

WATER JET LOOM

TSUDA  KOMA

ZW408

ZW408

ZW408 WATER JET LOOM

The ZW408 weaves a wide range of fabrics from general clothing to thick value-added fabric.

The ZW408 has the lowest running costs, while keeping quality high.

The ZW408 is a water jet loom on which high-tech mechanics and electronics are harmonized for true user-friendliness.

High speed

■ Robust frame structure

Tsudakoma's original sturdy double-sided box frame reduces vibration at high-speed operation. Because of this reduced vibration, the filling insertion and the beating motion are much more stabilized which keeps fabric quality high. Its main drive is contained in an oil bath to achieve stable high-speed operation. For a 190cm - wide loom weaving taffeta, speed increasing 10% compared with previous models.

Energy conservation

■ Outstanding economy

The rush-start motor instantly provides ultra-high torque only at loom start. The RDP uses the storage blower and can change its force depending on the yarn. The SDP doesn't require a storage blower. These all contribute to great energy savings and smaller running costs.

■ Stable filling insertion ability·soft picking

A new nozzle with improved convergence of jetting water allows filling insertion with a small shed opening. And soft picking allows stable operation of the loom even with less water jetting. It does not damage the warp during high-speed operation. Thus, fabric quality is improved and water consumption is reduced.

A newly produced machine evolved from the "ZW405,"
the global standard for both stable ultra-high speeds and wide versatility.



Crank shedding



Dobby shedding

Versatility

■ Stable cloth fell

The robust frame structure, rigid let-off and take-up stabilize the cloth fell position and the weavable range is increased from thin to middle-thick fabric, and from low to high density fabric. Even with dobbie motion, vibration is low, so the ZW408 can easily weave fabrics of complicated or unbalanced construction.

■ Soft filling insertion at high speed

The filling insertion angle is enlarged by improvements in the beating curve. Filling insertion for thick and twisted yarns or SHINGOSEN is more stabilized and value-added fabric can be woven. Furthermore, weaving is greatly improved even on a fabric with an unstable warp shedding pattern or which easily generates warp looseness during weaving.

User-friendliness

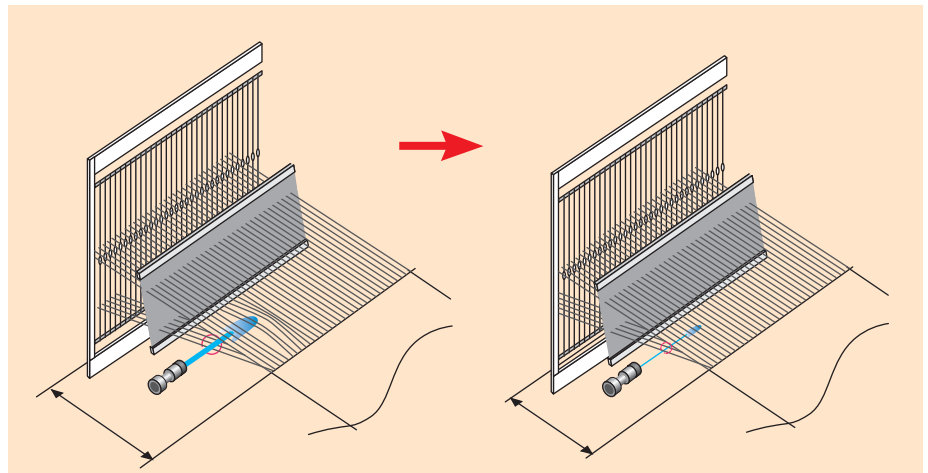
■ Touch-panel *iT*-Board

The touch-panel *iT*-Board is new. Setting for the ELO electronic let-off, the ETU electronic take-up, and the FDP-H measuring & storage device is concentrated on the *iT*-Board. Stop mark prevention setting is also simple. It is also possible to monitor the operating conditions.

In pursuit of high speeds and high quality while saving energy.

■ PF-type nozzle

An advanced P-type nozzle is used. Jetting water focuses further, stable operation with a small shed opening and less water is realized, and soft picking - gentle on the warp and the filling - is attained even at high-speeds. It is especially useful to improve fabric quality of one-color taffeta weaving at high speeds. The stabilizer lasts much longer.



■ SDP measuring & storage device

The new SDP is an exclusive measuring & storage device for one color weaving. It does not require a storage blower. Great energy savings are expected. The tension given to the filling is small, so the difference in measuring pick length is minimized. Improvement in ballooning during filling insertion has greatly enlarged the usable yarn range.



The ZW408 thoroughly pursues high speeds, high quality, and energy savings. The 190cm ZW408 attains speeds 10% faster compared with our former model. Combining the PF-type nozzle with the SDP measuring & storage device, the ZW408 weaves quality fabric with power while saving water.

■ RDP-A measuring & storage device

As the maximum tension given to the filling is relatively low, quality fabric weaving is assured even at higher speeds with single nozzle use. In addition to regular yarn fabrics, those value-added fabrics such as twisted, taslan, nep or loop yarn are easily woven.



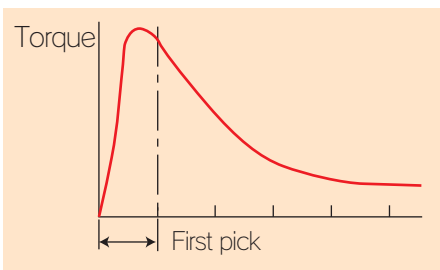
■ OPF optical feeler

The simple and small optical feeler accurately detects any yarn - from raw to high twist and fine to thick - to realize stable high-speed operation.

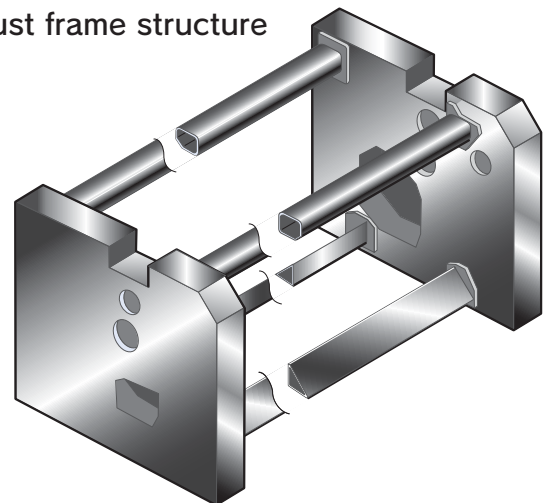


■ Rush-start motor

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.



■ Robust frame structure



Wide versatility and additional value coexist!

The ZW408 weaves a quality fabric that had been woven by a rapier loom. It has enlarged its weavable fabric range to include middle-thick fabric, dense fabric, and fabric with an unbalanced structure like double weave.

■ FDP-H measuring & storage device

The new easy-to-operate FDP-H with computer control reduces tension of the stored yarns and conducts stable storage for delicate fine yarn, non-twist yarn, thick yarn, and high-twist yarn. Control of various devices such as the electric clamper and the solenoid change valve can be entered and checked on the *iT*-Board. Adjustments for the feeder head are simplified with the software and the hardware. Response speed is also improved. The release sensor and the sensor to detect yarn breakage on the feeder are also provided for best fabric quality.



■ 2C nozzle separator

The filling tip protruding from the nozzle is stabilized to prevent entanglement of the filling yarns.



■ Top-mounted negative dobby



■ Top-mounted positive dobby





■ Fabric quality and let-off

The reinforced gearbox and a two-roll let-off respond to light to ultra-heavy fabric, up-grading fabric quality. The MLO mechanical let-off uses a ring cone-type speed changer and the easy-to-operate ELO electronic let-off minimize stop marks.



MLO mechanical let-off



ELO electronic let-off (Optional)

■ Stable cloth fell

The precise take-up device keeps a stable cloth fell to assure higher adaptability for a wider range of fabrics. The ETU electronic take-up system does not require change gears, and it incorporates a stop mark prevention mechanism to control the cloth fell. It's easy to weave both high and low density fabrics.



MTU mechanical take-up



ETU electronic take-up (Optional)

In pursuit of usability — True user-friendliness is realized.

The design philosophy of the ZW408 is to weave difficult fabrics easily.

Complicated control data for the ELO and the ETU to prevent stop marks and the control data for the FDP are easily entered with the fewest keystrokes on the *iT*-Board. The operating status can be easily understood for quick responses. The *iT*-Board can also have an interface function for the TCCS (Tsudakoma Computer Control System) for integrated mill control.

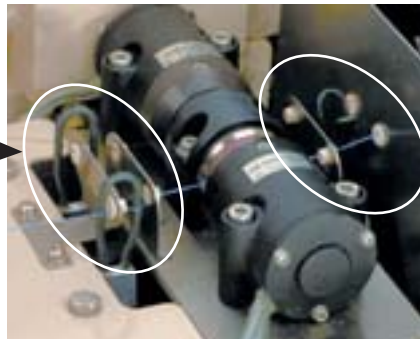
Various optional devices

Various optional devices are available for the ZW408 for higher speed, wider versatility, and further automation to respond to diverse needs.

■ WBS weft brake system

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

WBS



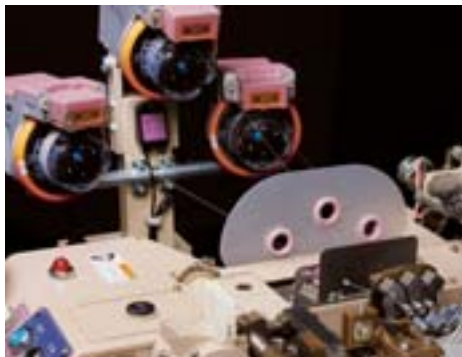
■ Electric weft pull-back device

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

Weft pull-back device

■ 3-color at-will motion

The combination of the 3-color at-will motion and the twin pump enlarges the weavable range.



■ Twin pump

By applying the optimum filling insertion parts to filling yarns of different characteristics, stable, high-speed operation with high value-added fabric is attained.

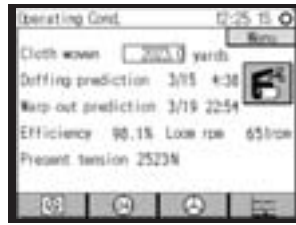


Easy operation with the *iT*-Board (touch panel) (Option)

Menu

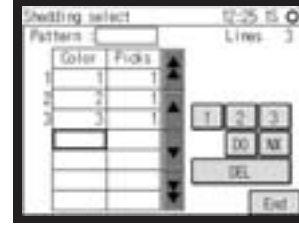


Operation monitor



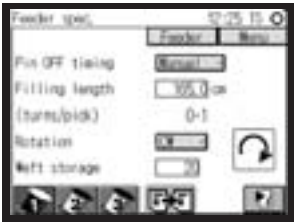
The causes of loom stops are analyzed and displayed based on statistical methods.

Color pattern

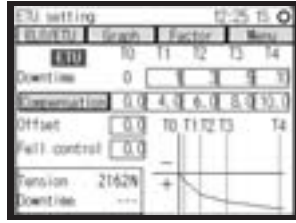


Up to eight filling insertion patterns can be entered on the *iT*-Board.

FDP control timing



Setting of ELO·ETU control



Adjustments regarding stop mark prevention are graphically displayed and set for easy understanding.

Mill management with the TCCS



The *iT*-Board is also used as an I/O unit for the TCCS that intensively controls mill operation.

Independent shedding motion for catch cord

Catch cord shedding is formed with special levers. The heald frames can be wholly used for dobby patterns. It also contributes to high speed, versatility, and energy saving.



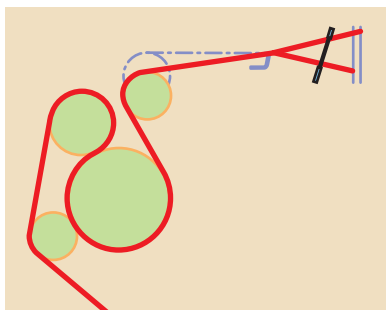
Special arrangement for weaving stretch yarn fabric

The yarn catcher on the nozzle side can adjust the yarn clamping force. It prevents a filling from slipping off the nozzle. On the opposite side of the machine, a tension plate is provided. It maintains a constant filling tension. Because of these two devices, stable production of stretch yarn fabrics is assured.



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 possible, without causing vertical movement at the cloth fell.



Top-mounted positive cam



■ Specifications

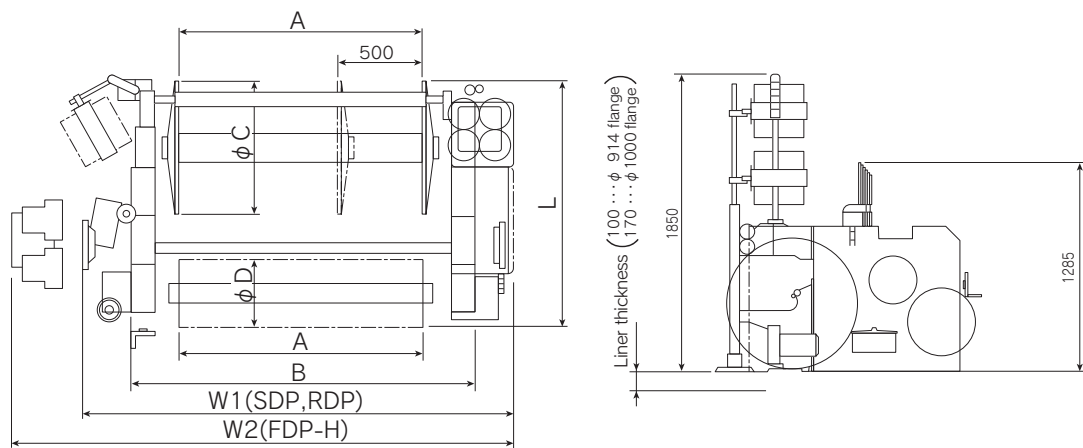
Item	ZW408		ZW408C	Optional
	Crank	Dobby	Crank	
Nominal reed space (cm)	150, 170, 180, 190, 210, 230			
Useful reed space	Nominal reed space – (0~50cm)			Nominal reed space –60 cm, Nominal reed space –80 cm
Filling selection	1 color, 2-color at-will			3-color at-will
Driving	Start	Driven by a rush-start motor		
	Motor capacity	2.2kw, 2.7kw, 3.7kw	2.2kw, 2.7kw	
	Operation	Stopped by the electromagnetic brake at the programmed position Push-button operation (arrange, run, stop, forward inching, reverse inching, programmed position stop after one cycle reverse rotation)		Slow inching
Beating	Crank beating, multiple sword beating system. Oil bath lubricating system			
Filling insertion	Pump system	Plunger-type spring pressure system		Twin pump
	Nozzle	Ring nozzle stabilizer system (Ceramic needle)		
	Measuring & storage	SDP stationary drum pooling (1C) RDP-A/RDP-S rotary drum pooling (1C) FDP-H free drum pooling (2C)		WBS weft brake system FDP-H (3C) Electric weft pull-back device
	Feeler	OPF feeler, using optical cable		
Shedding	Crank	Crank-type plain shedding for 4 heald frames, for 6 heald frames		Centralized manual grease lubrication
	Dobby	Top-mounted positive dobbie for 16 heald frames Top-mounted negative dobbie for 16 heald frames (Maximum heald frame number: 16)		Top-mounted positive cam
Let-off		MLO mechanical let-off		ELO electronic let-off Positive easing motion
	Maximum tension	1800N, 2300N, 4000N, 6000N		8000N (Let-off arrangement for ultra-heavy fabric)
	Distance from cloth fell to tension roll	Standard	Short	
	Flange diameter	800mm, 914mm, 1000mm		
Take-up		MTU mechanical take-up		ETU electronic take-up Off-loom take-up device
	Cloth wind-up diameter	520mm		
	Woven length counter	5-digit auto-counter with stop function at the programmed length		
	Cloth passage	F-type (Standard, reinforced), S-type (Standard, reinforced), S-type inclined		
Yarn package stand	Floor mounted, horizontal stand for 2 packages (1 color), Floor mounted, horizontal stand for 4 packages (2 colors)		Floor mounted, horizontal stand for 3 packages (1 color), Floor mounted, horizontal stand for 4 packages (1 color)	
Selvage formation	Twisting by planetary gear system			
Catch cord	Spindle twisting system			Independent shedding motion for catch cord
Cutter	Mechanical cutter			
Temple	Top mounted. 2-barrel type with 2 rings each			Bar temple
Water suction	Slit tube suction system (Blower 420W)			Blower 850W
Warp stop motion				Rotary sensor
Electric component				iT -Board, Memory card
	Automation option	APR-II automatic defective pick remover (RDP) APF automatic pick finder		

※Specifications, drawings, and photos in this brochure are subject to change for improvement without prior notice.

※Some photos in this brochure include optional items.

■ Dimensions

Unit: mm



Reed space	A	B	W1		W2	
			1C(SDP,RDP)	Dobby	2C(FDP-H)	Dobby
150 cm	1,500	2,110	2,655	2,695	3,205	3,245
170 cm	1,700	2,310	2,855	2,895	3,405	3,445
180 cm	1,800	2,410	2,955	2,995	3,505	3,545
190 cm	1,900	2,510	3,055	3,095	3,605	3,645
210 cm	2,100	2,710	3,255	3,295	3,805	3,845
230 cm	2,300	2,910	3,455	3,495	4,005	4,045

Flange ϕC	800	914	1,000
Cloth wind up diameter ϕD	520	520	520
L	ZW408	1,771	1,883
	ZW408C	1,641	1,755

※Dimensions may differ depending on the specifications. Please contact Tsudakoma for final confirmation.





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