The Highest Production Room Temperature Gluing Machines

Taylor Super Automated Clamp Carriers

Taylor Dual Automated Clamp Carriers

Taylor Manufacturing
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Made in USA
Poughkeepsie, NY

Super Automated Clamp Carrier

8 1/2' 40 section Super Automated Clamp Carrier

1 Extra Hour Of Production Per Shift

The Automated Clamp Carrier is the industry standard for high production edge gluing. The Automated machine doubles operator productivity with its automatic cycle which tightens the clamps on new stock, rotates the machine, and loosens the clamps on panels to be removed. This allows the operator to spend 100% of their time preparing and loading stock.

Taylor's Super Automated Clamp Carrier design increases the productivity of the machine by 20% without any change in operation (described below) or additional floor space. The machine now has a separate loosening station above the operator which loosens the clamps one row before the panels are removed from the machine. This shortens the cycle time of the machine by 15 seconds which equals one extra hour of production per shift.

The technology used to do this is from our Dual Automated Machine where we have dozens of machines in operation in factories across U.S.

In summary the Automated Clamp Carrier line now has 3 machines.

- **Automated Clamp Carrier**
  -1 Operator
- **Super Automated Clamp Carrier**
  -2 Operators
- **Dual Automated Clamp Carrier**
  -3 Operators

Production ranges from 3500 sq. ft. to 7500 sq. ft. per shift.

Operation

1. The operator removes glued panels from one section of the Clamp Carrier and refills the section with stock taken from the outfeed of the Glue Applicator.

2. The operator adjusts the rear jaws of the clamps (if necessary), and presses the "Tighten" button on the control stand. The machine does all the rest.

3. All panels are flattened and clamps tightened automatically until the Tightener/Flattener carriage comes to a stop at the end of the front rest. The front rest then slides out to provide clearance for the clamps, the Motor Drive indexes the Clamp Carrier to the next section of clamps, and the front rest returns. The Loosener carriage then traverses, stopping and loosening clamps that it finds along the way, while the operator repeats step 1.

Production-Super Automated

Production is based on cycle time and panel size. Assuming that each section is curing 3 panels 24" x 24" (60 cm x 60 cm) and assuming a cycle time of 75 seconds, production per shift equals:

One Panel:
= 4 sq. ft. (.36 M2)

One Section:
= 12 sq. ft. (1.1 M2)

One Cycle:
= 75 seconds
= 48 cycles/hour
= 384 cycles/shift

Production output:

= 12 sq. ft. x 384 cycles
or 4608 sq. ft./shift

= 1.1 M2 x 384 cycles
or 422 M2/shift

Advantages

The major operating components of the system are:

- The Automated Loosener Carriage
- The Automated Clamp Tightener/ Panel Flattener carriage
- The motor drive for rotation.

These are powered by hydraulics and operated by a PLC. The normal operating cycle is fully automatic with flattening, tightening, rotation and loosening sequences pre programmed.

System Advantages of The Super Automated:

- Faster Operation (20%) than the regular automated
- Clamping process is completed at operator level insuring the highest quality products.
- Simple design
- Easy to maintain
- Overall Reliability
- Versatility, productive short runs

As shown at left the Super Automated will produce in the range of 4500 sq. ft. per shift. It is the 3rd machine in our Automated Family.

Automated Clamp Carrier
- 3500 sq. ft.
- 1 Operator

Super Automated Clamp Carrier
- 4500 sq. ft.
- 2 Operators

Dual Automated Clamp Carrier
- 7000 sq. ft.
- 3 Operators

When choosing the proper machine for your operation you should consider both productivity and total production. The productivity of the regular Automated is the highest but the work load on the operator is also the highest and his speed controls the output of the machine. The Dual Automated has the highest output but productivity per employee is lower. However, the work load is spread over a team and production is more consistent. The Super Automated Clamp Carrier fits in the middle with higher output and good productivity.

In summary:

Automated Clamp Carrier
-High Output
-Highest productivity

Super Automated Clamp Carrier
-Higher Output
-Good Productivity

Dual Automated Clamp Carrier
-Highest Output
-Good Productivity

Dual Automated Clamp Carrier

Dual Automated Clamp Carrier

The Dual Automated Clamp Carrier is the world's highest production room temperature edge gluing machine. Loosening of the clamps, loading of the stock and tightening of the clamps all take place simultaneously. On the Automated Clamp Carrier, the operator(s) wait for the Carrier to finish tightening, indexing to the next section. On the Dual Automated Clamp Carrier, as soon as the operator(s) finish loading the Carrier, s/he only needs to wait a few short seconds for the Carrier to index before beginning to unload the cured panels. The clamp loosener on the section above the operator loosens the clamps and the Clamp Tightener/Panel Flattener below the operator flattens the panels and tightens the clamps all while the operator simply unloads and reloads the Carrier.

As stated before, the clamps are automatically loosened by a carriage on the row above the operators. A non-contact sensor is used to locate each and every clamp. When the row arrives at the operator(s) station, panels can be removed immediately and new stock is loaded into the clamps.

When this row is indexed down one section, the new panels are flattened and the clamps are automatically tightened by a similar carriage. Flattening and tightening pressures are easily adjustable for different thicknesses.

While the operator(s) are removing cured panels and reloading the clamps with new stock, another operator loads new material onto the infeed of the Glue Applicator or Opti-Sizer.

The great advantage of the Dual Automated Clamp Carrier is that operator(s) are spending 100% of their time loading and unloading material. This equates to maximum productivity.

Production

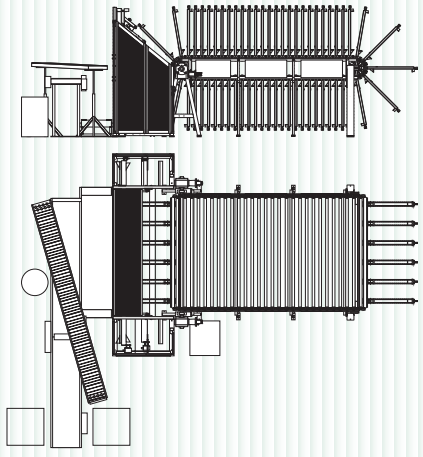
Production is based on cycle time and panel size. Assuming that each section is curing 3 panels 24"x 24" (60 cm x 60 cm) and assuming a cycle time of 50 seconds, production per shift equals:

One Panel:
= 4 sq. ft. (.36 M2)

One Section:
= 12 sq. ft. (1.1 M2)

One Cycle:
= 50 seconds
= 72 cycles/hour
= 576 cycles/shift

Production output:
= 12 sq. ft. x 576 cycles
or 6912 sq. ft./shift
= 1.1 M2 x 576 cycles
or 634 M2/shift



8-1/2' Wide, 60 Section Dual Automated Clamp Carrier with Glue Applicator & Return Conveyor.

Upgrades

Upgrade your Existing Dual Automated Clamp Carrier to a new system for less than 1/2 of the cost of a new machine.

The James L. Taylor Mfg. Co. has shipped over 70 Dual Automated Clamp Carriers since its introduction in 1990. Many are pneumatic powered and some are hydraulic powered. All but a few are able to be upgraded to our newest design. This can be done for 1/3 the cost of a new system. The new design offers features not available on older systems.

Old Design

Dual Automated Clamp Carrier circa 1990

New Design

New Dual Automated Clamp Carrier with "Smart Clamp" software

Advantages of Upgrade:

- Higher Production with the "Smart Clamp" Software and Production Reporting.
- Higher Production with less Down Time
  - Simpler Design
  - Self-Adjusting Speeds with "Smart Clamp" Software
  - Automatic Diagnostic Report
- Easier Accessibility
  - Open type wrench mounts and carriages.
  - Open frame layout for better visibility of Carriages.
  - Screened doors allow entry for maintenance.
- Better Overall Reliability
  - Wrench up cylinder reversed to lower engagement force, reducing drive and nut wear and lowering stresses on structural components.
  - Clamp rests move straight in and out. This design has proven to be more durable on Automated machines.
  - The front end assembly of tracks and rests are more compact and rigid.
  - New Carriage layout reduces loads on component.
- More Uniform Clamping. (especially for thin stock)

Taylor's "Smart Clamp" Software

The First and Only Production Reporting System for your Gluing Operation

James L. Taylor Mfg. is again setting the standard for other woodworking machines to follow. The Automated Clamp Carrier with "Smart Clamp" Software improves reliability by monitoring the functions of the machine and calibrating the machine in response to the data collected. The "Smart Clamp" also collects a vast amount of data on the operation of the machine that can be accessed by a computer over a network (including the internet) to be used to gather production figures and diagnostic information. This control system will:

Monitor and Report Production Rates

Monitor and Automatically Self-Calibrate Operating Speeds

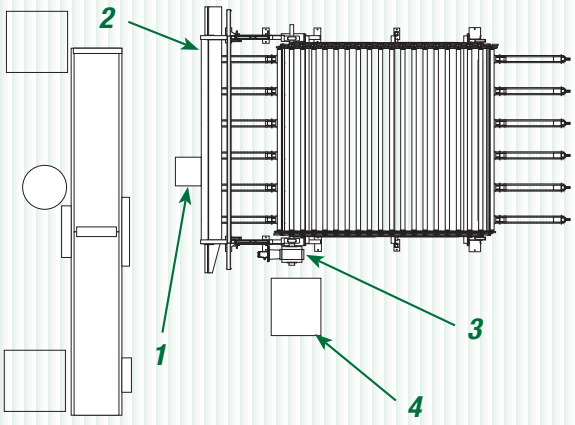
Monitor and Diagnose Problems as they Occur

Serial/Ethernet Ports for Easy Connectivity

All the above leads to a faster more reliable machine.

New Hydraulics

The Clamp Carrier hydraulic system now incorporates a proportional valve controlled by the programmable controller. By using a series of sensors and inputs, the controller monitors and measures the traverse speed of the Clamp Tightener carriage, the rotational speed of the Clamp Tightener, and the speed of the Clamp Carrier rotation. These measurements are taken on every cycle during normal operation and speeds are automatically adjusted up or down without operator or maintenance intervention. This upgrade is a huge step towards a **maintenance free machine.**



Proportional Control Provides:

Smoother Operation
Reduced Wear
Less Maintenance

1 Smoother Driver Engagement

2 Automatic Self-Calibration of Traverse Speeds

3 Automatic Self-Calibration of Rotation Speeds

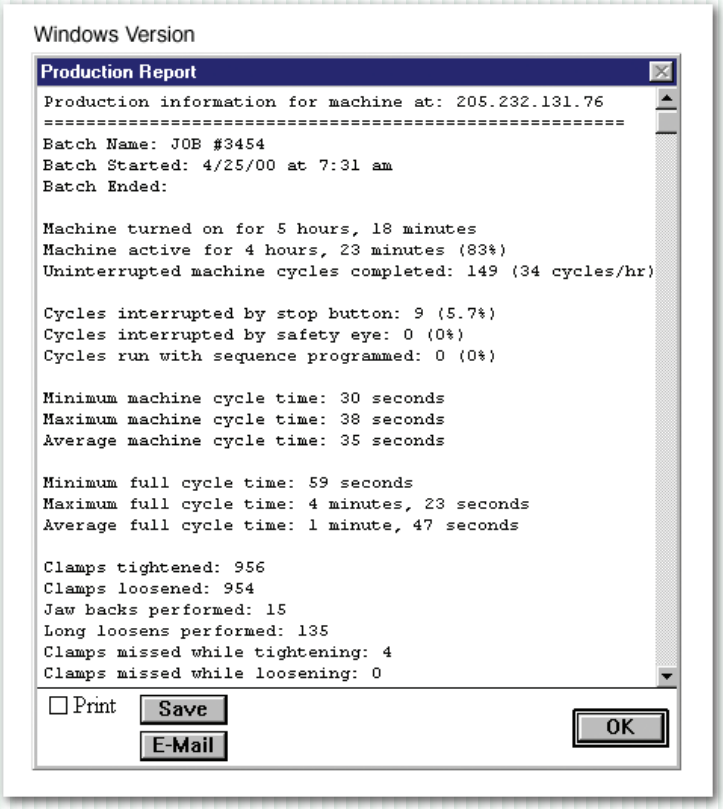
4 Quick & Easy Adjustment of Tightening Pressure

Production Reports

The Smart Clamp Software gathers information about the operation of the machine including job times, productivity, machine interruptions and down time. It allows you to monitor and measure production, keeping your manufacturing costs as low as possible.

Communication with the machine happens one of two ways:

The machine comes equipped with either an operator terminal or an ethernet port. The operator terminal is mounted on the control box and essential information is communicated at the machine. The ethernet port connects the machine to a computer or network and provides a full communication link.



Screen shot of “Smart Clamp” Production Report

Controller

The rugged industrial programmable controller also gathers data on almost every operation of the machine, including minimum, maximum and average cycle times and frequencies of various machine malfunctions (See reports for specific data). The machine accumulates thirty days worth of this data on a daily basis in its non-volatile memory. In addition, the machine keeps a log of the last 25 times it has been idle (downtime) for more than 10 minutes.

Data Maintained for 30 Days
Production Reports
Diagnostic Reports
Downtime Reports

“Smart Clamp” Connected to Ethernet

Taylor Conveyor Type Applicator

16’ Conveyorized Glue Applicator with PVA Glue Pump

Increased efficiency with better material handling

The Taylor Glue Applicator

The Taylor Automatic Conveyor-Type Glue Applicator is available in lengths from 16' to 60'.

Standard models are supplied one of two ways. The Felt Roll model is designed for use with PVA type adhesives. It is equipped with a stainless steel glue pan, doctor roll, and outfeed cross bars. The glue roll is felt covered to provide even glue spread and is quickly removed for easy cleaning.

The Stainless Roll model is designed for use with urea, resorcinol and melamine type glues. It is equipped with a stainless steel glue roll, stainless steel doctor roll, and water jacketed glue pan. Optional: Rubber coated glue roll.

Either model Glue Applicator can be set up with a manual feed of the adhesive to the glue pan or with a PVA Glue Pump which automatically feeds and controls the amount of adhesive in the glue pan.

The length of the Glue Applicator depends on the loading area of the Clamp Carrier. For instance, an 8-1/2' wide Clamp Carrier is usually equipped with a 16' (8' infeed, 8' outfeed) Glue Applicator. Conversely, a 14-1/2' Clamp Carrier is usually equipped with a 28' (14' infeed,14' outfeed) Glue Applicator.

The width of the Glue Applicator depends on the thickness of the panel. Generally, 3/4 and 4/4 stock only require a 13' wide glue roll. Thicker material, 5/4, 6/4 and above, require our 26" or 39" machines.

We recommend the use of a wet film mil gauge to measure optimum glue spread thickness (7-9 mils).

Features

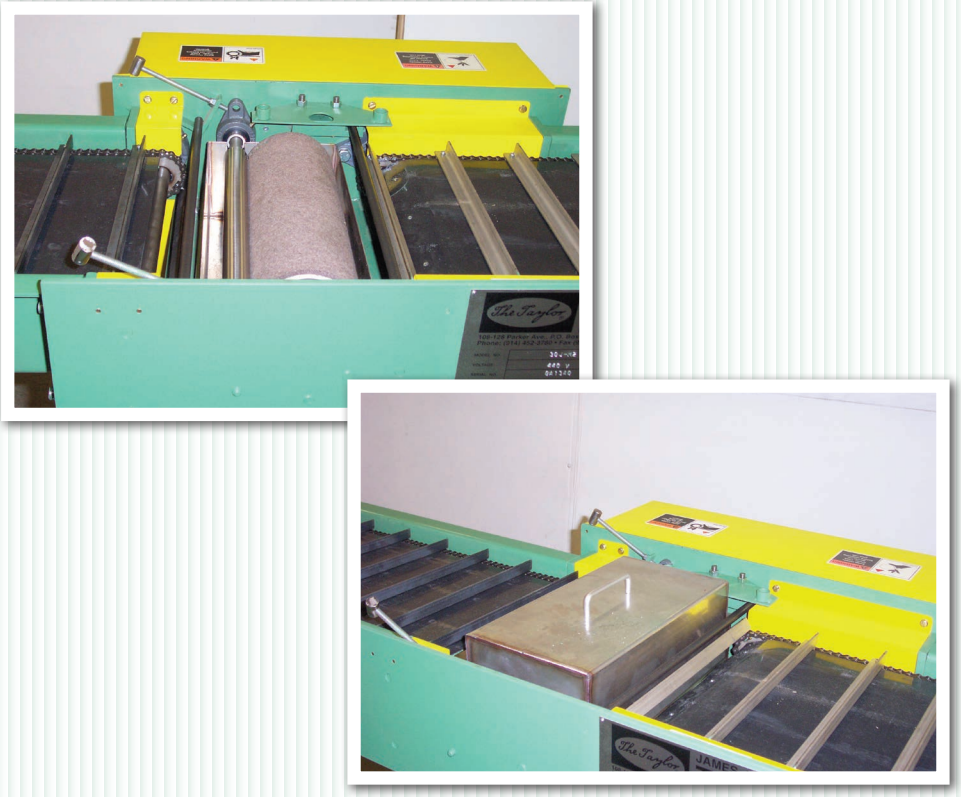
To produce the best Glue Applicator on the market, we have concentrated our efforts in three key areas:

A) Precise and adjustable glue spread: The Taylor Glue Applicator is equipped with a fully adjustable live doctor roll. The doctor roll spins in the opposite direction (from the glue roll) which provides a controllable even spread. Thumbscrews and locking nuts are used to independently adjust both ends of the doctor roll.

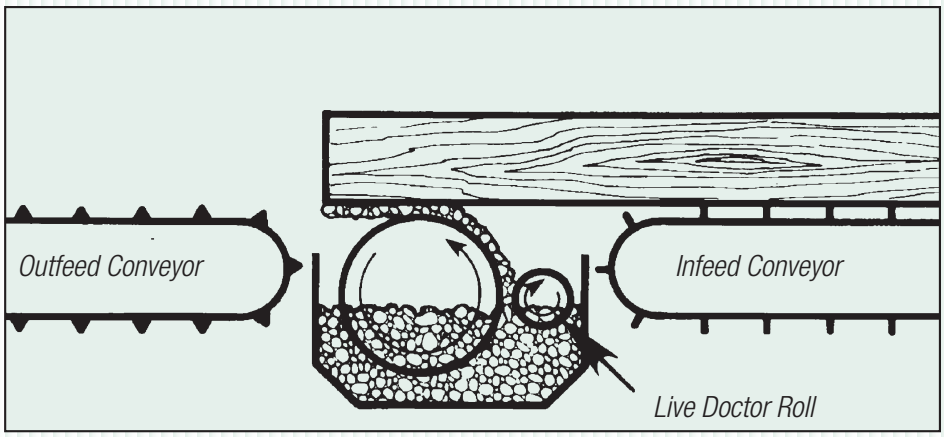
Attaining the proper glue spread thickness is very important. Too much or too little glue spread will weaken glue joints. Also, too much glue wastes money, slows production and creates more “clean up time” for both the applicator and the Clamp Carrier.

With each machine, Taylor provides a wet film thickness gauge for measuring. More importantly, it is our Live Doctor Roll design that allows each customer to fine tune the spread to their specifications.

B) Easy and fast clean up: We have equipped the Glue Applicator with a nightly storage system to save glue and clean up time. The glue pan cover fits tightly over the top of the glue pan and a large sponge is fitted to the roof of the cover. When soaked with water, the sponge keeps the cavity of air moist and prevents skimming of the glue during the night. During weekends and vacations, the glue pan and glue roll should be removed and cleaned. This job is completed quickly because the glue pan drops out with the removal of two pins. The glue roll is mounted on a removable shaft. When the shaft is gently pulled, the glue roll slides out of the top of the Glue Applicator for cleaning.



C) Durability: The machine is designed with components which stand up to the rigors of a high production gluing operation. In addition, an adjustable safety clutch protects the conveyor chain against damage when careless operation results in wood jamming in the conveyor. This feature reduces down time and is self-healing so the machine returns to normal function once the jammed stock is removed.



Opti-Sizer

21 slot Opti-sizer with Glue Applicator

Automatic sizing saves material and labor.

Description

The Taylor Opti-Sizer is another component in our systems approach to high production edge gluing. When used in conjunction with the Taylor Conveyorized Glue Applicator and Automated Clamp Carrier, as shown in the diagram above, one man is able to both size and glue panels.

The Opti-Sizer saves both material and labor when compared with either sizing by hand or sizing with a straight line rip saw. Consistently sizing panels to within $\frac{1}{8}$" of the desired width, the 21 slot Opti-Sizer, for example, can size over 6 panels per minute with just one operator.

Operation

The Opti-Sizer automatically selects random width (3/4" to 6") parallel ripped boards to produce panels of a specified width, thus eliminating manual board selection.

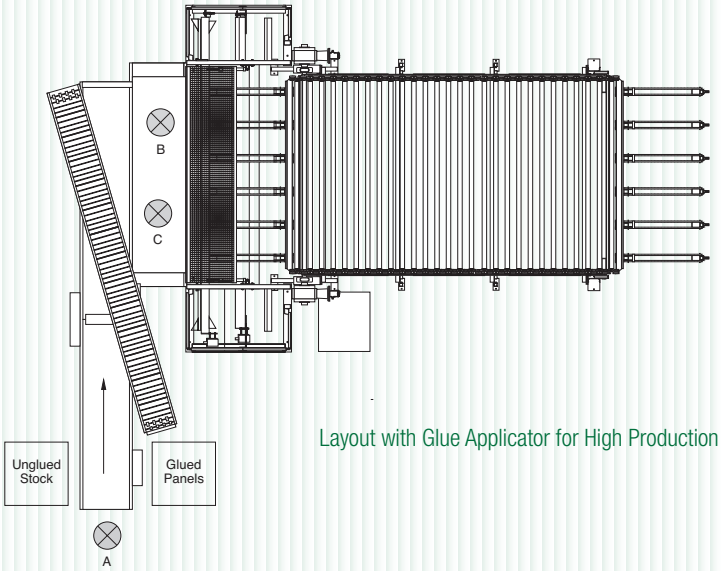
The desired panel width is entered into the Opti-Sizer Hand-Held Terminal. Random width stock is then placed into the infeed slots of the Opti-Sizer. An ultrasonic sensor scans the boards. The Opti-Sizer computer calculates the width of each board and determines the best combination of available boards to make up a panel of the desired width. Only those boards, the combination of which make up a panel of the specified width, are allowed to proceed onto the Taylor Conveyorized Glue Applicator. The cycle is repeated automatically.

The Opti-Sizer is available in a 6' length or 9' length. Thickness of stock and production determine which model fits your needs.

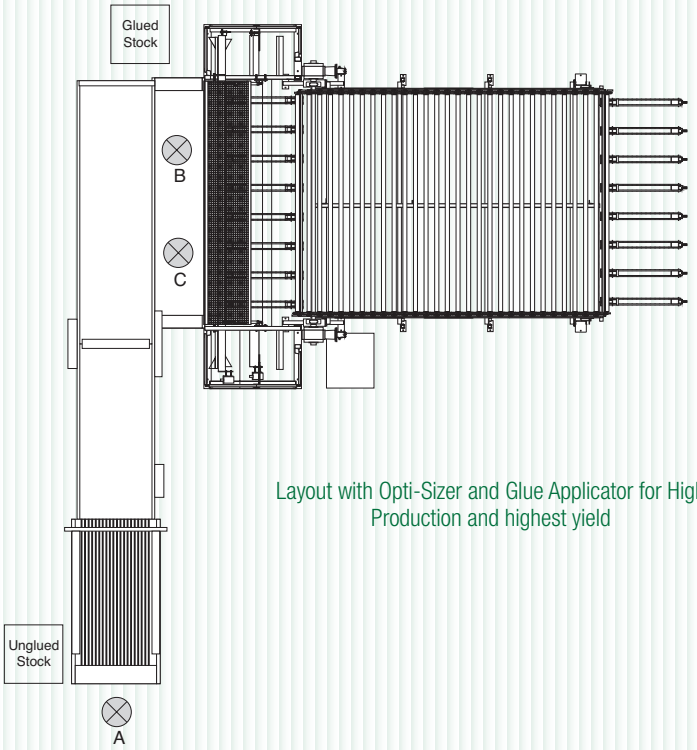
Floor Layouts & Operation

Sequence of Operation: Dual Automated Clamp Carrier with Glue Applicator and Return Conveyor

1. Operator A loads unglued stock onto the infeed of the Glue Applicator.
2. Operators B & C remove material from the Glue Applicator and place it into the clamps of the Dual Automated Clamp Carrier. The “Cycle” button is pressed. The Carrier rotates, the Tightener Carriage tightens and flattens the material below the operator, and, simultaneously, the Loosener Carriage loosens the panels above the operator.
3. At this time, the panels in front of operators B & C are removed and placed on the return conveyor. The panels are conveyed by grav ity to the pallet of glued stock for off loading and stacking. New material is placed into the clamps.
4. Operator A removes the glued panels from the return conveyor and stacks them on the pallet of glued stock.
5. Operator A reloads the Glue Applicator with fresh stock.



Layout with Glue Applicator for High Production



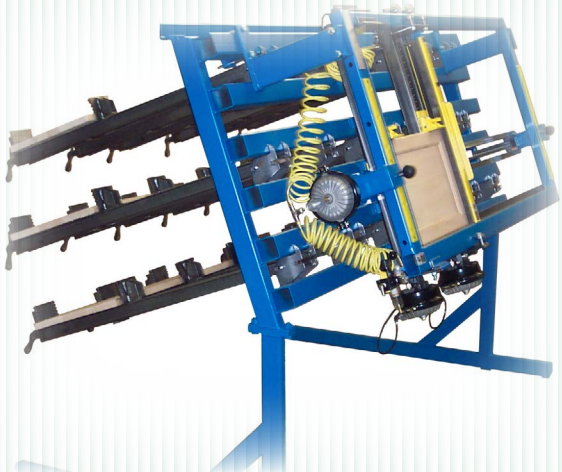
Layout with Opti-Sizer and Glue Applicator for High Production and highest yield

Sequence of Operation: Dual Automated Clamp Carrier with 21 Slot Opti-Sizer, and Glue Applicator

1. Operator A loads unglued stock onto the infeed of the Opti-Sizer
2. Operators B & C remove material from the Glue Applicator and place it into the clamps of the Dual Automated Clamp Carrier. The “Cycle” button is pressed. The Carrier rotates, the Tightener Carriage tightens and flattens the material below the operator, and, simultaneously, the Loosener Carriage loosens the panels above the operator.
3. At this time, the panels in front of operators B & C are removed and placed on a skid at the end of the Glue Applicator. New material is placed into the clamps.
4. Operator A reloads the Opti-Sizer with fresh stock.

Rip Optimization for the Custom Shop

Custom Shop Clamp Carrier For Long Stock - 16' Rail & Posts



Pneumatic Door Clamp & Panel Clamp Combo System

Cameron Rip Optimization System

Taylor Hydraulic Automated Clamp Carrier

Push Feed Chop Systems

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