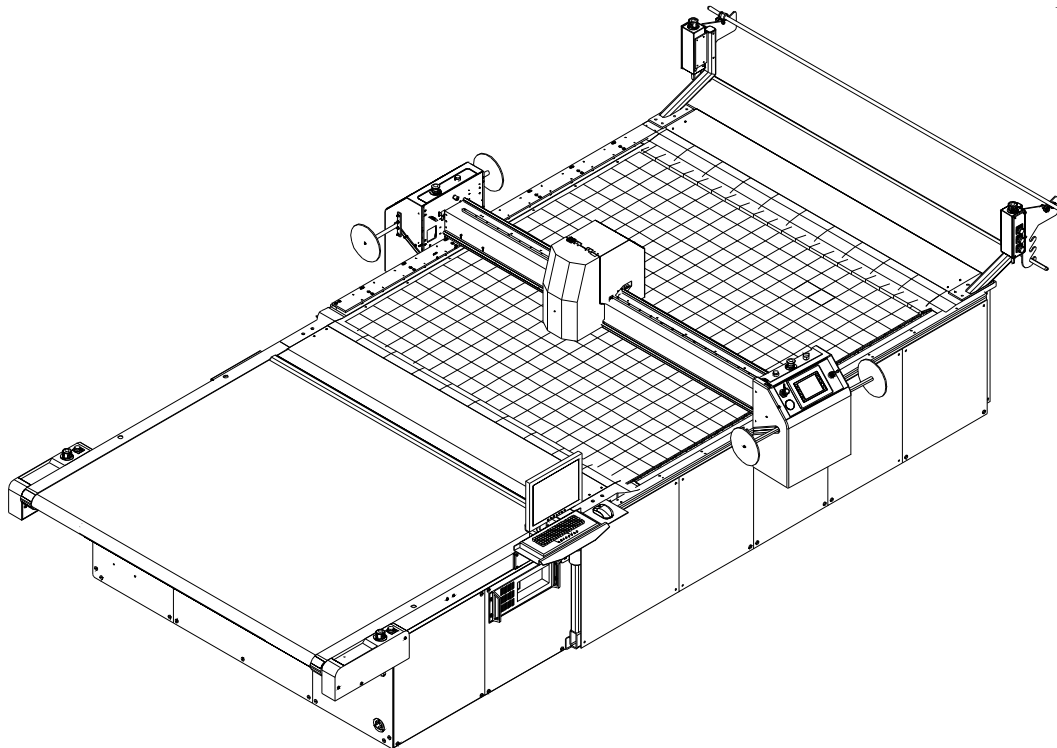


Eastman®

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**THE EASTMAN®**  
**Multi-ply**  
**Automatic Cutting System**  
**Model MPC**  
**Installation Manual**

Technical Support:  
1-800-872-5595



**⚠ WARNING**

This machine is equipped with a very sharp knife. Keep hands, arms, and hair away from the knife area at all times.

Misuse of this machine or failure to follow all safety instructions on this machine and in the instruction manual may result in serious personal injuries.

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*Over a Century of Cutting Expertise*

779 Washington St., Buffalo, N.Y. 14203-1396 U.S.A. • (716)856-2200 • Fax (716)856-1140 or (716)856-2068  
Manufacturers of Eastman Cloth Cutting and Cloth Spreading Machines  
Website: [www.EastmanCuts.com](http://www.EastmanCuts.com)

## Congratulations

Congratulations in selecting an Eastman Multi-Ply cutter. With over 100 years of experience in the cutting room, Eastman is a world leader in cutting equipment. Every Eastman employee takes pride in each machine we build and back it with unprecedented support. Our Technical Service department is made up of a dedicated staff of professionals with years of experience installing, troubleshooting and servicing the Multi-Ply cutter. Each technician is familiar with all aspects of the machine including mechanical, electrical and software.

Eastman Machine Company provides technical support and on-site service as required. We offer several affordable Extended Warranty plans that allow you to continue the superior technical support well after the machine is past our standard warranty. If you require on-site technical support or would like to schedule a preventive maintenance visit or need additional training, please call our headquarters in Buffalo, NY to arrange for a technician.

## Technical Support

Eastman Machine Company  
779 Washington Street  
Buffalo, NY 14203  
Phone: 716-856-2200  
Fax: 716-856-2068

**Limited Warranty.** Eastman warrants to the buyer that the equipment shall be free from defects in materials or workmanship for a period of 180 days commencing on the date of invoice. Any goods or parts claimed by the buyer to be defective must be returned to Eastman, freight charges prepaid, within the 180 day warranty period. If Eastman determines that the goods or parts are defective in materials or workmanship, Eastman's sole obligation under this warranty shall be, at Eastman's sole option, to repair or replace the defective goods or parts or to provide the buyer credit equal to the portion of the purchase price allocable to the defective goods or parts. This warranty should not apply if defects are caused by product misuse or neglect, if the machine has been altered or modified by the buyer or if other than genuine Eastman parts are used in the machine. THIS WARRANTY IS APPLICABLE TO THIS PURCHASE ONLY. SELLER DISCLAIMS ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

**Limitation of Liability.** Eastman's liability to the buyer, and the buyer's remedies from Eastman whether in contract, negligence, under any warranty or otherwise, shall be limited to the remedies provided in the foregoing Limited Warranty. In no event shall Eastman have any responsibility or liability to the buyer for (a) any special, indirect, incidental, or consequential damages, including, but not limited to, loss of use, revenue, or profit even if Eastman has been advised of the possibility of such damages, or (b) any claim against the buyer by any third party. The price stated for the product sold is a consideration for limiting Eastman's liability.

## IMPORTANT

The purchaser must instruct all operators on the proper use of this equipment. All standard industrial safety measures and equipment should be provided to protect the operator. Operators must be cautioned that improper or careless use of this equipment may cause personal injury. If you do not have qualified operators to instruct new persons, contact your EASTMAN sales representative or EASTMAN factory direct.

Electrical connections and servicing to this equipment should be made by a qualified electrician who is familiar with applicable codes and regulations. Disconnect this equipment from electrical power source before proceeding with any disassembly for adjustment or repair.

Your Eastman **Multi-Ply Cutter** is designed to operate at a high rate speed. All personnel should be instructed to wear safety glasses and stand well clear of the **Multi-Ply Cutter** when in operation.

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## Site Preparation Requirements

### Loading Dock

In most cases the machine will be transported by common carrier freight truck. It is necessary to unload the truck which requires an unloading dock. If an unloading dock is not available then Eastman has to be contacted to make special preparations. Also it should be ensured that enough room and equipment is available to move the machine crates to the installation area. The freight door must accommodate 96 inches.

### Floor space

The floor space required will be dependent on the machine size purchased. Typically for a standard machine the space required is 3 feet wider than the cutting width and 3 feet longer than the length. It is important to have this space available as parts / components of the machine travel at speed that can harm individuals if there is not enough room. Also additional space is required to accommodate accessories like spreading table, spreading machine, etc.

### Ventilation

It is recommended that the machine should be installed in a clean and dry environment. This will extend it's useful life. The machine may not operate correctly if the surrounding environment is not clean. The room should be adequately ventilated to provide clean cool air as the machine will exhaust warm air into the room environment. Optionally the exhaust warm air may be ducted outside the room.

### Air-Pressure

The machine requires clean and dry compressed air for operation. The air supply must be at least 35 SCFM minimum. It should also have supply of Filtered and dry shop air w/75 – 100 PSI. The filter and dry air must remove 95% - 98% of all particles 40 microns or larger. All airlines must be in place at time of installation.

### Floor-Support

The floor must be able to suspend loads greater than machine weight and additional working loads. Please consult factory to know the weight of the machine.

---

## Floor-Leveling

It is important that the machine is installed on a leveled and stable floor. No deviation more than 1" from horizontal, (+/- 1/2") over the entire length is acceptable during installation. However the machine is outfitted with leveling feet which can handle irregular surfaces up to 1" per 16 foot grade. Machine configured with transverse drive will need tighter grade tolerance depending on quantity of spreading tables utilized. Consult factory when ordering.

## Integration with Spreading Machines

The conveyor machine can be integrated to be used with a variety of material dispensing machines. Machines that can be incorporated with the conveyor include spreading machines, power feed, cradles and multi-bar roll stands. Eastman Machine Company can be consulted for assistance in configuring your specific needs.

## Utilities (power outlets)

It is the responsibility of the customer to provide outlets for electrical and compressed air requirements for the below mentioned items

### Electrical Requirements for Computer and Cutter

The electrical control cabinet contains all electrical components for the system with the exception of the blower. Contained within the control cabinet are all the electrical components including amplifiers for the Gantry and the conveyor. The cabinet also has a 120 VAC outlet for the computer and computer monitor.

### Multiply Cutter Control Cabinet (Indicate desired 3 phase voltage)

Control Cabinet: (1) 208 (30 amp), 230(30 amp), 400(15 amp), 460(15 amp) or 575 volts (12 Amp) three phase - grounded dedicate line VAC, 3 Phase, 50/60 Hz

### Electrical Requirements for All Other Associated Equipment

Spreading Machine: (if so equipped) 100 to 120 volt (15 Amp) single phase-three prong dedicated line

Air Floatation Table: (if so equipped) 100 to 120 volt (15 Amp) single phase-three prong dedicated line

### VFD and Blower Power Requirements

Blower motor 30 HP @ 460 volts requires a 70 amp circuit breaker, 30 HP @ full load 40 amps

Three-phase grounded dedicated line VAC, 3 Phase, 50/60 HZ

## Machine Assembly Instructions

### Preparation before Unpacking

Before starting the unpacking the following items has to be reviewed with the customer.

- It is the responsibility of customer to hire a qualified electrician to wire the VFD or starter unit so that power can be supplied to the blower motor. The electrician needs to wire the incoming power to L1(R), L2(S), L3(T) and ground. He also has to provide wire or cable for outgoing power to blower motor i.e. T1(U), T2(V), T3(W) and ground. Eastman supplies a 3-phase plug for the power to the electronics cabinet and it is the responsibility of the customer to provide the power cable to the electronics cabinet.
- Compressed air requirements and location.
- Machine placement and orientation machine.

### Unpacking Instructions

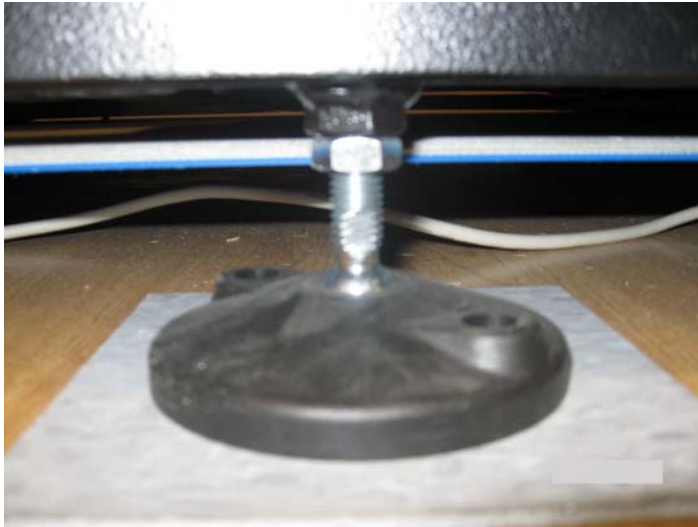
Before starting the unpacking, the conveyor machine along with the gantry wooden pallet and the computer and any additional feeding systems like, floatation table, spreading machines must be unloaded from the shipping trailer. The unloading is the responsibility of the customer / client. After unloading the following steps has to be followed.

- Carefully remove all the shrink wrap and tape on the conveyor using a utility knife.
- Remove all items found on the top of the conveyor surface and place it in a safe and convenient place.
- Remove the tri-wall cap and sleeve from the gantry wooden pallet.
- Cut the binding straps using utility knife and remove the boxes from gantry wooden pallet.
- Inspect the items in the boxes and verify that all components, hardware and accessories are included and undamaged.
- Leave the gantry on the wooden pallet and place the same in a safe and convenient place.

---

## Assembly and Mounting Instructions

- Push the conveyor to the identified place or location as desired or chosen while it is on large travel wheels.
- Ensure that the machine is placed parallel to the wall or any fixed object.
- Ensure that when the machine is placed it is in compliance with safety regulations and hazards.
- Start mounting the leveling feet supplied by Eastman in the frame (10) pieces.



(Picture shown for Eagle since Multi-Ply picture doesn't exist).

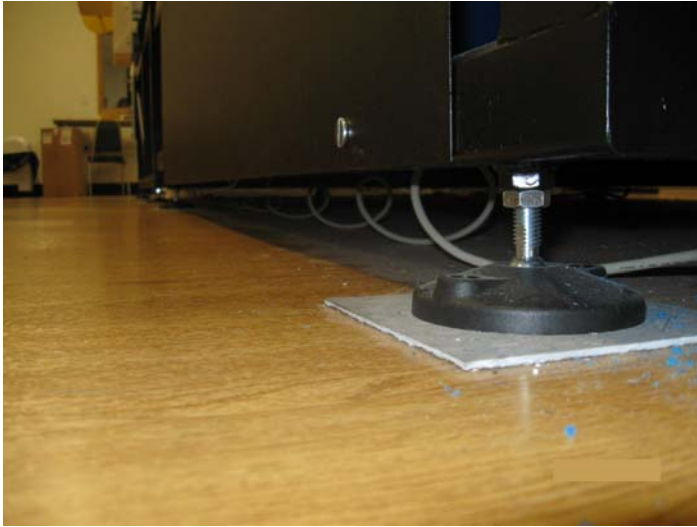
- Using the jacks attached to the travel wheel, lower the machine to the desired operating elevation and ensure machine is level.
- Remove the ½"-13 set screws from the leveling foot location (10) places.
- Remove the hardware securing the red caster wheels, remove the (8) wheels, return the hardware with a thread sealant to prevent leaks (10) places.
- Now lower the leveling feet to contact the floor.
- Now raise the travel wheel further and remove from machine.

---

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- The machine will now be supported by the leveling feet.



(Picture shown for Eagle since Multi-Ply picture doesn't exist).

- Ensure again that the machine is parallel in reference to a fixed object.
- Level the frame by adjusting the leveling feet using leveling tools such as carpenter level, torpedo level or string until you achieve a level of  $\pm 1/32"$ .
- Remove the operator side cover and non-operator side cover from the gantry.
- Remove the four THK linear bearings with the bearing blocks from the gantry found on both the operator side and non-operator side.





- 
- Place the operator side THK linear bearing on the operator side rail facing towards the take-off side.
  - Place the non-operator side THK linear bearing on the non-operator side rail facing towards the take-off side.
  - Use three wooden pieces 2"x 4" stacked one upon the other on either side of the table.

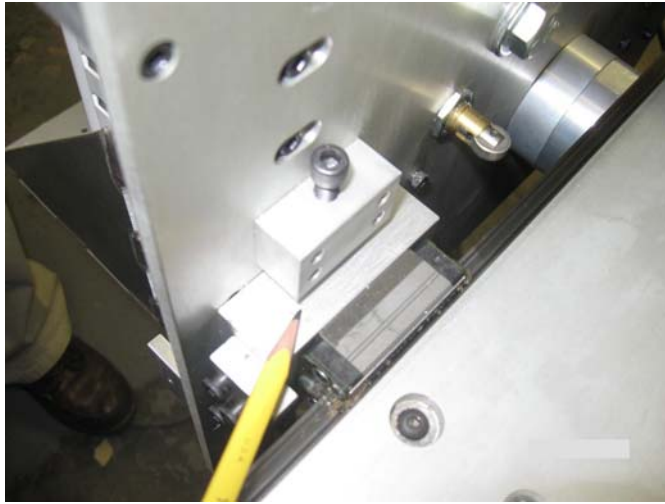


- Using two persons remove the gantry from the wooden crate and place it on the two stacks of wood on top of conveyor table.



- Lift the gantry up and remove the wooden pieces, while holding the gantry in the same position drop it down to rest on the THK linear bearings, then slide the front bearings found on the take-on side both on the operator side and non-operator side.

- Ensure that the gantry is placed on the bearings / bearing blocks.



- 
- Insert the screws to the bearing blocks so that it holds the bearings on the gantry.

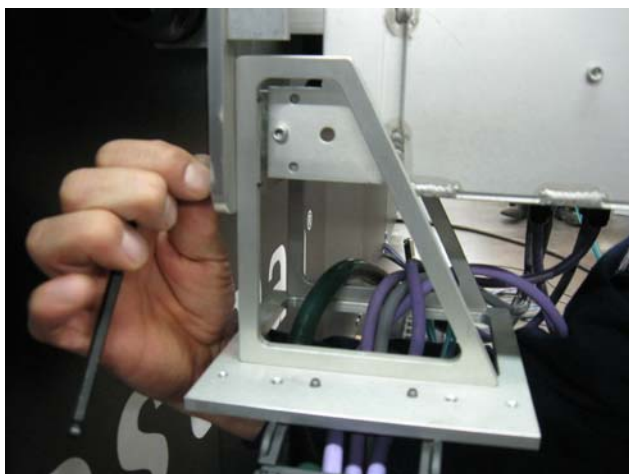


- Adjust the back lash on the operator side and non operator side of the gantry using adjusting screws found on the back lash adjuster. Use a torpedo level to evenly raise the end plate and finally engage the spur gear into the rack and ensure there is no back lash.



- Mount the E-chain trough to the frame on the non-operator side using (3) bolts.

- Install the E-chain mounting bracket to the non-operator end plate by securing the (4) screws, (2) screws on either side of the bracket.



- Ensure that the gantry I/O, UIT cable, gantry out, gantry in, air line, power cable are connected to the non-operating side end plate.

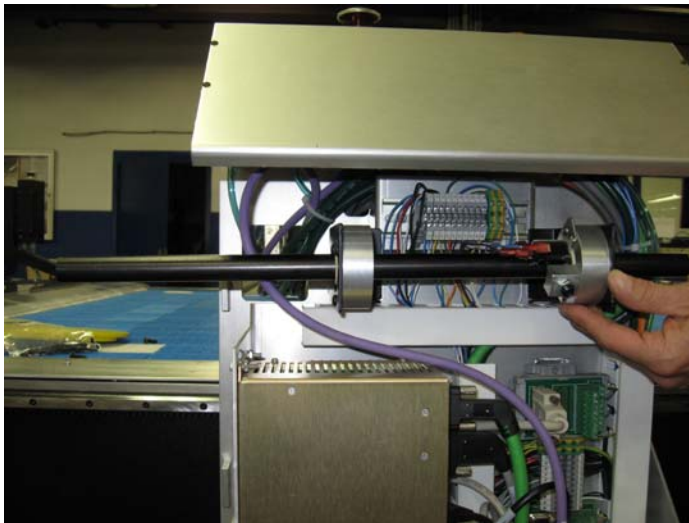


- Ensure that the above mentioned cables run through the E-chain.

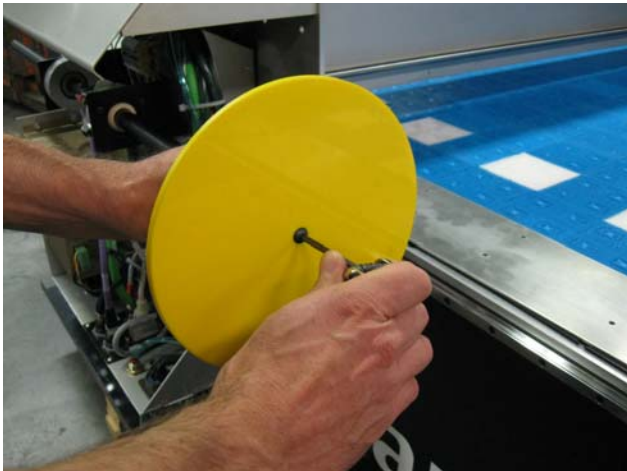
- 
- Ensure that the e-chain is placed in the E-chain trough and secured to the e-chain trough through (2) screws.



- Ensure the other ends of cables are connected to the computer and power source.
- Insert and assemble the stop discs into the operator side and non-operator side covers by ensuring that the groove on the stop disc rod is in alignment with limit switch.







- Put on the non-operator and operator side covers on the gantry.



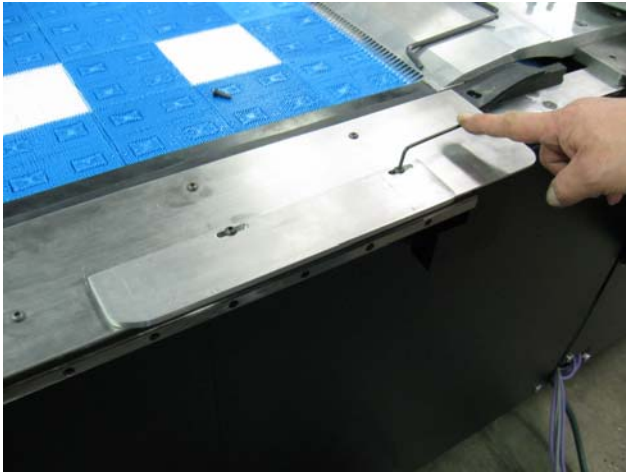
- 
- Ensure that the edge seal is properly aligned with the rack plate both on the operator side and non-operator side of take-on conveyor.



- Lay the dress plate on top of edge seal with the rounded corners facing outwards from the machine. Align the holes with the rack plate and edge seal. Install hardware, (30) pieces per dress plate. Repeat procedure on both sides of machine.



- Determine the cam plate location on the take-off end based on the desired gantry travel. Install (2) screws to secure the cam plate to the dress plate. Follow same procedure for both sides.



- Install the gantry end stops at all four corners of the machine using the supplied hardware.

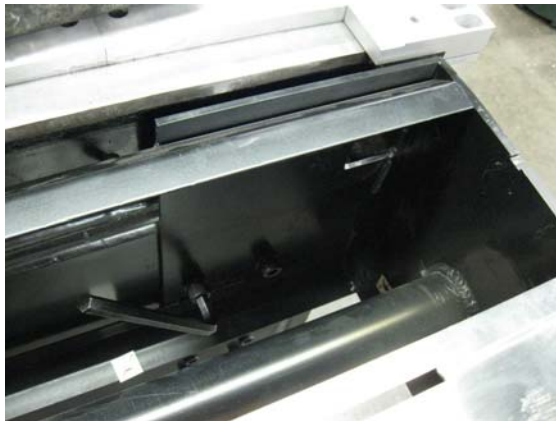




- 
- Install the finger end caps at all four corners of the machine using the supplied hardware.



- Install the sharpening assembly to the tool head.
- Install the paper roller dispenser by securing with (8) bolts, 4 at each end to the frame structure on take-on end.



- Install the paper box removable cover by securing it with (2) screws to the paper roller dispenser.
- Install the paper dispenser transfer plate by securing with (4) screws to the paper roller dispenser.

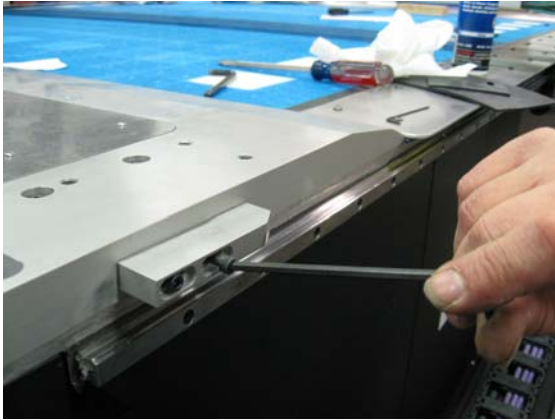


- Install the overlay tower to the finger end cap and secure the same with (5) screws. Repeat same procedure for non-operator side.



- Install the overlay tower rod on the overlay towers.
- Connect the two cables of e-stop, one cable is connected to the electronics cabinet and the other cable connects the operator side to non-operator side. The cable has to be routed and secured.

- 
- Install the cam block to the take-on, non-operator side finger end cap by securing it with (2) screws.



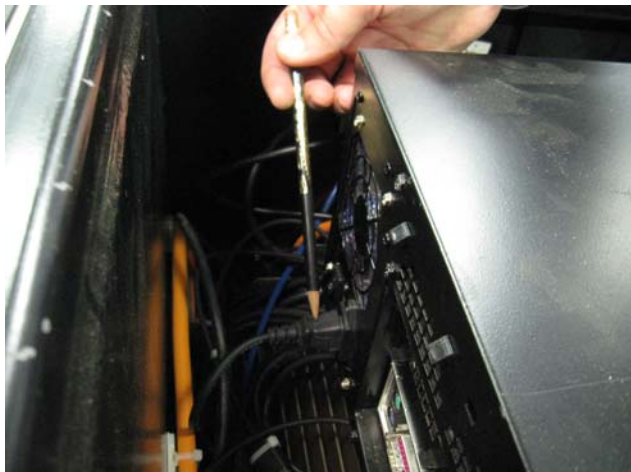
#### **Installation of computer**

- With one person holding the computer in hand the other person has to install the (4) screws, (2) on either side of the computer to secure it to the electronics cabinet.



- Install the cables at the back of the computer as mentioned below:

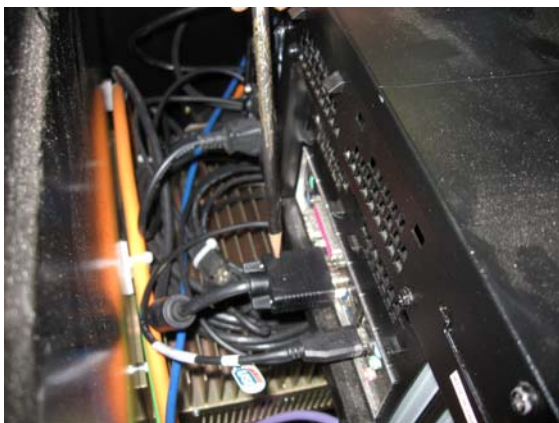
➤ Computer power cable.



➤ Flip the power switch to on position.



➤ Install video cable.



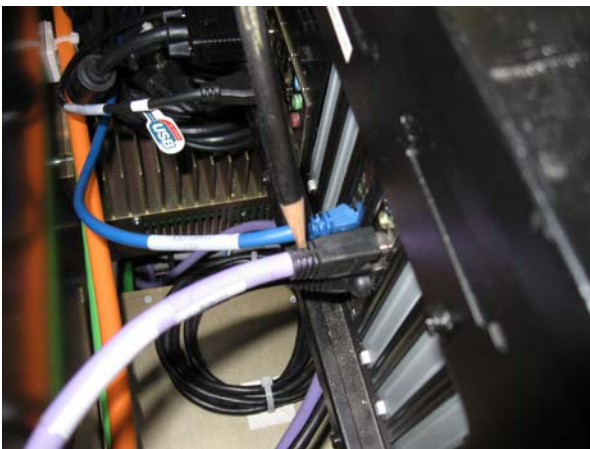
- 
- Install USB cable.



- Install UIT cable.

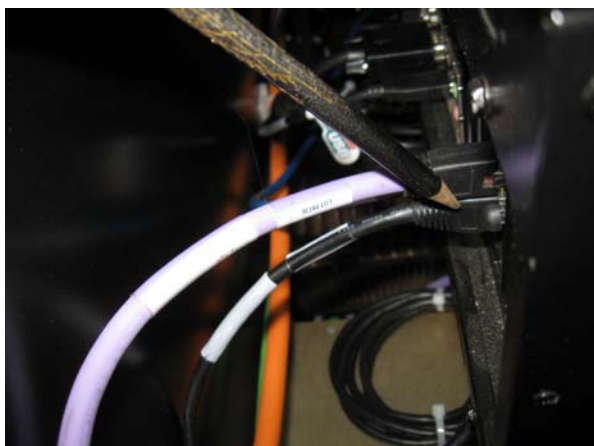


- Install SynqNet out cable.





- Install SynqNet in cable.



## Installation of computer monitor

- Install the computer monitor stand.



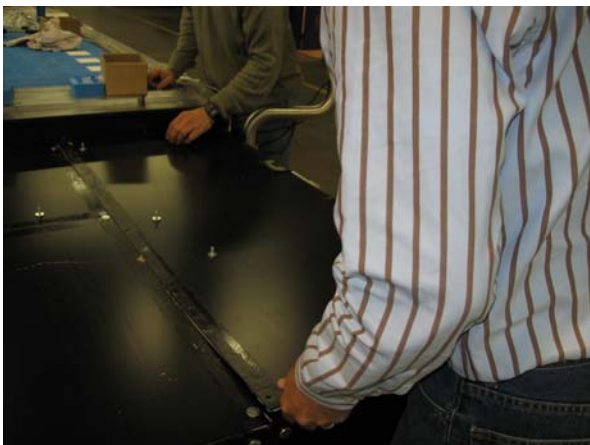
- Place the key board on stand and plug the cable to the back of monitor.



- 
- Place the mouse on the computer tray and plug the cable to the back of monitor.
  - Route all the power, video and USB cables through the computer monitor stand.
  - Plug the power cable to the back of monitor.



- Plug the video cable at the back of monitor.
  - Plug the USB cable at the back of monitor.
- Secure the electronics cabinet cover.



- Secure the blower cabinet cover.



## Installation of Take-off Conveyor

- Using (4) persons lift the take-off conveyor and place it on the electronics and blower frame assembly.



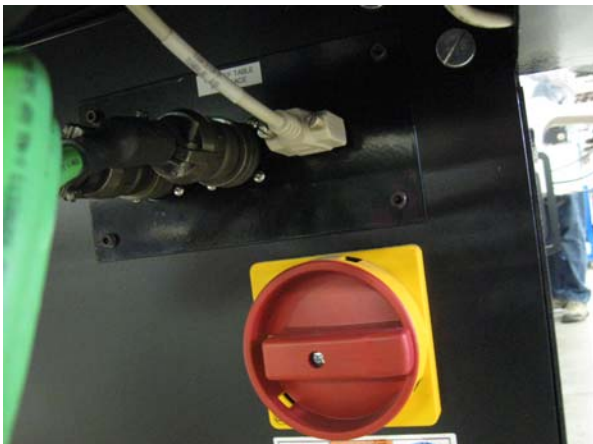


- 
- Install and tighten (4) allen bolts to secure the take-off conveyor to frame structure.



- The motor power, motor feedback, DV 15 cables need to be connected to the electronics cabinet.





- Secure the side covers to the take-off conveyor side supports with (4) screws.



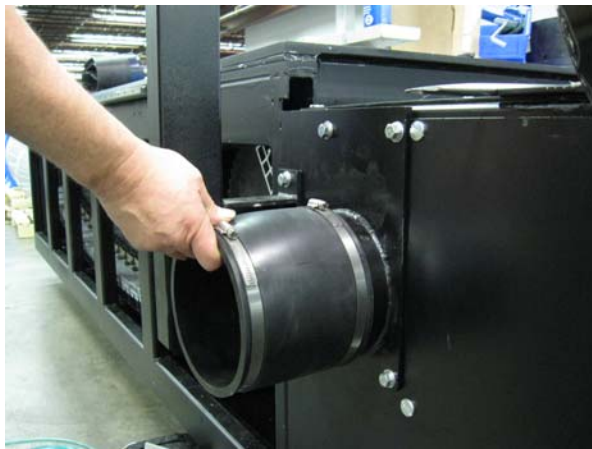
- Lay one end of transfer plate on the bristle fingers and the other end on the take-off conveyor, install (6) screws on the transfer plate to secure it to the bristle fingers.



- 
- Install the exhaust stack support and secure the same by (2) bolts.



- Insert the rubber boot for exhaust stack.



- Insert the exhaust stack to the rubber boot.



- Secure the exhaust stack by clamps.



---

## Installation of Electrical items

**Note:** the customer must supply a 440-480 volts 3 phase 70 amp blower disconnect to power the VFD and blower motor.

### Wiring instructions:

- Ensure that the power is down by proper lock out / tag out procedures.



- Remove front cover of VFD by loosening the (2) screws found on the right side of cover.





- Swing open the cover from right to left.



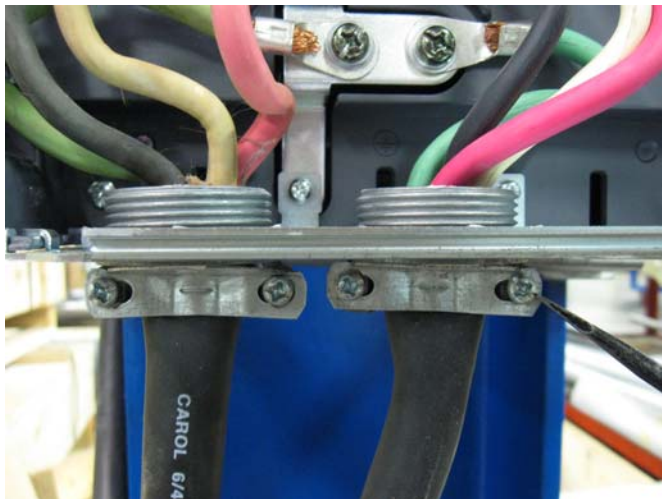
- Install incoming power cable using ring terminals as shown in the picture, the (3) incoming power wires are attached to L1, L2 & L3 terminals. Also attach the ground wire to ground terminal.



- 
- Attach the blower motor power cable using ring terminals to U, V and W terminals. Also attach the ground wire to ground terminal.



- Ensure that all connections are securely fastened.
- Secure the cables with strain relief clamps as shown.



- Attach the other end of the blower motor power cable to the terminal block in the blower motor interface box as shown.



- Ensure that wire colors match while installing on the terminal block.



- Ensure that all connections are secure.



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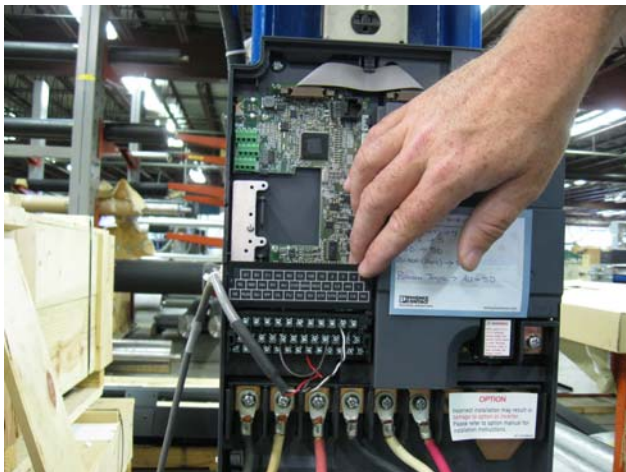
### VFD control cable:

- Identify the VFD control cable and separate from the X-axis E-chain cables.
- Bring this cable over to the VFD.
- Flip open control wiring cover and perform the below procedure:
  - Attach the white wiring to terminal 5.
  - Attach the black wire that is paired with the white wire to terminal 4.
  - Attach the red wire to terminal SD.
  - Attach the black wire paired with the red wire to terminal STF.
  - Attach the brown jumper wire between terminals AU and SD.

**Note:** this wire should already be installed.



- Flip the control wiring cover down.



- Replace the front cover of the VFD and tighten cover screws.

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## Testing Procedure

**Note:** The electrical and compressed air supply must be completed and ready to use prior to testing. Follow the instructions as mentioned below:

**Warning:**

- During testing procedure don't have the knife in the sharpening assembly.
- Don't do a sharpening sequence without the knife installed.
- Startup the machine using the recommended startup procedure provided Eastman.
- Establish the table limits.
- After successful calibration and testing put on the knife and put on the tool head covers.

---

# Power and Pneumatic Installation Instructions

## Connection details

### MULTI- PLY ELECTRONICS CONNECTION LAYOUT - POINT TO POINT CABLING

Table Drawer Connections	Cable Color	Source/ Destination
Main Power Inlet	Customer	From Building Supply
Synqnet In	Purple	From Gantry (Synq Out) thru X-Axis E-Chain
Conveyor Power	Orange	To Conveyor Motor
Conveyor Feed back	Green	To Conveyor Motor
Synqnet Out	Purple	To Computer (Synq in)
Gantry I/O	Grey	To (Gantry I/O) thru X-Axis E-Chain
Gantry Power	Green	To (Gantry Power) thru X-Axis E-Chain
Table Remote E-Stop	Grey	To Remote E-Stop Boxes

Computer Connections	Cable Color	Source / Destination
Computer Power	Black	From Computer Power Outlet at Table Drawer
Synqnet Out	Purple	To Gantry (Synq In) yhru X-Axis E-Chain
Synqnet In	Purple	From Table Drawer (Synq Out)
UIT	Purple	To Gantry (UIT yhru Poe) thru X-Axis E-Chain
Video Monitor Power	Black	From Computer Power Outlet at Table Drawer
Video Monitor Signal	Black	TO Video Monitor On Computer Stand
USB Cable	Black	TO Video Monitor On Computer Stand

<b>Gantry Connection</b>	<b>Cable Color</b>	<b>Source / Destination</b>
Synqnet In	Purple	From Computer (synq Out) thru X-Axis E-Chain
Synqnet Out	Purple	To Table Drawer (synq In) thru X-Axis E-Chain
Gantry Power	Green	From Computer (Gantry Power)thru X-Axis E-Chain
Gantry I/O	Grey	From Computer (Gantry I/O)thru X-Axis E-Chain
UIT	Purple	From Computer (UIT thru PoE)thru X-Axis E-Chain
Air Line	Blue	From Air Regulator thru X-Axis E-Chain

<b>Conveyor Motor</b>	<b>Cable Color</b>	<b>Source / Destination</b>
Motor Power	Orange	From Table Drawer (Conveyor Motor Power)
Encoder / Hall Sernsor Plug	Green	From Table Drawer (Conveyor Feedback)

<b>Operator Station</b>	<b>Cable Color</b>	<b>Source / Destination</b>
Video Monitor	Black	To Computer - Video Output
Video Power	Black	To Computer Power Outlet at Table Drawer
USB	Black	To Computer USB Port
Keyboard	Black	To Video Monitor - USB Port (Local Connection)
Mouse	Black	To Video Monitor - USB Port (Local Connection)

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VFD (Inverter)	Cable Color	Source / Destination
Main Power	Black	From VFD Disconnect (Fuse Box)
Blower Motor Power	Black	Interface box
Vfd I/O Cable	Grey	From Electronic Cabinet

Blower Motor	Cable Color	Source / Destination
Blower Motor Power	Black	From Blower Motor Interface Box

## Power requirement details

### BLOWER MOTOR (VACUUM SYSTEM) ELECTRICAL REQUIREMENTS

Motor Horsepower	Motor Voltage	Motor Ampere	Size Breaker	Eastman VFD P/N	Size wire (AWG)	Size Conduit
30	208-230	80	125	31-26389-5	3	1 1/2
30	460	40	30	31-26389-5	8	1

**Note:** In the case of 380 VAC, a special configuration can be used to control the blower motor with a VFD. Please consult Eastman if this is the case.

### MULTI-PLY CUTTER ELECTRICAL REQUIREMENTS

Machine Voltage	Machine Ampere	Size Wire (AWG)
208-240	30	10
380-415	20	12
460-480	15	14
575	12	14

**Note:** Eastman supplies a plug to connect to the Multi-Ply Machine. An Electrician is required to supply power and cable.

Supply voltage should be from a Grounded Three-Phase dedicated line.

The Control Cabinet has all required power outlets for the computer and monitor.

Any additional options purchased with machine will require a separate power connection. Consult Eastman for information.

---

## Cautions / Warnings

- Always disconnect power and follow lock out / tag out procedures prior to working on machine or opening covers.
- Never operate the machine with covers off.
- Never climb on machine with power on.
- Make sure machine surface is clear of obstructions (i.e. tools) prior to power up.
- Machine contains many pinch points, make sure operators are familiar with machine operation and hazards prior to use.
- Make sure all switches are in the “off” position prior to attaching power cords.
- Make sure air supply is turned on and cutting knife is raised prior to moving gantry else it may result in bristle damage.

## Environmental condition details

Condition	Normal Operating Condition	If Outside the normal Condition
Temperature	55-100 degrees Fahrenheit	Cutter may not operate correctly
Humidity	20% and 80% relative humidity (non Condensing)	Cutter may not operate correctly
High Altitude	Sea level to 1000 feet above sea level	Blower Pressure Will be lower (material hold will be less)
Radio Frequency* Interference (RFI) (i.e RF Welding Equipment)	No interference (Recommended 75 feet away)	Cutter may not operate correctly
Electrical Power disturbance	No Disturbances	Cutter may not operate correctly
General Shop Cleanliness	Clean Environment	Cutter may not operate correctly
Clean/Filter Shop Air	Clean Air	Cylinders may deteriorate if not clean

**\* RF Interference:**

For customers using RF welders or other equipment that emits RF, Eastman Machine Company recommends that this equipment be kept at least 70 feet away from the Eastman cutting system. High levels of RF emissions may cause the electronic controls in the system to malfunction. Please note that interference and damage, caused by RF emissions from equipment that is not stationed at least 70 feet away, may not be covered under the warranty of your Eastman cutting system.

Customer is responsible for installing and using earth grounds to protect machine from RF.

## Check-out Procedure

### Checks before Startup

- When air supply is on, tool should move to upper position on the tool head.
- All electrical cables are attached properly and secured (refer to cable checklist).
- Ensure that table surface area is free from any obstructions.
- Ensure that the emergency stops are disengaged and the stop discs are in their neutral positions.
- Ensure that all safety covers (Tool head cover, Gantry cover, side panels) are secured.
- Ensure if gantry can be pushed easily (no binding) (refer to MPC power up checklist).
- Check if the cam plates are properly installed on the table.
- Check limit switches if adjustments have to be made.
- Turn on main power to machine.
- Turn on computer.
- Check with multi-ply cutter VFD power up check list.
- Follow start-up / operating instructions.



## Check Lists

### Multi-Ply Cutter Power Up Checklist

Voltage Check	Description	Possible Remedy	Complete
Voltage Correct For Machine	Check Machine Name Plate For Correct Voltage Or Verify Incoming Power Plug Type		
Phase To Phase Check	Using DMM Check Voltages Across All 3 Phases - All Should Be Same	Check Fusing and Wiring At Source	
Phase To Ground Check	Using DMM Check Voltages From Each Phase To Ground - All Should be same	Check Fusing and Wiring At Source	

Network Topology Checkout	Description	Possible Remedy	Complete
Open Rapid Setup	Double Click On RSI Icon On Desktop		
Verify Synq State	Synq State Should Be [Synq] With a Green Background	If not check node map to identify where node cabling is incorrect	
Verify Idle Cable Status	Idle Cable Statw Should Be [Good] With a Green Background	If not check node map to identify where node cabling is incorrect	

X2 Axis Checkout	Description	Possible Remedy	Complete
Verify Encoder Operation	X2 Motor -> Dedicated IO Tab -> Move Axis and Look For Encoder Counts	Check Green Feedback Cable Between X2 Motor & Amp	
Verify Hall Sensor Operation	X2 Motor -> Dedicated IO Tab -> Move Axis and Look For Hall Sensor Changes	Check Green Feedback Cable Between X2 Motor & Amp	
Verify Home Switch Operation	X2 Motor -> Dedicated IO Tab -> Move Axis and Look For Home Arrow To Toggle	Check Limit Cam Plate, Check Wiring	
Verify Positive Limit Switch Operation	X2 Motor -> Dedicated IO Tab -> Press Pos.' Limit Switch and Look For Home Arrow To Toggle	Check Limit Cam Plate, Check Wiring	
Verify Negative Limit Switch Operation	X2 Motor -> Dedicated IO Tab -> Press Neg. Limit Switch and Look For Home Arrow To Toggle	Check Limit Cam Plate, Check Wiring	
Verify Electronic Gearing Enabled	X2 Motor -> Electric Gantry Tab -> Verify Green & Geared To X1 With -1 Ratio	Reset Electronic Gearing Parameters In Rapid Setup	

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<b>X1 Axis Checkout</b>	<b>Description</b>	<b>Possible Remedy</b>	<b>Complete</b>
Verify Encoder Operation	X1 Motor -> Dedicated IO Tab -> Move Axis and Look For Encoder Counts	Check Green Feedback Cable Between X1 Motor & Amp	
Verify Hall Sensor Operation	X1 Motor -> Dedicated IO Tab -> Move Axis and Look For Hall Sensor Changes	Check Green Feedback Cable Between X1 Motor & Amp	
Verify Home Switch Operation	X1 Motor -> Dedicated IO Tab -> Press Home Switch and Look For Home Arrow To Toggle	Check Limit Cam Plate, Check Wiring	
Verify Positive Limit Switch Operation	X1 Motor -> Dedicated IO Tab -> Press Pos. Limit Switch and Look For Home Arrow To Toggle	Check Limit Cam Plate, Check Wiring	
Verify Negative Limit Switch Operation	X1 Motor -> Dedicated IO Tab -> Press Neg. Limit Switch and Look For Home Arrow To Toggle	Check Limit Cam Plate, Check Wiring	

<b>Theta Axis Checkout</b>	<b>Description</b>	<b>Possible Remedy</b>	<b>Complete</b>
Verify Encoder Operation	Theta Motor -> Dedicated IO Tab -> Move Axis and Look For Encoder Counts	Check Green Feedback Cable Between Theta Motor & Amp	
Verify Hall Sensor Operation	Theta Motor -> Dedicated IO Tab -> Move Axis and Look For Hall Sensor Changes	Check Green Feedback Cable Between Theta Motor & Amp	
Verify Home Switch Operation	Theta Motor -> Dedicated IO Tab -> Align Prox Switch With Trigger and Look For Home Arrow To Toggle	Check Proximity Switch Trigger Distance, Check Wiring	

<b>Y Axis Checkout</b>	<b>Description</b>	<b>Possible Remedy</b>	<b>Complete</b>
Verify Encoder Operation	Y Motor -> Dedicated IO Tab -> Move Axis and Look For Encoder Counts	Check Green Feedback Cable Between Y Motor & Amp	
Verify Hall Sensor Operation	Y Motor -> Dedicated IO Tab -> Move Axis and Look For Hall Sensor Changes	Check Green Feedback Cable Between Y Motor & Amp	
Verify Home Switch Operation	Y Motor -> Dedicated IO Tab -> Press Home Switch and Look For Home Arrow To Toggle	Check Limit Cam Plate, Check Wiring	
Verify Positive Limit Switch Operation	Y Motor -> Dedicated IO Tab -> Press Pos. Limit Switch and Look For Home Arrow To Toggle	Check Limit Cam Plate, Check Wiring	
Verify Negative Limit Switch Operation	Y Motor -> Dedicated IO Tab -> Press Neg. Limit Switch and Look For Home Arrow To Toggle	Check Limit Cam Plate, Check Wiring	

<b>Knife Axis Checkout</b>	<b>Description</b>	<b>Possible Remedy</b>	<b>Complete</b>
Verify Encoder Operation	Conveyor Motor -> Dedicated IO Tab -> Move Axis and Look For Encoder Counts	Check Green Feedback Cable Between Knife Motor & Amp	
Verify Hall Sensor Operation	Conveyor Motor -> Dedicated IO Tab -> Move Axis and Look For Hall Sensor Changes	Check Green Feedback Cable Between Knife Motor & Amp	

<b>Cutting Conveyor Axis Checkout</b>	<b>Description</b>	<b>Possible Remedy</b>	<b>Complete</b>
Verify Encoder Operation	Knife Motor -> Dedicated IO Tab -> Move Axis and Look For Encoder Counts (If Possible)	Check Green Feedback Cable Between Conveyor Motor & Amp	
Verify Hall Sensor Operation	Knife Motor -> Dedicated IO Tab -> Move Axis and Look For Hall Sensor Changes (If Possible)	Check Green Feedback Cable Between Conveyor Motor & Amp	

Takeoff Table Axis Checkout	Description	Possible Remedy	Complete
Verify Encoder Operation	Takeoff Motor -> Dedicated IO Tab -> Move Axis and Look For Encoder Counts (If Possible)	Check Green Feedback Cable Between Takeoff Motor & Amp	
Verify Hall Sensor Operation	Takeoff Motor -> Dedicated IO Tab -> Move Axis and Look For Hall Sensor Changes (If Possible)	Check Green Feedback Cable Between Takeoff Motor & Amp	

X-Axis I/O Checkout	Description	Possible Remedy	Complete
Joystick Checkout	X Axis IO -> Move Joystick In All 4 Directions and Verify Input Signals Are Operating Correctly	Check for Loose or Broken Wire	
Gantry Stop Disc/Button Checkout	X Axis IO -> Move Each Stop Disc and Button Verify Pause Input Goes Low Each Time	Check for Loose or Broken Wire	
Tool Enable Checkout	X Axis IO -> Turn Tool Switch On and Verify Input Goes High	Check for Loose or Broken Wire	

Y- Car Checkout	Description	Possible Remedy	Complete
Test Presser Foot Up/Down	Y- Car IO -> Presser Foot Output -> Hi/Lo To Test	Problem With Air Valve/ Supply/Wiring	
Test Knife Assembly Up/Down	Y- Car IO -> Knife Assembly Output -> Hi/Lo To Test	Problem With Air Valve/ Supply/Wiring	
Verify Knife Position Sensor Operation	Y- Car IO -> Knife Assembly Up /Down Inputs -> Verify Correct Position sensing	Adjust Sensor(s) Position On Knife Cylinder	
Test Sharpener Brake	Y- Car IO -> Sharpener Brake Output -> Hi/Lo To Test	Problem With Air Valve/ Supply/Wiring	
Test Drill On/Off	Y- Car IO -> Drill On /Off Output -> Hi/Lo To Test	Problem With Air Valve/ Supply/Wiring	
Test Drill UP/Down	Y- Car IO -> Turn Drill On -> Drill Up/ Down Output -> Hi/Lo To Test	Problem With Air Valve/ Supply/Wiring	
Verify Drill Position Sensor Operation	Y- Car IO -> Drill Up /Down Inputs -> Verify Correct Position Sensing	Adjust Sensor(s) Position On Drill Cylinder	
Test Chiller On/Off	Y- Car IO -> Chiller On/Off Output -> Hi/Lo To Test	Problem With Air Valve/ Supply/Wiring	

Table I/O Checkout	Description	Possible Remedy	Complete
Test Remote Pause Buttons	Table IO ->Pause Input -> Push Remote Pause -> Look for Input To Go Lo	Problem With Cabling or Wiring	
Test Remote Start (Next) Buttons	Table IO ->Next Input -> Push Remote Start -> Look for Input To Go High	Problem With Cabling or Wiring	
Test Remote Jog Buttons	Table IO ->Conveyor Jog Input -> Push Remote Jog Button -> Look for Input To Go High	Problem With Cabling or Wiring	
Test Takeoff Jog Buttons	Table IO ->Takeoff Jog Input -> Push Jog Button -> Look for Input To Go High	Problem With Cabling or Wiring	
Test VFD On/Off Output	VFD On & In EXT Mode -> Table IO -> VFD On/Off -> Hi/Lo to Fol	VFD In Wrong Mode , Faulted or Off	
Test VFD Sped Control	Table IO ->VFD On -> VFD Speed -> Enter # & Save -> Verify Speed Change	Problem With Cabling or Wiring	
Verify Table Vacuum Input Operating	Vaccum On (VFD ON) -> Look for Correct Operation of Vacuum Level	Problem With Cabling or Wiring or Pressure Transmitter	
Verify Vacuum Filter Input Operating	Vaccum On (VFD ON) -> Look for Correct Operation of Filter Level	Problem With Cabling or Wiring or Pressure Transmitter	

Enable Amplifiers	Description	Possible Remedy	Complete
Reset E- Stops	Table IO-> E-Stop Reset -> Hi/Lo -> Verify Amp Enable Input Is High (Should Hear Contactors)	E-Stop Button Is Depressed, Wiring Problem In Stop Loop	

X2 Motor Checkout	Description	Possible Remedy	Complete
Clear Faults (After E-Stop Reset)	X2 -> Clear Faults -> Should See Status Change To [Idle] - Green	Reset E-Stops	
Verify Electronic Gantry To X1	Elec. Gearing -> Axis Is Geared To : MEI\mpData.Axis[1].TC.PositionDelta(Green) -> Ratio -1	Enable Gearing	
Enable X2 Amplifier	X2 -> Enable -> Verify Green On X2 Axis Under Motion Controller	Reset E-Stops	

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<b>X1 Motor Checkout</b>	<b>Description</b>	<b>Possible Remedy</b>	<b>Complete</b>
Verify X2 Motor Checkout Complete	See Above		
Clear Faults	X1 -> Clear Faults -> Should See Status Change To [Idle] - Green	Reset E-Stops	
Enable X1 Amplifier	X1 -> Enable -> Verify Green on X1 Axis Under Motion Controller	Reset E-Stops	
Perform X-Axis Test Move	X1 -> Motion Profile -> Select Velocity Mode and Check Jog Box	Reset E-Stops	
	X1 -> Motion Parameter -> Velocity -> Set Velocity To 10,000 Cts/Sec		
	X1 -> Motor Gantry Left & Right By Clicking On Arrow Buttons -> Verify Synchronized Motion		

<b>Theta Motor Checkout</b>	<b>Description</b>	<b>Possible Remedy</b>	<b>Complete</b>
Clear Faults	Theta -> Clear Faults -> Should See Status Change To [Idle] - Green	Reset E-Stops	
Enable Theta Amplifier	Theta -> Enable -> Verify Green on X1 Axis Under Motion Controller	Reset E-Stops	
Perform Theta Axis Test Move	Theta -> Motion Profile -> Select Velocity Mode and Check Jog Box		
	Theta -> Motion Parameter -> Velocity -> Set Velocity To 10,000 Cts/Sec		
	Theta -> Move Y - Car Left & Right By Clicking On Arrow Buttons -> Verify Motion Correct		

<b>Y Motor Checkout</b>	<b>Description</b>	<b>Possible Remedy</b>	<b>Complete</b>
Clear Faults	Knife -> Clear Faults -> Should See Status Change To [Idle] - Green	Reset E-Stops	
Enable Theta Amplifier	Knife-> Enable -> Verify Green on X1 Axis Under Motion Controller	Reset E-Stops	
Perform Theta X-Axis Test Move	Knife -> Motion Profile -> Select Velocity Mode and Check Jog Box		
	Knife-> Motion Parameter -> Velocity -> Set Velocity To 10,000 Cts/Sec		
	Knife -> Reciprocate Knife By Clicking On Arrow Buttons -> Verify Motion Correct		

<b>Take Of Conveyor Motor Checkout</b>	<b>Description</b>	<b>Possible Remedy</b>	<b>Complete</b>
Clear Faults	Takeoff -> Clear Faults -> Should See Status Change To [Idle] - Green	Reset E-Stops	
Enable Thetaoff Amplifier	Takeoff -> Enable -> Verify Green on X1 Axis Under Motion Controller	Reset E-Stops	
Perform Thetaoff Axis Test Move	Takeoff -> Motion Profile -> Select Velocity Mode and Check Jog Box		
	Takeoff -> Motion Parameter -> Velocity -> Set Velocity To 10,000 Cts/Sec		
	Takeoff -> Move Takeoff Conveyor By Clicking On Forward(+) Arrow Button -> Verify Motion Correct	If Faulting, Check For Belt On Table Frame	

<b>Cutting Conveyor Motor Checkout</b>	<b>Description</b>	<b>Possible Remedy</b>	<b>Complete</b>
Clear Faults	Cutting -> Clear Faults -> Should See Status Change To [Idle] - Green	Reset E-Stops	
Enable Cutting Amplifier	Cutting -> Enable -> Verify Green on X1 Axis Under Motion Controller	Reset E-Stops	
Perform Cutting Axis Test Move	Cutting -> Motion Profile -> Select Velocity Mode and Check Jog Box		
	Cutting -> Motion Parameter -> Velocity -> Set Velocity To 10,000 Cts/Sec		
	Cutting -> Motion Takeoff Conveyor By Clicking On Forward (+)Arrow Button -> Verify Motion Correct	If Faulting, Check For Bristle Catching On Table Fingers	

<b>Node Disable Checkout</b>	<b>Description</b>	<b>Possible Remedy</b>	<b>Complete</b>
Reset E-Stops	Table IO -> E-Stop Reset Input -> Verify Amp Enable Input Is High (Should Hear Contactors)	E-Stop Button Is Depressed, Wiring Problem In Stop Loop	
Clear Faults and Enable All Axes	Motion Controller -> Right Click -> Select Clear Faults and Enable All Axes		
Verify All Axes Are Green	Look At All Axes Below Motion Controller -> Verify All Are Enabled (Green)		
Perform A Test E-Stop	Press E- Stop Button and Verify All Axes Below Motion Controller Go Red (Abort)	Node Disable Action Isn't Set Property For Specific Axis	

## Multi-Ply Cutter Start-up - Electrical Checklist for Cabling

Cable Name	Color	Connect To	Complete
Synqnet In (RJ45)	Purple	Synqnet In - Non Op Side Gantry	
Synqnet Out (RJ45)	Purple	Synqnet Out - Non Op Side Gantry	
UIT (RJ 45)	Purple	UIT -Non Op Side Gantry	
Gantry I/O (DB 15)	Grey	Gantry I/O - Non Op Side Gantry	
Gantry Power (Amp 8 Pin)	Green	Gantry Power - Non Op Side Gantry	
Air (Hose(s))	Blue	Air Fitting(s) - Non Op Side Gantry	

Cable Name	Color	Connect To	Complete
Motor Power In (460VAC)	Black	VFD (L1/L2/L3)	
Motor Power (460VAC)	Black	VFD (U/V/w) to Blower Motor Power Interface Box	
VFD I/O Cable (dwg 31-26540)	Grey (Belden)	Cable to Control Screw Terminals on VFD (see below)	
	Black (White)	4	
	White	5	
	Red	SD	
	Black (Red)	STF	
Internal Jumper (VFD Control)	Brown	AU<->SD	

Cable Name	Color	Connect To	Complete
Motor Power	Orange	4 Pin Connector On Motor To 4 Pin Connector On Table Frame	
Motor Feedback	Green	IP20 Connector On Motor to Amp Connector On Table Frame	
Take -Off Table I/O Cable	White	DB9 Connector On Interface Block Under Cover to DB9 On Table Frame	

Cable Name	Color	Connect To	Complete
DB9 25' Cable	White	Remote E-Stop Interface Block (Table Drawer) to E-Stop Box Op Side	
DB9 10' Cable	White	E-Stop Box Op Side to E-Stop Box Non Op Side	

Cable Name	Color	Connect To	Complete
SynqNet Out (RJ45)	Purple	XMP Controller Card In Computer - Out Plug	
SynqNet In (RJ45)	Purple	XMP Controller Card In Computer - In Plug	
Network	Customer	Ethernet Plug On Back Of Computer	
Video USB Hub Cable	Black typ.	USB On Computer (Back) to USB Hub On Back Of Video Monitor	
Video Signal	Black typ.	Video Plug On Mointor To Video Plug On Monitor	
Computer Power	Black typ.	115 VAC Outlet In Table Drawer To Power Inlet On Computer	
Monitor Power	Black typ.	115 VAC Outlet In Table Drawer To Power Inlet On Monitor	
Mouse	Black typ.	USB Connector Plugs Into USB Hub On Video Monitor	
Keyboard	Black typ.	USB Connector Plugs Into USB Hub On Video Monitor	
UIT - Gantry (RJ45)	Purple	Power + Data -> On Power Over Ethernet Module (Table Drawer)	
UIT - Computer (RJ45)	Black typ.	Data -> On Power Over Ethernet Module (Table Drawer)	
Power Over Ethernet (PoE) Power	Black typ.	115 VAC Outlet In Table Drawer To Power Inlet On PoE Module	



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VFD Checklist	Description	Possible Remedy	Complete
Connect Incoming Voltage	Connect 3 Phase Power To The L1/L2/L3 Terminals On the VFD		
Connect Motor Power Line	Connect Motor Cable Between U/V/W On The VFD Terminal Block In The Blower Interface Box		
Turn Power On	Close Circuit Breaker Or Disconnect Powering VFD		
Test Run Blower	Change Mode To PU and Test Run Vacuum System (FWD)		
Change To Automatic Mode	Change Mode To EXT by Pressing Mode Button On The VFD Programming Unit		

## Shipping, Handling, Moving Requirements

### Shipping Instructions

- Disconnect all 'X' axis cables from gantry.
- Disconnect E-stop boxes at take-on end.
- Remove the plastic over lay towers.
- Remove the (2) gantry end stops on the take-on side.
- Remove the knife from the sharpening assembly and place it safely.
- Remove the sharpening assembly from tool head and place it safely in a wooden crate.
- Remove the gantry from the machine.
- Disconnect the power cables from the take-off conveyor.
- Remove the take-off conveyor transfer plate.
- Remove the take-off conveyor and place in on top of bristle surface.
- Remove the computer from the blower fame, disconnect all cables and place it in a OEM packing.
- Cover the whole table with card board.
- Put all the 'X' axis cables, amp I/O, computer cable, 25 ft of air line cable, Stop discs, and E-stop boxes in a cardboard box.
- This above box must be placed inside the wooden crate which accommodates the gantry.
- The gantry wooden crate should hold the gantry, computer, tools box, VFD terminal and cable protector.
- Remove the exhaust stack and exhaust support and place in top on of take-off conveyor.
- Shrink wrap the whole conveyor.
- The complete conveyor which is shrink wrapped should be pushed on its wheels till it reaches the load ing dock.
- The complete conveyor machine should be loaded in the trailer with the fork lift.
- Place Air bags around the conveyor after it is loaded to the trailer to protect it from any damage and hold them in place during traveling.
- Place a wooden separator right next to the conveyor end.
- Bring the wooden crate which holds the gantry with the fork lift and place it right next to wooden seperator

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## Packing Instructions

- The complete conveyor machine must be shrunk wrapped in white plastic.
- The gantry must be secured placed in a wooden pallet with a tri-wall cap and sleeve.

## **Technical Data** **EASTMAN® Multi-Ply**

### **Multi-Ply Cutter**

Maximum Gantry Speed .....	40 in/sec (102 cm/sec)
Maximum Conveyor Speed .....	8 in/sec (20 cm/sec)
Cut Accuracy * .....	+/- 0.010 in (0.025 cm)
Gantry Weight .....	260 lbs (118 kg)
Machine Voltage .....	208/220/380/400/415/440/575 VAC,
3 Phase	50/60 Hz
Blower Operating Voltage .....	220/440 VAC, 3 Phase, 60Hz
Minimum Operating Pressure .....	75 psi
Volume of Air Service .....	30 SCFM

Information based on standard 78" wide machine size

\* Relative to type and quality of fabric, cutting speed, pulling mode operational settings.

\* Conveyor pull accuracy to +/- 1/16" (+/- 1.6 mm)

<b>Machine Size</b>	<b>Working Width</b>	<b>Table Width</b> (including Rack and Rail)	<b>Overall Machine Width</b>
78" (198 cm)	78" (198 cm)	91" (231 cm)	113 1/2" (288 cm)

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