Installation, Operating and Maintenance Instructions

Interroll Dynamic Storage – Pallet Flow

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Interroll Atlanta LLC
A quality dynamic storage system relies on five critical items. They are:

- Proper application of rail type
- Consistent quality pallets of the specified design
- Quality dynamic storage rails (INTERROLL!)
- Quality rack structure designed to accommodate the rail and load
- Accurate and proper installation
- Good system maintenance

This instruction sheet will address “Accurate and proper installation”. The following tolerances are absolutely critical for good gravity flow results. These tolerances should be specified at the project development stage, included in the documentation for the installation pricing stage, included in the labor contract, reviewed at installation start up, and checked upon completion, prior to system sign off. We recommend the use of a transit or laser level to achieve these results.

- Rail must be installed at the specified slope for the application. The most common pitch used are 3/8” and 7/16” per foot, however refer to Interroll’s system drawing for the specific project or call Interroll for confirmation. The slope must not deviate from a true pitch line by more than 1/16”.

- Beams supporting the rail must be adjusted or shimmed so that rails within a lane do not deviate from level by more than 1/16”.

- Rails must be installed so that from front to rear of the system, the rail does not deviate from a true line by more than 1/16”.
The end result is a flow lane in which the top of the wheels or rollers are sloped properly, and in a true plane.

To maintain these tolerances we recommend the following mounting details:

- All rails must be attached to the rack at every support beam, using a technique that prevents the rail from shifting or becoming detached during normal everyday use.
- Rack frames must be securely anchored using a technique that prevents shifting in any direction which will result in out of alignment rail.
- Rails should be protected from forklift impact, which will result in out of alignment rail and component damage, thus affecting good flow characteristics. The most common method is to design and manufacture the load end and unload end beams in a manner in which the rail is hidden behind the beam and can not be directly impacted by the forks.

Following are a few general installation practices you may want to follow to assure the system will perform as expected:

- Install and fully test one complete lane prior to moving forward. Have the person responsible for system acceptance sign off on this first lane. Installation can then be carried on with confidence.

- As bays within a system are completed, assuming space allows, test each lane for proper flow. This “test as you go” method allows the crew to depart shortly after completion and test of the final bay, improving crew scheduling, and help reduce or eliminate the need for return “adjustment” trips. Testing is customarily performed by the person responsible for system acceptance and sign off, however responsibility for this testing function should be clarified up front.
INSTALLING THE SYSTEM

• Rack must be leveled, shimmed and securely anchored to ensure that all flow support beams are level and their elevations do not deviate from a true pitch line by more than +/- 1/16”

• Maximum allowable deflection of pallet is 1/8”

• Bolt flanges at each end of lane to structurally sound angle designed to carry the load and the impact of loading/unloading by Fork Lift Trucks

• Tek screw balance of tracks to intermediate beams to maintain the necessary track alignments and prevent the rails from shifting
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Bolt Front

Tek Screw At These Points

Bolt Back

Pallet Depth Plus 6” Recommended

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OPERATION

• Pallets must be loaded and unloaded with the forklift squared up to the face of the rack - do not approach or withdraw at an angle.

• When loading a Flow lane the pallet must be level and two to three inches above the wheels or rollers. a true line by more than 1/16”.

• Position pallet into lane and slowly lower and tilt the pallet down on to the wheel/roller, ensuring the front of the pallet is flush with the front beam, until contact is made.

• Position the second pallet by following the first procedure until the lanes is fully loaded.

• When removing pallets from a lane, lift the pallet to a level position just high enough to clear the front beam. Withdraw at a slow constant speed.

• Make sure the following pallet comes to the front of the system. If for some reason the pallet is stuck and does not roll forward during the unloading, push the pallet back in and then back out again. If the pallet is still stuck, reload the lane and do not unload until the cause of the jam has been found and removed.
MAINTENANCE PROCEDURES

SAFETY

Your Flow Storage System is designed so that personnel do not have to enter the rack to operate the system. If a pallet becomes stuck in a lane and does not flow forward, an initial attempt should be made to free it without entering the rack. This can usually be accomplished by loading another pallet behind the stuck one. The additional line pressure is often enough to free the jam.

If it becomes absolutely necessary to enter the rack for any reason, the following procedure should be used:

Remove all pallets from lane

If climbing into the rack structure, always wear approved safety harness and attach to safety cable in lanes on the second level or above

Use “buddy” system; having someone stand at exit end of lanes, ensuring that no loads are removed from system in lanes adjacent to that being worked in.

LUBRICATION

The Logix 2000 wheel and Logix 4000 bearings are supplied pre-lubricated and generally do not require any additional lubrication during the life of the system. However, under certain extreme conditions where high levels of moisture, salt, or other corrosives, dust are present, periodic lubrication may be required. The average time between lubrications will vary from application to application.

Use a medium weight oil to lubricate the bearings. We recommend Mobil DTE 26 or equivalent. If there is moisture, ice, grit, or rust in the bearing, then use a light water displacing oil such as WD-40 to loosen the rust or grit and to drive out any moisture. Then lubricate with DTE 26.
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REPLACEMENT

• If a wheel or roller is damaged and needs to be replaced, use the following procedure:
  • Locate and loosen the bolt/shaft and lock nut with a wrench or socket
  • Slide bolt out until the damaged wheel drops out, and replace with new
  • Re-tighten all hardware

BRAKE MOUNT ASSEMBLY

• The brake mount assembly is a self-contained unit that is pre-set at the factory and generally does not require any additional adjustments or maintenance during the life of the system. The brake is the most important safety component in the system. A quick method to check if a brake is working properly is to watch a particular lane and watch the speed of the pallet. The pallet should move through the lane at a steady speed. It should not speed up or slow down. If the pallet speeds up as it moves through the lane, it could mean that a brake is damaged. Pallets running too fast are a major safety concern, so every effort should be made to identify and correct the cause of this problem as soon as possible.

• If a pallet slows down as it moves through the lane, it could mean that the brake has been jammed either through damage or because some debris is preventing the free movement of the brake rollers.

• Another way to check for a malfunctioning brake is to listen to the sound that is emitted when the pallet is rolling over it. A properly functioning brake will emit no noise, or at most a low whirring sound. If a brake chatters, or emits a loud growling sound, it generally means that a pallet is moving too fast over the brake.
REPLACEMENT

• To remove a damaged brake and replace it with a new one, use the following Procedure:
  • Remove the through shaft/bolt and lock-nut with a wrench or socket
  • Slide the bolt out until the brake assembly can be removed
  • Install new brake in proper direction, and re-tighten the hardware

PALLET SEPARATORS

• The pallet separators are designed to require no additional maintenance or adjustment during the life of the system. However, it is recommended that pallet separator function be checked on at least a monthly basis. This can be achieved with the system unloaded, following the safety guide-lines previously noted, by manually depressing the separator sensor shoe and watching to make sure that the dual pallet stops raise above the level of the wheels. When the separator sensor shoe is released, the dual pallet stops should lower beneath the level of the wheels.
  • One the function has been confirmed in the unloaded state, test with a full pallet load to ensure proper operation.
Loading & Unloading Operation Manual

Loading Pallets

1  Begin loading the first pallet

A. Pallets must be loaded and unloaded with the forklift squared up to the face of the rack - do not approach or withdraw at an angle.
B. When loading a Flow lane the pallet must be level and two to three inches above the wheels or rollers, a true line by more than 1/16”.

2  Position pallet into lane and slowly lower and tilt the pallet down on to the wheel/roller, ensuring the pallet is flush with the front beam, until contact is made. Tilt the pallet to release it from the forklift.
As the pallet flows over the brake it will slow down.

The pallet will stop at the wedge stop. The next pallet may be loaded.

Position the second pallet by following the first procedure until the lanes is fully loaded.
5 Continue loading the pallets.
1  Begin unloading the first pallet.
   a. When removing pallets from a lane, lift the pallet to a level position just high enough to clear the front beam. Withdraw at a slow constant speed.
   b. Make sure the following pallet comes to the front of the system. If for some reason the pallet is stuck and does not roll forward during the unloading, push the pallet back in and then back out again. If the pallet is still stuck, reload the lane and do not unload until the cause of the jam has been found and removed.

2  When the first pallet is removed from the frame, the following pallets will begin to flow.
3 When the pallet has been completely unloaded the following pallet will continue down the conveyor and stop at the wedge stop.
1. Begin loading the first pallet.

Note position of separator.

(DOWN)
2 Lower Pallet onto frame.

3 Release the first pallet.
4 As the pallet flows over the brake it will slow down the pallet.

5 The pallet will continue to flow down the conveyor until it triggers the pallet separator at the end of the lane.
6 Continue loading the pallets and begin manually unloading the product.

7 The next pallet loaded will stop on the stop shoe plates holding that pallet and all pallet loaded behind.
When the pallet has been completely unloaded, remove pallet or slip sheet.
Activate the separator by pushing the foot lever down.

Note position of separator. (DOWN)
The pallets will begin to flow. As they roll over the brake it will be slightly separated from the preceding pallet.
The pallet will stop at the separator. The next pallet may be loaded and the operator may begin to manually unloading the product.