

ZAX^{MASTER}9200i
AIR JET LOOM

ZAX^{MASTER}9200i AIR JET LOOM

*Balanced high productivity, value-addition,
and energy saving at a high level*

Higher Speed

Outstanding features for ultra high-speed and low vibration

High speed operation is the essential asset of air jet looms. In addition to stable operation at high speeds, faster than TSUDAKOMA's conventional model, the ZAX9200i has low vibration and saves electricity.

Soft weft insertion at high speed

Proven benefit based on actual operation. A 4-link beating motion that works excellently at ultra-high speed is used for narrow looms. A 6-link beating motion with more time allowance for weft insertion is used for wider looms, thus achieving more stable weft insertion.



Smart E

Energy Conservation

i-Weave

With the "i-Weave," provided as standard for the ZAX9200i, high-speed performance is accompanied with energy saving by optimizing the three basics of weft insertion for air jet looms: nozzle, valve, and control technology. With a variety of optional devices, higher-grade performance is available.

The "i-Weave" is the fruit of weft insertion technology backed by Tsudakoma's 45-year accumulated air jet knowledge and our sales success.

Quality Fabric

i-Start

The best start method for a fabric, the best compensation for the warp tension according to stop marks, and the ELO & the ETU control can be selected.

Fell control under various setting conditions is possible. High quality fabric is assured by easy operation of the graphic interface.

The "ZAX9200i MASTER" upgrades the high-speed ability of Tsudakoma's best-selling air jet loom the "ZAX9100 Professional."

The ZAX9200i saves resources, energy, and manpower. It is an advanced air jet loom that is worthy of the name "MASTER." Newly upgraded electric components strongly support the "ZAX9200i MASTER."

Ultimate weaving support!

Ultimate weaving support! "Weave Navigation® System-II"

The world's first weaving support system that Tsudakoma developed is upgraded to the "Weave Navigation® System-II." The "Weave Navigation® System-II" employs a 15-inch display - the largest in the weaving machine field. It reduces the hierarchy levels of the menu and the number of button operations is also reduced for user-friendliness. Multi-windows are supported. They allow real-time adjustments while observing the result. Due to the optimum weaving conditions, high quality fabrics are produced while saving energy at a high level.



Technology

Wider Versatility

Expanding the world of air jet weaving

The ZAX9200i can run with various shedding motions. With its robust let-off and take-up, it can weave high-density and high-tension fabrics. The ZAX9200i can also weave a maximum of 8 colors while achieving stable operation and quality improvement for fabrics using thick yarns due to its twin auxiliary main nozzles. With a wealth of optional devices such as the EPL Electronic Planetary Leno motion, it is flexible and produces advanced quality fabrics. The ZAX9200i can weave a wider range of fabrics.

Harmony with the Environment

Aiming for eco-friendly looms

In addition to low vibration and energy saving, Tsudakoma aims to harmonize with the environment. We continue investigating noise and vibration reductions, and promote practical applications. The new smart air grid function combined with an air compressor can reduce the energy costs for the whole weaving mill beyond a single loom.

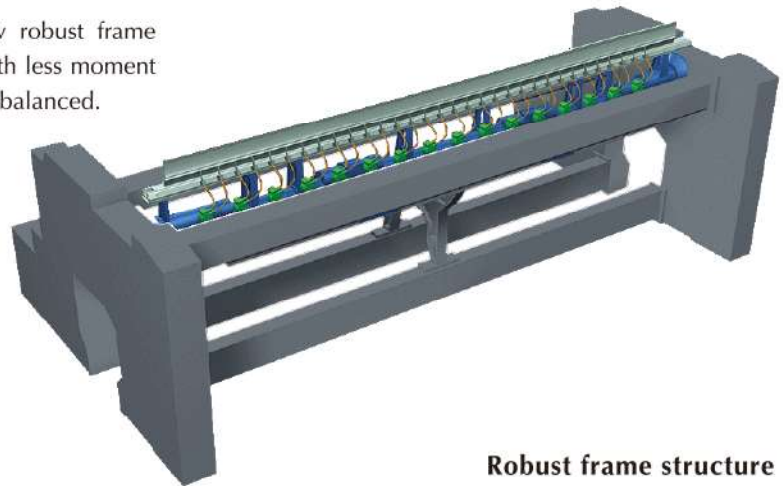
Outstanding features for ultra high-speed and low vibration

High speed operation is the essential asset of air jet looms.

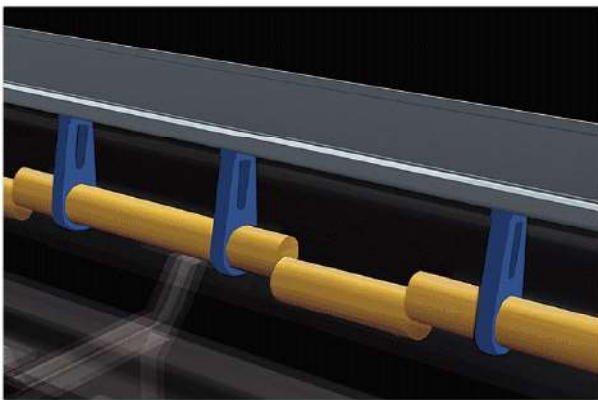
In addition to stable operation at high speeds, faster than TSUDAKOMA's conventional model, the ZAX9200i has low vibration and saves electricity.

Reduced floor vibration

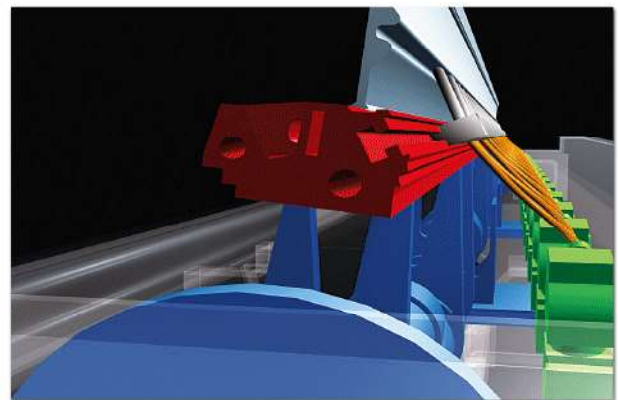
Using CAE analysis, Tsudakoma designed a new robust frame structure. By employing the offset rocking shaft with less moment of inertia and a hollow reed holder, beating is well-balanced. Floor vibration can be reduced.



Robust frame structure



Offset rocking shaft

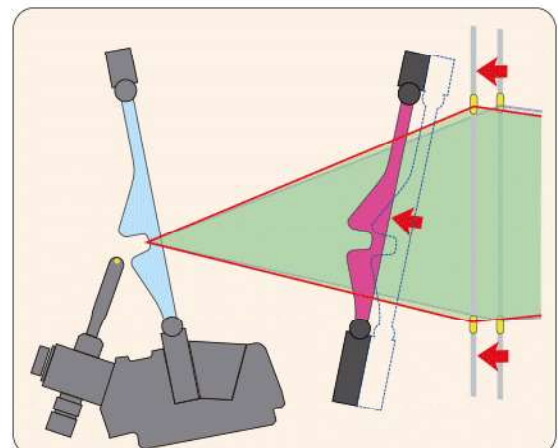


Hollow reed holder

Clear shedding

The beating stroke is shortened and the driving parts that are the most essential for the weaving machine to run at high speed are additionally reinforced. By placing the heald frame as close to the cloth fell as possible while keeping the shedding amount, the shedding angle is increased and defective shedding is reduced. Due to this, stable operation at high speed is attained compared with our conventional model.

Tsudakoma's optimized designs for the beating stroke and heald frame operation together with improved mechanical elements achieve 5% or more reduction in electrical consumption. (Compared with TSUDAKOMA's conventional model)

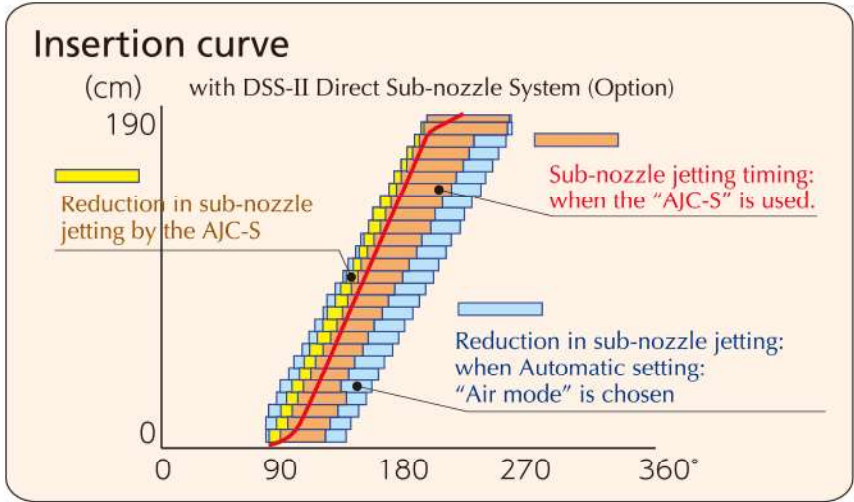


i-Weave

The "i-Weave" optimizes the three basics of weft insertion for air jet looms: nozzle, valve, and control technology. High-speed performance is accompanied with energy saving. The "i-Weave" is standard on the ZAX9200i. The "i-Weave" is the fruit of weft insertion technology backed by Tsudakoma's 45-year development and sales success on air jet looms.

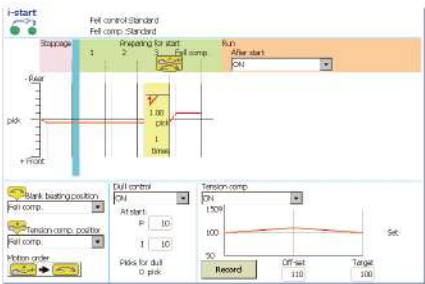
AJC-S Auto Jet Control

The ZAX9200i is equipped with the air mode (patent-pending) to reduce air consumption enabling easy setting for energy saving. By controlling nozzle jetting timing in response to actual weft insertion, air saving is combined with stable operation.



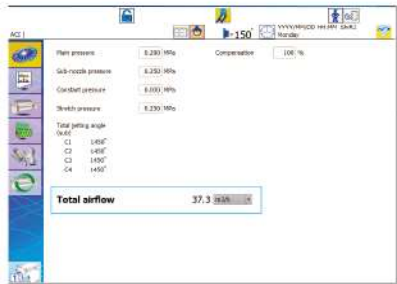
i-Start

In addition to the conventional kickback function that controls the cloth fell just before the loom starts, compensating the let-off and take-up speeds just after the loom starts makes stop marks less prominent. A new function is added: By changing the warp tension that was decreased during loom stop back to the tension just before the loom starts, stop marks caused by a decrease in warp tension can be eliminated.



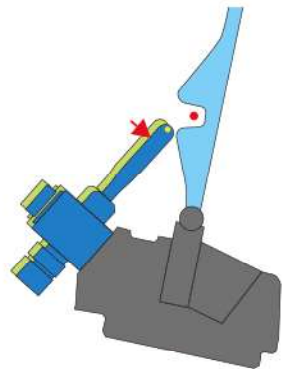
ACI Air Consumption Indicator

By indicating air consumption per loom, abnormal settings can be easily found on the Navi-board.



Switchable sub-nozzle block

By placing the sub-nozzles close to the weft, lower air pressure for weft insertion can be used so air consumption is reduced. The lower air pressure also reduces damage to the weft.



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Options

A wide range of devices are available as options.

8-color weft selection

The FDP-AIII free drum pooling system is superior in responding to high-speeds. Its advancing reel system separates weft yarns positively and is useful in weaving even long hairy yarns like worsted yarns without difficulty. The ZAX9200i can weave a much wider range of wefts. It stabilizes insertion with less yarn breakage even at high-speed weaving or extra-wide weaving. Optional weft selection up to 8 colors is available.



EIS Electronic Independent Selvage motion

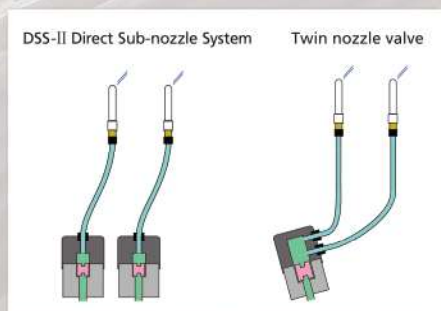
There are fewer consumable parts than the conventional mechanical motion. High speed is available. The shedding amount, the shedding timing, and the shedding pattern can be set on the Navi-board. The EIS is user-friendly and versatility increases.



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DSS-II Direct Sub-nozzle System

By employing an efficient new valve and optimizing the piping from the manifold, low setting pressure is accomplished while saving air.



AGB Adjustable Guide Bar

Style-change time is significantly reduced. Without cutting the guide bar according to the reeding width, it is easy to adjust the guide bar length. The guide bar sits in the reed tunnel and the cloth fell is supported, allowing stable operation.



PAT.P

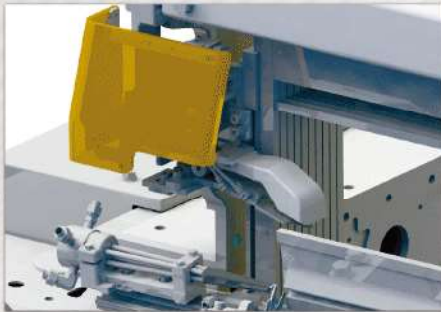
ZTN-II Needleless tuck-in device

It is not necessary to cut the reed with the ZTN-II Needleless tuck-in device. The previous ZTN required cutting according to the reeding width. The ZTN-II prevents interference between the reed and tuck-in head. Permissible speed of the ZTN-II is greatly increased in comparison with previous ZT and ZTN. The ZTN-II improves productivity.



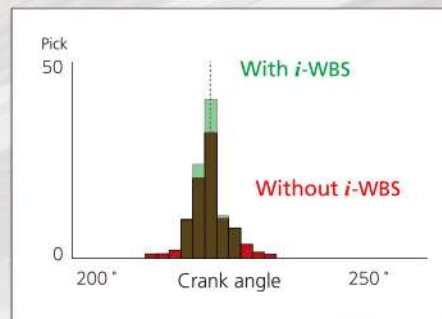
APR-III Automatic defective Pick Remover

The compact APR-III Automatic defective Pick Remover substantially improves workability during warp repair. Defective yarns are discharged to the trash box enabling easy collection. The cutter specially designed for the APR is placed at a stable position, resulting in longer service life of the cutter components. Using a mechanical sensor, the detection accuracy of the defective colored yarn is increased.



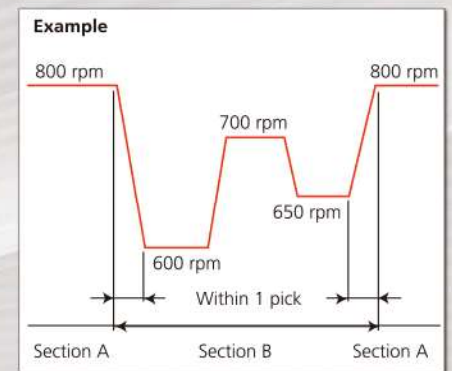
i-WBS Weft Brake System

The *i*-WBS Weft Brake System stabilizes weft arrival timing. The brake start timing to start braking weft is automatically adjusted according to the weft insertion condition. With the *i*-WBS, air saving is ensured and broken pick is reduced. Stable weft insertion contributes to high efficiency and high-quality fabric weaving.



PSC Programmable Speed Control

Independent setting of the loom rpm with 32 speed levels is possible. By automatically adjusting to the optimal loom rpm corresponding to the yarn kind, productivity is significantly increased. The loom rpm can be changed up to a maximum 200 rpm within one pick. Previous loom rpm was limited for difficult wefts. A regenerative brake is also provided in addition to the disc brake. The loom immediately stops even during ultra-high speed operation, preventing stop marks.



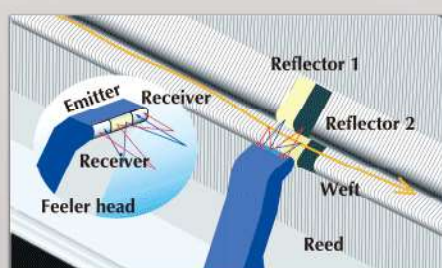
EPL Electronic Planetary Leno motion

The EPL Electronic Planetary Leno motion is driven with the exclusive servo motors independently controlled on the right and left. It is possible to set the shedding timing and the rotating direction of the planetary gears on the Navi-board. The bobbin position during maintenance can be set as required on the Navi-board, allowing easy-to-use operation.



3-eyed feeler

The 3-eyed feeler, a reflective sensor, detects any colored spun and filament yarns ensuring stable weft insertion. This feeler does not require a special reed for each reeding width.



CCL Catch Cord-Less

The weft entered in the stretch nozzle is caught and held by an ejector mouth and is cut by a selvage cutter for several picks. Catch cords are not required, reducing consumption in resources. No problems about catch cords occur and operability improves.

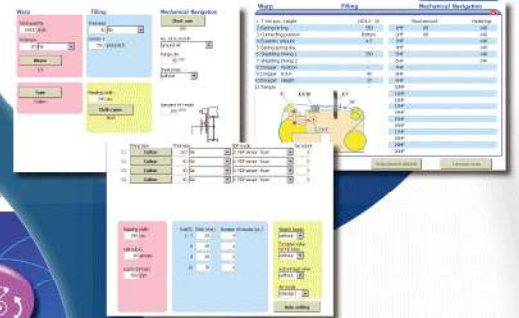


Weave Navigation® System-II

Ultimate weaving support!

Tune Navigation

The best setting values are automatically entered for your fabric and loom specifications. Optimum mechanical settings are recommended for the tension roll, easing amount, and various pressure settings according to the fabrics to be woven.



Weave Navi®

The Weave Navi® monitors loom operation while the loom is in operation. It guides users to the best weaving conditions to improve operation in various situations.



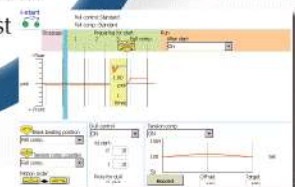
Weave Tips

Weaving expertise according to the fabric is offered.



i - Start

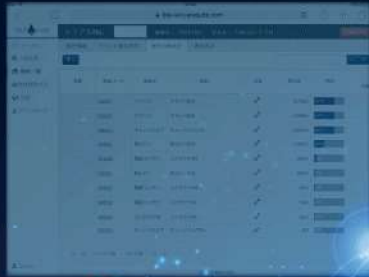
Stop marks after the cloth fell are less prominent. In addition to the conventional kickback function that controls the cloth fell just before loom start, the let-off and take-up speeds just after loom start are also compensated. The function to eliminate stop marks due to tension decrease is also provided. The tension decrease during loom stop is adjusted back to the tension just before loom start.



The weaving support system that TSUDAKOMA developed as one of the world's leaders is upgraded to the outstanding user-friendly Weave Navigation® System-II. The loom itself leads to the optimum weaving conditions for a wide variety of fabrics.

TISS Tsudakoma Internet Support System

TISS analyzes and backs-up the operating information of the plants via the internet. To help users push their looms' performance to the fullest, TSUDAKOMA provides support to enhance operation, productivity, and preventive maintenance of sizing, warping, and weaving.



TISS
Tsudakoma Internet Support System



1. Preventive maintenance

Notification on part replacement schedules

2. Backup

Efficiently supporting loom problems

3. Monitoring

Monitoring the operating condition and improving production.

AI



TSUDAKOMA



TSUDAKOMA analyzes the operating information to support user's loom performance.

T-NSS

T-Tech Network Support System

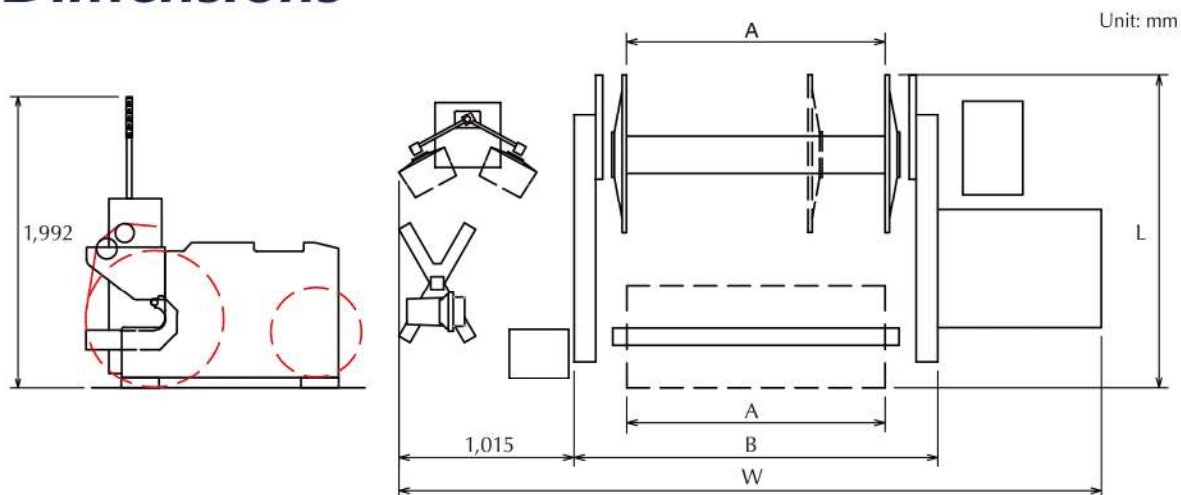
The T-NSS encompasses the preparatory machines from T-Tech Japan.



Specifications

Item		Specification	Optional
Reed space	Nominal (cm)	150, 170, 190, 210, 230, 250, 280, 340, 360, 390	
	Useful reeding widths	Same as nominal widths. Maximum width reduction: - Up to 60 cm (150, 170, 190, 210, 210, and 250 cm) - Up to 80 cm (280, and 340 cm)	Maximum width reduction: - Up to 80 cm (190, 210, 230, and 250 cm)
Weaving range		Spun yarns: Ne 100 ~ Ne 2.5 Filament yarns: 22 dtex ~ 1,350 dtex	
Weft selection		2 colors, 4 colors, and 6 colors	8 colors
Machine power	Drive	V-belt: 2.7kw, 3.0kw, 3.7kw, and 5.5kw	
	Start	- Direct start of rush-start motor drive - <i>i</i> -Start - Push-button operation with both hands - Inverter slow inching operation (Forward and Reverse)	- PSC Programmable Speed Control - Built-in type speed control inverter
Weft insertion		Main and sub-nozzles combined system Auxiliary main nozzle, Stretch nozzle	Twin auxiliary main nozzles
	Control	- AJC-5 Auto Jet Control - ACI Air Consumption Indicator - First pick control - Solenoid valve with built-in manifolds (Two sub-nozzles/valve) - Independent sub-nozzle timing control by color - Sub-nozzle boosting system - Independently timing-controlled auxiliary main nozzle	- <i>i</i> -WBS Weft Brake System - WBS Weft Brake System - FIC Fuzzy Insertion Control - Main nozzle for core spun yarns - DSS-II Direct Sub-nozzle System
	Measuring and storage	FDP-AIII Free Drum Pooling (With advancing reel system)	Balloon breaker
Shedding		- Crank - Positive cam - Positive dobby (Electronic/Floor-mounted) - Jacquard	- Negative cam - Auto-leveling (Positive cam) - Selvage-name Jacquard - 6-link crank shedding - EIS Electronic Independent Selvage motion
Let-off		Positive easing motion, Negative easing motion	Twin beam, Double beam
	Flange diameter	800 mm, 914 mm, 1,000 mm, and 1,100 mm	
Take-up		Provided with automatic density change function (32 densities)	- AGB Adjustable Guide Bar - 14 mm guide bar - Adjustable guide bar for filament
	Maximum on-loom take-up diameter	600 mm: Cam, dobby, and Jacquard 520 mm: Crank	- 720 mm - Off-loom take-up device
	Pick density	For standard: 5.9~118.1 picks/cm (15~300 picks/inch) For coarse density: 3.9~118.1 picks/cm (10~300 picks/inch)	
	Temple	Top-mounted type	
Beating		- 4-link crank (Reed space: 150, 170, 190, 210, and 230 cm) - Cam (Reed space: 250, 280, and 340 cm) Offset rocking shaft with intermediate supporter	
Weft supply stand		- Floor mounted for 4 packages (2-color) - Floor mounted for 8 packages (4-color) - Floor mounted for 10 packages (6-color)	
Selvage		Mechanical planetary leno motion	- EPL Electronic Planetary Leno motion - ZTN-II Needle-less Tuck-in device (Left & right/Intermediate) - ZTN Needle-less Tuck-in device (Left & right/Intermediate) - Center leno motion
Waste weft removal		- Catch cord taken-up with two rolls - Catch cord taken-up with a gear	- CCL Catch-Cord Less - Independent shedding motion for catch cord - Electric waste-selvage cutter
Cutter on the yarn supply side		Mechanical type	Electric vertical type, Electric horizontal type
Lubrication		- Oil bath system for main driving sections - Centralized lubrication (manual grease supply)	Centralized lubrication (automatic grease supply)
Stop motion	Weft	Reflective feeler	- Package sensor (only for multi-pick) - Pick-tail sensor
		One-head system or Two-head system	- 3-eyed feeler - Non-reflection feeler - Narrow-head feeler
	Warp	Electric 6-row contact bar system	- Row number indication - Left and right area indication
	Stop cause indication	- Message indication on the Navi-board - 4-color multi-function indication lamps	
Weave Navigation® System-II	Navi-board	Automatic data setting, Recommended data indication, Optimum operation condition guide, Automatic control, Troubleshooting, Self-diagnosis function, Operating and maintenance information, Weaving advice, and Instruction manual and part catalog browsing	
	Network connection	TLM Tsudakoma Loom Monitoring system	TISS Tsudakoma Internet Support System
Automation / Energy savings			APR-III Automatic defective Pick Remover

Dimensions



Reed space (cm)		150	170	190	210	230	250	280	340	360	390
W	Crank (3.0kW)	3,730	3,930	4,130	4,330	4,530	4,730	5,030	5,630	5,830	6,130
	Positive cam	4,085	4,285	4,485	4,685	4,885	5,085	5,385	5,985	6,185	6,485
	Floor-mounted positive dobby	4,239	4,439	4,639	4,839	5,039	5,239	5,539	6,139	6,339	6,639
A		1,500	1,700	1,900	2,100	2,300	2,500	2,800	3,400	3,600	3,900
B		2,110	2,310	2,510	2,710	2,910	3,110	3,410	4,010	4,210	4,510

		Flange diameter	Crank, Cam	Dobby
L		φ 800	1,762	1,882
		φ 914	1,828	1,948
		φ 1,000	1,894	2,014
		φ 1,100	2,016	2,136

Note 1: For details on other specifications, please contact TSUDAKOMA.

Note 2: When the flange diameter is 914 mm or more, liners are required.

Note 3: "W": The dimensions for 2-color loom with the *i*-WBS or for 4-color loom. For details on other specifications, please contact TSUDAKOMA.

Note 4: Photographs, drawings, and data in this brochure are subject to change for improvement without notice.

Note 5: Some photographs in this brochure include optional devices.

Note 6: "Crank": When the built-in type speed control inverter is provided. For the standard control box, please contact TSUDAKOMA.

Preparatory machines for full support for jet loom operations

T-Tech Japan's preparatory machines, including the sizing machines of world-leading performance and quality, accurately respond to the rapidly changing market needs and provide a total solution on the weaving process.

The **TTS Spun Sizing Machines** use the vertical yarn sheet pulling system providing easy operation and even-sized yarns. By employing the Sizing Navigation System, enhanced machine operability, machine operation management, and quality control are afforded. Fine-tuned control provides outstanding energy-saving performance, greatly contributing to improved operations of the looms.

T-Tech Japan has a leading share in the market for filament sizing machines. The **TSE30F Filament Sizing Machine** meets market demands, providing stable tension control ranging from the lowest 20 N to the highest 800 N.



TTS30S SPUN SIZING MACHINE

TSUDAKOMA Corp.
www.tsudakoma.co.jp



ISO 9001
14001

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