

# WAREHOUSE SYSTEM TECHNOLOGY

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Save costs, increase warehouse space with STEINBOCK EK 11 - 20 "Depotlift"

Storage space is expensive and the costs are forever increasing. Whether your customer is planning a new warehouse, or remodeling the present one, you can increase your customers profits by optimizing the storage facilities.

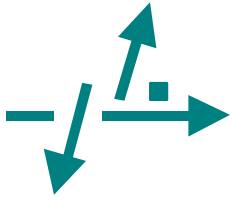
Remember when offering the EK turret truck, every square foot of floor area saved, amounts to many additional cubic feet of storage space. All loads are stored within easy view of the operator.

Should you consider planning a warehouse facility, please call **(407) 677 - 0040** or fax **(407) 678 - 0273** **PMH** for assistance. We'll gladly furnish you with the information and layout.

## Basic Information

### STEINBOCK EK Aisle requirements

Pallet (samples)	Sideshift stroke	Pallet Insertion length	Aisle (guided) wire	Aisle (guided) rail
48 x 40	58.7"	48"	66"	66"
	48.8"	40"	58"	58"
48 x 42	58.7"	48"	66"	66"
	52.8"	42"	60"	60"
48 x 48	58.7"	48"	66"	66"
	58.7"	48"	66"	66"
42 x 40	52.8"	42"	60"	60"
	48.8"	40"	58"	58"
40 x 40	48.8"	40"	58"	58"
	48.8"	40"	58"	58"
72 x 60	80.3"	72"	90"	90"
	68.5"	60"	78"	78"



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Larger load sizes can be handled, please contact PMH for engineering specifications. Large furniture pallets up to 110" or more are not uncommon.

Representative Vehicle frame sizes depending on model / capacity

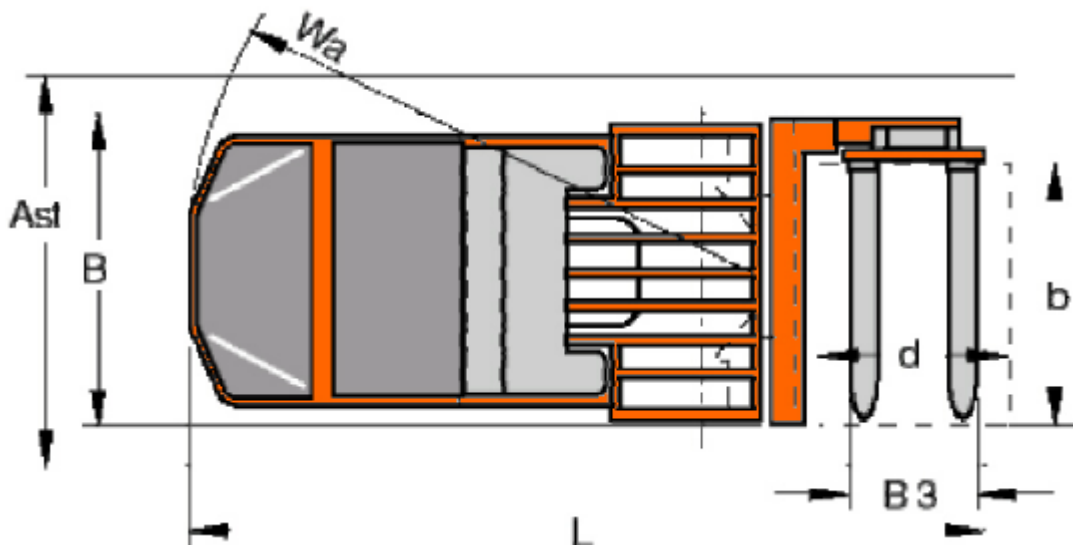
(1000)	(1100)	(1200)	(1300)	(1400)	(1450)	(1500)	(1550)
39.4"	43.3"	47.2"	51.2"	55.1"	<b>57"</b>	59"	61"
(1600)	(1650)	(1700)					
63"	65"	66.9"					

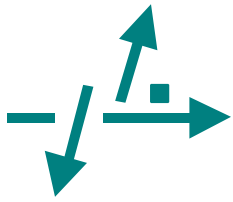
Special Sizes available for all models

Coincide with  
Attachment frame sizes

48.8	52.8	<b>58.7</b>	60.6	62.6	64.6	68.5	72.4
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**(bold numbers)** indicate vehicle setup for 48" pallet





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Load Insertion Size	Width of Drivers Compartment	Load + Mast & Forks	Rec. Vehicle Chassis Width	Min. Aisle Requirement	Recommended Guided Aisle
40"	48.8"	48.8"	47.6"	58"	58"
42"	52.8"	52.8"	53.1"	60"	60"
48"	56.7"	58.7"	57"	66"	66"
52"	60.6"	60.6"	59"	70"	70"
56"	64.6"	64.6"	63"	74"	74"
60"	68.5"	68.5"	66.9"	78"	78"
72"	80.3"	80.3"	66.9"	90"	90"

The recommended intersecting aisle for a  
 EK 11 - 12 with 48 x 40 load 12 - 13 ft  
 EK 13 - 15 with 48 x 40 load 13 - 14 ft  
 EK 20 with 48 x 40 load 15 ft

Intersecting Aisle = (aisle used to enter the working aisle).

Working aisle width is defined as clear space in which the vehicle will travel. The dimensions are normally between loads that overhang their respective racks to create a clear path.

Please review the rack check sheet and fill in all dimensions as indicated:

In brief: Warehouse facility: planned  existing

Dimensions of warehouse length \_\_\_\_\_ width \_\_\_\_\_ height \_\_\_\_\_

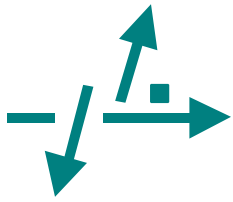
Amount of loads to store \_\_\_\_\_ Existing aisle width \_\_\_\_\_

Maximum weight of load \_\_\_\_\_ (please verify the actual weight)

Overall dimensions of load length \_\_\_\_\_ width \_\_\_\_\_ height \_\_\_\_\_

(Note the dimension should include pallet and MAX. load overhang)

Pallet rack top beam height \_\_\_\_\_ Available height of warehouse \_\_\_\_\_  
 (Please note overhead obstructions)



# **WAREHOUSE SYSTEM TECHNOLOGY**

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## **General Information EK 11 - 1500 (frame width)**

Capacity: 2420 lbs  
Load Center: 24"

## **General Information EK 12 - 1500 (frame width)**

Capacity: 2640  
Load Center: 24"

## **General Information EK 13 - 1500 (frame width)**

Capacity: 2860 lbs  
Load Center: 24"

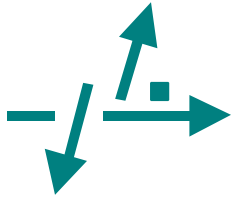
## **General Information EK 15 - 1500 (frame width)**

Capacity: 3300 lbs  
Load Center: 24"

## **General Information EK 20 - 1500 (frame width)**

Capacity: 4400 lbs  
Load Center: 24"

Depending on frame widths and height: (see technical specifications for additional information).



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## Floor loading and requirements:

The warehouse floor should be smooth industrial type flooring with a minimum floor load capacity of 250 lbs per sq. ft. 4" reinforced concrete with 2000 P.S.I. Floors should be impervious to oils and greases.

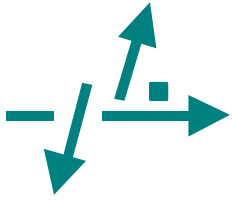
Sample: EK 15 with a 2 stage 295.3" lift height and frame width of 59"

## Without LOAD

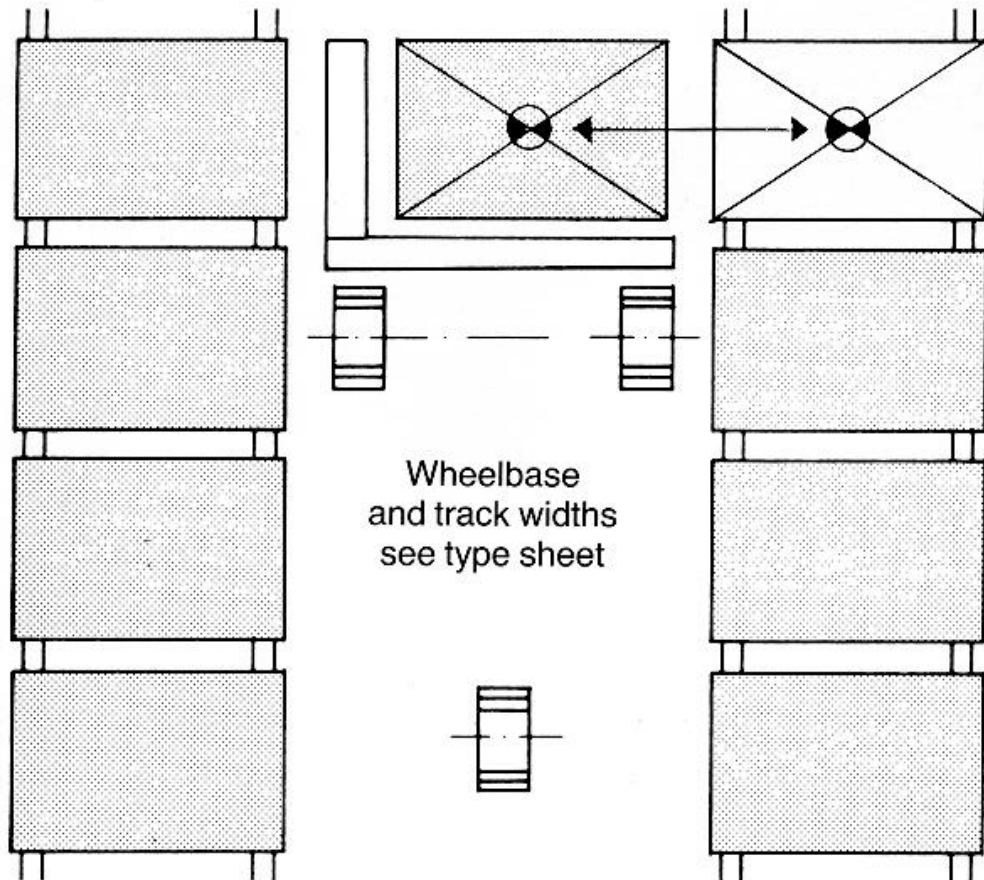
Vehicle weight 19,553 lbs (incl. Battery wt. 4,660)	Axle load	Wheel Pressure attachment home position	Wheel Pressure attachment extended right
Steering wheel	7,739 lbs	7,739 lbs	7,739 lbs
Front wheels	11,814 lbs	Left 6,107 lbs Right 5,707 lbs	Left 4,915 lbs right 6,899 lbs

## With LOAD

Vehicle weight <b>23,029 lbs</b> with load (3300) and 175 lbs driver			
Steering	6,091 lbs	6,091 lbs	6,091 lbs
Front wheels	16,938 lbs	left 9,069 lbs right 7,869 lbs	left 3,870 lbs right 13,068 lbs



# WAREHOUSE SYSTEM TECHNOLOGY

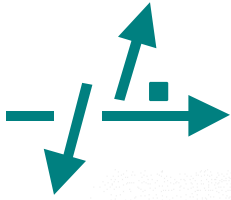


1) Load located at right angles to the direction of travel, jib arm left and load right. Different wheel pressures occur on the front wheels due to the asymmetrical configuration of the turret attachment.

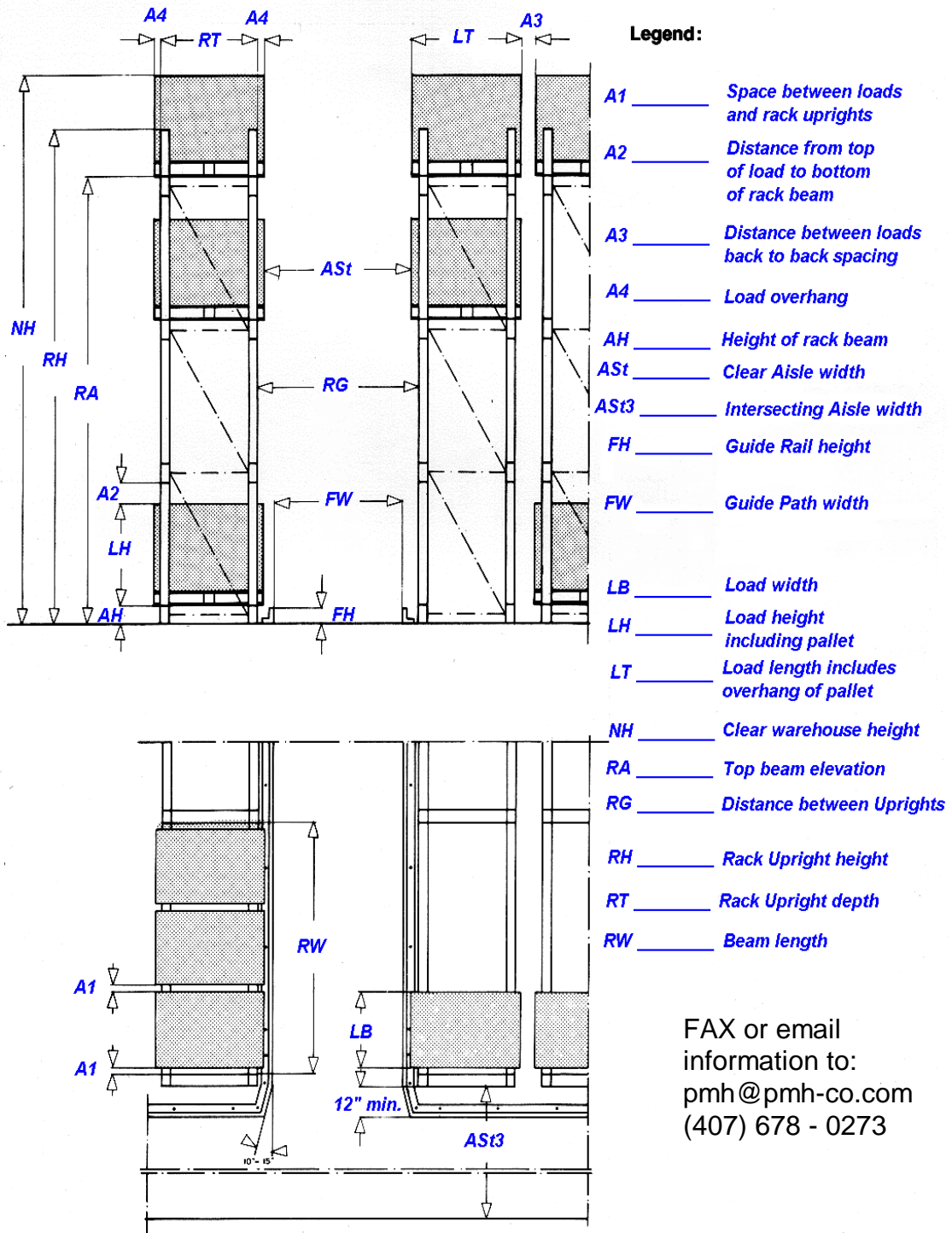
2) Wheel pressures at the pallet location based on load size of 48"

3) Above wheel pressure gives the maximum specific floor load (static) of approx.  $644 \text{ N/cm}^2$

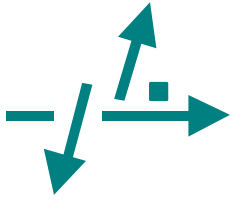
For floor load rating, the figures should be multiplied by a "dynamic load factor" of 1.4



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FAX or email  
information to:  
pmh@pmh-co.com  
(407) 678 - 0273



# WAREHOUSE SYSTEM TECHNOLOGY

## Application Questionnaire

Please answer the following questions to determine EK vehicle parameters:

### Short description of current transportation and handling method.

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### A. Load Unit information (Pallet)

Type of load: \_\_\_\_\_  
(eg. loose / stabile / wrapped / etc.)

Loads stored on:

\* please do not include the load dimensions at this time

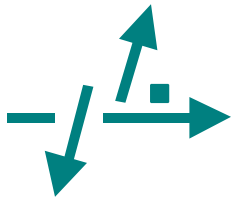
- Pallet      length \_\_\_\_\_ width \_\_\_\_\_ height \_\_\_\_\_
- Skid        length \_\_\_\_\_ width \_\_\_\_\_ height \_\_\_\_\_
- Container   length \_\_\_\_\_ width \_\_\_\_\_ height \_\_\_\_\_

Do you intend to handle pallets, skids, or containers of different sizes?

- Yes \_\_\_\_\_
- No \_\_\_\_\_

If yes please list max. and minimum sizes





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Will loads be handled by inserting its length into the rack opening (width of pallet faces aisle)

or

Will loads be handled by inserting its width into the rack opening (load length faces aisle - only possible with four way entry pallet, skid, or container)

Does the product overhang the pallet, skid, or container  YES  
 NO

If larger, what is the overhang front & rear \_\_\_\_\_  
sides \_\_\_\_\_

Please indicate if the loads are smaller or equal or in size to the pallet

Smaller   
Equal

Desired aisle size \_\_\_\_\_ (minimum aisle 18" + load insertion length)

## B. Load movements and length of workday

Amount of pallets moved during day \_\_\_\_\_ / # \_\_\_\_\_ of shift cycles

Length of workday \_\_\_\_\_ hrs

Length of shift \_\_\_\_\_ hrs

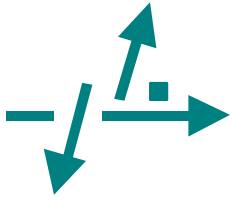
Loads received per shift \_\_\_\_\_

Loads shipped per shift \_\_\_\_\_

Average distance to storage location \_\_\_\_\_

Average lifting height \_\_\_\_\_

(Distance from entry of warehouse to center aisle add half the distance of working aisle length)



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Can loading and unloading be combined?  Yes

No

Will inventory control software be utilized?  Yes

No

## C. Storage Area

Desired lift height \_\_\_\_\_

Highest shelf level (top beam) \_\_\_\_\_

Usable stacking height (overall clear height of warehouse) \_\_\_\_\_

Height and location of other fixed building obstructions if applicable:

\_\_\_\_\_

## D. Information about racks

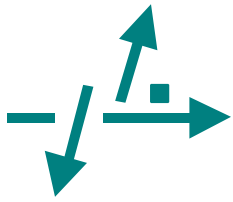
Warehouse dimensions  existing \_\_\_\_\_ length \_\_\_\_\_ width

or  planned \_\_\_\_\_ length \_\_\_\_\_ width

Rack dimensions  existing \_\_\_\_\_ length \_\_\_\_\_ width

or  planned \_\_\_\_\_ length \_\_\_\_\_ width

(please furnish brief sketch or layout)



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## Rack Structure:

Height of Upright frame \_\_\_\_\_

Top Beam elevation \_\_\_\_\_

No. of storage levels \_\_\_\_\_

Clear beam span \_\_\_\_\_

Clear shelf height \_\_\_\_\_

No. of pallets per bay \_\_\_\_\_

Clearance between  
pallets / rack upright \_\_\_\_\_

Aisle width between loads:

current \_\_\_\_\_  planned \_\_\_\_\_

Aisle width between rack uprights

current \_\_\_\_\_  planned \_\_\_\_\_

## E. Guide Rails

Existing application

Yes

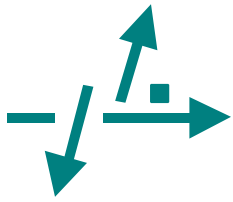
No

Recommend guide rails as per attached sketch

Remember lowest load must be raised to accommodated guide rails

Wire guided application

Recommended wire guide path and layout as per sample sketch



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## F. Other information

Door openings to be negotiated \_\_\_\_\_ height x \_\_\_\_\_ width

Environment conditions

Cooler				temp
Freezer				temp
Wet storage				
Dust conditions				
Abrasive material				
Flammable goods				

## G. Required Equipment

Number of vehicles \_\_\_\_\_

Battery AH \_\_\_\_\_

Multiple shift \_\_\_\_\_

Number of Batteries \_\_\_\_\_

change batteries \_\_\_\_\_

Charge Input voltage \_\_\_\_\_

Single phase or Three phase \_\_\_\_\_

## H. Optional Equipment

Light optical load alignment  YES  NO

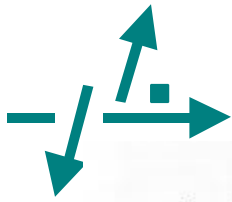
Safety lift limitations w/override  YES  NO

Work lights  YES  NO

Operator compartment light  YES  NO

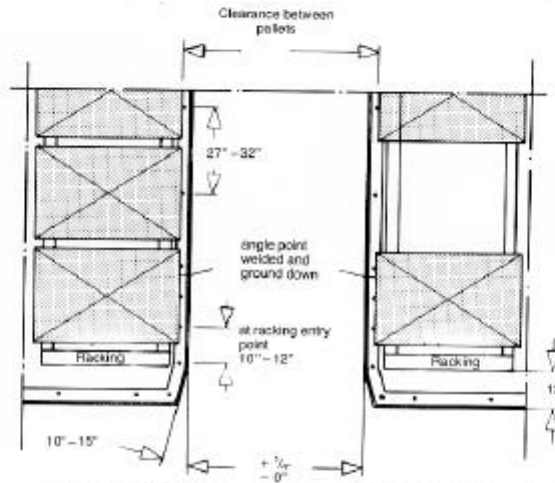
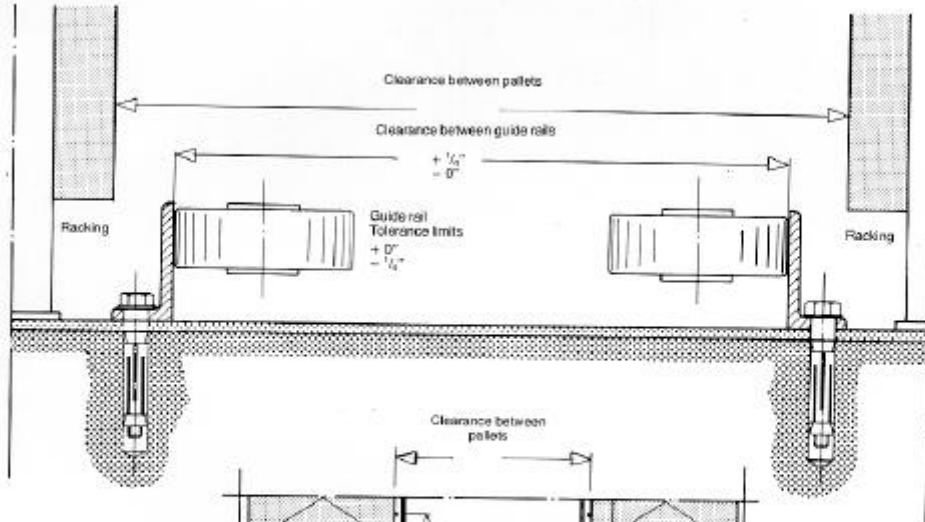
Mirror  YES  NO

End of aisle slowdown / stop  YES  NO



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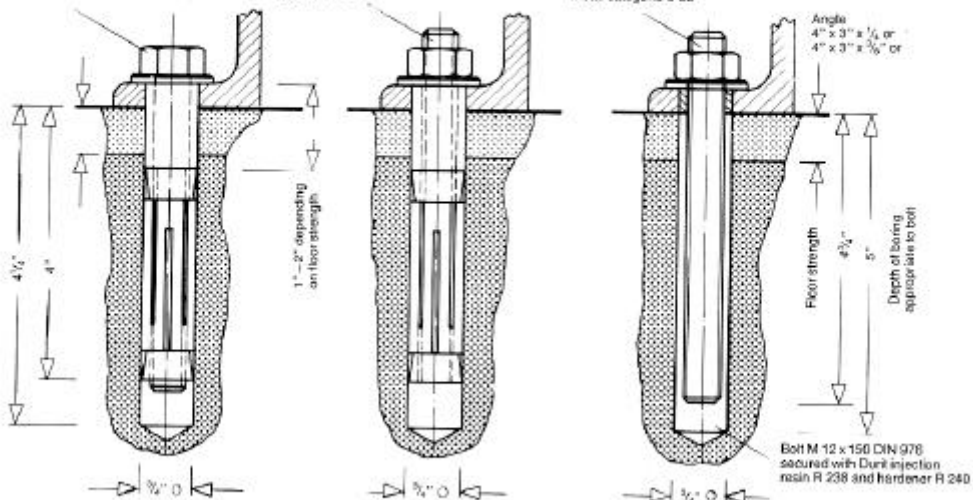
## Installation of guide rails and method of securing

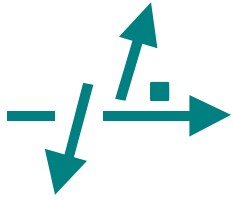


Upat-PS-Anchoring bolt  
Type S/18/50

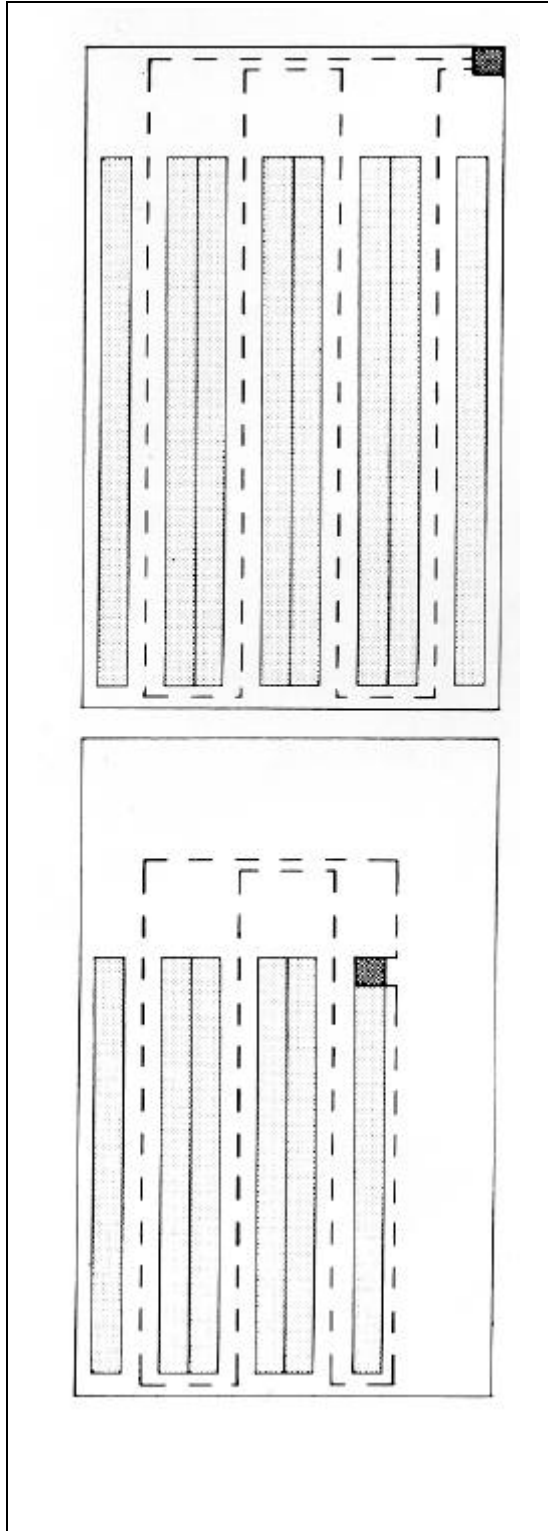
Upat-PS-Anchoring bolt  
Type B/18/50

Bolt M 12, Grade 8.8 from 8.8  
metal category C 35





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## Line Driver

Sample layout depicts (2) single & (3) back-to-back rows of rack 100 ft long. An aisle width of 73" and an intersecting aisle of 12 ft. The length of wire used is approx. 520 ft.

The guide wire is covered with a flexible insulation. The wire will be installed approximately 1/4" below the surface of the floor.

One line driver will supply the required frequency to a loop of max. 4000 ft. For larger installations a second line driver should be installed.

The concrete floor should be level and meet specifications stated on previous pages. Any floor reinforcements must be at least 2" below the surface. Large metallic objects as well as underground power lines should be kept at a safe distance from the guide wire.

In case of unavoidable interference contact the PMH. To calculate the cost for the wire installation multiply length of aisles and add connecting length of wire between aisles to form a continuous circuit.

The guide wire from the load aisles should extend 8 - 10 ft into the intersecting aisles. The return wire must be kept a minimum of 2 ft apart.

Layout depicts (2) single & back-to-back rows of rack. Length of wire approx. 500 ft.