



# Summa S Class 2 Series Tangential Cutting Head Instruction Manual

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**Summa S Class 2 Series Tangential Cutting Head**



## **Summa S Class Maintenance**

To ensure the optimal quality of the cutter, the cutter needs some attention, maintenance, cleaning and worn parts replaced.

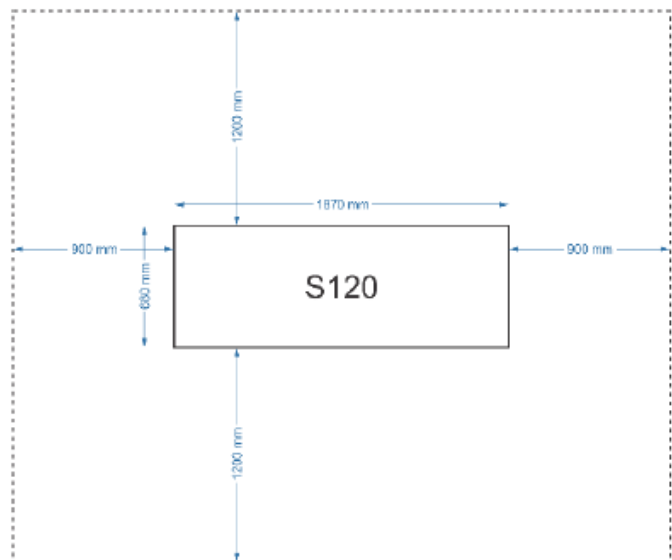
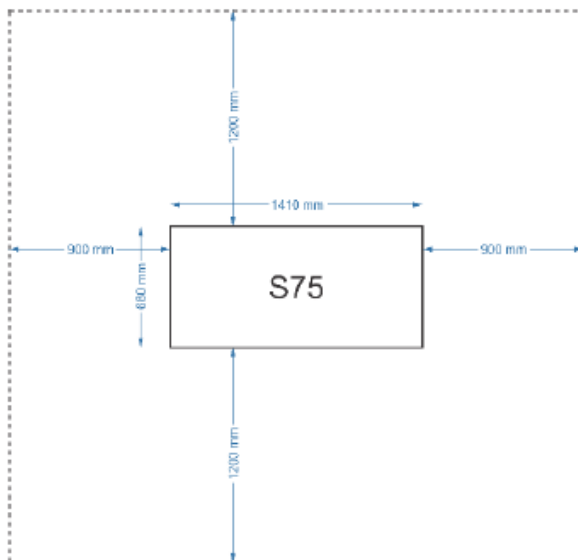
### **Required tools**

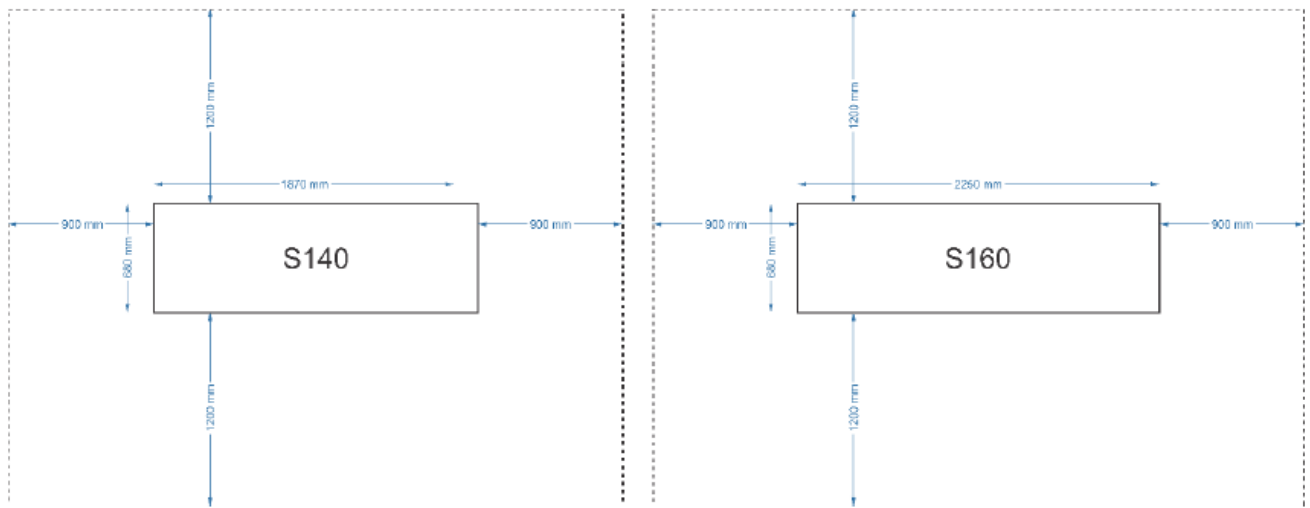
- Soft cloth
- Cotton swabs
- Nylon (tooth) brush
- Isopropyl alcohol
- Spanner 13 mm
- Compressed Air



## Position of the cutter

- Put the cutter on a flat, stable and level surface.
- Do not place the cutter in direct sunlight.
- Do not place the cutter close to a heater.
- Make sure the cutter can be accessed from the front and rear.





## Cabling

Data may get disturbed from static electricity, which is generated by moving the media forwards and backwards, interfering with the communication cable due to static electricity discharge from the media to the communication cable. To prevent such issues, it is advised to guide the communication cable and power cable in the stand of the machine.

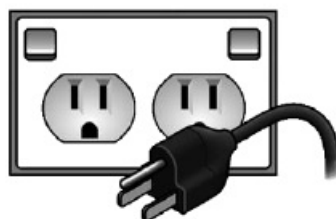


When using a USB cable, then make sure the cable is maximum 5 meters long. Longer cables will usually lead to communication issues. Do not use extension cables. When using a network cable, use a shielded Cat 6 cable.

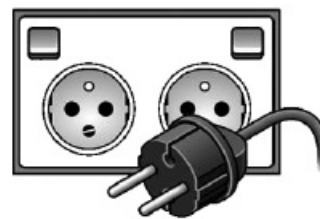
## Power

The power supply detects the line voltage and switches automatically between 110V and 230V. The wall sockets, into which the cutter is plugged-in, must be of the grounded type. The grounded conductors, serving the wall socket, must be properly connected to the ground.

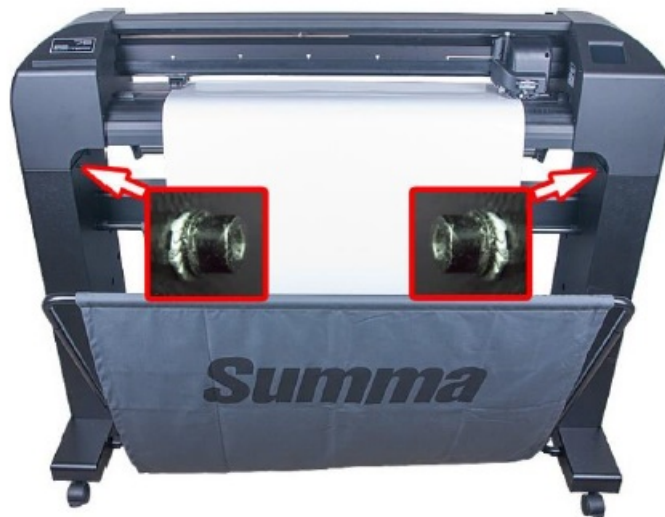
**US:**



**Europe:**



The two front screws used to mount the machine on the stand need to have the special washer M5 (watch orientation: the teeth of the washer has to be towards the stand to penetrate the paint) to have a good electrical contact between the frame of the cutter and the frame of the stand:



## Regular maintenance

### Lift Pinch Rollers:

When the machine is not used, lift the pinch rollers to prevent dents in the pinch rollers.



### Drive Drum:

Clean the drive drum in case it collected dirt or glue to ensure good tracking. Use some vinyl, remove the backing, put the sticky side on the drive drum, put the pinch roller over the vinyl, lower the pinch rollers, and then pull on the vinyl. In case the dirt does not come loose, then use a nylon toothbrush and isopropyl alcohol to brush the drive drum. Use compressed air to remove dirt from the bearings.



Dirty drive drum



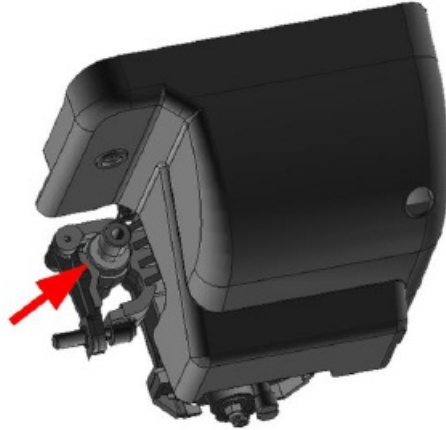
Cleaned drive drum

### Pinch Rollers

Clean the pinch rollers. Use some vinyl, remove the backing, put the vinyl with the sticky side up on the drive drum, put the pinch roller over the vinyl, lower the pinch rollers, and then pull on the vinyl. In case the dirt does not come loose, then use a cloth dipped in isopropyl alcohol to clean the pinch rollers.

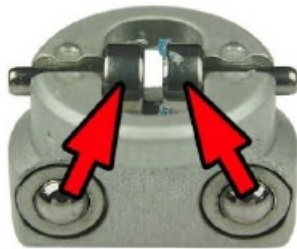
### Knife Holder

The knife holder may collect glue and dirt, which may cause friction to the media, reducing the cutting quality. Remove the dirt. Probably use a cloth and some isopropyl alcohol. The knife holder has to fit in the rear position of the tool clamp to cut over the cutting strip.



### Nose Piece

In case a tangential knife is used, then the wheels of the nose piece can collect vinyl particles and glue. This results in uneven cutting depth. Usually a repeating pattern is seen every 7 mm (circumference of the wheels on the nose piece). Remove the knife holder from the tool shaft, and then remove the nose piece from the cutter head. Clean the wheels with isopropyl alcohol. Remove dust with compressed air.



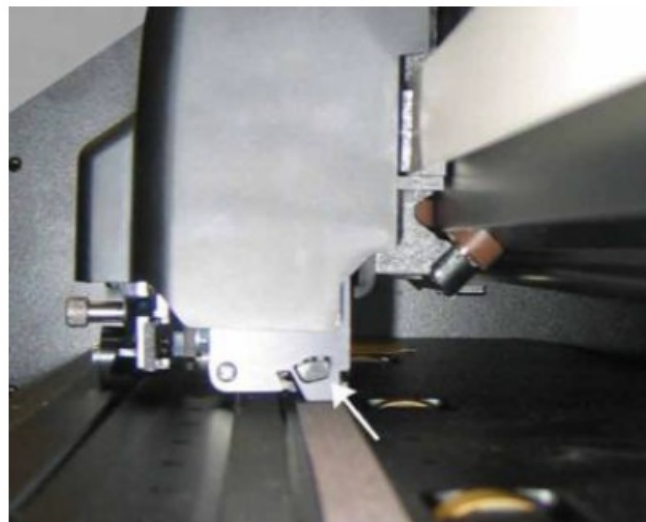
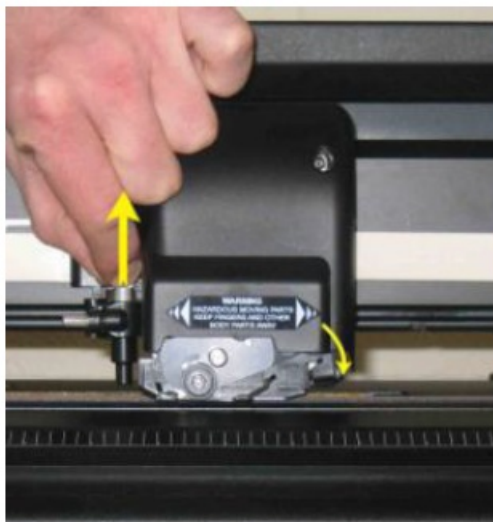
Dirty nose piece



Cleaned nose piece

### OPOS Sensor

In case the optics of the OPOS sensor collected dust, then this will obstruct the light used to find the registration marks. Clean the optics of the OPOS sensor. To access the optics, lift and hold the knife holder. This drops the OPOS sensor. Remove the black sticker covering the workout on the side plate of the OPOS sensor. Use compressed air to remove dust from the OPOS sensor. Re-apply the black sticker to the workout, as this prevents ambient light to interfere with the sensor.



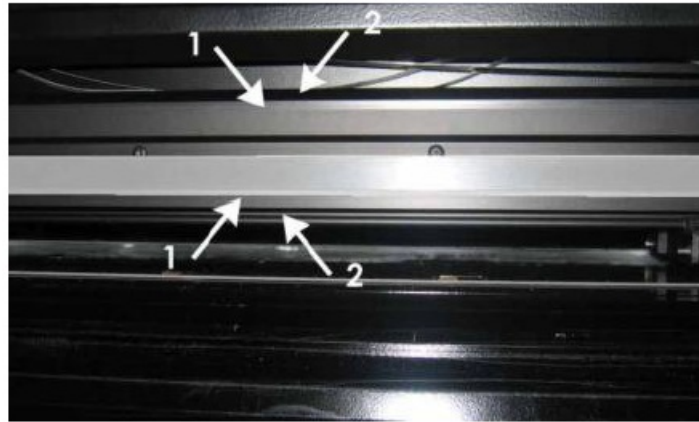
Check OPOS sensor levels (S Class 2: click [Settings] – [More] – [OPOS] – [More] – [Monitor]; S Class: click



[Configuration] – [Settings] – [OPOS] – [More] – [Monitor]): with the sensor above white, the value displayed should be less than 200; with the sensor above black, the value should be over 1700.

### Y Guiding

The carriage of the cutter head moves left and right over the Y guiding rail. This Y guiding rail will collect dirt, and may stick to the wheels of the carriage. Clean the Y guiding regularly. Use a soft cloth and isopropyl alcohol and wipe the top and bottom part of the Y-guiding.

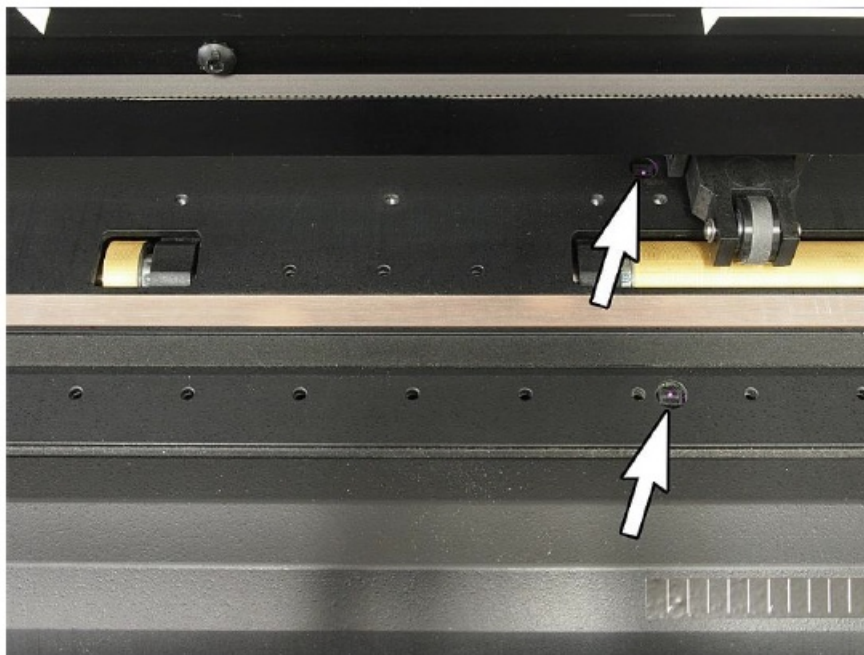


### Cam Sensor

The cam sensor is mounted on the carriage of the cutter head and is used to detect the position of the pinch rollers. This sensor can collect dust. Due to this, the sensor may not be able to detect the pinch roller position. Clean the sensor with compressed air. The sensor is accessible from the rear of the machine when it is not at the position of one of the pinch roller blocks. When the machine is near a window, then direct sunlight may interfere with the pinch roller position sensor.

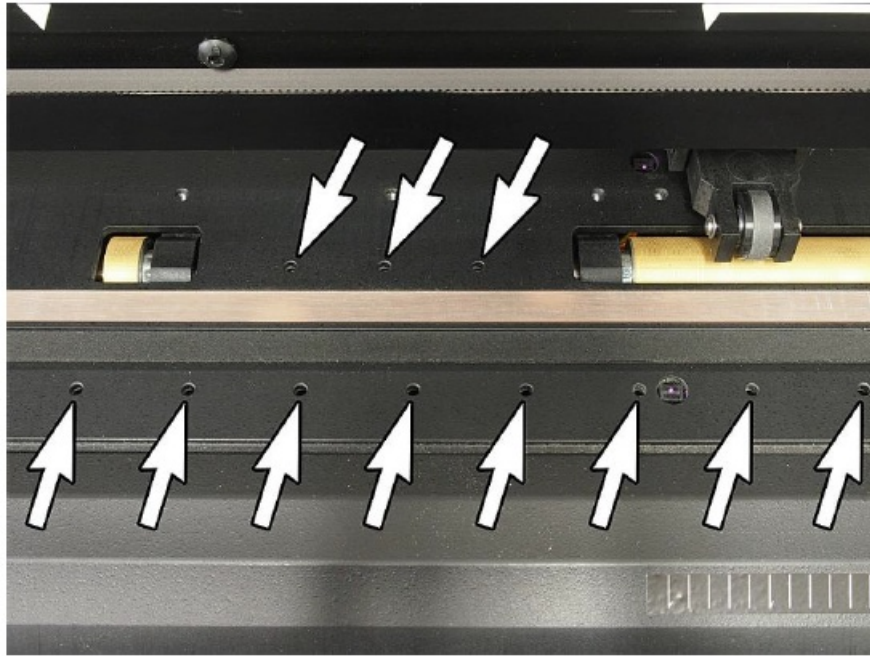
### Front/Rear Media Sensor

The front and rear media sensors are used to check if the media is present. In case they collected too much dirt, it may not be possible to detect the media. The front media sensor is also used to check if the cut-off knife was able to trim the media. Remove the dust with compressed air, or use a cotton swab.



### Vacuum Fan

The fan at the bottom of the machine is used to create a vacuum to hold the media flat, and prevents the media to deform while being cut. Remove the dust from the fan with compressed air. The vacuum is created through the holes in the base plate. Clean the holes with a cotton stick and isopropyl alcohol.

**Baseplate**

Remove glue from the baseplate. The glue will cause additional friction of the media, causing deformation of the media. This will result in curves with a start and endpoint not joining correctly.







**Cutting Knife:**

The knife used to cut the vinyl will not last forever. Depending on the knife settings, the media type, dirt collected on the media, and whether or not FlexCut is used, the knife may become blunt. Replace the knife to get optimal cutting quality.

**Drag knives:**






Keep the knives clean, free of oil and grease. A greasy knife shaft will cause the knife to stick in the media and to drop out of the knife holder.



<b>9TL89-67041</b>	<b>391-231</b>	<b>391-358</b>
Standard Drag 36° Blade	Specialty 60° Blade	Sandblast 55° Blade
		
Required Tool Holder		
<b>9TL89-67033</b> Standard Black Drag Knife Holder	<b>391-363</b> Drag Knife Holder Copper	
		
<b>395-323</b> Drag Knife Holder T Head S Class		
		

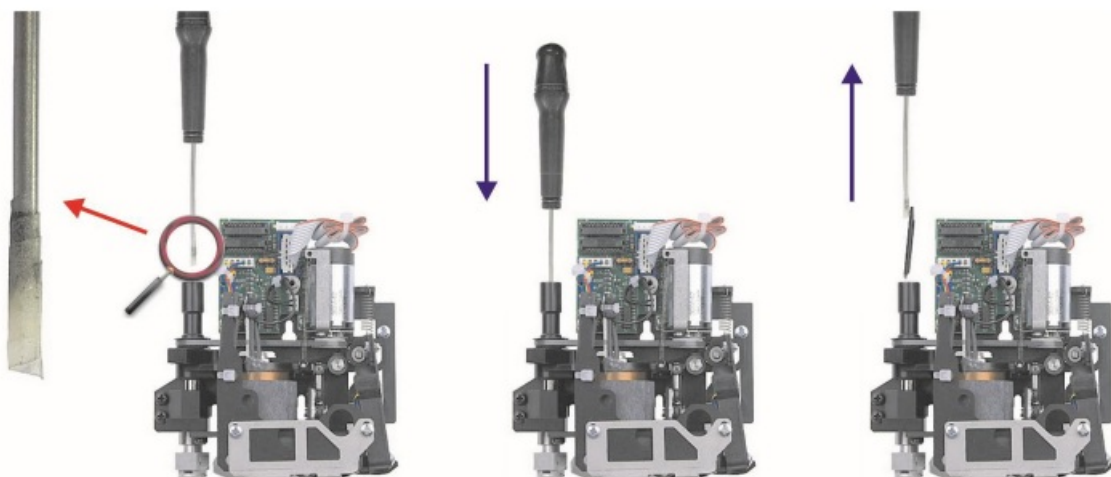
**Note:** blades may be available in 5-packs or single

#### Tangential knives

390-534	390-551	390-560	390-550
Standard 36° Blade	Double Edge 36° Blade	Double Wedge 45° Blade	Sandblast 60° Blade
			
Required Tool Holder			
<b>395-322</b> Tangential Knife Holder S Class			
			



**Note:** blades may be available in 5-packs or single

In case a knife got stuck in the tool shaft of a tangential cutter head due to coming loose from the knife holder, then it is possible to remove this knife from the tool shaft by means of a small screwdriver with some double backing tape applied to the top of the screwdriver.



### Cut-off Knife

The knife used to trim the media can be replaced. Before replacing the knife, you may be able to use another corner of the knife by flipping the knife up/down or left/right.


Razor blade (set of 10)	391-146	
Separating Knife Assy	KIT-2020	

## Replace Parts

When parts are worn then this may affect the cutting quality. Those parts need to be replaced.


### Cutting Strip

In case the cutting strip is worn then a groove will appear where the knife cuts the media. This results in the media not being well supported. When cutting, the media may go down due to the pressure used to cut the media. Remove the worn cutting strip by gently pulling on the strip from the left or right end. Remove any remaining glue. Cut the new cutting strip to the correct length. Remove the protection partially, then apply the cutting strip from the left side (slide cutter head to the right side), and continue to the middle of the machine while removing the protective strip. Slide cutter head to the left. Continue applying the cutting strip.

Cutting Strip	1NC40- 67032	
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### Pinch Rollers

In case the pinch rollers need to be replaced, replace the outer most pinch rollers at the same time. This ensures equal pressure on both pinch rollers. Lift the pinch rollers. Put some media under the pinch rollers to protect the base plate. Remove the clip from the shaft holding the pinch roller. Slide the shaft from the pinch roller block. Remove the worn pinch roller. Put a new pinch roller in the pinch roller block. Slide the shaft in the pinch roller block. Secure with the clip.

Pinch rollers (set of 2, with 4 clips)	395-401	
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### Cut-off Mechanism


Slide the cutter head up to the left side of the machine to lower the mechanism. The wheel on the cut-off mechanism should touch the base plate. This wheel is used to prevent the knife to cut in the base plate. Slide the cutter head completely up to the right side of the machine to lift the mechanism. In case the machine does not lower or lift smoothly, it may need to be replaced.

Separating Knife Assy	KIT-2020	
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### Media Guides


The media guides on the fixed media support roll are used to prevent the media to shift left and right while media is pulled from the roll. In case the rubber ring is worn, then the media guides may shift due to the force of the media. To replace the rubber rings from the media guides, you will need to lose the fixed media roll with a spanner

of 13 mm from the left side of the machine.

Roller Guiding and Brake	1NC40-67019	
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### Brake

The brake creates some tension on the media while it is pulled from the roll, this to force the media to run straight in the machine. It also prevents the roll to unroll the media when the media is shifting forward and backward while cutting. You may probably need to replace the spring to increase the break tension. To replace the brake, you will need to remove the star lock clip and lose the fixed media roll with a spanner of 13 mm from the right side of the machine.

Roller Guiding and Brake	1NC40-67019	
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### Belts

The belts drive the cutter head carriage to move the cutter head over the media (Y-axis), or drive the drive drum to move the media forward and backward (X-axis). When a belt is worn, then a shift may appear in the design. To check for a worn belt, set the machine to maximum cutting speed, then start the DIN test. A shift inside the DIN test indicates a worn belt. To replace the long belt, it is necessary to remove the cutter head from the carriage to access the mounting screws.

Belts 110T	KIT-2006	
Y-Belt Long S75	KIT-2025	
Y-Belt Long S120	KIT-2026	
Y-Belt Long S140	KIT-2027	
Y-Belt Long S160	KIT-2028	

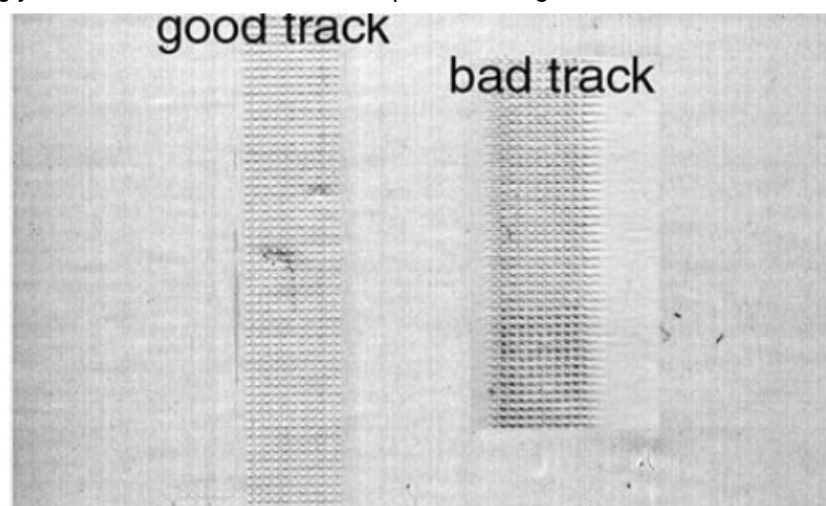
### Core Holders

The core holders are used to support the media on the media support rollers. The core holders prevent the media from coming loose from the core while being unrolled.

Core Holders 3" (set of 2)	1NC40-67034	
Extended Core Holders 3" (set of 2)	395-622	
Core Holders 2" (set of 2)	400-561	

### Tracking issues

Tracking issues can be recognized at the track that the pinch rollers and grid rollers make on the rear side of the media after the cutting job has been done. See below picture of a good track and a bad track.



In case there are tracking problems check next things:

- As media on a roll has been used, “Autoload” has to be activated: click [Settings] –[More] – [General] – [Autoload], select “ON” and confirm.
- The wheels and yellow grit rollers on the drive drum have to be free of dirt and other residue.



Dirty drive drum

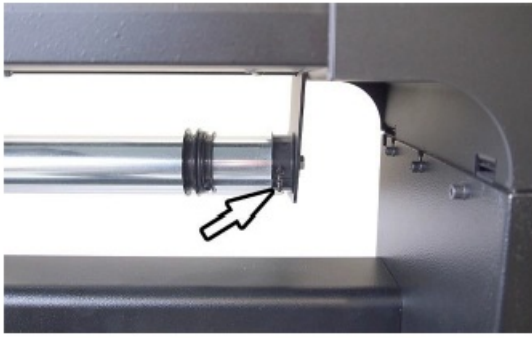


Cleaned drive drum

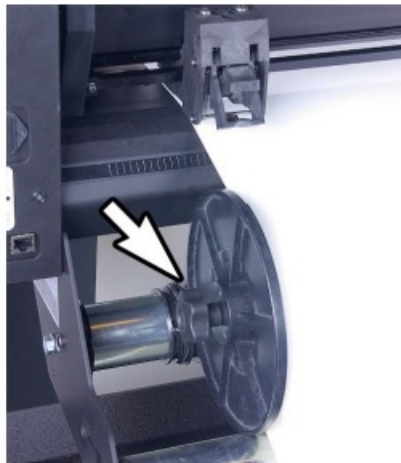
- The moveable rear media support roll at the back of the machine has to be set parallel with the fixed media support roll.
- The front fixed support media roll (the brake roll) has to brake a bit. So if you turn the roll quickly it should stop



after one or two seconds. The rear support media roll has to turn further for a while. Check if the spring on the break is in good condition.



- The middle pinch roller has to be above a yellow grit roller when set down. The left and the right pinch roller always need to be set above a yellow grit roller on the edge of the media. The outermost pinch rollers are used to feed the media, while the middle pinch rollers are only used to keep the media flat.
- The pinch roller pressure should be equal left and right. Do not use a reduced pinch roller pressure unless very fragile media is used.
- Use the core holders and core holder guides on the media support roll to ensure a good and straight media loading. The core holders have to fit in the media guides both left and right.



- The vacuum fan may not work, or the vacuum holes in the base plate may be clogged.
- Make sure the media was acclimatized.
- In case an inkjet printer was used, let the media dry and cool down before putting it in the cutter, as it will change dimension while cutting due to cooling and drying.
- The pinch rollers may be worn. Due to this the hardness of the pinch roller surface changed. Or the black part may have come loose from the metal core. Replace the two outermost pinch rollers (395-401).



Defective pinch roller  
Out of center

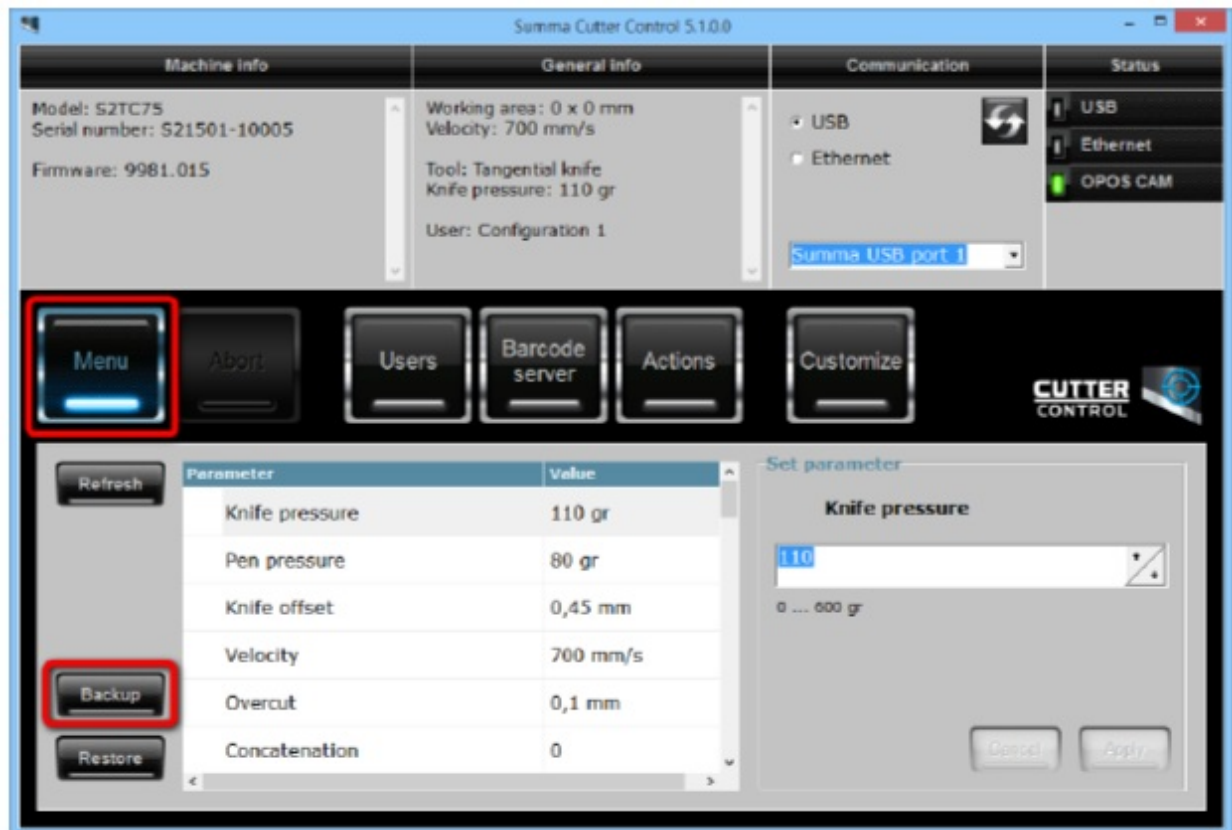


Good pinch roller  
Centered

- One of the outermost pinch roller blocks may be defective.

## Backup

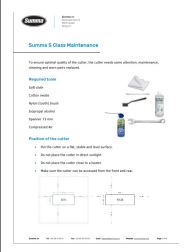
It may be a good option to create a backup of the machine, as this backup contains all parameters of the cutter (except for the network and USB configuration). This backup may come in handy in the future when there is a configuration issue, or when the main board has to be replaced.



Revised on April 5, 2022

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## Documents / Resources

	<p><a href="#">Summa S Class 2 Series Tangential Cutting Head</a> [pdf] Instruction Manual S Class 2 Series Tangential Cutting Head, S Class 2 Series, Tangential Cutting Head, Cutting Head</p>
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