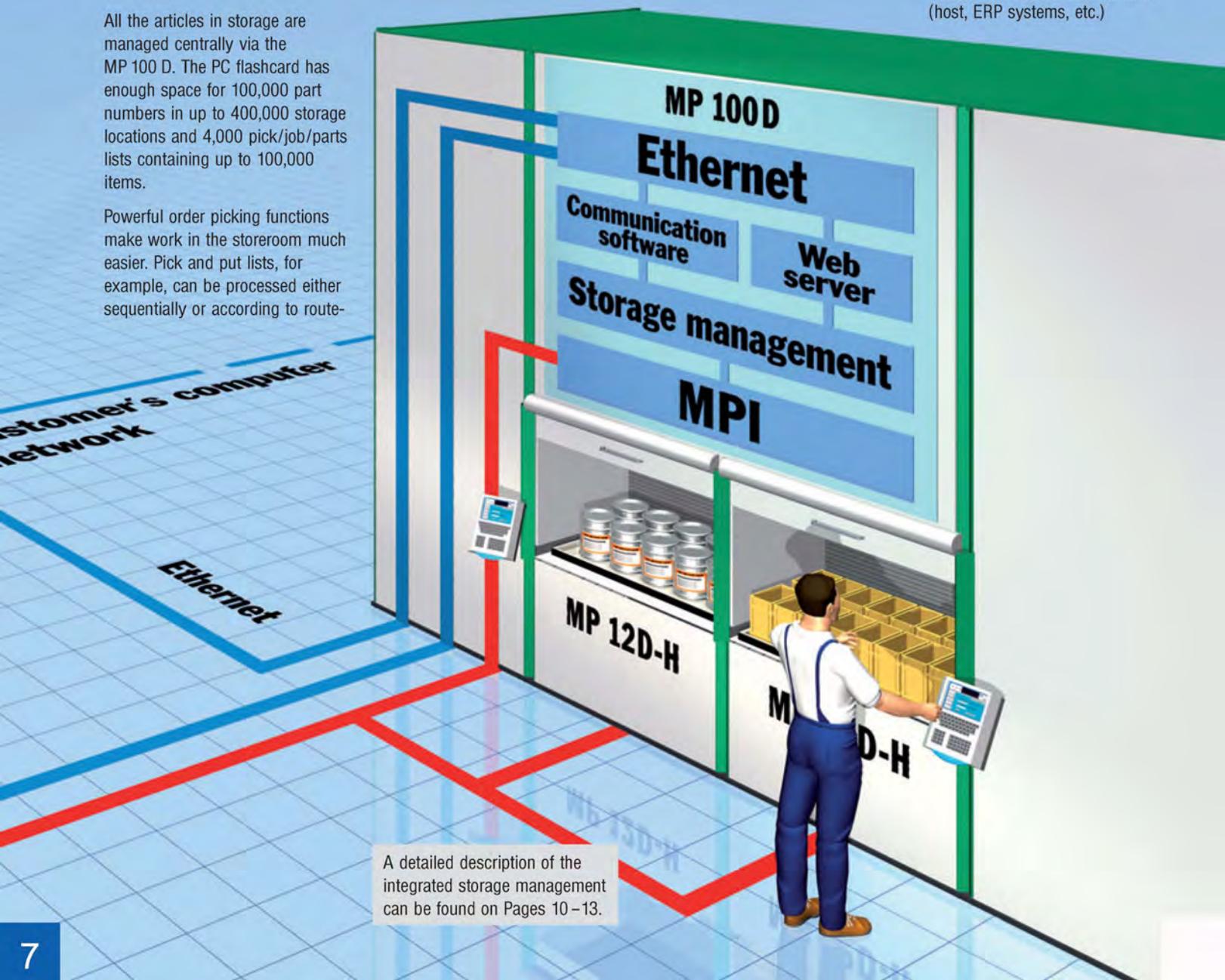
up is simple thanks to an FTP client and data conversion software contained in the MP 100 D.

The integrated web server ensures that the storage data are available in the customer's computer network.

The integrated Hänel storage management packages can be adapted to individual customer requirements with numerous supplementary modules.

The pluses

- ▶ Management of the data of up to 99 storage units (depending on the version).
- ▶ Route information is memorized to ensure that the user covers the shortest distances.
- ▶ FTP client for quick and easy connection.
- ▶ Data conversion software.
- ▶ Integrated web server for data retrieval via intranet or Internet.
- ▶ Ethernet interface for data exchange with higher-level systems (host, ERP systems, etc.)



A detailed description of the integrated storage management can be found on Pages 10–13.

The integrated storage management packages of the MP control systems from Hänel

Intelligent storage management with the storage management packages from Hänel

Contained in the compact controller MP 12D-S and the top controller MP 12N-S as well as the central control system MP 100D is a Hänel storage management package. That means all the storage management is already integrated.

No additional PC is required!

Three storage management packages are available:

- ▶ Hänel item management
- ▶ Hänel tool management
- ▶ Hänel file management

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

Functions	MP 12D-S	MP 12N-S	MP 100D
All storage units in the network can be operated simultaneously	—	—	●
Items can be stored across multiple storage units and managed centrally	—	—	●
The flash PC card offers memory space for			
Maximum number of articles	10,000	10,000	100,000
Pick lists/Jobs	1,000	1,000	4,000
Pick-list items/Job items	25,000	25,000	100,000
Maximum number of storage locations	100,000	100,000	400,000
Number of storage locations per item	255	255	255
Number of items per storage location	255	255	255
Storage management package			
Item management	●	●	●
File management	—	●	●
Tool management	—	●	●
Storage of article name and 25 freely assignable special data fields in the article master data	● max. 40 characters	● 40 characters	● 40 characters
Pick list management with 25 freely assignable special data fields in header and position	● max. 40 characters	● 40 characters	● 40 characters
Job management (priority-driven processing) with acknowledgement of the quantity actually withdrawn)	—	●	●
Storage strategies such as FIFO, FIFO with return storage, random access to storage locations, fixed storage location and random storage	●	●	●
Storage location size (container size) in width, depth and height (optional)	●	●	●
Automatic size-related (free) storage location search	●	●	●
Minimum inventory monitoring with warning when minimum level reached and printout of a reorder suggestion list	●	●	●
Quantity factor and availability check for order picking	●	●	●
Optimization run with the Lean-Lift®	●	●	—
Access Priority Factor with the Lean-Lift®	●	●	—
Order picking/job strategies for processing			
Sequential (in fixed sequence)	●	●	●
Route-optimized (shortest route through all storage locations)	●	●	●
Route list for route optimization across multiple storage units	—	—	●
Time-optimized	—	—	●
Comprehensive print lists	●	●	●
Storage data retrievable via web browser	—	●	●
Data exchange with host systems	RS 232	Files via FTP	Files via FTP
Various supplementary modules for package expansion	●	●	●

● Standard function

— Function not available

HänelSoft® – the high-performance, flexible storage 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 any customer's needs.

The optimally designed interaction between HänelSoft® and the Hänel lift control systems 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 systems such as rack and pallet storage.

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

The HänelSoft® 3-D storage visualization offers maximum storage transparency

HänelSoft® basic package

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

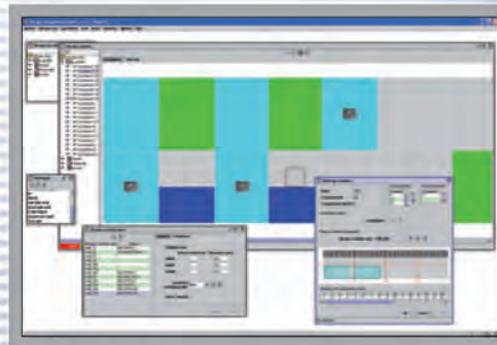
- ▶ Master data management for recording the article number, name and additional information, for defining storage strategies and for article properties!
- ▶ Definition of storage structures!
- ▶ Interface to the Hänel storage systems: requesting items/parts directly at the MP control unit!
- ▶ Pick 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 storerooms!

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

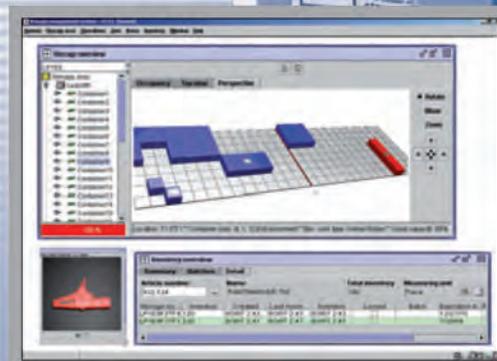
Optimum use of the storeroom can be controlled by defining container types in different sizes.



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



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



Optimal overview thanks to 3D representation

HänelSoft® and the Hänel microprocessor controller combine to create the perfect storage operation system!

Intelligent add-on modules are available to meet 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 2 lifts.
040 Interface to MP 12 A control systems	For connecting the microprocessor control system MP 12 A to HänelSoft®.
090 Remote maintenance	Software for remote maintenance of HänelSoft® by modem, ISDN card, etc.
100 Automatic article number assignment	New article numbers are automatically suggested by HänelSoft®.
110 Storage container management	Definition and assignment of the loading tools to individual shelves or shelf areas.
120 Storage manipulation	All the inventory data for an article can be modified with this module. A special change journal is used to log these manipulations.
200 Job management incl. parts list management	Pick and put lists are created, imported and processed. Materials can be reserved and stockouts displayed.
201 Job optimization*	Boosts the order picking performance by simultaneously positioning the shelves/containers of multiple storage units.
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.
250 Management of external containers	Containers that have been removed can be buffered in an external storage place (e.g. assembly site). The articles remain assigned to these containers. Used quantities are subsequently booked in the system.
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 Expire date/ Expire time	An expiry date or expiry period 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 24.
410 Shelf picture	Each time a pick or put operation is booked, an up-to-date photo is taken. For more information, turn to page 24.
500 HänelSoft® server for mobile terminals	Basic module for connecting mobile terminals via W-LAN. For more detailed information, turn to page 26.
510 Client license for mobile terminals	Workstation license for each portable terminal. For more information, turn to page 26.

Interactive data exchange

*only in conjunction with job management

Direct control at the storage unit with HänelSoft®

Bundled power for your storage management

The user interface of the HänelSoft® storage management software is now available right at the storage units.

The touchscreen technology provides maximum operator comfort.

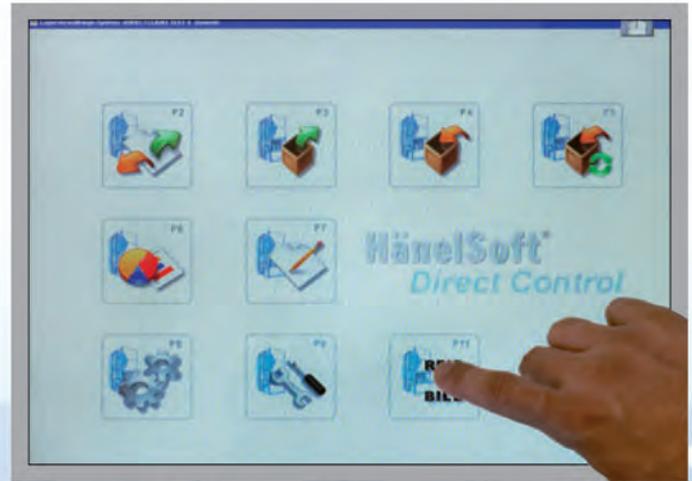
All pick and put operations can be booked directly at the storage unit via touchscreen. The article information is displayed in a clearly structured format.

With the online connection, all storage movements are transmitted immediately to the HänelSoft® server. This means each client control unit offers a complete inventory overview.

The system can be incorporated optimally and with minimal effort into an existing corporate network via the integrated Ethernet interface.

So HänelSoft® can be used directly at the storage units without an additional PC.

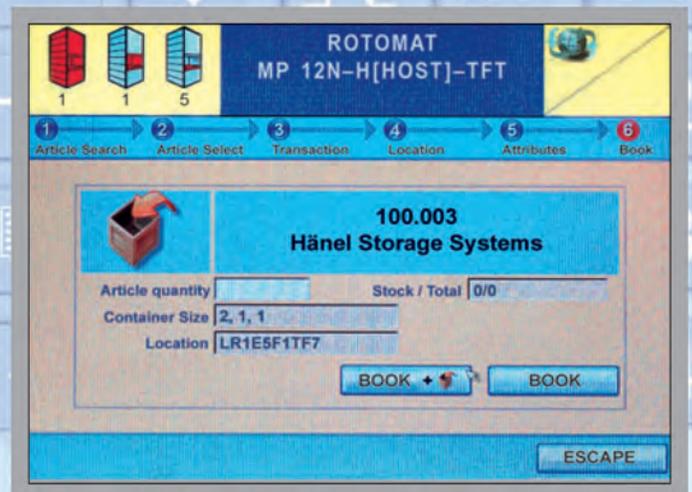
Control solutions that are truly convincing!



User-friendly TFT touchscreen technology



Operator-friendly photographic overview of stored articles and locations



Input errors are avoided thanks to the clear, easily-followed prompts

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