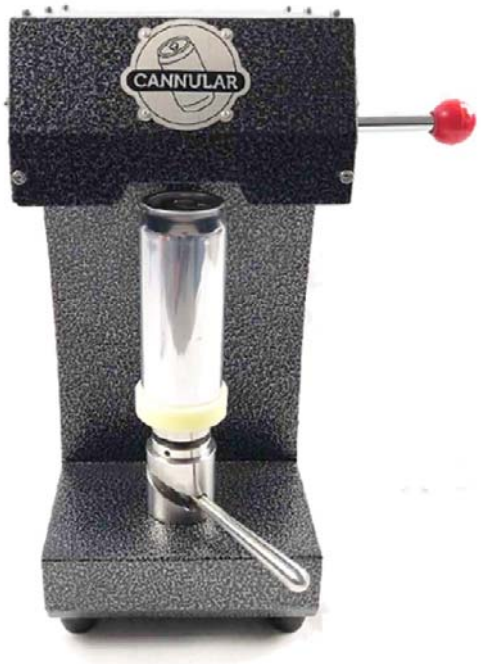
# KEGLAND
# Cannular Benchtop Canning Machine




# A Guide to Check and Achieve Correct Double Seam Specification

## Introduction.

This information provided will also be a useful guide to double seam practice for both line engineers and production operators. The principle objective of this guide is to assist personnel whose decisions determine the quality of the beverage double seam and whose judgment dictate whether double seam has integrity issues.

The Cannular bench top seamer has brought seaming technology to a range of new small businesses and home brewers. Often small businesses like this are not able to justify bringing an independent engineer in to tweak or maintain the machine. This guide has been made so small business owners and home brewers can adequately equip themselves on how to maintain and setup the machine to get acceptable levels of productivity.

Modern aluminium beverage cans have become significant lighter in weight than older can designs. This reduction in raw materials, cost and increase in environmental efficiency has been gained partly by reducing the allowable tolerance on machine setup. It is important that the seamer has been setup accurately in order to get the most robust seam.

We recommend customers check the specifications on the seam every 50,000 cans or once a year to ensure the cans remain within the allowable tolerances.

**The Double Seam Process**

In a large commercial operation you would normally check and confirm all critical parameters of 2nd operation seam thickness, seam gap, actual overlap, bodyhook butting and tightness rating irrespective of the component material gauge and diameters.

With that said, close to the same can seaming confidence level can be reached by confirming these three parameters that are easier for the operator to check without specialised tools:

1. Actual Overlap
2. 2nd Op Seam Thickness
3. Seam Length 2nd Op

1 and 2 above in particular are the most important.

The forming process is carried out in two operations known as the 1st operation and 2nd operation cycles. The 1st and 2nd operation seaming roller profiles are very different to each other as each profile has a totally different function.

The forming of the 1st operation seam is the most important operation as this operation takes the end curl and can flange and begins the forming process. It's the formation/dimension of this 1st seam that controls the effectiveness of the 2nd operation seaming roll profile in achieving a hermetic seal.

The sole function of the 2nd operation seaming operation is the compression of the previously formed 1st operation double seam.

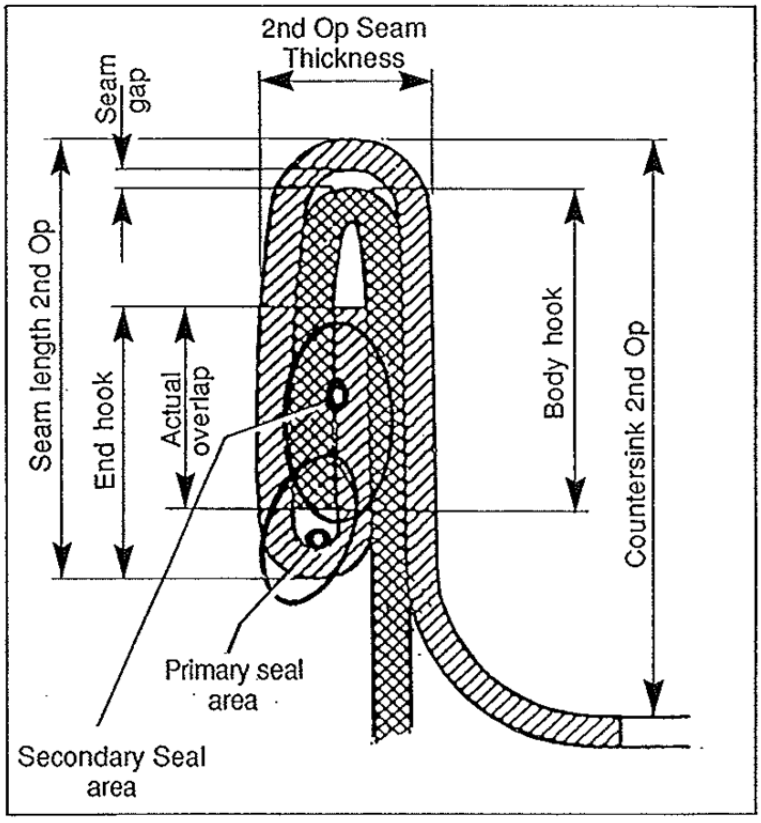


**IMAGE 1 – 1st Operation**

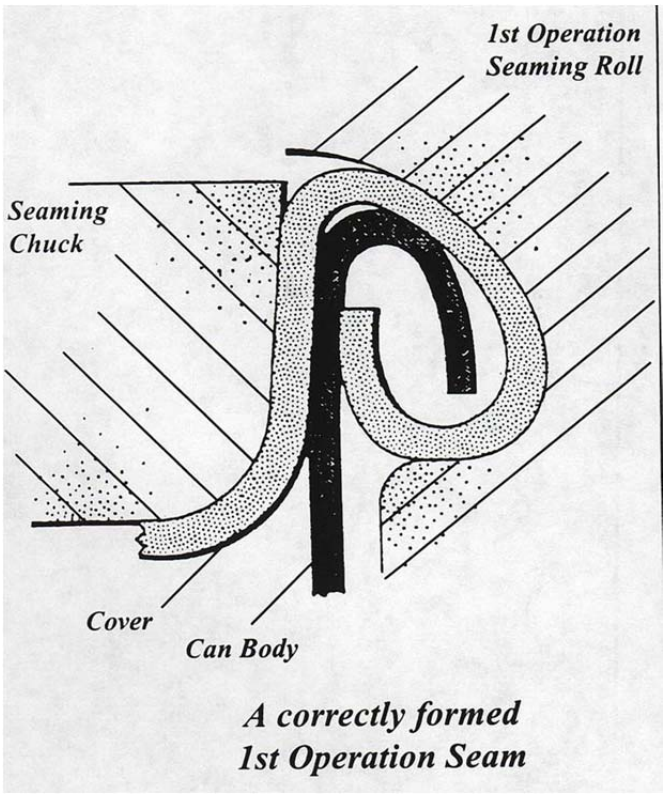
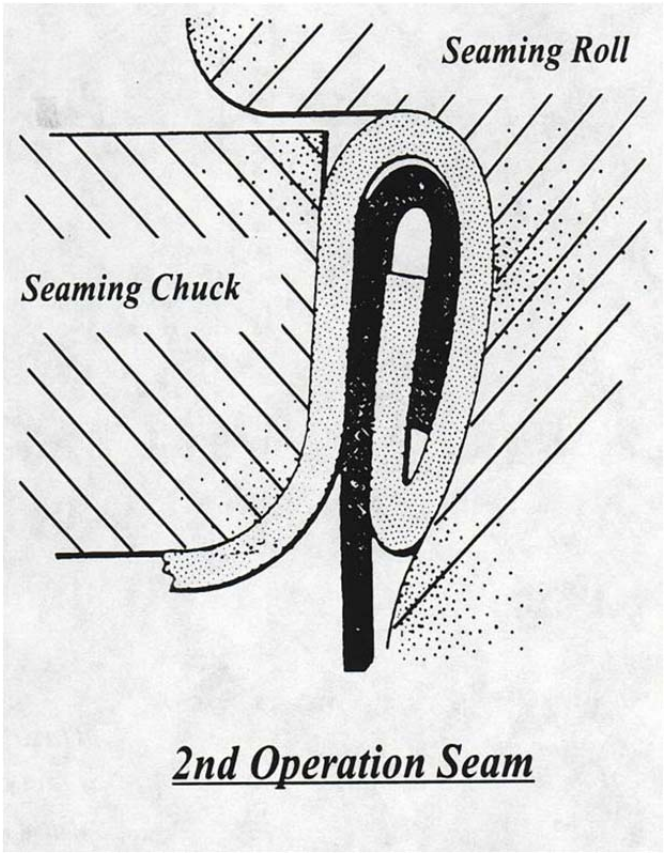



**IMAGE 2 – 2nd Operation**



## Actual Overlap

This process will determine that you have sufficient overlap. Ideally if you have a set of calipers, it is best to measure how much overlap you have. Having an overlap is absolutely critical to getting a sufficient seal. This step will require good eyesight and/or a steady hand, so if your eyesight is not exceptional, it would be worth getting some assistance from someone else.

**STEP 1**

Using the Cannular can seamer, prepare two test cans. Seam the first can using just the first operation seam. With the second can, use both the first and second operation to finish the seam. You should have two individual cans that look like this below:

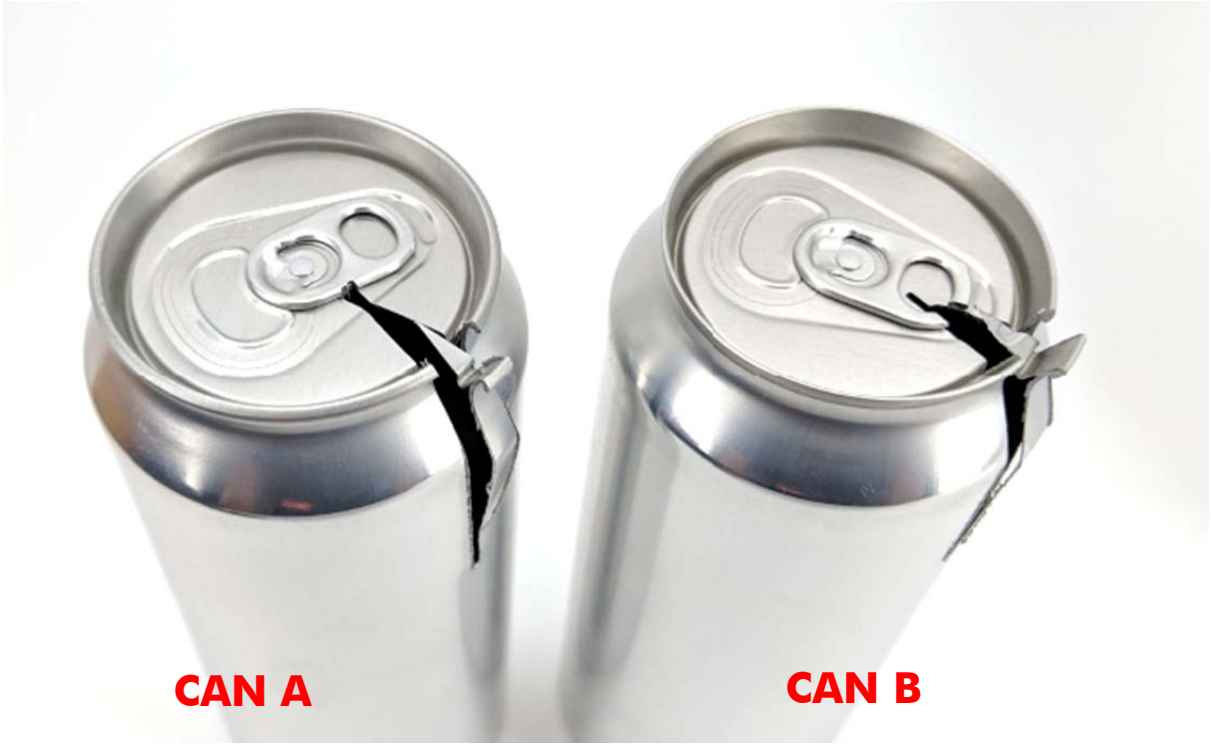
**LEFT**: First operation only (we will refer to this as Can A)

**RIGHT**: First and second operation completed (we will refer to this as Can B)

**STEP 2**

Cut a wedge out of the top of the can using an angle grinder. We recommend the use of a 1mm cutting disk for your angle grinder or if you do not have an angle grinder then a hack saw will do the job adequately.

WARNING:
Please take appropriate safety precautions when using power tools.



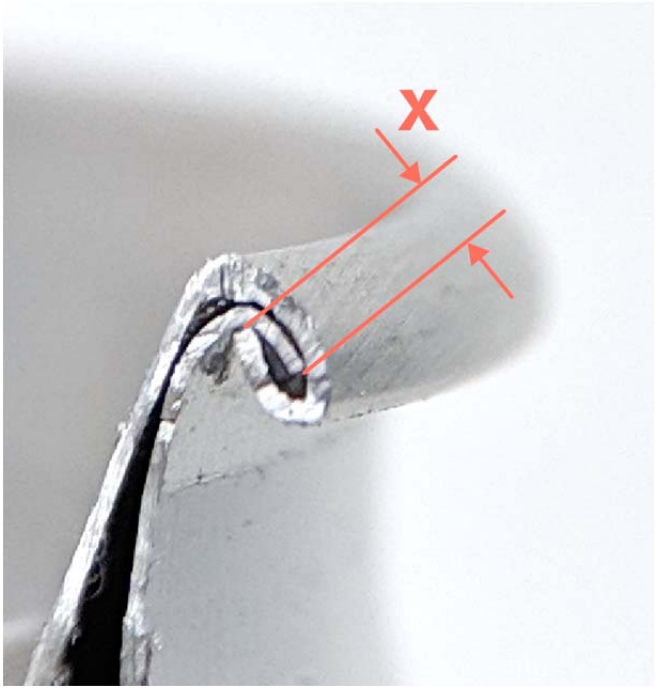
**STEP 3**

Using a knife scrap the cut clean. This can also be done with some fine sand paper.


**STEP 4**

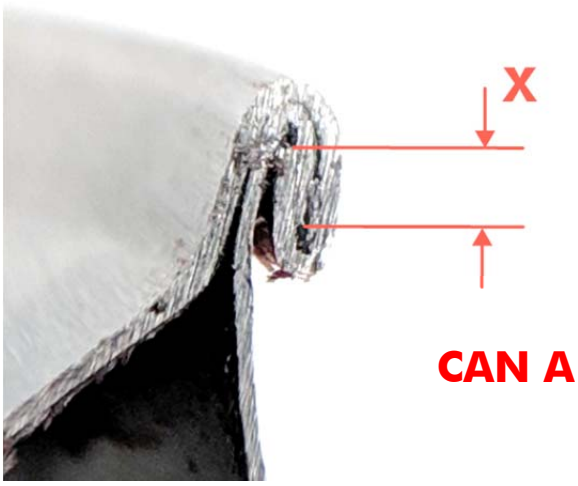
Look closely at the Can A to examine the overlap. It's extremely important that you can visually see overlap in this section.

In order to get a good seal, you need some overlap. Ideally this overlap after operation 1 will be more than 0.4mm. This is the distance between the bottom of the body hook and the top of the cover hook shown as X in the image to the right. This should meet the minimum requirement.



**STEP 5**

Similar to step 4 examine the overlap. This can be more difficult to see as the seam has already been finished. It can make it easier to see this overlap if you gently pry open the can seam slightly with a sharp object but without making significant dimensional changes. This might make it slightly easier to see the start and finish of the cover hook and body hook.




This measurement should be at least 0.4mm however if this measurement is over 1mm it is ideal.

**2nd Op Seam Thickness**
The second op seam thickness is quite easy to measure using calipers.

Using Can B, take the average of 4 measurements around the circumference of the can. The average of these 4 measurements should be between 1.2-1.3mm.

If your measurement is smaller than this range you might find that you have applied too much force with the second roller or maybe you have not achieved sufficient actual overlap. You should re-examine the actual overlap again.

If your measurement is too large you may not have applied enough force on the lever in operation 2.

## Seam Length 2nd Op

Second op seam length is a good indicator that you have a correctly formed seam and it's also a good indication that your rollers are set to the correct height.

Using calipers check your seam length. This should ideally be about 2.3-2.4mm in length as shown in the image below. With that said a tight and high pressure seal can still be achieved if this seam length is even as long as 3.3mm as long as you still have sufficient actual overlap. As this particular Cannular machine is driven using a manual leaver, it is possible for the operator to pull too hard on the lever which can also make a longer seam yet still gives an acceptable finished seam.

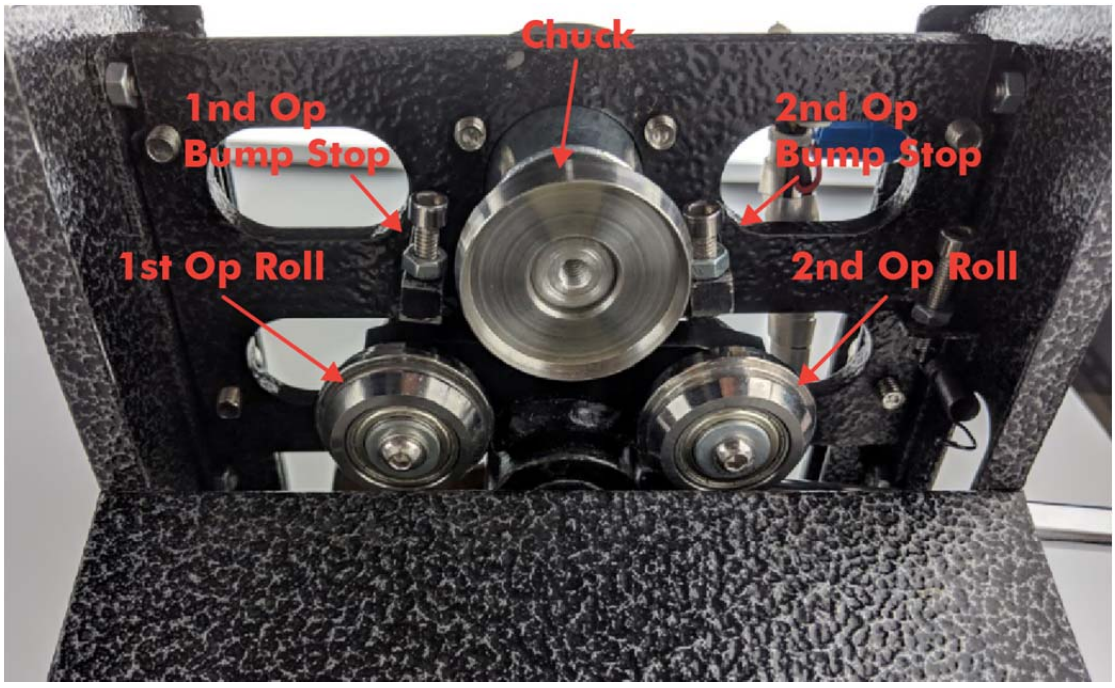
## Adjustment of The Chuck (Top Die) & Rolls

We supply a large(5mm) and small(4mm) Allen key with the machine, but for full adjustment of the rolls you will also need a socket set as show in the image to the right.

Start by unplugging the Cannular machine from the power supply and taking off the top cover as shown below.

Under no circumstances allow the rolls to come into contact with the chuck. As these are both made from hardened steel and both require high tolerances. Both chuck and rolls can quickly get damaged if they are to come in contact. Never run the machine without a can actually loaded into the machine.

If the bump stops are correctly setup it should not be possible for the rolls (both 1st op and 2nd op rolls) and chuck to be able to come in contact with each other.

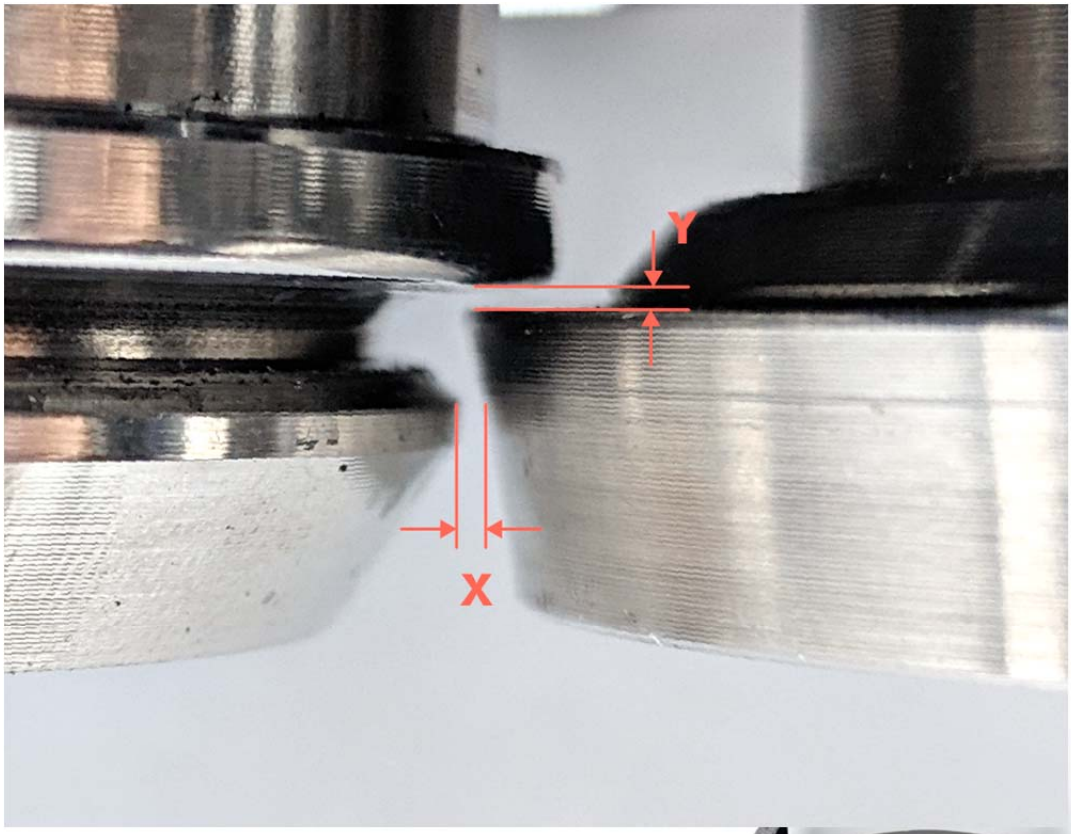


## Check Your Roll's Spin

In order for the Cannular canning machine to work efficiently the rolls must be able to spin. Ensure the Allen key bolts are done up tightly but once you have done this, rotate the rolls with your finger to ensure they can still turn without much resistance.

## 1st Op Roll Height and Gap Adjustment

To ensure you get the can within the specification it's vital that the 1st and 2nd op rolls are correctly adjusted. In order to carry out this adjustment on the machine it's recommended that you use a feeler gauge set (KL13420) (as shown to right).

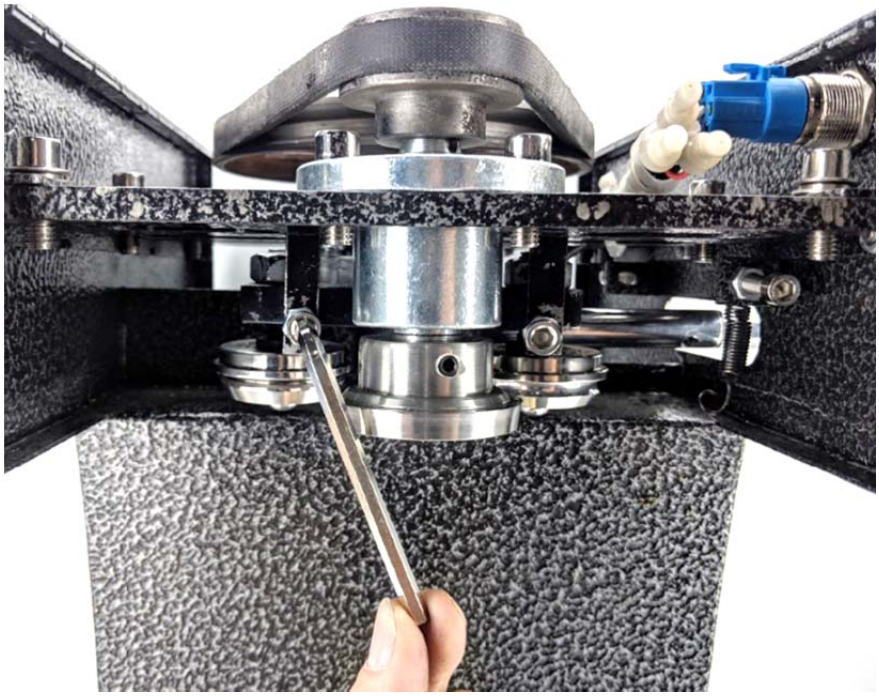

Starting with the 1st op roll measure the gap "Y", above as shown, first. It's important to adjust this first as gap "x" will change any time you change gap Y.

Ideally the gap Y should be set at 0.05-0.15mm.

Using an appropriately sized socket, loosen the nut that holds the 1st op roller. Twist the nut up and down to get the correct height of the roll.

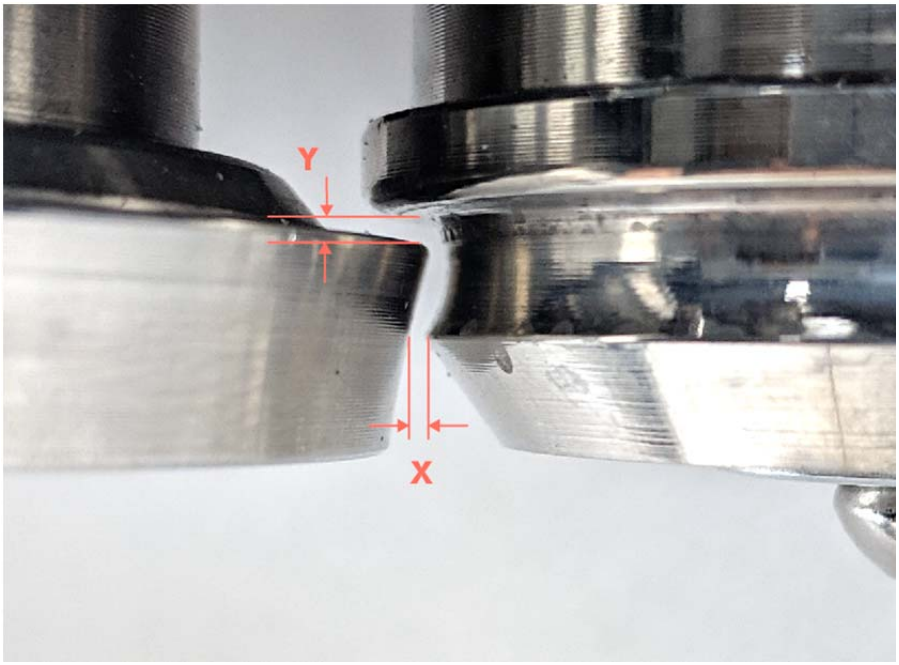
Once the roll is in the correct position tighten the nut to fix the roll in position.

Use the Allen key to loosen the bump stop for the first roll. Adjust the bump stop so the gap "x" between the chuck and 1st op roll is 0.3-0.7mm when the lever on the right hand machine is hard against the bump stop.



## 2st Op Roll Height and Gap Adjustment

Similarly to setting up the 1st op roll height and gap do the same thing with the 2nd op roll. With the 2nd op roll the "Y" height gap should be 1.2-1.3mm and the "X" gap should be 0.1mm.



## Bottom Die (Turn Table) Height Adjustment

Using an Allen key or a steel rod undo the coupling nut on the base of the turn table support. This will allow you to screw the turn table support all the way down to it's lowest setting.

Place a can into the machine and twist the leaver to raise the table to the maximum height.

Gradually turn the turn table support in the anti-clockwise direction to raise the position of the turn table support until firm pressure holds the can against the chuck. Once you are happy with the position of the table, tighten the coupling nut firmly to lock the position into place.

## Lubricate the Turn Table Bearings

Lift up the turn table and take apart the bearing assembly.  Clean old grease/oil off the bearings and re oil these with grease or oil.  When putting these back into place ensure the concave parts of the bearing assembly are facing towards the actual ball bearings.

## Table Position Adjustment

It is possible that at some stage your table might come out of alignment.  In this case you will require the 5mm allen key to re-position the turn table.

This issue will be noticeable if you raise the turntable and the can collides with the top die/chuck.


**NOTE**: The quality of the seam is greatly dependent on the can coming in contact with the chuck concentrically.

If your can is not raised up against the chuck concentrically you may notice your seam leaking and/or the can buckling particularly on the second operation. (see photo to right)

If you get the buckle happening on the second operation then please check your can is being raised straight up and completely concentric with the chuck.

### Step 1
Unplug the power from the machine and tip the machine on it's back.

### Step 2
Use the 5mm allen key to undo the three bolts that secure the turn table to the base of the machine.


### Step 3
Adjust the position of the turn table so that when the turn table is raised the can is concentric with the top die/chuck and complete engagement with the can occurs.

### Step 4
Once you are satisfied with the position of the turn table do up the three bolts with the allen key.

## Further Small Adjustments to Turn Table Position

If you want to make a small adjustment to the turn table position you can also adjust the turn table slightly without having to turn the machine upside down.

This will only assist when very small adjustments are required.

### Step 1

Undo the coupling nut on the turn table using the allen key.

### Step 2

Use two fingers to move the turn table slightly in the desired direction (as shown in photo below) while re-tightening the coupling nut on the base of the turn table.

### Step 3

Check the can now lifts concentrically.