

MORE
STORAGE DENSITY
PERFORMANCE
DYNAMIC

STORAGE AND RETRIEVAL SYSTEMS

The new standard
COLIBRI AND PUMA

NEW

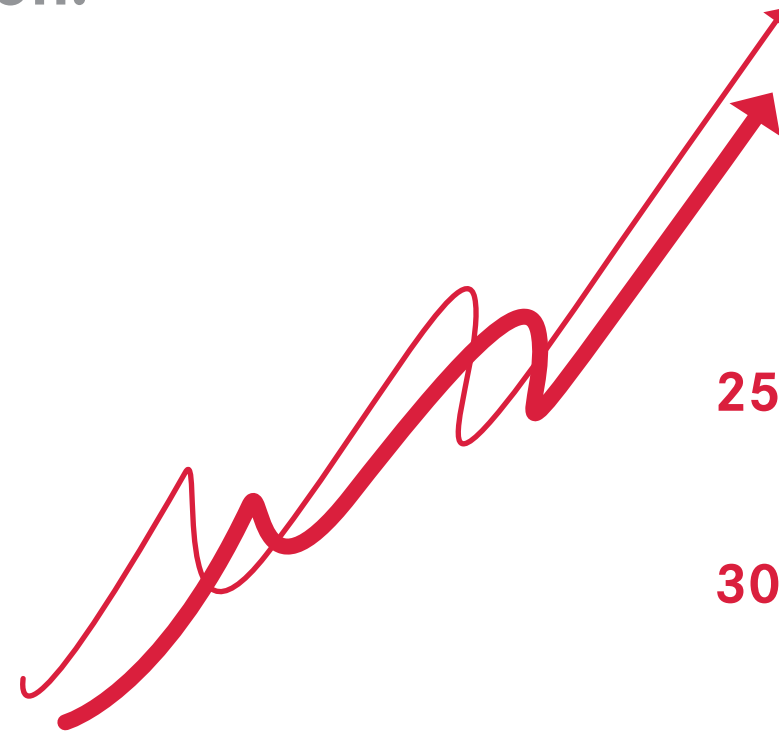
EN

Simply MORE efficiency and improved warehouse utilization.

How can warehouse space be optimized – without wasting space, while minimizing buffer zones for pallet handling or staging?

WINKEL can offer solutions to storage, retrieval and warehouse utilization to help streamline work flow, and systems integration. WINKEL – Partner for work flow and storage solutions.

The revolutionary new Colibri standard storage and retrieval systems for custom containers or cardboard cartons and Puma for pallets and larger crates lead the way over conventional systems storage systems. They will help maximize throughput, minimize storage space, and eliminate staging or buffer zones.



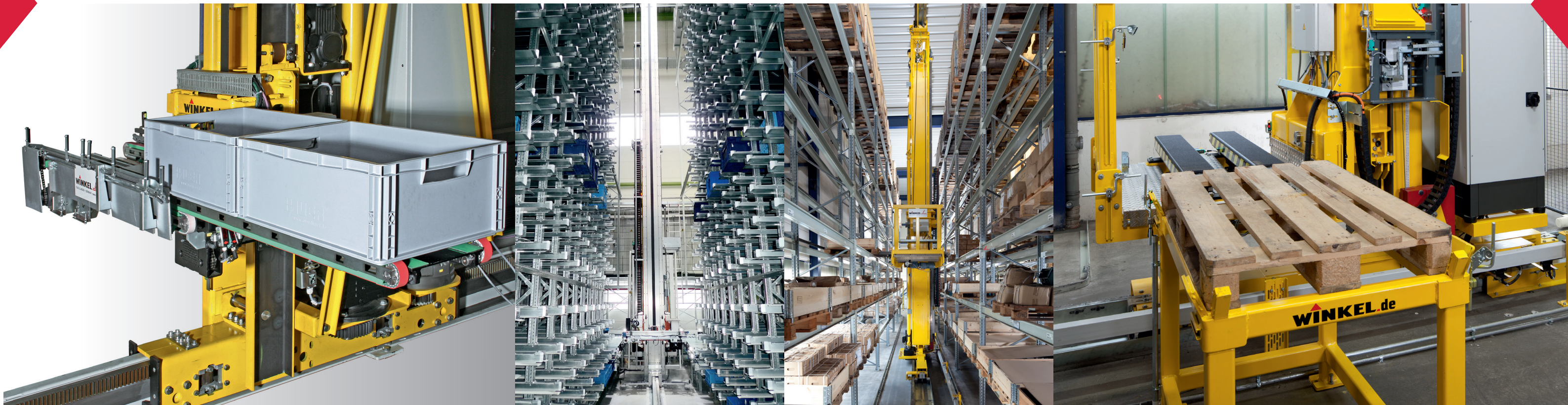
- 30 % LESS SYSTEM WEIGHT**
- 25 % MORE THROUGHPUT**
- 10 % IMPROVED SPACE UTILIZATION**
- 30 % LESS ENERGY CONSUMPTION**
- MAXIMUM EFFICIENCY**



Quicker, lighter, COLIBRI: the WINKEL mini load Storage and Retrieval System is highly dynamic, energy efficient and enables a high storage density and space usage in the Automatic mini-load system.



Quick, strong, PUMA: high dynamic values at 1,500 kilogram loading capacity and optimal space usage due to the WINKEL pallets Storage and Retrieval System.



MORE DYNAMICS

Positive drive: lightweight, structurally stiff... allows quick access

WINKEL Drive technology:
Rack and pinion drive mechanically synchronized by a maintenance free cardan shaft.

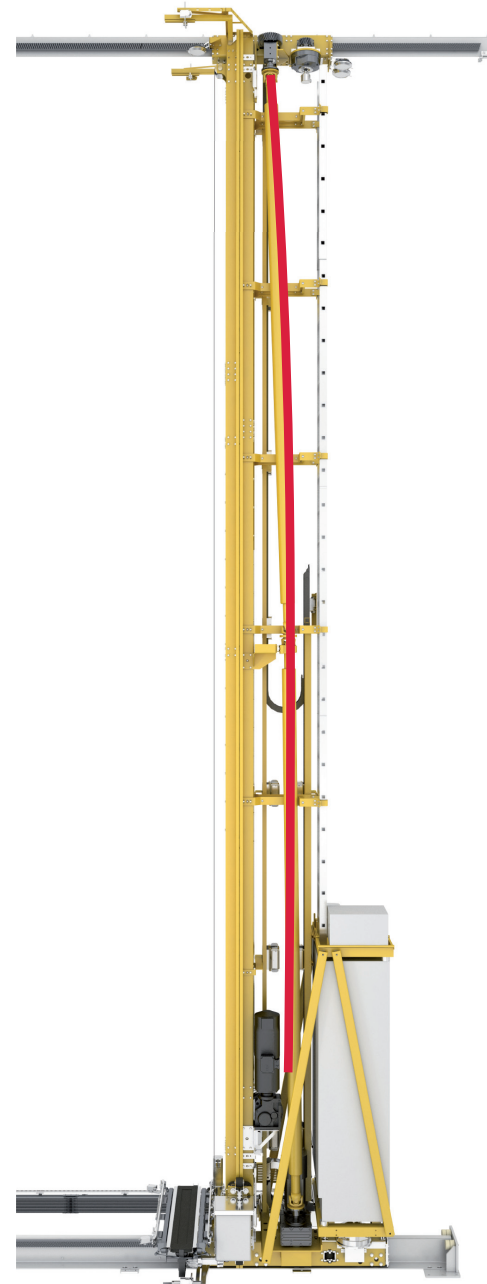
- Advantages:
- 30 % less system weight
 - 30 % less energy consumption
 - 25% more throughput
 - more available rack space

Rack and pinion drive technology

Minimized deflection and vibration

Smaller, lighter, stiffer, faster

Energy saving



MORE POWER

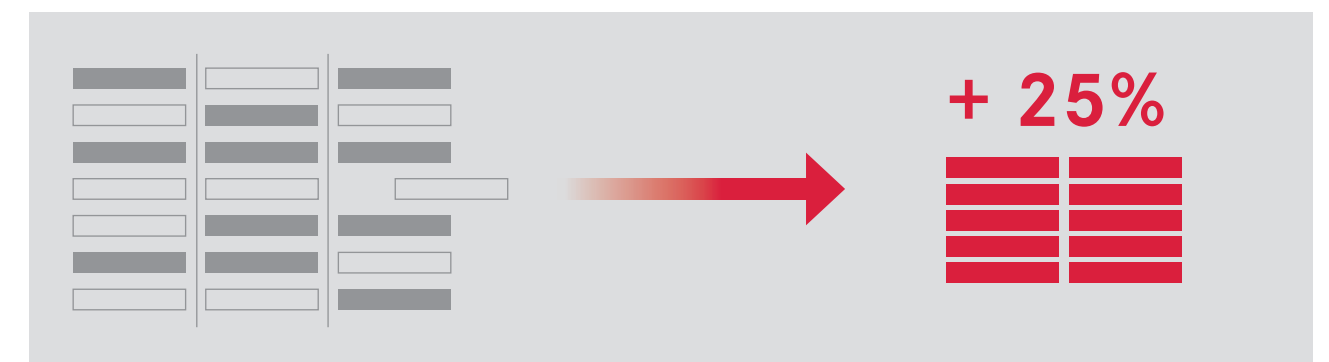
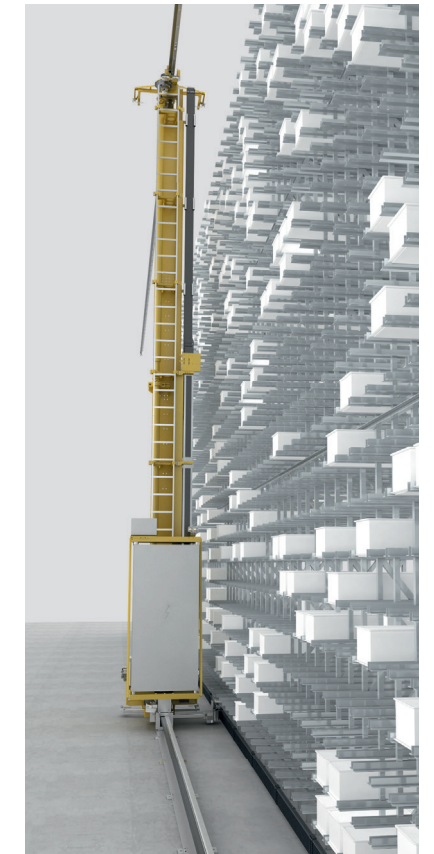
The bi-turbo within the storage and retrieval systems

The WINKEL small parts COLIBRI system achieves a top acceleration of 5 m/s² (16Ft/s²) and operates at 6 m/s (19 Ft/s) smoothly, unlike most other systems. Quick vibration-free acceleration and operation allows improved throughput of 25 % over conventional storage management systems. The same concepts applies to the PUMA pallet storage system, designed for loads up to 1.5 t, and accelerations of 1.5 m/s² (5 Ft/s²).

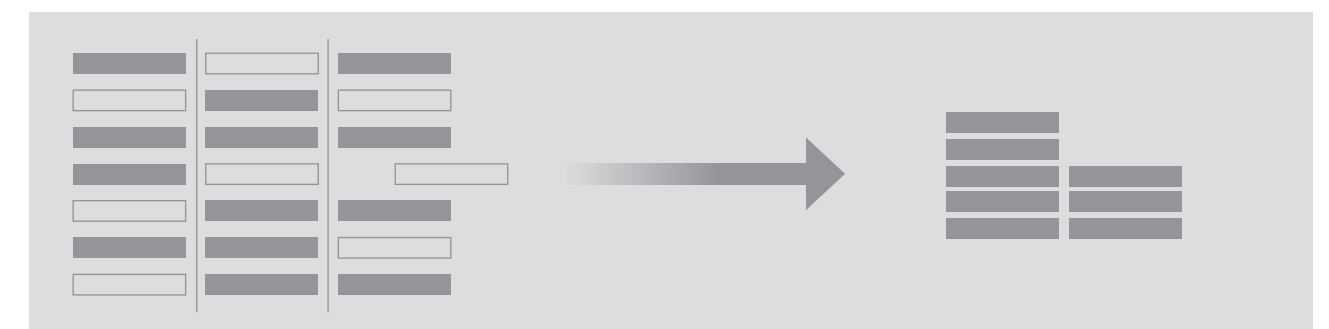
Improved acceleration

Double operations per hour

25 % more throughput



WINKEL Storage and Retrieval System: significantly improved storage density, significantly higher output.



Conventional Storage and Retrieval System: waste of space, output low.

	Conventional Storage and Retrieval System	WINKEL Storage and Retrieval System
Total weight	High, to absorb vibrations	Approx 30 % less weight
Acceleration	Low due to heavy system weight	High, thus up to 25% more throughput
Energy consumption	High due to high system weight	Approx 30 % less due to low weight
Construction length	Long due to hydraulic buffer zones	Significantly shorter thus, space for up to 5 more racks
Total time per entry- and retrieval process	53 s	47 s
Double operations per hour	64	76
Container per hour	128	152

INCREASE STORAGE & STORAGE DENSITY

Up to 10% more available rack space

Thanks to our innovative brake and security system, no hydraulic buffers are required on both sides. More space for additional racks.

10% more storage with the same volume

By integrated safty brake system

Additional racks possible

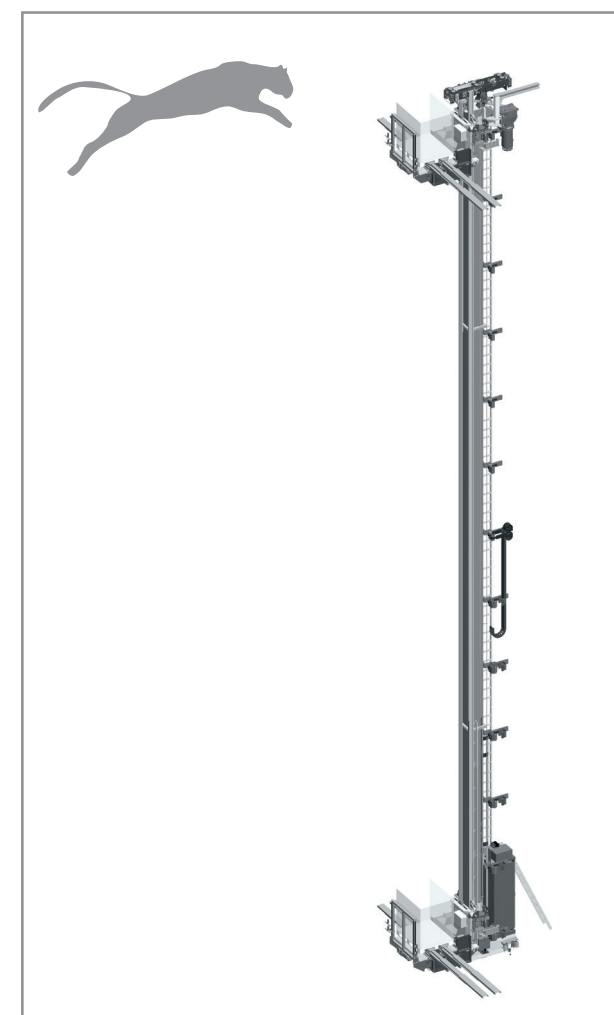


COLIBRI by WINKEL maximizes use of space for additional storage.



A conventional Storage and retrieval System with long buffer zones with underutilized space.

Technical characteristics



COLIBRI	S	M	L
Height up to	12 m	16 m	20 m
Loading capacity	2 x 50 kg	2 x 50 kg	2 x 50 kg
Drive acceleration	5 m/s ²	4 m/s ²	3,5 m/s ²
Drive speed	6 m/s	6 m/s	6 m/s
Lift acceleration	3 m/s ²	3 m/s ²	3 m/s ²
Lift speed	3 m/s	3 m/s	3 m/s

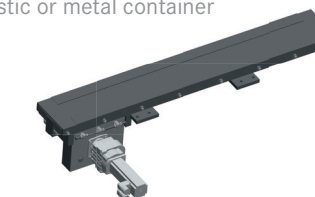
PUMA	S	M	L	XL	XXL
Height up to	10 m	15 m	20 m	25 m	40 m
Loading capacity	1.500 kg	1.500 kg	1.500 kg	1.500 kg	1.500 kg
Drive acceleration	1,5 m/s ²	1,25 m/s ²	1 m/s ²	0,75 m/s ²	0,5 m/s ²
Drive speed	6 m/s	6 m/s	6 m/s	6 m/s	6 m/s
Lift acceleration	1 m/s ²	1 m/s ²	1 m/s ²	1 m/s ²	1 m/s ²
Lift speed	1,25 m/s	1,25 m/s	1,25 m/s	1,25 m/s	1,25 m/s

Load suspension devices for each purpose

We offer the suitable load suspension devices for each purpose, that you are able to handle your specific storage items automatically efficiently. Should the standard solution not fit your task, we offer also specific solutions. More designs upon request.

COLIBRI

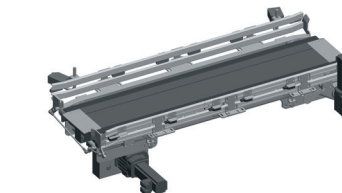
Telescope – the universal load suspension device for plastic or metal container



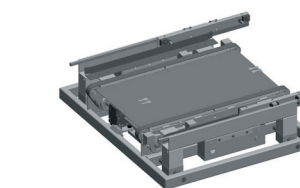
Tray-type – high storage density and product flexibility



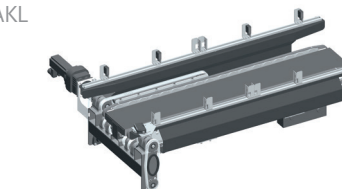
Telescope with fixed belt



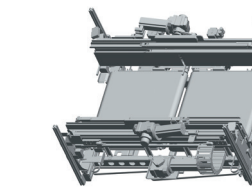
Drag'n'Drop – high storage density for plastic or metal container on shelves



Belt telescope HIGH SPEED – for highly dynamic single, double and four-fold deep storage of plastic containers in the High Performance AKL



Cardboard clip – high storage density for the efficient storage of cardboards on shelves

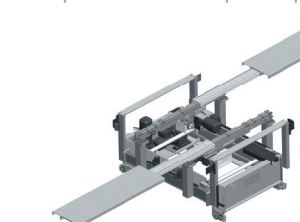


PUMA

Telescopic forks for single-deep storage of pallets or crates



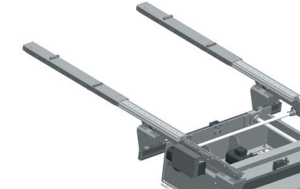
Special load suspension device upon request



Telescopic forks for twice-deep storage

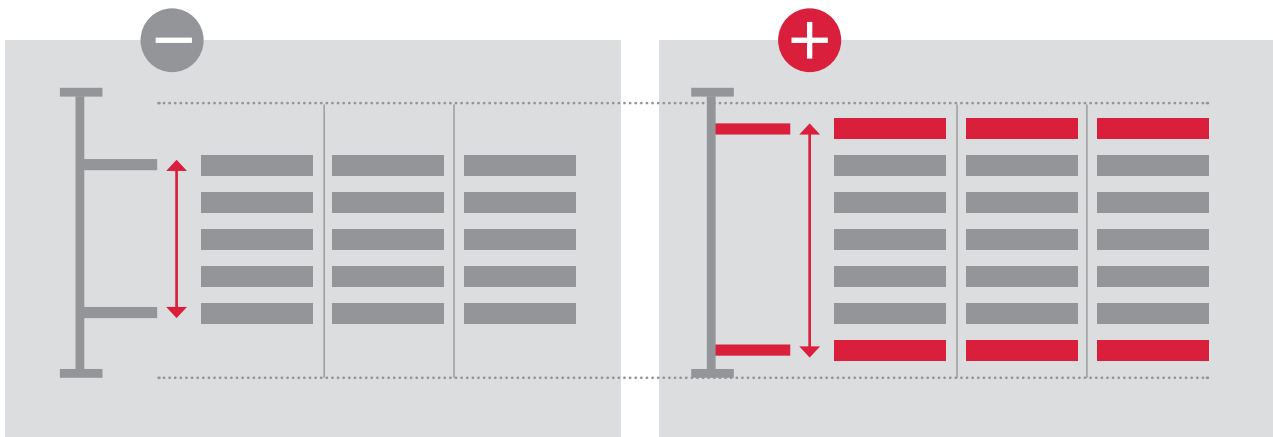


Special load suspension devices for your requirements



Minimum approach dimensions

WINKEL Storage and Retrieval Systems are designed to maximize the storage space due to the compact nature of the components and drive. The hoist and load suspension design minimizes the lower and upper travel dimensions allowing additional storage space.



Conventional Storage and Retrieval System:

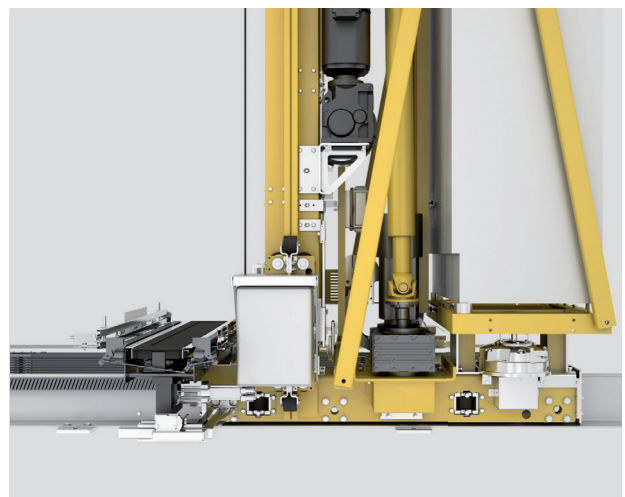
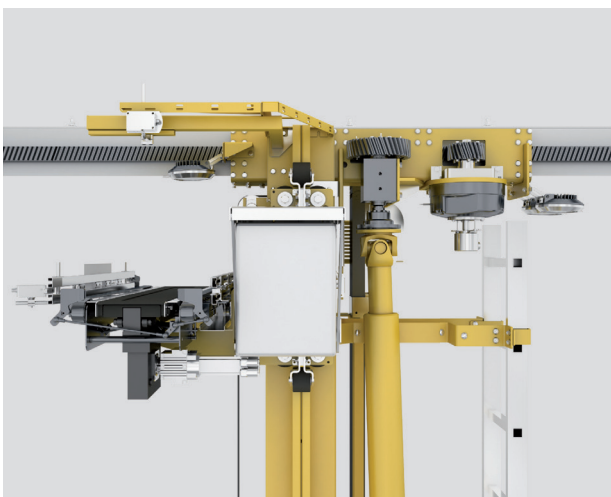
Large drives and construction require a lot of space on top and at the bottom of travel – at the expenses of the storage density.

WINKEL Storage and Retrieval System:

Compact design allows for reduced minimum height and increased maximum travel.

WINKEL Storage and Retrieval System make it possible.

With innovative drive systems and fast acceleration we achieve compact travel dimensions for MORE storage space.





Since 1981, **WINKEL** has been active in the linear motion and the material handling industry. The company with headquarters in Illingen/ Wuerttemberg began by supplying components to industrial trucks and lift masts for forklifts. Today, **WINKEL** is the market leader for heavy-duty linear motion and handling systems for 10 kg to 100 tons.

WINKEL is an international leader of customized systems integration. **WINKEL** components and systems are used in more than 8,000 companies in a wide variety of industries worldwide.

WINKEL uses an innovative modular system approach.

The **COLIBRI** and **PUMA** Systems are two example that incorporate logic in the design and manufacture of such storage and retrieval systems.



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