



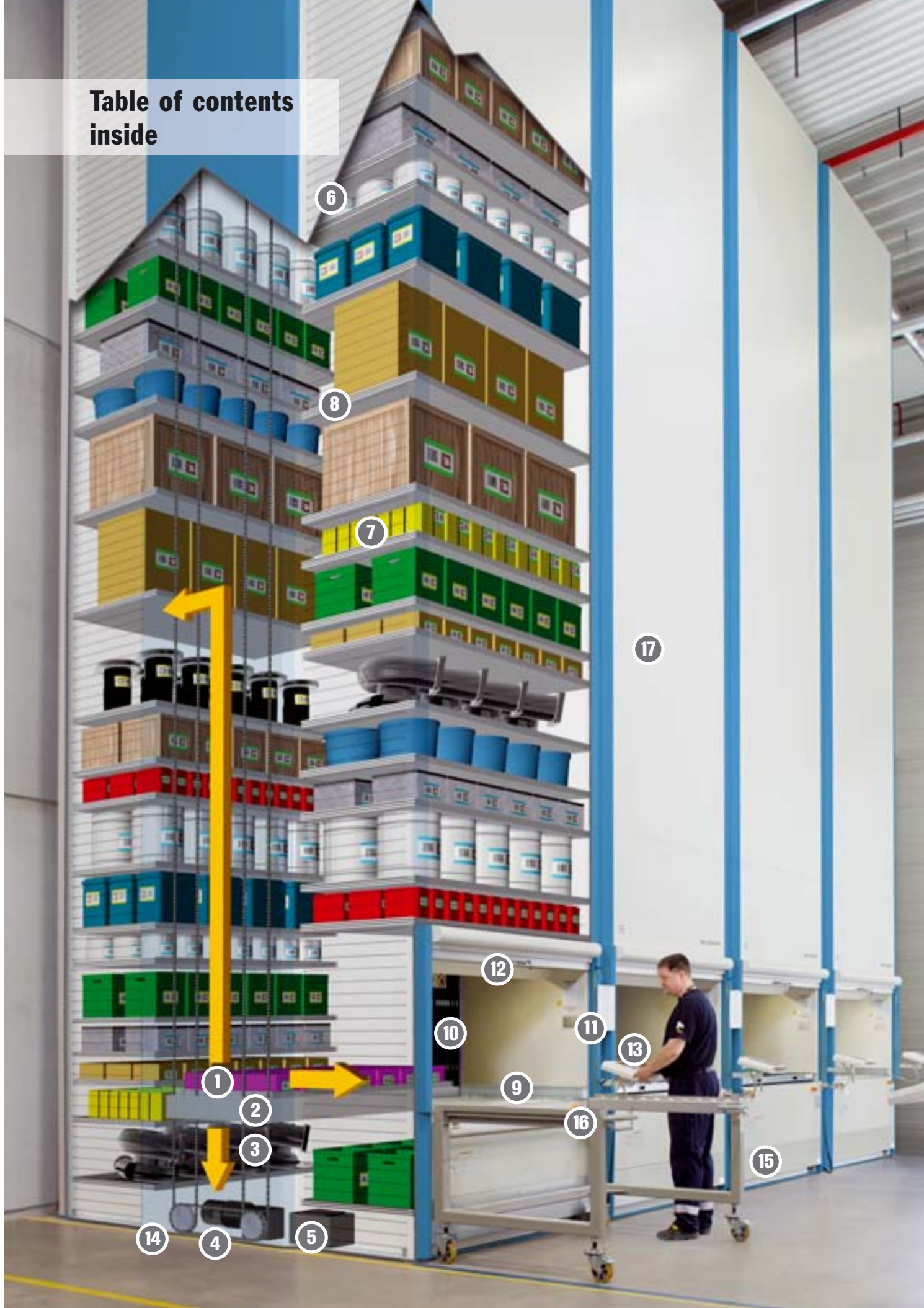
Hänel Lean-Lift[®] : Standards in automated materials handling and warehousing



Innovative ideas. Sound technology. Flexible systems



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Hänel Lean-Lift®

Flexibility, efficiency and cost-effectiveness

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

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

Over 60% more space

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

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

Ergonomic and safe

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

Efficiency

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

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

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

Work time slashed

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

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

Optimal parts management

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

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

We are committed to environmental protection

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

But it's not only the production that lives up to Hänel's ecological principles – even the Hänel Lean-Lift® itself does so. Moreover, the Hänel EcoDrive® makes a contribution toward reducing CO₂ emissions.

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

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

The right decision

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

Live demonstration of CO₂ savings with the Hänel EcoDrive® at the CeMAT trade fair





Approx. 25,833 sq. ft. of storage on a 1,076 sq. ft. footprint

Protected storage of medical products in a network of Hänel Lean-Lifts®.



Vertical technology – simply brilliant

The Hänel Lean-Lift® – the original with the profile wall

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

The automated 'high-bay warehouse in a cabinet'

The Hänel Lean-Lift® is both storage rationalization and goods protection in one: At the center of this closed system is a computer-controlled positioning lift – the 'extractor'. In front of it and behind it are the storage shelves. This is where the articles are stored in containers in height optimized positions.

The storage locations are accessed automatically under electronic control by means of the extractor, which stores or retrieves the requested container.

The goods are then delivered to the retrieval area at the correct ergonomic height.

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

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

The pluses

- ▶ Fast storage and retrieval times.
- ▶ High storage density, even when articles have different heights.
- ▶ Goods to man is the motto instead of man to goods: this saves time.
- ▶ Improved order-picking performance.
- ▶ High economic efficiency and cost savings.
- ▶ Protection of inventory.
- ▶ Storage and handling of bulky and heavy parts.
- ▶ Load-bearing capacity of up to 1,000 kg / 2,208 lbs per tray.
- ▶ Load-bearing capacity of up to 60,000 kg / 132,450 lbs per Lean-Lift® (higher payloads on request).
- ▶ Integrated storage management.



Lean-Lift® buffer store right in the production hall

Complete sub-assemblies and delivered components are buffered in 5 Hänel Lean-Lifts® – here in the premium Silver/Anthracite finish.

Appealing form, convincing functionality

Hänel Lean-Lift® – storing with intelligence

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



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

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

The Hänel height sensors in steps of 25 mm / 0.98", 37.5 mm / 1.47", 75 mm / 2.95" and 90 mm / 3.54"

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

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

Let the air out of your store!

An ingenious development!
The Hänel slot profile in 75 mm / 2.95" or 90 mm / 3.54" offers a multiplicity of options:

The slot profile is a built-in fixed wall with integrated slots in 75 mm / 2.95" or 90 mm / 3.54" steps, and is the ultimate solution for achieving optimal space-saving storage.

Convincing simplicity: the high-stability Hänel profile wall!

Hänel is the inventor of the profile wall – with over 15 years of experience!

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

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

The pluses

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

Hänel multifunction containers

- ▶ Full-length, integrated supports offer optimum utilization of the storage height with maximum rigidity.
- ▶ Containers with the 75 mm / 2.95" single pitch or with space-saving 37.5 mm / 1.47" and 25 mm / 0.98" pitches in conjunction with the Hänel profile wall offer numerous possible combinations.



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



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



An ingenious invention

On the outside the typical Hänel design, on the inside a stable slot system – the Hänel profile wall.



Less warehouse is more

Distinct advantages over conventional rack storage and MLS

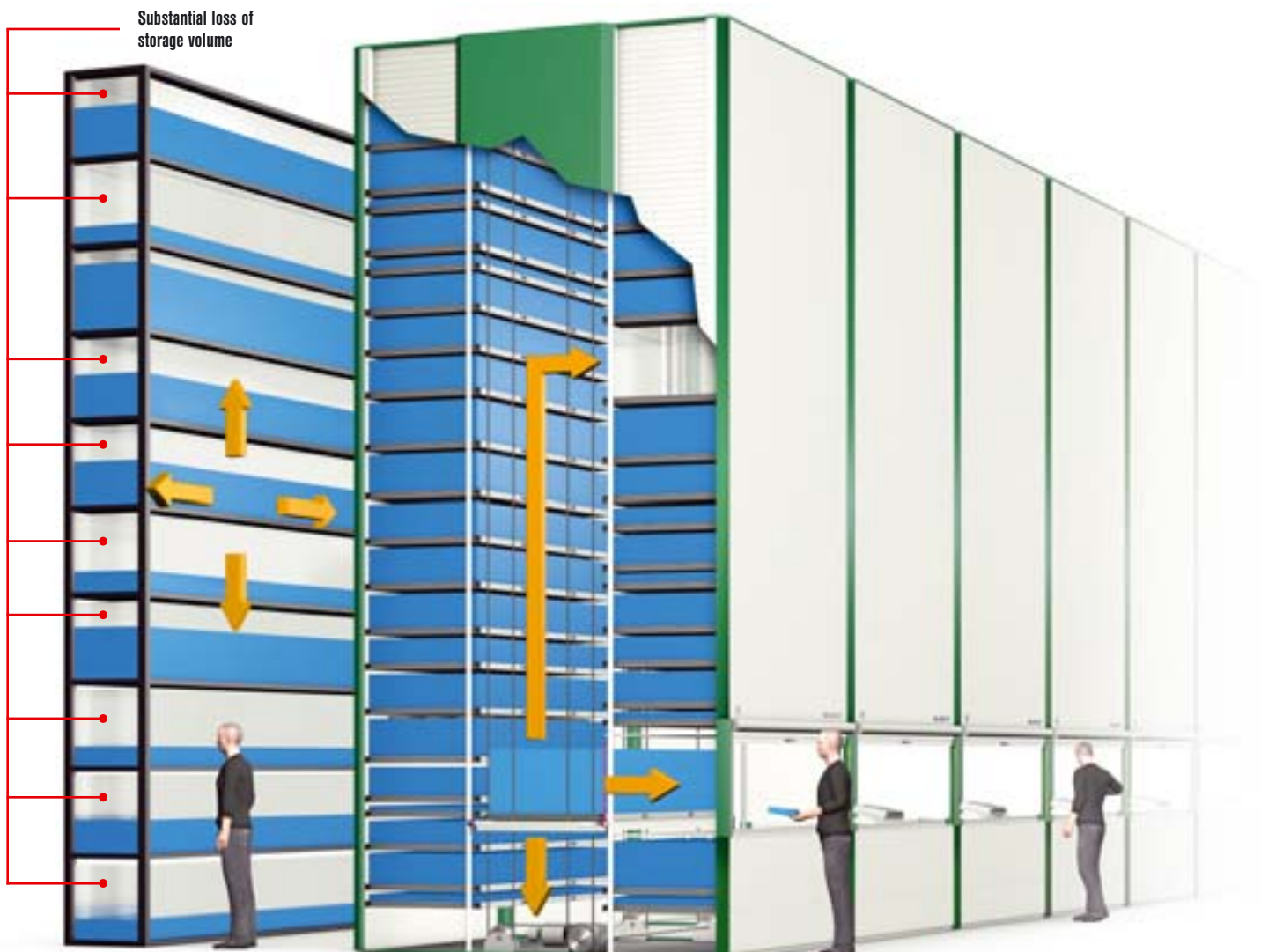
The Hänel Lean-Lift® offers over 60 % more storage capacity than a miniload system/rack store on the same footprint

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

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

The pluses

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



Miniload system/conventional rack storage

Hänel Lean-Lift®

Free/unused storage capacity

Goods stored

Always well stocked with great ideas

The Hänel Lean-Lift® access point

The access point of the Hänel Lean-Lift® is truly multi-talented

It protects the user and it weighs, measures, photographs and identifies the storage items.

The smooth-action rollers make storage and retrieval operations a

breeze. Shelf retrieval and put-away can also be performed automatically.

The interior lighting ensures you can 'keep an eye' on things.

A compartment sub-level indicator or the Pick-o-Light® system guarantee error-free retrieval.

Hänel offers individual equipment variants for every need.

All these are ideas the Hänel specialists have developed over their many years of experience – and from which you benefit.

Optimum storage assignment based on precise height measurement of goods

Accurate height measurement for storing containers in the optimal packing density. Height-measuring light barriers spaced at 25mm/0.98", 37.5 mm/1.47", 75 mm/2.95" or 90 mm/3.54". When the container is drawn in, the highly accurate light barriers measure the articles, and the Hänel microprocessor control system finds the optimum storage location in the Hänel Lean-Lift®. At the same time a protruding goods check is carried out.

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



Height-measuring sensors

Accurate weights recorded with the Hänel weighing device

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

As an option, the Hänel Lean-Lift® can be fitted with a container weighing device. Each tray is weighed in the access point by an electronic 4-point weighing system. The current weight is shown on the keyboard display. The weighing device enables the operator to record and monitor the maximum load of each system container.

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



Container weight accurately ascertained in the access point with no loss of time thanks to the electronic weighing device

Safety light curtain

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



No more searching

Hänel systems for error-free and secure retrieval

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

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

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



Error-free access with integrated compartment sub-level indicator

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

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

This ensures maximum efficiency and reliable selection during order picking.

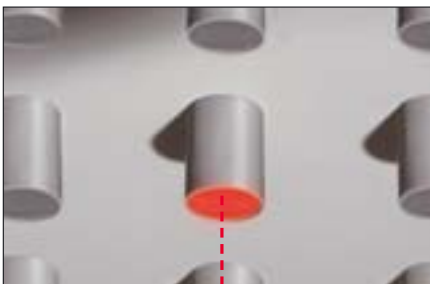
Hänel Pick-o-Light® for varied compartment sizes

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

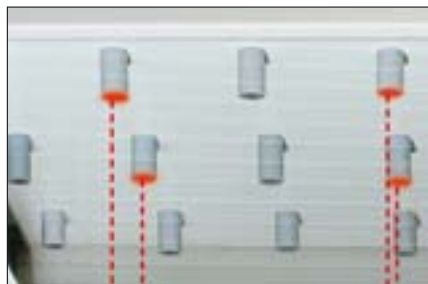
The storage space needed for the unit size can span multiple compartments in width and depth, and is marked out by 4 LEDs.

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

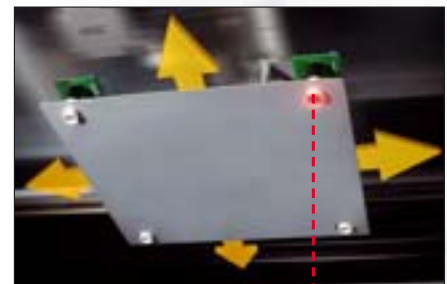
Alternatively, if container divisions are variable, items can be identified via a free-moving Vario unit with 4 integrated LEDs.



LEDs in the access point ...



4 LEDs indicate ...



The Hänel Pick-o-Light-Vario® can move freely on 2 axes



... identify the requested article unmistakably



... the storage location required



As an option, the Pick-o-Light-Vario® can be fitted with a crosshair reticle. This is used to clearly identify very small items

Hänel Lean-Lift® with VendiShelf system

The Hänel VendiShelf system allows small to medium-sized items to be stored on the container (tray) in lockable compartments with automatic unlocking.

Only the requested item can be removed, all the other compartments remain locked. An LED indicates instantly which compartment the requested item is stored in. Different compartment sizes and heights are available, offering maximum flexibility.



Only the compartment containing the requested item can be opened

Hänel PictureControl

A camera integrated in the Lean-Lift® takes a photo of the container each time a transaction is carried out.

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

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



The items are photographed and the picture displayed directly on the control unit



We've thought of everything

Practical, variable, ergonomic

The Hänel high-speed door

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

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



The fold-down support rail from Hänel

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

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



The Hänel transporter

With the Hänel transporter, complete containers can be taken out of the Lean-Lift®, as they can with the fold-down support rail. This means that even with particularly heavy parts (up to 1,000 kg / 2,208 lbs per container) the container can be transported effortlessly to the required destination.



Picture top right:
Perfect integration on the second floor of the company's modern building

Picture bottom:
Replenishing the Hänel Lean-Lift® pallet store on the ground floor



A giant that exemplifies Hänel quality

The new Lean-Lift® in extra wide

The new extra-wide Hänel Lean-Lift® has a width of up to 5.02 m/ 16.47 ft. What's more, the individual **Hänel containers have a storage width of 3.66 m/ 12.00 ft, 4.06 m/ 13.32 ft or 4.46 m/ 14.63 ft.**

The entire container space can be utilized because the unique Hänel

container design does not require any **cross-bracing**. Thus there is no limitation on the size of items in storage. The maximum container payload is **up to 70 kg/ 1,543 lbs.**

The extra-wide Hänel Lean-Lift® also features the extremely stable and precise profile wall, which is

fixed to the rectangular profiles at the factory. Height sensors at the access point ensure that items are stored in height-optimized positions.

The system extractor is powered by the efficient **Hänel high-speed drive system**. This drive unit moves an extractor, without pay-

load and depending on type, at speeds **of up to 1.60 m/sec (5.25 ft/sec)**. The vertical speed of the extractor can reach speeds of up to 0.85 m/sec (2.79 ft/sec) with maximum payloads.

That is best-in-class performance!



Another important feature is the **smooth-running and maintenance-free chain technology** based on the **Hänel 4-point suspension** design. This delivers considerable benefits in terms of process accuracy and precision.

The extra-wide Hänel Lean-Lift® is also equipped with the efficient

Hänel EcoDrive® energy regeneration system as a standard feature.

The Hänel Lean-Lift® extra-wide offers maximum storage capacity within a minimum footprint!



Containers with a storage width of 3.66 m/12.00 ft, 4.06 m/13.32 ft or 4.46 m/14.63 ft are available – cross-bracing is not required

Hänel LEAN-LIFT
EcoDrive



The Hänel Lean-Lift® as a materials handling system

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



A clever solution

Hänel multifunction containers for maximum load-bearing capacity

Highly diverse storage articles put highly diverse demands on the container

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

This is where the Hänel multifunction container performs the extraordinary

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

The containers can take loads of 250 kg / 552 lbs, 500 kg / 1,104 lbs, 700 kg / 1,546 lbs or 1,000 kg / 2,208 lbs depending on the version.

Even the most varied and bulky goods such as pallets, engine blocks, tools, crates and cable drums are no problem for the Hänel Lean-Lift®.

The total load capacity per Lean-Lift® can be 20,000 kg / 44,092 lbs, 30,000 kg / 66,139 lbs, 40,000 kg / 88,185 lbs or 60,000 kg / 132,277 lbs.

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

The standard height of 740 mm / 29.13" for the access opening can be adapted to suit the respective requirements.

The payload per container can be up to 1,000 kg / 2,208 lbs! An impressive performance by Hänel!



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



Storage boxes and tool holders
in a Hänel Lean-Lift® container

Everything the user wants

The Hänel multifunction container

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



Different sizes of Hänel multifunction containers

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

Width	840 mm/ 33.00 in
	1,300 mm/ 51.10 in
	1,640 mm/ 64.43 in
	1,860 mm/ 73.23 in
	2,060 mm/ 81.10 in
	2,300 mm/ 90.38 in
	2,460 mm/ 96.64 in
	2,860 mm/112.60 in
	3,060 mm/120.48 in
	3,260 mm/128.35 in
Depth	635 mm/ 25.00 in
	825 mm/ 32.48 in
	1,270 mm/ 50.00 in

And a wide range of accessories are available, such as tool inserts, molded trays for small parts, holders for milling cutters, and other separators, which complement the Hänel Lean-Lift®, turning it into a

complete intralogistics system that saves costs, makes optimum use of space, makes work easier and minimizes distribution times!

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

Solutions for the electronics industry

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

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

The pluses

- ▶ Hänel multifunction containers always retain their shape and are absolutely distortion-free.
- ▶ No limitation to their usability.
- ▶ Smooth running thanks to modern plastic slide technology.
- ▶ Integrated grips.
- ▶ Optionally available with slots punched round the inside for customized dividers.
- ▶ Variable attachments of different heights.
- ▶ Different container sizes to suit requirements.
- ▶ Payload capacity per container of up to 1,000 kg/2,208 lbs.
- ▶ Galvanized – with environmentally friendly powder-based finish on request.



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

Speed is our driving force

Fast, efficient and quiet

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

The Hänel Lean-Lift® high-speed generation

The Hänel Lean-Lift® is also available in a high-speed version. The vertical speed of travel, for example for containers with a load capacity of up to 500 kg/1,104 lbs, is up to 2.3 m/7.5 ft per sec with an empty extractor, and up to 1.0 m/3.3 ft per sec with a loaded extractor. Depending on type, the extractor travels horizontally and jolt-free at a speed of up to 0.5 m/sec (1.6 ft/sec).

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

The advantage: Gentle and rapid acceleration and braking.

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

This has enormous advantages:

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



Highly efficient and powerful motors allow the extractor to achieve travel speeds of up to 2.30 m/7.54 ft per sec

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

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



Frequency converter in the Hänel Lean-Lift® EcoDrive®

The Hänel EcoDrive® – CO₂ reductions thanks to efficient energy recovery

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

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









Available to multiple users

Depending on the height of the Hänel Lean-Lifts®, access points can be installed on different floors. Several people can use the Hänel Lean-Lift® simultaneously at different positions and levels.

Hänel Lean-Lift®

The key to more flexibility

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

Making maximum use of the available space

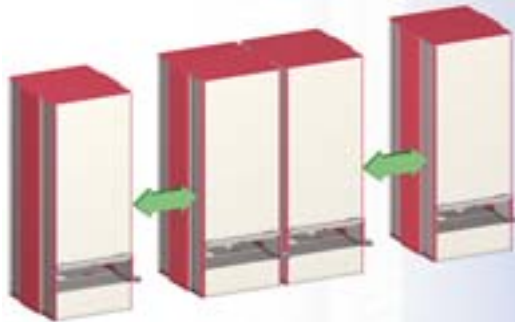
Hänel Lean-Lifts® can be installed next to each other and even span several building levels, with multiple access points one above the other. This creates the maximum possible storage space on a minimal footprint.

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

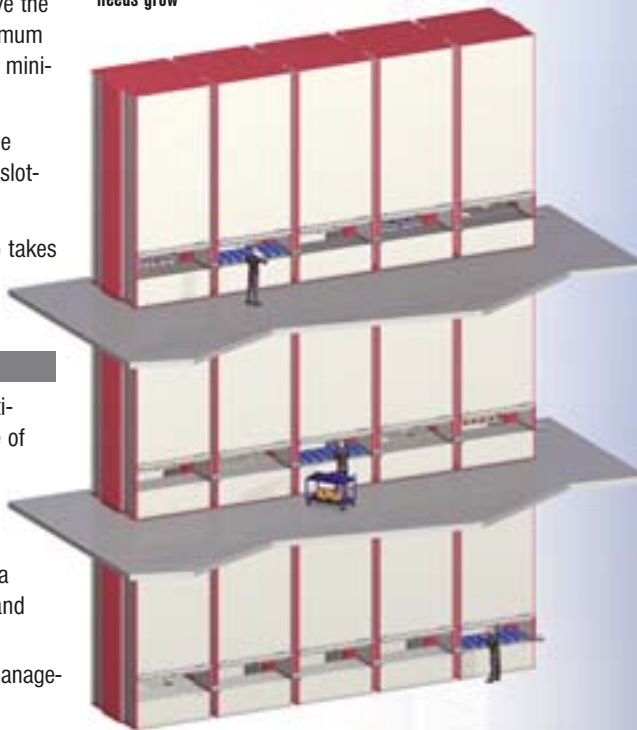
The Hänel service team also takes care of relocations quickly and reliably.

The pluses

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



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



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



Two groups of Lean-Lifts® spanning multiple floors were docked onto the building from the outside so that production area wasn't sacrificed



Lean-Lifts® can also be positioned at a 90 degree angle to each other







Maximized ergonomics

Retrieval of bins using the fold-down support rails from Hänel.

Everything under control

The control concept with brains

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



The variable control keyboard for the Hänel Lean-Lift® is placed at the side of the access point – the most ergonomic position for operators. So tiring overhead work is no longer necessary!

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

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

MP 12 N - HostWeb

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

MP 12 N - HostCom

In this mode also, storage management is performed in the higher-level host system, and the lifts are controlled via the user interface of the external storage management software. For storage and retrieval, a drive command is sent to the lift

controller by the storage management software. Communication takes place via TCP/IP.

MP 12 N - HostData

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

MP 100 D – high-powered storage management intelligently designed!

Up to 99 Lean-Lifts® can be managed simultaneously with the MP 100 D.

The pluses

- ▶ Hardware and software are integrated in the lift, no additional PC or monitor required.
- ▶ No complex software installation on PC.
- ▶ Direct integration into the corporate network via Ethernet link.
- ▶ Data can be retrieved from the MP 100 D and MP 12 N - Stand-Alone simply by using the browser – making the storage situation transparent at all times.
- ▶ Software for the exchange of data is integrated.
- ▶ Customized expansion possible with versatile supplementary modules.

Networking with IT systems

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

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

Hänel software made-to-measure

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

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



Everything you need – included in Integrated Hänel storage management

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 the Hänel inventory control package. This means all the storage management is already integrated.

No additional PC is required!

Three different storage management packages are available:

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

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

066/528-923
ENTER QUANTITY
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	--

Select article storage/retrieval
When an article is selected, a detailed list of information about the article is displayed

066/528-923
ENTER STORAGE LOCATION
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 unit size is entered (optionally with a height specification) the control system suggests the next free storage location

066/528-923
ENTER ARTICLE NAME
MOTOR BLOCK ■

INFO

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

Entry of supplementary data
An article name can be entered as well as an article number. With the option 'Item pool management' it is possible to create and edit other data fields

INFO-BROWSER
[CE/↓]
[F4] -> abc...

Storage lifts Web server Back Menu

Info

Lift: 1 Shelf: 3 Comp.: Compartment depth: Show contents

Shelf name: MEASURING INSTRUMENTS Apply name

Assigned	5										
Avail.	4										
	3										
	2										
	1										
		1	2	3	4	5	6	7	8	9	10

The graphical container overview shows the occupied and free storage locations on the shelf selected



Solutions that are truly convincing

Control options for the practical world

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.

- 1 If the light barriers fail
- 2 If the height detection system fails
- 3 If a positioning system fails
- 4 If a sensor in the access point fails
- 5 If a sensor on the extractor fails
- 6 If a limit switch in the upper or lower storage area fails
- 7 If the shelf memory is defective
- 8 If a positioning sensor for the drive catch fails



The Hänel optimization run

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

As a result of frequent storage movements, however, empty spaces can arise between the storage containers. When the integrated optimization run has been activated, it automatically eliminates the gaps, achieving the optimal packing density in the storage volume available.

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

Hänel APF Access Priority Factor

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

With the Access Priority Factor, this can be done manually and the positions assigned directly on the Hänel microprocessor control system.

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



Our strength lies in our know-how

Hänel software solutions made-to-measure

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

The pluses

- ▶ Quick and reliable access during pick and put operations as the user works directly at the Hänel storage units.
- ▶ Modular functions for the best possible 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 storeroom!

HänelSoft®

User

Password

Login



Start

15:30

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.

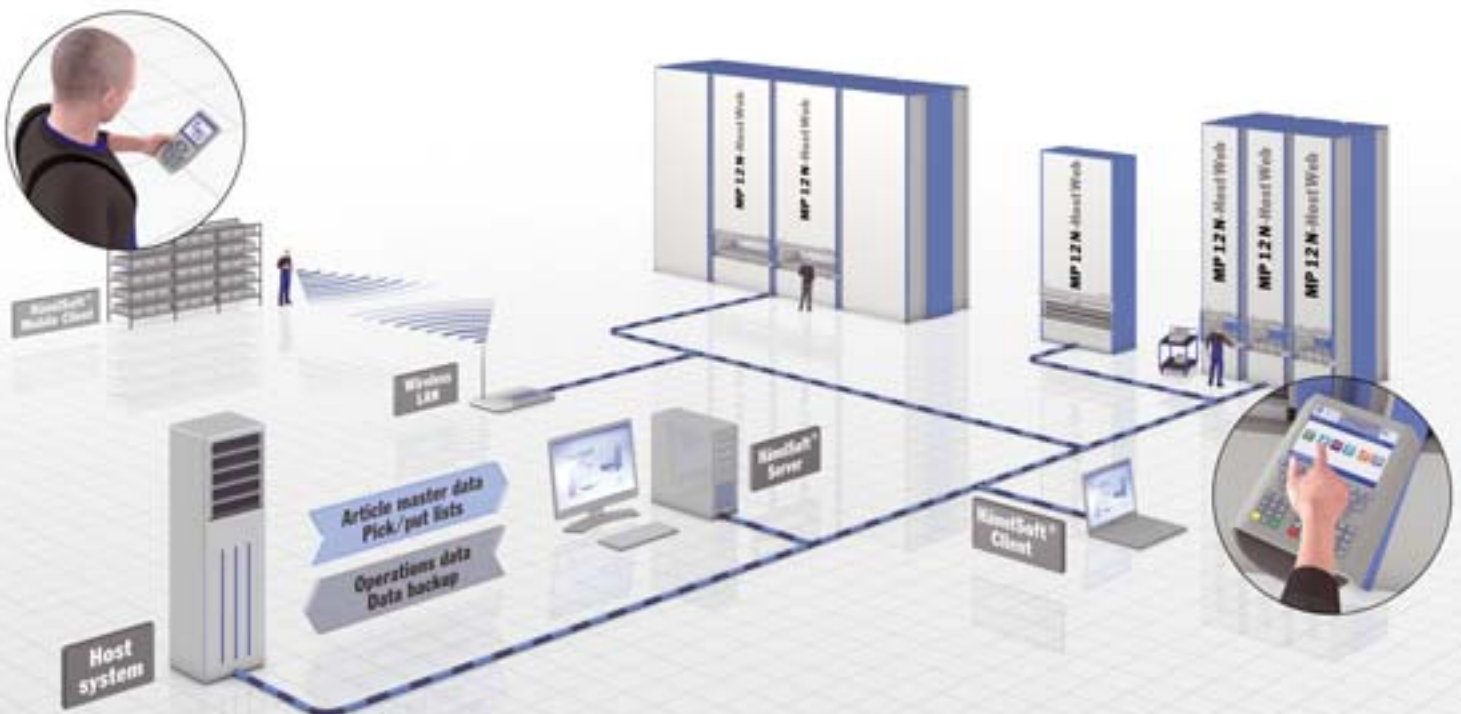
Please don't hesitate to request detailed information about Hänel software programs.

The pluses

- ▶ One warehouse computer manages and controls up to 32 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 one works independently!
- ▶ Prioritized storage location search in front of the corresponding storage unit!



The network and web functionality is already integrated in the MP 12 N-H control system. This means the Hänel user interface is available directly at each Lean-Lift® without the need for an additional PC workstation.



Automotive Dealer Management System Interface MP-Link

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

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

Parts department personnel process all transactions through the established DMS systems just as they did before installing Hänel units.

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

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



Cool systems

Automated storage in a controlled atmosphere

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

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

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

The systems are flexible and can be free-standing or installed so that they dock into existing rooms.

Illustrated on the opposite page is a Hänel **ClimateStore®** Lean-Lift®, networked with other Lean-Lifts®. It is used to stock temperature-sensitive medicines at a constant 5 degrees Celsius.

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

Storage down to $-80^{\circ}\text{C}/-112^{\circ}\text{F}$ in cold boxes

Hänel offers another option for storage at extremely low temperatures, down to $-80^{\circ}\text{C}/-112^{\circ}\text{F}$. For this purpose, Hänel storage containers with the electrification function are used.

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



Storage of highly sensitive pacemakers at constant humidity with the Hänel Lean-Lift® DryStore®



47

Hänel Lean-Lift®

Maximum efficiency in intralogistics

Hänel EcoDrive®

CO₂ reductions thanks to efficient energy recovery

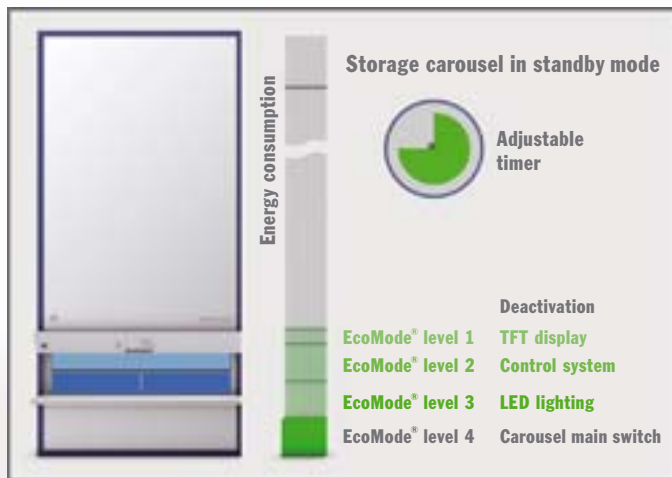
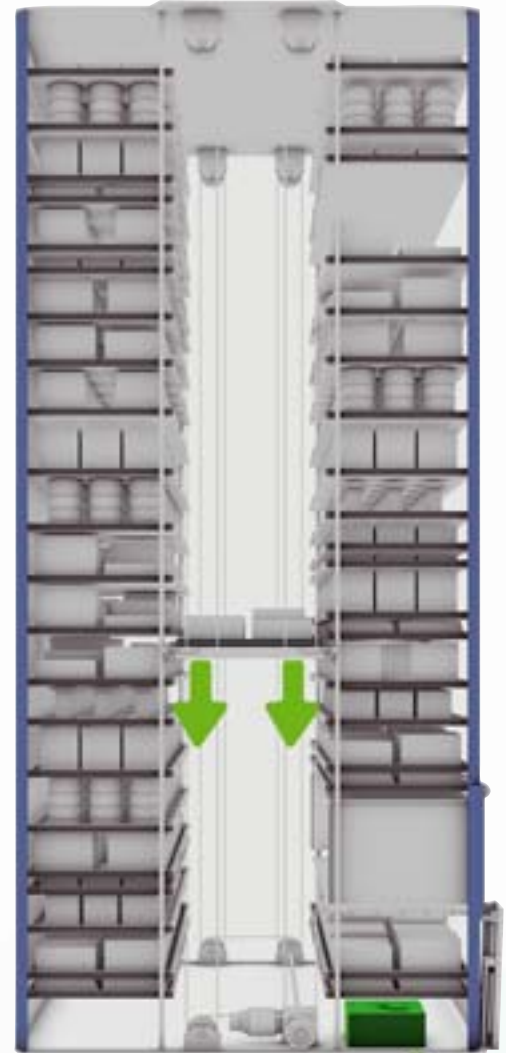
Depending on the travel rate, up to 40 % of the energy fed in previously for the upward run can be returned to the supply network!

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.



Hänel EcoMode®

Intelligent energy management

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

automatically to different levels of standby mode at freely configurable time intervals.

Hänel DualDrive®

Double the performance

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

The new Hänel Lean-Lift® in DualDrive® design boosts order-picking performance substantially. Pick lists with articles stored on different containers can be pro-

cessed at a considerably higher speed.

This saves time and therefore costs!



Hänel Pre-Store-Buffering® Time saved by automatic buffering

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

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

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



Hänel Pick-o-Light® system A new way to identify storage locations

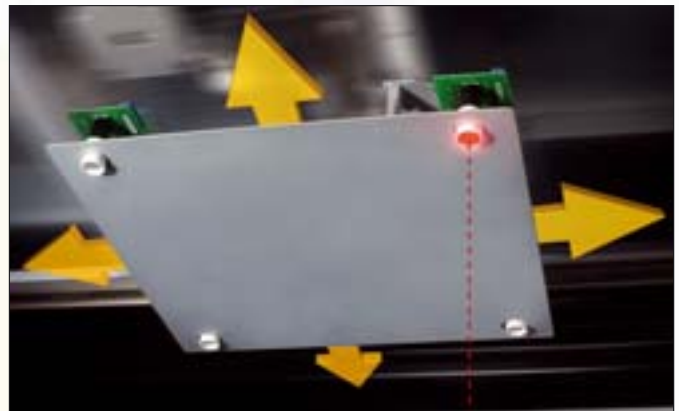
A component of Hänel's high-speed-picking concept is the Hänel Pick-o-Light® system for quickly finding the required articles

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

This ensures maximum efficiency and reliable selection during order picking.

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

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



Hänel PictureControl Visual representation of the container inventory

With the photographic information, articles on a container can be identified directly at the control unit or in HänelSoft®

One or more cameras are integrated in the Hänel 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 at the control unit or in HänelSoft®.

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

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



Hänel Storage Systems Media library

Company | Products | Solutions | Services | News & Trade Fairs | Jobs

Solutions
Solutions Center
SSE - Standard Module

United States (U)
English

Video Case Control in Warehouse
Air Cool Control in Warehouse
Wind Scan LRV, Reduced H and Multi-Span H in use
workflows

Company | Products | Solutions | Services | News & Trade Fairs | Jobs

Solutions
Solutions Center
SSE - Standard Module

United States (U)
English

AS/RS in Warehouse
AS/RS in Warehouse
Wind and stacker systems optimize the dispatch workflow

Company | Products | Solutions | Services | News & Trade Fairs | Jobs

Solutions
Solutions Center
SSE - Standard Module

United States (U)
English

AS/RS in Warehouse
AS/RS in Warehouse

Company | Products | Solutions | Services | News & Trade Fairs | Jobs

Solutions
Solutions Center
SSE - Standard Module

United States (U)
English

AS/RS in Warehouse
AS/RS in Warehouse

Company | Products | Solutions | Services | News & Trade Fairs | Jobs

Solutions
Solutions Center
SSE - Standard Module

United States (U)
English

AS/RS in Warehouse
AS/RS in Warehouse

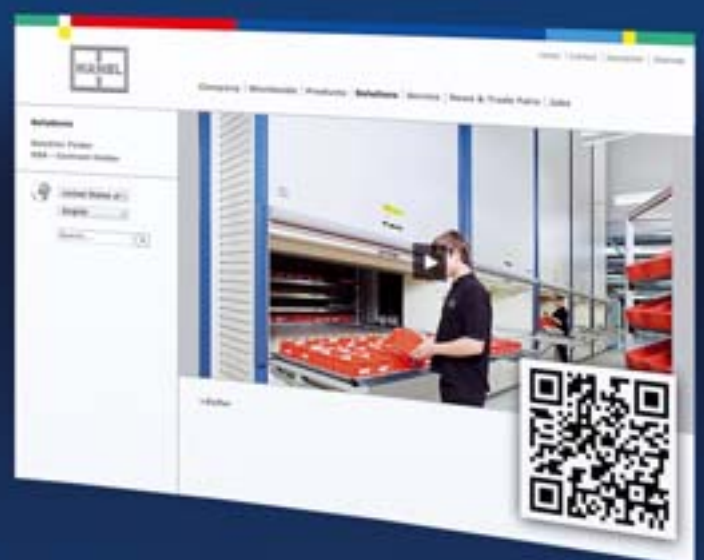
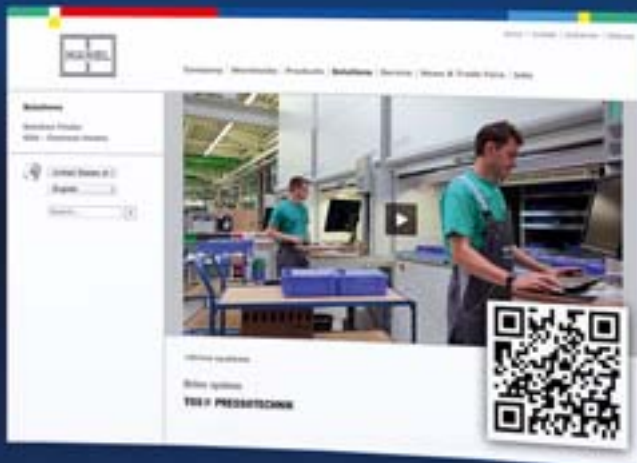
Company | Products | Solutions | Services | News & Trade Fairs | Jobs

Solutions
Solutions Center
SSE - Standard Module

United States (U)
English

AS/RS in Warehouse
AS/RS in Warehouse
SSE - Zweifelhöhen Regalflüsse und Polierflüsse Stahl

Scan the QR code to watch a video clip that highlights Hänel's innovative solutions



Quality through competence

The Hänel service team

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

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


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

In recognition, the quality management system of Hänel Germany and Hänel Switzerland has been awarded the DIN EN ISO 9001:2008 certificate for production, design, development, installation, sales and service.

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

Maintenance access from the side

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



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



Reliable protection with the patented Hänel arresting device

Play it safe

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





Each Lean-Lift® is unique

The right model for each store

Technical data

Model	Device dimensions in Inch		Container sizes in Inch		Load capacity in lbs
	Depth	Width	Width	Depth	
840 – 635	88.19	45.87	33.07	25.00	661/1,102/1,543
1300 – 635	88.19	63.98	51.18	25.00	661/1,102/1,543/2,205
1640 – 635	88.19	77.36	64.57	25.00	661/1,102/1,543/1,984
1860 – 635	88.19	86.02	73.23	25.00	551/1,102/1,433/1,984
2060 – 635	88.19	93.90	81.10	25.00	551/1,102/1,433/1,874
2300 – 635	88.19	103.35	90.55	25.00	551/882/1,036/1,323/1,764
2460 – 635	88.19	109.65	96.85	25.00	551/882/1,036/1,323/1,764
2860 – 635	88.19	125.39	112.60	25.00	419/551/882/1,102/1,213/1,433
3060 – 635	88.19	133.27	120.47	25.00	419/551/772/992/1,213/1,378
3260 – 635	88.19	141.14	128.35	25.00	397/551/882/1,213/1,323
840 – 825	110.63	45.87	33.07	32.48	661/1,102/1,543/2,205
1300 – 825	110.63	63.98	51.18	32.48	661/1,102/1,543/2,205
1640 – 825	110.63	77.36	64.57	32.48	661/1,102/1,543/1,984
1860 – 825	110.63	86.02	73.23	32.48	551/1,102/1,433/1,984
2060 – 825	110.63	93.90	81.10	32.48	551/1,102/1,433/1,874
2300 – 825	110.63	103.35	90.55	32.48	551/1,036/1,323/1,764
2460 – 825	110.63	109.65	96.85	32.48	551/1,036/1,323/1,764
2860 – 825	110.63	125.39	112.60	32.48	419/551/882/1,102/1,213/1,433
3060 – 825	110.63	133.27	120.47	32.48	397/717/937/992/1,213/1,378
3260 – 825	110.63	141.14	128.35	32.48	397/551/882/1,213/1,323
3660 – 825	114.57	166,14	144.09	32.48	1,102/1,543
4060 – 825	114.57	181,89	159.84	32.48	1,102/1,543
4460 – 825	114.57	197,63	175.59	32.48	882/1,323
840 – 1047	136.81	45.87	33.07	41.22	661/1,102/2,205
1300 – 1047	136.81	63.98	51.18	41.22	661/1,102/2,094
1640 – 1047	136.81	77.36	64.57	41.22	551/1,102/1,874
1860 – 1047	136.81	86.02	73.23	41.22	551/992/1,874
2060 – 1047	136.81	93.90	81.10	41.22	551/992/1,653
2460 – 1047	136.81	109.65	96.85	41.22	551/882/1,653
2860 – 1047	136.81	125.39	112.60	41.22	551/772/1,543
3060 – 1047	136.81	133.27	120.47	41.22	485/661/1,433
3260 – 1047	136.81	141.14	128.35	41.22	485/661/1,323
840 – 1270	163.39	45.87	33.07	50.00	661/1,102/2,205
1300 – 1270	163.39	63.98	51.18	50.00	661/1,102/1,984
1640 – 1270	163.39	77.36	64.57	50.00	551/1,102/1,764
1860 – 1270	163.39	86.02	73.23	50.00	551/992/1,764
2060 – 1270	163.39	93.90	81.10	50.00	551/882/1,653
2460 – 1270	163.39	109.65	96.85	50.00	551/882/1,543
2860 – 1270	163.39	125.39	112.60	50.00	441/661/1,543
3060 – 1270	163.39	133.27	120.47	50.00	441/551/1,433
3260 – 1270	163.39	141.14	128.35	50.00	441/551/1,323

Maximum device payload up to 60,000 kg/132,450 lbs depending on the model.

A few examples from a multitude of possibilities

Contact the storage specialists at Hänel

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

Quality signed and sealed

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

Hänel – a company committed to top quality

Quality starts with consulting

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

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

High-tech production for high-end demands

Highly qualified specialists implement the ideas of the planning engineers using cutting-edge manufacturing techniques. They collaborate to incorporate their knowledge and experience.

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

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

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

We are committed to environmental protection

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





Ideas that move the world . . .

Cutting-edge technology ‘Made by Hänel’

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

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

Hänel exhibits its innovations in intra-logistics at numerous international trade fairs. For an up-to-date overview of trade fair dates, visit us on the Internet at www.hanel.us.

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

The Hänel team is at your service.



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



We have more in store . . .

Hänel Rotomat® office carousels

The optimal filing systems for office and administration

Hänel started series-producing filing carousels (the first manufacturer in Europe to do so) over 50 years ago – and you reap the benefits of this long experience!

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

The pluses

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



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



Hänel Rotomat® storage carousels

Top order-picking performance due to short travel paths

Whether it's materials provisioning at the production line or computerized spare parts storage – the Rotomat® does the job. Its compact design enables up to 60%

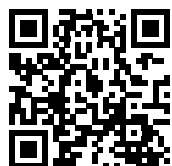
more storage capacity to be created on a minimal footprint by making use of the available room height.

The pluses

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



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



Hänel Multi-Space®

The new definition of vertical lift technology

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

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

The pluses

- ▶ Unique extractor design in state-of-the-art lightweight construction (as used in bridge engineering) guarantees maximum stability.
- ▶ The Hänel Multi-Space® offers modular scalability in height and width – up to a total width of over 9 m/30 ft.
- ▶ Variable container widths, different payload capacities and the Hänel multiple pitch ensure the optimal solution for any challenge to compact storage.



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



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



Hänel Rotomat® office carousel

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

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

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



Hänel Rotomat® storage carousel

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

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



Hänel Lockomat®

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

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



Hänel Lean-Lift®

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

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



Hänel Multi-Space®

Hänel has optimized the principle of 3-axis storage systems with the Hänel Multi-Space®. In addition to the many advantages of the Hänel Lean-Lift® technology, the Hänel Multi-Space® offers maximum flexibility, speed and use of space.

With its advanced technology, Hänel is able to offer a 3-axis storage system over 9 m/30 ft in width. The Hänel Multi-Space® can even be varied in width and height once installed – an innovation from Hänel!

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



The Intelligent Hänel Control and Software Technology

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

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

Hänel

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