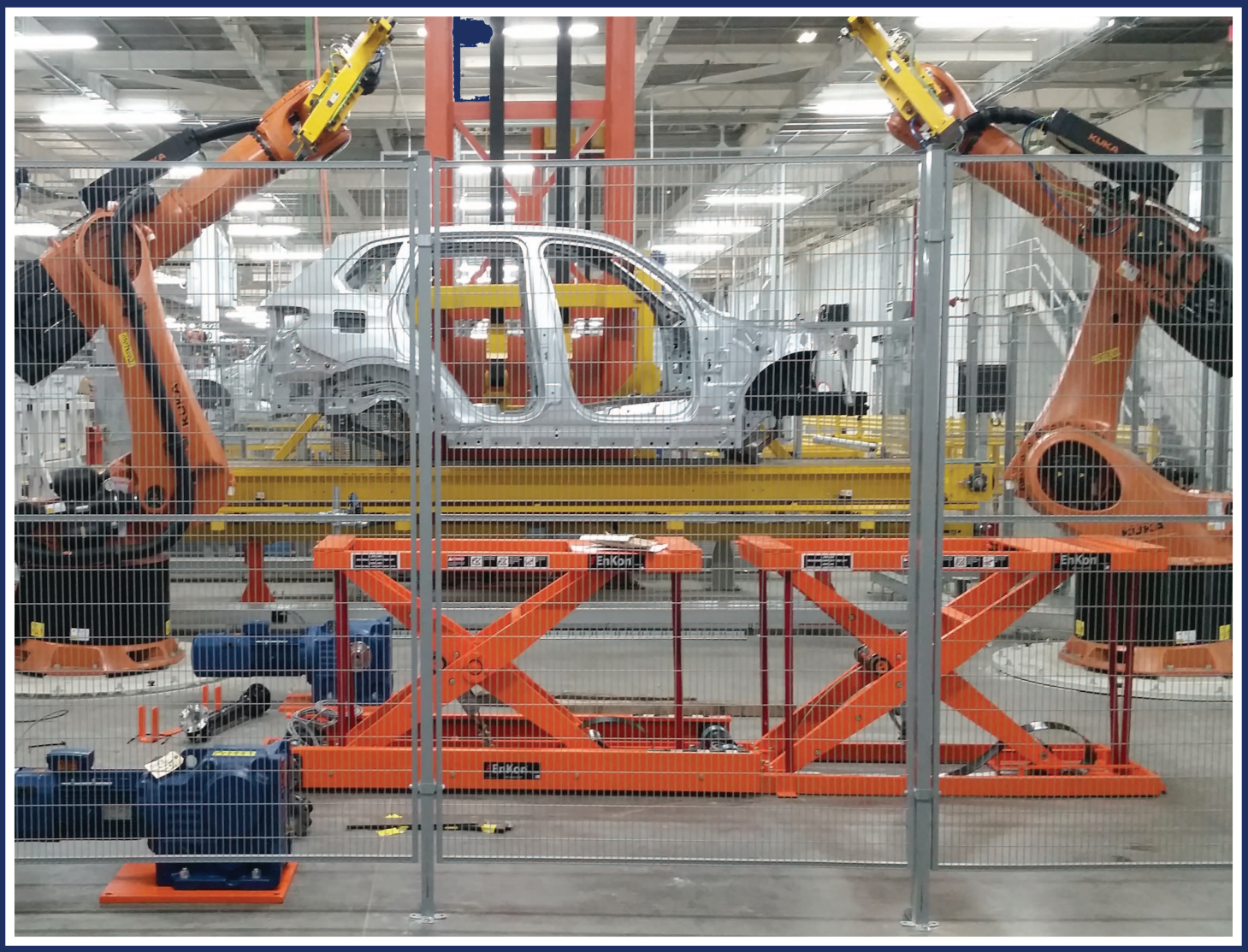
WHITE PAPER



When Standard Scissor Lifts Fall Short

With thousands of proven EnKon scissor lift designs, Herkules delivers cost-effective solutions tailored to your operation — without reinventing the wheel.

EnKon™ by herkules™

MODERN MATERIALS HANDLING®

EXECUTIVE SUMMARY

In fast-paced manufacturing environments, efficiency, ergonomics, and reliability are everything. Standard scissor lifts can handle many applications, but in complex or space-constrained production lines, they often fall short.

The EnKon line from Herkules Equipment bridges that gap. With thousands of proven designs and modular options, EnKon lifts can be configured to fit unique requirements — without the cost or risk of building one-off equipment from scratch.

This paper explores the decision points that indicate when a standard off-the-shelf lift may not be the right choice, and shows how EnKon's scalable design library has helped manufacturers — from automotive to aerospace to general industry — improve safety, throughput, and system integration.

When Standard Lifts Work — and When They Don't

Standard scissor lifts are widely available and cost-effective for straightforward applications like pallet positioning, work-height adjustment, or basic load transfers.

But in many production environments, challenges arise that a standard unit simply wasn't designed to solve.

Examples include:

- **Production-critical areas —** locations where continuous operation is vital and space limitations make maintenance access challenging.
- **Special load interfaces —** non-standard pallets, tooling, or automation requirements.
- **High duty cycles —** lifts running multiple shifts at high frequency.
- **Integrated automation —** needing sensors, controls, or synchronization with conveyors/robots.
- **Safety compliance —** guarding, fully redundant anti-fall safety locks, or ergonomic considerations beyond standard specs.

In these scenarios, the choice isn't between a commodity lift and an expensive "custom" project — it's about selecting from a broad library of proven, configurable designs that can be tailored to the application.

High-travel belt-drive lift on AMR

INSIDE AN ENKON LIFT: Precision, Safety, and Reliability

EnKon lifts are engineered to perform where standard lifts cannot. Designed for high-duty cycles, operator safety, and long-term reliability, every component works together to deliver **clean, predictable, and low-maintenance performance** in demanding production environments.

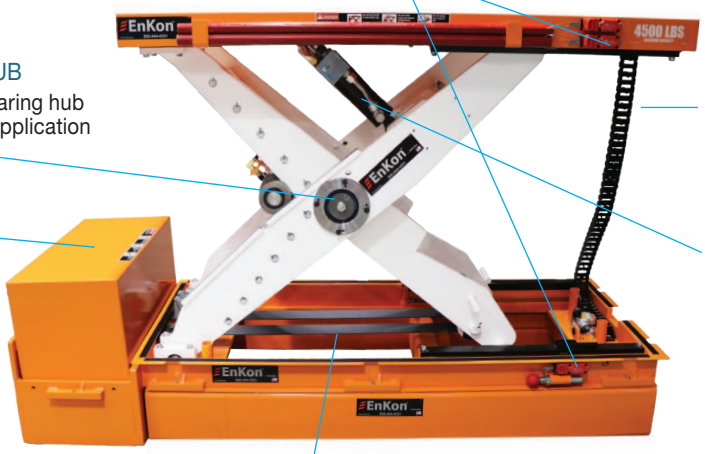
The key takeaway? EnKon lifts combine **advanced drives, precision motion systems, layered safety, and ergonomic design** to deliver reliable performance in critical production areas where standard lifts fall short.

EnKon scissor lift for battery installation in automotive assembly line

INTEGRATED SAFETY SWITCHES
- Keyed safety switches halt lift function during maintenance

SCISSOR BEARING HUB
- Replaceable center bearing hub specified to meet the application load and duty cycle.

HEAVY DUTY GEAR MOTOR WITH FAIL SAFE BRAKE



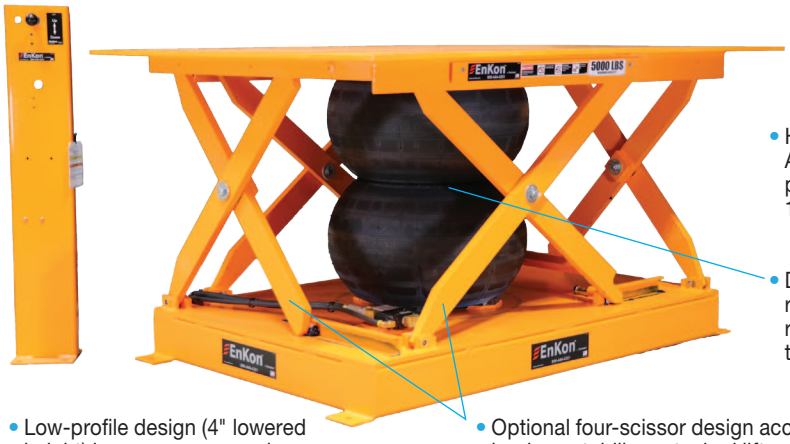
CABLE MANAGEMENT SYSTEM
- Keep any wiring to the top plate safe during lift operation

REDUNDANT ANTI-FALL DEVICE
- Redundant stop activates when integrated position encoder detects uncontrolled movement.

BELT-DRIVE SYSTEM
- Dual-belt redundancy supports the full lift capacity for unmatched reliability.

AIR SCISSOR LIFTS

Air-powered, clean, and safe for sensitive or explosion-proof areas. Also a budget-friendly option for many standard ergonomic or conveyor transfer applications.



- High-strength Herkules™ Air Bag technology: proven for over 1.5 million cycles.
- Direct, one-to-one lift ratio of the air bag reduces strain on the scissors.
- Low-profile design (4" lowered height) improves ergonomics and reduces operator strain.
- Optional four-scissor design accommodates offset loads or stabilizes stacked lifts as seen in the mezzanine cart lift application (75" travel).

CASE EXAMPLE 1

Modified Belt-Drive Scissor Lifts Eliminate Excessive Maintenance in Food & Beverage Pallet Transfer Application

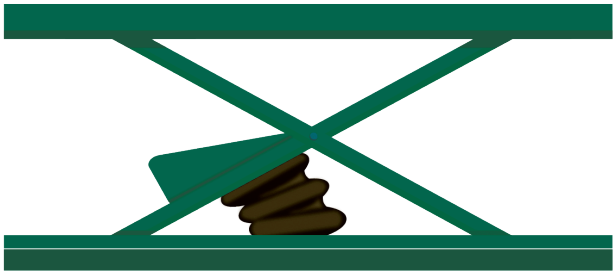
CUSTOMER / APPLICATION:

A major food & beverage manufacturer needed to raise pallets from one conveyor for transfer to a second line. Their system relied on standard scissor-actuated air bag lifts.

CHALLENGE:

The originally specified lifts created ongoing reliability and safety issues, including:

- *Side thrusts and instability:* The lack of a 1:1 lift ratio caused scissor side thrusts, vibration, and load stability concerns at the top of travel.
- *Floor damage:* Continuous vibration at mounting points led to cracking in the concrete floor.
- *Premature wear:* Bearing hubs were wearing out quickly, driving frequent maintenance.
- *Air bag degradation:* Lubricated compressed air wasn't allowed in a food environment, so the lift's air bags dried out and required regular replacement.
- *Limited alternatives:* Hydraulic lifts were ruled out due to the risk of oil contamination.



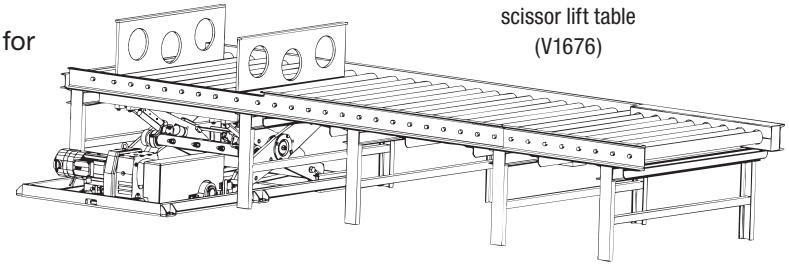
Standard scissor-actuated air bag lift

SOLUTION:

EnKon engineers adapted a proven Vertical Robot motor-driven belt-drive scissor lift design to eliminate these issues, incorporating:

- **An aggressive 11" lowered height** with optimized motor placement to fit beneath the existing conveyor line.
- **Custom top-plate tooling** to stabilize pallets during transfer and integrate seamlessly with conveyor/gantry equipment.
- **Food-safe, non-enamel coating** to prevent contamination.
- **Fully electric power** — removing the need for hydraulics or lubricated air.
- **Redundant drive belts,** each capable of carrying the full 3,500 lb. load.

Food & beverage conveyor transfer belt-drive scissor lift table (V1676)



OUTCOME:

After installation of four EnKon lifts:

- More machine uptime and higher production rates were achieved.
- Smooth lifting motion removed vibration, instability, and floor damage.
- The customer immediately scheduled four additional units for a facility expansion-doubling output for this product line.

CASE EXAMPLE 2

Tailored Lift Eliminates Offset Loading Safety Concern in Automotive Conveyor Transfer Application

CUSTOMER / APPLICATION:

A leading automotive manufacturer used a 2-scissor belt-drive lift to build four-pallet stacks from an incoming conveyor and transfer them to a second conveyor.

CHALLENGE:

Each pallet weighed up to 1,450 lbs., creating a total stack of more than 6,000 lbs. The load was frequently offset, depending on how previous operations positioned the pallets. This caused the lift's top plate to tilt sideways, resulting in:

- *Safety concerns from unstable stacked loads.*
- *Mechanical stress and premature wear on the lift.*
- *Risk of unplanned downtime, which would halt the entire assembly line.*

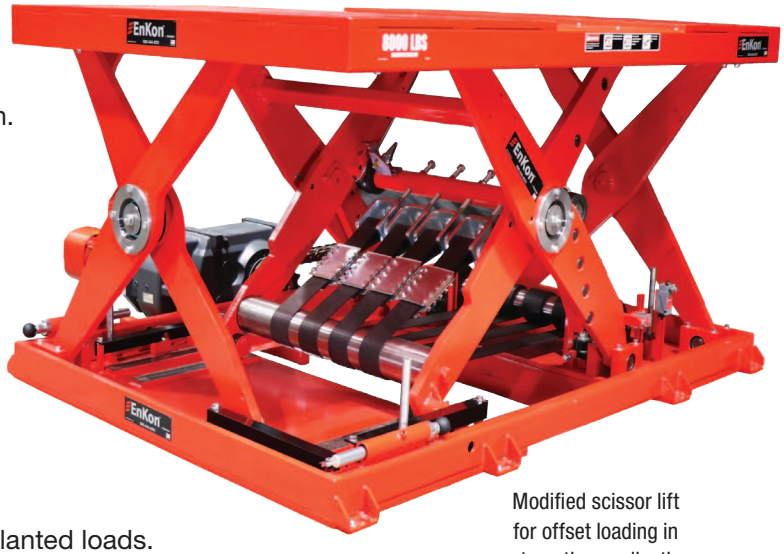
With an expected 400,000 cycles per year, the lift needed both durability and reliability.

SOLUTION:

EnKon engineers reinforced the proven **Vertical Robot belt-drive scissor lift** design to handle this demanding application.

Modifications included:

- **A 4-scissor configuration** to support offset loading and prevent top plate deflection.
- Retention of **belt-drive construction,** proven to withstand both the heavy load and high cycle requirements.



Modified scissor lift for offset loading in automotive application (V1690)

OUTCOME:

The tailored 4-scissor lift:

- Eliminated safety risks associated with slanted loads.
- Maintained stable, level operation across all pallet configurations.
- Delivered the reliability required for continuous assembly line uptime, meeting both load and cycle demands.

> Every facility has unique challenges, and standard lifts can't always get the job done. At EnKon, we work closely with customers to adapt proven designs into tailored solutions—whether it's offset loads, high-cycle duty, or tight footprints. That problem-solving approach is why manufacturers trust our lifts in their most critical operations.

Dereck Mashburn

Sales Director, Herkules Equipment Corporation

CASE EXAMPLE 3

Belt-Drive Scissor Lifts Solve Excessive Downtime in Automotive Door Load & Unload Operation for a Robotic Weld Cell

CUSTOMER / APPLICATION:

An automotive manufacturer relied on hydraulic scissor lifts to load and unload doors into a robotic weld cell.

CHALLENGE:

The application demanded high throughput and reliability, but the hydraulic lifts fell short:

- *Added stress:* A roller-top conveyor mounted on the lifts placed additional strain on components during load transfer.
- *High duty cycle:* The required 250,000 cycles/year exceeded the capability of the hydraulic design.
- *Frequent maintenance:* Lifts required service every three months—or sooner—causing unacceptable downtime in a critical weld cell.
- *Application requirements:* Capacity of 2,000+ lbs., 56" of travel, and a compact 11" lowered height.

SOLUTION:

EnKon engineers adapted a proven high-travel Vertical Robot belt-drive scissor lift to deliver a durable, low-maintenance alternative.

High-travel belt-drive scissor lift configured for robotic weld cell loading/unloading (V1665)

Key modifications included:

- **A left-hand and right-hand version,** with motors placed on opposite sides to fit available space at both the load and unload positions.
- **A maintenance hatch** in the top plate, allowing access to internal components without removing the lift from the weld cell.
- Structural configuration capable of **up to 1 million cycles/year,** more than 10 times the cycle life of the hydraulic lifts.
- **Replace-in-place design —** bolt-on components allow fast, in-area replacement, eliminating the need to remove the lift system for service.

OUTCOME:

The engineered EnKon belt-drive lifts provided:

- Reliable performance within the tight application footprint.
- Smooth, consistent operation at the required duty cycle.
- Minimized downtime through simplified maintenance access and long-life components.

FLAT BELTS: A Proven Innovation in Scissor Lift Technology

Steel-reinforced flat belts have delivered reliable, high-performance operation in demanding industrial applications for decades.

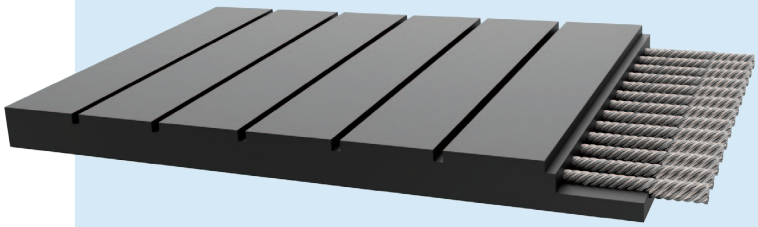
As a leader in tackling the scissor lift industry's toughest challenges, Herkules has been installing electric-powered, belt-driven EnKon scissor lifts in high-production manufacturing plants for over 20 years – consistently meeting extreme performance and durability requirements.

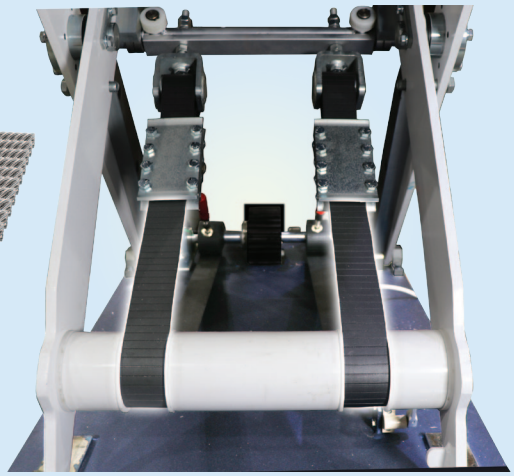
MAXIMUM SAFETY

- **Dual-belt redundancy** ensures continuous operation and enhanced safety.
- **Full-load rated belts —** each belt can independently support the lift's maximum capacity.
- **Position retention —** unlike hydraulic lifts, belt-driven tables maintain their load position over time, and the load will not drop even in the unlikely event of a belt failure.

ROBUST CONSTRUCTION

- **Wide temperature range:** reliable performance from -30°C and +80°C.
- **Durable polyurethane belts** designed for industrial wear and longevity.
- **High-strength aerospace steel cable reinforcement** for superior load handling.
- **Precision-engineered steel cables,** specially wound, tuned, and balanced for optimal flat belt operation.





Enkon's electric-powered, belt-driven scissor lifts consistently perform to extreme specifications in high-production manufacturing plants.

HOW TO DECIDE: Standard Vs. Configurable Enkon Lift

When evaluating whether a standard lift is sufficient, consider these questions:

- Will the lift have offset loading?
- Will the lift experience impact loading?
- Is the lift being retrofit into a tight space with a high capacity?
- Is automation or integration with other equipment required?
- Will the lift run at higher-than-average frequency or capacity?
- Is uptime of the lift critical to your bottom line?

If you answer “yes” to any of these, a configured EnKon lift may provide a better long-term ROI than an off-the-shelf unit.

CONCLUSION

Choosing between a standard and an application-tailored lift doesn’t have to mean choosing between commodity pricing and expensive custom builds. With thousands of proven EnKon designs, Herkules delivers scissor lifts that fit your operation — balancing cost, reliability, and performance.

EnKon: Proven designs. Configured to fit. Built to last.

EnKon™ by herkules™

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