

Japanese Green Tea Producessing

Making Process of Crude Tea (Sencha)

Making process of crude tea is divided into 6 subprocesses. During these processes, six different manufacturing machines are used.

Green tea leaf storage apparatus: This is combined with fan, humidifier, perforated plate, leaf spreader, collector and conveyor. After plucking, the fresh tea leaves are immediately carry into the apparatus. The tea leaves are kept in the high humidity and cool air until inhibiting enzymes with steam at the next process for 3 to 8 hours in this apparatus.



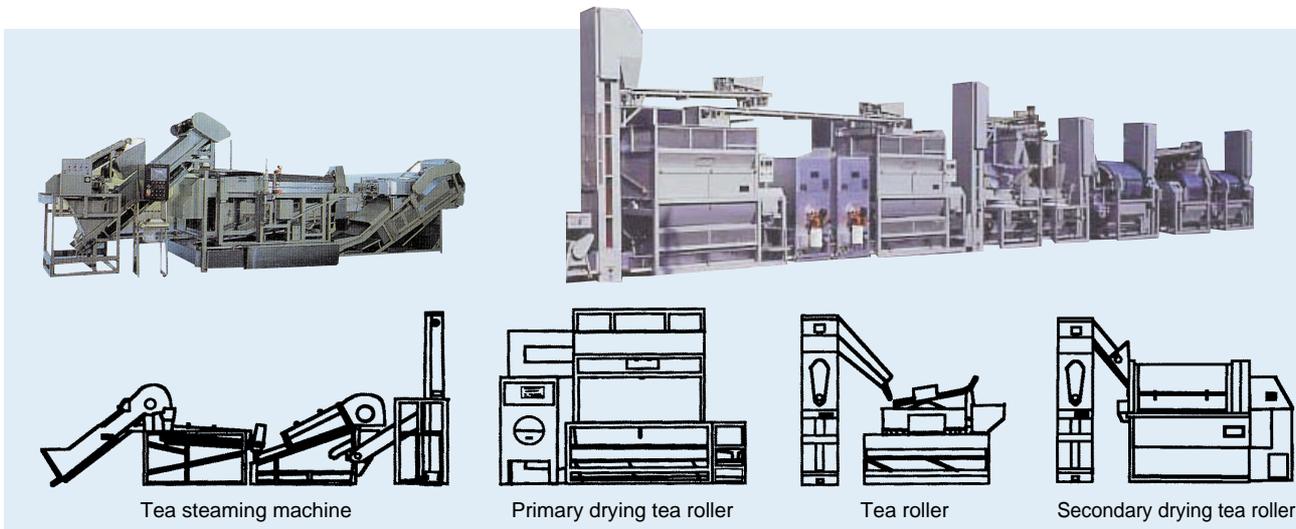
Green tea leaf storage apparatus

(1) Tea steaming machine: This machine is made up of a net drum and stirring shaft. Both parts are covered with a long steaming drum. During this process, the oxidizing enzymes contained in the fresh leaves are killed by the steam-heat. When the fermentation stops, the steamed leaves take on a fresh green color. The leaves now contain about 75 % water.

(2) Primary drying tea roller: This machine is made up of an air-heating furnace and a main shaft with the press arms and the stir arms in the drying chamber. The steamed leaves are twisted and dried in this machine until the moisture of the leaves is reduced to about 50 %.

(3) Tea roller. This machine has a jacket in mortar from with a press cap, and a weight on the table with a pleated top. The tea leaves are stuffed into the revolving jacket with the weight and twisted without heat. The objective is to break the cells of the tea leaves, create flexibility and uniform moisture.

(4) Secondary drying tea roller: This machine has a direct fired furnace, a main shaft with press arms in the rotary drum. It presses and dries the tea leaves. The final moisture content is now about 30 %.



Tea steaming machine

Primary drying tea roller

Tea roller

Secondary drying tea roller

(5) Final drying tea roller: This machine is made up of a burner, rolling hands and pans with many pleats. Its function is to dry the leaves until the moisture content is 13%. This pressing and heating forms the characteristic needle shape and produces the fragrance.

(6) Tea dryer: This machine consists of an air heating furnace, a drying chamber, and net conveyors. The aim of this step is to uniformly reduce the water content in the leaves from about 13% to 6% while maintaining the quality and fragrance.

The tea treated with these 6 machines is called 'Aracha' in Japanese. Aracha means a crude tea. Generally these processes are carried out by the farmer.

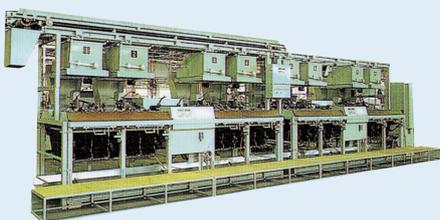
Standard in making process of crude tea (Sencha)

Machine	Revolution	Air temp.	Time required	Less weight	Water content
Tea steaming machine	35 ~ 50 r.p.m.	steam	30 ~ 60 sec.	0 %	75 %
Primary drying tea roller	36 ~ 38 r.p.m.	90 ~ 110	30 ~ 45 min	55 ~ 60 %	50 %
Tea roller	22 ~ 28 r.p.m.	non heating	15 min	0 %	50 %
Secondary drying tea roller	26 ~ 28 r.p.m.	50 ~ 60	30 ~ 40 min	58 ~ 70 %	30 %
Final drying tea roller	50 ~ 60 c.p.m.	80 ~ 90 (pan temp.)	30 ~ 40 min	73 ~ 75 %	13 %
Tea dryer		70 ~ 90	25 ~ 30 min	77 %	6 %

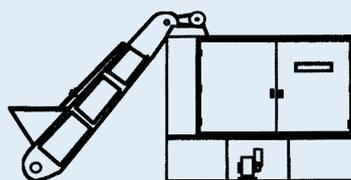
Modern Crude Tea Factory

This factory is managed with an individual or a cooperative. The machines are almost operated by automatic control. Each machine is connected efficiently by a conveyor or other transport facility and is controlled by computers. The number of

workdays of a factory is about 50 days for a year. Tea manufacturing capacity differs largely depending on a scale. Crude tea amount of production is about 10 tons in the largest scale factory in a day.



Finally drying tea roller



Tea dryer



Modern tea factory by control of computer

Japanese Green Tea Producessing

Tencha

Tencha is a material of Matcha. This is made from leaves grown under the shade before harvest, the same as Gyokuro production. Only the hand plucked flush leaves grown in the tea field is covered with straw, reed or cloth to shut off sunlight when young new shoots have two to three leaves, are used to made this special tea. The manufacturing process of Tencha is very simple, but it is difficult to control the process to make good one. To make this tea, unlike other green tea products, the process after steaming includes only drying, without rolling process.



The conveyor in Tencha dryer



Tea leaf cooling spreader



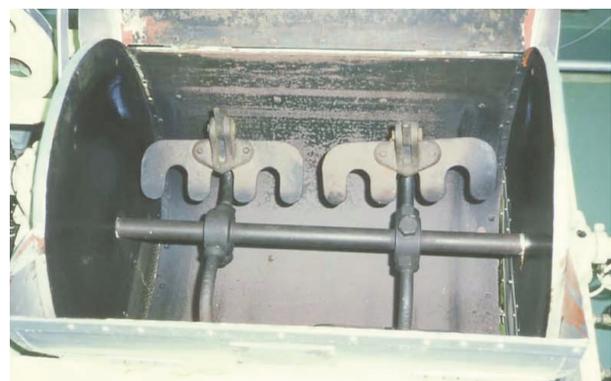
Tencha dryer

Kamairicha

Kamairicha is a panfired tea and its manufacturing process is similar to that of Chinese green tea. This tea is mainly manufactured in Kyushu district. To make this tea, fresh tea leaves are heated directly on an iron plate of 300 to 350 °C, is called tea leaf parcher, to remove the activity of oxidizing enzymes contained in the leaves. This heating process lasts about 10 minutes. The temperatures of the iron plate is kept higher at first, and gradually lowered. After that, the moisture content of the leaves is uniformed in a tea roller, and then their shape is formed like “ comma-shape ” in a secondary tea dryer and final tea parching machine for Kamairicha. Because the leaves are parched, Kamairicha is yellowish on the surface. Pressure applied to the leaves is smaller, and the taste is somewhat plain but refreshing, with no green note.



Pan for hand made of Kamairicha



Tea leaf parcher

Refined Tea Factory

This factory is managed by a tea wholesale dealer. It is always maintained cleanly. Its floor is made of wood traditionally. There are tea refining machines, tea firing machine, optical tea stalk separator, tea cutter, tea blender and tea packing machine in the factory.

Tea refining machine is composed of the various sieves in size. Crude tea is firstly classified according to size by this machine in the refined tea factory.

Optical tea stalk separator is the device that separates stalks and the branches in a crude tea. Perceiving a difference of color of leaves, and stalks and branches by the light sensor, only stalks and

branches were blow off by the compressed air. It is about 300 kg as to processing volume per hour.



Tea refining machine

Temomi(Hand Made Method of Green Tea)

Once tea production was carried out with hand work all. This operation is called to ' Temomi '. After steaming of raw tea leaves, all operations of making processing are carried out by a man on a table called ' Hoiri '. There is a fire furnace under this table. Steamed tea leaves are made to a thin long form on the table by the skillful hand handling. The making process by Temomi takes for about 4 hours. The temomi process consists of 9 different operations. Today, these operations are referred greatly to the modern tea manufacture machines.



Hand made
by Temomi master



Demonstration of Temomi in tea-festival



Contest of Temomi