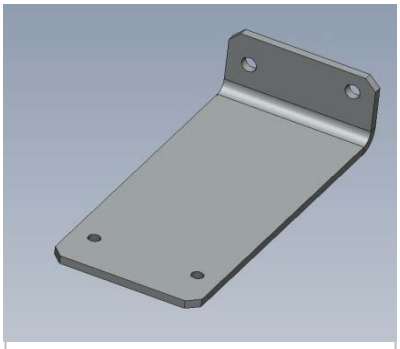
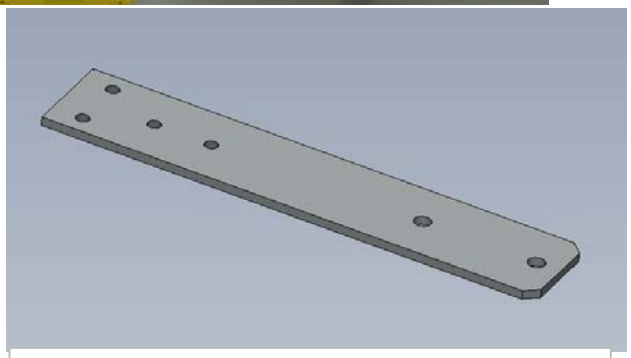
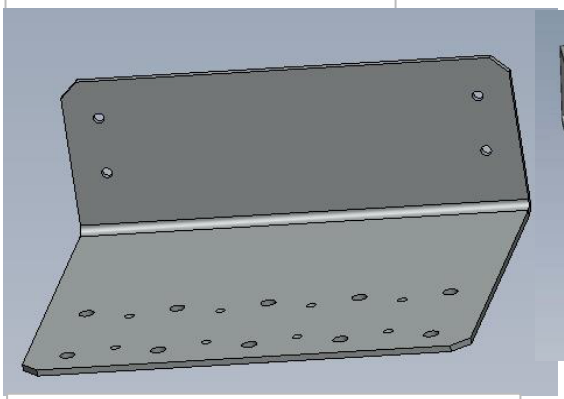
Installation Suggestions



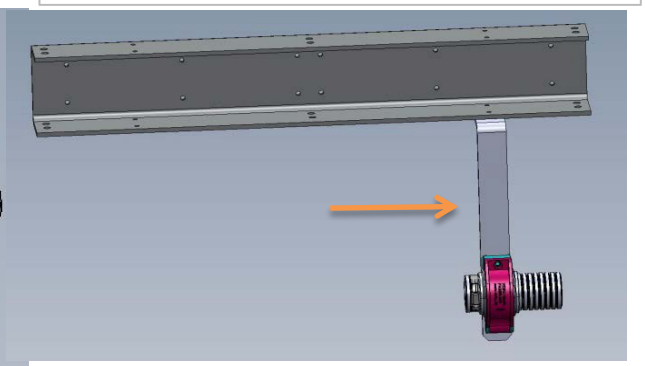
Shoulder "A" Bracket



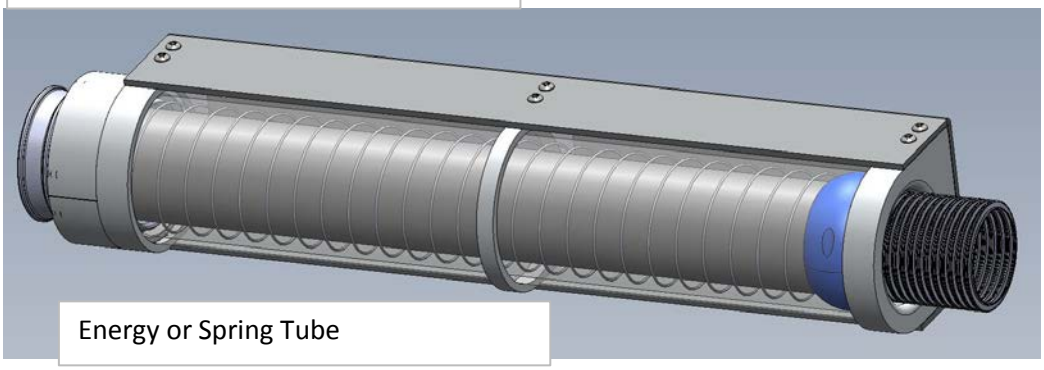
Shoulder "B" Bracket



Robot Bracket



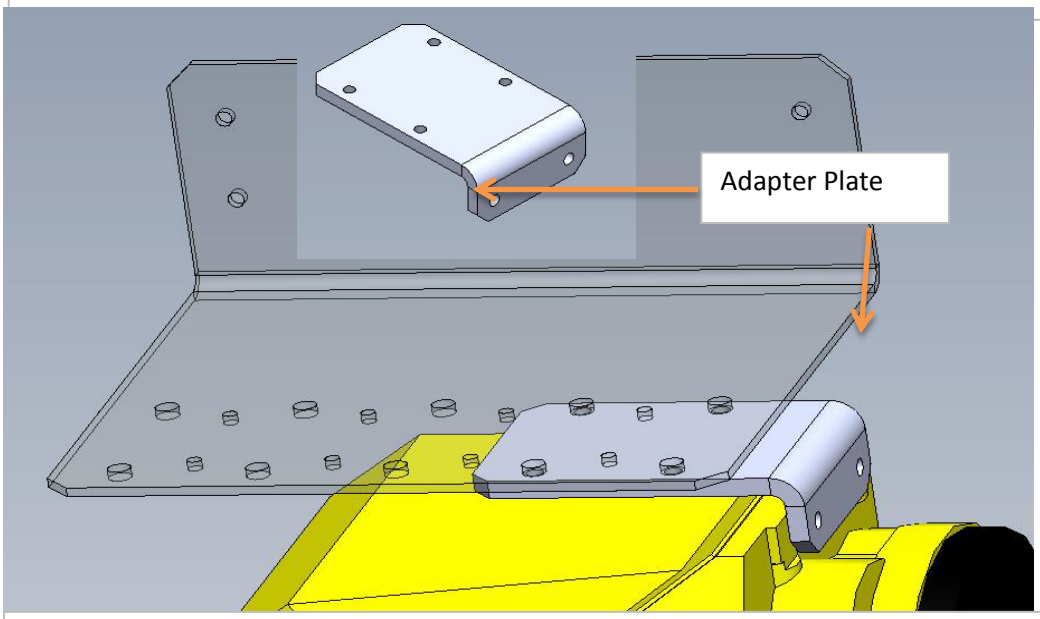
"L" Bracket



Energy or Spring Tube

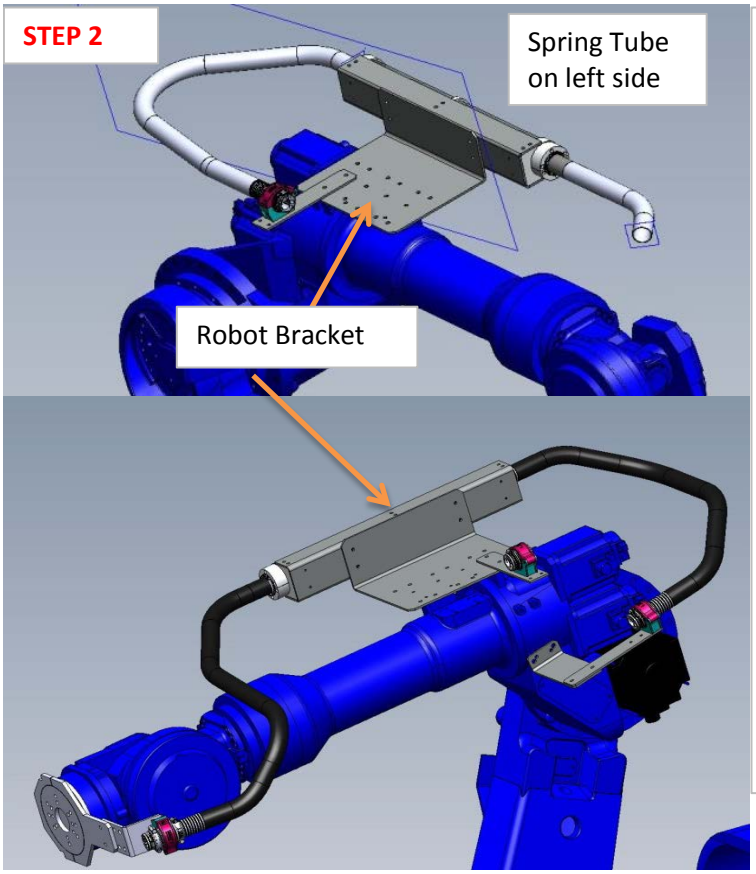
STEP 1 PLEASE NOTE THAT THERE ARE NO MOUNTING SCREWS INCLUDED WITH THE CABLE SAVER BRACKET KIT. THERE IS NO CONSISTENCY FOR HOLE SIZES BETWEEN MAKES AND MODELS OF ROBOTS.

It is recommended that the Robot Bracket should be the first piece of mounting hardware to be attached to the Robot. Please note that there are multiple mounting holes so that the Robot Bracket location can be be "fine-tuned" in order to provide the best mounting position.



It may be necessary to purchase or fabricate an "Adapter Plate" that will enable the Robot Bracket to be attached to the exact make and model of Robot.
Please contact design@reikuna.com for additional support.

STEP 2



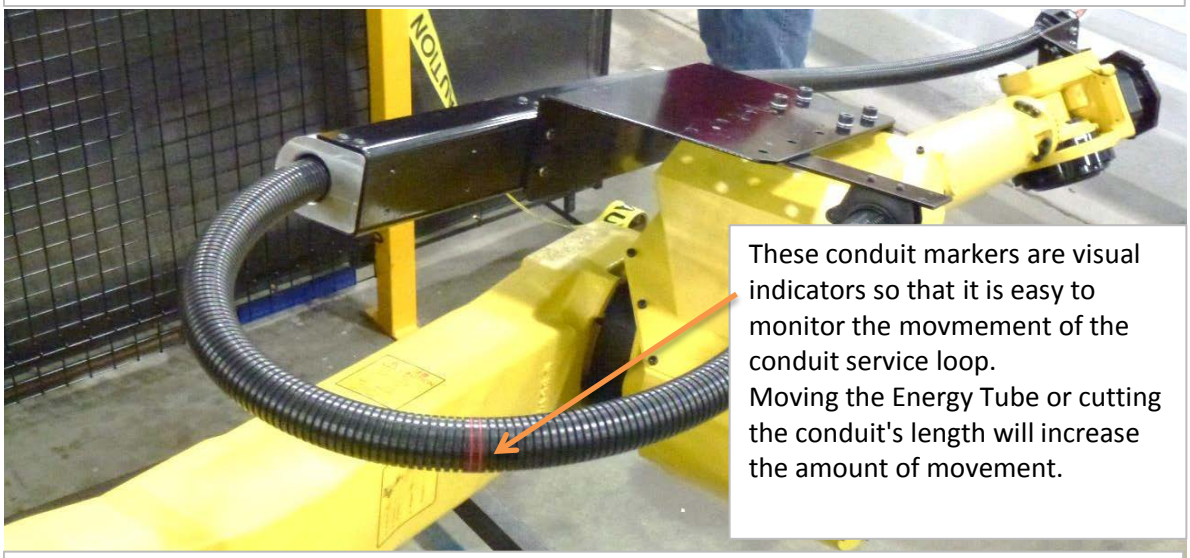
The first consideration should be which side of the Robot to mount the Spring Tube.
Factors affecting this decision :

- is there adequate clearance for the corrugated tubing on the left or right side of the Robot ?

- is there adequate clearance for the corrugated tubing above the Robot ?

-when installing on an existing application observe what side the cables and hoses are currently routed as termination points and connector locations may dictate optimum location for corrugated tubing to be run.

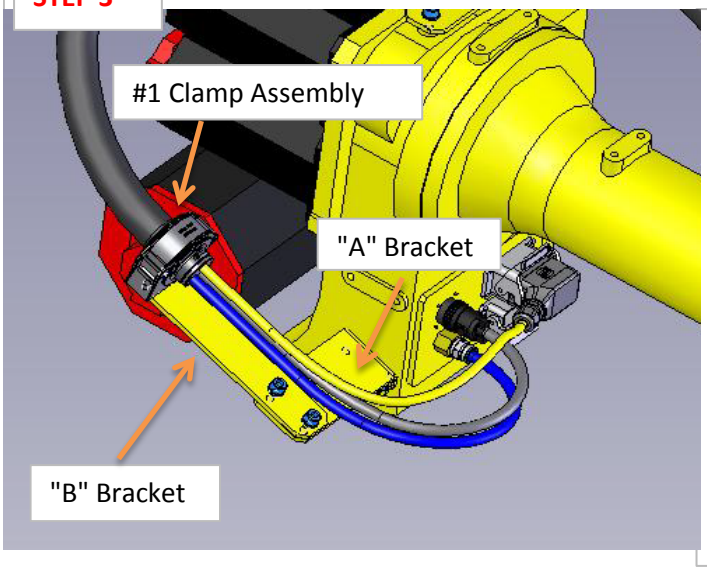
Install the "Robot Bracket" in the orientation that compliments the side you have selected which will provide the mximum clearance for the corrugated tubing to be routed.



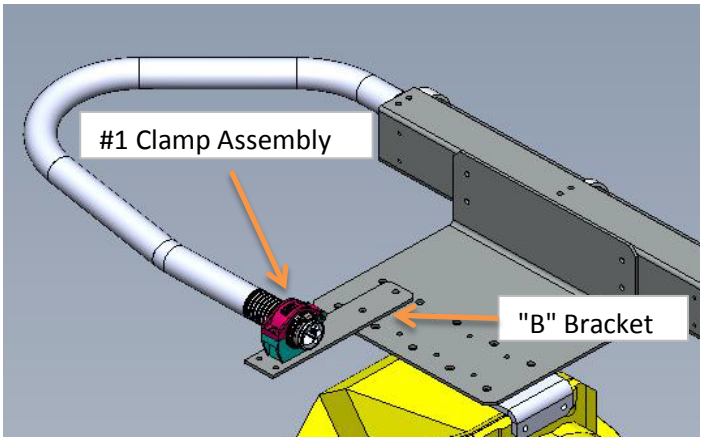
These conduit markers are visual indicators so that it is easy to monitor the movmement of the conduit service loop.
Moving the Energy Tube or cutting the conduit's length will increase the amount of movement.

The "Robot Bracket" can also be FLIPPED over so that the Energy/Spring Tube is mounted lower than the top of the Axis three area. This will provide additional clearance for installations where there is limited overhead space.

STEP 3

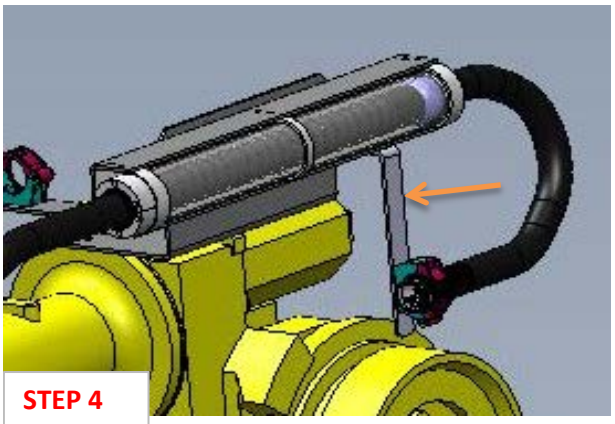


Next the mounting hardware for the #1 Clamp Assembly should be installed.
As mentioned above part of the decision on how to orientate the Robot Bracket and locations of the Spring Tube should be based on the current routing for the cables and hoses from Axis 3 to the EOAT (end of arm tool area).
On some models of Robots some of the supply lines are routed internally from Axis 1 to Axis 3 so the use of the "A" and "B" bracket can be an option.



In this example only the "B" Bracket has been used and there are multiple attachment hole options on the Robot Bracket for installing the "B" Bracket and the #1 Clamp Assembly.

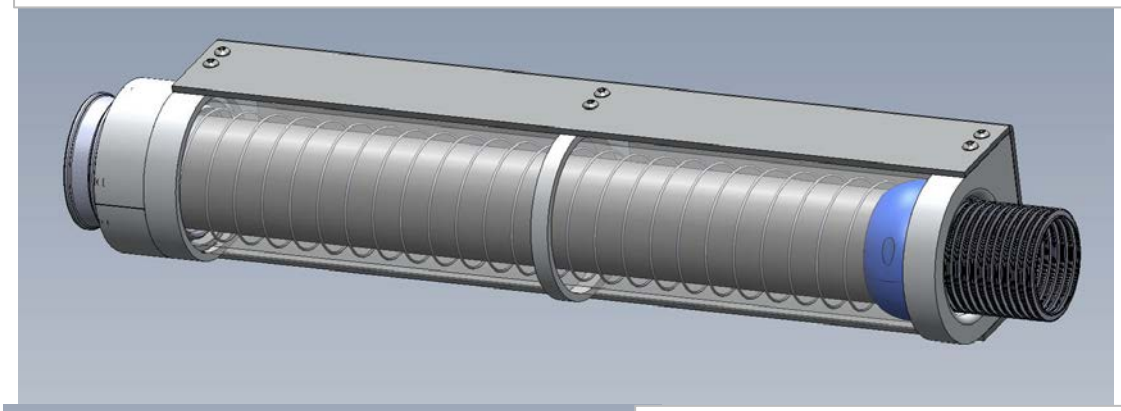
It is recommended that the conduit be shortened only after the Cable Saver has been completely installed and tested

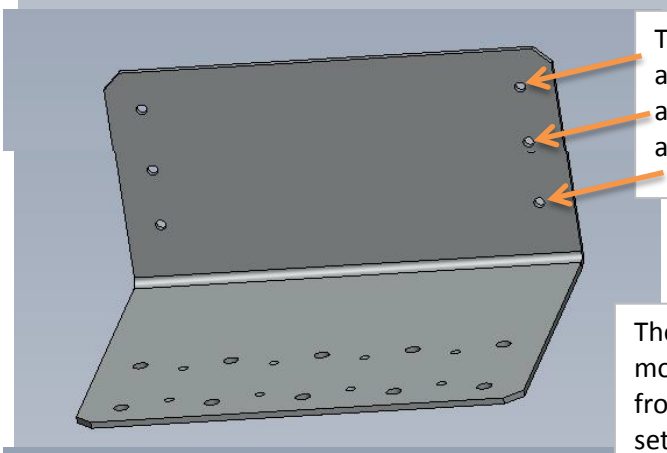


STEP 4

The third option for locating the # 1 Clamp Assembly is to utilize the "L" Bracket option. This "L" bracket attaches to the underside of the Energy/Spring Tube and then the #1 Clamp Assembly attaches to the "L" Bracket

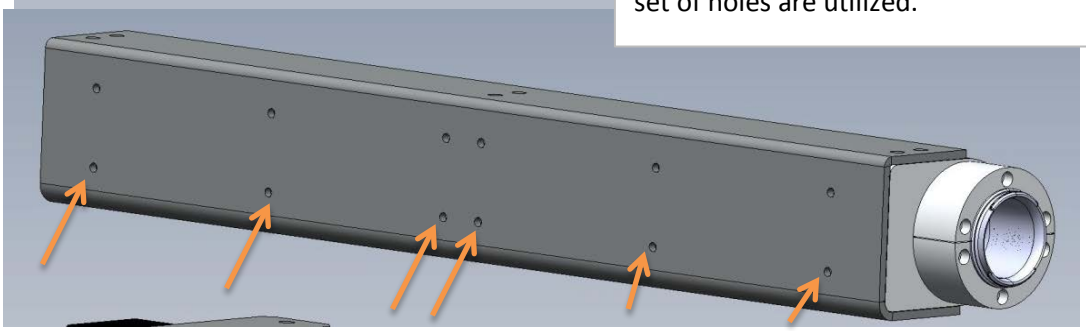
The next recommended step is to attach the Energy/SpringTube to the Robot Bracket **with the screws provided.**





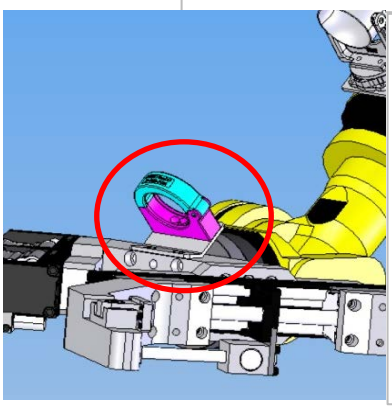
There Energy/Spring Tube can be mounted at 2 potential heights by using the middle and bottom row of holes or the middle and top row of holes.

The Energy/Spring Tube can also be moved towards the rear or towards the front of the Robot dependant on which set of holes are utilized.



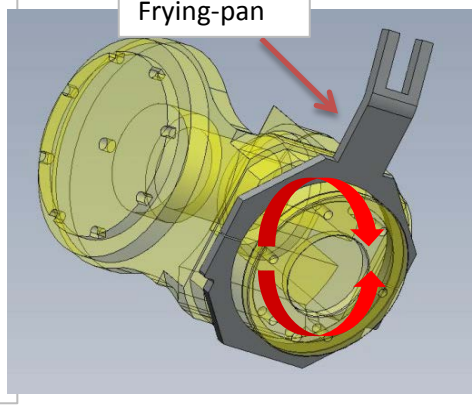
STEP 5

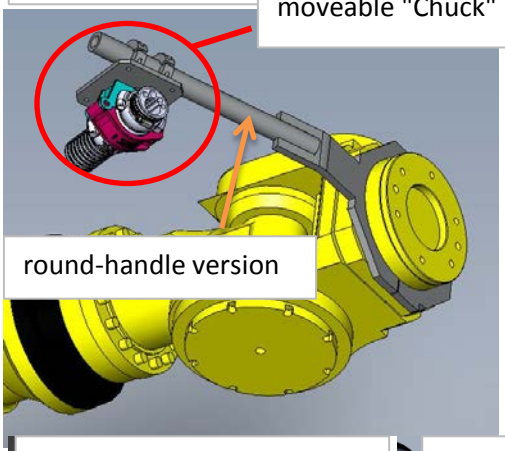
For the final Clamping location at End Of Arm Tool (EOAT) area there are numerous mounting options and the correct selection is application driven. There are MANY factors that will effect the selection for the optimum mounting option and once again if you require any support please contact design@reikuna.com for assistance.



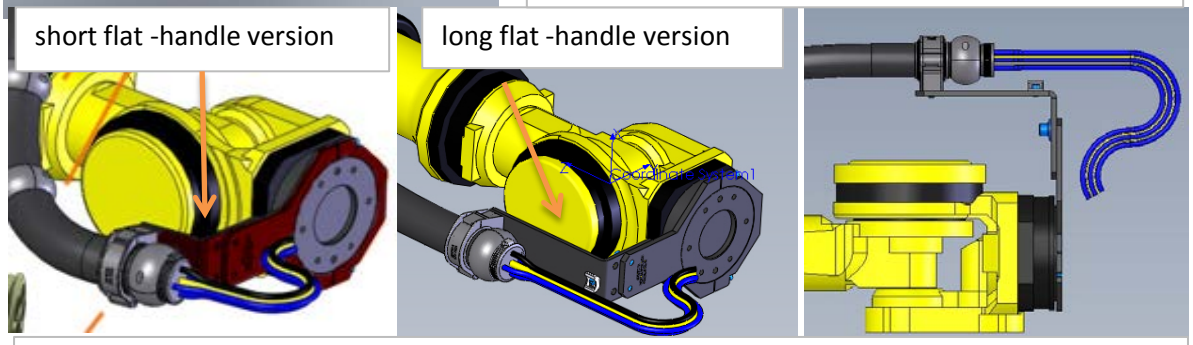
For some installations/applications there may be the possibility to atttach # 3 Clamp assembly directly to the tool or tool fixture.
The selection of the #3 assembly location is very important and the mounting bracket should be fabricated in order to hold the final assembly bracket in a position that will help to create clearance for the conduit and limit the amount of "rubbing" on the wrist and joint areas.

There are 4 different variations for "Frying-pan" mounting systems that can be used in the EOAT area.
The "Frying-pan" refers to the portion of the mounting hardward that "wraps" around the wrist of the Robot.
The Frying-pan can be rotated in a radial direction on the wrist of the Robot in order to provide the optimum clearance for the conduit.
Please be certain to try locating the fyring-pan in different locations. This is refered to as "clocking or indexing" the frying pan.

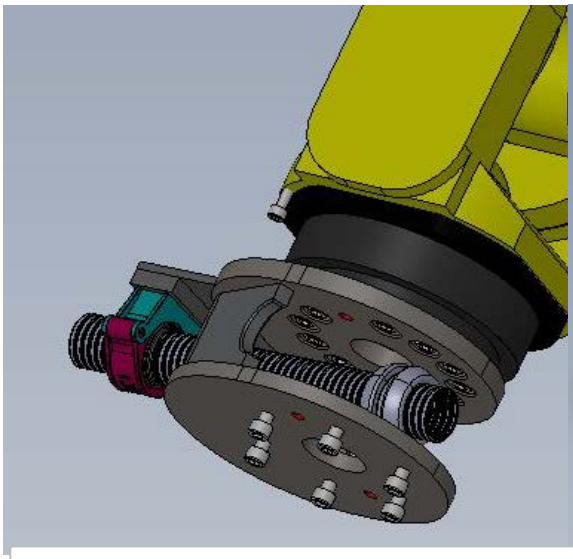


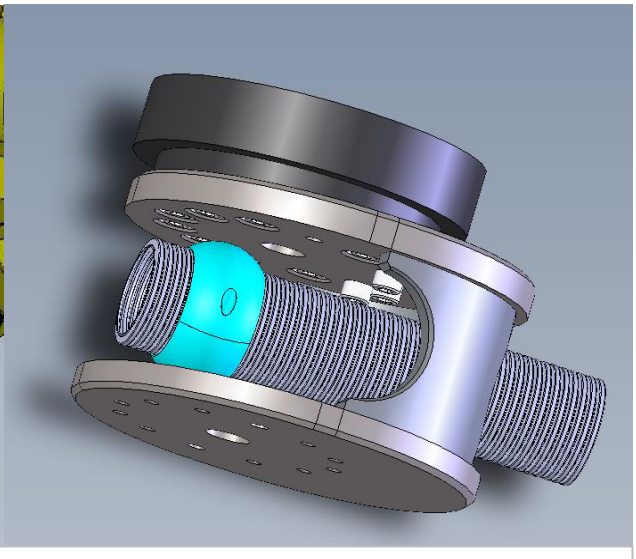


The frying-pans are available with "Round" or "Flat" handles.
The Round Handled version is available with a straight or angled handle.
Both Round Handled frying-pans have a moveable "chuck" assembly that holds the # 3 Assembly The Chuck can be rotated and moved up or down on the frying-pan handle in order to fine tune the conduit. This version is selcted for applications where there is limited clearance in the EOAT area.



Above are examples of flat-handled frying pans which can also be indexed or "clocked" to provide optiamal conduit clearance. The handles have numerous mounting hole options in order to fine tune the conduit clearance.



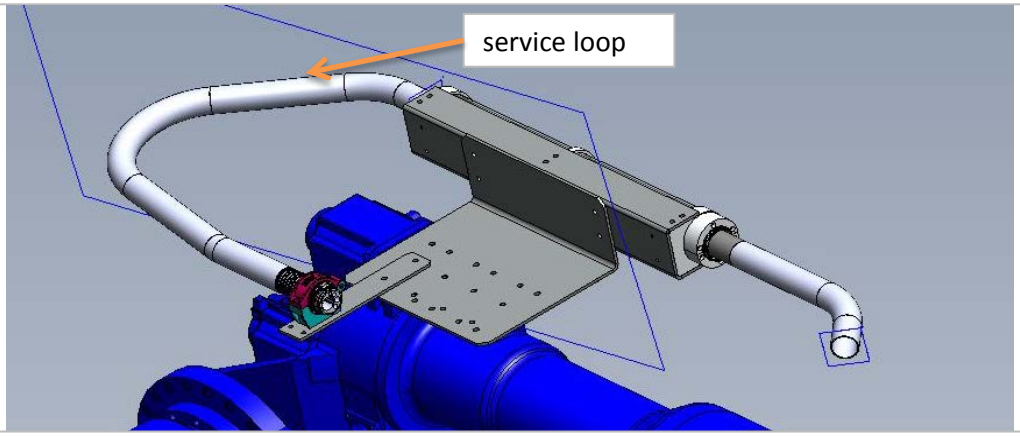


The most "adaptable" and "optimal" recomendation for the EOAT area is to use the Patent Pending Drossbach "Cow's Mouth". The "Cow's Mouth" is a unique "C" bracket that is mounted to the faceplate of the Robot and then the corrugated tubing is allowed to ride inside the open "mouth" area which prevents that conduit from wrapping around the Robot wrist.

The "Cow's Mouth" is available in three sizes in order to work with the three different sizes of Cable Saver corrugage tubing 36, 52 and 70 mm.

The "Cow's Mouth" brackets all have specific mount hole patterns and careful consideration is required to ensure that the "Cow's Mouth" ordered will fit the Robot faceplace mount and the hole pattern for the tool also in case this differs ? Once again please contact your Distributor or design@reikuna.com for support.

At this point it is recommended that you "cycle" the Robot if able and it is also recommended that you **not** poulate the conduit with any cables and hoses until after you have "fine-tuned" the location of the components and **cut the conduit to the correct length.**



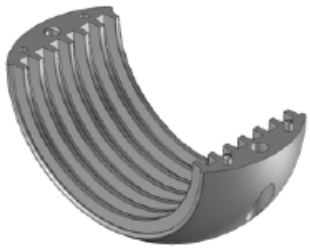
The service loop that runs from the #1 Clamp Assembly to the rear of the Energy/Spring Tube will need to be shortened eventually but it is recommended that you just allow the conduit to run out past the # 1 Clamp until it initial cycling and testing is completed. It is important to observe the behaviour of the service loop with the Robot moving and also there is the potential that you may wish to relocate the # 1 Clamp Assembly.

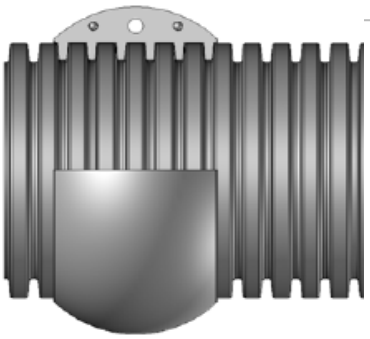
It is also suggested that you alow the conduit to run "past" the # 3 Clamp Assembly until the conduit behviour is observed with the Robot cycling. The Clamp Assembly can be opened and the Middle Jaws can be relocated on the conduit to shorten or lengthen the service loops n order to observe the effects will be when the conduit is cut.

Please also be aware that relocating the Energy/Spring Tube on the Robot Bracket also affects the length of conduit service loops.

Also moving the Robot Bracket position on the Robot itself will affect the length of the conduit service loops.

If by chance the conduit is cut too short and relocating the Energy Tube or Robot Bracket does not provide a solution... then use one of the Protectors/Wear Balls to "splice" on a length of conduit that you have accidently cut off.





Protector

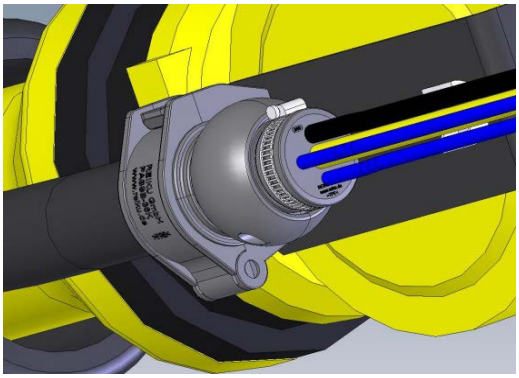
Once you are satisified that there is adequate conduit for both service loops then cut the conduit to length. Using liquid paper to mark the corrugated tubing works well as this provides a readily visible referenece mark that can easily be scraped off.

At this point you can populate the conduit will the cables and hoses please note it is strongly recommended that new cables and hoses be installed so that the performance of the Cable Saver can be accurately assessed as installing used "half-worn" cables and hoses would not provide an accurate measire of the Cable Saver's ability to reduce "down-time"

It is recommended that you release the conduit from the # 1 Assemly on Axis # 1 aand straighten out the 180° service loop. It will be a lot easier to load the cables and hoses into the conduit when the conduit is straight.

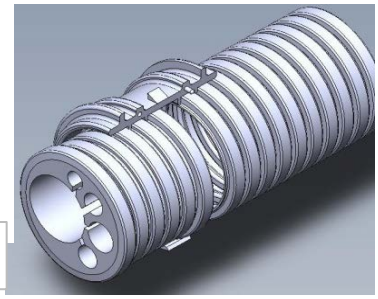
After the cables and hoses have been pulled through and connected to their termination points it is time to load each individual cable and hose into the Cablestar Grommet.

After each cable and hose has been located in it's sepcific hole location in the cablestar it is recommended that a gear clamp be placed around the exposed portion of the cablestar and tightened just to ensure that the cables and hoses are firmly held in place against the lateral (push-pull) forces.

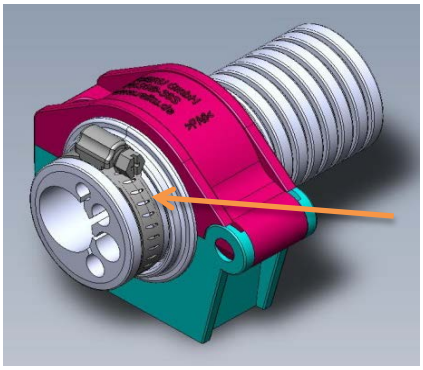


STEP 6

PAKMB Middle Jaw



To install Cablestars in the # 1position
Take the PAKMB Middle Jaw and use this to hold the last 2 corrugations of conduit and 2 of the corrugations for the cablestar in place.
Then "snap" the other half of the Middle Jaw in position opposite.
Then load this complete Assembly in to the Gripping Clamp



The last and most important step is to install the provided gear clamp around the exposed portion of the Cablestar and tighten. This will lock the cables and hoses in place against lateral or push / pull forces.

Now it is time to cycle the Robot again and observe if the conduit is making contact with the Robot or tooling fixtures etc ?

If further adjustments can not be made to the moutning hardware/ frying pans etc.. then install Protectors in any areas where the conduit is making contact with the Robot arm/wrist or tool areas.