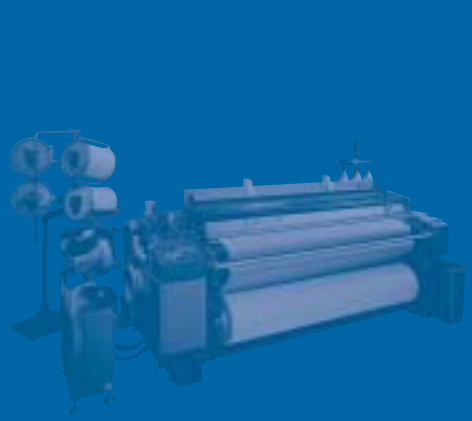
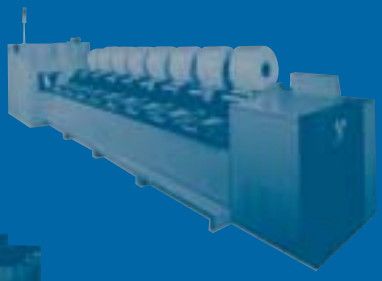
TOYOTA

JAT710





The JAT710—engineered to provide customers highest levels of reliability and satisfaction.

Since its introduction, the JAT610 has become the best-selling air jet loom in the industry, enjoying high acclaim from customers around the world. Now, as the world becomes more and more information-oriented, the needs of the customer are becoming more diverse and complex. With this in mind, Toyota has taken the JAT610 a step further and developed the new JAT710.

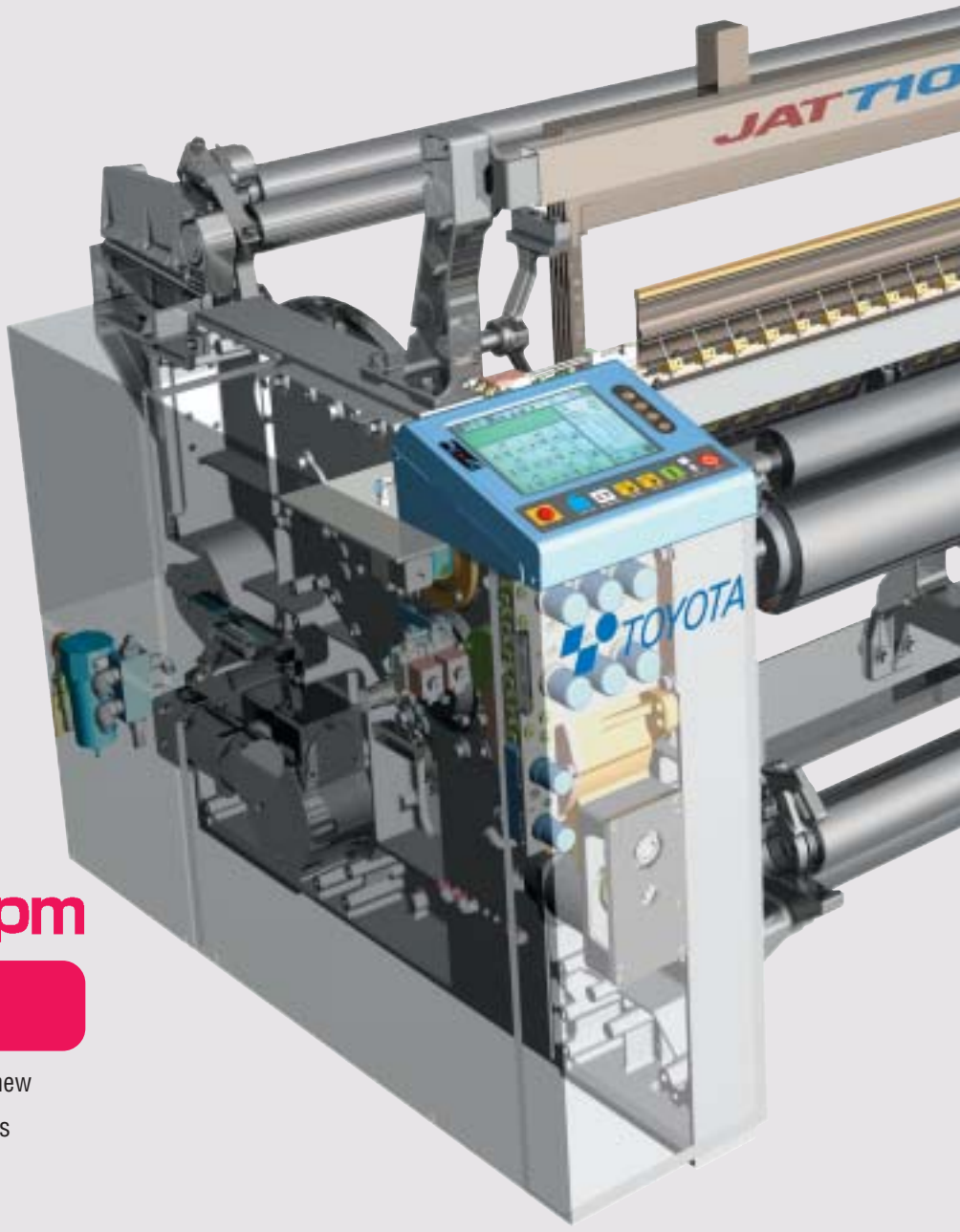
The JAT710 is designed with the same concept as the JAT610: “weaving the highest quality fabric at the lowest possible cost,” and boasts improved features such as higher speed, lower vibration and lower energy consumption. Plus it is equipped with the latest electronics technology such as a new Internet-capable color function panel, taking today’s weaving mill into a new dimension.

With its superb reliability and performance, the JAT710 will offer customers a bright new future in weaving.

Less Air Consumption

20% DOWN

New technology offers even greater savings in air consumption.



MAX 1250 rpm

High Speed

Thanks to a new weft insertion mechanism, a new frame structure and a faster CPU, the JAT710 is capable of running at maximum 1,250 rpm*.

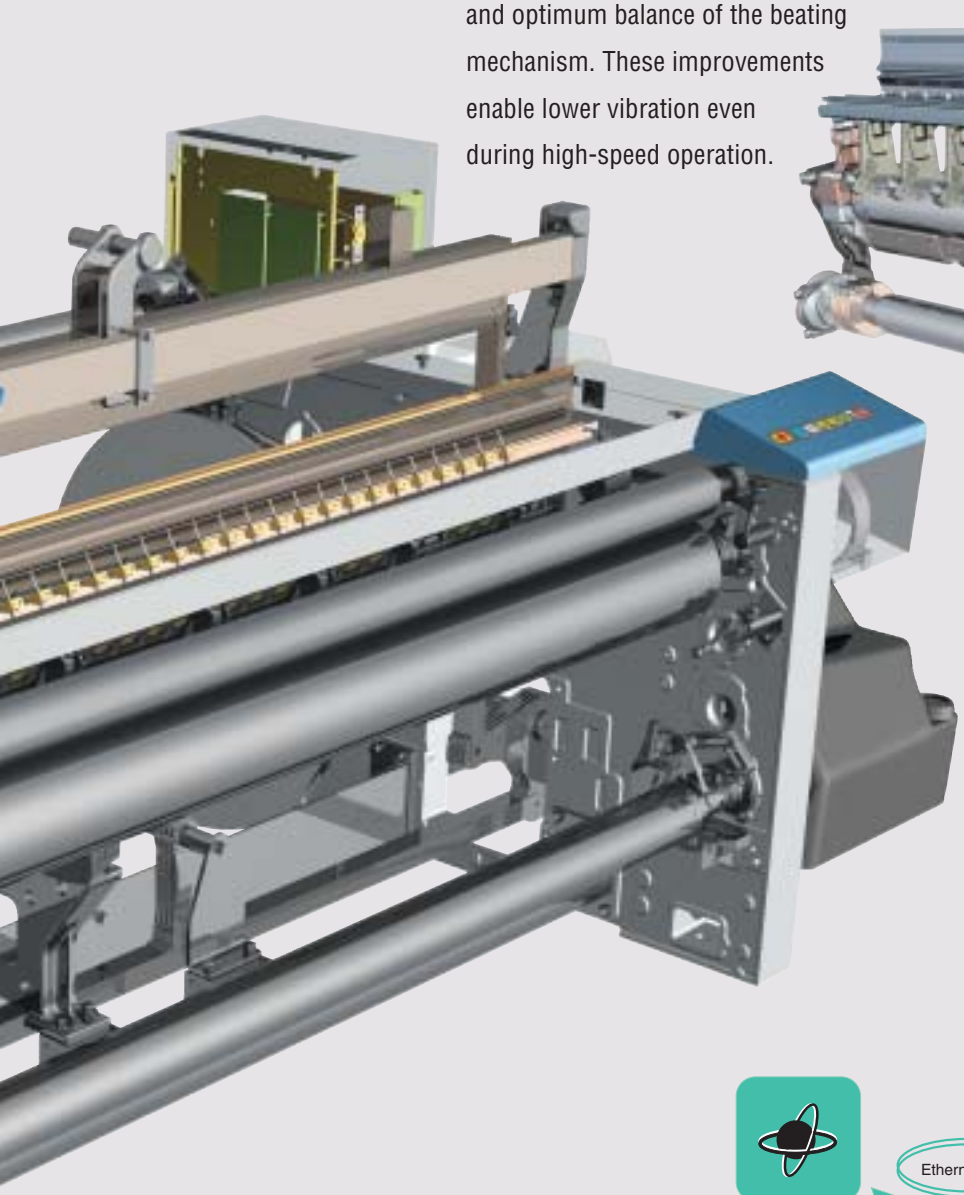
*R/S 190 cm.

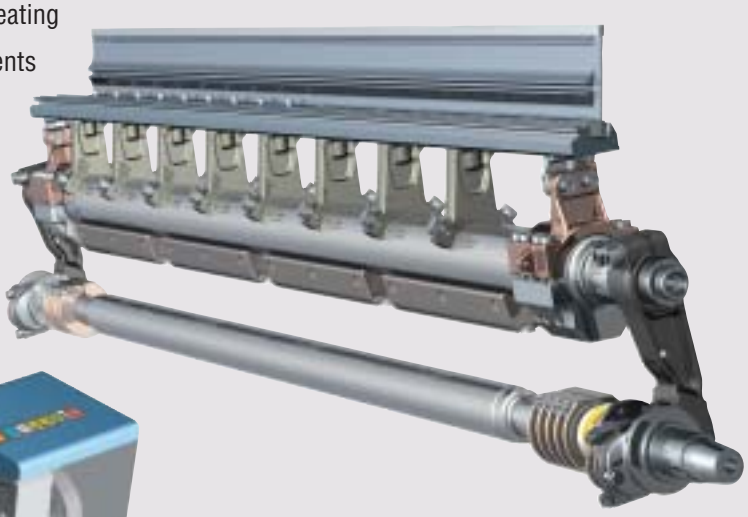
the

Less Vibration

30% DOWN

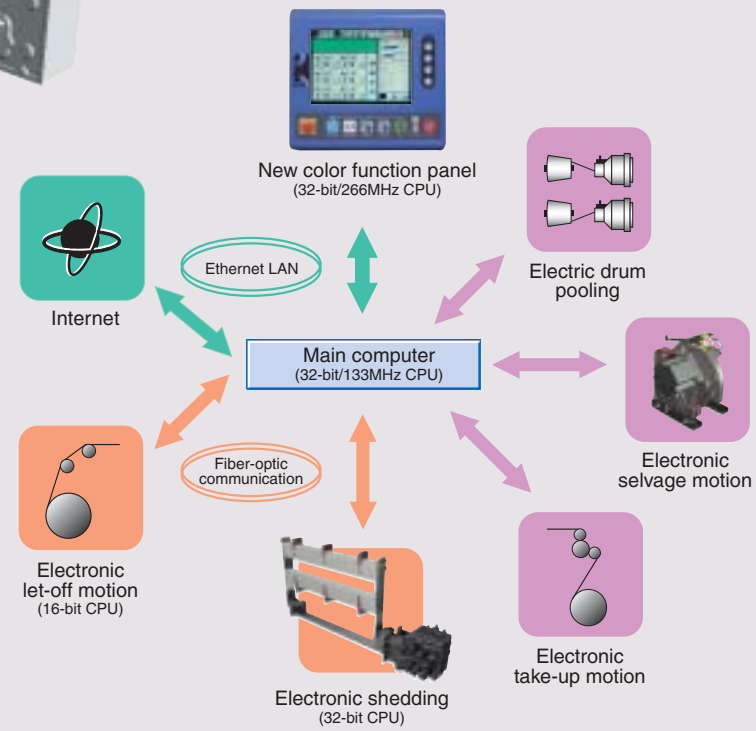
The JAT710 was built using 3D design and computer analysis to optimize the frame structure, including the cross rail connections, and to realize lighter weight and optimum balance of the beating mechanism. These improvements enable lower vibration even during high-speed operation.





Equipped with the Latest Electronics

The JAT710 features the most advanced electronics technology in the industry, including a new Internet-ready color function panel with enhanced communication capability and a new, faster CPU.

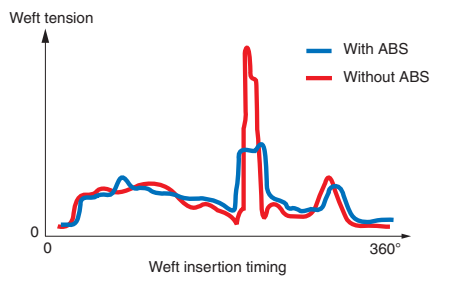


Greater Flexibility

A full range of standard equipment and a variety of options allow the JAT710 to weave fabrics that were previously mostly woven by rapier looms, including ultra-wide home furnishings fabric, stretch fabric, fabric of different yarn types and counts, airbags, seersucker and fabric with tuck-in selvages.

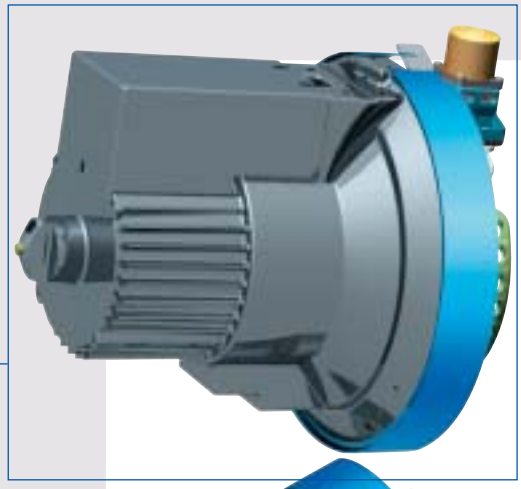
Note: Figures based on Toyota tests.

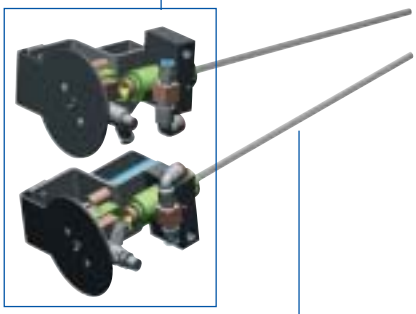
Advanced design using computer strea stable insertion of weft yarns and redu



New ABS OP

The new automatic brake system (ABS) adds a retracting function to the conventional brake function. Using the function panel, the operator can designate braking strength according to yarn type. The timing of the ABS movement is automatically synchronized to weft yarn travel, effectively preventing weft yarn breaks, while reducing energy consumption. The ability to use air for threading weft yarn further enhances ease of operation.





Electric Drum Pooling

New High-Speed Solenoid Pin

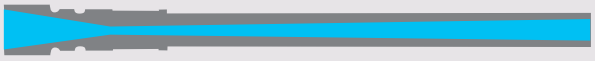
The new pin is highly reliable even during high-speed operation and also allows one wrap release for enhanced operation.

Electric Drum Pooling with Speed Control

The rotational ratio of each electric drum can be set independently to minimize the changes in rotation, effectively preventing weft yarn breaks. When used with the optional electric drum pooling with weft separation, stable weft insertion can be achieved even when weaving multi-colored fabric with complex patterns.

Conical Tandem Nozzles

An internally tapered nozzle enables low-pressure weft insertion at high speeds.



mline analysis provides ced air consumption

Automatic Pick Controllers

New AFC OP

This device enables stable weft insertion by automatically synchronizing air injection of the conical tandem nozzle with the arrival of the weft yarn, changing the weft yarn releasing tension from the EDP drum.

New ATC

This device automatically synchronizes the movements of the solenoid pins, ABS and solenoid valves with the arrival of the weft yarn. A newly added real-time operation mode instantly adjusts for any changes in the travel of weft yarn.

APC OP

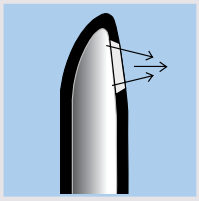
The APC automatically sets the timing of weft yarn arrival and pressure based on information entered through the function panel, such as fabric type and loom speed. It also controls weft insertion pressure according to the travel status of the weft yarn during loom operation.

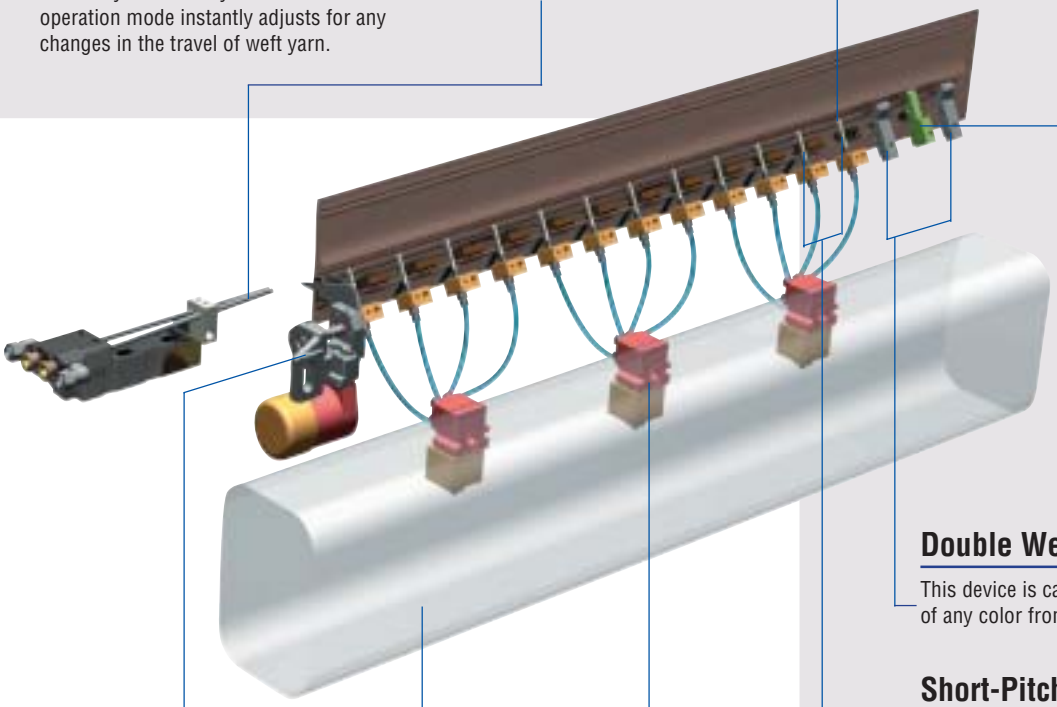
Main Nozzle

An air gripper, ideal for highly elastic yarns such as stretch yarn, is also available as an option.

Tapered Sub Nozzle

The sub nozzle has a tapered opening to prevent air dispersion, thus enabling stable weft insertion with less air.





Stretch Nozzle

This device stretches the weft yarn at the right selvage edge to reduce the air volume required by the sub nozzles. It is also effective in preventing slack filling that can occur when weaving filament yarns.

Double Weft Detector

This device is capable of handling yarns of any color from white to black.

Short-Pitch Sub Nozzles

A short 60 mm pitch for the sub nozzles ensures stable weft yarn travel even at low speeds.

Sub Tanks

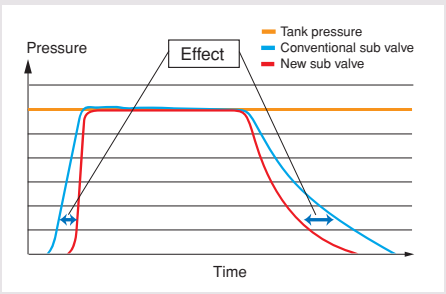
For efficient airflow, the sub valve is connected directly to the sub tank.

Solenoid Cutter OP

Adjustments in timing can now be made from the function panel.

New Solenoid Valve

Toyota has successfully developed a high-performance solenoid valve with a smaller size and quicker response, which eliminates waste in air consumption and can support short-pitch sub nozzles.



WEFT INSERTION

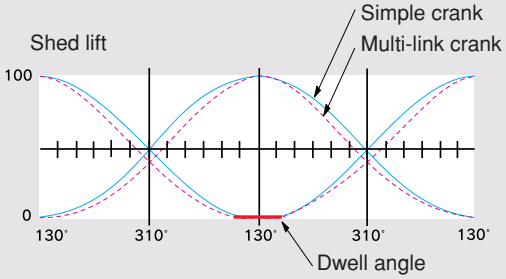
Toyota's original cam shedding and cra operation, while electronic shedding pr

Negative Cam Shedding

The cam curves of the JAT710 have been optimized through computer analysis.

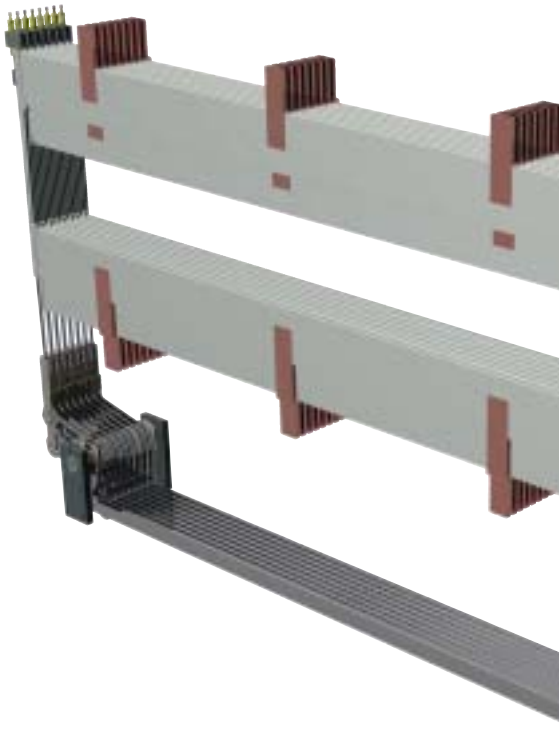
Crank Shedding

The JAT710 provides simple crank shedding with no dwell angle and multi-link crank shedding with dwell angle, ideal for weaving high-density spun fabrics.



Electronic Shedding (max. 16 shedding frames)

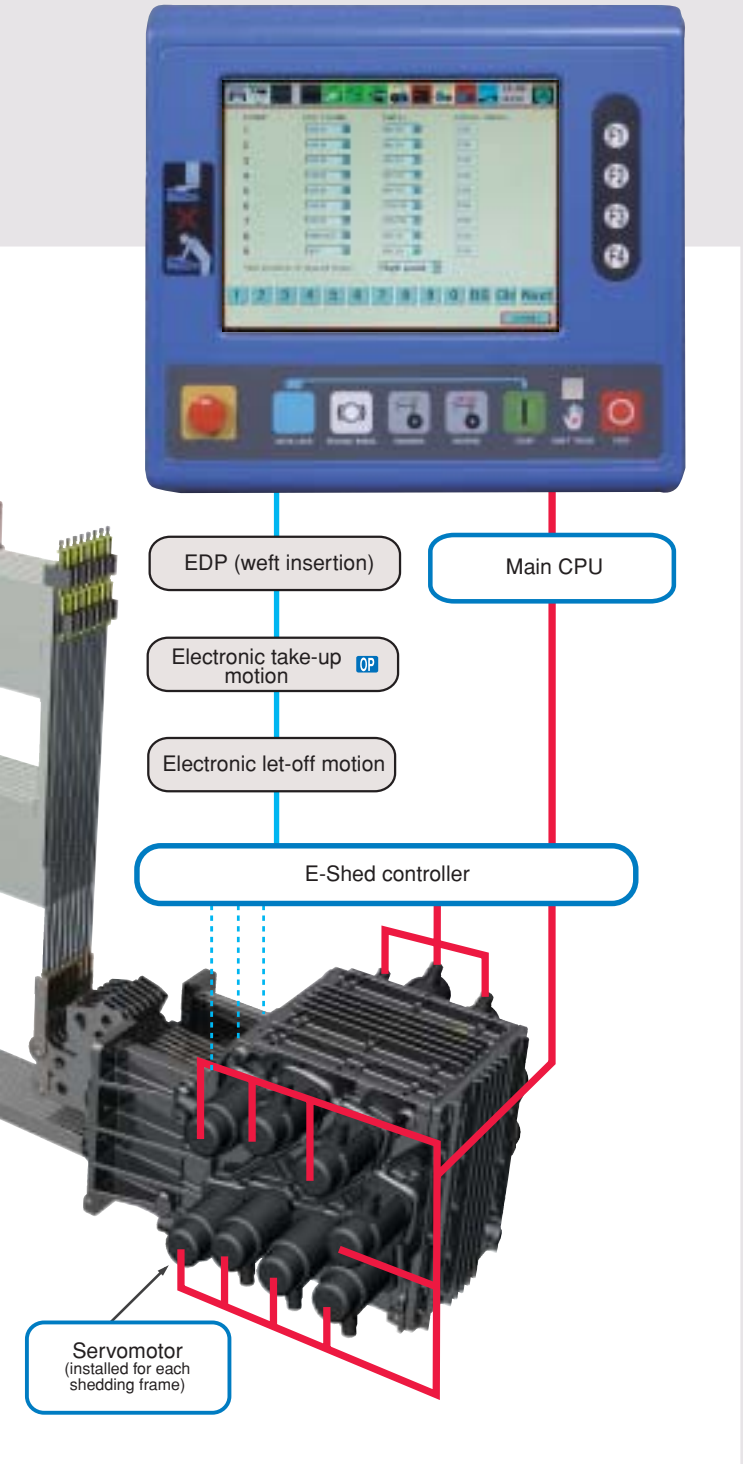
Independent servomotors drive individual shedding frames. The operator can set shedding patterns as well as dwell angle and cross-timing for each frame from the function panel.



Five Advantages of Electronic Shedding

1. Free pattern setting from function panel
2. Vertically variable dwell angle can be set for each heald frame
3. Variable cross-timing for each shedding frame
4. No limit to difference in number of upper/lower frames, even when using 16 shedding frames
5. Pick finding with shedding motion only

nk shedding deliver stable high-speed ovides further flexibility and operability

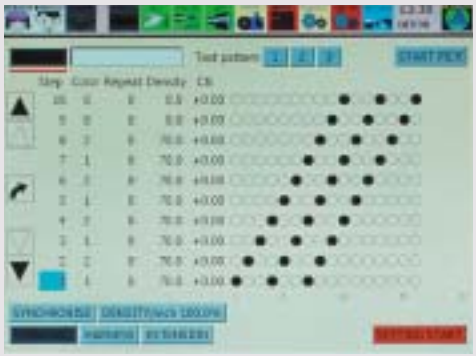


Positive Cam Shedding

Positive cam shedding is ideal for handling wide fabrics and extra-heavy fabrics.

Electronic Dobby Shedding

Warp and weft dobby pattern colors can be set separately via the function panel (standard). Settings can be edited and stored on a computer (option).



Electronic Jacquard Shedding

This feature enables weaving of high value added fabrics such as towels and home furnishings fabrics.

SHEDDING

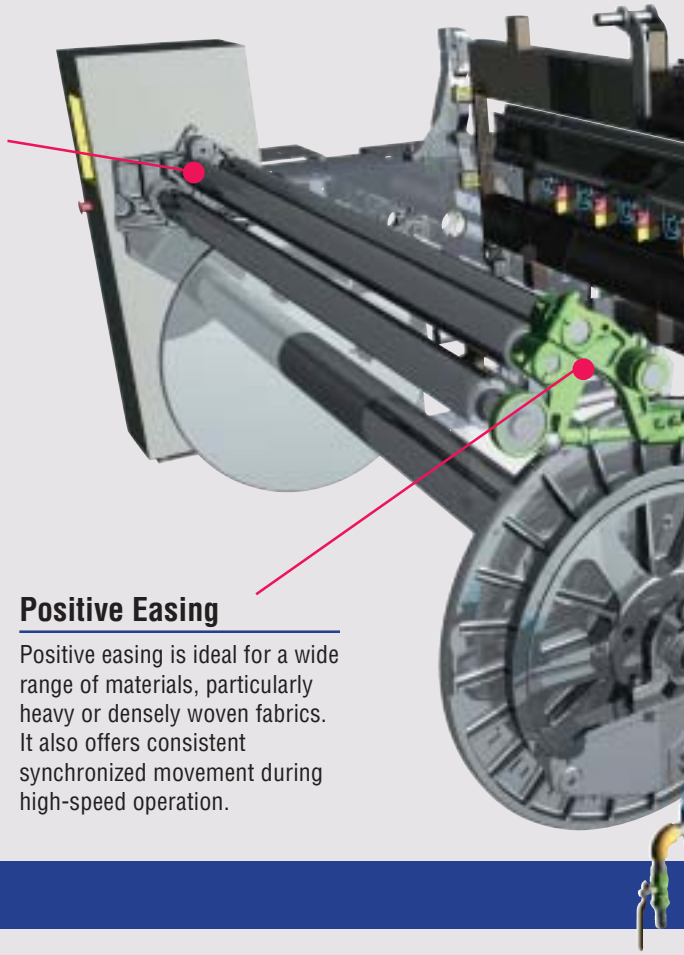
Electronic let-off and stop-mark prevention system ensure high fabric

Double Back Rollers

Double back rollers detect and maintain the correct warp tension regardless of the size of the beam diameter.

Negative Easing

Negative easing is provided for weaving lightweight fabrics using filament yarn and glass fiber.

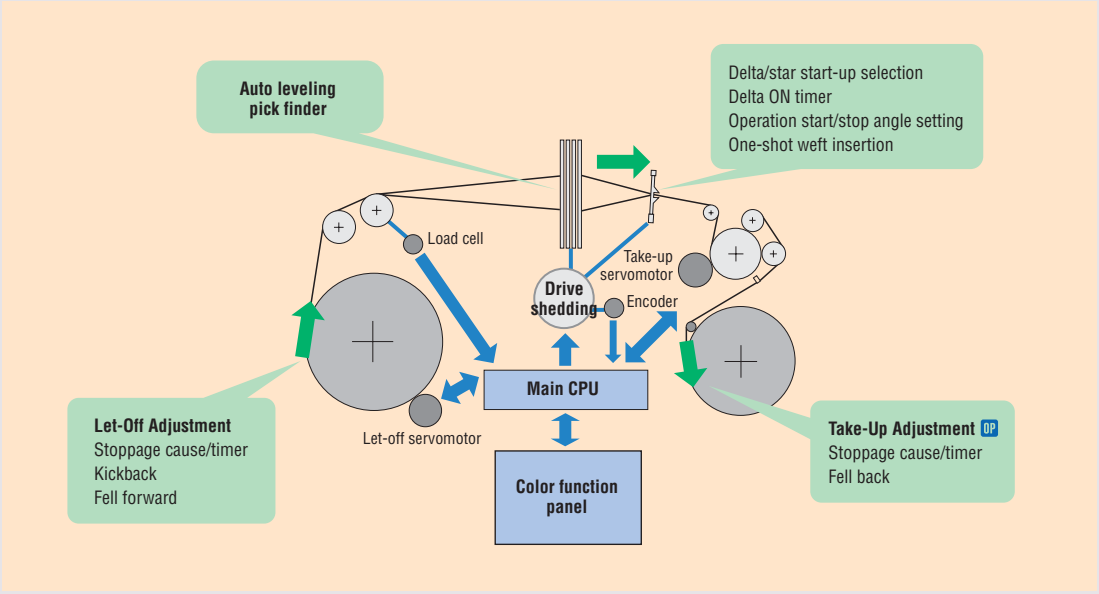


Positive Easing

Positive easing is ideal for a wide range of materials, particularly heavy or densely woven fabrics. It also offers consistent synchronized movement during high-speed operation.

Total Stop-Mark Prevention System

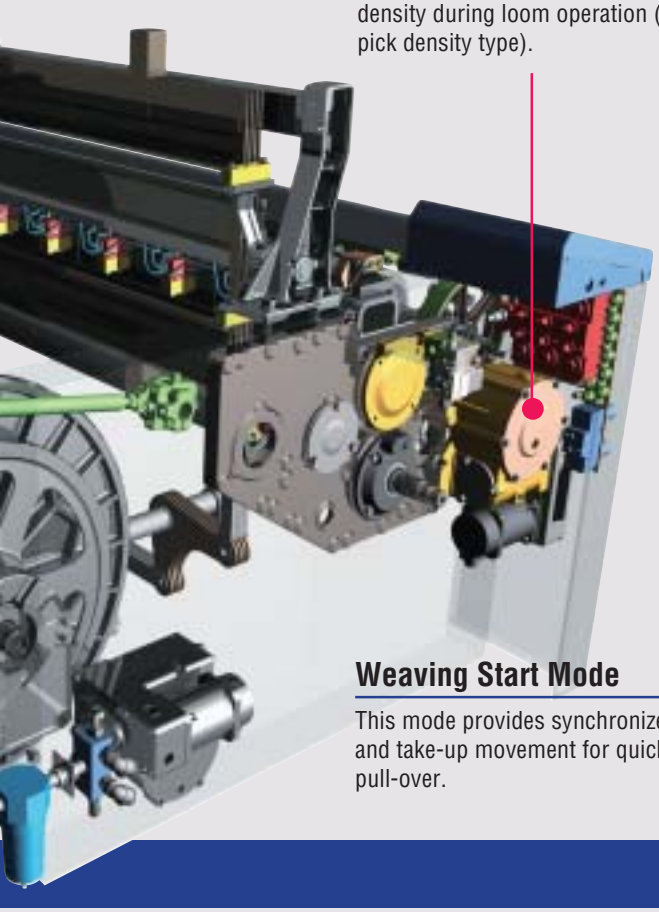
The JAT710's powerful CPU controls various devices, including let-off and take-up mechanisms, effectively preventing stop-marks.



quality

Electronic Take-Up OP

Weft density settings can be entered from the function panel (single pick density type). This system can also change weft density during loom operation (multiple pick density type).

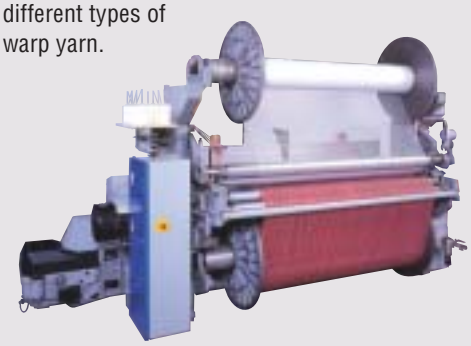


Weaving Start Mode

This mode provides synchronized let-off and take-up movement for quicker warp pull-over.

Double Beam OP

Individual servomotors for the upper and lower beams are provided for weaving fabrics with different types of warp yarn.



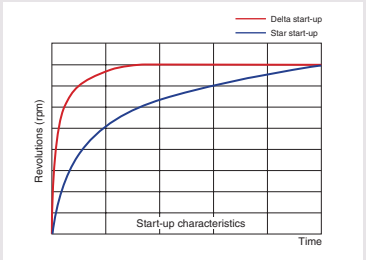
Twin Beam OP

The JAT710 is equipped with individual servomotors for the right and left beams, assuring uniform weaving quality for wide fabrics.

LET-OFF ■ TAKE-UP

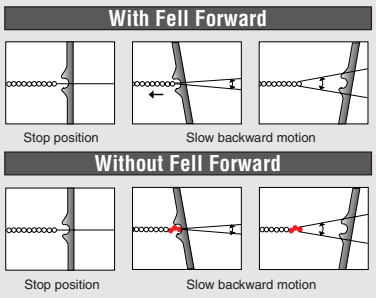
Selectable Main Motor Start-Up Method

The JAT710's super-fast start-up motor ensures full beating power from the first pick. Either a delta or star configuration can be selected for motor start-up, offering different start-up torques to prevent heavy- or light-filling bar defects.



Fell Forward

Releasing warp yarn let-off tension immediately after the loom halts prevents the cloth fell from touching the reed, thus eliminating another cause of stop marks. After the loom restarts, the preset tension is automatically restored, and beating resumes at the normal cloth fell position.



Selectable Machine Stop/Start Angle

The operator can prevent stop marks by setting any arbitrary start/stop angle desired according to the type of fabric.

Let-Off Adjustment

The operator can arbitrarily set the amount of let-off permitted in response to stoppages or machine downtime, thus reliably preventing stop marks.

One-Shot Weft Insertion

This feature inserts a single pick without beat-up when restarting the loom. This is particularly effective in preventing stop marks when weaving heavy twill fabrics.

OP Option

New 2-language color function panel equipp expands the capability of today's textile mill

Upgrading to the latest software is easy via memory cards or network connections.

Fixer Mode (maintenance)

Menu screen

ICS (automatic initial condition setting) screen

IFC (intelligent filling controller) screen

Timing checker

Parts exchange/oiling cycle notification

Special status display

Memory function
Three sets of settings can be stored on the function panel.

Troubleshooting

Weaver Mod

Manual operation

Memory Card Device

Loom settings can be stored on a memory card and transferred to a PC.

ed with web browser
s

FUNCTION PANEL

e (operation)

Information screen

Manager Mode (production control)

Weekly efficiency graph and warp out/ cloth doff forecast

24-hour operation graph

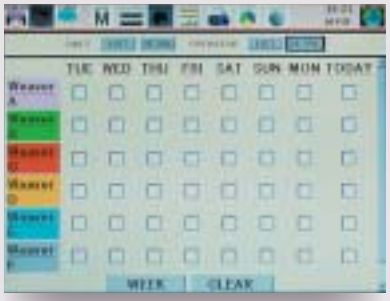
Stoppage cause display

Shift data

Doffing/warp out log

Counter monitor

Stoppage location display
Indicates the location of loom stoppage in the form of cloth length. Convenient for making cloth roll inspections.

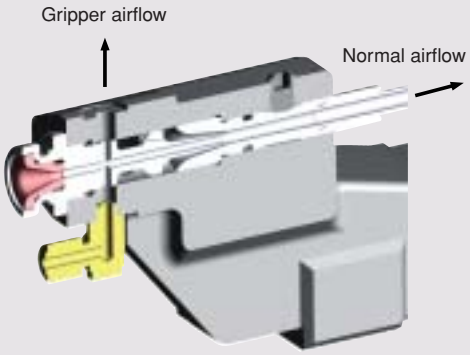


Weaver's monitor
Records and analyzes the operations and output of each weaver.

Capable of handling various types of weft yarn, the JAT710 allows weaving of high value added fabrics

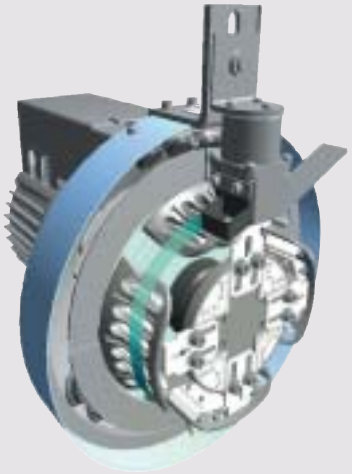
Air Gripper System (AGS) OP

This system eliminates dropped picks of stretch yarn, while preventing damage to covered yarns.



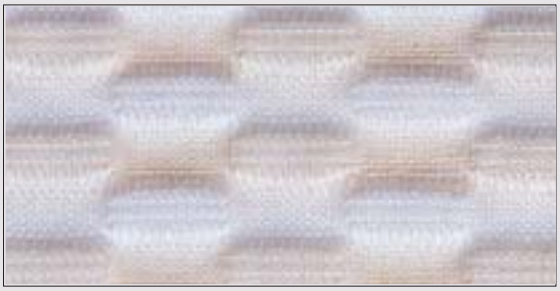
Electric Drum Pooling with Weft Separation OP

This device prevents tangling defects during unwinding fluffy weft yarns, such as woolens and blends, and in multi-colored fabrics with complex patterns.

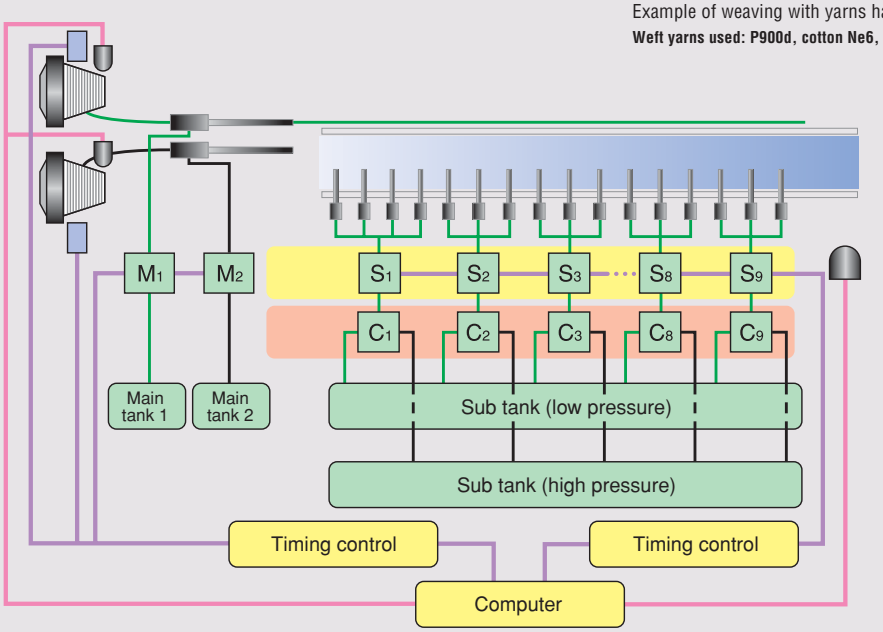


Weft Insertion Device for Yarns of Different Types and Counts OP

Main nozzle pressure can be set independently for each pick according to the weft insertion pattern. Plus, the sub nozzle's pressure can be switched between high and low pressure for each pick, allowing the operator to set the pressure according to the type of yarn. This new improvement enables the JAT710 to weave fabrics that were previously only possible with rapier looms. (Handles a maximum of 12-times difference in weft yarn count.)



Example of weaving with yarns having a 12-times difference in yarn count
Weft yarns used: P900d, cotton Ne6, cotton Ne60, P75d



Advanced automation means better labor efficiency for your mill

Electronic Selvage Motion (ESM) OP

Independent left and right servomotors allow the operator to freely set cross angles. In addition to easier yarn break repair and weaving width adjustment, an oil-bath system for the drive gears increases the reliability of loom parts during high-speed operation.

Fully Automated Centralized Lubrication OP

By designating a lubrication interval via the function panel, the required amount of lubricant is automatically supplied. A record of prior lubrications is also available on the function panel for verification. This feature reduces the amount of manual periodic lubrication.

Speed Control Inverter OP

Speed changes can be entered directly through the function panel.

Toyota Automatic Pick Operator (TAPO) OP

- If a mispick occurs, this feature automatically removes the mispick and restarts the loom (equipped with measuring roller).
- A variable-speed motor makes it possible to adjust the speed of mispick removal.

OPTIONS

OP Option

Weaving variations expand fabric possibi
a diverse range of customer needs

Towels

Terry Motion

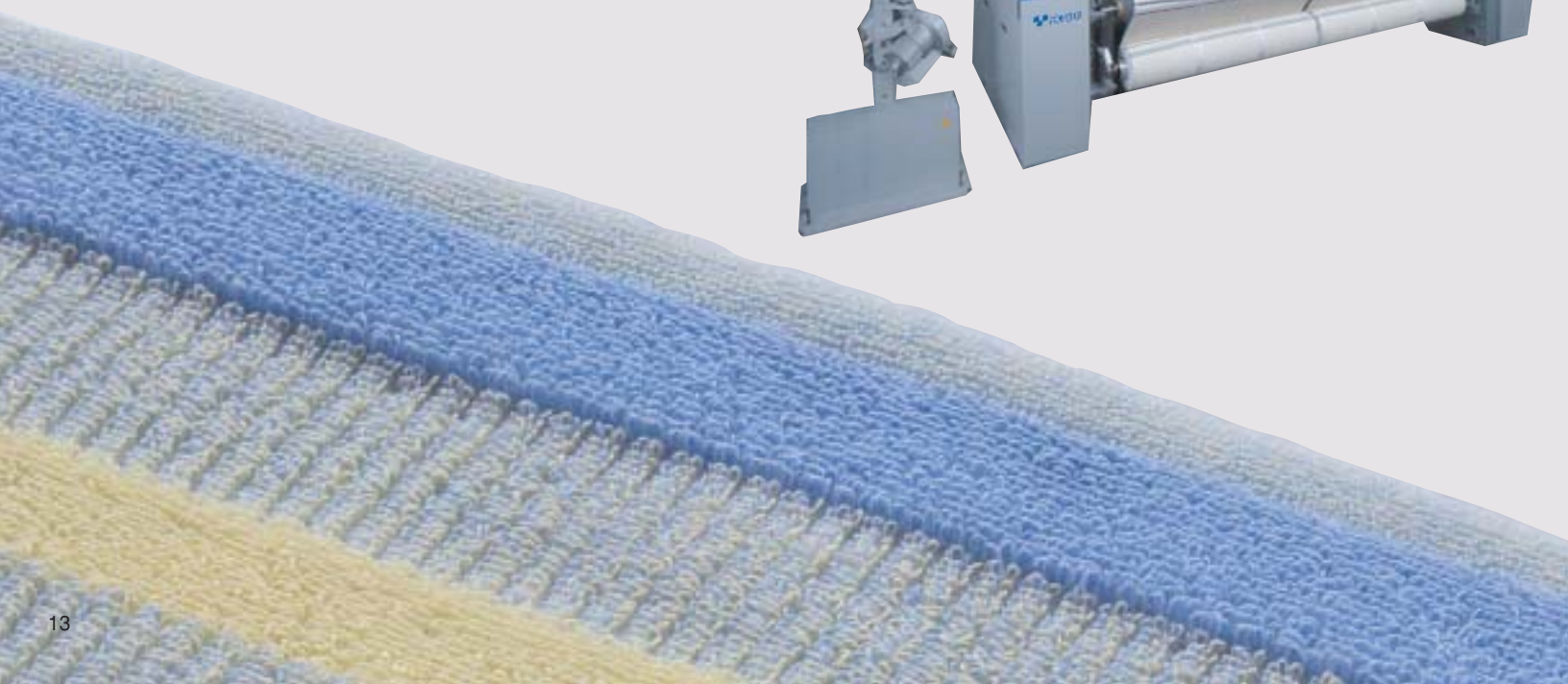
The JAT710 incorporates a fabric transport system that synchronizes temple and fell plate movement with terry motion. This eliminates fabric abrasions resulting from cloth movement.

Torsion Bar Back (Grand)

A low-inertia torsion bar system improves let-off mechanism tracking characteristics, making high-speed operation possible.

Electronic Pile System OP

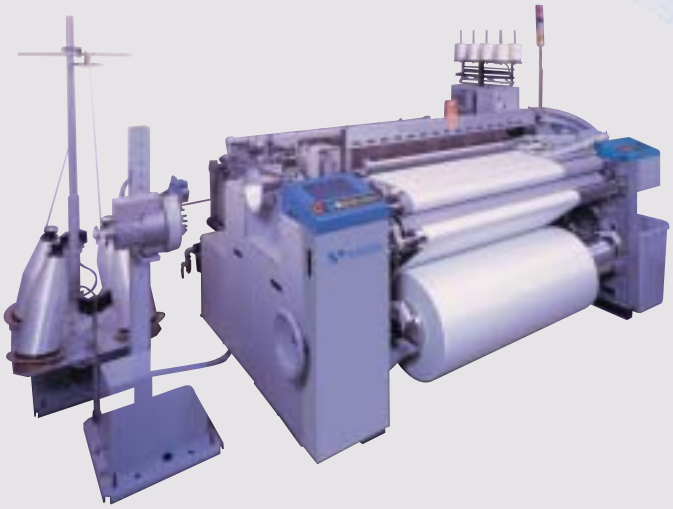
- Pile length is easily specified by entering the information via the function panel.
- Relative and absolute pile lengths can be continuously varied by the servomotor drive system.
- Switching among 3 to 7 pick piles can be specified as desired.



Glass

Toyota Automatic Pick Operator (TAPO-E) OP

This is a special TAPO developed for the automatic processing of stronger weft yarns such as glass, filament, etc.

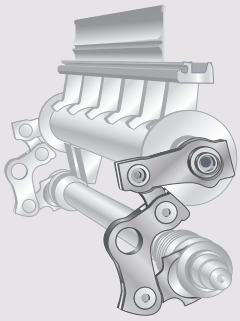


Automatic Bobbin Change (ABC) OP

ABC automatically removes yarn tailings during weft yarn package changes and helps make a smooth transition to the next full bobbin. This eliminates the time and effort spent on exchanging empty packages.

Wide Machines

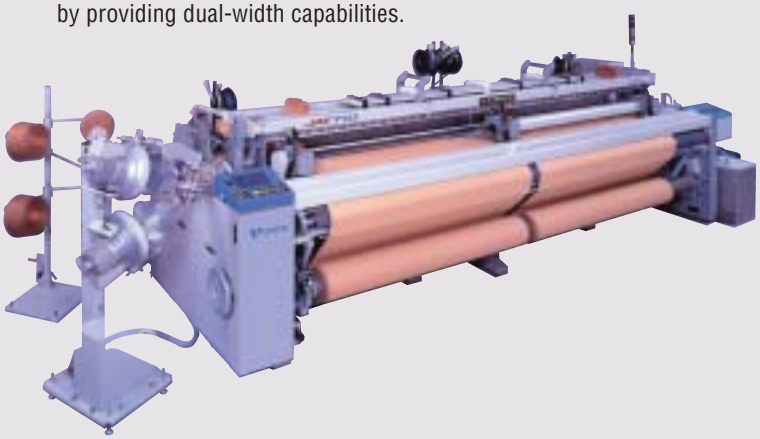
Multi-Link Beating



By ensuring ample weft insertion time, the JAT710 delivers consistent, high-speed weft insertion.

Tuck-In Selvage Device OP

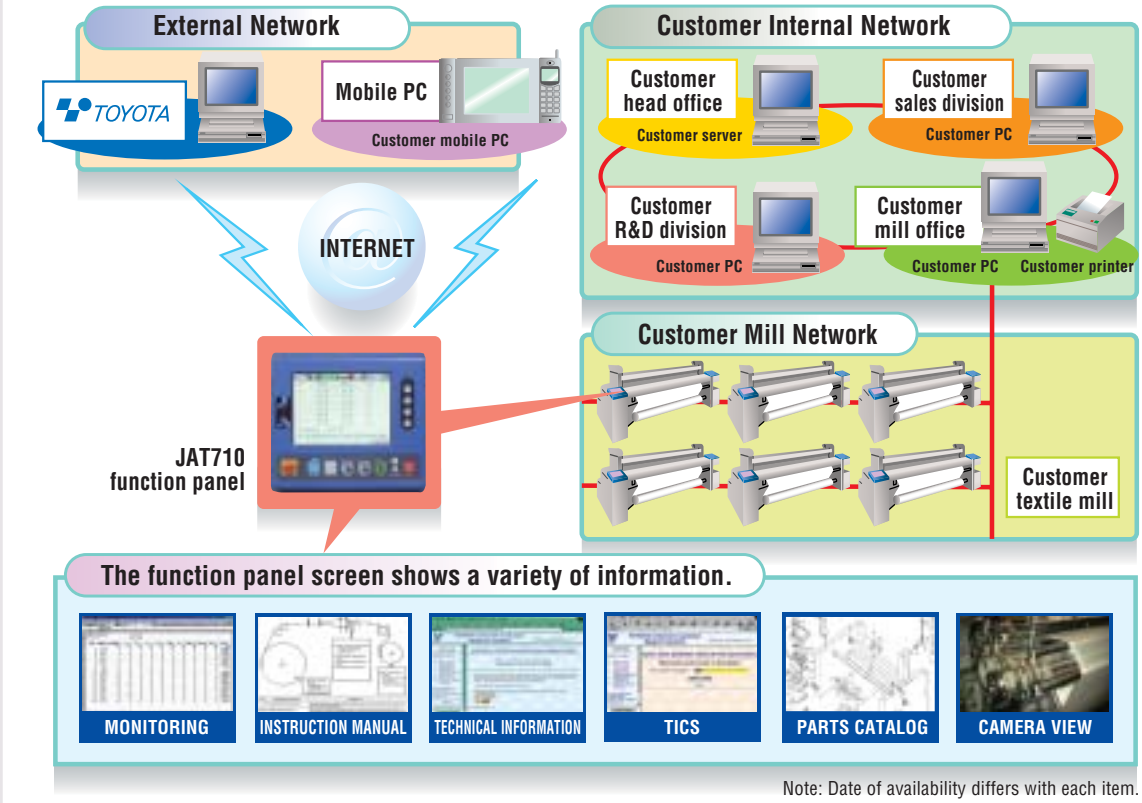
Tuck-in selvages can be formed on both right and left sides, as well as in the center. In addition to boosting the added value of fabrics, this feature improves productivity by providing dual-width capabilities.



VARIATIONS

The JAT710's powerful CPU and new web color function panel enable next-generat

IT Functions



Note: Date of availability differs with each item.

An operator can use the JAT710's function panel to exchange information with people both inside and outside the company and with the Toyota Head Office.

TMS (Toyota Monitoring System)

- By using Toyota's original monitoring software, the operator can easily obtain various information such as shift reports, simply by connecting multiple looms.
- The operator can view the loom function panel directly from the office PC and check various machine conditions such as loom settings.
- Data can be exchanged between looms without using memory cards.

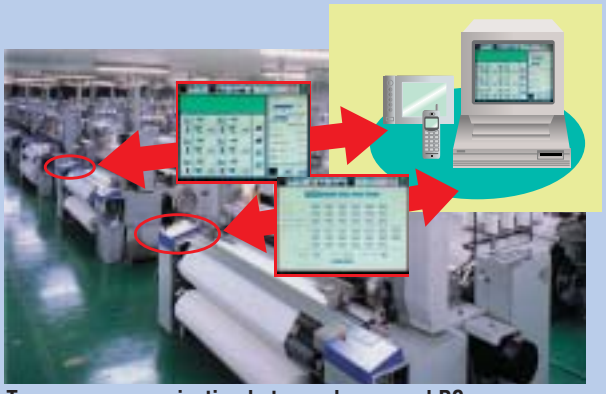
TMS contributes to raising the efficiency of the entire mill.

-browser-equipped ion factory management

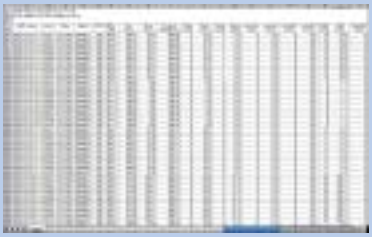
IT FUNCTION

Utilizing TMS

Two-way communication between looms

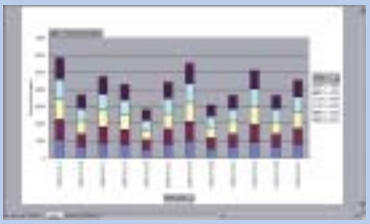


Two-way communication between looms and PCs



Shift report

Stop analysis graph



Production graph

Internet-TTCS

The latest Internet technology and electronics take the weaving mill into the world of the Internet to create an information management system never before possible. Through this system, operators can instantly check the production status of their mill from anywhere in the world. This advanced system enables total production management including monitoring machines, obtaining maintenance records and keeping track of the entire weaving process.

- Remote operation via the Internet
- Direct input/output from the loom
- Management functions (maintenance control, quality control)
- 2-way communication
- Standard PCs using common browser software can be used for access
- Applies not only to weaving but also to upstream and downstream processes

SERVICE NETWORK

Offering unparalleled customer support through a total service organization

Toyota offers a full range of services, from proposals on plant installation layout to machinery installation and after-sales service by Toyota's supervisors. The Toyota Textile Machinery Training Center also trains engineers from around the world and provides a variety of training courses ranging from how to use the machines to brushing up management skills.

Global Service Network

With a number of service centers located around the world, Toyota is able to quickly respond to the needs of local customers.

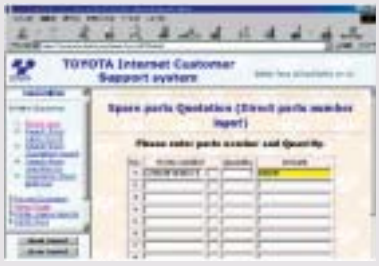
Global Service Centers

1. Korea
2. China (Shanghai, Shaoxing, Wujiang)
3. Taiwan
4. Thailand
5. Indonesia
6. India
7. Pakistan
8. Turkey
9. Europe (Italy, France, Germany)
10. United States
11. Brazil

TICS

The Toyota Internet Customer Support system (TICS)* connects Toyota and its textile machinery users through the Internet to provide information such as parts inventory and price, enabling our customers to get the information they need when they need it.

Function 1: Search part number

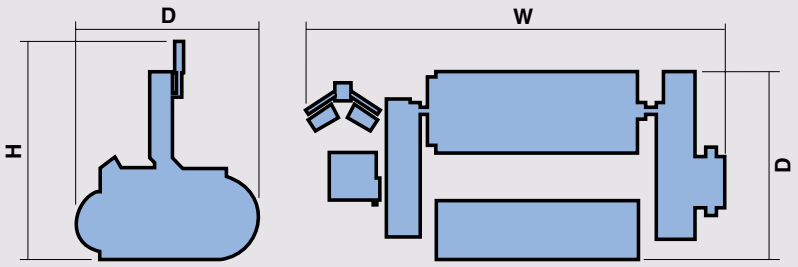


Function 2: Price estimate

Function 3: Order status inquiry

* Date of TICS availability differs from region to region.

JAT710 Dimensions



(unit: mm)

		Negative Cam	Positive Cam	Crank	Upper Dobby	Positive Dobby
Machine Width (W)	1/2-Color Weft Insertion	R/S+2,245	R/S+2,536	R/S+2,222	R/S+2,222	R/S+2,665
	4-Color Weft Insertion	R/S+2,395	R/S+2,686	R/S+2,372	R/S+2,372	R/S+2,815
	6-Color Weft Insertion	R/S+3,205	R/S+3,496	R/S+3,182	R/S+3,182	R/S+3,625
Depth (D)		1,845	1,845	1,805	1,845	1,845
Height (H)		2,036	1,712	1,712	2,291	1,712

Notes:
1) Dimensions shown in the table at left apply to the case of a model with the following specifications.
   1. R/S 150 to 280 cm
   2. Single beam
   3. Yarn beam flange diameter of 800 mm
   4. Maximum take-up roll diameter of 600 mm (520 mm diameter for crank shedding)
   5. With tandem nozzles, no ABS, standard package stand
   6. Floor-mounted dobby: models 2861 and 2871, positive cam: models 1751 and 1761
2) When yarn beam flange diameters are 930 and 1,000 mm, the following specifications apply.
   1. 930 mm diameter: depth: + 112 mm, height: + 130 mm
   2. 1,000 mm diameter: depth: + 207 mm, height: + 200 mm
3) When R/S is greater than 340 cm, add 50 mm to the machine width (W).
4) Machine depth (D) will differ according to the location of the let-off rear parts.
5) Dimensions vary depending on the specifications. Please check the exact dimensions with Toyota.

Main Specifications

Item	Standard Equipment
Drive	Super-fast start-up motor Start, stop, forward/reverse slow motion activated by push-button operation Solenoid-brake stoppage Automatic compensation for fixed-position stops
Beating	Two-sided crank drive with oil bath Multiple short sleysword
Let-Off	Electronic let-off motion Positive easing type, double back rollers (adjustable forward/back position)
Take-Up	Mechanical take-up motion
Weft Insertion	High-propulsion main nozzle, Conical tandem nozzles Tapered sub nozzles, Stretch nozzle New super-responsive solenoid valves Sub tanks with direct connection to valves Auto pick finder Automatic weft insertion device (ATC)
Temple	Upper temple
Stop-Mark Prevention	Selectable main motor start-up Selectable machine stop/start angle Adjustable let-off amount, One-shot weft insertion Fell forward
Selvage	Left/right rotary full-leno selvage device
Waste Selvage	Waste selvage on the right with catch yarn
Stop Motion	Electronic warp stop motion Leno-selvage & waste-selvage break stop motion Reflecting type weft detector (double feeler) Four-color LED signal lamp
Lubrication	Oil bath lubrication system for main parts Grease lubrication
Main Control	New interactive touch-screen color function panel 32-bit CPU & function panel Fiber-optic & Ethernet LAN communication network
Function Panel Features	24-hour & weekly efficiency graphs Warp out/cloth doff forecast, Timing checker Automatic initial condition setting (ICS) Intelligent filling controller (IFC) Troubleshooting, Stoppage cause display Weaver's monitor
Others	Centralized regulator Power outage stop function Emergency alarm function

Item	Variations
Nominal Reed Space (R/S)	140 cm 150 cm 170 cm 190 cm 210 cm 230 cm 250 cm 280 cm 340 cm 360 cm 390 cm
Let-Off	Negative easing type, double back roller (adjustable up/down position)
Yarn Beam Flange Diameter	800 mm 930 mm 1,000 mm
Temple	Lower temple
Shedding	Negative cam shedding (maximum of 8 heald frames) Positive cam shedding (maximum of 10 heald frames) Crank shedding (maximum of 6 heald frames) Dobby shedding (maximum of 16 heald frames) Electronic shedding (maximum of 16 heald frames) Jacquard shedding
Weft Insertion	Single electric drum 2-, 4-, 6-color exchange electric drum
Sub Nozzle	Shower nozzle
Stop Motion	Penetrating type weft detector (double feeler)

Notes:
1) For further details and information concerning other combinations of options and variations, please contact Toyota or your Toyota representative.
2) Drawings, data, and photograph which appear in this catalog are subject to change without prior notice.

Main Options

- New Automatic Weft Brake System (ABS)
- New Automatic Pick Controller (AFC or APC)
- Weft Insertion Device for Yarns of Different Types and Counts
- Air Gripper System (AGS)
- Balloon Cover
- Electric Drum Pooling with Weft Separation
- Twin Beam
- Double Beam
- Electronic Take-Up (single pick density or multiple pick density type)
- Constant Tension Take-Up
- Electronic Selvage Motion (ESM)
- 4-Thread Half-Leno Selvage Device
- Tuck-In Selvage Device (left/right and center)
- Center Selvage Device
- Warp Breakage Area Indicator (with 6 or 12 divisions)
- Toyota Automatic Pick Operator (TAPO)
- Speed Control Inverter (SC Inverter)
- Fully Automatic Centralized Lubricator
- Toyota Total Computer System (Internet-TTCS)
- Toyota Monitoring System (TMS)

Introducing Toyota's Products

We at Toyota Industries Corporation do business in a wide variety of fields, ranging from textile machinery, which make products that are familiar to us in everyday life, to cutting-edge IT-related products—through which we strive to meet customer needs.

Compact Car

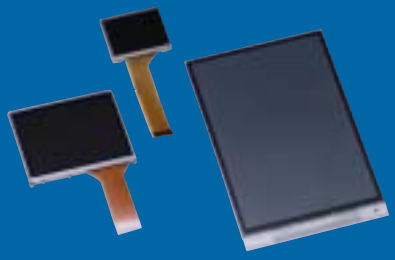
Car Air-Conditioning Compressor

Diesel Engine

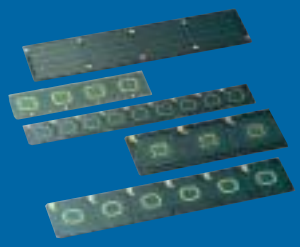
Reach Truck

Electric Counterbalanced Forklift Truck

Automated Storage and Retrieval System



LCD



Plastic Package Substrate

Wireless Modem

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