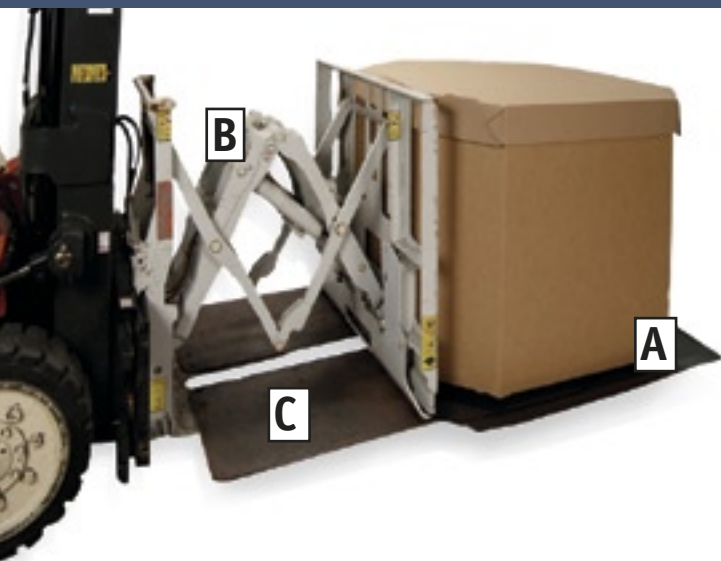


# PALLET-LESS CARGO HANDLING WITH SLIP-SHEETS AND FORKLIFT ATTACHMENT

## CARGO HANDLING & PROTECTION SOLUTIONS

**SHIP MORE PRODUCT IN SAME SPACE.  
REDUCE OVERALL FREIGHT COST ASSOCIATED WITH PACKAGING.  
USE WAREHOUSE SPACE MORE EFFICIENTLY.**

**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.*

### 300 fiber slip-sheets



### 7 wood pallets



### 300 plastic slip-sheets



**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

# 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.

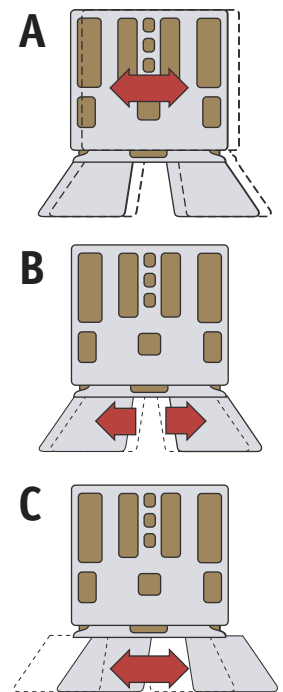
Works like basic sideshift except the frame doesn't move. Platens move together, either to the left or right. For narrow or restricted applications. 8" sideshift capacity.

### 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.

# ORDERING INFORMATION - PUSH/PULL ATTACHMENTS

**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.)*

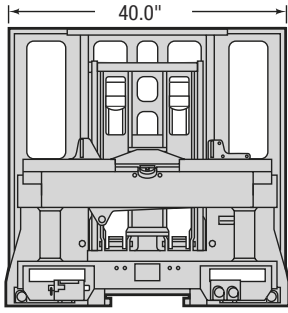
- Sideshifting **(Code PPS)** or Non-Sideshifting Push/Pull. **(Code PPB)**
- SheetSav® only **(Code QPA)**
- SheetSav® and Sideshifting **(Code PAS)**
- Sideshifting Platens **(Code PPJ)**
- Load Push with Sideshifting **(Code PLS)** or without Load Push Sideshifting **(Code PLB)**
- Load Push only **(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).

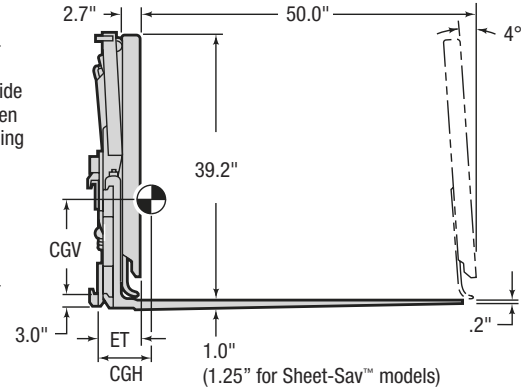
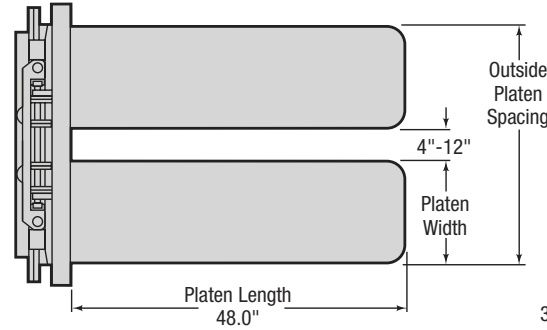


# CHART A

## PERMANENT PUSH/PULL ATTACHMENT



Minimum carriage width non-sideshifting – 28"  
Minimum carriage width sideshifting – 36"



Capacity Load Center	Type	Platen Size (WxL)	Catalog Order No.	Mounting Class/ Lower Hook Type	Outside Platen Spacing	Weight		Effective Thickness ET	Horizontal Center of Gravity CGH	Vertical Center of Gravity CGV		
						lbs @ 24" kg @ 600 mm	lbs @ 24" kg @ 600 mm					
3,500	1600	Sideshifting Push/Pull	18" x 48"	35E-PPS-A001	II Bolt-On	40"-48"	1,105	500	6.5"	8.7"	8.8"	
3,500	1600	Sideshifting Push/Pull	15" x 48"	35E-PPS-A003	II Bolt-On	34"-42"	1,055	480	6.5"	8.0"	9.3"	
3,500	1600	Non-Sideshifting Push/Pull	18" x 48"	35E-PPB-A001	II Bolt-On	40"-48"	1,090	495	6.5"	8.8"	8.8"	
3,500	1600	Non-Sideshifting Push/Pull	15" x 48"	35E-PPB-A003	II Bolt-On	34"-42"	1,040	470	6.5"	8.1"	9.4"	
MARK 55	3,500	1600	Hydraulically Adjustable Platens & Sideshifting	18" x 48"	35E-PHS-A001 ①	II Bolt-On	40"-48"	1,115	505	6.5"	8.7"	8.8"
	3,500	1600	Hydraulically Adjustable Platens & Sideshifting	15" x 48"	35E-PHS-A003 ①	II Bolt-On	34"-42"	1,065	485	6.5"	8.0"	9.3"
3,500	1600	Sheet-Sav™ Sideshifting	18" x 48"	35E-PAS-A001 ②	II Bolt-On	40"-44"	1,395	635	9.0"	10.1"	8.2"	
3,500	1600	Sheet-Sav™ Sideshifting	15" x 48"	35E-PAS-A003 ②	II Bolt-On	34"-38"	1,330	605	9.0"	9.4"	8.8"	
3,500	1600	Sideshifting Platens		35E-PPJ ①		Consult Cascade						
3,500	1600	Sideshifting Load Push	18" x 48"	35E-PLS-A001	II Bolt-On	40"-48"	1,005	455	6.5"	9.1"	8.5"	
3,500	1600	Sideshifting Load Push	15" x 48"	35E-PLS-A003	II Bolt-On	34"-42"	955	435	6.5"	8.3"	9.0"	
3,500	1600	Non-Sideshifting Load Push	18" x 48"	35E-PLB-A001	II Bolt-On	40"-48"	990	450	6.5"	9.2"	8.6"	
3,500	1600	Non-Sideshifting Load Push	15" x 48"	35E-PLB-A003	II Bolt-On	34"-42"	940	425	6.5"	8.4"	9.1"	
MARK 55	4,500	2070	Sideshifting Push/Pull	18" x 48"	45E-PPS-A001	II Bolt-On	40"-48"	1,135	515	6.5"	9.1"	8.5"
	4,500	2070	Sideshifting Push/Pull	15" x 48"	45E-PPS-A003	II Bolt-On	34"-42"	1,080	490	6.5"	8.3"	9.0"
	4,500	2070	Non-Sideshifting Push/Pull	18" x 48"	45E-PPB-A001	II Bolt-On	40"-48"	1,120	510	6.5"	9.2"	8.6"
	4,500	2070	Non-Sideshifting Push/Pull	15" x 48"	45E-PPB-A003	II Bolt-On	34"-42"	1,065	485	6.5"	8.4"	9.1"
	4,500	2070	Hydraulically Adjustable Platens & Sideshifting	18" x 48"	45E-PHS-A001 ①	II Bolt-On	40"-48"	1,142	520	6.5"	9.1"	8.5"
	4,500	2070	Hydraulically Adjustable Platens & Sideshifting	15" x 48"	45E-PHS-A003 ①	II Bolt-On	34"-42"	1,090	495	6.5"	8.3"	9.0"
	4,500	2070	Sheet-Sav™ Sideshifting	18" x 48"	45E-PAS-A001 ②	II Bolt-On	40"-44"	1,395	635	9.0"	10.1"	8.2"
	4,500	2070	Sheet-Sav™ Sideshifting	15" x 48"	45E-PAS-A003 ②	II Bolt-On	34"-38"	1,330	605	9.0"	9.4"	8.8"
	4,500	2070	Sideshifting Platens		45E-PPJ ①		Consult Cascade					
	4,500	2070	Load Push	18" x 48"	45E-PLS-A001	II Bolt-On	40"-48"	1,035	470	6.5"	9.5"	8.2"
4,500	2070	Sideshifting Load Push	15" x 48"	45E-PLS-A003	II Bolt-On	34"-42"	980	445	6.5"	8.7"	8.8"	
4,500	2070	Non-Sideshifting Load Push	18" x 48"	45E-PLB-A001	II Bolt-On	40"-48"	1,020	465	6.5"	9.6"	8.3"	
4,500	2070	Non-Sideshifting Load Push	15" x 48"	45E-PLB-A003	II Bolt-On	34"-42"	965	440	6.5"	8.8"	8.8"	

① 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.

② 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

Type	Catalog Order No.
PPB, PHS, PPJ, PLB	685558
PPS, PAS, PLS	685559

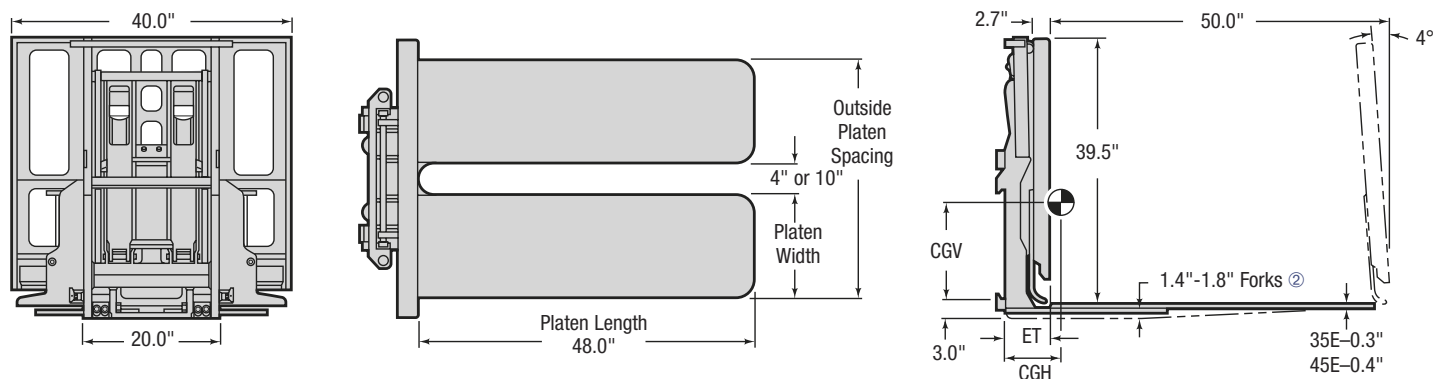
### APPLICATIONS

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.

# CHART B

## REMOVABLE QFM™ (QUICK FORK MOUNT) PUSH/PULL ATTACHMENT



Capacity Load Center		Type	Platen Size (WxL)	Catalog Order No.	Mounting Class	Outside Platen Spacing	Weight		Effective Thickness ET	Horizontal Center of Gravity CGH	Vertical Center of Gravity CGV
lbs @ 24"	kg @ 600 mm						lbs	kg			
3,500	1600	QFM™	18" x 48"	<b>35E-QPB-Q001</b>	II	40" or 46"	765	345	6.5"	9.7"	12.1"
3,500	1600	Push/Pull	15" x 48"	<b>35E-QPB-Q002</b>	II	34" or 40"	740	335	6.5"	8.9"	12.6"
3,500	1600	QFM™	18" x 48"	<b>35E-QLB-Q001</b>	II	40" or 46"	665	300	6.5"	10.4"	12.1"
3,500	1600	Load Push	15" x 48"	<b>35E-QLB-Q002</b>	II	34" or 40"	640	290	6.5"	9.6"	12.6"
3,500	1600	QFM™	18" x 48"	<b>35E-QPA-Q001</b> ①	II	40" or 46"	935	425	9.3"	10.6"	11.4"
3,500	1600	Sheet-Sav™ ①	15" x 48"	<b>35E-QPA-Q002</b> ①	II	34" or 40"	905	410	9.3"	10.0"	11.7"
4,500	2070	QFM™	18" x 48"	<b>45E-QPB-Q001</b>	II	40" or 46"	795	360	6.5"	10.4"	11.6"
4,500	2070	Push/Pull	15" x 48"	<b>45E-QPB-Q002</b>	II	34" or 40"	765	345	6.5"	9.7"	12.1"
4,500	2070	QFM™	18" x 48"	<b>45E-QLB-Q001</b>	II	40" or 46"	695	315	6.5"	11.3"	11.5"
4,500	2070	Load Push	15" x 48"	<b>45E-QLB-Q002</b>	II	34" or 40"	665	300	6.5"	10.4"	12.0"
4,500	2070	QFM™	18" x 48"	<b>45E-QPA-Q001</b> ①	II	40" or 46"	965	435	9.3"	11.4"	10.9"
4,500	2070	Sheet-Sav™ ①	15" x 48"	<b>45E-QPA-Q002</b> ①	II	34" or 40"	935	425	9.3"	10.7"	11.4"

① This unit is solenoid equipped and may be controlled with a single auxiliary valve on the truck. **IMPORTANT:** Solenoid voltage must match truck voltage. **This unit is equipped with 12 volt solenoid.** If you require a different voltage, please specify at time of order entry.

② **IMPORTANT:** Spacers required for forks thicker than 1.5".

Spacer Kit Model	Catalog Order No.
1.75" forks	<b>SP175</b>
1.8" forks	<b>SP180</b>

► **IMPORTANT:** QFM™ Push/Pulls must be mounted on standard forks to support the load and the push/pull. Forks up to 1.8" thick and 40" to 46" long may be used. Recommended fork length is 42" with bottom taper. Forks must be spaced 20.5" to 25.5" apart, inside to inside. Forks over 1.5" thick require spacer kit.

► **Sideshifters:** QFM™ Push/Pulls mount on standard class II carriage sideshifters. NOTE: Sideshift components and cylinder must not protrude in front of carriage forkbars. 55F Quick-Mount™ Sideshifter recommended.

### 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.

### INSTALLATION KIT

Catalog Order Number
<b>685558</b>

### HYDRAULIC FLOW AND PRESSURE

Minimum	Recommended	Maximum	Maximum PSI	Pressure Bar
4 GPM	7 GPM	10 GPM	2,300	160

### HYDRAULIC FUNCTIONS

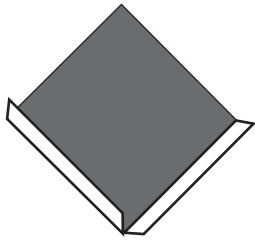
Model	Hydraulic Functions	Truck Auxiliary Valves Required
QPB & QLB	1	1
QPA①	2	1

### MOUNTING CLASS INFORMATION

Mounting Class	Truck Capacity
II	2,000-5,500 lbs.
III	6,000-10,000 lbs.

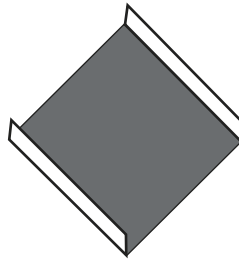
# ORDERING INFORMATION - SLIP-SHEETS

## PULL TAB CONFIGURATIONS



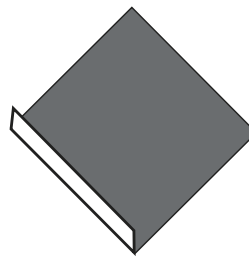
**TYPE A**

2 PULL TABS ON  
ADJACENT SIDES



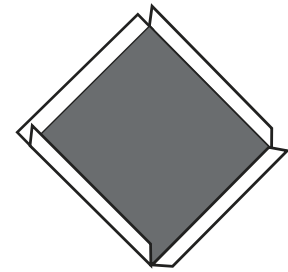
**TYPE B**

2 PULL TABS  
FRONT AND BACK



**TYPE C**

1 PULL TAB



**TYPE D**

4 PULL TABS

SIZES	CARGO WEIGHT RANGE/THICKNESS/PART#			
RECOMMENDED MAX. WEIGHT	2200 lbs/1000 Kg	2400 lbs/1100 Kg	2800 lbs/1300 Kg	3500 lbs/1600 Kg
	0.020"/0.51 mm	0.023"/0.58 mm	0.025"/0.63 mm	0.045"/1.15 mm*
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
<b>CUSTOM SIZES ALSO AVAILABLE</b>				
* Also ideal for high point load cargo and abrasive dust environment.			X= Pull Tab Type A, B, C or D	

## 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.

## 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.

**BUFFERS USA™** 

Securing Your Containers. Protecting Your Cargo.

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