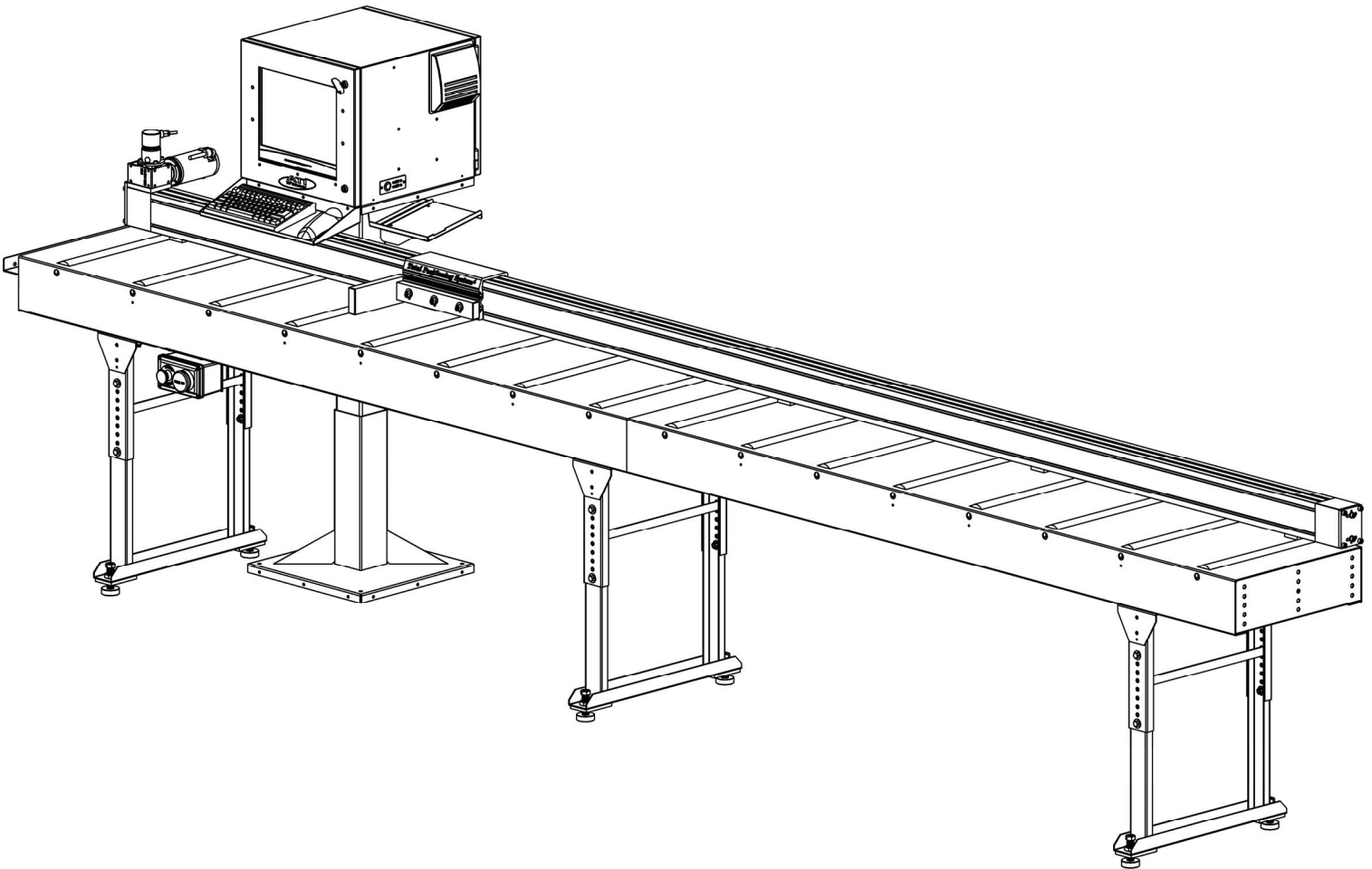


TPS⁴

User's Guide

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a member of the DeMichele Group®

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Introduction

The Total Positioning System⁴ (TPS⁴) is the most complete package on the market today. Its ability to provide organization to a cutting operation results in unparalleled efficiencies. TPS⁴ combines the sophistication of DeMichele's real time lineal optimizer and inventory control software with the repeatable accuracy of our automated saw stop. It's not just providing patterns or moving a saw stop; it's providing optimum yields based on stock and cutoff inventory on a real time basis and directing the throughput from this station back into production. The graphical displays guide the cutter, while the accuracy of our smart controlled saw stop ensures the quality of each cut.

Features:

Real time optimization - TPS⁴ provides increased yields and productivity over any paper system because it reacts on the fly to damaged, missing or additional materials to be cut. TPS⁴ maximizes product yields by taking advantage of not only the stock inventory but also the valuable cutoff inventory that is normally overlooked.

Multiple cuts - to increase productivity, TPS⁴ groups multiple cuts together. This eliminates the repetitious cutting of common sizes. Once cut TPS⁴ forwards the cut material into production and tracks the cutoffs for future use.

Cutoff inventory control - the dynamic cutoff inventory control automatically logs all cutoffs by stick type, color and size. This allows TPS⁴ to direct the cutter to a specific piece of cutoff to be used in the production run.

Integration of sticks into production - TPS⁴ assigns rack locations for the completed sticks to coordinate their return into the production cycle.

Performance Gains:

Based on feedback from our customers, TPS⁴ has proven to provide dramatic results in the following areas:

Organizational improvements - *the structure and control that TPS³ provides will increase the overall efficiencies of the cutting operation. This includes human resources as well as material.*

Increased yields - *the combined strengths of our real time optimizer and cutoff inventory controls, increases yields dramatically.*

Increased throughput - *the coordination, speed and accuracy provided by TPS⁴ increases the potential volume of material cut per station.*

Reduced cutting errors - *the accuracy of the stop and direction provided to the cutter from the visual displays reduces the likelihood of cutting errors.*

Hardware Setup

Unpacking the TPS⁴

The kit is packaged in a crate or boxes.

1. Open the top cover of the crate by removing the Phillips screws.
2. With the assistance of another person, lift the positioner out of the wood crate and place it on the ground to remove any access packaging material.
3. Inspect all components for any damage that might have occurred during shipping.



If you happen to find any damaged parts, please call ATI & The DeMichele Group at (480) 985-4926 and a Customer Support Representative will resolve any problems.

Tools Needed for Assembly

The following is a list of tools that are typically required for the installation of the Total Positioning System 4. Based on your specific requirements, you may need additional tools.

1. Allen (Hex) Wrenches—Metric
2. Drill with a 5/16" or 3/8" bit
3. Flat Head and Phillips Screwdriver
4. Adjustable Wrench or Wrench Set
5. Razor knife

(Continued from page 7)

Parts List

The following is a list of the standard components shipped with the Total Positioning Systems.

- Rail Assembly:
 - Rail
 - Slider
 - Stop Plate
 - *Mounting T-nuts — (8) 5/16" - 18;
 - 180VDC Motor
 - Optical Encoder
 - L-Series Drive Belt
 - Idler Pulley
 - End Plates
 - Gang Stop
- Control Module
- Push Button Continue \ Emergency Stop Box
- Computer with Power Cord
- Computer Touch screen Monitor with Power Cord
- Keyboard w/ Cover and Mouse.
- Controller Cable

**Located in the bottom or back grooves of the rail*

(Continued on page 9)

(Continued from page 8)

Mounting the Positioner

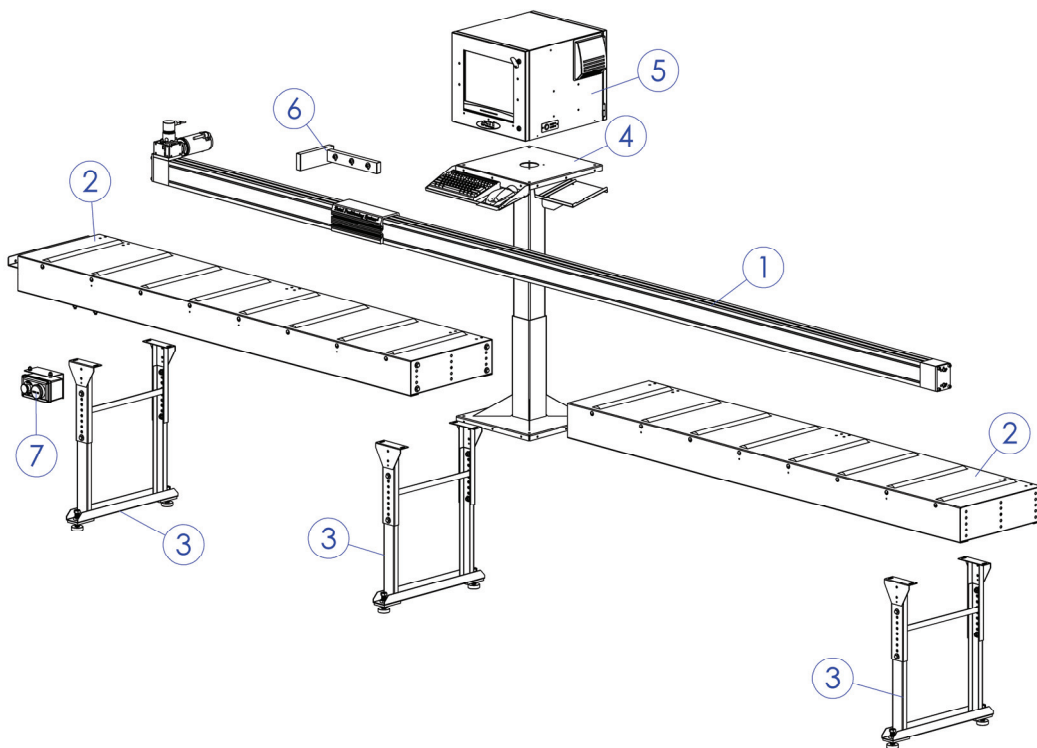
Mounting:

- 1 Determine the best alignment for the rail on your cutting table.
- 2 Use the 5/16" bolts and T-nuts located in the bottom or back grooves of the rail to mount the rail to your table.
- 3 The rail can be mounted either from the bottom or from the back.
- 4 The table on which the rail will be mounted should have a metal or hard wood top that is smooth and level. It is also recommended that the legs of the table be bolted to the floor or otherwise secured to prevent rocking motions while the positioner is in operation.

Bottom Mounting:

1. When Bottom Mounting, mark the center of each T-nut channel opening on your cutting table with a pen, and then slide the rail away before drilling the holes, to avoid drilling into the rail.

(Continued on page 10)



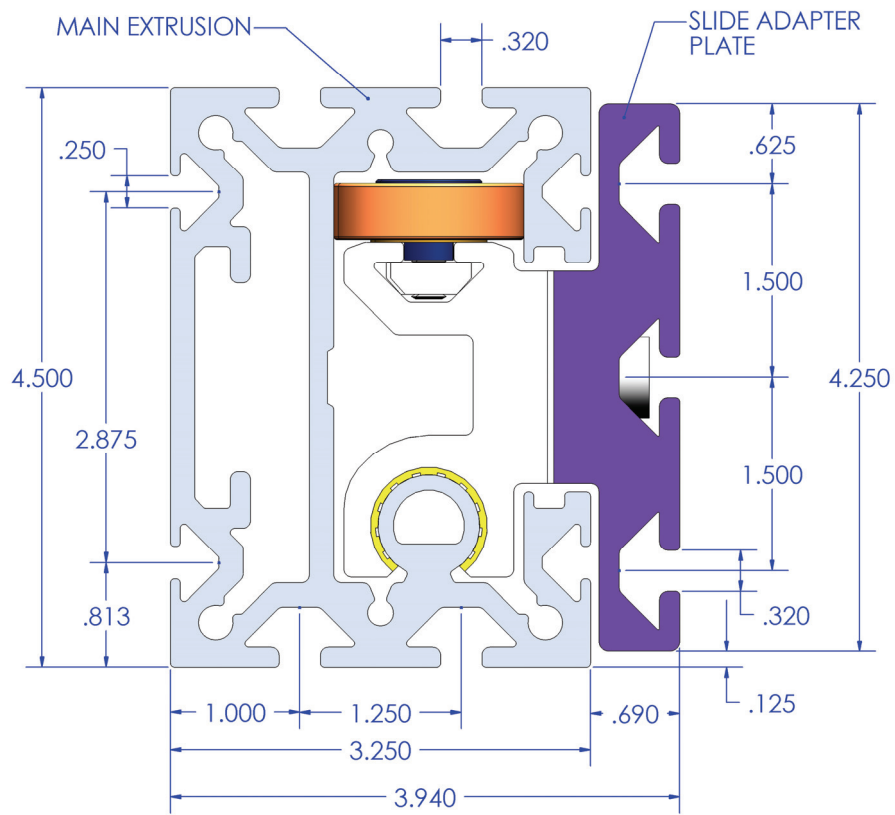


Figure 1.1 TPS4 with Slide Plate Measurements

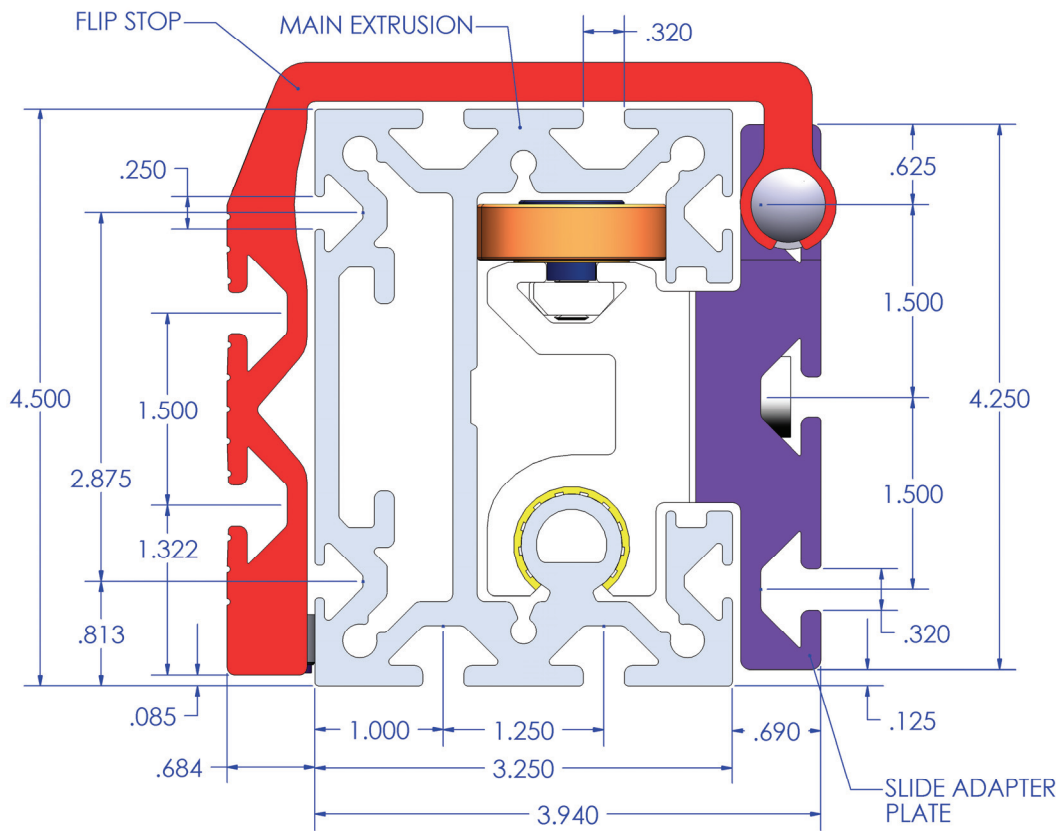


Figure 1.2 TPS4 with Flip Stop Measurements

2. The mounting

holes should be drilled into the

table frame or underlying support structure. Do not attach the rail only to the tabletop, as most table surfaces are too thin to provide adequate strength for the mounting hardware (See Figure 1.1).

Suggested Mounting Position - You should bolt the rail down to the table every 4 feet.

Optional Table Mounting - ATI Flat and Roller tables are predrilled for mounting the rail.

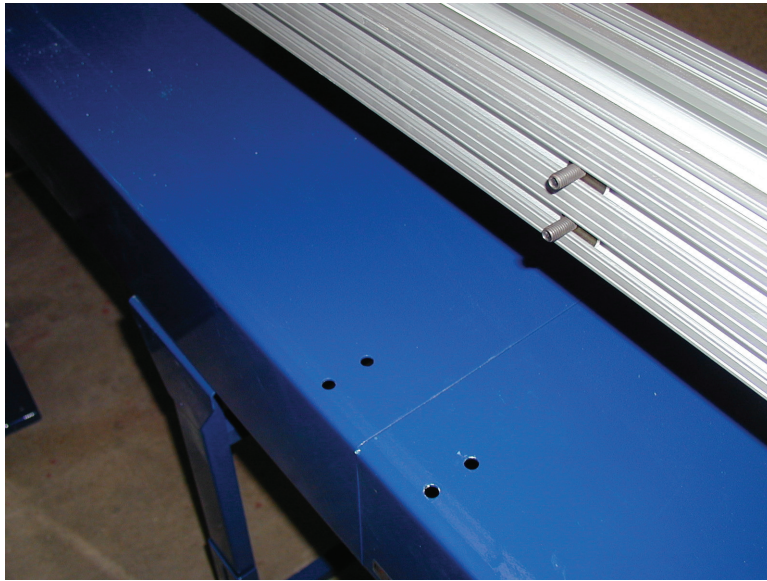


Figure 1.2 Dual Threaded Bolts into the T-Nuts.

1. Simply insert the dual threaded bolts into the T-Nuts in the bottom of the rail. See figure 1.2.

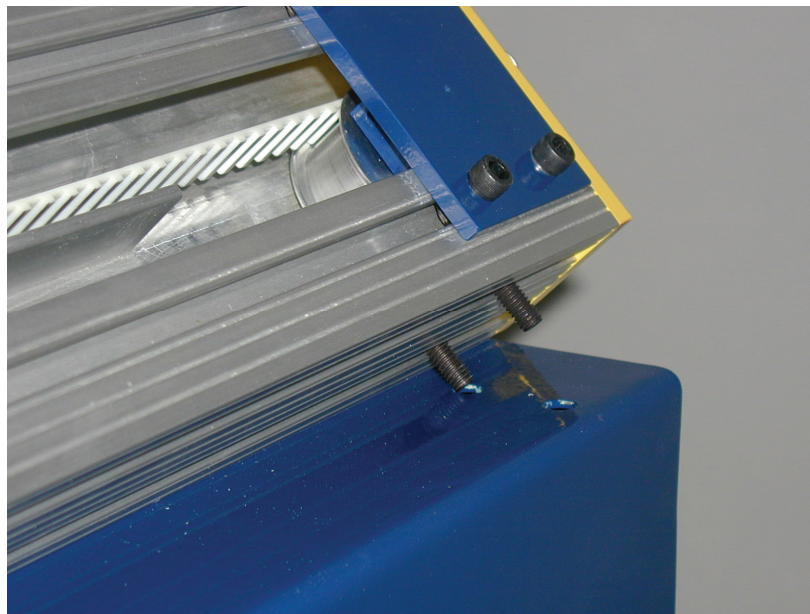


Figure 1.3 Align Bolts to table holes

2. Slide the bolts to the appropriate position on the table. See figure 1.3.

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3. Place washer and lock nut on the bolt under the table and tighten.

Back Mounting

- 1 A mounting bracket should be placed at each end of the rail and the remaining brackets placed at even spacing along the rest of the rail.
- 2 Align the T-nuts in the rail with the hole spacing on the mounting brackets and then lightly tighten the 5/16" bolts into the T-nuts.
- 3 With all of the mounting brackets loosely attached and properly spaced on the rail, mark the locations on the cutting table where holes will need to be drilled.
- 4 After holes have been drilled in the table, you will need to obtain the proper length 5/16" bolts and nuts to mount the brackets to the table.
- 5 Washers can be used to increase the strength of the hole if desired.
- 6 Once all the mounting brackets have been bolted to the table, check to make sure the rail is still level and will not have any obstructions along the surface of the table.
- 7 Tighten all of the bolts when finished. This will enable the slider to move freely without hitting or contacting the table surface during your cutting operations.

Connecting the Controller

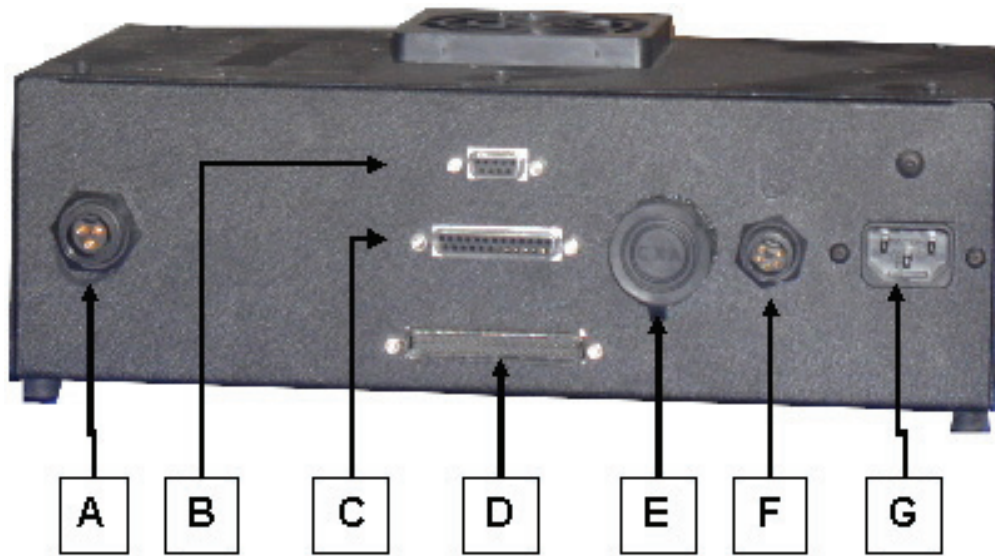


Figure 1.4 TPS Standard Controller

- 1 The system controller box varies depending on the positioner model ordered. The controller box either will be mounted on the rail or will be packaged as an independent unit. Both controllers perform the same function, but the exact configuration varies depending on customer needs. The connections for the Controller Box are shown in Figure 1.4, respectively.
- 2 Attach the 5-pin cable on the Emergency Stop Button Box to the Controller Box marked as F.
- 3 The notch on the male connector should be aligned with the corresponding groove on the female connector located on the controller box. Then push the connectors together.
- 4 The twist cap should be pushed in towards the box and twisted 1/2 a turn until it feels tight and is secured to the box.
- 5 Check to make sure the emergency stop (red) button is in the “up” (unlocked) position.
- 6 Attach the male end of the 37-pin cable to the Controller Box marked as D.
- 7 Connect the power cable to the Controller Box marked as G.
- 8 Make sure all wires and cables are attached securely to the table or stand to avoid damage or the possibility of being caught by moving parts.



Figure 1.4a TPS Serial Controller

- 1 The serial controller box contains the controller card normally in the PC. The controller box uses the Network Interface Card to transfer data to the PC. The connections for the Controller Box are shown in Figure 1.4a, respectively.
- 2 Attach the 5-pin cable on the Emergency Stop Button Box to the Controller Box.
- 3 The notch on the male connector should be aligned with the corresponding groove on the female connector located on the controller box. Then push the connectors together.
- 4 The twist cap should be pushed in towards the box and twisted 1/2 a turn until it feels tight and is secured to the box.
- 5 Check to make sure the emergency stop (red) button is in the “up” (unlocked) position.
- 6 Connect the power cable to the Controller Box.
- 7 Make sure all wires and cables are attached securely to the table or stand to avoid damage or the possibility of being caught by moving parts.

Setting up the Computer

Mounting the Computer Components:



Figure 1.5 As shown in the optional steel environmental enclosure.

- 1 Open the computer and monitor boxes and remove the contents.
- 2 Select a clean, but convenient place to mount the computer and monitor, so the operator can easily work with the system.
- 3 The computer, monitor, and covered keyboard should either be placed or mounted in close proximity to the Controller Box on a nearby shelf or table.
- 4 The keyboard should be placed within close proximity to the computer and monitor, so the operator can have convenient access to the system.



***Warning - Make sure to keep the computer and monitor clear of debris.
Excess debris can cause the system to malfunction.***

Connecting the cables

Connecting the Computer Cables:

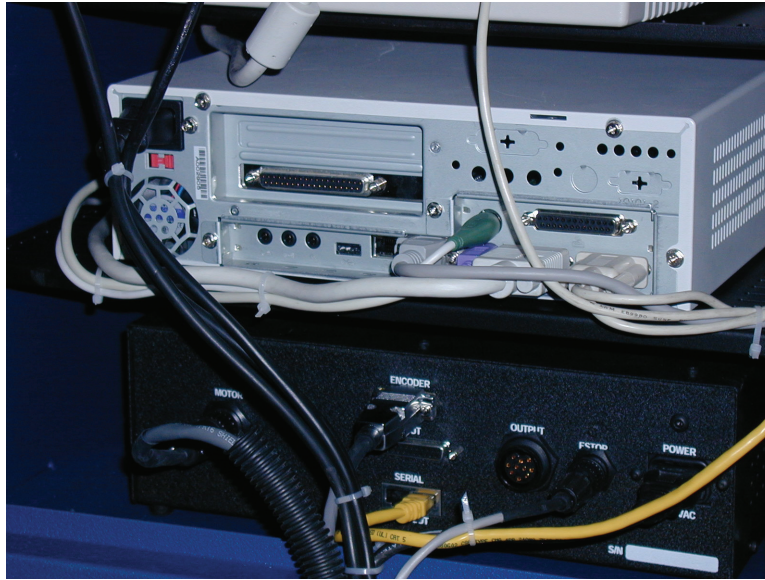


Figure 1.6 Rear View of Optional Steel Enclosure

- 1 Plug the enclosed power cords into the monitor and computer unit, but do not connect them to an outlet at this time.
- 2 Connect the keyboard cord to the back of the computer unit.
- 3 Connect the female end of the 37-pin cable to the back of the computer.
- 4 Plug the monitor cable into the back of the back of the computer.
- 5 Connect all power cords into an available outlet.
- 6 Check all power cords, cables, and connections on the Controller Box a final time before turning the units on.



It is strongly recommended that the computer, monitor, and *Controller Box* be connected to an outlet with a surge protector and/or an uninterruptible power supply (UPS). This will ensure any unwanted power surges or Brownouts will not damage or otherwise adversely affect the positioning unit and computer equipment. Contact ATI & DeMichele Systems, Inc. for more information on purchasing a UPS at (480) 985-4926.

Software Settings and Calibration

Initialize Axis

1. From the **TPS Main Menu**.
2. Select **Machine Setup** pushbutton.
3. Enter *Passkey* and press the **OK** pushbutton.
4. Select the **Initialize Axis** pushbutton.
5. Select the **Initialize** pushbutton to set home position.
6. Did machine go to the home position?
 - a. **NO** – Press the **NO** pushbutton for the machine to home in the opposite direction. Go to step b.
 - b. **YES** – Press the **YES** pushbutton to accept the home position
7. Cut a piece of scrap and compare measured part to the distance on the screen.
8. If the size is off, then run the machine calibration.

Calibrate Axis

1. From the **TPS Main Menu**.
2. Select **Machine Setup** pushbutton.
3. Enter *Passkey* and press the **OK** pushbutton.
4. Select the **Calibrate Axis** pushbutton.
5. Select **Home Position** pushbutton.
 - a. Cut a scrap part by placing it against the stop and cutting a part.
 - b. Measure the part. The more accurate the measurement, the more accurate the Positioner.
 - c. This is the smallest part that can be cut with the Positioner without using a jig tool.
6. Key in the exact size of the part that you measured.
7. Press the **Enter** pushbutton.
8. Press the **OK** pushbutton.
9. Press the **Calibrate** pushbutton.
 - d. Cut a scrap part by placing it against the stop and cutting a part.

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- e. Measure the part. The more accurate the measurement, the more accurate the Positioner.
10. Enter the length of the part (if different) and select the **Enter** pushbutton.
11. Press the **OK** pushbutton.
12. Press the **Update** pushbutton.
13. Press the **OK** pushbutton to complete the process.

Configuring System Settings

1. From the **TPS Main Menu**.
2. Select **Machine Setup** pushbutton.
3. Enter *Passkey* and press the **OK** pushbutton.
4. Select the **System Settings** pushbutton.
 - a. Jig insert tool – this will be called for when a part needs to be cut that is smaller than the distance between the home position of the TPS and the saw. The size that is typed in to this box is the physical size of the jig tool.
 - b. Backup – this is the distance the TPS will back up after making a cut. If the TPS is a pusher or a stop, it moves to allow the part cut to be removed.
 - c. Safe Zone – this is the distance from the end of each side of the Positioner that the system will stop one extra time to make sure that hands or other objects do not get pinched between the back bracket and the stop slide.
5. The rest of the settings are configured during the calibration process.
6. Press the **OK** pushbutton to accept the changes.

Move Parameters

*These settings should not be adjusted without assistance from the DEMICHELE GROUP. The only thing you should do in this area is note the values of each field in case of system failure or database crash.

1. From the **TPS Main Menu**.
2. Select **Machine Setup** pushbutton.
3. Enter *Passkey* and press the **OK** pushbutton.
4. Select the **Move Parameters** pushbutton.
 - a. Home Velocity
 - b. Home Strength
 - c. Move Velocity
 - d. Move Strength

- e. Acceleration
 - f. Proportional
 - g. Integral
 - h. Derivative
 - i. I-Limit
 - j. Speed Factor
5. These settings are configured at the factory and should not be modified with out the DeMichele Group's assistance.
 6. Press the **Ok** pushbutton to complete.

TPS Software

Main Menu

The Main Menu has seven possible pushbuttons for usage:








- Manual Mode
- Pattern Move
- Machine Setup
- Optimizer
- Home Machine
- Reports
- Exit



Figure 2.1a: Main Menu (All options shown)

Note: The Machine Setup, Reports and Exit are often times hidden from view. (See figure 2.1a) Press the **CTRL + ALT + A** to unhide these buttons, and **CTRL + ALT + H** to hide.

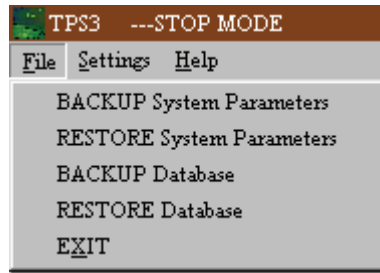
Main Menu Controls

Pushbutton	Features
	<p>Manual Positioning - Allows the user to manually set the desired position of the equipment.</p>
	<p>Pattern Move - Allows the user to develop a library of routine movements or sequences of positions. This feature is used for standard products.</p>
	<p>Machine Setup - Provides the user with access to the system control screens. This feature requires a Passkey to operate.</p>
	<p>Optimizer - Provides the user with access to the system control screens for the TPS Optimizer.</p>
	<p>Home Machine - Allows the user to automatically move the equipment to the home position. This feature is activated on startup of the machine.</p>
	<p>Reports - Provides the user with current and cumulative totals for pieces of material cut, physical cuts, stock lengths used, and yields. This feature requires a Passkey to operate.</p>
	<p>Exit - Returns the user to the computer's operating system.</p>

Initial Passkey is "111"

Dropdown Menu Controls

File Dropdown Menu



Backup System Parameters - Allows you to backup your current system configuration parameters to a floppy disk or across a network.

Restore System Parameters - Allows you to restore your backed up parameters to the TPS system from floppy or across a network.

Backup Database - Allows you to backup your current database in case of system failure or data loss.

Restore Database - Allows you to restore your backed up database to the TPS from floppy or across a network.

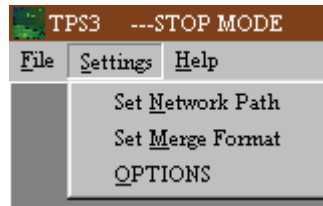
Make Emergency Disk - Used to store or email system critical information.

Exit - Exits the TPS Software.

System Parameters

The System Parameters contain the HOME position, Calibration Value, and other critical system data. System Parameters should be backed up when the system is working properly. The Restore selection will change the system back to the previously saved values.

Settings Dropdown Menu



Set Network Path - Allows you to set the network path of where the merge lists will be located. This list can be called from local directories as well as from a mapped network drive.

Set Merge Format - Allows you to set the way the TPS reads the merge file. This option also has a test merge button to make sure that the TPS reads the files properly.

Options - Allows you to configure how TPS controls options like Optimization, Printer Labels and other options.

Network Path

Network Path

If the user has a cut list that has been prepared outside of the TPS2 program or on another computer, they can import it using the Merge List button in the Cut List Menu. The retrieval path for the imported lists can be set from the **Set Network Path** selection in the Settings drop down menu (Figure 2.3). A window will open in which the user can enter the drive and directory for merge files (Figure 2.4).

Figure 2.4: The Change Network Path Screen

Options

Options are for custom configuration of the TPS software.

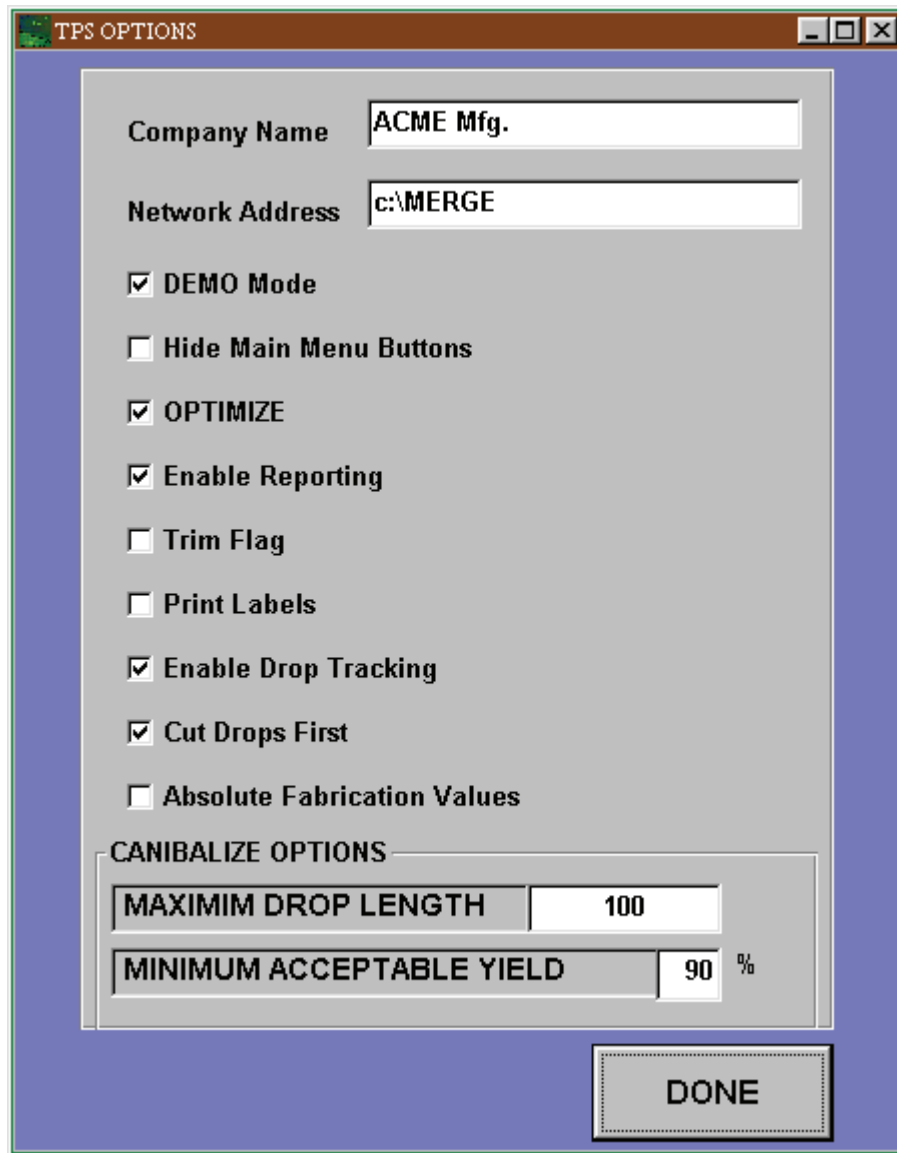


Figure 2.4a Options Menu (Must key in the Passkey)

Merge file

Merge File Format

The format of cut lists often varies depending on the manufacturer. Because of this, TPS³ makes it possible to define the format for merged lists via the **Set Merge Format** selection in the Settings drop down menu. A **Merge File Format** window (Figure 2.5) will open allowing the user to define the structure of the imported cut list.

Merge File Format Display Window

Figure 2.5 Merge File Screen

Delimited / Fixed Length Fields – This window displays the field size settings for imported cut lists. If the fields are delimited this means that the imported cut list information will have some type of separator such as a comma or backslash between field data. In this instance, the type of separator (delimiter) must be specified. If the fields are of fixed length then there will be no separator between field data. In this instance, the length of each data field will need to be specified by the user. Selecting the field type can be done with the down arrow at the right end of the display window.

Delimiter Type – This window will be displayed only if the Delimited Fields selection is active. It contains several common separator types that can be scrolled through using the down arrow at the right end of the display window. If the necessary separator type is not in the list, it can be typed directly into the window using the keyboard.

Note: Normally, no two fields should have the same value; each material parameter

should come from a different position in a merge list.

File Extension – This window contains a list of common merge file extensions. The down arrow at the right end of the window allows the user to scroll through the list. If no particular extension is required the “*.*” selection will allow the system to display all file types. If the required file type is not listed in the window list, then the user can enter an extension using the keyboard.

Test Merge Fields – These windows contain the material parameters that have been extracted from a merge list. If all of the windows display the correct parameter information then the test was successful.

Merge List Display – This window is located above the Cancel and Done buttons and will display the merge list in its raw form. With this window, the user can see if the list is delimited and what the separators are.

Machine Number – This window allows the user to specify the machine number for the current merge. If the user is working with a merge file with multiple machine data, the machine number can be specified allowing only machine specific data to be merged.

Delete Files After Merge – This check box allows the user to automatically remove merged files from the merge path once they have been successfully merged.

Help Dropdown Menu

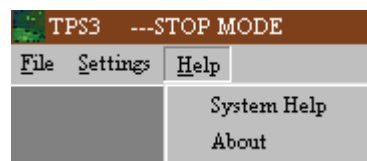


Figure 2.6 The Help Menu

System Help - Opens the electronic manual allowing you to use these instructions on the computer.

About - This option gives information for the version number of the product.

Manual Mode

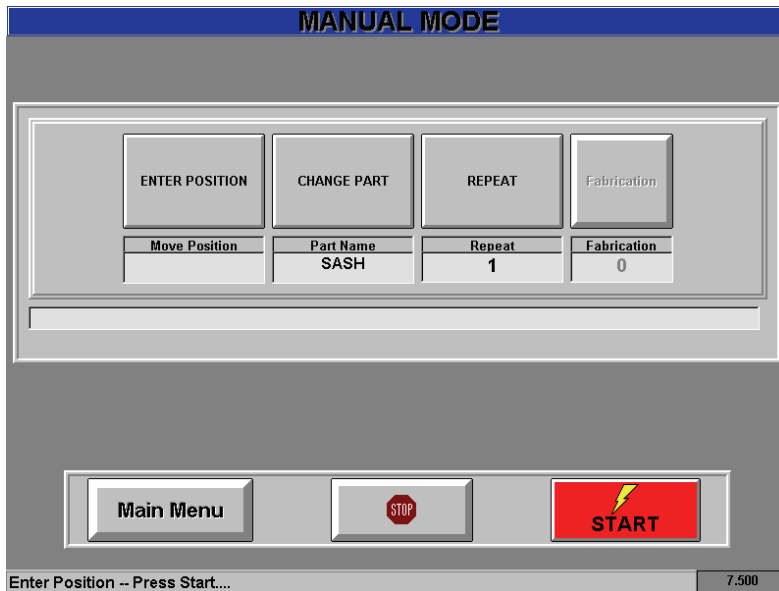


Figure 2.7 The Manual Mode Screen

Enter Position – The Enter Position pushbutton allows you to key in the distance for each move as you work. To use, press the Enter Position button and use the on screen keypad to enter the distance of the move.

Change Part – The Change Part button allows you to change the part being used. This is used when different material parameters are used. See figure 2.8

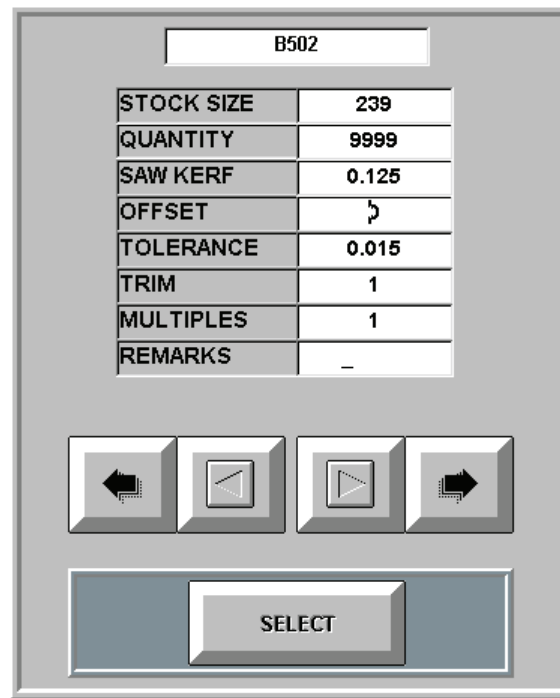


Figure 2.8 Change Parameters

Repeat – The Repeat button allows you to key how many times you would like to repeat the manual move. You can select between 1 - 999

Using Manual Mode

1. Press the **Manual Positioning** pushbutton from the Main Menu screen.

MAKING A MANUAL CUT

- 1 From the MANUAL MODE menu.
- 2 Enter the Part and Repeat information, then use the Keypad to enter the move position.
- 3 Put Material to be cut against the fence and the gang stop.
- 4 Press the **red** “START” button. The “START” button will turn **green** as the position moves to the specified location.
- 5 Cut the material when the positioner has come to a complete stop.

Emergency Stop and Continue Buttons

Emergency Stop/Continue Box Controls



Figure 2.9 The Emergency Stop \ Continue Box

Emergency Stop – The Emergency Stop button must be used any time the system has to be shut down immediately. For example, if the system jams for any reason or is moving in an erratic manner the Emergency Stop button prevents the motor or other components from being damaged.

Continue – The Continue button allows the user to notify the system that a cut has been made. Once the Continue button has been pressed, the system moves to the next length in any list.

Pattern Mode

Pattern Mode Controls

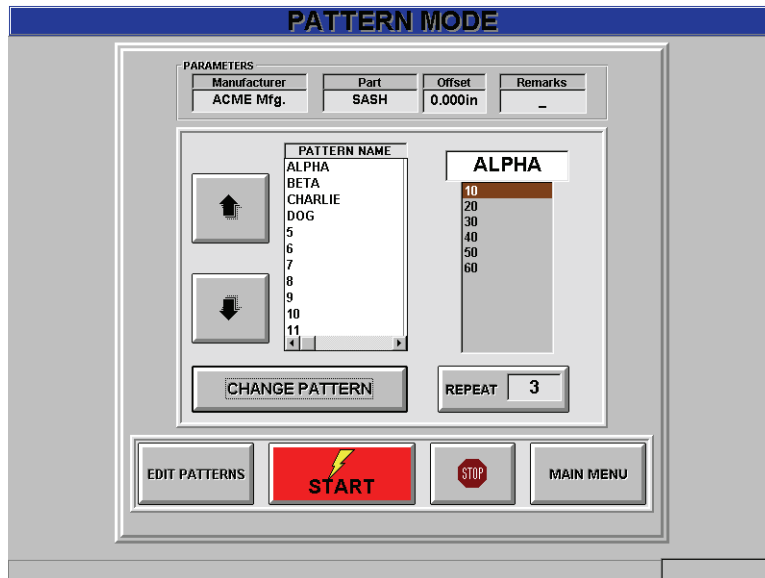


Figure 3.0 The Pattern Mode Screen

Pattern Mode Display Window

Parameters

Manufacturer – This window displays the manufacturer’s name. It can be edited from the Settings | Options Dropdown from the Main Menu.




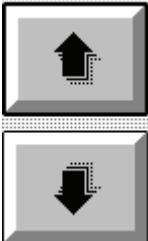


Part Number – By selecting this area of the Parameters box, the user is allowed access to the Material Selection Menu. Here the user can search through a list of parts or add a new part to the list.

Offset – This allows the user to adjust the offset between the stop and the cutting blade. This field is also edited through the Material Selection Menu.

Pattern – This displays an ordered list of cut lengths.

Change Pattern – This allows you to change the pattern being used.

Pattern Mode Controls

Pushbutton	Function
	<p>Repeat – This allows the user to enter the number of times the selected pattern can be repeated by using the remote Continue button located next to the Emergency Stop button on the button box. Pressing the repeat key brings up the number pad. The number of repeated patterns can also be edited directly in the display window.</p>
	<p>Change Pattern –This allows the user access to the Add/Edit Pattern Menu. A pass-key is necessary to access this area.</p>
	<p>Main Menu – This returns the user to the Main Menu.</p>
	<p>Up & Down Arrows – These arrows allow the user to scroll through the patterns in memory.</p>
	<p>Press to Start – This initiates the cutting of the selected pattern. The user must press the remote continue button after each cut to set the next length.</p>
	<p>Stop – This stops the system at its current position. The Press to Start key will resume normal operation.</p>

Using the number pad

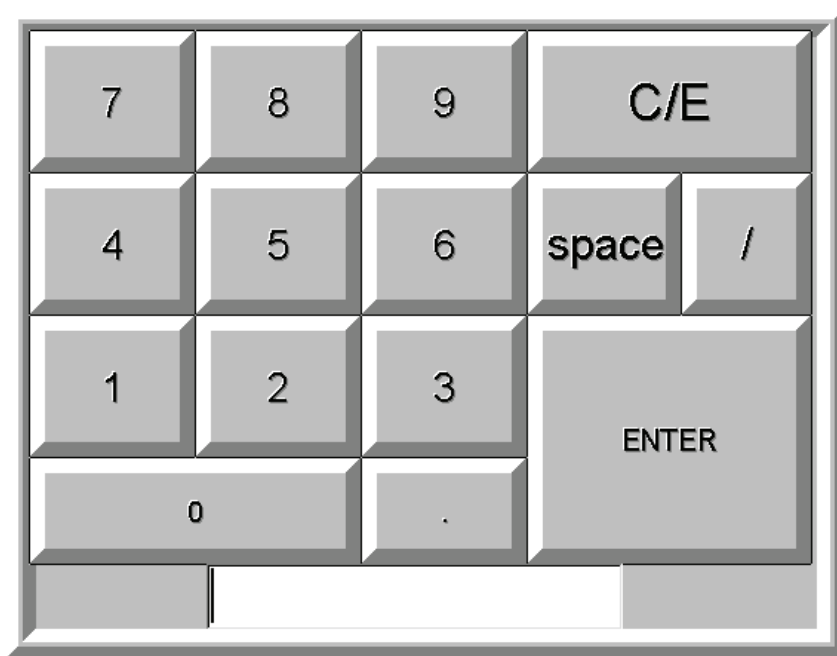


Figure 3.1 The Touch Screen Keypad

Press the appropriate numbers and press the enter key to finish.

Optimization

TPS Optimizer Window Displays

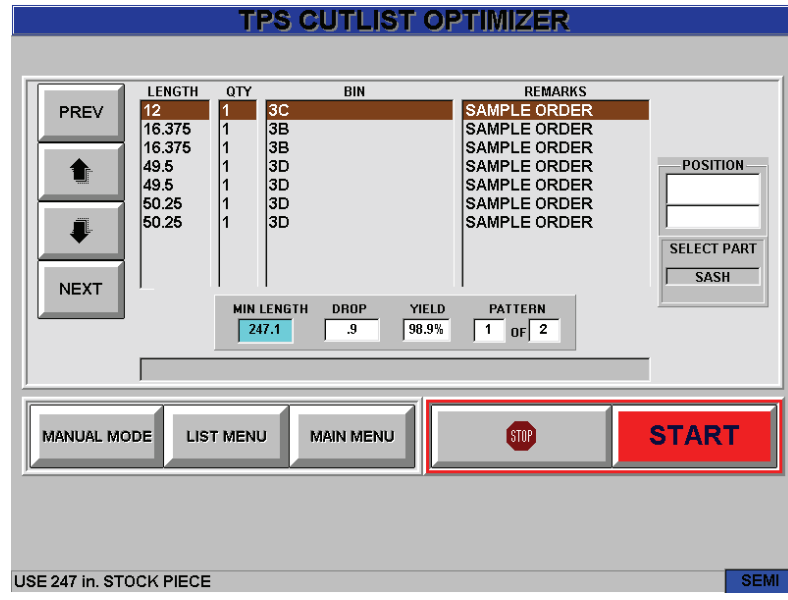


Figure 3.2 The Optimizer Screen

Material Parameters

Name – This field displays the name of the current part. Selecting anywhere within the gray area of the window displays the Material Selection Menu.

Finish – This field displays the color of material to be used.

Quantity – This field displays the amount of product needed for this part, finish, and size for this order.

Cut – This field displays the amount of material already cut.

Length – This field displays the size of the cut needed.

BIN - This field displays the bin assignment for the cut(s).

Order - This field displays the order number for the product being built.

Remarks - This field displays any special remarks for the product.

Optimizer Controls

Stock Size – This field displays the length of the available stock.

Trim – This field displays the amount of material that must be trimmed from the stock to create a usable length.

Multiples – This field displays the number of parts that can be cut at one time by stacking the material.

Length – After optimization, this window displays a reordered list of lengths to be cut. If the optimization option has been disabled, the list will appear as it was written.

Qty – This window displays the quantity of each length being cut at one time. This depends upon the value in the multiple fields described above.

Bin – This window displays the name of the storage bin that will hold a particular length.

Remarks – This window displays any special comments for the system operator.

Min Length – This field displays the minimum length of the stock part before it is considered waste.


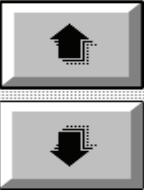




Drop – This field shows the length of the stock left over after cutting. This value along with its Bin location is stored in memory and the system notifies the operator if the piece can be retrieved and used in a later optimization.

Yield – This field shows the percentage of used material for each pattern.

Pattern – This field shows the current pattern number and the total number of patterns.

Position – The top half of this window displays the desired position according to the pattern list. The bottom half of the window displays the current position. The background is red when the current position differs from the desired position and the background is green when the machine has completed the move.

TPS Optimizer Button Controls

Pushbutton	Function
	<p>Previous \ Next – This button allows the user to jump to the next or previous patterns.</p>
	<p>Up & Down Arrows – These arrows allow the user to scroll through the length list.</p>
	<p>List Menu – This button allows the user access to the List Menu (Figure 6.2) The list menu has buttons to Merge, Select, Edit, or Create a Cut list.</p>
	<p>Main Menu – This button returns the user to the Main Menu.</p>
	<p>Press To Start – Once this button is pressed the system moves to the first position on the current list. After cutting, successive moves can be initiated by pressing the remote continue button.</p>
	<p>Stop – The stop button stops the system from continuing with the current pattern.</p>

Cutlist Menu

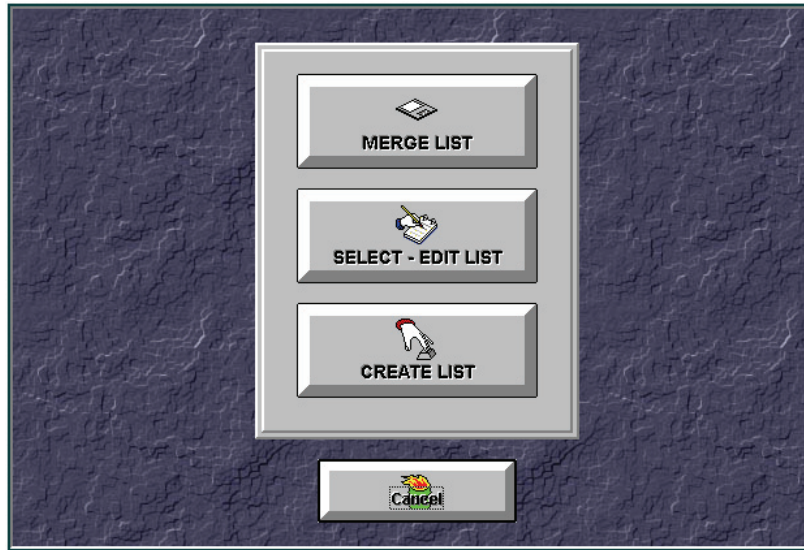
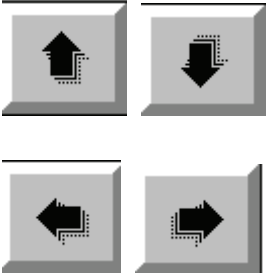




Figure 3.3 Cutlist Main Screen

Cutlist Menu Controls

Pushbutton	Function
	<p>Up, Down, Right, and Left Arrows – These arrows allows the user to navigate through the cells of the Cutlist. The Down arrow will also add a copy of the last row when it reaches the bottom of the list.</p>
	<p>Ins – The Insert button allows the user to add a copy of the last row onto the bottom of the list. This row can then be edited to reflect the new part parameters.</p>
	<p>Del – The Delete button allows the user to remove rows from the list. The user must first highlight a row by selecting the gray leftmost cell and then hit the Delete button.</p>

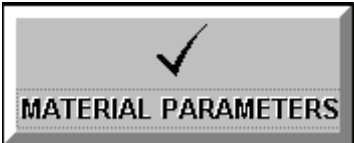







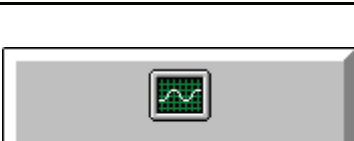


Machine Setup Controls

Machine Setup Main Menu



Figure 3.4 Machine Setup Screen

Machine Setup Menu Button Controls

Pushbutton	Function
	<p>Material Parameters – This allows the user access to the Material Selection Screen (Figure 5.2), where material parameters can be created, edited, and deleted.</p>
	<p>System Settings – This allows the user access to the System Settings screen (Figure 5.3). Here, machine and positioning dimensions can be altered manually.</p>
	<p>Move Parameters – This allows the user access to the Move Parameters screen (Figure 5.4) for fine-tuning of the system's movement characteristics.</p>
	<p>Security – This allows the user to change the pass-key.</p>
	<p>Initialize Axis – This allows the user to automatically initialize the minimum and maximum spacing values for the current axis.</p>
	<p>Calibrate Axis – This allows the user to run the calibration routines.</p>
	<p>Smartscript – This allows the user access to the Smartscript Main Menu after prompting for a password. Smartscript is a scripting language used to run TPS2 controlled machines. (Access is limited to a DeMichele engineer in most instances.)</p>
	<p>Main Menu – Returns the user to the main menu</p>
	<p>I/O Testing – This allows the user to perform diagnostic operations on the system's controller.</p>
	<p>Axis Testing – This allows the user access to Axis Diagnostic tools, which are used to test axis movement and encoder function.</p>
	<p>Set Timers – This allows the user access to the</p>

Materials Selection

Material Selection Display Window

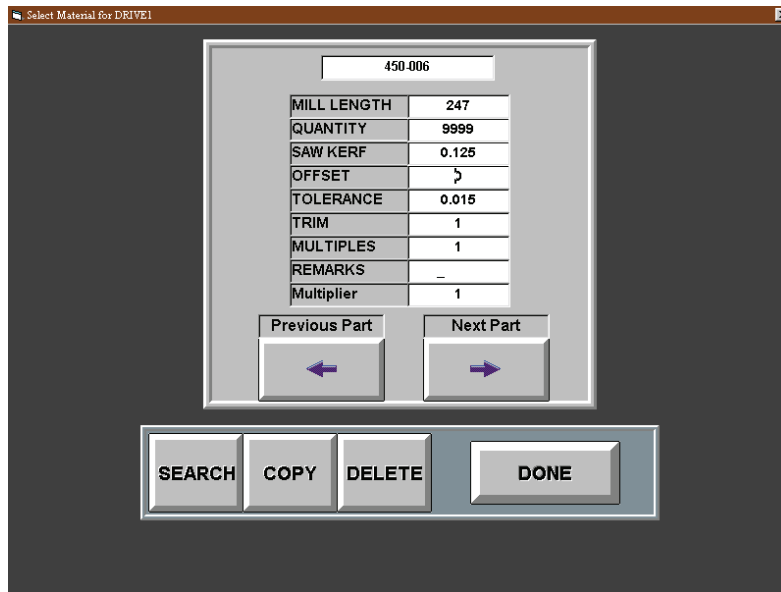


Figure 3.5 Materials Selection Screen

Part Name – This displays the current part name, which can be edited directly. In order to enter a new part, the user must scroll or jump to the last material on the list, which will be named **PART**. Entering a new name will create and save the new material. The remaining fields are set up with default values that may be edited by the user directly within the fields.

Stock Size – This displays the stock size for the current material. This defaults to 144 in.

Quantity – This displays the available stock quantity of the current material. This value defaults to 9999 units.

Saw Kerf – This displays the width of material removed by the saw blade itself for the current material. This value defaults to 0.125 or 1/8 in.

Material Selection controls

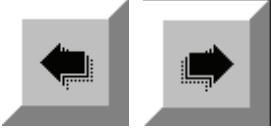
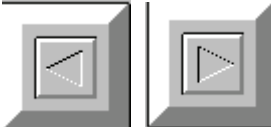


Offset – This displays the offset between the saw blade and the home position of the fence for the current material. This value defaults to 0 in.

Tolerance – This displays the tolerance or accuracy of the measurements made by the system for the current material. This value defaults to 0.015 or 1/64 in.

Trim – This displays the amount of unusable material that must be trimmed from the stock. This value defaults to 1 in.

Multiples – This displays the number of parts of the current material that will be cut at one time. Material may be stackable to permit the cutting of multiple parts. This value defaults to 1 part.

Remarks – This field allows the user to enter any miscellaneous information about a particular part.

Pushbutton	Function
	<p>Black Left & Right Arrows – These arrows allow the user to jump directly to the first and last material in the list.</p>
	<p>Gray Left & Right Arrows – These arrows allow the user to scroll through the materials list selecting one entry at a time.</p>
	<p>Delete – The delete button allows the user to remove a selected material from the list.</p>
	<p>Select – The select button will save the displayed part as the working material and return the user to the previous screen.</p>

System Settings

Controller Axis DRIVE1

MACHINE DIMENSIONS		POSITIONING DIMENSIONS	
Jig Insert Tool	.0 in	MINIMUM POSITION	.8 in
BackUp Distance	2.0 in	MAXIMUM POSITION	221.31 in
SAFE ZONE	25.0 in	CALIBRATION VALUE	550.0




UNITS			
ENGLISH	 Cancel	 UPDATE	 CHANGE AXIS

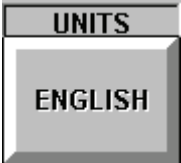



Figure 3.6 System Settings

Jig Insert Tool - Used when cutting a part smaller than the minimum position. For example, the minimum position is 10" and the jig tool is set to 10", then to cut a 5" part, the positioner will stop at 15" and call for the 10" jig tool.

Back Up Distance - The distance the stop moves after the part is cut. This is used when a saw does not allow the part to be removed without the stop or pusher positioner backing up.

Safe Zone - Distance from each end that the system will warn operator to beware of pinch points.

System Settings Button Controls

Pushbutton	Function
	<p>Units – This button displays the unit type, English (in.) or Metric (mm.) currently being displayed and accepted by the computer. Selecting this button will toggle the displays to the current units.</p>
	<p>Cancel – This button disregards any changes made and returns the user to the Machine Setup Menu.</p>
	<p>Update – This button saves any changes made and returns the user to the Machine Setup Menu.</p>
	<p>Change Axis – For multiple axis systems, this button allows the user to access the settings for multiple controller axes.</p>

Move Settings

The screenshot shows a control interface titled "MOVE PARAMETERS". It is divided into two main sections: "MOVE PARAMETERS" on the left and "PID PARAMETERS" on the right. Each section contains several adjustable parameters with their current values displayed in text boxes.

Parameter	Value
HOME VELOCITY	60
HOME STRENGTH	100
MOVE VELOCITY	100
MOVE STRENGTH	320
ACCELERATION	170
PROPORTIONAL	250
INTEGRAL	1
DERIVATIVE	4
I-LIMIT	800
SPEED FACTOR	1






At the bottom of the screen, there are three buttons: "Cancel", "Change Axis", and "UPDATE".




Figure 3.7 Move Parameters Screen








WARNING: Adjust these settings CAREFULLY. If care is not used, the system could become unstable and damage the machine. Call ATI at (480) 985-4926 if you have any questions about adjusting these parameters.

Move controls

Pushbutton	Function
	Home Velocity – This allows the user to adjust the velocity at which the fence seeks the home position. It is important that this value not be too great so that the impact with the home stop will not damage the axis.
	Home Strength – This allows the user to adjust the strength with which the fence finds and holds the home position. If this value is too low, friction or other forces affecting the fence might prevent it from reaching the home position or staying there.
	Move Velocity – This allows the user to adjust the velocity at which the fence moves to the desired position. Again, excessive velocities can damage the axis as the system approaches the minimum and maximum positions.
	Move Strength – This allows the user to adjust the strength with which the fence pushes and holds the materials. This value needs to be large enough to overcome jams and resist movement when the material is placed up against the fence.
	Acceleration – This allows the user to adjust the rate at which the fence attains its home and move velocities.

Pushbutton	Function
	Cancel – This disregards any changes made and returns the user to the previous screen.
	Update – This saves any changes made and returns the user to the Machine Setup Menu (Figure 2.17).
	Change Axis – For selected applications, this button allows the user to access the settings for multiple controller axes.




PID Parameters

Pushbutton	Function
	<p>Proportional – This allows the user to adjust the proportional term. This term is related to the power applied, compared with the distance away from the desired location. If the distance is 1 inch, the power is x, if the distance away is 2 inches, the power is 2x. Increasing the proportional term increases the power. WARNING: Too large a setting will cause the system to move erratically.</p>
	<p>Integral — This allows the user to adjust the integral term. The integral adds a value to the proportional based upon the time required to reach a position.</p>
	<p>Derivative – This allows the user to adjust the derivative term. This term is related to the power applied to dampen the system as it approaches the desired position.</p>
	<p>I-Limit – This allows the user to adjust the integration limit. The Integration Limit sets the “wind up” for the system. The higher the value, the larger the “BUMP”. If the system is close to the correct position, this term allows enough BUMP to nudge it to the position. If the bump is too big, the system will oscillate.</p>
	<p>Speed Factor – This allows the user to adjust the speed factor. The user can adjust this value to compensate for differences in gear ratios.</p>

Passkey

Figure 3.7 Security Screen

Security Button Controls

Pushbutton	Function
	Change Passkey – This button allows the user to change the passkey. Once selected the user is prompted to enter the current passkey followed by the new passkey.
	Accept – This button is pressed after all of the procedures from the Change Passkey button have been carried out successfully. It changes the passkey to the contents of the NEW PASSKEY window and returns the user to the Machine Setup menu.
	Cancel – The cancel button causes the system to disregard any changes made and returns the user to the Machine Setup menu.

Initialize Axis

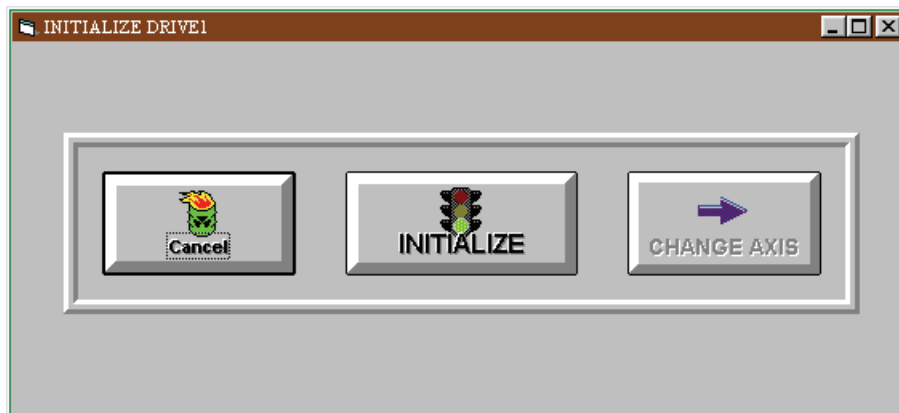



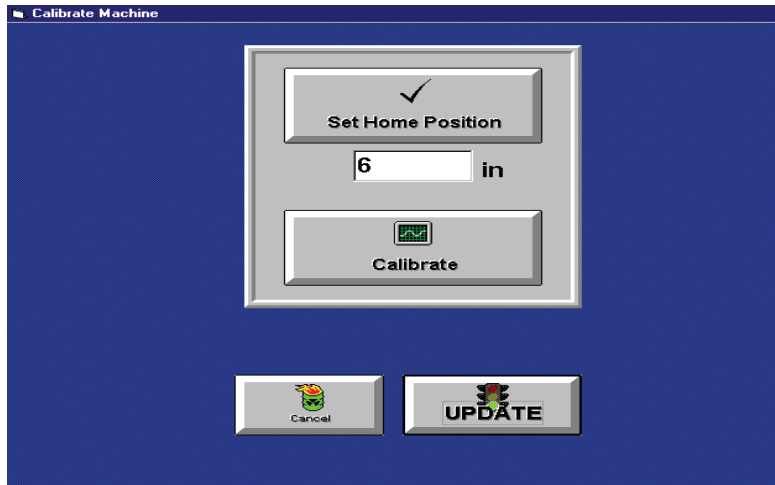


Figure 3.8 Initialize Axis Screen

Initialize Drive Controls

Pushbutton	Function
	<p>Cancel – The cancel button causes the system to disregard any changes made and returns the user to the Machine Setup Menu.</p>
	<p>Initialize – This button allows the user to initialize the axis. Once pressed the fence moves toward the home position. The user will then be asked to verify the direction of the move (normally the home direction is towards the single cutting blade). The fence then moves to the far end of the rail and sets the new max distance. Once the routine has been performed successfully, the user is returned to the Machine Setup menu</p>
	<p>Change Axis – For selected applications, this button allows the user to access the settings for multiple controller axes.</p>



Calibrate Machine





Ca

Figure 3.9 Calibrate Machine Screen

Calibrate Machine Button Controls

Pushbutton	Function
	<p>Set Home Position – This button allows the user to set the home position. The machine will home and the user will be prompted for the offset. Once the home position is set, the user can either calibrate the machine or update the home position data.</p>
	<p>Calibrate – This button allows the user to calibrate the axis, however, the user must first set a base position for the calibration measurements with the Set Home Position button. Once the Calibrate button is selected the system will move to a position on the rail and prompt the user for the correct length. The computer will then adjust the calibration based upon the difference between its measured value and the user input. Test the system and run the calibration sequence again if the positions are still not within tolerances.</p>

Calibrate Machine Button Controls

Pushbutton	Function
	Update – The update button allows the user to accept their home position and calibration settings and return to the Main Menu.
	Cancel – The cancel button causes the system to disregard any changes made and returns the user to the Main Menu.

*** If the system is still not calibrated after two attempts then proceed to AXIS DIAGNOSTICS and run the ENCODER CHECK to test the system.**

Smartscript

SMARTSCRIPT

SmartScript is a scripting language used to run TPS2 controlled machines. Scripts are to be modified by trained Machine Manufacturers and DeMichele engineers only.

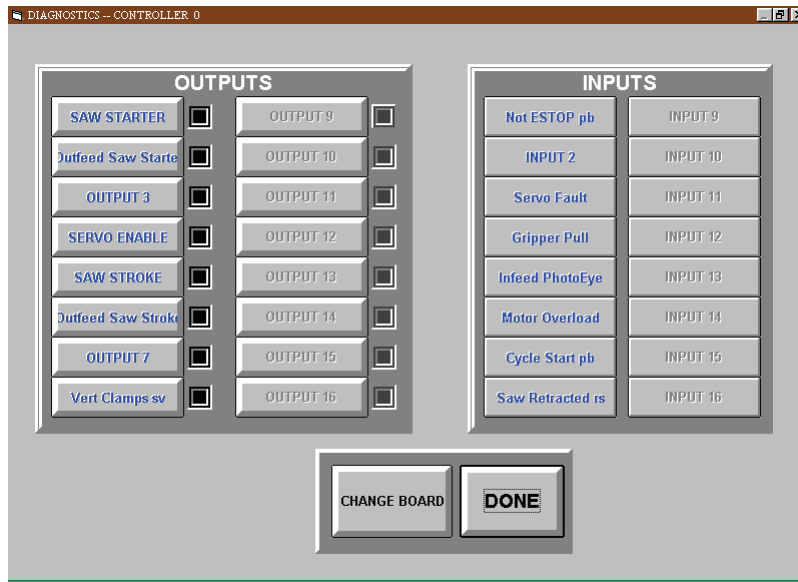


Figure 3.10 Diagnostic Screen



Outputs – Pressing the button with the appropriate name can test each of the controller outputs. If the controller is functioning properly, the checked box will toggle to the adjacent box to represent the change of state.

Inputs – Switching the input signal and watching the check boxes can test each of the inputs to the controller. For example, if the user presses the red Emergency Stop button located on the button box the E-STOP checkbox on the screen will toggle to the right box while the button is pressed and will toggle back to the left when the button is released.

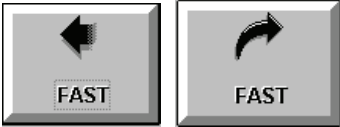


Change Board – For applications with multiple controllers, this button can be pressed to perform the diagnostic procedures on another board.

Done – This button returns the user to the Machine Setup Menu.

Axis Diagnostics Controls

Pushbutton	Function
	<p>Encoder Test – This button will test for proper operation of the encoder. The system is moved to a sequence of encoder positions while displaying its position. The system then moves to both ends and displays a message if the encoder is working properly.</p>
	<p>Stop/Exit – This button returns the user to the Machine Setup Menu. If the encoder test program is running, this button stops it and returns the user to the Machine Setup Menu.</p>

Axis Diagnostics Controls

Pushbutton	Function
	<p>Left Arrows – These buttons moves the system in the direction of the home position. The fast arrow moves the system at the speed listed next to the speed button and the slow arrow moves approximately half as fast.</p>
	<p>Right Arrows – These buttons move the system in a direction away from the home position. They work in the same manner as the Left Arrows.</p>
	<p>Speed – This button calls up the number pad and allows the user to enter the speed used for the Fast Arrow test procedures. The Slow Arrows move at approximately half of this speed. The speed can also be edited directly within the window.</p>

Timer Menu



Figure 3.11 Timer Screen

Timer Buttons 1-10 – Use these buttons to set the delay timers for any optional machine operations. To set a timer, press the appropriate button and enter the new timer value via the number pad.

Cancel — The cancel button causes the system to disregard any changes made and returns the user to the Machine Setup Menu.

Update – The update button allows the user to save any changes made and returns the user to the Machine Setup Menu.

Production Report

The screenshot shows a window titled "PRODUCTION REPORT" with a close button (X) in the top right corner. The window is divided into two main sections: "CURRENT TOTALS" and "CUMULATIVE TOTALS". Both sections have a date field set to "7/16/01".

Category	Current Totals	Cumulative Totals
PIECES	12	12
CUTS	101	101
Stock Lengths	0	0
YIELD	00.00%	00.00%

Below the data fields, there are two "RESET" buttons, one for each section. At the bottom of the window, there are two larger buttons: "View Advanced Reports" and "EXIT".

Figure 3.12 Report Screen

Reset – Use the Reset buttons to set the material data to zeros and set the “**As Of**” date to the current date. This allows the user to track machine statistics on two separate counters. It can be used to track daily, weekly, monthly, or annual production. A calibration warning may also be enabled to appear after a certain number of cuts to assist users with timed service schedules.

Cut Reminder - Use the Cut Reminder button to set the number of cuts to be performed before the calibration or maintenance warning appears.

Done – Use the done button to return to the Main Menu.

Production Report Display Windows

1) Current & Cumulative Totals

As of – Shows the date when the window counter was last reset.

Pieces – Shows the number of pieces cut since the “As of” date.

Cuts – Shows the number of cuts made since the “As of” date.

Stock Lengths – Shows the number of stock lengths used since the “As of” date.

Yield – Shows the percentage yields obtained from the total cuts since the “As of” date.

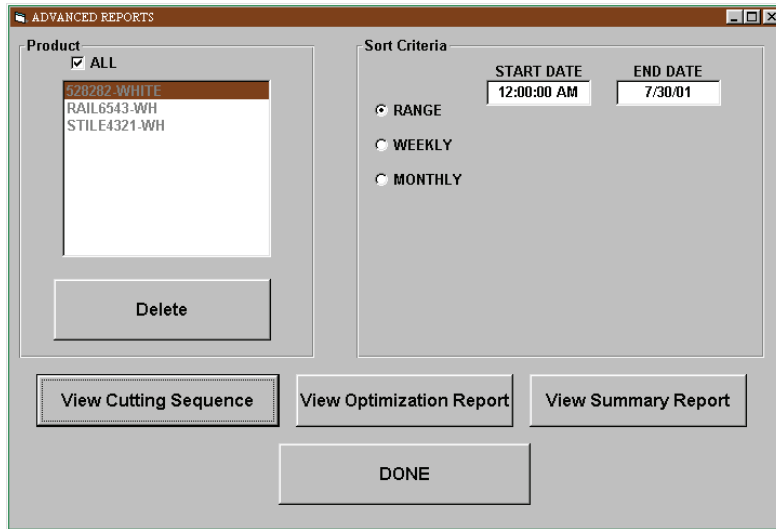


Figure 2.13 Advanced Reports

Level II: Drop Bins

Drop Bins

This feature enables the automated drop-tracking feature of your TPS positioner. Once enabled the system will automatically keep track parts left over from each optimization run. The system will then call for these drops in subsequent optimizations to maintain the highest possible yields for your materials.

ACCESSING DROP BINS

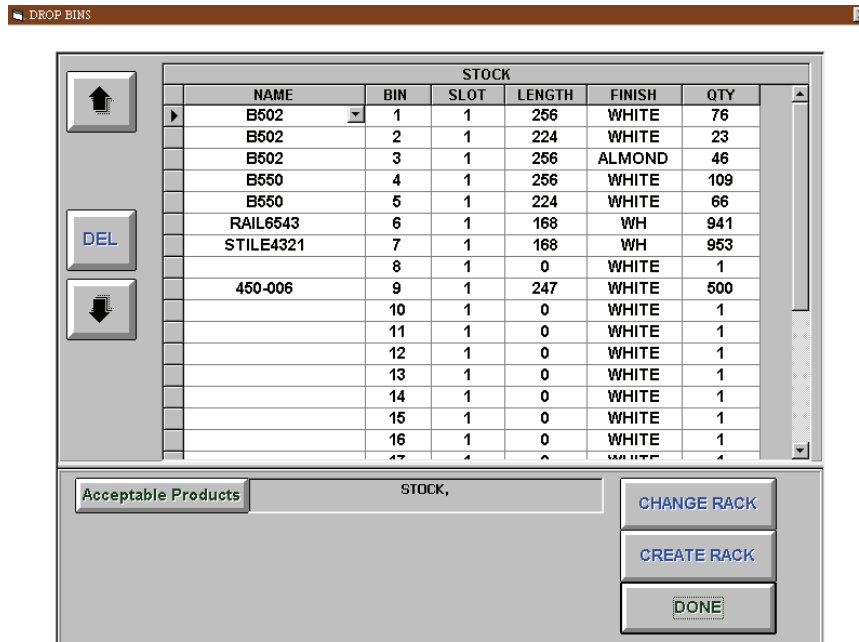


Figure 4.1 Drop Bin Screen

- 1 Enter the Drop Bin inventory list by calling your cutlist and selecting the EDIT Drops pushbutton. (Figure 8.1)

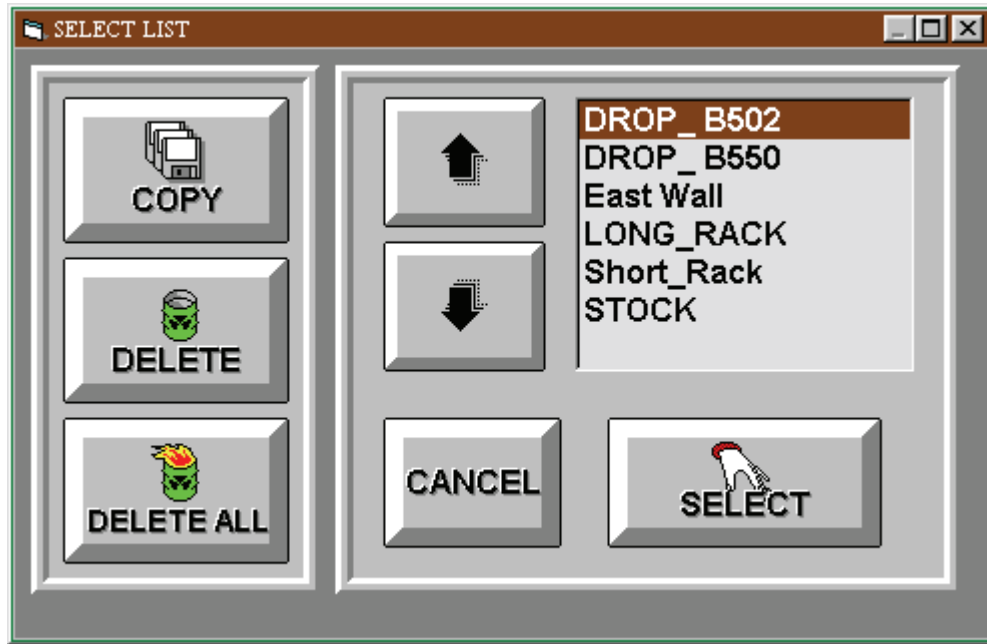


Figure 4.2 Select Drop Bin Screen

- 2 Select the appropriate list for drops. (Figure 2.25)

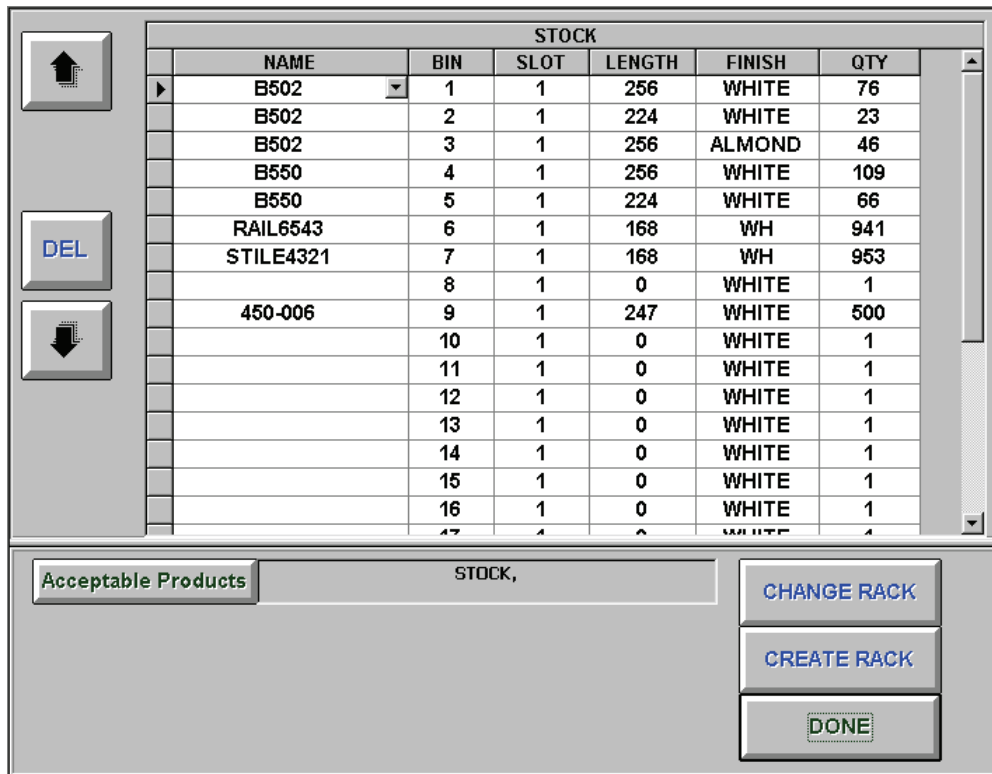
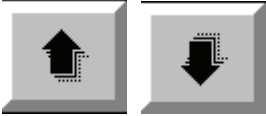







Figure 4.3 Drop Bin Main Screen

- 3 Verify Inventory list and quantities and press done to continue.

Drop Bin Controls

Pushbutton	Function
	Up & Down Arrows – These arrows allow the user to scroll through the Cutlist list.
	Delete – This button removes the selected item from the drop bin list.
	Acceptable Products – This button selects the acceptable products for the current drop bin list..
	Change Rack – This button changes the current drop list to another stored drop list.
	Create Rack - Creates a new drop bin list.
	Done - Takes you back to the cutlist main menu.

Cannibalize

Cannibalize - This feature is designed to clear drop bins quickly by setting a minimum yield for drops and minimum lengths.. With stock length, your yield is based on the length. Drops are often sitting around because you need 12" of an 18" drop, and that is a 66% yield. With cannibalize, you can set minimum yield and minimum size, which figures that 6" of waste based on the original stock length is acceptable.

How Do I?

EDIT/LOAD CUTLIST

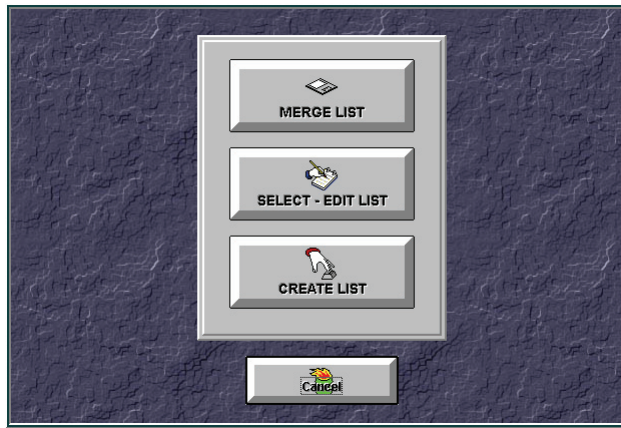


Figure 5.1 Edit /Load Cutlist

Edit/Load Cutlist Window Displays

List – The field at the top of the screen displays the name of the list. This can be set when the list is created. All of the following cells can be edited directly by selecting the cell and typing in the information.

Name – This column of cells stores the list of part names.

Finish – This column stores the finish color for each part.

Qty – This column stores the number of each part that will be cut.

Cut – This column stores the number of each part that has already been cut. This column will be updated automatically by the system as the list is cut. This serves as a reminder to the user editing a list after completing a portion of it.

Length – This column stores the length of each part.

Bin – This column stores the number of the bin where each part is stored.

Order – This column stores the Order Number for each part.

Remarks – This column stores any special comments for the system operator.

Make a Manual Cut

To make a manual cut, all you need is the distance, part name and how many you want to cut.

- 1 Press the Manual Positioning pushbutton to enter the manual mode main screen.
- 2 Set the appropriate part to be cut.
- 3 Set the repeat for how many you wish to cut.
- 4 Enter the cut distance you want the positioner to move to from the current home position.
- 5 Press the start button to move.
- 6 Press the continue button to move each additional piece in place.

Make a Pattern

Patterns are similar cuts that are made such as dado cuts on a board, weep holes for drilling \ router stations, or stock cuts.

Patterns can be merged in from a comma-delimited file, or can be entered through the pattern mode main menu.

- 1 Select Pattern Mode.
- 2 Select Edit Pattern from the Pattern Mode Main screen.
- 3 Enter Passkey to continue.
- 4 Select a current pattern to change or select the add pattern button.
- 5 Key in pattern name, description and up to 25 distances for the pattern to move to.
- 6 Select done when finished.

Initialize the positioner

Initializing the positioner for the first time, some settings are already configured for you by the factory, however there are many other areas that you will have to initialize. The distance from the stop to the saw after it moves to the home position has to be entered to get an accurate cut.

- 1 Select the Home Position to home the machine.
- 2 If the positioner did not home to the correct side, then follow the reverse home directions to resolve it.
- 3 Select Machine Setup.
- 4 Measure the distance from the end of the gangstop to the saw.
- 5 Select Calibrate Axis.
- 6 Select Set Home Position.
- 7 Use the keypad to enter the value of step 4.
- 8 Press Calibrate.
- 9 Press Update.
- 10 Measure thickness of Saw Kerf.
- 11 Enter Saw Kerf information into System Settings.
- 12 Exit to Main Menu.
- 13 Use Manual Mode to test measurement.
- 14 Move stop to a position and measure distance to the Saw to see if the distances match.

NOTE: You cannot cut a part smaller than the distance between the saw and the gang stop. If the distance is 5 inches, then 5 inches is the smallest cut you are able to make.

Merge Cut List

When you want to merge a cut list, you have to make sure that the cut list has some definable breaks between fields. This is referred to as delimited. You can create this field by opening notepad and placing a comma between each field.

I.e. p502a, white, 2, 3, 1234, Bin1, none
 P502b, white, 3, 4, 1234, Bin2, none

You can also create this file in excel or any other spreadsheet and save it as a .CSV.

Key information used is:

- ☒ Part Number
- ☒ Finish
- ☒ Length
- ☒ Quantity
- ☒ Order #

- ☒ Machine #
- ☒ Bin #
- ☒ Remarks
- ☒ Batch #

Once you have created the file, you have to tell the TPS software how to import it.

- 1 Go to SETTINGS dropdown menu.
- 2 Select Merge field.
- 3 Key in Passkey.
- 4 Set the type of file and how it is separated or dileniated.
- 5 Set the fields for the appropriate settings and press the test merge button.
- 6 Select the OK pushbutton to accept merge instructions.

NOTE: Make sure the fields populated properly prior to finishing the merge settings.

- 1 Select Optimizer.

- 2 Select Edit List.
- 3 Select merge
- 4 Select the file you wish to merge.
- 5 Select done when finished.

Reverse Home Direction

If the pusher or stop is setting the home position to the wrong side, then you have to reinitialize the axis to fix the problem.

1. Select Machine Setup.
2. Select Initialize Axis.
3. Clear home path and select OK.
4. If machine homed to wrong side, then select no at the prompt.
5. Once machine homes to the correct side, select Yes.
6. Select Done when complete.

Insert a Back Off after each cut

Some saws have no space to remove the cut part out, unless the positioner gets out of the way temporarily. You can set a back off that will move the positioner out of the way after a cut has been performed.

- 1 Go to Machine Setup.
- 2 Enter Passkey.
- 3 Go to System Settings.
- 4 Set back off position. 1 = 1 inch backup.
- 5 Exit Setup.

72 Total Positioning System ⁴

Every cut will have an additional step that backs the positioner off to remove the cut.

Troubleshooting

Troubleshooting: Questions & Answers

Q1. The machine accuracy seems to vary from part to part, what are some of the causes.

A1. Typically, CALIBRATION is the biggest contributor. Try re-calibrating the machine, if that does not help then there may be a problem with the ENCODER/MEASUREMENT system. Use AXIS Diagnostics from the Machine Setup menu to test the encoder. (See page 38).

Q2. The machine is accurate within one area or length and then is out of tolerance on all other points.

A2. This is a combination of parameter errors. The home position is likely off by a small amount and the calibration value is off, forcing the system to be accurate at only one point. Try re-calibrating the machine (see page 35), if that does not help then there may be a problem with the ENCODER/MEASUREMENT system. Use AXIS Diagnostics from the Machine Setup menu to test the encoder. (See page 38).

Q3. The system vibrates, oscillates or moves erratically.

A3. The most likely cause is the PID Parameters in the MOVE SETTINGS screen. These parameters need to be adjusted to stop the vibration. Lower the Proportional term and retest until the vibration stops. (See page 31).

Q4. The system displays a “Machine Jammed” message during moves.

A4. The most likely cause is the PID Parameters in the MOVE SETTINGS screen. Slowly raise the I-LIMIT term until the system no longer jams. (See page 32)

WARNING: Adjust these settings CAREFULLY. If care is not used the system could become unstable and damage the machine. Call ATI at (480) 985-4926 if you have any questions about adjusting these parameters.

Q5. The touch screen still displays the menus but no longer responds to touch.

A5. This problem is most likely due to the mouse cable being loose at either the computer or the monitor. If there was a “Touch Screen is not Responding” message when the machine was first turned on then the cable was probably not connected. Check to see that the cable is secure. If you cannot remedy the touch screen problem, you can still operate the system as long as your computer also has a mouse or a keyboard. If you have a mouse, the system buttons will respond to the **primary mouse button** in the same way that it would respond to touch, just point and click. If you only have a keyboard then the v (tab) key will highlight on a different button each time it is pressed. Simply tab to the appropriate selection and hit enter to select it. The drop down menus in figures (2.2, 2.3, & 2.4) can be accessed by pressing **aF**, **aS**, and **aH** respectively. Once the menus are selected, the **wy** arrows and the e key on the keyboard can be used to highlight and select the correct option.

Q6. The system displays a “Power is Not On” message from any screen.

A6. This system message is designed to notify the operator that the controller box is either not turned on or not plugged in.

Glossary

CUTLIST

A list of cutting instructions for the machine to use. It contains LENGTHS, MATERIALS and QUANTITIES. It may also contain Bin Information, Colors, or Remarks.

DERIVATIVE

The derivative represents a force applied, in an opposite direction to the system's movement, to slow down the machine as it approaches the desired position. **Do not adjust this value unless you have contacted ATI.**

HOME

Position that represents absolute zero for the Controller. This position is usually where the saw blade is located. The Offset is then added to get the true HOME position.

I-LIMIT

The Integration Limit sets the “wind up” for the system. The higher the value, the larger the “BUMP”. If the system is close to the correct position, this term allows a BUMP to nudge it to the position. If the bump is too big, the system will oscillate. **Do not adjust this value unless you have contacted ATI.**

INTEGRAL

The system calculates a set time limit for the material to reach each position. The integral term increases the value of the proportional term to ensure that the system reaches the desired position within the time limit.

NUMBER PAD

A screen that allows the user to input numerical data using a calculator like touch screen display.

MAXIMUM SPACING

The maximum distance that the machine can travel, this can be set by initializing the

machine.

OFFSET/MINIMUM SPACING

The offset refers to an additional position that will be added to any positions entered for that material. The fence cannot actually reach the motor end of the rail because of space taken up by the motor and its assembly. The offset is the minimum spacing between the fence position closest to the home end of the rail and the saw blade.

PASSKEY

Security Key Code that restricts access to certain control areas of the program. It can be set and changed from the Machine Setup menu.

PROPORTIONAL

The proportional term is related to the power applied compared with the distance away from the desired location. If the distance away is 1 inch the power is x, if the distance away is 2 inches the power is 2x. Increasing the proportional term increases the power.

WARNING: Too large a setting will cause the system to move erratically. Do not adjust this value unless you have contacted ATI.

SAW KERF

The amount of material removed by the saw blade in ONE cut.

STOCK LENGTH

Total length of material in a STOCK part.

TOLERANCE

The required accuracy that the material is to be cut to. The default TPS tolerance is 1/64 in.

TRIM

The amount of unusable material that is trimmed from the stock length to create a usable

length.

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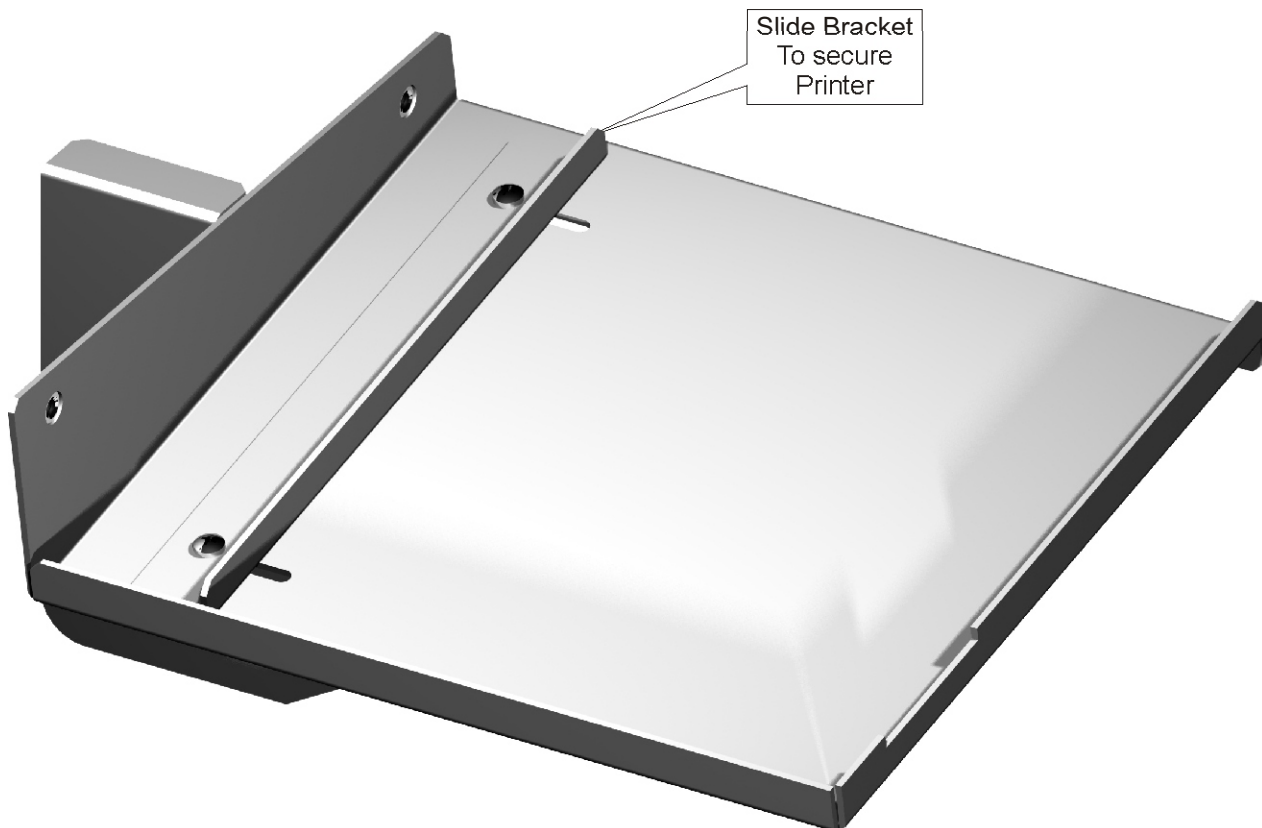
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PM-400 Printer Stand

Model: PM-400

PM-400 Printer Stand



- Heavy Duty 16 Gauge Steel
- Durable Powder Coating Finish
- Adapts to All ATI-Enclosure Stands
- Attaches to Right Side of Enclosure
- Printer Platform Size: 7.3" x 8.5"

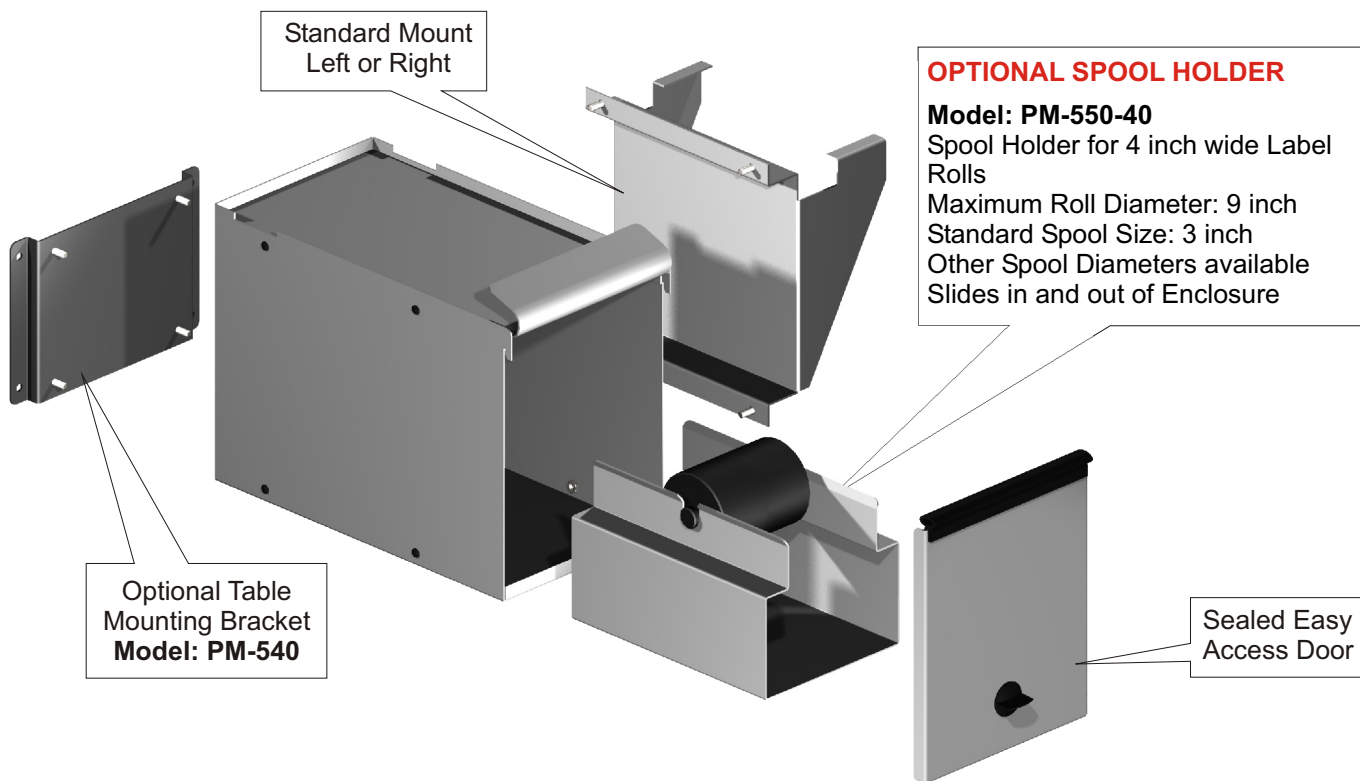
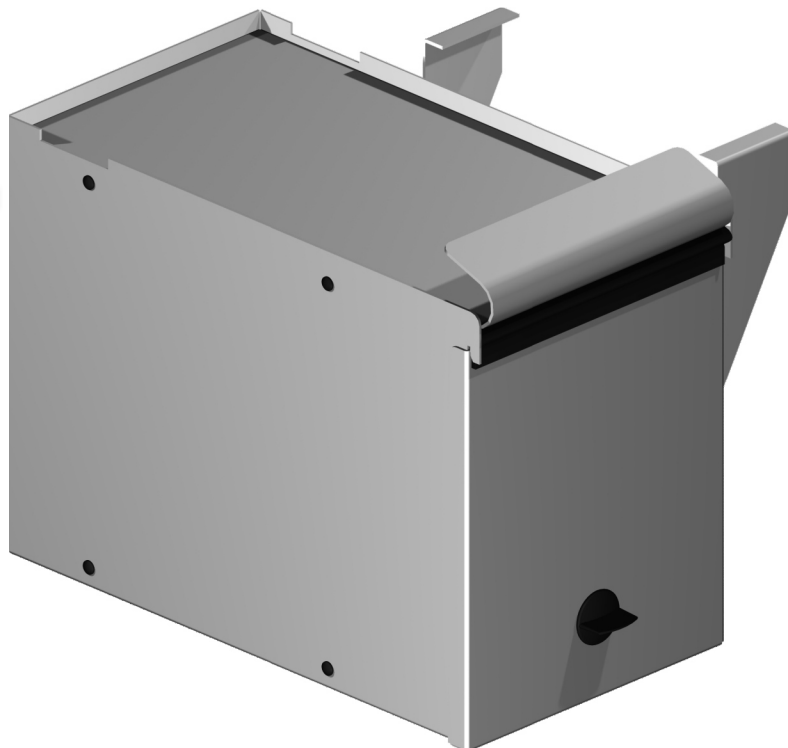


PM-500 Printer Stand

PM-500 Printer Stand

Model: PM-500

- Heavy Duty 16 Gauge Steel Enclosure
- For use with Fan-Fold or Optional Roll Labels
- Fan-Fold Label Size: W=4.0", D=12.0", H=10.0"
- Adapts to All ATI-Enclosure Stands
- Optional Table Mount Available
- Can be mounted on Left or Right Side
- Sealed, Easy Access Door for Loading
- Printer Platform Size: 7.3" x 12.0"





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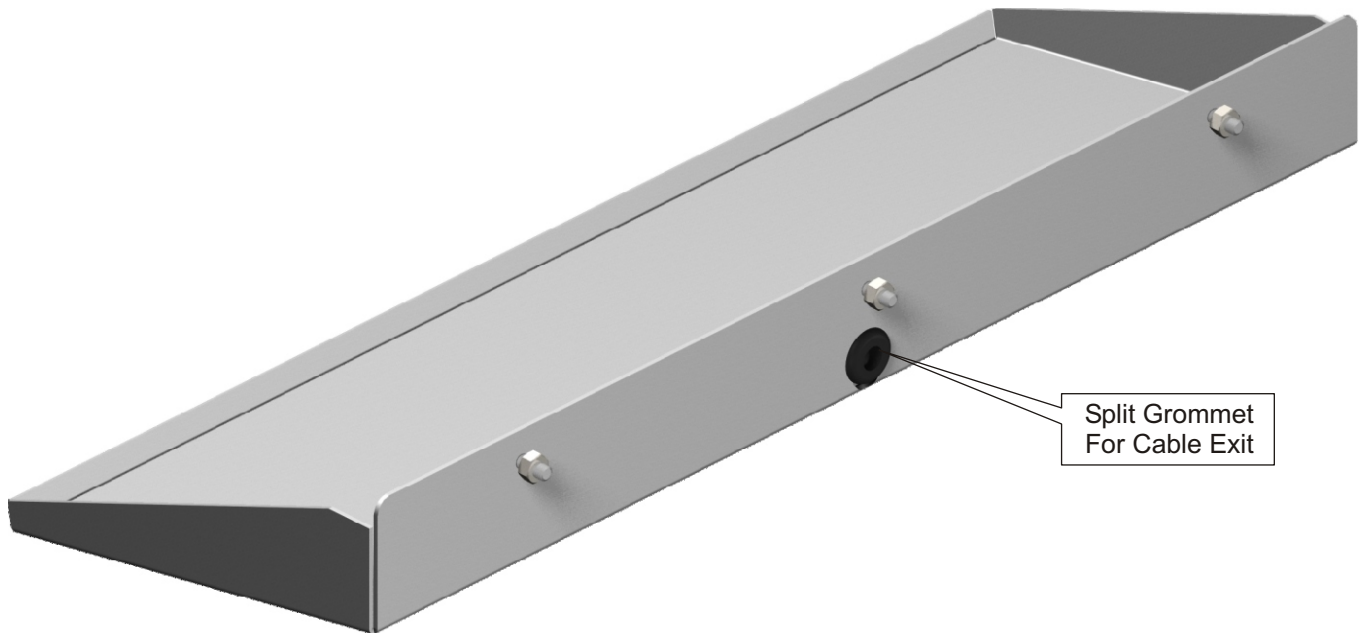
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ECS-1220 Keyboard Tray

Model: ECS-1220-1

ECS-1220 Keyboard Tray



- External Keyboard Tray to eliminate the opening of front door
- Heavy Duty 14 Gauge Steel Construction
- Durable Powder Coating Finish
- Adapts to All ATI-Enclosure Stands
- Attaches to existing mounting holes
- Accommodates small Keyboard and Track Ball or Full Size Keyboard with integrated Track Ball
- Keyboard Tray Size: W = 19.8", D = 7.3"



SuperCaliper

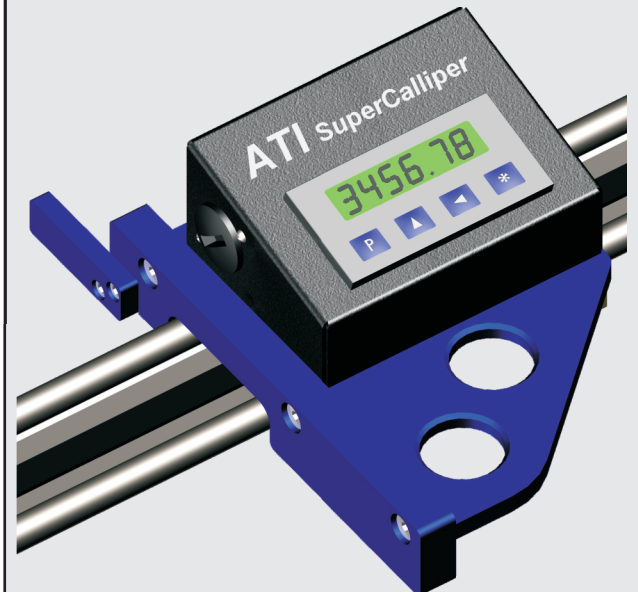
Digital Length Measuring Device

- Sturdy aluminum guide profile with machined aluminum parts
- Display resolution to 3 decimal places for inch readout, 2 decimal place for metric readout
- Measuring length from 1 to 4 meters (3 to 13 ft)
- Internal & External Measuring with Lock
- 6 month battery life with 1 "AA" cell
- Decimal and fractional display mode
- Large, easy to read LCD display
- Custom lengths available



MA504 DISPLAY

Decimal and fractional display mode
 1/64" display resolution in fractional
 0.001" display resolution in decimal inch
 0.01mm display resolution in metric
 User replaceable battery

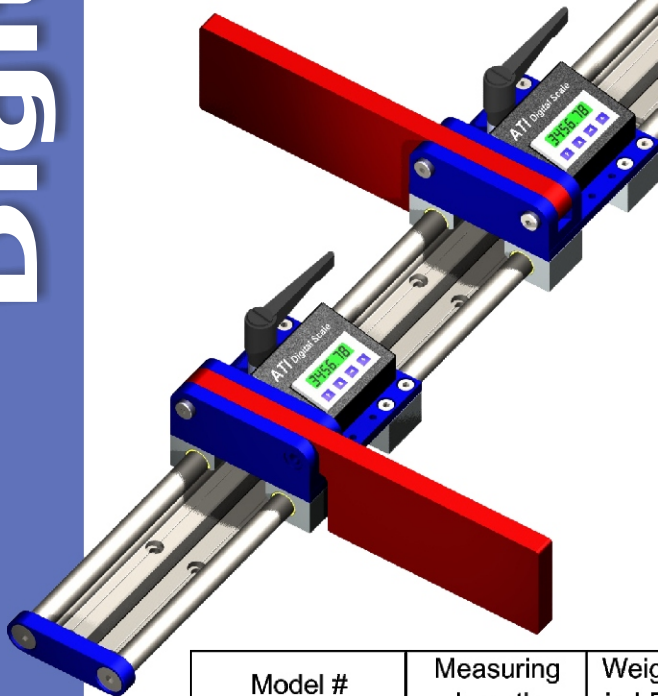


Model #	Measuring Length	Weight in LBS	Price
SC-1.0-MA504	1m (40")	4.5	\$1,600.00
SC-1.5-MA504	1.5m (60")	5.6	\$1,700.00
SC-2.0-MA504	2m (79")	6.7	\$1,800.00
SC-2.5-MA504	2.5m (98")	7.8	\$1,900.00
SC-3.0-MA504	3m (118")	8.9	\$2,100.00
SC-3.5-MA504	3.5m (138")	9.9	\$2,300.00
SC-4.0-MA504	4m (157")	11.0	\$2,500.00



MPS1-Digital Length Stop

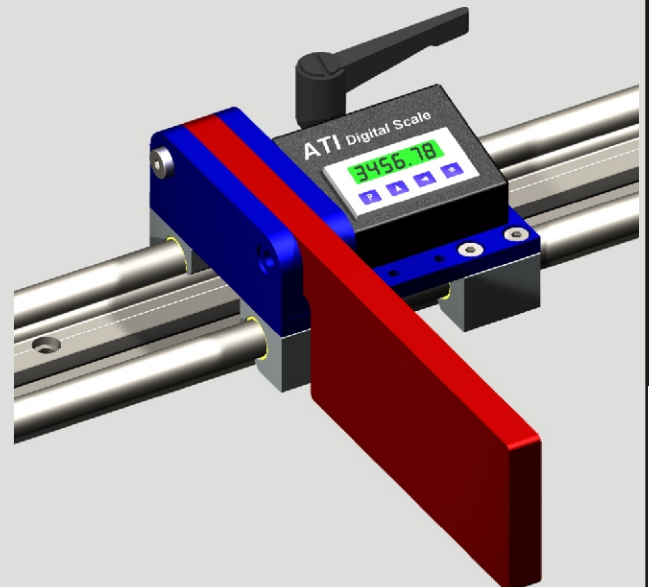
- Sturdy aluminum guide profile with machined aluminum parts
- Display resolution to 3 decimal places for inch and 2 decimal places for metric readout
- Measuring length from 1 to 4 meters (3 to 13 ft)
- Single or Multiple Stop Heads with Lock
- 6 month battery life with 1 "AA" cell
- Decimal and fractional display mode
- Large, easy to read LCD display
- Left or Right Infeed available
- Inch or Metric readout
- Flip or Fixed Stop



Model #	Measuring Length	Weight in LBS
MPS1-1.0-MA504	1m (40")	10.0
MPS1-1.5-MA504	1.5m (60")	13.9
MPS1-2.0-MA504	2m (79")	17.7
MPS1-2.5-MA504	2.5m (98")	21.6
MPS1-3.0-MA504	3m (118")	25.4
MPS1-3.5-MA504	3.5m (138")	29.3
MPS1-4.0-MA504	4m (157")	33.1

MA504 DISPLAY & Flip Stop

Decimal and fractional display mode
 1/64" display resolution in fractional
 0.001" display resolution in decimal inch
 0.01mm display resolution in metric
 User replaceable battery





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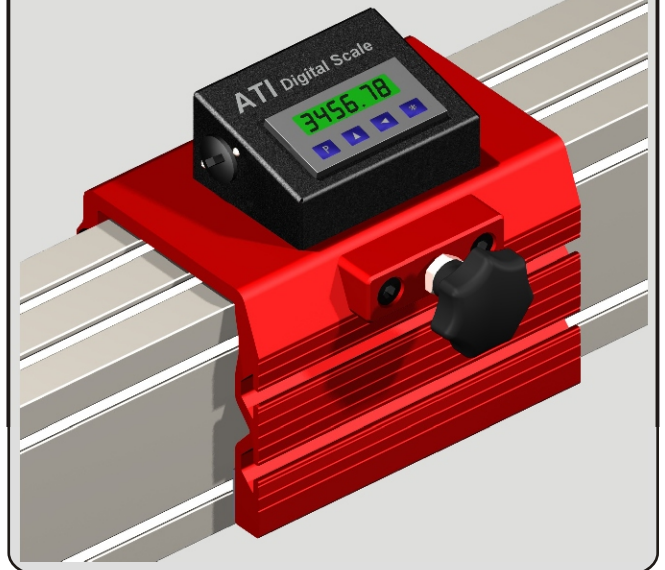
Digital Stop & Fence

MPS2-Digital Length Stop & Fence

- Sturdy aluminum guide profile with machined aluminum parts
- Display resolution to 3 decimal places for inch and 2 decimal places for metric readout
- Measuring length from 1 to 8.5 meters (3 to 28 ft)
- Order any Custom Lengths up to 28 feet
- Single or Multiple Stop Heads with Lock
- 6 month battery life with 1 "AA" cell
- Decimal and fractional display mode
- Use for Left or Right Infeed System
- Large, easy to read LCD display
- Inch or Metric readout
- Gang Stops Available

MA504 DISPLAY & Flip Stop

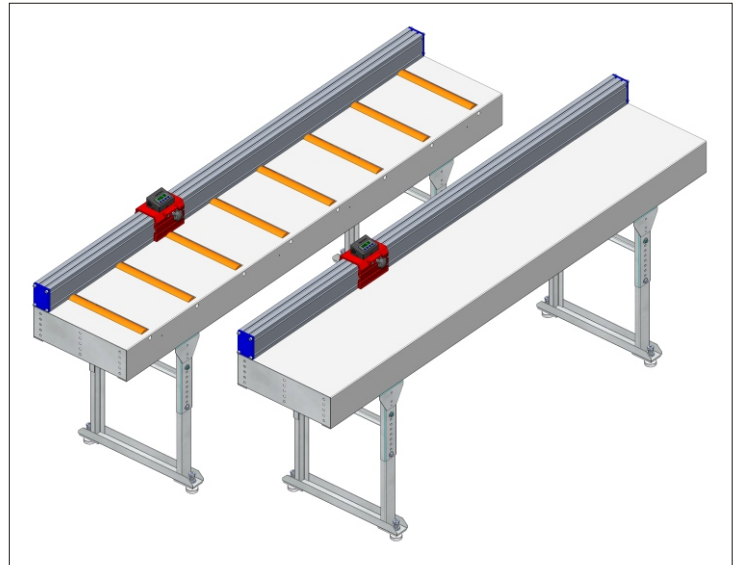
Decimal and fractional display mode
1/64" display resolution in fractional
0.001" display resolution in decimal inch
0.01mm display resolution in metric
User replaceable battery



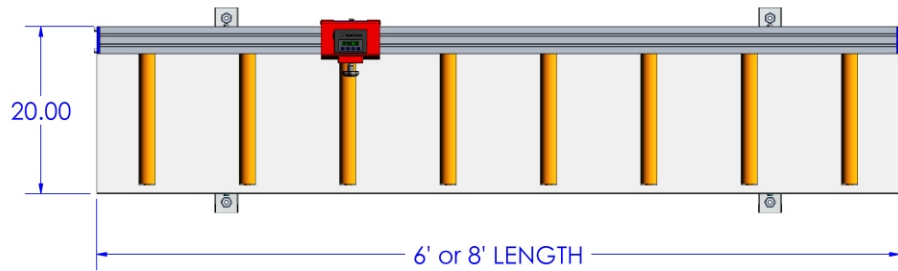
Technical Data

STOP SYSTEM WITH FLAT OR ROLLER TABLE

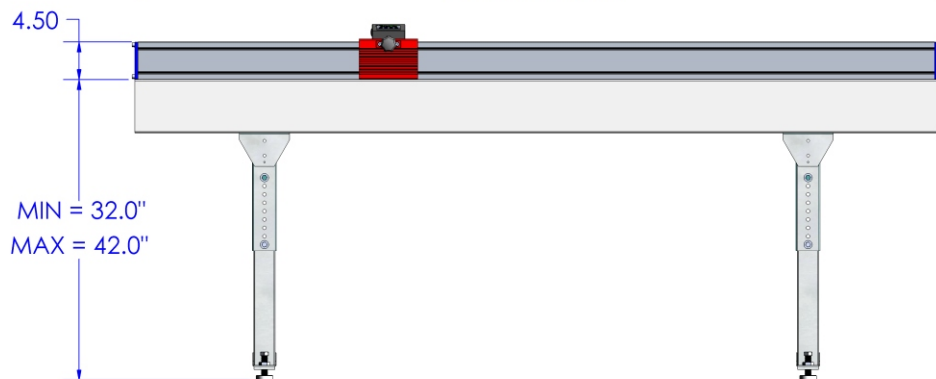
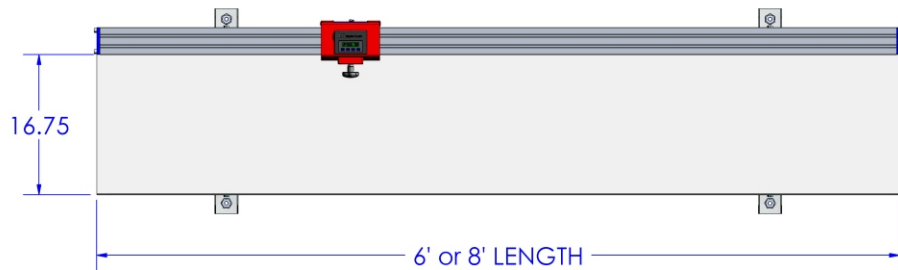
- Heavy Duty 12 Gauge Steel Construction
- Adjustable Height: 32 - 42 inch
- Micro Adjust Feet with Flour Anchoring
- Available Table Lengths: 6 & 8 Feet
- Combinations Available up to 28 Feet
- Roller Length: 18 inch
- Urethane Coded Rollers
- Durable Powder Coating
- Standard Colors: White & Green
- Custom Colors Available
- Saw Adapter Brackets Available



ROLLER TABLE



FLAT TABLE



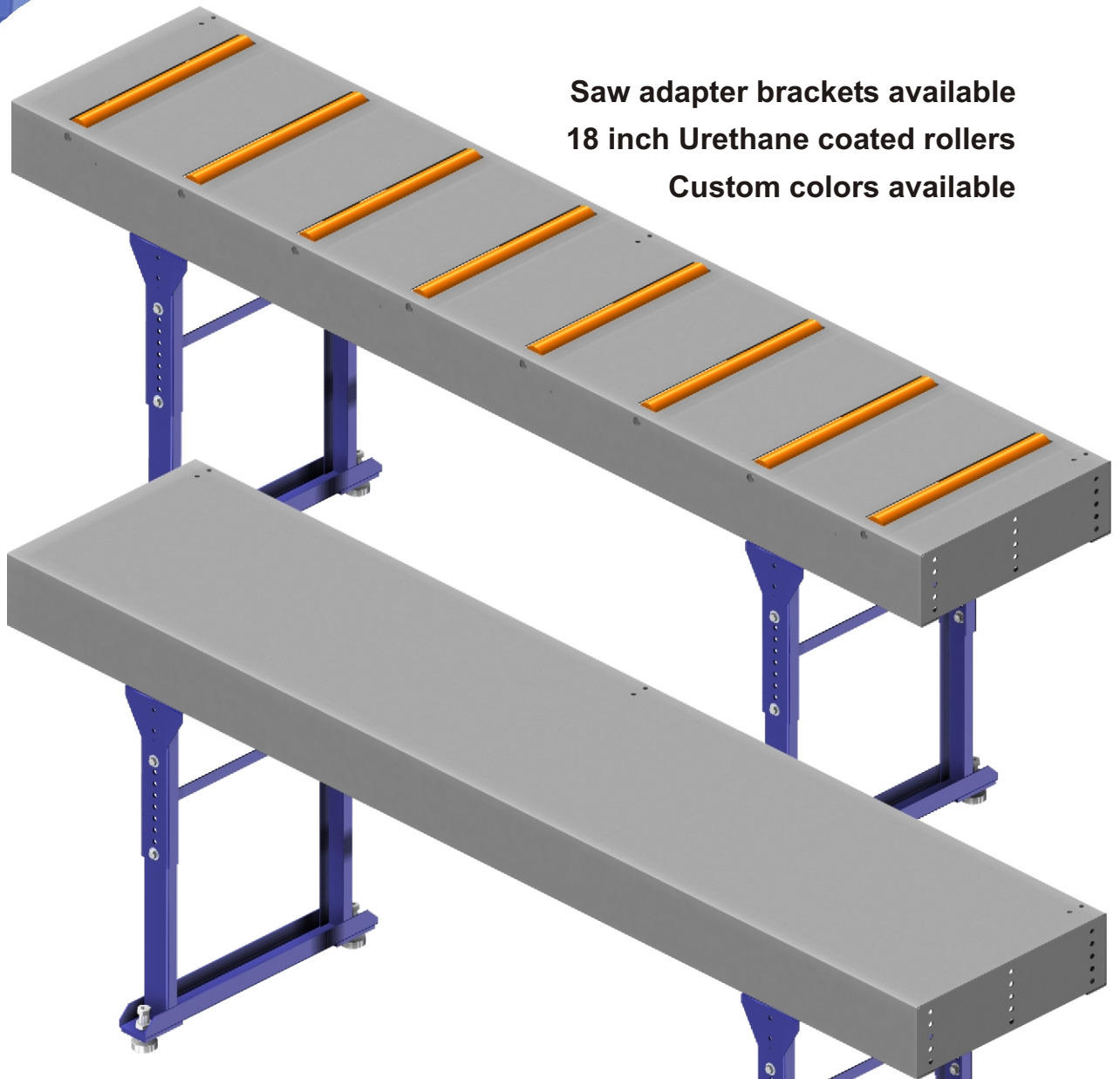


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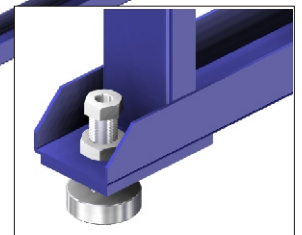
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Durable Powder Coating
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Adjustable Height: 35 - 41 inch
Micro Adjustable Feet with Bolt Down
Leveling Pad
Bolt together any combination of lengths

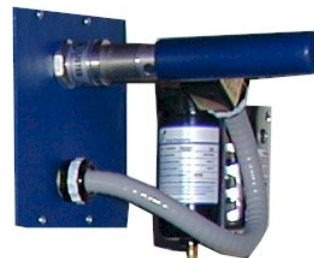


Bolt Down Micro Adjust Feet
with Leveling Pads



Filter Fan Enclosure Cooler
Model: FF-018

- ✂ Provides optimum climate in enclosure
- ✂ Very low noise
- ✂ Airflow: 24 CFM
- ✂ Power Consumption: 15Watt
- ✂ User replaceable filter media



Vortex Cooler
Model: TCCK-4225

Includes water/oil filter and thermostat. The vortex cooler creates positive air pressure in the enclosure keeping dust and debris from entering air holes. The vortex cooler also emits cool air to protect your PC, controller and monitor from overheating. An electric thermostat allows the cooler to run only when the temperature exceeds a preset value to avoid wasting compressed air.



Thermal Label Printer
Model: 2742-DTLP

The optional direct thermal label printer allows the TPS³ Positioner to print labels as the product is cut. This gives the operator quick identification of the products that are cut and the necessary information to prevent loss or mistakes at later assembly stations

Barcode Scanner
Model: SP-302/SP-370

Barcode scanner allows for quick pattern access in production environments. Also used at "Binsoft Workstations" to track products at various stages of assembly.
SP-302: with cable
SP-370: wireless

