

Slip Removal of inbound Product

Problem: A large amount of slip-sheeted loads are received into a new ASRS storage system that utilizes captive system pallets. The Slip sheets are required for transport to the facility but are considered to be unnecessary and a nuisance in the ASRS causing load profile errors. A simple, efficient method is needed to remove the slip sheets as they are inducted into the system.

Slip sheets are used in many industries today. They require the use of a special fork truck with a slip sheet attachment device. The two main benefits for using slip sheets are:

1. The elimination of the pallet to allow better cube utilization in the trailer.
2. To provide a protective barrier between the product and the pallet or other surface.



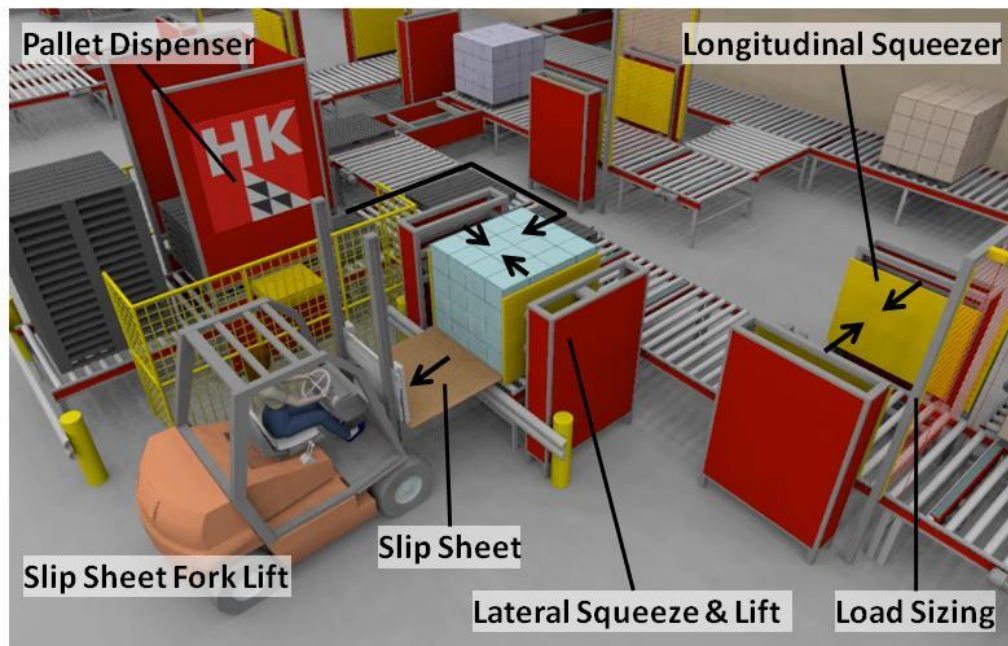
Slip sheets are usually comprised of a thin, durable material and are designed to extend outside the standard load envelope on two sides of the pallet so that the slip sheet attachment device can grab the slip sheet. The extension is typically about 4 inches, however, it is common to see the slip sheet extending out as much as 8-10". The extended slip sheet has the potential to cause two very expensive problems in the ASRS system. 1. The system must be designed to handle the overage which results in a lower cube density. For a large system this can amount to millions of dollars in additional rack and building costs and 2. Slip sheets that extend past the design limits can cause load profile errors in the ASRS that cost labor dollars to fix.

Slip sheet handling devices are built to move and transfer slip-sheeted loads from surface to surface but they do not have the ability to remove the slip sheet from the load as it is being placed onto the captive system pallet.

Solution: Implement a load induction station that allows for the easy removal of the slip sheet as the load is placed on the captive system pallet.

The induction system requires the following components:

- Automatic captive system pallet dispenser.
- Conveyance
- Device to laterally squeeze the load at set-down
- Set-down conveyor with ability to lower slightly to relieve the pressure on the slip sheet or squeezer with the ability to rise slightly.
- Device to longitudinally squeeze the load.
- Load sizing station.



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Description of Operation:

- System board is dispensed and conveyed to the induction station.
- Forklift driver arrives and places the slip-sheeted load onto the system pallet and pulls lanyard
- Lateral squeezing device squeezes the load and the set-down conveyor lowers slightly to release the pressure on the slip sheet.
- Forklift driver backs out removing the slip sheet.
- Lateral Squeezer releases load.
- Load is conveyed to the longitudinal squeezer.
- Load is squeezed in the longitudinal direction.
- Load passes through the load sizing station.
- Load continues on to ASRS induction.
- Process repeats for the next load