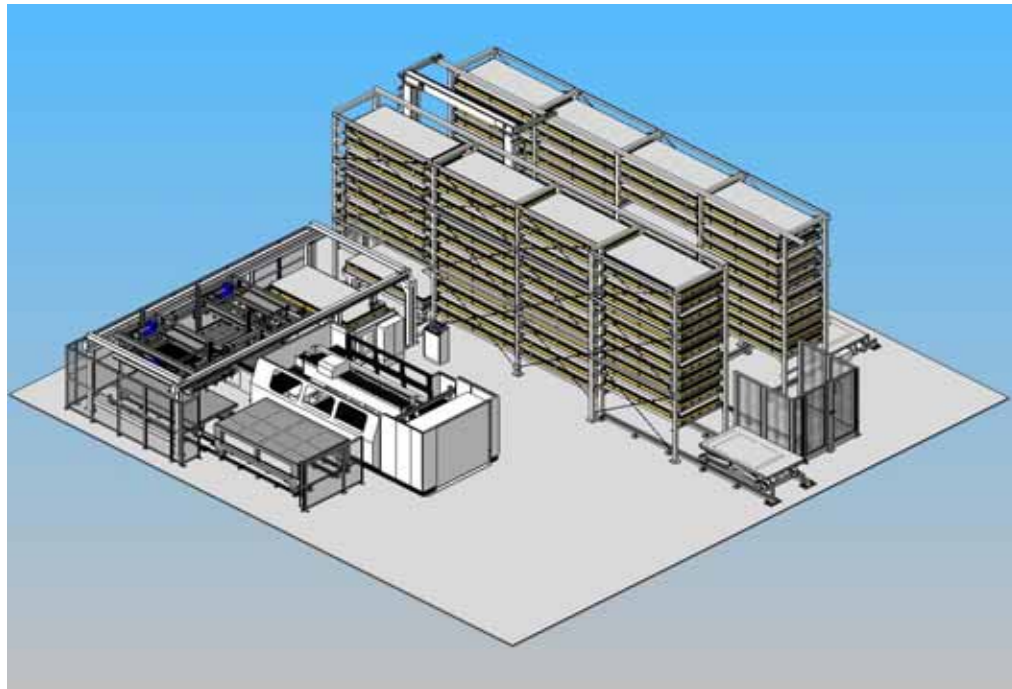


# River Navigator System

## Material Flow Control



MC Machinery Systems Inc.



# River Navigator - Benefits

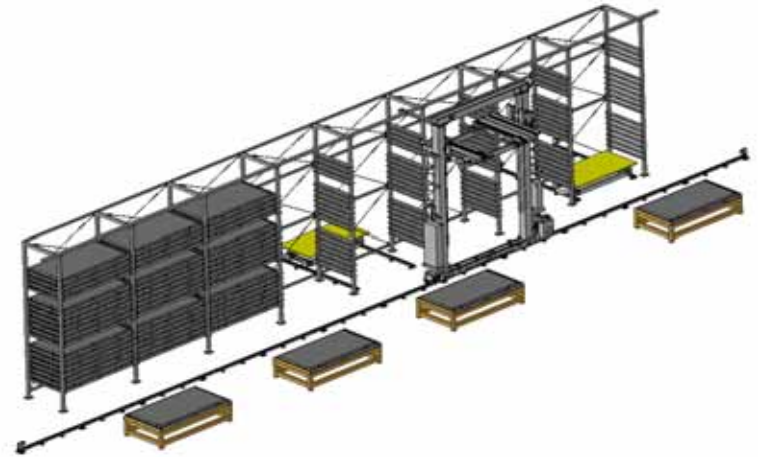
- Raw material and processed product organization.
- Material Storage and Retrieval
- Safe material transportation
- Maximizes floor space

# River Navigator - Features

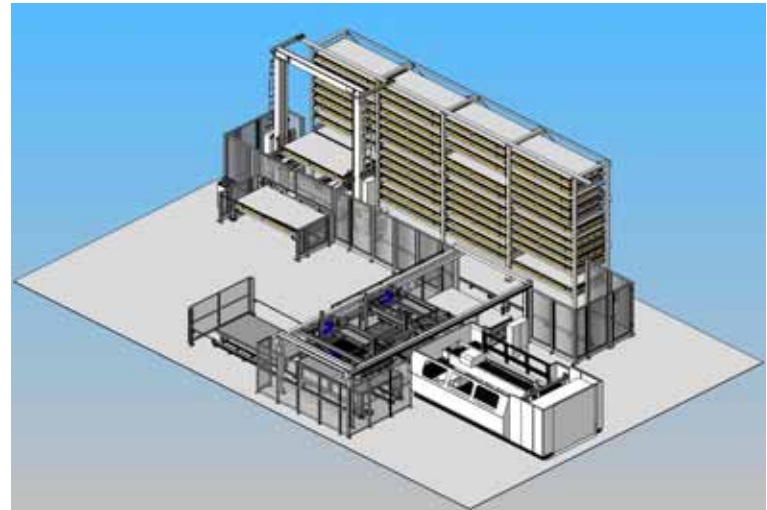
- Modular and Expandable
- Flexible load / unload station positions
- Flexible design adapts to plant layout
- Includes inventory and production schedule management software
- Pallet holds 4,400lbs or 6000lbs
- Each shelf has 8.3” loading height

# Typical Layout 1

Stand alone River Navigator  
with 4 Front Stationary  
Load Stations  
and 2 Rear Lifter Cart Station.

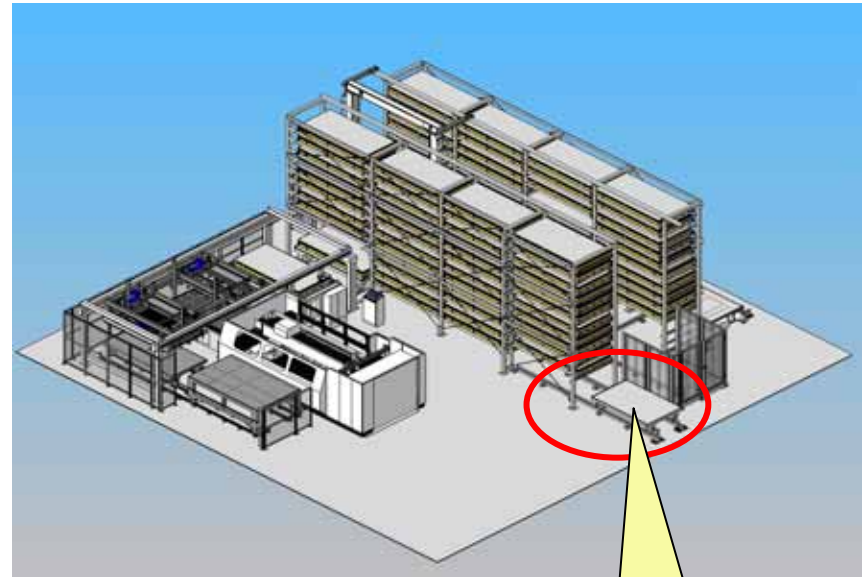


4 bay 12 shelf River navigator  
with 1 Front Stationary  
Load Station and River EL4.



# Typical Layout 2

Double 2x4 bay 12 shelf  
with Vertical Cart Station and  
River EL4

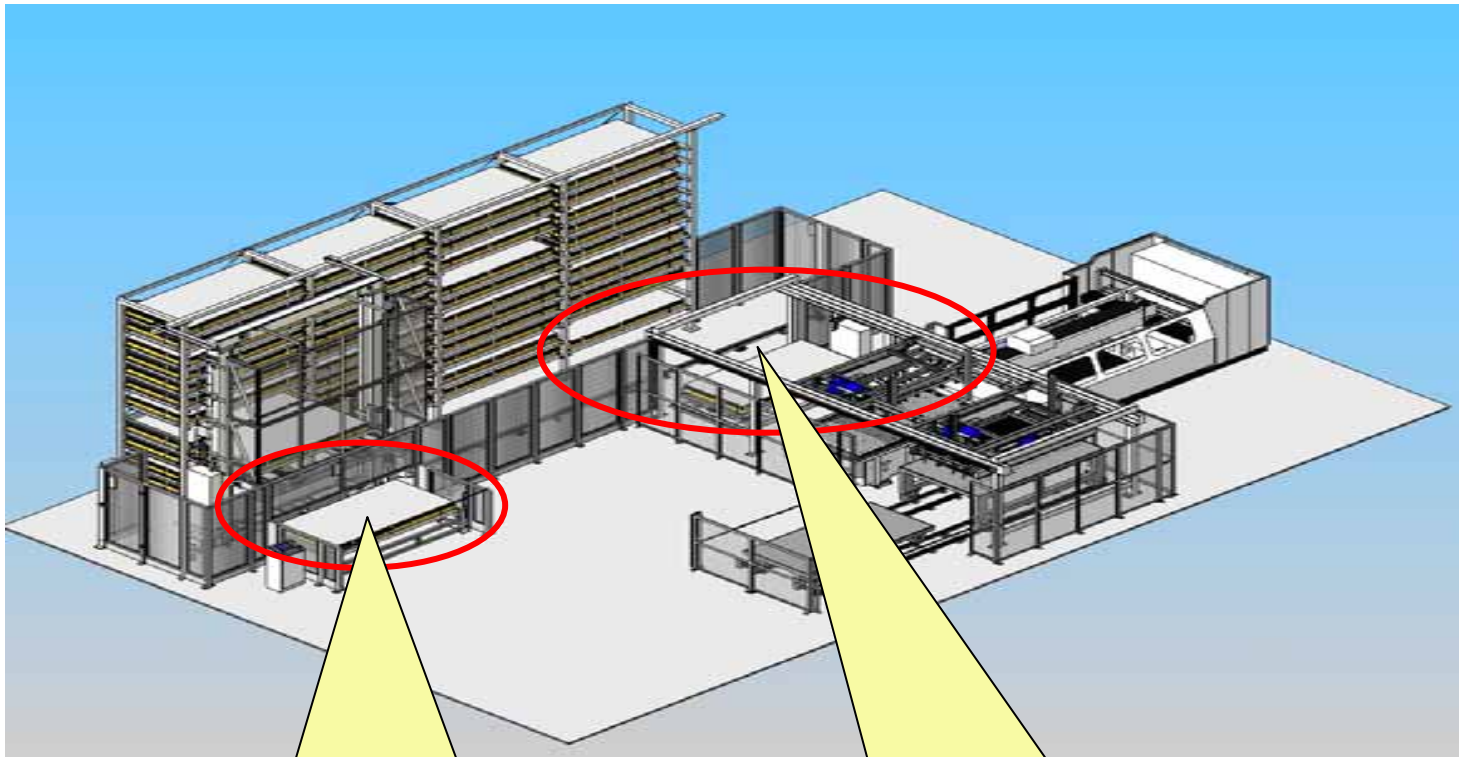


Vertical Cart Station

# Example 1.

## RN4400-3015-4-12-210+MSCIII

4400 lb, 5'x10', 4 bay, 12 shelves, 210mm Material Height



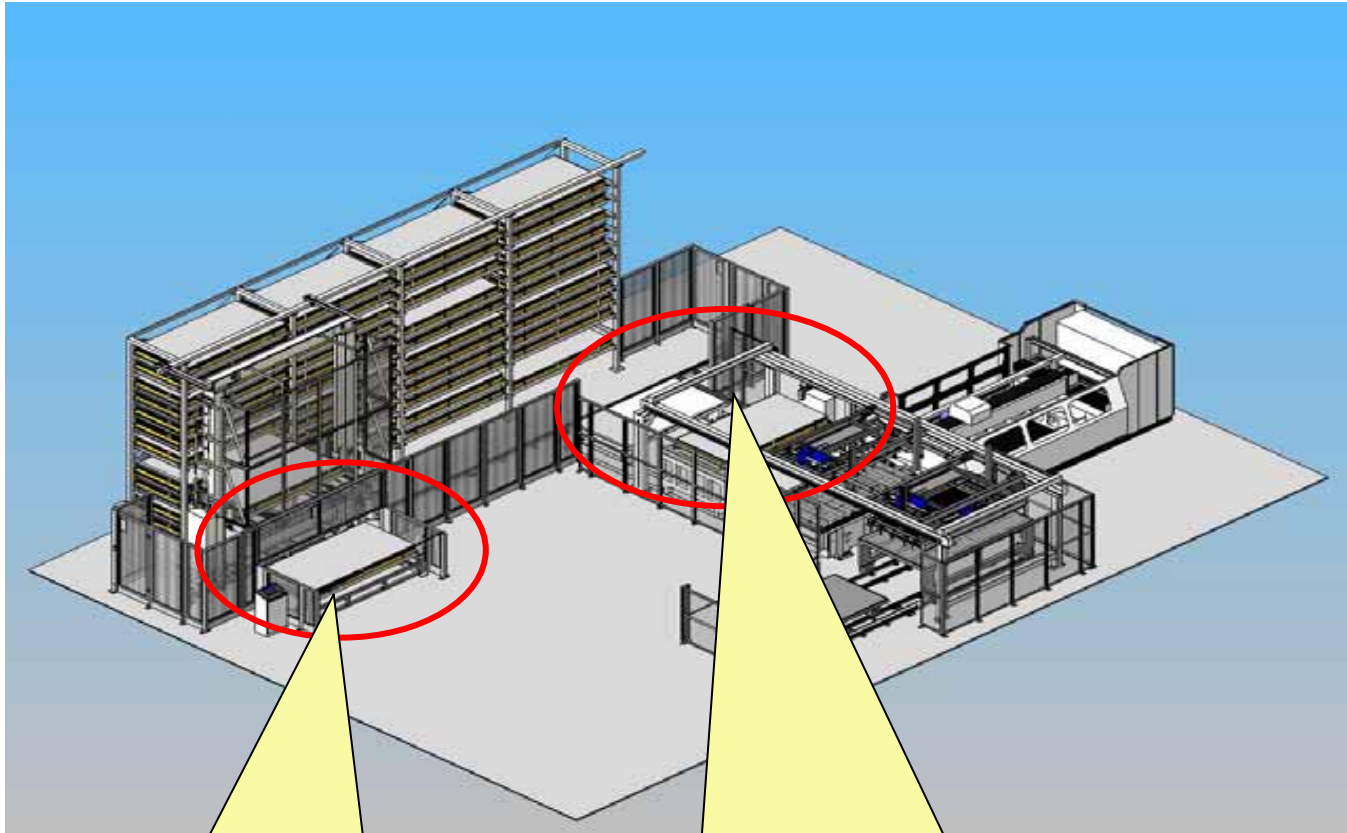
1. Stationary Load Station

2. Single Cart Station for River EL4

# Example 2.

## RN4400-3015-4-12-210+MSCIII

4400 lb, 5'x10', 4 bay, 12 shelves, 210mm Material Height



1. Stationary Load Station

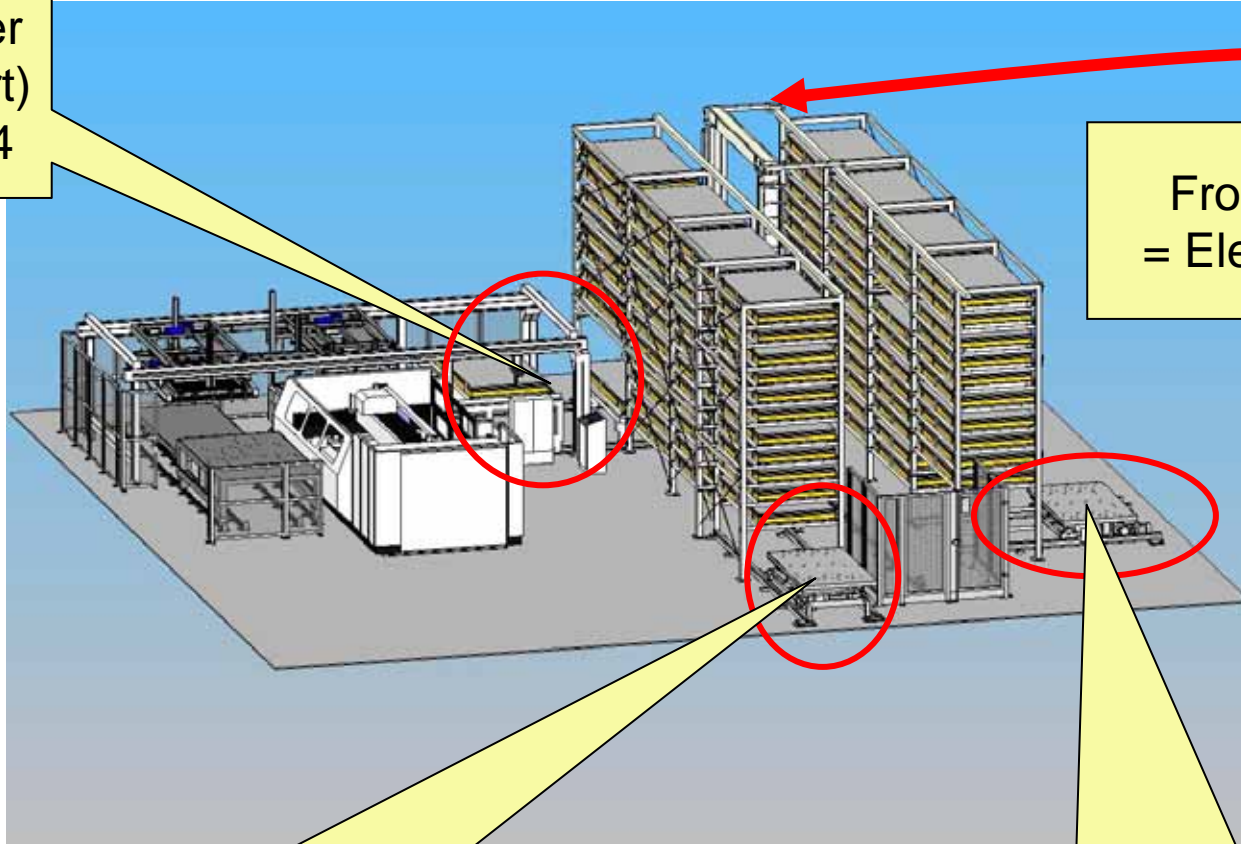
3. Front Buffer Station (2 cart) for River EL4

# Example 3

## RN4400-3015-2-8-12-210+MSCIII

4400 lb, 5'x10', 2 Stories, 4 bay, 12 shelves, 210mm Material Height

7. Rear Buffer Station (2 cart) for River EL4



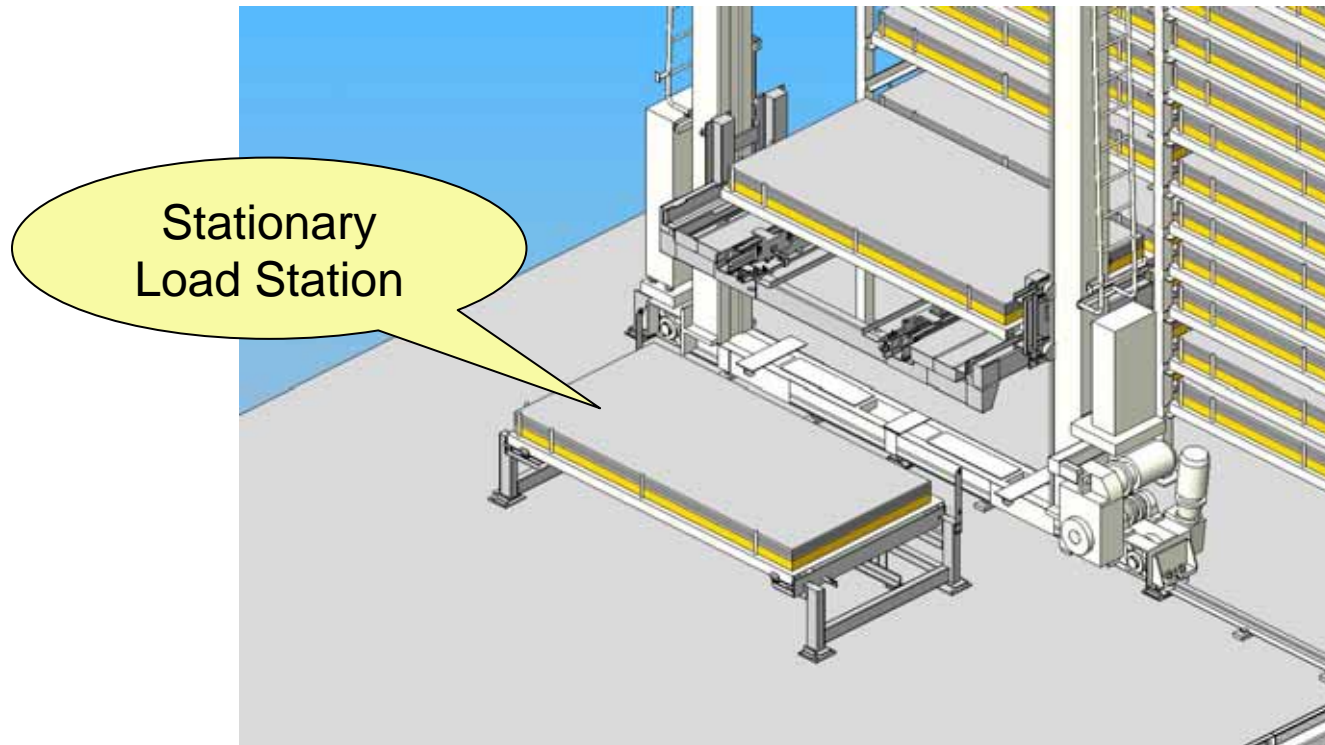
Front of Bay  
= Elevator Side

5. Vertical Cart Station  
6. Vertical Lifter Cart Station

4. Rear Lifter Cart Station

1

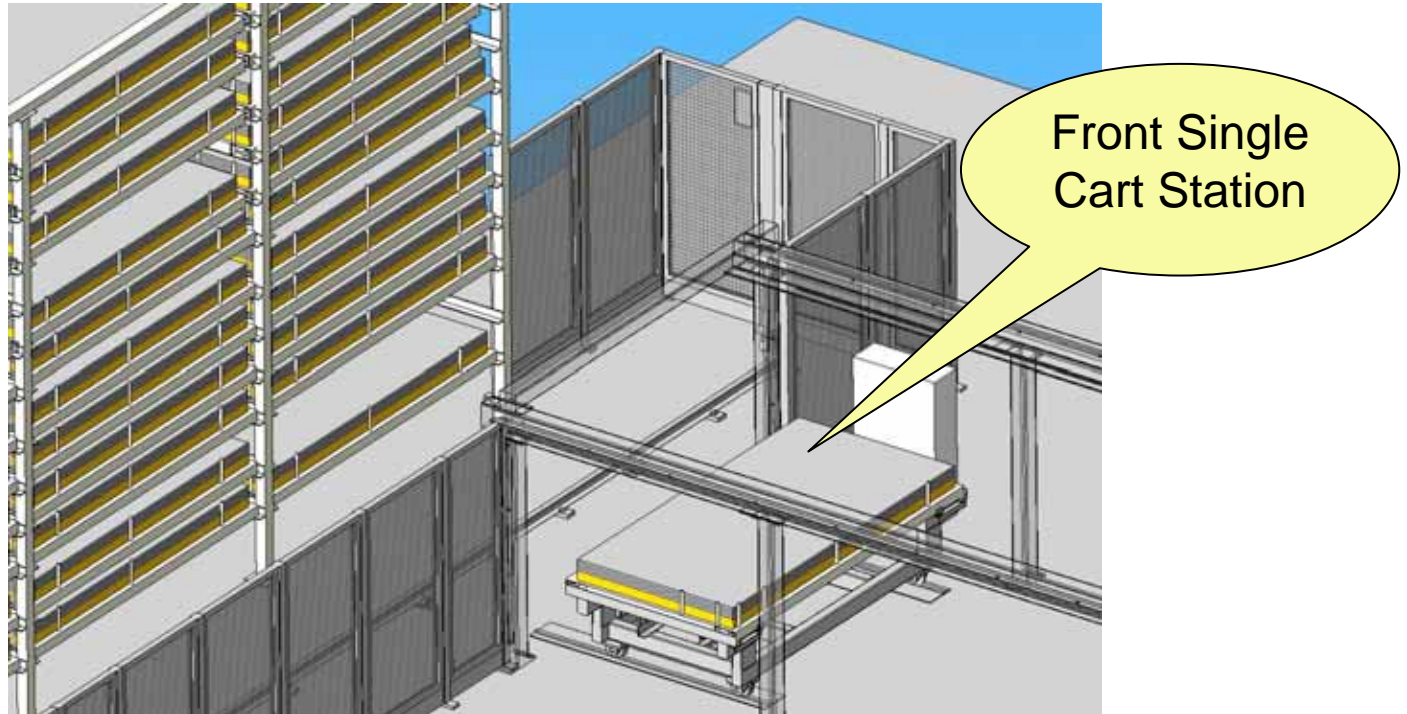
# Stationary Load Station



- This is the base unit for the River Navigator System
- This type of station can be installed any place on the Front side of River

2

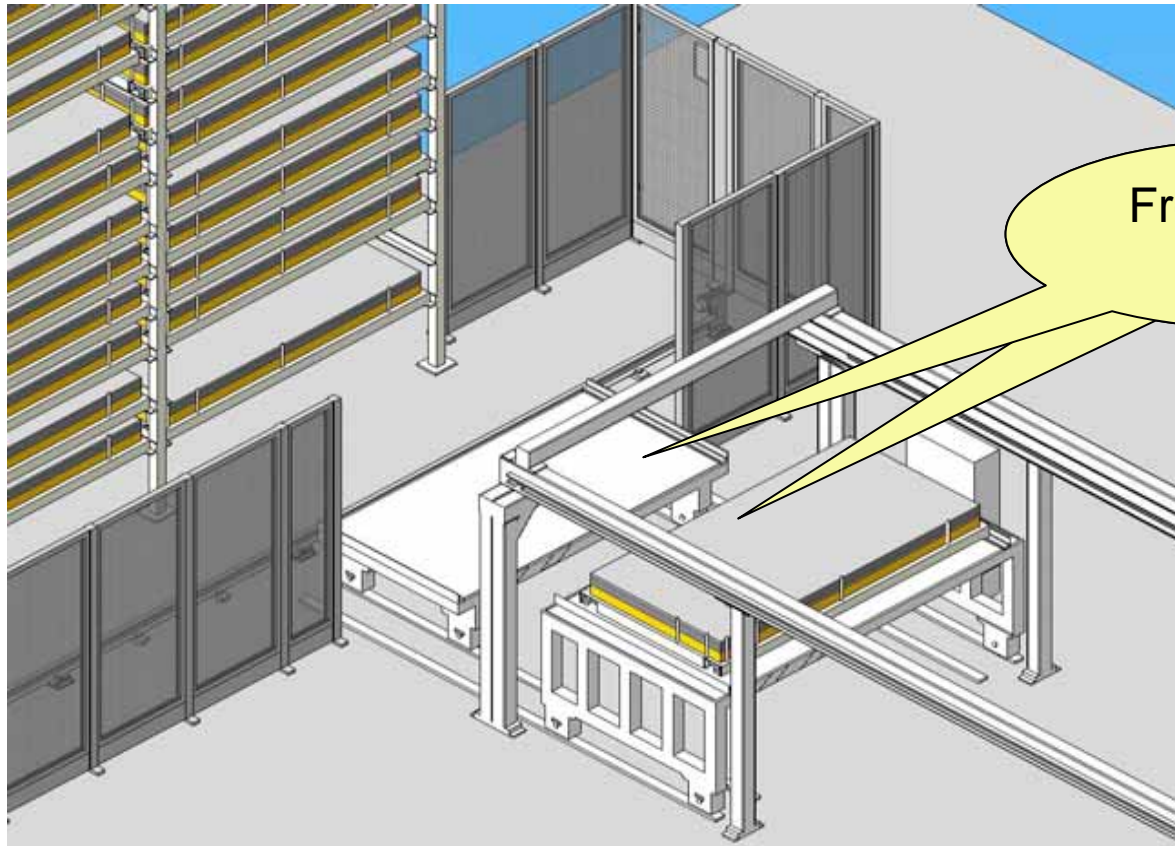
## Front Single Cart Station



- Recommended for cutting time over 20 minutes.
- Only for Automated River EL4

# 3

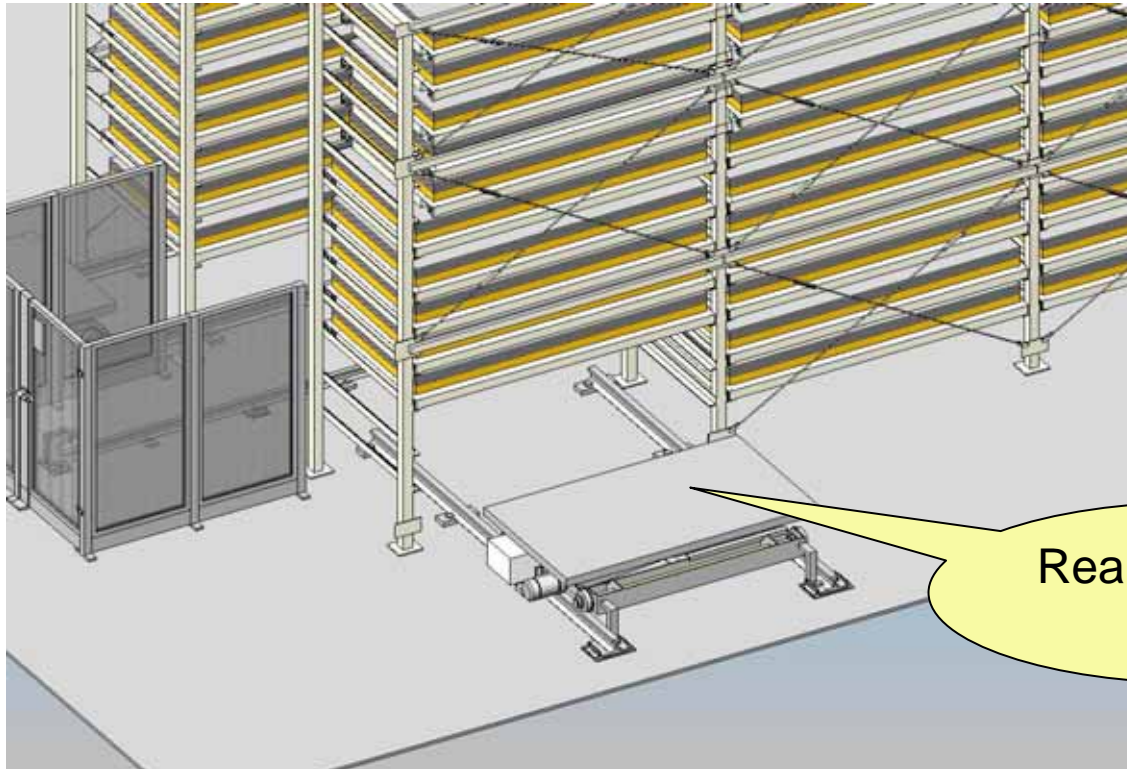
## Front Buffer Station



- Provides 2 material load stations for 2 Laser EL4
- Provides ability to stage next material while current material is processing
- Prepares next processing material in approximately 1 minute
- Only for Automated River EL4 (other equipment would be manual load)

## 4

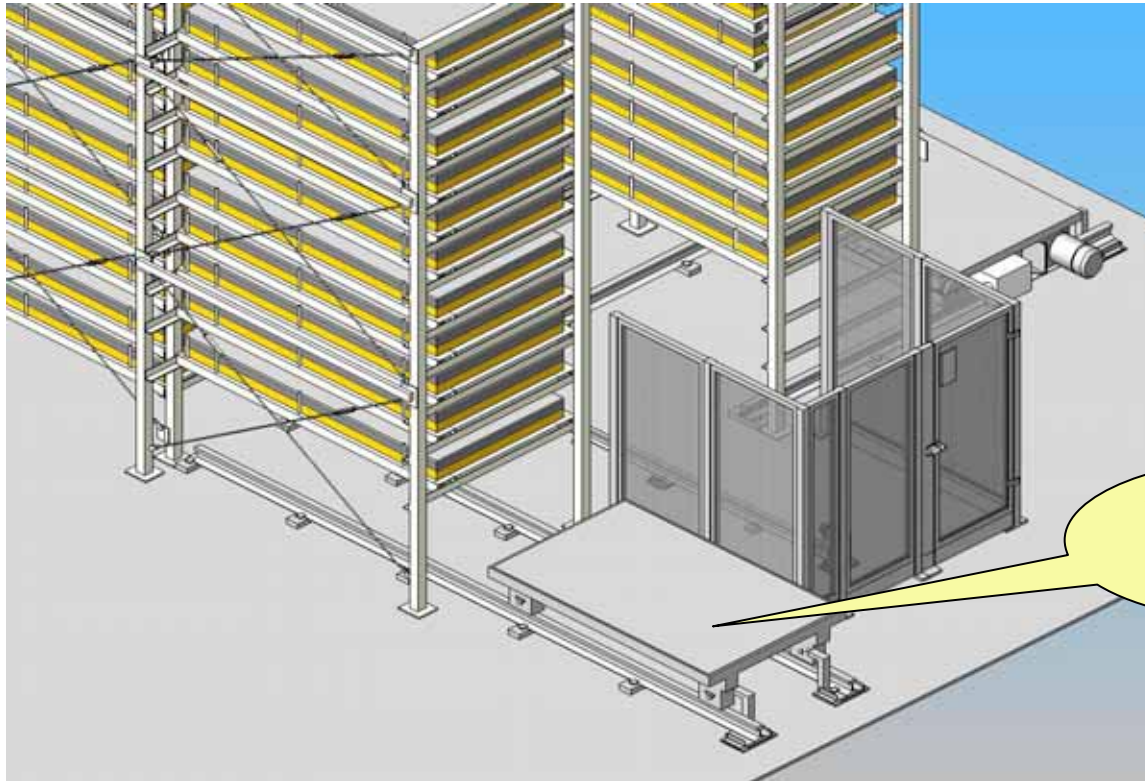
# Rear Lifter Cart Station (RLC)



- 1 Shelf (from total number of shelves) is lost when integrated into system
- Rails extend for delivery of material to other manufacturing equipment
- Scissors lift creates adjustable pass height to other manufacturing equipment ( Punch Press, Press Break, etc.)
- Placement of cart can be under any bay

# 5

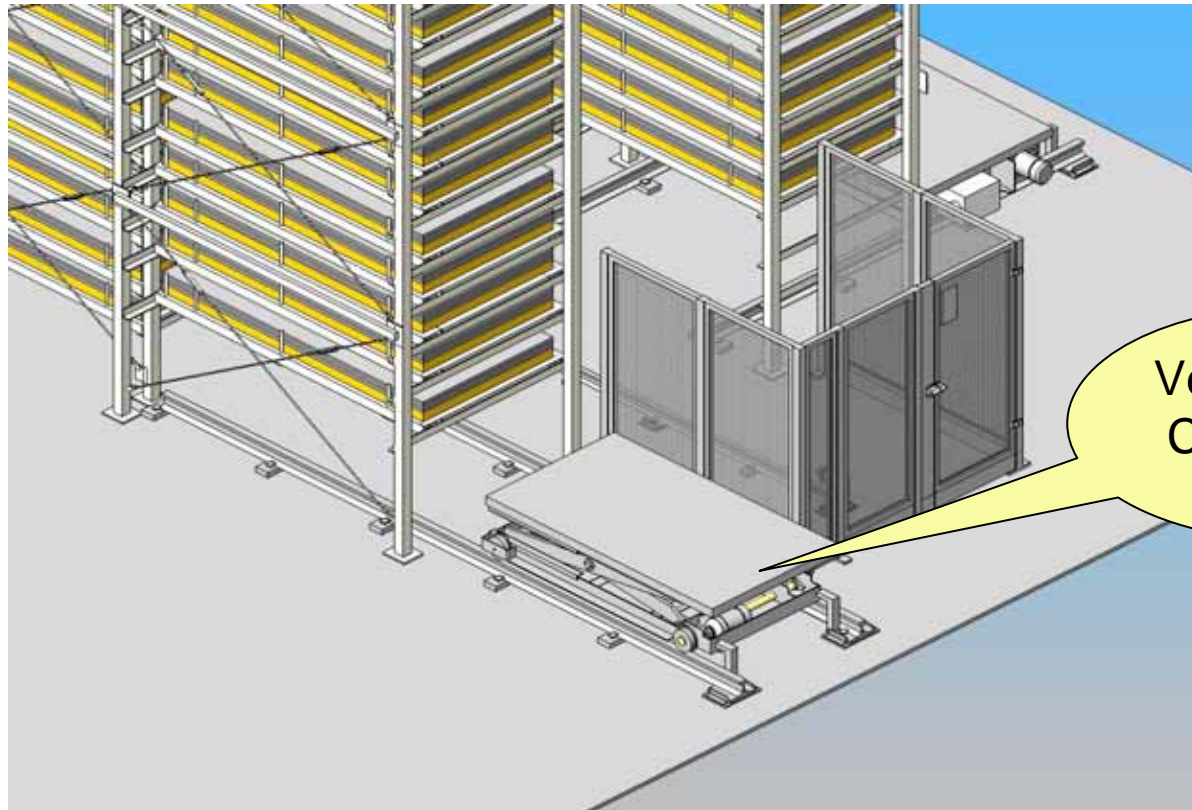
## Vertical Cart Station (VC)



- Advantageous for transferring raw material to system
- 1 shelf (from total number of shelves ) is lost when integrated into system
- Placement of cart can be at the end of the bays

# 6

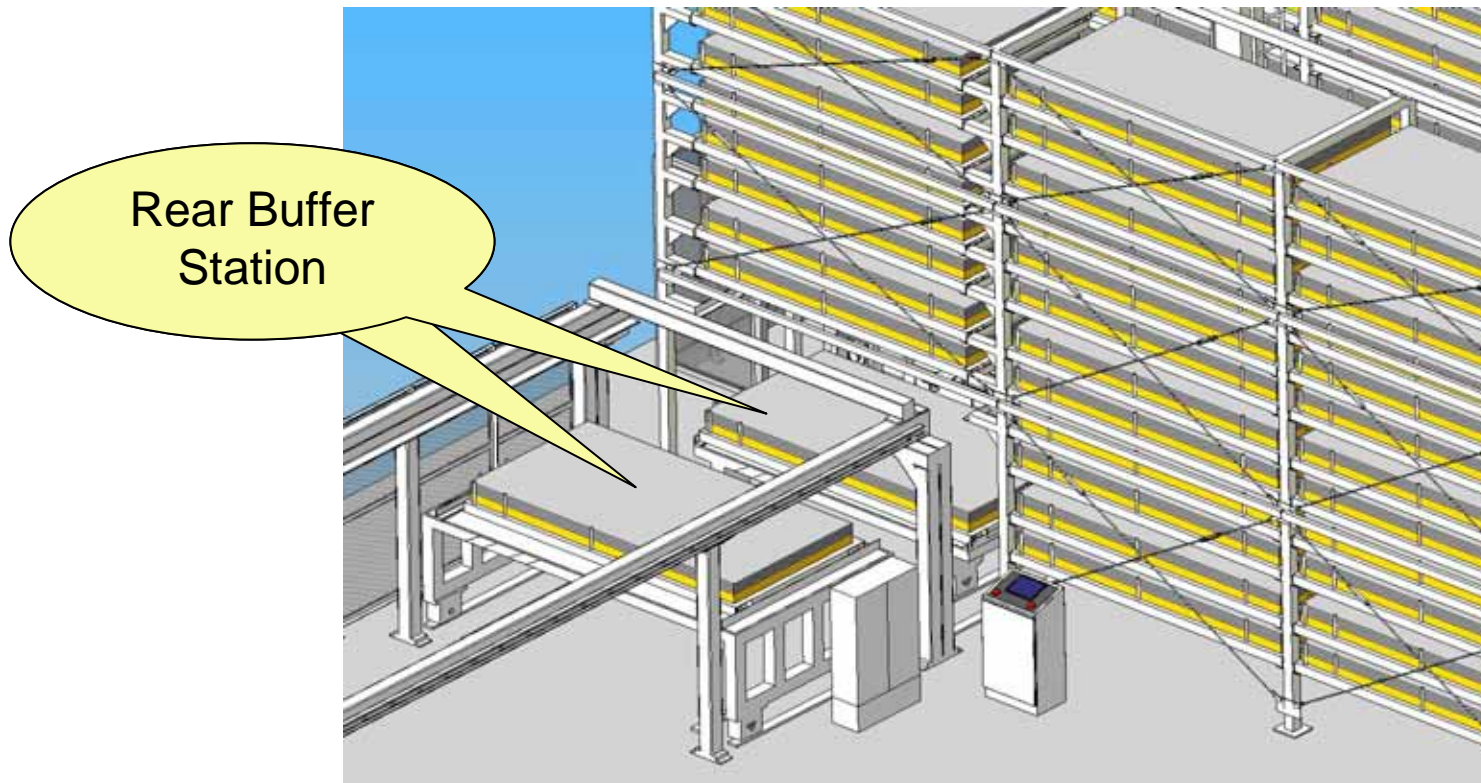
## Vertical Lifter Cart Station (VLC)



- Advantageous for transferring raw material to system
- 1 shelf (from total number of shelves ) is lost when integrated into system
- Scissors lift creates adjustable pass height to other manufacturing equipment
- Placement of cart can be at the end of the bays

## 7

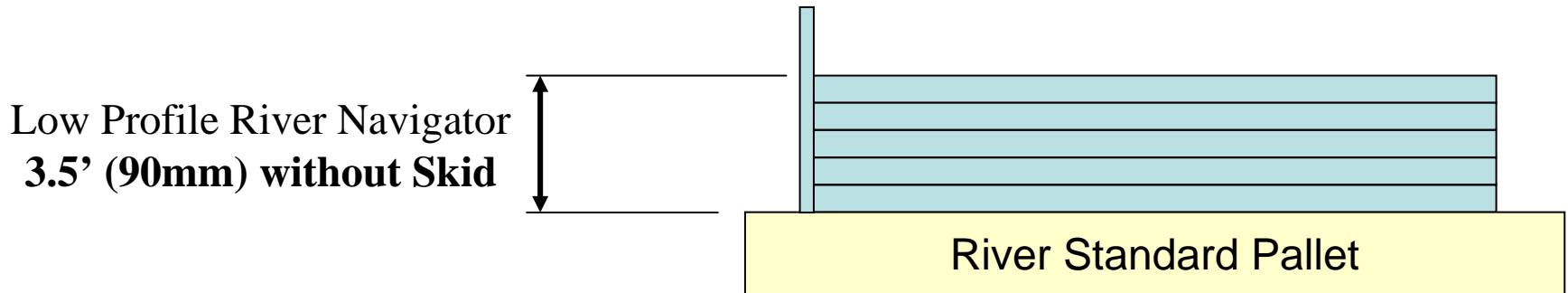
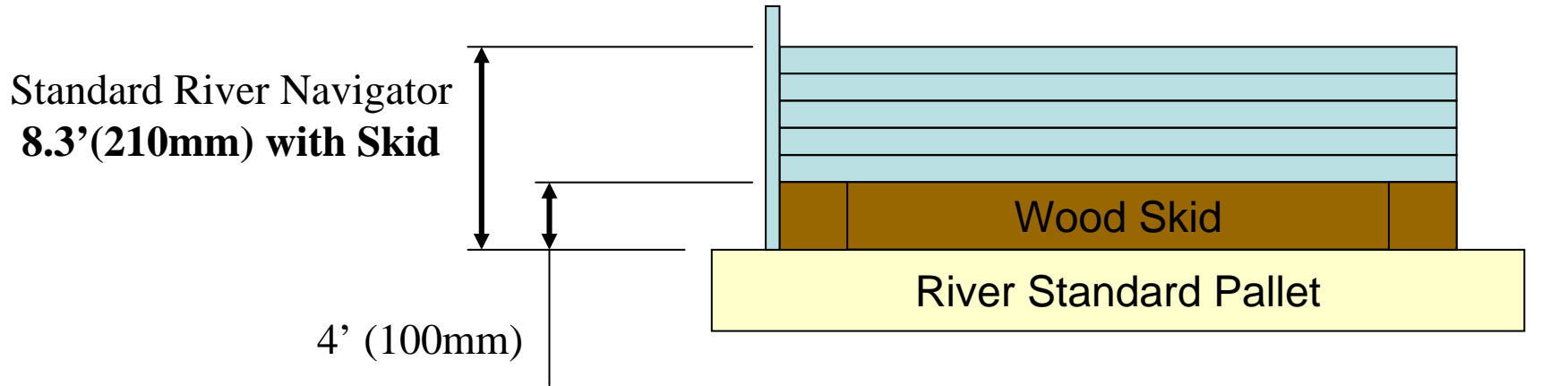
# Rear Buffer Station



- Provides 2 material load stations for 2 Laser EL4
- Provides ability to stage next material while current material is processing
- Prepares next processing material in proximately 1 minute
- Only for Automated River EL4 (other equipment would be manual load)

# Specifications

- Loading Height



# Specifications

	RN4400			RN6000		
	4x8	5x10	6x12	4x8	5x10	6x12
Fwd-Back Speed	60m/min 2362inch/min	60m/min 2362inch/min	60m/min 2362inch/min	100m/min 3937inch/min	100m/min 3937inch/min	100m/min 3937inch/min
Elevator Speed	10m/min 394inch/min	10m/min 394inch/min	10m/min 394inch/min	15m/min 590inch/min	15m/min 590inch/min	15m/min 590inch/min
Pallet Drive Speed	20m/min 787inch/min	20m/min 787inch/min	20m/min 787inch/min	40m/min 1575inch/min	40m/min 1575inch/min	40m/min 1575inch/min
Loading Weight	2000kg 4400ib	2000kg 4400ib	2000kg 4400ib	2727kg 6000lb	2727kg 6000lb	2727kg 6000lb
Loading Height / Shelf pitch	210mm(8.3") / 350mm(13.8")	210mm(8.3")/ 375mm(14.8')	210mm(8.3")/ 400mm(15.7")	210mm(8.3")/ 350mm(13.8")	210mm(8.3")/ 375mm(14.8")	210mm(8.3")/ 400mm(15.8")
Option Loading/ Height/Shelf pitch	160mm(6.3")/ 300mm(11.8")	90mm(3.5")/ 255mm(10")	90mm(3.5")/ 280mm(11")	160mm(6.3")/ 300mm(11.8")	90mm(3.5")/ 255mm(10")	90mm(3.5")/ 280mm(11")
Pallet Size mm Inch	1350x2600x75 53.1"x110.2"x2.9"	1650x3150x100 64.9"x 5.9"x 3.9"	2100x4100x125 82.7"x 161.4"x 4.9"	1350x2600x75 53.1"x110.2"x2.9"	1650x3150x100 64.9"x5.9"x3.9"	2100x4100x125 82.7"x161.4"x4.9"

# Height Specifications

	<b>RN4400</b>	<b>RN4400</b>	<b>RN4400</b>	<b>RN6000</b>	<b>RN6000</b>	<b>RN6000</b>
Spec.	<b>4x8</b>	<b>5x10</b>	<b>6x12</b>	<b>4x8</b>	<b>5x10</b>	<b>6x12</b>
7 shelf height (210mm/8.3")	3653mm (143.8")	3803mm (150")	4430mm (177.4")	3875mm (152.6")	4025mm (158.5")	4430mm (177.4")
10 shelf height (210mm/8.3")	-	-	-	-	-	5624mm (221.4")
12 shelf height (210mm/8.3")	5498mm (216.5")	5773mm (227.3")	6550mm (257.9")	5720mm (225.2")	5995mm (236")	-
7 shelf height (90mm/3.5")	3353mm (143.8")	3083mm (121.4")	3710mm (146.1")	3575mm (140.7")	3305mm (130.1")	3710mm (146.1")
12 shelf height (90mm/3.5")	4948mm (194.8")	4453mm (57.2")	5230mm (205.9")	5170mm (203.5")	4675mm (184.1")	5230mm (205.9")
Pass line	600mm (23.6")	600mm (23.6")	650mm (25.6")	650mm (25.6")	650mm (25.6")	650mm (25.6")

# Standard layout

## Drawing Number

		RN4400	RN6000
5'x10'	4 Bay x 7 Shelf ,12 Shelf	RS00103	RS00106
	7 Bay x 7 Shelf ,12 Shelf	RS00104	RS00107
	Double 4 Bay x 7 Shelf ,12 Shelf	RS00105	RS00108
6'x12'	4 Bay x 7 Shelf ,10 Shelf	RS00109	
	7 Bay x 7 Shelf ,10 Shelf	RS00110	
	Double 4 Bay x 7 Shelf ,10 Shelf	RS00111	