cinetech UK Ltd

BSF HYDRA CLEAN

MOTION PICTURE FILM CLEANER

OPERATING AND MAINTENANCE MANUAL

TABLE OF CONTENTS

SAFETY WARNING

Read these warnings, the installation instructions, and the operating instructions before using the BSF HYDRA CLEAN machine. These precautions are for your own safety.

1. Follow all warnings and instructions marked on the product and in the manual.
2. Save these instructions for later use. Require all operators of the BSF HYDRA CLEAN to read this manual.
3. Before you connect the power, be sure the nominal voltage of BSF HYDRA CLEAN corresponds to the voltage for your locality.
4. Unplug the BSF HYDRA CLEAN from the power source before opening the rear door and performing service.
5. Never spill liquid of any kind on the BSF HYDRA CLEAN.
6. Slots or openings, in the cabinets (including the spacing above the floor) are provided for ventilation. These openings must be kept unobstructed to prevent vapor build-up.
7. BSF HYDRA CLEAN is equipped with IEC-60320 C14 grounding type AC power line connector. Connect it only to a grounding type of power outlet. This is a safety feature. Be certain that the power cord is the correct one for your locality.
8. Do not allow anything to rest on the power cord. Do not locate this product where people can step on the power cord or trip on it.
9. Never push objects of any kind into the openings of electronic equipment as they may come in contact with dangerous voltages, causing electrical shock or fire.
10. Use only Isopar G as the solvent.

ISOPAR G SAFETY PRECAUTIONS

IN CASE OF FIRE
Extinguish using water fog, foam, dry chemical or carbon dioxide If a film is contaminated with water, re-clean the film immediately with fresh solvent to prevent water spotting on the film.

1. CAUTION: Poisonous. Do not ingest. Is FLAMMABLE. See “Material Safety Data Sheet” (MSDS) for your solvent. Isopar G is stable under normal operating conditions; however, it has a flash point of 42°Celsius (107.6°Fahrenheit)

DO NOT OPERATE THE MACHINE IF THE AMBIENT WORKING AREA TEMPERATURE EXCEEDS 40° CELSIUS (104° FAHRENHEIT)

2. Keep flammable solvents away from fire, sparks, or open flame. Keep fire and open flame away from the machine when flammable solvent is present. No smoking.
3. To prevent fire: Discharge static electricity by touching the metal frame before touching objects surrounded by flammable vapours.
4. Fill the solvent reservoir at the beginning of each shift and as required.
5. Refill the cleaning solvent reservoir with care. If spillage occurs, use suitable absorbent material, and dispose of appropriately.
6. Provide adequate room volume and ventilation. See section “Providing Ventilation”.

LIMITED WARRANTY

CINETECH UK LTD warrants its new equipment to be free from original defects in materials and workmanship, under normal use and service, for a period of 180 days from the date of sale and will, at its option, repair or supply a replacement for any defective part, assembly, or portion thereof except for expendable materials, such as solvents, buffers, PTR rollers.

CINETECH UK LTD shall not be responsible for any warranty or expense if, in the opinion of CINETECH UK LTD, the equipment or material has been damaged due to misuse, neglect, accident, unauthorized alteration and/or repair or the use of solvents not recommended by CINETECH UK LTD.

SPECIFICATIONS

Power	85-265V AC, 50Hz, 225W/240VA
Current consumption	2.2A@110V, 1.0A@240V
Colour	Stainless steel/black
Shipping weight	90 kg
Dimensions	1170mm (W) x 510mm (D) x 940mm (H)
Film capacity	2200 ft
Supported film cores	2", 3" and 4"
Film speed	5..100 feet per minute
Applicator roller speed	50..600 rpm
Solvent transfer roller speed	10..300 rpm
Drying buffer speed	200..1200 rpm
Film Tension	400..1000 g
Cleaning solvent canister capacity	100 ml
Recommended solvent	Isopar G
Controls	Main Power ON/OFF, touchscreen

INSTALLATION

Packing list

Main unit BSF HYDRA CLEAN film cleaner	1
Buffer rollers	6
PTRs (particle transfer rollers)	10
Filler reservoir, 100 mL (installed)	1
35mm guide rollers	10
8/16mm guide rollers (if specified at order)	10
Touchscreen display	1
Rear door key	1
UK Power cord	1
US Power cord	1
EU Power cord	1
Wi-Fi access point (only used for remote servicing)	1

Unpacking

Remove the machine from the crate.
Check for hidden damage. If damage is found, notify the carrier responsible and the manufacturer immediately.
Remove all packing material insulation and tape from the main unit.

Picking a suitable location

A 4"/100mm hose connection is provided to vent the solvent vapours to the out-of-doors. Connect the hose to an inline fan with a minimum extract capacity of 200m^3/120cfm per hour. It is good practice to utilize one booster blower for every 10m of hose or to keep the hose length as short as possible. If possible, locate the machine by the outside wall.
The machine extraction system serves two purposes:

1. It purges the cleaning area of any airborne dust/contaminants that may otherwise be deposited on the clean film.
2. It extracts any vapour from the cabinet and prevents any build-up of potentially flammable fumes.

If the operating personnel are present in the room during cleaning, and the room is sealed, it is recommended that the room be well ventilated. It is suggested that the air be exchanged with fresh air eight (8) times per hour or more. Contact the manufacturer for further information and help in this regard.
The machine has been designed with ease of installation in mind. The shipping crate will fit through a standard door and accepts a standard pallet truck.

Installing the user interface box

1. Unpack the touchscreen interface box (packed inside of the machine).
2. Undo three (3) Allen bolts located on top of the stainless steel frame using a metric Allen key #4.
3. Place the touchscreen bracket on top of the stainless steel frame and secure it with (3) Allen bolts removed in step 2.
4. Plug in the control cable in the socket located on the top cover.

Making the electrical connection

Make sure your local line voltage matches the nominal voltage of the BSF HYDRA CLEAN (85-265V AC, single phase + neutral + grounding).
Connect the power cord to the appropriate source of AC power. Provide a line fused for rated current or more. An electrical outlet (Mains) must be provided no further from the machine than the reach of the power cord. If you must use an extension cord, use one that has earthing contacts in it and is rated for a load current of twice the rated current or more.

Installing the Particle transfer rollers (PTRs):

The machine is shipped without the PTRs installed. Install them in the following sequence:

1. Pull and remove the large aluminium collar holding the PTR.
2. Push the PTR onto the base roller.
3. Replace the aluminium collar holder for the PTR.

You can find more info in “Servicing — Particle transfer rollers (PTRs)” on p. 20.

MAIN OPERATING PRINCIPLES

The BSF Hydra Clean film cleaner has been designed with operator ease of use and complete adjustability in all operating aspects to enable film to be cleaned in the most effective manner.

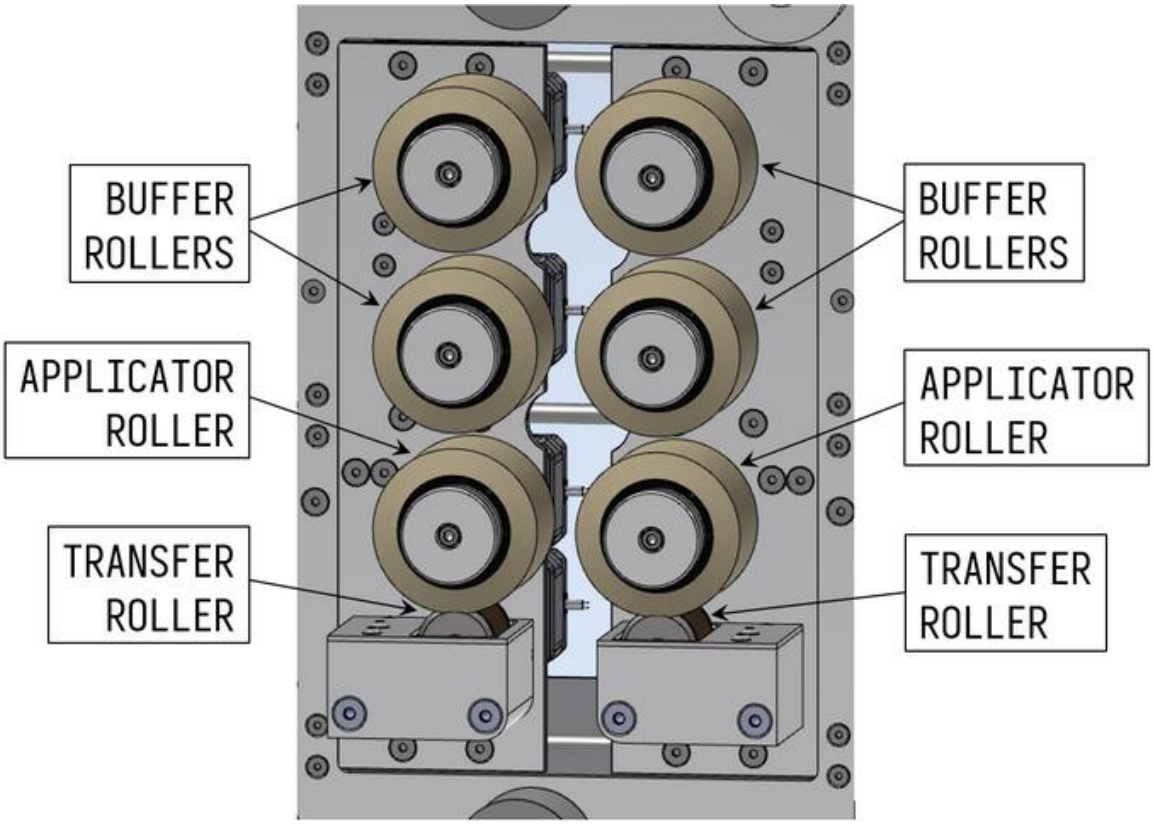
All operating aspects are controlled and adjusted via the intuitive and easy to read touchscreen interface.

The individual aspects of the machine that are controlled via the touchscreen are as follows:

- Film speed (default unit of measurement is feet per minute)
- Film tension (measured in grammes, 700g being the normal film tension value)
- Applicator roller speed
- Solvent transfer roller speed
- Drying buffer speed
- Overall buffer contact pressure
- Buffer assembly contact on either cell or emulsion
- Winding type selection

The film is cleaned by the following means (please see the picture below):

- Particle transfer rollers (PTRs)
- Wet buffer roller (1 stage)
- Dry buffer rollers (2 stages)
- Particle transfer rollers



A detailed description follows:

1. The first PTRs remove any loose dirt. This removes grit that would otherwise be picked up by the wet buffer rollers.
2. The wet buffer rollers remove grime, especially fingerprints.
3. The two stages of dry buffer rollers dry the film. These rollers create an air flow as they spin, thus drying the film and drying themselves as well.
4. The final PTR rollers remove any loose dust or particles picked up from the air.

The solvent, ISOPAR G, was chosen because it is an excellent cleaning solvent, does not evaporate too readily and is inexpensive.

The wet buffers are made of Dacron. This material is durable and sheds very little. Dacron is also very effective at cleaning.

The dry buffers are also made of Dacron, which is durable, non-shedding, and effective at drying.

The PTRs are made of a low durometer (soft) elastomer.

The speed is controlled by a pacer (capstan) utilizing a soft-touch roller to drive the film at a constant speed. The pacer roller is driven by a stepper motor under computer control. The machine speed may be set from the front panel.

The stepper motor which regulates the speed makes singing sounds as it gains speed, this is normal.

Fluid feed reservoir

A reservoir is provided to supply solvent for the cleaning process. It has a capacity of 100mL. The capacity is limited because of the flammability of Isopar G. The solvent is fed by means of gravity and is controlled via an automatic valve.

MACHINE OPERATION

Changing film format

The rollers of the BSF HYDRA CLEAN are designed to handle either 35mm, 8/16mm or 65/70mm film formats (depending on the options ordered).

Each stainless steel roller is retained by a metric hex screw M4 (metric Allen key #3) and washer which can be unscrewed to allow the roller to be removed and replaced with one of an alternate film format.

The main reel locking nuts (large aluminium hex nuts) are reversable to accommodate either 35 or 16mm cores.

Film solvent

The fluid reservoir is located on the left-hand side of the machine. Remove the screw cap on the reservoir and carefully fill it with Isopar G solvent. Be cautious not to overfill the reservoir or spill any liquid. In case of spillage, immediately wipe it up with a damp (water-soaked) rag and dispose of it properly.

The machine periodically refills the cleaning tank with small amounts of solvent. During the initial start, it may take up to 5 minutes to prime the cleaning tanks. If the machine displays the warning message “SOLVENT TIMEOUT – TOP UP AND PRESS RETRY” during this time, press the “RETRY” button. If this message appears while the machine is running, it indicates that the feed reservoir needs to be topped up. Add more solvent and press “RETRY”.

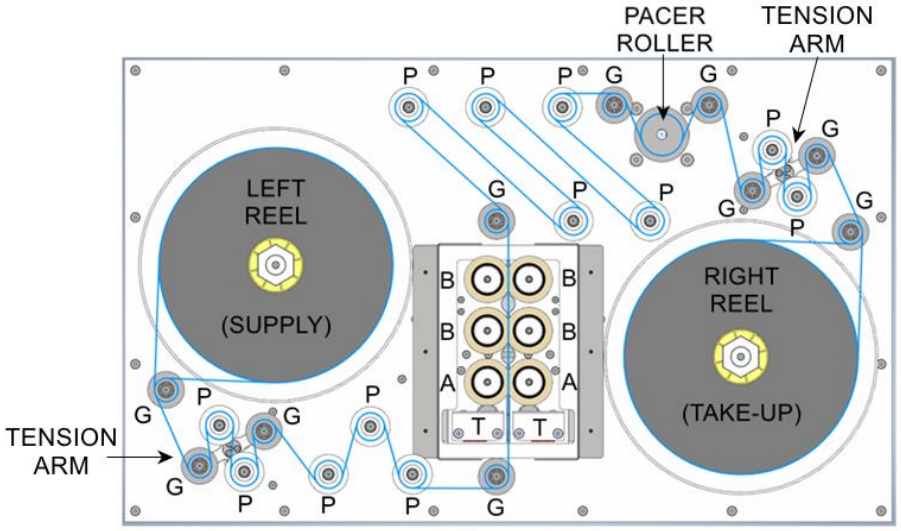
For highest cleaning performance always use fresh solvent, clean PTRs (particle transfer rollers) and new buffers.

Pre-run checks

Examine the buffers and solvent for contaminants, and wipe or wash the PTRs before cleaning each film or when dirty.

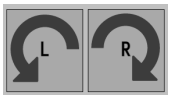
Follow the film path through the machine, starting with the feed (left hand side) spindle and check all rollers and PTRs are clean and spinning freely. Check the “soft-touch” pacer roller to see that it is clean.

Check that the two tension arms are moving freely (note that they are sprung loaded).

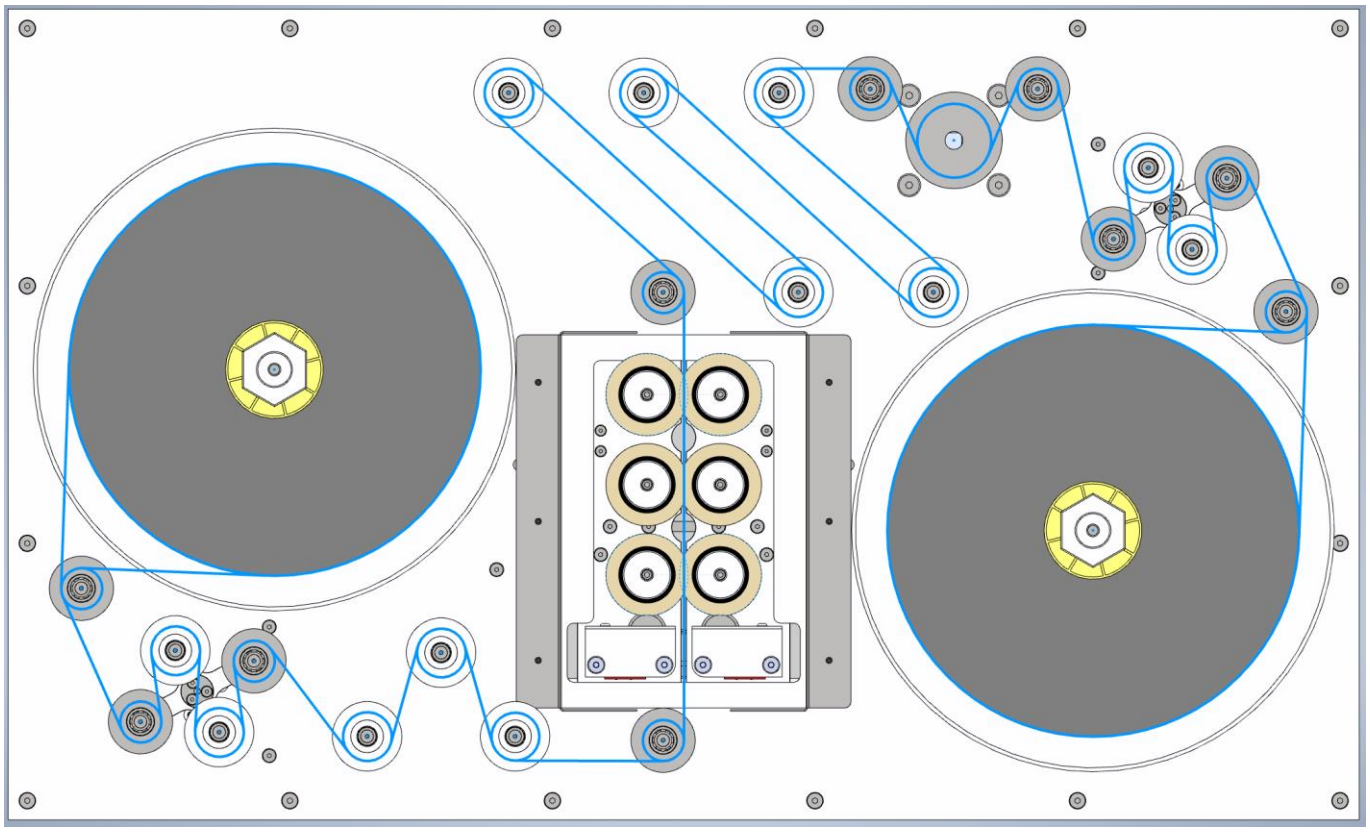


G = GUIDING ROLLER, P = PTR (PARTICLE TRANSFER ROLLER), B = BUFFER ROLLER, A = SOLVENT APPLICATION ROLLER, T = TRANSFER ROLLER

Operation

1. Switch on the machine
2. Using the 

buttons on the main screen, choose the type of winding.
3. Select the required film speed, tension buffers speed, temperature etc. using the main screen controls.
4. Thread the machine with film, starting with the left hand feed plate, and follow the threading diagram until you reach the right hand plate. Thread the film onto the right hand core and take up any film slack within the lacing path. Ensuring both aluminium locking nuts are hand tight.



5. Close the front doors.
6. When lacing is completed and checked, press the “Start” button. The machine will move the buffers into position and start tensioning film. The operating status will be displayed on the touch screen (“Closing rollers...”, “Tensioning...”).

The machine will not start until the solvent reaches the required level. A notice “WAITING FOR SOLVENT TO REACH THE LEVEL” is displayed during this period.

Each time the machine is started from cold, it is necessary to allow the solvent to warm up to its optimum temperature. A notice “WAITING FOR SOLVENT TO REACH THE TEMPERATURE” is displayed during this period.

When the film tensioning process is complete and the solvent has reached its operating temperature and working level, the machine will start. The speed is ramped up gradually until the target speed is reached. Status display indicates “Running”.

ENSURE THAT THE FILM IS DRY BEFORE IT WINDS UP.
FILM SHOULD NEVER WIND UP WET

If the film is not drying properly, you can improve the drying by:

- Decreasing the FILM SPEED.
- Decreasing the TRANFER ROLLER speed
- Increasing the BUFFER ROLLER speed.
- Decreasing the APPLICATION ROLLER speed.

Tension, speed, and other parameters on the main screen can be adjusted while film is running.

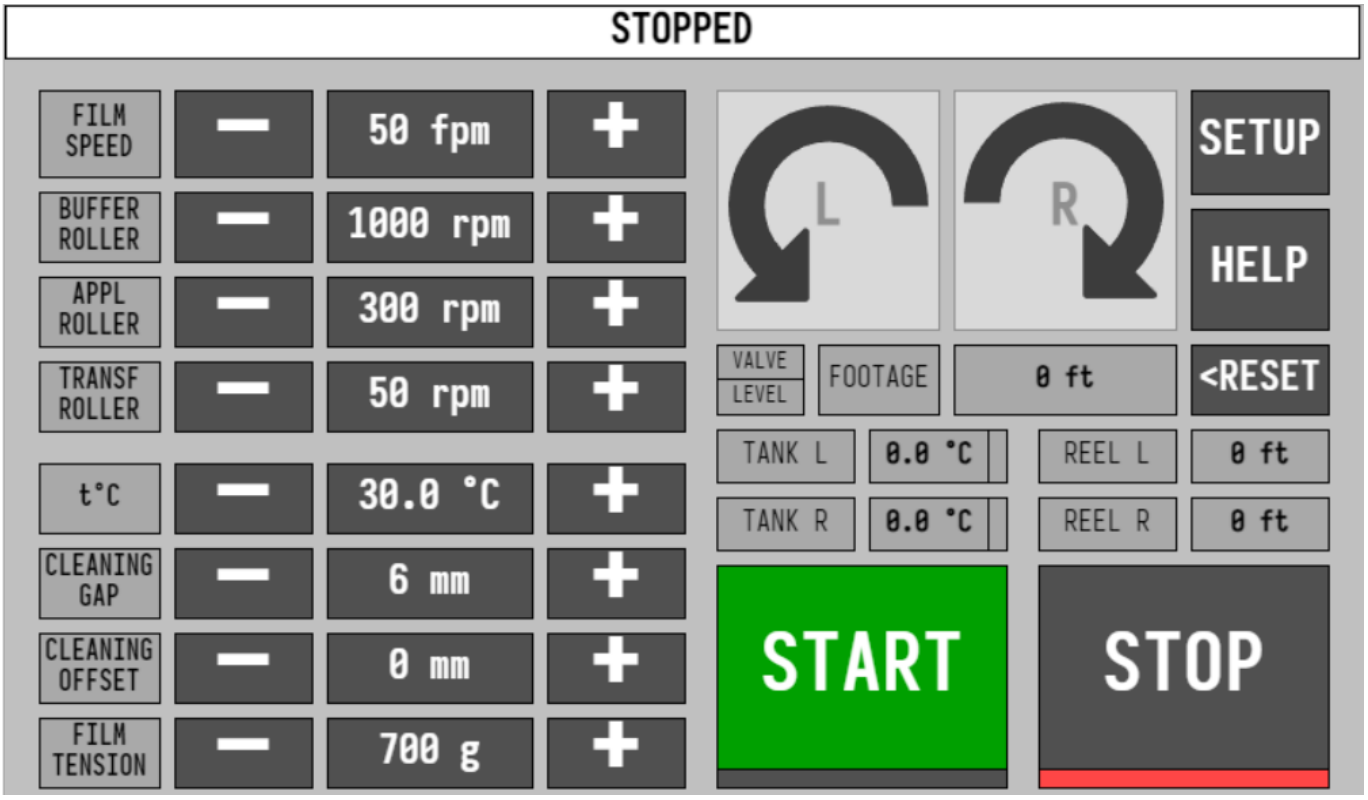
When the reel is finished, the machine will stop automatically, unless “Automatic Rewind” feature is enabled.

The machine can be stopped at any time by pressing the “Stop” button. In this case the machine will gradually stop the film motion (indicating the “Stopping...” status message) and open the rollers (“Opening rollers...”).

STOPPING THE MACHINE IN THE MIDDLE OF CLEANING IS NOT RECOMMENDED AS THIS WOULD REQUIRE RE-CLEANING OF THE CURRENT ROLL

CONTROLS

Main screen



The upper line is a notification area that indicate current machine status or pending warnings or errors.

Parameter values can be changed using the buttons “–“ (minus sign to decrease) and “+” (plus sign to increase) located to either side of the parameter value.

“START” and “STOP” buttons launch and stop the cleaning process. Small colour bars under the buttons indicate the current state of the machine.

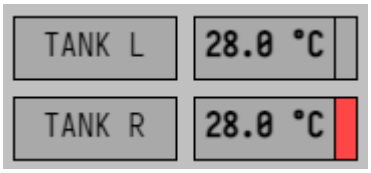
“SETUP” button takes you to the “Setup and Settings” screen (see corresponding section).

“HELP” button links to reference screens showing the lacing path and buffers layout.

“VALVE OPEN” indicator displays the status of the solvent valve.

Solvent temperature indicators

Solvent temperature indicators are shown below. Next to the temperature value located an indicator that turns red when the heater is on.

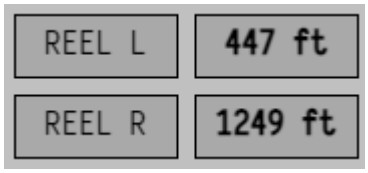


Solvent temperature can be adjusted from the main screen using the block shown below

Processed footage counter and footage meters

Processed footage counter section is shown below. “RESET” sets the footage count back to 0.

Footage meters section is shown below. Amount of stock available on the reels is displayed during the cleaning run.

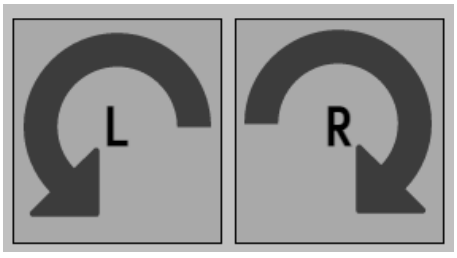


Film transport and buffers speed adjustment

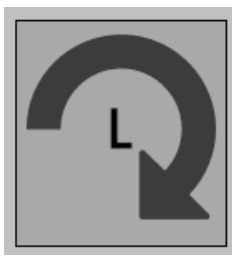
Current film transport speed and the rotational velocity of the buffers is displayed on the main screen in the section shown below. The values can be adjusted using “–“ and “+” buttons.

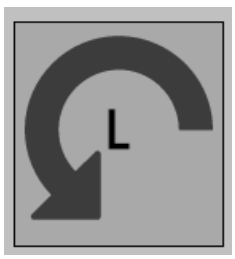
Winding type selection

Winding type can be set using the winding type selection switch on the main screen:



After each press the icon will change indicating what type of winding is selected now:

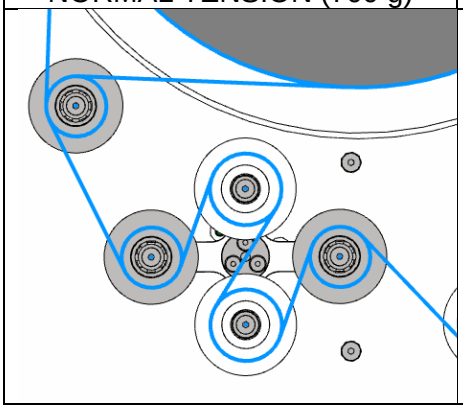
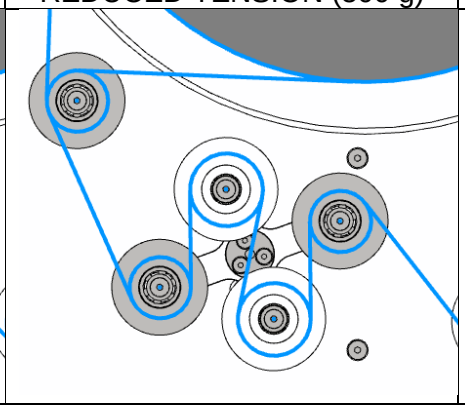
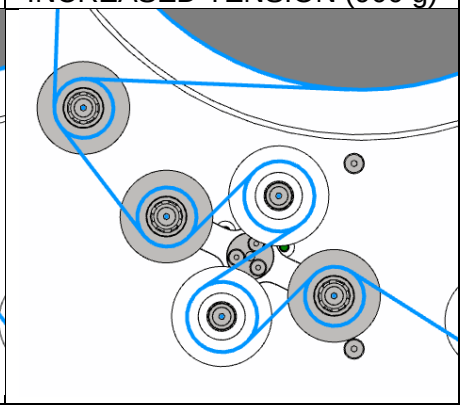
a) 

b) 

Film tension adjustment

Current film tension is displayed on the main screen in the section shown below. The value can be adjusted using “–“ and “+” buttons.

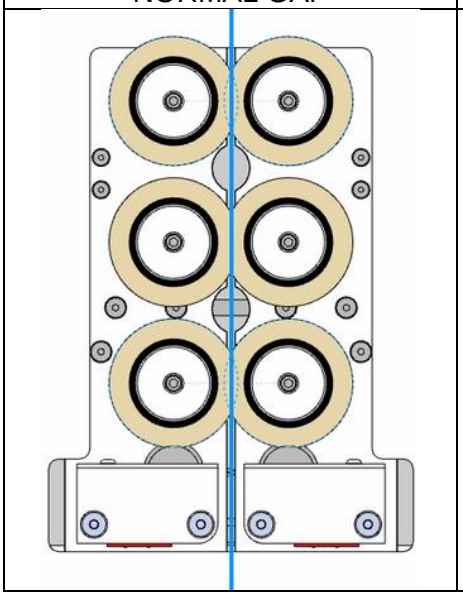
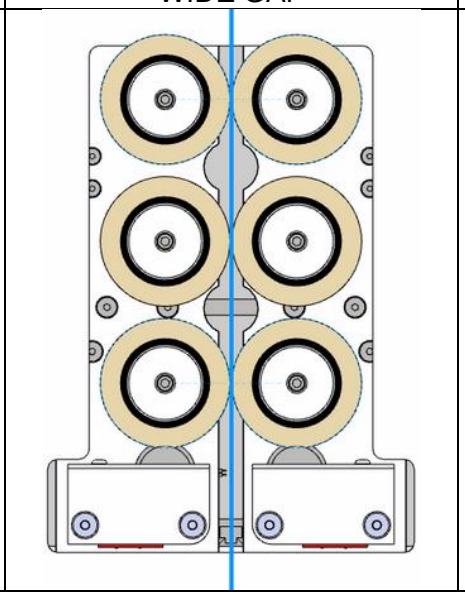
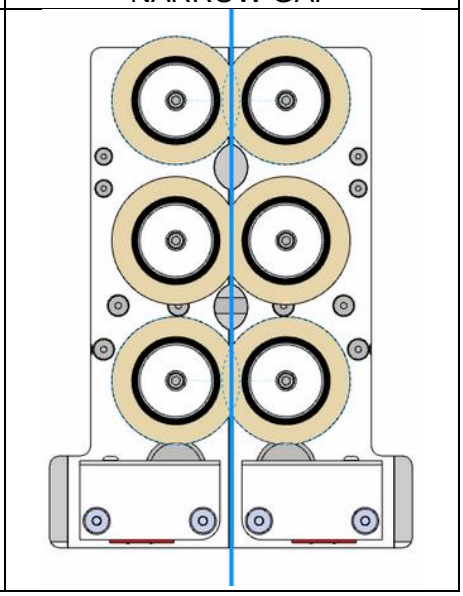
The position of the tension arm reflects the amount of tension applied to film:

NORMAL TENSION (700 g)	REDUCED TENSION (500 g)	INCREASED TENSION (900 g)
		

Cleaning buffers gap adjustment

Current cleaning gap is displayed the section pictured below. The value can be adjusted using “–“ and “+” buttons.

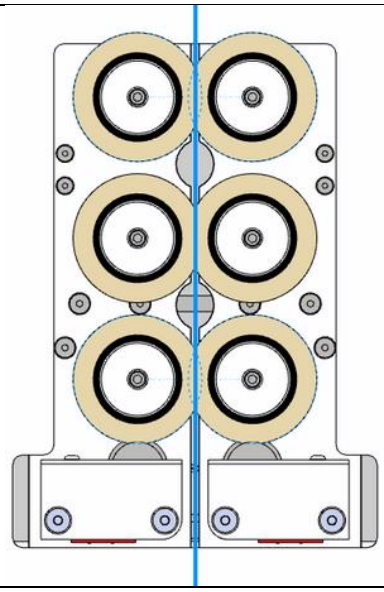
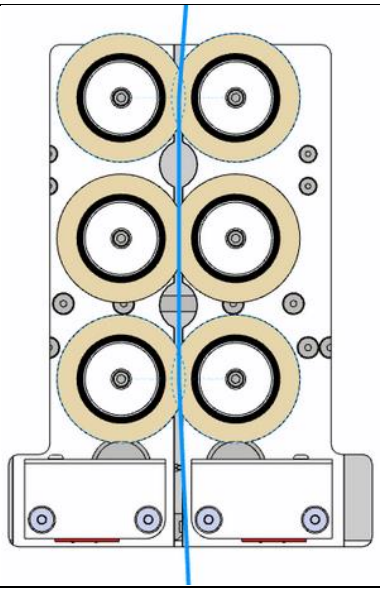
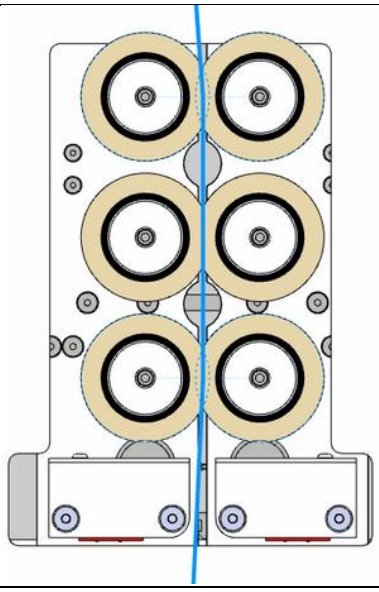
The effect of changing the cleaning gap is pictured below:

NORMAL GAP	WIDE GAP	NARROW GAP
		

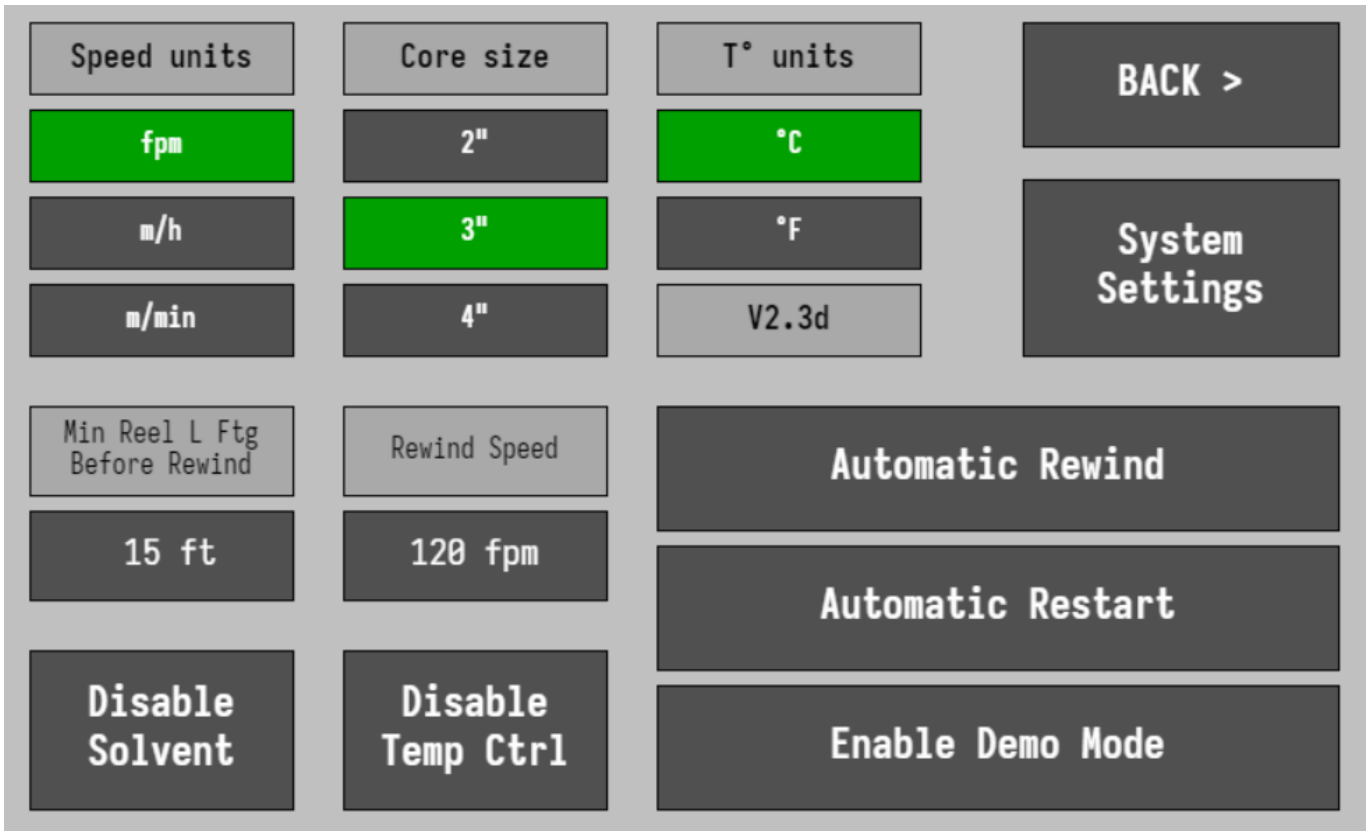
Cleaning buffers offset adjustment

The current offset of the cleaning buffers is displayed the section pictured below. The value can be adjusted using “–“ and “+” buttons.

The effect of changing the offset of the cleaning buffers is pictured below:

CENTERED POSITION	OFFSET TO THE LEFT	OFFSET TO THE RIGHT
		

Setup and Settings screen



On this screen, you can select the following parameters:

1. Desired film transport speed units: feet per minute, metres per hour or metres per minute
2. Core size: 2", 3", 4"
3. Temperature measurement units: degrees Celsius or Fahrenheit.

“Disable Solvent” button cuts off the solvent supply to the tanks in case you need to run the machine dry.

“Disable Temp Ctrl” disables temperature controllers on startup, so the solvent will not be warmed up.

“Automatic Rewind” activates the corresponding mode, so after the reel is finished, it will be rewound back to the left reel.

The “Minimal Reel L Footage Triggering Rewind” field sets the minimum amount of footage left on Reel L that triggers the rewind process when reached.

When using the “Automatic Rewind” feature, make sure you have enough leader at the end of the reel. Don’t set the minimal reel L footage too low; otherwise the film may slip and this would interfere with the rewind process.

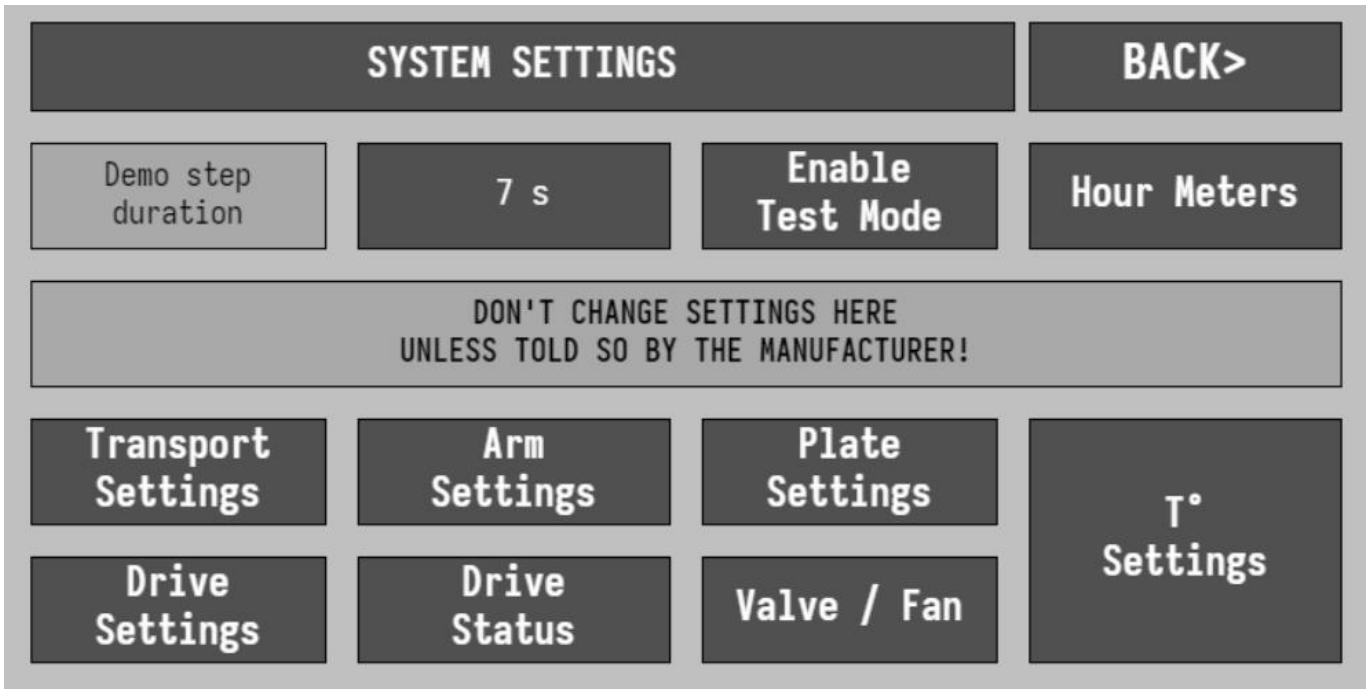
“Rewind speed” sets the maximum transport speed during the rewind phase.

When “Automatic Restart” activated, the machine will restart the cleaning process once the rewind is finished.

“Enable Demo mode” activates the demo mode. It is only active when there is at least 100ft of stock present on either of the reels.

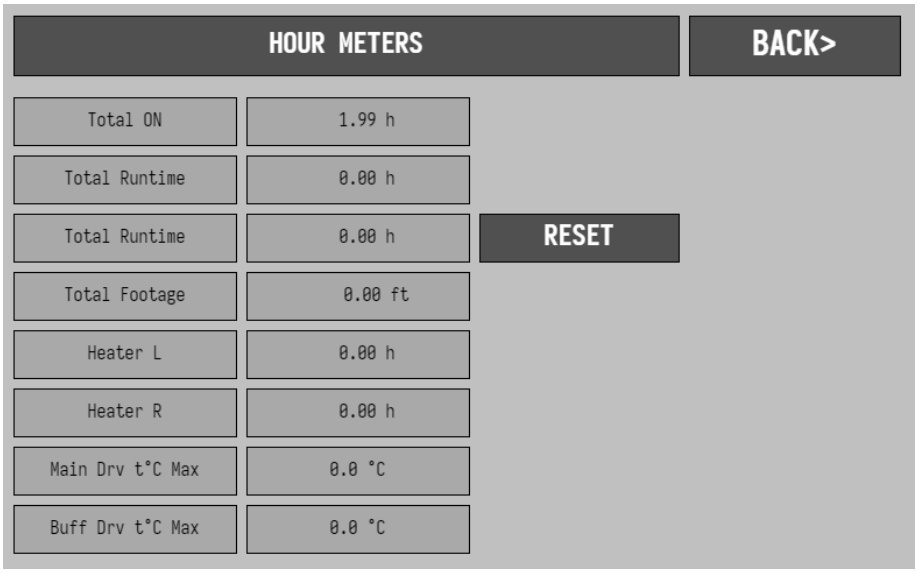
You can also access the “System settings” from this screen.

System settings screen



DON’T CHANGE ANY SETTINGS IN “TRANSPORT SETTINGS”, “ARM SETTINGS”, “PLATE SETTINGS”, “DRIVE SETTINGS”, “DRIVE STATUS”, “VALVE/FAN” OR “T° SETTINGS” SECTIONS, UNLESS INSTRUCTED TO DO SO BY THE MANUFACTURER. UNAUTHORISED CHANGE OF THESE PARAMETERS MAY LEAD TO MALFUNCTION AND/OR VOID OF WARRANTY

Hour meters screen

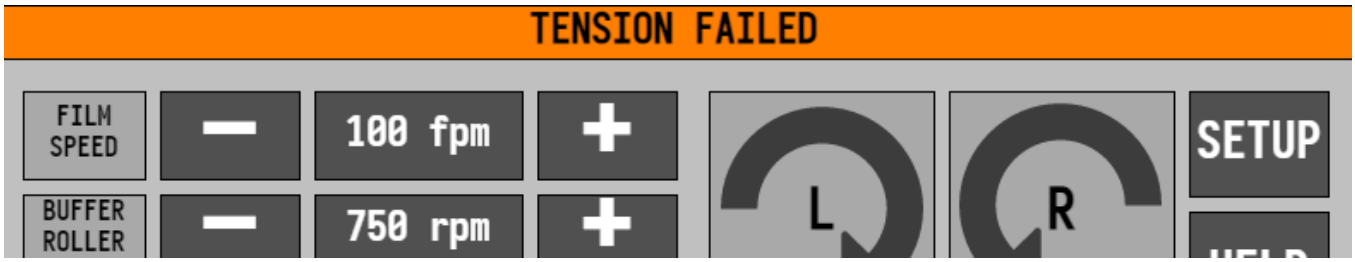


The hour meters screen displays the total running time and total footage processed by the machine, and also the maximum working temperature of the drivers.

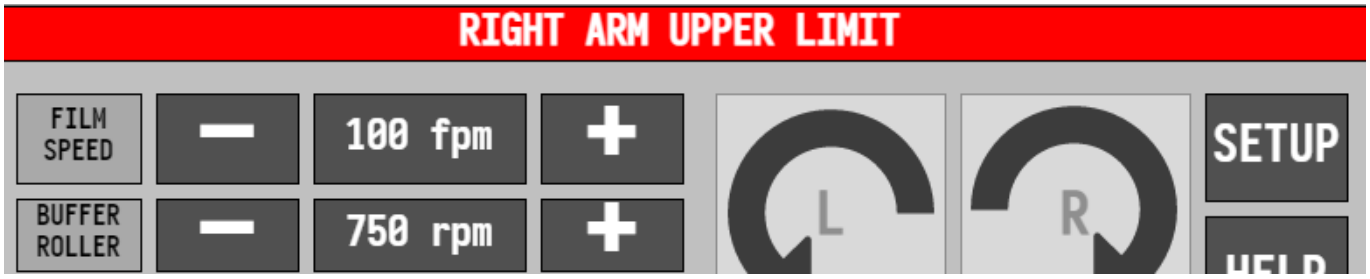
ERRORS AND WARNINGS

In there are any errors or warning are pending in the system, they will be shown in the upper part of the screen. Warnings are displayed against the amber background, and errors — against the red background (see pictures below).

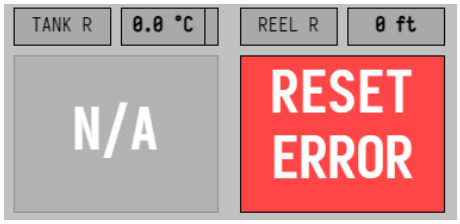
Warning example:



Error example:



The machine disables the “Start” button until any errors are cleared. Some warnings and errors must be cleared manually. They can be cleared by pressing “RESET ERROR” button (see the picture below). Other warnings (e.g. solvent level related) will be cleared automatically once the condition is no longer active.



WARNING	ACTION
SOLVENT TIMEOUT – TOP UP AND PRESS RETRY	Top up solvent and press “Retry” button
TENSION FAILED	Make sure the film is laced correctly and there is no excess slack
FILM SLIPPING DETECTED	Make sure the pacer roller is clean and not worn
PLATES POSITIONING FAILED	Power down the machine and wait 30 sec. Power up the machine again. If warning still present, contact the manufacturer.
LEFT TANK TEMP SENSOR FAIL	
RIGHT TANK TEMP SENSOR FAIL	

ERROR	ACTION
LEFT ARM IS NOT IN BOTTOM POSITION – PLEASE CHECK	Make sure both tension arms are in the bottom position before start, but there is not too much slack in the film path.
RIGHT ARM IS NOT IN BOTTOM POSITION – PLEASE CHECK	
LEFT ARM SENSOR ERROR	Power down the machine and wait 30 sec. Power up the machine again. If error still present, contact the manufacturer.
LEFT ARM PARAMETER ERROR	
LEFT ARM UPPER LIMIT	
LEFT ARM LOWER LIMIT	
LEFT PLATE SENSOR ERROR	
LEFT PLATE PARAMETER ERROR	
RIGHT ARM SENSOR ERROR	
RIGHT ARM PARAMETER ERROR	
RIGHT ARM UPPER LIMIT	
RIGHT ARM LOWER LIMIT	
RIGHT PLATE SENSOR ERROR	
RIGHT PLATE PARAMETER ERROR	
REEL L DRIVE ERROR	
REEL R DRIVE ERROR	
PACER DRIVE ERROR	
B1L DRIVE ERROR	
B2L DRIVE ERROR	
APPL L DRIVE ERROR	
TRANSF L DRIVE ERROR	
POS L DRIVE ERROR	
B1R DRIVE ERROR	
B2R DRIVE ERROR	
APPL R DRIVE ERROR	
TRANSF R DRIVE ERROR	
POS R DRIVE ERROR	

SERVICING

SWITCH OFF THE MACHINE AND REMOVE THE POWER PLUG FROM THE WALL OUTLET BEFORE UNDERTAKING ANY MAINTENANCE

Pacer roller tyre

When pacer soft touch tyre is visibly worn, it should be replaced. To do this:

4. Cut the tyre with a sharp knife to remove it.
5. Stretch new tyre by hand and fit to pacer roller ensuring it is flat and evenly fitted.

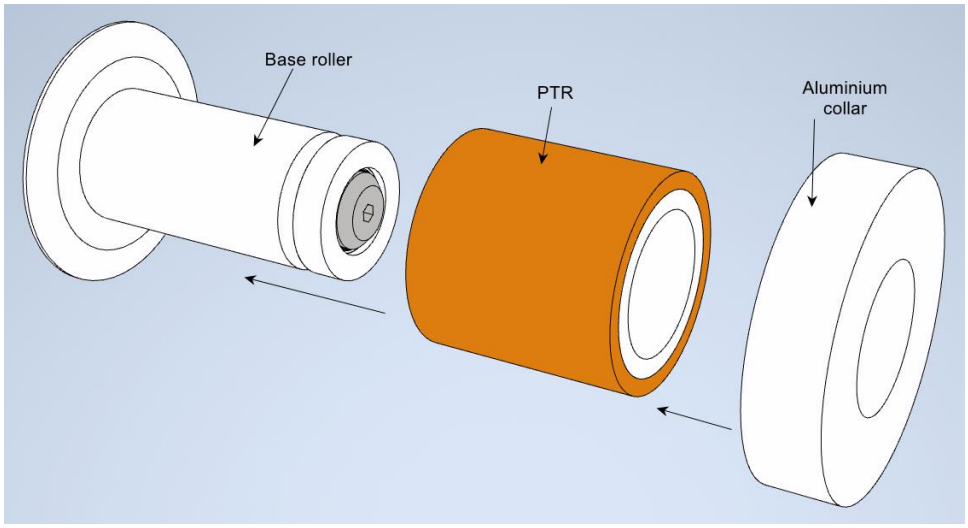
Particle transfer rollers (PTRs)

The particle transfer rollers (PTRs) should be always kept clean. The large aluminium collars holding the PTRs and PTRs are ‘push fit’.

To remove a PTR:

1. Pull and remove the large aluminium collar holding the PTR.
2. Gently pull and remove the PTR itself.

Assemble the roller in reverse sequence.



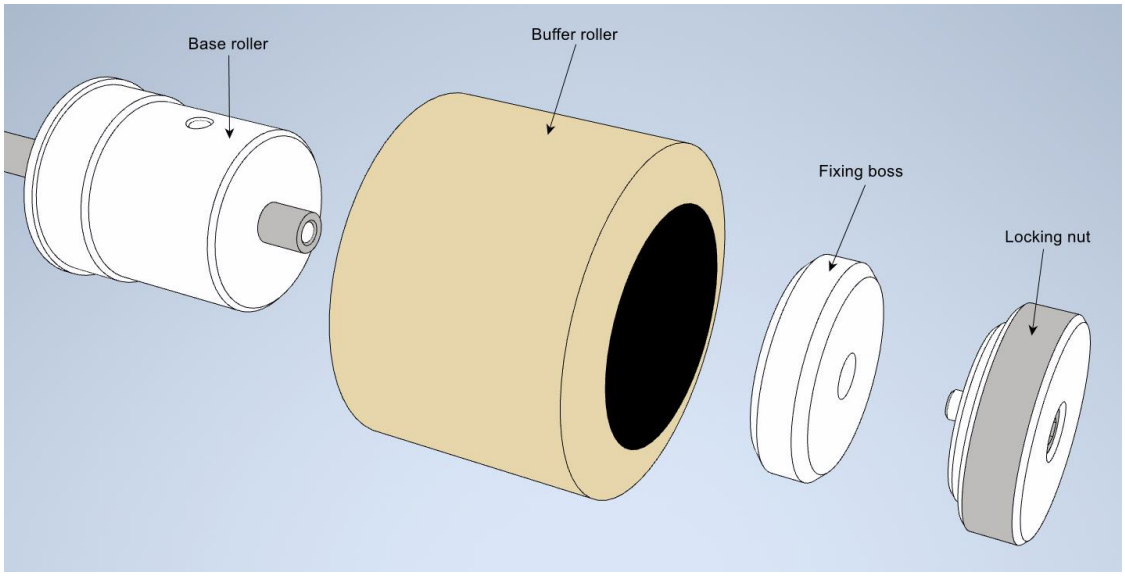
To clean the PTRs, use ordinary laundry detergent and warm water. Air drying is best.

Solvent applicator and buffer rollers

Solvent applicator and buffer rollers should be changed when they are dirty, this will depend on the condition of the film being cleaned.

To replace a buffer roller:

1. Hold the buffer roller and unscrew the outer aluminium locking nut.
2. Gently pull the buffer from the shaft.
3. Pushout the inner aluminium fixing boss (this is designed to be a tight fit to avoid any slippage whilst the machine is in operation).
4. Push fit the aluminium boss into a new buffer, using a flat surface to ensure the boss fits squarely inside the buffer.
5. Replace the boss and buffer onto the shaft, ensuring it is fully seated in position, and refit the locking nut whilst holding the buffer.



When required, clean with the area around the buffers and the internal base of the machine with a damp cloth to remove any dust/dirt that may accumulate. Use a vacuum cleaner and a soft brush if this is easier.

Tightening hex screws

Periodically check for tightness all Allen screws and fixings.

CONTACT US

If you need any help or advice, spare parts, or servicing, please contact us.

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