



**MALLARD**  
**MANUFACTURING**  
YOUR GRAVITY FLOW SPECIALISTS

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# Pallet Flow Separators



CUSTOMIZED CONTROL OF REAR PALLET FORCES FOR MALLARD PALLET FLOW SYSTEMS

# CONTROL REAR PALLET FORCES FOR SAFE & EFFICIENT ORDER SELECTION

Mallard manufactures a wide range of durable pallet flow solutions, designed to perform and built to last in a variety of applications. From high-density, deep-lane systems to case-pick applications and pick modules - it's our attention to the details and commitment to creating custom fit solutions for every customer challenge that sets Mallard apart. Our extensive line of pallet separators is no exception...

The job of the pallet separator is to hold back the rear pallets within a gravity-fed pallet flow lane in order to relieve back pressure – the forces exerted on the front pallets from the weight of rear pallets. Back pressure is approximately 6% of the combined weight of the rear pallets. These rear forces can have critical impact in both deep-lane systems, specifically at higher levels where forklift mast capacity is reduced, and for lower level case-pick applications where cartons are selected from the front pallet.

## PALLET SEPARATOR ADVANTAGES

### Deep-Lane Systems

- Relieves the back pressure on the lift truck
- Allows the pallets to safely index forward
- Increases productivity of lift truck operator
- Prevents product damage

### Lower Level Case-Pick Systems

- Relieves rear pallet forces on front pallet during order selection
- Allows pallets to safely index forward
- Allows operators to easily remove front pallets
- Reduces repetitive motion and back injuries

**Back Pressure = .06 x (maximum pallet load weight) x # of pallets.**

3-deep system, 2,500 lb. load. Back pressure = .06 x 2,500 lbs. x 2 pallets = 300 lbs.

20-deep system, 2,500 lb. load. Back pressure = .06 x 2,500 lbs. x 19 pallets = 2,850 lbs.

## CASE-PICK PALLET SEPARATOR (CP-100 SERIES)

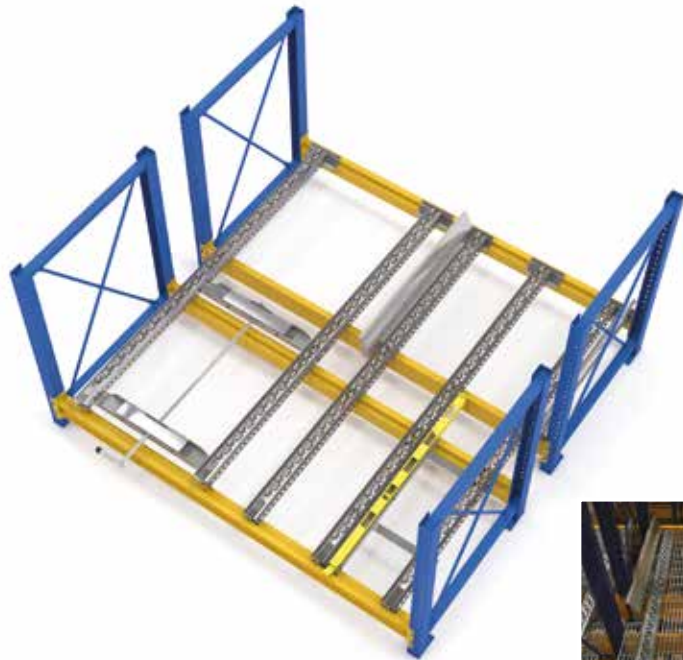
Mallard's Case-Pick Separator holds and locks rear pallets a comfortable 4-6" behind the front pallet allowing cases to be picked and the empty pallet safely removed before releasing rear pallets to index forward.

### CP-100 Series Advantages

- Isolates front pallet/eliminates back pressure
- Provides more efficient order picking
- Allows safe removal of empty front pallet
- Ideal for 2-4 deep picking applications
- Can be used with all wheeled applications (skate wheel, Magnum wheel)
- Foot operated manual pallet release

### Design Considerations

- Requires an additional 4-6" to overall depth
- Speed controllers required for 3-4 deep applications
- Requires a center rail next to the separator to prevent pallets from sagging
- Not to be used with forklifts



## FLEX SEPARATOR (FS-200 SERIES)

Mallard's rugged Flex Separator is a foot operated design used for high volume floor level case-pick applications, with slightly deeper pallet flow lanes.

### FS-200 Series Advantages

- Eliminates rear forces for lower level case-picking
- Recommended for 3-8 deep case-picking applications
- Can be used with all track types – wheel and roller
- Foot operated manual pallet release

### Design Considerations

- Requires an additional 12" to overall depth
- Speed controllers required
- Separator is mounted next to center rail with wheeled systems
- Roller systems require split rails at discharge/separator end to allow forklift access



## FORKLIFT SEPARATOR (FL-300 SERIES)



Mallard's Forklift Separator is an automatic pallet release that engages as the front pallet is extracted by the forklift, allowing the rear pallets to gently index forward and again lock into place. Isolating the front pallet and removing rear pallet forces is even more critical at higher elevations where forklift mast capacity is reduced.

### FL-300 Series Advantages

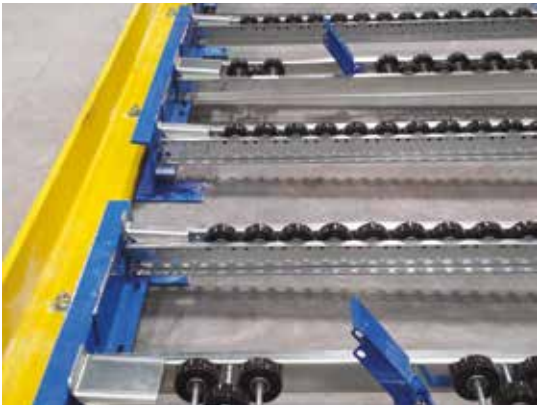
- Increases productivity by allowing easier forklift/pallet handling
- Improves forklift and operator safety by eliminating rear forces
- Designed for deep-lane, multi-level pallet flow systems
- Ideal for systems up to 10-deep
- Can be used with all track types – wheel and roller
- Automatic separator reset

### Design Considerations

- Requires an additional 12" to lane depth



## LAYER PICK SEPARATOR (LP-400 SERIES)



Layer picking uses specialized material handling equipment to select multiple cases, or the entire carton layer, at one time, thus increasing pick rates reducing manual labor costs. Mallard's LP-400 Pallet Separator is used within the layer pick pallet flow system to separate the front pallet until all cases are selected, allowing safe manual removal of the empty pallet.

### LP-400 Series Advantages

- Ideal up to 4-deep layer pick applications with speed controllers
- Used with specialized material handling equipment
  - No manual case-pick
- Automatic separator reset
- Can be used with all track types

### Design Considerations

- Larger gap required (18-24") depending on type of layer picker
- Split rail needed at both ends for full roller option to prevent damage
- Additional forklift training needed
  - Empty front pallet must be removed slowly triggering rear pallet release
- Minimal slope



## PNEUMATIC SEPARATOR (PS-500 SERIES)

The PS-500 series uses pneumatic controls to isolate the last pallet in a flow system onto a lift table as shown or allows the transfer of the last pallet to a mobile cart/tugger system.

Mallard's Ergo Cell is an ergonomic pallet lift table designed to work within a pallet flow case-pick application. The pneumatic device allows the last pallet to be singulated onto a lift table which allows the table to raise or lower to a comfortable (GOLDEN ZONE) order-picking height, increasing picking efficiency and preventing repetitive injuries.

### Ergo Cell Advantages

- Created for comfortable, efficient order picking
- Isolates load at pick aisle to eliminate back pressure
- Allows operator to safely remove front pallet
- Reduces repetitive motion injuries

### Design Considerations

- Failsafe pneumatic controls
- Air pop-up controls can hold back 2-9 pallets, depending on pallet weights



## DUAL PALLET SEPARATOR (DS-600 SERIES)

Mallard's Dual Pallet Separator is designed for extra deep systems where the impact of back pressure is most critical. Using two separators – one positioned behind the first pallet as in standard systems, and a 2nd placed deeper in the lane-- the back pressure is further reduced, allowing the forklift operator to safely extract the front pallet, even from higher elevations.

### DS-600 Series Advantages

- Ideal for extra-deep flow systems (30,000 lbs. max per lane)
- Up to 20 pallets deep with use of speed controllers
- Full pallet in/out - no case picking
- Can be used with Magnum wheel or industry equivalent (IE) wheel



### Design Considerations

- Requires an additional 24" to overall depth of the system
- Must use a full surface slave pallet



## EMPTY PALLET RETURN (EPR-700 SERIES)

Inefficient handling of empty pallets interferes with workflow and productivity. Mallard's Empty Pallet Return offers an effective, ergonomic way to manage empty pallets using inverted pallet flow lanes to flow empty pallets from the pick aisle to the load side of the system.



**Stacked Empty Pallet Return** – A pallet separator is used to stack and hold back several empty pallets. Once 5-6 pallets are accumulated, they are released to flow back to the load side using a manual hand release.

**Vertical Pallet Return** – This space saving option uses a narrow flow lane to collect and flow a single pallet on its side. Pallets are manually extracted to the forklift or pallet jack for restocking.

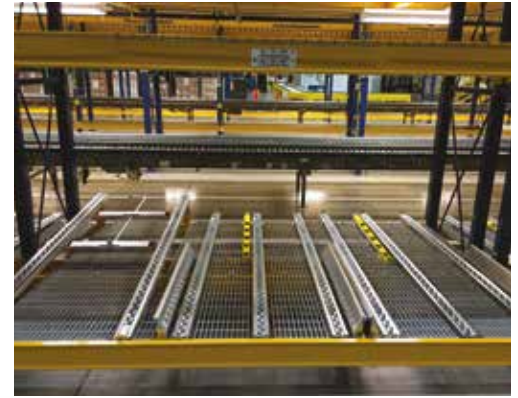
### EPR-700 Series Advantages

- Allows stacking of empty pallets to be returned from the work station
- Placed typically every 4-5 pallet flow bays for quick easy access/removal
- Used with skate wheel, Magnum wheel and split roller tracks
- Manually operated

### Design Considerations

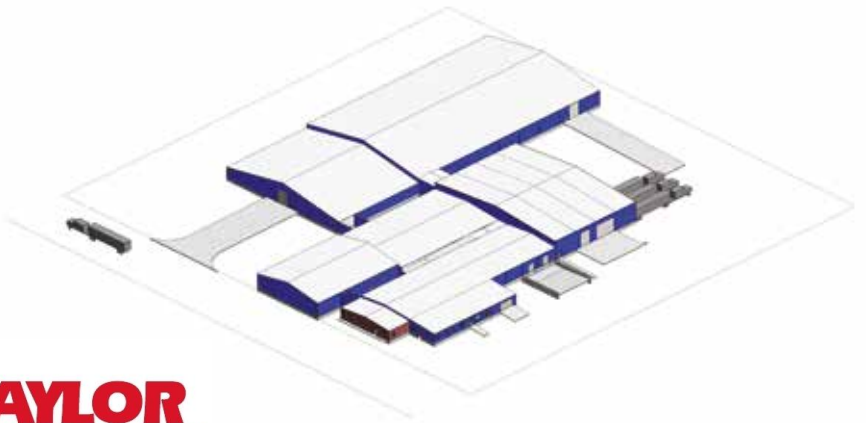
- Generally short lanes use 2 rails without speed controllers depending on stack height





## MORE ABOUT MALLARD MANUFACTURING

Founded in 1960, Mallard Manufacturing is a recognized international resource for the design and development of quality engineered gravity flow systems for both carton and pallets. Solving your material flow challenges is our responsibility – each and every day. Centrally located in Sterling, Illinois, Mallard's production facilities are equipped to handle projects of any size and scope.



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