

A photograph of a yellow industrial lift in a warehouse setting. The lift is positioned in front of a blue metal structure. In the background, there are wooden pallets stacked on a rack. The text "INDUSTRIAL LIFTS GUIDE" is overlaid on the image in a large, bold, white and yellow font.

# INDUSTRIAL LIFTS GUIDE

 Cisco-Eagle

shop talk

## SAFE, ERGONOMIC LIFTING

[cisco-eagle.com/lifts](https://cisco-eagle.com/lifts)

# ERGONOMICS+EFFICIENCY



“Ergonomics is a big deal when heavy loads like pallets, crates, bins of metal parts, motors and work-in-process items must be lifted, rotated or moved. Finding ways to identify and reduce forceful exertions helps reduce injuries and increase productivity. There are many options, including lift tables, stackers, cranes, hoists, balancers and more. Whatever you’re dealing with, we can help you design ways to handle it better.”

—Christine, Employee-Owner Since 2003  
Account Executive

shop**talk**

Visit [www.cisco-eagle.com/guides](http://www.cisco-eagle.com/guides) for many other material handling & safety guidebooks



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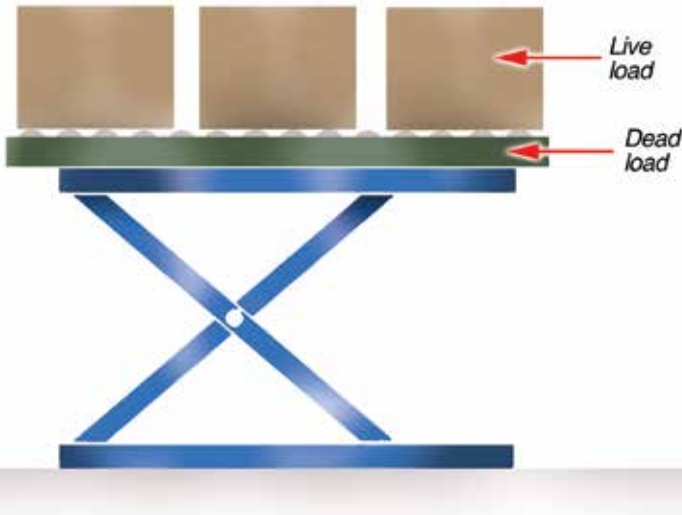
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# LIFT TABLE SPECIFICATION

## Lift Table Capacities

The capacity of a scissor lift is the total weight being placed on it, defined in two parts: **total live load + total dead load**.



### Total live load:

Live loads are the things you consider the “load”—boxes, motors, containers, bins. You’ll need to know the total maximum weight of your full load and of each individual unit. Also note if the load is unbalanced or has an irregular configuration.

### Total dead load:

The “dead load” is the weight of fixtures permanently mounted on a lift table—scales, conveyors, ball transfers, etc. Note how these items will be mounted on and supported by the lift so that deflection or potential twisting can be evaluated. Any unbalanced loads should be noted.

## Load characteristics

The nature of the load needs to be defined to ensure reliable performance and longevity. This may include:

- Physical dimensions
- What it consists of (boxes, components, bins, sheets)
- Weights (live load + dead load = total load)
- Center of gravity



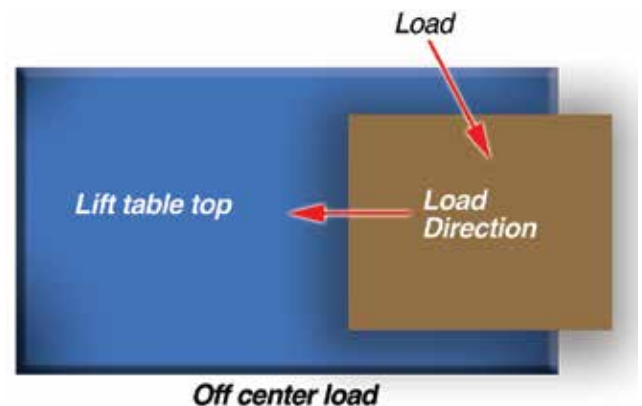
## LIFTS: SPECS & MORE

Browse our extensive website with videos, specification assistance, and hundreds of detailed scissor lift options.

## Center of Gravity

If not properly handled, off-centered loads reduce lift life because they put severe demands on a structure. The critical information is where the center of gravity of the load will be in relation to the center of the platform when the lift is moving.

The center of gravity of a load should be placed in the center of the platform. If the lift is moving while no more than half of the load sits on half the platform, there can be undue stress.



Forklift counterbalance weights and oil filled transformers are examples of severely off center loads—even when they’re centered on platforms. Off-center loads due to loading or unloading are discussed below. We can help you engineer a lift that handles unbalanced, off-center loads if all the factors are understood in advance.

# LIFT TABLE SPECIFICATION

## Loading Transition Methods

The way loads are transitioned on and off a lift is critical. These movements determine the impacts the structure must sustain.

**When analyzing loading method, consider these factors:**

- Friction and impact
- Horizontal impact against stops
- Incremental layers (each load increment is a percentage of both the total lifting capacity and the edge load rating)
- Load footprint relative to overall/minimum platform size
- The load's center of gravity relative to minimum platform size

### Side loading vs. end loading

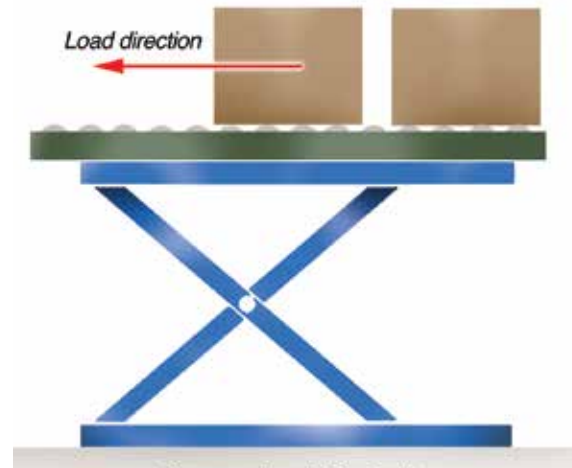
Most scissor lifts are stronger over the ends than over the sides. If possible, load over the ends when the legs aren't fully closed.

### Rolled on/rolled off: with a wheeled vehicle or cart



If you're rolling a double-axle cart or pallet jack with an even load onto the lift, the load is split 50/50 as the first axle rolls onto the table top. A single axle load, such as a large roll on a hand truck, places 100% of the load in one spot directly on the lift. A heavy and loaded forklift—as occurs in dock lift applications—radically splits the load, as much as 80 to 90% depending on the counterweight. Rolled-on loads will challenge the lift and require careful consideration.

### Slide on/slide off: sheet feeding or conveyors

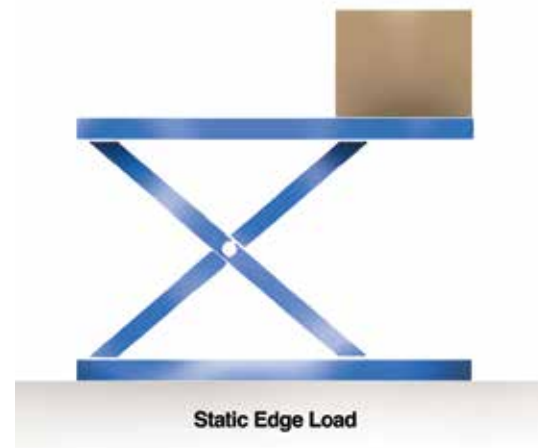


Sliding loads onto an open lift can put stress on the structure. These can be full loads directly onto a platform, full loads onto conveyor and partial loads (like sheets) onto either.

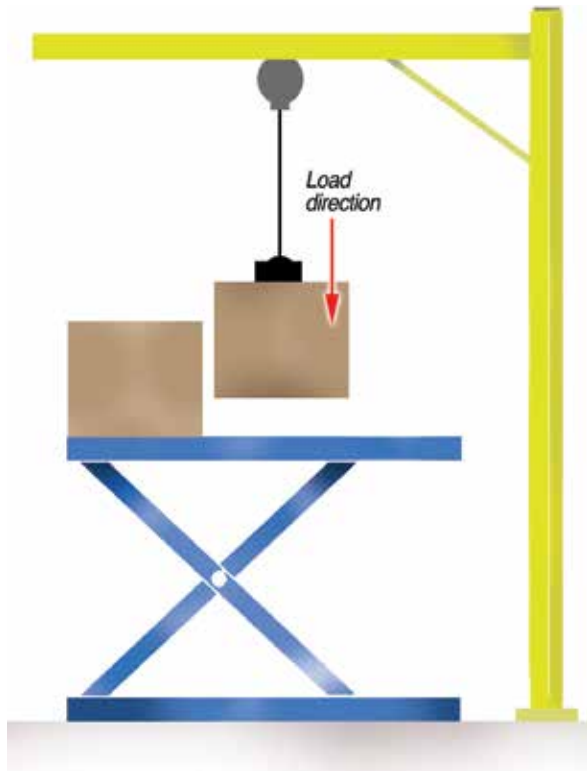
**Sliding loads (conveyor top):** When a load rolls onto a conveyor, it's less impactful on the lift than a rolling axle. The end conveyor roller and platform edge don't bear the full weight of the load because of deflection within the lift mechanism.

**Sliding loads (platform):** In the case of a heavy load being slid onto a platform, impact and edge loading requirements may be the deciding factor in lift selection.

**Partial loads:** In the case of subtle incremental loads such as sliding sheets onto a unit, edge loading and impact are trivial.



# LIFT TABLE SPECIFICATION



## Placed on/picked off: stacking or crane loading

Some loading operations—like stacking layers of boxes by hand—impose little impact and no edge loading stress. Vertical loading with a crane is no-edge loading, but may impact the lift. For maximum capacity loads, lower the load at no more than 17 feet per second to produce minimal impact on the platform. Speeds higher than that may damage cylinder packings, hoses or structure. The slower the rate of vertical impact the better.

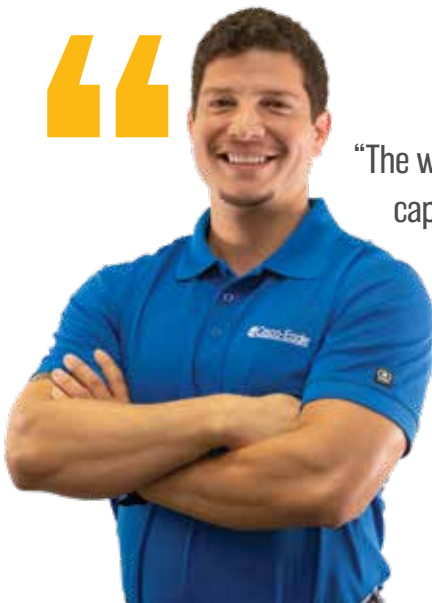
## Platform Size Considerations

The “static” edge load capacity of oversized platforms must be reduced because the oversize platform overhang becomes a lever, increasing force on legs; a 2% reduction per inch of increased platform width and length above the recommended minimums. A lift with a 24”x48” minimum top equipped with a 48”x54” platform sees its capacity reduced by 12%.

Standard lifts have a range of platform sizes. As mentioned above, larger platform sizes may reduce capacities and stress components unless engineered for that bigger platform.

## A Look at Edge Loading

When the load rests on one side of the platform, you’re edge loading. This is tough on lifts, especially when in a raised position. When lowered, the frame, cylinders and legs are fully supported. A maximum capacity load may pass over the edge of a minimum size platform of a fully lowered lift with little concern. If the platform is larger than minimum, then proper supports to prevent potential deflecting or bending must be added.



“The way you load a lift table might reduce its weight bearing capacity. If you’re sliding or driving loads on from the ends (you shouldn’t load on the sides), it’s unbalanced and the lift must be rated for the stress. If you’re lowering a load on with a hoist, your lift capacity shouldn’t be affected, but distributing the load evenly is always a good idea.”

—Devin, Employee-Owner Since 2019  
Account Executive

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# LIFT TABLE SPECIFICATION

## Mobile Lift Tables



Lifts can be ordered mobile or stationary. This choice is entirely dependent on applications.

### Mobile lift applications

Mobile lift tables are used in assembly and repair operations due to their flexibility—move them where you want in applications from printing to assembly to pallet breakdown. They're great for flexible production operations, lean manufacturing lines or work cells where you need to both lift and move a load.

### More mobile lift factors

- Most mobile tables are manually or battery powered.
- Capacities tend to be lower than those of stationary lifts, which can be built much heavier and with high-duty motors and pneumatics to lift very heavy loads.
- Mobile lifts are more carefully engineered. Parts of the structure—such as the base frame—must be load-bearing. If the lift is designed to move while loaded, it must be built to tolerate that type of force on the structure.
- If a lower profile is needed, mobile lifts aren't a good choice. They're mounted on wheels, which creates extra height.
- Mobile lifts are good for areas where there may be more frequent changes to the work process.
- Mobile lifts don't offer as many options as stationary ones. They have fewer standard top sizes. Options such as scales, conveyors or turntable tops are less diverse.

## Lifting Speed Factors

### How is lifting speed defined?

Lift speed refers to the time in seconds it takes for a lift table to reach its maximum height from a collapsed position or lower from maximum to closed. Most applications work fine within standard lifting speeds, which ranges from approximately 15 to 82 seconds depending on lift height and motor.

Very tall lift tables—like the double-high model to the right—require even more horsepower.



### Lifts require more horsepower for higher travel speeds

If your lift has internal power, you may need to add an external motor to increase horsepower to lift faster. As horsepower and cost increase, so do the costs of things like electrical controls, hydraulic pumps and valves.

### Capacity and deceleration

For safety, lifts must be able to extend at maximum speed while fully loaded. It should also be designed to decelerate when it reaches the top of its cycle to prevent jolting and load shake.



# LIFT TABLE SPECIFICATION



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“When specifying a scissor lift, you’ll need to know the following:  
What the load consists of: Is it a multi-part load (pallet and cartons, for instance), or a single piece? The size of the load: You’ll need all its dimensions (height, width, depth). Load component weights:  
What’s the total weight, and the weight of each component? The load’s center of gravity:  
Off-center loads can reduce lift life if not properly handled. They put more demands on a structure than simple lifting effort.”

—Lance, Employee Owner Since 2019  
Sales Director



For videos and more, visit [www.cisco-eagle.com/lift-tables](http://www.cisco-eagle.com/lift-tables)

## Vertical Travel

Vertical travel is the up/down distance your lift moves from fully closed to its maximum height. Setting the height should focus on ergonomics—how will people interact with the load? Depending on your application, you’ll be able to find a range in most standard lift models with custom options available.



## Lowered Height

Standard lowered heights range from 6.5” to 10”. For lower heights, low profile surface-mounted (as low as 2.9”) and pit mounted lifts (ground-level) are available, as well as ramps so that loads can be rolled or driven onto the platform.

Pit-mounted lifts must have beveled platform edges or electromechanical toe guards to meet to OSHA recommendations.

## Power Supply

Choosing the right power source depends on the type of movements your lift needs to make.

1. Full-stroke movement: continuous lifts up or down
2. Partial movement: incremental “jogs” up or down

It’s important to know the time intervals between operations and the direction and size of movement in each operational increment.

### Partial movement

Short movements in quick intervals may require a special power unit. Most lifts can handle downward movements, but when the lift moves up, standard motors might overheat.

### Full-stroke movement

Full-stroke applications are easier on power units. Check the sequence against the rule of thumb: 11 seconds off for every 1 second on when loaded. Most applications seldom see full loads. If overheating is an issue, consider a continuous running power unit or consult us for other power options.

### Manual scissor lift tables

These lifts are manually pumped to raise and lower, often with a foot or hand pump. They’re often portable and used for lighter duty loads.



# DOCK LIFT SPECIFICATION

“



“Accept nearly any kind of vehicle at your facility with a dock lift. Dock lifts let you load or unload almost any type of truck no matter the height of your dock or the trailer. They let you handle palletized heavy loads when there isn’t a dock at all or when the dock is too high or too low. Because they match elevations, they make truck loading safer, more ergonomic and faster.”

—Rodney, Employee-Owner Since 2013  
Sales Director

”

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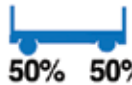

## Surface vs. Pit-Mounted

### Surface mounted lifts

Surface mount lifts can be installed on any flat concrete slab. They don’t require pit construction, which reduces costs and avoids drainage issues. It’s easy to move the lift if you need to—just unbolt it and go. Capacities range from 4,000 to 15,000 pounds with platform sizes from 6’ x 6’ up to 8’ x 12’. They’re more expensive than pit-mounted options, but the cost of building a pit must be factored in.

### Pit-mounted lifts

The most important advantage of pit-mounted (or recessed) lifts is that they’re flush to the surface and aren’t obstacles drivers have to drive over or around. Surface mounted lifts require a ramp that works well for unloading, but can be difficult for loading heavy cargo. They handle heavy loads up to 20,000 pounds and allow level loading at both the truck and ground levels. When mounted within the face of the dock, they provide easy dock-to-ground access. They’re less expensive than surface mounted lifts, but require a pit that must be built and maintained.

4-wheel carts & pallet jacks	Walkies & stackers	Forklifts	Hand trucks or rolls
 50% 50%	 30-40% 60-70%	 80-90% 10-20%	 100%
 50% 50%			 100%

## Capacities

- To determine overall **lifting capacity**, add the weight of your heaviest load to the weight of your loading vehicle and the weight of the driver/operator.
- **Axle capacity** is the amount of weight focused on the part of the vehicle that bears the most weight. Powered pallet jacks and stackers often concentrate 60% of the combined load on on their rear axle. Forklifts concentrate 80% to 90% of their payload on the front axle.
- **Roll-over capacity** applies only to pit-mounted dock lifts and refers to the maximum axle load allowed for vehicles driving over a fully-lowered lift. Most pit-mounted lifts are rated for 10,000 pounds at slow drive-over speeds. This is usually more than adequate because of state mandated limits on truck axle loads, but may be an issue with some high-capacity forklifts or other specialty vehicles.



# DOCK LIFT SPECIFICATION



## Platform Size

Platform dimensions depend on your truck loading equipment.

- For 4-wheel carts or hand trucks, use 6' platforms
- For manual pallet jacks, 8' platform lengths are minimum
- Powered pallet jacks and straddle stackers: 10' lengths
- Forklifts require 10' to 12' platforms

These size ranges cover 99% of all applications and are available as standards in both surface and pit-mounted lifts.

## Power Units & Controls

### Controls

For safety reasons, up-down controls must be controlled by the operator riding on the lift. NEMA 4 pushbuttons are standard, usually mounted on straight or coil cords. Longer cords can be connected to boxes inside secure buildings or mounted with twist lock plugs so they can be stored in secure areas. In other instances the hand held controls are replaced with key lock pushbuttons that are mounted on the platforms. Limit switches may be added to cause the lift to stop at fixed dock heights.

### Power units

Power units on surface-mounted lifts are usually mounted on the lifts and covered with weather protection. Recessed lifts typically have remote power units that are mounted inside buildings.

### What types of trucks will use your dock?

Dock levelers have a 39" to 54" approximate working range. Dock lifts are more versatile, offering a range of zero to 58", meaning you can serve basically any truck. Consider the truck bed height ranges you can encounter with various trucks:

- Panel trucks: 22" to 28"
- Pickup trucks and step vans: 24" to 30"
- High cube vans: 24" to 40"
- City delivery trucks: 34" to 48"
- Semi trailer trucks: 42" to 58"

Many facilities may see all of the above (and probably a smattering of other) truck types, so the flexibility to load and unload at any height is increasingly valuable.



# TILTING LIFTS



**Tall  
Vertical**



**Short  
Vertical**



**Long  
Horizontal**



**Short  
Horizontal**



**Small  
Random**



**Small  
Organized**

## Containers and ergonomics

Tilters make parts easier and more ergonomic to pick. They tilt loads at varying angles to improve access for assembly and picking. They reduce bending, stretching and reaching—which is desirable when workers pick heavy parts from a container. Most tilters let the operator adjust the tilt as the load shifts.

Aside from ergonomics, tilters increase efficiency and speed. Lifts are built in mobile and stationary variations, with forks or incline table tops to accommodate various container types.

## Classifying container loads

Containers of smaller size are more easily accessible. Some larger containers have accessible drop gates.

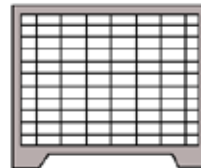
Container loads can be broadly classified into tall, short, large and small. Those loads can be then further categorized as vertical, horizontal or random. These broad categories cannot fit every load or situation, but the majority of container loads should fit within these broad load descriptions. The size and shape of these loads can be challenging for pickers, which is where a tilter lift can come into play to increase ergonomics.

## Load examples

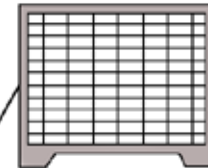
Tall vertical loads include tubes, pipes, bars, rods and similar parts 18" + standing on end at container bottom. Short vertical loads are typically less than 18" tall. Horizontal loads can be bars, pipes, rods, etc. Long loads occupy the majority of container bottoms. Organized small loads are stacked or placed squarely (like cartons). Random small loads are tossed into the container with little or no organization.

The lift you need depends on the load and what you're lifting. Larger, heavier loads require a different container and lift combination than smaller, loose ones. When tilted, these load types will all move differently in the container.

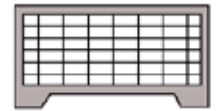
## Container types



**Large**



**Large/Drop Gate**



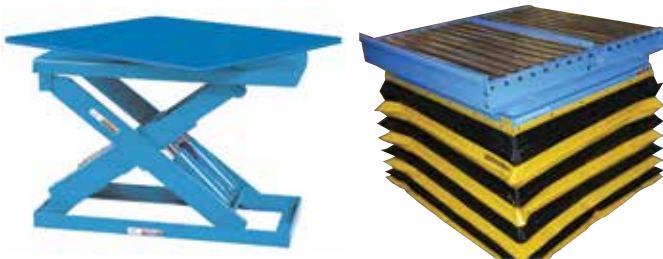
**Small/Shallow**



# PALLET HANDLING LIFTS

## Pallet positioners make loading/unloading pallets easier and more ergonomic

Pallet positioners help you build or break down pallet loads with a minimum of bending, reaching, stretching or walking. Positioners automatically adjust the height of pallets as boxes are added or removed. They position the lift for the operator to either load or unload it at the ideal ergonomic work height. Rotating platforms place the load right where it's needed. Spring-loaded, hydraulic and pneumatic models available with capacities up to 4,500 pounds.



## Scissor lifts with turntable and conveyor tops

Turntables and conveyors bring ergonomics and high productivity when added to a scissor lift. Whether powered or manual, they adjust to let operators position loads for optimum picking and ergonomic positions to minimize bending, reaching, stretching and walking.



"Pallet handling is a challenge for most every manufacturing plant and warehouse. A lot of times, people get pallet transport right—with pallet trucks, conveyors or pallet jacks—but handling, when people interact with the pallet and its load, is harder and more complex. To bridge the gap between transport and handling, consider positioning devices like turntables to increase speed and reduce poor ergonomic movements."

—Kevin, Employee-Owner since 2017  
Systems Integration

shop **talk**



For complete pallet handling information, visit [www.cisco-eagle.com/pallethandling](http://www.cisco-eagle.com/pallethandling)

## The UniLift lifts handles pallets without straddling

Handles loads up to 2,000 pounds and reaches an unloaded height up to 36". Powered by a 24-VDC battery system and an on-board, automatic charger. It features electro-mechanical outrigger actuation with position sensors. Operators use convenient buttons that raise and lower forks. Compatible with standard GMA/CHP pallets or skids.



## Handle pallets without switching between pallet jack and lift table with mobile pallet handlers

Transport and lift pallets up to 31.5" on the same device. This reduces worker strain and potential injuries. Ergonomic pull/lift handle has four options for lifting and transporting items: Lift, QuickLift, Neutral, and Lower. Capacity: 3,300 lbs. up to 18.5"; 2,200 lbs. from 18.5"-31.5".





# STACKERS & SPECIALTY LIFTS

## Stackers: Manual & Power

Stackers are ideal for operations where a pallets must be raised, lowered and transported, but a forklift is either impractical or undesirable. A good alternative for unloading and loading trucks at facilities that do not have a loading dock.

**Portable powered stackers:** Narrow footprint for smaller spaces like packing & shipping areas. Operates on 12V batteries and can be folded up for storage when not in use. The platform is suitable as a work positioner.

**Manually operated stackers:** A good choice for loads up to 1,000 pounds. The lift is foot pump actuated and can use both platforms and forks. Lift height up to 65" allows for lifting light pallets into pick positions.

**Counterweight stackers:** Lift from 62" to 74" high. Able to handle pallets, these stackers can lift full loads to higher levels because of their counterweight design.

**Powered stackers:** Ergonomic controls provide visibility when loading and positioning. Capacities from 1,500 to 3,000 pounds. Lift heights range from 62" to 150".

**Non-straddling stackers:** Handles standard GMA pallets and skids with a capacity up to 2,000 pounds and 34" lift height. Great for transporting and lifting closed bottom pallets.



For complete pallet handling information, visit [www.cisco-eagle.com/stackers](http://www.cisco-eagle.com/stackers)



“Why is it a good idea to use fewer forklifts? Powered industrial trucks ranked sixth for OSHA violations in the most recent data, and they’re always near the top. They cause about 100 deaths and tens of thousands of serious injuries in the U.S. every year. Can you really make a warehouse forklift-free, as many EHS experts recommend? Maybe not. You can minimize forklifts and remove them the most dangerous pedestrian areas. We can help you find ways with a variety of lifts, stackers, transport carts, conveyors and more.”

—Jeremy, Employee-Owner since 2006  
Ecommerce Manager

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# SPECIFY YOUR LIFT

Email to [24hours@cisco-eagle.com](mailto:24hours@cisco-eagle.com) or fax to 972-406-9577. Skip questions you can't answer.

## About you

Name: \_\_\_\_\_

Company: \_\_\_\_\_

Phone: \_\_\_\_\_

Email: \_\_\_\_\_



## Load details

# of Lifts: \_\_\_\_\_ Cycles per day: \_\_\_\_\_ Load weight: \_\_\_\_\_

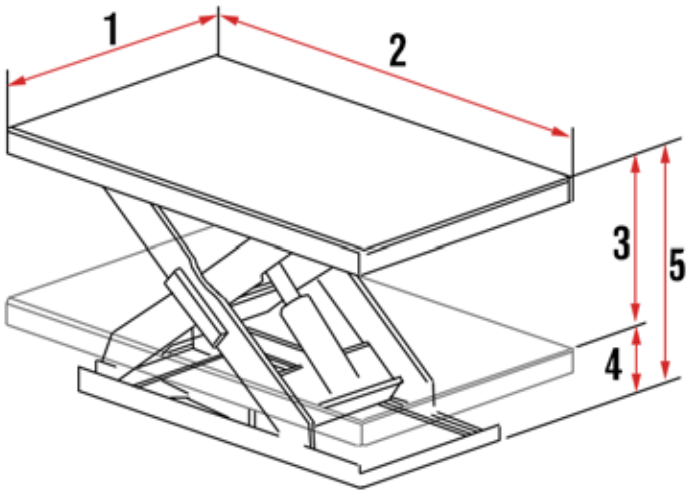
## Loading method:

☐ Manual (stacking) ☐ Manual (sliding) ☐ Forklift ☐ Conveyor

☐ Crane ☐ Hand truck or rolled ☐ Pallet jack

☐ Other (describe): \_\_\_\_\_

## Lift details (inches)



Width (1): \_\_\_\_\_ Length (2): \_\_\_\_\_ Vertical travel (3): \_\_\_\_\_

Lowered height (4): \_\_\_\_\_ Raised height (5): \_\_\_\_\_

## Lift mounting

☐ Surface ☐ Pit ☐ Mobile ☐ Other: \_\_\_\_\_

Power: ☐ 3-Phase 230V, 60Hz ☐ 3-Phase 460V, 60Hz

☐ 1-Phase 115V, 60Hz ☐ 1-Phase 230V, 60Hz

☐ Other: \_\_\_\_\_

## Controls

☐ Pendant button ☐ Wall-mount button ☐ Foot switch

☐ Other: \_\_\_\_\_

Control enclosure: ☐ Standard duty ☐ Rain/waterproof ☐ Oil tight

☐ Other (describe): \_\_\_\_\_

## Options

☐ Turntable ☐ Accordion skirt ☐ Conveyor ☐ Handrails ☐ Conveyor

☐ Scale ☐ V-deck ☐ Toe guard ☐ Shuttle deck ☐ Tread plate

☐ Other (describe): \_\_\_\_\_

## Application description:

(Note type of desired lift, operating environment, and the way the lift will be used).



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888.877.3861 toll-free

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