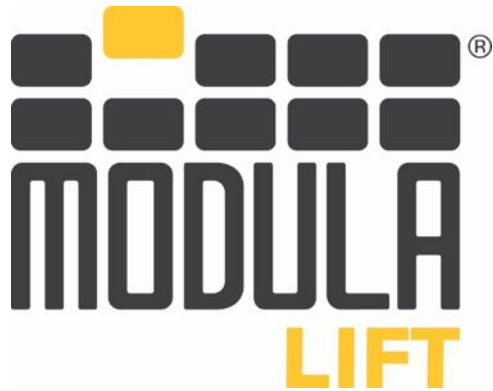# MODULA® Vertical Lift Modules
LIFT Models

About MODULA®

- **MODULA® is the only VLM manufacturer and supplier to produce and support units here in the U.S.A.**

- MODULA® specializes in VLM's, vertical carousels and horizontal carousels, with two independent manufacturing facilities in Lewiston, ME and Salvaterra, Italy – employing over 150.

- There are over **7,000 units** sold and in operation worldwide.

- MODULA® VLM's include many **innovative features** & benefits, along with an extremely efficient design, further reducing operational costs.

- MODULA® VLM's offer standard tray sizes and load capacities of up to 161.4" wide and 2,200 Lbs. per tray.

- MODULA® processes adhere to international standards such as **ISO 9001, ISO 14001 & OHSAS 18001:2007** – units are **TUV-GS approved** for safe operation in the workplace.

- **Nationwide technical service & support** is available to meet all client needs.

MODULA® VLM's

Steel Reinforced Toothed Belt Lifting Design

WMS Software

Tray Weight Monitoring

Single-Level or Dual-Level Tray Delivery

Internal or External Picking Bay Types

Modular Frame Construction

Dynamic Product Height Measurement & Storage

Automatic Closing Door

CoPilot Operator Interface

UL & TUV Approved

What is a VLM?

FRONT STORAGE COLUMN

REAR STORAGE COLUMN

WORKSTATION AREA

STORAGE LOCATIONS

OPERATOR INTERFACE

TRAYS

CONTROLS PANEL

CENTER COLUMN

LIFT PLATFORM

MODULA® VLM Benefits

- Currently there are **thousands of units** in operation worldwide.

- MODULA® VLM's include **many innovative features** and benefits.

- Units are **highly reliable** and provide many years of service.

- Standard tray sizes available are amongst the largest in industry, **up to 161.41" wide**.

- Standard tray load capacities available are also amongst the greatest in industry, with tray capacities **up to 1,653 Lbs. per tray**.

- Units feature an extremely efficient design, further reducing operational costs.

Solution Benefits

- Integration availability to ERP/MRP systems, such as SAP, etc. and also to automotive Dealer Management Systems (DMS) such as CDK Global.

- Significant **space savings** & recovery of valuable floor space – **up to 90%**.

- **Increased productivity** of up to 3.5 times over static storage solutions.

- **Increased item security** thanks to a fully enclosed storage system.

- **Improved ergonomics & employee safety** – no more reaching, bending or climbing.

- **Increased picking accuracy & traceability** for your goods with available WMS software and advanced picking aides.

- **Improved accountability** as user information is tracked and units are logged into using unique user passwords and/or through user authentication devices.

Space Savings
MODULA® VLM's vs. Traditional Static Storage Methods

(1) 25' – 3" Tall MODULA® VLM = (76.5) Bays of Typical Static Shelving

One (1) Bay of Typical Static Shelving:

- Each shelf level stores 4.5 Ft^2 (36.0" wide x 18.0" deep).

- Each bay has (7) storage levels = **31.5 Ft^2 per Bay.**

- Shelf level openings are assumed to be on 12.0" centers.

- An average 60% utilization factor is also assumed for each shelf level.
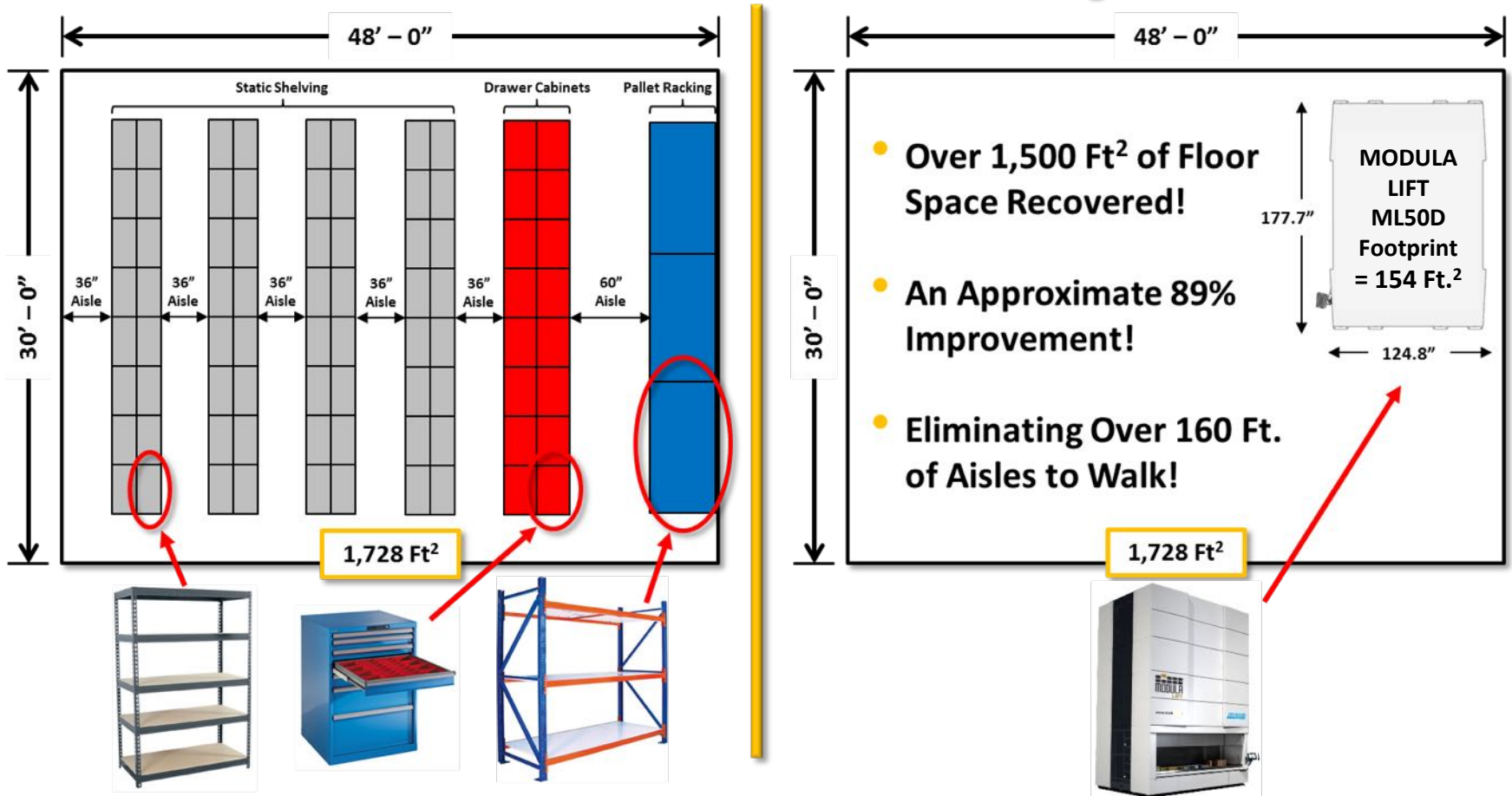
One (1) MODULA® ML50D-7,700 Vertical Lift:

- Each VLM tray stores 37.82 Ft^2 (161.41" wide x 33.74" deep).

- Usable tray heights are configured to be an average of 9.65".

- (45) tray locations are possible using the above usable height per tray.

- (37.82 Ft^2) x (45 Trays) = 1,701.9 Ft^2 per VLM.

- An average 85% utilization factor is also assumed for each VLM tray.

Diagram

Space Savings

MODULA® VLM's vs. Traditional Static Storage Methods

Left diagram: 48' – 0" × 30' – 0"

- Static Shelving
- Drawer Cabinets
- Pallet Racking
- 36" Aisle, 36" Aisle, 36" Aisle, 36" Aisle, 36" Aisle, 60" Aisle
- 1,728 Ft²

Right diagram: 48' – 0" × 30' – 0"

- Over 1,500 Ft² of Floor Space Recovered!
- An Approximate 89% Improvement!
- Eliminating Over 160 Ft. of Aisles to Walk!

MODULA LIFT ML50D Footprint = 154 Ft.²

177.7"
124.8"

1,728 Ft²

User Benefits

User Ergonomics

- Product is delivered to an ergonomic height.

- No unwanted bending or reaching is required.

- A shallower 25.75" deep tray depth is available for better access to items stored in the rear of the trays.

- For single-level delivery units the delivery height is 27.56" (700 mm) from the ground level up.

- For dual-level delivery units the lower delivery height is again 27.56" and the upper delivery height is 41.34" (1,050 mm) from the ground level up.

User Benefits

User Ergonomics

- Units equipped with the external workstation allow for true top picking and optimum access for large or heavy items stored within.

- The external work station also allows for the use of overhead manipulators, such as gantry cranes and lifting aides to access items from overhead.

Design Features

System Flexibility

- True modular unit design provides unit height adjustability on:

  - 7.87" (200 mm) increments for LIFT model units.

- Easily adaptable to future modifications of the unit's height.

- Allows for more flexible installations (less space above the unit is required).

- Units are able to be installed within 4" of the usable ceiling height available.

Design Features

Tray Storage Locations

- Rail panels provided on fixed increments allow for product heights to be stored on 1" increments.

- Trays are stored on one of four different levels per rail profile depending on the trays product height, allowing for 1" storage optimization.

- Usable tray storage heights range from as low as 1.77" (45 mm) up to 27.36" (695 mm).

Design Features

Tray Design & Construction

- Trays feature a fully spot welded design.

- Three tray wall heights are available, depending on capacity.

- Tray materials are galvanized steel for corrosion resistance.

- Tray bottoms are reinforced underneath with steel profiles spot welded in place.

- The tray glide's bolted construction attaches securely to tray side walls.

- HDMW glide covers provide quiet and smooth tray extraction and delivery.
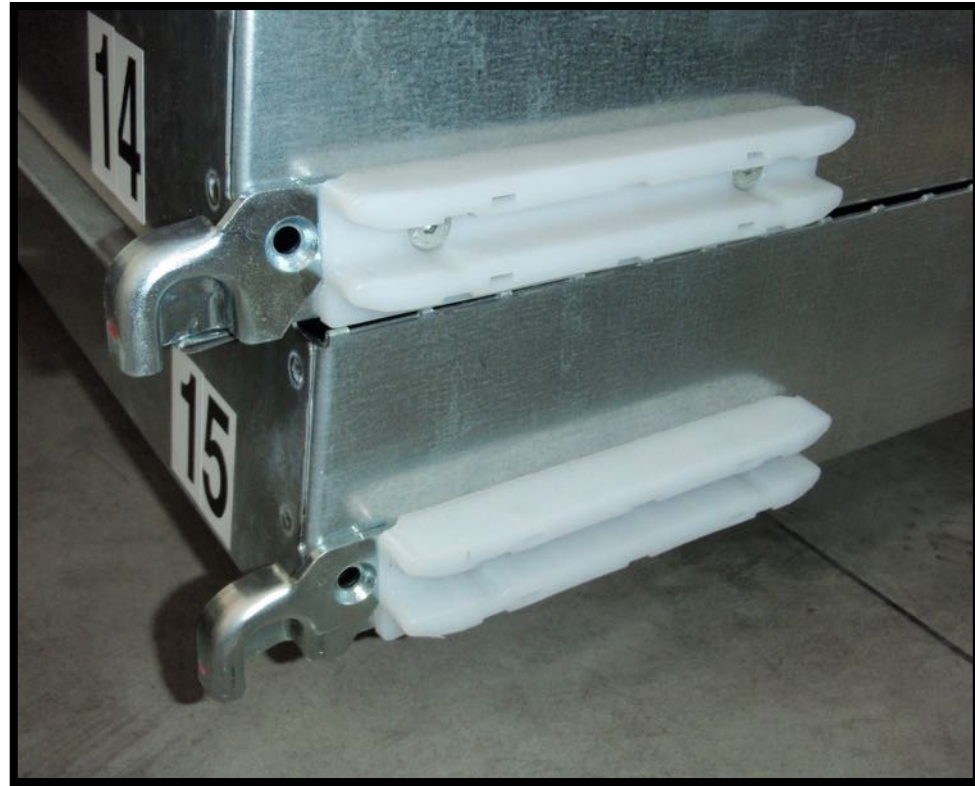
Design Features

System Flexibility

- For LIFT models, three unique tray wall heights are available:

    - 1.77" (45 mm)

    - 2.75" (70 mm)

    - 4.72" (120 mm)

Design Features

Delivery Configurations Available

Internal Picking Bay   **External Picking Bay**

Design Features

Delivery Configurations Available

Single Level Tray Delivery

Dual Level Tray Delivery

Design Features

Available Fixed Height Tray Storage Locations

- A fixed tray ceiling can be assigned for a particular product height to be stored in individual trays.

  If the product stored exceeds the height of that location, the tray is sent back to the operator at the access opening for correction.

- Fixed storage mode also allows for trays to be assigned to a specific storage location.

  Frequently accessed product or trays can be stored close to the access opening for quick access.

Design Features

Lifting Design

- (16) Urethane rollers total provide guidance in two axes.

- Steel reinforced toothed "belt drive" lifts and lowers the extractor platform
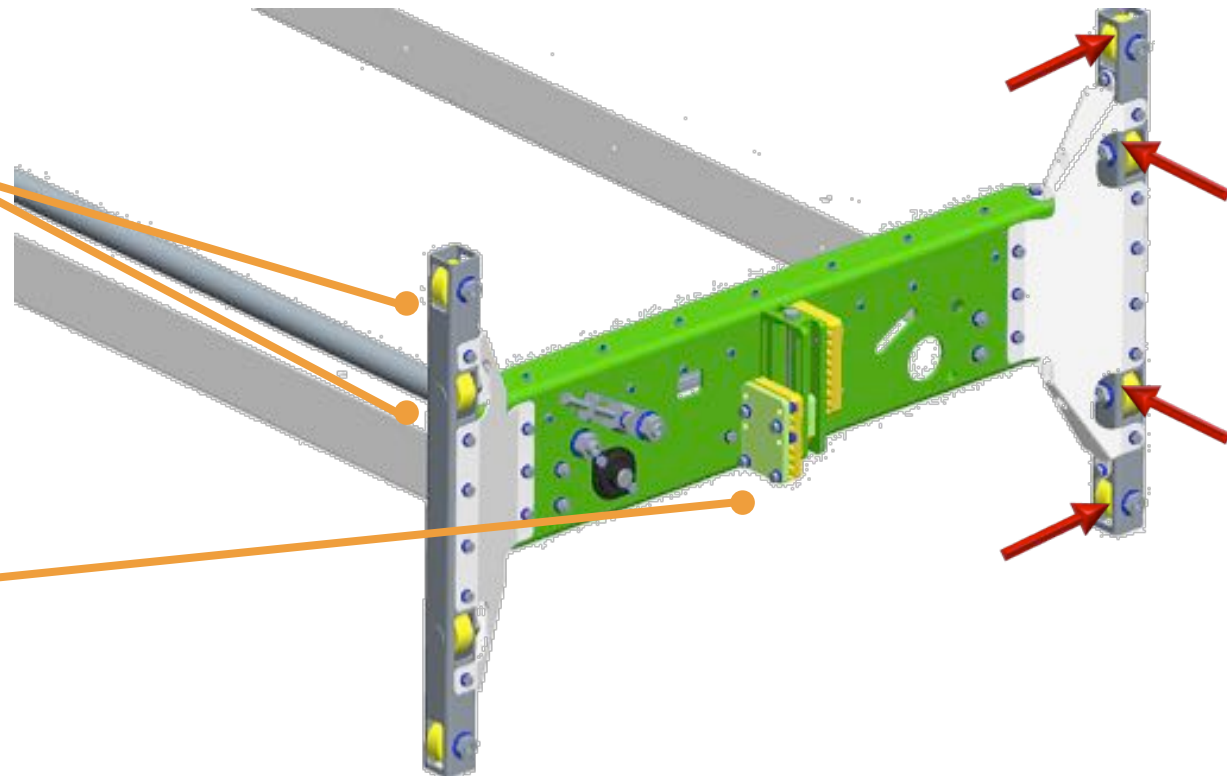
Design Features

Extractor Design

- Proven extractor design provides reliable operation and low maintenance.

- Chains engage trays for extraction and delivery via dawgs securely pinned to the chain.

- The extractor's low profile chassis design allows for the highest quantity of trays to be stored in the VLM.
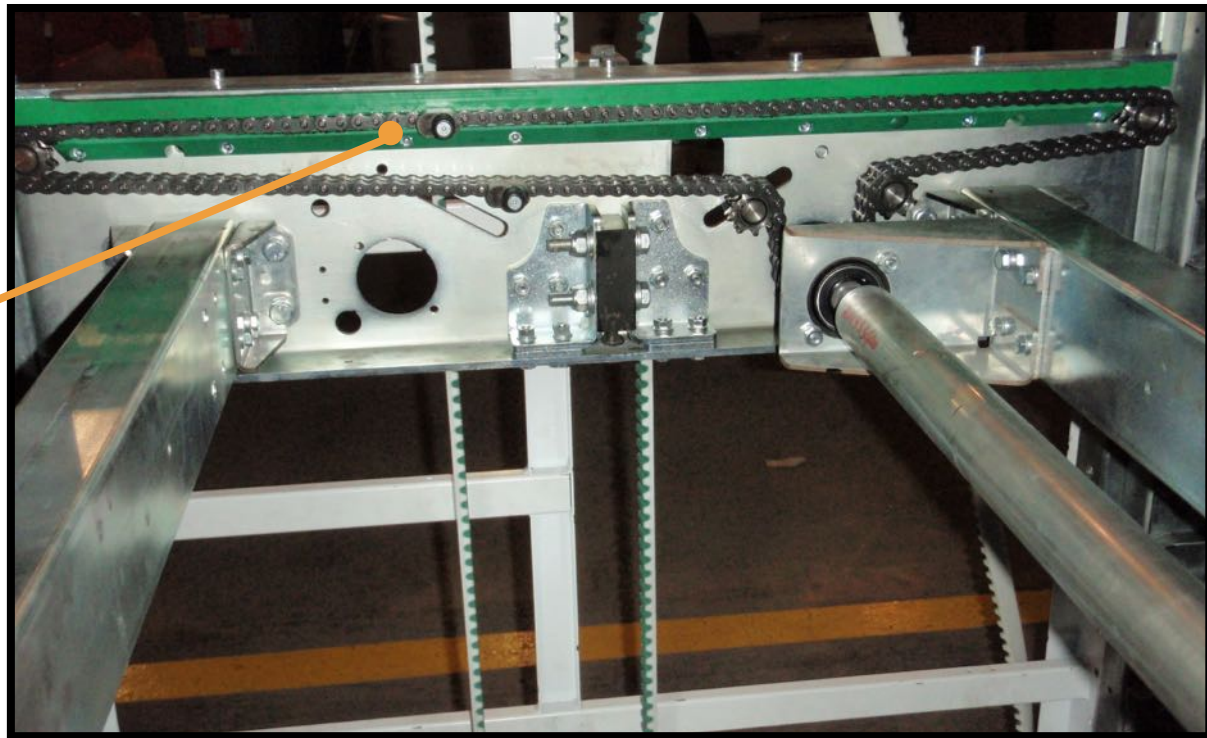
Design Features

Personnel Protection

- Full height light curtains located at the front outermost edge of each access opening location.

- E-Stop button conveniently located on the CoPilot console.

- Automatic sliding door available, located at the rear of the access opening location.
  - Sliding door is available as an option on all units and standard on internal bay, dual-delivery configurations.
  - Sliding door is only open for tray delivery and return.
  - Door closes automatically during normal operation of the unit.

Design Features

Product Protection

- Full height light curtains located at the rear of each access opening location for product protection and height measurement.
  - Lights on 1.0" centers
  - Product over height identification

- Tray weight measurement system prevents the over loading of trays and automatically returns trays if they are over capacity.
 - Displays real time weight of tray being accessed. The trays contents weight is measured electronically using motor current feedback.

Tray = 0
Height = 4
Weight = 250
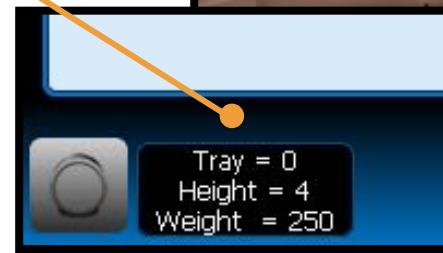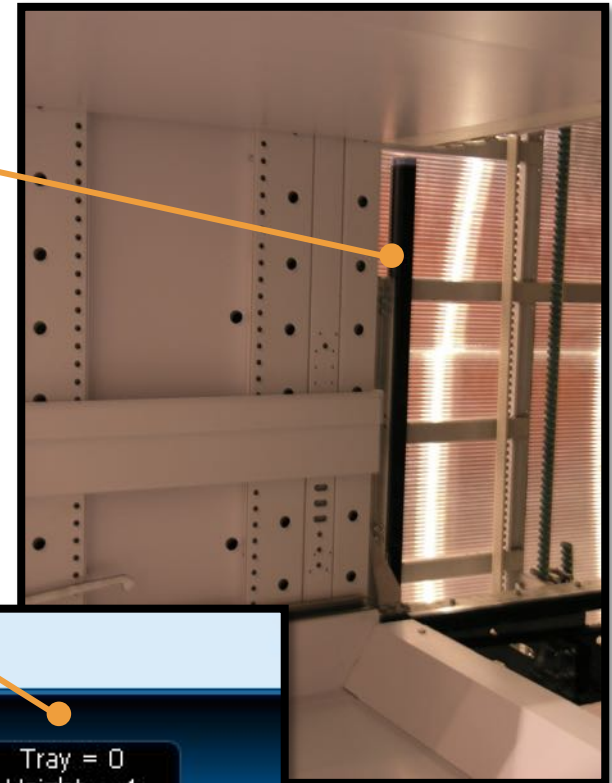
MODULA® LIFT – Model Information

LIFT Models – Technical Highlights

|	
Minimum Unit Height:	10' – 10" (3,300 mm)
Maximum Unit Height:	46' – 3" (14,100 mm)
Tray Widths Available:	74.80" (1,900 mm), 98.42" (2,500 mm), 122.05" (3,100 mm) & 161.41" (4,100 mm)
Tray Depths Available:	25.75" (654 mm) & 33.74" (857 mm)
Net Tray Load Capacities Available:	551 Lbs. (250 Kg.), 1,102 Lbs. (500 Kg.) & 1,653 Lbs. (750 Kg.)
Delivery Bay Configurations Available:	Internal or External Bay, Single-Delivery or Dual-Delivery
Tray Storage Adjustability:	1.0" (25 mm)
Unit Height Increments On:	7.87" (200 mm)
Gross Unit Load Capacity:	154,567 Lbs. (70,000 Kg.)
Net Unit Payload Capacity:	132,486 Lbs. (60,000 Kg.)
Picking Speed:	Up to 120 Trays / Hr. (Depending on the unit's configuration)
Operator Interface:	Rugged 10.5" color touchscreen operator control console

MODULA® LIFT – Model Information
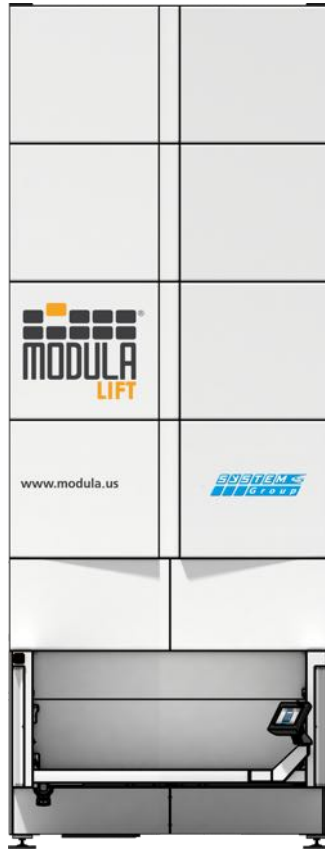
MA & MA-D LIFT Models

Model	Tray Width (In.)	Tray Depth (In.)	Maximum Tray Capacity (Lbs.)	Unit Footprint INTERNAL (Width x Depth)	Unit Footprint EXTERNAL (Width x Depth)
MA25	74.80	25.75	551	91.1 x 100.9	91.1 x 128.0
MA25D	74.80	33.74	551	91.1 x 124.9	91.1 x 159.9
MA50	74.80	25.75	1,102	91.1 x 100.9	91.1 x 128.0
MA50D	74.80	33.74	1,102	91.1 x 124.9	91.1 x 159.9
MA75	74.80	25.75	1,653	91.1 x 100.9	91.1 x 128.0
MA75D	74.80	33.74	1,653	91.1 x 124.9	91.1 x 159.9

MODULA® LIFT – Model Information
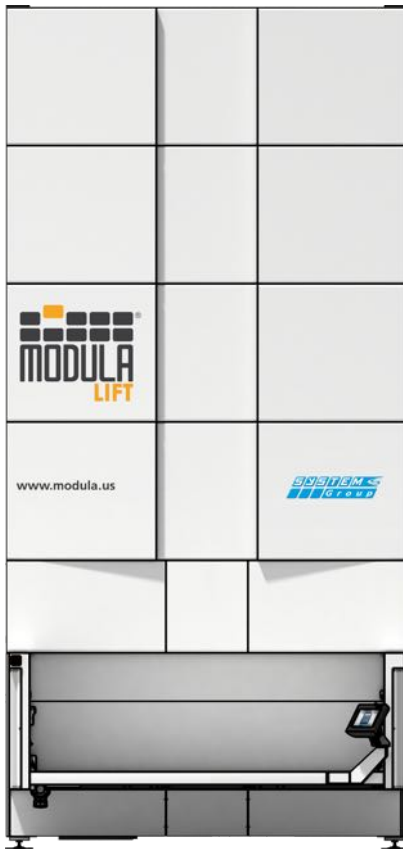
MC & MC-D LIFT Models

Model	Tray Width (In.)	Tray Depth (In.)	Maximum Tray Capacity (Lbs.)	Unit Footprint INTERNAL (Width x Depth)	Unit Footprint EXTERNAL (Width x Depth)
MC25	98.42	25.75	551	114.7 x 100.9	114.7 x 128.0
MC25D	98.42	33.74	551	114.7 x 124.9	114.7 x 159.9
MC50	98.42	25.75	1,102	114.7 x 100.9	114.7 x 128.0
MC50D	98.42	33.74	1,102	114.7 x 124.9	114.7 x 159.9
MC75	98.42	25.75	1,653	114.7 x 100.9	114.7 x 128.0
MC75D	98.42	33.74	1,653	114.7 x 124.9	114.7 x 159.9

MODULA® LIFT – Model Information
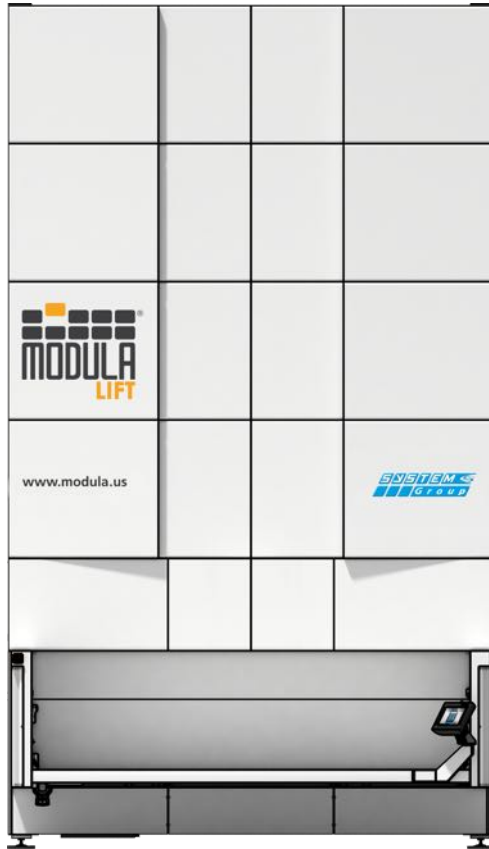
MX & MX-D LIFT Models

Model	Tray Width (In.)	Tray Depth (In.)	Maximum Tray Capacity (Lbs.)	Unit Footprint INTERNAL (Width x Depth)	Unit Footprint EXTERNAL (Width x Depth)
MX25	122.05	25.75	551	138.3 x 100.9	138.3 x 128.0
MX25D	122.05	33.74	551	138.3 x 124.9	138.3 x 159.9
MX50	122.05	25.75	1,102	138.3 x 100.9	138.3 x 128.0
MX50D	122.05	33.74	1,102	138.3 x 124.9	138.3 x 159.9
MX75	122.05	25.75	1,653	138.3 x 100.9	138.3 x 128.0
MX75D	122.05	33.74	1,653	138.3 x 124.9	138.3 x 159.9

MODULA® LIFT – Model Information

ML & ML-D LIFT Models

Model	Tray Width (In.)	Tray Depth (In.)	Maximum Tray Capacity (Lbs.)	Unit Footprint INTERNAL (Width x Depth)	Unit Footprint EXTERNAL (Width x Depth)
ML25	161.41	25.75	551	177.7 x 100.9	177.7 x 128.0
ML25D	161.41	33.74	551	177.7 x 124.9	177.7 x 159.9
ML50	161.41	25.75	1,102	177.7 x 100.9	177.7 x 128.0
ML50D	161.41	33.74	1,102	177.7 x 124.9	177.7 x 159.9
ML75	161.41	25.75	1,653	177.7 x 100.9	177.7 x 128.0
ML75D	161.41	33.74	1,653	177.7 x 124.9	177.7 x 159.9

Operator Interface Features

Industrial 10.5" Color Touch Screen Display

Integrated Emergency Stop (E-Stop) Button

Operate in Multiple Modes

Operator Login w/ Password

Graphical Tray Layout

Displays Clear, Detailed Information

Easy To Use LIFT OS Operator Interface

USB Port Integrated into the Controller

Displays Useful Tray Information

Complete Machine Diagnostics Onboard

Operator Interface Features

Unit Color Touch Screen CoPilot HMI
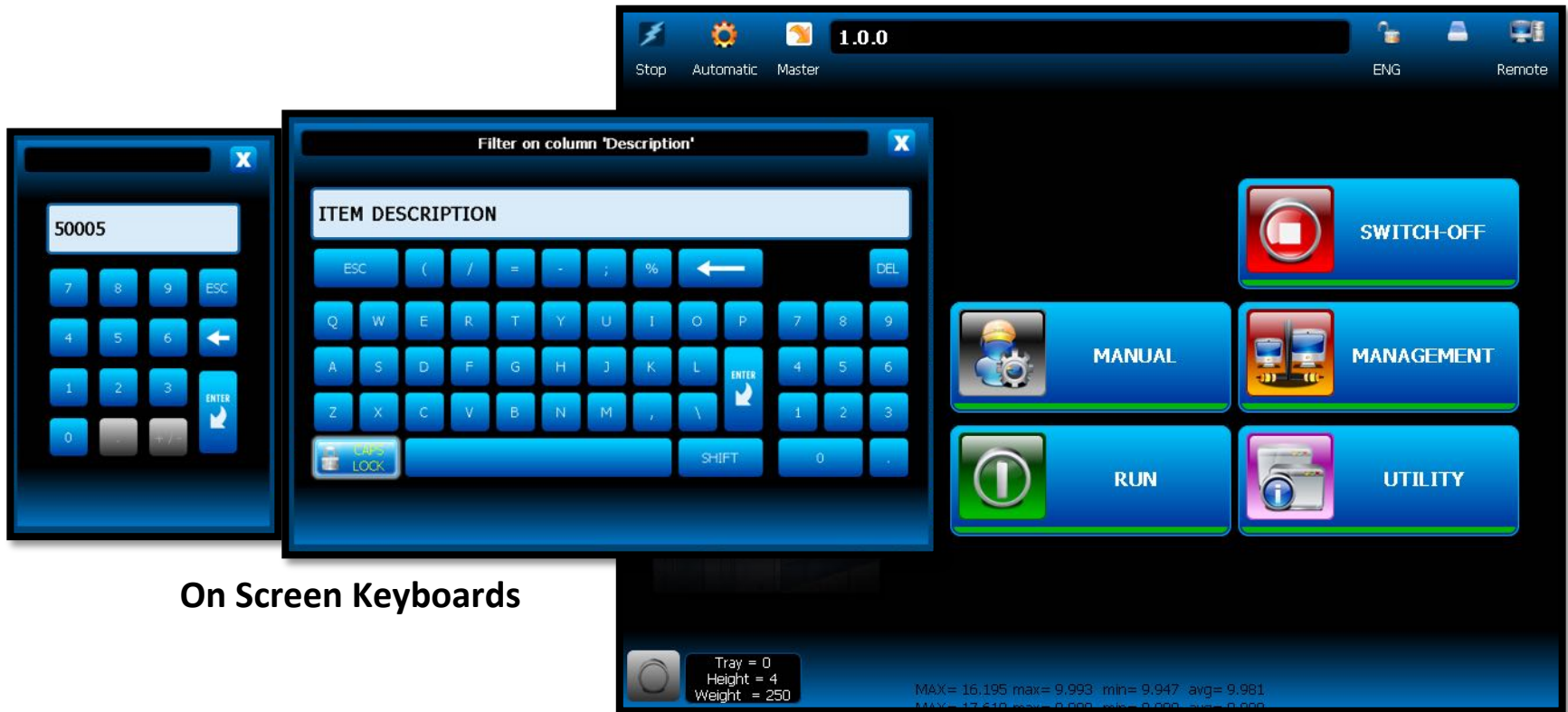
On Screen Keyboards

Operator Interface Features

Secure Access

User Login Screen:

- Multiple access levels are possible depending on the role of the user and include:

  - Operators

  - Supervisory Roles (Advanced Operator)

  - Support (Maintenance & Set-up)

- Operators are prompted to enter their login information to gain access to the unit.
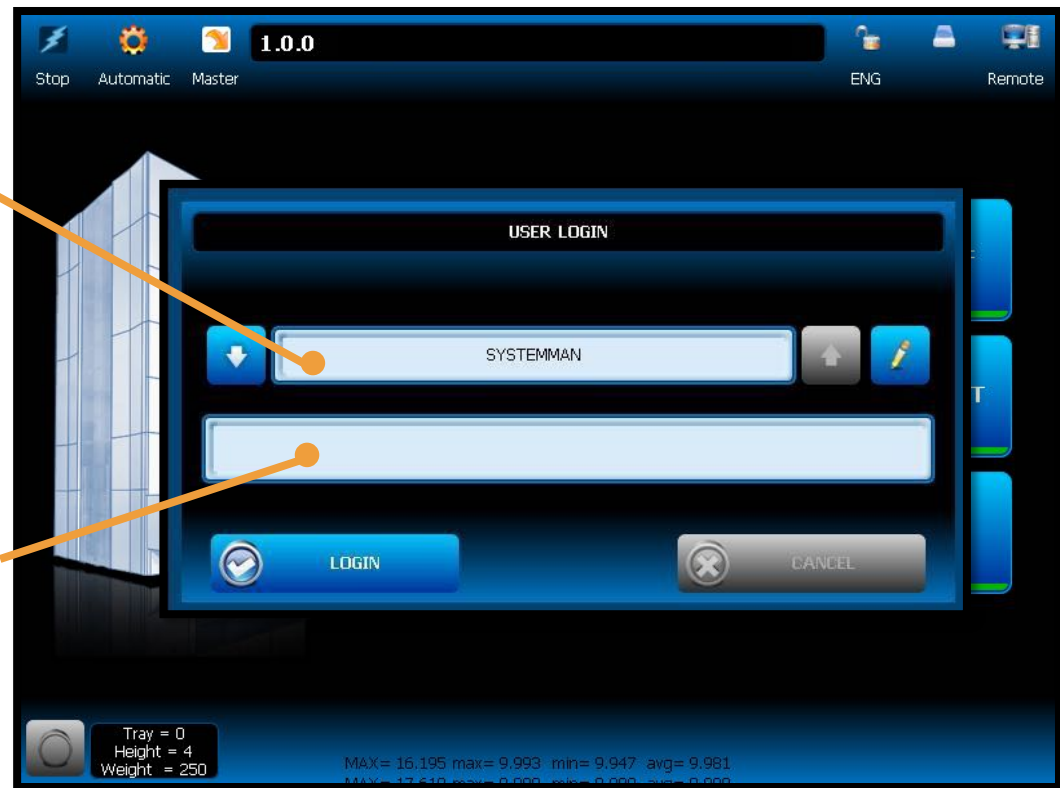
Operator Interface Features

Secure Access

Assigning Passwords:

- Passwords are assigned for both "Operator" users as well as "Advanced" users depending on their role.

- Passwords protection is available for the unit as a whole, or for individual trays.

- Tray number restrictions or assignments are possible.
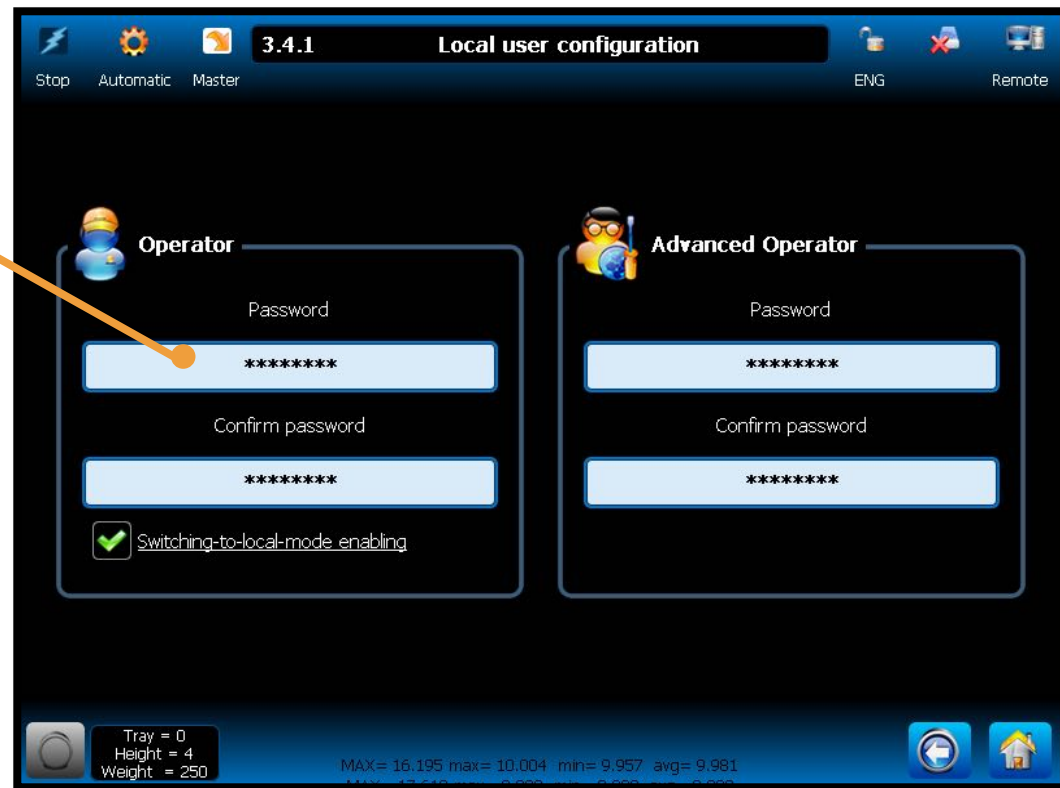
Operator Interface Features

Picking By Tray Number

- Stand alone, MODULA° units allow operators to pick items by tray number.

- Operators may select the required tray by incrementing or decrementing the tray number.

- Operators may also type the tray number required.

- Trays may also be selected from a tray list, containing all of the trays in the unit.
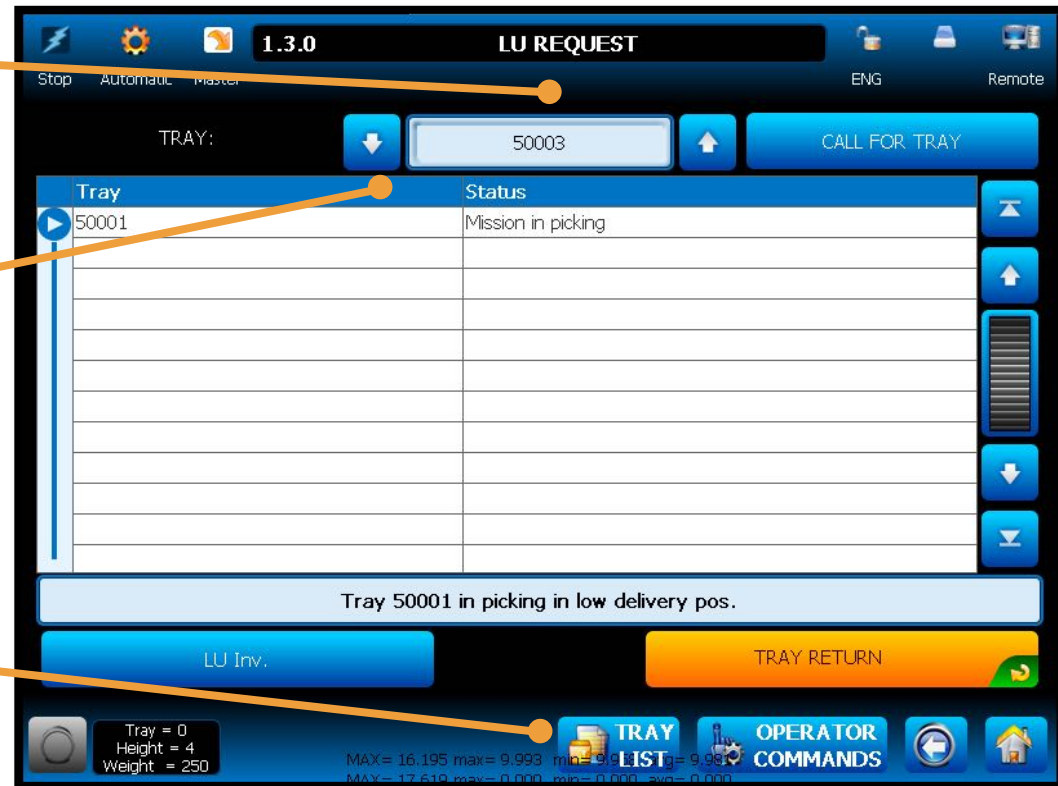
Operator Interface Features

Picking By Part Number

- Using the complementary WMS Base software package or higher level WMS Base Plus, WMS Standard, or WMS Driver packages and a customer supplied PC, operators can pick by Part Number and Item Description.

- Additional information, such as quantity available and machine location are also displayed for each item.

Operator Interface Features

Host System (ERP/MRP, etc.) Integration

- Orders may be downloaded manually using the complementary WMS Base software package or automatically using the WMS Driver or Standard packages and a customer supplied PC.

- Order information is clearly presented to the operator.

- Operators can execute or suspend orders as required throughout the operation.

Operator Interface Features

Tray Compaction Routine

- Tray compaction may be initiated which results in trays moving closer to one another and to the access opening to free up space within the unit.

- Compaction creates larger storage locations toward the top of the unit, by condensing trays within the unit.

- Compaction is initiated manually during non-picking times.

Optional Items & Accessories Available

Tray Accessories

Visual Aids For Picking

User Authentication

Personal Productivity Accessories

Order Picking Accessories

Miscellaneous Accessories

Available Options	LIFT	OneTon	Sintes1	Software Required	Notes
External Picking Bay:	●	●	●		
Dual-Tray Delivery:	●	●	●		*Req. Auto Door For Internal Bay*
Telescopic Internal Bay	●				*For Internal Bay Only*
Tray Removal & Transportation Cart:	●		●		*For Internal Bay Only*
Automatic Door:	●	●	●		
Laser Pointer:	●	●	●	●	
Alphanumeric LED Bar:	●	●	●	●	
X-Axis LED Bar:	●	●	●	●	
Sliding CoPilot Console:	●	●			*Not With Telescopic Bay or Cart*
Tray Extensions, Partitions & Dividers:	●	●	●		
ESD Protection System:	●	●	●		*Not With Telescopic Bay or Cart*
Put-To-Light Batch Picking System:	●	●	●	●	
Badge Reader:	●	●	●	●	*Not Avail. With Badge Reader*
EKS Reader:	●	●	●	●	*Not Avail. With EKS Reader*
Bar Code Reader:	●	●	●	●	
Label Printer:	●	●	●	●	
Piece Counting Scale:	●	●	●	●	
Green – Energy Recovery System:	●	●	●		

Tray Accessories

Tray Accessory Descriptions
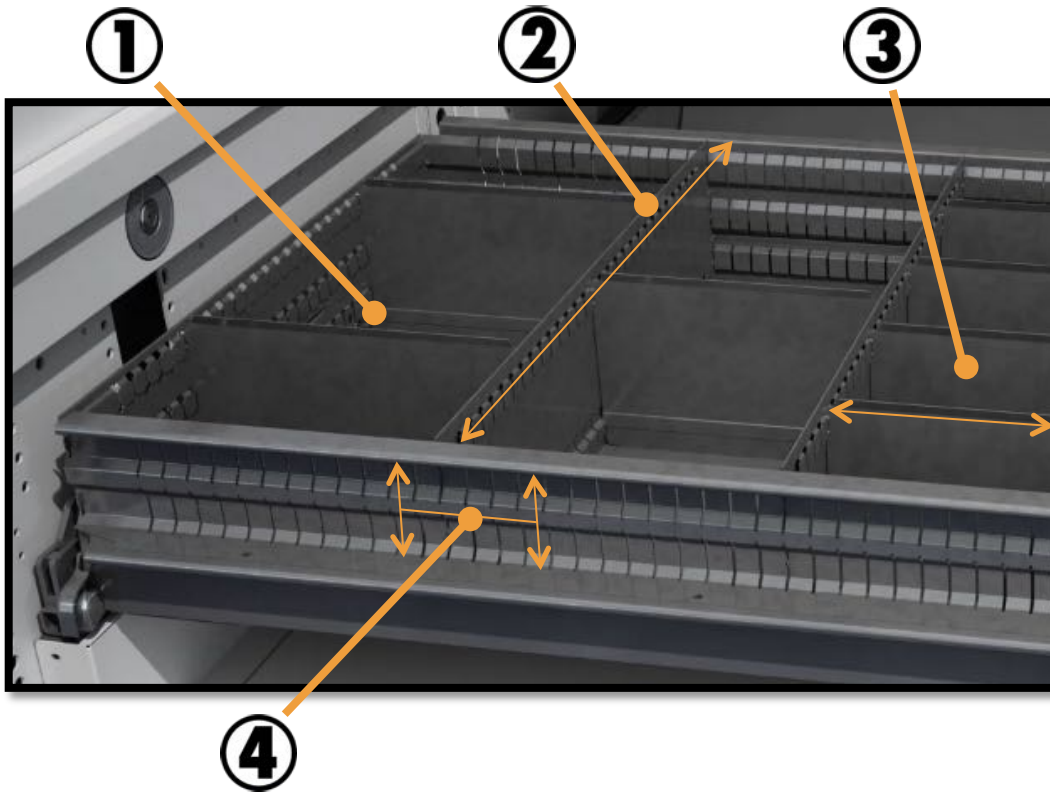
1) **Slotted Tray Side Walls**
   (Width & Depth)

2) **Slotted Partitions (Front To Rear)**

3) **Dividers**

4) **Tray Side Wall Extensions**
   (Width & Depth)

Tray Accessories

Tray Partitions, Dividers & Side Wall Extensions
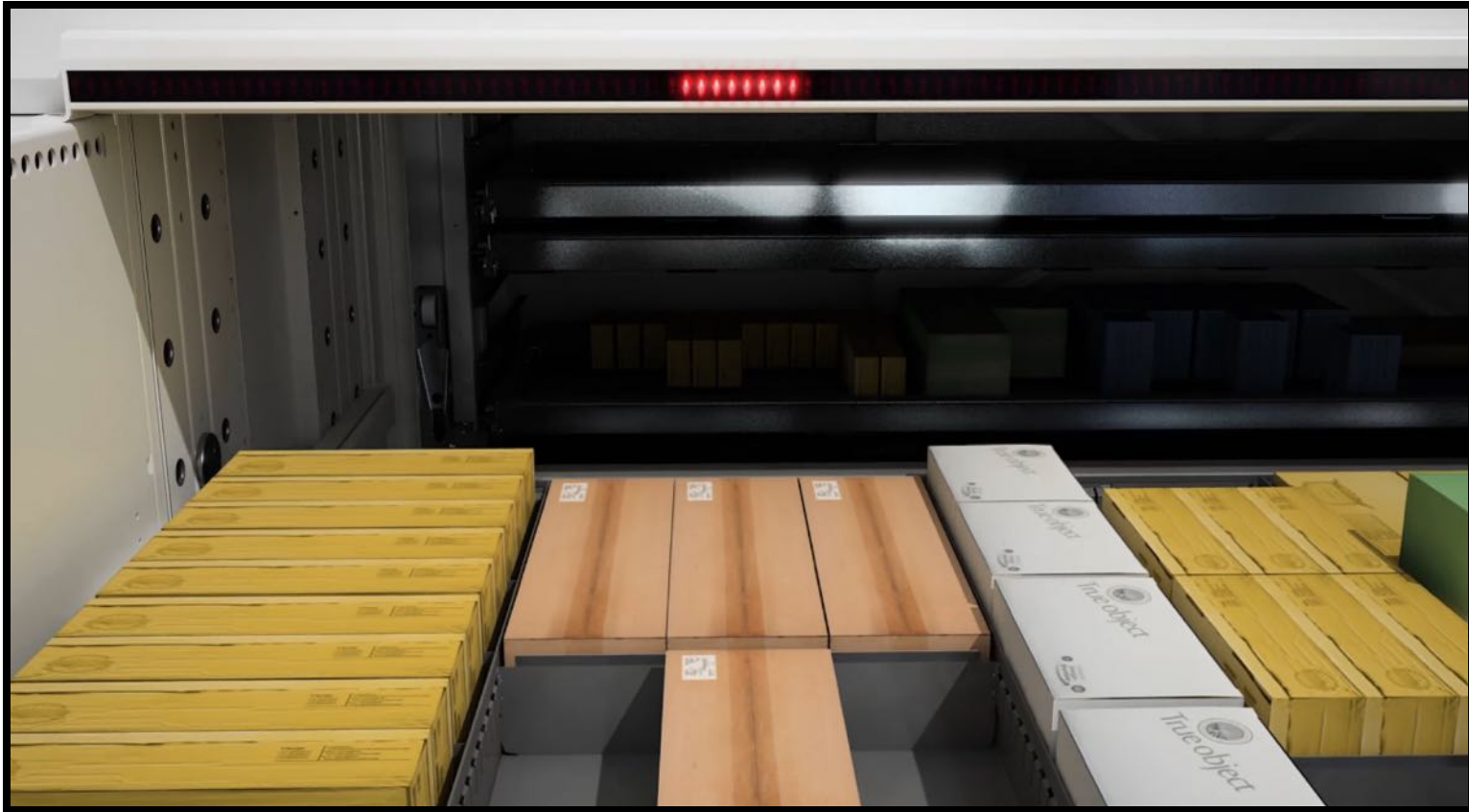
Visual Aids For Picking

Laser Pointer

Visual Aids For Picking
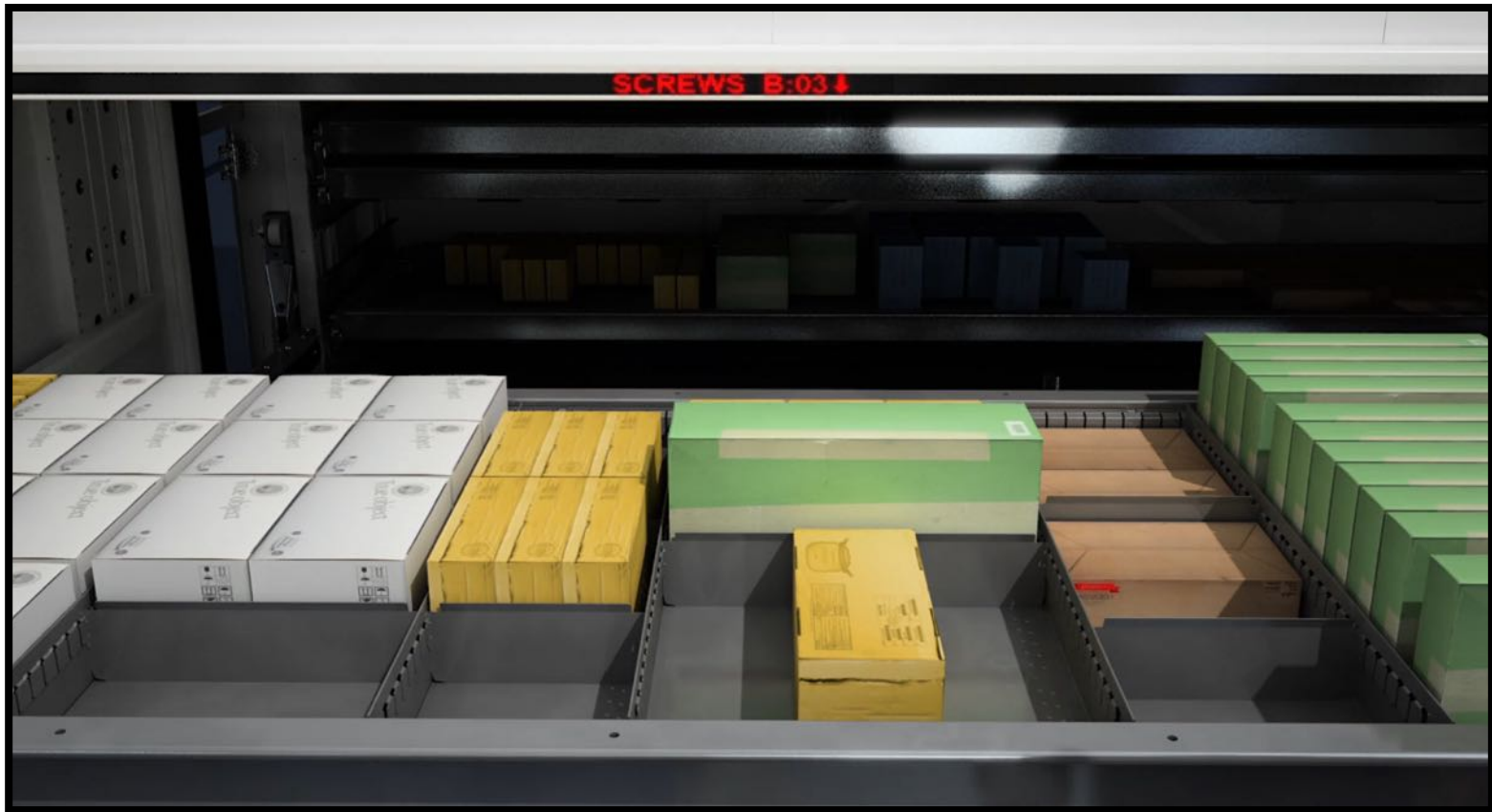
LED Message Center Bar

Visual Aids For Picking

X-Axis LED Indicator Bar

User Authentication

Badge Readers

User Authentication

EKS Readers

Personal Productivity Accessories

Sliding CoPilot Operator Console

Personal Productivity Accessories

Piece Counting Scales

Personal Productivity Accessories

Bar Code Readers

Personal Productivity Accessories

Label Printers

Order Picking Accessories
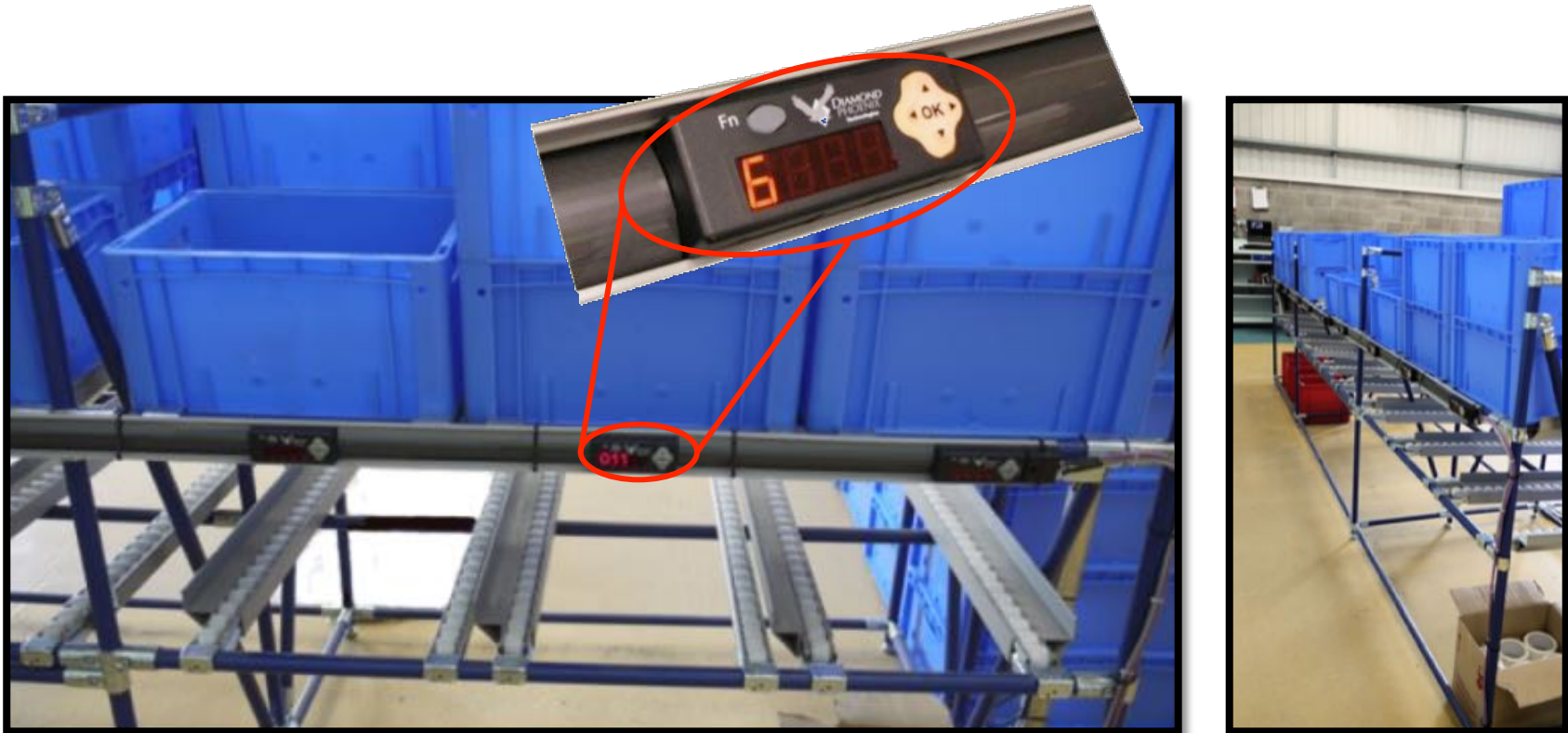
Put-To-Light Batch Picking Lights

Other Accessories

Automatic Access Opening Door

Other Accessories
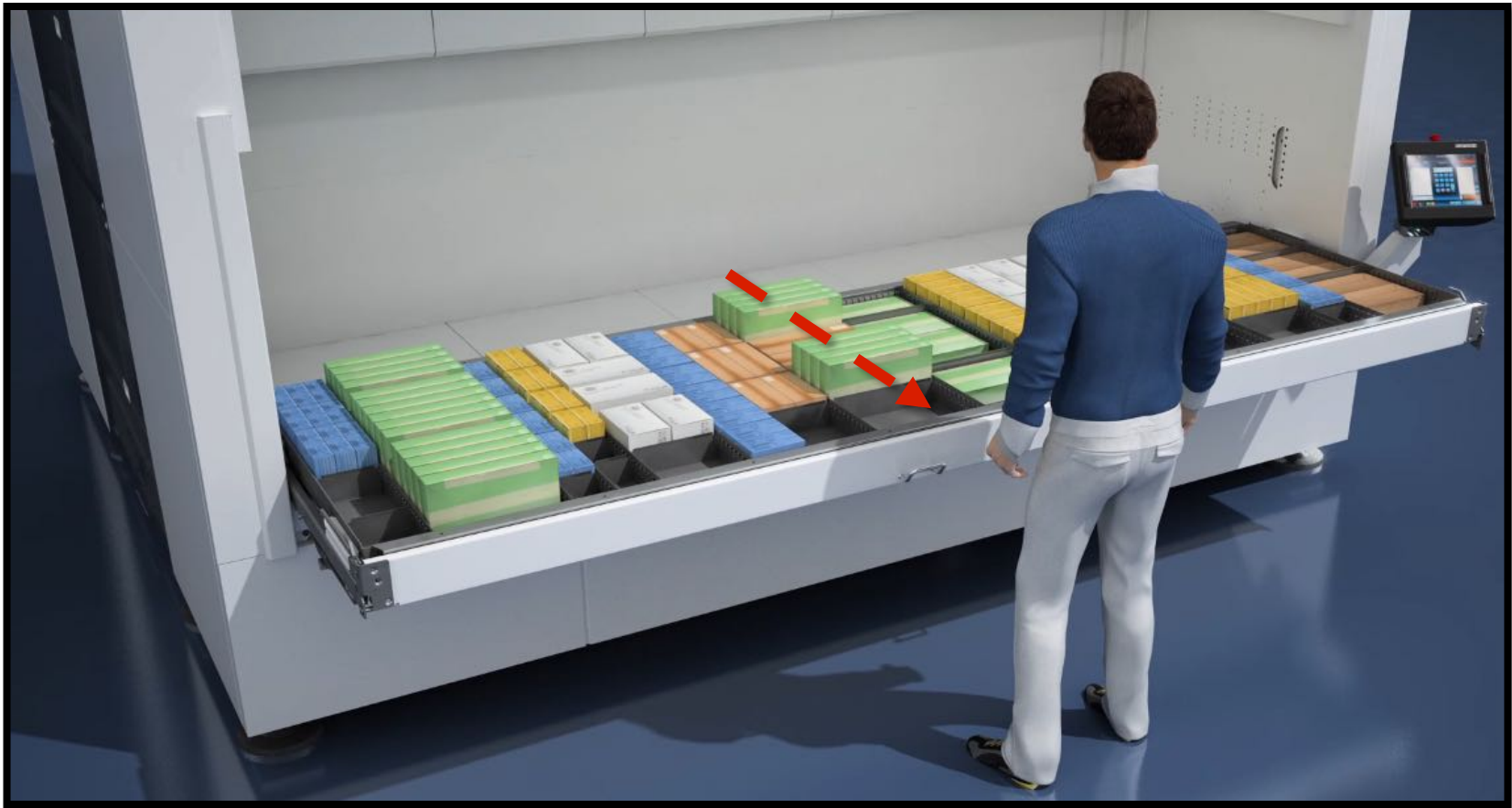
Telescopic Pull-Out Internal Bay

Other Accessories

Tray Removal & Transportation Cart

Other Accessories

OPTIONAL
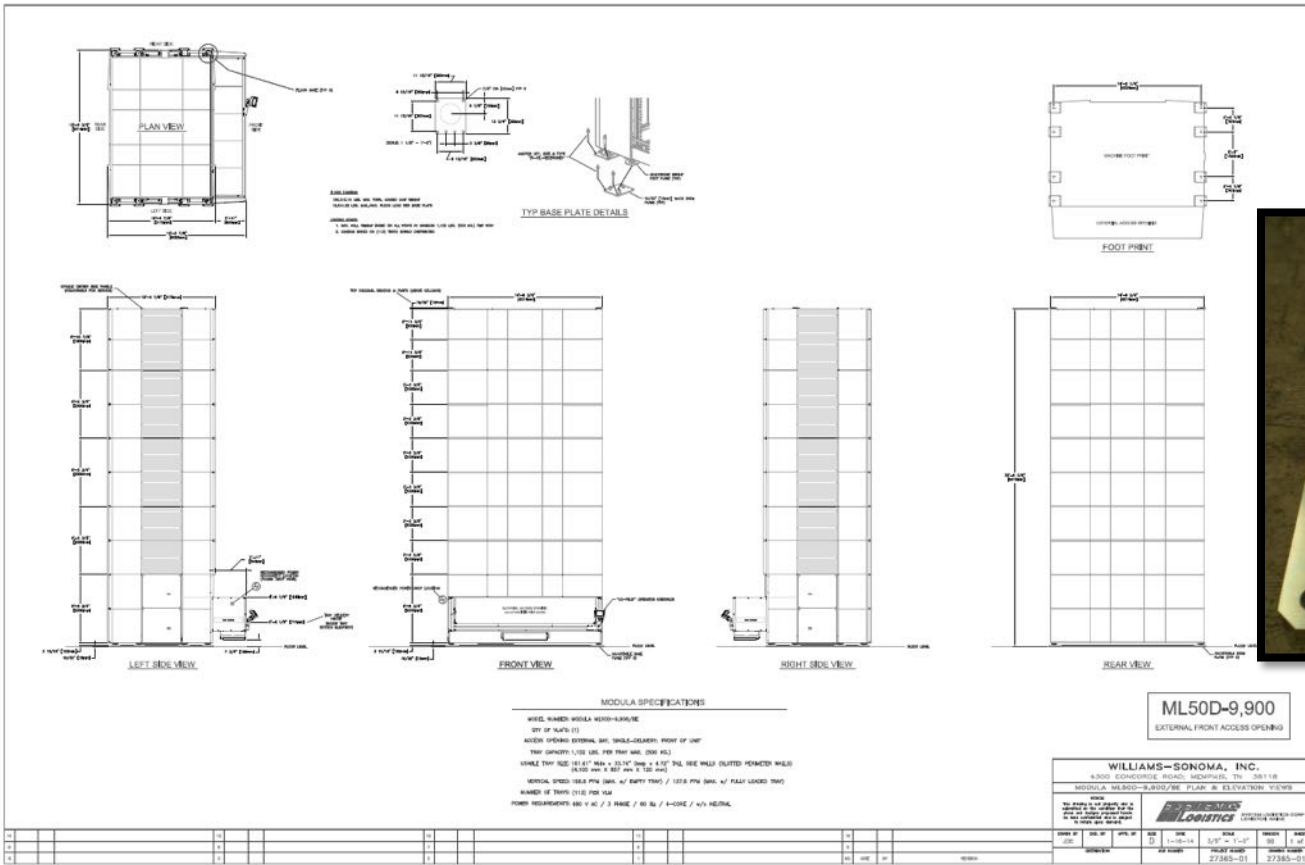
ESD Protection System
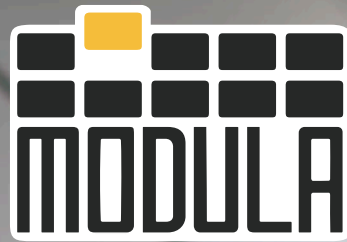
Other Accessories

Seismic Analysis & Anchoring

Multiple Unit, Side-By-Side Installations

Thank You For Your Attention

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