

TTS30S SPUN SIZING MACHINE

TW10S WARPER

TCR-V/SV CREEL



TTS30S



* The photo shows high-speed specification.
Accent color: Blue

Toward a New Stage of Sizing



TTS30S SPUN SIZING MACHINE

* The photo shows high-speed specification.
Accent color: Indigo

High productivity

15% improved drying capability

*Compared with our previous model

High-speed specification [Option]

Enhanced sections

- Take-up cradle
- Roll structure
- Frame structure

Drying capability

- Improved drying capability due to optimum steam equipment and piping system

Stability

Three sizing systems

Productivity

Operability

Optimum sizing

10% reduction in size pick-up amount

*Shower & dip squeeze system

Broad lineup of sizing systems

Three sizing systems handle a variety of yarns.

High quality sizing leads to high loom performance.

1. New shower & dip squeeze system

Size pick-up amount reduced 10%

(Compared with our previous model)

2. Nip & twin squeeze system

3. Dip & twin squeeze system

Power saving

25% reduction in electric power consumption

*Compared with our previous model

Regenerative energy system

- Recovers electric energy
- Reuses electric energy efficiently

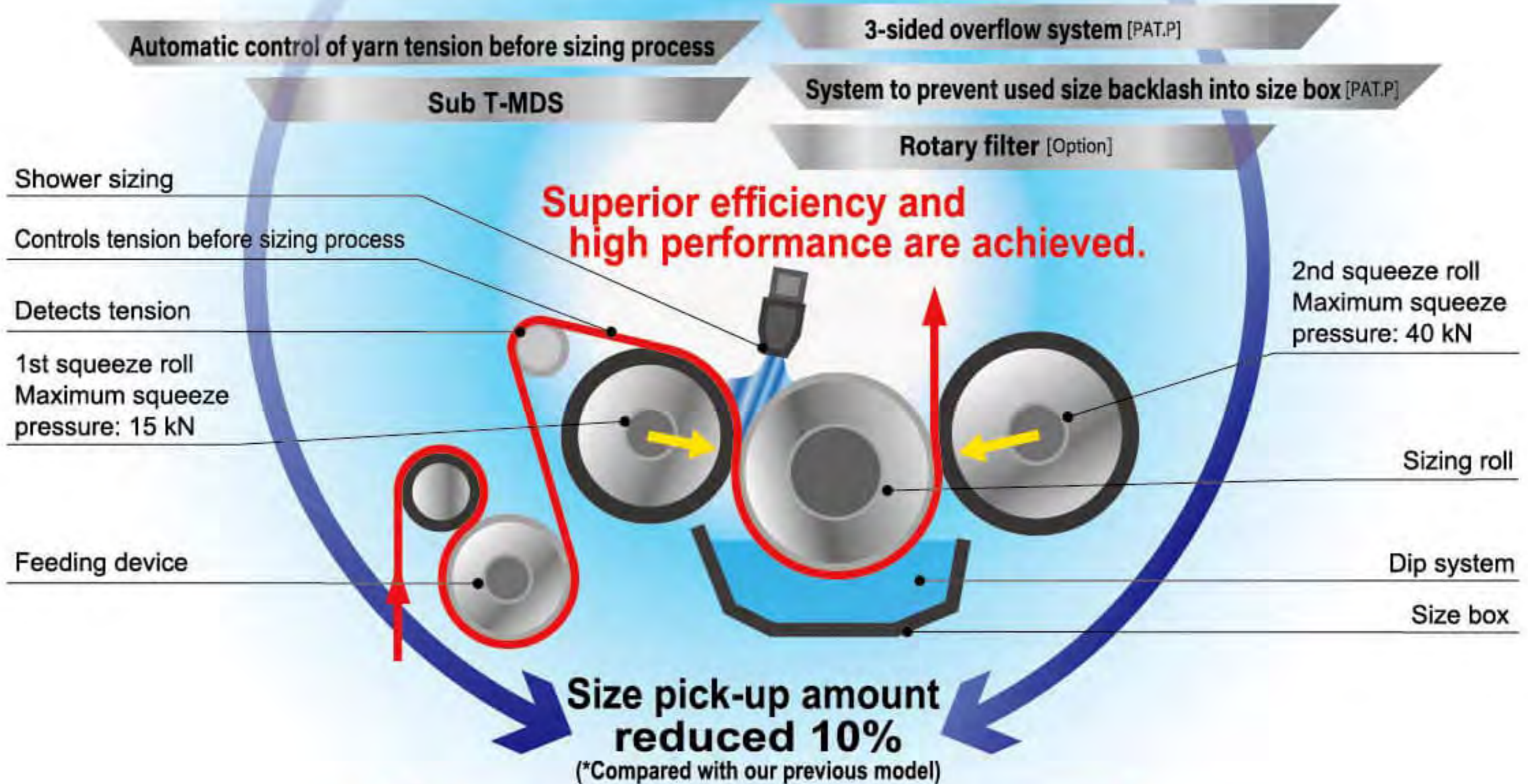
T-Tech Japan proposes optimum sizing.

Shower & dip squeeze system [NEW]

Sizing quality is improved.

>>Excellent sizing technology<< >>Size liquid is kept clean.<<

Compact sizing section [PAT.P] + Shower system

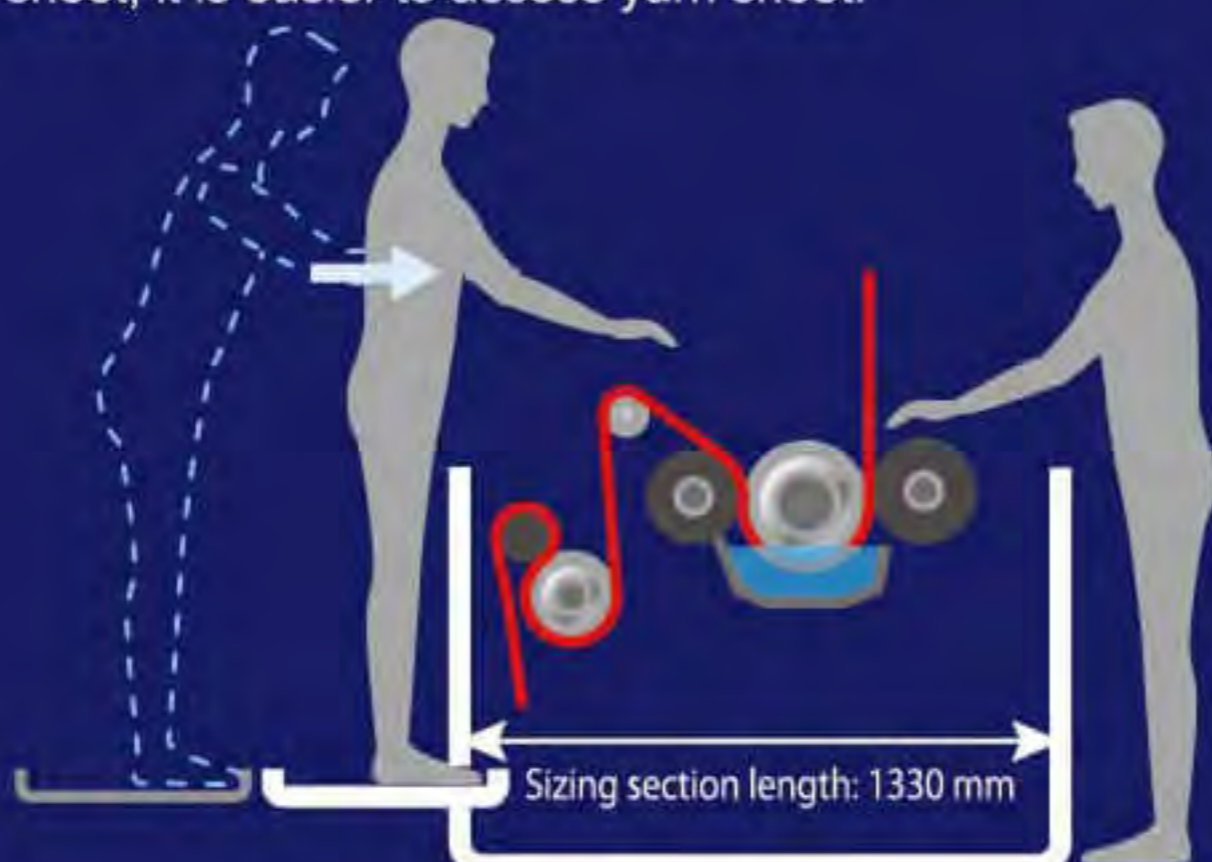


Fabric quality is improved.

Excellent sizing technology

Compact sizing section [PAT.P] improves operability and maintainability.

Due to shortened total length of sizing section by 420 mm (1750 mm → 1330 mm) and vertical pull-out system of the yarn sheet, it is easier to access yarn sheet.



Highly responsive automatic control and monitoring of the tension before sizing process

By employing the guide roll that is highly responsive capable of detecting tension, the yarn tension can be controlled. No extra stress is applied to the yarns, allowing sizing operation with the best tension for size liquid penetration.

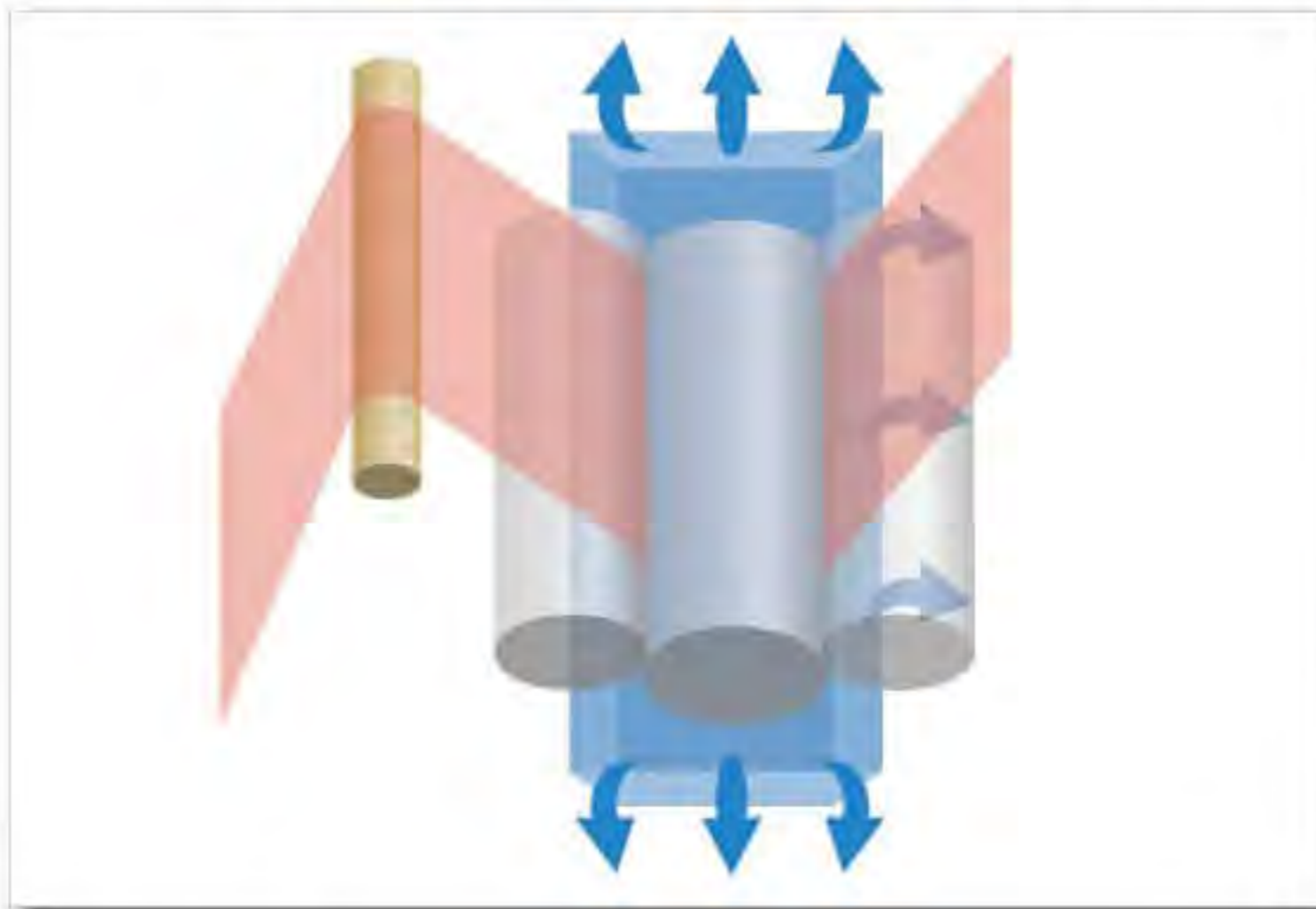
STRETCH (%)		PRESSURE (x10kN)		SIZING ORDER		
FEED	TEN.	234	234	SQ 1st FAST	0.23 0.23	SIZE BOX TEMP.
FEED	1.2	1.2	1.2	SQ 1st STOP,SLOW	0.23	CAVITY BOX TEMP.
SIZE	TEN.	234	234	SQ 2nd FAST	0.80 0.80	CONC. %
SIZE	1.2	1.2	1.2	SQ 2nd SLOW	0.80	S.P.U.

Sub-T-MDS window

Design to keep size liquid clean

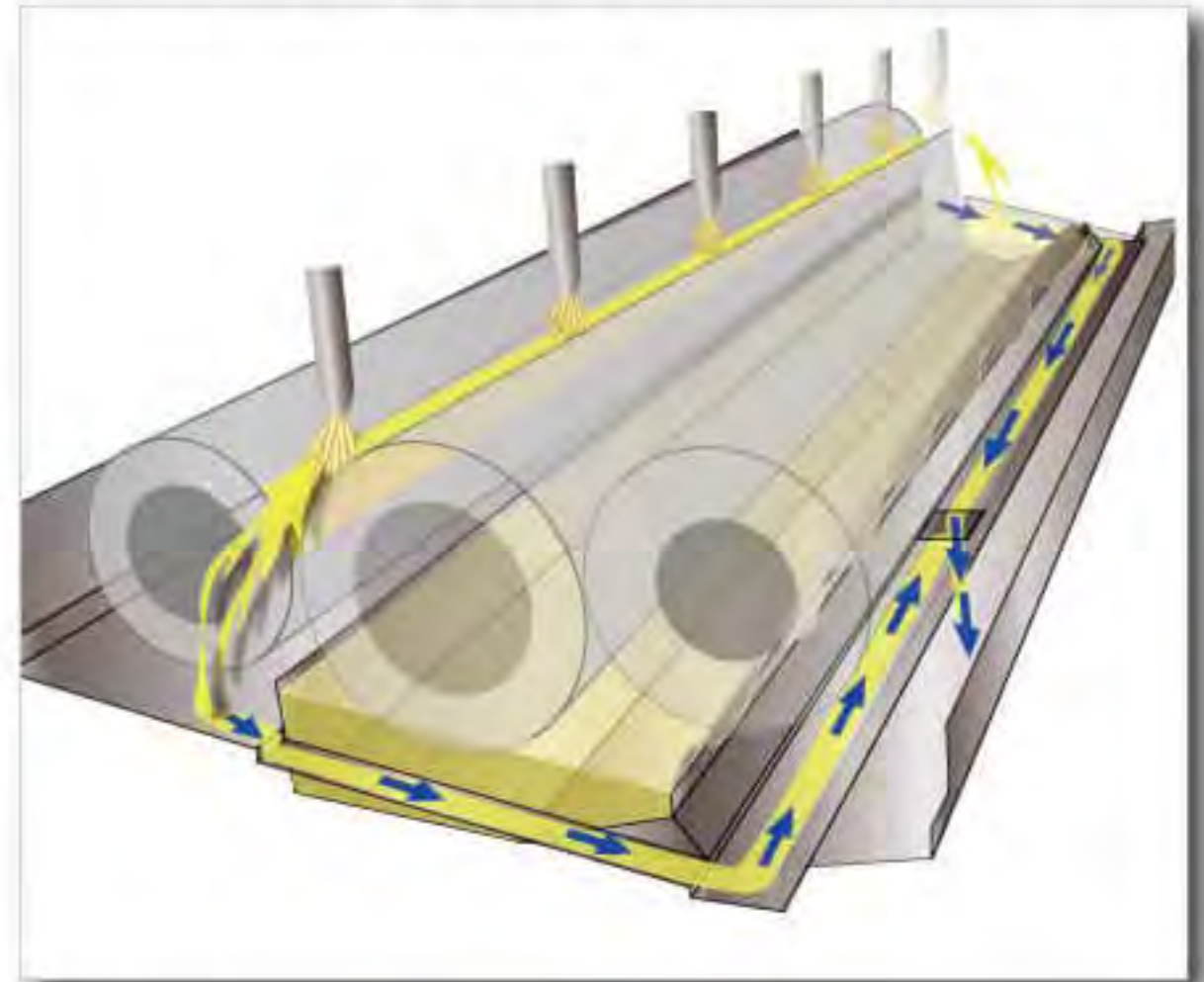
3-sided overflow system [PAT.P]

It prevents the size liquid from accumulating in the corners of the size box and reduces lint and fluff. Size pick-up amount is uniform in the left and right side of the yarn sheet. High grade yarn sheet is available.



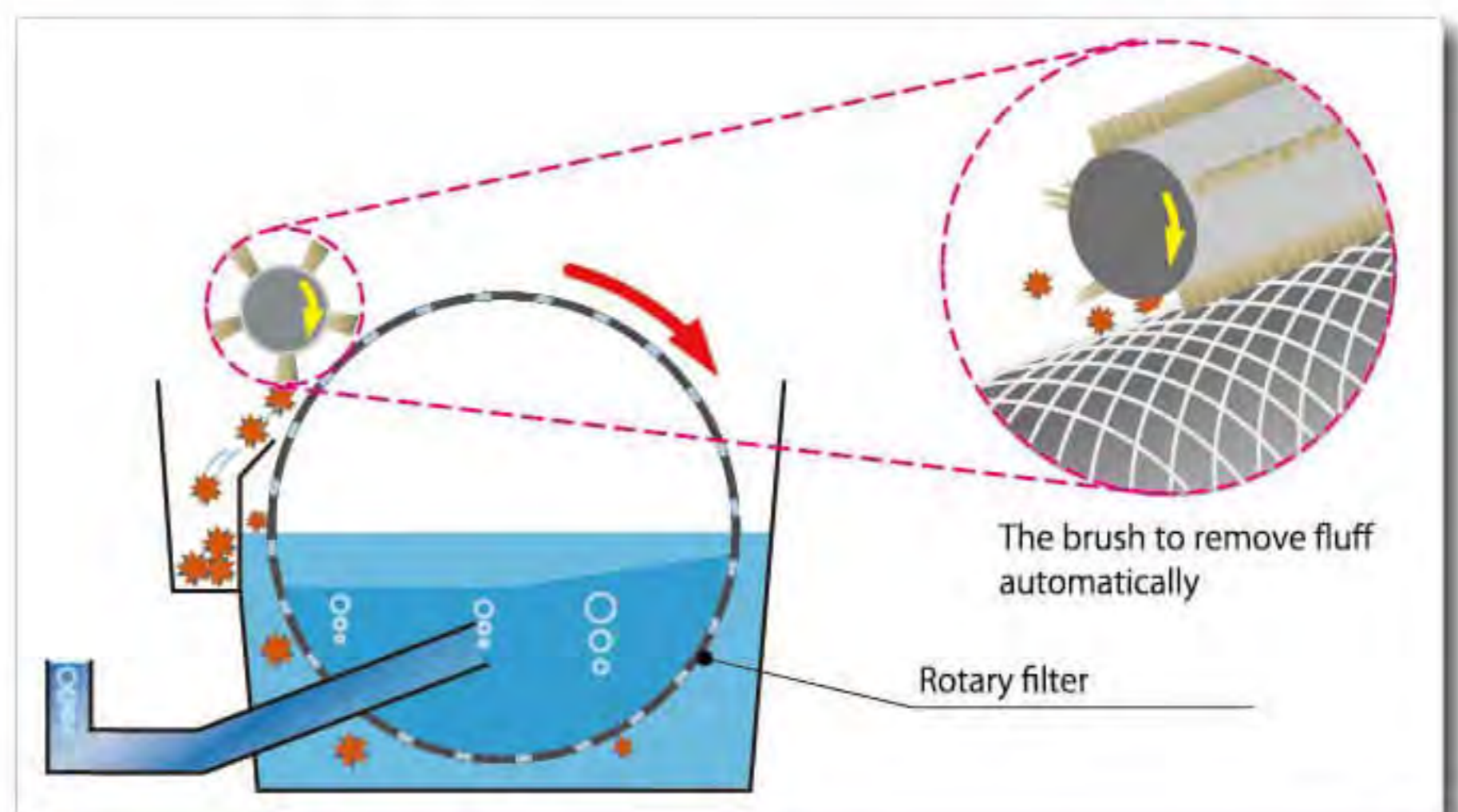
System prevents used size backlash into size box [PAT.P]

The structure makes it difficult for the remaining size liquid after shower sizing to enter into the size box, resulting in less contamination of lint and fluff.



Rotary filter [Option]

Ultra-high-density rotary filter significantly increases accuracy in removing foreign matter. The brush automatically removes lint and fluff, allowing easy maintenance.



Sub T-MDS

Condition setting change and operation check are also allowed in the sizing section. The conditions can be optimized while checking the status of each part in the sizing and drying sections. Tension calibration of the beam stand section is completely possible in the sizing section without operating the T-MDS in the take-up section.

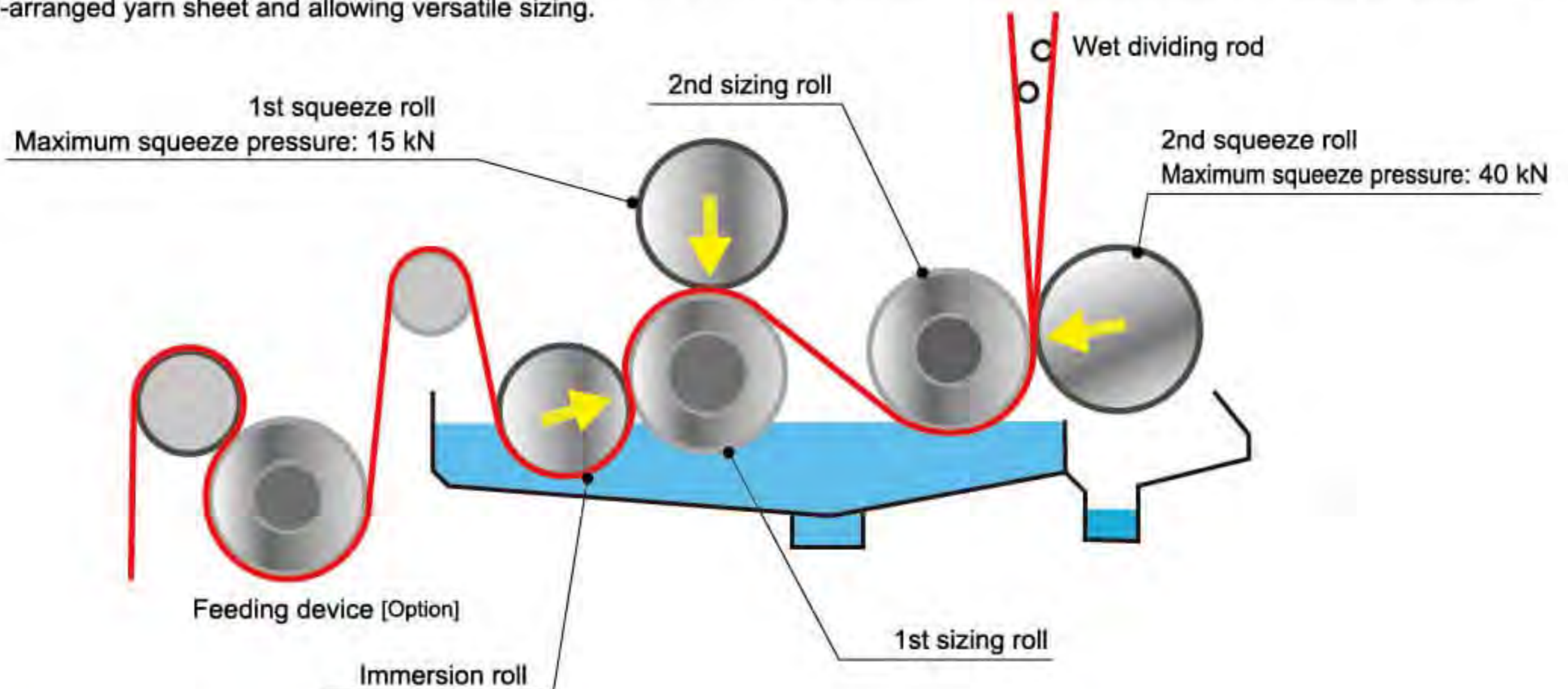


T-Tech Japan proposes optimum sizing.

Nip & twin squeeze system

High versatility & uniform sizing

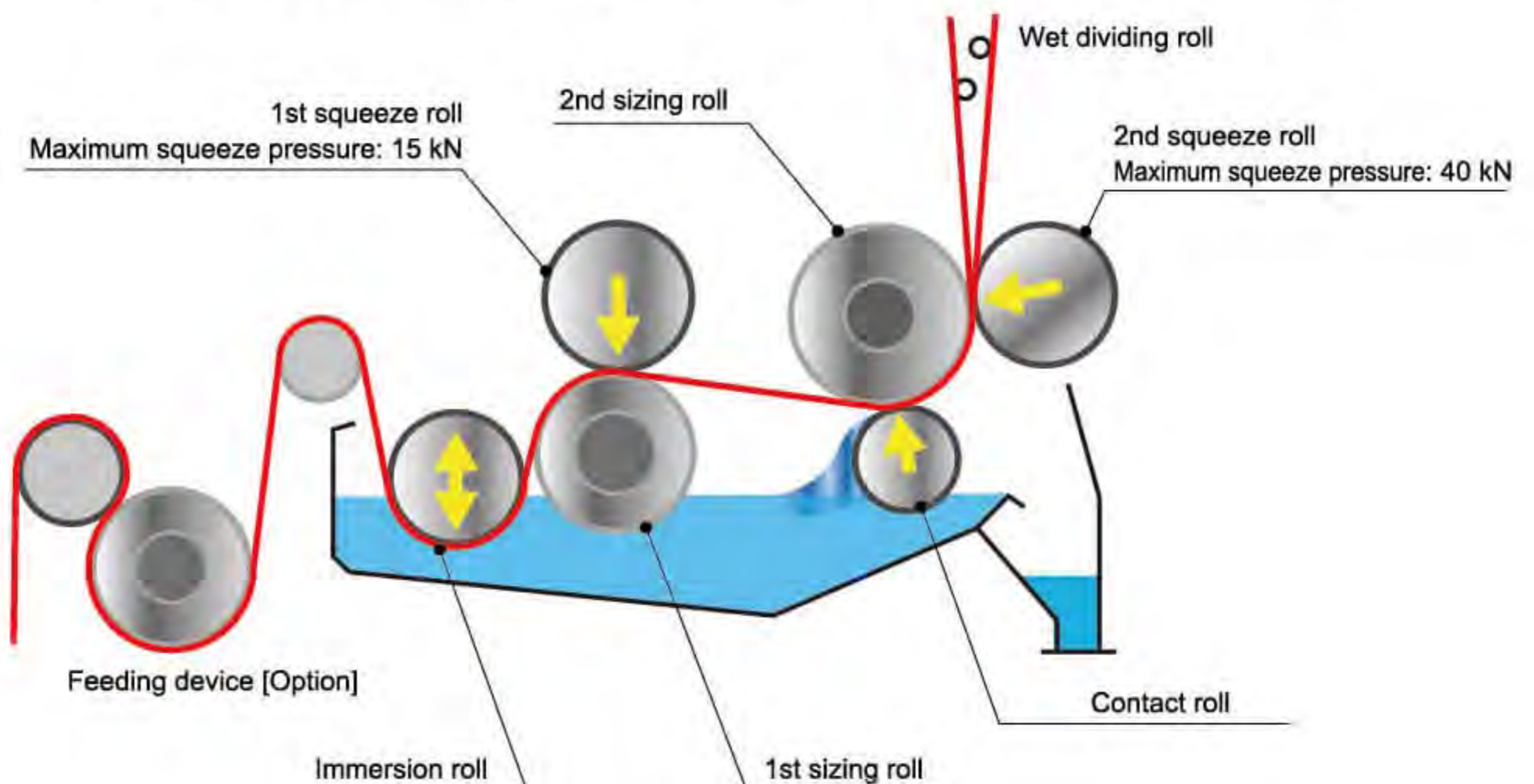
By properly controlling the stretch of wet yarn sheet in the sizing process, the sizing for a variety of yarns is allowed. Accumulated size liquid in the contact pressure section in the 2nd squeeze roll is less, reducing stop marks. The 2nd sizing roll is in the size liquid, generating a washing effect while preventing dried surface on the roll. The size coating on the surface of the 2nd squeeze roll can be also reduced. The 2nd sizing roll is positioned so that the yarn sheet is put into size liquid after it touches the 2nd sizing roll, resulting in well-arranged yarn sheet and allowing versatile sizing.



Dip & twin squeeze system

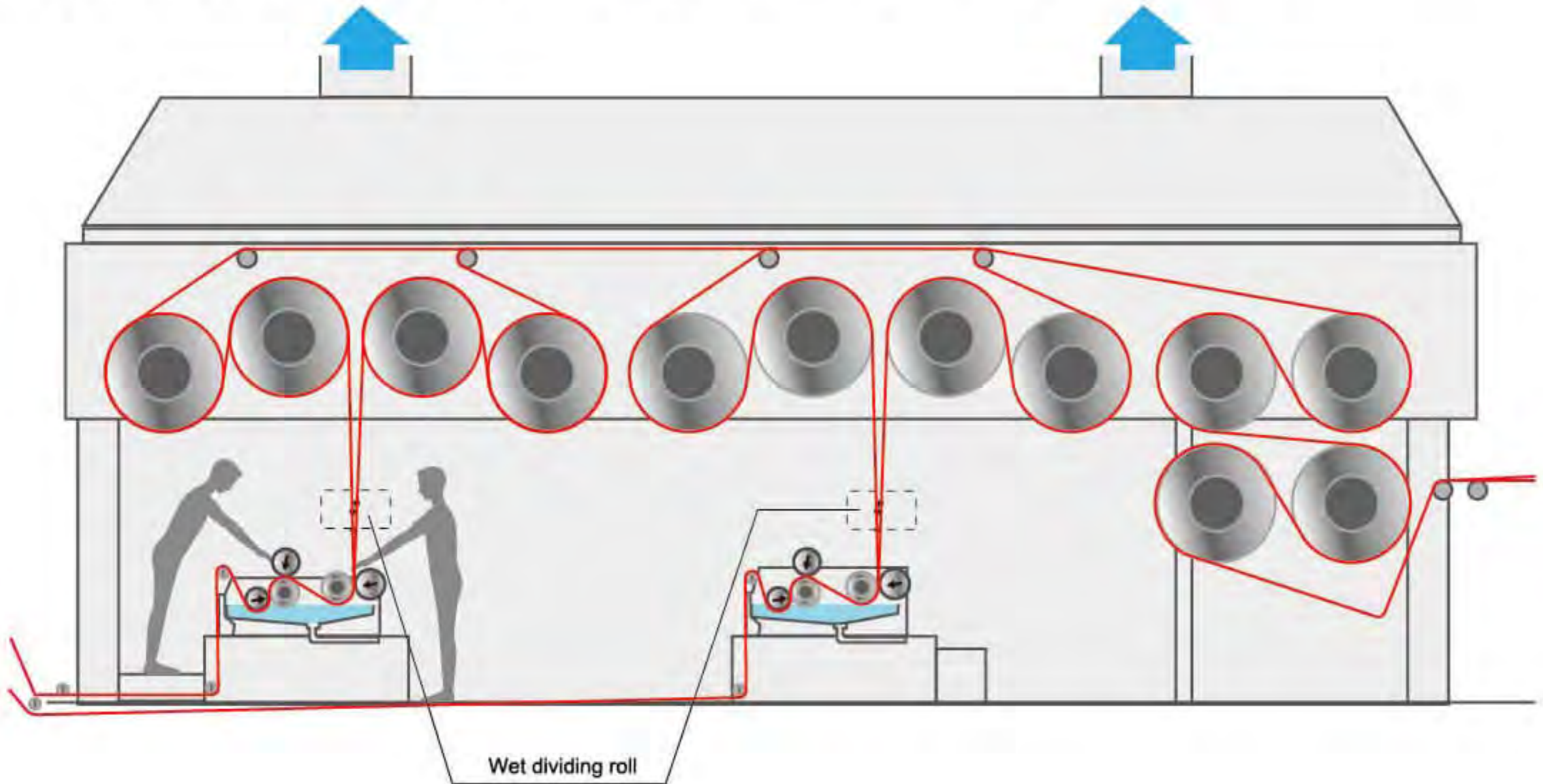
Most suitable for super-fine and dyed yarns

The dip-type immersion roll minimizes damage on the yarn sheet. Due to the eccentrically-positioned 2nd sizing roll and the contact roll, the size liquid picked up by the contact roll gently touches the yarn sheet. This enables the yarn sheet to run smoothly without disarrangement, significantly reducing doubled yarn or taped yarn. After the contact roll penetrates the yarns with size liquid and excess size liquid is removed, final squeezing is done without supplying size. Flexible sizing for super-fine and dyed yarns is available.



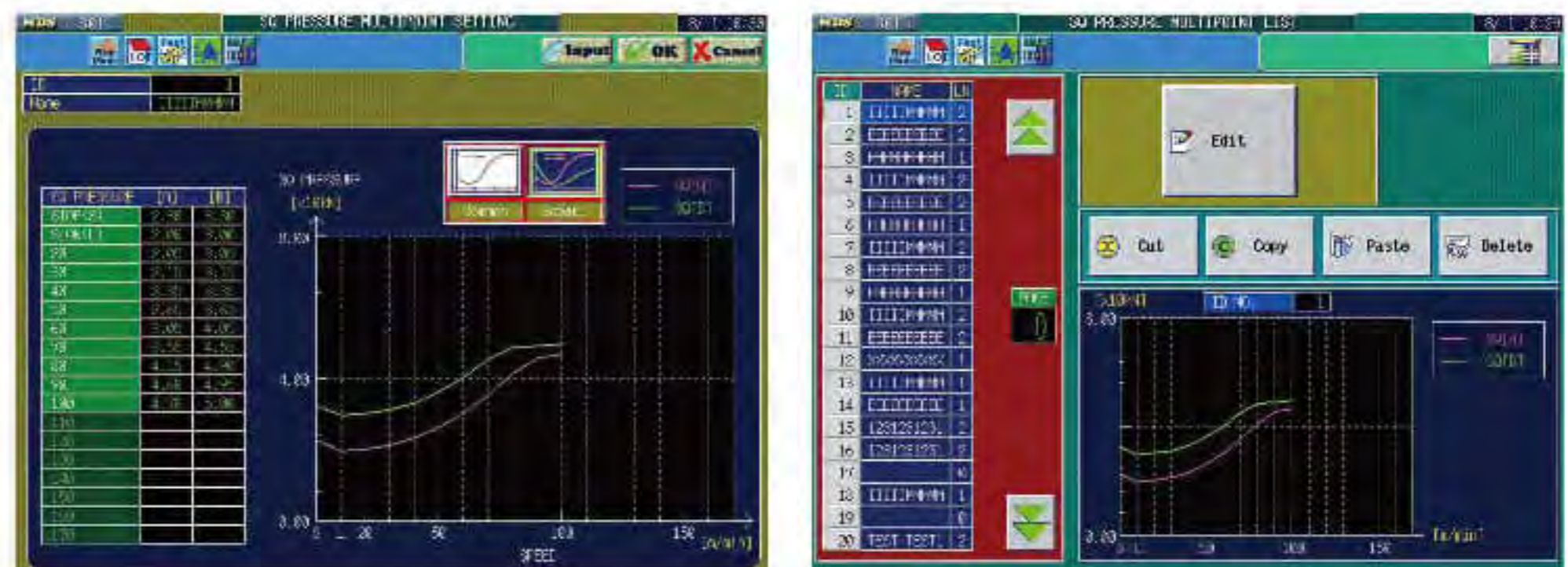
Touch-free vertical yarn sheet pull-out system (Without guide roll)

The distance between the 2nd squeeze roll and the cylinder is short, and the yarn sheet can be pulled out vertically without a guide roll. This prevents snarling, enabling easy sizing for even weak yarns or additionally twisted yarns.



Squeeze pressure control (Multipoint setting)

With a multipoint setting for squeeze pressure control, size pick-up performance is enhanced.



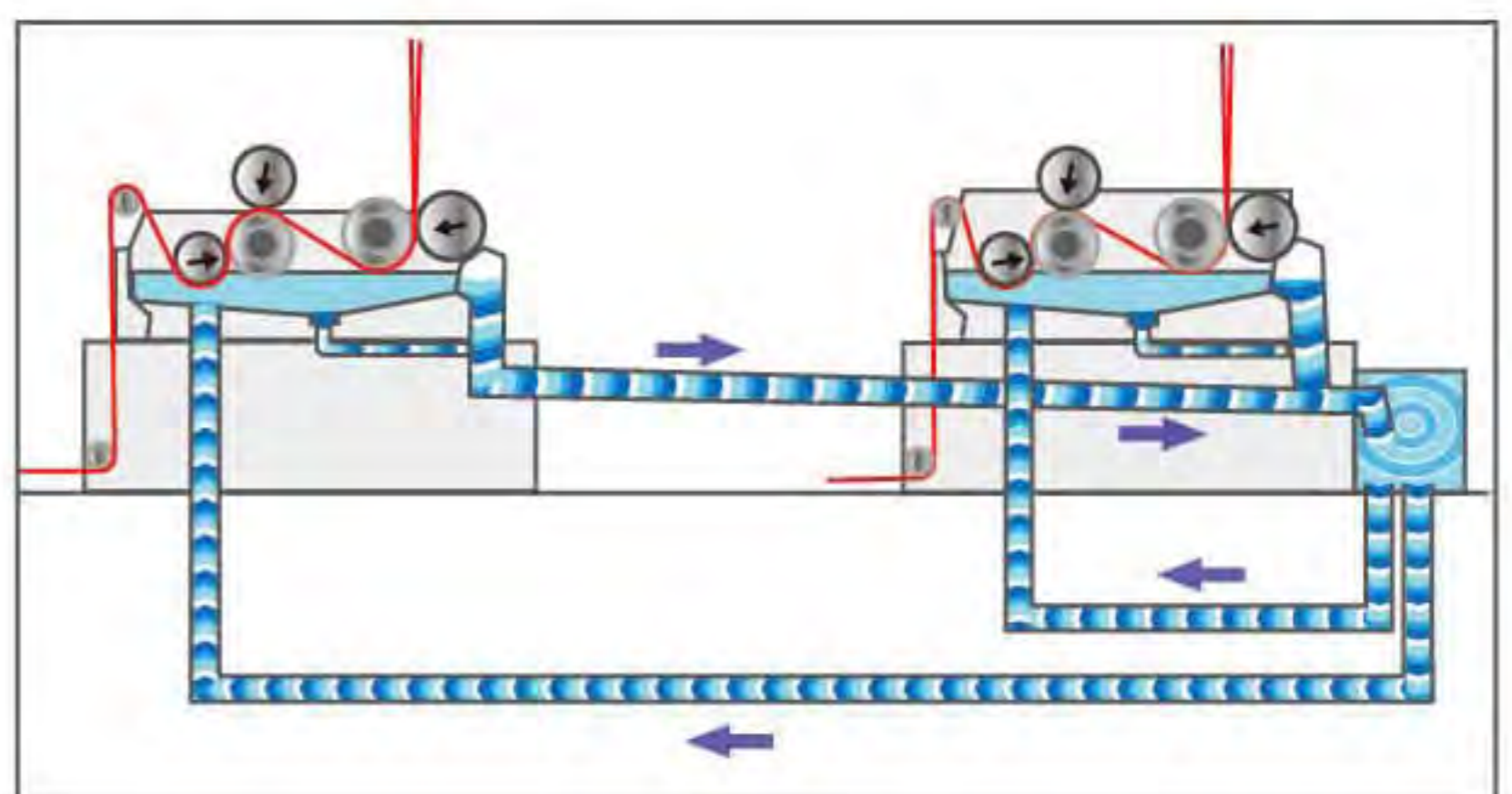
Wet dividing rod

By making condensation on the rod surface, excellent fluff lay-down is realized when dividing the yarn sheet.

Note: A rod condensation device may be necessary depending on the areas it is used. Consult with TSUDAKOMA sales staff.

Size liquid mixing and circulating system

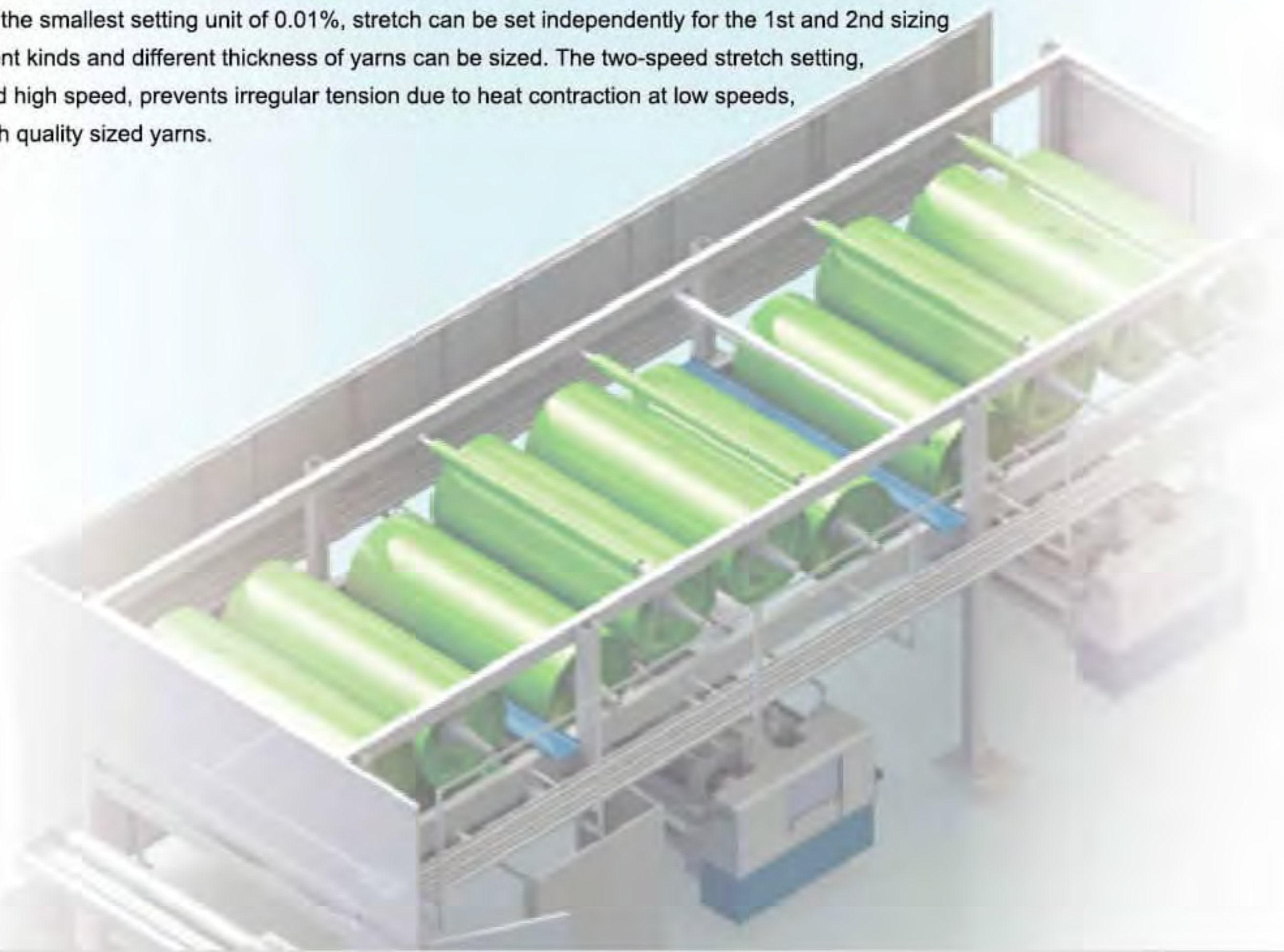
Mixing and circulating size liquid in the 1st and 2nd size boxes make concentration and viscosity of size liquid uniform. The difference of size pick-up amount and quality of sized yarns is reduced between two size boxes.



High quality, high productivity, and energy savings are stably realized.

Stretch control

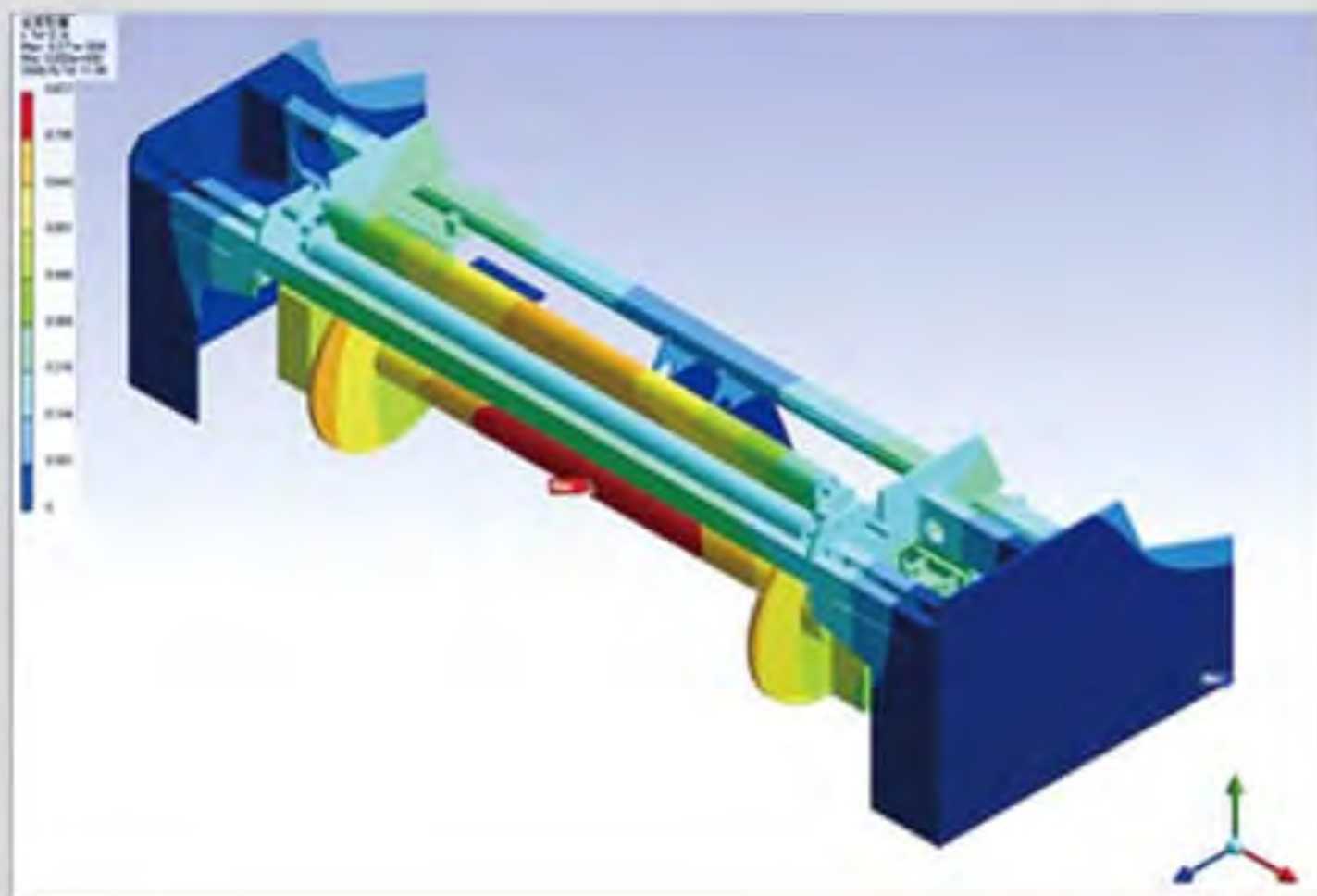
Stretch is digitally controlled with a multi-section drive system using a maximum of nine vector motors. Controlled by the smallest setting unit of 0.01%, stretch can be set independently for the 1st and 2nd sizing boxes. Different kinds and different thickness of yarns can be sized. The two-speed stretch setting, low speed and high speed, prevents irregular tension due to heat contraction at low speeds, producing high quality sized yarns.



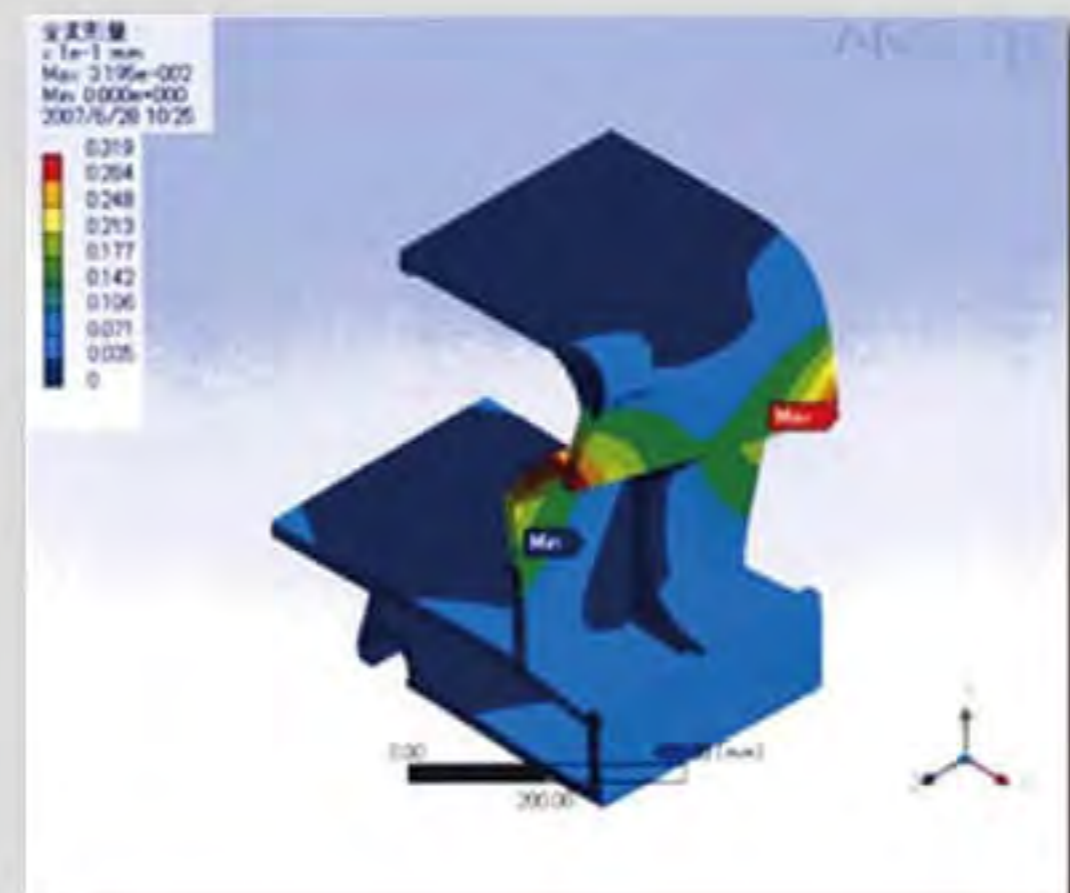
High-speed specification [Option]

Robust frame structure

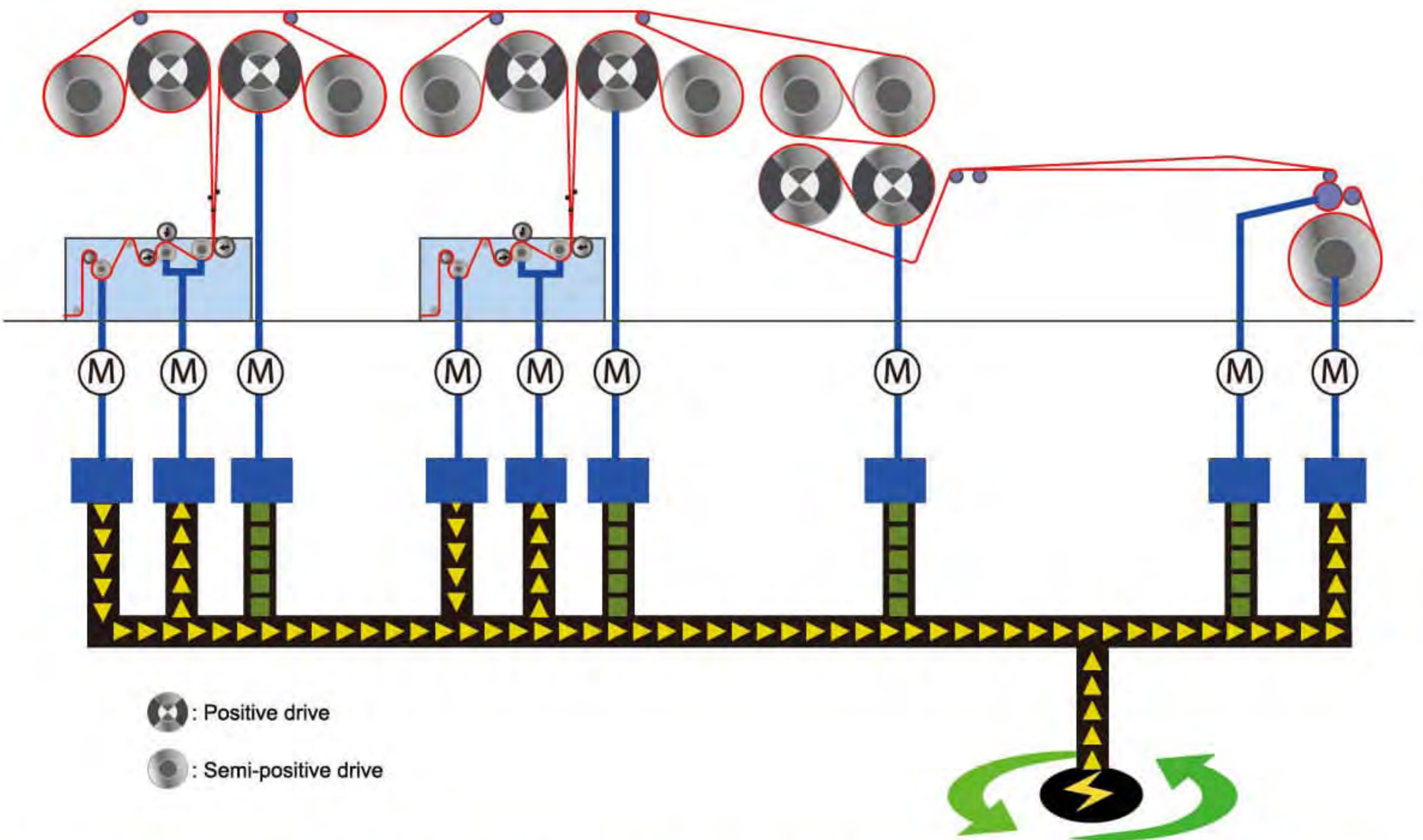
Based on CAE analysis, the durable take-up section and cradle are designed for high speed operation.



Take-up section



Cradle



Positive drive and semi-positive drive systems for cylinders

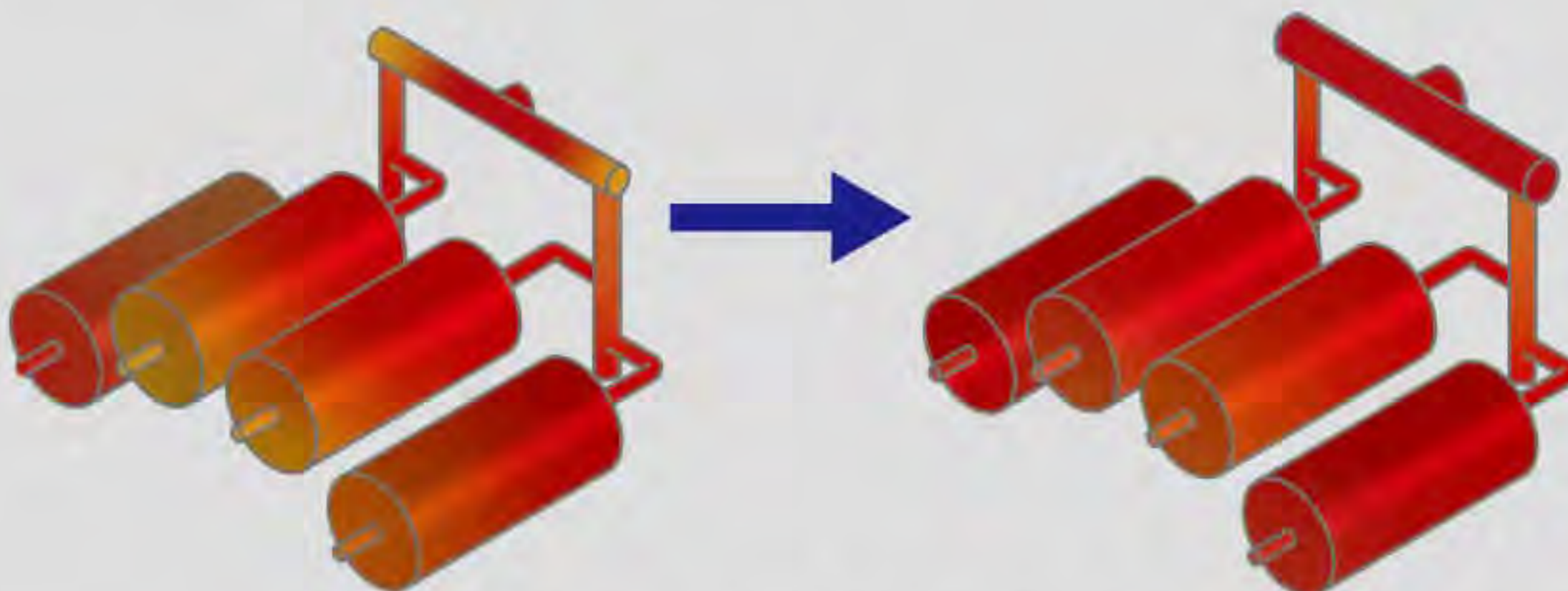
The cylinder immediately after sizing and the cylinder near the take-up section are positively driven while other cylinders are semi-positively driven. It reduces tension, preventing over-tension.

Regenerative energy system

By employing the system that recycles electric energy emitted as heat to drive motors, power consumption of the whole sizing machine can be reduced 25%.

The optimal designs of steam equipment and piping system improve drying capability.

Due to the optimum equipment, piping diameter, and piping route, which are based on drying simulations, drying capability is improved by 15% at maximum. (*Compared with our previous model)

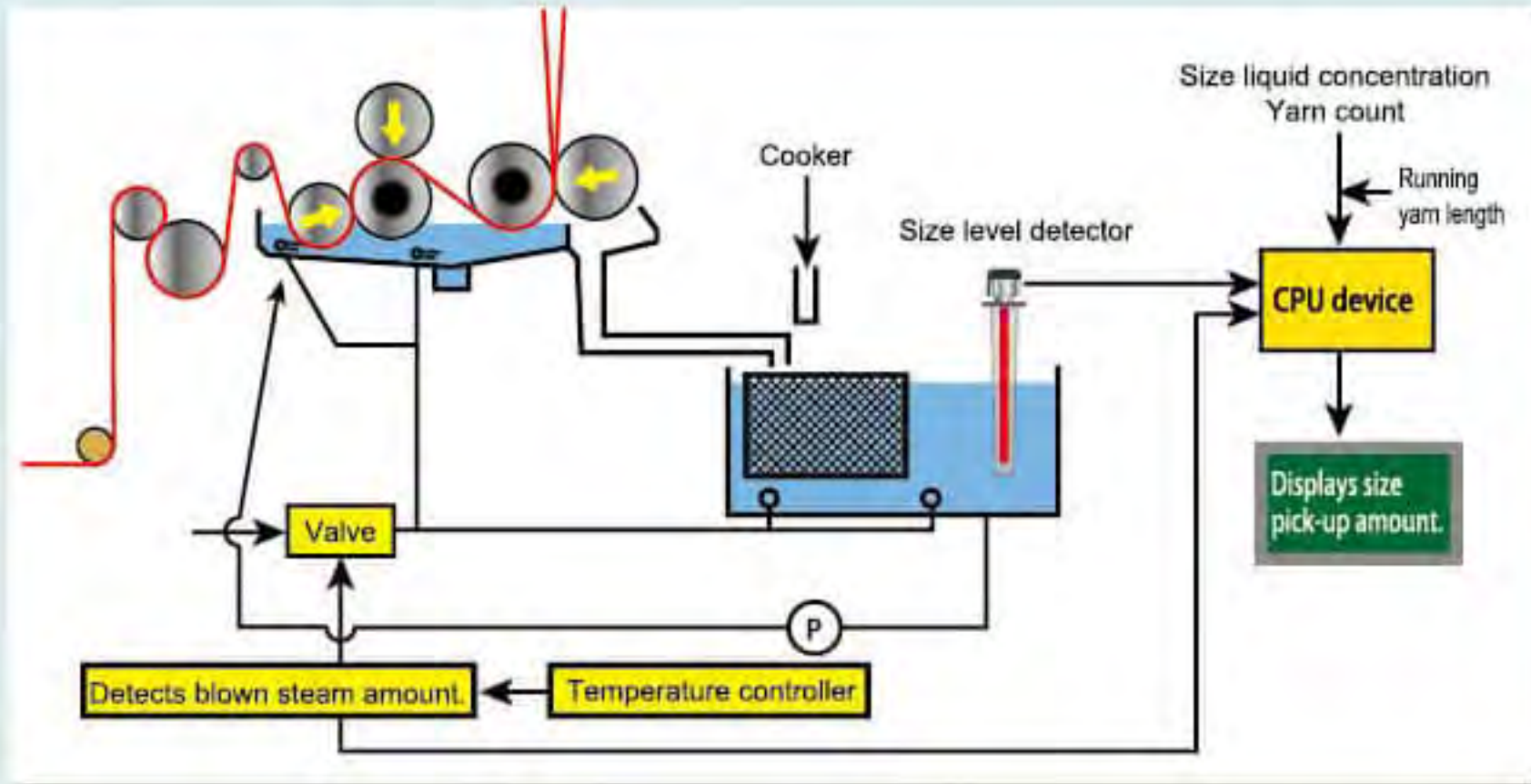


*Actual drying capability depends on the conditions, such as customer's equipment and steam supply capacity.

A variety of optional devices are offered.

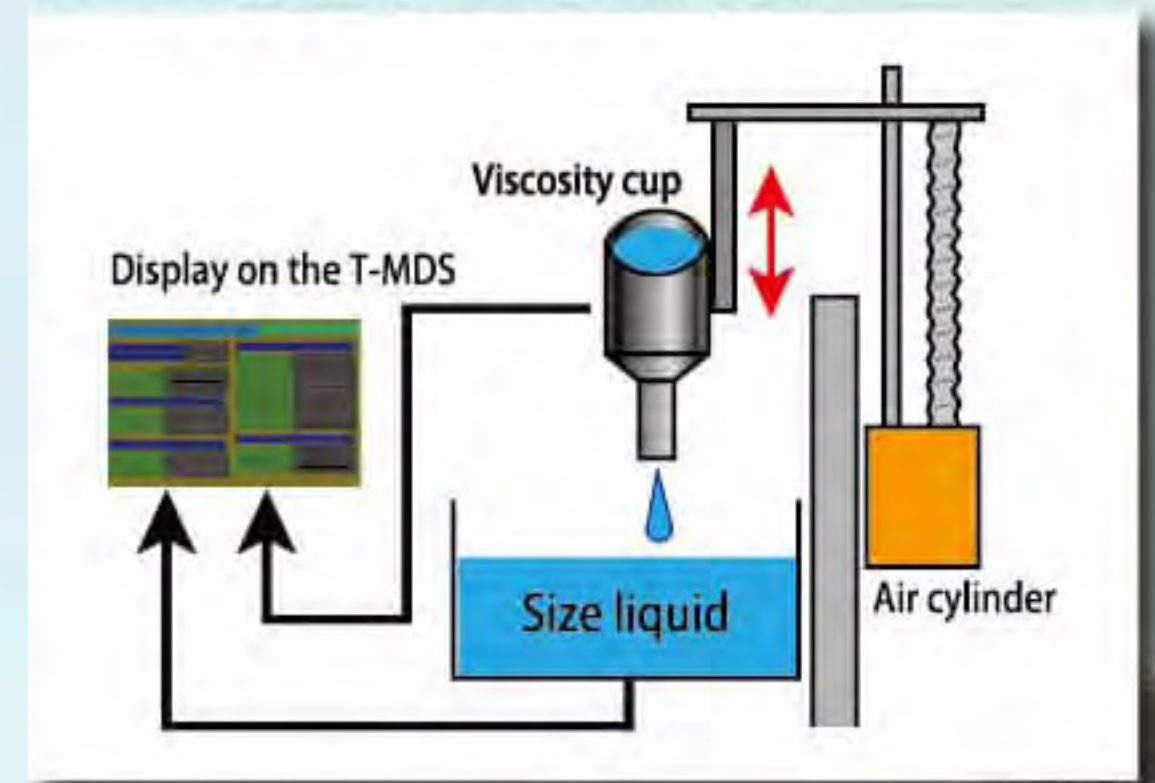
Size pick-up monitor

The size pick-up monitor detects size level and size liquid consumption in real time. The size pick-up amount is detected and displayed in a timely manner, preventing a problem and providing easy operation.



Automatic size viscometer

The size dipped from the viscosity cup is detected with a minute electric current, automatically measuring and displaying the size viscosity. For high quality sizing, it is indispensable to accurately measure and control the size viscosity.



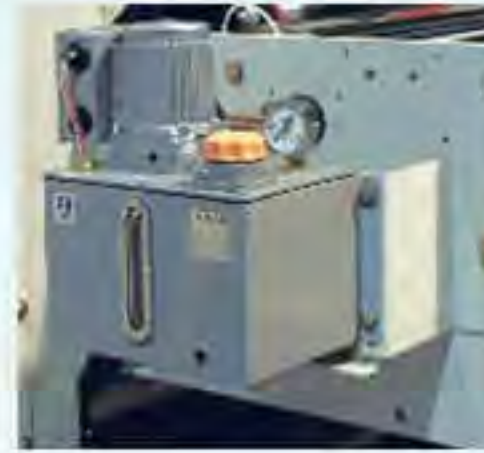
Mirror

A mirror is provided above the take-up section in order to check the yarn sheet in the zigzag comb.



Centralized lubrication device

Automatic lubrication delivers labor-savings.



Static electricity eliminator

Any static charge is removed just before the warp beam.



Safety curtain

A mesh curtain is provided in the front of the take-up section, protecting operators from danger.

Lifting device

The operating lifter mounted in the front of the take-up section is provided.

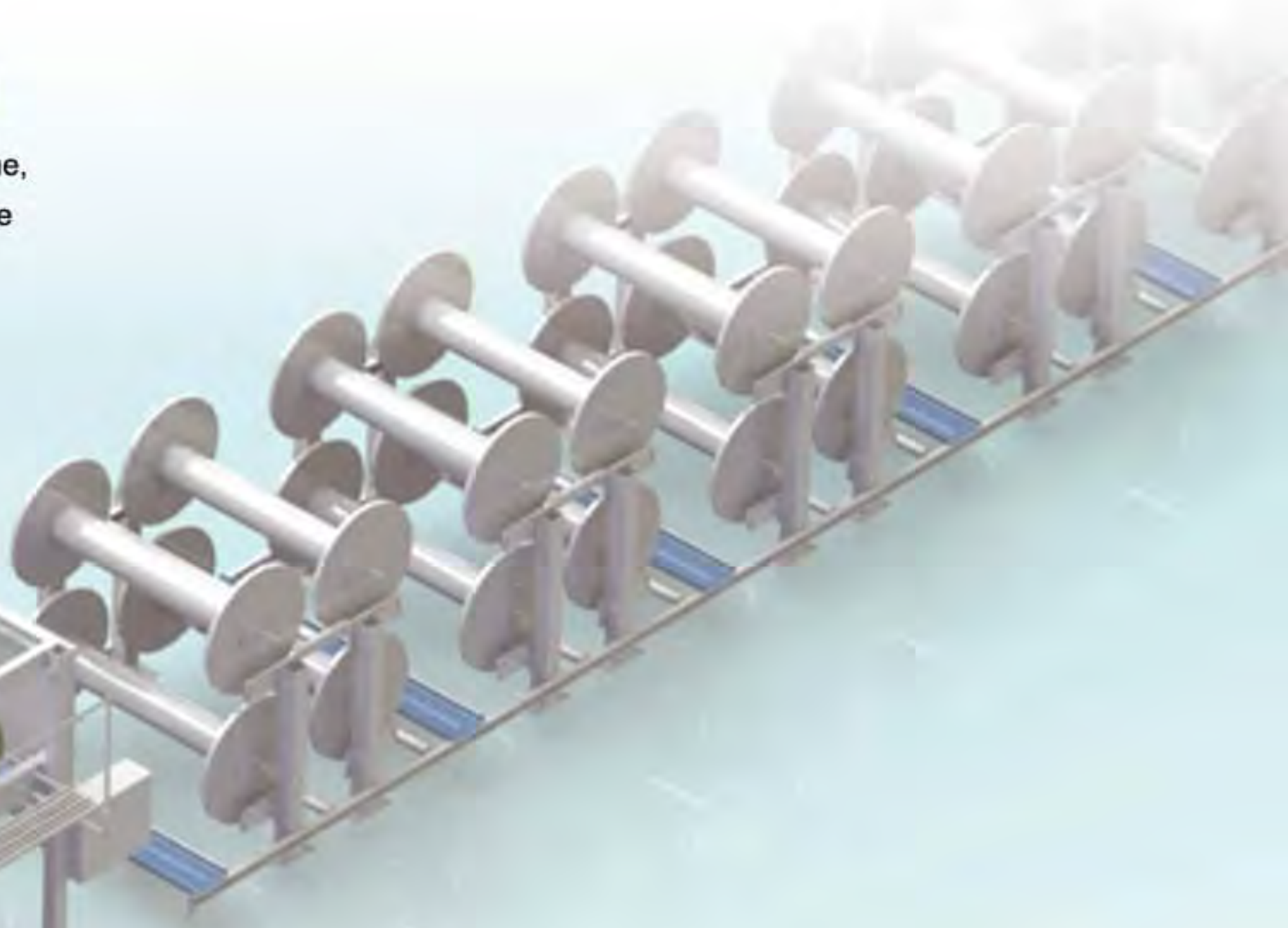
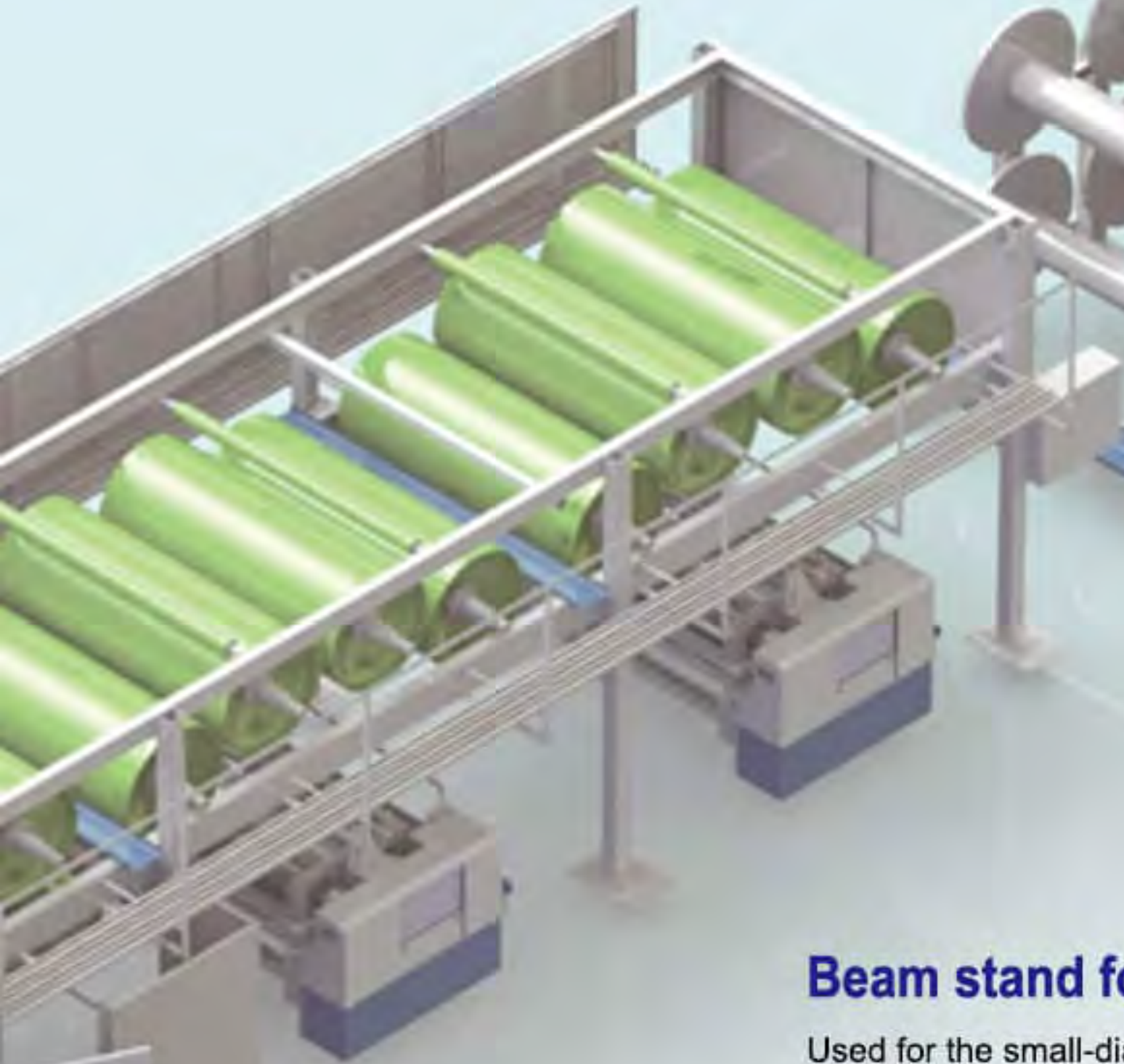
Fancy beam stand

It is possible to mix yarns of different kinds or different thickness that can not be sized simultaneously. The fancy beam stand is used as a beaming device.



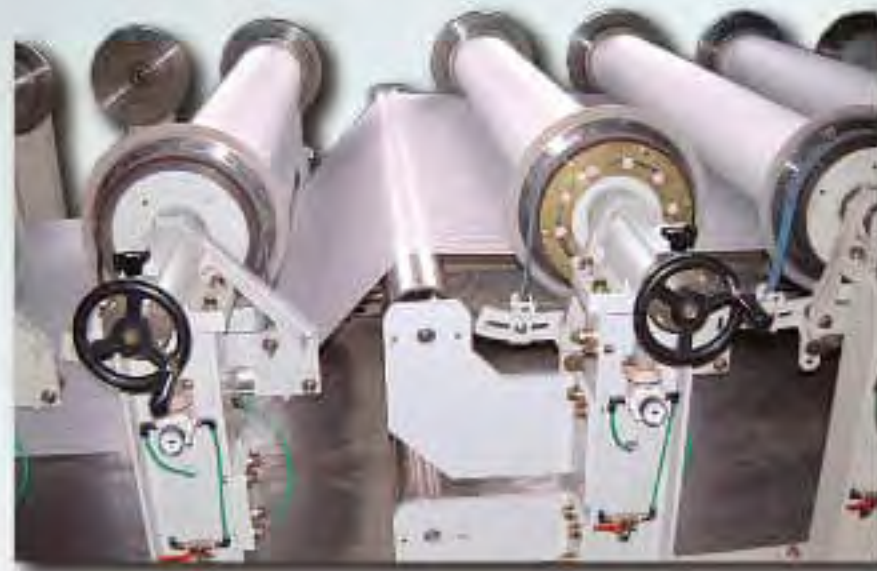
Combination moisture control

In addition to the conventional speed control in real time, temperature is automatically controlled according to the setting speed.



Beam stand for dyed yarns

Used for the small-diameter dyed beam.



Gingham stand

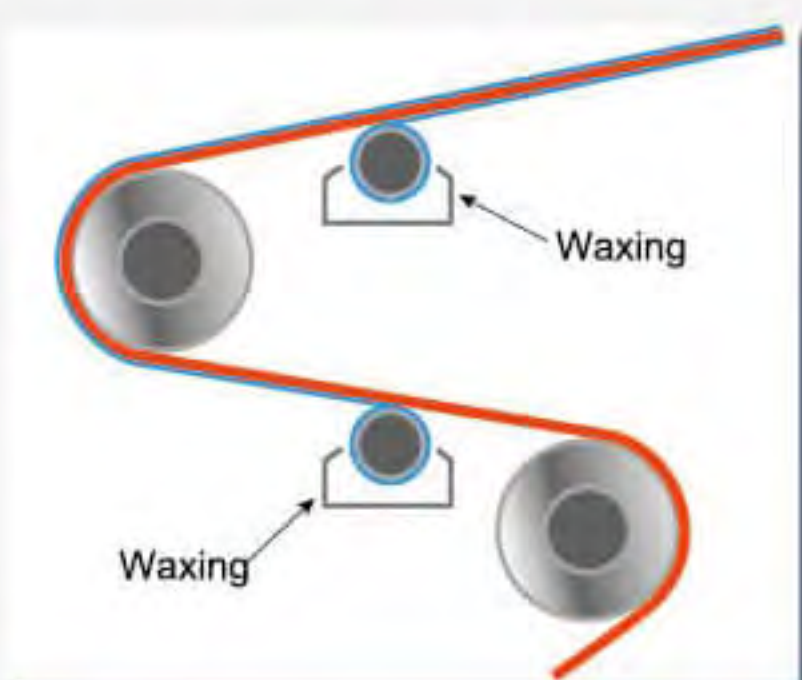
Dedicated beam stand for the beams warped with sectional warper.

*A leasing stand is sold separately.



Both-side waxing device

By meandering the yarn sheet, waxing both sides of the yarn sheet is possible. (More effective for fine count, high-density yarn sheet)



Handheld terminal

This is used to change the operating speed of the machine, which can be installed in the sizing section. It is possible to increase the machine's speed while checking the conditions of the sizing section during preparations, at the start of sizing operation, and during yarn break repair.



Mobile beam stand

Parallel arrangement of two or more beam stands reduces preparation time.





*Accent color: Indigo

TW10S *WARPER*

Contributing to the support of high grade sizing

High speed

Maximum 1,300 m/min. is available.
Required yarn speed can be set in the T-MDS.



*Accent color: Blue

Yarn length measurement with high accuracy

The wound length is measured with the press roll, enabling accurate measurement without slippage between the yarn sheet and the roll. Highly accurate measurement minimizes waste yarns in the following process.

Even beam surface

A straight expansion comb is used. By attaching it close to the rolls, the yarn is easily drawn into the comb.

To keep the pitch of the comb dents uniform, the comb is extended or shortened with a handle to adjust the take-up width, making the beam surface even. Even beam surface guarantees uniform and stable tension in the following process.

Safe

Powerful and high performance brake and safety bar ensure safe operation.

Press roll

The press roll presses the yarn sheet that is wound around the warper's beam. Optimum hardness and smooth surface of the warper's beam can be attained. Furthermore, kickback function prevents fluff at stoppage.



Quick stop device

The warper's beam and the rolls immediately stop with a STOP button, the yarn dust detector, or by the yarn break sensor in the creel. They also stop immediately during a power failure.

Easy operation

The T-MDS offers easy operation control.



Interlocking with TCR-V Creel

By interlocking with our TCR-V Creel, the operations and information of the creel can be centrally managed, helping quality management of the yarns. Details of yarn break in the creel are statistically analyzed and displayed, specifying defective yarn and notifying the yarn replacement.





*Accent color: Blue

TCR-V CREEL

TCR-SV CREEL

Yarn-friendly and reliable touch-free yarn break detection

Cutter

When exchanging yarn packages, a movable electric cutter reliably and immediately cuts the yarns.



Yarn break detection

A photoelectric yarn running detection system is used, resulting in fewer yarn guides and less fluff. It is possible to accurately detect the yarn break of even low-tension fine yarns.

The detection part is automatically cleaned with intermittent blown air, and lint does not accumulate. Touch-free detection of the running yarns are enabled.

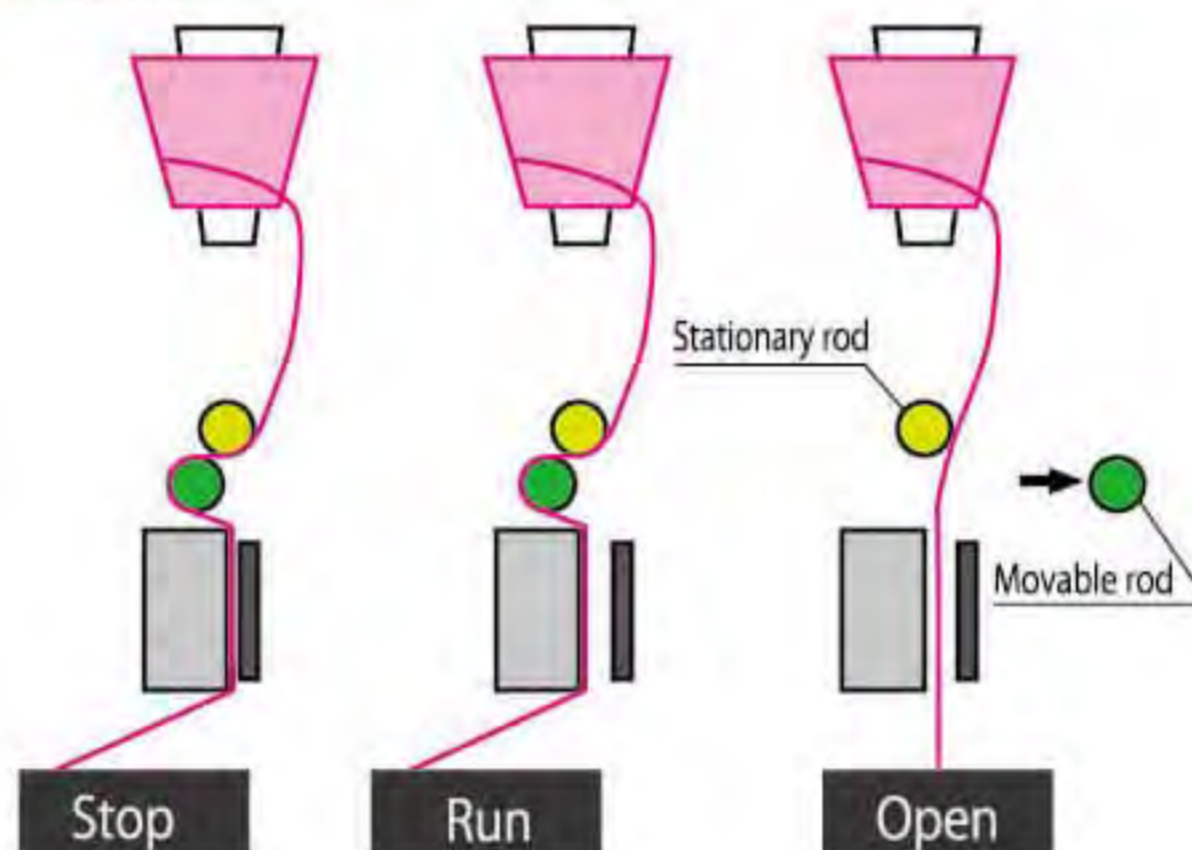
If the yarn breaks, the yarn break position is indicated on the T-MDS monitor and the indication lamps on the top of each row of the creel light up. Broken yarn can be immediately checked and repaired.



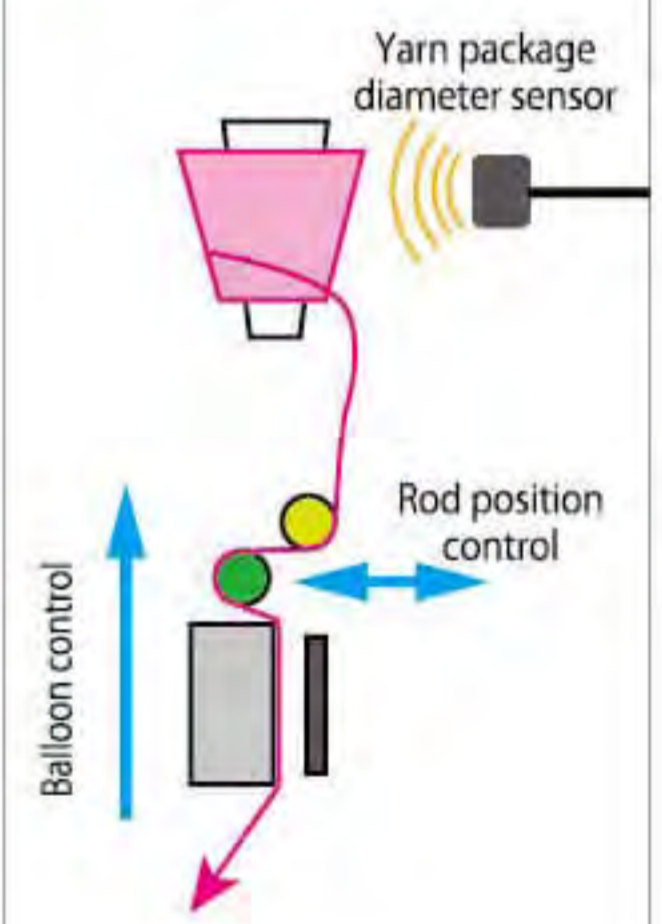
Tensioner

The rod sensor system with a movable tension rod is used. By setting three positions of the movable rods: Stop, Run, and Open, tension can be uniform and broken yarns easily repaired.

The brake is softly applied to the yarn according to the start/stop of the machine, preventing loose yarns when the machine accelerates or decelerates.



Ballooning distance control [Option]



Yarn package frame automatic exchange system [Option]

The whole yarn package frames are turned in thirty (30) seconds.



Ballooning distance control [Option]

Based on the yarn package diameter that is detected by the yarn package diameter sensor, the optimal distance between the yarn package and the tension rod is calculated. The tension rod is moved closer to the yarn package.

By properly keeping the distance between the yarn package and the tension rod to prevent multiple balloons, yarn breakage is reduced.

Tension control device [Option]

The creel tension is detected on the warper. The rod position control is used with the speed control from start to finish of yarn winding-up on the yarn package. It is possible to wind around the beam with constant pull-out tension. Constant and stable pull-out tension reduces yarn breakage, prominently effective for fine yarns.

TTS30S SPUN SIZING MACHINE

Item		TTS30S			Option
General	Nominal take-up width	1900 ~ 4000 mm			
	Sizing and drying width	1800 ~ 2400 mm			2800 mm (for wide fabric)
	Max. yarn speed	100 m/min., 125 m/min., 150 m/min., 180 m/min. (special design for terry loom), 200 m/min. (special design for terry loom)			
	Stretch control	Digital stretch control with multi section drive			
Beam stand	Stand	Double deck system (Yarn feeding from upper and lower decks), 4-block system			-Beam stand for dyed yarn
	No(s). of stands	12~32 stands Tension control with two lines			-Movable beam stand -Dedicated beam ruffle
	Pull-out tension control	-Air pressure simultaneous control system with individual pneumatic band brake -Feedback control			
Sizing	Method	Shower & dip squeeze	Nip & twin squeeze	Dip & twin squeeze	-Automatic size viscometer
	Max. squeeze pressure	1 st squeeze roll: 15 kN 2 nd squeeze roll: 40 kN			-Size pick-up monitor -Rotary filter
	Feeding device	Provided	Not provided (selectable)		-Mixed/Individual circulating switching type -Rod condensation device
	Enhanced retaining heat	Provided	Not provided (selectable)		-Handheld terminal
	Sub T-MDS	Provided	Not provided		
	Tension control before sizing process	Provided	Not provided		
Drying	Cylinder position	Provided above the sizing section			
	No(s). of cylinders	Pre-cylinder: 4 cylinders x 2 units Main cylinder: 4 cylinders			Main cylinder: 6 cylinders
	Cylinder driving system	Pre-cylinder: Positive drive + Semi-positive drive (Note 3) Main cylinder: Semi-positive drive + Positive drive (Note 3)			
	Cylinder's temperature control group	3G, 4G, 5G, 6G			
Middle section	Moisture analyzer	Speed control in real time according to the degree of drying			Combination moisture control Cut mark device
	Waxing device	Kiss roller system (With a dissolving unit and a wax-supplying unit)			Both-side waxing device Lifting contact roll Automatic wax supply device
Take-up	System	AC vector control			Lifting device
	Max. take-up tension	5000 N (150 m/min.), 6000 N (125 m/min.), 7500 N (100 m/min.)			Static electricity eliminator Mirror
	Max. press roll pressure	3500 N (~125 m/min.), 5000 N and 8000 N (150 m/min.~)			
	Loom beam mounting	-Dedicated adapter system -Provided with automatic lifting and doffing devices with vertical movement by hydraulic cylinder and the motor -Initial winding controller			
	Maximum flange diameter	1016 mm			1100 mm, 1250 mm
	Maximum weight of mounting beam	2500 kg			3500 kg
	Safety device	Photoelectric beam and swinging safety guard			Safety curtain
Other	Operation display	T-MDS computer control			Centralized lubrication device
	Steam equipment capacity	1200 kg/H (12 cylinders) (Note 4)			
	Electric equipment capacity	30 kVA (Note 4)			

Note 1: Drawings, data, and photographs in this brochure are subject to change for improvement.

Note 2: Some photographs in this brochure include optional devices.

Note 3: It is possible to use in combination with the negative drive.

Note 4: It depends on the specifications and conditions.

TW10S WARPER

General			
Take-up system	Direct take-up		
Take-up width	1800 ~ 2400 mm		
Yarn speed	600 m/min.	1000 m/min.	1300 m/min.
Max. flange diameter	1016 mm		
Maximum take-up tension	250 N		
Main body			
Drive motor	AC vector motor		
	7.5 kW	11 kW	15 kW
Beam brake	Hydraulic disc brake		
Beam doffing	Brake motor (conical beam), Automatic operation with pneumatic cylinder (Beam with shaft)		
Guide roll	Pneumatic disc brake		
Windshield screen	Raised or lowered linked to the machine operation		
Press roll	- Combined system of pneumatic disc brake and hydraulic cylinder - Provided with kickback function		
Tension application	Creel tensor		
Comb section	Straight expansion comb		
	Expansion/Vertical movement: With handle operation		
Traverse	Horizontal: 0 ~ 30 mm, Vertical: 5 mm		
T-MDS	Counter, yarn speed, tension setting display, alarm, event display		
Option			
Tension detection	Tension feedback control (When interlocked with the TCR-V)		
Yarn dust detector	Photoelectric type		
Yarn accumulating device			
Dust-proof fan			

TCR-V/SV CREEL

	TCR-V	TCR-SV
Creel shape	V creel	H creel
Tension application device	Rod tensioner	2-post washer type tensioner
Yarn break detection	Non-contact photoelectric type	Contact dropper system
Yarn break indication	Combined use of each spindle and each row	Combined use of each step
Overrun prevention	Overrun preventer is provided for each spindle.	
Cutter	Electric cutter (Manual sliding)	
Package replacement	Rotary frame (Electric type is optional)	Rotary frame
Fluff removal device (sensor section)	Blown air system	Fan system
Option		
Tension control	Rod tension control	
Ballooning distance control	Yarn package diameter sensor	
Balloon breaker		

Spindle number of TCR-V Creel

Number of rows	Horizontal pitch 235 mm		Horizontal pitch 285 mm	
	Vertical pitch		Vertical pitch	
	240	270	300	330
	9 steps	8 steps	7 steps	6 steps
29	522	464		
33	594	528	462	396
36	648	576	504	432
39	702	624	546	468
43	774	688	602	516
46	828	736	644	552
49	882	784	686	588
53	954	848	742	636
56	1008	896	784	672
59	1062	944	826	708
63	1134	1008	882	756
66	1188	1056	924	792
69	1242	1104	966	828
73	1314	1168	1022	876
76		1216		912
79				948
83				996

*Maximum mounting yarn package diameter = Efficient pitch – a
Standard value of "a": 20 mm
The value "a" may differ depending on yarn kinds.

Note 1: Data and photographs in this brochure are subject to change for improvement.

Note 2: Some photographs in this brochure include optional devices.

T-MDS (Machine Data Station)

The T-MDS computer control system with a full-color graphic display is provided on all preparatory machines (sizing machines and warpers) as standard. All the condition settings are available with a simple integrated touch-screen operation. Up to 300 styles can be registered. It is possible to manage all the operating conditions, preventing operational errors.



Driving conditions



Sampling

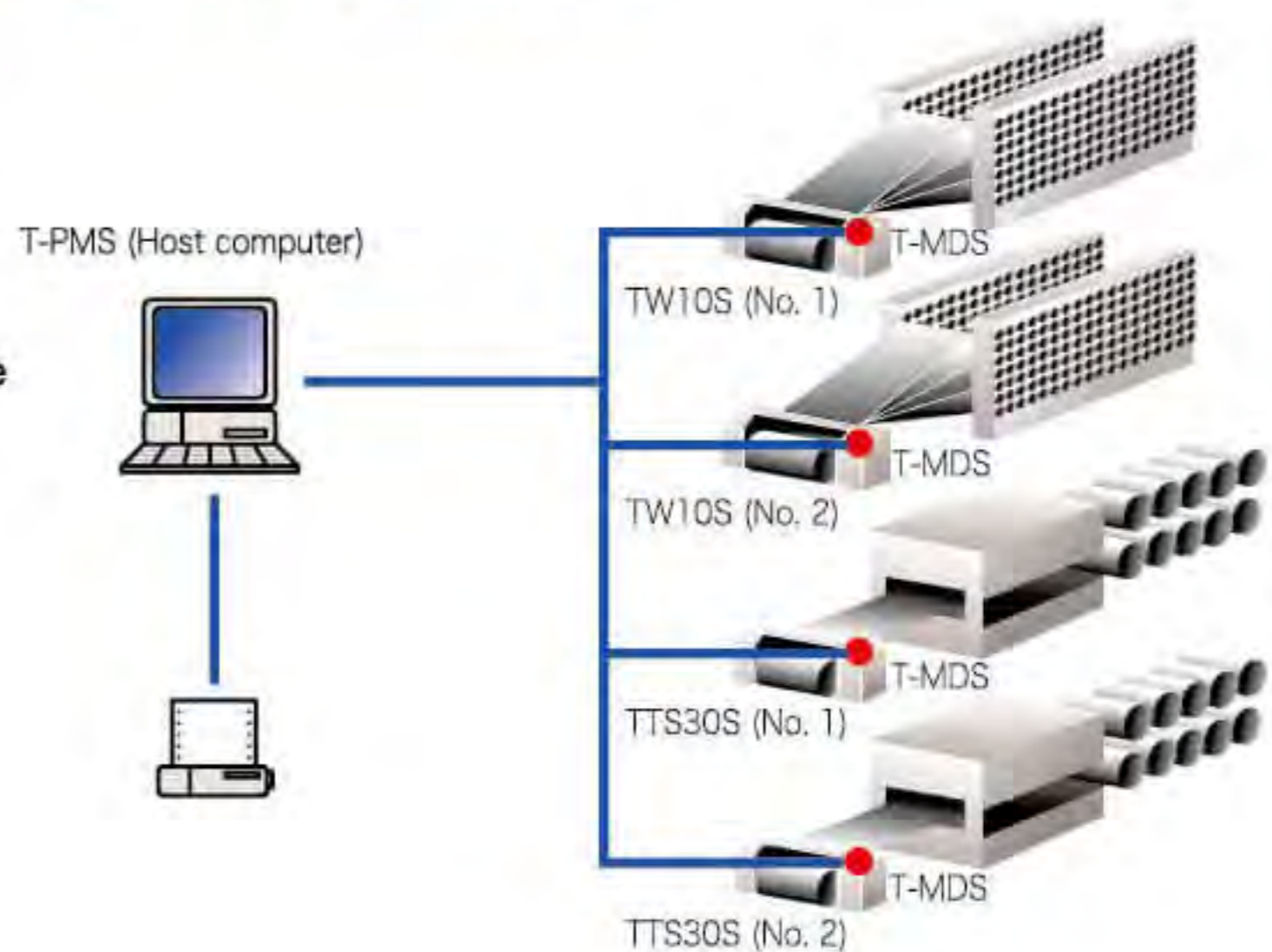


Sizing Navigation System

T-PMS (T-Tech Japan Preparation Management System) [Option]

Install the T-PMS T-Tech Japan Preparation Management System in the host computer. The machines can be centrally managed from the office. With the T-PMS, master data management of the setting conditions are unified between the machines, preventing setting errors and helping production control.

The data that is collected with the T-MDS is also available on the host computer, allowing operating rate control. It is possible to monitor alarms and problems with information between processes available.



T-NSS (T-Tech Network Support System)

Planned maintenance is supported. Downtime of the preparatory machines are minimized.

- Planned preventive maintenance
- Possible problem prediction
- Remote diagnosis of the problems

