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.

**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.
Less Vibration

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.

30% Down

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 streamlining of weft yarns and reduction of energy consumption.

**New ABS**

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

New AFC
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.

Automatic Pick Controllers

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.

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.

Sub Tanks
For efficient airflow, the sub valve is connected directly to the sub tank.
Toyota’s original cam shedding and crank operation, while electronic shedding provides:

**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 operation 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 dobbay 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.
Electronic let-off and stop-mark prevention system ensure high fabric quality

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

Electronic Take-Up
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).

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

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

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.

Selective 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.
New 2-language color function panel equipment 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**
- **Parts exchange/oiling cycle notification**
- **Memory function**
  Three sets of settings can be stored on the function panel.
- **Troubleshooting**

Weaver Mode

- **Manual operation**
- **Special status display**

Memory Card Device

Loom settings can be stored on a memory card and transferred to a PC.
**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**
- **Stoppage location display**
  Indicates the location of loom stoppage in the form of cloth length. Convenient for making cloth roll inspections.
- **Counter monitor**
- **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)**
This system eliminates dropped picks of stretch yarn, while preventing damage to covered yarns.

**Electric Drum Pooling with Weft Separation**
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**
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)
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.

### Speed Control Inverter
Speed changes can be entered directly through the function panel.

### Toyota Automatic Pick Operator (TAPO)
- 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.

### Fully Automated Centralized Lubrication
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.
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.

Electronic Pile System
• 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.

Torsion Bar Back (Grand)
A low-inertia torsion bar system improves let-off
mechanism tracking characteristics, making high-speed
operation possible.
VARIATIONS

Wide Machines

**Multi-Link Beating**

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

**Tuck-In Selvage Device**

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.

**Toyota Automatic Pick Operator (TAPO-E)**

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

**Automatic Bobbin Change (ABC)**

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.

**Glass**
The JAT710’s powerful CPU and new web color function panel enable next-generation mobile PC applications.

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.

TMS (Toyota Monitoring System)

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.
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
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.

* Date of TICS availability differs from region to region.
JAT710 Dimensions

Main Specifications

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

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 Options

1. New Automatic Wt Brake System (ABS)  
2. Electronic Selvage Motion (ESM)  
3. New Automatic Pick Controller (AF or APC)  
4. 4-Thread Half-Leno Selvage Device  
5. Wt Insertion Device for Yarns of Different Types and Counts  
6. Tuck-In Selvage Device  
7. Center Selvage Device  
8. Warp Breakage Area Indicator (with 6 or 12 divisions)  
9. Toyota Automatic Pick Operator (TAPO)  
10. Speed Control Inverter (SC Inverter)  
11. Fully Automatic Centralized Lubricator  
12. Toyota Total Computer System (Internet-TTCS)  
13. Toyota Monitoring System (TMS)

1) Dimensions shown in the table at left apply to the case of a model with the following specifications:
2) Drawings, data, and photograph which appear in this catalog are subject to change without prior notice.
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.

<table>
<thead>
<tr>
<th>Item</th>
<th>Variations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal Reed</td>
<td>140 cm</td>
</tr>
<tr>
<td>Space (R/S)</td>
<td>150 cm</td>
</tr>
<tr>
<td></td>
<td>170 cm</td>
</tr>
<tr>
<td></td>
<td>180 cm</td>
</tr>
<tr>
<td></td>
<td>210 cm</td>
</tr>
<tr>
<td></td>
<td>230 cm</td>
</tr>
<tr>
<td></td>
<td>250 cm</td>
</tr>
<tr>
<td></td>
<td>280 cm</td>
</tr>
<tr>
<td></td>
<td>300 cm</td>
</tr>
<tr>
<td></td>
<td>340 cm</td>
</tr>
<tr>
<td></td>
<td>360 cm</td>
</tr>
<tr>
<td></td>
<td>390 cm</td>
</tr>
<tr>
<td>Yarn Beam Flange Diameter</td>
<td>800 mm</td>
</tr>
<tr>
<td></td>
<td>930 mm</td>
</tr>
<tr>
<td></td>
<td>1,000 mm</td>
</tr>
<tr>
<td>Temple</td>
<td>Lower temple</td>
</tr>
<tr>
<td>Shedding</td>
<td>Negative cam shedding (maximum of 8 heald frames)</td>
</tr>
<tr>
<td></td>
<td>Positive cam shedding (maximum of 16 heald frames)</td>
</tr>
<tr>
<td></td>
<td>Crank shedding (maximum of 6 heald frames)</td>
</tr>
<tr>
<td></td>
<td>Dobby shedding (maximum of 16 heald frames)</td>
</tr>
<tr>
<td></td>
<td>Electronic shedding (maximum of 16 heald frames)</td>
</tr>
<tr>
<td></td>
<td>Jacquard shedding</td>
</tr>
<tr>
<td>Weft Insertion</td>
<td>Single electric drum</td>
</tr>
<tr>
<td></td>
<td>2-, 4-, 6-color exchange electric drum</td>
</tr>
<tr>
<td>Sub Nozzle</td>
<td>Shower nozzle</td>
</tr>
<tr>
<td>Stop Motion</td>
<td>Penetrating type weft detector (doublefeeler)</td>
</tr>
</tbody>
</table>

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.
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

Textile Machinery Division
2-1, Toyoda-cho, Kariya-shi, Aichi 448-8671, Japan
URL: http://www.toyota-industries.com/textile/
Sales Department
Tel: 81-566-27-5320  Fax: 81-566-27-5301
Service Department
Tel: 81-566-27-5325  Fax: 81-566-27-5681