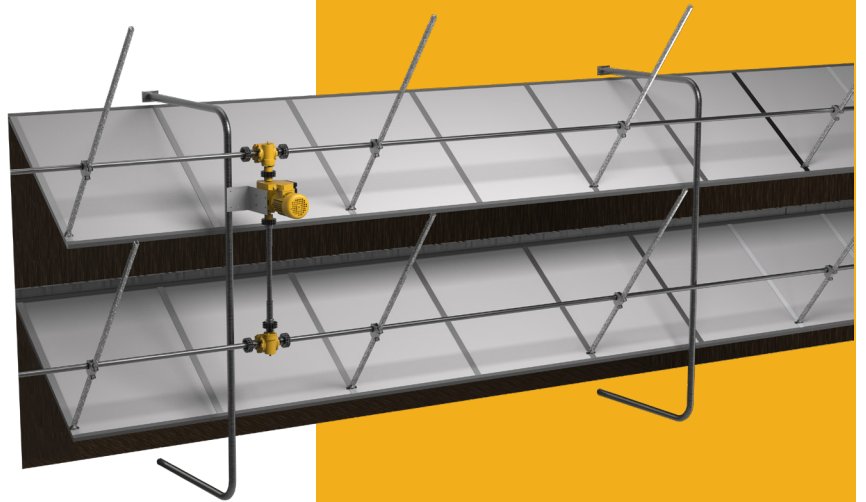




DOUBLE L
GROUP LLC



EcoTight Endwall Rack & Pinion



INSTALLATION MANUAL

REV07292025



CONTENTS

1. GENERAL

1.1 Disclaimer	3
1.2 Introduction	3
1.3 Delivery Check	3
1.4 Safety & Warnings	4
1.5 Limited Warranty	5
1.6 Parts List	6

2. ASSEMBLY

2.1 Framing	10
2.2 P-Seal Installation	11
2.3 Door Assembly	12
2.4 Installing Aluminum Channel	16
2.5 Mounting Bracket for Rack	17
2.6 Galvanized Pipe Install	18
2.7 Rack Install	25
2.8 Actuator Install	26

1. GENERAL

1.1 INTRODUCTION

Our EcoTight Endwall Rack & Pinion is meticulously engineered to deliver optimal performance and efficiency. Designed with heavy duty aluminum gears it provides maximum sealing to reduce cold air leakage and allows for smooth continuous control of vent systems while minimizing maintenance needs.

Before installing the EcoTight Endwall Rack & Pinion, we highly recommend that you carefully review this manual. Keeping it safely on hand for future reference will ensure that you can always access important information regarding operation, maintenance, and troubleshooting.

1.2 NOTES

Double L reserves the right to make alterations to specifications, quantities, dimensions, and other product details for production or other reasons after publication. While we strive to provide accurate and complete information, Double L makes no warranty or representation regarding the suitability of the product for any particular purpose.

It is essential that this manual is read and followed by all personnel involved in the system's operation, installation, and maintenance. This includes, but is not limited to, those responsible for: Operation including preparation, troubleshooting, and cleaning; Maintenance including servicing, inspection, and repair; and Deactivation including shutdown and disposal procedures.

1.3 DELIVERY CHECK

Before opening any boxes, carefully inspect the external packaging for any signs of damage. If any damage is found, contact your forwarding agent immediately before proceeding with unpacking. If the packaging appears safe, proceed to open the boxes. Carefully compare the contents of each box with the item list provided. Verify that the quantities and types of products match the list. If there are any discrepancies, such as missing or incorrect items, please contact Double L immediately for resolution. Retain all packaging and documentation until the issue is resolved. Please note that the boxes may contain small and numerous items that are easily lost. If the products are not being used immediately, do not open the boxes. Instead, keep them sealed and store them in a safe, dry, and secure location to prevent loss or damage. Retain all delivery documentation, including item lists, packing slips, and any communication with the forwarding agent or Double L. This will be essential in case of any future issues or claims.

1.4 SAFETY & WARNINGS

Warning



This product has inherent dangers, which can cause damage or loss to persons or equipment if the warnings in this manual are not adhered to. Please read and follow all instructions.

General Requirements



Carefully read all safety messages in this manual and on your equipment safety signs. Follow recommended precautions and safe operating practices. Keep safety signs in good condition. Replace missing or damaged safety signs.

1.5 LIMITED WARRANTY

Double L Group, LLC ("Double L") warrants new Double L EcoTight Endwall Rack and Pinion manufactured by Double L to be free from defects in material or workmanship under normal usage and conditions, for One (1) year from the date of installation by the original purchaser ("Warranty"). Double L provides for an extension of the aforementioned Warranty period ("Extended Warranty Period") with respect to certain Product parts ("Component Part") as set forth in the table below. If such a defect is determined by Double L to exist within the applicable period, Double L will, at its option, (a) repair the Product or Component Part free of charge, F.O.B. the factory of manufacture or (b) replace the Product or Component Part free of charge, F.O.B. the factory of manufacture. This Warranty is not transferable, and applies only to the original purchaser of the Product.

Component Part	Extended Warranty Period

Conditions and Limitations

THIS WARRANTY CONSTITUTES DOUBLE L'S ENTIRE AND SOLE WARRANTY AND DOUBLE L EXPRESSLY DISCLAIMS ANY AND ALL OTHER WARRANTIES, INCLUDING, BUT NOT LIMITED TO, EXPRESS AND IMPLIED WARRANTIES, INCLUDING, WITHOUT LIMITATION, WARRANTIES AS TO MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSES. DOUBLE L shall not be liable for any direct, indirect, incidental, consequential or special damages which any purchaser may suffer or claim to suffer as a result of any defect in the Product. Consequential or Special Damages as used herein include, but are not limited to, lost or damaged products or goods, costs of transportation, lost sales, lost orders, lost income, increased overhead, labor and incidental costs, and operational inefficiencies. Some jurisdictions prohibit limitations on implied warranties and/or the exclusion or limitation of such damages, so these limitations and exclusions may not apply to you. This warranty gives the original purchaser specific legal rights. You may also have other rights based upon your specific jurisdiction.

Compliance with federal, state and local rules which apply to the location, installation and use of the Product are the responsibility of the original purchaser, and DOUBLE L shall not be liable for any damages which may result from non-compliance with such rules.

The following circumstances shall render this Warranty void:

- Modifications made to the Product not specifically delineated in the Product manual.
- Product not installed and/or operated in accordance with the instructions published by Double L.
- All components of the Product are not original equipment supplied by Double L.
- Product was not purchased from and/or installed by a Double L authorized distributor or certified representative.
- Product experienced malfunction or failure resulting from misuse, abuse, mismanagement, negligence, alteration,
- accident, or lack of proper maintenance, or from lightning strikes, electrical power surges or interruption of electricity.
- Product experienced corrosion, material deterioration and/or equipment malfunction caused by or consistent with the application of chemicals, minerals, sediments or other foreign elements.
- Product was used for any purpose other than for the care of poultry and livestock.

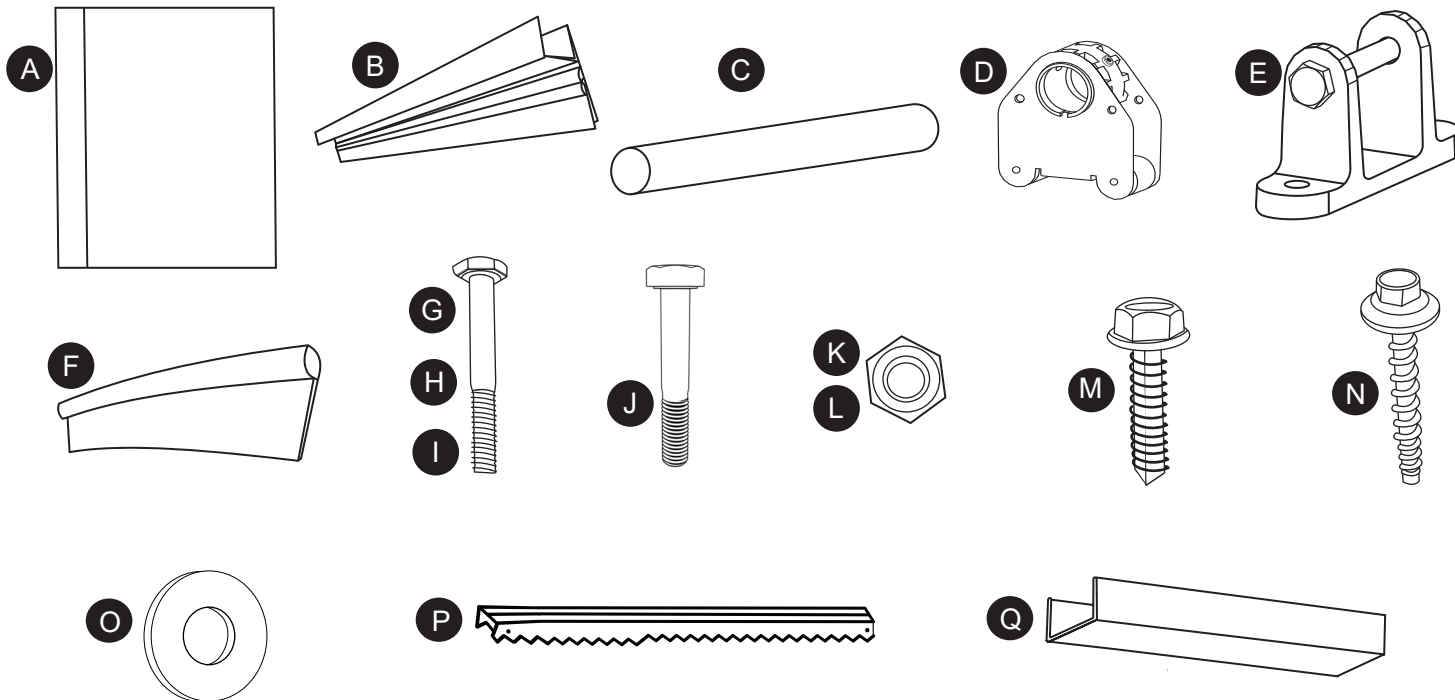
The Warranty and Extended Warranty may only be modified in writing by an officer of Double L. Double L shall have no obligation or responsibility for any representations or warranties made by or on behalf of any distributor, dealer, agent or certified representative.



1.6 PARTS LIST

R&P Kit- Part #31123/31120

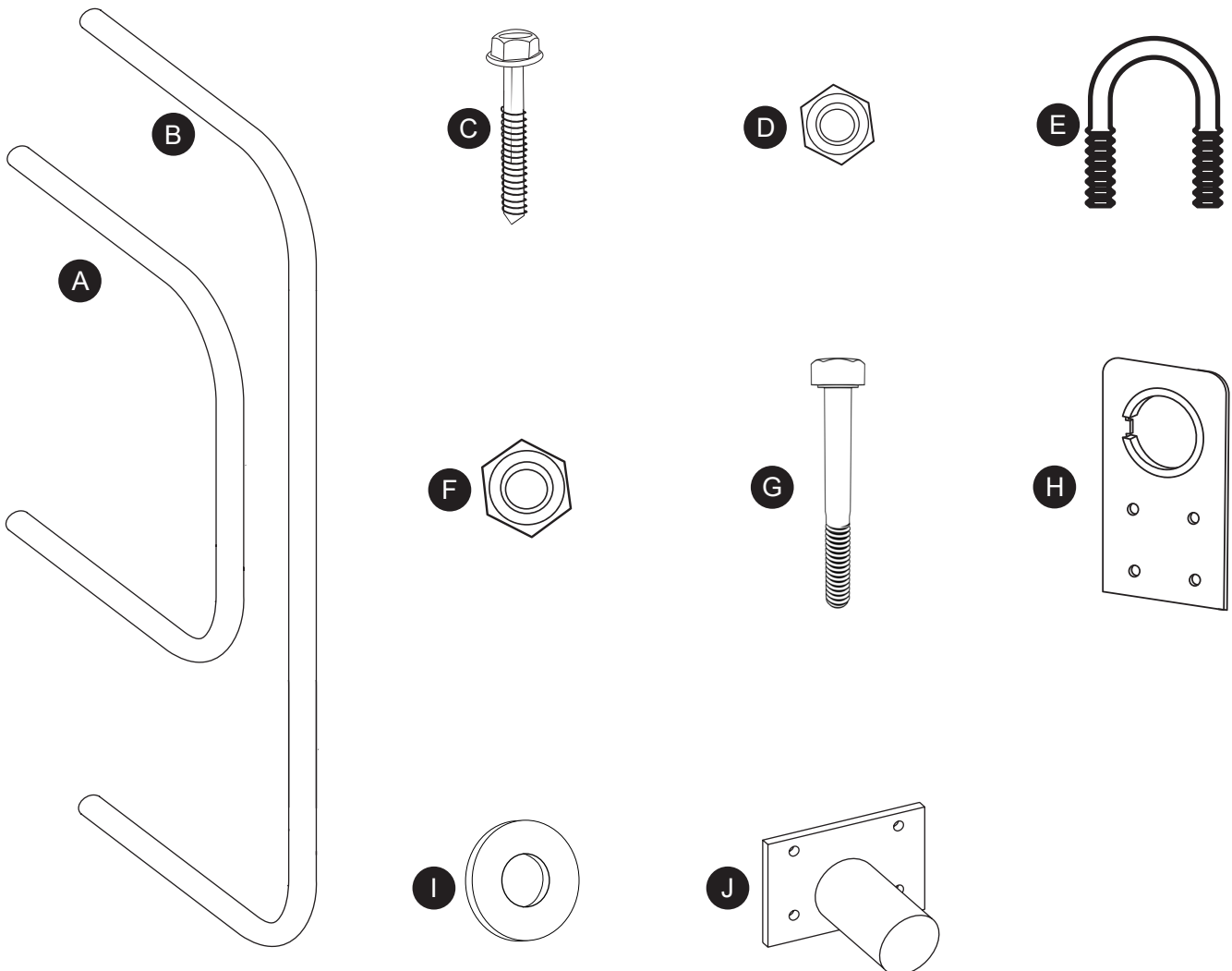
Part #	Description:	31123	31120
		QTY.	QTY.
A 31052	Door Assembly	1	1
B 031030	Continuous HInge	5ft.	3.33ft.
C 031070	1" Galvanized Pipe	0.5	0.33
D 031025	Tunnel Door Pinion	1	0.5
E 031015	Mounting Bracket, Rack to Door	1	0.5
F 031054	P-Seal	5ft.	3.33ft
G 031011	1/4" x 2" Bolt	3	3
H 600001BO	1/4" x 1-1/4" Bolt	2	2
I 031038	1/4" x 2-1/4" Bolt	1	1
J 031016	5/16" x 1-1/2" Bolt	4	4
K 600003BO	1/4" Nut	6	6
L 031017	5/16" Nut	4	4
M 031012	#10 x 3/4" Tek Screw	10	10
N 031013	#10 x 1" Roofing Screw	12	8
O 600006WA	1/4" Fender Washer	2	2
P VARIES	Rack	1	0.5
Q 031036	Aluminum C-Channel	5ft.	3.33ft.



*Note: Racks for the Door can come in Curved or Straight

One/Two Door Pipe Loop Kit- Part #31124/31125

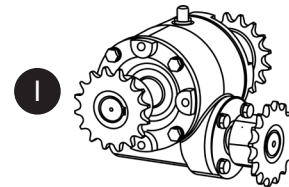
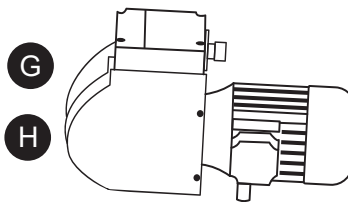
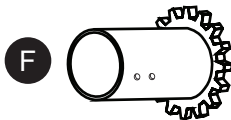
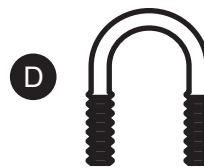
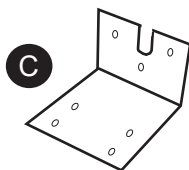
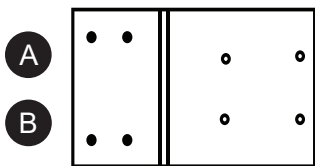
Part #	Description:	31124	31125
		QTY.	QTY.
A 031047	1 Door Pipe Loop	1	0
B 031040	2 Door Pipe Loop	0	1
C 031014	5/16" x 3-1/8" Wood Screw	8	8
D 031017	5/16" SS Nut	2	2
E 031018	5/16" x 2" U-Bolt	2	4
F 031019	5/16 Hex Nut	4	8
G 031021	5/16 x 2-1/2" Bolt	2	2
H 031023	Bronze Bushing	1	2
I 600350WA	3/8" Washer	8	8
J 031046	2" Pipe Bracket	2	2





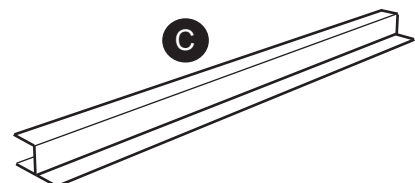
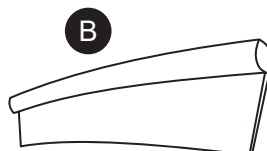
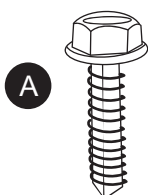
One/Two Door Winch Kit- Part #31122/31121

Part #	Description:	31122	31121
		QTY.	QTY.
A 017016	One Row Winch Mounting Bracket	1	0
B 017028	Two Row Winch Mounting Bracket	0	1
C 017026	Gearbox Mounting Bracket	0	2
D 031018	5/16" x 2" U-Bolt	2	2
E 031019	5/16 Hex Nut	4	4
F 031042	1" Pipe Tube Sprocket	2	2
G 17003	EcoDrive 300 Winch, 1 Row	1	0
H 031041	Worm Gearbox W/ Sprocket	0	2



End Kit- Part #31126

Part #	Description	QTY./KIT
A 031012	#10 x 3/4" Tek Screw	3
B 031054	P-Seal	10ft.
C 90129	Aluminum Baby-h Profile	1



Tools Needed

- Tape Measure
- Marker
- Rubber Mallet
- Level
- 9/32" Drill Bit
- String Chalk Reel
- 7/16" socket and wrench
- 5/16" shallow socket
- 1/4" shallow socket
- Roofing Nails
- Cordless Drill with Phillips Driver
- Roofing Nail Gun (Recommended)
- Caulk (Recommended)



2. ASSEMBLY

2.1 FRAMING

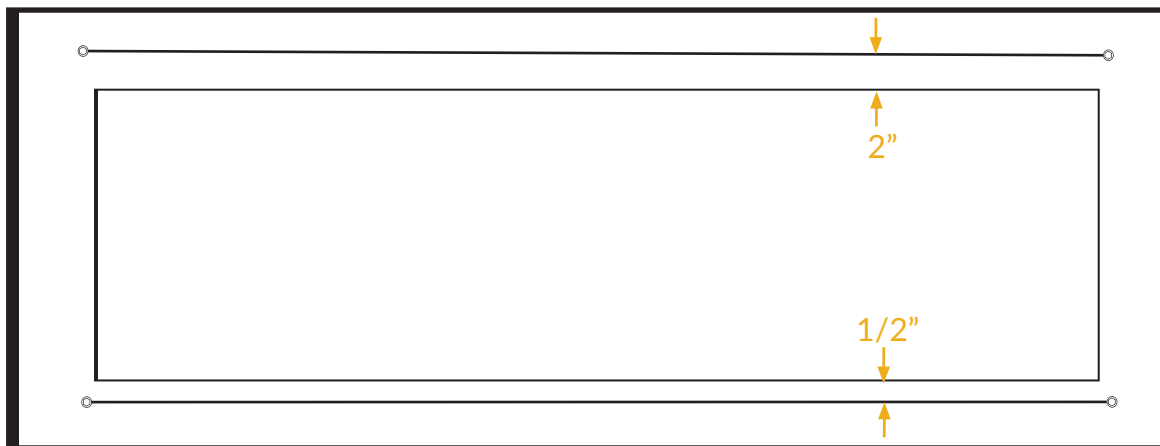
***Note:** The tunnel door opening (framing) should be flat and straight in the vertical and horizontal planes.

Step 1

The EndWall Rack and Pinion is designed where the door is installed on the outside of the building. Construct the frame of each row to the correct size of your Endwall Door.

Step 2

Next snap a chalkline 2" from the top of the rough opening for continuous hinge placement and another chalkline 1/2" from the bottom of the rough opening for the P-seal placement. This needs to be at a level tolerance of $\pm 1/4$ " from end to end and should be done for each row of doors being installed.

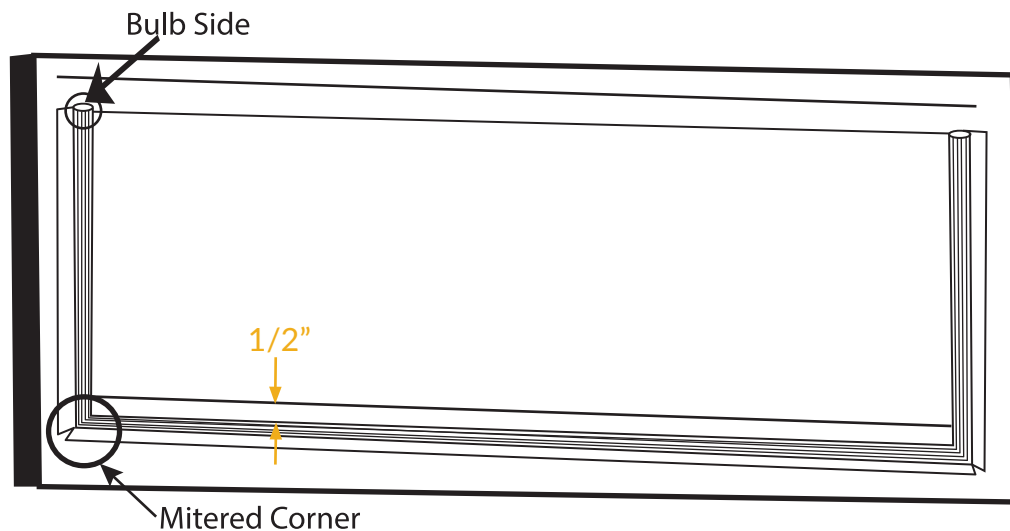


2.2 P-SEAL INSTALLATION

Hardware Not Included: Roofing Nails to install P-Seal

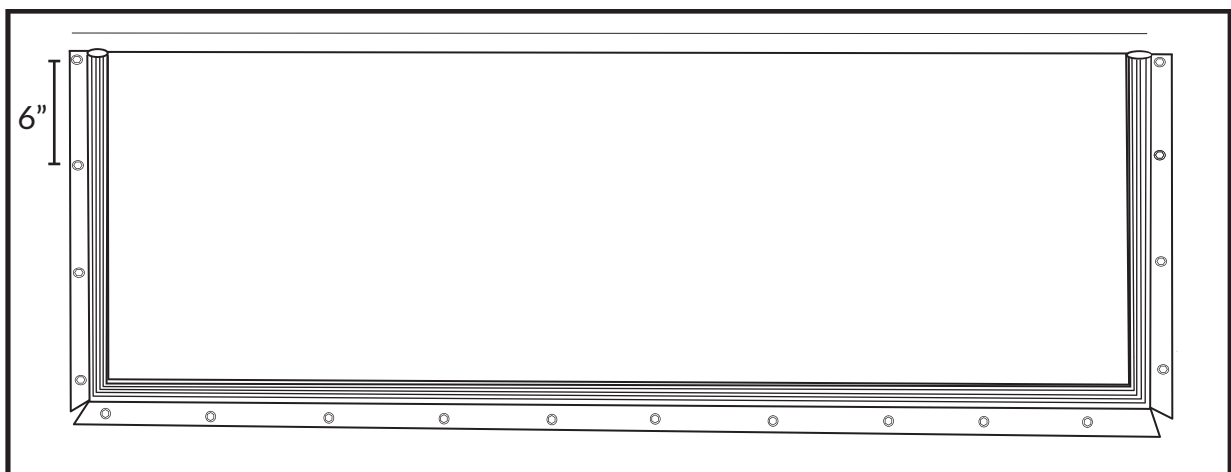
Step 1

Starting at the top on the left side, align the P-Seal to the rough opening with the bulb flush to the inside of the rough opening. Miter the seal as needed to wrap around corners with a continuous piece. Align the lower P-Seal with the chalkline 1/2" from the bottom of the rough opening



Step 2

Continue attaching the p-seal until it is attached to 3 sides of each rough opening. After attaching the p-seal, go back and permanently secure it to the framing using roofing nails. The roofing screws are not provided and should be spaced evenly every 6".

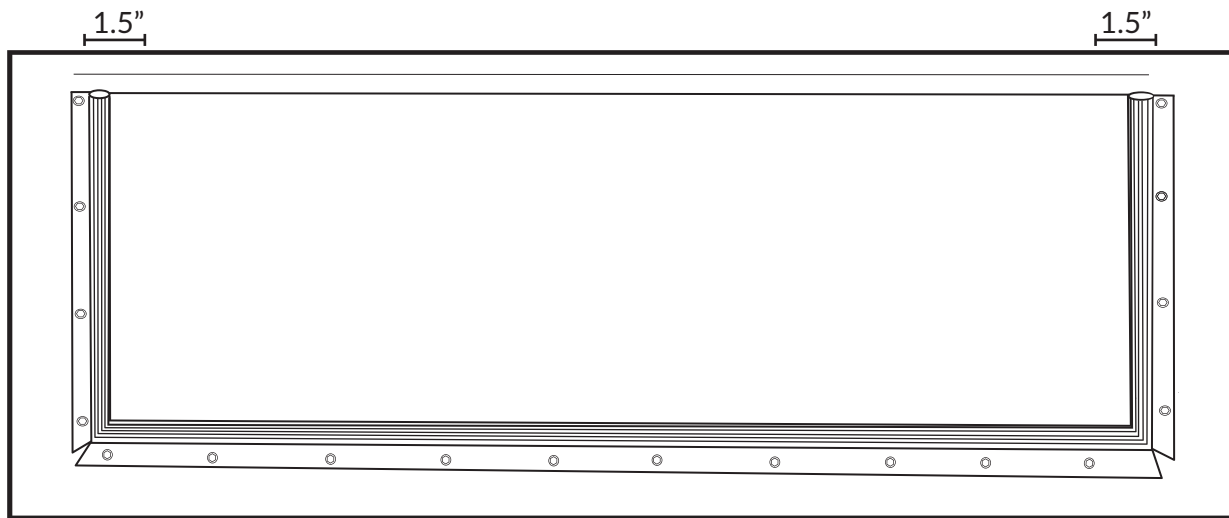




2.3 DOOR ASSEMBLY

Step 1

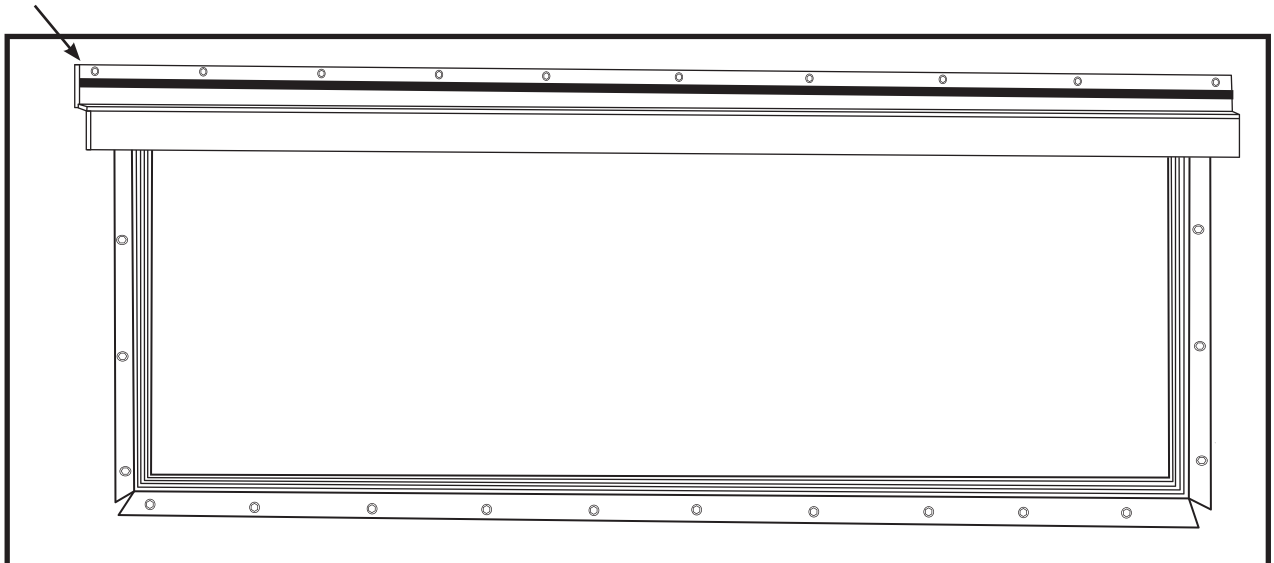
On the top where you snapped the chalkline, measure 1-1/2" past the opening on both sides for the start of the continuous hinge.



Step 2

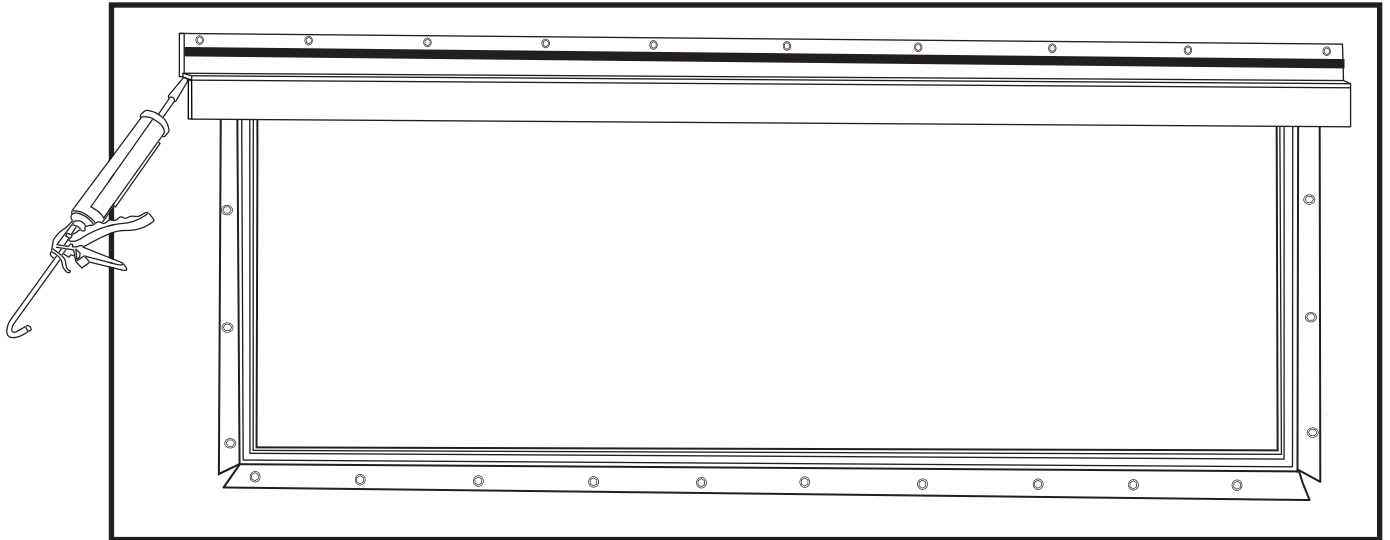
Install the continuous hinge with (10) #10 x 1" roofing screws, per 10ft. piece, so the top is aligned with the chalkline that was snapped. The first screw should start 1-1/2 in. from the end and continue placing the rest every foot.

Align this part of the hinge to the chalkline



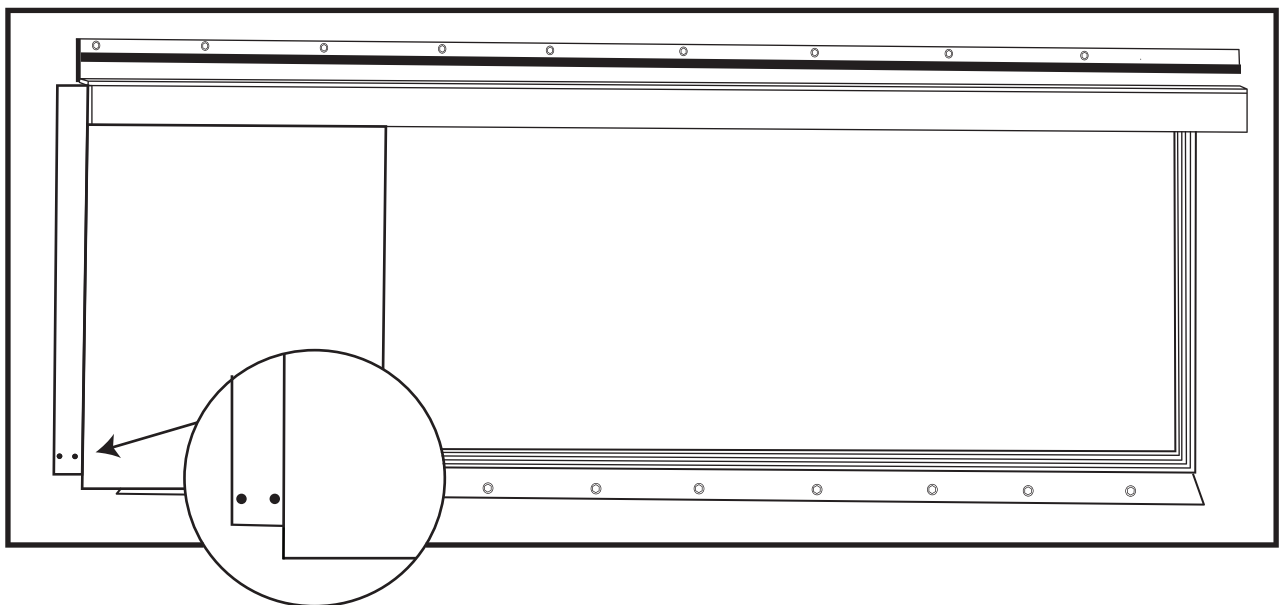
Step 3

Flex the hinge into the house and place a bead of caulk below the flexible portion of the hinge. The bead of caulk should be between the hinge and framing.



Step 4

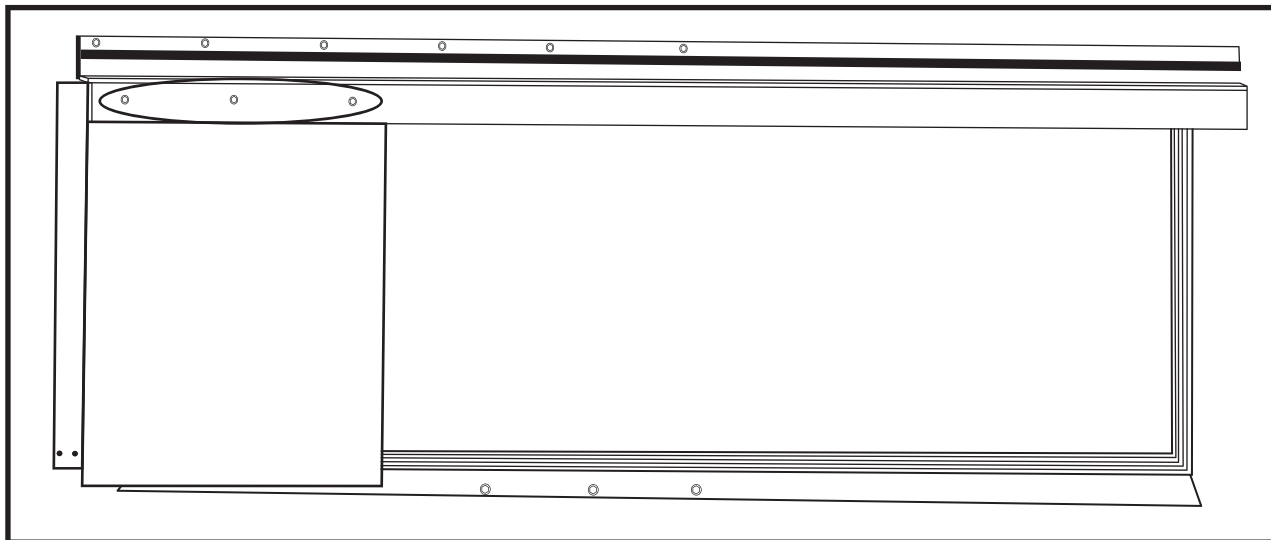
Start installing the 1st door. Slide the door into the hinge and ensure it is flush with the hinge at the end of the system. Make sure the pre-drilled holes are at the bottom with the aluminum on the left side of the door during installation.





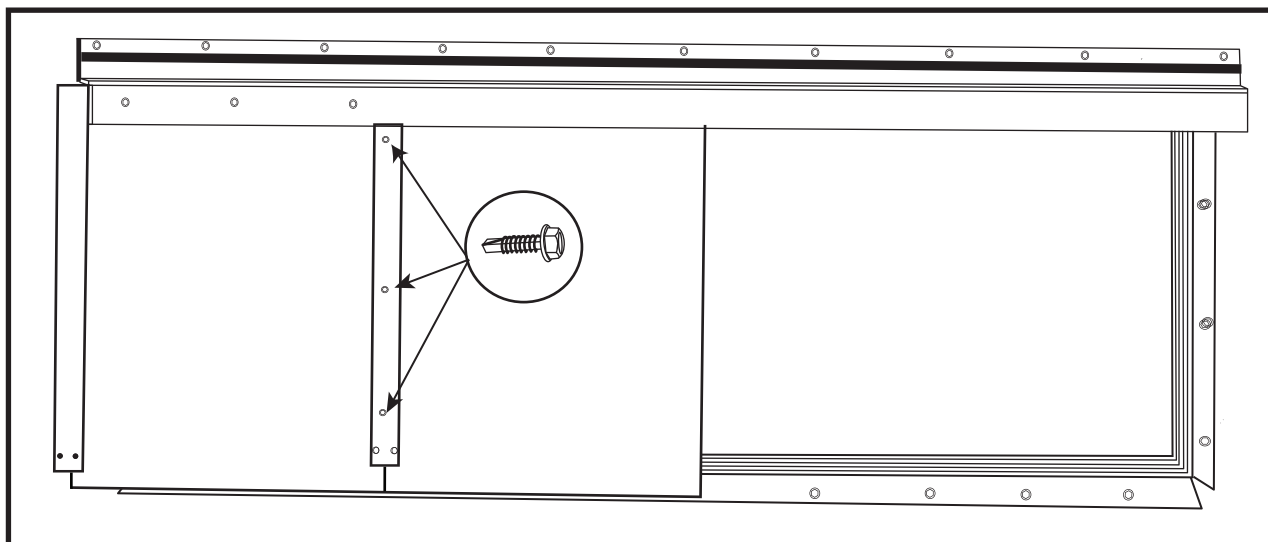
Step 5

Secure the door to the hinge using three evenly spaced #10 x 1" roofing screws on the front and **three more on the back of the door.**



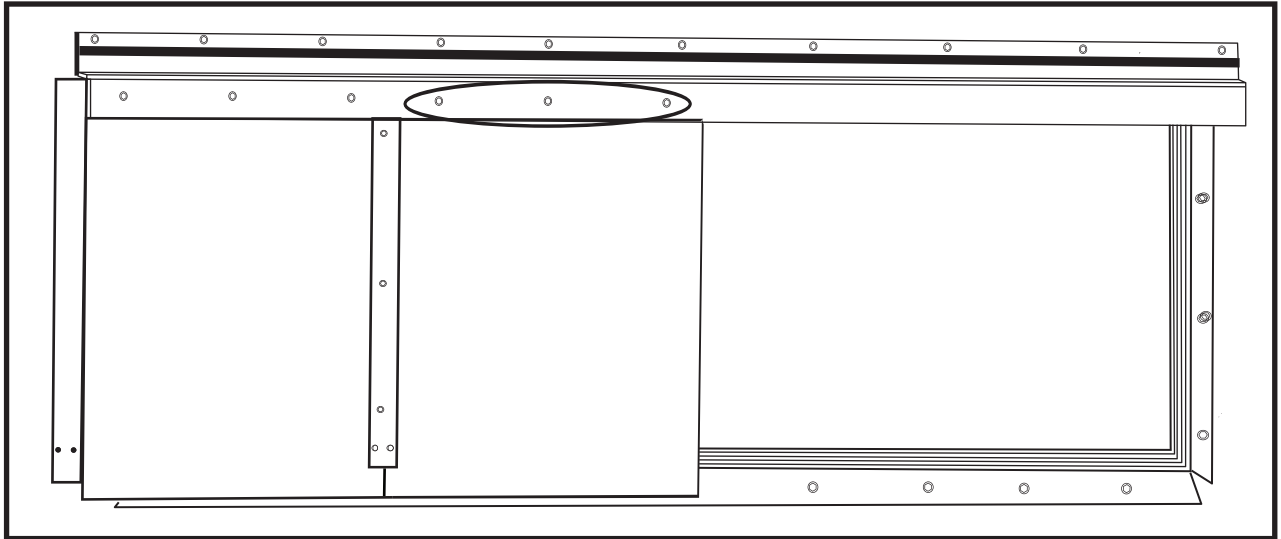
Step 6

Slide the next door into the continuous hinge. Make adjustments as needed to ensure that this door is flush with the first one and secure them together with (3) evenly spaced #10 x 3/4" Tek screws through the aluminum.



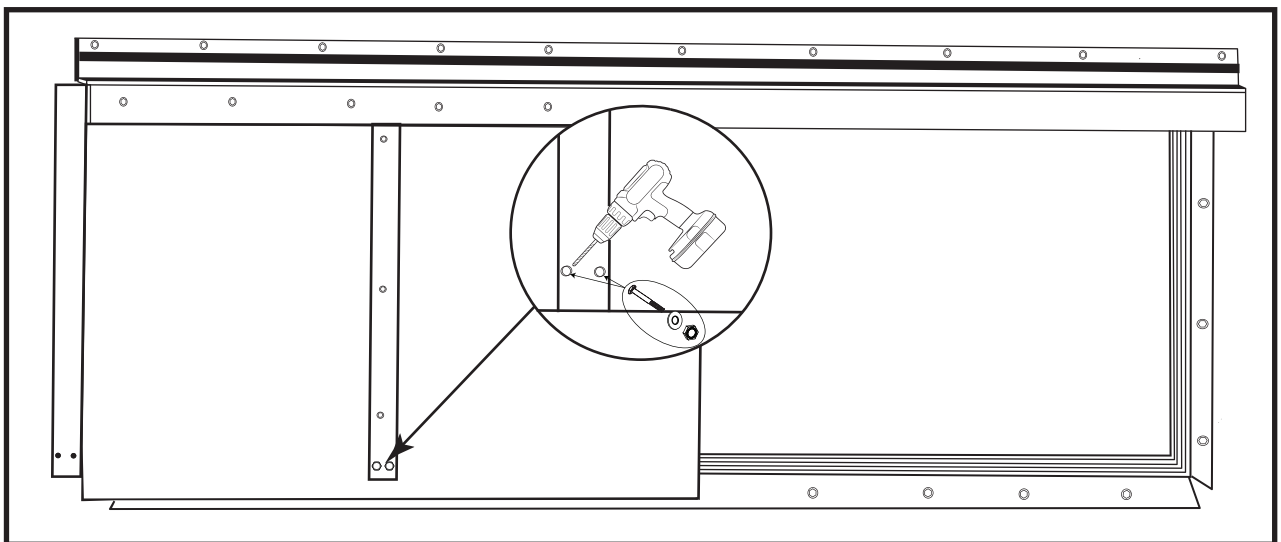
Step 7

Using (3) evenly spaced #10 x 1" roofing screws, secure the 2nd door to the hinge.



Step 8

Using the pre-drilled hole through the aluminum, drill a $\frac{9}{32}$ " clearance hole through the door. Next bolt the doors together through your newly drilled holes with (2) bolts and nuts with (1) fender washer on the bolt that has the door open on the back.



Step 9

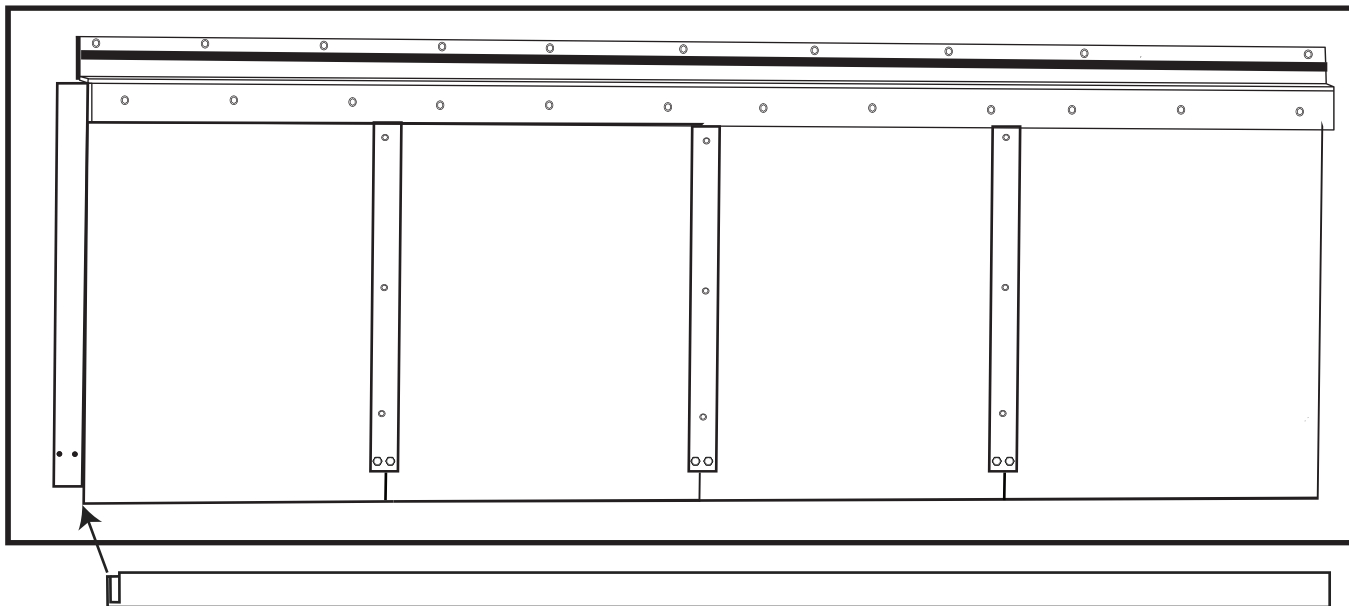
Repeat steps 5 through 8 for the remaining doors.



2.4 INSTALLING ALUMINUM CHANNEL

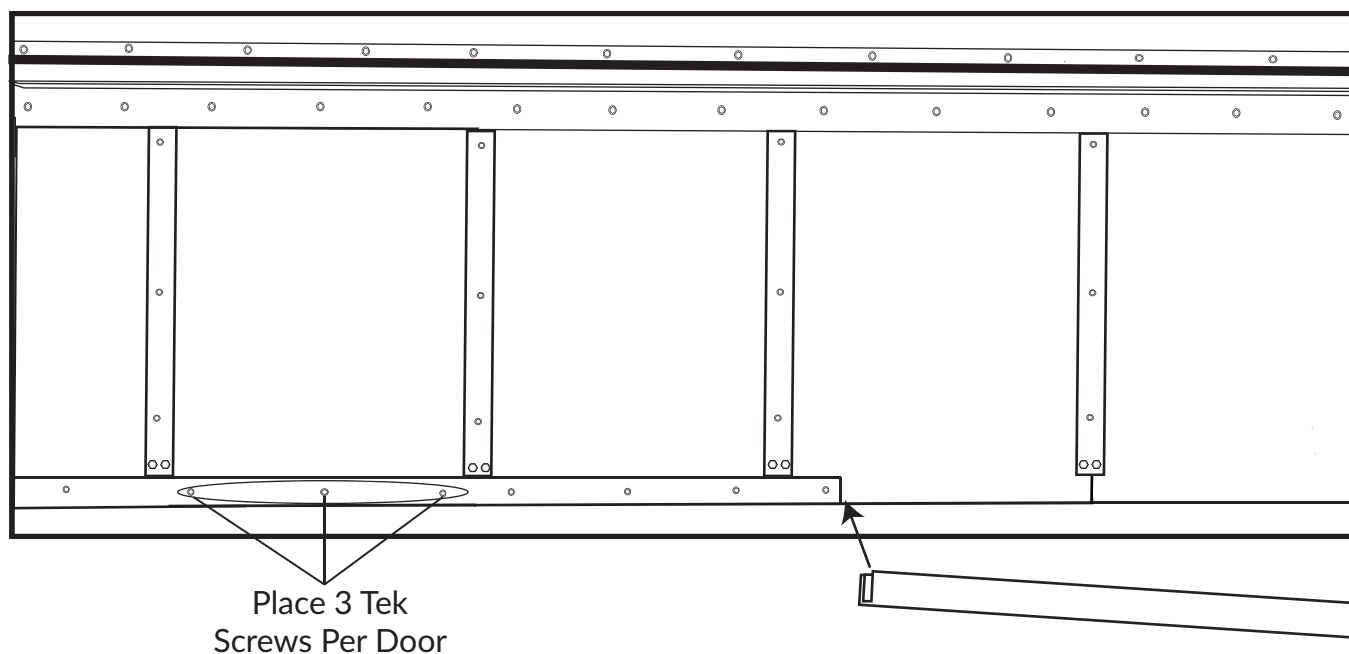
Step 1

Starting at the end with the first door you installed insert an Aluminum C-Channel at the top making sure it is flush at the end. Using a rubber mallet place the channel onto the top of the door.



Step 2

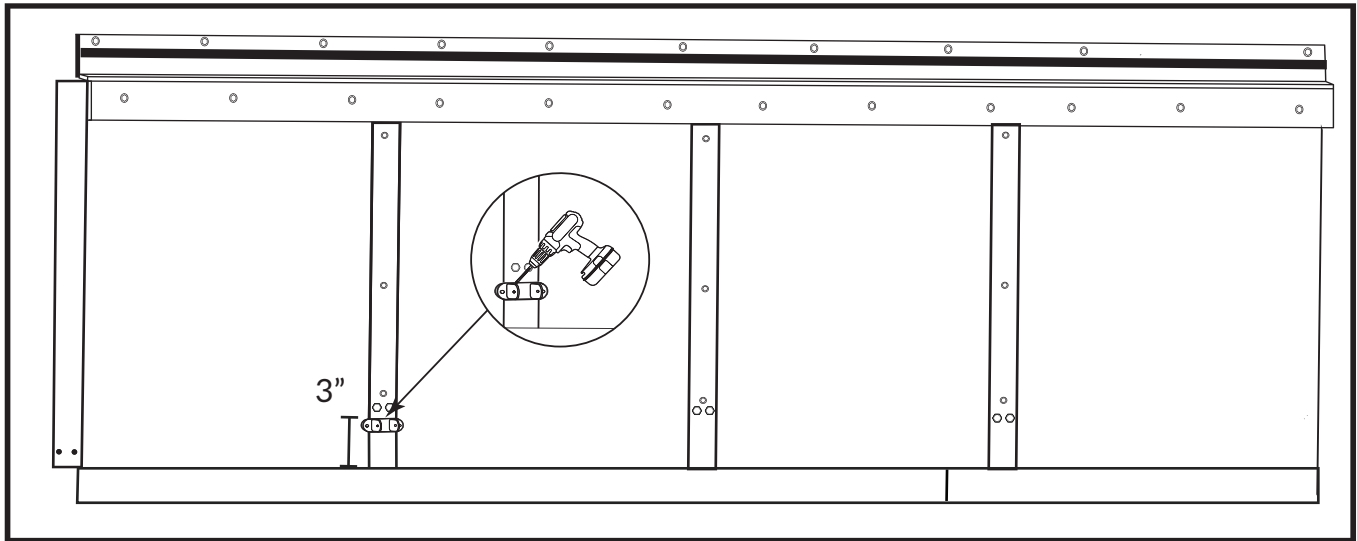
Continue adding on the Aluminum C-Channel to the rest of the systems doors with each piece being flush against the previous. Cut off any excess channel that extends over the end of the system. Secure all of the aluminum channeling with 3 evenly spaced #10 x 3/4" Tek Screws per door.



2.5 MOUNTING BRACKET FOR RACK

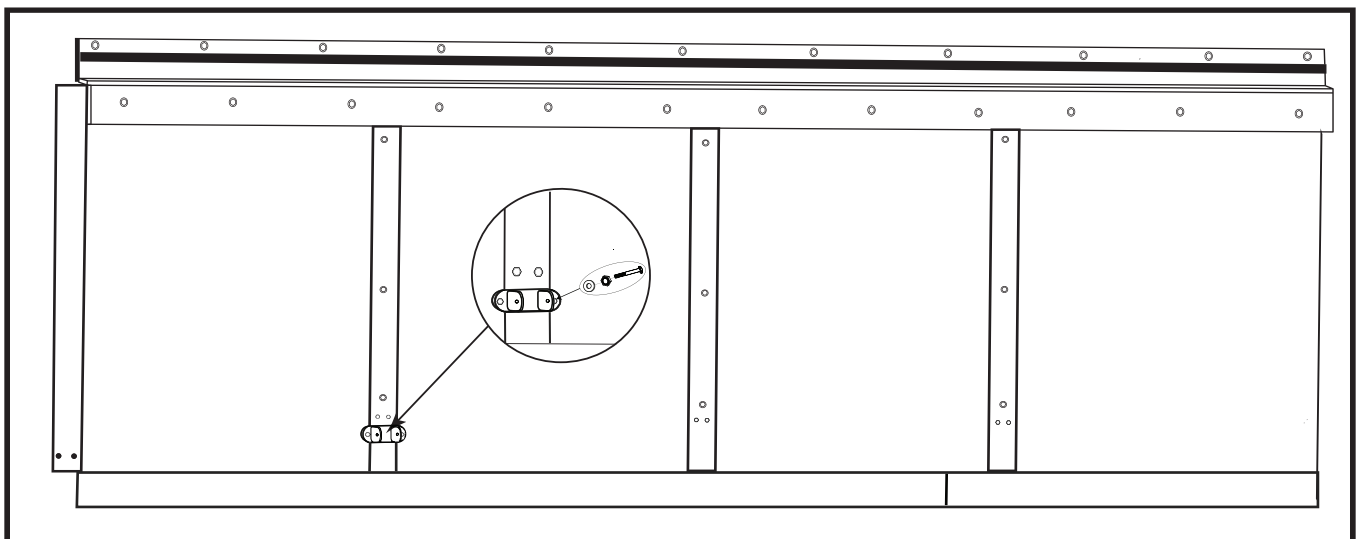
Step 1

Starting at the first seam where two doors come together measure 3" up from the bottom for the placement of the rack mount. At the spot you marked drill a $\frac{9}{32}$ " hole through the door using the holes in the rack mount as a guide. Make sure the holes go through the entire seam and door. Continue this for every other door system in the system.



Step 2

Using 2-1/4" bolts secure the rack mount to the door through the pre-drilled holes and holes already on the sides of the rack mount. Continue steps 1 and 2 for every other door system in the system.

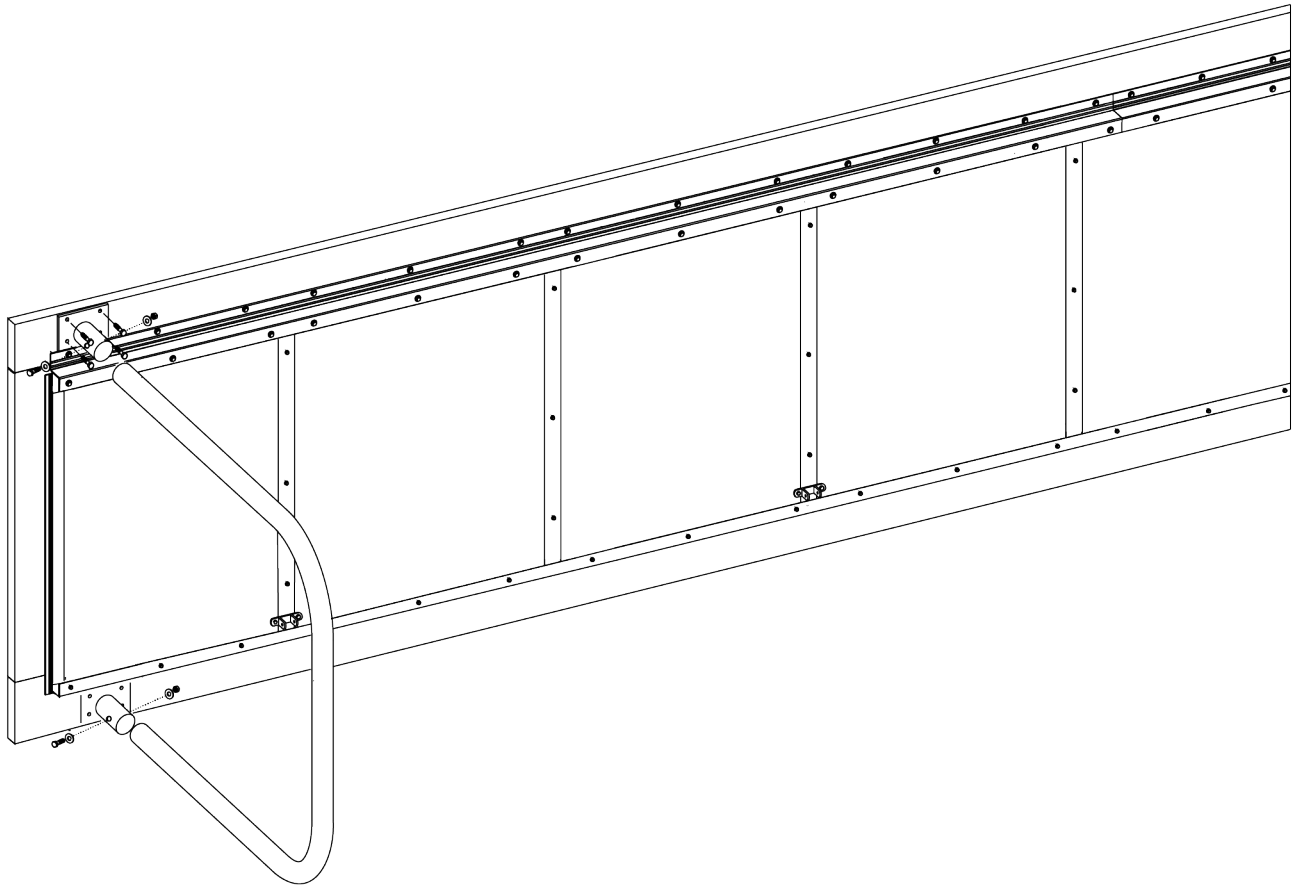




2.6 GALVANIZED PIPE INSTALL

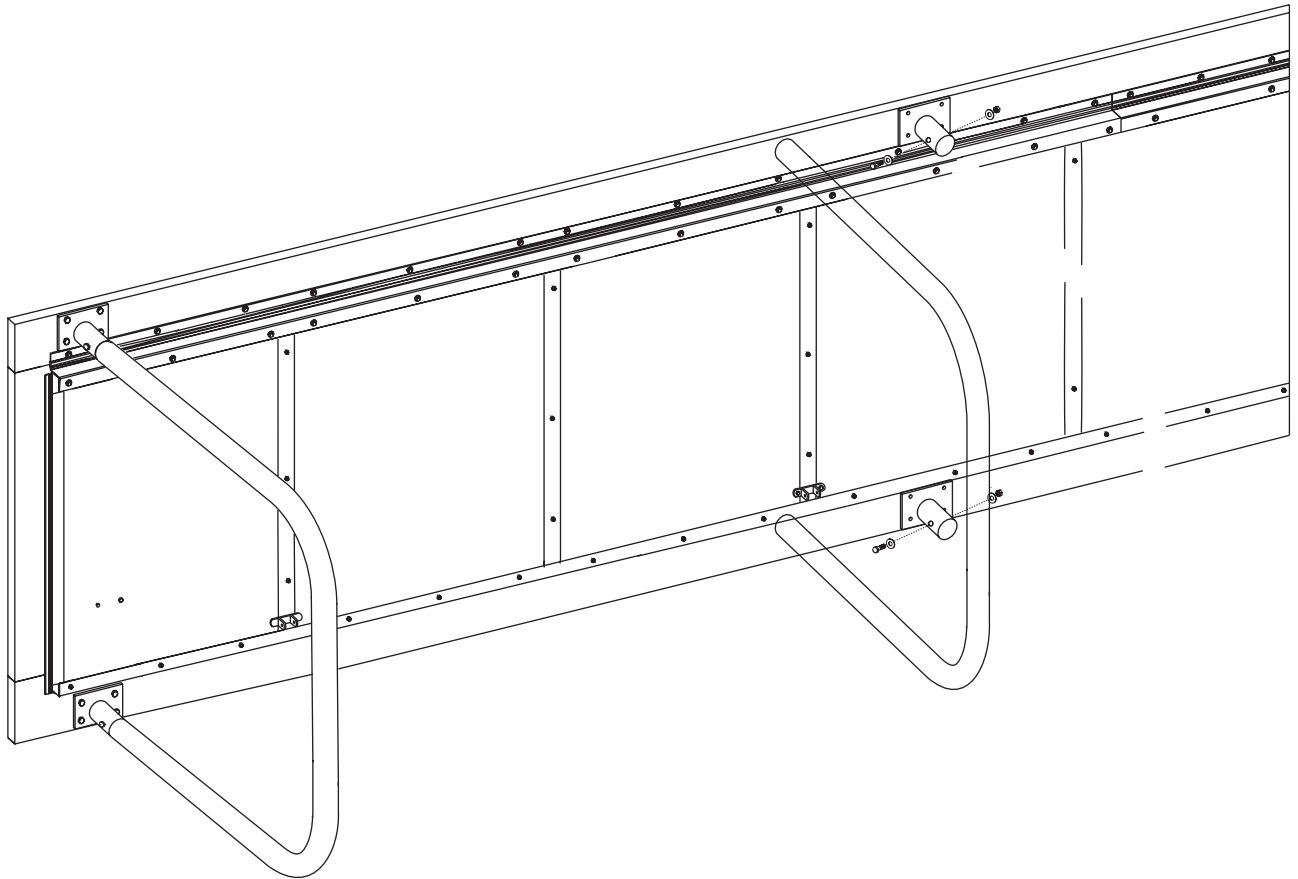
Step 1

Drill and bolt through the pipe to secure the wall bracket to the pipe. Attach the Pipe Loop Wall Bracket so that the top bracket on the pipe loop is flush with the top of the framing and the left edge of the Wall Bracket is flush with the left edge of the framing. Secure in place using (8) Wood Screws.



Step 2

Next install the second Pipe Loop . This one should be mounted so that all of the pipe loops are evenly spaced across the entire system. This should be 9'-11' from the first pipe loop, with the Pipe Loop Wall Bracket flush with the top of the Framing. Secure in place with (8) Wood Screws. Continue installing pipe loops with the last one flush with the end of the framing. Secure in place with (8) Wood Screws.



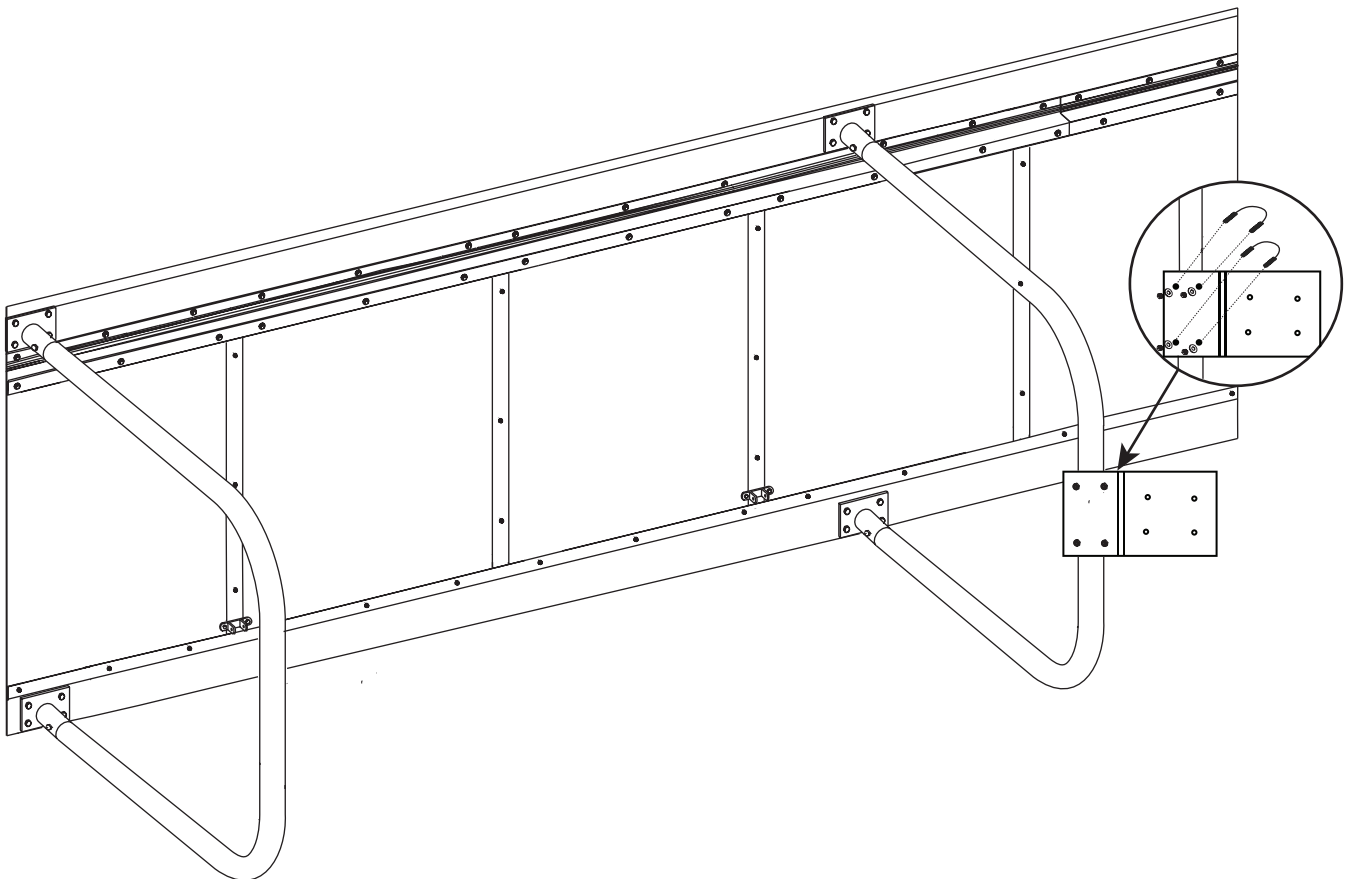
Note: Spacing dependent on rough opening size and total number of pipe loops. Make sure that no pipe loops are mounted directly above a door seam.



Step 3

Go to the most central pipe loop and take the Actuator Mounting Plate. Fasten the Actuator Mount Plate to the Pipe Loop using (2) U-Bolts, (4) Washers and (4) Nuts. At the two ends of the Pipe loop attach the Pipe Loop Wall Bracket with (1) Bolt, (2) Washers and (1) Nut per bracket through the pre-drilled holes.

Note: If actuator will be mounted on left end of the Doors go to the left most pipe loop.



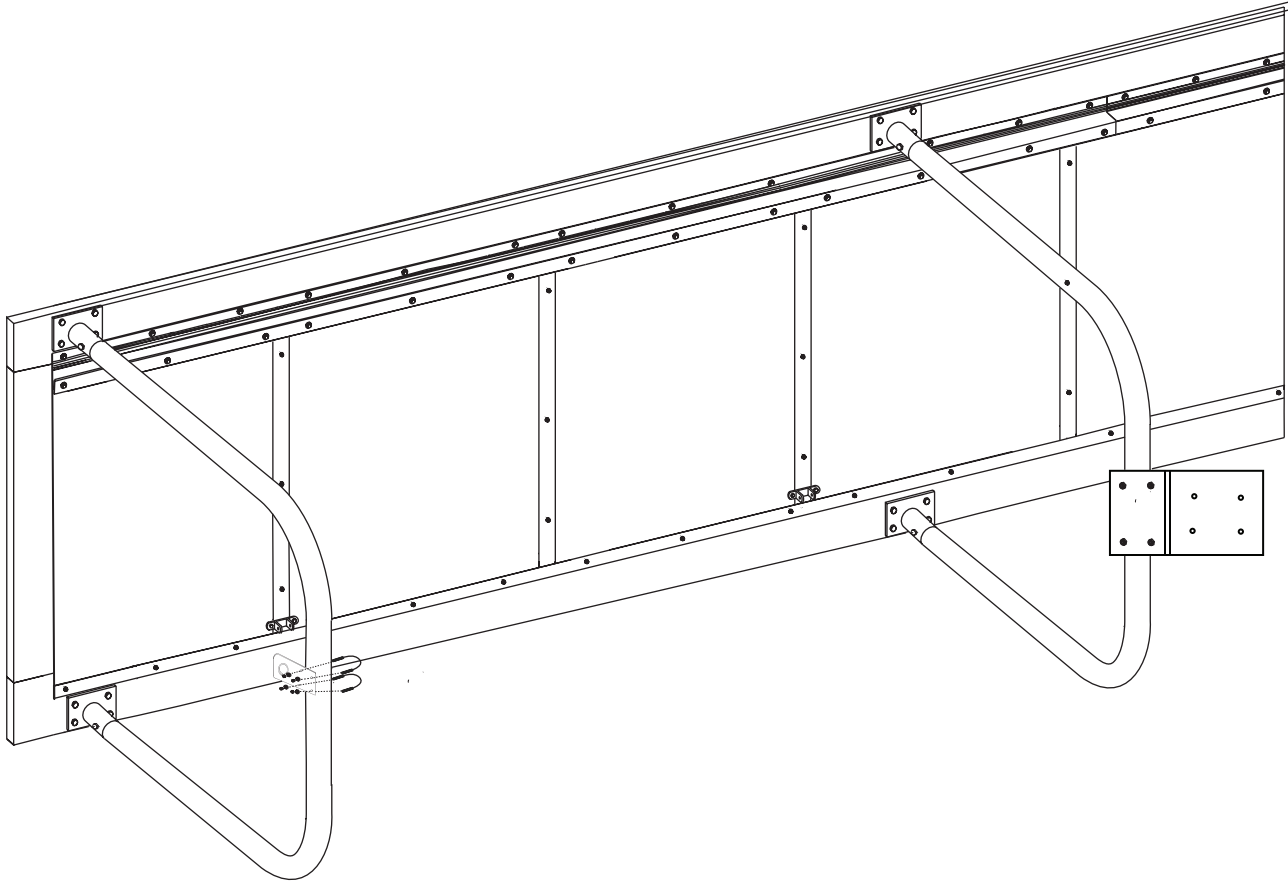
Step 4

If there are multiple rows of doors, install the Pipe Loops as described in steps 1-3.

Note: Pipe loops may only need to be installed over a pair of rows in some instances.

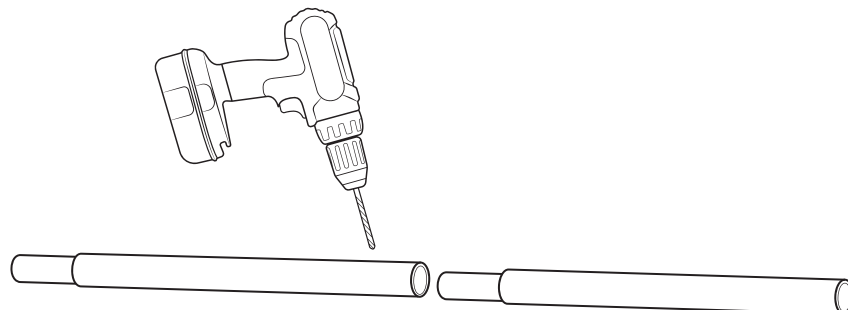
Step 5

On each of the Pipe Loops, install a 2" Bronze Bushing using (2) U-Bolts, (4) Washers and (2) Nuts. Install bolts snug, but not tight. Align hole in Bearing with hole in the Pipe Brackets.



Step 6

Find a 1" Galvanized Pipe, slide the large end over the swaged end of the previous pipe and drill a $1\frac{3}{32}$ " dia. hole through the 2 pipes, $1\frac{1}{2}$ " from the end of the large pipe. Continue this for all the pipes in system. Set all drilled pipe aside for later installation. It may be helpful to mark each pipe as it is drilled so that when they are installed the pipes that are pre-drilled together will be installed together.

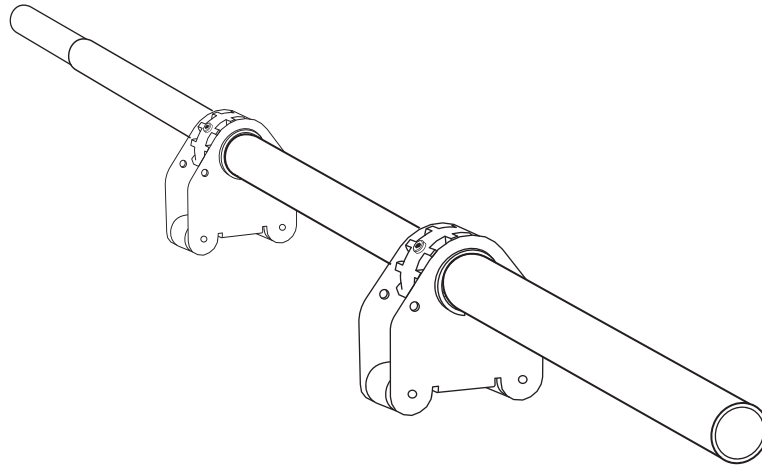


Note: Save any drop piping to use later on in the system where it may be needed.



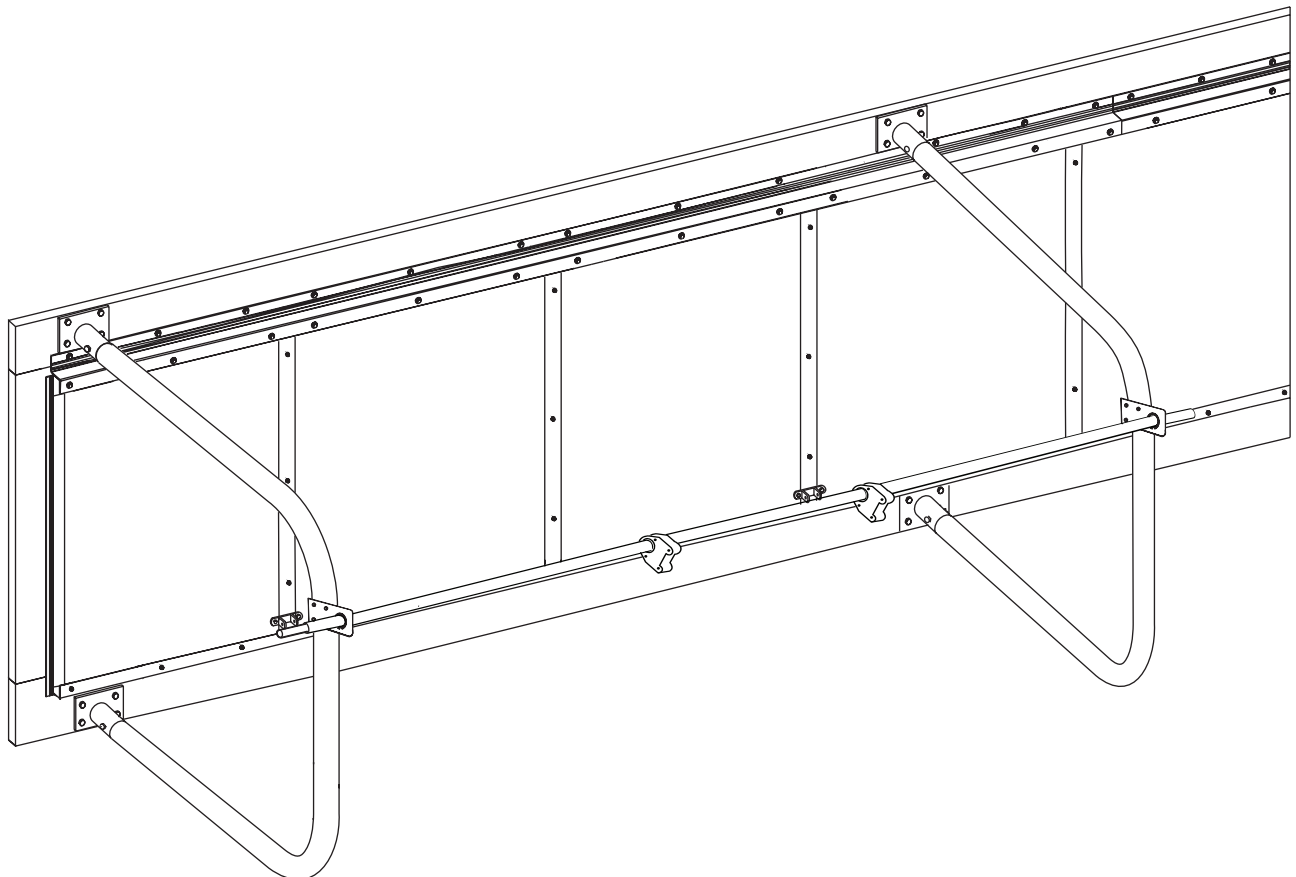
Step 7

Using a 1" Galvanized Pipe from the previous step slide (2) Tunnel Door Pinions onto it. Each Tunnel Door Pinion will eventually line-up with each door divider. Be sure to slide the pinions onto the system from the non-swaged end.



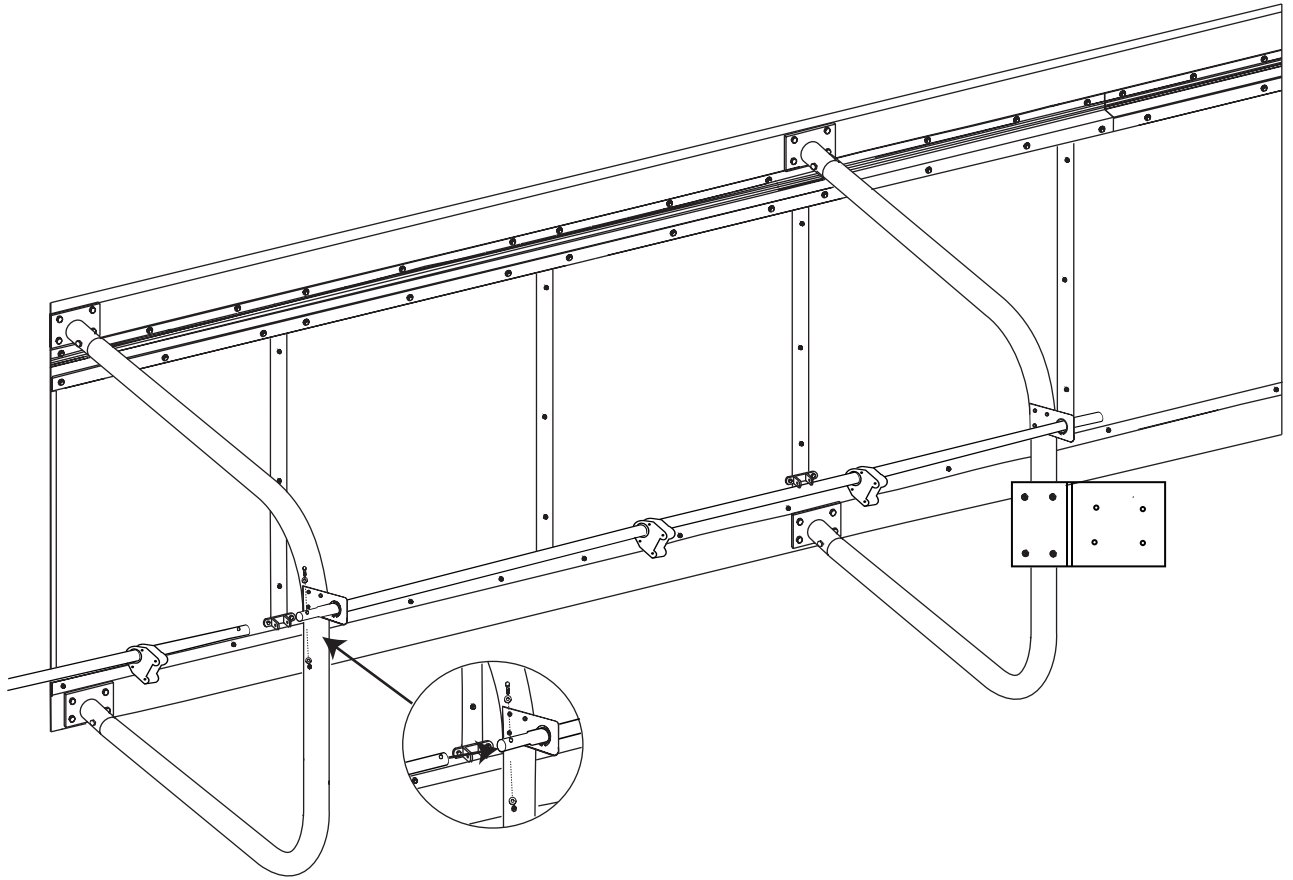
Step 8

With the first 1" Galvanized Pipe that has Tunnel Door Pinions, slide the non-swaged end of the 1" Galvanized Pipe through the Bronze Bushing in the Pipe Bracket towards the actuator. While sliding the pipe through the bushing add (2) Tunnel Door Gears so they are between two of the Bronze Bushings.



Step 9

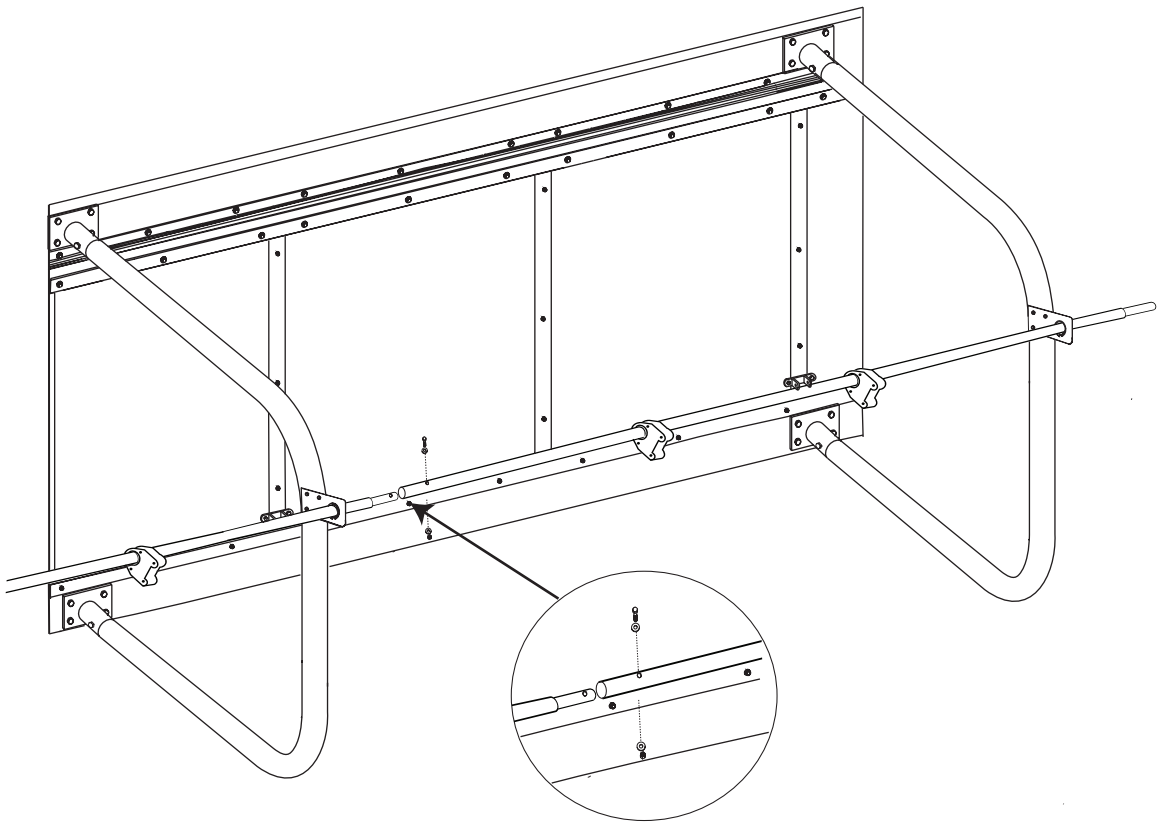
For next 1" Galvanized Pipe slide (2) Tunnel Door Pinions onto the Pipe, then slide the non-swaged end of the 1" Galvanized Pipe through the next Bronze Bushing. Do this until the piping reach the pipe bracket. Secure the swaged end of the piping into the previous pipe. If needed slide one of the Tunnel Door Pinions past the joint in the pipes to align with the Door Divider. Align the pre-drilled holes and secure pipes together using a 1-1/4" Bolt and Nut.





Step 10

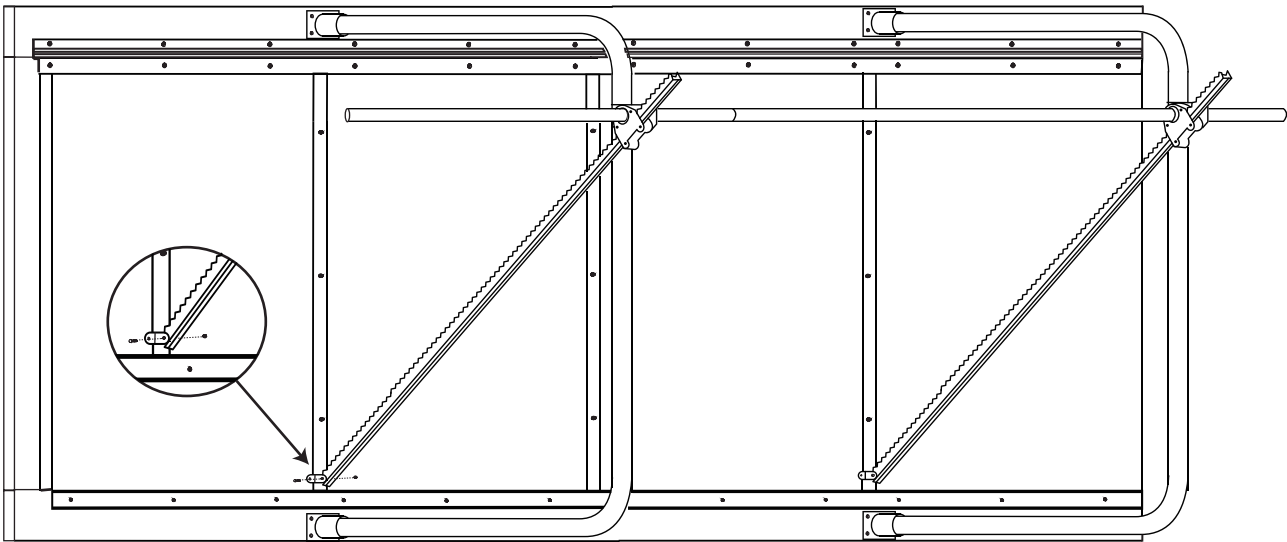
With the last pieces of 1" Galvanized Pipe that are on the opposite side of the actuator, slide (3) Tunnel Door Pinions onto the pipe, then slide the swaged end of the 1" Galvanized Pipe through the Bronze Bushing in the last Pipe Bracket. Then slide the opposite end onto the swaged end of the previous pipe. If needed slide one of the Tunnel Door Pinions past the joint in the pipes to align with the Door Divider. Align the pre-drilled holes and secure pipes together using a 1-1/4" Bolt and Nut. Cut excess 1" Galvanized Pipe so that only 6" extends past the last Pipe Bracket.



2.7 RACK INSTALL

Step 1

With each Tunnel Door Pinion aligned with a Mounting Bracket for Rack, rotate the Tunnel Door Pinion assemblies 90° so that the flat part is away from door and insert the end of the Rack with a hole through it into the pinion Assembly and slide it in until the teeth on the Rack engage the Tunnel Door Pinion. Rotate the Rack towards the bottom of the door and fasten the end of the Rack to the Mounting Bracket for Rack on the door using a bolt and nut.



Step 2

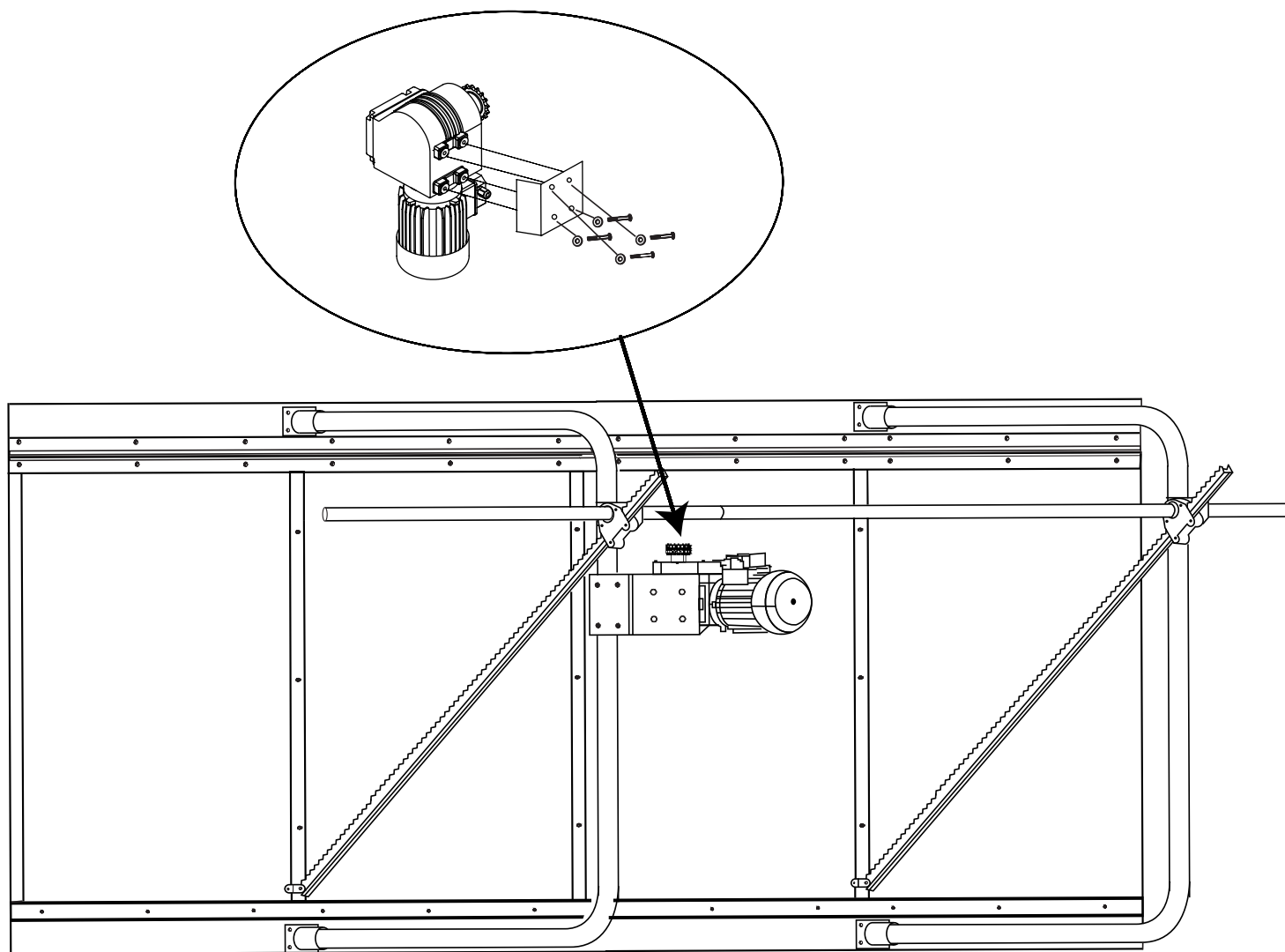
Continue adding a rack to the rest of the doors.



2.8 ACTUATOR INSTALL

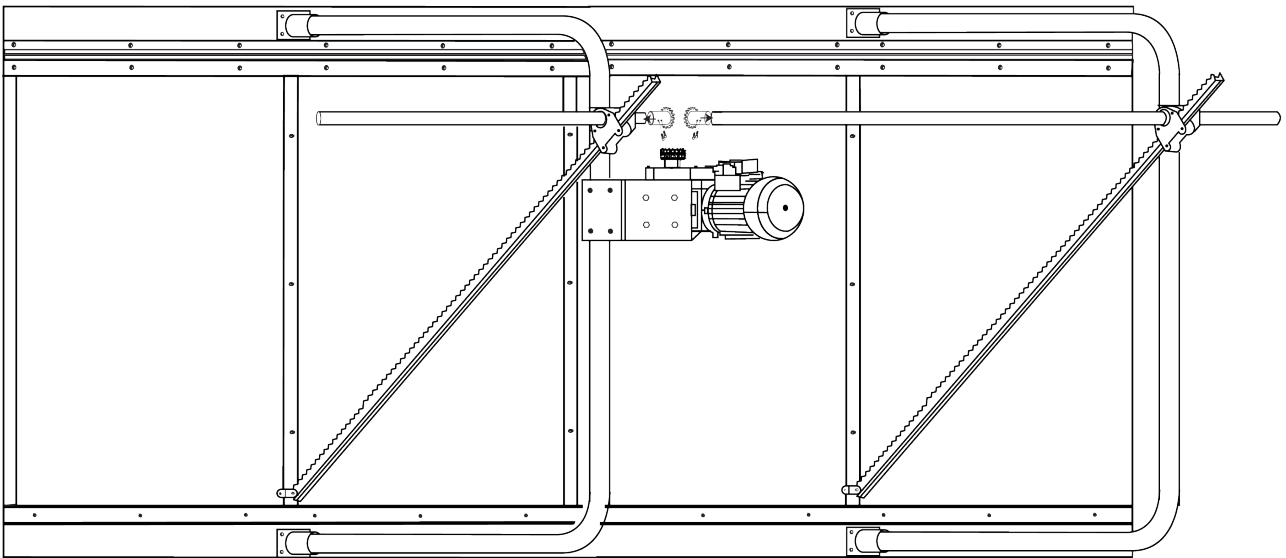
Step 1

Attach Actuator to Actuator Mount Bracket using (4) Bolts and (4) Washers. Make sure the sprocket end extending from the Actuator is aligned up towards the 1" Galvanized Pipe.



Step 2

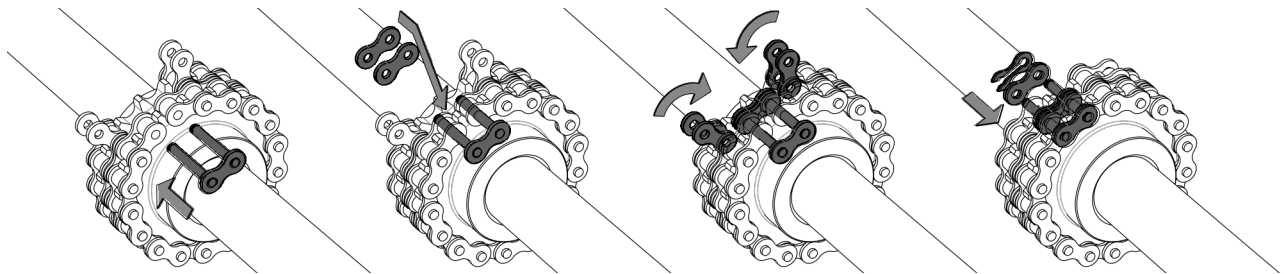
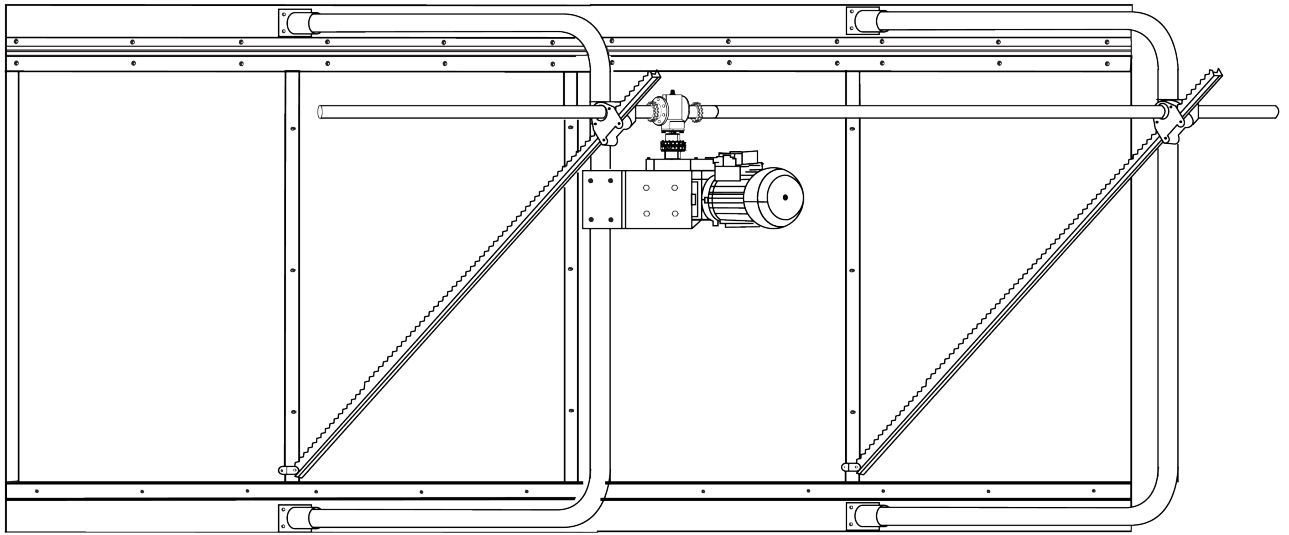
Locate the ends of the 1" Galvanized Pipes that is above the Mounted Actuator. Slide a Tube Sprocket on the end of the pipes. Using the Tube Sprocket as a guide drill holes into the 1" Galvanized Pipe. Through the pre-drilled holes bolt each Tube Sprocket on with (2) Bolts and Nuts.





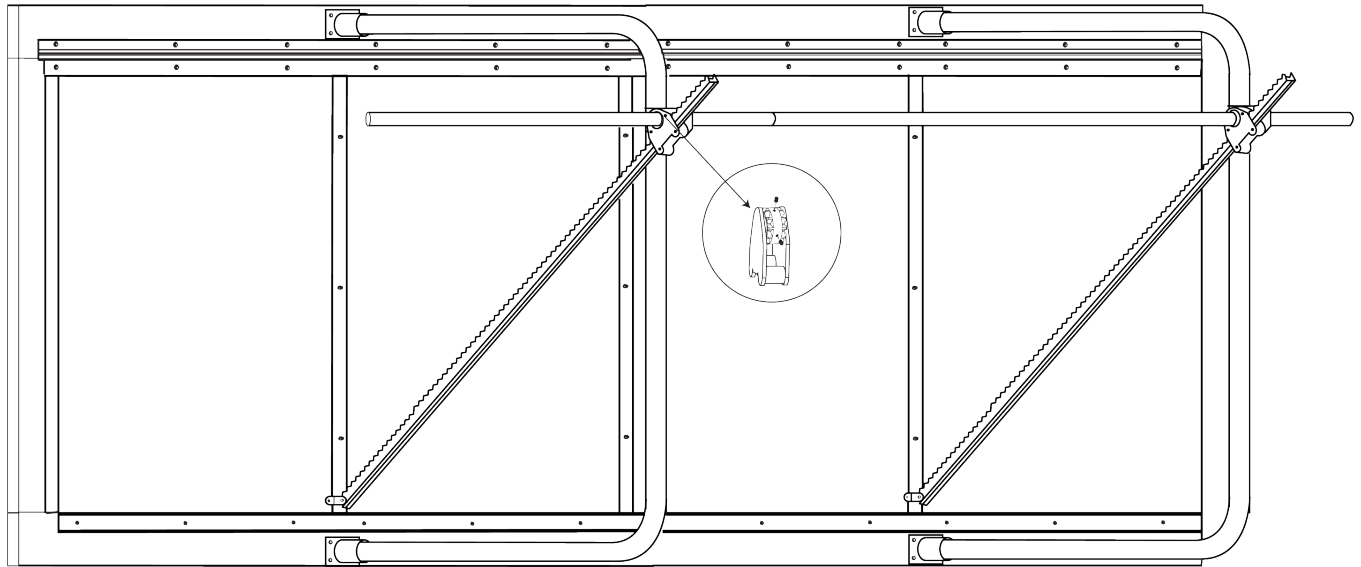
Step 3

Next Insert the Worm Gearbox shaft onto the Actuator Sprocket in the orientation shown below. Then line up the Tube Sprockets with the sprockets on the top of the worm gearbox. Turn the sprockets until the teeth are aligned. Next secure the sprockets together with a dual chain around the teeth so the ends of the chain are on top. See chain placement diagram Below to know how it is installed.



Step 4

Make sure that each Tunnel Door Pinion is lined up with each Mounting Bracket for Rack and the Rack is as straight as possible. Tighten the Set Screws on each Tunnel Door Pinion on the 1" Galvanized Pipe.



Step 5

Before operating the system, use Tubes of Grease (not provided) to lightly grease the Tunnel Door Pinion and the back of the Straight Rack where it slides. See Actuator Manual for wiring instructions.



Double L Group LLC 2020 Beltline Rd., Dyersville,
IA 52040 (563)875-6257 | sales@doublel.com
www.doublel.com