ZW8100 Professional

WATER JET LOOM

TSUDAKOMA
Tradition and technology create a new legend. The “ZW8100 Water Jet Loom” for the next generation

Smart Ecology
Ecology and Economy in Harmony
Tsudakoma’s water jet loom “ZW series” has a sales record of more than 140,000 sets and has enjoyed an excellent reputation as the global standard water jet loom.

The new model “ZW8100” is developed for the next generation by applying Tsudakoma’s long-cultivated know-how about water-jet weaving.

While focusing on higher speed, best quality, wider versatility and higher operability as well as effective environmental measures, it is upgraded completely from its frames to the mechanism.

Higher productivity
Tsudakoma pursues ultra-high speed operation and designed the “ZW8100” optimally from its frame structure, beating and shedding, and increased its weft insertion performance with the pitch-shortened nozzle. This increases the ZW8100’s operation speed by 10% compared with existing models.

Best quality
The robust frame structure, reinforcement of the let-off motion, and shortening the cloth passage at loom front allow higher pick density. High speed while keeping the best fabric quality is attained at high levels. Furthermore, the PSS-W Programmable Start System is developed to efficiently reduce stop marks.

Higher operability
The “ZW8100” employs the “Weave Navigation® System” for better operability. Almost all electric adjustments can be done via the Navi-board. Its warp line height is 40-mm lower than the existing model for easy access. Furthermore, it automatically conducts pick finding after recovering from a loom stoppage and restarts, demonstrating outstanding operability.

Wider versatility
The “ZW8100” supports a wider range of fabrics: from extra-fine to thick yarns, from narrow to wide widths, and unbalanced construction such as double weave. To achieve this versatility, the “ZW8100” uses a combination of an electronic dobby machine, pitch-shortened nozzle, a twin pump, and 4-color weft selection. A short cloth route at loom front allows a higher density fabric to be woven steadily.

Environmental measures
Tsudakoma always positively works on environmental issues. The “ZW8100” requires 5% less electric power compared with the existing model thanks to redesigning the mechanism for weft insertion, shedding, and beating. In addition, its robust frame structure and the optimized beating mechanism reduce vibration by 25% compared with the existing model. We deliver energy saving and environmental measures.
Higher Productivity and Best Quality achieved at High Levels

Robust frame structure

The front top stay, the bottom stay and the back top stay are strengthened for stable operation at high speed. The transverse rail is employed for special fabrics such as air bag and double weave, controlling vibration efficiently.

Short stroke beating

By shortening the beating stroke and making the position of the 1st heald frame closer to the cloth fell compared with the existing model, high speed operation is attained while maintaining fabric quality. For 3-color or more weft selections, a 6-link beating motion is used.

Low warp line

A 40-mm lower warp line compared with the existing model extensively enhances workability such as warp repair, contributing to a reduction in vibration.

Offset rocking shaft

For the standard specifications with a reed space of 190 cm or less, a pipe-type offset rocking shaft is provided. Vibration is reduced compared with the existing models for better operation.

Offset rocking shaft (Intermediate supporter type)

The weight is reduced by separating the main shaft section and the balancing section of the rocking shaft, achieving high-speed and balanced beating.
Electric weft pull-back device

For some fabrics, the weft tip that protrudes from the nozzle is pulled back to give it a good posture in order to prevent the weft yarns from being entangled. This stabilizes weft insertion.

Pitch-shortened nozzle

The pitch between the nozzles is shortened. This decreases the difference between the weft inserting conditions of the two nozzles. The time for weft insertion is increased, achieving stable weft insertion at high speed operation.

OPF feeder for extra-fine yarn

With a special feeder and amplifier, weft detection is enhanced. It is possible to detect bright yarn of 33-dtex or less and monofilament which were difficult to detect with the existing feeder.

WBS Weft Brake System

The WBS effectively reduces peak tension at the end of weft insertion and makes the crimping effect of high-twist yarn fabric even. It also prevents tight or loose pick of textured fabrics.

With the double stabilizer, convergence of jet water flow is enhanced.

FDP-AIIIW Free Drum Pooling device

With an advancing mechanism that is excellent at high-speed and positively separates yarns, even a thick yarn is easily stored and released. It supports various types of weft. It is possible to adjust the diameter of the FDP drum with a simple operation.

Twin pump

Layout is redesigned. Special shaft for cam driving is attached, achieving high speed operation. Stable high-speed operation for value-added fabrics that use weft yarns of different characteristics is achieved.

RDP Rotary Drum Pooling device

As the maximum tension given to the weft is relatively low, quality fabric weaving is assured even at higher speeds with the single nozzle use. In addition to regular yarn fabrics, those value-added fabrics such as twisted, tassel, nep, or loop yarn are easily woven. With the inverter control, airflow amount is controlled properly for energy saving.

SDP Stationary Drum Pooling device

The SDP does not require a storage blower. Great energy saving is expected. The tension given to the weft is small, so the difference in measuring pick length is minimized.

OP stands for optional device.
“ELO” (Electronic Let-Off) and “ETU” (Electronic Take-Up) achieve Best Quality at High Levels.

Higher pick density  
Shortening the cloth passage allows stable weaving of higher density fabrics.

Inclined cloth passage  
By inclining the cloth passage from the cloth fell, the stable operation to produce even unbalanced fabric construction such as double weave is achieved without causing vertical movement at the cloth fell. It is possible to use with the reed protection.

Optimum Shedding Supports a Wider Range of Fabrics.

- **Crank shedding**  Up to eight shafts are supported.
- **Positive cam shedding**
- **Positive or negative dobbay shedding**
- **ECS Exclusive positive Cam Shedding for plain weave**

The Tsudakoma’s positive cam shedding uses less power because no cables or wire guides are provided. Maintenance is easy. The ECS is suitable for high density fabrics, such as airbag.
PSS-W Programmable Start System for ZW

In addition to the cloth fell control just before re-start (kickback), the PSS-W compensates for speeds immediately after re-start to reduce stop marks after the cloth fell, by the linked operation of the ELO and the ETU. The warp tension that was changed during loom stoppage is also compensated. The PSS-W controls speed changes of the ELO immediately after re-start. It has two setting modes, “Standard” and “Details.” The “Standard” mode is a simple setting mode for stop mark prevention for general fabrics. The “Details” mode allows detailed adjustments for stop mark prevention for fabrics which are difficult to weave.

Rush-start motor

The rush-start motor provides an ultra-high torque start and effectively prevents stop marks and first pick looseness. Large capacity electromagnetic brakes directly connected to the crankshaft accurately stop the loom at the programmed position.

Catch cord spindle with perpendicular arrangement

Catch cord vibration is eliminated and catching failure is reduced.

Positive easing

Change in warp length caused by shedding motion is positively compensated at shedding. It is effective for stable cloth fell and secured beating while maintenance is easily done.
**Ultimate weaving support**

In addition to pursuing high speed and high quality, Tsudakoma holds the concept of the “Weave Navigator” leading to higher user satisfaction by providing our accumulated wealth of weaving expertise.

**Weave Navigation® System**

**Weave Navi®**
The Weave Navigation® monitors loom operation while the loom is in operation. It gives advice to improve the operation in various situations, navigating you to the best weaving possible.

**Self Navigation**
Excellent self-diagnosis and maintenance information allow easy maintenance. Adjustments for the feeder and let-off operation do not need measuring equipment.

**Tune Navigation**
The best setting values are automatically entered for your fabric and loom specifications. Automatic setting for the warp tension is possible. Optimum mechanical settings are recommended for the tension roll height, shedding amount, and shedding timing according to the fabrics to be woven.

**Trace Navigation**
When solving a problem like a stop mark, which needs to adjust multiple setting items, operators need only to adjust one setting to change all the related set values to the optimum based on Tsudakoma’s accumulated weaving experience.

**TLM**
Tsudakoma Loom Monitoring system
Higher operability attains stable quality and high productivity.

APF-W Automatic Pick Finder
Operability
The APF-W automatically rotates the loom in reverse to find a pick when the loom is stopped. With its automatic re-starting operation, the number of times that an operator must operate the buttons is decreased. Thus, the operability is increased. The pick finding position to stop reverse rotation of the loom can be set for two reasons for loom stoppage: filling and other than filling.

AJC-W Automatic Jet Control
Warp tension indication in waveform

Network application
TLM Tsudakoma Loom Monitoring system

The TLM is the LAN system that can easily be installed using the Ethernet through the LAN port, which is provided on the Navi-board. As well as monitoring operation of the looms, bi-directional communication supports loom-to-loom setting data transfer and dobby pattern data transfer. Note: For the functions of the Weave Navi® and browsing the manuals & parts catalog, the TLM is required.

T-Tech Japan's own control technology stably controls the tension from low to high.

The preparation process has a large effect on loom operation.
T-Tech Japan’s products are top-level performers and of the best-quality. They are ready for small lot production and the fast-changing market demands in preparatory machines. They also help improve the quality and operations of the weaving process.
T-Tech Japan has the largest market share in the world in filament sizing machines.

TSE series FILAMENT SIZING MACHINE

Versatility:
Low- and stable tension control in a wide range.

Quality:
Automatic tuning controls the temperature for the hot air chambers for the best drying.

Productivity:
Max. yarn speed: 300, 500 m/min
Size drying according to production amount

Easy operation:
User friendly “Sizing Navigation System.”
Adjustment with the T-MOS.

Energy saving:
Optimized & precise hot air circulation by inverter-controlled blower system.
## Specifications

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Optional</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reed space</td>
<td>Nominal (cm) 170, 180, 190, 210, 230</td>
<td>150</td>
</tr>
<tr>
<td></td>
<td>Useless reed space with maximum reduction of 50 cm</td>
<td>Nominal reed space with maximum reduction of 60 cm/80 cm</td>
</tr>
<tr>
<td>Weft selection</td>
<td>1-color, 2-color at-will</td>
<td></td>
</tr>
<tr>
<td>Driving</td>
<td>Starting method: Driven by a rush-start motor</td>
<td></td>
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<tr>
<td></td>
<td>Motor capacity: 2.2kW, 3.0kW, 3.7kW</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Operation: Stopped by the electromagnetic brake at the programmed position</td>
<td>APF-W Automatic Pick Finder (2 colors or more)</td>
</tr>
<tr>
<td></td>
<td>Push button operation (arrange, run, stop, forward inching, reverse inching,</td>
<td></td>
</tr>
<tr>
<td></td>
<td>programmed position stop after one turn reverse rotation)</td>
<td></td>
</tr>
<tr>
<td>Beating</td>
<td>Crank beating, multiple sword beating system.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Oil bath lubricating system</td>
<td></td>
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<tr>
<td>Weft insertion</td>
<td>Pump system: Plunger-type spring pressure system</td>
<td>Twin pump</td>
</tr>
<tr>
<td></td>
<td>Nozzle: Ring nozzle stabilizer system (Ceramic needle)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Measuring &amp; storage: SDP Stationary Drum Pooling device (1 color)</td>
<td>WBS Weft Brake System Electric weft pull-back device</td>
</tr>
<tr>
<td></td>
<td>RDP Rotary Drum Pooling device (1 color)</td>
<td>AJC-W Auto Jet Control</td>
</tr>
<tr>
<td></td>
<td>FDP-AIII Free Drum Pooling device (2 colors, 3 colors, 4 colors)</td>
<td></td>
</tr>
<tr>
<td>Shedding</td>
<td>Crank type plain shedding: for 4 head frames, for 6 head frames</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cam shedding: Top-mounted positive cam for 10 head frames</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dobby shedding: Top-mounted negative dobbby for 16 head frames,</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Top-mounted positive dobbby for 16 head frames</td>
<td></td>
</tr>
<tr>
<td>Let-off</td>
<td>ELO Electronic Let-Off, PSS-W Programmable Start</td>
<td>Positive easing device</td>
</tr>
<tr>
<td></td>
<td>Maximum tension: 2300N, 4000N, 6000N</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Distance from cloth fall to tension roll: Standard</td>
<td></td>
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<tr>
<td></td>
<td>Flange diameter: 800 mm, 914 mm, 1000 mm</td>
<td></td>
</tr>
<tr>
<td>Take-up</td>
<td>ETU Electronic Take-Up</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cloth wind-up diameter: 520 mm</td>
<td>Off-loom take-up device</td>
</tr>
<tr>
<td></td>
<td>Cloth passage: S-type inclined, S-type, F-type</td>
<td>Inclined with the reed protection</td>
</tr>
<tr>
<td>Weft supply stand</td>
<td>Floor-mounted stand, horizontal type</td>
<td></td>
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<tr>
<td>Selvage formation</td>
<td>Twisting by planetary gear system</td>
<td></td>
</tr>
<tr>
<td>Waste weft removal</td>
<td>Catch cord with spindle twisting system</td>
<td>Independent shedding motion for catch cord</td>
</tr>
<tr>
<td>Cutter</td>
<td>Mechanical cutter</td>
<td></td>
</tr>
<tr>
<td>Temple</td>
<td>Top mounted. 2-barrel type with 2 rings each</td>
<td>Bar temple</td>
</tr>
<tr>
<td>Water suction</td>
<td>Slit tube suction system</td>
<td></td>
</tr>
<tr>
<td>Stop motion</td>
<td>Weft yarn: OPF Feeler</td>
<td>OPF Feeler for extra-fine yarn</td>
</tr>
<tr>
<td></td>
<td>Stop cause indication: Indication by message on Navi-board 4-color multi-function indication lamps</td>
<td></td>
</tr>
<tr>
<td>Weave Navigation System</td>
<td>Navi-board: Automatic data setting, recommended setting indication, optimum weaving condition information, automatic control, troubleshooting, self-diagnosis function, operating data indication, maintenance data indication</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Network application: Weaving advice, operation manual &amp; parts catalog browse, TLM Tsudakoma Loom Monitoring system</td>
<td></td>
</tr>
<tr>
<td>Labor saving</td>
<td>APR-II Automatic defective Pick Remover Speed control inverter</td>
<td></td>
</tr>
</tbody>
</table>

*Note 1: Specifications, drawings, and photos in this brochure are subject to change for improvement without prior notice.
*Note 2: Some photos in this brochure include optional equipment.*
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Dimensions

Unit: mm

<table>
<thead>
<tr>
<th>Reed space</th>
<th>A</th>
<th>B</th>
<th>W (2C FDP-AIIIW)</th>
<th>W (1C SDP, RDP)</th>
</tr>
</thead>
<tbody>
<tr>
<td>170cm</td>
<td>1700</td>
<td>2310</td>
<td>3610</td>
<td>3060</td>
</tr>
<tr>
<td>180cm</td>
<td>1800</td>
<td>2410</td>
<td>3710</td>
<td>3160</td>
</tr>
<tr>
<td>190cm</td>
<td>1900</td>
<td>2510</td>
<td>3810</td>
<td>3260</td>
</tr>
<tr>
<td>210cm</td>
<td>2100</td>
<td>2710</td>
<td>4010</td>
<td>3460</td>
</tr>
<tr>
<td>230cm</td>
<td>2300</td>
<td>2910</td>
<td>4210</td>
<td>3660</td>
</tr>
</tbody>
</table>

| Flange φC  | 800 | 914 | 1000             |
| Diameter   | 520 | 520 | 520              |
| L (standard)| 1810| 1923| 2001             |

Note: Dimensions may differ depending on the specifications. Please contact Tsukakoma for final confirmation.
Since its founding in 1909, Tsudakoma has been a vigorous pioneer in weaving technology.

While achieving higher productivity, improving fabric quality, and saving energy, Tsudakoma has poured its energy into satisfying the demands of multi-colored, wide, and value-added fabrics. As a result, Tsudakoma is the leader in cutting-edge weaving technology.

Tsudakoma, as the Dream Navigator, continues creating excellent textile machinery, opening the door to a new era of weaving.