



***Versatility For Short & Long
Production Runs***

“The Classic Gluing Solution”

***Taylor Classic
Clamp Carriers***



Taylor Manufacturing

*108 Parker Avenue
Poughkeepsie, NY 12601
800-952-1320
www.jamestaylor.com*

Made in USA
Poughkeepsie, NY



Classic Semi-Automatic Clamp Carrier



8 1/2' 20 Section with Semi-Automatic Tightener and Panel-Flattener

The Classic Semi-Automatic Clamp Carrier is our most versatile model. Sizes range from 6 to 60 sections with widths from 8-1/2' (2.5 M) to 20-1/2' (6.0 M). A wide range of products from small panels to large laminations can be glued. Most machines are equipped with pneumatic or hydraulic components for operation:

- A motor drive for rotation of the sections.
- A Clamp Tightener for uniform clamping pressure.
- A Panel Flattener for flat components.

And a variety of other accessories for glue application, etc.

As with all Taylor machines, smaller machines can be expanded as production requirements grow. This feature is unique to the industry and permits the most efficient use of investment money.

Operation

The operation is simple using one or two operators.

- 1) Glue is applied with a conveyORIZED Glue Applicator.
- 2) The operator places the material into the clamps.
- 3) The Clamp Tightener and Panel Flattener are used to tighten the Clamps and flatten the material to be glued.
- 4) When all the clamps are tight, a foot valve is used to activate the Motor Drive to rotate the machine to the next section.
- 5) The Clamp Tightener is used to loosen all the clamps, and the cured panels or laminations are removed.
- 6) The loading procedure is then repeated.

Production

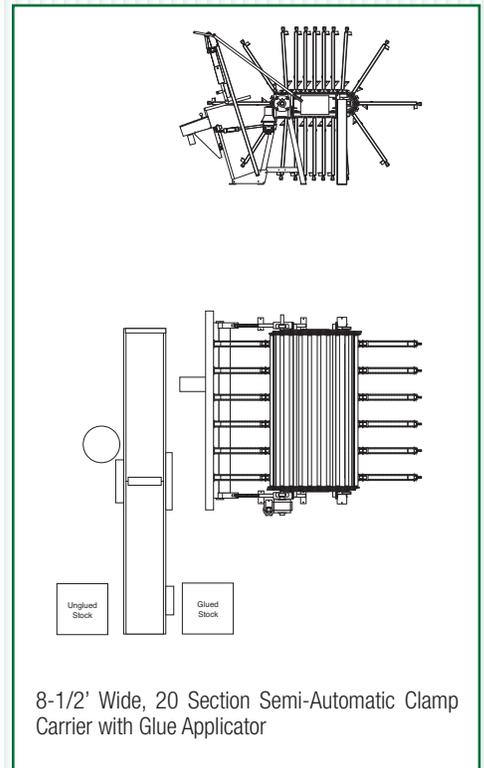
Production is based on cycle time and panel size. Assuming that each section is curing 3 panels whose dimensions are 24" x 24" (60 cm x 60 cm) and assuming a cycle time of 2 minutes, production per shift equals:

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

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

One Cycle:
= 2 minutes
= 30 cycles/hour
= 210 cycles/shift

Production output:
= 12 sq. ft. x 210 cycles
or 2520 sq. ft./shift
= 1.1 M2 x 210 cycles
or 231 M2/shift



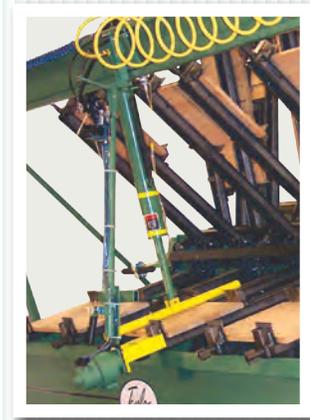
8-1/2' Wide, 20 Section Semi-Automatic Clamp Carrier with Glue Applicator

Component Features

Swing Style Tightener/Flattener

The Swing Style Clamp Tightener/Flattener is the most economical system. The push button controls provide easy and rapid tightening and loosening of the clamps. The carriages ride on an overhead beam. Clamp pressure is fully adjustable up to 3,000 lbs. per clamp.

Engagement is smooth and easy. The Flattener operation is also push button and pressures are adjustable. The two units are moved to the left or right side of the machine when rotating to the next row of clamps. The front rest is manual and the rotation is pneumatic. (This system is only available in a pneumatic version.)



Semi-Automatic Clamp Tightener

The Semi-Automatic Clamp Tightener provides rapid and uniform clamping force up to 3,000 lbs. (at 90 psi) on each clamp.

The tightener is offered in either pneumatic or hydraulic. It uses a motor which provides more uniform pressure than an impact type tool.

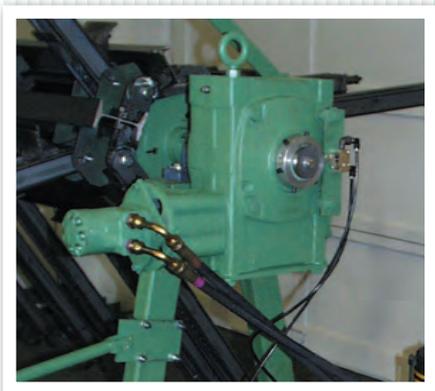
The Semi-Automatic Tightener's ergonomic design reduces operator effort and increases productivity. The tightener carriage rides on ball bearings for quick and easy positioning to any clamp on the front rest. A simple push or pull of the lever allows the tightener to engage the clamp for tightening or loosening.

Panel-Flattener

The Taylor Panel Flattener is designed to hold the stock flat while each clamp is tightened.

The flattener rides on ball bearings on an overhead beam and is activated by a 3" air cylinder and is interlocked with the Semi-Automatic Tightener for a rapid safe operation. The flattener stays energized until the operator lifts up on the lever.

At 90 psi, the downward force on the stock exceeds 625 lbs. which produces high quality flat panels.



Motor Drive

The motor drive rotates the Clamp Carrier from section to section. It is offered with a pneumatic or hydraulic motor. The Motor Drive with a worm gear reducer insures controlled indexing even when rotating an unbalanced load. The Motor drive is controlled by two foot valves and can rotate forward or reverse. The Motor Drive speeds indexing with precise control and minimizes operator fatigue.

Match your machine...



8 1/2' wide Carrier with 3' panels, Swing Style Tightener, Flattener and Motor Drive. (Pneumatic only.)

The Classic Line has the Most Options for:

- Component length 20+'
- Component width 50+''
- Component Thickness 1/2" to 8"
- Squaring Bar
- Holddowns
- Thick Stock Adapters
- Multiple Tighteners and Flatteners
- Casket Tops



16 1/2' wide Carrier with 16' moulding blanks, Semi-Automatic Tightener, Flattener, and Motor Drive. (Pneumatic and Hydraulic.)

with your products

Table Tops

Butcher Block

Stair Treads

Turnings

Mouldings

Waste Recovery

Lumber Banding

Cabinet Doors & More

15'-5"

12'-7"

11'-2"

Unglued Stock

Plate Spreader

Glued Stock

Semi-Automatic Clamp Tightener

Air Motor Drive

- 8-1/2' Clamp Carrier w/ 12 Sections of 44" Opening Clamps
- Pneumatic Semi-Automated Clamp Tightener
- Pneumatic Panel Flattener
- Air Motor Drive
- Plate Spreader

Choosing the Right Size

- Maximum component length determines carrier width.
- Maximum component width determines clamp size.
- Maximum component thickness determines clamp style and options.
- Loading time, curing time and production needs determine the number of sections.

20'-9"

18'-2"

12'-6"

28'-0"

29'-4"

3'-0"

HPU

Glue Supply w/ Pump

26" Wide
12" Infeed, 18" Outfeed
Conveyorized Glue Applicator

- 16 1/2" Clamp Carrier w/ 20 Sections of 32" Opening Clamps
- Hydraulic Semi-Automated Clamp Tightener
- Pneumatic Panel Flattener
- Conveyorized Glue Applicator

Taylor Glue Applicators



**Optional 5'
Infeed Roller**



Plate Spreader. Inset: glue spread from Plate Spreader

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.

For small and mid-size operations, we offer two styles of glue application machines, the manual Plate Spreader and the Roller Spreader.

The Plate Spreader provides an accurate and efficient glue spread. It works well with our Clamps to quickly apply glue to multiple boards. A perforated aluminum grid, 8" x 48", rises from the stainless steel glue container by a foot activated pedal to provide the correct amount of adhesive. Boards over 48" can be 'dipped' twice. An aluminum cover for the glue container extends glue use. It is fast, convenient, easy to use and clean.

The Roller Spreader is a compact yet versatile Glue Applicator. We have incorporated many of the features of our full size Glue Applicator.

- Live doctor roll for precise and adjustable glue spread

- Overnight glue storage system
- Removable glue roll
- Expandable with infeed roller conveyor
- Felt covered glue roll

This compact machine is also well suited for coating stock for longer panels and laminations using the infeed conveyor to help guide the pieces over the glue roll.

For Higher Production:

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

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 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. 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.

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

Features

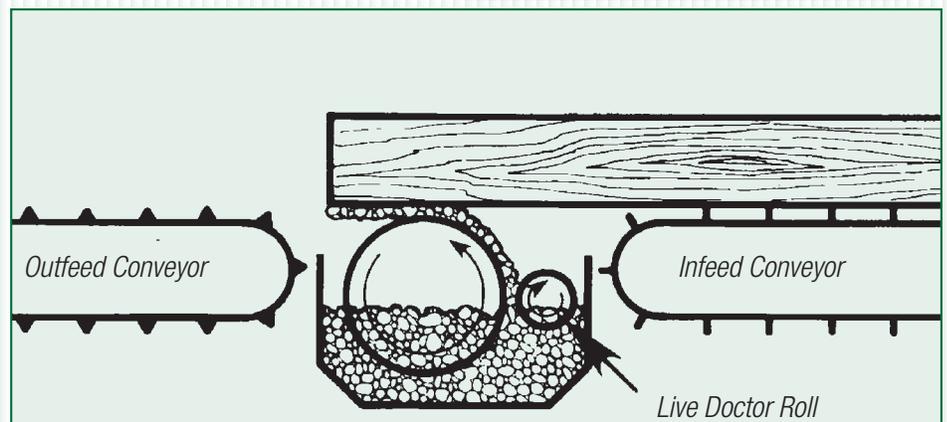


13" Wide, 16' Conveyorized Glue Applicator

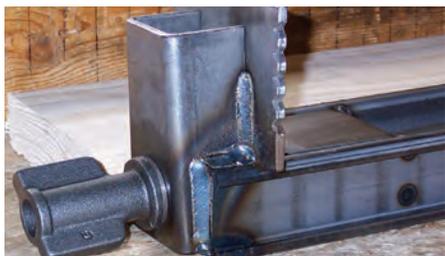
B) Easy and fast clean up: We have equipped the Glue Applicator with a nightly storage system to save glue and clean up time. The glue pan cover fits tightly over the top of the glue pan and a large sponge is fitted to the roof of the cover. When soaked with water, the sponge keeps the cavity of air 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 slides out of the top of the Glue Applicator for cleaning.



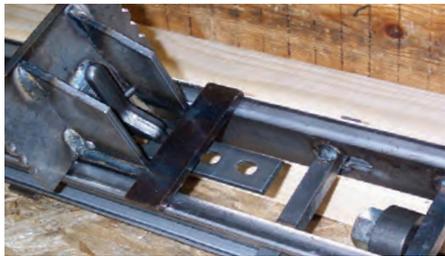
C) Durability: The machine is designed with components which stand up to the rigors of a high production gluing operation. In addition, an adjustable safety clutch protects the conveyor chain against damage when careless operation results in wood jamming in the conveyor. This feature reduces down time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



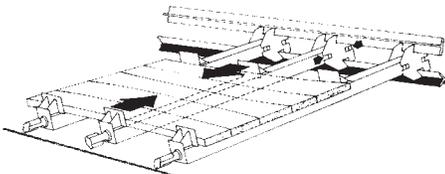
Clamps & Accessories



Front jaw



Rear jaw and roller



Equalizer™ Clamp
Patent No. 4,489,925

#202 Clamp

The #202 Clamp has a 2-1/2" (65 mm) high jaw and with accessories will laminate up to 4" (100 mm).

#302 Clamp

The #302 Clamp has a 3-1/2" (90 mm) high jaw and with accessories will laminate up to 6" (150 mm).

Standard clamps open 32" (800 mm). Clamps up to 44" (1100 mm) are available on special order.



Holddown Bars

Holddown bars are designed for edge gluing thin panels (less than 3/4"). They prevent the boards from springing out of the clamps during tightening and curing. They are easily removed when not needed.



Rocker Plates

Rocker Plates are used for laminating. First, they extend the height of the jaws to cover the full thickness of the material. Second, because our clamp have "toe-in", rocker plates are necessary to evenly distribute the clamping force from top to bottom. They can be installed or removed in seconds.

Taylor's **patented "Equalizer" clamps** float axially (in-and-out) approximately 3/16" to **eliminate induced stress** that otherwise results from bending boards to conform to non-"Equalizer" clamps that are locked in a fixed axial position.

USE	CLAMPS	ACCESSORIES	REDUCES CLAMP OPENING
Edge Gluing less than 3/4" (20 mm)	#202	Holddown Bar	0
3/4" (20 mm) to 2-1/2" (65 mm)	#202	None required	0
3/4" (20 mm) to 3-1/2" (90 mm)	#302	None required	0
Laminating* 2" (50 mm) to 4" (100 mm)	#202 or #302	2" - 4" Rocker Plates	2" (50 mm)
3 1/2" (90 mm) to 6" (180 mm)	#302	4" - 6" Rocker Plates	2" (50 mm)

* Rocker Plates are required for all laminating. When gluing stock with a thickness greater than 3-1/2", clamps must be used on alternate sections only. (Except the G section where all sections can be used.)

Modular Design

In its simplest form, the Clamp Carrier has a ferris wheel design with 6 sections (rows of clamps). The clamps are tightened by hand and the machine is rotated from section to section by hand. Though the components in this small machine are manually operated, they are identical to the components in the larger machines. This modular design allows you to expand the capacity of the machine at anytime.

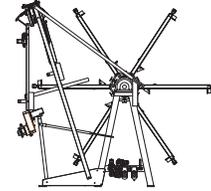
The original investment in the smaller machine is not lost. Components from the original machine are used as a base onto which the components of a "conversion kit" are added. The original, smaller machine now becomes a larger, more productive one.

For example, a 6 section wheel can be expanded to a 20 section caterpillar type Clamp Carrier. A conversion kit is purchased which includes chain, runways, cross-bars, rear legs, and a rear shaft. Instructions are supplied with the kit,

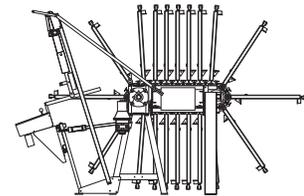
and the conversion can be accomplished in-house with ordinary tools. Additional clamps are installed to fill out the new sections. This is done with no cost penalty to the end user. The price of buying small and expanding is the same as the price of buying a larger machine.

Another method of expansion is to purchase a Clamp Carrier frame with more capacity than is initially required, and with clamps mounted on alternate sections only. As production requirements increase, additional clamps can then be added to fill the vacant sections.

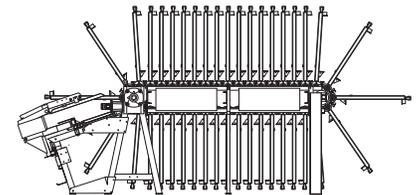
6 Section Standard Clamp Carrier



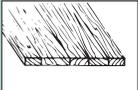
20 Section Semi-Automatic Clamp Carrier



40 Section Automated Clamp Carrier



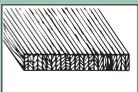
Component Features



Flat Stock is the most common product glued on the Taylor machines. Since our clamps are individually adjustable, panels of various sizes can be glued simultaneously.



Butcher Block is also commonly glued. With rocker plates installed, our standard clamps can be used to produce butcher block tables, counter tops, knife holders, etc. Rocker plates are installed in seconds, and must be used for all laminating.



Rails and Posts can be glued. 16' long handrails are often glued on wide (14 1/2' 16 1/2') Clamp Carriers.



Turnings and other laminates up to 8" thick can be glued with our standard clamps, using our Rocker Plates or our special #401 clamps



Top Profile Stock including mouldings and window frame components and door components.



Waste Recovery is a common application for the Taylor machines. Stock of varying shapes sizes, and thicknesses can be glued for waste recovery.

Fundamental Gluing Information

Introduction

The Clamp Carrier is essentially hand clamps mounted on a revolving conveyor chain in a moving storage configuration. The glue in each panel dries as its section (row of clamps and panels) makes one revolution around the frame. Room temperature glues and the Taylor Clamp Carrier have long been recognized as the most versatile and reliable edge gluing process ever developed for the woodworking industry.

Joint Preparation

If a panel joint is poorly prepared, it is impossible to make a high quality panel.

There are several requirements of a good joint for gluing.

- 1) The joint should fit as closely as possible. A thin glue line is stronger than a thick one.
- 2) Glue penetration into the wood surface is never more than several thousandths of an inch deep. For this reason, the surface layers of wood being bonded should be sound. Dull or vibrating cutting tools (as, for example, caused by worn bearings) often loosen fibers, but do not remove them, leaving a poor and unsound surface for the glue to adhere to.

Rupture of such a glue line reveals a thin layer of wood fibers covering the glue line.

3) When the cutting edge of a knife becomes worn and rounded off, it beats down the surface fibers, closing them to adequate glue penetration. Sometimes this becomes severe enough with both moulders and saws that the wood turns dark from being burned.

4) The joint should be straight, square and sound. In some cases, plants do not surface at least one side of the board far enough (hit or miss planing) to be flat before making the edge glued joint. If this is not done, a warped board will produce a glue joint which is not square.

Surfacing of lumber for gluing should be done just prior to gluing. Many rough mill operations plan their production so that joints are glued the same day they are made. This produces a surface essentially uncontaminated by wood resins and one which has not deformed from moisture change.

Moisture Content

The glue must be rigid enough to resist the stresses applied to the glue line by moisture change, particularly before this moisture interchange is slowed by the finish. Since wood absorbs and releases moisture faster through the end grain than through the radial or tangential face, a moisture change sets up stresses in the panel. If the glue joint is weaker than the wood, it will open, otherwise, when the stress becomes great enough, the wood may split. Many times inferior quality joints will remain closed until subjected to a moisture change, when the stress will break the joint instead of the wood. This moisture change may occur on exposure to oven heat or with time.

Wood is normally processed for furniture at 6-8% to minimize expansion and shrinkage in service. 6-8% moisture represents a good average between the extremes of summer and winter exposure. It must be remembered, the application of a finish does not stop the moisture interchange only retards it.

Sometimes wood shrinkage is erroneously considered to be negligible. For example, beech shrinks tangentially 1% for every 3% moisture change. In a 50" wide panel, changing from 8% to 5% moisture content will shrink the panel 1/2". Even a 1% moisture change will shrink this panel more than 1/8". Since this will be a differential shrinkage, the stress in the panel is considerable.

Fundamental Gluing Information

Clamping

The purpose of clamps is to bring the members being glued in close enough contact to produce a thin uniform glue line and to hold them in this position until the glue has developed enough strength to hold the assembly together. If the members of a glued construction were to fit together perfectly so that a thin even glue line could be produced, no clamp pressure would be required. But, from a practical standpoint, since machining of stock is never perfect, a certain amount of clamping pressure must be used.

The joint strength of resinous woods, such as pine, is frequently improved by machining the joint to be glued just prior to gluing. It is usually easier to make a straight and square joint than to try to pull it up in a clamp.

Decreasing the glue line thickness increases the strength. Since many woodworking adhesives utilize water to yield a spreadable viscosity, the dried glue film does not fill the space in a thick glue line. A void is left where the water has left the glue line. As the glue line gets thicker, the effect of the voids on strength is more detrimental.

For edge or face gluing, pressures of 50-150 p.s.i. should be used. The minimum is dependent on the resistance of the panel to be brought up tightly. The maximum is limited by the crushing strength of the wood. Pressure serves only to bring up the joint snugly and hold it there until the glue has enough strength. Often in these operations, the uniformity of pressure is more important than the exact amount.

A lack of ample pressure may be due to uneven pressure. Some clamping devices may apply adequate overall pressure, but not distribute it evenly over the entire surface. For example, this may occur in a panel if the edge piece of the panel is too narrow, transmitting little pressure between the clamps. The same thing can occur occasionally when clamping posts from 4/4 stock, with no reinforcement to apply pressure between the clamps.

Assembly time refers to the time lapse between glue spreading and application of pressure. The time between glue spreading and closing the assembly is open assembly time. The time between closing the assembly and pressure application is closed assembly time.

With cold, ready-to-use glues, pressure may be applied immediately after spreading. There is no minimum closed assembly time.

If glue squeeze-out occurs on the application of pressure, the maximum assembly time has not been exceeded. As long as the glue is wet enough to transfer uniformly to the opposite face when pressure is applied, good strength will result.

The minimum clamping time is determined by the time required for the glue to retain its clamped position after pressure is removed.

It, therefore, becomes important to introduce as many factors as possible to speed up this acquisition of strength in the glue joint. Some of these factors may be quite obvious; others may be less apparent.

It should be pointed out here that the squeeze-out on the outside of the joint does not indicate the condition of the glue within the joint, particularly where short clamp times are involved. The bead squeeze-out dries much more slowly than the film in the joint. The thicker or bigger the squeeze-out, the slower the glue will appear to dry.

With cold-setting, ready-to-use glues, the rate of strength development (speed of set) is dependent on how fast the liquid glue can dry to become solid enough to hold the joint in place. Since most of the water sinks into the substrate, the materials being glued are important. Obviously, the choice of adhesive is important. Also the conditions of gluing have an effect. By combining as many favorable conditions as possible, a maximum speed of set can be obtained.

Conclusion

A successful gluing operation requires several fundamental procedures to be followed. Because gluing is still an art and not a science, not all procedures must be followed. However, when defects occur it is often a combination of problems that create the defects.

The best corrective method is a step by step troubleshooting procedure. Identify the symptoms, change one factor at a time and check the results.

A helpful tool in setting up or monitoring a gluing is a "Gluing Check List". The subjects contained in this booklet and others particular to your operation can be listed and checked on a regular basis. The result will be fewer rejects and lower cost production.



Rip Optimization for the Custom Shop



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



Pneumatic Door Clamp & Panel Clamp Combo System



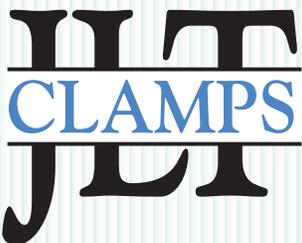
Cameron Rip Optimization System



Taylor Hydraulic Automated Clamp Carrier

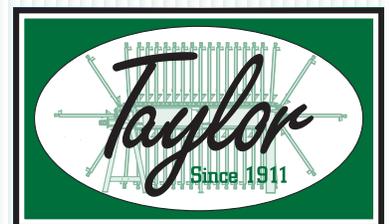


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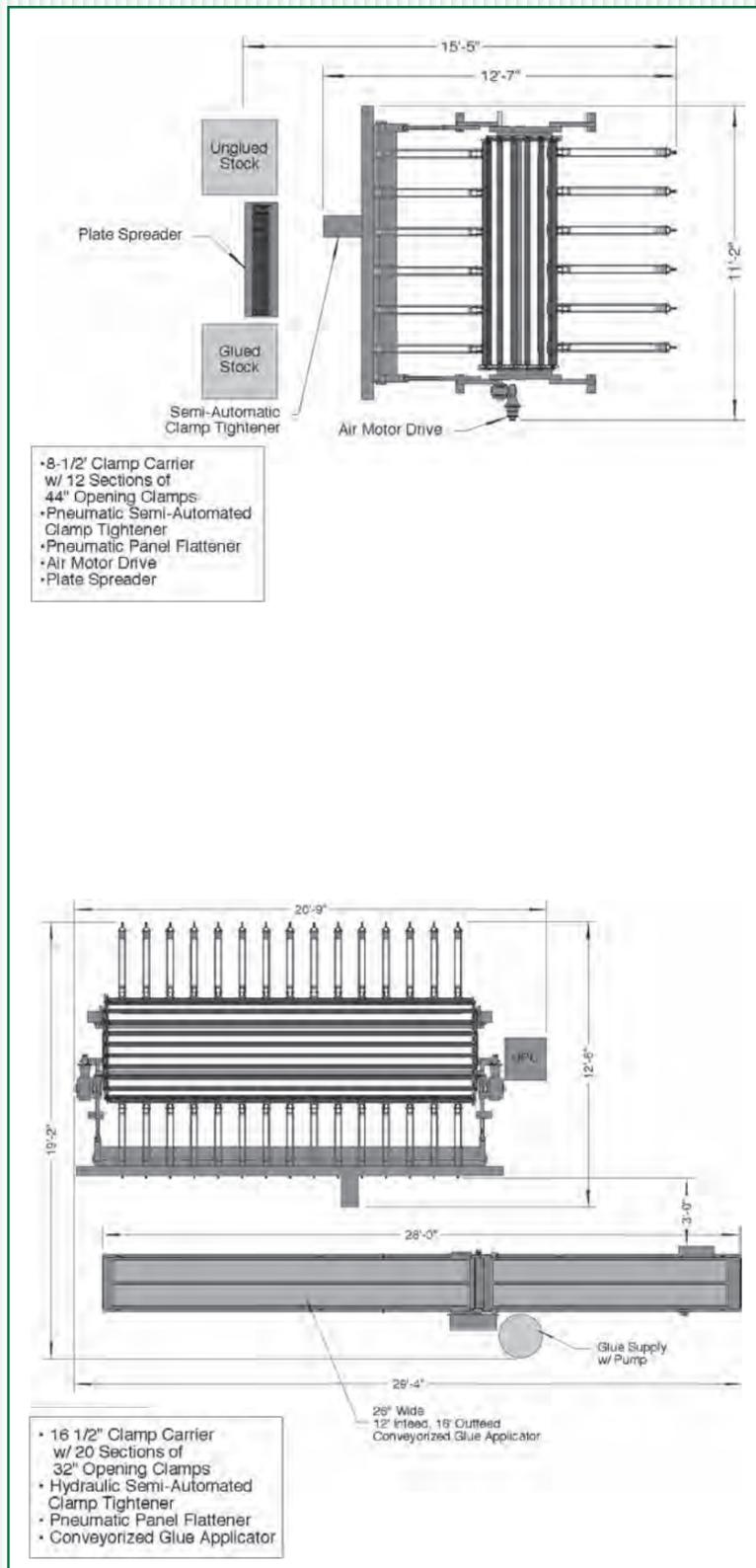
6 Reasons to buy Taylor

1. Taylor has been in business for 109 years. With four IWF Challenger's Awards, we lead with innovation.
2. All of our machinery and parts are produced in our New York State factory. All of our machine software is written and developed in-house.
3. Taylor's service is 2nd to none. We have a knowledgeable staff and a large inventory of spare parts for most models ready for same day shipment.
4. Taylor's easy roller clamps are the easiest to adjust side-to-side.
5. The Taylor Clamp is manufactured with a custom clamp channel to resist twisting and minimize glue cleanup.
6. The Taylor Clamp drawbar is designed like a spring. As the glue lines in a panel cure, it shrinks and our drawbar shrinks with it providing constant pressure. Our competition uses a heavier drawbar that does not shrink. Their customers are forced to use excessive clamping pressure which will starve the glue joints and reduce glue joint strength.



Taylor Classic Clamp Carriers

Made in USA
Poughkeepsie, NY



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.

Glue Applicators



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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.



Taylor Classic Clamp Carriers



Versatility For Short & Long Production Runs

"The Classic Gluing Solution"

James L. Taylor Manufacturing

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Taylor Technology



Semi-Automatic Clamp Tightener/ Panel-Flattener

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The Taylor Panel Flattener is designed to hold the stock flat while each clamp is tightened.

The flattener rides on ball bearings on an overhead beam and is activated by a 3" air cylinder and is interlocked with the Semi-Automatic Tightener for a rapid safe operation.

Pneumatic & Hydraulic Systems

Taylor offers both pneumatic and hydraulic operating systems. Pneumatic systems are less expensive and easier to maintain. Hydraulic systems are self contained and do not use the shop compressed air system. Both systems offer the same tightening and flattening pressures

Choosing the Right Size

- Maximum component length determines carrier width.
- Maximum component width determines clamp size.
- Maximum component thickness determines clamp style and options.
- Loading time, curing time and production needs determine the number of sections.



Thin Panels

Optional hold down bars can be used on thin panels to eliminate bowing. These are placed over the panel and over a clamp. They are held in place while the panel cures.



Thick Stock Gluing and Laminating

Standard Taylor clamps will glue material up to 3" thick. For thicker material rocker plates are used for two reasons; one, to extend the height of the jaw, and two, to create equal pressure top and bottom (the plate pivots) for high quality glue joints.



#401 & #402 Style Clamps

Taylor offers heavier clamps for gluing even thicker materials. These two models (with rocker plates) will clamp 8" and 10" respectively. All components are beefed up to withstand the higher clamping forces necessary to produce a high quality glue joint.

The Classic Line has the most options for:

The Classic Semi-Automatic Clamp Carrier is our most versatile model. Sizes range from 6 to 60 sections with widths from 8-1/2' (2.5 M) to 20-1/2' (6.0 M). A wide range of products from small panels to large laminations can be glued. All machines are equipped with pneumatic or hydraulic components for operation:

- A motor drive for rotation of the sections.
- A Clamp Tightener for uniform clamping pressure.
- A Panel Flattener for flat components.

And a variety of other accessories for glue application, etc.

As with all Taylor machines, smaller machines can be expanded as production requirements grow. This feature is unique to the industry and permits the most efficient use of investment money.

Models/Sizes:

Machine widths vary from 8 1/2' (8' maximum panel length) to 20 1/2' (20' maximum panel length)

Clamp Openings (panel width) vary from 32" to 52"

#202 Style Clamps:
3/4" - 4" thick panels

#302 Style Clamps:
3/4" - 6" thick panels

#401 Style Clamps:
1" - 8" thick panels

#402 Style Clamps:
1" - 10" thick panels



The Highest Production Room Temperature Gluing Machines

Taylor Super Automated Clamp Carriers



Taylor Dual Automated Clamp Carriers



Taylor Manufacturing

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Poughkeepsie, NY 12601
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www.jamestaylor.com

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 out-feed 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 immedi-

ately 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

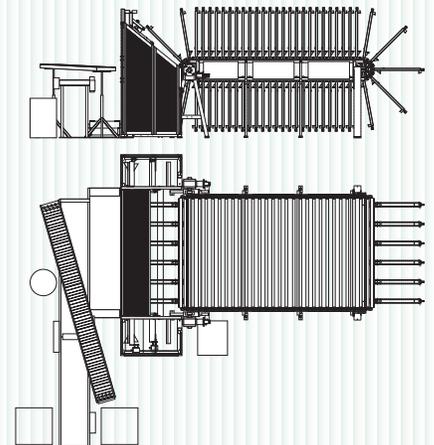
Production is based on cycle time and panel size. Assuming that each section is curing 3 panels 24"x 24" (60 cm x 60 cm) and assuming a cycle time of 50 seconds, production per shift equals:

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

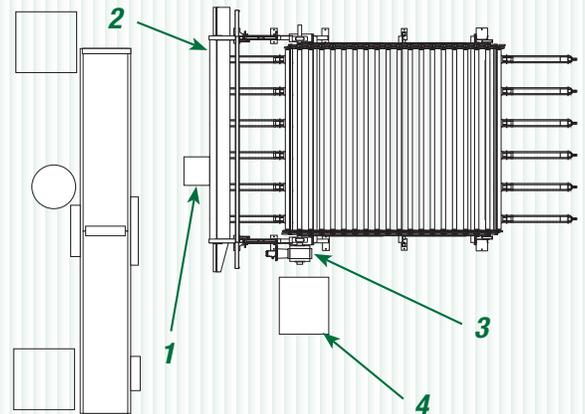
Monitor and Diagnose Problems as they Occur

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

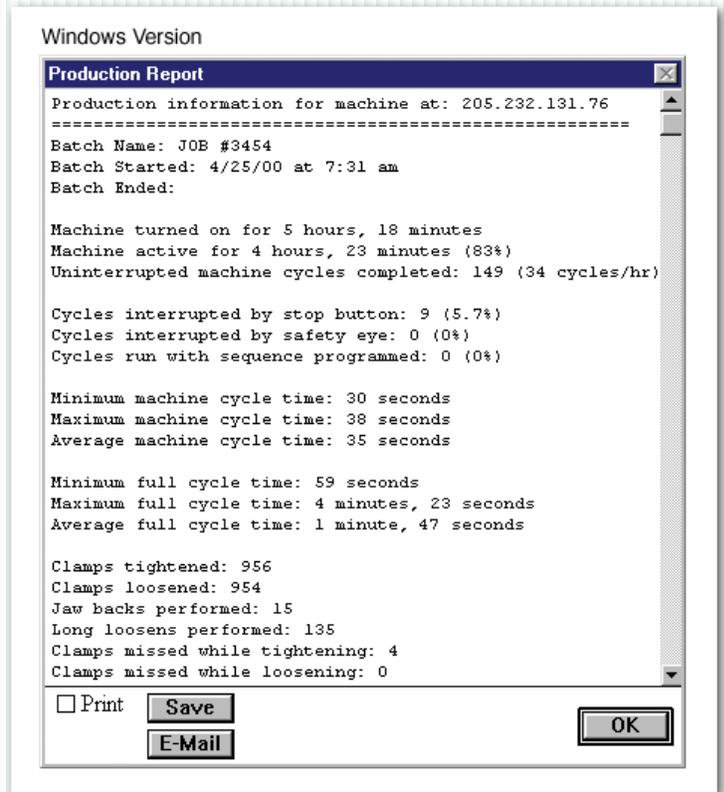
4 Quick & Easy Adjustment of Tightening Pressure

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.

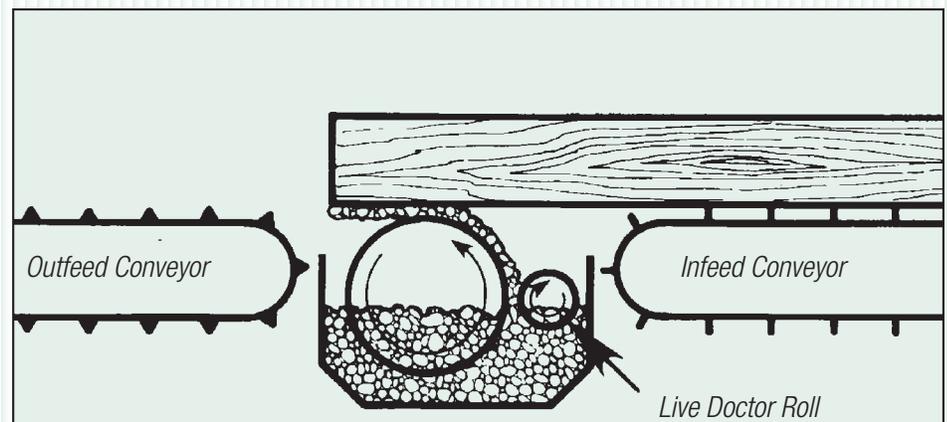
With each machine, Taylor provides a wet film thickness gauge for measuring. More importantly, it is our Live Doctor Roll design that allows each customer to fine tune the spread to their specifications.

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 ($\frac{3}{4}$ " 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.

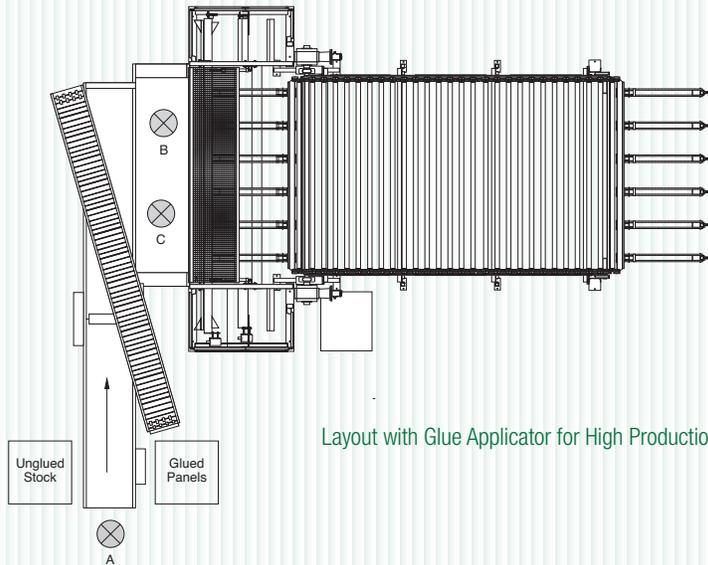
The Opti-Sizer is available in a 6' length or 9' length. Thickness of stock and production determine which model fits your needs.

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 gravity to the pallet of glued stock for

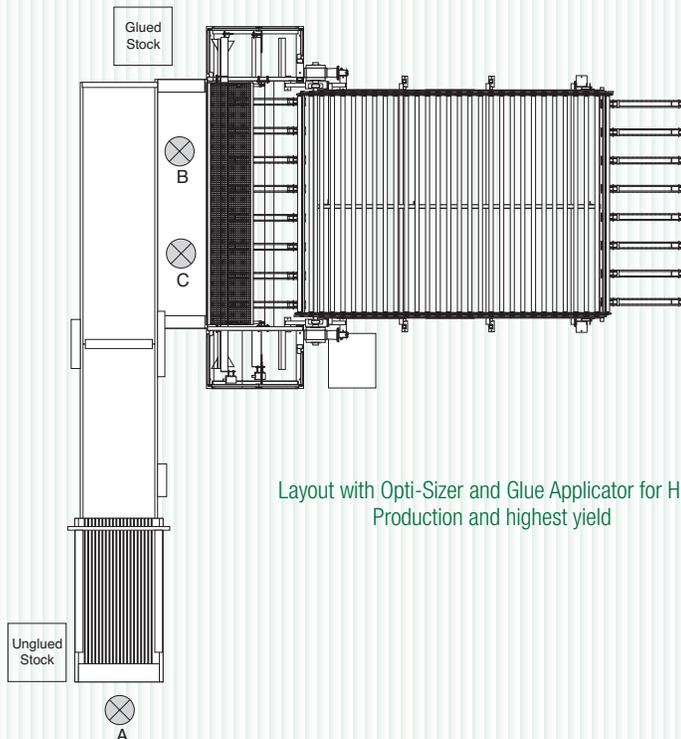
- off loading and stacking. New material is placed into the clamps.
4. Operator A removes the glued panels from the return conveyor and stacks them on the pallet of glued stock.
5. Operator A reloads the Glue Applicator with fresh stock.



Layout with Glue Applicator for High Production

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.



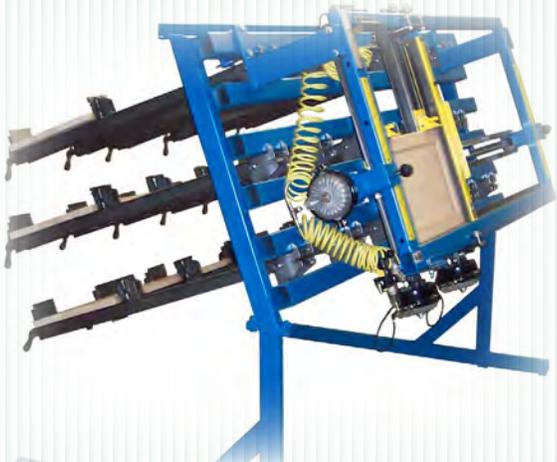
Layout with Opti-Sizer and Glue Applicator for High Production and highest yield



Rip Optimization for the Custom Shop



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



Pneumatic Door Clamp & Panel Clamp Combo System



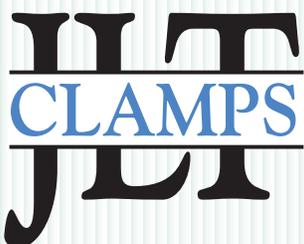
Cameron Rip Optimization System



Taylor Hydraulic Automated Clamp Carrier



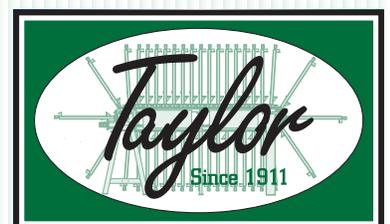
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