BUFFERS USA™ offers an economical material handling solution for cargo handling and storage applications. When combined with a push-pull attachment—such as those provided by Cascade Corporation—Buffers plastic slip-sheets allow you to ship, receive and warehouse unit loads on inexpensive slip-sheets rather than pallets. Products typically handled with a push/pull include bagged products such as seed, agricultural products and cement; cased food, electronics, cosmetics and bottled beverages.

Slip-sheets (A) replace pallets and are used with modular push-pull attachment (B) and special thin and wide forks (C). System fits most forklifts and is simple and easy to use.

Save Warehouse Space: Plastic slip-sheets take up significantly less space than fiber slip-sheets and wood pallets. A 5” pallet takes up 80 times more space than a 1/16” slip-sheet.
CARGO HANDLING WITH SLIP-SHEETS

1. Extend the pusher plate so that the slip-sheet lip fits into the gripper opening.
2. Retract the pusher plate. The gripper bar will automatically clamp the slip-sheet lip.
3. Move forward slowly as the load is pulled onto the platens.
4. Raise and tilt mast back and move cargo. Reverse steps to push load off platens.

THE ADVANTAGES OF PLASTIC SLIP-SHEETS

Plastic Slip-Sheets Compared To Wood Pallets
- Saves valuable storage space
- Decreases freight cost
- Recyclable
- Lightweight
- Reduced product damage (no popped nails or splinters)
- Rodent and insect resistant
- Reduced costs - no pallet repair

Plastic Slip-Sheets Compared To Fiber Slip-Sheets
- Stronger
- Secures load better
- Slides easier on floor
- Moisture resistant
- Insect, bacteria and fungi resistant
- Longer life
- Fewer tab failures
- 100% recyclable
- Saves valuable storage space
- More handling trips
- More reliable in automated systems

Securing Your Containers. Protecting Your Cargo.
HOW TO SELECT THE RIGHT PUSH/PULL FOR YOUR OPERATION

While there are 2 basic models of Push/Pulls, the permanent Carriage Mount and the removable Quick Fork Mount, there are a number of ways you can configure each model to meet your specific operational needs. The following decision-process guidelines will help you select the Push/Pull that meets the needs of your cargo handling operation.

**STEP 1**  You must first determine which model is best suited for your current or future use of slip-sheets in your operation. If you use enough slip-sheets to dedicate one or more fork lift trucks to this use, then you may wish to select the permanent Carriage Mount push/pull for these lift trucks. If, on the other hand, you want the ability to use your forklift fleet to handle both slip-sheets and pallets, the Quick Fork Mount might be a better choice.

**STEP 2**  Your next decision is the maximum load capacity of your push/pull. Both the permanent Carriage Mount and removable Quick Fork Mount models are available in 3500 (35E) and 4500 (45E) pound maximum load capacities. The 35E is designed for short wheel-based, counter-balanced trucks in the 2,500 to 4,500 lb capacity range. The small truck 35E combination provides maximum net load handling capacity, short overall length and excellent maneuverability. It is ideal for truck trailer and railcar work, as well as for general slip-sheet warehousing applications. The 45E is a heavy-duty push/pull, well suited for double load stacking applications, as well as for railcar loading and unloading.

**STEP 3**  Once you have selected the model and maximum load capacity, you will then need to choose a configuration for your model (referred to as a Type). Each Type provides a specific operational feature described below. Please note that not all Types are available in the Quick Fork Mount model. See Chart B in the ordering section for more information.

**TYPES**

A. Sideshifting
   Standard on all carriage mount push/pulls. Platens move together with cargo frame.

B. Hydraulically adjustable platens.
   Both platens move at the same time, either away or towards each other. For applications requiring extensive pallet handling. Allows driver to adjust the platen spread from his seat.

C. Sideshifting platens.
   Works like basic sideshift except the frame doesn’t move. Platens move together, either to the left or right. For narrow or restricted applications. 8” sideshift capacity.

D. Load Push.
   Does not have gripper mechanism to pull slipsheet. For loads that are “scooped” onto the platens.

E. Sheet Sav. ®
   Allows the driver to retain the slipsheet when the load is pushed off.

**STEP 4**  Once you have made these selections you can proceed to the “ORDERING INFORMATION” section on the next page where you will have the opportunity to further configure your push/pull unit with items like platen (fork) width.
**STEP 1** Select the Push/Pull Attachment based on your operation. Here are some questions that will help you choose the model that best meets your needs.

- Do you want to equip fork trucks with a permanent (carriage mount) push/pull attachment for slip-sheet handling only? *(See Chart A).*

- Do you want the removable Quick Fork Mount push/pull attachment so your fork trucks can be used for either pallets or slip-sheets? *(See Chart B).*

- Do you want a model with platens that handle both slip-sheets and Mark 55 type pallets? *(See Chart A - Mark 55 selection)*

**STEP 2** Once you have determined the push/pull operation you need, select Capacity: 3500 lbs or 4500 lbs (at 24”).

**STEP 3** Then choose the model Type.
*(Note: not all types are available for the Quick Fork Mount model. Quick Mount Models start with Code Q.)*

- Sideshifting *(Code PPS)* or Non-Sideshifting Push/Pull. *(Code PPB)*

- SheetSav® only *(Code QPA)*

- SheetSav® and Sideshifting *(Code PAS)*

- Sideshifting Platens *(Code PPJ)*

- Load Push with Sideshifting *(Code PLS)* or without Load Push Sideshifting *(Code PLB)*

- Load Push only *(Code QLB)*

- Hydraulically adjustable platens and Sideshifting *(Code PHS/Mark 55)*

**STEP 4** Finally, select the Platen (Fork) Width: 15” or 18” (length is 48” standard).
<table>
<thead>
<tr>
<th>Capacity (lbs)</th>
<th>Load Center (kg)</th>
<th>Type</th>
<th>Catalog Order No.</th>
<th>Mounting (Class &amp; Hook Type)</th>
<th>Outside Platen Spacing (in)</th>
<th>Effective Thickness (in)</th>
<th>Horizontal Center of Gravity (in)</th>
<th>Vertical Center of Gravity (in)</th>
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<tbody>
<tr>
<td>3,500</td>
<td>1600</td>
<td>18&quot; x 48&quot;</td>
<td>35E-PPS-A001</td>
<td>Bolt-On</td>
<td>40&quot;-48&quot;</td>
<td>1,105</td>
<td>500</td>
<td>6.5&quot;</td>
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<tr>
<td>3,500</td>
<td>1600</td>
<td>15&quot; x 48&quot;</td>
<td>35E-PPS-A003</td>
<td>Bolt-On</td>
<td>34&quot;-42&quot;</td>
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<td>480</td>
<td>6.5&quot;</td>
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<tr>
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<td>1600</td>
<td>18&quot; x 48&quot;</td>
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<td>Bolt-On</td>
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<td>34&quot;-42&quot;</td>
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<td>4,500</td>
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<td>45E-PLS-A001</td>
<td>Bolt-On</td>
<td>40&quot;-48&quot;</td>
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<td>470</td>
<td>6.5&quot;</td>
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<td>2070</td>
<td>15&quot; x 48&quot;</td>
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<td>45E-PLB-A001</td>
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<tr>
<td>4,500</td>
<td>2070</td>
<td>15&quot; x 48&quot;</td>
<td>45E-PLB-A003</td>
<td>Bolt-On</td>
<td>34&quot;-42&quot;</td>
<td>965</td>
<td>440</td>
<td>6.5&quot;</td>
</tr>
</tbody>
</table>

**Mark 55**

This base unit is equipped with two solenoids and may be controlled with a single auxiliary valve on the truck. **IMPORTANT:** Solenoid voltage must match truck voltage. Please specify truck voltage when ordering.

This unit is solenoid equipped for the Sheet-Sav™ function. A two-function hydraulic supply is required. The sideshift and push/pull functions are actuated directly with the auxiliary valves. The Sheet-Sav™ function is actuated by depressing the solenoid button and then actuating the push/pull valve. The control knob with a push button is included. **IMPORTANT:** Solenoid voltage must match truck voltage. Please specify truck voltage when ordering.

Quick-Disconnect mounting also available.

**Installation Kit**

<table>
<thead>
<tr>
<th>Type</th>
<th>Catalog Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PPB, PHS, PPJ, PLB</td>
<td>685558</td>
</tr>
<tr>
<td>PPS, PAS, PLS</td>
<td>685559</td>
</tr>
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</table>

**Applications**

18" X 48" Platens: Recommended for applications where push/pull will not be handling pallets. Provides 40" minimum width slipsheet base.

15" X 48" Platens: Recommended for applications where push/pull will be used to handle pallets. Provides 34" minimum width slipsheet base.
### INSTALLATION KIT

| Catalog Order Number | 685558 |

### HYDRAULIC FLOW AND PRESSURE

<table>
<thead>
<tr>
<th>Minimum</th>
<th>Recommended</th>
<th>Maximum</th>
<th>Maximum PSI</th>
<th>Pressure Bar</th>
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</thead>
<tbody>
<tr>
<td>4 GPM</td>
<td>7 GPM</td>
<td>10 GPM</td>
<td>2,300</td>
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### HYDRAULIC FUNCTIONS

<table>
<thead>
<tr>
<th>Model</th>
<th>Hydraulic Functions</th>
<th>Truck Auxiliary Valves Required</th>
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</thead>
<tbody>
<tr>
<td>QPB &amp; QLB</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>QPA</td>
<td>2</td>
<td>1</td>
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</table>

### MOUNTING CLASS INFORMATION

<table>
<thead>
<tr>
<th>Mounting Class</th>
<th>Truck Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>II</td>
<td>2,000-5,500 lbs.</td>
</tr>
<tr>
<td>III</td>
<td>6,000-10,000 lbs.</td>
</tr>
</tbody>
</table>

### Platen Selection

- **18" x 48" Platens**: Recommended for applications where push/pull will not be handling pallets. Provides 40" minimum width slipsheet base.
- **15" x 48" Platens**: Recommended for applications where push/pull will be used to handle pallets. Provides 34" minimum width slipsheet base.
**ORDERING INFORMATION - SLIP-SHEETS**

**PULL TAB CONFIGURATIONS**

- **TYPE A**: 2 PULL TABS ON ADJACENT SIDES
- **TYPE B**: 2 PULL TABS FRONT AND BACK
- **TYPE C**: 1 PULL TAB
- **TYPE D**: 4 PULL TABS

**SLIP-SHEET TECHNICAL SPECIFICATIONS**

**Material**: Solid extruded plastic sheet with specific friction characteristics for top and bottom surfaces.

**Surfaces**: **Top side** -- high coefficient of friction (COF) allows the product to stick to the sheet. **Bottom side** -- smooth finish and lower COF allows the sheet to move easily and not stick when double-stacked.

**RECYCLING PROGRAM**

Buffers USA is making a positive contribution to the environment by offering a recycling program. We will buy back the HDPE/PP plastic sheets for recycling, thereby decreasing your operating and waste disposal costs. Call for details.

**CUSTOM SIZES ALSO AVAILABLE**

* Also ideal for high point load cargo and abrasive dust environment.  

<table>
<thead>
<tr>
<th>SIZES</th>
<th>CARGO WEIGHT RANGE/THICKNESS/PART#</th>
</tr>
</thead>
<tbody>
<tr>
<td>RECOMMENDED MAX. WEIGHT</td>
<td>2200 lbs/1000 Kg</td>
</tr>
<tr>
<td></td>
<td>2400 lbs/1100 Kg</td>
</tr>
<tr>
<td></td>
<td>2800 lbs/1300 Kg</td>
</tr>
<tr>
<td></td>
<td>3500 lbs/1600 Kg</td>
</tr>
<tr>
<td>0.020”/0.51 mm</td>
<td>0.023”/0.58 mm</td>
</tr>
<tr>
<td>0.025”/0.63 mm</td>
<td>0.045”/1.15 mm*</td>
</tr>
</tbody>
</table>

- **51” x 40” (1295 mm x 1016 mm)**: 6551-020-X, 6551-023-X, 6551-025-X, 6551-045-X
- **51” x 43” (1295 mm x 1090 mm)**: 6552-020-X, 6552-023-X, 6552-025-X, 6552-045-X
- **44” x 56” (1118 mm x 1422 mm)**: 6553-020-X, 6553-023-X, 6553-025-X, 6553-045-X
- **54” x 40” (1370 mm x 1016 mm)**: 6554-020-X, 6554-023-X, 6554-025-X, 6554-045-X

**HOW TO ORDER**

**STEP 1**: Choose **Size** from above table based on cargo footprint.

**STEP 2**: Choose **Thickness** from above table based on **Cargo Weight Range**.

**STEP 3**: Choose **Pull Tab Configuration Type** from above drawings (A, B, C, or D).

**STEP 4**: Select **Part Number** from above table and add **Tab Configuration Type** by replacing x with A, B,C or D.