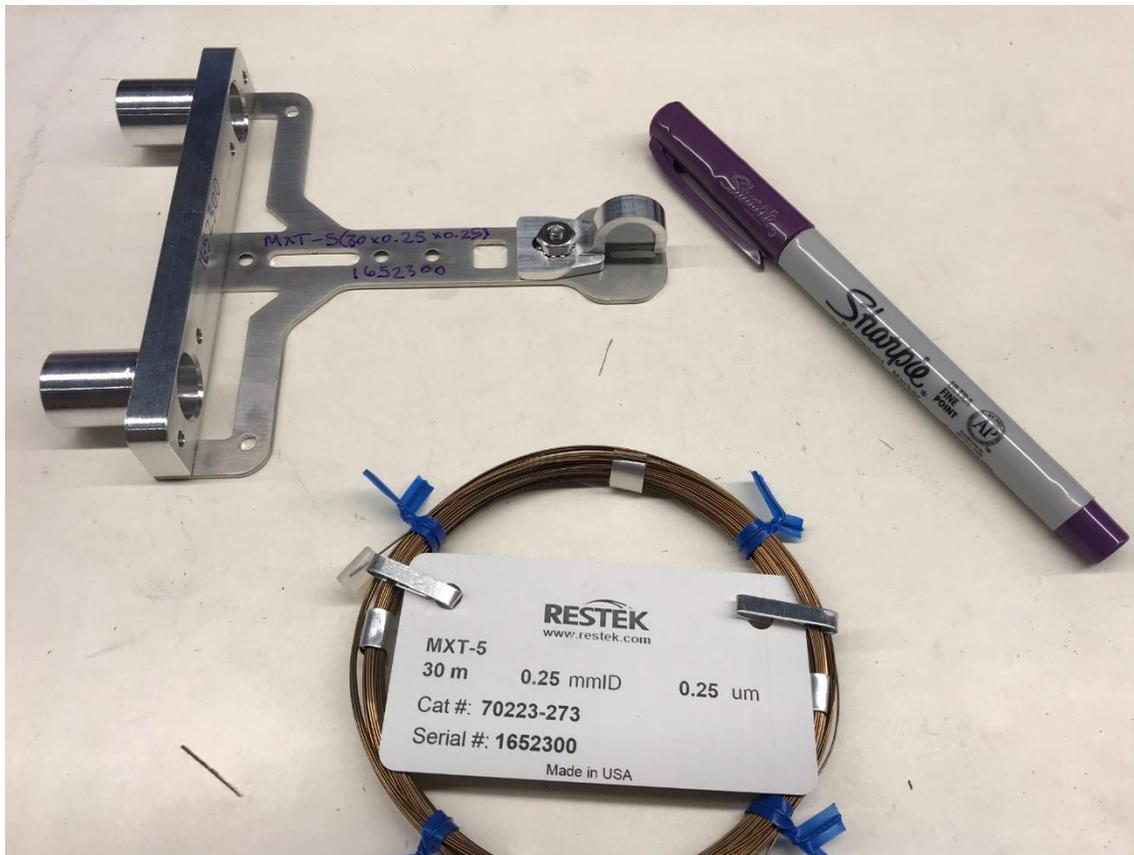


# How to Install a GC Column into a miniGC Column Holder

LUCIDITY



Start with a 3.5 inch wound metal capillary column and the column holder.



MXT-5  
30 m  
Cat #: 70223-273  
Serial #: 165230

**RESTEK**  
www.restek.com

0.25 mmID



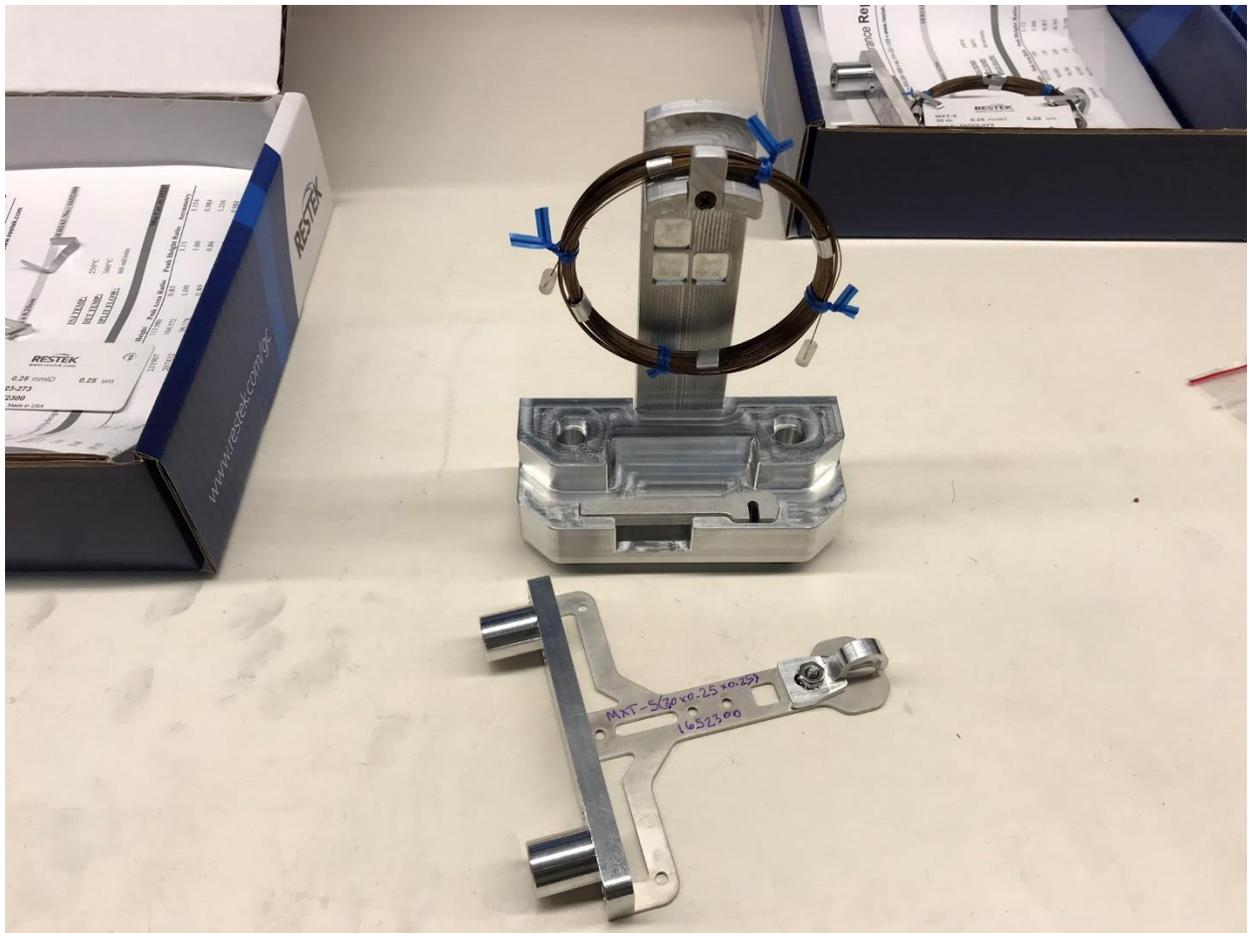
MXT-5  
30 x 0.25 x 0.25  
1652300

T-5  
1652300

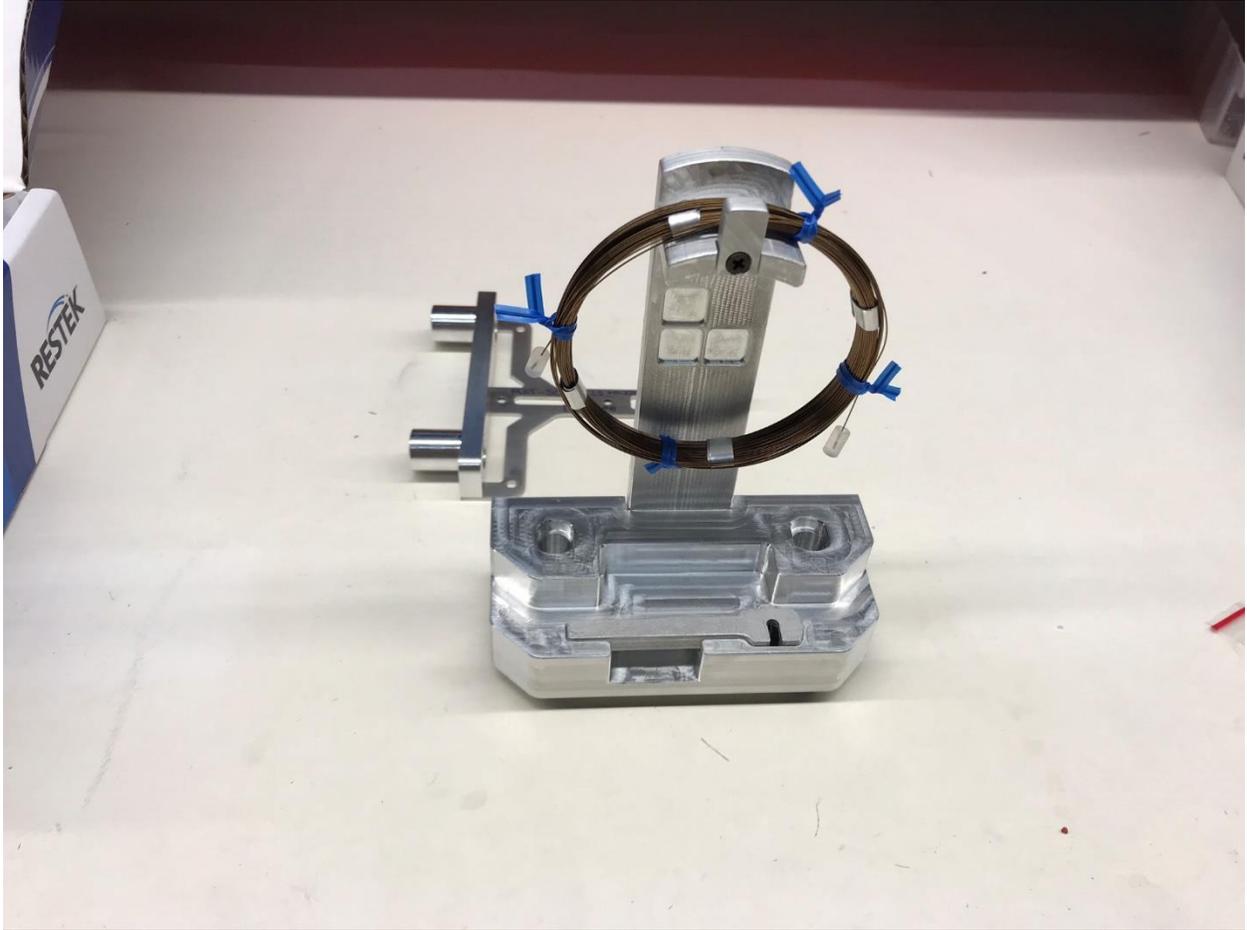
RESTEK  
www.restek.com  
MXT-5  
30 m  
0.25 mmID  
0.25 mm  
Cat #: 7023-273  
Serial #: 1652300  
Made in USA



Take the column tag off the column and save the metal clips that attach the tag to the column – they are used to help secure the column to the column holder.



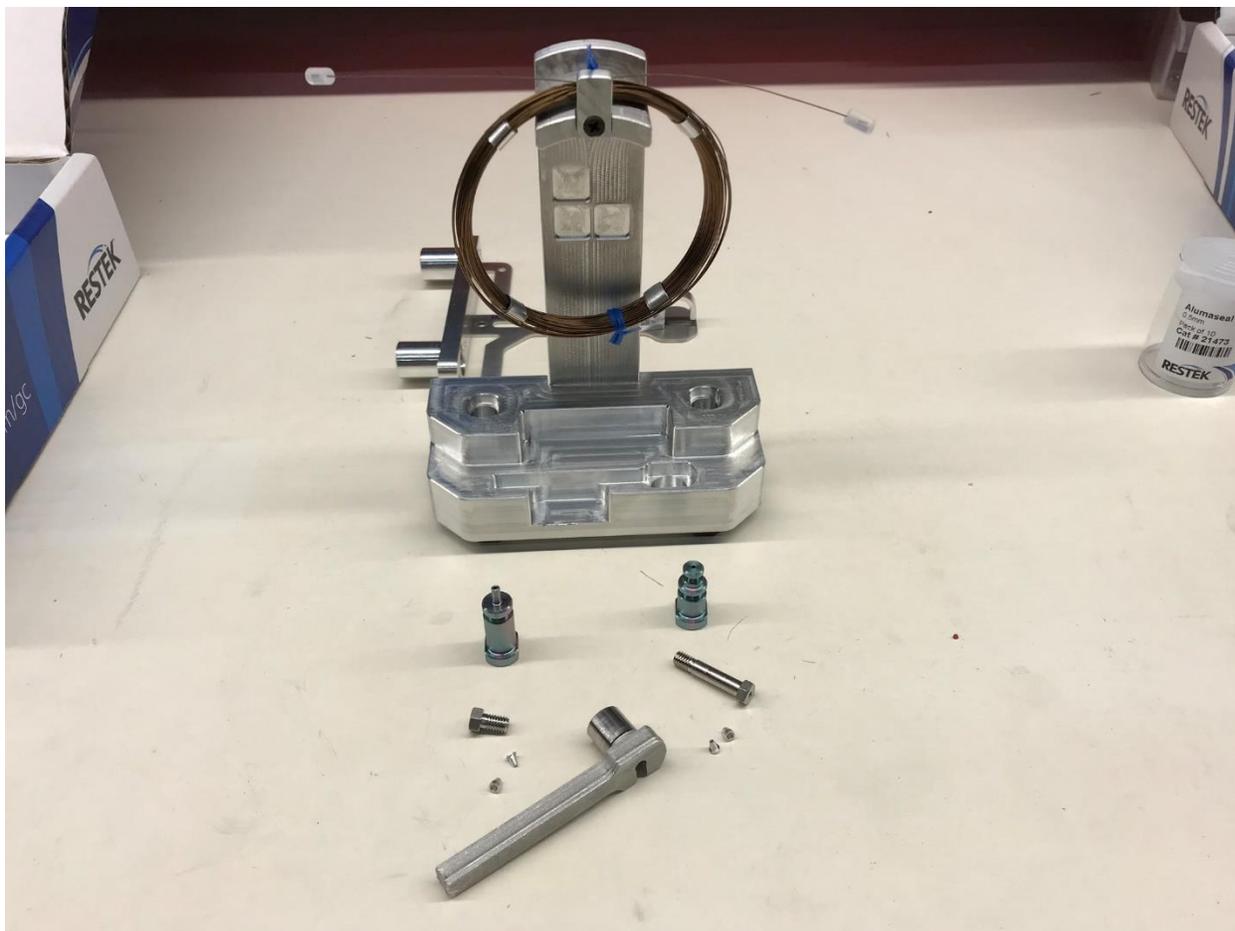
Next, hang the column on the column pin attachment jig.



The column pin attachment jig allows the column to hang in place while you swage the ends of the column into the column pins.



The holes in the column jig allow you to put the 2 pins (the IP or Injection Port pin and the FID pin) into them and hold them secure while you swage tighten the compression fittings into the pins securing the column into the pins. The holes in the jig also ensure that the column is positioned to the right depth in each pin. The pin shown on the left is the FID pin (the one with the long thin nose) and it goes into the hole on the left of the jig labelled FID. The pin on the right is the IP Pin (Injection Port Pin) and it goes into the hole on the right labelled IP.



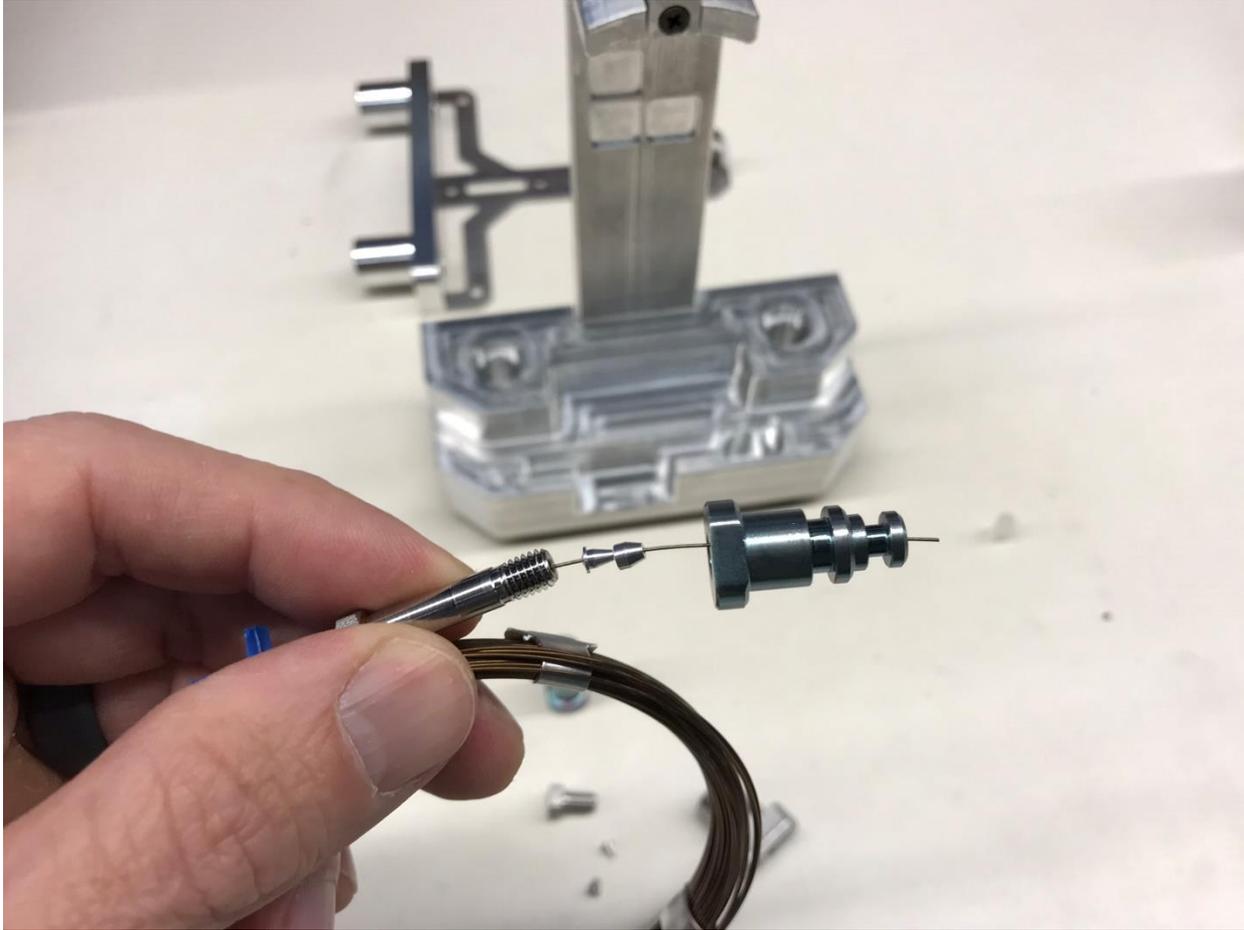
One side of the column is secured into the FID column via a shorter nut (VICI PN: ZN1-10) and AlumaSeal ferrules. 0.5mm AlumaSeal ferrules, Restek PN 21473 are used for 0.25mm ID columns. 0.4mm AlumaSeal ferrules are used for 0.18mm ID columns and 0.8mm AlumaSeal ferrules are used for 0.53mm ID columns.

The other side of the column is secured into the IP Pin used the proper AlumaSeal ferrule and the longer nut (VICI PN XLZN1-10).

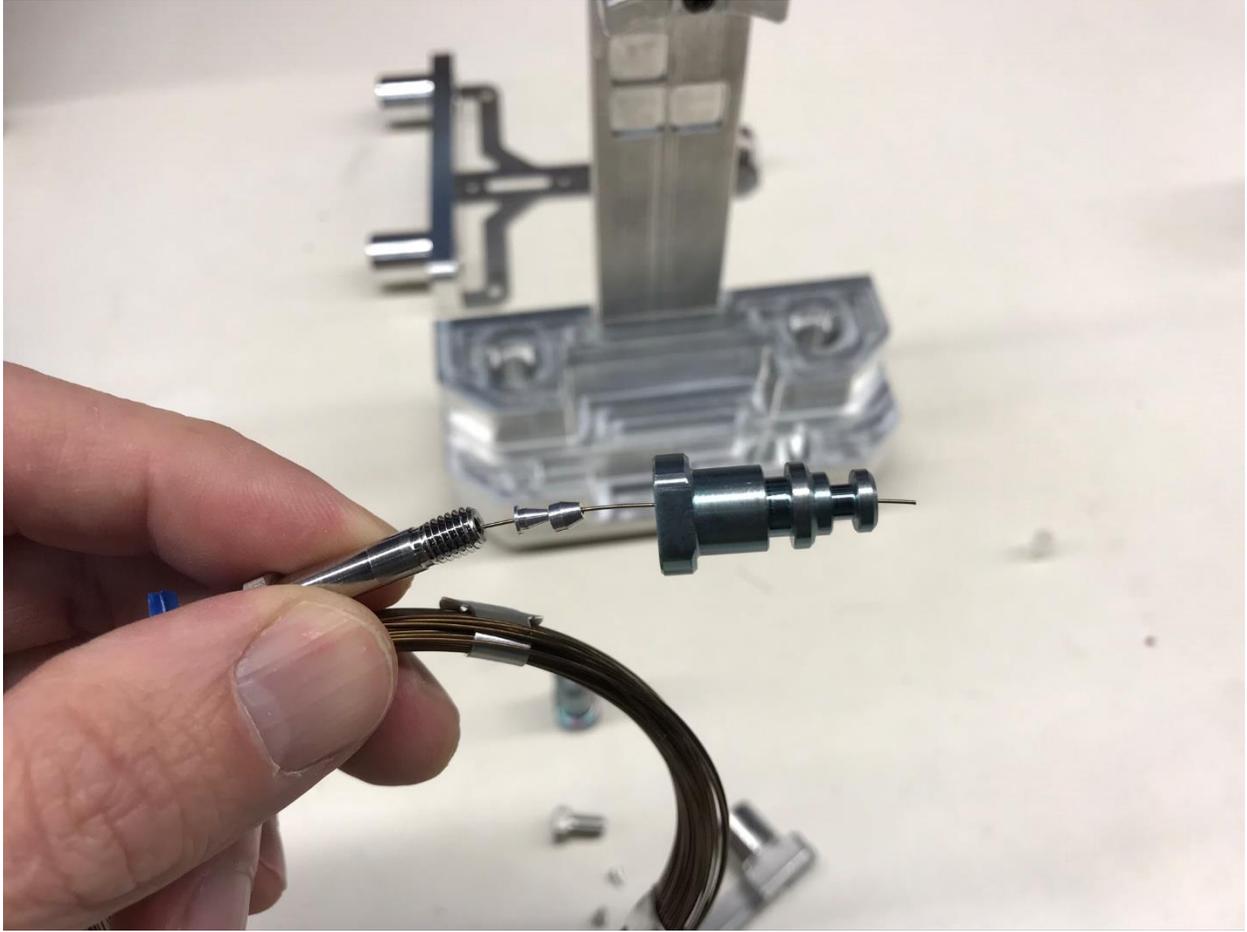
Also show is the tightening tool that comes with the column jig that is used to swage the ferrules onto the column and secure it into the pins by tightening the nuts.

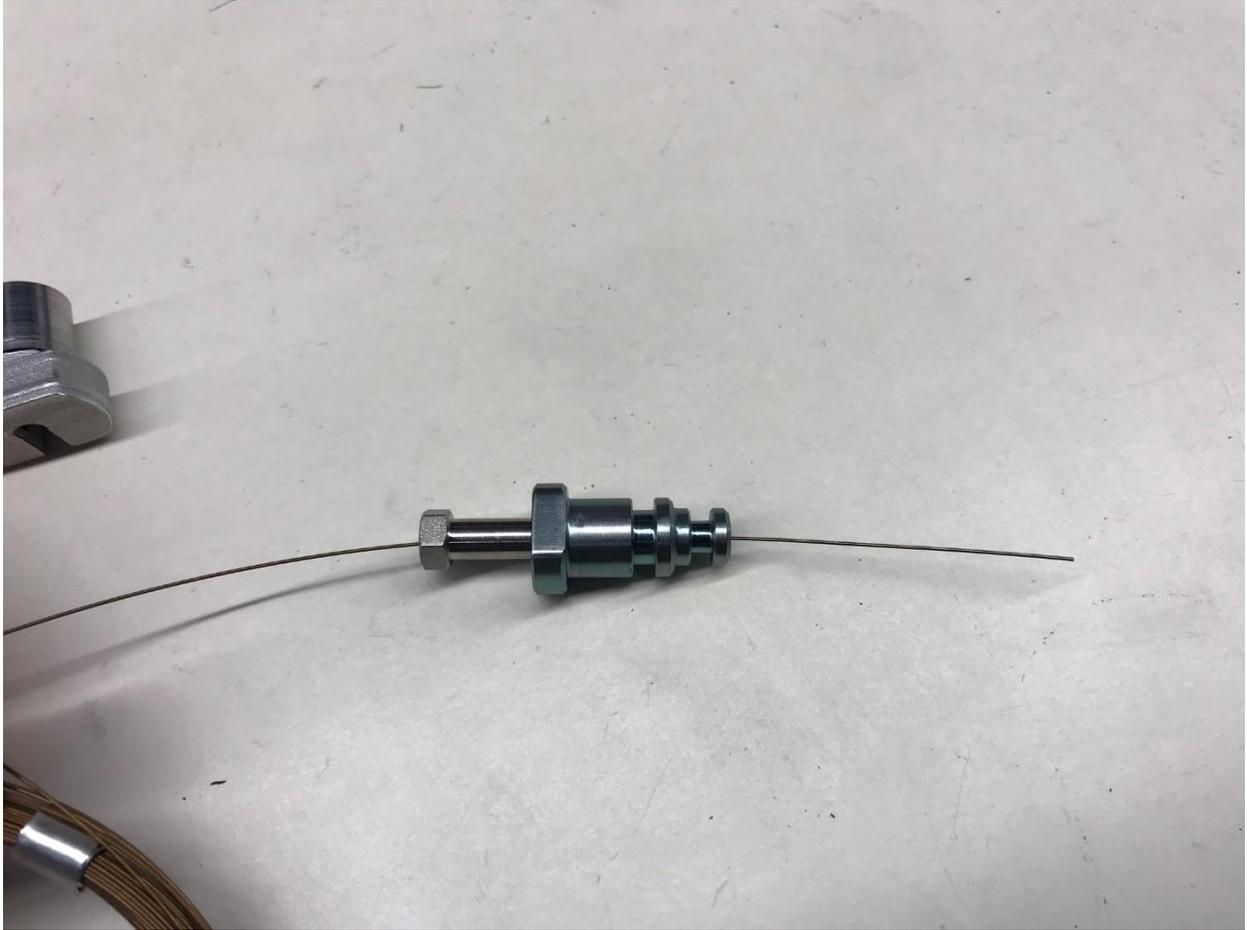


Both pins are show here with their matching nut and ferrules. The ferrules show here are 0.5mm AlumaSeal ferrules since we are in this particular instance installing a 0.25mm ID column.

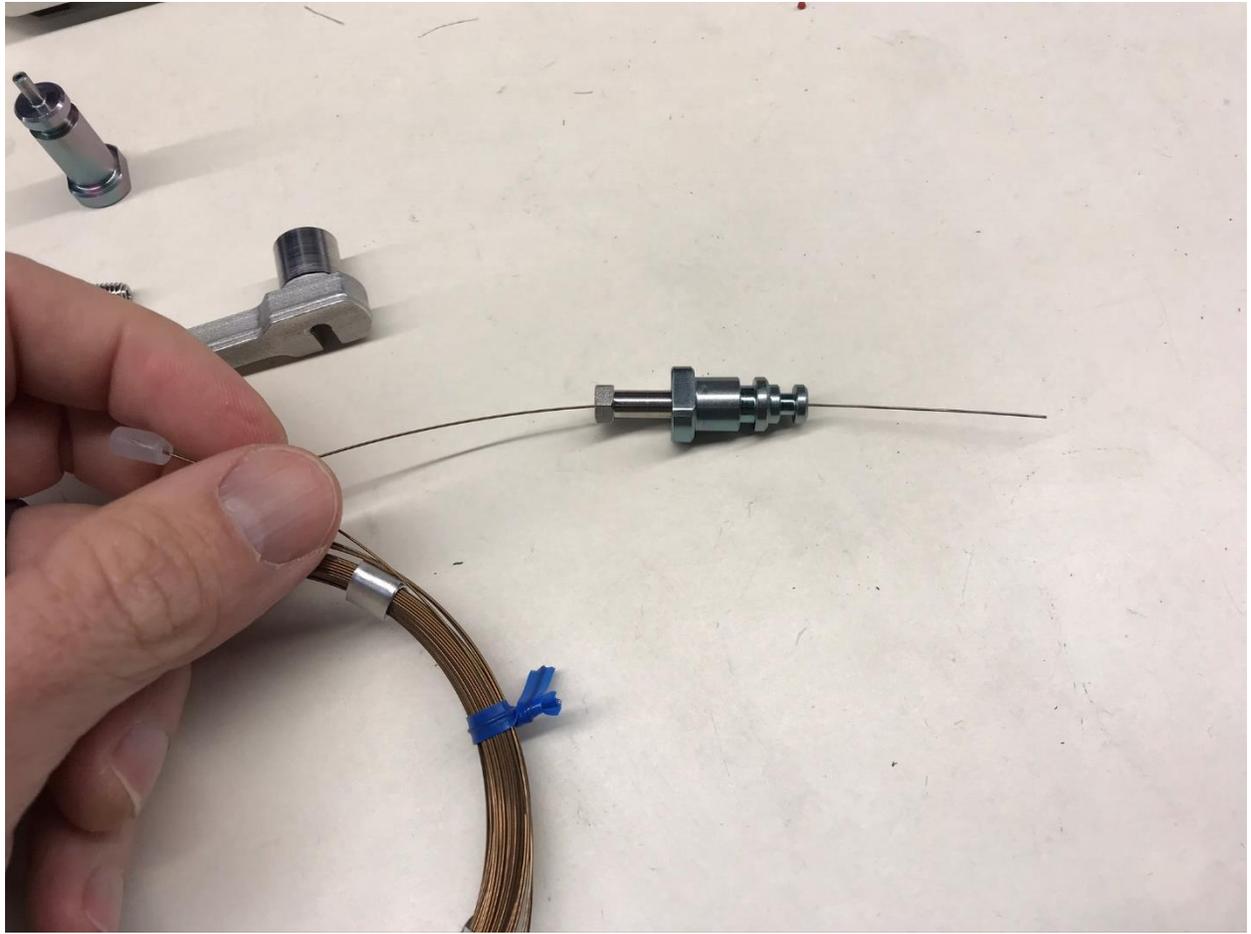


Start by putting the longer nut on the side of the column you want to go into the IP Pin. This will be the head of the column. Then put both part of the ferrule onto the column as shown then put the column through the IP pin (the one with the flat nose that is shown here).





Next, begin to screw the nut into the IP pin making sure the ferrules are between the nut and the pin and also ensuring that the column passed all the way through the tip of the pin so that the column passes all the way through the ferrules and the tip of the pin.

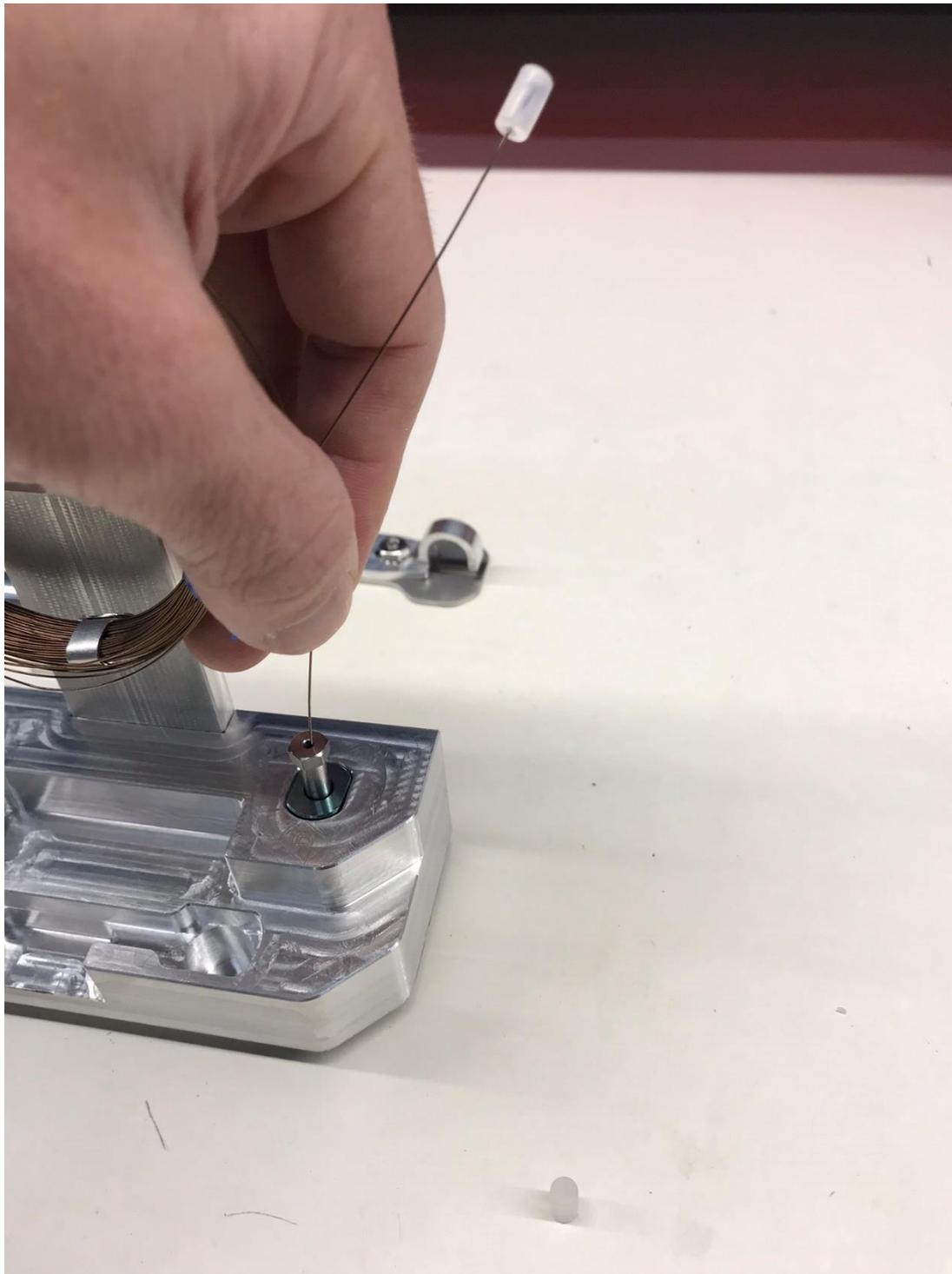




The place the pin into the IP hole in the jig making sure that the column does not back out past the ferrules. The column should be slightly recessed from the tip of the pin (maybe 3mm) once positioned correctly. It will bottom out just inside the tip of the pin on a feature at the bottom of the IP hole in the jig that is designed to position the column correctly. Be careful to ensure that the column has not backed out past the ferrules but also to ensure that the column is not coming out of the tip of the pin too far and running past the stopping feature in the bottom of the hole not allowing the pin to seat correctly in the hole.



As long as you don't tighten the nut down with the column in the wrong position you can reposition the column as needed until you have the column positioned correctly.



The IP and column should look like this when positioned correctly. You want to make sure to continue to apply gentle pressure to the column until you have tightened the nut and ferrules down so that the column does not back out of the ferrules. If you are unsure of the positioning lift the IP Pin up while keeping pressure on the column. If the column is all the way through the ferrule the IP Pin should slide freely along the column. If the column is not inserted fully through the ferrule it may be caught on the

backside of the ferrule and feel like it is in the proper position but if you lift the IP Pin up you will find that it will not slide freely on the column and instead tries to lift the column up as well.

It is critical to get this positioning correct before tightening the nut and ferrule otherwise you may have to start over.



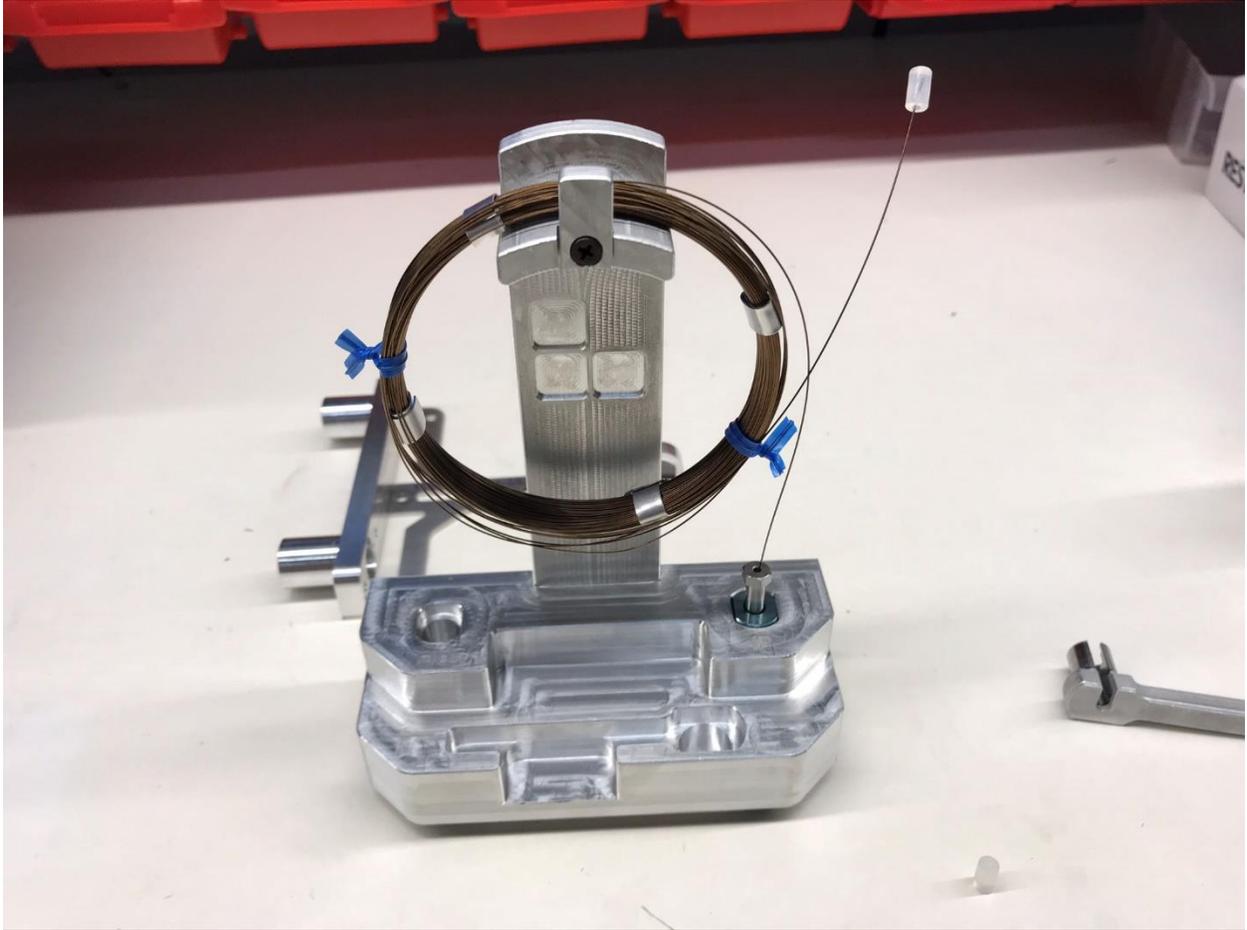
Once you're confident that the column is inserted to the correct depth in the IP Pin, then use the provided tool to tighten down the nut in the back of the IP Pin which will secure the column at this depth by tightening the ferrules around the column. You can test whether or not you have tightened the ferrule enough by pulling very slightly up on the column to see if it still moves freely through the IP Pin. If it does then you need to tighten the nut more. If it does not then you have tightened the nut

enough and the column is secure in the pin. Be careful not to pull the column back through the ferrule when doing this!

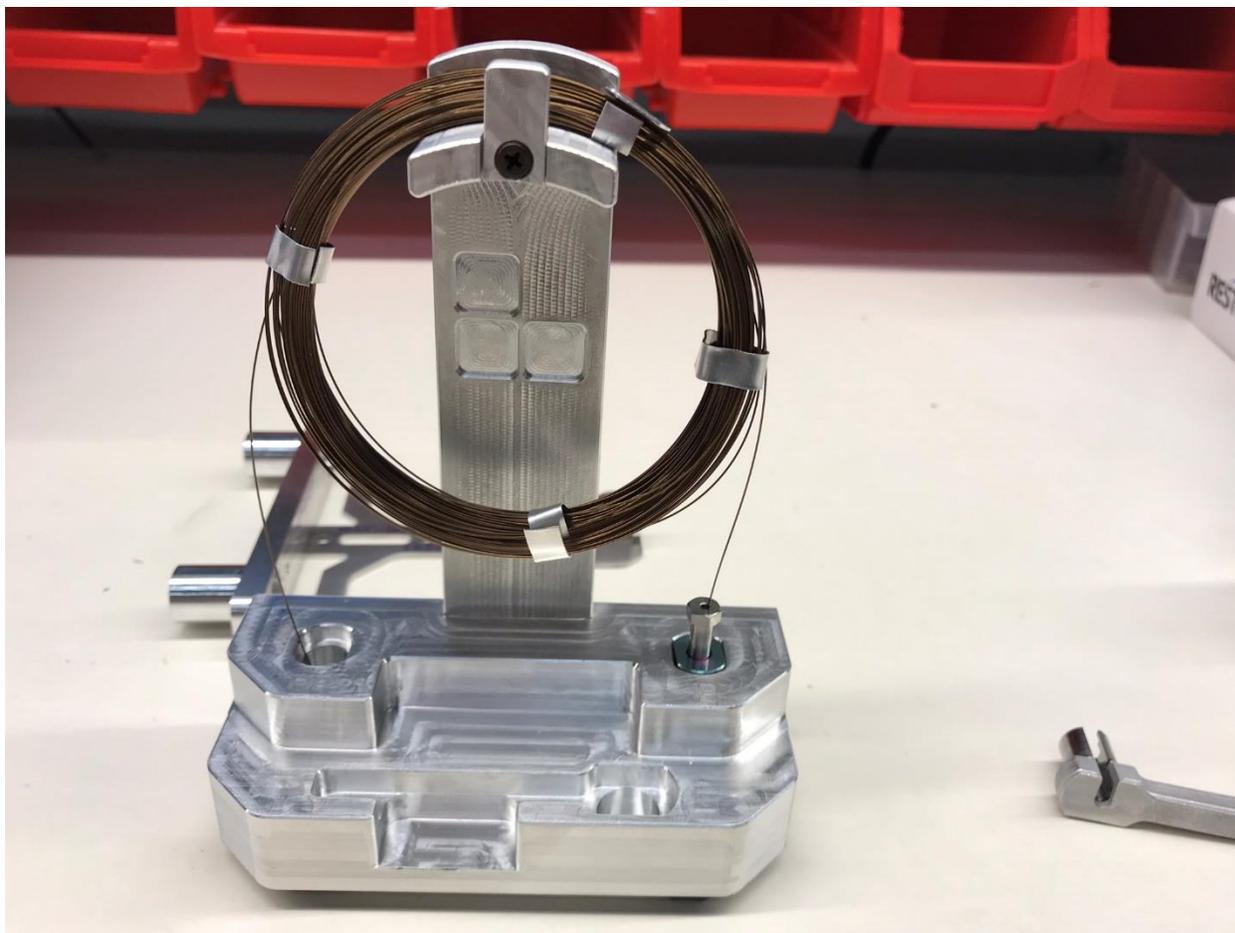




Once the nut is sufficiently tightened, you should be able to pick the entire IP Pin up by the column.



Once the head of the column has been successfully secured into the IP Pin, you can now progress to securing the tail of the column into the FID Pin, the pin that will be inserted into the detector manifold.



Use the column jig to hold the column and leave the IP Pin in the IP Pin hole in the jig and free up the right amount of column to insert into the FID pin.



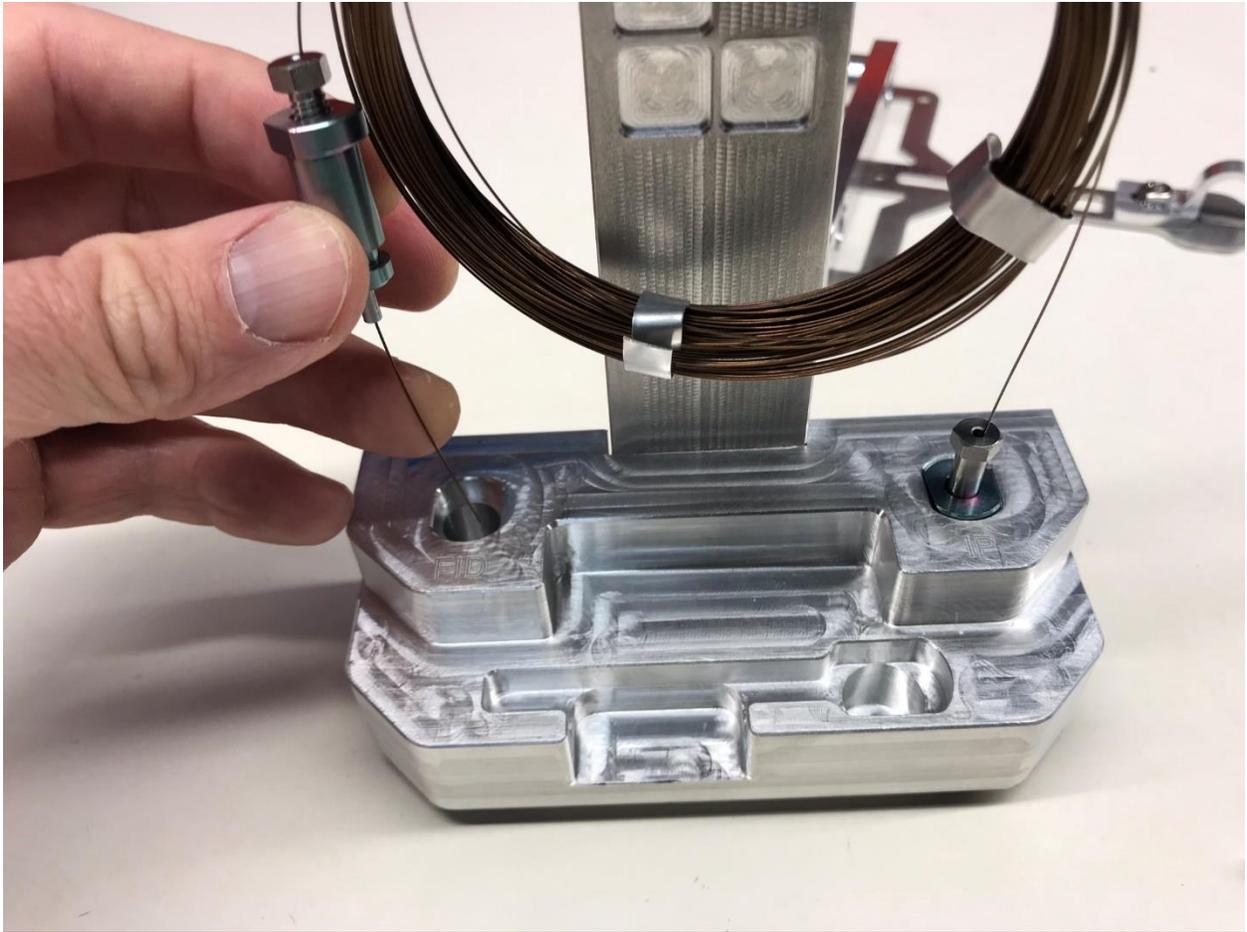
Then repeat the same process for securing the tail of the column into the FID Pin that you used to secure the head of the column into the IP Pin. For the FID Pin you use the shorter nut but the same ferrules. The FID Pin as shown is the pin with the long, thin nose.



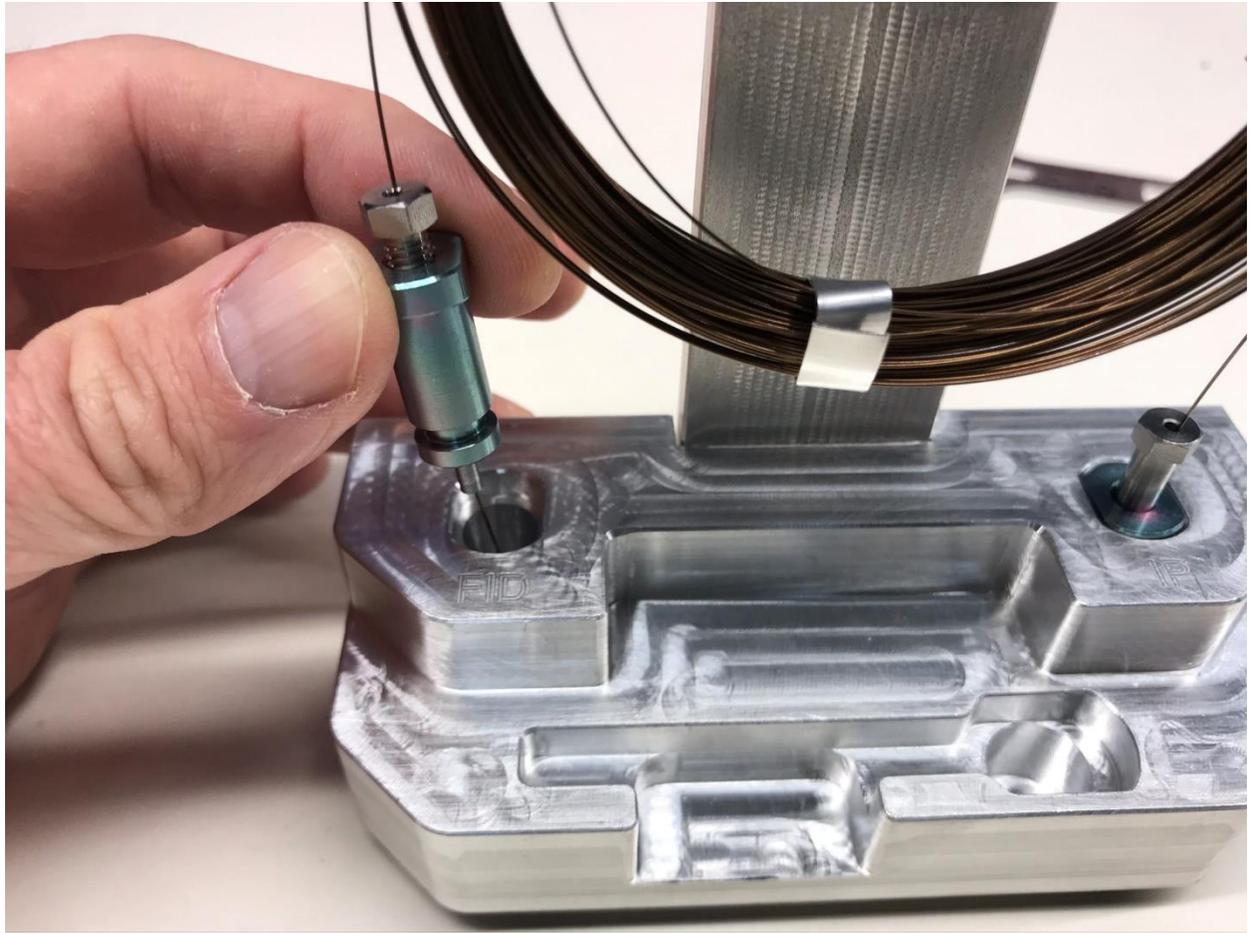


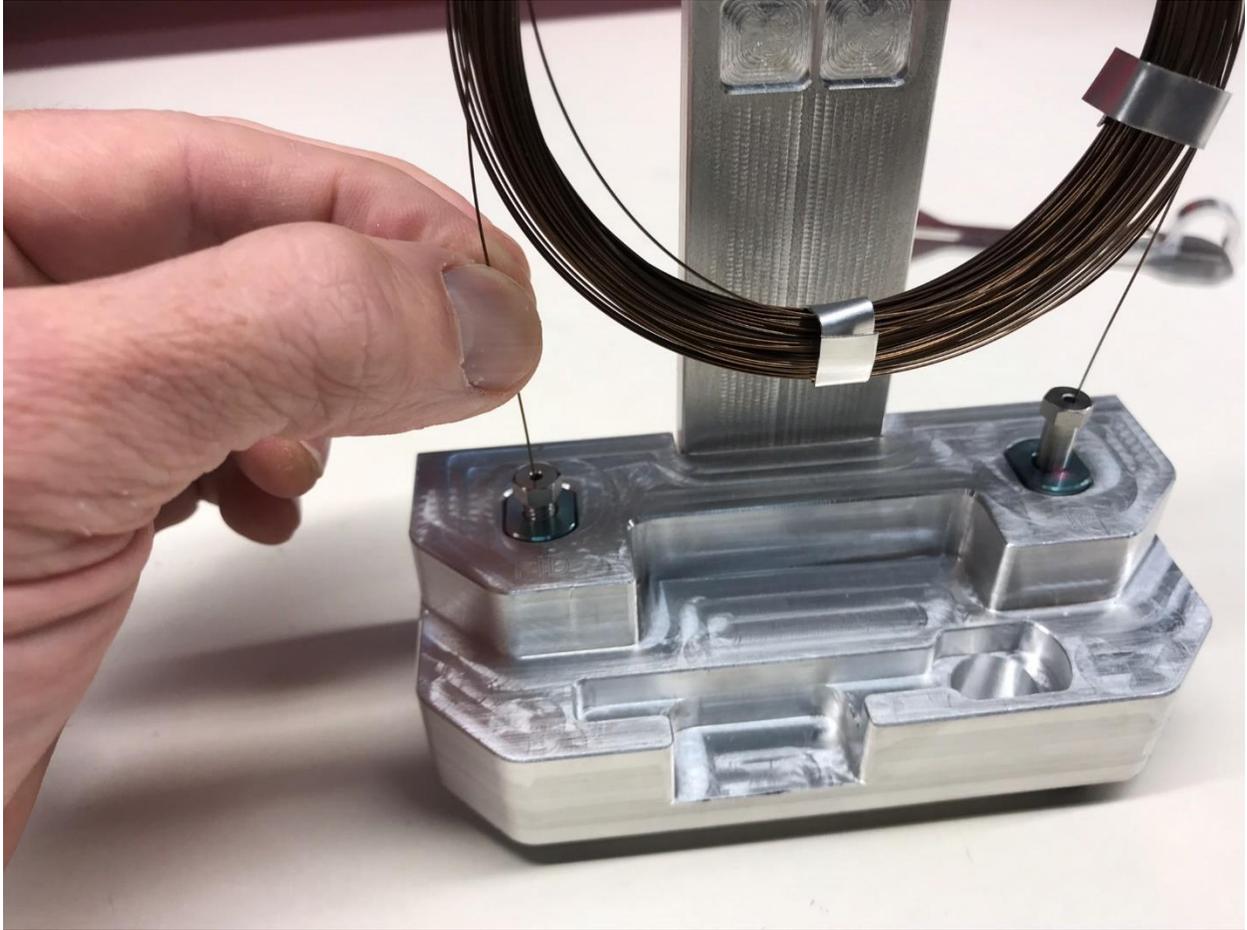
Begin screwing the nut into the FID Pin ensuring the column passes all the way through the tip of the pin.



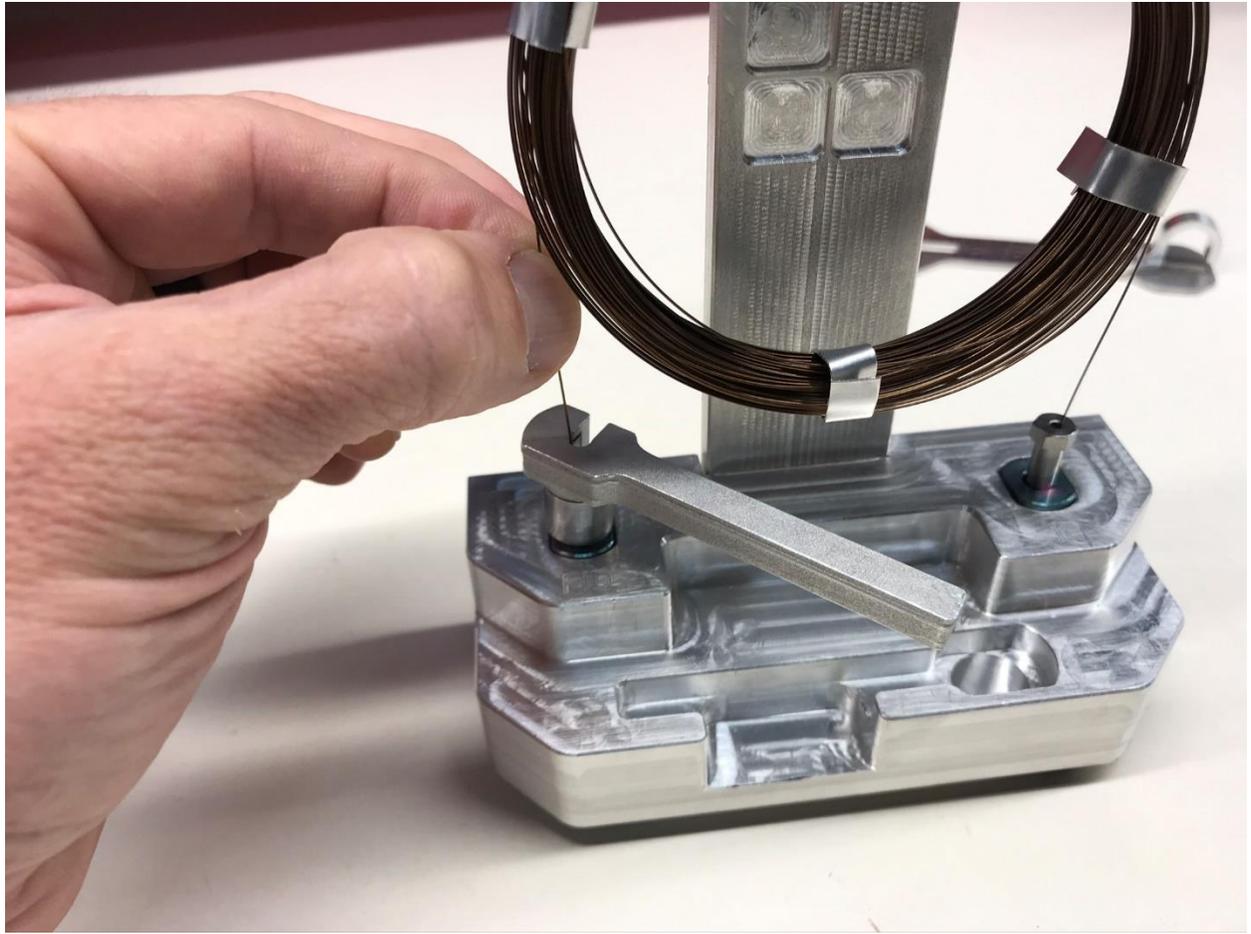


The place the pin into the FID Pin hole in the jig with the column protruding through the tip of the pin to ensure that it does not back out of the ferrule. It's bit easier to correctly position the column in the FID Pin than it is for the IP Pin since the column should be flush with the tip of the FID Pin instead of slightly recessed. This means the column will bottom out on the floor of the FID hole in the jog instead of on a feature protruding from the floor, as is the case for the IP Pin hole.



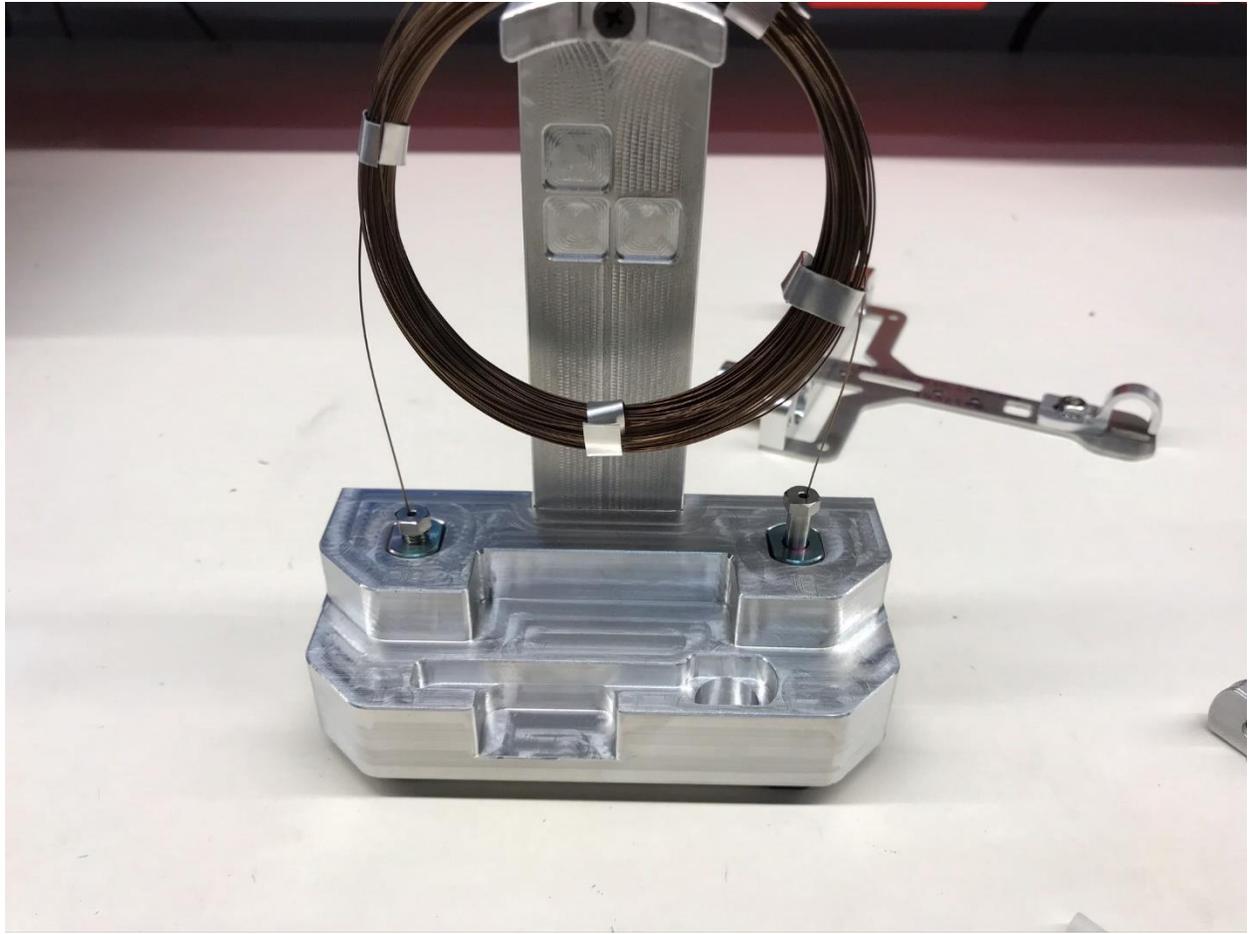


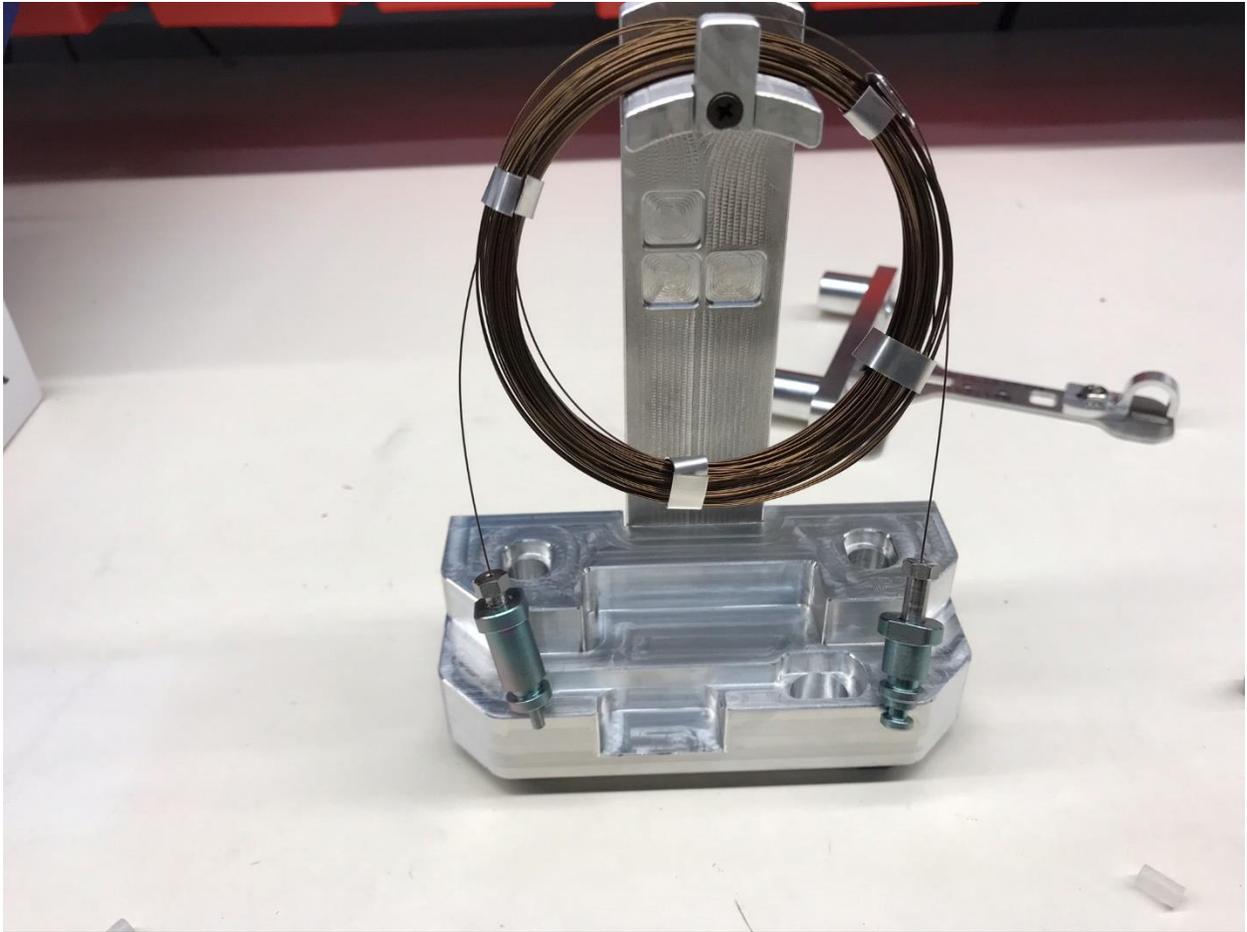
Keep slight force on the column ensuring it does not back out as you use the tool to begin tightening the nut the same as you did for the IP Pin.



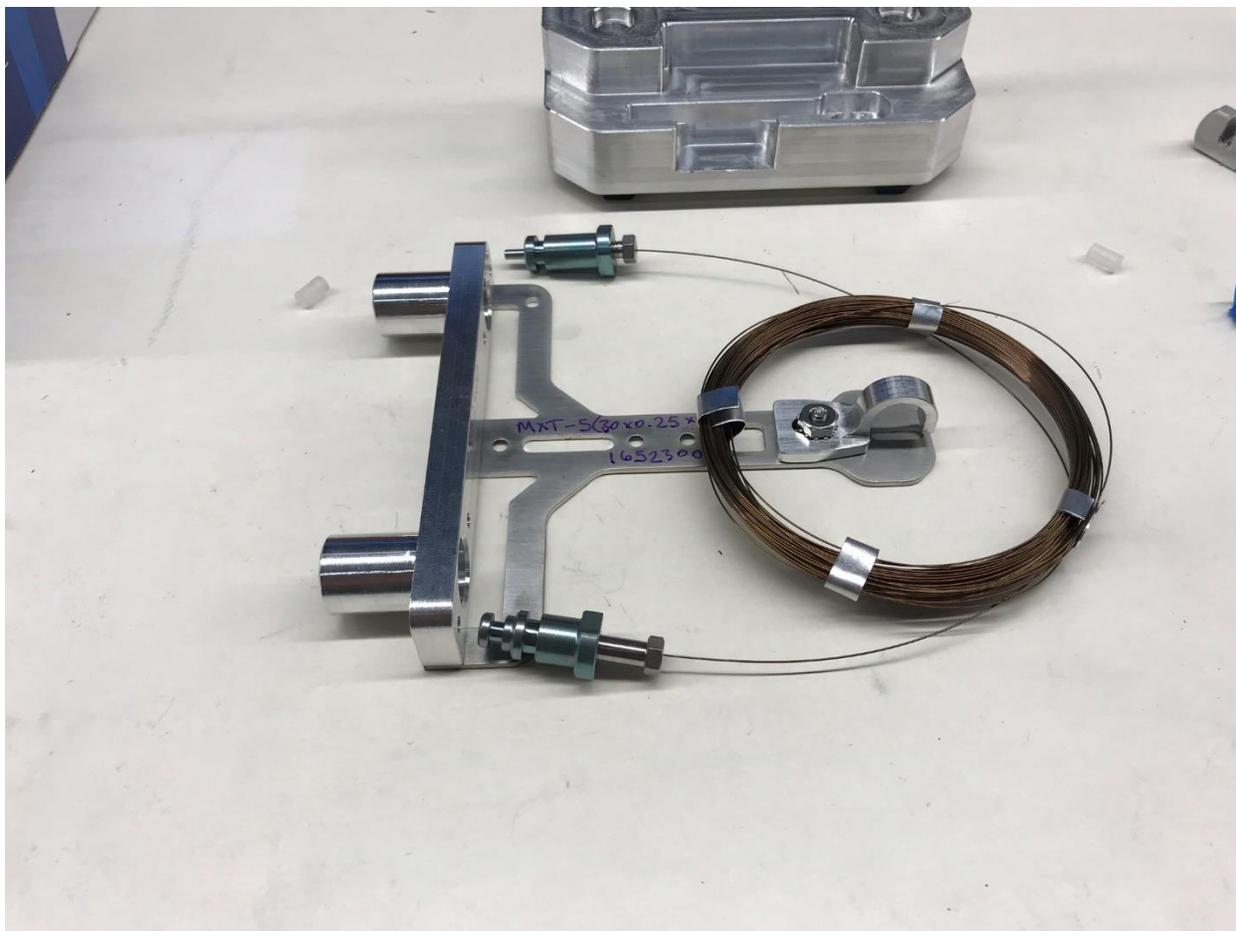


Once fully tightened the column should not back out of the pin when pulled.

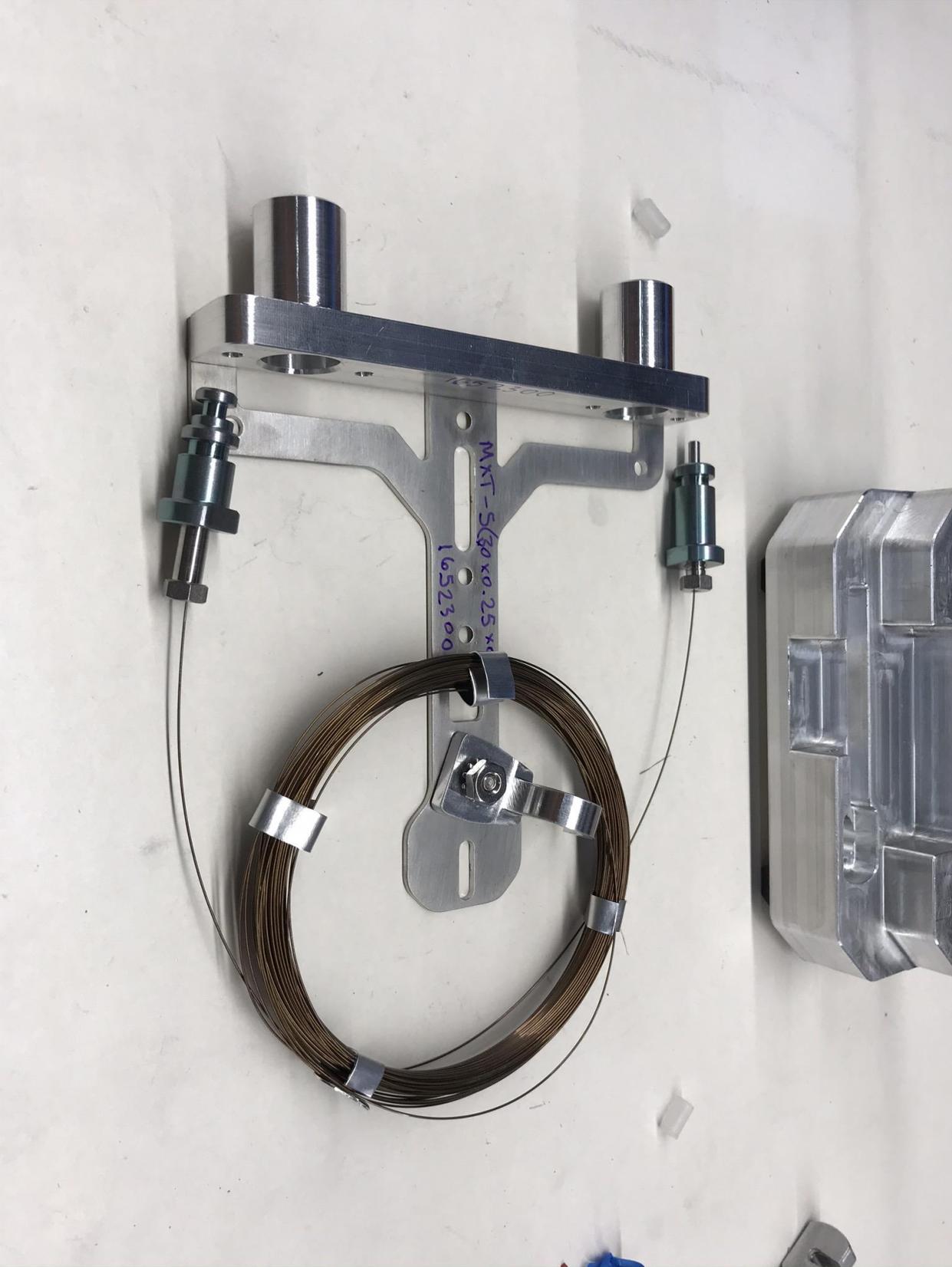




Once both pins are secured onto the ends of the column you can remove the pins and the column from the jig.



Now, you want to insert the pins into the column holder as shown. The IP Pin should go into the hold on the bottom of the column holder when shown from this perspective. The IP Pin should be on the left hand side when inserting a column into the miniGC and the FID Pin should be on the right hand side. When looking into the miniGC from the front where the column is inserted the Injection Port is on the left hand side and the FID detector is on the right hand side.





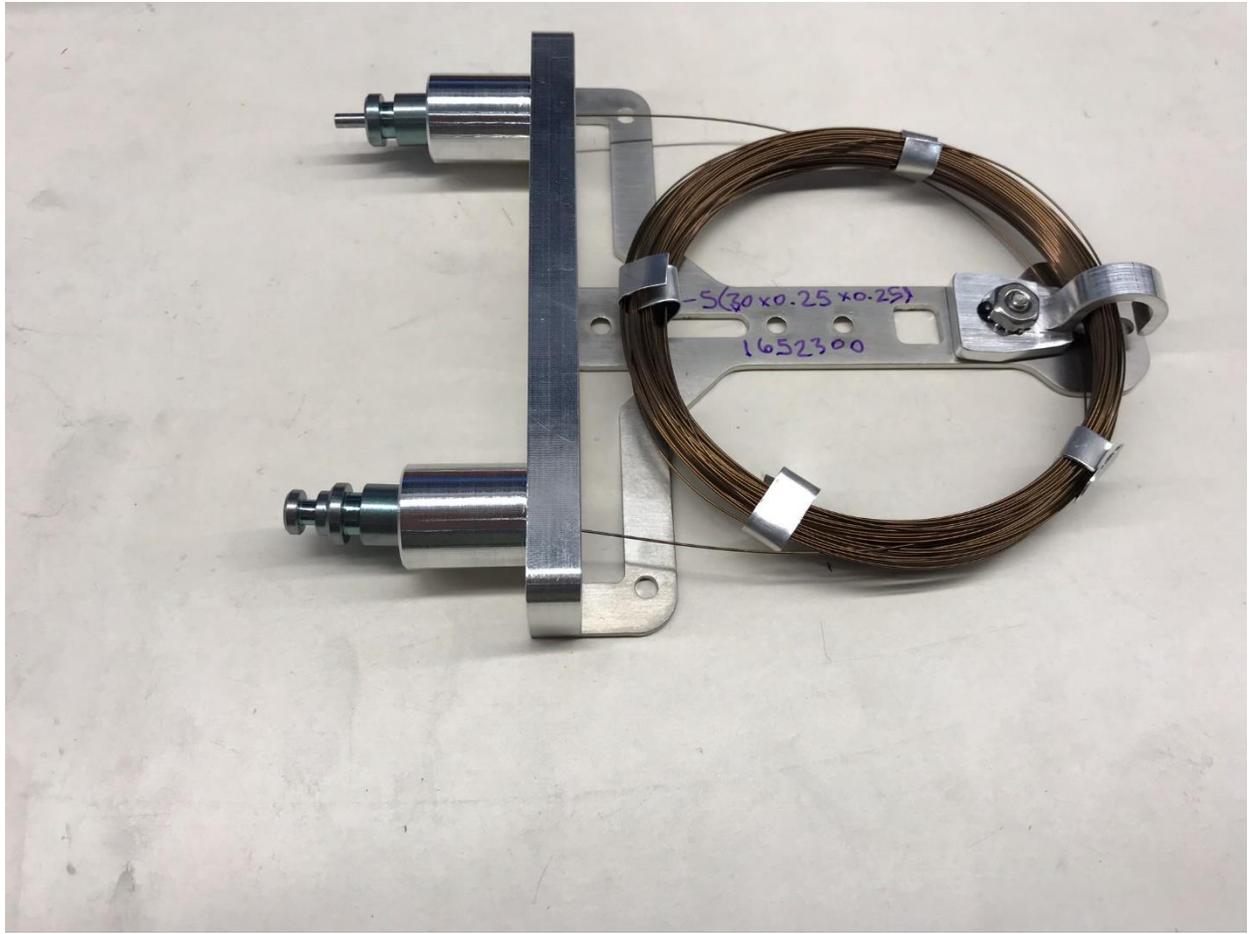


Both pins should be pulled through the holes on the front of the column holder and the pins should be rotated as needed to make sure the pins are fully bottom out in their respective holes. There are flats on both pins that match flats inside the holes and you have to rotate the pins into the correct orientation to ensure that they fully bottom out in the holes.





Once the pins have been fully inserted into the holes on the column holder, you should not be able to rotate them in the holes since they should be keyed into the holes via the matching flats. You should be able to use these pictures to get a rough idea for how far through the holes the pins should protrude.





Once the pins have been fully inserted you then need to use the pin backers and accompanying screws and nuts to secure the pin backers into place on the column holder which will ensure that the pins cannot back out of the column holder.





Put the pin backers in place and insert the screws from the front.

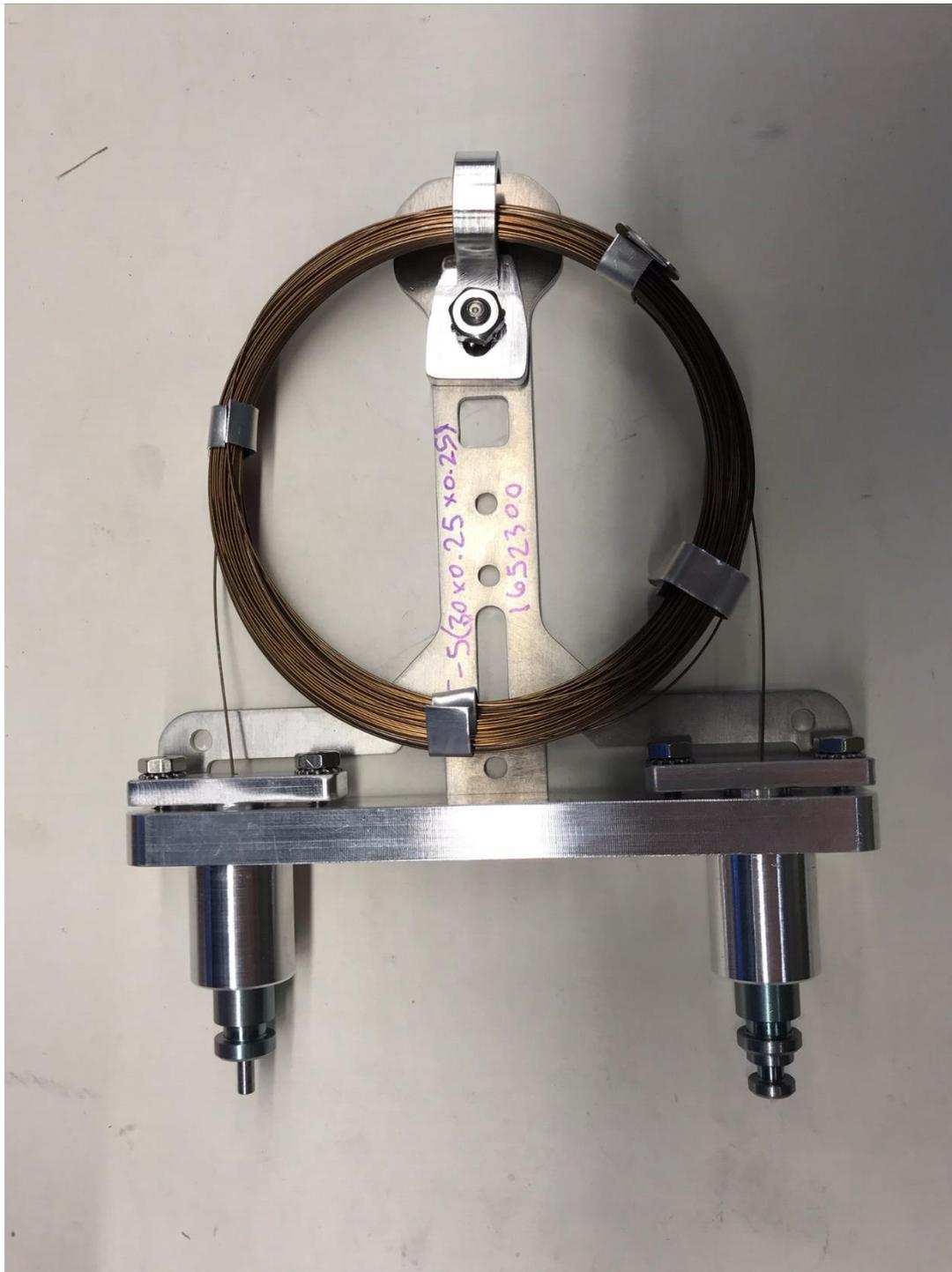




While holding the screws in place with a screwdriver thread the nuts on the screw on the backside of the pin backers. You want to be able to screw the screws far enough into the nuts to get the pin backers to hold the pins firmly so that they do not wiggle. You should be able to accomplish this by simply using your fingers to hold the nuts in place while turning the screws with a small screwdriver.



You also want to ensure that you don't overtighten one of the screws more than the other for a particular pin backer so that the pin backer sits evenly in place instead of being cocked to one side or the other. You should also see a small amount of space between the pin backers and the face of the column holder when installed correctly – about the amount of space shown in this picture. Too much space means that you may not have the pins fully bottomed out in the holes. It's worth another test at this point to make sure the pins are able to rotate or wiggle.

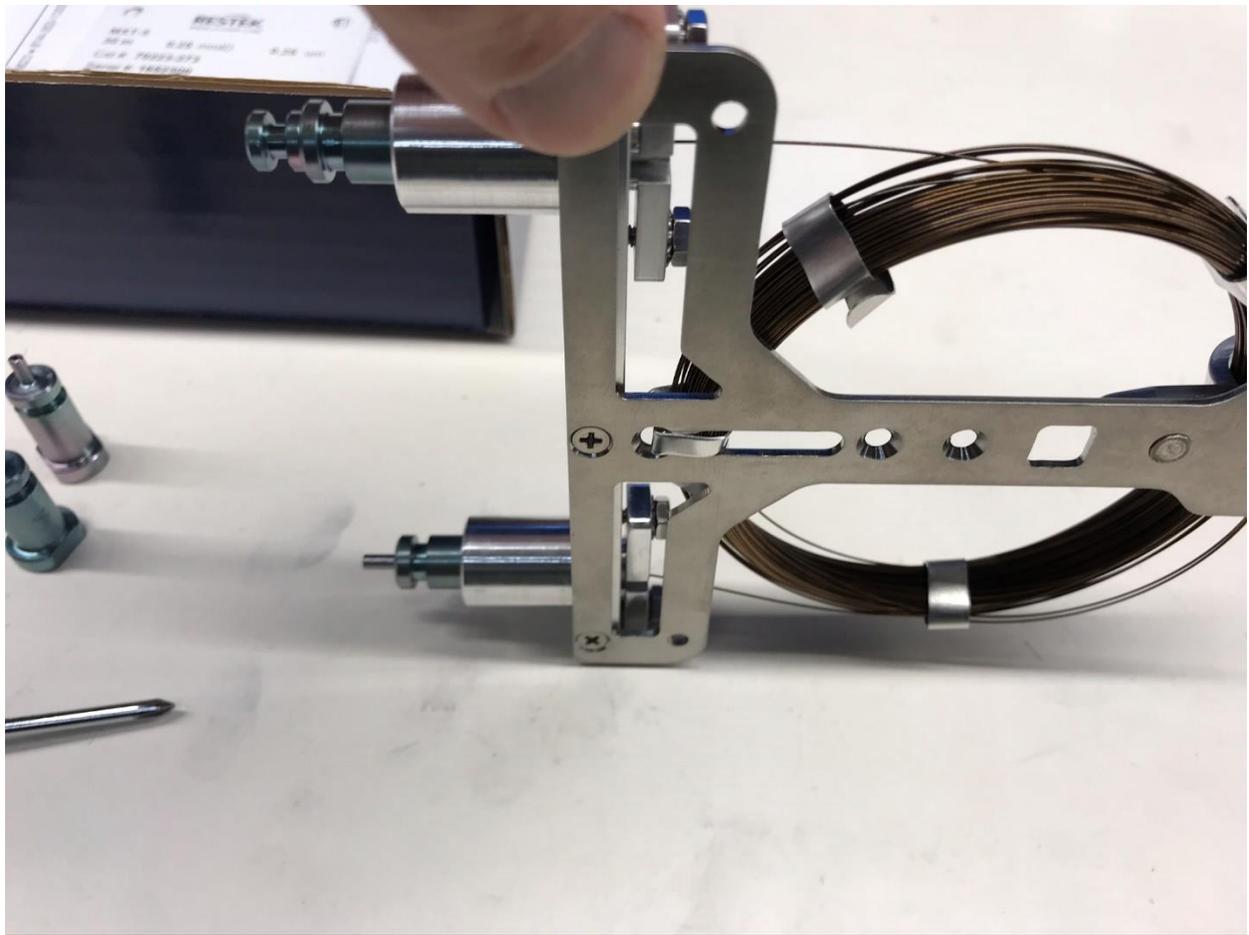


At this point if you haven't done so already you will want to make sure that the column is properly wound. When initially unwinding the column to allow the proper length of column for pin insertion, you may have some bits of the coil that are not wound neatly. Once the pins are secured you can undo some of the metal clasps very carefully to get the column wound neatly again and then resecure the column with the metal clasps.



Once the column is wound neatly and the pins are secured, you should secure the back of the column as shown. The same tool you used for the pin nuts will allow you to tighten and loosen the nut holding this securing loop in the back of the column holder to allow you to get the back of the coil routed through this piece. You will also want to use one of the metal clasps that secured the column tag to the column to secure the front of the coil to the column holder as shown.

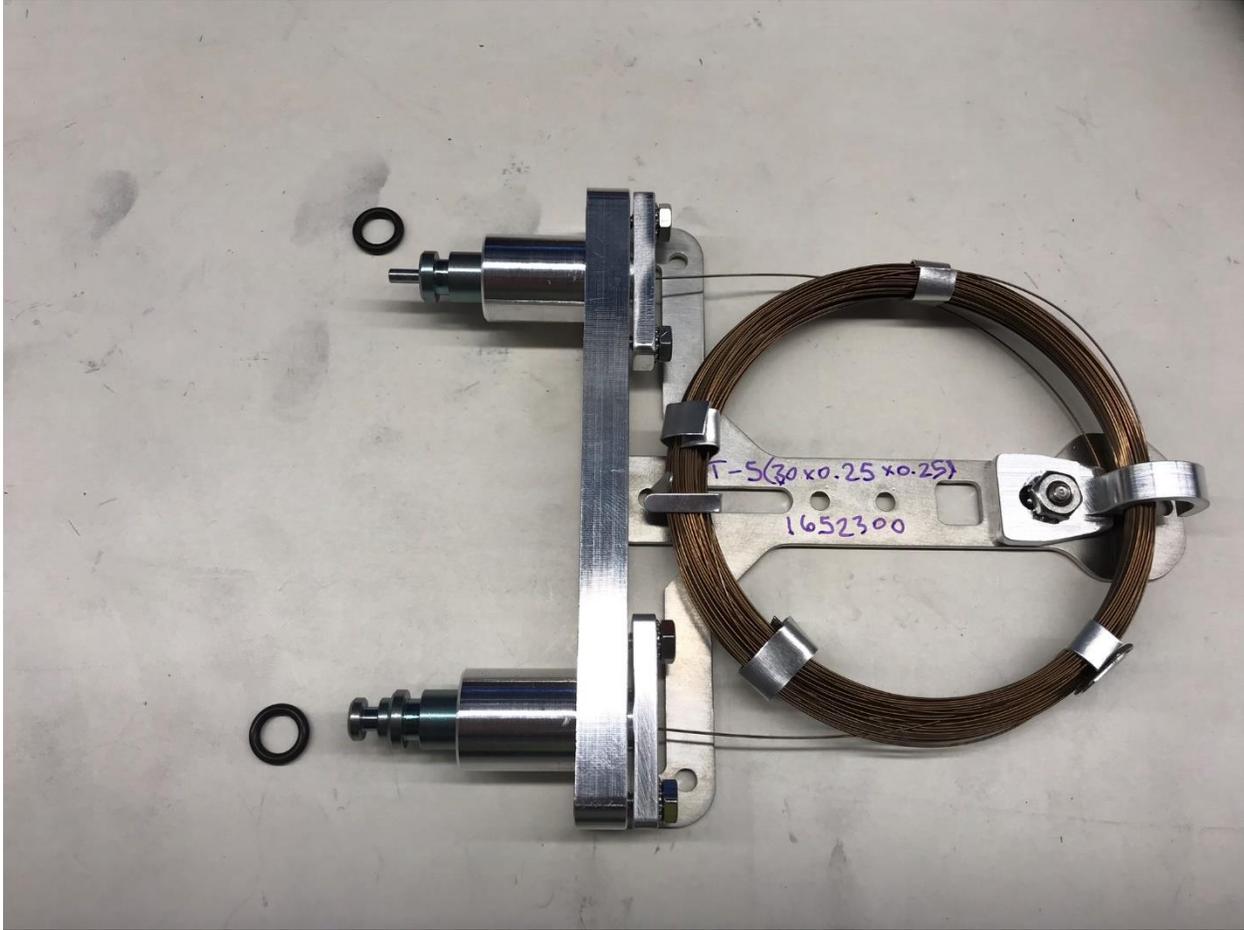




Make sure the bottom of this metal clasp does not protrude too far down below the column holder or it may catch on the miniGC when inserting the column holder into the system.



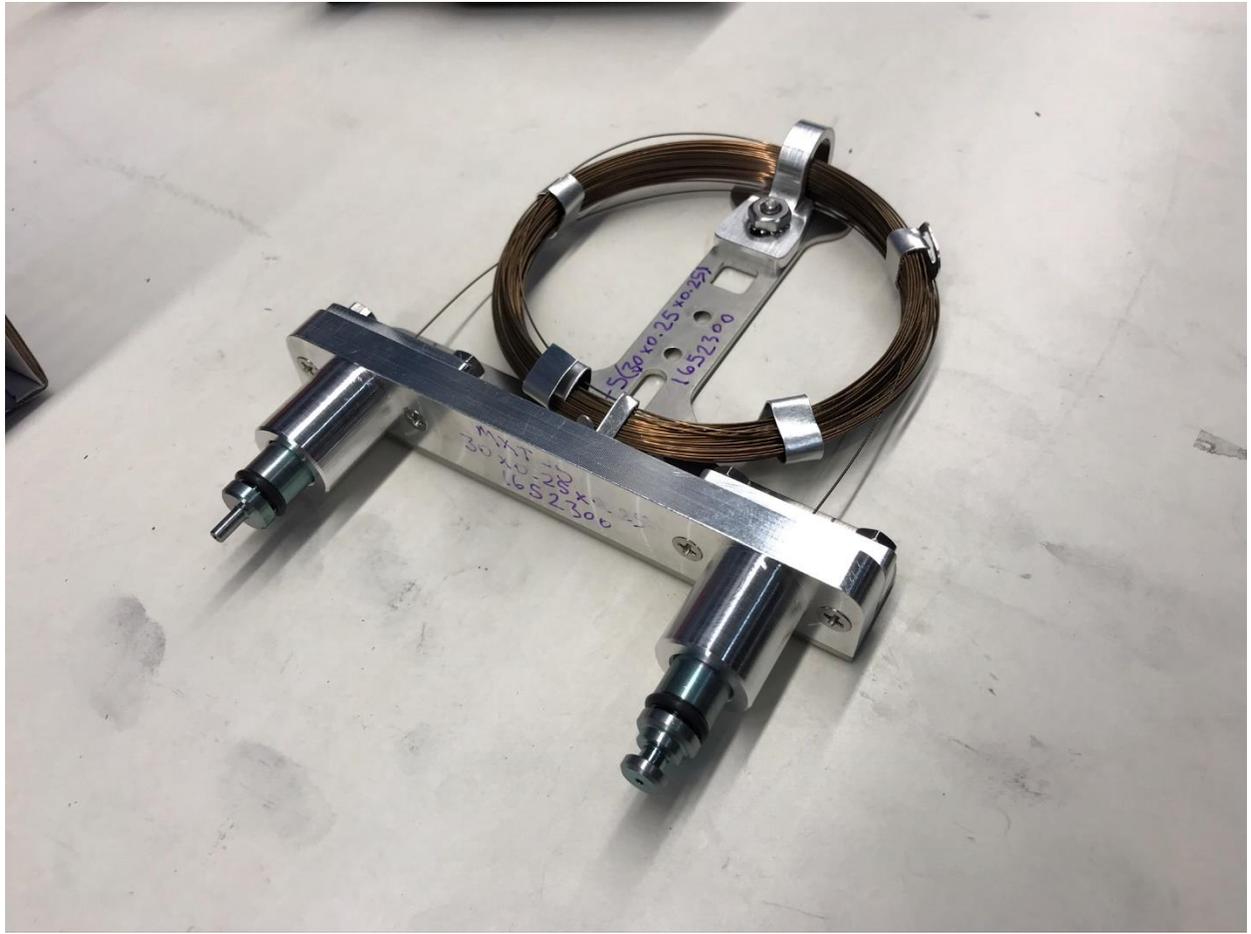
Your column holder should look something like this when installed correctly.

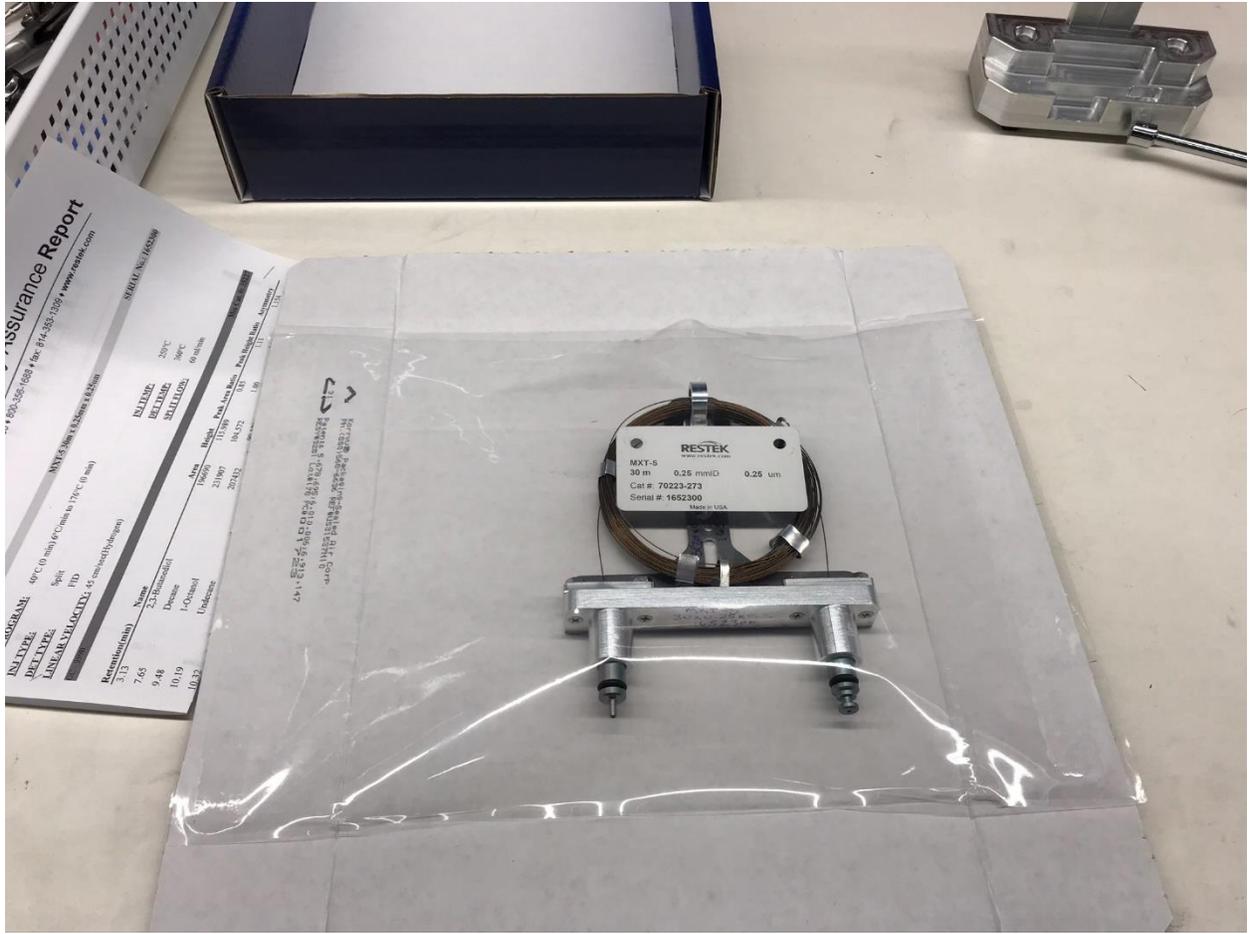


Lastly, you want to put your pin o-rings in place. These #010 075 Kalrez o-rings (Wyatt Seal, Inc. PN 2-010 7075, Lucidity PN: C100064) are the same for both pins. Simply roll them over the tips of each pin until they are in place.



The finished column holder should look like this.





We then repackage the preinstalled column holder back into the original Restek packaging along with the QA report on the column.



Voila!