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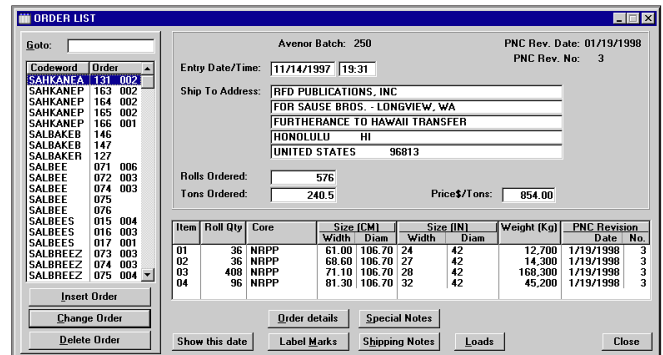
The TRAQ Manager Office Module is the first module in our roll tracking system. The Office Module sets up and manages schedules, procedures and any special requirements for the production of rolls according to customer requirements. The office module sets the pace at which the mill will run.

Customer orders are received and entered into TRAQ Manager. Orders usually include quality, finishing, wrapping and packaging instructions, label design, roll marking instructions, wire side information, special quality requirements, shipping requirements and more. If a corporate sale and marketing system exists, the orders are entered into the corporate system and then electronically transmitted to TRAQ Manager.

These orders tell the TRAQ Manager system what the customer ordered and how the rolls are to be processed, finished and shipped. This module drives the rest of the Roll Tracking System. Rolls are always produced and finished according to customer order specifications.

All TRAQ Manager Workstations on the floor refer back to the order file to determine what needs to be done to the rolls to ensure the product meets all the customer's requirements.

The Office Module also manages automatic planning and trimming for the paper machines, winders, sheeters and cutters. Our automated trim program scans the inventory looking for stock rolls to assign to orders and then computes the best trim patterns to produce the required rolls. The trim patterns are electronically transmitted to the various processing centers in our system.

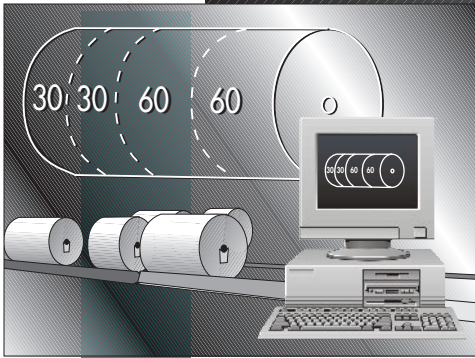


The Office Module displays order status, shipping operations and inventory status of the whole mill operation. This provides management with an accurate and up-to-the minute picture needed for effective decision making.

Other office functions include...

- managing customers, consignees, consuming sites orders, products
- downloading orders from corporate and other remote systems
- providing full local order entry functionality for use in case the corporate system is not available
- shipping management during order entry to plan out the life of an order
- viewing the order status for each order item, trim run and shipment load
- automatic fax transmission of order and shipping acknowledgements to the customers as required
- entering and managing TRAQ Manager's Bulletin Board System messages to send production irregularities and contingency production plans and special quality alerts to all the floor workstations

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The Production Planning Module creates the production plans to fill the orders as efficiently as possible. The Production Planning Module analyses the orders the production planner wants to run. TRAQ Manager uses an automatic trim program to determine the optimum running schedule. This trim program uses heuristic and multi-level linear program algorithms to provide several "best" cutting patterns for the winder. In some cases, the trim program can plan rewinders and sheeters.

There is no single best solution because the best solution actually depends on variables such as market conditions, running conditions and furnish available. These parameters are constantly changing, and the trim program accommodates this by providing several solutions.

Our trim solutions are optimized for various criteria to provide...

- best machine trim;
- least slitter knife movements;
- best shipping schedule optimizing Just-in-time or "Hot Loading"; or
- any combination of these.

You decide what solution you want to use among those offered by our trim program. Soft and hard limits can be set up by order to determine if they can or cannot under/overrun.

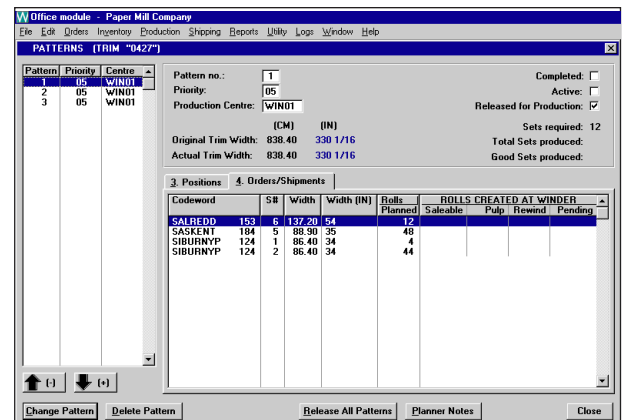
Output patterns can be limited to the maximum number of small rolls in a set. Trim can be configured to automatically produce bundled rolls together – either side by side or one after another.

Operators can edit and massage the trim solutions to provide the patterns best suited to your specific needs.

Additional trim features include...

- production
- limiting the number of knives
- reducing the number of small rolls to be produced
- creating rolls for sheeters by entering the final sheet size requirement.

The trim can be configured for optimum set-ups.



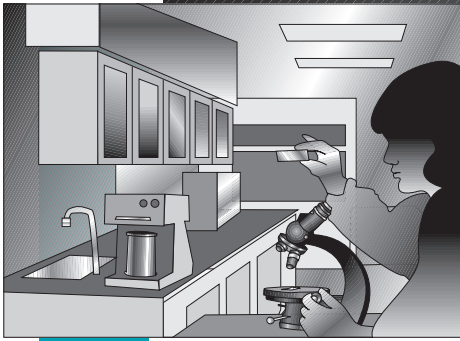
Benefits of the trim package include:

- improved trim efficiency
- faster trimming of machines
- easier to re-trim
- lower learning curve to do production planning

Once the production plans are finalized, they are electronically posted to the appropriate workstations on the mill floor. TRAQ Manager tracks the production made against each production plan to let the production planner know how well the plans are running. This includes good, re-workable and bad rolls. Rolls reworked at the rewinder can be re-assigned to the same production plan or not.

With TRAQ Manager, the computer manages everything and keeps track of what is happening so you can have real-time information on how the production plans are running.

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Everybody wants a quality product. Everyone wants to know if a product meets the customer's requirements. The Quality Management System encompasses the whole TRAQ Manager system from order entry to shipping. This module ensures that you ship the products that your customers want.

In order entry, the system maintains the customer, grade and order-specific quality requirements.

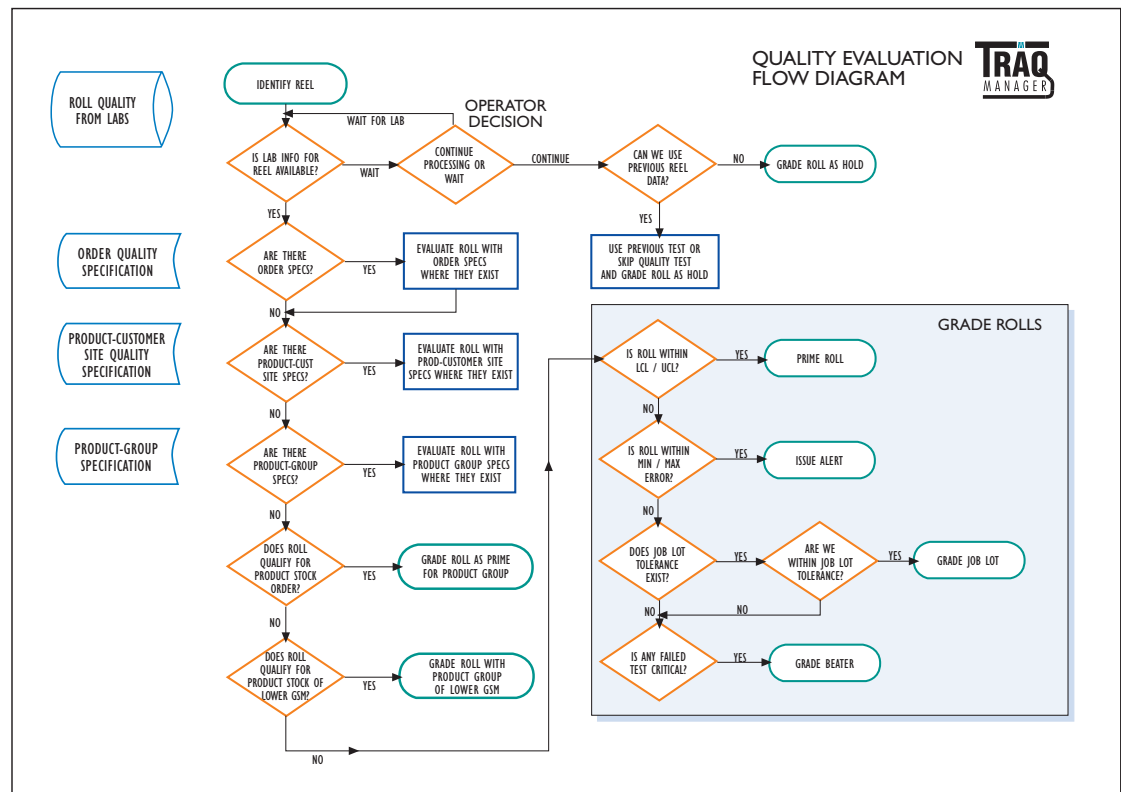
For every reel turned up, the TRAQ Manager Quality Management System gathers quality information from various systems in the mill including:

- gauging systems
- lab test equipment
- PI™ and other mill-wide information systems

The Winder Module will super-impose the trim pattern on top of a jumbo reel before it is cut and automatically determine what rolls will meet the planned customer's specifications and what rolls will not. TRAQ Manager will also color-code the positions that are out of specs or that have no data available.

Examining this information, the winder operator has several choices before cutting the jumbo to a pattern. These include moving and changing the orders in a pattern to cut rolls from the

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reel that have lower requirements, selecting a different jumbo reel or re-grading the rolls produced as seconds for other customers.

Any TRAQ Manager Workstation can view the quality measurements of any jumbo reel and roll. The order requirements are also available to allow everyone to know each customer's quality specifications.

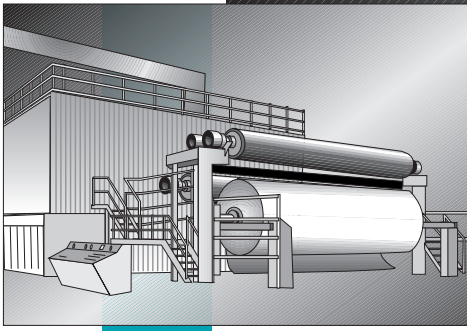
Whenever a TRAQ Manager Workstation processes a roll, the system automatically re-checks to see if the roll meets the customer's specifications. This ensures that if a jumbo reel were re-tested or if customer requirements were changed, the roll would be properly graded using the latest test results and specifications. This re-check ensures that off-spec rolls are never accidentally shipped to a client. A final quality check is automatically done before a load is released by shipping. Operators are alerted to any non-conforming quality requirements.

TRAQ Manager can be configured to either "warn" or "warn and reject" rolls that do not meet certain quality specifications. The operator must acknowledge a warning before the operation can continue. In the "warn and reject" mode, the operator must either assign the roll to another order or downgrade rolls that are out of specification. In all cases, the system will audit the event.

In addition to this, the quality module can also...

- interface to various lab instruments, Distributed Control System (DCS), gauging systems to automatically collect quality data
- verify the quality of a roll before it is cut at the winder
- manage grade standards and manufacturing recipes
- track grade and customer quality requirements
- track special order requirements such as trial orders
- view/edit special quality comments for selected reel
- allow manual editing of quality information on selected reels
- ignore any quality parameter if the customer does not need it

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The operator identifies jumbo reels to the Paper Machine Module as they are turned up at the paper machine dry end. This process creates the jumbo inventory in TRAQ Manager and prompts the Quality Management System to start gathering quality data. The workstation produces a barcoded reel ticket to be kept with the jumbo reel for later identification. This ticket can include any known quality data.

The Paper Machine Module also displays the production plans to let him adjust machine parameters to best suit the patterns to be cut.

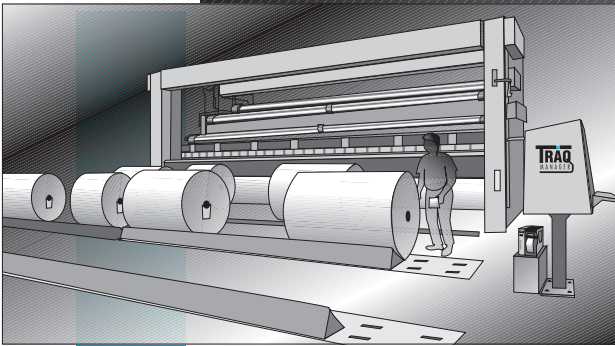
Linear footage and reel weight can also be automatically captured or manually entered on the Paper Machine Workstation. This information can be used to help calibrate paper machine gauges as well as accurately track paper losses in the conversion process. This Paper Machine Workstation can be used to collect machine downtime and its causes with our automatic downtime tracking system.

Any TRAQ Manager Workstation can look up reels in jumbo inventory and examine the quality information associated with any reel. The winder looks into jumbo reel inventory to look for reels from which to cut rolls.

The Paper Machine Module can also...

- edit information for any reel such as weight, length, estimated number of sets
- downgrade, delete or cull a complete reel
- recover a deleted or culled reel
- enter operator comments for any reel
- view what rolls were cut from a consumed reel
- print and reprint reel tickets for selected reels
- view and edit quality information on selected reels
- view and edit paper machine downtime
- view production plan
- view and acknowledge BBS messages (TRAQ Manager Bulletin Board Service)
- view and print paper machine production reports
- view and manage crew, shift information

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TRAQ Manager Winder Module displays the production plan to the winder operator. A production plan is presented as a series of cutting patterns to produce the required sets of rolls from jumbo reels.

The winder operator can review the patterns presented him and find jumbo reels in inventory to cut the rolls according to the patterns. TRAQ Manager automatically verifies that the grade and quality measurements of the paper in the jumbo reel meet the order quality specifications of each roll in the pattern. The results are displayed in various colors to indicate which rolls meet customer quality requirements and alert the operator of anything that is out of tolerance.

Once the operator and the system are satisfied, the sets can be cut at the winder. If, for any reason, the operator is not satisfied with the pattern, the pattern can be edited by:

- swapping positions in the set or
- changing a roll in any position with a roll from any other approved order of compatible grade in the system

TRAQ Manager automatically tracks the production assigned to orders so the production planner knows exactly what is happening. If required, the operator can re-trim the pattern to meet new running conditions.

For each set turned up at the winder, the operator will examine and grade rolls as saleable, rewind, b-grade or cull. A preset list of reason codes classifies rolls that are not saleable. If the roll cannot be graded immediately, it can be marked as "Quality Hold" and the system will report to a grading committee for later grading.

Once the correct status for all rolls in a set is determined, the operator accepts the pattern, and the system creates the rolls in the computer inventory and prints one core tag for each roll including butt rolls. The system then prompts the operator to enter the losses and any other required statistics or comments about the set just produced.

TRAQ Manager only allows rolls to be cut against orders that are on the system and approved for production. Otherwise the roll produced will be a butt roll.

Winder Control Room Main Window

Schedule Date: 2/13/98

Priority	Trim No.	Patt No.	Orig.	Ready	B.W.	Trim Width	Sets req	Sets produced		Trim Status
								Total	Good	
05	0375	01	00	Y	00488	823	14	14		
05	0380	01	00	Y	00488	823	9	9		
05	0380	02	00	Y	00488	823	5	5		
05	0379	01	00	Y	00488	823	13	13		
05	0379	02	00	Y	00488	823	15	16		
05	0377	01	00	Y	00488	837	49	49		
05	0378	01	00	Y	00488	837	6	6		
05	0383	01	00	Y	00488	823	67	67		
05	0391	01	00	Y	00488	820	9	9		
05	0391	02	00	Y	00488	820	4	4		

Pos	Width	Diameter	Order No.	Item No.	RpP	Core	
1	54	45	SALMREY 005	01	1	NRP-BEV	Up +
2	54	45	SALMREY 005	01	1	NRP-BEV	Down -
3	54	45	SALMREY 005	01	1	NRP-BEV	
4	54	45	SALMREY 005	01	1	NRP-BEV	
5	54	45	SALMREY 005	01	1	NRP-BEV	
6	54	45	SALMREY 005	01	1	NRP-BEV	

Buttons: Slit Posit, Release, Hold, Copy, Delete, Edit Pattern, Cust. Info, Exit

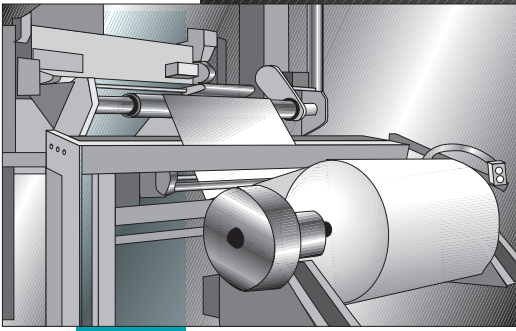
The production planner can communicate special criteria or preferences for choosing alternative orders for re-trimming at the winder. The production planner communicates to the winder operator via pattern notes or via the TRAQ Manager Bulletin Board System.

The system will collect set length, actual diameter, losses, and number of splices and holes through the interface to Programmable Logic Controller (PLC) or by operator entry. For each set of rolls produced, core tags are printed with barcode and human readable information.

Typical winder functions:

- control auto slitter positioning devices
- full pattern editing using any approved order with automatic evaluation of customer compatibility
- re-trim patterns on the fly at the winder
- view the list of patterns posted at other winders
- copy and edit a pattern
- view pattern instructions made by production planner
- enter pattern comments for any pattern produced
- view trim and order status
- reprint any core tags
- enter number of splices for a selected roll (a reason code is required)
- manage and record splices for a single roll or all the rolls in the set at once
- view results of quality check (reel quality data versus pattern quality requirements)
- print/view winder reports (production, losses and exception report)
- view and acknowledge BBS messages (TRAQ Manager Bulletin Board Service)
- view and manage crew, shift information

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The TRAQ Manager Rewinder Module is one of our many paper conversion modules. It has two modes: a salvage mode and a conversion mode.

The conversion mode cuts rolls for different orders, whether they are damaged rolls, overrun rolls that cannot be sold or planned production.

The salvage mode rewinds rolls that need repair or inspection to make sure they are saleable as per the customer's requirements.

The new child roll can be numbered according to mill procedures. This can involve changing the paper machine number or set number to an unlikely number. For example: rolls from PM 01 will have the PM number changed to 05 in the TAPPI roll number after rewinding. In this way, the new number will identify that a roll was processed at the rewinder station. It is also possible to keep the same roll number or have a hidden number to prevent customers from determining if a roll has been re-processed. A new core tag is printed for new rolls.

The Rewinder Module can only process those rolls with a REWIND status. This status is often set at the winder but any other station can downgrade rolls for rewinding. Downgrading always requires a reason code.

Parent rolls are identified to the system when an operator scans the barcoded core tag that should be attached to the roll to be rewound. If the core tag is missing, the operator must identify the roll by means of the roll label or the information stencilled on the side of the roll.

Once the parent roll has been identified to the system, the system needs to know if the roll is to be rewound for salvage or conversion. In salvage mode, the roll will remain assigned to the current order. In conversion mode, the system asks for new orders so that the roll can be cut to one or more orders if the new sizes are small

enough to produce more than one roll. The new orders must be compatible with the parent roll. The conditions for compatibility can include grade, basis weight, color, core type and many more criteria. The mill operation and customer requirements determine what these criteria are. TRAQ Manager will offer a list of only the orders that meet the criteria and that are approved for production. A full quality evaluation based on the parent roll's parent jumbo reel is done to ensure that the paper quality meets the new order's requirements.

Rewinder: REW01 Production date: 9/10/98 Shift: 1 Team: A

Parent roll: Tag No.: 72424 TAPPI No.: L401P1909130

Parent roll	Width	Diam.	B.W.	Order	Itm	Trim loss	Status	New diameter
L401P1909130	54	42	00450	SARMESA 75	03		CONSUMED	

Roll Details Roll Comments Delete selection Clear all Change status

Order no: Maximum number of position: 5

Codeword	Order	Itm	Width	Diam.	B.W.	Core
SAHKANEP	166	02	27	42	00450	NRP-BEV
SAHKANEP	166	02	27	42	00450	NRP-BEV

Order status Reprint Core tags Cust. Info/Notes Repeat entry Delete selection Clear all

Set Done Keep pattern REWINDER inventory Rewinder daily report BBS Exit

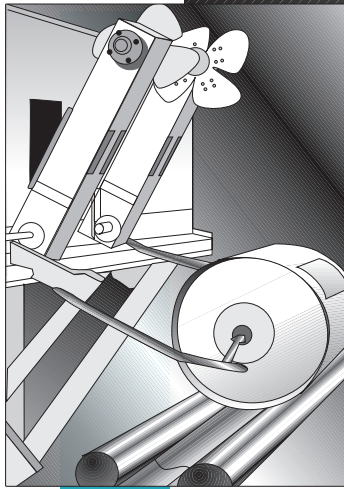
Once the orders are selected and accepted, the rewinder operator cuts the rolls to the new order's specifications and TRAQ Manager records the rewinder production and the consumption of the parent roll. The complete heritage of the new rolls is kept. The operator is prompted to record rewinder losses and status of the new rolls before it will produce the required core tags for them.

The rewinder operator has the ability to create cutting patterns that meet current operating conditions. The Rewinder Workstation provides information about order and load status, pattern (trim) schedules, inventory views, roll downgrade and more.

Typical rewinder functions

- verify if the product meets customer requirements
- configurable roll re-number for rewound rolls with option to keep the same roll number
- select quantity of child rolls to produce and create a cutting pattern
- view order status for any active order
- view rewinder inventory
- view production plans for various paper machines
- view in-process and finished inventories
- change/delete information for selected rolls if allowed by configuration
- find rolls or orders with specified criteria
- view detailed information for a selected roll
- reprint a core tag for a selected roll
- view or print rewinder reports
- view and acknowledge BBS messages (TRAQ Manager Bulletin Board Service)
- view and manage crew, shift information

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The Wrapper Module can manage a wide variety of wrapping systems from manual wrapping to fully automated wraplines where no human intervention is required. Our Wrapper Module is custom tailored to your wrapping equipment and operation.

A barcode scanner – either a fixed scanner or a hand-held scanner reads the barcoded core tag to identify the roll entering the wrapline. The Wrapper Module can interface with a measuring device to verify roll dimensions. A scale interface automatically collects roll weights for the wrapline scale.

Once a roll has been identified, TRAQ Manager sends the appropriate commands to the wrap-line equipment to wrap, stencil and label the rolls. Multi-roll packages are automatically identified and bundled according to customer specifications.

TRAQ Manager communicates with the automated wrapline Programmable Language Controller (PLC) sending the required information to wrap, stencil and label the rolls – each roll according to customer specifications.

Typically the instructions can include...

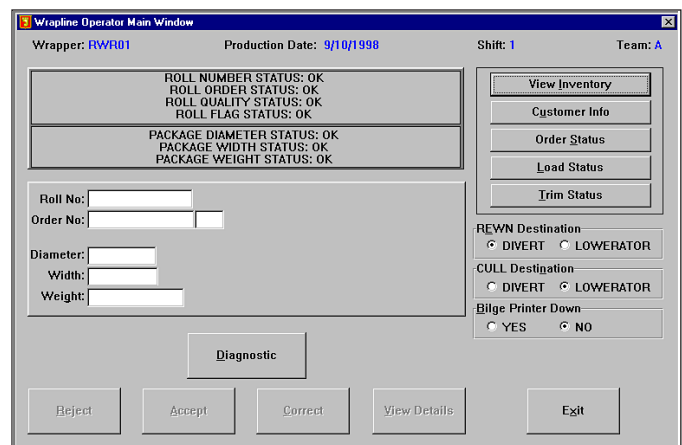
- wrapper type / number of convolutions
- banding requirements
- stenciling / color marker
- header type / size
- grouping / stacking

In the case of manual or semi-automatic wraplines, the finishing instructions can be prominently displayed on the workstation to tell the operator how the roll should be wrapped and marked. Roll labels are printed and transferred to the label applicator for automatic application on the roll.

Once wrapped, the rolls are sent from the floor to the warehouse. Inventories, order and load statuses are updated. Rolls can be assigned to a load at this time if automatic load assignment is enabled.

The Wrapper Module has an "Auto Reject" mode to allow the operator to deal with problems on the line or automatically reject problem rolls. This is handy during peak operating conditions where the wrapline operator cannot wait to resolve problems.

Wrapmation's exclusive "What You See Is What You Get" (WYSIWYG) label designer allows customers to draw their roll labels using a program similar to MS-Paint. This permits each customer have their own label design.

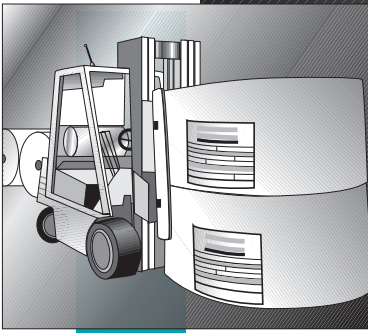


The wrapper operator will have access to any information required such as inventory list, order/load status, re-print label function, roll downgrade function and more.

Typical wrapper functions:

- view, examine and re-grade rolls in in-process and finished inventory
- change or delete information for selected rolls as permitted by system configuration
- selectively query only rolls that meet user-defined criteria
- re-print the roll label for selected rolls
- manage wrapper configuration parameters
- create multiple roll packs (grouping)
- automatically assign wrapped rolls/packages to the next available load (based on priority) or refill previously full load if a roll has been reported damaged
- automatically capture the package weight from the scale interface
- send data to label printer, stenciller, and color markers
- view and acknowledge BBS messages (TRAQ Manager Bulletin Board Service)
- view and manage crew, shift information

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TRAQ Manager supports various warehousing and loading methods including:

- shipping by zone / zone management
- peel off shipping barcodes and scanning the barcodes
- preprinted checker's lists (picker lists)
- radio terminals

Radio terminals can be placed on the clamp trucks to track the movement of rolls in the warehouse. TRAQ Manager radio terminals are IBM PCs with Network Interface Connection (NIC) to link the clamp truck to the mill network via 2.4-Gigahertz Spread Spectrum Radios. This gives radio terminals full access to the TRAQ Manager information. Our applications are almost unaware that they are running on a wireless workstation.

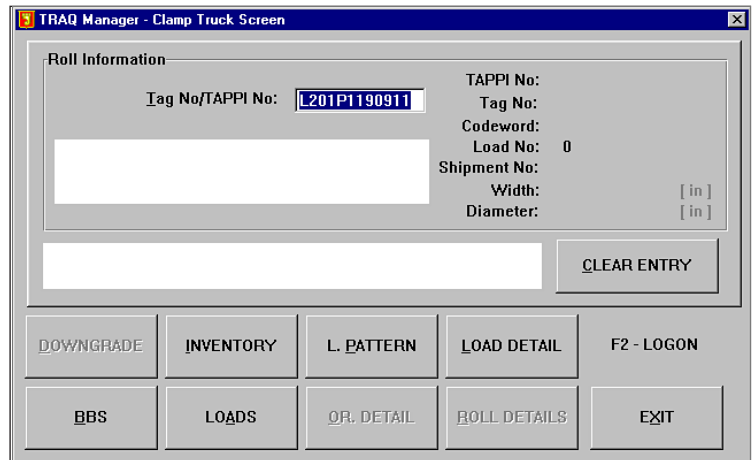
TRAQ Manager dynamically assigns rolls to shipping loads as they leave the wrapline. With our Just in Time (JIT) philosophy, the required number of rolls to be shipped is planned as orders are entered. TRAQ Manager will automatically keep the rolls in load unit groups. Whenever possible, we prefer to design our system to manage JIT shipments.

The TRAQ Manager zone management philosophy empowers the warehouse operators to manage how zones in the warehouse are used. TRAQ Manager keeps track of rolls and shipments in zones. When the first roll of a shipment arrives, the system automatically recommends a zone to place the roll. The clamp truck driver can put the roll in the recommended zone, or he can override the computer and place the roll in a different zone. The system records where the roll was actually placed. The system will continue to recommend this zone to keep the rolls together.

The system automatically warns when a load weight exceeds the planned vehicle limit and can be configured to offer a new zone before the limits are exceeded.

For protection against lost rolls, the system always remembers the last person to handle a roll. If a roll is lost, we can determine who last scanned it and where.

If a vehicle is ready to receive rolls coming off the wrapline, the system will automatically assign the roll to that vehicle. This minimizes inventory and repeated handling of the rolls. TRAQ Manager automatically verifies the quality of rolls prior to releasing a shipment. TRAQ Manager



prints shipping, customs, invoices and quality certificates once a shipment is approved. After that, the shipment is released and transactions are posted to the invoicing / accounting system.

Typical clamp truck functions include:

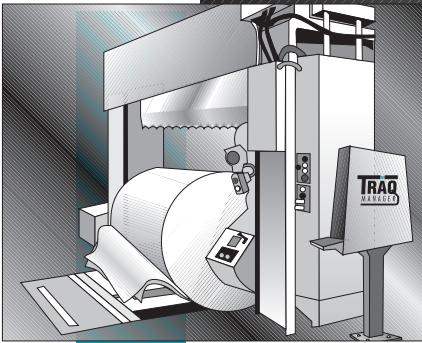
- scan and load
- downgrade /pulp /rewrap
- manage vehicle information
- assign / re-assign bays to orders
- view and acknowledge BBS messages (TRAQ Manager Bulletin Board Service)
- view loading patterns
- look up / verify roll quality information
- view order status
- view inventory

Typical shipping function list:

- create, print and reprint shipping documents
- look up and verify roll quality information
- manage loads and zones
- view order status
- view inventory
- create and assign loading patterns
- view and acknowledge BBS messages (TRAQ Manager Bulletin Board Service)
- view and manage crew, shift information

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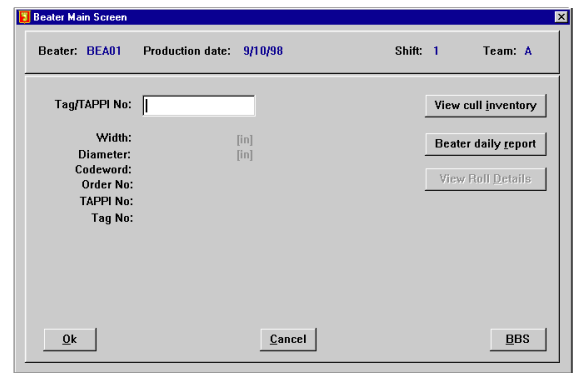
The Beater Module manages the disposal or re-pulping of cull rolls. The operator identifies each roll prior to being processed at the beater by scanning the barcode on the core tag or the label. Alternatively the roll number can be typed in manually.

The system can be configured to warn if the roll has properties that are not appropriate for the current process. The system can also be configured to alert the operator that the roll contains chemicals or compounds that are not suitable for the current batch.

If the roll identified is not designated to be beatered, the operator will get a warning so that he can either cancel the operation or downgrade the roll to the CULL status and then process it.

Typical function list

- scan the roll to be beatered
- acknowledge that roll is processed
- view beater inventory
- view production plans
- view and print beater reports
- view and acknowledge BBS messages (TRAQ Manager Bulletin Board Service)
- view and manage crew, shift information



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TRAQ Manager has thousands of configurable parameters. These configuration parameters determine how the various modules of TRAQ Manager operate. Parameters such as scale tolerances, paper machine deckle, mill name, TAPPI identifier are amongst the thousands of parameters in TRAQ Manager.

The system administrator can view and change the various operating parameters in TRAQ Manager using the configuration manager. Even the mill name is configurable. By just by editing a single parameter, all the screens and reports will instantly reflect the new mill name.

Within the Configuration Manager Module are various system administrative utilities used to manage system audits and delete old data.

TRAQ Manager maintains an extensive audit trail of all events that affect production and inventory. Every event such as a set turn-up or a roll re-wrapped, produces audit transactions. A truck driver scanning a roll will also create an audit transaction. These audit transactions are useful in examining the history of a roll. The audit trail is also used to do production reports and provides a diagnostic tool to investigate what happened.

The system administrator has extensive abilities for managing the old TRAQ Manager data. Old data can be archived or purged, according to the preset parameters in the system. The process of purging the old data can be automated or performed at the user's request. Important data such as rolls still in inventory or active orders are never deleted.

Typical function list

- view all TRAQ Manager system parameter values
- change the value of a selected parameter if the user has appropriate privileges
- various views and searches of parameters along with helpful information
- view and report on system parameters
- view list of audit transactions
- view/print list of audit codes with description
- view audit transactions for a selected date

Code	Name	Description	Value
1013	ASK_BBSD	ASK FOR DELETE XX DAYS AFTER LAST DELETE	25
1100	DEL_AUDT	DELETE AUDIT TRANSACTIONS AFTER XX DAYS	7
1101	DEL_AUDH	DELETE AUDIT HISTORY AFTER XX DAYS	90
1110	LASTDAUH	AUDIT TRANSACTIONS DELETED LAST TIME ON:	13/11/1997
1111	LASTDAUH	AUDIT HISTORY DELETED LAST TIME ON:	.
1120	DEL_MXTR	NOT USED.....	.
1130	LASTDMXT	NOT USED.....	.
1140	DEL_REEL	DELETE JUMBO REELS\SETS AFTER XX DAYS	23
1150	LASTDREE	JUMBO REELS\SETS DELETED LAST TIME ON:	9/02/1998
1160	DEL_SHFT	DELETE OLD SHIFT RECORDS AFTER XX DAYS	70
1170	LASTDSFT	LAST TIME OLD SHIFT RECORDS DELETED	9/02/1998
1180	DEL_INVH	DELETE INVENTORY HISTORY AFTER XX DAYS	90
1181	LASTDINH	INVENTORY HISTORY DELETED LAST TIME ON:	.
1999	PM1_WDTH	NOT USED.....	.
2000	PM2_WDTH	NOT USED.....	.
2001	PM3_WDTH	NOT USED.....	.

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