

## INSTALLATION MANUAL







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Warranty Registration

Warranty & Limitations



## 1 Sign-Off Form

S3 AIR SYSTEMS follows the general Safety Standards specified by the American Society of Agricultural and Biological Engineers (ASABE) American National Standards Institute, Canadian Standards Association, International Organization for Standardization, Occupational Safety and Health Administration (OSHA) and/or others. Anyone operating and/or maintaining the bin door insert must read and clearly confirm that they understand ALL Safety, Operating and Maintenance Information presented in this manual. S3 AIR SYSTEMS recommends all personnel that intend to use the bin door insert, read the operators manual and will follow the safety precautions and instructions and will operate and maintain this equipment safely. S3 AIR SYSTEMS recommends that all users "sign off" below which confirms their agreement concerning safety. Periodic reviews of this manual with all employees should be standard practice. For your convenience, we include this sign-off sheet so you can record your operation safety training and periodic reviews.

DATE	EMPLOYEE NAME	SIGNATURE



#### Introduction

Congratulations on your purchase of a S3 AIR SYSTEMS The Portal Bin Door Insert. Our products represent the top of the line in grain bin accessories. This bin door insert has been engineered to provide optimum performance for your grain handling needs.

This manual should be read in its entirety as your first source of information about the product. If all the instructions are followed in this manual, you will mitigate the potential of any premature and unexpected failures.

Keep this manual handy for frequent reference. Contact your local supplier dealer if you need assistance. The following information is necessary for prompt and accurate assistance:

Please read all instructions and warnings thoroughly.

If, after studying this manual, you are unable to install or service your bin door insert, please contact the supplier from which you purchased the unit. Be prepared to provide the details of application, i.e. bin manufacturer, diameter and type, etc.

If further assistance is required, your dealer will refer you to the S3 AIR SYSTEMS Customer Service Department at 1-866-665-6677 for immediate attention.

#### **General Information**

The Portal bin door inserts by S3 AIR SYSTEMS are designed primarily for use in flat bottom grain bin systems. Units are made of steel, with welded and bolted construction, and finished with durable powder coat paint.

S3 AIR SYSTEMS reserves the right to modify design of the S3 Air Systems, The Portal bin door insert product offering in whole or in part without notice.

## 4 Safety

In order to operate this device safely, a complete understanding of the potential hazards present and the meaning of the warning decals is needed. Safety should be your first priority.

#### 4.1 Safety Alert Symbols





This Safety Alert Symbol identifies important safety messages as posted on the product and referred to in this manual. When you see this symbol, be alert to the possibility of personal injury or death. Follow the instructions in the safety message.

Why is SAFETY important to you?

- Accidents Disable and Kill
- Accidents Cost Time and Money
- Accidents Can be Avoided

The Key Safety Signal Words below are used in the manual and on the safety decals, along with the Safety Alert Symbol. The appropriate signal word for each message has been selected using the identified definition as a guideline.



DANGER indicates an imminent hazard that, if not avoided, will result in death or serious injury.



WARNING indicates a potentially hazard that, if not avoided, could result in death or serious injury.



CAUTION indicates a potential hazard that, if not avoided, may result in minor or moderate injury.



NOTICE is used to address practices not related to personal injury.

#### 4.2 General Safety

You are responsible for the SAFE operation and maintenance of your S3 AIR SYSTEMS bin door insert. You must ensure that you and anyone else who is going to operate, maintain, adjust, disconnect, or work around the grain bin understands all procedures and related SAFETY information contained in this manual.

Remember, you are the key to safety. Good safety practices not only protect you, but also the people around you. Make these practices a working part of your safety program.

It is the equipment owner and the operator's responsibility to read and understand ALL safety instructions, safety decals, and manuals and follow them before installing, operating, or maintaining the bin door insert.



- Equipment owners must give instruction and review the information initially and annually with all personnel before allowing them to operate this product. Untrained users/operators expose themselves and bystanders to possible serious injury or death.
- Do not modify *The Portal* bin door insert in any way. Unauthorized modification may impair the function and/or safety and could affect the life of the equipment. Any unauthorized modification to the equipment voids the warranty.
- Keep hands and other objects away from the sliding gate to prevent pinching hazards.
- Prior to operating this equipment, be sure to read and understand the operator's manual. If there is any portion you do not understand, or any phase of the machine's operation you do not understand, be sure to contact your dealer or S3 AIR SYSTEMS.
- Have a first-aid kit available for use should the need arise and know how to use it.
- Provide a fire extinguisher for use in case of a fire.
- Wear protective gear. This list includes but is not limited to:



- o Protective shoes with slip resistant soles
- Protective goggles
- Work gloves
- Hearing protection
- Respirator or filter mask
- Make sure all persons are clear of the equipment when in operation. Failure to follow any of the above warnings may cause serious bodily injury or death.
- Use the bin door insert for its intended purposes only.
- Do not allow children, animals, or bystanders within the work area.





#### 4.3 Operational Safety

## **WARNING**

Before operating, maintaining, adjusting or dis-connecting *The Portal*, ensure the bin is empty and any machinery nearby is turned off. To minimize the potential of injury, it is recommended that you:

- Read and understand the Operator's Manual and all Safety Signs before operating.
- Do not operate if any of the guards or shields are removed or damaged.
- Do not wear loose fitting clothing that may catch in moving parts.
- Do not allow children, spectators, or bystanders within the work area.
- Do not start conveying until you are sure everyone is clear.
- Be sure the machine is properly mounted to the bin
- Keep hands, feet and clothing away from moving parts on the bin door insert and the conveying equipment.
- Do not clean, adjust or lubricate your equipment while it is running.
- Stay clear of fan discharge area.

#### 4.4 Preventing Bin Damage

- Some grain bin manufacturers do not recommend the side unloading of grain bins. Side unloading stresses may cause structural damage to the grain bin.
- Contact grain bin manufacturer for recommendations before using.
- Not recommended for grain bins over 19' in diameter or 7 tiers in height.
- The Portal bin door insert is an aftermarket attachment for an existing grain bin. The add-on has been engineered to support the weight of the grain, but S3 Air Systems provides no guarantee as to the strength of the bin when unloaded using this product. It is the end user's responsibility to verify the strength of the bin. Bins should be checked as a part of regular maintenance.
- On larger diameter bins holding certain commodities may demand extra stiffeners on each side of *The Portal*.

#### 4.5 Maintenance Safety



Failure to follow all the safety instructions below in Maintenance Safety Section can result in serious injury, death and/or property damage.

Prior to initiating any maintenance, it is critical that the following pre-maintenance protocol is followed:

- Use only tools of sufficient capacity for the job.
- Make sure all the guards and shields are in place and properly secured when the maintenance work is completed.





- Keep body, hair and clothing away from all moving and/or rotating parts.
- Keep hands away from all potential pinch points.
- Do not allow children, spectators, or bystanders within the work area.
- Use only genuine S3 AIR SYSTEMS replacement parts or equivalent. Replacement parts must meet ASABE standards. Use of unauthorized parts will void warranty. If in doubt, contact your S3 AIR SYSTEMS dealer.

#### 4.6 Safety Decals

S3 AIR SYSTEMS reserves the right to update safety decals on equipment without notice to owners of older equipment. Safety decals may not be exactly as shown.

#### 4.7 Decal Maintenance

- Keep the safety decals clean and legible at all times.
- Replace any safety decals and signs that are missing or have become illegible.

#### 4.8 Decal Replacement

- Ensure the new equipment components installed during any repair include the current safety decals specified by the component manufacturer to be affixed to the replaced components.
- Replacements for damaged or missing safety decals are available from your authorized dealer or S3 AIR SYSTEMS.
- The complete decal sheet can be found on the following page. The numbers beside each decal coincide with the descriptions in the Decal Locations section.

#### 4.9 Decal Locations

The types of decals and location on the equipment are shown on the following page. A good safety practice requires that you familiarize yourself with the various safety decals, the type of warning and the area, or particular function related to that area, that requires your SAFETY AWARENESS.

1.







Note: If Safety Decals have been damaged, removed, become illegible or parts are replaced without decals; new decals must be applied.

#### List of Features

#### 5.1 General Features

The Portal, bin door insert has been designed to be a simpler and cleaner way of removing single loads from a full grain bin. There are several benefits of using The Portal rather than inserting the auger into the bin's auger port, such as:

- No stuck augers in the auger port.
- No grain spillage from pulling the auger out of the bin while the bin is still partial or fully loaded.
- Never needing to start the auger under load.
- The auger is allowed to clean out by stopping the flow to it while running.
- Large diameter augers which would not traditionally fit into some bin's auger ports can be used with The Portal.
- Certain commodities or situations call for a restricted flow to the auger which is possible with the adjustable slide gate.
- The Portal also offers an improved, air-sealed door that helps aeration systems maintain pressure.



## 6 Packing List

This shipment should contain the following items. Check carefully when unpacking and before installing. In case of any shortage or damage while in shipment, file a claim with the carrier.

The Portal for a Westeel Bin Configuration #1 – 36-117512		
Component	Description	Quantity
36-117491-23	PORTAL WT1 INSERT	1
36-117507-23	PORTAL DOOR STRAP	2
36-117508-23	PORTAL WT1 CONVERTER	1
36-117522	The Portal MANUAL	1
36-117531	PORTAL SLIDE GATE ASSEMBLY	1
4001-22C3304	BOLT-HEX 5/8" X 2"	2
4003-22C2502	BOLT-CARRIAGE 3/8" X 1"	10
4030-21C0280	NUT-HEX 5/8"	2
4055-02C0235	NUT-HEX OVAL LOCK 3/8"	10
5000-03-0375	WASHER-LOCK 3/8"	10

The Portal for a Westeel Bin Configuration #2 – 36-117513		
Component	Description	Quantity
36-117491-23	PORTAL WT1 INSERT	1
36-117510-23	PORTAL WESTEEL ANGLE	2
36-117522	The Portal MANUAL	1
36-117531	PORTAL SLIDE GATE ASSEMBLY	1
4003-22C2502	BOLT-CARRIAGE 3/8" X 1"	10
4055-02C0235	NUT-HEX OVAL LOCK 3/8"	10
5000-03-0375	WASHER-LOCK 3/8"	10

The Portal for a Westeel Bin Configuration #3 – 36-117514		
Component	Description	Quantity
36-117491-23	PORTAL WT1 INSERT	1
36-117522	The Portal MANUAL	1
36-117531	PORTAL SLIDE GATE ASSEMBLY	1
4001-22C2534	BOLT-HEX 3/8-16 UNC X 2 GR5	1
4003-22C2502	BOLT-CARRIAGE 3/8" X 1"	10
4030-21C0235	NUT-HEX 3/8-16 UNC GR5	1
4055-02C0235	NUT-HEX OVAL LOCK 3/8"	10
5000-03-0375	WASHER-LOCK 3/8"	10



The Portal for a Twister Bin Configuration #1 – 36-117515		
Component	Description	Quantity
36-117491-23	PORTAL WT1 INSERT	1
36-117522	The Portal MANUAL	1
36-117531	PORTAL SLIDE GATE ASSEMBLY	1
4003-22C2502	BOLT-CARRIAGE 3/8" X 1"	10
4055-02C0235	NUT-HEX OVAL LOCK 3/8"	10
5000-03-0375	WASHER-LOCK 3/8"	10

The Portal for a Twister Bin Configuration #2 – 36-117515		
Component	Description	Quantity
36-117491-23	PORTAL WT1 INSERT	1
36-117522	The Portal MANUAL	1
36-117531	PORTAL SLIDE GATE ASSEMBLY	1
4003-22C2502	BOLT-CARRIAGE 3/8" X 1"	10
4055-02C0235	NUT-HEX OVAL LOCK 3/8"	10
5000-03-0375	WASHER-LOCK 3/8"	10

The Portal for a Twister Bin Configuration #3 – 36-117517		
Component	Description	Quantity
36-117499-23	PORTAL TWISTER INSERT	1
36-117522	The Portal MANUAL	1
36-117531	PORTAL SLIDE GATE ASSEMBLY	1
4003-22C2502	BOLT-CARRIAGE 3/8" X 1"	10
4030-21C0260	NUT-HEX 1/2-13 UNC GR5	14
4033-12C0500	NUT-HEX JAM 1/2-13 UNC GR5 YZ	2
4055-02C0235	NUT-HEX OVAL LOCK 3/8"	10
4070-00-0500	NUT-WING 1/2-13 UNC GR2 ZINC	2
5000-03-0375	WASHER-LOCK 3/8"	10
5000-03-0500	WASHER-HELICAL LOCK 1/2	14
5009-02-0500	WASHER-FLAT USS 1/2	2

The Portal for a Butler Bin Configuration #1 – 36-117518			
Component	Description	Quantity	
36-117505-23	PORTAL B1 INSERT	1	
36-117522	The Portal MANUAL	1	
36-117531	PORTAL SLIDE GATE ASSEMBLY	1	
4003-22C2502	BOLT-CARRIAGE 3/8" X 1"	10	
4055-02C0235	NUT-HEX OVAL LOCK 3/8"	10	
5000-03-0375	WASHER-LOCK 3/8"	10	



The Portal for a Butler Bin Configuration #2 – 36-117519		
Component	Description	Quantity
36-117496-23	PORTAL B2 INSERT	1
36-117522	The Portal MANUAL	1
36-117531	PORTAL SLIDE GATE ASSEMBLY	1
4003-22C2502	BOLT-CARRIAGE 3/8" X 1"	10
4055-02C0235	NUT-HEX OVAL LOCK 3/8"	10
5000-03-0375	WASHER-LOCK 3/8"	10

The Portal for a Butler Bin Configuration #3 – 36-117520		
Component	Description	Quantity
36-117497-23	PORTAL B3 INSERT	1
36-117522	The Portal MANUAL	1
36-117531	PORTAL SLIDE GATE ASSEMBLY	1
4003-22C2502	BOLT-CARRIAGE 3/8" X 1"	10
4055-02C0235	NUT-HEX OVAL LOCK 3/8"	10
5000-03-0375	WASHER-LOCK 3/8"	10

The Portal for a Butler Bin Configuration #4 – 36-117521		
Component	Description	Quantity
36-117491-23	PORTAL WT1 INSERT	1
36-117511-23	PORTAL B4 CONVERTER	1
36-117522	The Portal MANUAL	1
36-117526-23	PORTAL B4 CONNECTOR PLATE	2
36-117531	PORTAL SLIDE GATE ASSEMBLY	1
4001-22C2888	BOLT-HEX 1/2-13 UNC X 1" GR5 YZ	4
4003-22C2502	BOLT-CARRIAGE 3/8" X 1"	10
4030-21C0260	NUT-HEX 1/2-13 UNC GR5	4
4055-02C0235	NUT-HEX OVAL LOCK 3/8"	10
5000-03-0375	WASHER-LOCK 3/8"	10



The Portal for a Custom Bin Configuration – 36-117539				
Component	Description	Quantity		
36-117522	The Portal MANUAL	1		
36-117531	PORTAL SLIDE GATE ASSEMBLY	1		
36-117541-	PORTAL CUSTOM STIFFENER	1		
4003-22C2502	BOLT-CARRIAGE 3/8" X 1"	10		
4016-22C2518	BOLT - ELEVATOR 3/8-16 UNC X 1 1/2	2		
4055-02C0235	NUT-HEX OVAL LOCK 3/8"	12		
5009-02-0375	WASHER-FLAT 3/8"	8		

<i>The Portal</i> Chute – 36-117502				
Component	Description	Quantity		
36-117502	PORTAL CHUTE ASSEMBLY	1		

The Portal Vac Chute – 36-117529				
Component	Description	Quantity		
36-117529	PORTAL VAC CHUTE ASSEMBLY	1		
36-117522	The Portal MANUAL	1		



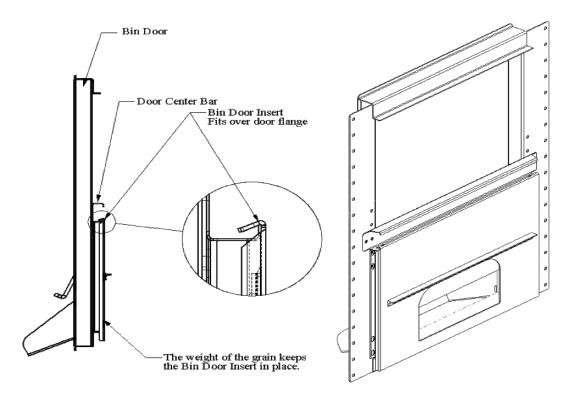
Installation Instructions

#### 6.1 General Installation

Installation of The Portal bin door must be done when the grain bin is empty

On most grain bins the insert are designed to hook over and hang on to the existing bin door's centre bar. The weight of the grain against the insert then holds it in place.

For a better air seal when using aeration, apply silicone to the edges of *The Portal* bin door frame once the bin is full enough that the grain pushes *The Portal* tight against the bin.



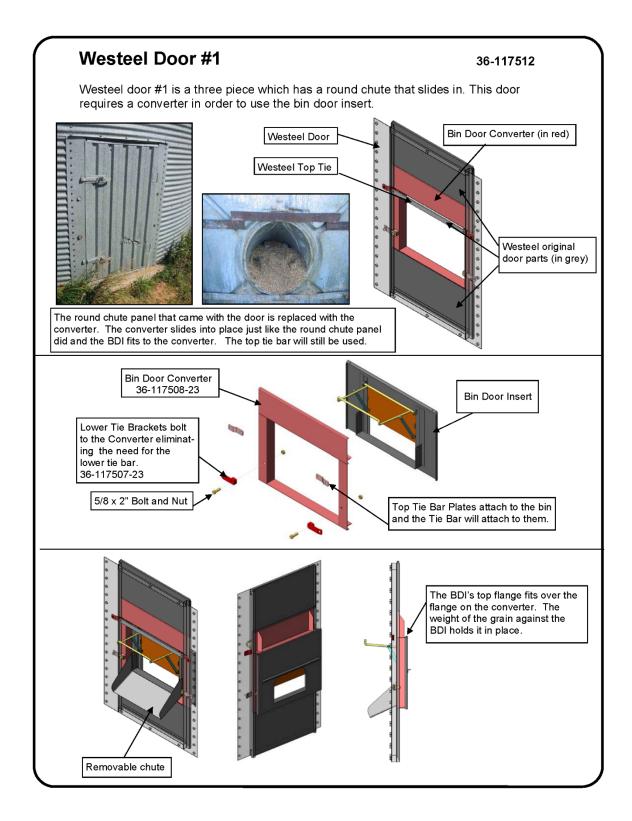
There are 10 different kits available for The Portal bin door insert. Specifically for Westeel, Twister, and Butler brand grain bins. See below for the installation instructions which are applicable to your specific bin brand and configuration.



Westeel

There are three different bin door styles for the three Westeel bin door configurations.



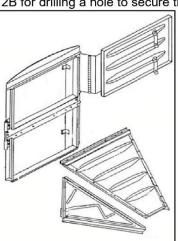




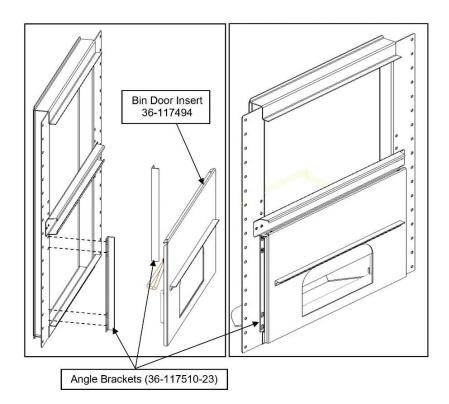
#### Westeel Door #2A

36-117513

Westeel door #2A has a bolt-in center bar and bolt on side panels to the chute. The bolt on side panels will need to be removed and replaced with the 2 angle brackets as shown. The Bin Door Insert will then fit over the bottom flange of the center bar and the weight of the grain will hold it in place. If there is no bottom flange, see option 2B for drilling a hole to secure the portal.







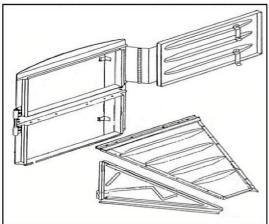


#### Westeel Door #2B

36-117513

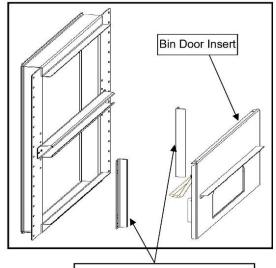
Westeel door #2B has a bolt-in center bar and bolt on side panels to the chute. The bolt on side panels will need to be removed and replaced with 2 angle brackets as shown.

To install the Bin Door Insert: Place the insert into the door opening with the chute flange resting on the door sill. Drill hole through the cross brace and the portal door. Install the insert and using the enclosed 3/8 x 2" bolt secure the insert to the door's center bar.





Open bolt hole in center bar

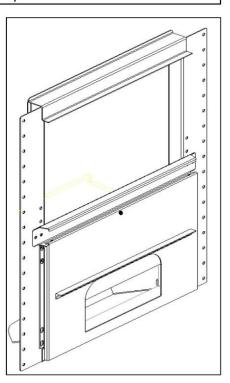


Angle Brackets (36-117510-23)

#### **Bolt Package**

1-3/8 x 2" Hex Bolt 1- 3/8" Regular Nut







#### **Westeel Door #3**

36-117514

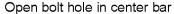
Westeel door #3 has a swing-in center bar.

To install the Bin Door Insert: Remove the 4 bolts which holds the auger port to the door. Using three of the existing bolts fill in the 2 outside holes and an inside hole. Then place the insert into the door opening with the chute flange resting on the door sill. With a pencil draw a mark through the center of the open bolt hole (4th hole) on the front face of the bin door insert. Remove the insert from the door and drill a 7/16" hole at the marked location. Reinstall the insert and using the enclosed 3/8 x 2" bolt secure the insert to the door's center bar.









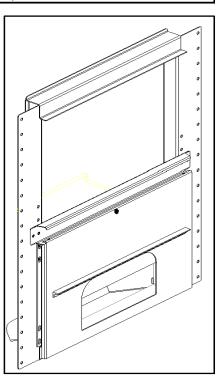


Attach with 3/8 x 2" bolt and nut enclosed

#### **Bolt Package**

1- 3/8 x 2" Hex Bolt 1- 3/8" Regular Nut







#### 6.2 Twister

There are three different door styles for the three Twister bin door configurations.

#### **Twister Door #1**

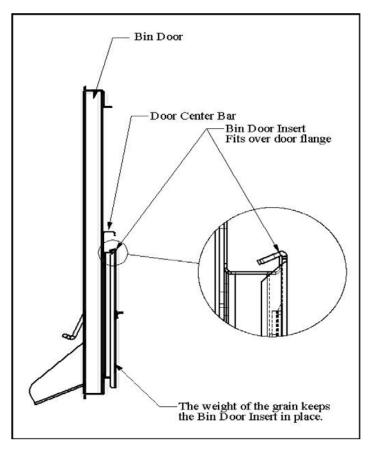
36-117515

Twister bin door #1 has a metal tab with a hole for the side panel protruding from the door frame. Before installing the insert the metal tab will need to be cut and bent down as shown. A "zip" disc on a small angle grinder works very well to make the cut.



Metal Tab With Hole

Metal Tab Cut And Bent Down

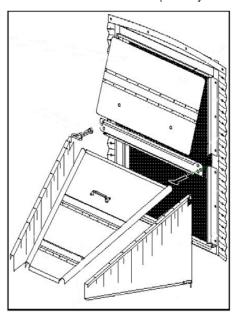


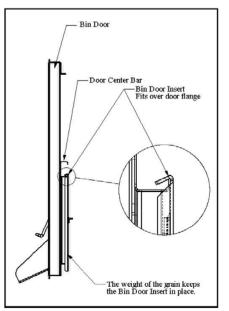


#### **Twister Door #2**

36-117515

The second door does not require any modification to the door.





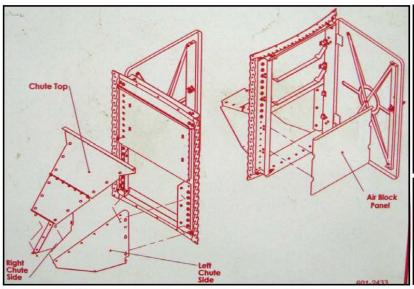




#### **Twister Door #3**

36-117517

The third Twister door has no center bar brace and has bolt on chute sides which will have to be removed. The top panel is hinged and swings in to open.















#### **Bolt Package**

- 14 1/2" Regular Nuts
- 14 1/2" Lock Washers
- 2 1/2" Jam Nuts
- 2 1/2" Flat Washers (Wide) 2 1/2" Wing Nuts



#### 6.3 Butler

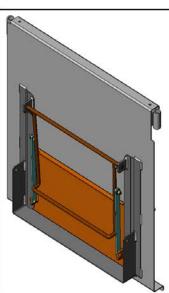
There are four different door styles for the four Butler bin door configurations.

## **Butler Door #1**

36-117518







Butler Bin #1 requires a B1 Insert (36-117518)



## **Butler Door #2**

36-117519



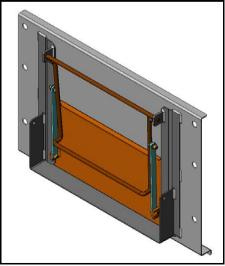
Butler Bin #2 requires a B2 Insert (36-117519)



## **Butler Door #3**

36-117520





Butler Bin #3 requires a B3 Insert (36-117520)



#### **Butler Door #4**







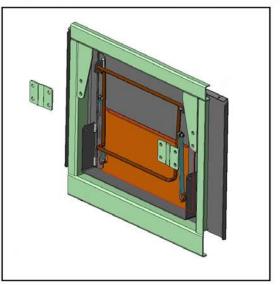




Bolt Package: 4 - 1/2 X 1" Hex Bolts 4 - 1/2" Regular Nuts







Butler Door #4 Package includes a B4 Converter (36-117511), a WT1 Insert (36-117491-23), 2x connector plates (36-117526-23), and the slide gate subassembly (36-117531). (The converter slides in door channel and the insert hangs on converter.)



#### 6.4 Custom Door

This kit is suited for bins not covered under any of previous configurations. The custom wooden panel is not provided as part of the kit and is to be prepared by the customer as suited for the bin.

# **Custom Door** 36-117539 -Custom Insert Stiffner Plate Wooden Panel - 3/4" fir plywood or better recomended. Mark out holes shown and then use insert as a template for the remainder. Drill 3/8" holes. The elevator bolts need to be flush with panel for slide to work.

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#### 6.5 Grain Chute

The Portal's grain chute can be purchased separately and installed in seconds by spreading the chute's sides apart to allow for the insertion of the pins into the holes on The Portal's outlet. It can then be removed easily in the same manner to allow the grain bin door to be closed.



The Portal's 7" Vac chute is also available to be used with a grain vacuum.





## Portal Installation Manual

## **Operating Instructions**

#### 7.1 Unloading a Full Bin

When using The Portal bin door to unload a full bin, simply position the hopper of the conveyor or auger under The Portal outlet. The detachable grain chute accessory is recommended in the illustrated manner when the auger has a square back style hopper. This will prevent spillage of the grain.



Once the conveying equipment is in place, engage its drive and open the gate on The Portal so that the grain flows at the desired rate. When it is time to stop unloading, simply close The Portal gate using the provided handle and allow the conveying equipment to fully empty before disengaging it.

#### 7.2 Removal of *The Portal*

When the grain level in the bin is low enough that the grain no longer flows quickly out of The Portal, it must be removed to continue emptying the bin.

## **A** CAUTION

Ensure that the conveying equipment is disengaged with its power switch turned off before working near it. The conveying equipment should be moved out of the way to reduce the risk of a trip hazard.

Follow these instruction to prevent leakage:

- With The Portal gate open, scoop the nearest grain at the bottom and sides out of the opening with a shovel.
- 2 Push in at the bottom of the insert and place a 1" x 6" board in the doorway to prevent any grain from leaking out the door while removing The Portal.
- 3 To remove The Portal, lift on The Portal's pivot rod to disengage it from the bin.
- 4 Twist The Portal so that it fits through the bins opening, and pull it out.
- With *The Portal* removed, place a 2<sup>nd</sup> 1" x 6" board in the doorway above the first and remove the bin door's center bar before inserting the auger into the bin.

#### Maintenance

The Portal and grain bin should be inspected each time it is removed to ensure that there is no bulging or bending of any parts. If any deformation or failure is observed, do not use the grain bin or The Portal.

Once per season the gate slide seam should be lubricated with the appropriate oil to ensure that the slide mechanism moves freely. Clean up any extra oil to prevent contamination with grain.



## **Portal Installation Manual**

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## **Portal Installation Manual**



## Let's Get Started.







@ S3 AIR SYSTEMS

S3 MANUFACTURING

Industrial product development solutions.

S3groupltd.com