

# Green Tea Manufacturing Machines Catalogue

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We support tea producers!

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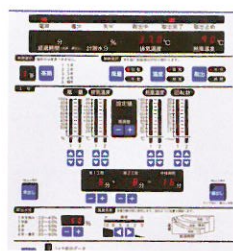
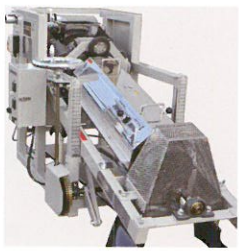


## Products Catalogue

KAWASAKI Tea Manufacturing Machines



**Kawasaki Kiko Co., Ltd.**



## Advanced technology tailored for the next generation of tea processing industry.

**The development steps of tea manufacturing machinery itself narrate the history of Kawasaki.**

Mechanization was introduced into the tea processing industry over a century ago. Since then, Kawasaki has been producing tea processing machines and, as pioneer in this industry, has been faced with numerous and difficult challenges.

In order to improve quality and efficiency as well as to economize manpower, we have digitized the tea-producing process and developed computerized devices, while increasing our production capacity.

We have earned an excellent reputation in the business thanks to our management system of tea plantations, relying on riding-type tea harvesters, as well as our uncompromising dedication to quality, which has enabled us to improve our steaming process and thus capture the uniqueness of each tea's flavor.

At Kawasaki, we will continue striving for innovative activities by developing machinery tailored to our customers' needs and by relying exclusively on cutting-edge technology adapted to the future requirements of our business.



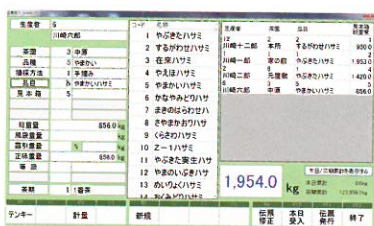
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## Data keeper: Tea factory total management support system

### Data keeper offers a more user-friendly interface!

- ◎ The adoption of large screens makes it possible to display more information on a single screen.
- ◎ The Menu interface has been newly redesigned to improve visibility and ease of use.
- ◎ Moving the cursor to the top of the screen displays an explanation of the program functions available on the Menu screen.
- ◎ All data are displayed on the left side on the screen. Previous data can be easily checked with a single click.
- ◎ The high-speed processing makes it easy to re-examine the provisional estimate of the unit price.
- ◎ Since corrections to records are now listed on the display, confirmation and changes have become even easier.
- ◎ Organization of data per year makes it easy to check past information.
- ◎ Compatible with Microsoft Windows 7.



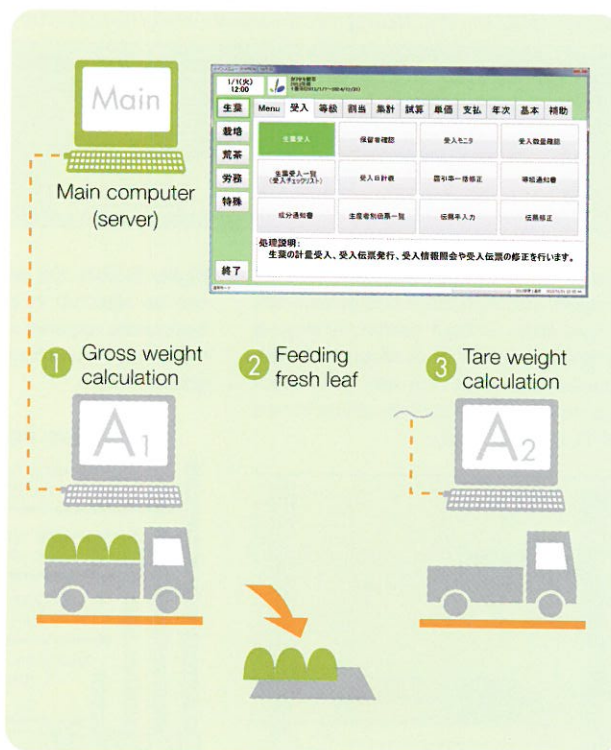
#### Acceptance screen

Move the cursor to an item for which you want to enter data on the left side of the screen. This displays a selection list in the center while keeping the other data displayed in the background.



#### Fresh leaf acceptance list

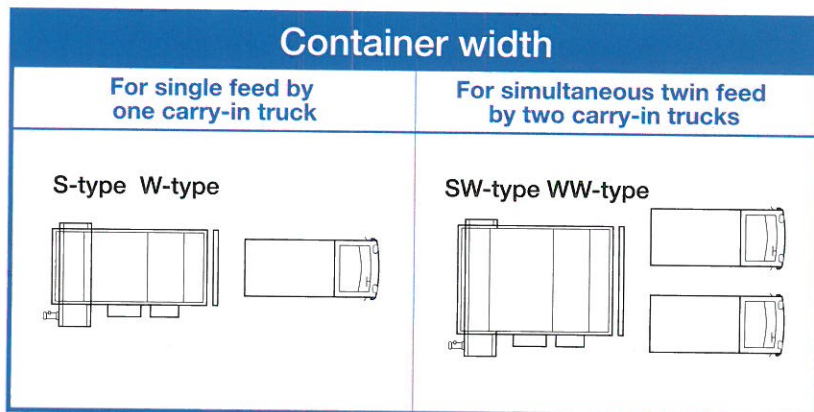
Selecting the date of acceptance instantly displays all the details and allows instant printing.



## Fresh leaf receiving container

Different capacities to meet specific factory space

Large-capacity model allowing for a high volume of fresh leaves

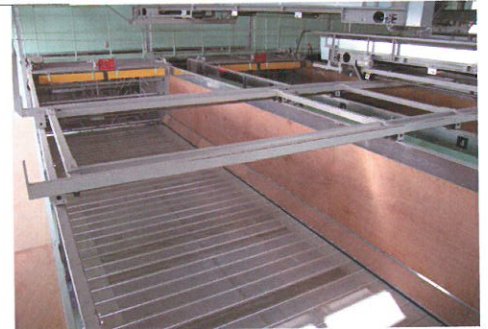
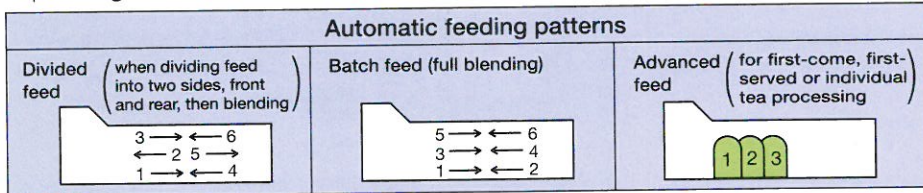


- ◎ Enable simultaneous feed from several trucks and automatic sampling from two consignments, as well as storage of the leaves in a sample box.
- ◎ Integrated cooling apparatus immediately lowers the temperature of brought-in fresh leaves.
- ◎ The caterpillar speed is adjustable with an inverter.
- ◎ A rake-down apparatus gently extracts fresh leaves, keeping them intact.

## Automatic fresh leaf container

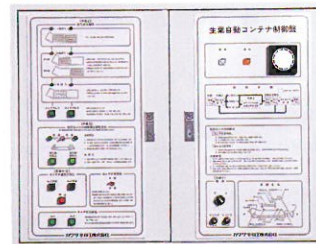
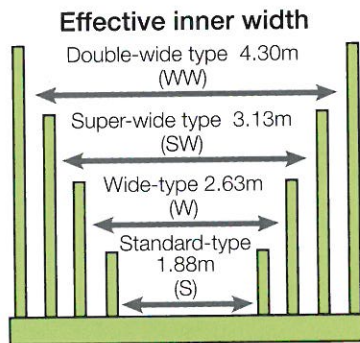
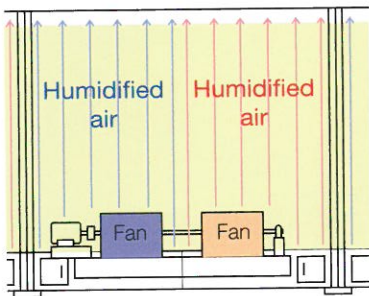
The storage container keeps fresh leaves intact and allows easy maintenance.

3 automatic feeding patterns with 4 types of storage methods can be selected depending on the transport situation and manufacturing methods.



Since the air duct is divided in 850mm lengths and each block has its own fan, partial blow without wasting energy is possible even for small amount of fresh leaves. Moreover, the fan of a block containing no fresh leaves can be turned off to save electricity.

**Highly flexible: the easy-to-use container can be selected in accordance with the leaf quality, required amount and space. It also allows combination with models of different width.**



### Fully-automatic panel

Allows one-touch selection of the feeding container, feeding method (DX-type only) and container to extract leaves from. When the feeding container is changed, the DX-type remembers the feed end and resumes feeding to previous container without wasting any space.

### Feeding

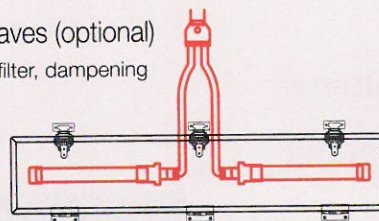
The DX-type features a new feed function for each container. Feed height can be adjusted to low, medium and high (optional).

### Dripping-type water supply to keep the freshness of leaves (optional)

This optional dripping-type water supply sprinkles water over the filter, dampening a large surface of the filter and improving humidification.

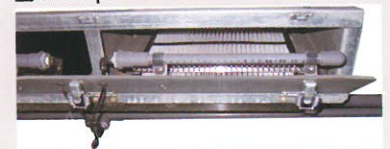
#### Attachable to an existing automatic container

To install the water supply, divide a tube connected to an installed water pipe into two. Then connect 2 dripping pipes to a ventilation lid (red part).



### Patented article

#### Example

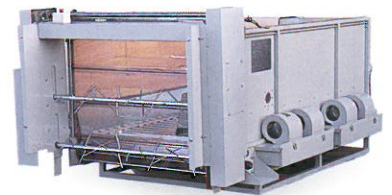


## Fresh leaf container

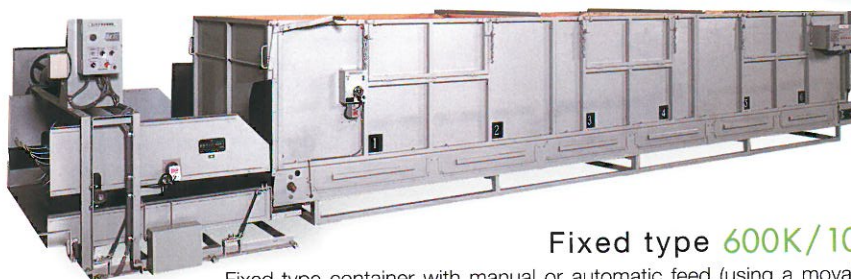
Perfect for small-scale, middle-scale factories and private facilities

### Movable type 300K

This movable container features automatic removal of leaves enabled when attaching it to a fixed vibration hopper or a rake-down apparatus. Suitable for individual tea rolling process.



100K/200K



Fixed type 600K/1000K/1300K

Fixed-type container with manual or automatic feed (using a movable fresh leaf feeding conveyor). Automatic removal of leaves is enabled when attaching the container to a fixed vibration hopper or a rake-down apparatus.

## Leaf washer-feeder

### Effective water utilization and efficient filtering

- ◎ A substitution for a leaf feeder allowing space reduction.
- ◎ Cleaning capacity can be increased by combining this feeder with an existing washer.
- ◎ Effective removal of ash can be obtained by complete immersion of the leaves in water with the use of a roller inside the tank.
- ◎ The use of mesh belts allows quick separation of moisture from the leaves.
- ◎ Sand separator filters water effectively. Additionally, the water circulates repeatedly during the washing process in order to reduce the water usage.



## Fresh leaf washer

### High-quality tea is made from clean fresh leaves

#### ■ Washes off dust with swirl flow of water

The fresh leaf washer produces a swirl type of a bubble jet water to wash off dust. Final shower rinsing guarantees a cleaning efficiency higher than on conventional equipment.

#### ■ High-pressure water rinsing completes the cleaning process.

In the final phase of washing, high-pressure water washes off dust from the leaves while the rotary drum reverses leaves.

#### ■ Easy-to-clean equipment

The washing tank and filter layer have been downsized. Easy to clean thanks to larger openings. Serviceability has improved with the new design of a compact washing tank and filter. Easy to access and easy to clean.



## Batch-type fresh leaf dehydrator

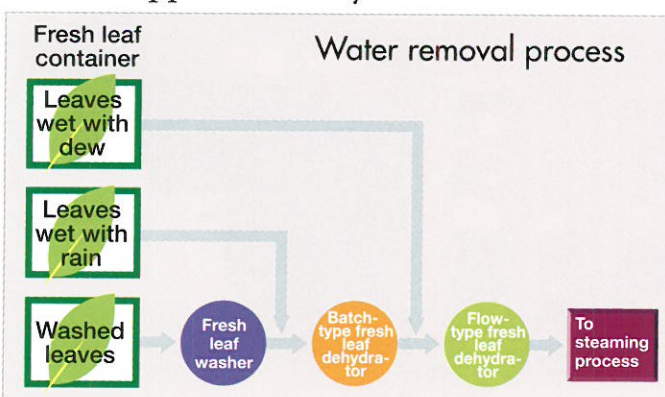
### Inverter-controlled dehydration removes the surface water efficiently

- ◎ Maintenance is easy since the drum is directly connected to a motor.
- ◎ Speed change and quick stop of the rotation drum can be controlled effectively by an inverter with an excellent durability.



## Flow-type fresh leaf dehydrator

### Steaming is conducted after removing the moisture from the surface of leaves. The leaf appearance stays excellent and so is the color of liquor!



### Drum-type dehydrator

When leaves pass through the rolling stainless-mesh drum, hot air is blasted in to evaporate the surface water.



## Fresh leaf flow meter

The leaf flow meter is designed not only to measure the fed volume but also to keep the feeding volume constant.



- ◎ The calculator on the control panel makes it easy to obtain the required amount of fresh leaves based on the production line configuration.
- ◎ Since the feed is controlled at a fixed rate, flow adjustment is unnecessary on the feeder. Tea leaves can be fed into the steamer using the vibrating conveyor.
- ◎ The required vapor quantity based on the specified fresh leaf flow volume is calculated and displayed on a digital display.
- ◎ Integrating volume is shown on a digital display.

## Tea leaf feeder

Flexible application from 300K to 900K, in accordance with the steamer.



- ◎ Continuously-variable transmission belt enables feed adjustment based on the leaf type.
- ◎ Features a unique mechanism linked to the internal structure of the hopper and producing an up-and-down motion to prevent hanging.

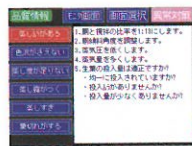
## Microcomputer-controlled steamer

Steaming time feedback control achieves high-quality color and astringent taste

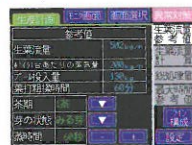
The steaming process is automatically controlled with the touch-type control panel, improving operability and stabilizing the steaming quality. The unit is composed of a fresh leaf flow meter, vibrating feeding conveyor, tea steamer and weight measuring table. The degree of steaming can be kept constant by automatically adjusting the degree of inclination.



Steamer control panel



Quality information screen



Production plan screen



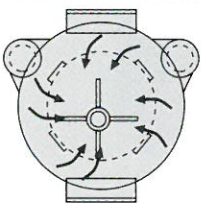
## Steamer

Contributes to the uniqueness of the tea by reflecting regional characteristics

### H-MR [Rotary type/heat-retention type]

**H-MR1 (Standard type)** **H-MR3 (High-power type)** \* Select from these two types

- Rotary type (Steam jet rotating mechanism) Vapor is sent into the entire drum to steam evenly in a short time.
- The heat-retention layer consists of a steel-plated, double-layered pan. It reduces steaming dew condensation and prevents leaf discoloration.
- Stainless mesh is used in the steam chamber. A rotating brush is also attached to the outside of the mesh to prevent clogging.
- Features double vapor intake apertures on both right and left sides of the pan. The intake aperture on the left has a valve to adjust the vapor intake amount.



#### ■ Steam jet rotating mechanism

##### Even leaf steaming

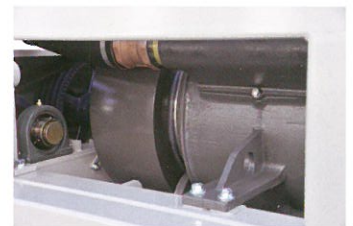
Steam is taken inside from the whole circumference of the drum. Leaves are evenly steamed in a short time.

##### No damage to leaves

Since the stainless mesh rotates inside the chamber, it is capable to stir leaves even when the axle rotates at a low speed. Kawasaki is well known for its Rotary steamers.



Rotating brush prevents clogging



### H-MM [Steam chamber fixed type/heat-retention type]

**H-MM1 (Standard type)** **H-MM3 (High-power type)** **H-MMK (Low-speed type)** \* Select from these three types.

- The fixed steam chamber with heat-retention layer features a steel plated, double-layered pan. Steam droplets rarely adhere, preventing leaf discoloration as there is no cooling effect by external air.
- Features double vapor intake apertures on both right and left sides of the pan. The intake aperture on the left has a valve to adjust the vapor intake amount.



### MM [Steam chamber fixed type]

**MM1 (Standard type)** **MM3 (High-power type)** **MMK (Low-speed type)** \* Select from these three types.

- The use of a fixed steam chamber and of porous stainless plates prevents clogging from stems and leaves, and provides even leaf steaming.
- Features double vapor intake apertures on both right and left sides of the pan. The intake aperture on the left has a valve to adjust the vapor intake amount.



### MS [Steam chamber fixed type/Short-drum type]

- Fixed steam chamber made of stainless steel wire netting.
- The length of the drum is 20 cm shorter than the other type of steamer with the same spec.
- The steaming process can be performed in a shorter time. Suitable for regions where short-steamed tea is preferred or thin leaves are produced.



#### ■ Steamer fragment collecting unit (optional)

The steamer fragment collecting unit can be attached to all models.  
The total height slightly increases.

#### ■ Anti-clogging brush (optional)

K: Low-speed type is available for certain types of machines. The brush is installed on the mesh drum to prevent clogging.

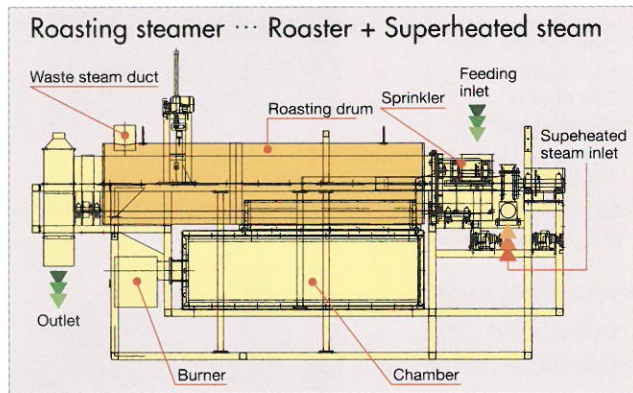
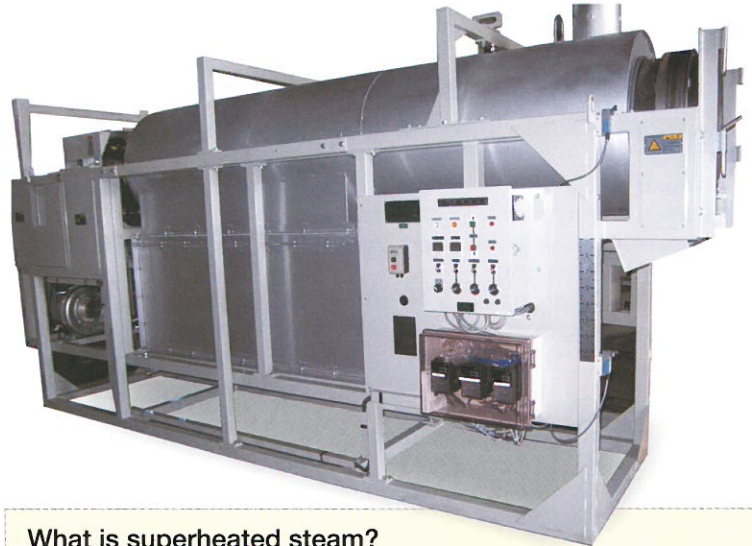




## Roasting steamer

The introduction of superheated steam processing system, typical in the food processing industry, enables to carry out oxidase deactivation in a wide range of teas from pan roasting type to new varieties of fine flavor tea.

- ◎ By filling up the drum inside the tea roasting steamer with superheated steam generated by a special furnace, the steamer produces from roasted tea to steaming flavored crude tea.
- ◎ Using superheated steam offers various advantages.
- ◎ In comparison with a conventional product of the same capacity, using the drum heat as well as superheated steam with far infrared-ray radiant property allows us to anticipate about 5 times more processing capacity.
- ◎ Superior flowability of leaves ensures a smooth, interruption-free cleaning process and improves manufacturing yield.
- ◎ High-temperature and humidity heat treatment method allows odor components to decompose and volatilize. Therefore, this steamer is capable to draw a mild fragrance by removing specific odor and stem flavor.



### What is superheated steam?

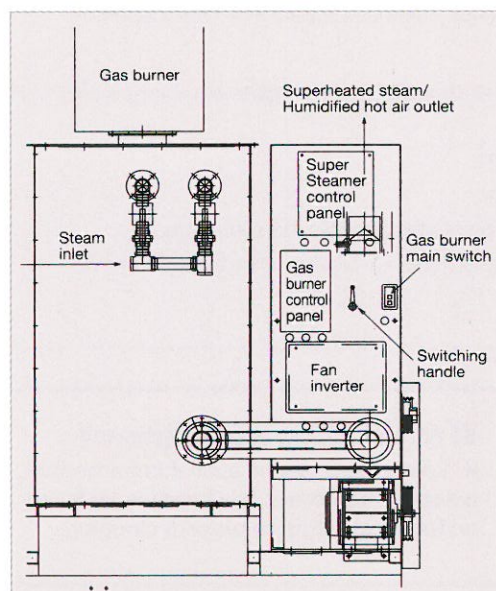
Superheated steam is overheated steam at a temperature higher than its vaporization point at the atmospheric pressure. Since it has a large thermal capacity and can perform drying and steaming at the same time, it is widely used in the food processing industry.

- ◎ Superheated steam contains little oxygen so that oxygenation is reduced and it helps preventing the change in quality of the tea leaves.
- ◎ Far infrared-ray radiance is capable to transfer heat quickly to the core of tea leaves.
- ◎ The temperature quickly reaches 100 degrees Celsius by the latent heat of condensation.
- ◎ Drying time is reduced when the superheated steam is approximately 150 degrees Celsius or higher.

## Super steamer: Superheated steam generator

Generates superheated steam characterized by reduction of the oxygenation (reduction of the discoloration), quick heat transfer by the use of far infrared-ray radiance (decrease of processing time and total viable bacterial count) or humidified hot air.

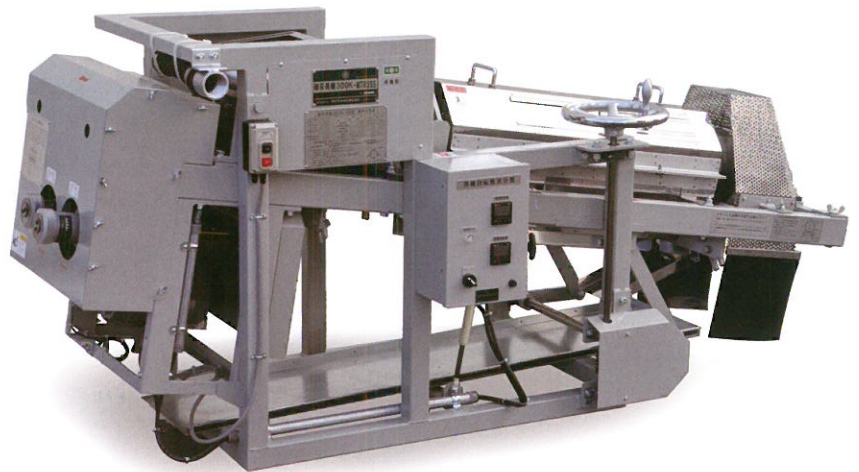
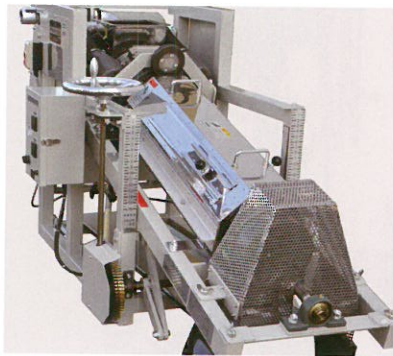
- ◎ Superheated steam and humidified hot air can be easily switched using a valve and a handle.
- ◎ No heavy oil burner is used. A gas burner is used instead, for more environmental-friendly results.



## Steamer for *Tencha*

A cooling ventilator (optional) enables to remove the steaming dew condensation completely. Tea leaves are steamed evenly without harming the tea's characteristic color and fragrance.

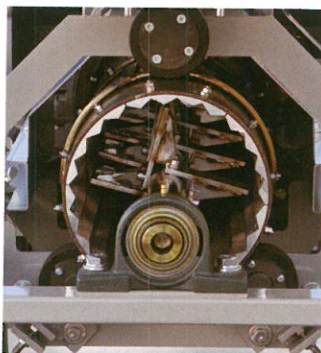
- ◎ The adoption of an efficient rotary thermal insulation drum featured on our new steamer makes it possible to carry out the steaming process evenly by eliminating the steaming dew condensation.
- ◎ The drum angle can be adjusted between 0 and 16 degrees in order to achieve optimal steaming /drying conditions for *Tencha*.
- ◎ A wheel-type handle performs fine adjustment of the drum gradient. Furthermore, a gas spring ensures smooth and easy operation.



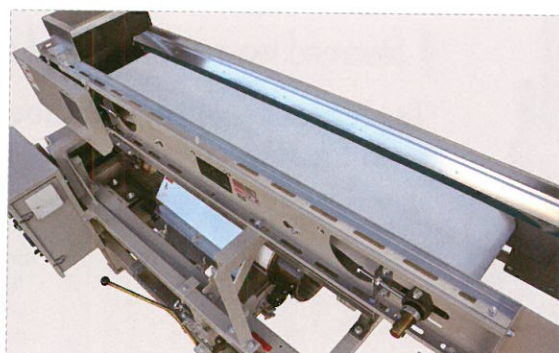
## Super green 300K/400K/500K/600K/800K/1000K/1300K

Improves the output of the primary tea roller, achieving better color of tea.

- ◎ The adoption of a drum with aluminum ridge plate improves the roller's efficiency and the color and luster of tea leaves during the primary rolling process. Combined with the action of the agitation impeller, the rolling pressure is accurately determined, ensuring even shape and size of the leaves.
- ◎ The impeller's axle is inverter-controlled, and is capable to rotate at 1000 rpm due to a high-power motor.
- ◎ Once the steamed leaves are fed into the machine, they are transferred smoothly into the drum by a screw without any damage.
- ◎ The adoption of a gas spring considerably reduces manual tilting operations.



Drum with aluminum ridge plate



Select a belt conveyor in accordance with the state (whether there is moist on the surface of the leaves or not) of the steamed leaves to feed into the Super green steamer. Selecting a wrong type may increase dropping of the leaves.

### ■ Scraper type

Select this type when installing the Super green steamer at the back of the steamer (when moist on the surface of the leaves is not removed completely).

### ■ Brush type

Select this type when installing the Super green after a cooling machine, a fixed drum type processor or a rolling machine (when there is no moist left on the leaves).

## Steam boiler 90K/160K/200K/250K/300K

An economical safety boiler with high thermal efficiency

■ **On models equipped with a microcomputer, the evaporation amount is controlled automatically.**

The microcomputer automatically controls the gun-type burner according to the steam flow rate in order to keep evaporation within the set value.

■ **Highly durable, aluminum-plated type**

Anti-corrosion aluminum coating is available for 160K, 200K, 250K and 300K models. Both the inside and outside of the main body, preheater, water-level tank and leakage safety device are coated with aluminum in order to prevent corrosion.

■ **Economical model with manual evaporation control**

A gun-type burner adjusts the oil amount. The evaporation amount can be adjusted to a specific steam flow rate with a needle-type valve.

■ **Supply water preheater equipped with an economizer**

The supply water preheater heats up water taken inside the device using the heat of the boiler, which enables it to heat the supply water to approximately 60~70 degrees Celsius, thus reducing fuel cost. (Applicable for 160/200/250/300K)



## Cooler 300K/600K/900K

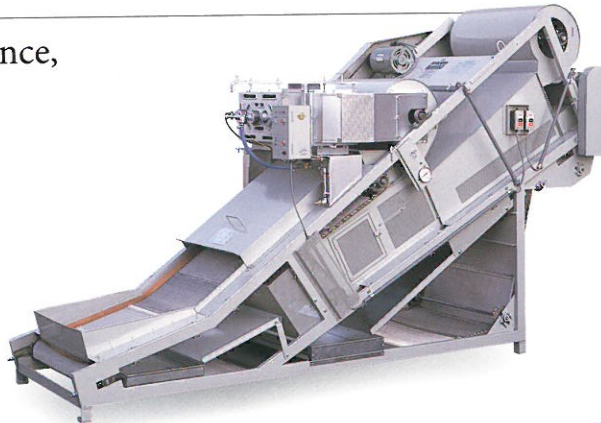
Fast cooling and superior fragrance, color of tea

■ **Standard type 1 cooler**

The fan at the bottom of the cooler provides cooling by scattering and spreading tea leaves. Secondary cooling is carried out by cool air blown from the fan installed at the top (2-step cooling).

■ **Type 2 cooler with hot air unit**

Dries off the moisture on tea leaves with hot air, cools down the leaves by using evaporative latent heat, and performs a secondary cooling with cool air blown from the fan installed at the top (2-step cooling).



■ Collecting cleaning device

## Steamed leaf predryer (rotating drum type) 600K/1300K

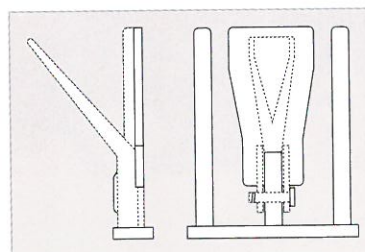
Improves the color of tea, color of liquor and the processing efficiency.

- This device performs primary drying process, aiming to separate leaves so as to produce even, tangle-free drying.
- The large-diameter drum stirs tea leaves in the entire drum and features an efficient exhaust system preventing discoloration.



## Steamed tea predryer (fixed drum type) 600K/900K/1300K

Tea leaves are shifted without kneading, even for long-steamed tea.



The swing plate on the arm equipping this machine has a special coating preventing adhesion of steamed leaves. The arm shifts tea leaves and applies pressure at the same time, optimizing the leaves' color.



## Tea scattering dryer (batch type) 35K/60K/90K/120K/200K/240K

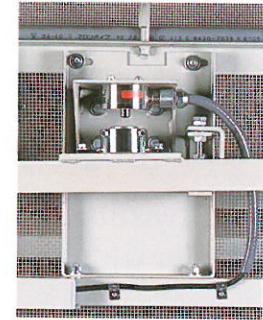
Excellent leaf separation guarantees nicer color both for leaves and for the served tea.

- ◎ Dedicated, 4- and 5-pronged rakes shift leaves efficiently to attain optimum color.
- ◎ Fresh hot air fills the inside of the entire drum. Air blasted in downwards prevents adhesion of leaves onto the back wall inside the machine.
- ◎ The drum can be opened both from front and rear sides. Optional, easy-to-clean ridgy resin drum is available.
- ◎ Key-operated power switch helps prevent an accidental operation.
- ◎ An optional conveyer allows to collect tea dust fallen onto the upper part of the air duct. This reduces both cleaning time and lost tea dust.



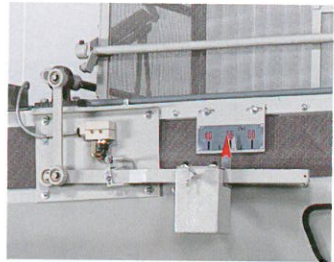
### ■ Precise measurement

Maintaining a constant feed amount is critical in the automation process. Once the feeding amount is set, load cell calculation ensures precise measurement.



### ■ Simple weight measurement

High-speed, small-amount feeding method can minimize unevenness even if a simple weighing method is used.



### ■ Easy-to-clean

Easy-to-clean drums are available, such as a drum with a large front door, a drum with a rear door opening upwards, a drum with stainless coating preventing tea stains, a drum with food-grade resin coating, etc..

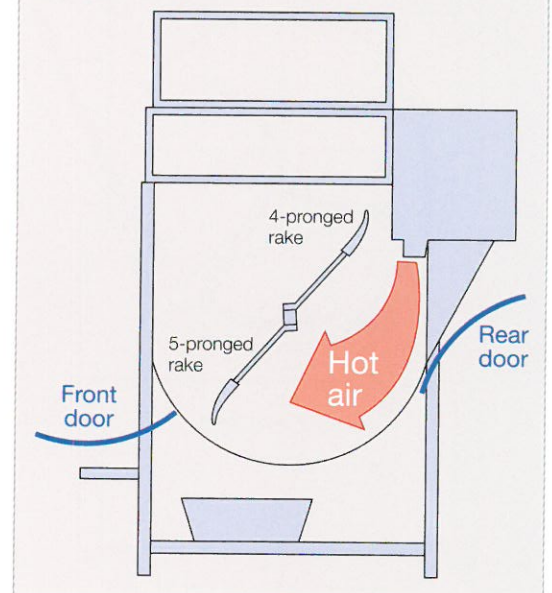


### ■ Key-operated switch

This safety device helps prevent an accidental operation.



### ■ Section diagram



## Wide-type primary tea rolling dryer

60K/90K/120K/  
200K/240K

This machine offers an intermediate format between the tea scattering dryer and the primary rolling dryer. It improves color through a gentle twisting process.

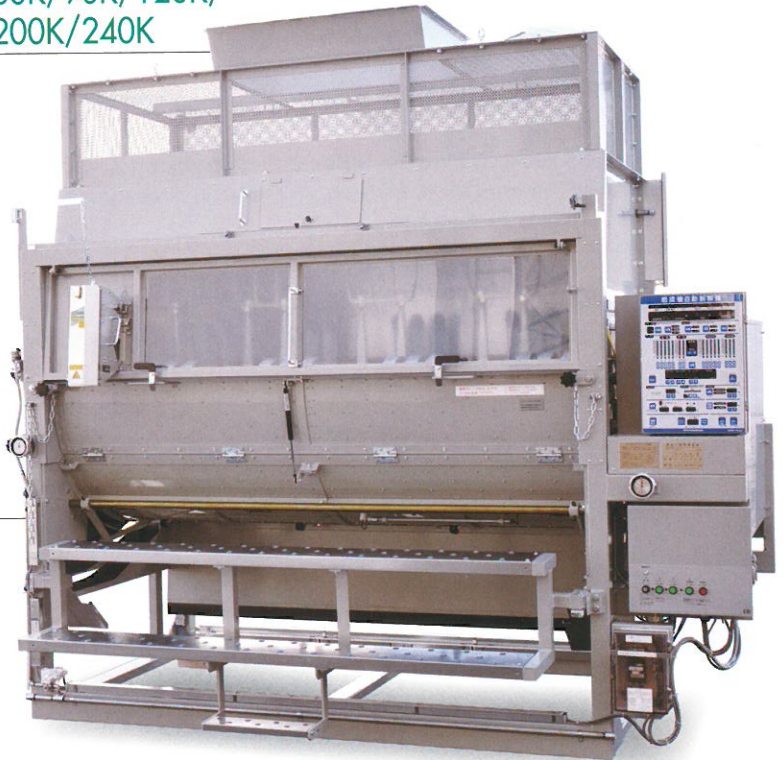
This dryer is suitable as a pre-twisting process or as a primary rolling dryer for thin leaves. Transpiration is improved by thinning the tea layer and gentle, low-pressure is applied by pressing rolling arms. This dryer is reputed for the beautiful color it gives to tea leaves.

## Primary tea rolling dryer

35K/60K/  
90K/120K/  
200K/240K

Performs both twisting and stirring, and delivers pure color without astringent taste.

This dryer twists leaves and eliminates astringent taste, while improving colors by twisting, stirring and blowing fresh hot air efficiently. Kneading is carried out by a pressing arm with optimal spring pressure determined for the type of processed raw tea leaves. Stem moisture is dried out and quickly evaporated by stirring, and tea temperature and dampness are automatically adjusted so as to produce premium-grade tea.



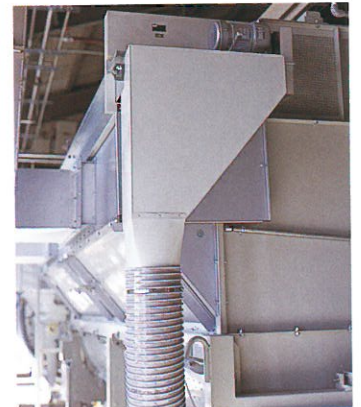
### Low-blow duct ensuring rolling efficiency

By funneling the airflow at the right angle, this dryer provides optimum air circulation, keeping the tea temperature constant even with a small volume of air. Moist rolling can be achieved even with a small volume of air.



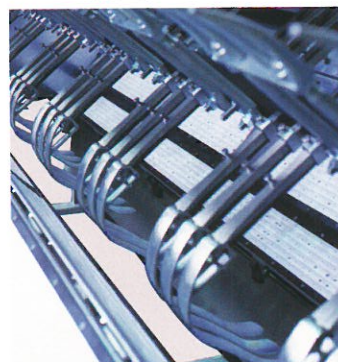
### Optional dust collecting conveyor

Tea dust fallen onto the upper part of the air duct can be collected by an optional conveyor. Facilitates cleaning and improves loss of tea dust.



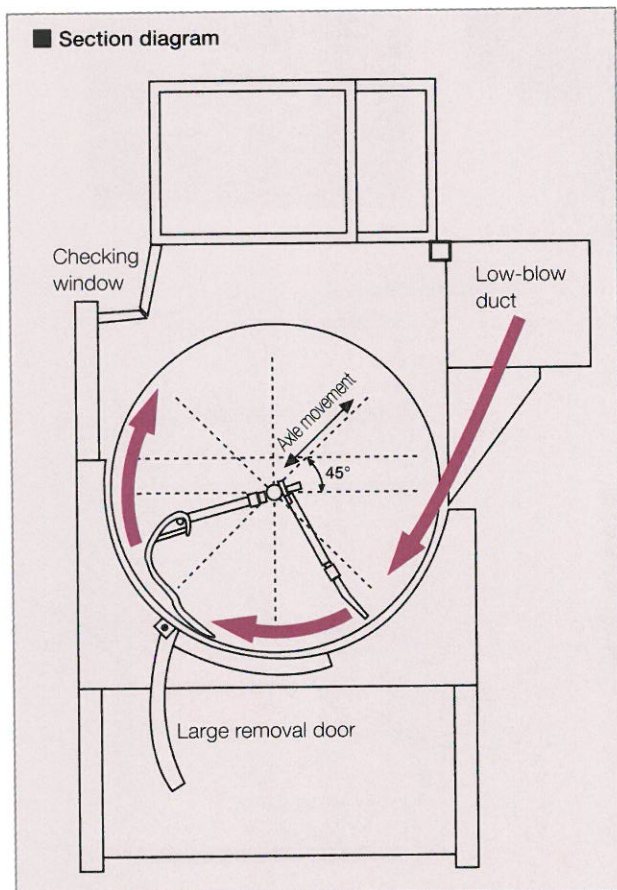
### Not a single leaf left behind

Due to the large removal door, no tea leaves are left behind in the drum when emptying its contents.



### Key-operated switch

This safety device helps prevent an accidental operation.



# 3in1 Hyper

120K/200K/240K

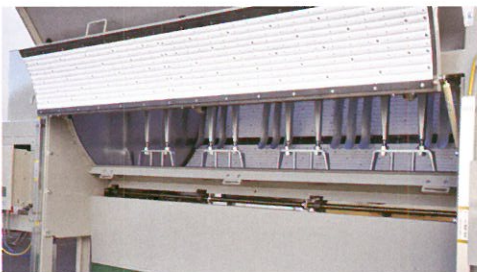
## Features

- Rolling can be applied efficiently to young new shoots as well as matured leaves without changing the rolling drum's radius.
- Rolling is performed with efficient tea temperature control and small air volume, contributing to the production of premium-grade aromatic tea.
- Rolling is performed efficiently, while stem moisture is dried out by blowing hot air, achieving pure color.
- A large removal door ensures that no tea leaves are left behind in the drum when removing its contents.
- Standard-equipped front and rear doors provide easy cleaning.
- The checking window on our new leaf scattering dryer allows instant check of the rolling action inside the drum.



### Front-open drum

Wide-opening front door allows easy removal of incrustations and front adjustment of the pressing arm.



### Rear-open drum

Features a standard rear door for easy cleaning. Opens upwards for easy operation (on 120K or higher models)

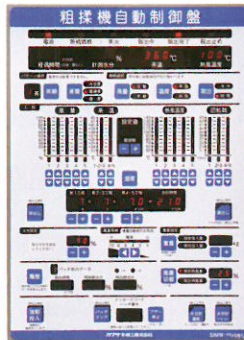
### Humidity sensor

A humidity sensor requiring no water feed automatically controls the air volume according to air humidity (applicable for 5IW-h and 5IMW-h control panels).

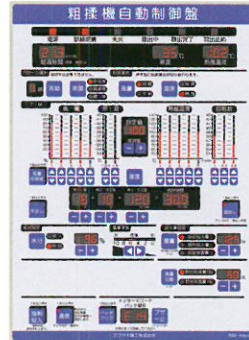


## Kawasaki's microcomputer control panel offers superior operability and quality.

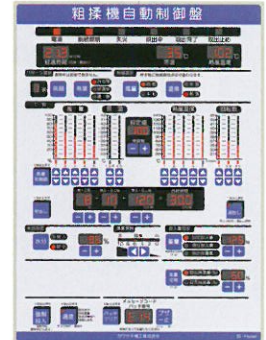
- A Control panel** : keeps air volume, temperature and rotation constant.
- 5I-h control panel** : offers 5 levels of control for air volume and temperature, 2 levels for tea temperature, and 3 levels for rotation of the main shaft.
- 5IW-h control panel:** in addition to the control functions featured on the 5I-h control panel, this control panel features a humidity sensor controlling air volume and temperature according to weather conditions. Dries off to the specified moist value in the specified time, and performs moist rolling.
- 5IMW-h control panel:** in addition to the control functions of the 5IW-h control panel, this control panel ensures the applied moisture content by adjusting the heat amount every minute according to moisture measurement. Moreover, the removal moisture records for last 10 batches can be checked.



5IMW-h control panel



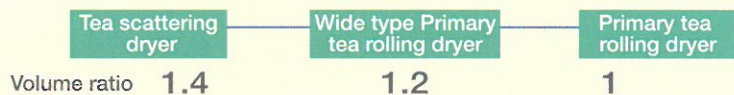
5IW-h control panel



5I-h control panel

## Ideal drum volume

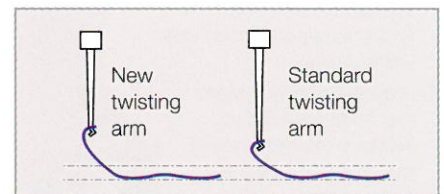
Changes the drum volume based on the water content ratio to achieve both optimum finishing color and twisting.



### Hold more, twist more

#### New twisting arm (optional)

Newly-designed twisting arm can hold more tea leaves, and twist even matured or large tea leaves to shape into sharp tea leaves.



### Easy adjustment from young to matured leaves

The position of main shaft can be changed by operating the handle from the front of the machine for leaf rolling and scattering adjustment.



**Tea roller** 35K/60K/90K/120K/200K/240K

Flat stainless table with the curb, superior hygiene



- ◎ Stainless table with excellent hygiene and endurance
- ◎ Rolling and rolling pressure are improved while leaves are twisted without sticking to the table as the twisting surface on the table is flat.
- ◎ The machine performs constant sweep of the leaves to deliver consistent moisture (except 35K model).



**Flat table with fewer battens**

The number of battens on this table has been reduced by half. Perfect for young new shoots, rain tea, long-steamed tea, and light primary drying.

揉捻機自動制御盤

操作手順

1. 安全を確認後、電源スイッチをONにしてください。
2. 揉捻機を起動する時は必ず安全確認をしてください。
3. 揉捻機が停止したときは必ず電源スイッチをOFFしてください。
4. トラブル発生時は、取扱説明書を確認してください。

電源スイッチ

揉捻機自動制御盤 R4MO2

**Microcomputer control panel**

This microcomputer type control panel controls up to 4 tea rollers. In addition to 3-level pressuring and tea ball breaking processes, it offers standard programs based on leaf quality as well as a copy function to apply settings to other machines. Offers interactive functions for line monitoring communication.

**Fixed drum type secondary tea rolling dryer** 60K/90K/120K/200K/240K

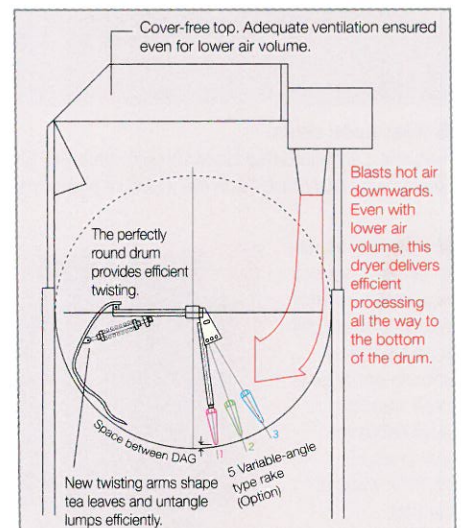
Lightens tea color and optimizes tea shape, while improving efficiency.

- ◎ The type of the drum and pressing arms is different than on the primary rolling dryer, and these are designed exclusively for secondary rolling and drying processes to deliver perfectly-shaped tea leaves.
- ◎ This dryer blows air downwards and provides adequate ventilation, ensuring superior color and luster of leaves.
- ◎ A double spring system has been adopted to increase the efficiency of the process. Firstly, the inside spring applies pressure. Then, once a certain rolling pressure is obtained, the outside spring takes turn and applies pressure to tea leaves.



**Twist-type pressing arm**

An arm consists of a set of 3 plates. Due to the perfectly round drum and longer arm plates, tea leaves are rolled longer and lumps get untangled efficiently.



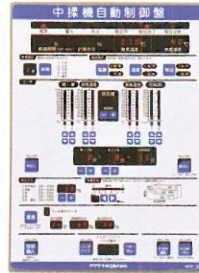
## Secondary tea rolling dryer 35K/60K/90K/120K/200K/240K

Feedback-based control enables moist rolling, according to the moisture amount of tea leaves.



### Microcomputer type

- ◎ Ensures constant humidity level by checking samples of the moist level every minute in order to perform moist rolling.
- ◎ Even when primary rolling is not sufficient, the secondary drying process allows to achieve the ideal moisture level.
- ◎ This machine performs continuous and automatic adjustment of the air amount according to the temperature of tea leaves and the rotation of the drum to deliver perfectly-shaped tea leaves.



### Fully-automatic type

The rotation speed can be changed any time during operation. The air amount can be adjusted even during operation using the inverter. Drum rotation can be adjusted in accordance with the leaf volume by an inverter.

### Driving device

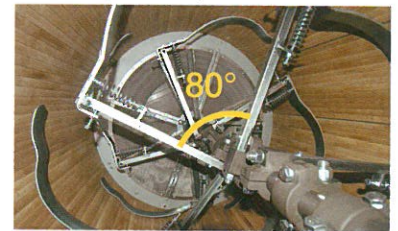
3 motors respectively drive a fan, an axis and a drum, simplifying the mechanism and preventing potential troubles.

### Swing-rotation removal system

The removal door opens at low speed and the drum rotates by a half-turn in reverse direction, making it easy to quickly remove the entire content.

### Newly-designed pressing arm improves efficiency.

The adoption of a new, 80-degree angle pressing arm now enables immediate action of the next pressing arm once the previous arm releases tea leaves. This optimizes processing inside the drum.



### Twisting-type pressing arm

This newly-designed pressing arm can hold more tea leaves, and twists even over-matured or large leaves to produce sharp-shaped tea leaves.

## Moisture meter

### Moisture meter for high-moisture

#### Release determination device (for steamed leaf predryer/primary rolling dryer)

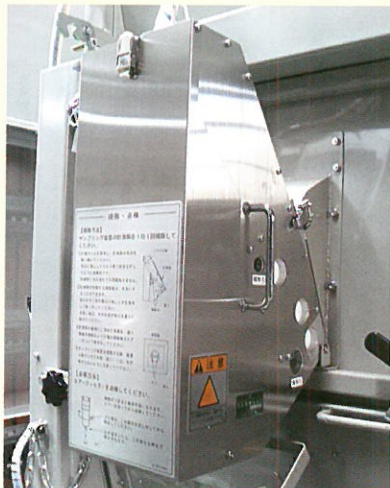
**Function** : releases leaves when the desired moisture amount is obtained. An on-board alarm notifies release.

**Measurement**: 1 cycle of microwave measurement takes only 40 seconds.

**Display** : digital display of moisture amount and graph display of moisture amount history

**Release** : release timing can be determined by setting the moisture amount or processing time.

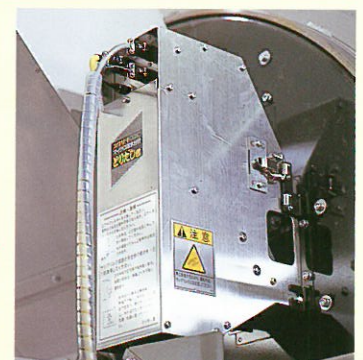
A continuous flow-type unit allows automatic control of the air amount (optional).



### Moisture meter for intermediate moisture (release determination device ("Toridashi-kun")/intermittent measuring model)



For primary tea rolling dryer/ fixed drum type secondary tea rolling dryer



For secondary tea rolling dryer

- ◎ 1 cycle of microwave measurement takes only 40 seconds.
- ◎ With the addition of a microcomputer control panel, the system displays moisture amount digitally and allows control of moisture removal. It also allows control of the moisture amount based on feedback, in order to perform moist kneading.
- ◎ It is advisable to install both the moisture meter and the release determination device together as a set.



Release determination control panel



## Final tea distributing feeder 60K/120K

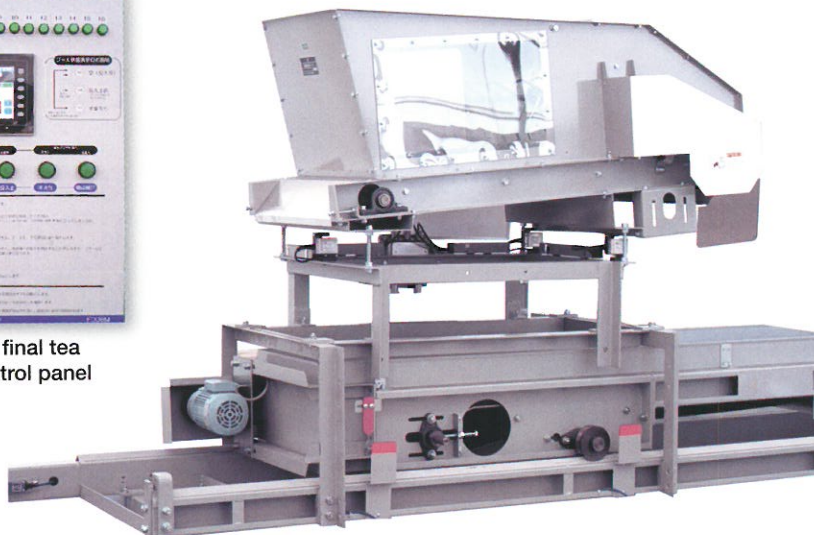
Space-saving device for measuring one batch of leaves at a time

The installation of a microcomputer control panel allows the final tea distributing feeder to control up to four final tea rolling dryer on a single display.

- ① The specified amount of leaves is measured by the high-efficient load cell and distributed to the feeding pool.
- ② Feeding to the pan can be controlled automatically.
- ③ Therefore, when tea leaves are transferred to the feeding pool when the pan is empty, they are fed into the pan for the next process.
- ④ If the previous process in the pan is not completed, the leaves stay in the feeding pool.
- ⑤ The front acrylic panel of the feeding pool can be opened for easy cleaning.
- ⑥ The pool can be selected for distribution.
- ⑦ The control panel is standard equipped with a 6" color LC touch panel.



Microcomputer final tea distributing control panel



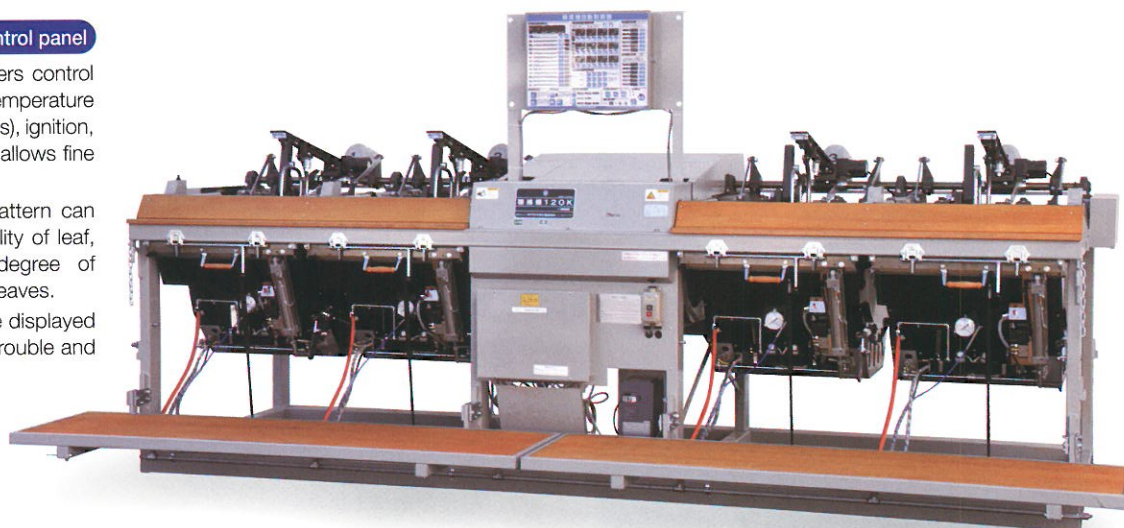
## Automatic final tea rolling dryer 60K/120K

This machine can hold bigger quantities of leaves and roll them more smoothly, delivering ideal, thin and shiny tea.

- ① The adoption of newly-designed rolling table provides better hold of the leaves. It lengthens the leaves and rolls them into round-shaped, ideal thin tea leaves.
- ② The anti-dust ceramic heater allows control of additives and combustion state, ensuring safety. Opening/closing of the pan is performed twice to make sure there is no tea leaves left behind.
- ③ Redesigned pressing arm mechanism. Maintenance is simplified due to the adoption of a cast metal pressing arm. The weight of the pressing arm has also been reduced, resulting in smoother movement.

### Final tea rolling dryer automatic control panel

- ① The all-in-one control panel offers control of feeding, removal, rotation, temperature (6 levels), pressurization (12 levels), ignition, extinguishing, temperature and allows fine adjustment.
- ② The optimum pressurization pattern can be called by selecting the quality of leaf, steaming degree and the degree of secondary phase of rolled tea leaves.
- ③ In case of trouble, numbers are displayed to indicate the location of the trouble and what to do.



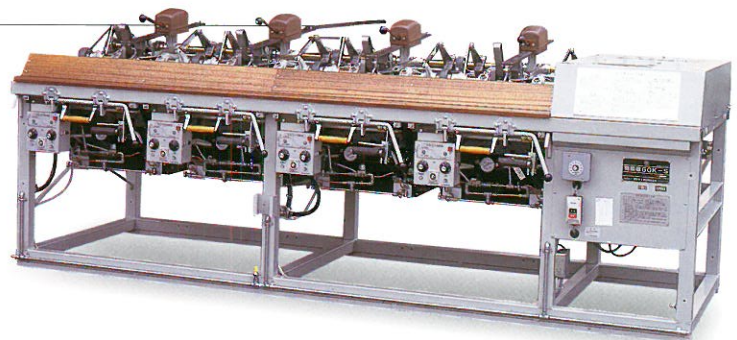
## Final tea rolling dryer 35K-2/60K/120K

### Automatic temperature control-type GA

- 2 levels of pan temperature control
- A timer performs automatic switching from one set temperature value to another temperature value.
- When the rolling table is closed, the temperature automatically returns to the first set temperature value.
- During a break, the operator can press the pilot light button to prevent overheating the rolling table.
- An inverter is adopted for controlling rotation. The rotation speed can be easily set or changed depending on the volume of leaves.

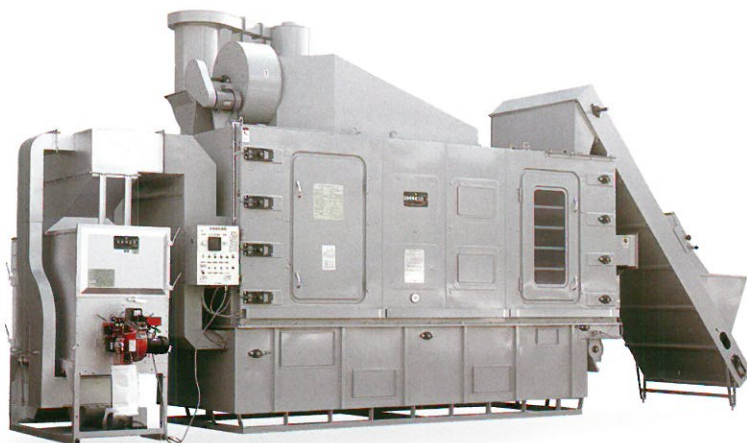
### Standard type

- Adoption of an inverter for controlling rotation. The rotation speed can be easily set or changed depending on the volume of leaves.
- The leaves can be removed by using a handle.

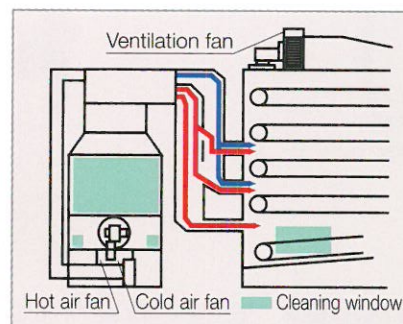


## Automatic dryer 60K-1/60K-2/120K-2/120K-3/120K-4/120K-6/120K-8

The superior capacity and ventilation of this dryer prevent discoloration and enhance the tea's flavor.



- An exhaust fan installed at the top provides efficient discharge of the air in the plane, improving ventilation and thus preventing discoloration.
- A dust collecting unit is installed at the bottom of the machine in order to sweep and collect fallen dust immediately. The dust collecting unit is directly connected to the exhaust fan at the top (for 120K-3 or higher models).



Dryer control panel

## Air-infiltration dryer

Excellent ventilation prevents discoloration and achieves great flavor

- When a drawer is inserted, the air drum dumper opens to let hot air infiltrate the inside of the drum evenly. Opening the drawer closes the dumper.
- 5 to 6 kg of final rolled tea leavess should be loaded in each drawer, then tea leaves should be spread evenly to achieve a layer of about 5 cm.

### DX model

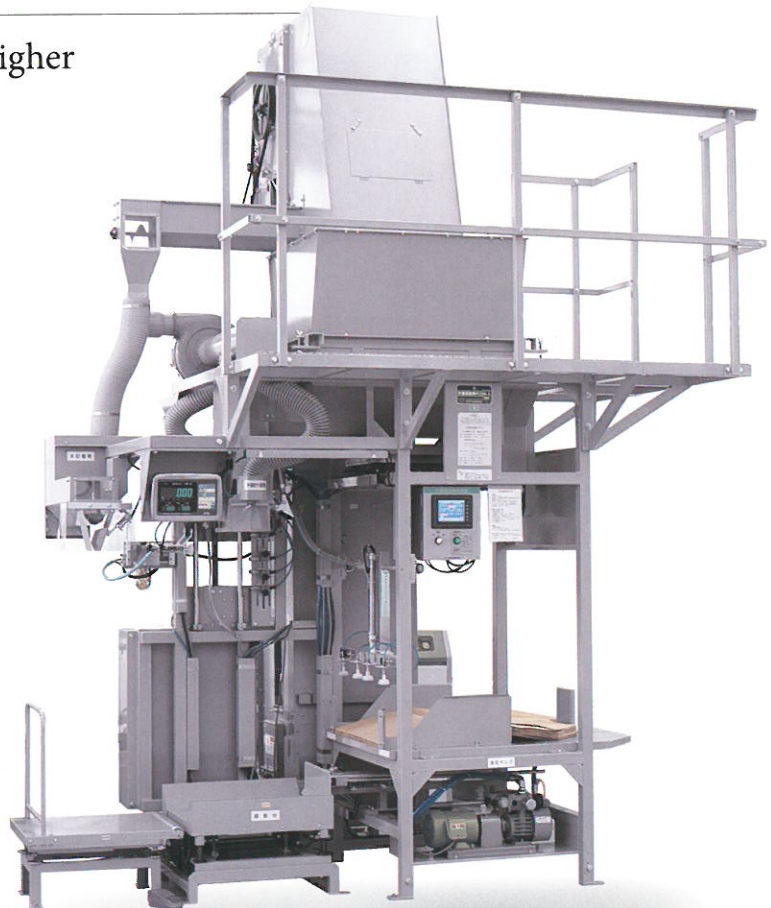
- Indirect heating using a gun-type burner.
- Inverter-controlled air volume.
- Flexible, 6-level control of hot air temperature and drying time using a dial.
- Hot air temperature is shown on a digital display.



## Automatic packing machine

Fully-automatic system contributing to higher efficiency and reduced production costs

- ◎ Bag setting, large volume feed, vibration packing, transferring and measuring are done automatically.
- ◎ All you need is to place a pile of bags. This labor-saving and highly efficient packing machine will set the bags automatically.
- ◎ A filter absorbs tea dust whirled up in the air at the time of feed. No dust flies up in the air, which provides a much cleaner working environment.
- ◎ This machine's control panel relies on a user-friendly touch screen interface. A Help function provides easy setup of the scale.
- ◎ A platform with a handrail ensures safe cleaning.

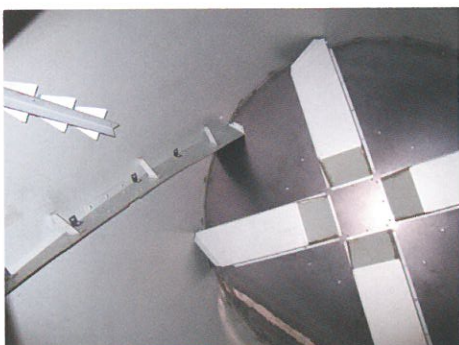


Packing machine control panel

## Drum-type tea blender 300K/500K/1000K

Hygienic small-sized tea blender

- ◎ A dedicated crosspiece in the cylinder-type rotary drum provides perfect blending.
- ◎ The sealed-type design prevents contamination by foreign matters such as insects or dust.





## Cylinder-type tea blender 1500K/2500K/4000K

Space-saving machine for tea blending worksites

- ◎ The blending speed can be adjusted using a dial, according to the volume.
- ◎ Feed is possible even during blending. This blender offers the perfect solution for saving both time and space.
- ◎ The rotating orbital feed ensures even feed.
- ◎ Installation of the upper hood prevents entering of foreign matters such as insects and dust (optional).



Drum-type tea blender control panel

## Tea blender (box type)

1000K/1500K/2000K/2500K/4000K

Maintains high performance even with smaller volumes by two speeds.

- ◎ The blending speed can be selected with a switch in accordance with the volume.
- ◎ Delivers high quality even with smaller feeds of half-finished tea leaves.
- ◎ Automatic sampling can be performed with the installation of an optional sampling conveyor.



## Tea blender (spiraling type)

500K/700K/1000K

Fully-automatic, easy-to-use blender

- ◎ Reversing the direction of the caterpillar switches the machine between blending and removal modes.
- ◎ Crosspieces attached onto the caterpillar move tea in three dimensions that allows effective blending.
- ◎ For individual tea processing, it is advisable to install an optional storing pool to keep the leaves temporarily and avoid wasting time.



## Color sorter

Featuring a circulating system!  
Vertical chute!  
Next-generation optical color sorter

- ◎ Sorting accuracy is improved by integrating primary sorting and secondary sorting in a circulating pattern.
- ◎ 2-step sorting or 1-step sorting available with a switch – 1-step sorting offers twice the operation capacity of 2-step sorting.
- ◎ High-speed ejector improves sorting accuracy and yield.
- ◎ The high-speed, high-resolution camera identifies even the tiniest objects and guarantees sorting accuracy.
- ◎ Red stems can be removed using a red fluorescent lamp.
- ◎ Standard-equipped with vibrating vertical bucket and raw material box.
- ◎ Standard-equipped with an air dryer (built into the main unit)



## Foreign object remover

Advanced foreign object remover with super-sensitive camera

- ◎ Transparent foreign objects, which are hard to spot on conventional systems, are accurately detected using a super-sensitive camera and high-lumen LED lamp.
- ◎ 2-step sorting or 1-step sorting available with a switch – 1-step sorting offers twice the operation capacity of 2-step sorting. (KFR-1).
- ◎ 1-step sorting, simplified version (KFR-E1G)
- ◎ The use of an ultra high-speed ejector improves yield by quick removal of old leaves and red stems.
- ◎ The sealed structure of the machine prevents entering of foreign objects.
- ◎ A standard-equipped air dryer eliminates humidity.



## Hot air generator

### Durable and energy-saving hot air generator with stainless furnace

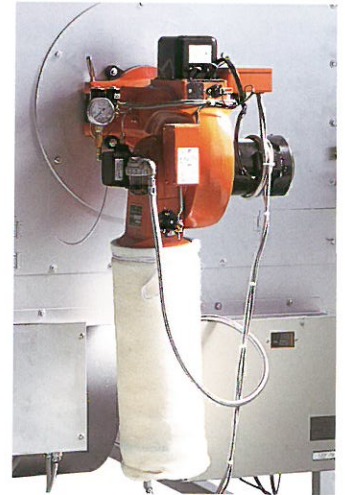
- ◎ The number of small-diameter smoke pipes has been increased for the heat chamber, aiming to increase the heat transfer area. The heat produced by heavy oil combustion efficiently heats up the air.
- ◎ As demonstrated by tests, the heat exchange average rate amounts to 75%, with very limited chimney discoloration.
- ◎ The use of front and rear doors provides easy cleaning and superior hygiene.



## Gun-type burner

### Safe and reliable burner with perfect combustion

A constant voltage transformer is used for this burner. The consecutive sparks eliminate firing error and fire hazards. In case of firing error, a flame eye is turned on after 2 seconds and fuel supply is stopped to minimize the amount of gas in the furnace pipe so as to prevent accidents.



Type	Applicable model	Features
Temperature-control type	Hot air generator	<ul style="list-style-type: none"> <li>◎ Automatic switching between high combustion and low combustion operations maintains the set temperature. Automatic adjustment of the amount of combustion air.</li> <li>◎ The air amount is kept at the set rate through automatic adjustment of the oil feed.main unit)</li> </ul>
Oil amount control type	Steam boiler	<ul style="list-style-type: none"> <li>◎ Adjusts the oil feed to maintain the steam amount at the set value.</li> <li>◎ The oil pressure can be adjusted between 780 and 2060kPa in accordance with the combustion amount.</li> </ul>

## Grading equipment for fresh leaf

### Performs quick and precise analysis and rate of the green leaf composition.

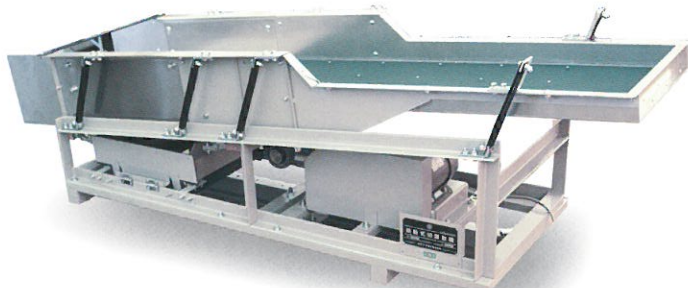
- ◎ Using a near-infrared analyzer, this rating machine measures and displays the total nitrogen, total fiber and water contents of a green leaf sample.
- ◎ Visual evaluation criteria can be set so as to produce a tea quality ranking based on visual check together with the composition analysis results.
- ◎ The adoption of a touch-screen interface on the control panel allows easy operation.
- ◎ The green tea rating can be determined based on chlorophyll amount and the shade of green.



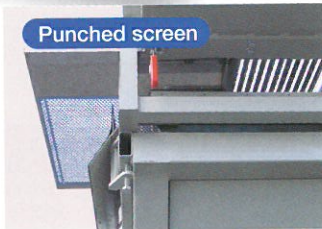
### Vibrating-type particle remover

Removes small fragments of leaves to optimize the steaming process.

- ◎ Prior to the steaming process, this machine removes tea fragments and stems from raw leaves using a tubular screen and a punched screen.
- ◎ By preventing clogging in the steamer, the steaming process becomes more efficient. This also helps improve the color of liquor and aroma.



◎ Broken pieces of leaves or small pebbles are dropped and collected in a tray. (Top view)



◎ The lower punched screen can be removed from both sides of the machine for easy cleaning. (Underneath view)

### Partially dried leaf sorter 500K/750K

Compact-size, highly-efficient, sealed-type sorter

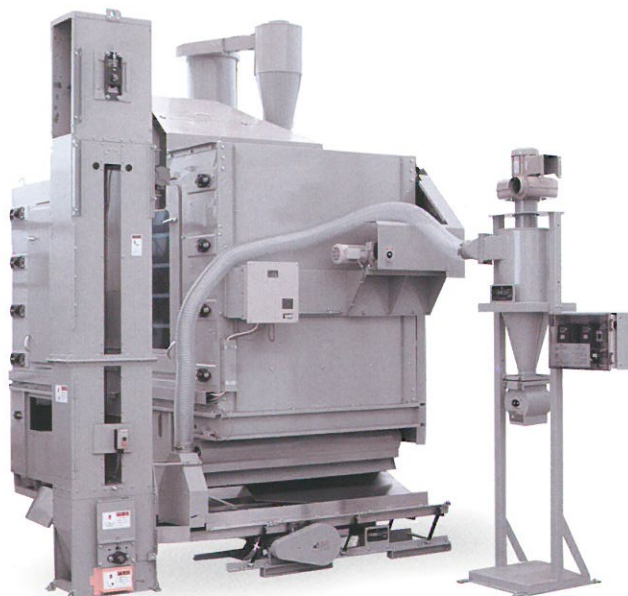
- ◎ This tea sorter with a built-in caterpillar offers a large processing capacity for a surprisingly small installation space.
- ◎ The air flow amount can be adjusted according to the volume to be processed.
- ◎ The plate fan distributes air effectively and provides highly efficient sorting of the leaves.



### Stem skin remover

Efficient separation and adjustable absorption blower

- ◎ Sorts out the tea leaves sent from the dryer and separates tea leaves and stem skin using a step-type screen on a pipe.
- ◎ The stem skin is sent to a bag by the absorption blower.
- ◎ A continuous inverter control allows adjustment of the blower's revolution.



### Miracle cutter

Cuts the tea leaves and stem skin evenly according to the application.

- ◎ Cuts the tea leaves and stem skin using a high-speed rotating steel hammer tip and a stainless screen.
- ◎ The removable screen provides easy change and adaptability to each application.
- ◎ The rotation speed of the screw conveyor and the cutter can be easily adjusted according to the volume by the inverter.



## Tea ingredients analyzer

Standard tool of the tea industry, this tea ingredients analyzer has been newly redesigned. Easy-to-use ingredients analyzing tool allowing virtually anyone to perform tea analysis.

◎ Up until now, crude tea was commonly evaluated based on sensory tests. However, the evaluation method for tea has changed lately. This easy-to-operate tool provides a precise analysis of tea at any location, from production sites to retail points.

◎ Catechin has been added to the list of analyzed items.

GTN-9 (orthodox *Sencha*: grinding tea), moisture content, total nitrogen, free amino acid, theanine, fiber, tannin, catechin, caffeine, vitamin C

RTN-7 (orthodox *Sencha*: grinding tea), moisture content, total nitrogen, free amino acid, theanine, fiber, tannin, catechin

**Business tie-up**

**Shizuoka Seiki Kawasaki**



Tea ingredients analyzer	
**Measuring results**	
Date	00/00/0000 00:00:00
Measured object	Sencha
Sample ID	0
Customer ID	0
Moisture content	00.0 %
Total nitrogen	00.0 %
Free amino acid	00.0 %
Theanine	00.0 %
Fiber	00.0 %
Tannin	00.0 %
Catechin	00.0 %
Caffeine	00.0 %
Vitamin C	00.0 %
<small>The notation of an ingredient is depending on making a sample of moisture content zero percent. Dry Base DRY%.</small>	
AF score	0 0
rank	0
rank table	: 0/0000

Tea ingredients analyzer	
**Measuring results**	
Date	00/00/0000 00:00:00
Measured object	Sencha
Sample ID	0
Customer ID	0
Moisture content	00.0 %
Total nitrogen	00.0 %
Free amino acid	00.0 %
Theanine	00.0 %
Fiber	00.0 %
Tannin	00.0 %
Catechin	00.0 %
<small>The notation of an ingredient is depending on making a sample of moisture content zero percent. Dry Base DRY%.</small>	
NF index	0 0
rank	0
rank table	: 0/0000

**GTN-9**

Ideal for quality evaluation of both crude tea and refined tea

Measures the main 9 ingredients and calculates the AF score.

Faster! Safer! Easier to use!

**RTN-7**

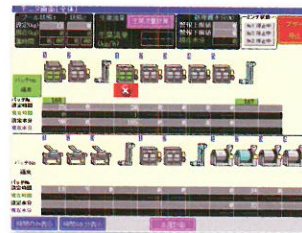
Ideal for analyzing the ingredients of green leaves.

Provides a quick analysis of moisture, total nitrogen and fiber. Calculation of NF index. Crude tea and refined tea (seven ingredients) can also be analyzed.

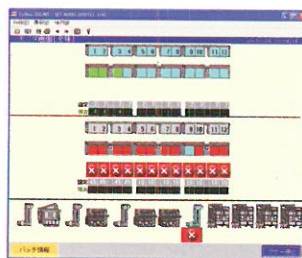
## Line monitor interface

This control panel for the line monitor can be installed anywhere in a factory and does not have to be in the FA room.

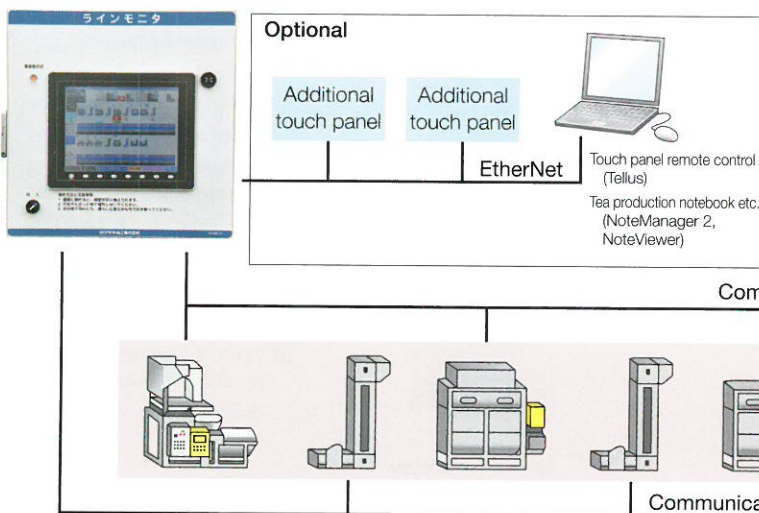
- ◎ Advanced control panel for centralized monitoring of the production line
- ◎ Controls production from the steamer to the secondary drying roller (a separate control panel is available for the refining process).
- ◎ Can be installed anywhere in the factory (dustproof and waterproof)
- ◎ This line monitor main unit features a notebook function (50 entries) and a tea production simulation function.
- ◎ More than 2 monitors can be installed (optional: additional touch panels).
- ◎ Processed tea data can be recorded by the notebook function in real time (optional: NoteManager 2, NoteViewer)
- ◎ Easy-to-use 12-inch LC touch panel



- ◎ The processing time and moisture rate of the partially dried leaf production can be monitored and changed to create a simple production plan, to track batches, to control the production numbers and to monitor any type of abnormalities. All can be performed at one location.



- ◎ Each machine from the final feeder to the tea blender can be monitored. Changes can be made to the set rate of the final feeder and the tea blender.
- ◎ When the partially dried leaf processing line monitor is connected, batch control is enabled on the final feeder and the final drying roller.





## Conveyors

A wide and flexible range



Partially dried leaf belt conveyor  
(forward and reverse)

■ Fresh leaf belt conveyor

- 400 width 1.5~12.0m
- 500 width 1.5~12.0m
- 600 width 1.5~12.0m

■ Steamed leaf belt conveyor

- 300 width 1.5~10.0m
- 400 width 1.5~12.0m
- 500 width 1.5~12.0m

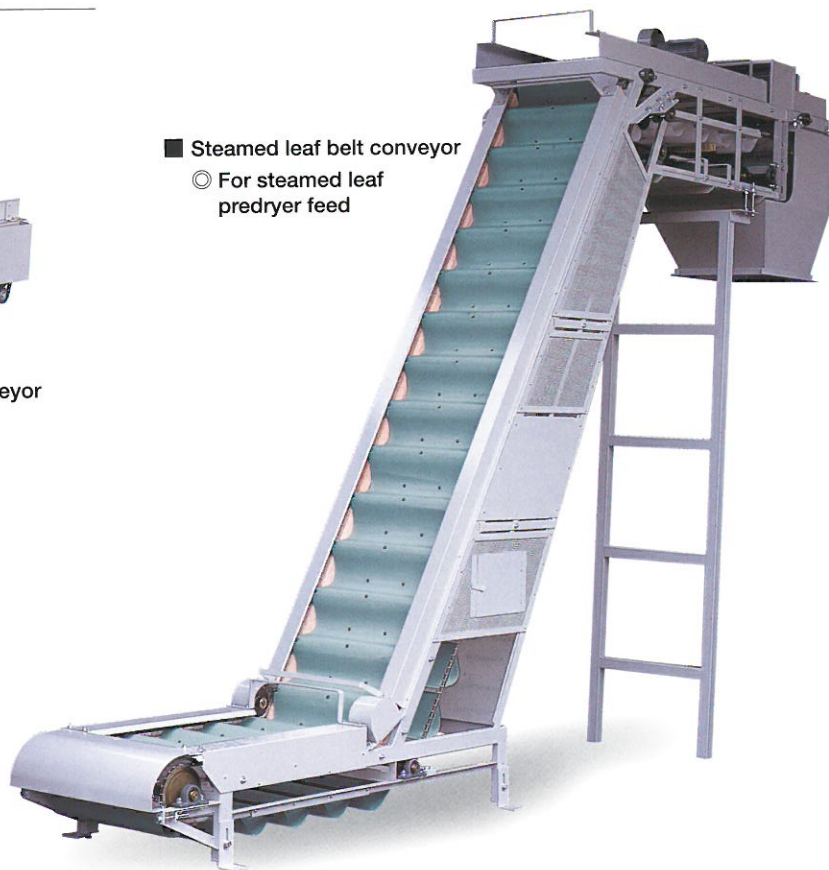
■ Partially dried leaf belt conveyor

- 300 width 1.5~12.0m
- 400 width 1.5~12.0m
- 500 width 1.5~12.0m

■ Dried tea belt conveyor

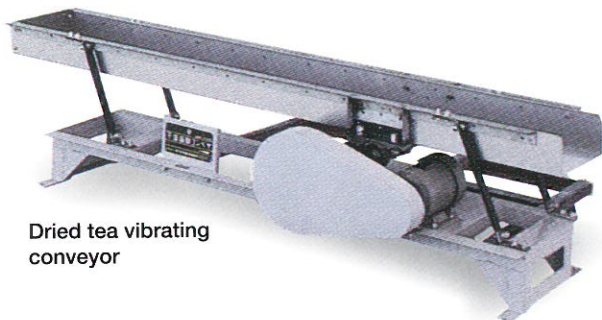
- 300 width 1.5~10.0m

\* Each available in 2 types of models (forward type / forward and reverse type)



■ Steamed leaf belt conveyor

- For steamed leaf predryer feed



Dried tea vibrating conveyor

■ Dried tea vibrating conveyor

- 1.5/2.1m

■ Steamed leaf vibrating conveyor

- 1.0~2.5m



Bucket conveyor

■ Vertical bucket conveyor for fresh leaves

- 550 width 5.0~8.0m
- 600 width 5.0~8.0m
- 900 width 5.0~8.0m
- 900W width 5.0~8.0m

■ Vertical bucket conveyor for steamed leaves

- 550 width 4.2~6.0m
- 600 width 4.6~6.5m
- 600W width 4.6~6.5m

■ Vertical bucket conveyor for partially dried leaves

- 400 width 2.1~6.0m
- 550 width 2.1~6.5m
- 600 width 3.7~8.0m
- 600W width 3.7~6.0m

■ Vertical bucket conveyor for dried leaves

- 250 width 3.1~6.5m

**Fresh leaf receiving container (Shallow type)**

Standard	Machine dimensions (m)			Power (kw)		
	Width	Depth	Height	Main unit	Untangling unit	Fan
S	1.5BOX	3.86	1.46	0.4	0.75	0.75x2
W				0.75		1.5x2
SW				0.75		0.75x4
(WW)	5.03			1.5	1.5	0.75x4
S	2.0BOX	4.71	1.46	0.4	0.75	0.75x2
W				0.75		1.5x2
SW				0.75		0.75x4
(WW)	5.03			1.5	1.5	0.75x4
S	2.5BOX	5.56	1.46	0.4	0.75	0.75x3
W				0.75		1.5x3
SW				0.75		0.75x6
(WW)	5.03			1.5	1.5	0.75x6
S	3.0BOX	6.41	1.46	0.4	0.75	0.75x3
W				0.75		1.5x3
SW				0.75		0.75x6
(WW)	5.03			1.5	1.5	0.75x6

WW type is unique.

**Fresh leaf container 100K/200K**

Standard	Machine dimensions (m)			Maximum capacity (kg)	Revolutions per minute (r/min)	Power (kw)
	Length	Width	Height			
100K	1.12	1.01	1.00	100	1400	0.065
200K	1.93	1.02	1.05	200		(100V)

**Automatic fresh leaf container Vibraton hopper type**

Standard	Machine dimensions (m)			Maximum capacity (kg)	Power (kw)			
	Length	Width	Height		Main unit drive	Fan 100V	Vibraton hopper	Vibraton conveyer
300K	2.58	1.71	1.23	300	0.025	0.065x2	0.4	0.2
600K	4.34		1.48	600	0.065x4			
1000K	6.26		1000	0.065x6				
1300K	8.21		1300	0.065x8				

**Automatic fresh leaf container Untangling unit fixed type**

Standard	Machine dimensions (m)			Maximum capacity (kg)	Power (kw)			
	Length	Width	Height		Main unit drive	Fan 100V	Untangling unit	Vibraton conveyer
600K	4.83	1.63	1.36	600	0.09	0.065x4	0.4	0.2
1000K	6.73			0.065x6				
1300K	8.63			0.065x8				

**Automatic fresh leaf container S type (K Elevating end type)**

Standard	Machine dimensions (m)			Maximum capacity (kg)	Power (kw)			
	Length	Width	Height		Main unit	Fan	Untangling unit	Vibraton conveyer
1800K-S	7.83	2.41	2.20	1800	0.4	0.075x4	0.75	0.4
2300K-S	9.53			2300		0.075x5		
2800K-S	11.23			2800		0.075x6		
3300K-S	12.93			3300		0.075x7		
3800K-S	14.63			3800		0.075x8		
4300K-S	16.33			4300		0.075x9		
4800K-S	18.03	4800	0.075x10					

**Automatic fresh leaf container W type (K Elevating end type)**

Standard	Machine dimensions (m)			Maximum capacity (kg)	Power (kw)			
	Length	Width	Height		Main unit	Fan	Untangling unit	Vibraton conveyer
2500K-W	7.83	3.15	2.20	2500	0.4	0.075x4	0.75	0.4
3200K-W	9.53			3200		0.075x5		
3900K-W	11.23			3900		0.075x6		
4600K-W	12.93			4600		0.075x7		
5300K-W	14.63			5300		0.075x8		
6000K-W	16.33			6000		0.075x9		

**Automatic fresh leaf container SW type (K Elevating end type)**

Standard	Machine dimensions (m)			Maximum capacity (kg)	Power (kw)			
	Length	Width	Height		Main unit	Fan	Untangling unit	Vibraton conveyer
3100K-SW	7.88	3.73	2.20	3100	0.75	1.5x4	0.75	0.4
3900K-SW	9.58			3900		1.5x5		
4800K-SW	11.28			4800		1.5x6		
5600K-SW	12.98			5600		1.5x7		
6500K-SW	14.68			6500		1.5x8		
7300K-SW	16.38			7300		1.5x9		
8200K-SW	18.08			8200		1.5x10		
9000K-SW	19.78			9000		1.5x11		

**Batch-type fresh leaf dehydrator**

Standard	Machine dimensions (m)			Maximum performance capacity	Drying time (sec)	Power (kw)		
	Width	Depth	Height			Feeding conveyer	Drum	Reverse
450K	1.15	1.42	1.55	400	20~30	0.06 / 0.24	2.2	0.4
800K	1.22	1.59	1.95	750		0.4 / 0.75	3.7	0.75

**Automatic fresh leaf container WW type (K Elevating end type)**

Standard	Machine dimensions (m)			Maximum capacity (kg)	Power (kw)			
	Length	Width	Height		Main unit	Fan	Untangling unit	Vibraton conveyer
5500K-WW	9.65	5.03	2.30	5500	1.5	0.75x10	1.5	0.75
6600K-WW	11.35			6600		0.75x12		
7700K-WW	13.05			7700		0.75x14		
8800K-WW	14.75			8800		0.75x16		
9900K-WW	16.45			9900		0.75x18		
11000K-WW	18.15			11000		0.75x20		
12100K-WW	19.85			12100		0.75x22		

**Automatic fresh leaf container S type (F Flat type)**

Standard	Machine dimensions (m)			Maximum capacity (kg)	Power (kw)			
	Length	Width	Height		Main unit	Fan	Untangling unit	Vibraton conveyer
2000K-SF	8.35	2.53	2.20	2000	0.75	0.075x4	0.75	0.4
2500K-SF	10.05			2500		0.075x5		
3000K-SF	11.75			3000		0.075x6		
3500K-SF	13.45			3500		0.075x7		
4000K-SF	15.15			4000		0.075x8		
4500K-SF	16.85			4500		0.075x9		
5000K-SF	18.55			5000		0.075x10		

**Automatic fresh leaf container W type (F Flat type)**

Standard	Machine dimensions (m)			Maximum capacity (kg)	Power (kw)			
	Length	Width	Height		Main unit	Fan	Untangling unit	Vibraton conveyer
2800K-WF	8.35	3.28	2.2	2800	0.75	0.75x4	0.75	0.4
3500K-WF	10.05			3500		0.75x5		
4200K-WF	11.75			4200		0.75x6		
4900K-WF	13.45			4900		0.75x7		
5600K-WF	15.15			5600		0.75x8		
6300K-WF	16.85			6300		0.75x9		

**Automatic fresh leaf container SW type (F Flat type)**

Standard	Machine dimensions (m)			Maximum capacity (kg)	Power (kw)			
	Length	Width	Height		Main unit	Fan	Untangling unit	Vibraton conveyer
3400K-SWF	8.35	3.78	2.2	3400	0.75	1.5x4	0.75	0.4
4250K-SWF	10.05			4250		1.5x5		
5100K-SWF	11.75			5100		1.5x6		
5950K-SWF	13.45			5950		1.5x7		
6800K-SWF	15.15			6800		1.5x8		
7650K-SWF	16.85			7650		1.5x9		
8500K-SWF	18.55			8500		1.5x10		
9350K-SWF	20.25			9350		1.5x11		

**Automatic fresh leaf container WW type (F Flat type)**

Standard	Machine dimensions (m)			Maximum capacity (kg)	Power (kw)			
	Length	Width	Height		Main unit	Fan	Untangling unit	Vibraton conveyer
5500K-WWF	10.12	5.10	2.3	5500	1.5	0.75x5x2	1.5	0.75
6600K-WWF	11.82			6600		0.75x6x2		
7700K-WWF	13.52			7700		0.75x7x2		
8800K-WWF	15.22			8800		0.75x8x2		
9900K-WWF	16.92			9900		0.75x9x2		
11000K-WWF	18.62			11000		0.75x10x2		
12100K-WWF	20.32			12100		0.75x11x2		

**Leaf washer-feeder**

Standard	Machine dimensions (m)			Water tank capacity (ℓ) <sup>*2</sup>	Power (kw)			
	Width	Depth	Height <sup>*1</sup>		Leaf feeder	Drum	Pump	Air blow
SWSU 340-3.1	0.99	2.99	2.96	81 / 229	0.4	0.2	0.75	0.85
SWSU 500-3.1	1.2		2.96 / 3.18	104 / 284				
SWSU 700-3.1	1.38		2.96 / 3.38	132 / 355				

\*1 Depending on the model of following process washer \*2 Washing tub / Filtration tub

**Fresh leaf washer**

Standard	Machine dimensions (m)			Washing tub capacity (m <sup>3</sup> )	Filtration tub capacity (m <sup>3</sup> )	Water consumption	Power (kw)				
	Width	Depth	Height				Leaf feeder	Drum	Pump	Air blow	
SW450K	3.5	1.55	2.08	0.6	0.4	10~30	0.4	0.4	0.75	1.5	
SWS800K	4.8	1.9	2.3	1	1.3	40~60	0.4	0.4	3.4	3.7	1.5
SWS1200K	5.4	2	2.4	1.4	1.8	60~100	0.4	0.4	3.4	3.7	2.2
SWS1600K	5.8	2.2	2.6	1.7	2.4	80~120	0.4	5	3.7	3.7	2.2

**Flow-type fresh leaf dehydrator**

Standard	Machine dimensions (m)			Drum size (m)		Performance capacity (kg/h)	Power (kw)	
	Width	Depth	Height	Inner diameter	Length		Feeding conveyer	Reverse
1000K	4.29	1.87	2.42	1.20	3.7	~1000	0.4	0.75
1600K	5.89					~1500		
Sand separator KWS-30	0.61	0.75	2.30	φ0.36				

Fresh leaf flow meter

Standard	Machine dimensions (m)			Belt speed (m/min)	Measurement range (kg/h)	Motor capacity	Hopper maximum input volume (kg)	Hopper minimum input volume (kg)	Applicable leaf feeder	Weight (kg)
	Width	Depth	Height							
LF-5	1.50	1.00	2.03	4.5~13	150~400	200V60W	6	1.5	600K-1	100
LF-7	1.62	1.15	2.19	5.9~17	250~900	200V 200W	12	3.0	600K-1 900K-1	130
LF-10		1.30			400~1200		4.5	900K-1	170	
LF-12	1.70	1.45	2.37	7.2~21	500~1500		5.0	Vibration feeding SV-12	200	

Leaf feeder

Standard	Machine dimensions (m)			Installation length (m)	Belt width (m)	Performance capacity (kg/h)	Power (kw)
	Length	Width	Height				
300K-1	Above-ground	2.54	0.59	2.04	0.3	200~400	0.2
300K-2	Under-ground	3.94					
300K-3	Deep type	4.88					
600K-1	Above-ground	2.72	0.9	2.17	0.4	500~700	
600K-2	Under-ground	4.12					
600K-3	Deep type	5.05					
900K-1	Above-ground	3.26	0.60	3.61	0.4	800~1000	0.2x2
900K-2	Under-ground	4.66					0.2/0.4
900K-3	Deep type	5.60					4.40

Inverter steamer

Standard	Machine dimensions (m)					Drum revolutions per minute (r/min)	Stirring revolutions per minute (r/min)	Performance capacity (kg/h)	Power (kw)	
	Length	Width	Height	Drum inner diameter	Drum length					
<b>Steam jet rotating mechanism/heat retention type/high-power</b>										
600KH-MR3IV	3.143	0.933	1.200	0.300	1.650	20~70	150~800	320~560	0.4 3.7	
700KH-MR3IV	3.305							0.312	1.770	0.4 5.5
800KH-MR3IV	3.472	1.033	1.285	0.330	1.900	20~70	150~800	440~770	0.2 0.4 5.5	
1000KH-MR3IV	3.612							0.354	2.040	0.2 0.4 5.5
1200KH-MR3IV	3.772							1.325	0.380	2.140
1400KH-MR3IV	3.872	0.390	2.240							
<b>Steam chamber fixed type/high-power</b>										
600KE-MM3IV	3.143	0.933	1.200	0.300	1.650	20~70	150~800	320~560	0.4 3.7	
700KE-MM3IV	3.305							0.312	1.770	0.4 5.5
800KE-MM3IV	3.472	1.033	1.285	0.330	1.900	20~70	150~800	370~650	0.2 0.4 5.5	
1000KE-MM3IV	3.612							0.354	2.040	0.2 0.4 5.5
1200KE-MM3IV	3.772							1.325	0.380	2.140
1400KE-MM3IV	3.872	0.390	2.240							
<b>Steam chamber fixed type/low speed</b>										
600KE-MMK3IV	3.143	0.933	1.200	0.300	1.650	20~70	150~800	320~560	0.4 3.7	
700KE-MMK3IV	3.305							0.312	1.770	0.4 5.5
800KE-MMK3IV	3.472	1.033	1.285	0.330	1.900	20~70	150~800	370~650	0.2 0.4 5.5	
1000KE-MMK3IV	3.612							0.354	2.040	0.2 0.4 5.5
1200KE-MMK3IV	3.772							1.325	0.380	2.140
1400KE-MMK3IV	3.872	0.390	2.240							
<b>Steam jet rotating mechanism/heat retention type</b>										
600KH-MRK3IV	3.143	0.933	1.200	0.300	1.650	20~70	150~800	320~560	0.4 3.7	
<b>Steam chamber fixed type/heat retention type/standard</b>										
600KH-MM3IV	3.143	0.933	1.200	0.300	1.650	20~70	150~800	320~560	0.4 3.7	
700KH-MM3IV	3.305							0.312	1.770	0.4 5.5
800KH-MM3IV	3.472	1.033	1.285	0.330	1.900	20~70	150~800	370~650	0.2 0.4 5.5	
1000KH-MM3IV	3.612							0.354	2.040	0.2 0.4 5.5
1200KH-MM3IV	3.772							1.325	0.380	2.140
1400KH-MM3IV	3.872	0.390	2.240							
<b>Steam chamber fixed type/heat retention type/low speed</b>										
600KH-MMK3IV	3.143	0.933	1.200	0.300	1.650	20~70	150~800	320~560	0.4 3.7	
700KH-MMK3IV	3.305							0.312	1.770	0.4 5.5
800KH-MMK3IV	3.472	1.033	1.285	0.330	1.900	20~70	150~800	370~650	0.2 0.4 5.5	
1000KH-MMK3IV	3.612							0.354	2.040	0.2 0.4 5.5
1200KH-MMK3IV	3.772							1.325	0.380	2.140
1400KH-MMK3IV	3.872	0.390	2.240							

Steamer (variable speed pulley type)

Standard	Machine dimensions (m)					Drum revolutions per minute (r/min)	Stirring revolutions per minute (r/min)	Performance capacity (kg/h)	Power (kw)
	Length	Width	Height	Drum inner diameter	Drum length				
<b>Steam chamber fixed type/standard</b>									
400KE-MM1	2.712	0.820	1.050	0.240	1.411	20~70	200~750	170~300	1.5
<b>Steam chamber fixed type/high-power</b>									
500KE-MM3	2.818	0.855	1.050	0.265	1.500	20~70	200~1000	220~390	3.7
600KE-MM3	3.060	0.923		0.300	1.650		180~700	320~560	
700KE-MM3	3.235	0.953	1.200	0.312	1.770	20~70	180~1000	370~650	5.5
800KE-MM3	3.528	1.033	1.285	0.330	1.900		160~900	440~770	
1000KE-MM3	3.668			0.354	2.040	180~850	550~960	5.5 0.2	
1200KE-MM3	3.865			1.325	0.380	2.140	120~700		650~1150
<b>Steam chamber fixed type/low-speed</b>									
400KE-MMK1	2.676	0.820	1.050	0.240	1.411	20~70	150~570	170~300	1.5
500KE-MMK3	2.818	0.855		0.265	1.500		220~390	3.7	
600KE-MMK3	3.060	0.923	0.300	1.650	320~560	5.5			
700KE-MMK3	3.235	0.953	1.200	0.312	1.770		150~850	370~650	
800KE-MMK3	3.528	1.033	1.285	0.330	1.900	20~70	180~850	440~770	5.5 0.2
1000KE-MMK3	3.668			0.354	2.040		550~960		
1200KE-MMK3	3.865			1.325	0.380	2.140	120~700	650~1150	
1400KE-MMK3	3.965	1.325	0.390	2.240	120~650	730~1280			
<b>Steam jet rotating mechanism/heat retention type/standard</b>									
300KH-MR1	2.350	0.703	0.940	0.201	1.213	20~70	120~650	100~180	1.5
400KH-MR1	2.712	0.820	1.050	0.240	1.411	200~750	170~300		
<b>Steam jet rotating mechanism/heat retention type/high-power</b>									
400KH-MR3	2.782	0.820	1.050	0.240	1.411	20~70	200~1000	170~300	2.2
500KH-MR3	2.870	0.855		0.265	1.500		220~390	3.7	
600KH-MR3	3.088	0.923	0.300	1.650	320~560	5.5			
700KH-MR3	3.235	0.953	1.200	0.312	1.770		180~1000	370~650	
800KH-MR3	3.528	1.033	1.285	0.330	1.900	20~70	180~850	440~770	5.5 0.2
1000KH-MR3	3.668			0.354	2.040		550~960		
1200KH-MR3	3.865			1.325	0.380	2.140	120~700	650~1150	
1400KH-MR3	3.965	1.325	0.390	2.240	120~650	730~1280			
<b>Steam jet rotating mechanism/heat retention type/low-speed</b>									
400KH-MRK1	2.676	0.820	1.050	0.240	1.411	20~70	150~570	200~340	1.5
500KH-MRK3	2.818	0.855		0.265	1.500		260~440	3.7	
600KH-MRK3	3.060	0.923	0.300	1.650	320~560				
<b>Steam chamber fixed type/heat retention type/standard</b>									
400KH-MM1	2.712	0.820	1.050	0.240	1.411	20~70	200~750	170~300	1.5
500KH-MM3	2.818	0.855		0.265	1.500		200~1000	220~390	
600KH-MM3	3.060	0.923	0.300	1.650	180~700	320~560	5.5		
700KH-MM3	3.235	0.953	1.200	0.312	1.770	180~1000		370~650	
800KH-MM3	3.528	1.033	1.285	0.330	1.900	20~70	160~900	440~770	5.5 0.2
1000KH-MM3	3.668			0.354	2.040		180~850	550~960	
1200KH-MM3	3.865			1.325	0.380	2.140	120~700	650~1150	
<b>Steam chamber fixed type/heat retention type/low-speed</b>									
400KH-MMK1	2.676	0.820	1.050	0.240	1.411	20~70	150~570	170~300	1.5
500KH-MMK3	2.818	0.855		0.265	1.500		220~390	3.7	
600KH-MMK3	3.060	0.923	0.300	1.650	320~560	5.5			
700KH-MMK3	3.235	0.953	1.200	0.312	1.770		150~850	370~650	
800KH-MMK3	3.528	1.033	1.285	0.330	1.900	20~70	180~850	440~770	5.5 0.2
1000KH-MMK3	3.668			0.354	2.040		550~960		
1200KH-MMK3	3.865			1.325	0.380	2.140	120~700	650~1150	

Steamer boiler

Standard	Machine dimensions (m)			Heat transfer area (m <sup>2</sup> )	Steam generation amount (kg/h)	Heavy oil consumption (l/h)			
	Width	Depth	Height						
90K	without water supply preheating unit			1.13	1.34	1.25	1.94	84	6.0~10.0
160K	with water supply preheating unit	1.29	1.72	2.06	3.45	168	10.0~13.0		
200K		1.37	1.76		3.46	197	12.0~16.0		
250K			1.94	2.18	225	252	13.0~23.0		
250K-H					252				
300K		1.50	2.06	2.27	300	17.0~30.0			

\* Dimensions include the water supply preheating unit.

Cooler

Standard	Machine dimensions (m)			Net width (mm)	Gas consumption (kg/h)	Power (kw)
	Width	Depth	Height			
300K-1	2.97	0.74	1.18	600	-	0.2
300K-2		1.03			0.8~1.2	1.0
600K-1	3.36	0.89	1.96	750	-	0.4
600K-2		1.19			1.4~2.0	1.5
900K-1		1.31			-	0.3 / 0.75
900K-2	1.61	2.1~3.0	1.5x2			



Tea roller

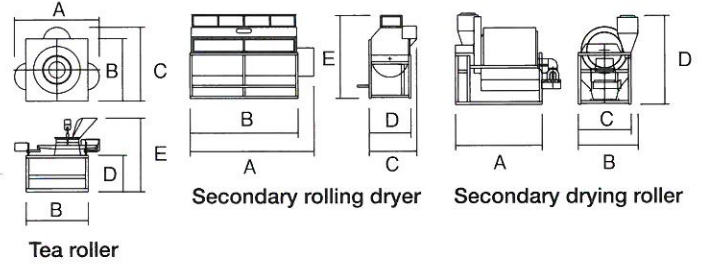
Standard	Machine dimensions (m)					Bowl capacity (m <sup>3</sup> )	Revolutions per minute (r/min)	Input volume (kg)	Power (kw)
	A	B	C	D	E				
35K	1.71	1.23	1.47	0.78	1.5	0.06	28	30~35	0.75
60K	2.1	1.47	1.79	0.8	1.65	0.09	25	55~60	1.5
90K	2.21	1.58	1.9	0.92	1.8	0.13	23	75~90	
120K	2.36	1.73	2.05	1.02	2.04	0.17	22	90~120	2.2
200K	2.8	1.97	2.38	1.3	2.72	0.33	19	150~200	5.5
240K	3.01	2.14	2.57	1.22	2.56	0.41		180~240	3.7

Secondary rolling dryer

Standard	Machine dimensions (m)					Capacity below the drum axle (m <sup>3</sup> )	Drum revolutions per minute (r/min)	Power (kw)
	A	B	C	D	E			
60K	2.32	1.87	1.36	1.17	2.33	0.79	31~40	1.5
90K	2.88	2.43						1.03
120K	2.75	2.24	1.77	1.46	2.94	2.06	3.7	2.2
200K	3.96	3.45						2.55
240K	4.65	4.14						

Secondary drying roller

Standard	Machine dimensions (m)				Bowl capacity (m <sup>3</sup> )	Drum revolutions per minute (r/min)	Input volume (fresh leaf) (kg)	Power (kw)
	A	B	C	D				
35K	1.82	1.36	0.97	1.57	0.62	21~30	30~35	0.4 0.2x2
60K	2.03	1.21	1.07	1.9	0.92		50~60	0.75 0.4x2
90K	2.17	1.51	1.25	2.34	1.23	19~26	75~90	0.75x3
120K	2.42	1.65	1.48	2.46	1.89	17~30	90~120	1.5x2 0.75
200K	2.70	2.10	1.90	2.96	3.15		150~200	2.2 1.5x2
240K	2.77	2.15	1.99	2.92	3.67		150~240	



Refining - Specifications

Final tea distributing feeder

Standard	Machine dimensions (m)			Power (kw)		
	Length (maximum)	Depth	Height	Fixed pool	For transfer	For feeding
(Distribution measuring pool)	1.63	0.93	1.075	0.09		
MFD-121	5.50	1.45	2.00	0.015x4	0.1	0.2
MFD-122	9.90			0.015x8		
MFD-123	14.35			0.015x12		
MFD-124	19.00			0.015x16		

Final drying roller

Standard	Feature outline	Machine dimensions (m)			Revolutions per minute (r/min)	Input volume (kg)	Gas consumption rate (kg/h)	Power (kw)
		Width	Depth	Height				
35K-2	Separated, two-hand type	1.88			25~35	0.4~0.6	0.75	
60K	Separated	3.14	1.30	1.23	44~59	55~60	0.8~1.2	1.0
	Separated, automatic temperature control							
	Separated, automatic feeding/switching/temperature control							
	Automatic pressure/rotation control							
Separated, automatic feeding/switching/temperature control							0.025 X 4	
120K	Separated	4.06	1.59	1.50	45~58	80~120	1.7~2.4	2.2
	Separated, automatic temperature control							
	Separated, automatic feeding/switching/temperature control							
	Automatic pressure/rotation control							
Separated, automatic feeding/switching/temperature control							0.025 X 4	
	Automatic pressure/removal/rotation control						2.2	

Air-infiltration dryer

Standard	Machine dimensions (m)			Performance capacity (kg/h)		Drying time (Minute)	Fan revolutions per minute (r/min)	Gas consumption rate (kg/h)	Power (kw)
	Width	Depth	Height	Fresh leaf	Dried leaf				
50K (Standard type)	1.23	0.19	1.52	80~100	18~22	25~35	950~1150	0.6~1.0	0.2
50K (DX type)	1.22	1.15	1.64	40~80	9~18	25~90	340~1150	0.3~0.6	0.5

Automatic-packing machine

Standard	Machine dimensions (m)			Power (kw)		Feature outline
	Width	Depth	Height	0.2 0.4x2 0.06	0.75 0.09x2	
Automatic-packing machine	2.89	2.26	3.90			Performance capacity 30kgX120bags/h (first crop)
Dust separator	0.84	1.20	2.36	0.4		Bag filter system
Compressor	1.20	0.35	0.83	1.5		No oil supply, with auto-drain

Drum type tea blender

Standard	Machine dimensions (m)			Performance capacity (kg) (dried leaf)	Power (kw)	Output quantity (kg/min)
	Width	Depth	Height			
BL300K	1.61	2.19	2.30	300	1.5	30
BL500K	1.85	2.49	2.39	500		
BL1000K	2.34	3.18	2.89	1000		

Tea blender (cylinder type)

Standard	Machine dimensions (m)			Performance capacity (kg) (dried leaf)	Power (kw)			
	Width	Depth	Height		Main unit	Feeding chute	Untangling unit	Vibration removal
1500K	2.55	2.38	2.72	1500	0.4	0.1	0.75x2	0.2
2500K	3.10	2.98		2500				
4000K			3.37	4000				

Tea blender (box type)

Standard	Machine dimensions (m)			Performance capacity (kg) (dried leaf)	Power (kw)				
	Width	Depth	Height		Main unit	Untangling unit	Tea conveyor	Removal vibration	Sampling conveyor
1000K	1.58	3.15	2.6	1000	2.2	0.75	0.2x3	0.2	0.04
1500K		4.20		1500					
2000K	3.60	2000							
2500K	4.20	2500							
4000K	5.60	2.95	4000						

Tea blender (spiraling type)

Standard	Type		Machine dimensions (m)			Performance capacity (kg) (dried leaf)	Power (kw)		
			Width	Depth	Height		Main unit	Pool	Bucket
500K	Low-floor type	Without pool	1.71	3.21	2.41	500	0.4	—	0.2
		With pool			2.76				
	High-floor type	Without pool	2.75	3.01					
With pool	3.36								
700K	—	With pool	1.72	3.50	2.91	700	—	0.09	0.2

## Automatic tea dryer

Standard	Type	Machine dimensions (m)			Installation length (m)		Performance capacity (kg/h)		Fuel consumption (kg/h, l/h)	Power (kw)				
		Width	Depth	Height	Width	Depth	Fresh leaf	Dried leaf		Main unit	Exhaust	gas furnace	Hot air generator	Vibration
60K-1	Gas	2.47	1.34	1.62	2.47	1.34	120~140	27~31	1.1~1.8	0.2	—	0.2	—	—
60K-2	Gas Heavy oil	2.24	1.32	2.64	4.01	1.74	175~225	39~50	2.1~3.5					
120K-2	Gas Heavy oil	2.53	1.95	3.22	5.73	2.35	400~450	89~100	3.0~5.0	0.4	0.2	0.2/0.4	—	0.4
120K-3	Gas	3.37	1.95	3.58	6.70	1.95	530~675	118~150	1.9~6.0					
120K-4		4.02	2.98	3.87	7.35	2.98	660~840	147~187	2.7~9.0					
120K-6		3.87	2.98		900~1100	200~244	3.1~10.2							
120K-8		3.87	2.98	1050~1450	230~320	4.0~13.2								

\* For the fuel consumption, brown text represents "Gas" and "kg/h" in unit, and black text represents "heavy oil" and "l/h" in unit.

## Color sorter

Standard	Machine dimensions (main unit) (m)			Power (kw)
	Width	Depth	Height	
KCS-F45W	1.20	1.86	2.14	2.6
KCS-F90W	1.75		2.65	2.8

## Foreign object remover

Standard	Machine dimensions (main unit) (m)			Power (kw)
	Width	Depth	Height	
KFR-E1G	1.50	2.25	2.55	3.0
KFR-1				

## Peripheral equipment - Specifications

### Hot air generator

Standard	Type	Specifications	Machine dimensions (m)			Air volume (m <sup>3</sup> /min)	Heavy oil consumption (l/h)	Power (kw)	Gun type burner	Chimney (mm)
			Width	Depth	Height					
40	Horizontal type	A/B	0.61	1.74	1.77	8~32	1.0~4.8	0.4	GPN-10	180
50		A	0.80	1.73	1.89	10~44	1.5~7.0	0.75		
70		A/B	0.77	1.40	2.09	14~65	2.0~10.2	2.2	GPN-25	200
100		A/B				17~88	2.8~13.2		GPN-35	230
130		A/B	0.98	1.83	2.16	23~110	3.5~16.8	3.7	GPN-50	250
150		A/B	1.09	1.95	2.38	29~133	3.8~20.4			
180		A/B				35~160	5.2~24.0			
220		A/B	60~203	8.4~29.4						
250		A	1.22	1.96	3.10	69~230	10.0~33.3	5.5	GPN-65	250
280		A				81~257	11.4~38.0	7.5		
70	Rear-mounted type	A/B	0.77	2.09	2.15	14~65	2.0~10.2	0.75	GPN-25	230
100		A/B				20~88	2.8~13.2	2.2		
130		A/B	0.98	2.37	2.31	24~110	3.2~16.8	3.7	GPN-50	250
150		A				28~133	4.1~20.4			
180		A	1.09	2.44	2.40	35~160	5.2~24.0			

### Grading equipment for fresh leaf

Standard	Machine dimensions (m)			Air pressure (MPa)	Power (kw)	
	Width	Depth	Height		AC100V	AC200V
M-LGS-7	1.76	1.37	2.16	0.5	0.5	0.5

### Vibrating-type particle remover

Standard	Machine dimensions (m)			Power (kw)
	Width	Depth	Height	
2.05M	2.05	0.63	0.51	0.4

### Partially dried leaf sorting machine

Standard	Machine dimensions (m)			Performance capacity (kg/h)	Fan revolution per minute (r/min)	Power (kw)	
	Width	Depth	Height			Fan	Main unit
500K	2.88	1.13	2.30	540~720	600~1200	0.75	0.20
750K		1.77		800~1050		1.50	0.40

### Stem skin remover

Standard	Applicable models	Vibration box dimensions (m)			Screen specifications	Power (kw)		
		Width	Depth	Height		Vibration	Blower	Valve
120K-3S	120K-2~	1.90	0.28	0.15	Round holes + comb shaped screen	0.2	0.4	0.03
120K-3WS	120K-6	1.70	0.38					
120K-8S	120K-8	2.40						

### Miracle cutter

Standard	Machine dimensions (m)			Power (kw)	
	Width	Depth	Height	Cutting device	Feeding device
TCH-1	0.59	0.65	1.50	1.5	0.09

### Tea ingredients analyzer

Model	GTN-9	RTN-7
Measurement system	NIR spectroscopy	
Measurement object	Dry material leaf/unrefined tea/refined tea (domestic crop/orthodox <i>Sencha</i> )	Fresh leaf/dry material leaf/unrefined tea/refined tea (domestic crop/orthodox <i>Sencha</i> )
Measurement time	Approx. 15 seconds after closing the sample drawer	
Pretreatment apparatus	Drying by a microwave oven, grinding by the fixed grinder	Cutting by a particle cutter, drying by a microwave oven, grinding by the fixed grinder
Dimension	Width 400mm x Height 354mm x Depth 362mm	
Weight	Approx. 15kg (main instrument)	
Power supply	AC100V (50/60Hz)	
Power consumption	100W	
Measurement environment	10-35 degree Celsius, 25-80% relative humidity, no direct sunlight	
Storage temperature	0-50 degree Celsius	
Accessories	Loading tray, brush, sweeping brush, screw driver, spare fuse, grounding wire, specific printer, printer cable, printer paper, 12 sample bottles	
Optional	Grinder, dust collector (vacuum cleaner), personal computer, printer, dedicated software package	

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Sales Headquarters and Technology Center / Kakegawa factory

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