



OWNERS MANUAL

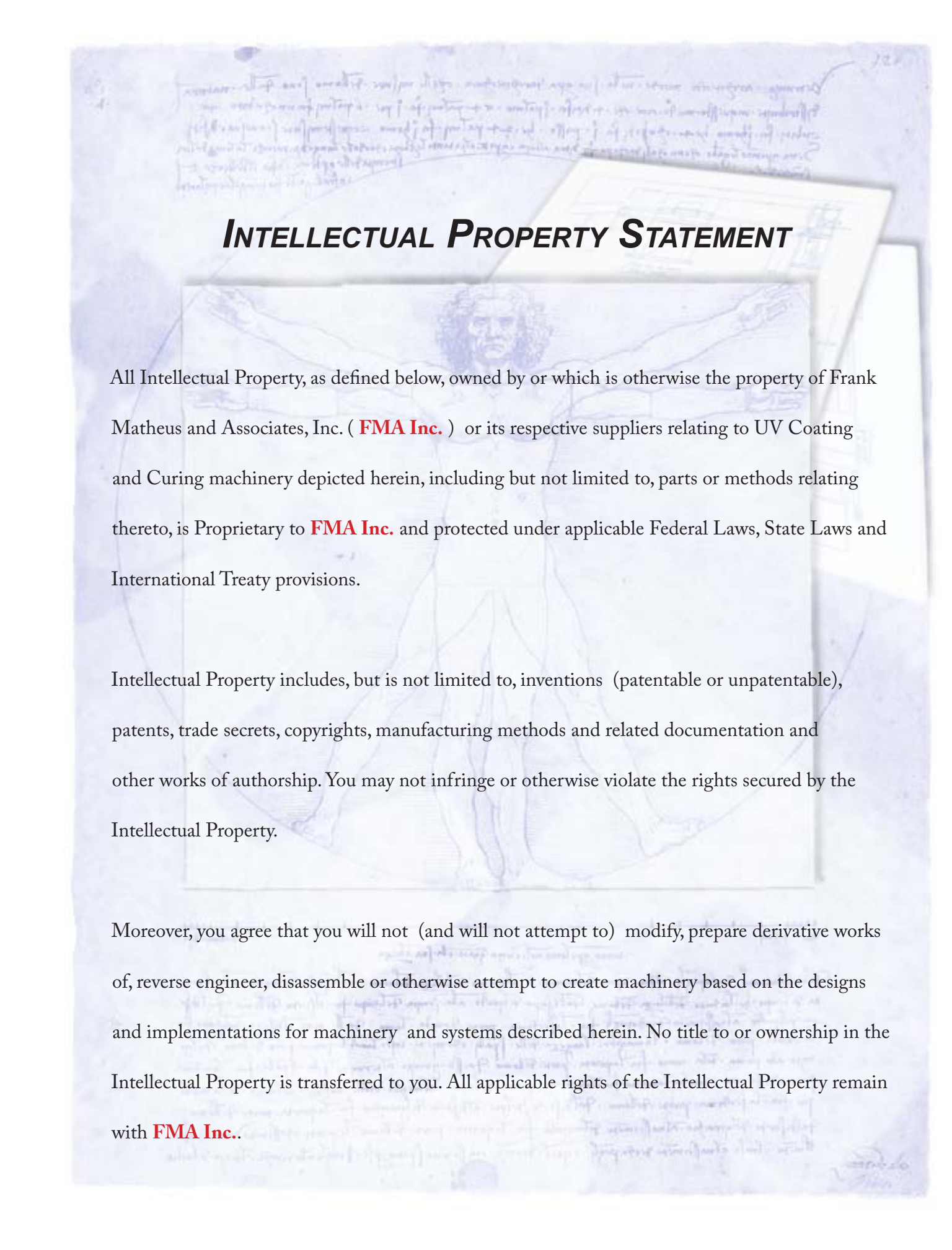
v8.13

FMA Inc. MODEL NUMBER:

SERIAL NUMBER:



PLEASE READ THIS MANUAL BEFORE UNPACKING OR OPERATING YOUR
MACHINE AND KEEP IT FOR FUTURE USE.



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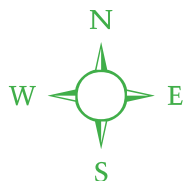
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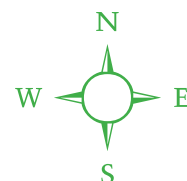
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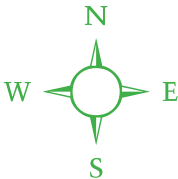
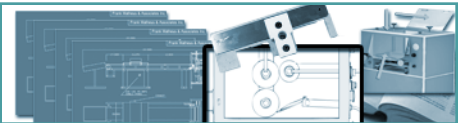
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Unpacking & Handling

MACHINE HANDLING



Rigging and equipment packing will vary depending upon the type and size of machine and also the method of delivery.

Prepare to unload the equipment by first removing all straps, bolts and other tie-down gear.

DO NOT attempt to pick up the machinery by clamping on to the frame or by lifting manually without the use of heavy lifting equipment.



MACHINE LIFT POINTS

Machines must be lifted by using heavy lift equipment. NEVER slide or drag across the floor. DO NOT attempt to lift conveyor unit by the under-side of rails. Lift at bottom of main frame, as shown below.

CAUTION: When placing forks for lifting Coater, avoid lifting on the Coating Solution Bay which protrudes from the bottom. (see fig. below)



Coating Solution Bay

1

I INSTALLATION

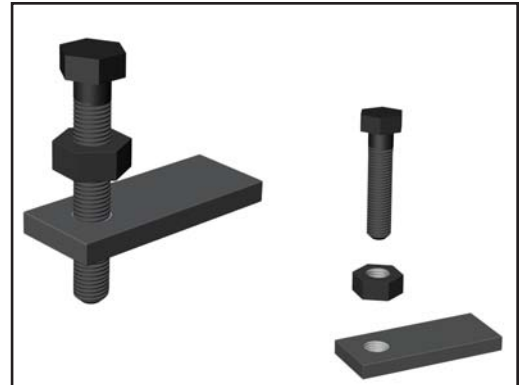


Placement and Leveling

CONVEYOR UNIT LEVELING PADS

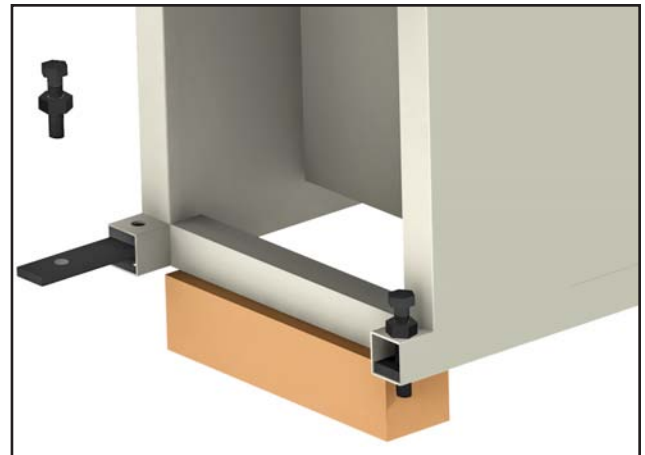
Your UV Conveyor unit comes with a complete set of leveling pads. The Leveling Bolt, Support Pad and Lock nut attach to the machine frame, thread together and provide the means to adjust the level for your line.

With the machine frame elevated, thread Lock Nut onto Leveling Bolt.

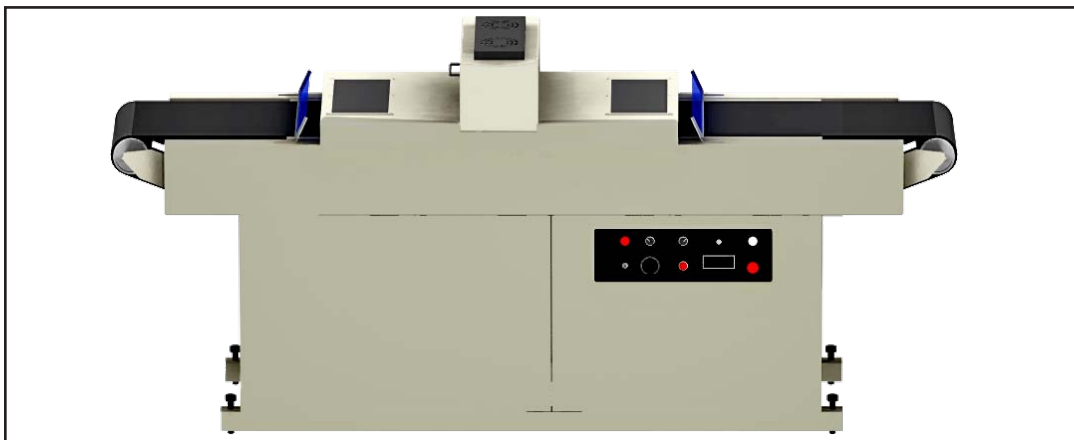


Next, insert Support Pad into frame.

The Support Pad slides into the end of the frame tube and the Leveling Bolt is threaded through the pre-drilled hole in the top of the frame, through the Support Pad and out the bottom of the frame.



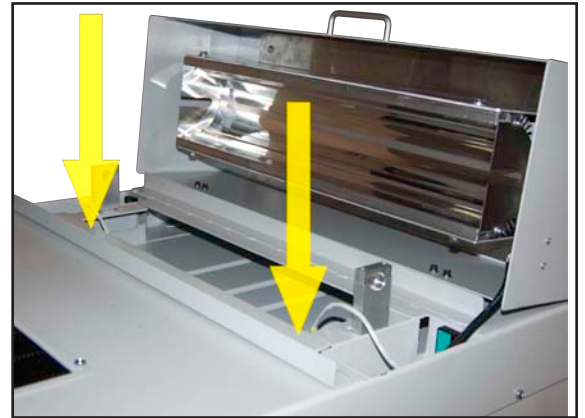
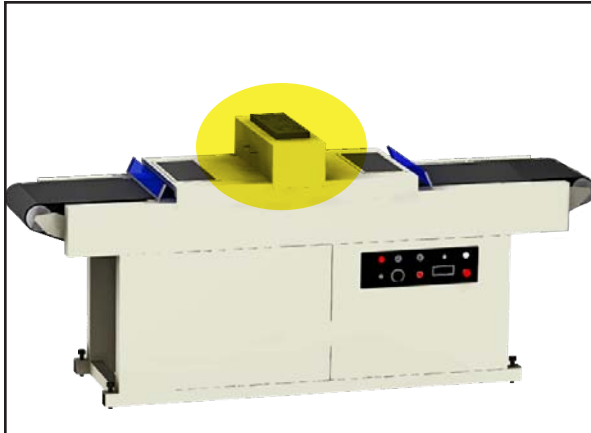
With all leveling assemblies in place, lower the conveyor to the floor.



Placement and Leveling

CONVEYOR LEVEL ADJUSTMENTS

Check the level for your machine by placing a bubble level on the cross-frame area directly beneath the UV lamp hood.



Make adjustments to all leveling pads so that each Leveling Bolt touches the floor. Make further adjustments to those pads necessary to bring your bubble level readings flat and true. When leveling is complete, lock in place using Lock Nuts.



Placement and Leveling

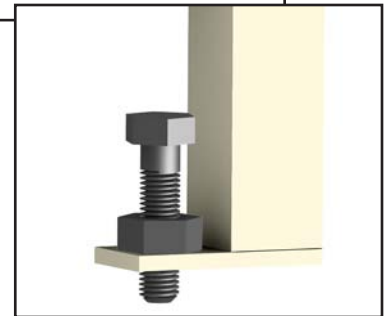
COATER LEVEL ADJUSTMENTS

Setup the Coater unit towards the in-feed end of the conveyor.



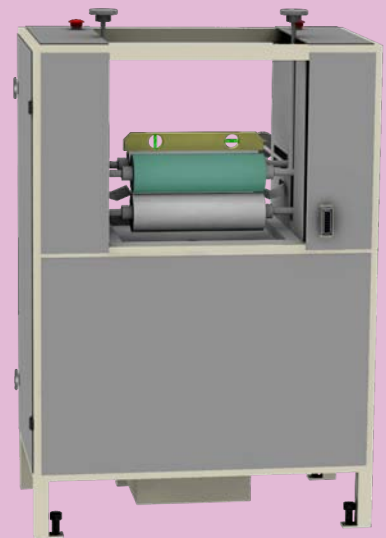
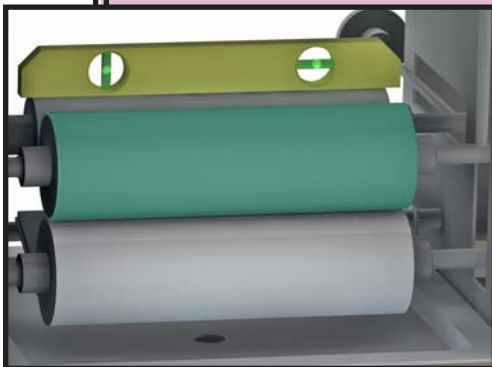
Attach lock nuts to (4) Leveling Bolts and bring Coater to level standing, as before, with the Conveyor unit.

When level, lock-down the setup by turning Lock Nuts clock-wise to lock against top of Coater foot pad.



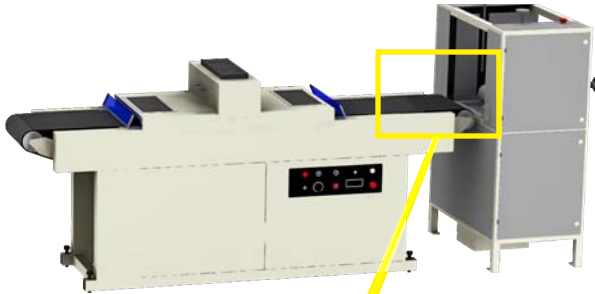
Check the level of the Coater unit by placing a torpedo level directly on top of the Metering Roll.

Caution: Be very careful when placing the level onto the surface of the roller. Even very small amounts of dirt can cause the surface of the roll to become scratched. Wipe off the roll and check the surface of the torpedo level before using it on the roll.

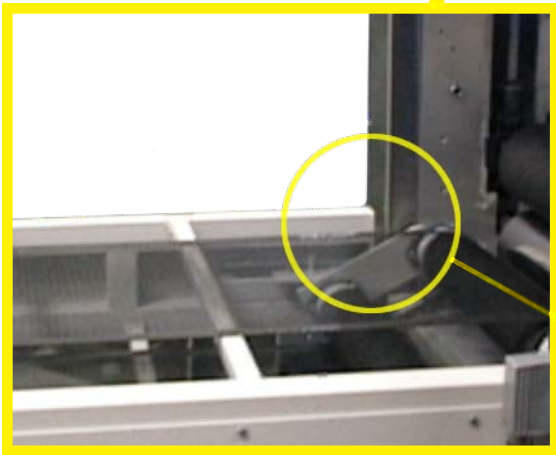


Placement and Leveling

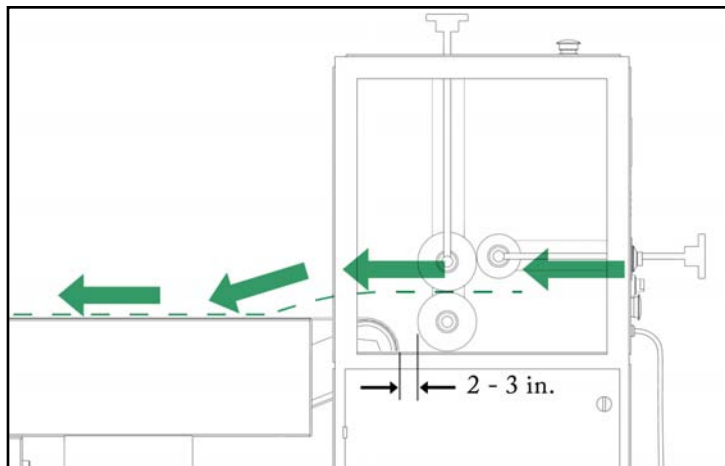
LINE PLACEMENT



With the UV Line Conveyor in-place, maneuver the Coater unit to within approximately 2 - 3 inches of the Conveyor line. (see below)



Follower arms for the conveyor belt slide into the opening on the front-side of the Coater unit.



Check Conveyor and Coater line height to ensure that there is good alignment for sheet transition with approximately 2-3 in. gap between the end of the conveyor belt and the Bottom Roll.

Note: the Conveyor Belt surface should be slightly lower than the top of the Bottom Roll to facilitate a smooth transition between the two.

UV Lamp

CARE AND HANDLING

Your UV Lamp is shipped with packaging to protect it during transport. Exercise care when opening the lamp container and when unwrapping the lamp itself. **DO NOT** use knives or other sharp tools to remove the lamp from it's package.

When handling the lamp it is best to do so by grasping the two ends of the bulb. This will minimize fingerprints and other debris from getting onto the lamp's surface, which must be kept free of oils, grease and any other forms of contamination.

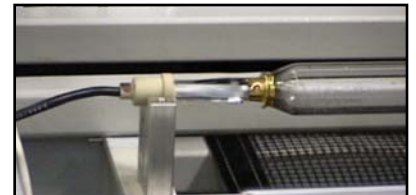


INSTALLATION AND HOOK-UP

To begin installation of the UV Lamp: first ensure that all power has been disconnected from the unit and remove the screws from the top of the Lamp Mounting Block to remove the lock-down yokes from each side.



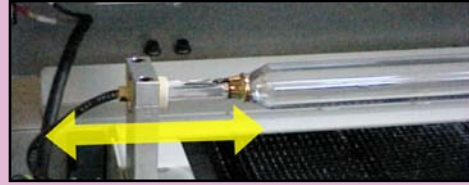
Carefully remove the lamp from it's shipping carton and place the lamp so that each end rests in the cradle of the Lamp Mounting Block.



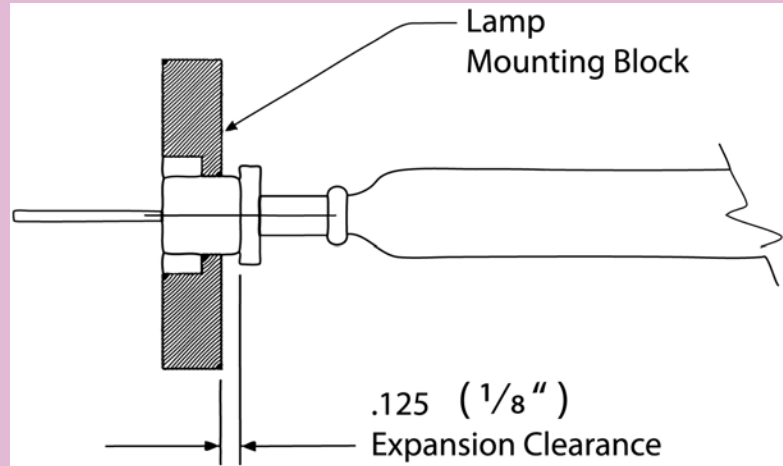
Next, re-attach the yoke fixtures to the mounting blocks to secure the lamp in place.



It is normal and necessary for the lamp to fit loosely. The ends of the lamp should slide freely from side to side.



A loose fit is necessary because of the thermal expansion that takes place during lamp operation.



With the lamp secured in-place: connect the electrical leads on each side.

The leads on each side of the UV Lamp terminate with a bayonet clip which joins to corresponding wiring from the main control panel. Once connected, tuck the wiring away along the inside compartment making sure that the leads do not touch any part of the lamp or hang out from the lamp compartment where they could be damaged by opening and closing of the UV Lamp Cover.



Once you have the lamp installed and electrical wiring connected, a thorough cleaning of the lamp is necessary. Use denatured alcohol (isopropyl) and a non-abrasive lint-free cloth or wiper.



NOTE: It is very important that the lamp be free from loose dirt, fingerprints or any oils that may have been transferred to it when handling during setup.

After the lamp has been cleaned, check the reflector assembly for any dirt, smudges or fingerprints and clean with alcohol before closing the Lamp Hood.



Fixtures

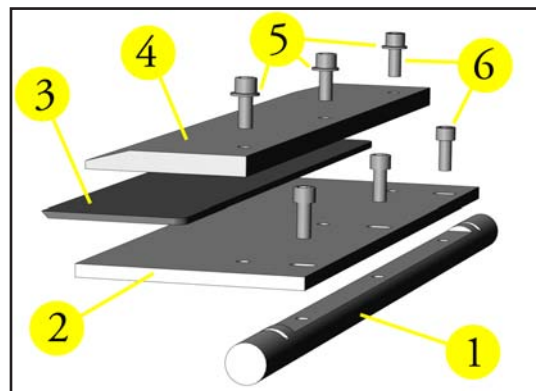
DOCTOR BLADE ASSEMBLY

The Doctor Blade acts as a wiper blade to keep the Bottom Roll clean during the coating process.

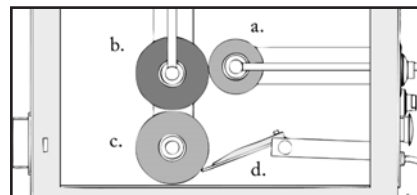
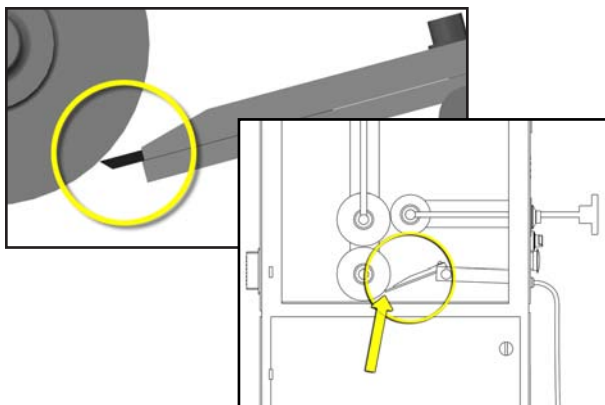


The Blade is held between the Support Plate and the Top Plate which attach to the assembly Shaft with Retaining Screws and Washers to keep the blade in place.

The edge of the Doctor Blade is cut at an angle and placed into a pocket milled into the Top Plate with the beveled side facing away from the Bottom Roll. (as shown below)



1. Shaft 2. Support Plate 3. Doctor Blade 4. Top Plate 5. Washers 6. Retaining Screws



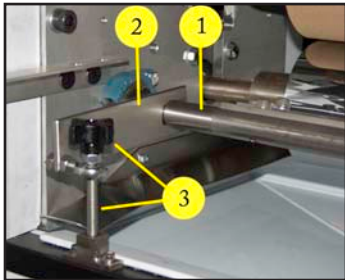
a. Metering Roll b. Applicator Roll
c. Bottom Roll d. Doctor Blade



The Tension Assembly is used to adjust the pressure of the Doctor Blade edge against the Bottom Roll.



The Tension Arms are attached to the Doctor Blade Shaft by matching the slots on the arm and the shaft. The Adjustment Knob stem is then threaded into the frame.

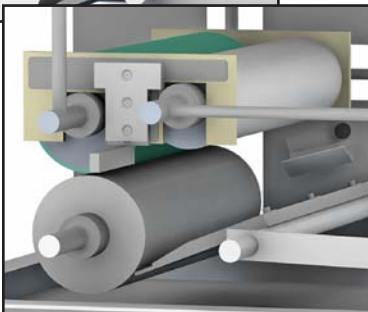
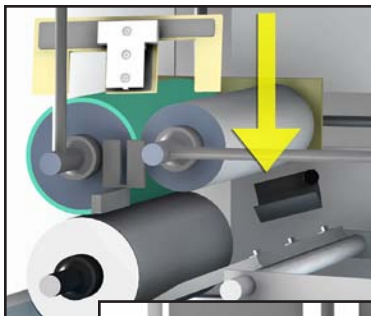
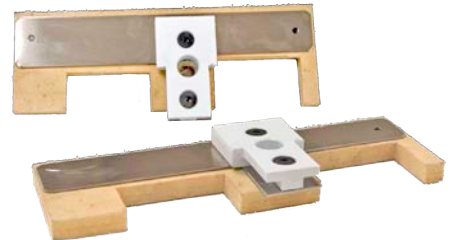


1. Doctor Blade Shaft 2. Tension Arm
3. Adjustment Knob & Stem

END DAMS

End Dams are used to control any overflow of UV coating at the ends of the Metering and Applicator rolls.

Each End Dam has slots which slide over a positioning fork located between the Metering and Application rolls at each end.



To install: Line up End Dam (as shown at left) and push straight down, sliding channels over the positioning forks.

End Dams should fit snug against outer sides of the rolls.

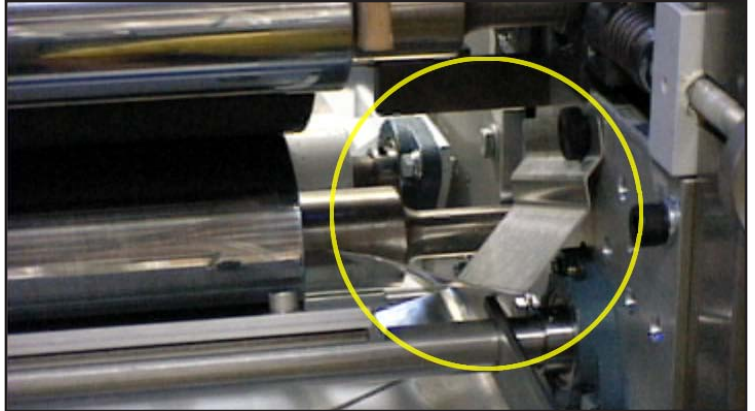
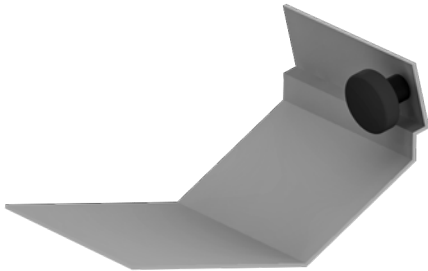
This is a friction fit, with no lock-down hardware.



DRIP GUTTERS

Drip Gutters take away any excess UV coating at the ends of the rolls and guide it down to the Collection Tray to be re-cycled for the process.

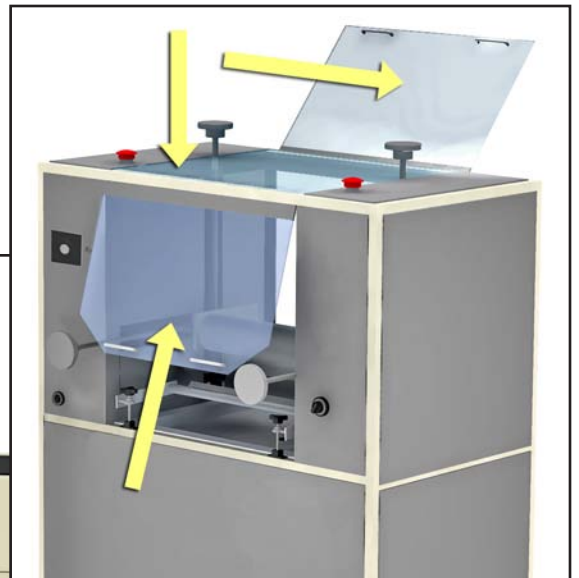
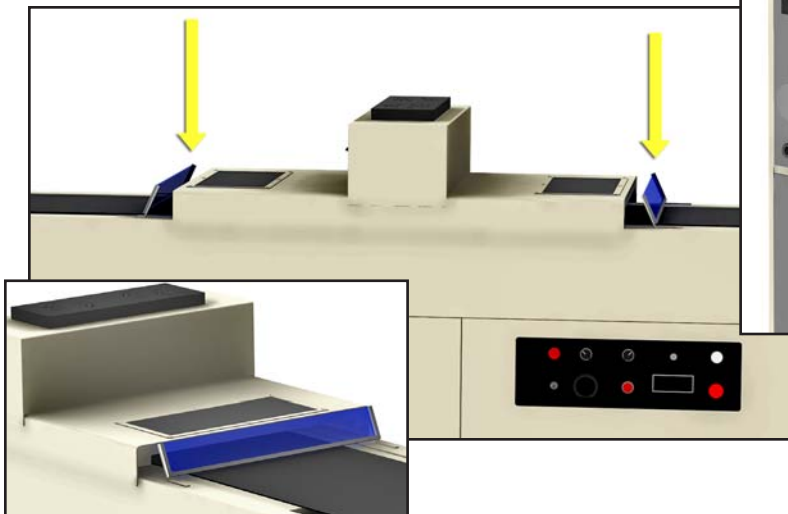
The Gutters are mounted just below the Metering and Applicator roll shafts on either side of the machine inner frame.



SAFETY DOOR PANELS

Install (2) Safety Door panels for the Coater unit and (2) for the Conveyor.

These safety doors must be in place before putting the line into full operation.



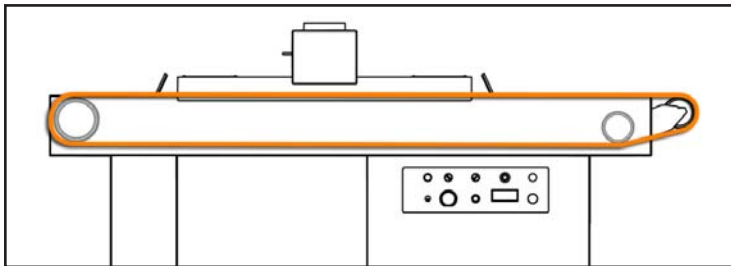
Conveyor Belt

INSTALLATION



The main conveyor belt is shipped with your unit fully assembled. If the belt becomes damaged or worn, the following are procedures for replacement:

Unwrap the replacement belt and remove the Seam Spine. Completely un-roll the belt and thread it around the machine conveyor path.



Conveyor Belt Path (NOTE: see APPENDIX for 30+32 in. models)

Bring the seam together at the top of the machine for closing.

To close the belt, pull the ends together and interlock the inside edges of the seam from both ends - taking care to assure that the outer edges of the belt are even.



Re-insert the spine.

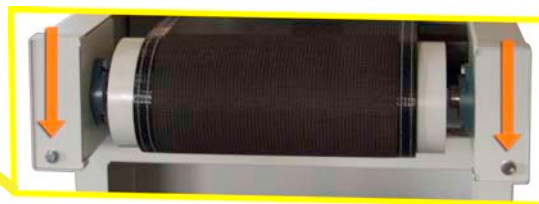
When complete, the ends of the spine may be bent at a slight angle to prevent it from working loose.



ADJUSTING THE BELT



Adjustment to the Belt to increase or decrease the tension and to adjust for tracking is accomplished by turning the tracking/tension adjustment bolts which are located on both ends of each of the rails.



Conveyor Sensors

UV CHAMBER SENSOR

The UV Chamber Sensor is designed to detect the presence of a sheet (or other objects) which may be sitting on the belt in a way that could pose a fire hazard from having a proximity too close to the Lamp.

These (2) small sensors are located on either side of the UV Chamber, “looking” across the width of the Conveyor Belt.

Sensor Setup -

1. Lift the UV Lamp Hood
2. Locate the sensor on the operator-side of the UV Chamber.
3. To set the sensor: Depress the setup button and hold it down (approx. 4 seconds) until the L.E.D. indicators begin to blink.
4. When the indicators begin to blink, RELEASE the button. Both green and amber indicators should now be ON.
5. Test the Sensor: Put your hand in front of the sensor to interrupt the beam. The amber light should turn OFF. When you remove your hand the amber L.E.D. indicator should turn ON and remain on unless something interrupts the beam.

Amber L.E.D. indicator = signal OK - no obstructions on the belt.

Green L.E.D. indicator = power is ON to the sensor.

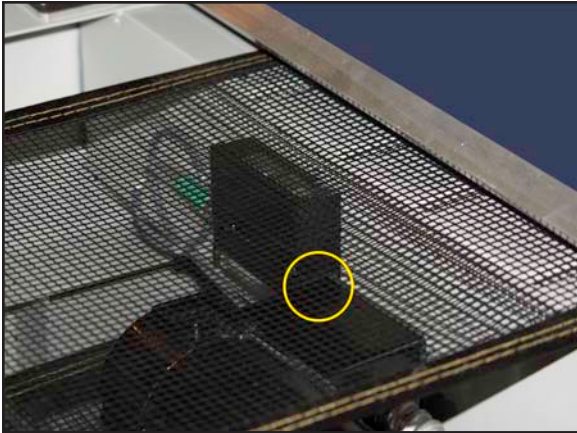


NOTE: Actual beam is invisible to the naked eye.



EXIT SENSOR

The Exit Sensor is designed to detect the presence of a sheet which has not fully exited the UV Chamber and remains in this position for too long a time. A sheet exposed to the UV Lamp for an extended period of time can pose a fire hazard.



This sensor is set at the factory but should be checked during the machine installation.

To check sensor sensitivity: Hold your hand directly over the sensor location. The sensor “looks” up and through the belt to detect any obstructions to the beam. An amber light in the lower, left-hand corner - at the bottom of the sensor will illuminate when it detects your hand.



Remove your hand from the sensor's path and the amber light should turn off.

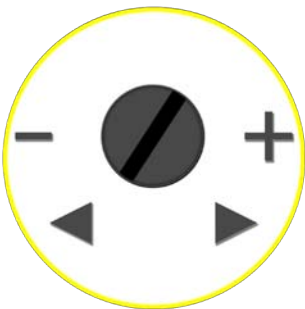
To adjust the sensitivity: Hold your hand directly over the sensor. If the amber light does not illuminate, turn the adjustment set screw located on the operator side of the sensor, counter-clockwise until the light turns ON.

Adjust the sensitivity so that the amber light illuminates when your hand passes over the sensor and turns OFF when your hand is removed from the sensor's path.

Set Screw adjustment -

Clockwise = decreases sensitivity

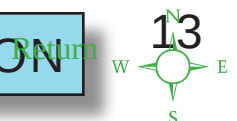
Counter Clockwise = increases sensitivity



— IMPORTANT —

Perform all sensor adjustments with the UV Lamp OFF

I INSTALLATION



Power Connection

MAIN POWER REQUIREMENTS

Electrical power requirements for the coating line are as follows: ¹

Voltage single phase 230 - 208

Amps can vary from 45 - 80 amps
(depending upon system size and options)

1 *Depending upon model and options selected.*

***All models ship from the factory set for 230 single phase.
Consult with technical sales representative for actual requirements.***

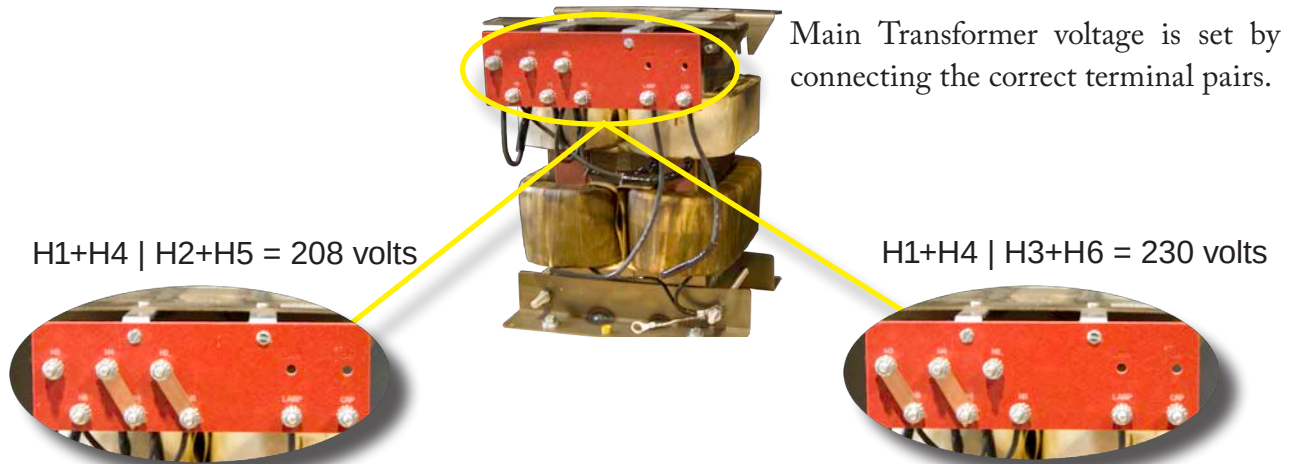
CONVEYOR & COATER HOOK-UP

The Coater unit receives electrical power from a wiring harness feed brought over from the Conveyor.

The two units are connected via a 16-pin locking connector.



VOLTAGE CHECK



— WARNING —

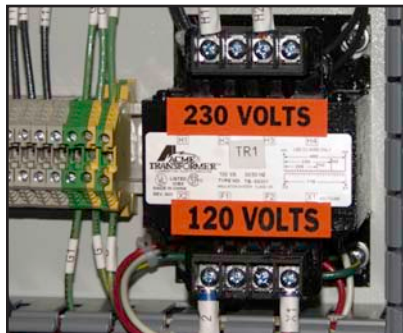
DO NOT make any adjustments to electrical systems without first disconnecting main power.

CONTROL TERMINALS

Open the main Control Panel to check configuration for desired voltage.
Normal terminal assignments are as follows:

$H1 + H3 = 230 \text{ volts}$, $H1 + H2 = 208 \text{ volts}$

ALWAYS CHECK ELECTRICAL SCHEMATIC PRINTED ON TERMINAL BLOCK FOR PROPER PLACEMENT.



Safety

GENERAL PRECAUTIONS

- ALWAYS Disconnect Power Supply before opening the Electrical Supply Cabinet or when working within the unit.
- NEVER touch any machine parts or attempt to make any adjustments while the unit is in production mode.
- NEVER Remove, Modify or Tamper with Safety Covers, Guards, Safety Switches, or try to defeat their purpose.
- DO NOT operate Equipment while wearing baggy or loose fitted clothing.
- DO NOT make any modifications to the unit without written agreement from FMA, Inc.
- DO NOT have the unit serviced and or repaired by anyone other than an authorized FMA, Inc. Service Technician.
- DO NOT allow anyone but trained and qualified personnel to operate this equipment.
- DO NOT store tools or other equipment or materials on the unit.

UV SAFETY

- All FMA, Inc. UV Curing Units have extensive shielding to prevent stray UV light from exiting the unit. However, certain precautions are recommended to minimize any employee discomfort.
- DO NOT view the UV light directly and for long periods of time with or without protective glasses.
- Short exposure to UV radiation may cause severe burning of the skin and eyes. UV burns may not be felt for several hours after initial exposure. UV burns of the eyes affect the corneas and may take several days to heal. UV burn is very similar to “Welder’s Burn” and it will feel like sand in the eyes that can not be washed out. This discomfort is temporary.
- DO NOT allow prolonged skin exposure to the UV light.
- DO NOT allow personnel to crawl or work under or around UV Curing Unit while it is in operation.



- All FMA, Inc. UV Curing Units have extensive shielding to prevent stray UV light from exiting the unit. However, certain precautions are recommended to minimize any employee discomfort.
- DO NOT view the UV light directly and for long periods of time with or without protective glasses.
- DO NOT allow personnel to crawl or work under or around UV Curing Unit while it is in operation.

ELECTRICAL SAFETY

- High voltage and currents are used to properly energize all UV lamps. Special precautions should be taken when servicing any UV Curing Unit.
- DO NOT defeat or bypass any access safety device.
- Start-Up and Shut-Down the unit using an established sequence.
- All Capacitors used by FMA, Inc. have bleeding resistors that are either internal or external that can bleed excess voltage when the power is removed; precautions should be taken to “bleed” capacitors before any service is performed. Contact factory if assistance is required.
- Electrical interlocks are used to prevent accidental access to the unit with the UV Lamp in operation. A regular inspection of these interlocks should be performed to insure these interlocks have not been defeated.
- Electrical disconnects or circuit breakers are used to prevent access to the control panels while power is applied. These disconnects should never be bypassed or defeated. All service should be done by a qualified technician.

COATING & CHEMICAL SAFETY

- As some UV coatings and chemicals may be hazardous, care should be taken during their handling and storage. Please refer to the manufacturer’s data sheets prior to use.
- Use caution when handling UV coatings and related chemicals.
- Follow manufacturer’s procedures when handling and storing all inks, coatings and wash-up chemicals.



OZONE SAFETY

- The only by-product of the UV lamp is ozone. It is formed by oxygen being exposed to 254nm. wavelengths of UV energy. Ozone accumulation in a plant environment may cause eye irritation and nausea to personnel.
- Provide adequate ventilation of the work area.
- Ozone can be effectively eliminated by proper exhausting of the Ozone laden air to the outdoors. Such exhausting has no danger as the hot gas is very unstable and breaks down to oxygen rapidly while in ducting.

THERMAL SAFETY

- There is a considerable amount of heat being generated by the UV lamp during operation, the surrounding framework and sheet metal may retain excess heat. Use caution when servicing or inspecting the lamp chamber and surrounding areas immediately after lamp shut down.
- DO NOT test for sheet flutter with the UV Lamp(s) in operation.
- The surface of a quartz UV lamp operates between 1100 to 1400 degrees Fahrenheit, a certain fire danger exists. Therefore, sheet flutter tests should be performed without the UV lamp(s) operating. If sheet flutter is present refer to the chapter “Troubleshooting” or contact the factory for assistance.

CONVEYOR SAFETY

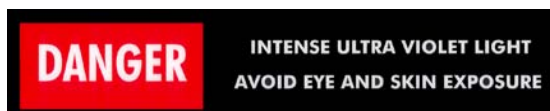
- The UV Curing Unit has moving parts and care should always be exercised while operating the unit or working around the unit to avoid the possibility of injury.
- DO keep hands and fingers away from the conveyor belt and/or rollers while the unit is in operation.
- DO NOT allow children near any operating machinery.
- Proper care and operation of the conveyor may lengthen the life span of the conveyor belt and related components.
- DO NOT store or place objects under the conveyor area.



- DO NOT allow knives or other sharp objects on or around the conveyor belt.
- DO check for objects on the conveyor belt prior to starting unit or operating the UV

SAFETY PLACARDS

The following placards have been assigned to your machine(s) for Safety purposes and should NEVER be removed, obscured or tampered with for any reason.



UV Coating Solution & Pump

COATING SOLUTION BAY

UV Coating Solution is supplied in plastic open-head containers. Each 5 gallon pail is individually loaded into the Coating Solution Bay beneath the roller platform when in use.

This compartment is shown at right.



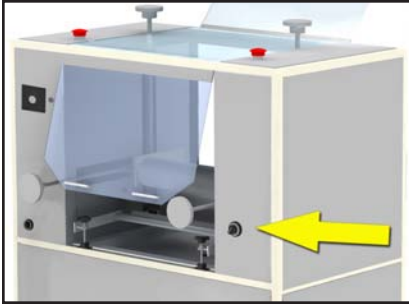
CHANGE/INSTALL UV SOLUTION PAILS

To change UV Coating pails:

- Open the Coating Solution Bay compartment.
- Remove the Pickup Assembly from the compartment.
- Remove the Pickup Assembly cover top. (NOTE: Have a shop towel or some other container close by to catch any drip from the pick-up tube during transfer.)
- Open the new pail of UV Coating Solution and transfer it's contents to the coating assembly pail. (NOTE: You can also use plastic pail from the coating manufacturer)
- Re-cover the pail with Pickup Assembly cover top.
- Return the assembly to the Coating Solution Bay and close the compartment.



ADJUSTING PUMP CONTROLS



Adjustments for the Coater pump are set from the controls located on the face of the in feed end of the Coater.

Coating Pump Switch (On/Off)

To adjust pump controls for proper coating:

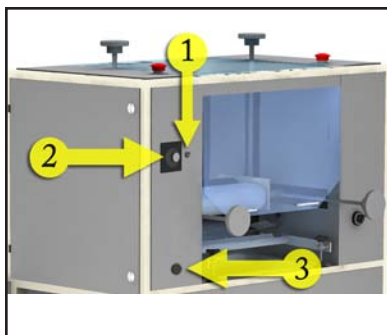
- Turn Coating Pump to ON position.



General Operation

START UP PROCEDURE

1. Set Roll Direction Switch to the OFF position and turn Roll Speed Dial to zero.



1. Roll Direction Switch
2. Roll Speed Dial
3. Push Button - Hand Switch

The Roll Direction Switch is a 3 position switch. Up position drives the rolls FORWARD. Down position for REVERSE. And middle to STOP the rolls turning.

Setting the rolls to STOP and turning the speed dial down to zero ensures no accidental movement when power is turned on.



2. Turn Main Power switch to ON.



The Main Power Switch is located on the main control panel for the UV Conveyor.



3. Adjust Conveyor Speed to zero.



Turn the belt speed control dial Counter-Clockwise, until it stops.

This will prevent the belt from moving unexpectedly when you power-up the control panel.

4. Turn Equipment Power Switch to ON.



NOTE: Power is now available to begin turning the conveyor belt and the Coater rolls.

5. Adjust Belt Speed.



Begin by adjusting the speed dial to approximately 75%. Adjust the dial until the L.E.D. display shows between 90 - 100 feet per minute.



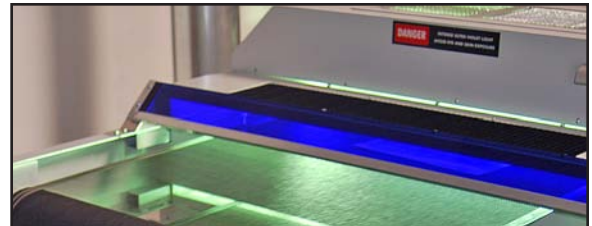
6. Start the UV Lamp.

SUBJECT

Turn the Equipment Power Switch to the LAMP position. The switch will snap back to the ON position when released.
(momentary switch)



A dim glow should be visible from the UV Tunnel which will gradually become brighter until the Lamp warms up to full intensity.



NOTE: If the UV Lamp is shut down abruptly due to electrical power loss or activation of an E-Stop (Emergency Stop button) the Lamp will require a short period of time to cool down before it will light again.

During the re-start sequence, the slight glow noticed when initially powering-up will not be present.

— WARNING —

The Conveyor Belt **MUST** be moving at all times while the UV Lamp is on.

Always shut down UV Lamp and allow time to cool before stopping the belt for any length of time.

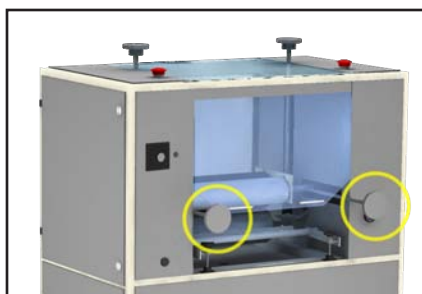


7. Set Rollers to FORWARD and adjust speed.

Set the Roll direction to FORWARD and adjust the speed control to drive the rollers at a slow speed.



8. Adjust Metering Roll.



Turn Metering Roll adjustment dials clockwise until the Metering Roll touches the Applicator Roll and there is no observable daylight between the two rolls.

You may also feel a slight “bump” when the rolls make contact. When you feel the “bump” back-off a little by turning the dials Counter Clockwise slightly.

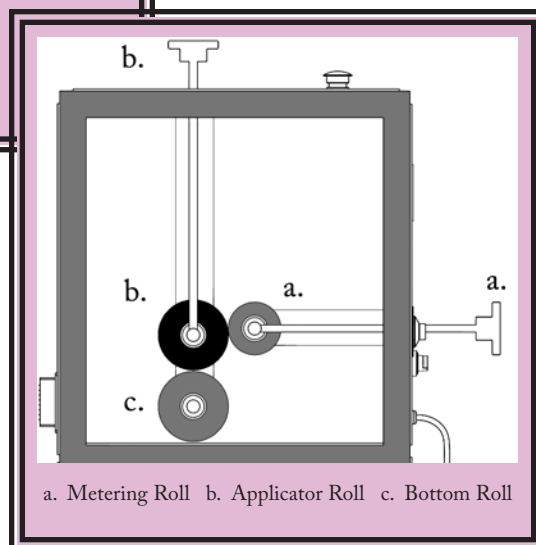
All Coater controls share a common FUNCTIONALITY



Clockwise rotation for dials and knobs = IN / CLOSER



Counter Clockwise rotation = OUT / FARTHER AWAY



a. Metering Roll b. Applicator Roll c. Bottom Roll



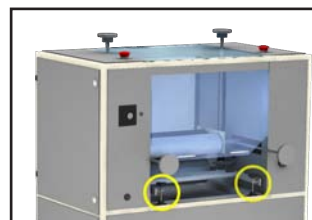
9. Turn Pump ON.

Move the Coating Pump control switch to the ON position.

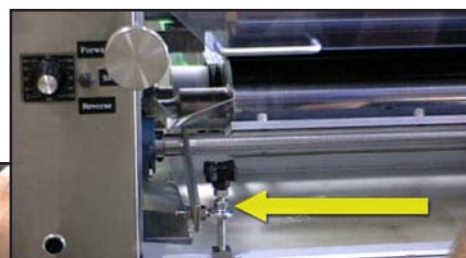


10. Adjust Doctor Blade Tension.

Turn tension adjustment knobs for the Doctor Blade clockwise until there is good contact between the edge of the Doctor Blade and the Bottom Roll surface.

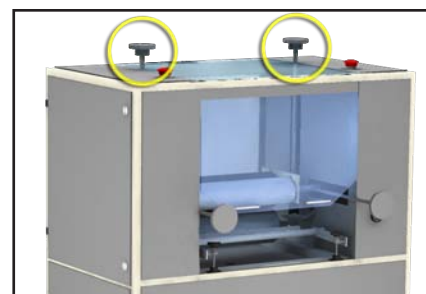


Once the desired tension has been achieved for the Doctor Blade and the Applicator and Feed Rolls, lock down the adjustment setting by tightening the lock nut on the adjustment knob stem.



11. Set contact between Applicator and Feed Rolls.

Using the Applicator Adjustmet Dials, drop the Applicator Roll down by turning the dials clockwise until there is no observable daylight between the Applicator and Feed rolls.



Adjustments to the Applicator Roll may require you to make new adjustments to the Metering Roll until the Metering Roll and Applicator Roll adjustments are correctly balanced. Repeat steps 8. 10. and 11. until you have a good setting for both.

— IMPORTANT —

Rolls should always be turning when in contact to prevent flat spots from developing.

NEVER leave rolls in contact when rolls are stopped for any extended period of time.





12. Wipe down Feed Table.

Open the front Safety Cover. The safety interlock will shut down power to the rollers.

ALLOW THE ROLLS TO COME TO A COMPLETE STOP.

Wipe down the Feed Table to remove contaminants and other debris.

13. Feed Test Sheet.



Close the Safety Cover. The Coater rolls will begin to turn again.

Choose test stock to feed into the Coater to check the quality of the coating application before the start of your production run.

ADJUSTING FOR PROPER COATING

An even application of coating is the product of balancing adjustments to the Applicator and Metering Rolls.

TOO MUCH pressure will result in thin or spotty coverage and damage to the machine and the rolls. TOO LITTLE pressure will result in flooding with excess coating material throughout the machine.

When making adjustments to rolls always be sure to check for even contact between rolls and across the entire length of the rolls. Look for sheet flatness. Wrinkles are usually caused by having the Applicator Roll out of alignment with the Bottom Roll.



SHUTDOWN PROCEDURE

1. Turn the UV Lamp Off - Main Conveyor

On the main Conveyor control panel: press the LAMP OFF button. The Lamp will turn off and begin to cool down.

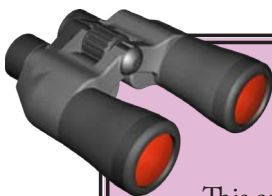


— IMPORTANT —

The Main Conveyor Belt must be moving during the Lamp cool down cycle to dissipate heat.
Allow Conveyor belt to operate while Coater cleanup is completed.

2. Shut Down Pump - Coater

Turn off the Pump by setting the Coating Pump control switch to the OFF position.



Pay close attention to the surface of the Applicator Roll.

The outer surface appearance of the roll will go from shiny to dull.
This color change indicates that the roll has run off most of the residual coating solution accumulated from the process.

For cleanup purposes this means that the rolls are now “DRY” and you are ready to proceed to step 3. of the shutdown procedure. Do Not allow rolls to run dry for any extended period of time.



Return

II OPERATION

27

3. Stop Rolls

Turn the speed dial down to a safe speed (5-10) and set the drive switch to STOP.



Open the front Safety Door and place a shop towel or other lint-free absorbent wiper on top of the rolls, directly under the solution delivery tube to catch any drip while you are removing the End Dam and Doctor Blade assemblies to clean.



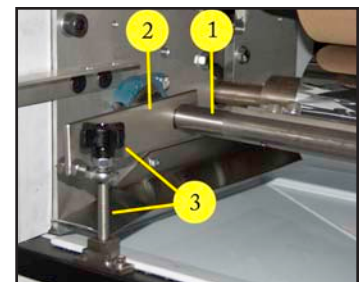
4. Remove End Dams

Pull both End Dams by lifting them straight up and set them aside while you finish the rest of the cleanup.

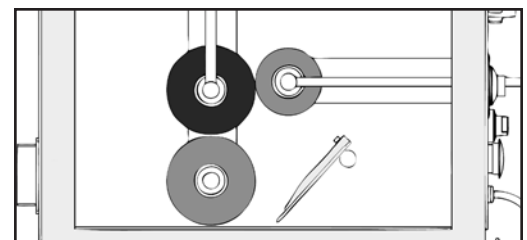


5. Disengage the Doctor Blade.

Turn the tension adjustment knobs counter-clockwise to remove them and pull the Tension Adjustment Arms away from the Shaft, allowing the Doctor Blade to pivot away from contact with the Bottom Roll.

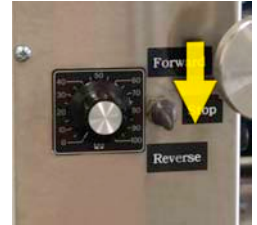


1. Doctor Blade Shaft 2. Tension Arm
3. Adjustment Knob & Stem



6. Set Coater Drive Switch to REVERSE

With the speed dial set to a safe speed (5-10) move the selection switch to the REVERSE position. The rolls will now turn in reverse when activated by the Push Button - Hand Switch.



The rolls are designed to be run in REVERSE while in clean-up mode to reduce the possibility of pinching your hand while wiping down the rolls.

7. Clean all Rolls and Doctor Blade

Use a lint free non-abrasive cloth or wiper and denatured alcohol or Toluol (Tolluene) to clean all Rolls, sides of Rollers and Roller Shafts.



Use the Push Button - Hand Switch to turn the rolls at a safe, slow speed. With the rolls turning, move the cleaning wiper across the surface of each Roller in a slow, even manner to remove all excess coating solution.

Do the same for all Rolls, sides of Rollers and Roller Shafts.



8. Set Coater Drive Switch to STOP

9. Re-assemble Doctor Blade Tension Assembly

10. Wipe down Feed Tray

11. On the Main Control Panel Turn the Lamp switch to OFF



12. On the main control cabinet turn the Main Power Switch to OFF



General Maintenance Guidelines

DAILY

1. Separate all Rollers
2. Remove End Dams
3. Clean all Roll surfaces and ends
4. Wipe down Doctor Blade
5. Wipe down Feed Table
6. Wipe down any splashed UV Solution
7. Check Collection Tray for foreign debris

WEEKLY

1. Rotate UV Lamp
2. Clean Lamp and Reflector with damp alcohol cloth
3. Check chain and sprockets

MONTHLY

1. Inspect moving parts for wear and tightness (chains sprockets and belt)
2. Check belt for correct tracking
3. Check setscrews on sprockets
4. Clean air filters on UV curing section

QUARTERLY (EVERY 3 MONTHS)

1. Grease bearings and chain

Statement of Warranty

FMA, Inc., Frank Matheus & Associates' equipment is guaranteed to be free from defects in workmanship, material and defective components as outlined below:

(A) All parts and assemblies of FMA manufacture are guaranteed for a period of one year (or 2,080 hours whichever comes first) from the date of receipt.

(B) All components that have been purchased for use in FMA, Inc. Equipment is guaranteed to be free from workmanship for a period of ninety days (or 520 hours whichever comes first) from the date of receipt (or as listed below) regardless of the individual component manufacturer s warranty.

- i. Conveyor Belts.....90days
(edge seam or bullnose failure only)
- ii. UV Curing Lamps.....Pro-Rated
(See UV lamp warranty)

(C.) FMA, Inc. will correct any defects in workmanship or materials which may develop under the proper care and normal operating conditions or our option to replace the defective parts affected under the terms set forth above. This excludes all parts or materials subject to replacement on a maintenance basis such as filters, lubricants, v-belts and etc.

(D) In no event shall FMA, Inc. be liable for any damages whether direct, indirect, immediate foreseeable, consequential or special arising out of component failure due to defective material supplied for use in FMA, Inc. Screen Printing and Drying Equipment. FMA, Inc. shall not be liable for any expenses or lost production incurred by the purchaser through the failure of components and/or parts manufactured by FMA, Inc. The sole responsibility of FMA, Inc. is to repair and/or replace the defective parts.

(E) Any oral statements made by FMA, Inc., the seller or any other parties regarding product suitability, reliability or longevity do not constitute warranties and shall not be relied upon by the user and are not part of the sale.

(F) Due to availability variations, FMA, Inc. reserves the right to substitute parts or materials of comparable quality for direct replacement in FMA, Inc. equipment.

(G) Components received under warranty from FMA, Inc. are for immediate replacement only. Components held in customer's stock are warranted as indicated in paragraph "B". Defective material subject to credit must be returned to FMA, Inc. within a reasonable amount of time.

(H) FMA, Inc. will make every attempt to replace the defective components as quickly as possible. However, replacement material (and related shipping charges) purchased locally by the customer will not be subject to reimbursement unless prior authorization has been obtained by FMA, Inc.

(I) Evidence of misuse, abuse, or neglect to the equipment will invalidate warranty.

(J) FMA, Inc. is not responsible for the replacement or operation of the outside service connections made to the equipment in the customer's location. This includes but is not limited to electrical connection, exhaust venting and water connection.

(K) FMA, Inc. reserves the right to make changes and/or discontinue items at any time without prior notice.



Service

(L) In the event that service is required within the warranty period, such service will be rendered without labor charge. However, all travel and living expenses will be the responsibility of the customer.

(M) FMA, Inc. will attempt to repair the problem with factory personnel or at our option authorize a local outside repair agency to perform the work.

(N) Customer's requesting use of outside repair agencies under the warranty period will be required to obtain a cost estimate prior to performing any service. Proper authorization from FMA, Inc. must be obtained by the customer before any reimbursements will be made.

Shipping Policy

(See Replacement Parts Warranty)

Return Policy

(See Replacement Parts Warranty)

Replacement Parts Warranty

(A) Replacement parts supplied by FMA, Inc. are for the sole use in FMA, Inc. Screen Printing and Drying Equipment. No other use or application is expressed or implied.

(B) Any oral statements made by FMA, Inc., the seller or any other parties regarding product suitability, reliability and/or longevity do not constitute warranties and shall not be relied upon by the user and are not part of the sale.

(C) Replacement parts of FMA, Inc. manufacture are guaranteed to be free from defects in material and workmanship for a period of ninety days (or 520 hours whichever comes first) from the date of receipt. There are no implied warranties of merchantability or of fitness for a particular purpose other than direct replacement for original equipment.

(D) Purchased components used in FMA, Inc. equipment are guaranteed to be free from defects in material and workmanship for a period of 30 days (or 175 hours whichever comes first) from the date of receipt (or as listed below) regardless of the components manufacturers' warranty.

- i. Conveyor Belts.....90 days
(edge seam or bullnose failure only)
- ii. UV Curing Lamps.....Pro-Rated

(E) In no event shall FMA, Inc. be liable for any damages whether direct, indirect, immediate foreseeable, consequential or special arising out of the use of replacement parts supplied for use in FMA, Inc. Screen Printing and Drying Equipment. FMA, Inc. shall not be liable for any expenses or lost production incurred by the purchaser through the use or failure of replacement parts. The sole responsibility of FMA, Inc. is to repair and/or replace the defective parts.

(F) FMA, Inc. will correct any defects in workmanship or materials which may develop under proper care and normal operating conditions or at our option replace defective parts under the terms set forth above. Evidence of misuse, abuse or incorrect installation of the replacement parts will invalidate warranty.

(G) FMA, Inc. will make every attempt to replace the defective components as quickly as possible; however, replacement material (and related shipping charges) purchased by the customer will not be subject to reimbursement unless prior authorization is obtained from FMA, Inc.

(H) Components received under warranty from FMA, Inc. are for immediate replacement only. Components held in customer's stock are warranted as stipulated in paragraph "D". Defective material subject to credit must be returned to FMA, Inc. within a reasonable amount of time.

(I) Due to availability and variations, FMA, Inc. reserves the right to substitute parts or material of comparable quality for direct replacement in FMA, Inc. Screen Printing and Drying Equipment.

(J) FMA, Inc. reserves the right to make changes and/or discontinue items without prior notice at any time.

Shipping Policy

(K) FMA, Inc. will repay and absorb any normal shipping costs within the Continental United States for replacement parts under warranty. FMA, Inc. reserves the right to select the shipment method to expedite arrival at the customer's location.

(L) In no event shall FMA, Inc. be liable for any damages whether direct, indirect, immediate foreseeable or consequential arising from shipment delay or stock availability.

(M) The customer may be responsible for any freight and handling charges if special shipping or services are requested. This includes but is not limited to Saturday delivery fees, counter to counter service and any courier service requested to transport replacement parts.

Returns

(N) Returns on electrical parts will not be allowed. This includes but is not limited to relays, motors, brakes, contactors, etc.

(O) FMA, Inc. reserves the right to request the return of defective or damaged material for the purpose of evaluation, and/or credit or exchange.

(P) All merchandise returned to FMA, Inc. must be shipped via prepaid freight unless authorized otherwise.

(Q) For proper credit to the customer's account, all returns must be authorized by FMA, Inc. by a return authorization or a return authorization number. Any merchandise returned without the above may be returned to the customer at the customer's expense.

(R) Returns required as a result of FMA, Inc. error are exempt from the above terms.

UV Lamp Warranty

(A) FMA, Inc. UV curing lamps are for the sole use in FMA, Inc. UV Curing Equipment. No other uses or application is expressed or implied. No warranty is offered or implied on FMA, Inc. UV Lamps for use in equipment not manufactured by FMA, Inc.

(B) Any oral statements made by FMA, Inc. the seller or any other parties regarding product suitability, reliability or longevity do not constitute warranties and shall not be relied upon by the user and are not part of the sale.

(C) No performance warranty is expressed or implied. All warranties apply to defects in workmanship and materials.

(D) FMA, Inc. UV curing lamps are warranted for 800 hours or 20 weeks; whichever comes first.

(E) Lamps found defective up to 120 hours (or three weeks whichever comes first) will be replaced at no charge.

(F) Any lamp obtaining 800 hours (or 20 weeks whichever comes first) will be considered "Full Life".

(G) Any lamp failure between 121 and 799 hours will be pro-rated as indicated below.

$$\text{i. } \frac{\# \text{ Hours Used}}{800} \times \text{List Price} = \$ \text{ Amount of Usage}$$

$$\text{ii } \frac{\# \text{ Weeks}}{800} \times 40 \text{ Hours} \times \text{List Price} = \$ \text{ Amount of Usage}$$

(H) Any lamp broken in transit from FMA, Inc. will be replaced by FMA, Inc. at no charge. Except as outlined in paragraphs I, J and K.

Shipping Policy

(I) FMA, Inc. will prepay and absorb any normal shipping cost within the Continental United States for defective lamp claims of 120 hours or less. FMA, Inc. reserves the right to select the shipping method and/or carrier to expedite arrival at the customer's location.

(J) FMA, Inc. will not be responsible for lamps damaged in shipment, nor any freight, handling or special service charges incurred by FMA, Inc., through carriers other than suggested by FMA, Inc.

(K) The customer may be responsible for any freight and handling charges if special shipping or services are requested. This includes but is not limited to Saturday delivery fees, counter to counter service and any courier service requested to transport the replacement parts.

(L) In no event shall FMA, Inc. be responsible for any damages whether direct, indirect, immediate foreseeable or consequential arising from shipment delay or stock availability.

(M) In no event shall FMA, Inc. be liable for any damages whether direct, indirect, immediate foreseeable, consequential or special arising out of component failure due to defective material supplied for use in FMA, Inc. Screen Printing and Drying Equipment. FMA, Inc. shall not be liable for any expenses or lost production incurred by the purchaser through the failure of components supplied for use by FMA, Inc. The sole responsibility of FMA, Inc. is to repair and/or replace the defective component(s).

Returns

(N) FMA, Inc. reserves the right to request the return of defective or damaged lamps for the purpose of evaluation, and/or credit or exchange.

(O) For proper account credit, all returns must be authorized by FMA, Inc. and be accompanied by a return authorization or a return authorization number. Any merchandise returned to FMA, Inc. without the above may be returned to the customer at the customer's expense.

(P) All merchandise returned to FMA, Inc. must be shipped via prepaid freight unless authorized otherwise.

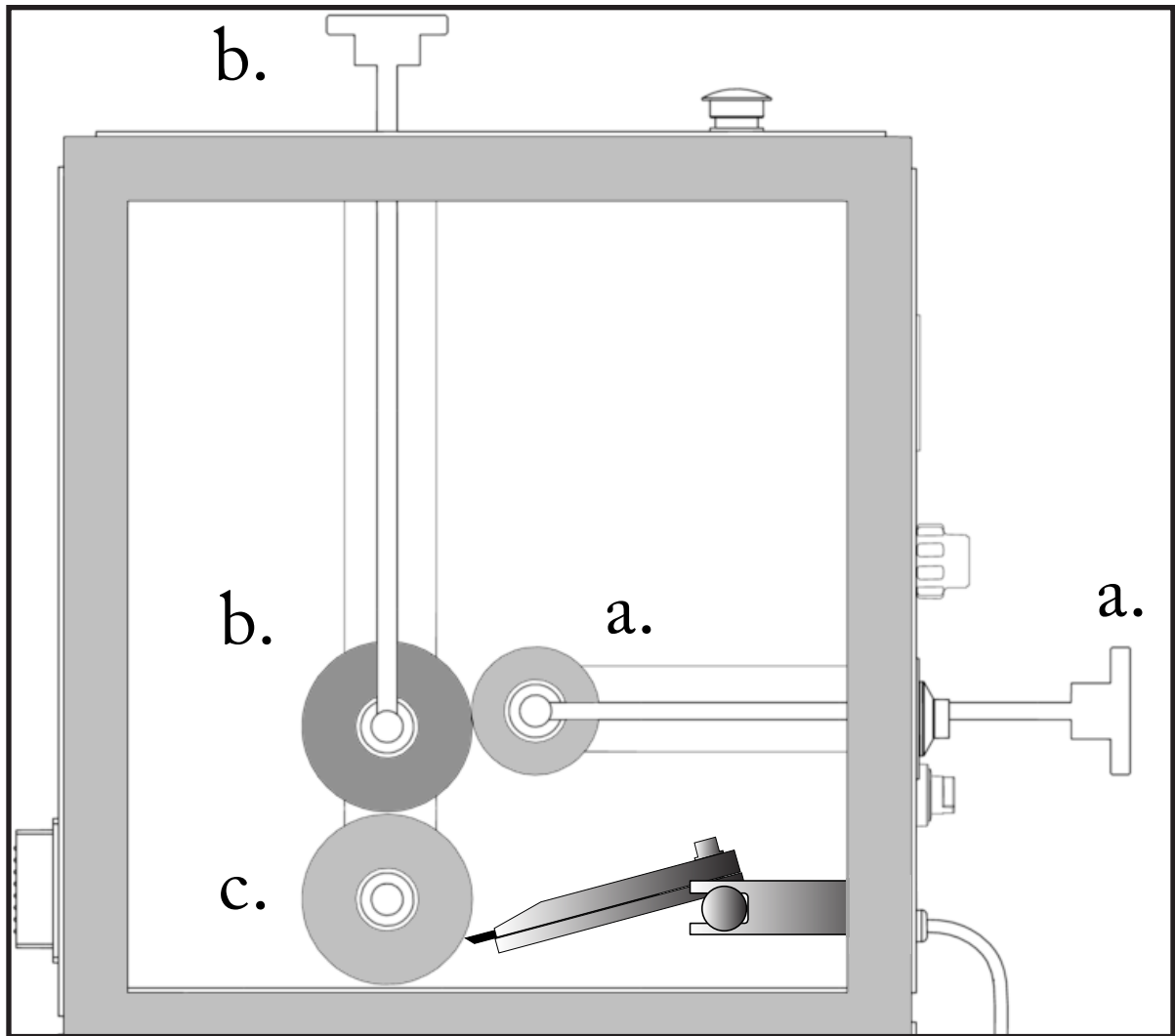
(Q) Returns required as a result of FMA, Inc. error are exempt from the above terms.

UV LAMP TIME SHEET

Model No. _____ S/N _____

UV Lamp P/N _____

[illegible]



ROLL STACK DIAGRAM

a. Metering Roll b. Applicator Roll c. Bottom Roll

MAIN CONTROL PANEL DIAGRAM

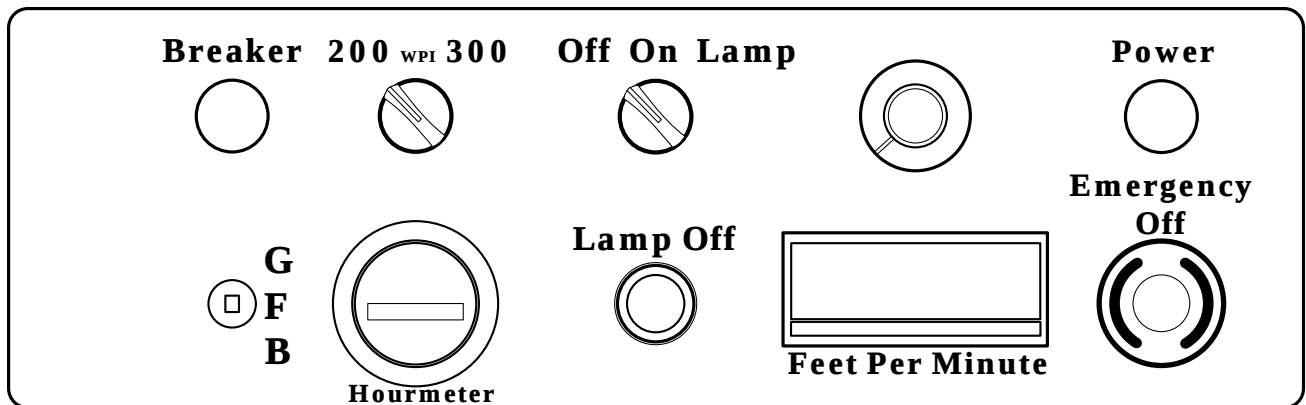
Breaker Lamp - illuminates when the breaker has been tripped

200 WPI 300 - switches UV Lamp intensity. Normal position is 200

Off On Lamp - UV Lamp power switch

Conveyor Speed Dial - controls the speed of the conveyor belt

Power Lamp - indicates that Control Panel has power



Emergency Off - E-Stop (Emergency Stop) stops all electrical machine operation

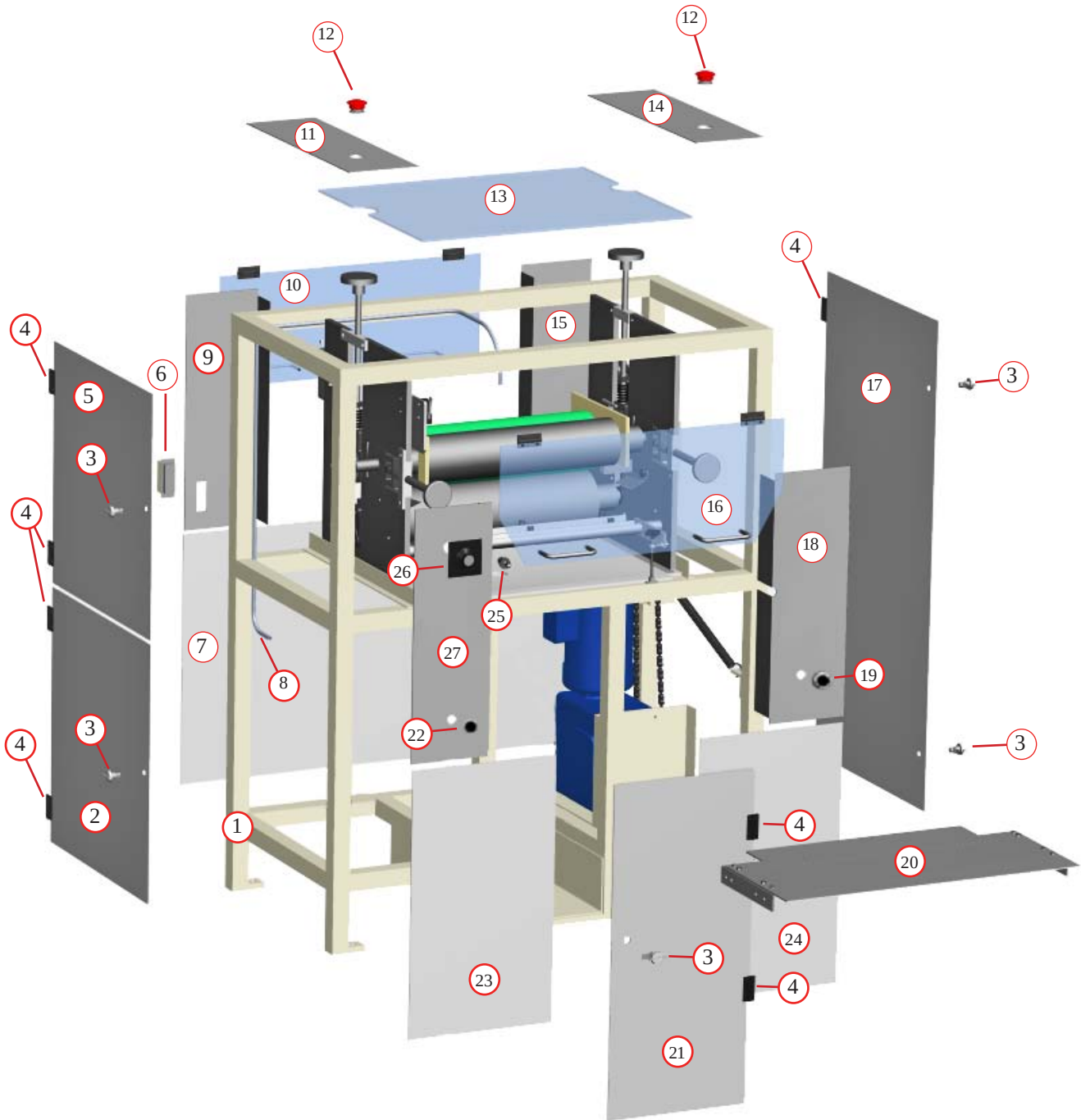
Feet Per Minute - L.E.D. readout for Conveyor Belt speed

Lamp Off - push button to turn off UV Lamp

Hourmeter - records the amount of time the machine has run

G-F-B Breaker Switch - run position is up (G) If tripped, switch will move to down position. To reset: pull switch down (all the way) and push up to G

EXPLODED VIEW COMPONENT LISTING



COMPONENT DESCRIPTION QTY FMA PART NUMBER

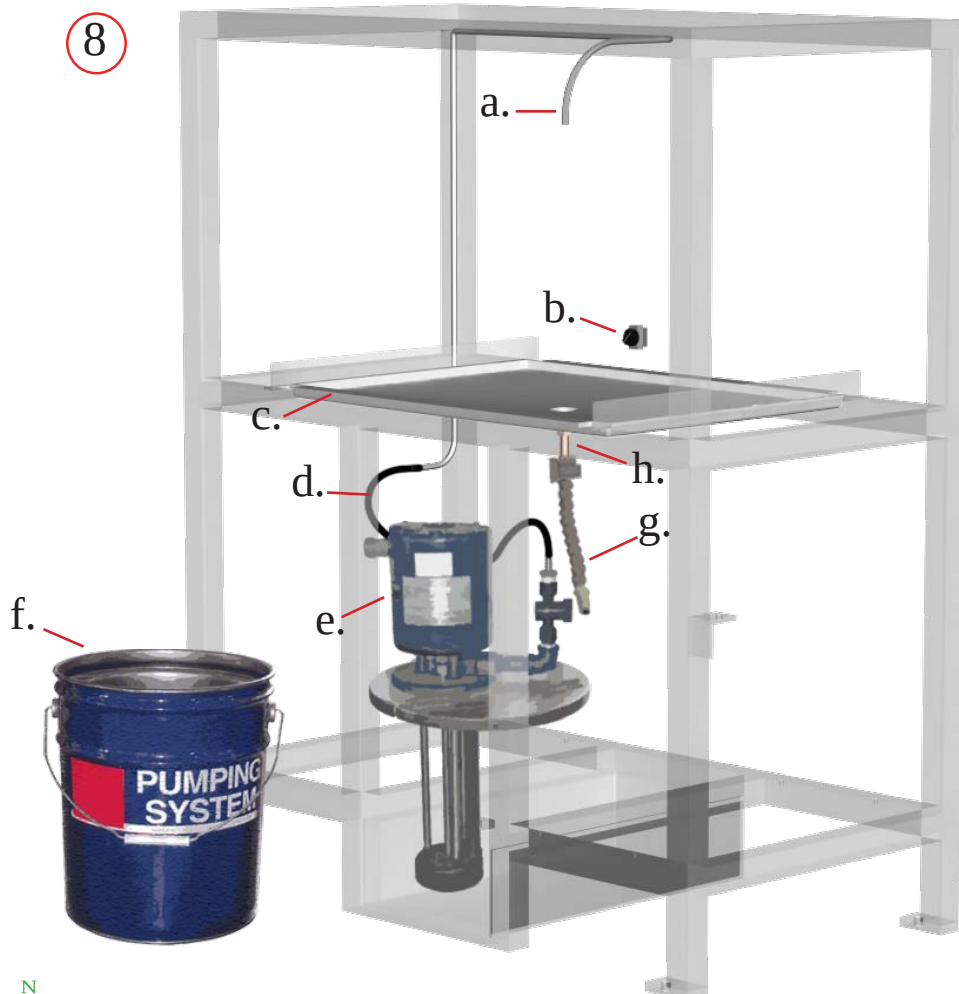
1	Main Frame	1	300215-14	300215-16	300215-20	300215-32
2	Side Door (lower) OP	1	300216			
3	Door Latch	5	700096			
4	Hinge	8	700095			
5	Side Door (upper) OP	1	300219			
6	Multi-Pin Connector Jack	1	300220			
7	Back Panel (lower)	1	300221-14	300221-16	300221-20	300221-32
8	UV Coating Delivery System	1	300355			
	a. Stainless Steel Feed Line	1	300222			
	b. Electric Pump On/Off Switch	1	700401			
	c. Drip Tray	1	300231-14	300231-16	300231-20	300231-32
	d. $\frac{3}{8}$ " Neoprene Hose – Pump Line	1	700170			
	e. UV Pump	1	300356			
	f. Pumping System Pail	1	300357			
	g. Flex Drain Line	1	300358			
	h. Hose Adaptor (hose barb)	1	700135			
9	Back Panel (upper) OP	1	300236			
10	Lexan Safety Shield Assmy (back)	1	300357-14	300357-16	300357-20	300357-32
	a. Door Handle	2	700157			
	b. Phillips Head 8-32x $\frac{1}{2}$	4	300238			
	c. Door Hinge	2	700095			
	d. Lexan Safety Shield	1	300240-14	300240-16	300240-20	300240-32
11	Top Panel - OP	1	300241			
12	Locking Emergency Stop Button	1	300242			
13	Lexan Shield (Top)	1	300243-14	300243-16	300243-20	300243-32
14	Top Panel – Non-OP	1	300244			
15	Back Panel (upper) – Non-OP	1	300245			
16	Lexan Safety Shield Assmy (front)	1	300358-14	300358-16	300358-20	300358-32
	a. Door Handle	1	700157			
	b. Phillips Head 8-32x $\frac{1}{2}$	4	300247			
	c. Door Hinge	2	700095			
	d. Lexan Safety Shield	1	300249-14	300249-16	300249-20	300249-32
17	Side Door – Non-OP	1	300250			
18	Control Panel (front) Non-OP	1	300251			
19	UV Pump Switch (on/off)	1	700401			
20	Feed Table Assembly	1	300360-14	300360-16	300360-20	300360-32
	a. $\frac{3}{8}$ Nut	8	300263			
	b. $\frac{3}{8}$ Lock Washer	8	300264			
	c. $\frac{3}{8}$ Washer	8	300265			
	d. Feed Table Mounting Bracket - OP	2	30266			
	e. Feed Table (rear section)	1	300267-14	300267-16	300267-20	300267-32
	f. Feed Table (forward section)	1	300268-14	300268-16	300268-20	300268-32
	g. $\frac{3}{8}$ x 16 x $\frac{3}{4}$ Bolts	8	300269			

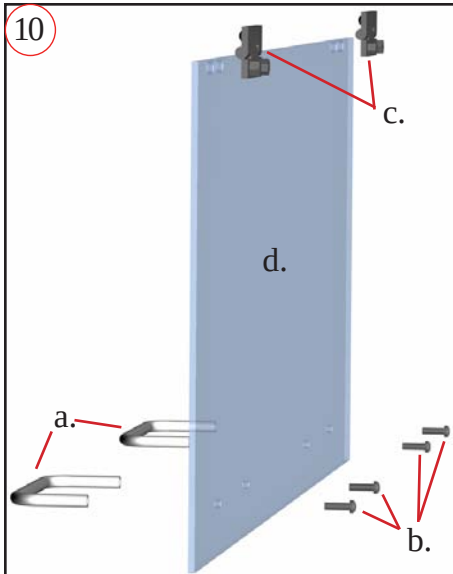


IV APPENDIX

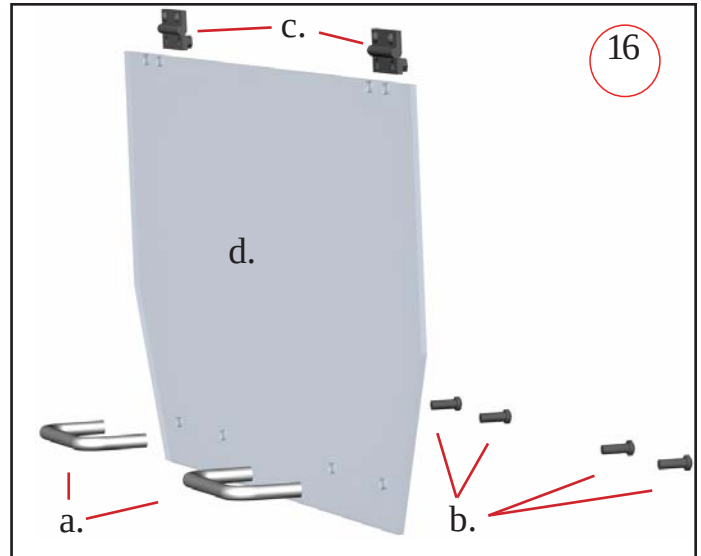
COMPONENT DESCRIPTION QTY FMA PART NUMBER

21	UV Cabinet Door	1	300271-14	300271-16	300271-20	300271-32
22	Push Button Hand Switch	1	300272			
23	Front Panel (lower) OP	1	300273-14	300273-16	300273-20	300273-32
24	Front Panel (lower) Non-OP	1	300274-14	300274-16	300274-20	300274-32
25	Tree Position Drive Switch	1	700093			
26	Roll Speed Control	1	600548			
27	Control Panel (front) OP	1	300230			
28	Gutter (lower) Non-OP	1	300277			
29	Gutter (lower) OP	1	300278			

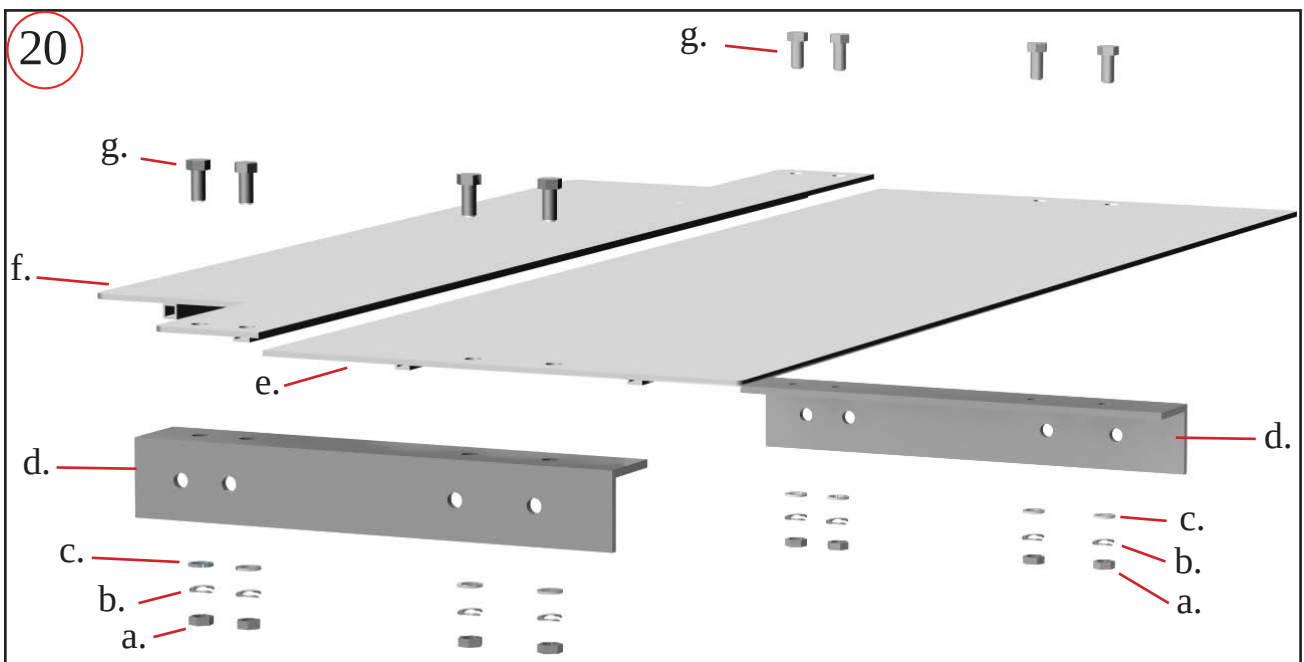




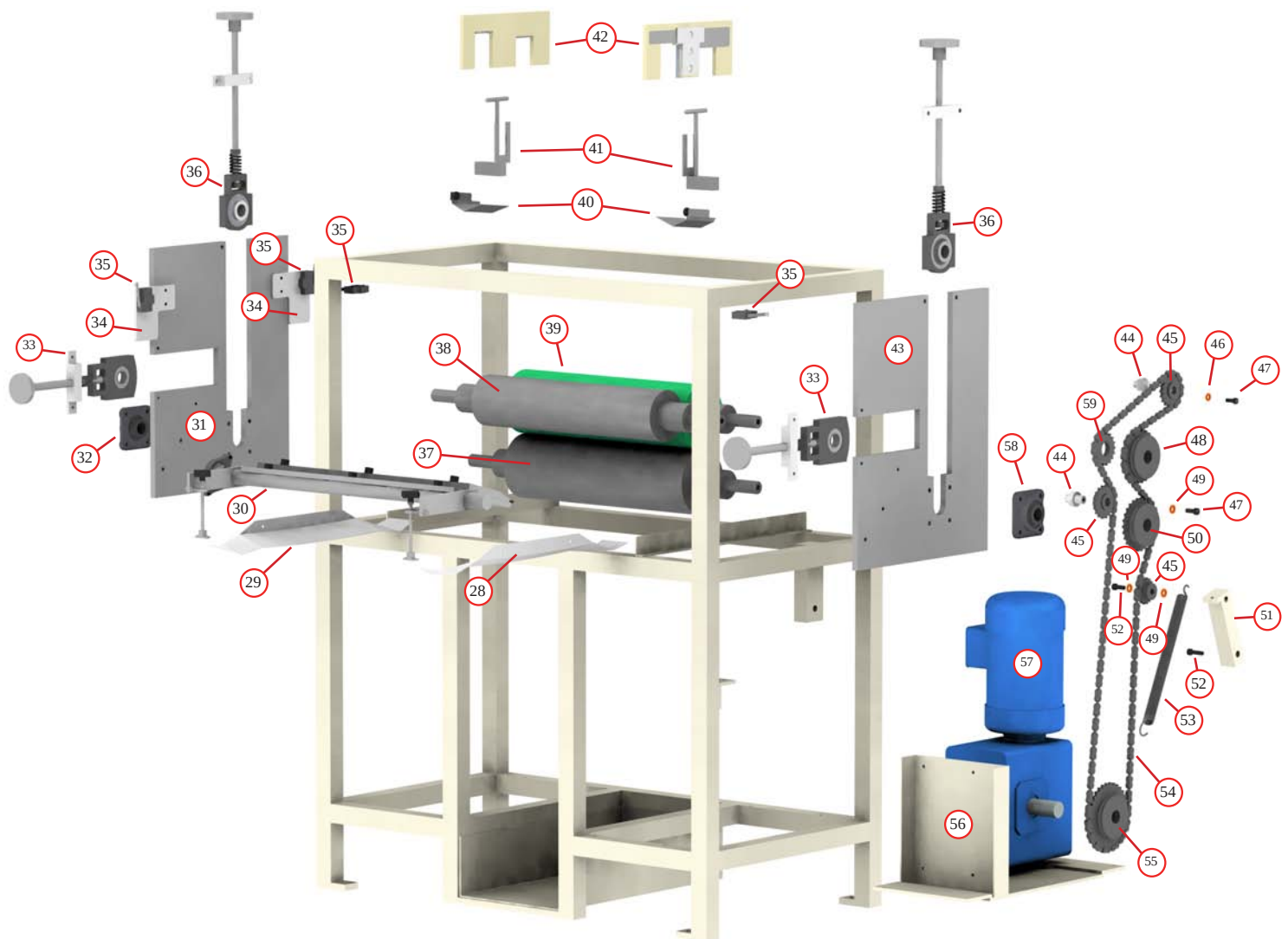
Lexan Safety Shield Assembly (Back)



Lexan Safety Shield Assembly (Front)



Feed Table Assembly



COMPONENT DESCRIPTION QTY FMA PART NUMBER

30	Doctor Blade Assembly	1	300361-14	300361-16	300361-20	300361-32
	a. Hex Head Bolts $\frac{3}{8}$ x $\frac{7}{8}$	6	300279			
	b. Lock Washers	3	300280			
	c. Flat Washers	3	300281			
	d. Doctor Blade Top Plate	1	300282-14	300282-16	300282-20	300282-32
	e. Doctor Blade	1	700069-14	700069-16	700069-20	700069-32
	f. Doctor Blade Bottom Plate	1	300284-14	300284-16	300284-20	300284-32
	g. Shaft	1	300285-14	300285-16	300285-20	300285-32
	h. Bearing Assembly	2	600176			
	i. Torsion Arm	2	300287			
	j. Anchor Block	2	300288			
	k. Jam Nut $\frac{3}{8}$ " Fine Thread	4	300289			
	l. Rod End	2	700127			
	m. Torsion Adjustment Screw (stock)	2	300291			
	n. Jam Nut $\frac{3}{8}$ " Course	2	300292			
	o. Doctor Blade Adjustment Knob	2	300293			

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IV APPENDIX

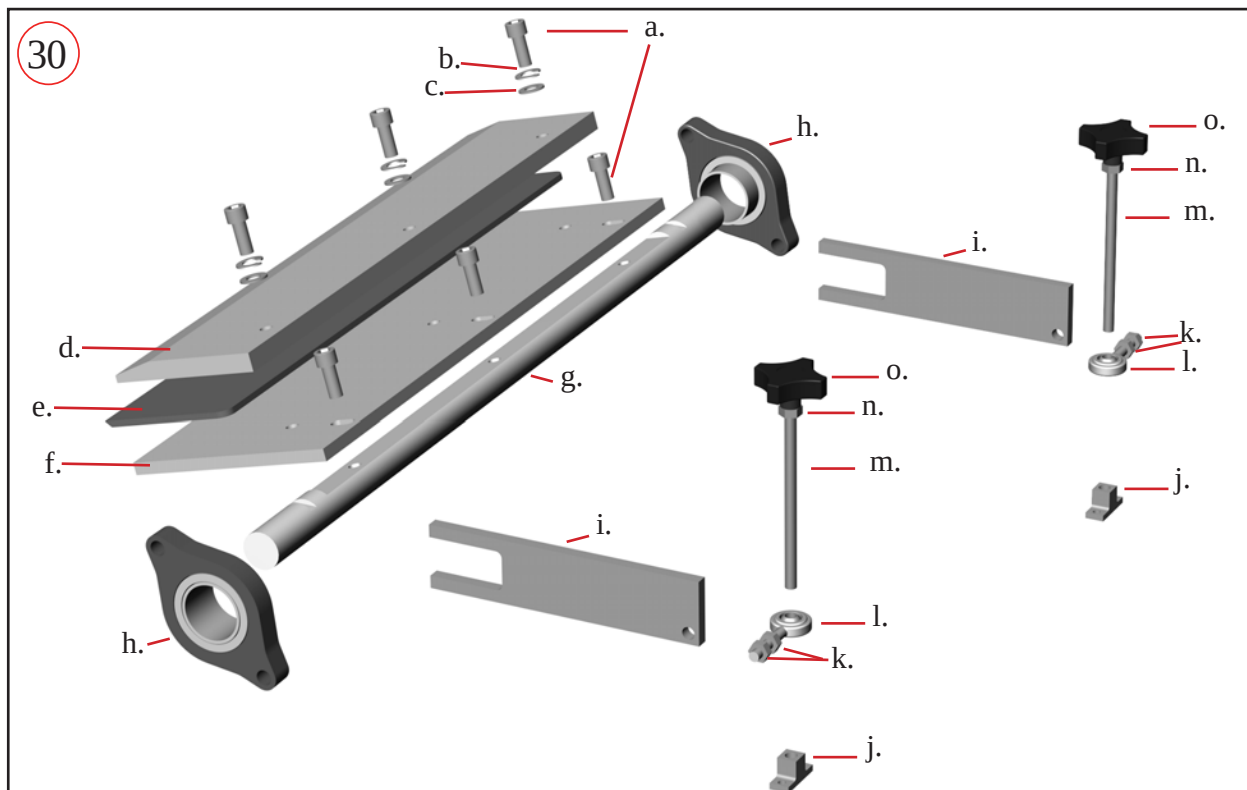
COMPONENT DESCRIPTION QTY FMA PART NUMBER

31	Side Deck - OP	1	300294			
32	Roller Bearing Assembly (bottom)	1	300295			
33	Metering Roller Adjustment Assembly	2	300296			
	a. Bearing Assembly	1	300297			
	b. Collar	2	700085			
	c. Thrust Washer	4	700075			
	d. Needle Bearing	2	300300			
	e. Compression Spring	1	700088			
	f. Adjustment Mounting Block	1	300302			
	g. Knob	1	300303			
	h. $\frac{5}{8}$ - 18 All-Thread Stock	1	300304			
34	Safety Switch Mounting Bracket	2	300305			
35	Safety Interlock Switch	4	600110			
36	Applicator Roller Adjustment Assmy	2	300307			
	a. Bearing Assembly	1	300308			
	b. Collar	2	700085			
	c. Thrust Washer	4	700075			
	d. Needle Bearing	2	300311			
	e. Compression Spring	1	700088			
	f. Adjustment Mounting Block	1	300313			
	g. Knob	1	300314			
	h. $\frac{5}{8}$ - 18 All-Thread Stock	1	300315			
37	Bottom Roller	1	700103	700106	700109	700112
38	Metering Roller	1	700101	700104	700107	700110
39	Applicator Roller	1	700102A	700105A	700108A	700111A
40	Gutter Assembly Set (upper)	1	300362			
	a. OP Gutter	1	300323			
	b. Non-OP Gutter	1	300324			
	c. Knob	2	300325			
	d. Screw	2	300326			
41	End Dam Bracket Assembly	1	300327			
	a. Mounting Block	2	300328			
	b. OP Bayonet Rack	1	300329			
	c. Non-OP Bayonet Rack	1	300330			
	d. T-Handle	2	300331			
42	End Dam Assembly	1	300363			
	a. OP Wiper Pad	1	300333			
	b. Non-OP Wiper Pad	1	300334			
	c. Wiper Pad Mounting Screws	4	300335			
	d. Side Plate	2	300063			
	e. Slide Lock	2	300064			
	f. Slide Lock Mounting Screws	4	300336			

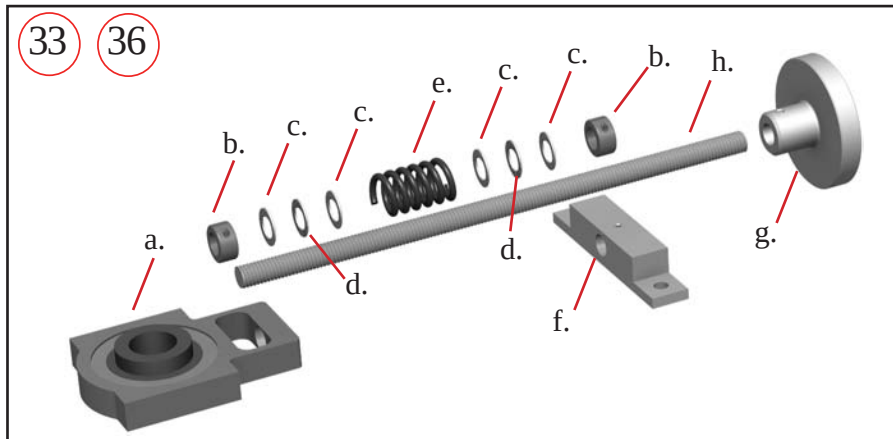


COMPONENT DESCRIPTION QTY FMA PART NUMBER

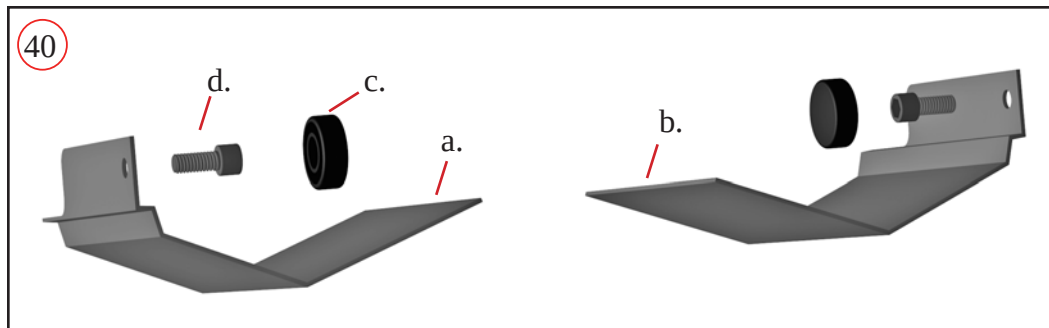
43	Side Deck – Non-OP	1	300338			
44	5/8" Collar (non-threaded)	2	700084			
45	Idler Sprocket	3	700141			
46	1/2" Brass Washer	3	700083			
47	Hex Head 5/8 x 2 1/2" Shoulder Bolt	2	700132			
48	Applicator Roller Sprocket	1	700145			
49	Taper Lock Bushing	3	700147			
50	Bottom Roller Sprocket	1	700145			
51	Chain Tensioning Arm	1	300348			
52	Hex Head 5/8 x 1" Shoulder Bolt	2	700131			
53	Tensioning Spring	1	700159			
54	Drive Chain	1	300351			
55	Main Drive Sprocket	1	700144			
56	Drive Motor Mounting Plate	1	300353			
57	Drive Motor	1	700149			
58	Bottom Roller Bearing Assembly	1	300354			
59	Metering Roller Sprocket	1	700146			



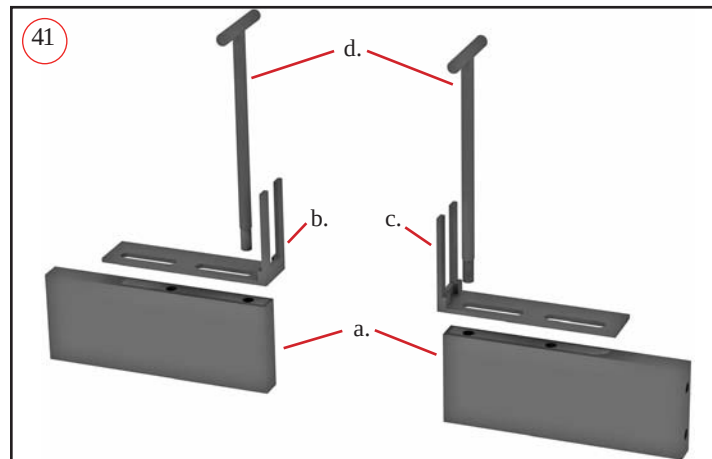
Doctor Blade Assembly



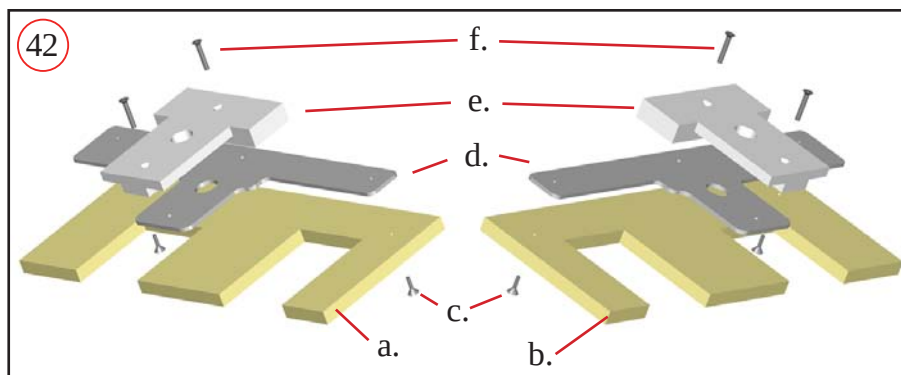
Metering Roller Assembly & Applicator Roller Adjustment Assembly



Upper Gutter Assembly

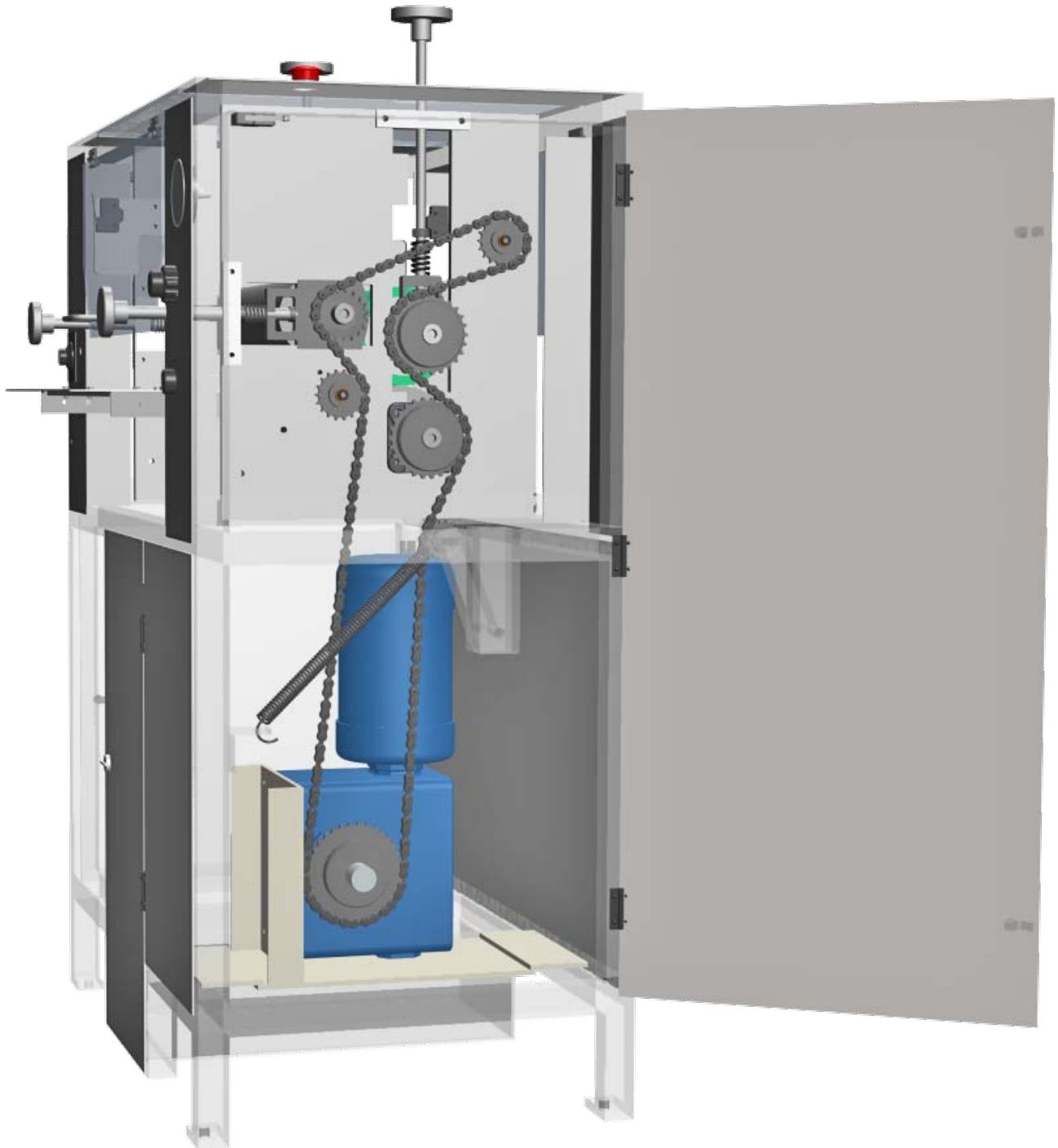


End Dam Bracket Assembly



End Dam Assembly

Drive Chain Assembly

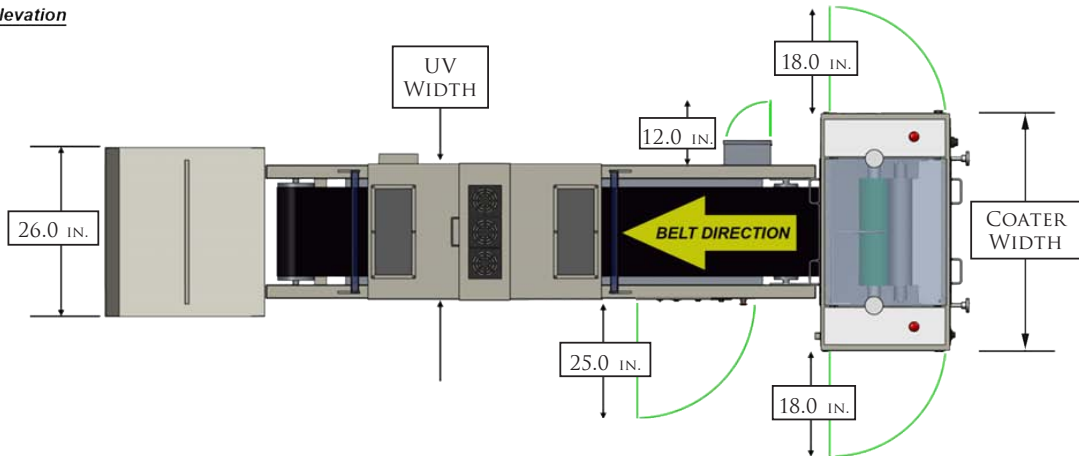


LINE LAYOUT

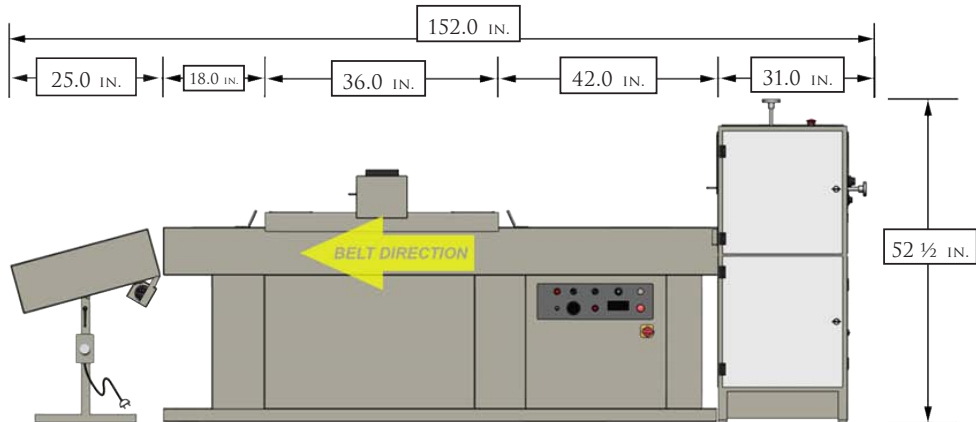
SIZE	UV WIDTH (INCHES)	COATER WIDTH (INCHES)	AMPS
RCS-16	29 ½	40	45 ¹
RCS-20	33 ½	44	50 ¹
RCS-24	37 ½	48	55 ¹
CATCH TRAY	N/A	N/A	1.25

¹ add 8 amps for models equipped with thin substrate removal system

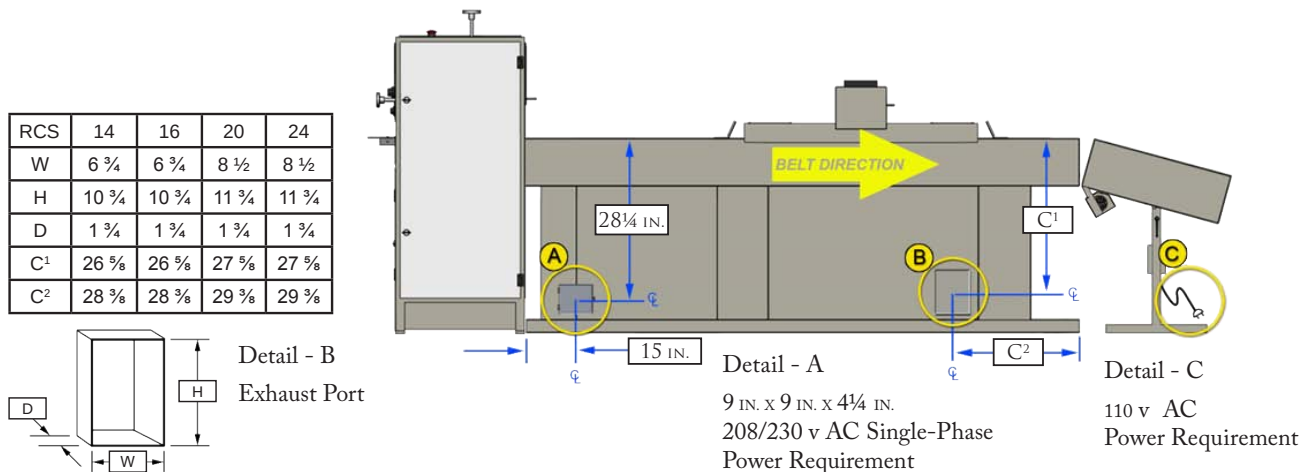
Top Elevation



Front Elevation



Back Elevation

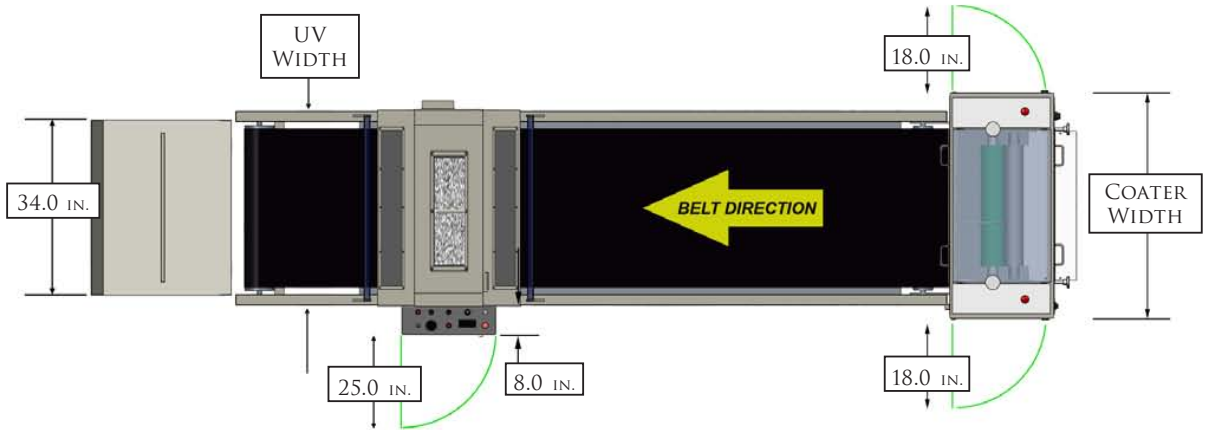


LINE LAYOUT

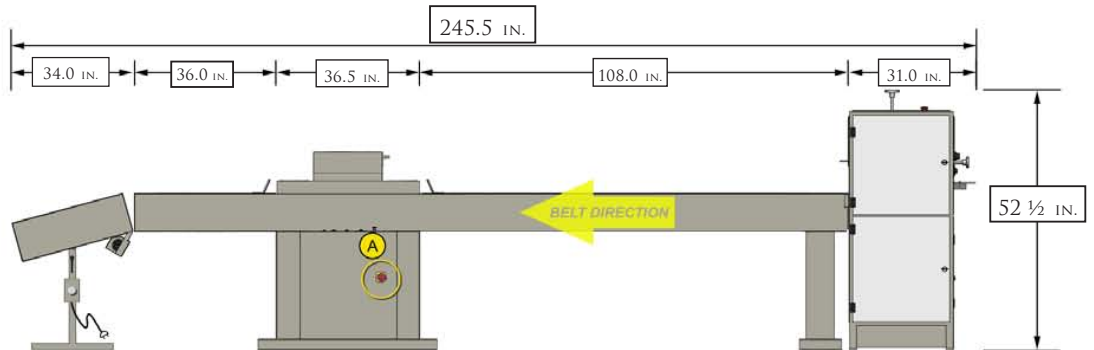
SIZE	UV WIDTH (INCHES)	COATER WIDTH (INCHES)	AMPS
RCS-32	47	56	70 ¹
RCS-36	53	60	80 ¹
CATCH TRAY	N/A	N/A	1.25

¹ add 8 amps for models equipped with thin substrate removal system

TOP VIEW



FRONT ELEVATION



Detail - A

208/230 v AC Single Phase
Power Requirement

BACK ELEVATION

