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Hose Cradle Kit Installation

For PRS3/PRS4 Gantry Tools
and PRS3/PRS4 Buddy Tools

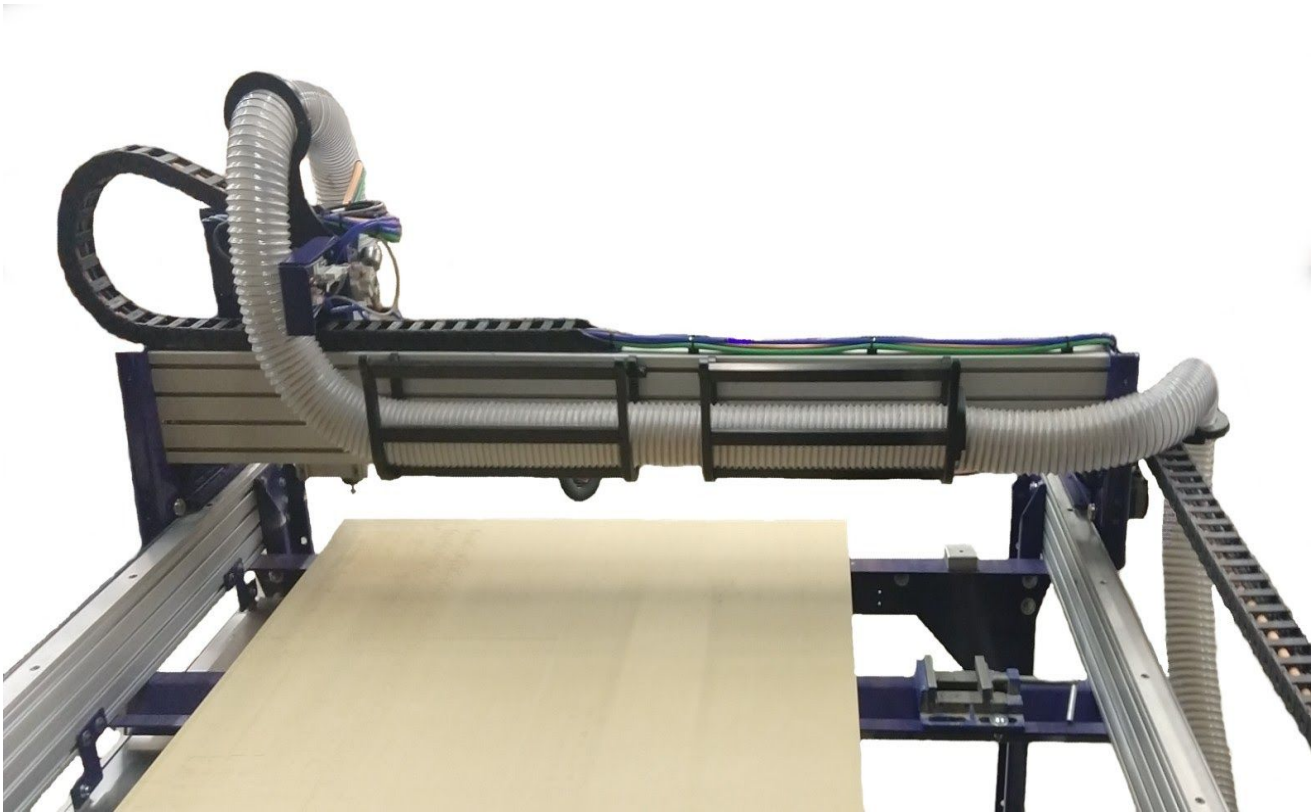


Table of Contents

Introduction	5
What's in the Box	5
Installing the Hose Cradle Kit	6
Mounting the Z Hose Cradle	7
PRS4 Models (with and without an ATC)	7
PRS3 Models (with and without an ATC)	10
Mounting the Gantry Hose Cradles	12
Running the Dust Hose along the Gantry Cradles	14
PRS4 Models	14
PRS3 Models	14
Mounting the Upper X e-chain Hose Cradle	15
Mounting the Lower X e-chain Hose Cradle	16
Additional Hose Cradle for X e-chain Trough (PRS4)	18

Introduction

Dust collection is very important when running a CNC machine. Not only does it help keep the air clean, it also helps keep the cutting area clean of debris. One of the difficult things about having a dust collection system is running the dust hose from the collector to the router on the machine. We have designed a system, the Hose Cradle Kit, that not only keeps the dust hose completely free of the cutting area, but also offers a very clean and professional look. This document will walk you through, step by step, how to install the kit on a PRS3, or a more recent PRS4 (purchased after June 2017) Gantry or Buddy tool. If you own a Buddy tool, the final steps of this document won't apply since you don't have an X e-chain installed on your tool. Please note, some steps will be different for a PRS3 vs. a PRS4 tool, so take note of which version you have and follow the correct steps.

What's in the Box

After unpacking, you'll notice that some of the parts have already been preassembled. Please follow the instructions exactly, as these parts have specific locations in the assembly of the Hose Cradle. This kit is for both PRS3 and PRS4 tools, but some of the parts are different depending on which version you have, so there may be some extra parts left over after assembly is complete.

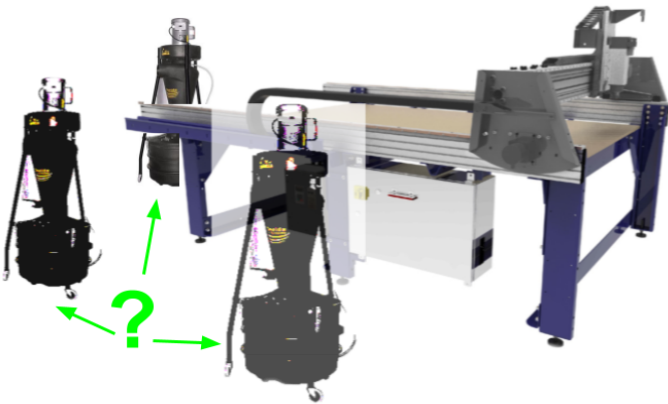


Installing the Hose Cradle Kit



First, move the tool to the home position by doing a C3 command. This should bring the Z to the front corner of the tool. Lower the Z all the way down to allow the dust hose to be installed properly..

Note: At this point, power off the machine, and disconnect any air lines.



Decide where the dust collector will be located. This will determine if you use one or two hose cradles to secure the hose to the X e-chain trough (PRS4 only).

Note: The Hose Cradle Kit only secures the dust hose to the back corner of the tool, you are responsible for securing the hose beyond that point.

Note: The instructions for this document assume that your control box and X e-chain are mounted on the left (positive Y) side of the tool. If they are mounted on the right (Y home) side, then you will need to reverse all of the instructions for mounting the hose cradle kit. The goal is to have the hose cradle installed so the hose runs towards the X e-chain, regardless of what side of the tool it's installed on.

Mounting the Z Hose Cradle

PRS4 Models (with and without an ATC)

Parts needed for this step:

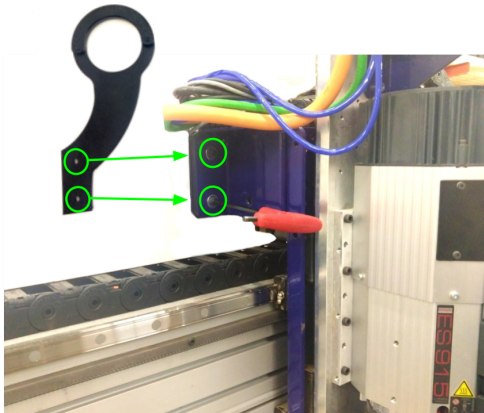


(2) 1/4-20 x 1 SHCS, washers and nylock nuts



(1) PRS4 Z Hose Cradle

Without an ATC:



Mount the Z hose cradle to the e-chain bracket on the back of the Z using two 1/4 - 20 x 1 SHCS bolts, washers and nylock nuts. Run the bolts with washers through the front of the e-chain bracket, through the hose cradle, and secure using the two nylock nuts on the back.

Note: Make sure the cradle is oriented properly (see picture)

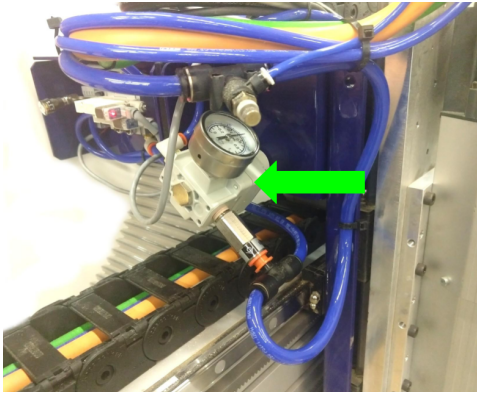


At this point you can skip down to “**Securing the Dust Hose in the Cradle**” on page 10.

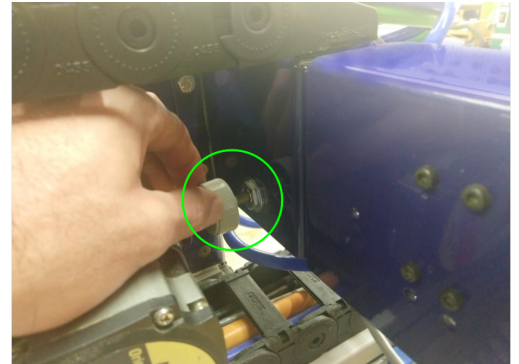
With an ATC:

For a tool that has an ATC, the Z hose cradle goes *between* the e-chain bracket and the air manifold that mounts to the bracket. If you already owned your tool, and purchased the Hose Cradle Kit at a later date, you will first need to remove the precision regulator and manifold located on the back of the Z if they are already installed. If you purchased the Hose Cradle Kit along with the tool, and have not installed the ATC yet, skip down a few steps to “**Mounting the Z Hose Cradle**”.

Removing the Precision Regulator

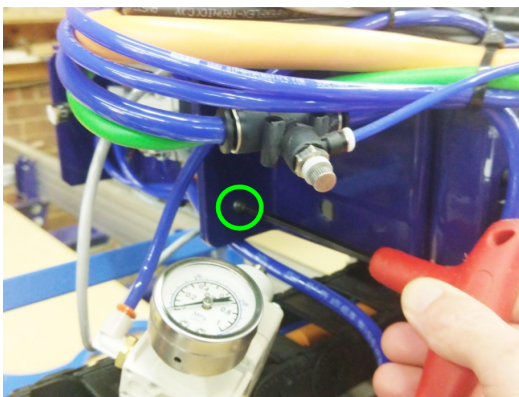


First, you will need to remove the precision regulator that is mounted to the e-chain bracket. Start by removing the knob (located behind the Z between the e-chain bracket and the Z motor) by turning it counterclockwise until it comes out.

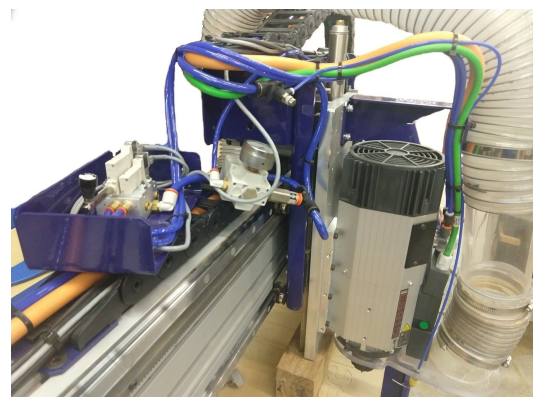


Next, remove the nut and washer from the threaded shaft of the precision regulator by loosening the nut while holding the regulator with your other hand. Once loose, lay the regulator on the e-chain. You should not need to remove any of the blue air hoses.

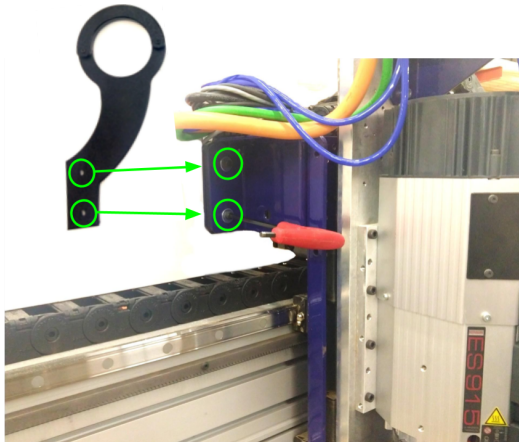
Removing the Manifold



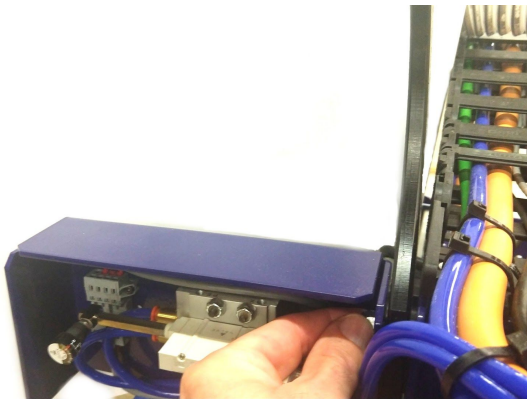
Using a 5/32" allen wrench and 7/16 wrench, remove the two bolts that are securing the manifold to the e-chain bracket, and lay the manifold on the e-chain. You shouldn't need to remove any of the air hoses to install the hose cradle.



Mounting the Z Hose Cradle

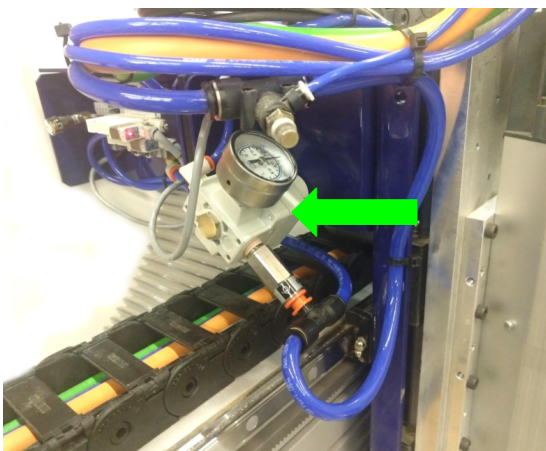
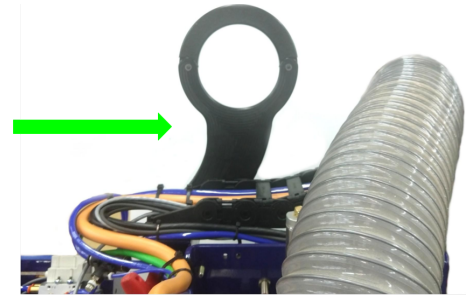


Insert the two ¼-20 x 1 SHCS with a washer through the holes in the e-chain bracket, then insert the Z hose cradle onto the bolts.



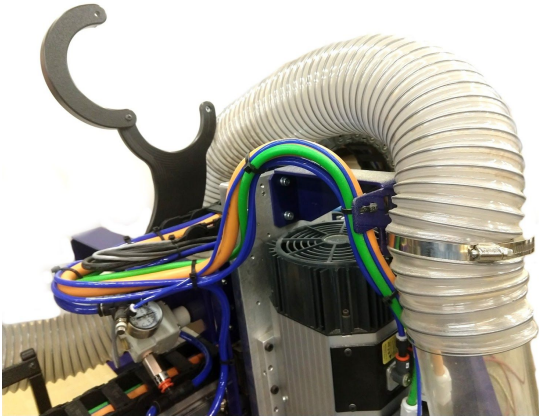
Mount the manifold for the ATC by securing it with the two ¼ nylock nuts. The hose cradle should be mounted *between* the e-chain bracket and the manifold.

Note: Make sure the cradle is oriented properly (viewed from the front of the machine).

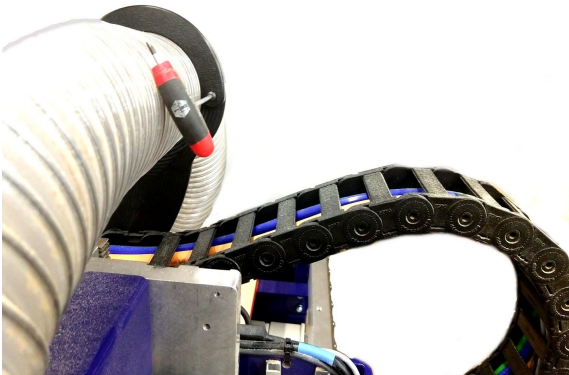


Mount the precision regulator on the e-chain bracket. Refer to the manual for installing your ATC if you are installing it for the first time.

Securing the Dust Hose in the Cradle (PRS4)



Open up the hose cradle by removing the bolt on the right with a $\frac{1}{8}$ " allen wrench, and pulling up on the clamp.



Place the dust hose in the cradle, and close the clamp. Secure the cradle using the 10-32 bolt you took out of the cradle to open the clamp.

PRS3 Models (with and without an ATC)

Parts needed for this step:



(2) #10 x 1.25 PHS



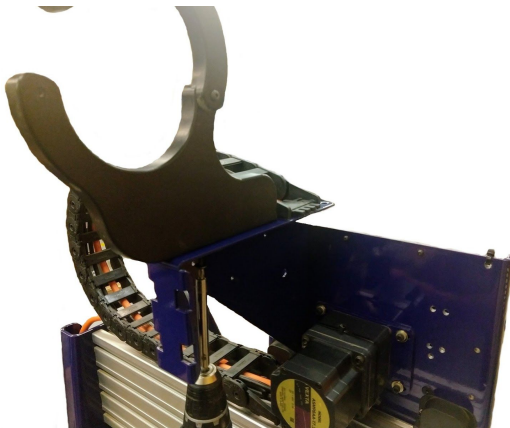
(1) Hose Cradle

The Z hose cradle mounts the same way on a PRS3, regardless if it has an ATC or not.



Mount the Z hose cradle to the e-chain bracket on the back of the Z using two #10 x 1.25 PHS. Hold the cradle in place over the holes in the bracket and run the two screws into the cradle from the bottom.

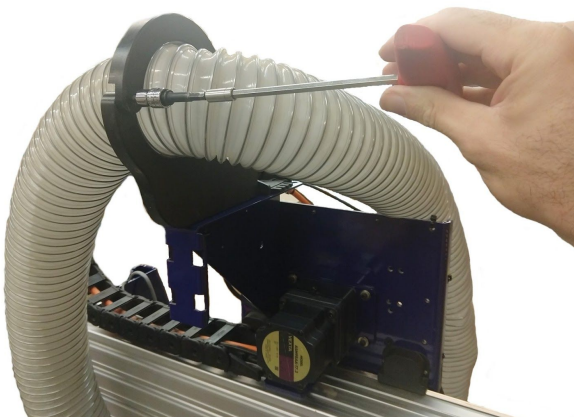
Note: There are four holes on the bottom of the hose cradle, only two will align with the holes in the e-chain bracket.



Make sure the cradle is oriented properly as shown in the picture.

Note: Your e-chain may be oriented differently than the one in this picture, but regardless of the direction of the e-chain, the cradle mounts with the hoop towards the back side of the gantry.

Securing the Dust Hose in the Cradle (PRS3)



Open the clamp by removing one of the 10-32 bolts with a $\frac{1}{8}$ " allen wrench. Pull the clamp up, and insert the hose into the cradle as shown in the picture. Secure the clamp back in place by replacing the 10-32 bolt.

Note: If your e-chain is mounted in the opposite direction than the one shown in the picture, then run the hose through the cradle in the opposite direction than what is shown.

Mounting the Gantry Hose Cradles

Parts needed for this step:



(8) Mounting Clamps



(16) 5/16 T-nuts and 5/16-18 x 1 BHSCS



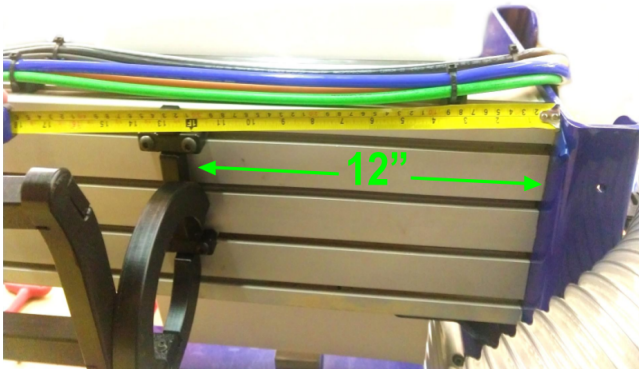
(1) Gantry Hose Cradle



(1) Gantry Hose Cradle with Clamp



Before installing the hose cradles on the gantry, preassemble the mounting clamps, bolts and t-nuts. Run the bolts through the clamps, then thread the t-nuts on just enough so they stay on (just one turn).



Start by mounting the hose cradle with the clamp 12" from the inside of the end plate that is on the same side as the X e-chain. You may need to remove the clamp from the cradle and install it on the opposite side of the cradle, depending on which side of the tool your X e-chain is mounted on.

Note: For Buddy tools, mount the cradle 2" from the inside of the end plate. You may need to reverse the cradle/clamp and mount it on the other end of the gantry, depending on where your dust collector is located.



The hose cradle has some knobs on the back that align with the slots in the gantry. Place the cradle on the gantry so that the knobs can be inserted into the 1st and 3rd slots from the top of the gantry.

Note: The first cradle you mount should be 12" from the end plate and should have the hose clamp on the right side.



Grab one of the preassembled mounting clamps with the bolts and t-nuts, and place it over the vertical bar on the hose cradle while inserting the t-nuts into the slot on the gantry.



Go ahead and fully tighten the bolts using a 3/16 allen wrench. Pay attention to the t-nuts in the gantry slots, making sure they turn a little as you tighten the bolts. They don't need to turn much, just enough to grip the inside of the gantry and prevent the hose cradle from coming loose. After tightening the two bolts, the cradle should stay, making it easier to install the other 3 mounting clamps.



The mounting location for the next hose cradle on the back of the gantry is dependent on what size gantry you own. Using the same process, mount the 2nd cradle based on the spacing listed below:

Size of gantry:

32" - no space between cradles

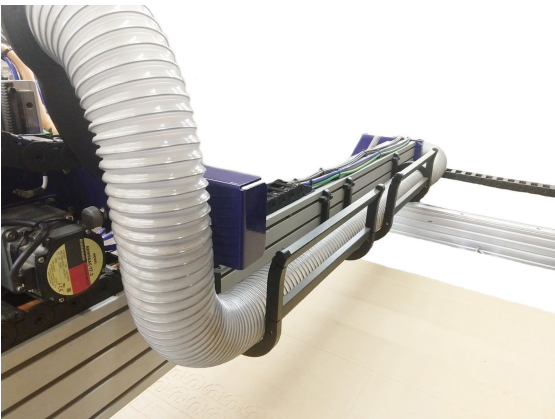
48" - no space between cradles

60" - 6 inches between cradles

72" - 12 inches between cradles

Running the Dust Hose along the Gantry Cradles

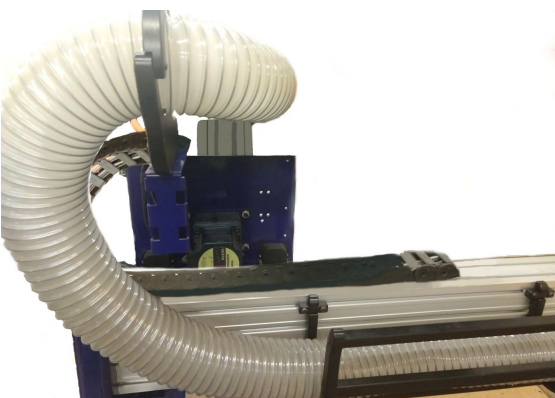
PRS4 Models



If your machine has an ATC, bring the hose down on the left side of the air manifold on the back of the Z, and loop it under the manifold and into the hose cradles. If you don't have an ATC, just simply bring the hose straight down and curve it into the hose cradles.

Note: Make sure the YZ car is at home position if you're X e-chain is on the left side of the tool, or at max Y travel if you're X e-chain is on the right side of the tool.

PRS3 Models



For an older PRS3 tool, bring the hose down the left side of the e-chain bracket, and run it into the gantry cradle. This process will be the same regardless of if you have an ATC or not. If your e-chain is mounted in the opposite direction as the one shown, mount the hose through the cradle in the opposite direction.

Note: Make sure the YZ car is at home position if you're X e-chain is on the left side of the tool, or at max Y travel if you're X e-chain is on the right side of the tool.

Mounting the Upper X e-chain Hose Cradle

Note: For Gantry tools only. These steps do not apply if you own a Buddy tool.

Parts needed for this step:



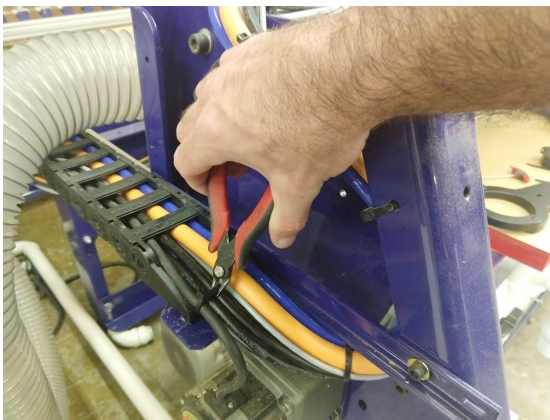
(2) 10-32 x 7/8 BHSCS



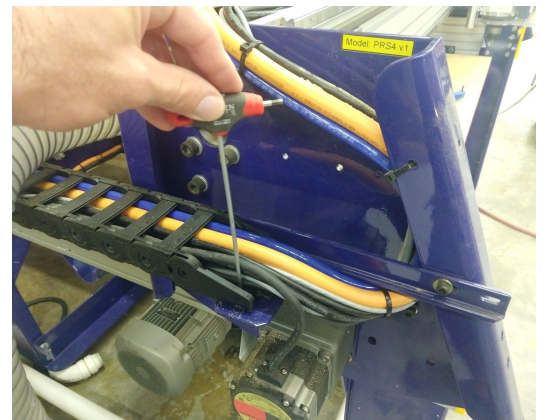
(2) Zip Ties



(1) Upper X e-chain Hose Cradle



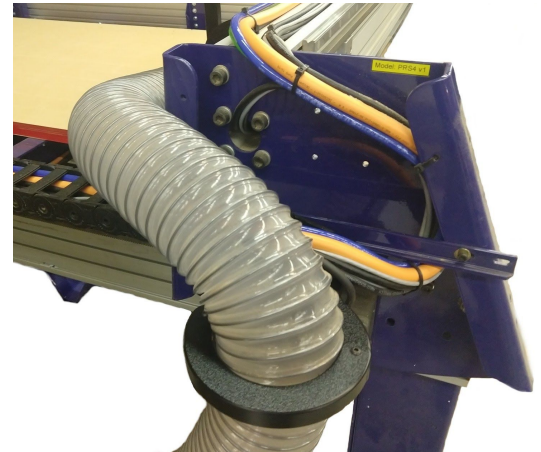
Remove the zip ties that are securing the cables going into the X e-chain. Remove the two bolts attaching the e-chain to the bracket.



Slide the hose cradle in *between* the e-chain and the bracket, and replace the bolts you removed with the longer 10-32 x 7/8 BHSCS from the kit. Secure cables with provided zip ties.



Open the clamp for the hose cradle by removing one of the bolts. Insert the hose as shown, then close the clamp and secure using the same bolt. There should be very little slack in the hose as it comes around the end plate and into the hose cradle.



Mounting the Lower X e-chain Hose Cradle

Parts needed for this step:



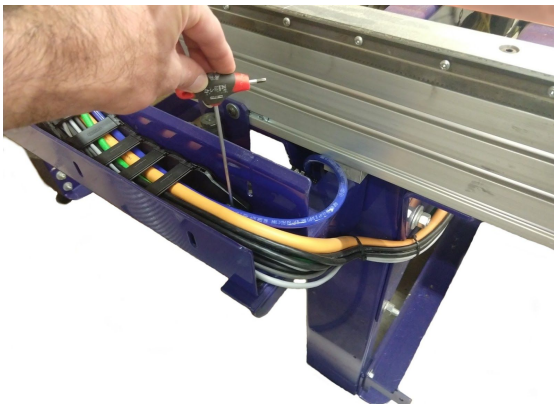
(2) #10 x 1.25 PHS



(2) Zip Ties



(1) Hose Cradle



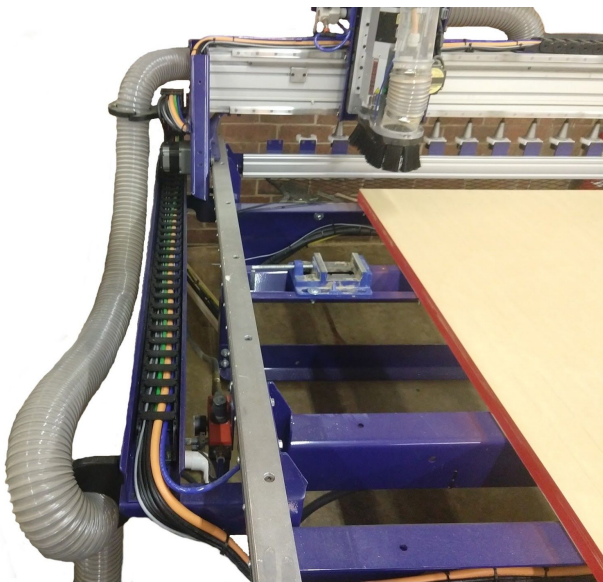
Remove the zip ties and the two bolts and nuts that are securing the X e-chain to the trough bracket on the side of the machine.





Hold the hose cradle in place under the e-chain mounting bracket, and run the two #10x1.25 PHS through the two holes in the X e-chain and mounting bracket, and into the hose cradle. Secure the cables with the provided zip ties.

Note: There are four holes on the bottom of the hose cradle, only two will line up with the holes in the e-chain bracket.



Pull the hose out away from the tool so it doesn't hit anything, and move the gantry all the way to the back, until it is about a 1/4" from the mechanical stops on the table sides.



Remove the 10-32 bolt in the cradle, and pull the clamp down. Route the hose through the cradle as shown, with a little slack to ensure the hose has enough length for full travel. Place the bolt back in, and tighten down completely.

At this point, the installation is complete, unless you own a PRS4 and would like to mount an additional cradle for the X e-chain trough (see following page). It would be good to carefully move the gantry and Z around at full travel to ensure that the dust hose is installed properly, and doesn't get stretched or kinked in any area along the gantry or the X axis. Replacement parts can be ordered from us if they get broken at any point.

Additional Hose Cradle for X e-chain Trough (PRS4)

The Hose Cradle Kit comes with two cradles that can be used along the X e-chain trough. If you own a PRS3 tool, the extra cradle is used for the Z dust hose cradle. However, if you own a PRS4, you can use this extra cradle on the X trough to give additional support for the dust hose if it's needed.



If your dust collector will be located more towards the rear of the machine, then you may want to add another hose cradle further down the e-chain trough to support the hose (PRS4 only). Use the extra set of #10 PHS to mount the cradle. You will see pairs of holes in the trough every few inches, use whichever set gives the best support.