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No.21C PROCESS CONER

Automatic Winder

Straight Magazine Type



We reserve our right to modify them at any time, to be confirmed by authorized specification.

CAT. NO. 21P852 08-09-3(NS)



MURATA MACHINERY

No. 21C PROCESS CONER

You should choose an automatic winder
to further strategic vision

**Maintaining as well as
improving yarn quality**

If you are already using high value-added equipment such as the compact spinning frame, you should choose an automatic winder that will not only maintain the spinning bobbin quality but also improve the yarn quality.

**Not only for the winding
but also the entire ring process**

If you want to offer a comprehensive range of services from spinning to fabric production, you should choose an automatic winder that will ensure improved quality, flexible and efficient production.

**... If all seems to make sense to you
then you will find out
that you will understand our automatic winder**

Let's return to the beginning. As the final stage of spun yarn production, the automatic winder is the important process in terms of determining yarn quality. An automatic winder should do more than simply wind the yarn. The ideal winder is one that maintains the yarn quality and even adding new values that can be carried over to the next process. You should choose an automatic winder with these attributes.

Your Straight Pass to Success

How to increase the value of packages and your profits?

A Smart Winding Unit

The Straight Yarn Path with Cutting-edge Technologies

Bal-Con - The Balloon Controller

Unwinding the spinning bobbin more efficiently while maintaining quality

Tension Manager - A combination of the Bal-Con and Gate Tensor

High-speed winding while maintaining high quality

Pac-21 Winding System

Winding perfect packages will improve the quality and efficiency of the next process

VOS - The Visual On-demand System

A user-friendly centralized control system that achieves intelligent management

Individual Alarm System

Increasing the efficiency of maintenance and operation

Ecological & Economical Concept

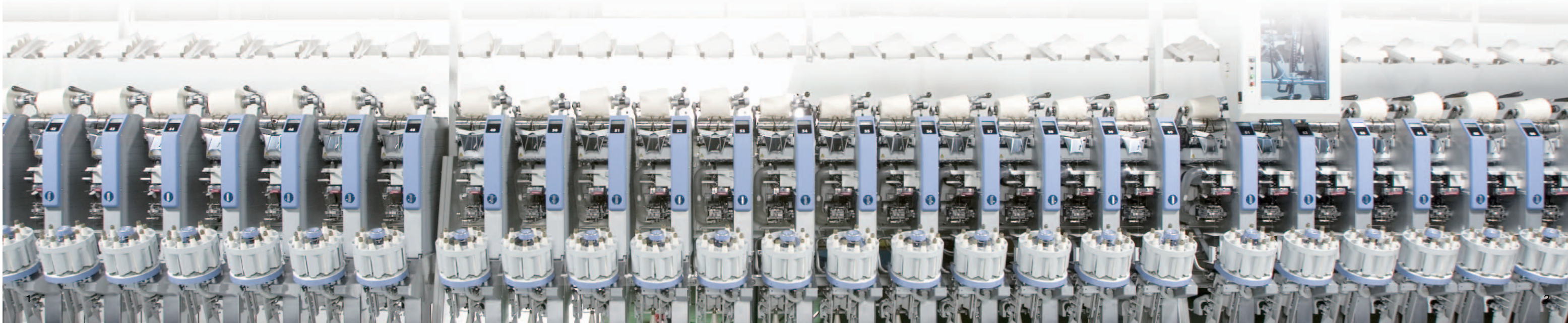
Reduced power consumption, waste yarn and noise

Automatic Doffer

The intelligent Automatic Doffer will achieve excellent automation in your spinning-mill

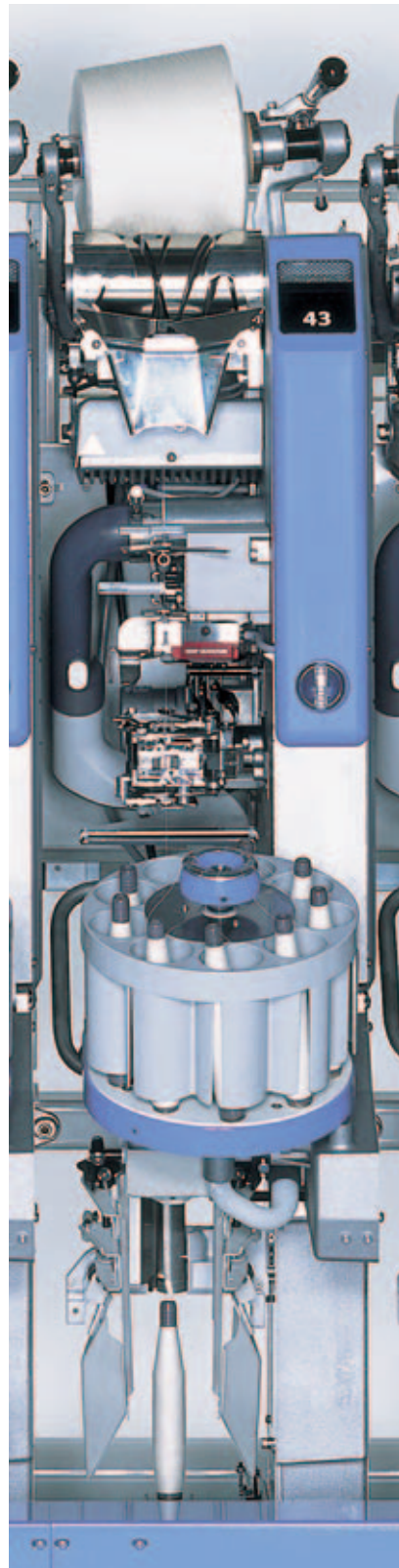
Straight Magazine Type

Main Specifications & Layouts



Your Straight Pass to Success

How to increase the value of packages and your profits?



How to increase the value of packages and your profits?
The answer is simple - maintain the spinning bobbin quality and improve the yarn quality more efficiently.

Choose the straight yarn path.

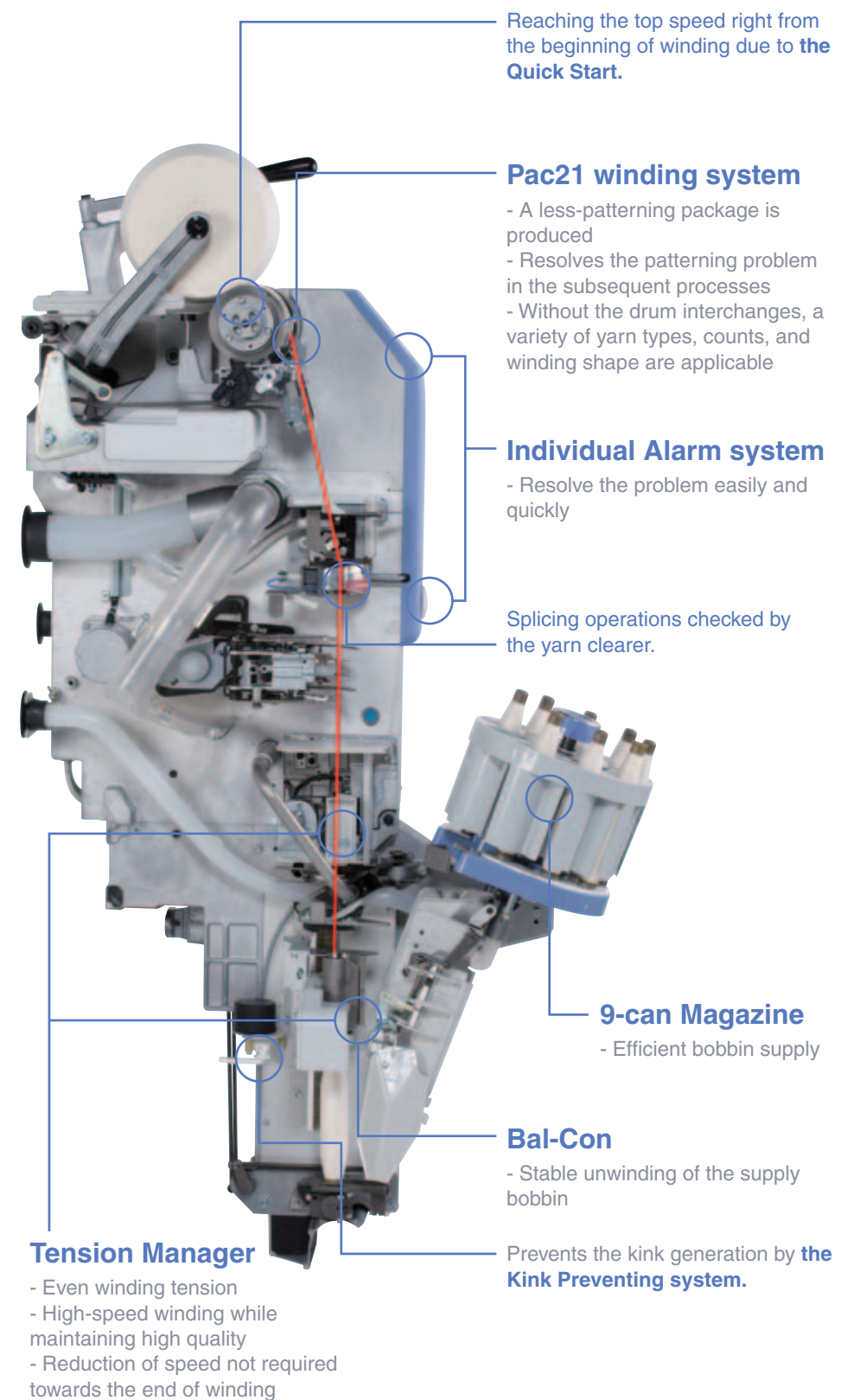
At first, you should choose the straight yarn path to achieve an ideal conditions for winding process; free from wasteful movements or yarn path obstructions, gentle on the yarn and easy to use.
This is the reason why the No. 21C PROCESS CONER has the perfect straight yarn path from the center of the supply bobbin to the waxing device.

Maintain the spinning bobbin quality and improve the yarn quality.

The next is how to maintain the spinning bobbin quality and improve the yarn quality. The No.21C PROCESS CONER achieves the stable unwinding of the supply bobbin by the Bal-Con, the uniformed winding tension by the Tension Manager, preventing the kink generation by the Kink Preventing system, and checking all splicing operation by the Yarn Clearer. All of these factors make for maintaining high quality of the spinning bobbin and improving the yarn quality.

Maximize the productivity.

At last, you have to think about productivity. With our cutting edge functions and technologies, you can reach the top speed right from the beginning of winding and keep the winding speed towards the end of winding due to the Tension Manager; thanks to the Pac21 winding system, you can resolve the critical patterning problem for helping the down stream production; also, by the help of user-friendly Individual Alarm system, it helps to minimize the machine stoppage. The No.21C PROCESS CONER can help you to maximize the production efficiency.



Your Straight Pass to Success

A Smart Winding Unit

The Straight Yarn Path with Cutting-edge Technologies

DC Servo Motor Direct-drive Winding Drum

Adopting the direct-drive DC servo motor, winding drum enables better efficiency and reduces power consumption.

Pac21 Winding System Option

The Pac21 is the perfect winding system, the optimum package quality realized by the Multi-grooved Drum and its controlling system called as "Visual On-demand system (VOS)". The pattern less (ribbon-less) package is now available by our Pac21 Winding System. We now offer you a perfect performance for the stable unwinding at the high speed in the down-stream processes and adapts to the variety of yarn types, counts and winding shape.

Tension Manager

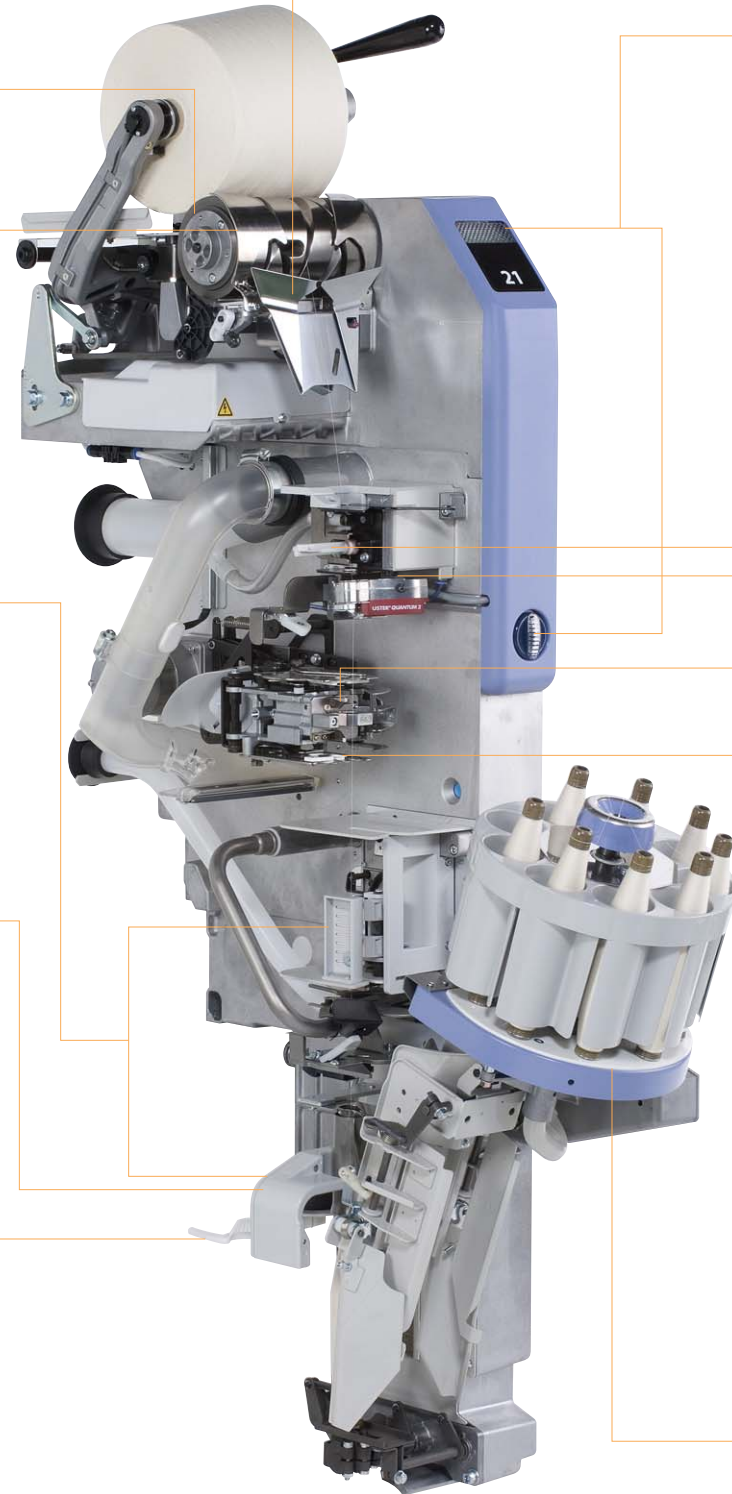
The Tension Manager is the tension control system for individual spindles. According to the residual amount of yarn on supply bobbins detected by the Bal-Con, the Gate Tensor controls the pressurized tension electrically. The combination of the Bal-Con and the Gate Tensor enables an even winding tension from the beginning to the end of the winding process, and improves package quality.

Bal-Con

The Bal-Con is Muratec's proprietary balloon control system. The controller continuously moves from top to end of the supply bobbin and creates a perfect size of ballooning while unwinding along the supply bobbin, keeping same size of ballooning without any influence of yarn amount on the bobbin tube. The Bal-Con system, makes unwinding balloon optimum shape and size.

Kink Preventing system - The Hard Waste Reducer

The newly designed Kink Preventing system reduces hard waste to an absolute minimum by holding the top of the bobbin securely by brush. This prevents kink generation during splicing.



Contact Pressure Control

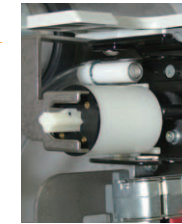
Contact pressure between the package and the drum is controlled accurately through precise setting on the Visual On-demand System(VOS). At the start of winding, the package is pressed with optimum pressure against the drum so as to prevent slippage, drum rotation can reach a top winding speed immediately. This Quick Start reduces the acceleration time drastically and enables high productivity from the beginning of the winding. When wind the slip-prone yarn such as waxed yarn, contact pressure is relaxed and the winding speed is increased gradually. This Slow Start prevents tangle and disordered layering within the packages.

Individual Alarm System

Each winding unit is equipped with the Individual Alarm system. The Visual On-demand system (VOS) monitors the condition and provides information by lighting up and displaying an alarm code on the indicator of each winding unit. The user-friendly Individual Alarm system helps the operator and maintenance person to operate the machine easily and quickly.

Waxing Device Option

Stable and uniform waxing is made possible by a rotary-driven positive motor. When wax is not required, the motor stops and saves energy. The device can be used for longer wax up to 45mm, assuring higher production efficiency. Both S twist and Z twist directions can be changed. An alarm warning of residual wax is one of the functions included in this device.

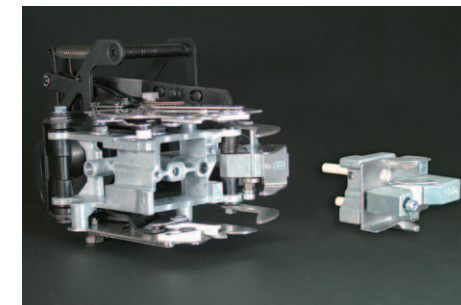


Yarn Clearer

Positioned after the splicer, the yarn clearer checks all splicing operations. Positioned before the waxing device, the yarn clearer is not affected by the wax. The yarn clearer shows the maximum effects of its latest function.

Splicer

The splicing timing is precisely set by the Visual On-demand system (VOS). The optimum cycle control contributes to improve the productivity by reducing waste yarn and splicing errors. The Splicer can be attached and removed easily. This ensures that stopping time is minimal even when there are frequent changes of yarn type. From our varied lineup of Splicer, you can choose the best which suits your purpose.



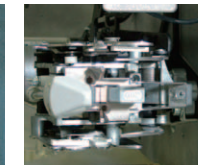
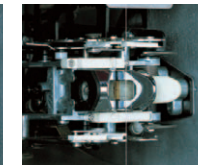
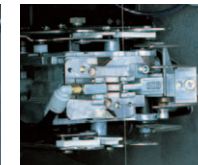
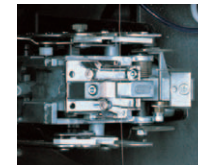
Air Splicer

3-tier Nozzle Splicer
(option)

Water Splicer I
(option)

Water Splicer II
(option)

CSY Splicer
(option)



Ceramic Cutter

Employ the ceramic cutters that are ten times durable than steel cutters, and no lubrication is required unlike steel cutters.



9-can Magazine

We can offer you a 9-can magazine on our straight yarn path machine that increases operation efficiency.

A Smart Winding Unit

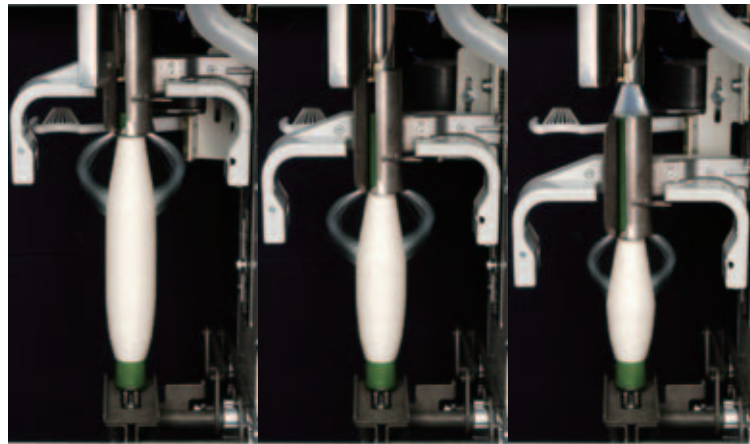
Bal-Con The Balloon Controller

Unwinding the spinning bobbin more efficiently while maintaining quality

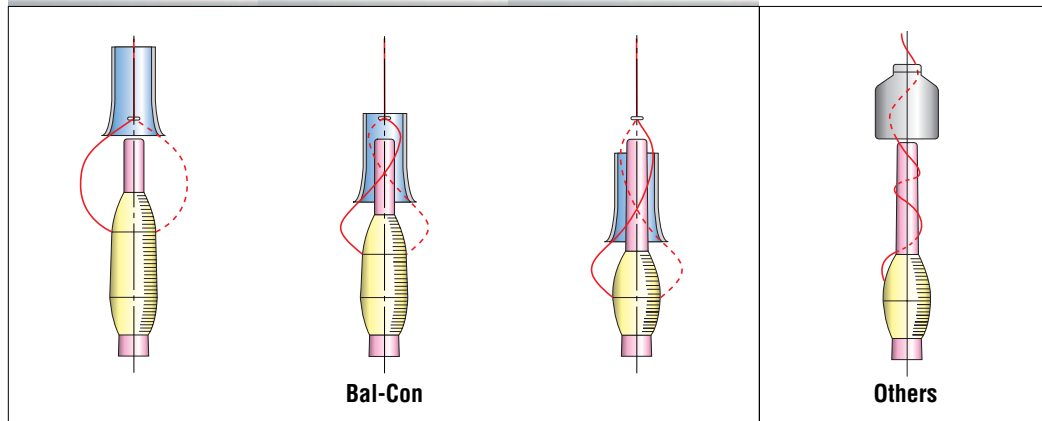
Excellent balloon control is the first step towards increasing your profits

Muratec's proprietary balloon control system - Bal-Con has been newly designed. It responds to high speed winding and provides the perfect unwinding of supply bobbin. Bal-Con continuously moves along the bobbin, creating a ballooning in order to maintain an even winding tension from start to the end of the winding process.

When used in combination with the Tension Manager, the Bal-Con makes it possible to achieve more stable high-speed winding for high-quality packages. The advantages of Bal-Con are as follows:



1. High-speed winding
2. High productivity
3. Sloughing suppression
4. Hairiness reduction
5. Reduced fly waste generation, and
6. Reduced nep



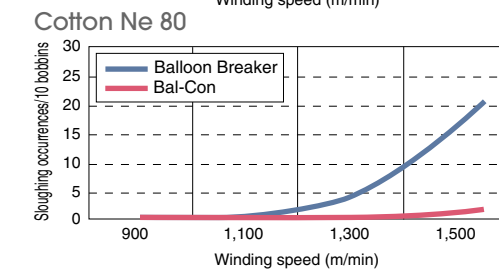
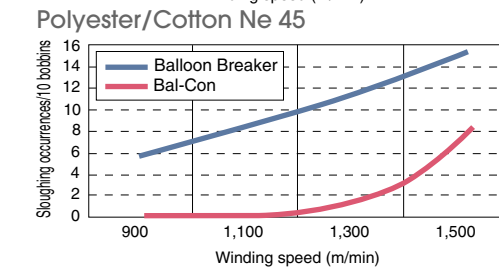
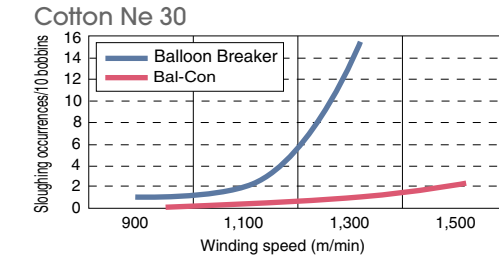
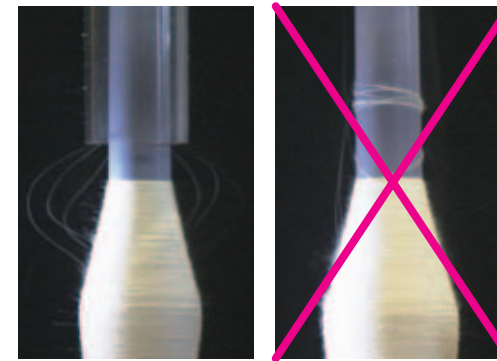
Smart design - better for air-circulation and easy maintenance



Slough suppression

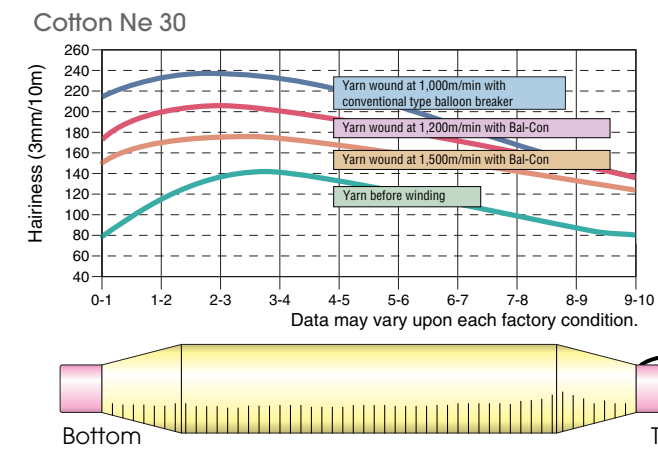
When unwinding the supply bobbin, the Bal-Con minimizes the contact between the yarn being unwound and the yarn layer on the bobbin. This results in a remarkable suppression during high-speed winding of undesired tension in the package, stitched package, etc.

Free from sloughing trouble Thanks to Bal-Con



Reduction in hairiness generation

The table on the right gives an example of hairiness generated by high-speed winding, from beginning to end, in 10 equal sections. The chase surface does not generate hairiness as a result of non contact with unwound yarn, and hairiness is reduced in all sections, from the top to the bottom of bobbin.



Recently designed Kink Preventing system - reducing hard waste

The No. 21C is equipped with the recently designed Kink Preventing system, which holds the top of the bobbin securely by brush, thus more efficiently reducing yarn waste caused by yarn splicing. It is possible to prevent kink generation when yarn is spliced, as well as bobbin-side yarn when it is sucked into the pipe more than necessary, by electronically controlling the timing of the operation.



Bal-Con The Balloon Controller

Tension Manager

A Combination of the Bal-Con & Gate Tensor

Unwinding the spinning bobbin more efficiently while maintaining quality

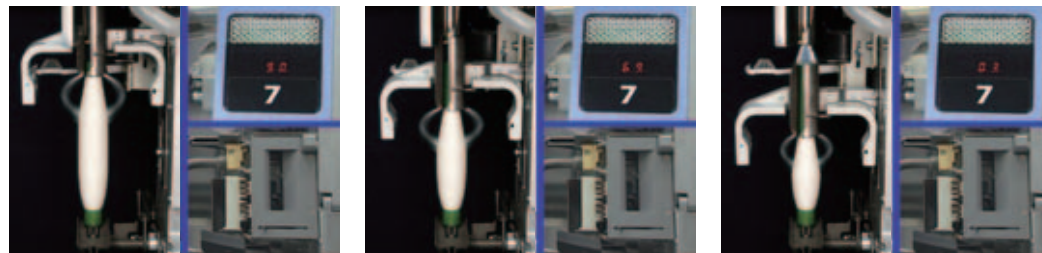
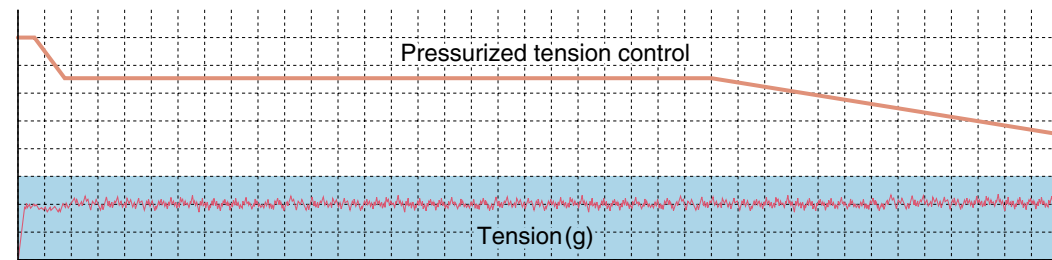
What is the Tension Manager?

The Tension Manager system controls tension fluctuation from the time the drum starts after the yarn joins and until the end of the winding. It is based on supply bobbin data detected by the Bal-Con and by the pressurized tension controlled by the Gate Tensor on each individual spindle.

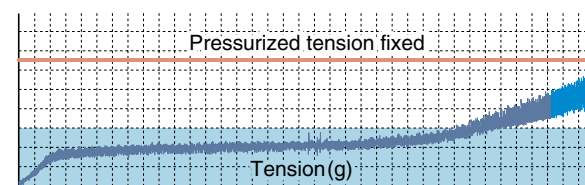
The Tension Manager ensures a uniformed

winding tension from start to finish, even at high-speeds, without having to reduce the winding speed.

The Gate Tensor controls the pressurized tension electronically, thus setting is easy and does not require parts replacement which is essential for change of pressurized tension on disk-type control system.

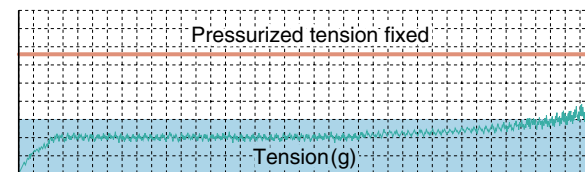


Without the Bal-Con



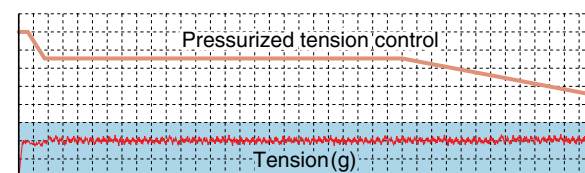
With the Bal-Con

When compared with conventional balloon breakers, the tension is considerably more stabilized, but the tension at the start of winding is not optimal unless operated in combination with the Tension Manager.

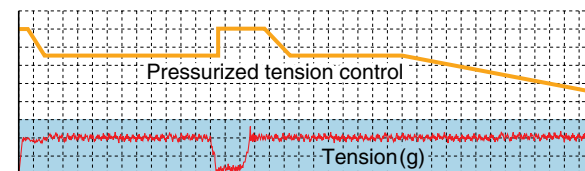


With the Tension Manager

Super high-speed winding production at nearly even tension is possible, as the tension is controlled according to the amount of residual yarn in the supply bobbin.



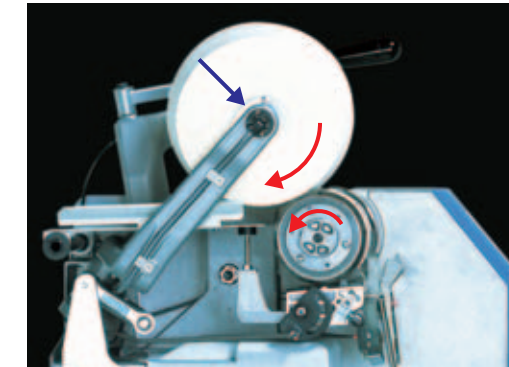
Tension is restored promptly even after splicing caused by yarn breakage.



How can you maximize your profit?

Quick Start

Contact pressure between the package and drum is controlled accurately on Visual On-demand System (VOS) to suit the winding condition. By minimizing slippage between the package and drum at the start of winding, the acceleration time is reduced to less than half that of a conventional machine. You will be able to achieve high productivity right from the beginning of winding.

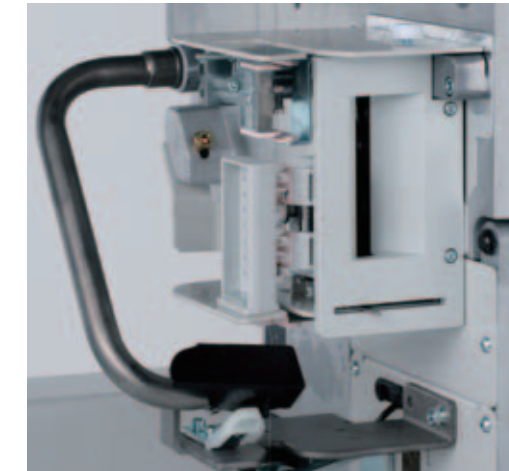


Excellent balloon control and secure holding of the Gate Tensor

The excellent balloon controlling achieved by the Bal-Con enables a more stable high-speed unwinding of the spinning bobbin. The Gate Tensor achieves a secure hold by utilizing combinations of multi-point grips and double arms, as well as electronic controls that compensate appropriately for tension fluctuations which occurs during high-speed winding.

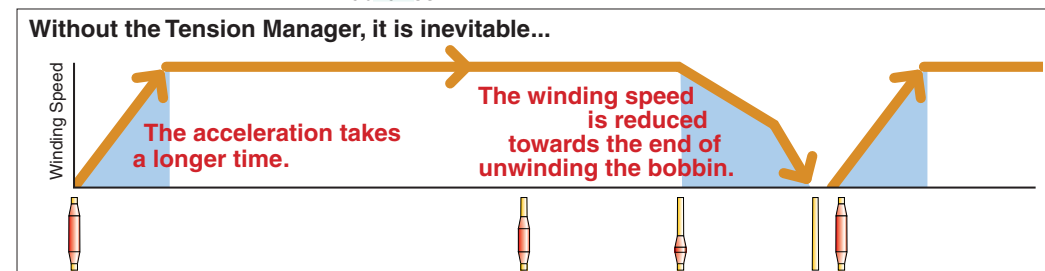
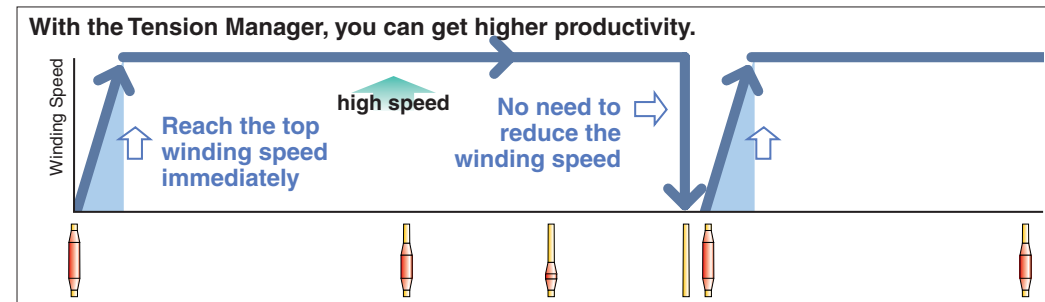
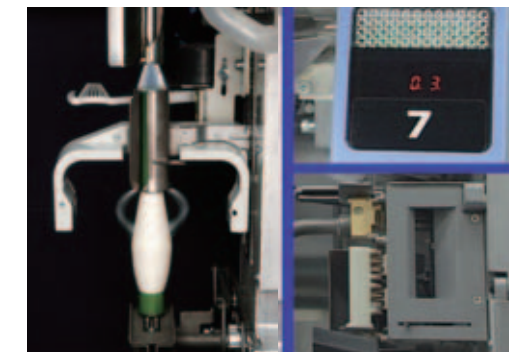
Tension is restored promptly following splicing due to yarn breakage.

All of these factors make for outstanding productivity with high-speed winding while maintaining high quality.



High-speed winding is maintained towards the end

With the Tension Manager, there is no need to reduce the winding speed towards the end of winding in order to prevent the tension fluctuation from increasing. In other words there is no loss in productivity due to winding speed deceleration that occurs at the end of winding.



Tension Manager
A Combination of the Bal-Con & Gate Tensor

Pac21 Winding System Option

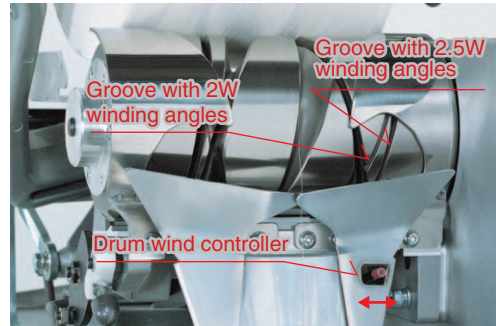
Winding perfect packages will improve the quality and efficiency of the next process

The new winding system

For a perfect performance in the subsequent processes

The Pac21 is the winding control system to wind optimum package that can be unwound without difficulty at high speed in the subsequent processes.

The Multi-grooved Drum - switching between two drum grooves



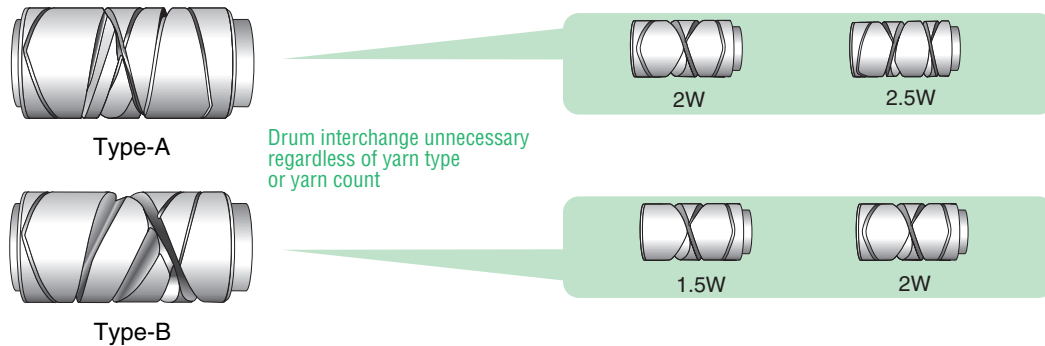
2-winds, 1.5-winds, and single-wind winding on the package surface are liable to result in a patterning (ribbon) with 1.5W, 2W, and 2.5W winding.

Muratec have succeeded in developing the Multi-grooved Drum - Pac 21, which has a control system that switches the drum groove to the diameter at which patterning (ribbon) occurs.

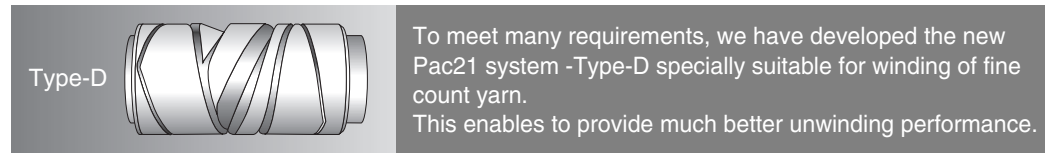
Utilizing this groove jumping system, the Pac21 adapts to the variety of yarn types, counts and winding shape e.g. P/Q, high-speed and soft.

The Pac21 is the system that, combined with a multi-grooved drum and the Visual On-demand system (VOS), is the outcome of expertise in winding, sensing and control technology that has been cultivated over many years of achievements by Muratec.

Pac21 applicable to various yarn types, counts, and winding shapes



Optimally-designed for Winding of fine count yarn



| Drum type | Yarn Count (Ne) | Winding Shape | | | | |
|-----------|-----------------|-----------------|----------|---------------|-------------|---------------|
| | | Regular Package | | | Dye Package | |
| | | P | Parallel | Q | Parallel | Cone |
| Pac-A | 2.5W | ○ | NA | NA | NA | NA |
| | 2W | ○ | ○ | up to 4°20' | ※ | ※ |
| Pac-B | 2W | ○ | ○ | up to 4°20' | ○ | 3°30' - 4°20' |
| | 1.5W | ○ | ○ | NA | ○ | 3°30' - 4°20' |
| Pac-D | 2.5W | ○ | ○ | 4°20' - 5°57' | NA | NA |
| 2.5W | | ○ | ○ | NA | NA | NA |
| 2W | | ○ | ○ | NA | NA | NA |

○ : Available ※ : Condition Apply NA : No Applicable

For further technical information, Please refer to Murata Machinery

Drum Wind Controller - the jumping mechanism

Pac21, the drum wind controller is used to form a package suitable for high-speed unwinding. This is achieved by switching the number of winds before and after this particular package diameter. (excluding Type-B) The number of winds can be calculated from the drum rpm and the package rpm. With the No. 21C Process Coner, the rotation sensor at the smaller diameter of the cradle detects the package rpm; the drum rpm is detected by the yarn measure length sensor.

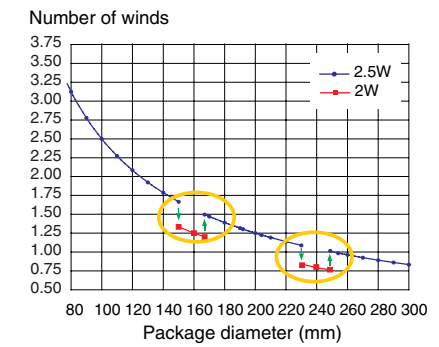
The number of winds on the package being wound is monitored using these two sensors, and the drum wind controller timing is set using VOS.

Drum groove switching is achieved by using the drum wind controller in the following way:
 (1) During 2.5W base winding, the area liable to result in patterning winding is switched to the 2W drum groove.
 (2) During 2W base winding, the area liable to

result in patterning winding is switched to the 2.5W drum groove.

In this way, the jumping mechanism switches the area liable to result in patterning winding, enabling Pac 21 to produce a package with less patterning.

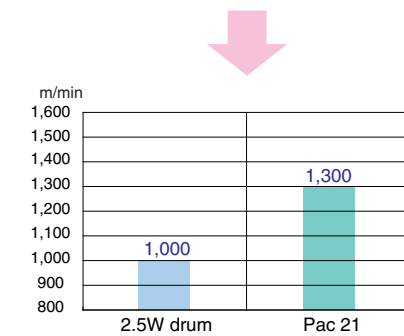
Winding on 2.5W base Carded Cotton Ne40



Stable and high-speed unwinding

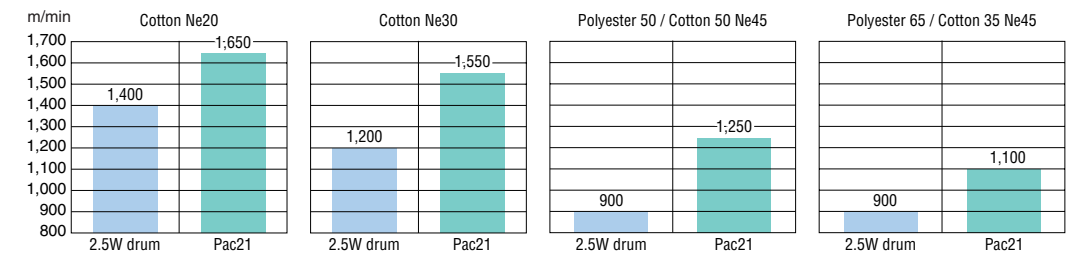
With the Pac21, the wound package has a number of small steps that are apparent at the controlled location. These steps are ideal for high-speed unwinding, and also functions as verification points.

The table on the right gives an example of unwinding speed, compared between the 230mm and 250mm diameter packages wound using 2.5W conventional drums and



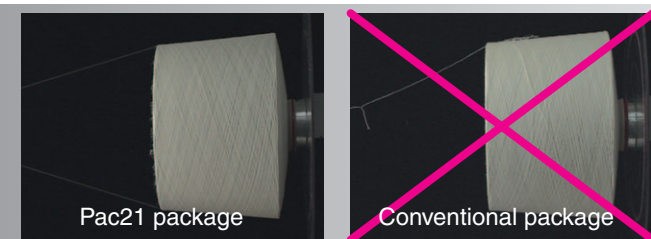
Pac21. Speed is increased by almost 30% for the Pac21 package.

The following data was obtained with high-speed unwinding for cotton Ne20, cotton Ne30, polyester 50 / cotton 50 Ne45, and polyester 65 / cotton 35 Ne45 yarn. All



Data may vary upon each factory condition.

Free from sloughing trouble Thanks to Pac21



Pac21 The Process Cartridge Winding System

VOS Visual On-demand System

A user-friendly centralized control system that achieves intelligent management

The management system based on greater quantification of data

The VOS is the operation data control system developed by thorough pursuit of the concept of the NO.21C Process Corner for greater degrees of operability and flexibility. The large, easy-to-read, color LCD displays various operational data including: cycle

setting, pressurized tension of the Gate Tensor, etc. using graphics and can be utilized for trend analysis of production, quality, etc. The VOS provides easy, accurate centralized operation control including a fixed yarn length counter.



Monitor call

You can choose between the two types of monitor call:

- (1) Keying-in of function number on the home screen.
- (2) Selection of the menu button (F1 to F8).

More convenient short-cut key

You can register the most frequently used screen and call it up on the home screen with a single touch.

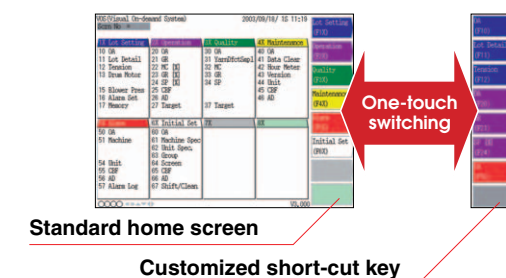
Customized layout as required by the user

The screen layout makes it possible to categorize activities into: lot-setting, operations, quality control, maintenance, etc. It is easy to construct the customized screen for each person in charge.

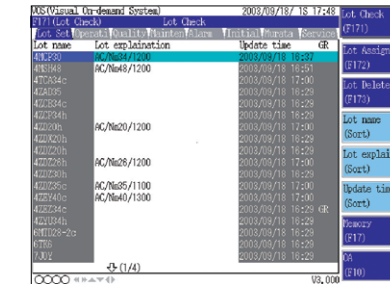
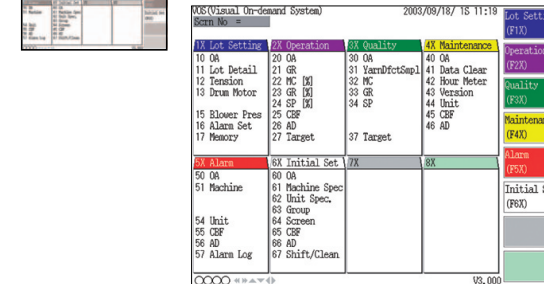
Multi-lingual display

You can choose from multiple language display.

One-touch switching between standard and short-cut key



Lot Production



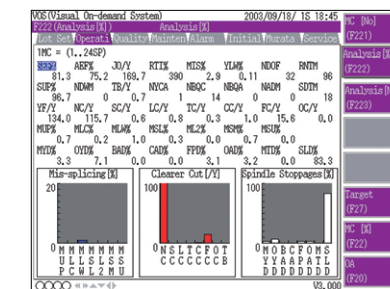
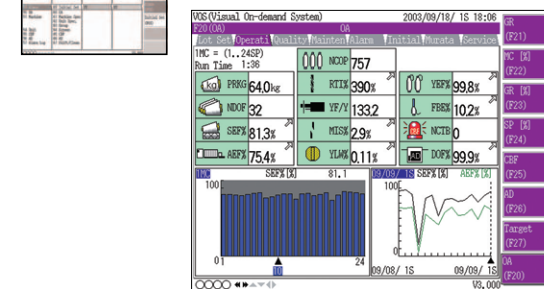
Lot setting

Display layout is designed for diverse, small-lot production. You can compare, confirm and set the product condition of multiple groups at a time. The lot memory can register up to a maximum of 100, and it is possible to confirm them on the same display.

Memory display

The ability to display following processes and set related lots is also available: listing of memorized lots; confirming and listing setting details; allocating lots; deleting lots, and interrupting lots (a necessary function when re-starting interrupted winding).

Operation



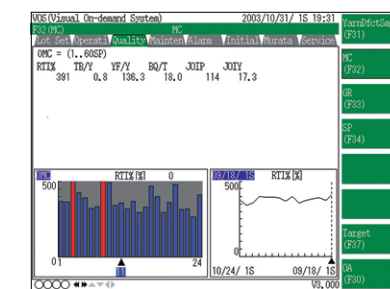
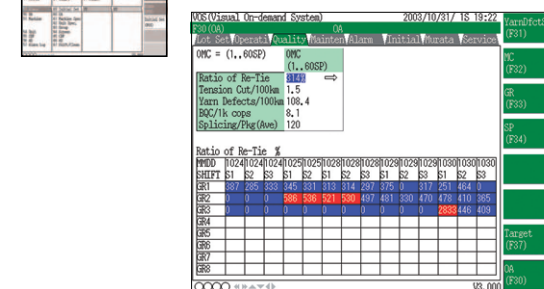
Operational condition

Displays production data simultaneously using especially large characters, graphs and numerical data thus providing an easy-to-understand explanation. On the same display, you can check the trend graph related to the winding unit. These will help you to understand the current situation within the overall operation.

Data analysis

Displays graphs on the causes of yarn splicing misses, clearer cuts and unit stoppages.

Quality



Quality control per lot

Displays data of closely related quality control per shift over a long span.

Present conditions related to quality control

Displays present conditions of closely related quality control.

VOS Visual On-demand System

Individual Alarm System & VOS

Increasing the efficiency of maintenance and operation

The Individual Alarm System - a combination of the VOS and the intelligent unit

The VOS is not only the operation data control system but also the excellent backup system for the maintenance person and operator. The VOS monitors the condition of the winding and machinery at all times. If some handling is required, the VOS provides

An intelligent winding unit

Follow the instruction by the VOS, the indicator on each winding unit lights up and informs the type of handling. The indicator turns green when the package is full. Red indicates when a maintenance person is required.

information at a glance through its images, as well as an alarm counter on each individual winding unit.

This combination of the VOS and the counter on each unit make up the Individual Alarm System for excellent user-friendly operation.

Yellow when the operator is required, at the same time displaying the problem code. This intelligent winding unit helps the maintenance person and operator to handle the problem on site easily and quickly thus increasing efficiency.



Maintenance

| Unit Check | Unit | Unit Check | Unit Check |
|-----------------------------|--------|------------|------------|
| 1. Yarn Defect Sample Mode | OFF | OFF | OFF |
| 2. Bobbin Pipe Inching | OFF | OFF | OFF |
| 3. Bobbin Core Maintenance | ON | ON | ON |
| 4. Splicer Unit/Unit Check | OFF | OFF | OFF |
| 5. Output Check | OFF | OFF | OFF |
| 6. Input Check | OFF | OFF | OFF |
| 7. Cleaner Check | OFF | OFF | OFF |
| 8. Con Chart Inching | MODE 1 | MODE 1 | OFF |
| 9. Cleaner Gown Check | OFF | OFF | OFF |
| 10. Tension/Voltage Display | OFF | OFF | OFF |
| 11. Speed Display | OFF | OFF | OFF |

| Unit | Unit | Unit | Unit |
|----------------------|---------------|------------|-------|
| 1. Bobbin | 16 Bad Bobbin | Unit NCC | (F44) |
| 2. L. Yarn Mismatch | 16 Bad Bobbin | Unit NCC | (F42) |
| 3. L. Yarn Mismatch | 16 Bad Bobbin | Unit Alarm | (F44) |
| 4. L. Yarn Mismatch | 16 Bad Bobbin | Unit Alarm | (F44) |
| 5. L. Yarn Mismatch | 16 Bad Bobbin | Unit Alarm | (F44) |
| 6. L. Yarn Mismatch | 16 Bad Bobbin | Unit Alarm | (F44) |
| 7. L. Yarn Mismatch | 16 Bad Bobbin | Unit Alarm | (F44) |
| 8. L. Yarn Mismatch | 16 Bad Bobbin | Unit Alarm | (F44) |
| 9. L. Yarn Mismatch | 16 Bad Bobbin | Unit Alarm | (F44) |
| 10. L. Yarn Mismatch | 16 Bad Bobbin | Unit Alarm | (F44) |
| 11. L. Yarn Mismatch | 16 Bad Bobbin | Unit Alarm | (F44) |
| 12. L. Yarn Mismatch | 16 Bad Bobbin | Unit Alarm | (F44) |
| 13. L. Yarn Mismatch | 16 Bad Bobbin | Unit Alarm | (F44) |
| 14. L. Yarn Mismatch | 16 Bad Bobbin | Unit Alarm | (F44) |
| 15. L. Yarn Mismatch | 16 Bad Bobbin | Unit Alarm | (F44) |
| 16. L. Yarn Mismatch | 16 Bad Bobbin | Unit Alarm | (F44) |
| 17. L. Yarn Mismatch | 16 Bad Bobbin | Unit Alarm | (F44) |
| 18. L. Yarn Mismatch | 16 Bad Bobbin | Unit Alarm | (F44) |
| 19. L. Yarn Mismatch | 16 Bad Bobbin | Unit Alarm | (F44) |
| 20. L. Yarn Mismatch | 16 Bad Bobbin | Unit Alarm | (F44) |

Maintenance mode

You can switch the maintenance mode that instructs the winding unit to check operations thus indicating the check mode. This is also possible on the Automatic Doffer.

Confirming the indicator counter

You can confirm the contents of an indicated counter on the individual winding unit, as well as on the Automatic Doffer. It is also possible to see at the VOS alarm monitor.



Unit Checker

You can check Input/Output signals, inching motions and all other functions necessary for a winding unit on each winding unit. There is no requirement of special additional devices.



Alarm

| Unit | Unit | Unit | Unit |
|----------------------|---------------|------------|-------|
| 1. Bobbin | 16 Bad Bobbin | Unit NCC | (F44) |
| 2. L. Yarn Mismatch | 16 Bad Bobbin | Unit NCC | (F42) |
| 3. L. Yarn Mismatch | 16 Bad Bobbin | Unit Alarm | (F44) |
| 4. L. Yarn Mismatch | 16 Bad Bobbin | Unit Alarm | (F44) |
| 5. L. Yarn Mismatch | 16 Bad Bobbin | Unit Alarm | (F44) |
| 6. L. Yarn Mismatch | 16 Bad Bobbin | Unit Alarm | (F44) |
| 7. L. Yarn Mismatch | 16 Bad Bobbin | Unit Alarm | (F44) |
| 8. L. Yarn Mismatch | 16 Bad Bobbin | Unit Alarm | (F44) |
| 9. L. Yarn Mismatch | 16 Bad Bobbin | Unit Alarm | (F44) |
| 10. L. Yarn Mismatch | 16 Bad Bobbin | Unit Alarm | (F44) |
| 11. L. Yarn Mismatch | 16 Bad Bobbin | Unit Alarm | (F44) |
| 12. L. Yarn Mismatch | 16 Bad Bobbin | Unit Alarm | (F44) |
| 13. L. Yarn Mismatch | 16 Bad Bobbin | Unit Alarm | (F44) |
| 14. L. Yarn Mismatch | 16 Bad Bobbin | Unit Alarm | (F44) |
| 15. L. Yarn Mismatch | 16 Bad Bobbin | Unit Alarm | (F44) |
| 16. L. Yarn Mismatch | 16 Bad Bobbin | Unit Alarm | (F44) |
| 17. L. Yarn Mismatch | 16 Bad Bobbin | Unit Alarm | (F44) |
| 18. L. Yarn Mismatch | 16 Bad Bobbin | Unit Alarm | (F44) |
| 19. L. Yarn Mismatch | 16 Bad Bobbin | Unit Alarm | (F44) |
| 20. L. Yarn Mismatch | 16 Bad Bobbin | Unit Alarm | (F44) |

Real-time alarm check

Displays the relevant location and pictures of alarm data. You can check the actual alarm situation in real-time.

Past data

You can check the detailed past alarm data. The VOS displays the relevant location (i.e. control box, winding unit, CBF and AD). It is also possible to display a list of alarms in order of importance (red, yellow, green).

VOS+Indicator display

Maintenance Call

- > Automatic Doffer
- > supply bobbin quality
- > yarn clearer
- > winding
- > package
- > drum
- > sensor problems
- > mechanical alarm
- > tension cut alarm,
- > miss-traverse
- > power supply alarm etc.

Operator Call

- > package handling
- > supply bobbin change
- > clearer information
- > cleaning requests
- > wax change or check etc.

VOS Visual On-demand System

Ecological & Economical Concept

Reduced power consumption, waste yarn and noise

Environmental-friendly machine

Demands for the reduction in consumption of resources energy, waste yarn, operating noise, dust emissions, and wasteful discharges are becoming increasingly severe. Within this context, it is the duty of the

machinery manufacturer to design equipment that is able to make the most economical use of the limited resources available on our planet.

Reducing power consumption

Power consumption has been reduced by using an inverter-controlled blower and DC servo motor direct-drive winding drum.

In addition, rotation of the waxing shaft is halted when the waxing device is not in use.

Reducing operating noise

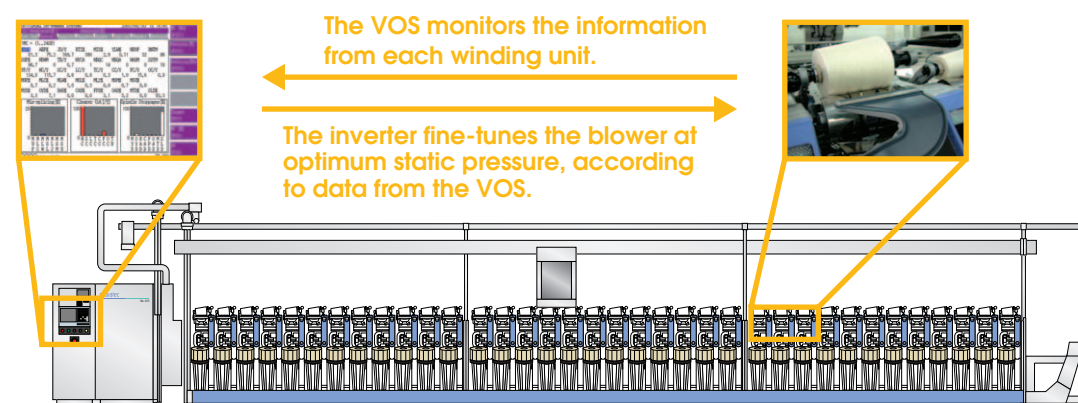
Using inverter control for the blower motor, the greatest source of operating noise, eliminates

excess negative pressure and reduces the level of operating noise.

Inverter-controlled blower system

The No. 21C Process Coner is equipped with the inverter-controlled blower system. According to data from the individual winding unit through VOS, inverter control vacuum pressure up or down. In other words, to increase the success rate of upper yarn end finding, this system eliminates

excess negative pressure and allows operation to continue at negative static pressure, instead for needing to keep a constant pressure. This reduces air consumption to only the essentials, leading to ecological and economical benefits.

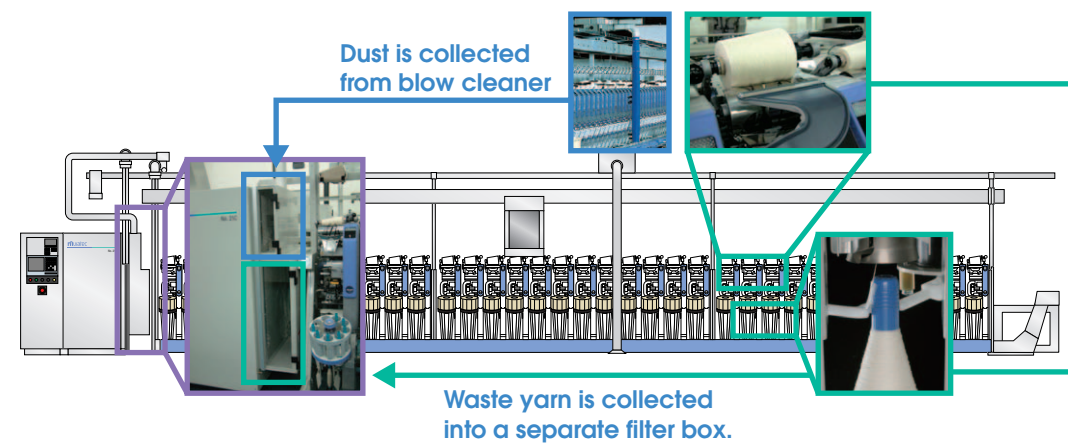


Reducing waste yarn

Separate Chamber Option

For the purpose of separate collection of hard waste and dust, the No. 21C is equipped with the Separate Chamber. Dust which is collected by blow cleaner is fed to upper chamber, and the hard waste which

is collected by suction pipe and the kink preventing system is fed to lower chamber. You can collect and recycle the hard waste yarn.

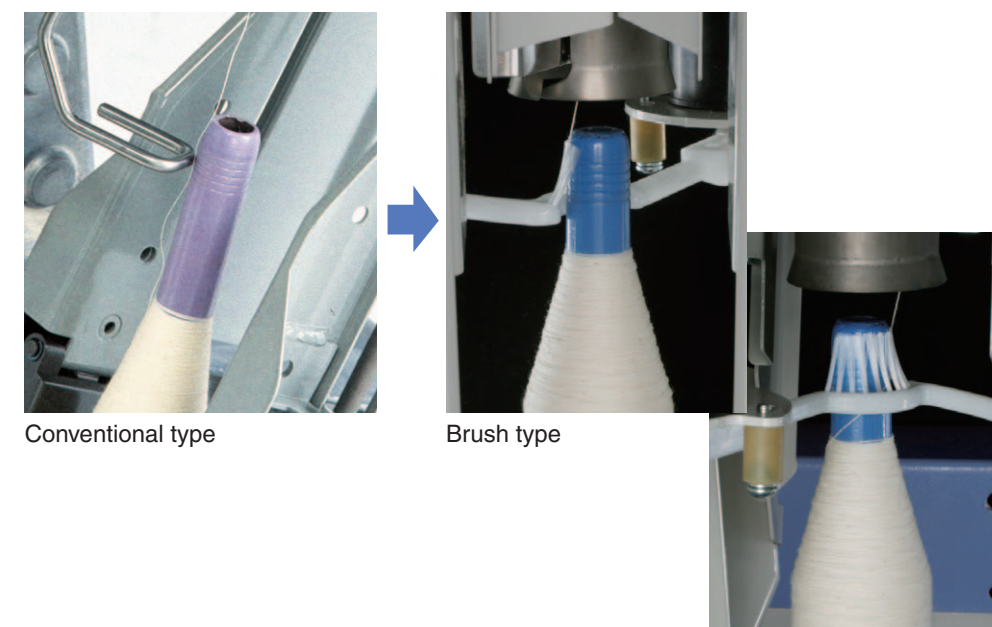


The Kink Preventing system

The Kink Preventing system holds the top of the bobbin securely by brush, thus more efficiently reducing yarn waste caused by yarn splicing.

Preventing system prevents the bobbin-side yarn from being sucked into the re-tie pipe more than required. In addition, by varying the reversing speed of the drum according to the conditions, hard waste from the upper yarn end of packages is reduced.

As for the hard waste reducing function, Kink



Conventional type

Brush type

Automatic Doffer option

The intelligent Automatic Doffer will achieve excellent automation in your spinning-mill



Muratec's latest Automatic Doffer

Muratec, a leading integrated supplier of automated equipment and systems, offers you the state-of-the-art Automatic Doffer, which features intelligent, high-speed traveling, and the Automatic Self-start, effective at lot-change.

The function of our latest Automatic Doffer:

1. Doffs full packages.
2. Places the empty tube to its cradle.
3. Picks up yarn end from supply bobbin.
4. Sets the yarn to the take-up tube.
5. Sets the tail end on the tube (You can set the length of tail end through the VOS).
6. Starts winding.

Intelligent traveling

The Automatic Doffer is constantly aware of its own position and travels directly to the nearest winding unit where a package doff is expected.

Waiting times have been practically reduced with the intelligent traveling of the Automatic Doffer.

High-speed traveling and shortest cycle

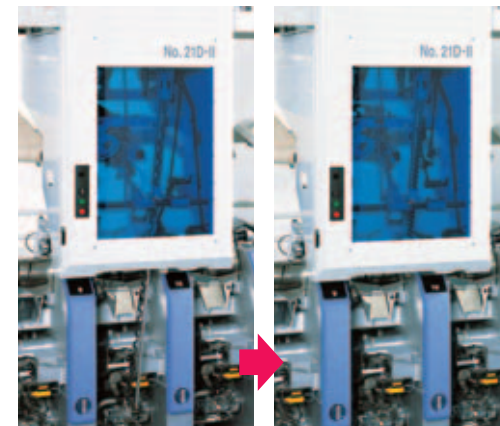
The Automatic Doffer achieves a top traveling speed of 52m/min.

The packages doffed in a 9-second cycle are automatically loaded into either the conveyor or the shelf installed at the rear of the machine.

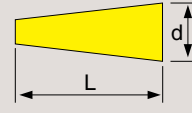
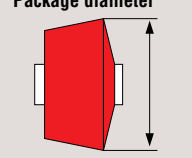
The Automatic Doffer has an auto-adjustable-chucker that allows handling by one machine of different types of winding bobbins (cone, and cheese).

Automatic Self-start

Automatic Self-start is the yarn end picking from the supply bobbin that enables you to start a new lot automatically without troublesome manual setup by operators.



Specifications

| | | |
|---------------------------------------|---|--|
| Doffing Time | 9seconds | |
| Traveling speed of AD carriage | 52m/min | |
| Amount of take-up tube stock | 3°30': 7pieces 3°51': 5pieces 4°20': 6pieces 5°57': 5pieces | |
| Take-up bobbin size |  | Standard specifications: Minimum diameter (d): ø44.5mm Maximum diameter (d): ø88mm Maximum length (L) : 182mm |
| Package diameter |  | *Applicable also to 5°57' (ø88 Jumbo), clip cones, dye tubes, and others in addition to the standard specifications. Maximum : ø300mm Minimum : ø140mm |

Package shutter

In addition when each package is placed on the conveyor, additional packages can be loaded into a buffer space that is separated by a package shutter. This doubles the storage

capacity for doffed packages in use. In a diversified small-lot production, the packages can be removed per batch in each machine section.



Straight Magazine Type

Main Specifications Layouts

Main specifications

Yarn

Cotton, staple fiber, worsted, woolen, synthetic, and blends

Yarn count

Ne3 to Ne142 (Nm5 to Nm240)

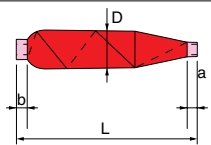
Supply bobbin size:

a ...Min. 10mm

b ...Min. 10mm

D...Max. ϕ 50mm (ϕ 75 mm)

L ...Max. 280mm (360 mm)



Winding shape

0 to 5°57'

Winding traverse

86mm(3"), 108mm(4"), 148mm(5 3/4"), 153mm(6")

Maximum package diameter

ϕ 320mm / 6" cone

Machine orientation

Left-hand or Right-hand

Number of spindles

10-spindle system ...10, 20, 30, 40, 50, 60

12-spindle system ...12, 24, 36, 48, 60

Yarn supply magazine

9-can magazine (6-can magazine)

Yarn joining method: Mach Splicer

Cassette type splicer

Tensor

Gate Tensor

Blower

Individual blower / 15kW (option), 11kW, 7.5kW

Centralized blower (option) / 30kW

Empty bobbin conveyor

Line conveyor

Options:

Wide Line conveyor

Split conveyor

Mule bobbin conveyor

Winding speed

Maximum 2,000m/min

*Depending on the yarn type, supply bobbin and machine specification.

Drum drive

DC servo motor direct drive

Monitoring device

VOS (Visual On-demand System)

Yarn detector

Photo-electric feeler

Drum

Steel drum

Yarn clearer

Capacity or Optical yarn clearer

depending upon your request

Accessory equipment

Bal-Con (Balloon Controller)

Tension Manager

Kink Preventing system (Hard waste reducer)

BQC (Bobbin quality check)

BQC alarm automatic reset

Package brake

Cradle lifter

Preclearer

Ceramic cutter

Energy-saving inverter for blower (individual blower)

Optional equipment

Pac21 winding system

AD (Automatic Doffer)

Package conveyor & Package shutter

Waxing device

3-tier nozzle splicer for wool

High-twisted yarn splicer for wool

CSY splicer

Water splicer-I

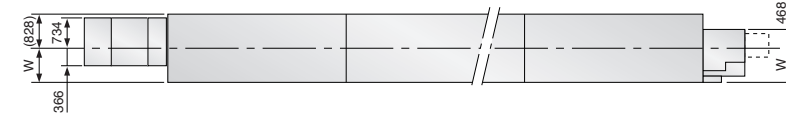
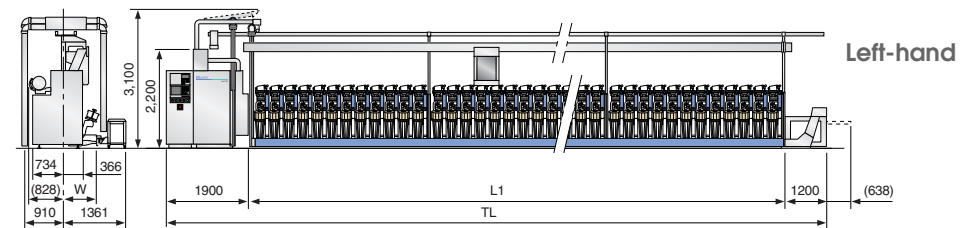
Water splicer-II

Dust collector

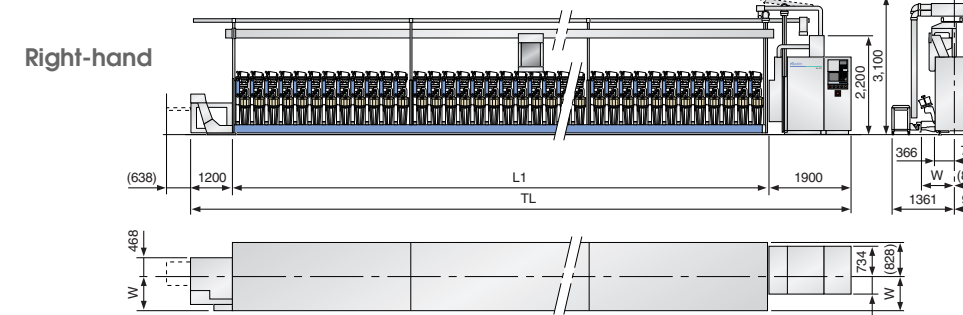
Blow cleaner

Empty bobbin working table

Dimensions of Machine



*(828) is the length with Package conveyor



*(828) is the length with Package conveyor

| No. of Sp. | 10-sp | 12-sp | 20-sp | 24-sp | 30-sp | 36-sp | 40-sp | 48-sp | 50-sp | 60-sp | Bobbin Conveyor | W (mm) |
|------------|-------|-------|-------|--------|--------|--------|--------|--------|--------|--------|--------------------|--------|
| TL (mm) | 6,400 | 7,040 | 9,700 | 10,980 | 13,000 | 14,920 | 16,300 | 18,860 | 19,600 | 22,800 | Line Conveyor | 775 |
| L1 (mm) | 3,300 | 3,940 | 6,600 | 7,880 | 9,900 | 11,820 | 13,200 | 15,760 | 16,500 | 19,700 | Wide Line Conveyor | 865 |

Minimum installation space between the machines (mm)

