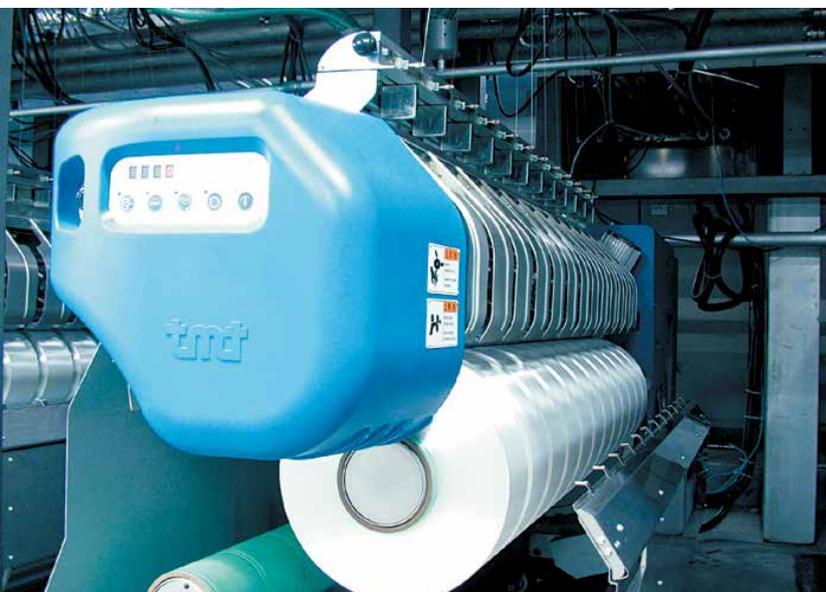
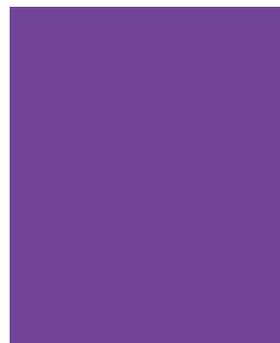




Futai Machinery Co., Ltd.

Equipments for Synthetic Fiber Spinning, Texturing Plants and Laboratory



Your Partner Specialized in Quality Devices



Cleaning Equipments

Pre-heat & Insulation Furnace



Technical Specification

The outer frame of Preheating & Insulation Furnace is made by welding the profiled bar; the lateral plate in the working room is stainless steel plate; the gap between the working room and outer wall is filled with fine quality aluminum silicate wool to carry out insulation and heat preservation. Also Pre-heating & Insulation can be mounted with universal mobile wheels to easily move around in the workshop.

In addition, it has separate control system, the heating component is installed in the inside, and the heat generated by the heating elements acts on the components inside the working room through the heat radiation function to warm-up the components.

Preheat & Insulation Furnace is mainly used for preheating and heat preservation of spinning parts, such as spinning meter pump, spinning finish pump, spin pack, spinneret and so on. It has the advantages of small floor area, short heating time, and energy-saving and high precision temperature control.

Hereafter some dimension is listed. We provide any dimension as requested.

	Model	Dimension	V/KW	°C	precision °C
Box pre-heat furnace	RXL-1-1	450×550×500	380/8	0-400	±1
	RXL-1-2	500×600×750	380/10	0-400	±1
	RXL-1-3	800×800×1000	380/15	0-400	±1
	RXL-1-4	800×1000×1000	380/18	0-400	±1
Horizontal pre-heat furnace	RXL-2-1	1200×600×250	380/12	0-400	±1
	RXL-2-2	1600×600×250	380/15	0-400	±1
	RXL-2-3	1800×700×550	380/18	0-400	±1
	RXL-2-4	2000×800×550	380/21	0-400	±1
Pre-heat truck	RXL-3-1	600×500×250	380/6	0-400	±1
	RXL-3-2	700×600×250	380/6	0-400	±1
	RXL-3-3	900×600×250	380/9	0-400	±1
	RXL-3-4	1000×600×250	380/9	0-400	±1
Tank pre-heat furnace	RXL-4-1	Φ290×230	380/3	0-400	±1
	RXL-4-2	Φ360×400	380/6	0-400	±1
	RXL-4-3	Φ450×450	380/9	0-400	±1
	RXL-4-4	Φ520×450	380/12	0-400	±1

Ultrasonic Cleaner



Ultrasonic cleaner is designed for gentle and efficient cleaning of air-jets for texturing and interlacing, ceramic parts, spinneret, candle filter, spin pack body, and other delicate parts.

Modern high performance ultrasonic facilitates the cleaning of air-jets for texturing and interlacing, ceramic parts, spinneret. Special advantages ensure cleanest parts in very short times without extra manual work or damage. Also removes persistent deposits in bores and hollow spaces.

The ultrasonic waves produce intense vibrations. The cleaning process is thus accelerated many times. The turbulent flow that is generated in the cleaning fluid removes the freed material quickly from the surface of the parts.

Ultrasonic cleaning units are easy to operate. The handling is problem-free thanks to the thermostatically regulated heating and timer. Housing and bath are made from stainless steel and thereby easy to maintain and wear resistance.

The units include a basket and lid made from stainless steel. Futai can supply tailor-made dimensions according to the size of the parts to be cleaned.

Hereafter we list one type of ultrasonic cleaner designed suitable for polyester filament spinning plant. We provide any dimension as requested.

Technical Data

Bath inside dimension L x W x H: 600 x 500 x 300 mm
 Unit overall dimension L x W x H: 760 x 680 x 560 mm
 Unit weight: 74kg
 Ultrasonic frequency: 25 KHz (adjustable 2%)
 Ultrasonic power: 1500 Watt
 Ultrasonic generator power supply: 220 /50 Hz
 Housing material: stainless steel
 Heating: to 110 °C
 Heating power: 3KW (380V/50HZ)

Use Instruction

1. Connect the cable on rinse tank to the plug of ultrasonic generator: ultrasonic output (f).



2. Put liquid into the rinse tank until the parts to be cleaned are immersed, if the heating device is switched on, the liquid must be over heating tube.
3. Connect ultrasonic generator (d) to 220V, 50Hz power.
4. When switching (c) on ultrasonic generator, the liquid in the rinse tank start to vibrate. And adjusting power adjustor (b) to get different power.



Ultrasonic generator (front)
 a:ammeter
 b:power adjustor
 c:switch



5. If using hot water, connect cables to 380V/50Hz power supply

and connecting it to the ground; the temperature can be adjusted via the switch on rinse tank. (Temperature switch on back of rinse tank)



Ultrasonic generator (back)
 d: ultrasonic generator power 220V
 e: fuse 15A
 f: ultrasonic output
 g: fan

TEG Cleaning Furnace



TEG is safe, nontoxic, colorless, transparent, neutral liquid. When it is heated to boiling temperature, which is 285°C under atmospheric pressure, it can alcoholize and dissolve high molecular polymers, so that the work pieces can be cleaned thoroughly.

Technical Specification

1. Inner tank is made by 1Cr18Ni9T steel as for rinse container. Cooling jacket is equipped outside inner tank to cool the triglycol (TEG) solution after cleaning. Insulating cotton is filled between cooling jacket and outer tank. The tank is separately equipped with outlets for heater, waste discharge and maintenance.
2. Condenser: it is installed on the upper left of the tank. Cold water, as cool medium, passes through interlayer of condenser in order to condensate vapor TEG, which then is collected and recycled.
3. Electric heating device: it is divided into two groups,

stainless heater tube in flange type directly inserted into TEG solution. Each group consists of 6 pipes, in "Y" connection.

4. Basket: it is used to contain work pieces to be cleaned.
5. Controller: automatically temperature controller, digital display, which main circuit adopts non-contact control, with over temperature alert function.

Cleaning Process

1. Disassembly filtering devices in order that most of high molecular polymers flow out. Unscrew all the screws and similar parts, and then put all these work pieces into basket.
2. Fill in the tank with TEG solution to about 70-75% volume of the tank.
3. Soak the basket with work piece to be cleaned into the tank, switch on instrument and heating device, set temperature to 285°C.
4. Open flow controller valve to 0-100L / H, and condenser valve.
5. Stop to heat and keep it at the temperature of 285°C; After 6-8hours, open cooling device to cool down the TEG solution.
6. When the TEG solution dropped to below 50°C, close the cooling valve, open the furnace lid, remove the basket.
7. Move the basket into water at the temperature of 95°C, then into alkaline solution tank at the temperature of 60-70°C, finally rinse it in hot water. If the work pieces are spinnerets, candle filters, and other parts which are specially requested to be clean, it must be cleaned by ultrasonic cleaning unit.

By now, the cleaning process is completed. Hereafter some dimension is listed. We provide any dimension as requested.

Model	Dimension Dia. × H	KW Voltage/KW	Temperature Precision	Work hour
RTL-3	Φ320 × 800	380V/9KW	± 1°C	≤8h
RTL-4	Φ420 × 900	380V/12KW	± 1°C	≤8h
RTL-5	Φ500 × 1000	380V/24KW	± 1°C	≤8h
RTL-6	Φ650 × 1200	380V/32KW	± 1°C	≤12h
RTL-8	Φ800 × 1200	380V/54KW	± 1°C	≤16h
RTL-10	Φ1000 × 1800	380V/63KW	± 1°C	≤16h
RTL-12	Φ1200 × 2500	380V/98KW	± 1°C	≤16h

Vacuum Cleaning Furnace



Vacuum Cleaning Furnace is designed for cleaning spin pack body, spinneret, and candle filter, spinning meter pump, other spinning components, especially suitable for profiled, fine denier spinnerets in synthetic fiber production industry, such as PET, PA, PP as well mould in plastic extrusion field.

Principle

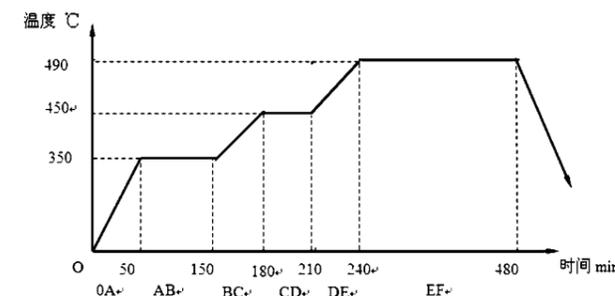
The principle of vacuum cleaning furnace is based on the property that high molecule of synthetic fiber, isolated from air, is to be molten when the temperature reaches up to 300°C, then melt polymers flow into waste collecting tank; when the temperature increases to 350°C, up to 500°C, polymer starts to degrade and exhaust out of furnace.

Example of Cleaning Process Setting

Cleaning process and its program setting depends on the character of spinnerets, candle filters and work pieces to be cleaned, property of polymers as well.

Hereafter it is the example of cleaning work pieces used on polyester staple fiber spinning systems.

1. OA phase: in 0-50 minutes heating work pieces up temperature 350°C.
2. AB phase: keeping temperature at 350°C of inner furnace for about 50-150 minutes, during this period more than 80% molecular polymer on the work-piece are molten and flow into waste collecting tank. This phase can be increased or decreased according to the quantity of molecular polymer to be cleaned.
3. After AB phase, switching on solenoid valve and vacuum pump.
4. During BC/CD/DE/EF phase, at the temperature of about 490-500°C in about 150-480minutes, under the conditions of vacuum, high temperature and low oxygen, the residuals of molecular polymers are fully oxidative degraded. The work pieces to be thoroughly cleaned or not takes place during this key period. During this period, the chemical reaction occurs as follows: $C_mH_n + O_2 = CO_2 \uparrow + H_2O \uparrow$. At the same time, by rinsing and pump, Carbon, vapor and substances are discharged out of furnace
5. After EF phase, it is cooling period, the power for heating elements and water supply are stopped, only instruments are power on.



Maximum temperature is set at 490°C, running time 8 hours; after 90minutes heating, vacuum pump starts.

In order to improve the cleaning effect and increase the life time of work pieces, after taking out of vacuum cleaning furnace, the subsequent process should be carried out, but depending on specific conditions.

1. Put spinnerets, candle filters or other elements into hot water tank to rinse for about 20 minutes.
2. Then carry these work pieces into ultrasonic cleaning unit for about 30 minutes, ultrasonic frequency 25 ~ 40kHz.
3. After rinsing inside ultrasonic cleaning unit, dry it by compressed air before examination under microscope
4. In case of silicone oil adhering to the surface of work pieces, before ultrasonic treatment, put it inside the liquid of KOH solution, at concentration 20%, temperature 60 ~ 70°C for about 2hours, then neutralization treatment with oxalic acid.

Hereafter some dimension is listed. We provide any dimension as requested.

Model	Hearth Dimension (LxWxH)	Heating/Vacuum Pump KW	Vacuum level MPa	Designing Temperature °C	Precision ±°C	
LZKL Furnace	LZKL-A	Φ 500×600	18/2.2	-0.07 ~ -0.085	600	2
	LZKL-B	Φ 600×800	21/2.2	-0.07 ~ -0.085	600	2
	LZKL-C	Φ 800×1000	30/4	-0.07 ~ -0.085	600	2
	LZKL-D	Φ 1000×1200	36/4	-0.07 ~ -0.085	600	2
WZKL Furnace	WZKL-A	Φ 500×600	18/2.2	-0.07 ~ -0.085	600	2
	WZKL-B	Φ 600×900	21/2.2	-0.07 ~ -0.085	600	2
	WZKL-C	Φ 800×1000	30/4	-0.07 ~ -0.085	600	2
	WZKL-D	Φ 1000×1500	36/4	-0.07 ~ -0.085	600	2
	WZKL-E	Φ 1700×4800	234/18.5	-0.07 ~ -0.085	600	2
JZKL Furnace	JZKL-A	600×400×400	18/2.2	-0.07 ~ -0.085	600	2
	JZKL-B	600×400×400	21/2.2	-0.07 ~ -0.085	600	2
	JZKL-C	1000×800×600	30/4	-0.07 ~ -0.085	600	2
	JZKL-D	1200×800×800	36/4	-0.07 ~ -0.085	0.45	2

Yarn Rewinding Machine

Rewinder Machine



- Dimension of 12spindles: 4700 x 580 x 1300mm;
- Dimension of 8spindles: 3270 x 580 x 1300mm (standard spindles);
- One side or 2 sides;
- Number of inverters: 2pcs, one for take up roller, one for cam;
- Equipped with tension device to adjust yarn tension;
- Aluminum fork arm: original complete set of Barmag bobbin frame;
- Cam box: original complete set of Barmag cam box;
- Take up roller: original complete set of Barmag take up roller;
- Motor of take up roller for 8 positions: 750W;
- Motor of cam for 8 positions: 550W;
- Traverse motor for 8 positions in order to produce good shape bobbin: 0.12KW;
- Cam shaft driven by AC motor, monitored by frequency inverter, power 0.7KW;
- Take up roller driven by AC motor, monitored by frequency inverter, power 0.7KW;
- Package type: parallel shape or bi-conical shape (specified when placing order);
- Tube length: 290mm;
- Tube inner diameter: 69mm and 57.8mm;
- Yarn traverse length: 250mm;
- Max. package diameter: 300mm;
- Package weight: up to 8kg.

Rewinder machine is used to rewind small DTY bobbins to large one, maximum capacity 8kg in all the DTY workshops in order to increase the percentage of A grade bobbins and also improve the efficiency of downstream process.

1. General Description

The rewinder machine, equipped with 2 inverters for cam shaft and take up roller respectively, adopts complete set of original Barmag texturing machine FK6 serial take-up systems and cam boxes, such as bobbin frame, cam shaft, traverse guide and so on to guarantee good package build and excellent unwinding property with synchronized anti-pattern and edge breaking system under the control of inverters.

2. Technical Features

- Number of positions: 8, 12, 16, 24, 48 or as requested by clients;
- One deck;

3. Options:

Oiling system, intermingling device, length measuring system, two plied yarn device (equipped with creels, yarn sensors/cutters, length measuring system).

Chips Moisture Tester

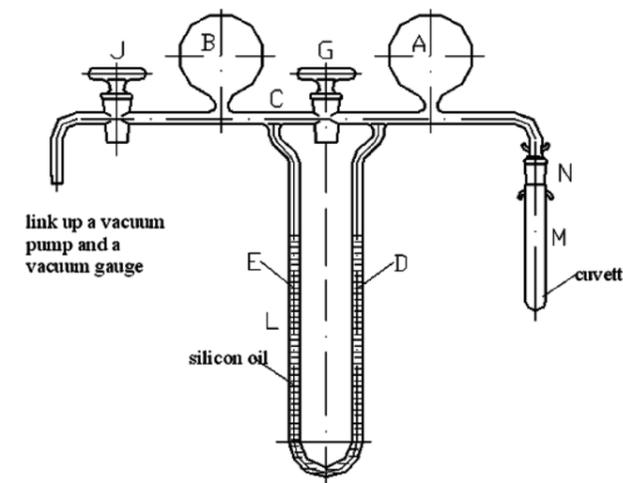
SF-1 Pressure Difference Moisture Determination Device

Determination of trace moisture in plastic particle includes pressure difference method, electrolysis method, Karl Fisher method etc. Among which, the moisture determination by differential pressure, with its advantages in rapidness, accuracy, operational convenience, and low operational costs, etc, has been widely applied during the intermediate processes in chemical fiber and plastic industries, especially for measuring the trace moisture contents in the particles such as polyester chips, nylon 6, nylon 66 chips, etc, which directly and considerably affect the quality of filatures prior to being molten and after being dried. This method is also applicable to measure the general trace moistures in the particles such as nylon 6, nylon 66, etc and plastic resins.

The determination device of moisture by the pressure difference method may be applied to measure extremely trace moistures bonded with the internal molecular structures of raw materials; but they may not be applied to measure the moistures balanced between raw materials and environments. When materials are heated up and molten with internally contained moistures, they may be degraded and their feature viscosity may be decreased, and product quality may be directly affected. It is generally required that prior to making filatures, the moisture ratio must be less than 0.03%; therefore, after raw materials are dried and before they are made into filatures, the pressure difference method must be applied to measure their internal extremely low moisture ratios. The moisture ratio in vacuum-packed plastics may also be measured by applying the pressure difference method.

This device can measure 1.5mg in water content at highest.

When test samples contain higher contents of the volatilizing mixtures other than water, the reliability of testing results must be considered.



Principles:

The test device shown in figure 1 is an air tightness system composed of one glass pipeline, one cuvette, and glass bulbs A and B. The U-shaped pipeline L holds a certain amount of silicon oil. Achieve a high degree of system vacuum when the air valve G is open; if the entire system is good in air tightness, the air pressures at D and E liquid levels at both sides of the silicon oil must be the same when close the air valve G, and the liquid levels of the silicon oil at both sides must be at the same horizontal level. If the air pressure at the right side rises up due to some reasons, then the pressure D at the right liquid level will rise up, the liquid level of the silicon oil will rise up or lower down accordingly, the right liquid level will lower, and the left liquid level will rise. If some water-containing substances are put into the cuvette in advance and such moisture may be released only under certain (such as heated) conditions, then when the conditions are not ready for moisture release, D and E liquid level pressures equal to each other; when such conditions are ready, the pressure inside the right system pipeline will rise up due to effects of the water vapors; D liquid level pressure will rise up, and the liquid level will lower down;

SF-1 Pressure Difference Moisture Determination Device

E liquid level will rise up; the pressure difference between D and E liquid levels is balanced with the pressure of the right side water vapors. The more the water vapors, the higher such pressure becomes; while the liquid level will rise up or lowers down more considerably. When the moisture content amounts to a certain value, and the water vapor pressure amounts to the critical point of saturated vapors, some of the water vapors re-condenses into water (in forms of fog or beads), and the pressure will not rise up any more. The moisture content corresponding to such critical point of saturated vapors is just the highest water content detected by this device.

Moisture determination by the pressure difference method uses a pairing method. Various known moisture contents are respectively used to examine and determine the different D, E liquid level rises or falls correspondent to different moisture contents. Therefore, when substances with unknown moisture contents are examined, their moisture contents may be determined according to the different D, E liquid level rises or falls.

Domestic manufacturers frequently apply this method to determine water contents of dried polyester slices and nylons, under a general examination temperature at:

Polyester chip	220 ± 5°C
Polyamide 6, 66, 69, 610, 612	195 ± 5°C
Polyamide 11, 12	170 ± 5°C

Technical Specification

The moisture determination device by pressure difference method is mainly composed of the following measuring part, and vacuum pump, heating part and temperature control part:

• Measuring part

Measurement part is shown in figure 1; it is composed of a set of glass structure, a vacuum pump, and a vacuum gauge; and a very good air tightness of the entire structure is required. The vacuum pump enables measurement part reach a high degree of vacuum prior to testing.

• Heating part

It is composed of a heater, a hearth and a lift platform with a cuvette suspension centering device. When the lift platform is raised up and a cuvette is inserted into it, test samples may be heated.

When a cuvette is inserted into a sleeve, the sleeve will suspend in the hearth; therefore, when the cuvette M is slantways (due to glass processing reasons, such slants can not be avoided) connected with the conical opening N, it can still stand freely in the hearth. Heat is transferred between the sleeve and the hearth via the heat transfer oil (silicon oil) (see figure 4); after a period of time, the heat transfer oil will vaporize and deteriorate, it must be added and washed at an appropriate time.



Fig.1

• Temperature control part

Temperatures are controlled by a single-chip microcomputer. Through slight touch switches, higher temperature control accuracies can be reached.

• Technical data

- Moisture ratio:
 - (5~500) ppm (when the test sample weighs 3g)
 - (30~3000) ppm (when the test sample weighs 0.5g)
- Corresponding measurable highest water content: 1.5mg
- Temperature range: (50~250°C)
- Reading error: ± 3°C (170°C, 195°C, 220°C)
- Temperature fluctuation: ± 2°C

DTM200 Model Tension Meter

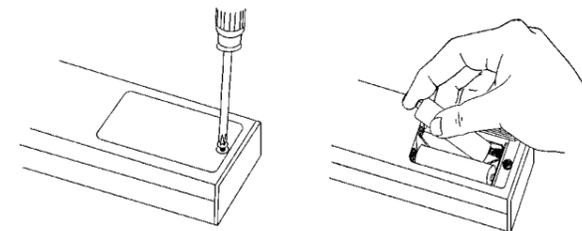


DTM200 model, a kind of textile testing instruments, is commonly used in textile plant, especially suitable for measuring yarns on line in order to help the process technicians set process parameter as a useful portable tool. Some common applications are listed as the following table.

Synthetic fiber plant	for texturing machine
Cotton mill	for winding machine
Knitting workshop	Used for precise adjustment of yarn feeders on circular knitting machine
Optical fiber industry	winding machine
Metal wire industry	for wire drawing or winding machine

Technical Specification

Battery

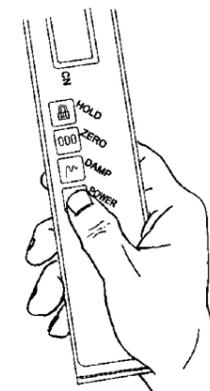


Use screwdriver to dismantle battery cover as above drawing, put in 2 AA batteries (attention: positive/negative), then tight the screw.

ON/OFF

Press POWER key and hold it, when tension meter LCD display shows [.200.], it turns on.

Press POWER key and hold it till tension meter LCD display shows [- - -], it turns off



MEASURE

Turn on tension meter, press ZERO key, show 0 on LCD display, press down the handle located in the middle in order that yarn runs on the grooves of ceramic guides which are on both sides and under measuring pin, release the handle to start measure yarn tension

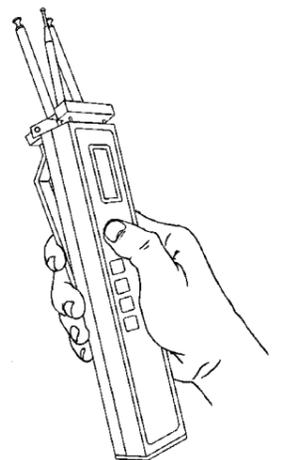
HOLD ON

During measuring yarn tension, press HOLD key into hold mode to keep data displayed on

Press HOLD key again back to measuring Mode

ZERO SETTING

Press ZERO key to set 0 values in different positions



DTM200 Model Tension Meter

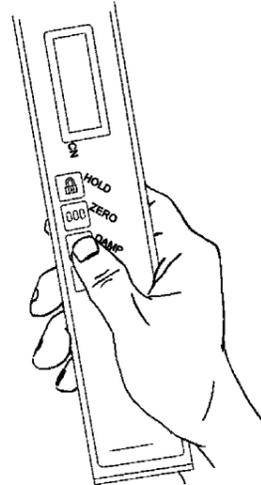
ELECTRONIC DAMP

If yarn tension is constant when measuring, press DAMP key to get more precise tension data.

Calibrate tension meter (note: the side surface of tension meter must be placed horizontally on a fixed plane during calibrating)

It can be recalibrated by the operator if necessary, it has two steps:

1. Zero value calibration: in measuring mode, press DAMP key for 3 seconds into calibrating mode. Tension meter's LCD display [C0. ---0] without load, press HOLD key,
2. Full value calibration: after zero value calibration, LCD display [C1. -100]. When tension meter is full load, press the HOLD key to finish full value calibration.



Data Sheet

Accuracy	± 1% full scale and ± 1 digit
Units	cN (100cN=1N)
Over-range	approx. 10% full scale, without accuracy guarantee
Overload protection	250% of tension range
Measuring principle	Strain gauge bridge
Measuring roller deflection	0.5 mm max.
Signal process	Digital, 12 bit A/D converter
Damp	Adjustable electronic damp
Sampling rate	approx. 5 kHz (internal only)
Display update rate	approximate 2 times /s
Display	4-digit LCD, 12.7mm high
Temperature range	10-45 °C
Air humidity.	Max. 85% RH
Auto power off	Automatically off after approx. 3 min. of non-use
Power supply	Two-Cell Alkaline Battery (2xAA) (about 50 hours of continuous use)
material	Aluminum profile with Aluminum outer casing
dimensions	230 x 52 x 46 mm (L x W x H); 350 x 270x 80 mm (L x W x H)
Net weight (gross)	approximate 500 g (1020 g)

Knitting Machine

KU483 Knitting Machine



Main Specification:

1. Needle cylinder diameter:89mm(3 1/2")
2. Machine types(Table 1)

Type	13	16	22	24	25	27	29
Needle No.	144N	176N	240N	260N	280N	300N	320N

3. Rotary speed: 0-350RPM(speed can be adjusted)
4. Machine dimension: (L)700, (W)400, (H)1700mm
5. Net weight: 85kg
6. Total power consumption : 300w
7. Production capacity: Continuous knitting style, knitting 5cm only takes 12 seconds, 300 sections / hour ; Discontinuous knitting style, 220sections/hour

Structure and Usage

1. This machine is consisted of five parts, which are frame, yarn-storage, knitting, take off, controlling.

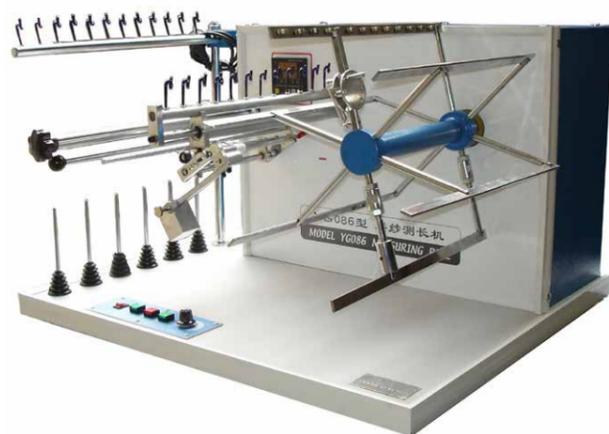
- Frame : Solid sheet metal frame
- Yarn-storage: STAR type storage –feeder winds the yarn from the package to the yarn-drum of the storage-feeder.
- Knitting: The needles and sinkers knit the yarn into a hose.
- Take off: the ratchet wheel and roller continuously draw the fabric to the box, which stores the fabrics.
- Controls: After receiving the order, then control the running.

KU483 (B) Knitting Machine for Dyeing Test

KU483B knitting machine for dyeing test is a new high-efficiency knitting machine, which was carefully designed to fit the requirements of the industry. This machine will run stable and reliably utilizing a computerized controlling system, adopting the inverter to adjust the speed, is suitable for knitting chemical fibers in the range from 10-600 dtex. It is the ideal equipment for the chemical fiber maker and knitting factory.

Wrap Reel Tester

YG086 Wrap Reel Tester



The Wrap Reel Tester is used to reel the yarn from the bobbins to test the yarn linear density or count, which is common lab equipment for textile plants. It is suitable for all types of textile yarns, such as natural yarn, synthetic fiber.

The Wrap Reel Tester conforms to National Standard GB4743 "Measuring Method of Yarn Linear Density (or count)".

Technical Specification

- Number: max.12
- Gauge between bobbin holder
Perimeter of reel:
 - Model YG086 serial: 1000 ± 1mm
 - Model TG086 serial: 54 ± 1/16in
- Speed: Infinitely variable speeds within the range of 30~300rpm.
- Range of turns: 2~9999 turns
- Traverse reciprocating width of reeling: 21mm
- Range of single reeling tension: 0~100cN
- Power supply: Voltage: 220V; Frequency: 50Hz
- Overall dimension: (L × W × H)
 - Model YG086 Serial: 780 × 660 × 480mm
 - Model YG086E: 820 × 660 × 550mm
- Net weight: 55kg

Reel

The reel consists of six pieces of blades. The yarn winding around the reels is in the shape hexagon. One blade of these is moveable in order to take off the yarns from the reel.

Reeling Tension

The reeling tension can be adjusted through tension regulator, which consists of two pieces of parallel tension bars.

Transmission Mechanism

The rotation the reel and the traverse reciprocating travel of the reeling is driven separately by two individual motors.

(1) Rotation of reel

The reel is driven by an individual DC motor through a pair of pulley and speed change box. The reel starts steadily and changes into slower speed by itself at last one preset turn, then stop automatically at the preset turn.

(2) Traverse reciprocating travel of reel:

The individual synchronous motor drives directly a cam to make a constant-rate traverse reciprocating travel constantly.

Control Mechanism of Turns

The turns are pre-selected by the hand key on the counter. The turns rotated by reel is changed into a signal by contactless switch and displayed by digit counter.

Yarn Crimp Contraction & Shrinkage Tester

YG368 Automatic Yarn Crimp Contraction & Shrinkage Tester

The computer-controlled instrument YG368 automatic yarn crimp contraction and shrinkage tester is used for the test of the crimp contraction and boiling water contraction of textured filament yarns (polyester, nylon, and polypropylene).

In testing process, there are functions of automatic changing load, adding load, automatic timing, auto-measure length and automatic calibrate zero. Test results are automatically computed and printed.

Technical Specification

The instrument consists of six parts: oven, electronic balance, test stands, industrial computer and printer. The appearance is like picture 1.

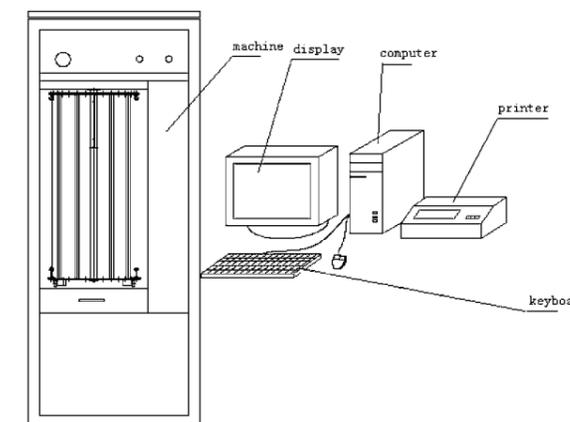
The main technical parameters are as follows:

- Load force: 2.5-5000cN (arbitrarily set & automatically applied), accuracy 0.2cN
- Sample length: 1000mm
- Length resolution: 0.04mm
- Test indicators:
 - Crimp contraction CC (%), Crimp modulus CM (%), Crimp stability CS (%), Shrinkage S (%) and its mean, standard deviation, CV values.
- Data input: Via keyboard and mouse
- Data output: Screen display, printing by printer
- Number of test samples at one time: 30
- Power: 220V, 50HZ, 0.5KW, oven: 4.8 KW
- Compressed air: (0.4-0.8) Mpa
- Data storage and query

Main Features

- It is controlled by IPC and enhances the reliability of the whole machine.
- It uses imported high-precision electronic scale which helps to get high precision and good reproducibility.

- Test data is automatically saved to facilitate management and application.
- The software can automatically change parameters according to user's request for quality manager to analysis
- Instrument can be easily connected to Internet with a network card



Picture 1

Crimp contraction, crimp modulus and crimp stability are calculated from the measured lengths using the following formulas:

$$\text{Crimp contraction } CC(\%) = [(L_g - L_z) / L_g] \times 100\%$$

$$\text{Crimp stability } CM(\%) = [(L_g - L_f) / L_g] \times 100\%$$

$$\text{Crimp modulus } CS(\%) = [(L_g - L_b) / (L_g - L_z)] \times 100\%$$

For optimum development of the yarn crimp, the yarn hanks are subjected to a thermal treatment prior to test start.

It is a test instrument for fully automatic length measurements on yarn hanks, characterized by its high flexibility in terms of test sequence configuration, choice of measuring loads and time-intervals for the loading- and unloading periods.

Yarn Tensile Tester

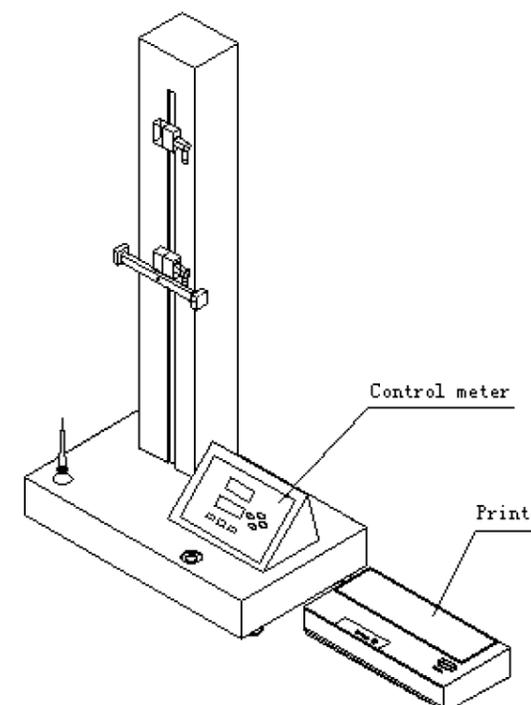
YG020B Single Yarn Tensile Tester



Model YG020B Electronic Single Yarn Strength Tester is one which is controlled by the microcomputer, driven by the stepping motor and working according to the principle of the constant rate of extension (CRE). It can be used to measure the tensile strength, the break elongation as well as the length under constant force, the force under constant length of yarns of cotton, wool, silk, ramie and chemical fiber etc., and the measured data can be printed out by the printer after mathematical statistics, or be connected with PC to make communication (additional order).

The principle and features of the tester are in accordance with the international standard ISO2062-1993 <Methods to Measure Break Load and Break Elongation of Single Yarn> and the national standard GB/T3916 <Measurement of Break Strength and Break Elongation Rate of Single Yarn Package Yarn Textile>.

Model YG020B Electronic Single Yarn Strength Tester consists of the main tester and the printer. The outline of the tester can be seen on the following figures.



All operations of the tester are done under the control of the built-in computer. The tension sensor in the tester is connected with the gripper. When yarn is tensed, the tension is measured by the sensor, and the elongation can be calculated by the stepping motor.

The main machine of the tester consists of the base box and the vertical column. In the base box, there is the electrical control part on which the control panel and the yarn holder are installed. In the vertical column, the motor is installed and the motion can be transmitted by the toothed belt and lead screw. The upper and lower gripper are gripped by screw style and the lower gripper connected with the screw nut can be moved up and down.

When test is made, only data such as count of yarn, packages of sample, time of tests, velocity, length and print mode are set can test be operated. The test results are displayed on the window and printed out on the printer and the statistical results can also be printed out via the computer.

Technical Specifications

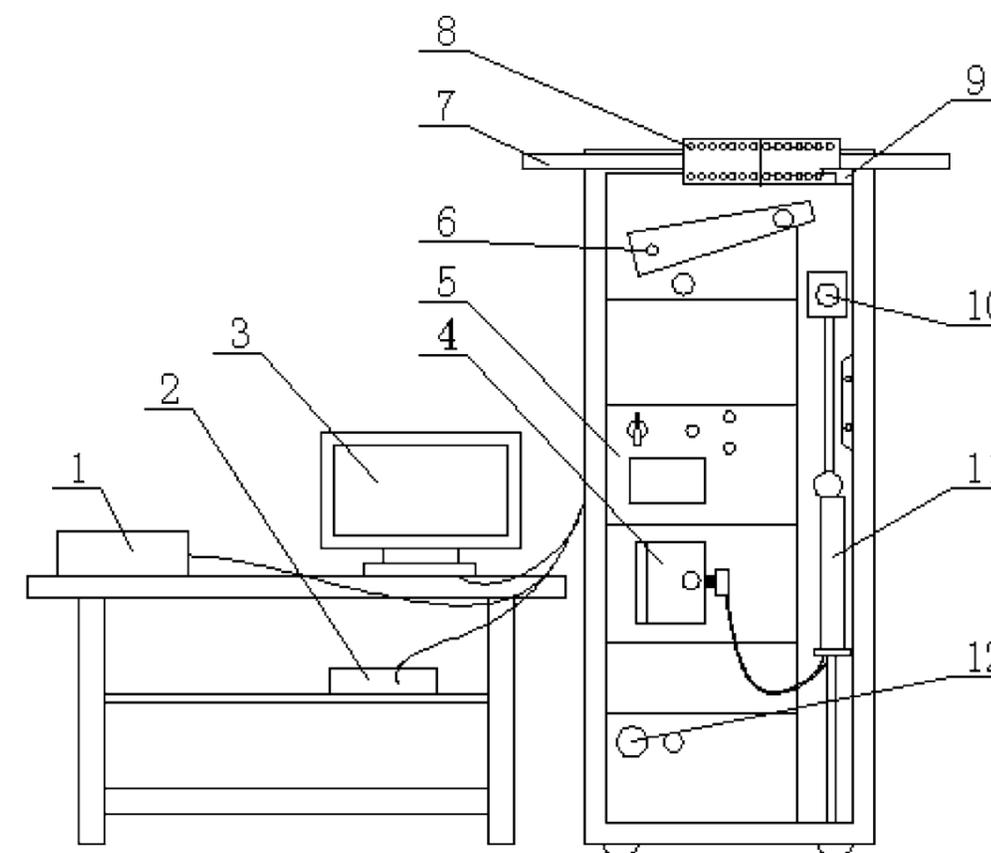
Type	constant rate of extension (CRE)
Measuring Range of Load	0~5000 cN
Display Accuracy of Load	± 1%
Measuring Range of Extension	0~250 mm (gripping distance 500 mm)
Tensing velocity	20~1000 mm/min (stepless adjustable)
Accuracy of Tensing velocity	± 1%
Gripping Distance	50~500 mm arbitrarily adjustable, but 100, 250 and 500 mm are recommended
Pre-Exerted Tension	tension exerted manually
Times of Test:	number of bobbin × number of time ≤ 300 times
Output Style of Data	display tensile, break elongation; print break strength, break elongation rate, break strength, break time and statistical results
Power Supply & Consumption	220V ± 10% 50 Hz, 0.3 Kw
Ambient Requirement:	temperature 20 ± 5°C & relative humidity < 80%
Outline Sizes (L × W × H):	600 × 350 × 1100 mm

Yarn Tensile Tester

YG023B Automatic Yarn Tensile Tester

YG023B automatic yarn Tensile tester, which is controlled by PC, is used for determining the physical characteristics of yarn or filament, such as breaking force, elongation at break, breaking tenacity, time-to-break and force-elongation curve. The tester is integrated with a PC that is equipped with Windows operating system, color display, keyboard, mouse and printer, so that data acquisition, calculation and output are fully automatic.

By gripping specimen with pneumatic means, the draw-off clamps of the tester work reliably without any damage to specimen. The tester features high automation, convenient operation, stable performance and accurate testing. It is a high-tech electromechanical product at the world level among its counterparts.



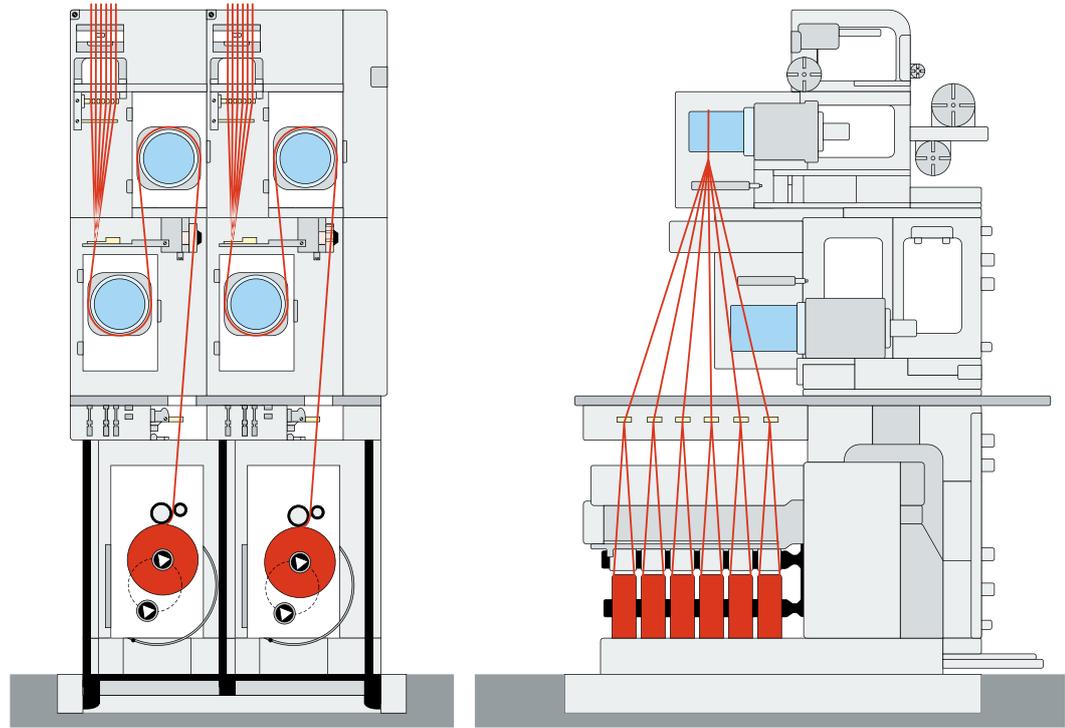
Technical Specifications

Type	constant rate of elongation (CRE)
Load range	0~5000 cN (range scaled at 2500 cN, 1000 cN)
Accuracy of load indication	± 1%
Gauge length & accuracy	(100~500)mm (infinitely adjustable) Accuracy 1 mm
Measurement range of elongation	(0~300) mm(gauge length = 500mm)
Test speed	(20~10000) mm/min (infinitely variable speed) Accuracy 2%
Pretension	(0~150) cN
Clamping mode	Pneumatic clamping pressure: (0.4~0.8) Mpa
Max number of tests per package	300
Data input	Input by keyboard or mouse
Data output	Output data including: breaking force, elongation at break, breaking tenacity, time-to-break, work done, elongation at specified force, force at specified elongation, as well as max., min., mean and CV% in statistical block Display:CTR color display (force, elongation, force-elongation curve) Printout:single test value, statistic values and force-elongation curve of test data
Mains supply	Voltage: 220V Frequency: 50Hz Power: 1.2KW
Weight	300 kg
Working environment requirements	Temperature (20±5) oC Humidity <80%RH
Overall dimensions (L x W x H)	Main unit: 650x580x1730mm (excluding display) Yarn creel: 1200mm × 160mm × 500mm Air compressor: 650mm × 370mm × 500mm (Optional at order)

Functions for abnormal value elimination, timed drawing, data save and query.

1. Printer	2. Keyboard	3. Display	4. Suction box
5. Control box	6. Manipulator	7. Head traverse bar	8. Front guide rack
9. Scissor	10. Upper clamp	11. Lower clamp	12. Manometer

The main unit is built with a cabinet structure, which contains IPC chassis, transmission system, force measuring system, length measuring encoder and drive circuits.



Futai offers you the solutions in the field of synthetic fiber spinning, texturing machine, related utility and yarn quality test&control center. Futai is more than a source of standard quality components and auxiliary equipments, as well a reliable and specialized partner in the innovation, design and custom made parts to reach your highest specifications, provide you high-performance products and services, facilitate you handling and maintenance in your daily operation, also with the goals of saving your time and money.

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