

# Vertical Lift System (VLS)

Industrial Storage Systems for efficient processing  
in industry and distribution



*For more information scan the QR code*

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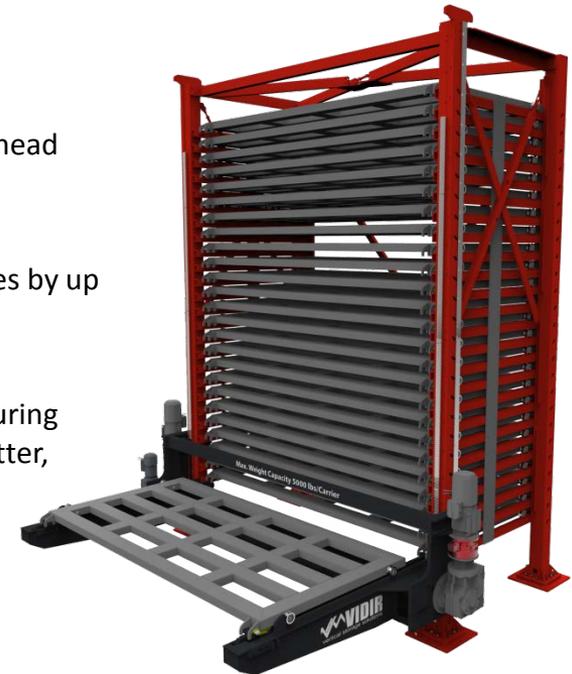


## Vertical Lift

Vidir's Vertical Lift System (VLS) is an automated storage and retrieval system (AS/AR) that utilizes an elevator to climb the front of the tower to deposit and retrieve pallets / drawers weighing up to 5,000 lbs. and deliver them directly to ground level for further processing, increasing material storage and flow.

### Value Added

- Saves floor space by utilizing overhead space
- Increases workplace safety
- Reduces material changeover times by up to 75%
- Prevents material damage
- Eliminates the need for forklifts during standard operation (operator, spotter, forklift)
- Reduces disruption in adjacent work cells
- Quick access to material



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The Industrial Truck Association states that over 11 percent of all forklifts are involved in some type of accident each year. OSHA statistics indicate that there are approximately 85 forklift fatalities annually in the United States plus an additional 34,900 serious forklift injuries, and 61,800 forklift injuries classified as non-serious. According to OSHA, 42 percent of forklift fatalities occur in manufacturing, and almost half of those deaths are caused by the forklift tipping because of unstable loads. To reduce the possibility of this happening, OSHA recommends keeping the forklift load as low as possible. However, this is not feasible when utilizing forklifts to manipulate material 14 feet above the floor to retrieve material from stationary storage racks.

Metalworking manufacturing operations that implement effective safety and health management systems may expect to significantly reduce injuries and illnesses, and reduce the costs associated, including workers' compensation payments, medical expenses, and lost productivity. In addition, such manufacturers often find that process and other changes made to improve workplace safety and health may result in significant improvements to their organization's productivity and profitability.

## Vidir's VLS is designed to a safety standard of SIL3 / CAT4 / PL e



Vidir's VLS will store and retrieve material, utilizing available overhead space and deliver product to ground level for further processing and integration with production machines.

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## Applications

The Vertical Lift is successful in small to medium organizations that carry inventory in sheets of metal, fiberglass, plywood, composites, and other flat materials as well as long span goods such as bar stock, pipes, beams, and materials with lengths up to 24 feet.

Vidir's VLS drawers can also accept custom inserts to accommodate materials of varying width, height, and depth such as Press Brake Dies.

## What should you look for?

- Buildings with high ceilings
- Stationary storage racks
- Pallets stored on the floor
- High forklift traffic
- Limited expansion space
- Storage that is disrupting work in the vicinity
- Processing machines with disconnected storage.



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Before | After



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## Case Study

A single Sheet Metal VLS was integrated into a production environment feeding two sheet lasers. The system fit into a building with an available ceiling height of 22' with 25 positions at 5" spacing replacing 3 stationary storage racks saving 72.5 ft<sup>2</sup> of production real estate.

The VLS was implemented to address safety concerns with retrieving 5,000 lb pallets of sheet metal stored 10' in the air, by forklift, in a major corridor. The VLS eliminated the use of forklifts from operational changeovers and significantly cut disruption in adjacent work cells and from passing traffic.

The system reduced material changeovers from 15 minutes to 3 minutes and with an average of 5 material changes in an 8 hour shift eliminated 60 minutes worth of forklift, spotter, and operator time.

The facility was moving approximately 32 pallets of sheet metal per month with the bottom sheet consistently sustaining damage from forklift handling, averaging \$30,000 in damaged material annually. This cost was completely eliminated.



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## The VLS at a Glance:

- **Controls:** Automatic controls featuring pallets / drawer selection
- **Emergency Stops:** Located left and right of the tower
- **Overload Sensing:** Lift returns to the home position when activated
- **Access Restriction:** Fencing around the perimeter and light curtains prevents access during operation
- **Braking System:** Features a process brake and redundant brake engaged with the safety system
- **Position Safety:** Each pallet / drawer is individually locked in place until released by the elevator
- **Motors:** 2 x SEW KAF87 5HP motors & 1 x SEW KAF47 ¼ HP
- **Safety System:** Designed to SIL3 / CAT4 / PL e
- **cCSAus mark**
- 2 Year Manufacturers Warranty



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## De-palletizing Sheet Metal

De-palletizing sheet metal can be painlessly accomplished by one of two methods. The preferred method, which provides the greatest ease of handling and protects the sheet metal surface from damage, is to provide custom pallets to your sheet metal provider (figure 2.)

The alternative is to request your sheet metal provider to supply sheet metal blocked up and banded together (figure 1.)



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## VLS Cart Configurations



Fixed Loading Table – stationary table that sits directly underneath the elevator. A fork truck can load material directly onto the pegs and the elevator will lift the material into position.

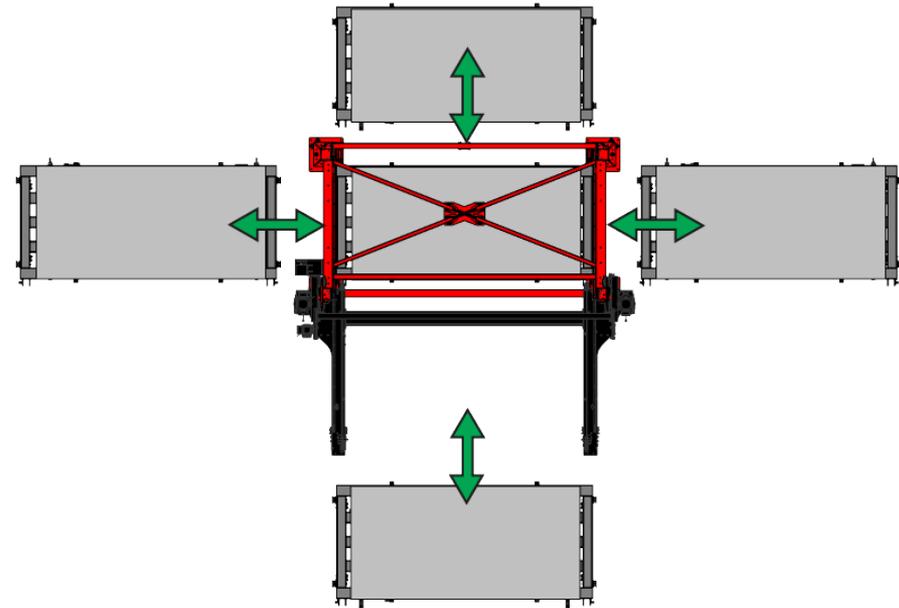


Self Propelled Longitudinal input/output Station – cart that travels forward/reverse in front of the VLS to either receive material or feed sheet lasers. Features a zero corner for automated pickup by production machines.



Self Propelled Lateral Input Station – cart that can access the VLS from either side or the rear. Can travel up to 30' and features retractable pegs for ease of use with fork trucks and a zero corner for automated pickup by production machines.

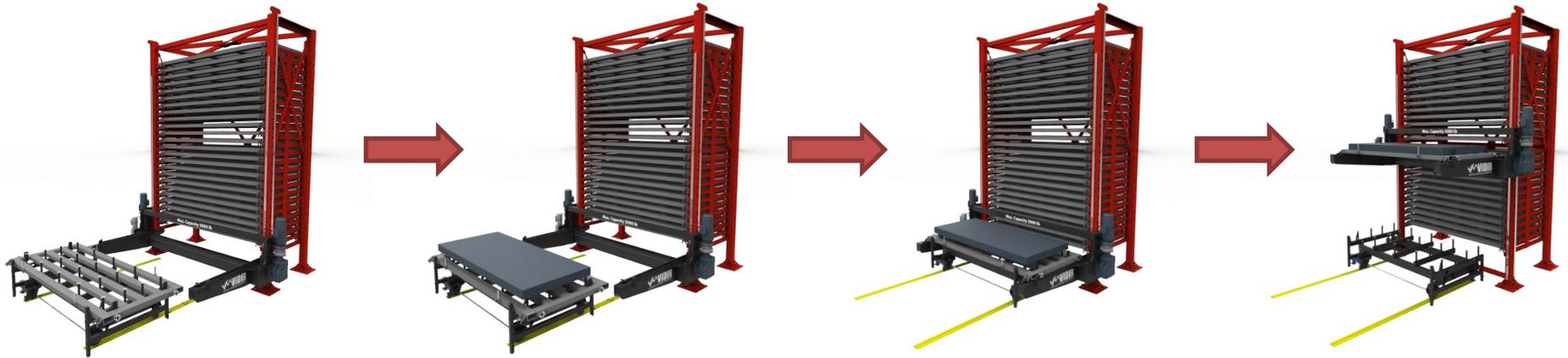
## VLS Access Points



Vidir's Vertical Lift System allows for up to 2 carts per lift and access from all 4 sides. The lift can be used to transfer material from one cart to another.

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## VLS Cart Loading Instructions



1. Place an empty pallet on the loading table/cart. If required, direct the pallet and cart in the necessary direction to the desired loading position.

2. Load the flat material onto the loading table/cart. The material will rest approx. 5" above the pallet on protruding fingers properly spaced to allow access via fork truck.

3. Move the cart to the home position. The elevator will then lift the pallet 5" until the material is resting on the pallet and then continue to lift both the pallet and material.

4. Direct the VLS where to put the material. The Vertical Lift can either store the material, feed production machines, or transfer the pallet to another cart.

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## Vertical Lift System (VLS) Specifications

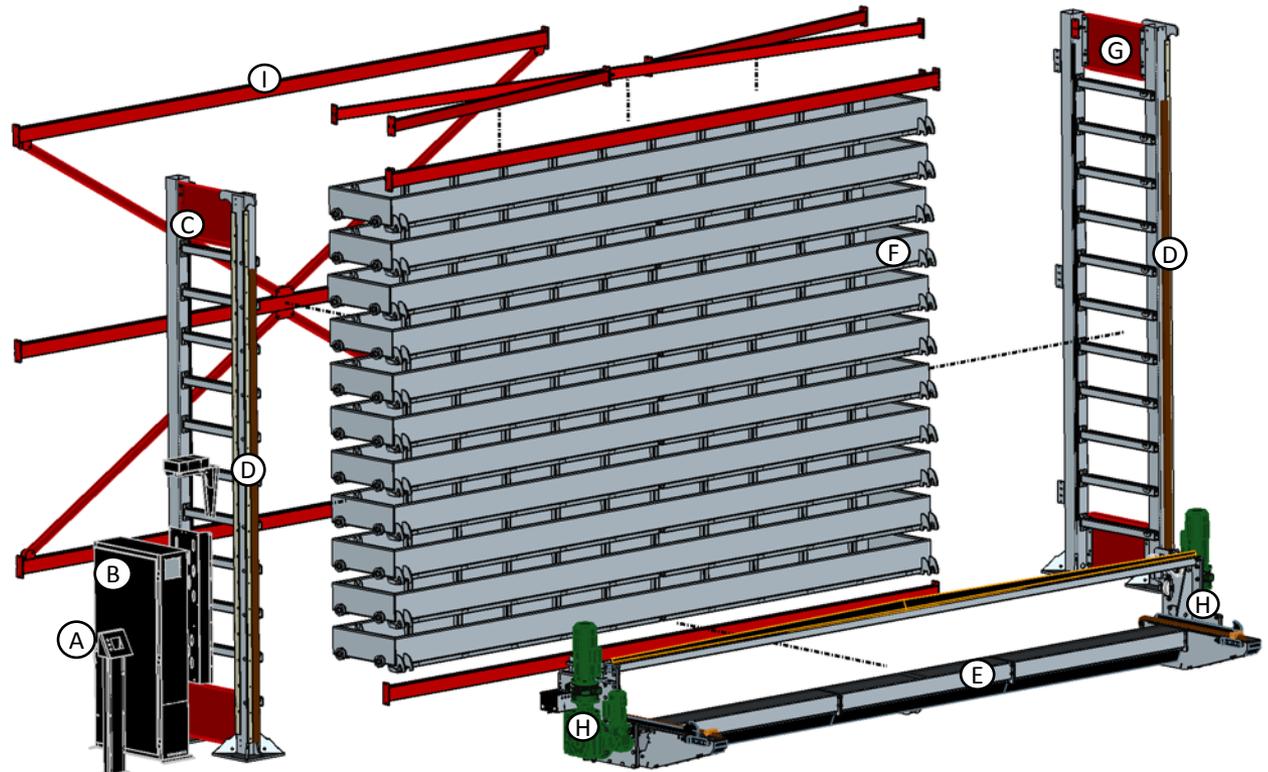
	Standard Sheet Metal Sizes	Standard Bar Stock/Linear Sizes
<b>Elevator Specifications</b>		
Storage Width	120"	120" – 294"
Storage Depth	60"	24"
Height per Pallet/ Drawer	3.5"   5"	10"   14"   18"
Max Load per Pallet / Drawer	5,000 lbs	5,000 lbs
Lifting Speed	28 ft/min	28 ft/min
Push/Pull Drive	42 ft/min	42 ft/min
<b>Tower Specifications</b>		
System Height	12' – 24'	12' – 30'
Controls	Automatic	Automatic
Loading Table	Available	N/A
Load/Unload Carts	Available	Available

\*Custom sizes available.

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## VLS Overview

Item	Description
A	Control Panel
B	Electrical Box
C	Left VLS Tower
D	Rack and Pinion
E	Elevator
F	Pallet/ Drawer
G	Right VLS Tower
H	Motors/Gearbox/Brakes
I	Cross Braces



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## Vidir Inventory Control (VIC)

Vidir's Inventory Control was built in-house from the ground up to efficiently track and manage inventory across all of Vidir's automated storage systems.

### Features:

- Material Picking and Stocking
- Product Identification
- Transaction History
- Pallet/ Drawer Management
- Reporting
- Multiple Zone Picking
- Multi-System Support

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