Normal pressure high temperature superheated steam cooker

SV Roaster

Defeat common sense of cooking method by SV Roaster!

（SV roaster = Normal pressure high temperature superheated steam cooker）

Characteristics of superheated steam

- Huge amount of heat (Condensed latent heat)
- Condensation process Drying process
- Ultra low oxygen cooking

Features of SV Roaster

- Shortening Cooking time
- Yield improvement
- Control peroxidize
- Keep nutritional quality
- Keep UMAMI

Oxygen concentration less than 0.1 % (Our test data)

Superheated steam temperature

Electric type or gas type

Circular Re-Jet method

Superheated steam, wide range of cooking is possible with seven steam volume, upper and lower air volume adjustment also available.

What is superheated steam?

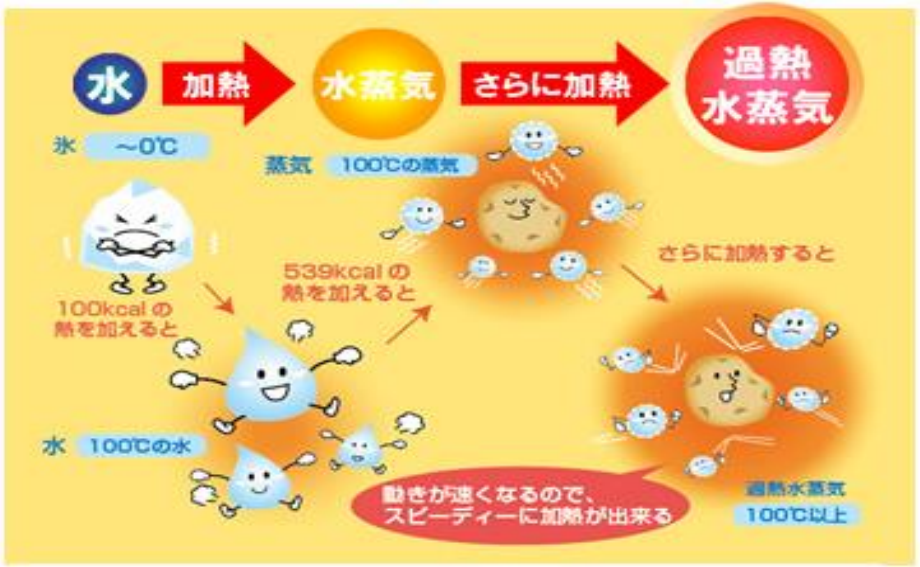
（1） **Superheated steam is high-temperature steam above the boiling point** *the only one definition

（2） It is colorless and transparent **H_2O (water) gas**

（3） **Maintaining large heat capacity,** ergo presence of latent heat

（4） In food heating, **Condensation process and drying process** are performed water heating Water vapor heating

（5） It is possible to **form an ultra low oxygen atmosphere filled with water vapor**



superheated steam

What is superheated steam?

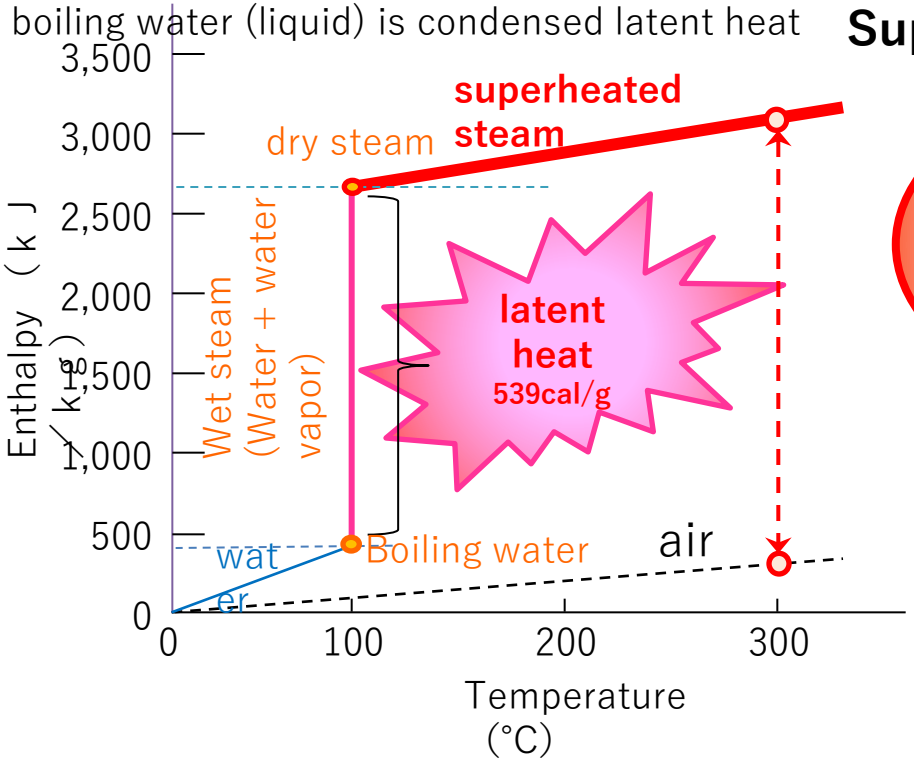
① It has a huge amount of heat ∵Presence of latent heat

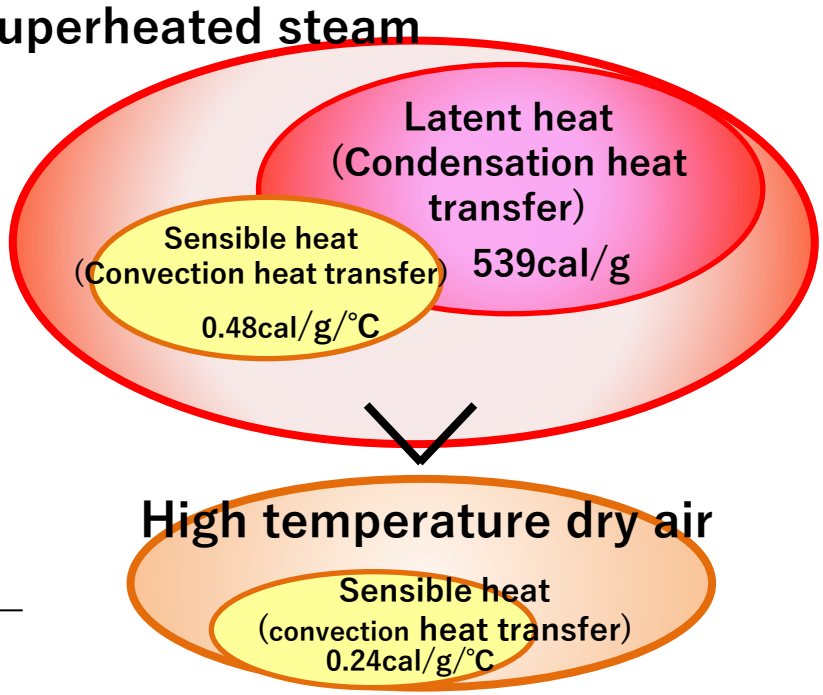
Sensible heat：The state of the object dose not change, but the heat generated when the temperature goes up and down

Example) The water temperature at 15°C rises up to 65°C hot water (liquid)

Latent heat:Although the temperature of the object does not change, the heat generated when the state changes

Example) Latent heat of vaporization latent heat when the 100°C. boiling water (liquid) is changed to 100°C in steam (gas) conversely, latent heat when water vapor (gas) turns into boiling water (liquid) is condensed latent heat





At 300°C the heat quantity is increased by 10 times

Figure Change in specific enthalpy from water vapor (under atmospheric pressure)

What is superheated steam?

① It has a huge amount of heat

→ **Reduce cooking time**

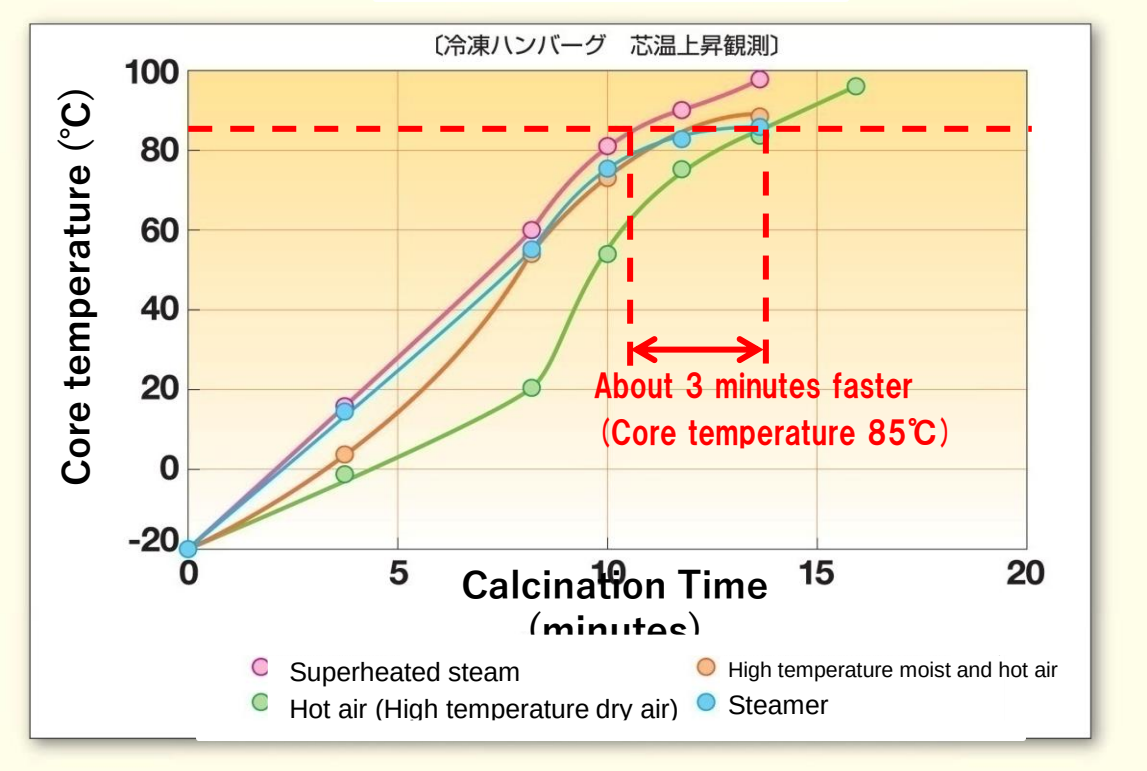
① Shoter machine dimensions * When the operating time is constant

Or Cooking operation time is shortened, personnel expenses are suppressed * When the machine dimensions are constant

② By shortening the drip outflow time, it prevents the spillage of extracts such as UMAMI ingredients,

And the yield is greatly improved

Frozen hamburger steak



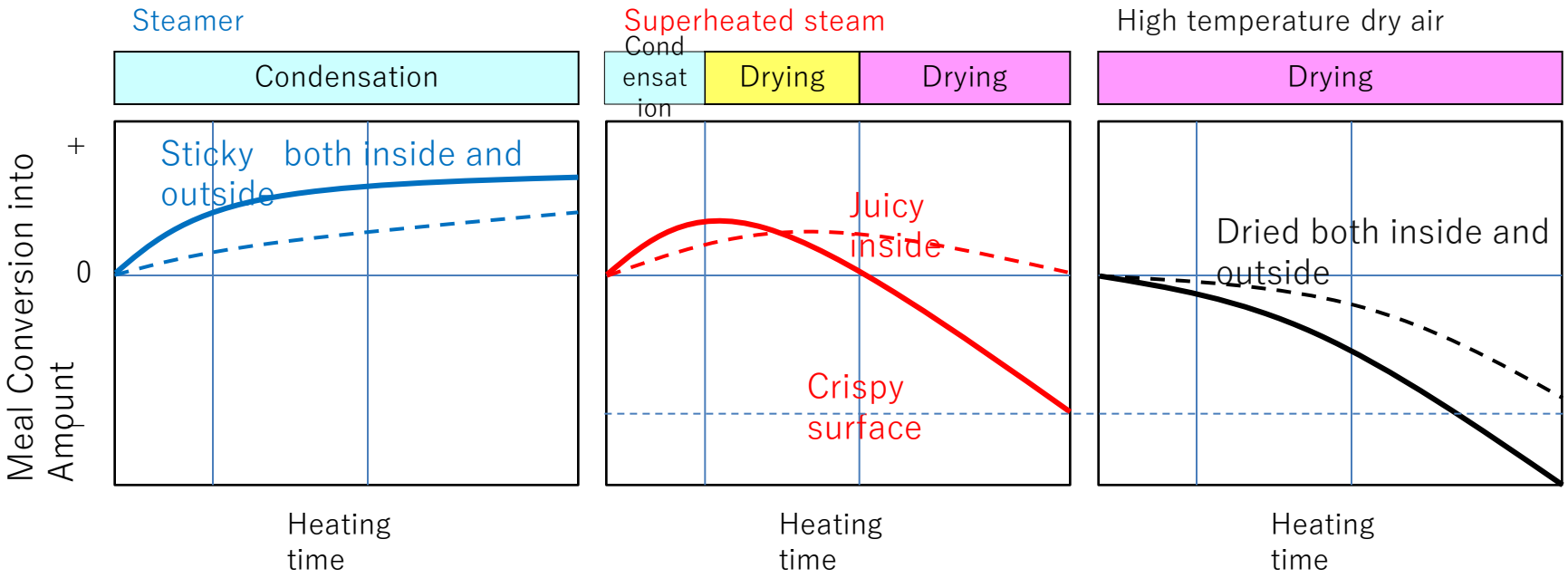
What is superheated steam?

② Cooking of **condensation process and drying process** is performed

The image of cooking with water vapor is “steamed bake”

However, our steam heating mechanism is actually **“baking after steaming”**

We are using superheated steam technology well.



Heat and heat heating early in heating

Condensation process

Dry heating from when the surface temperature reaches saturation temperature

from

Drying process

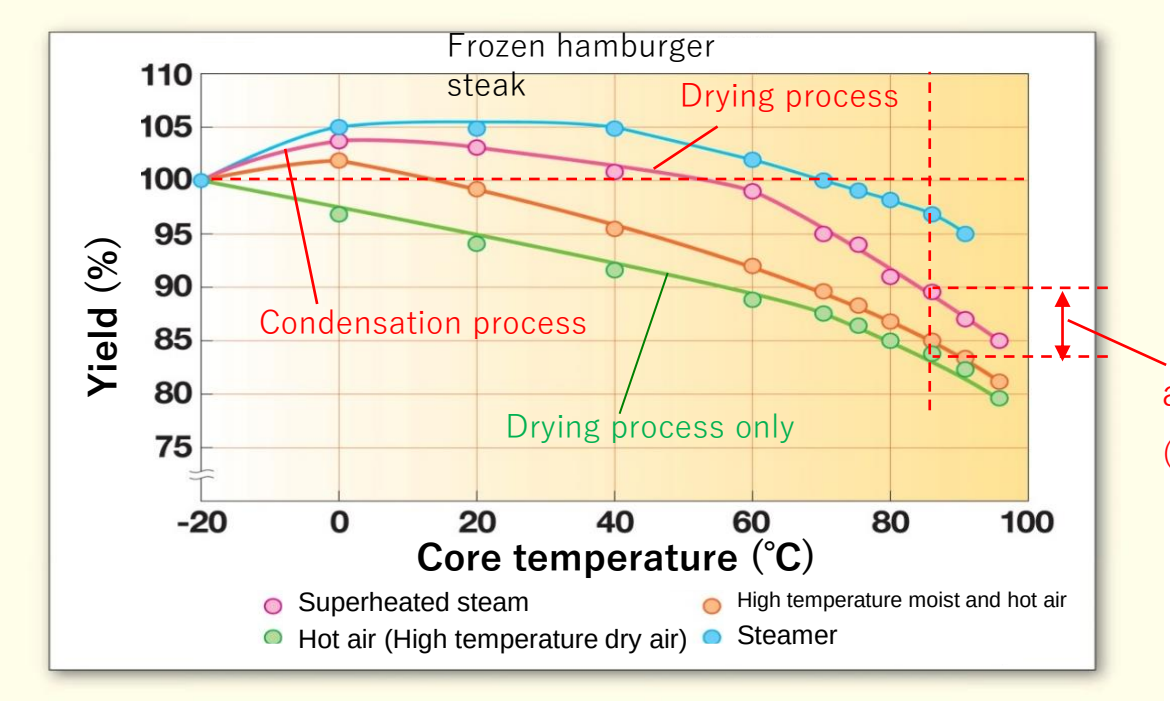
What is superheated steam?

② Cooking of **condensation process and drying process** is performed

→ **Increase yield**

① Very juicy finished. ※ Eat delicious after the range up

② With respect to the prepared foods that are selling



about 7 % yield UP (Core temperature 85℃)

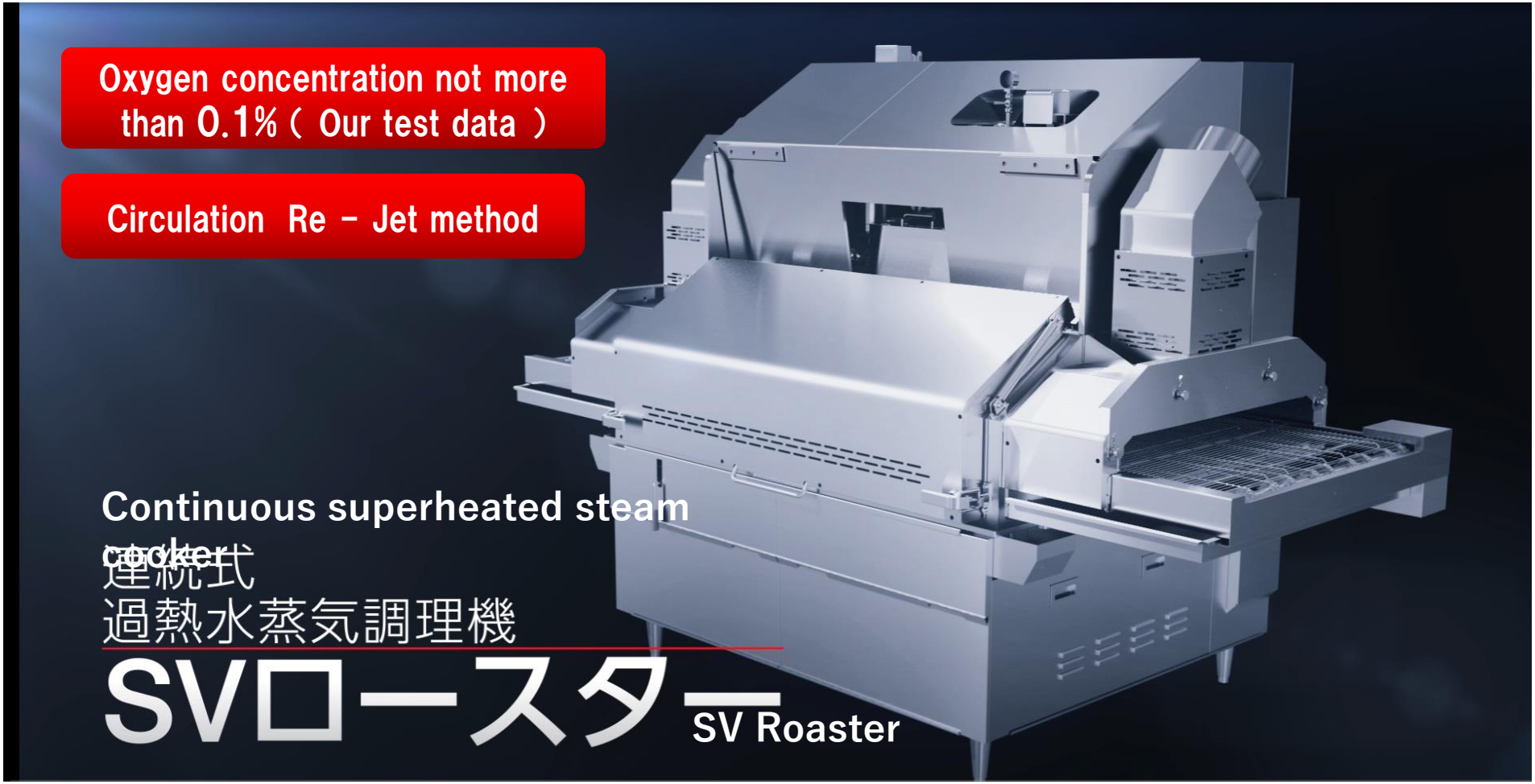
＜Other effects due to condensation＞

・Warm vegetable cooking keeps moist state by condensed water adhering to the surface of food ingredients and suppresses surface hardening.

・It is said that strong bactericidal effect is exhibited by drying after condensation against bacteria attached to food surface.

・Food of new texture is made depending on ingredients. Example) Bread

SV Roaster

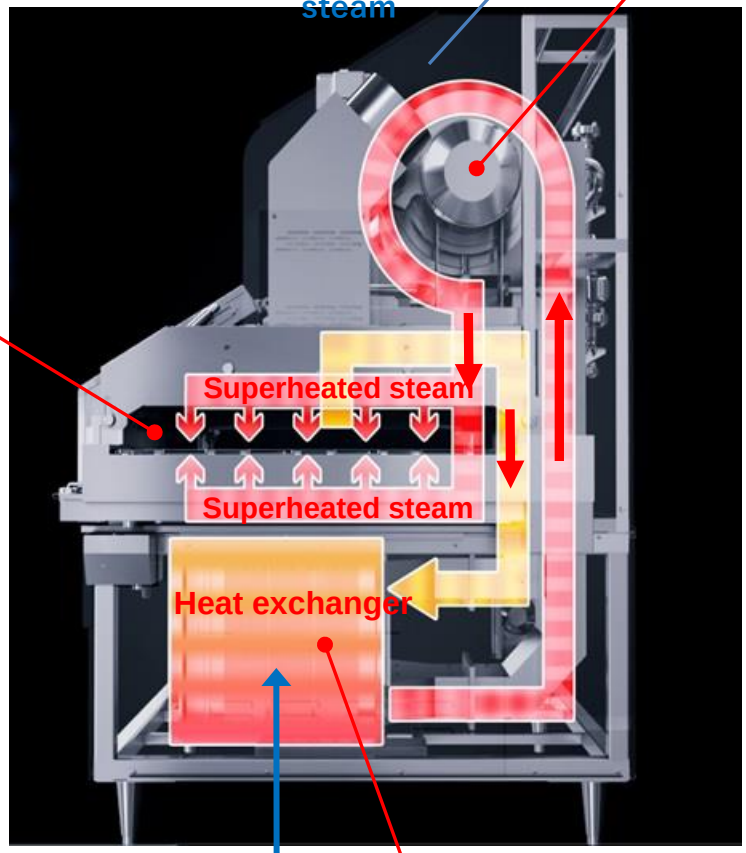

Oxygen concentration not more than 0.1%（ Our test data ）
Circulation Re - Jet method
Continuous superheated steam cooker
連続式
過熱水蒸気調理機
SVロースター
SV Roaster

SV Roaster Structure and features

Steam amount control function

Circulation Re - Jet method

Oxygen concentration not more than 0.1%
(Our test data)



Boiler

Saturated steam

Electric type or gas type

Circular Re-Jet method

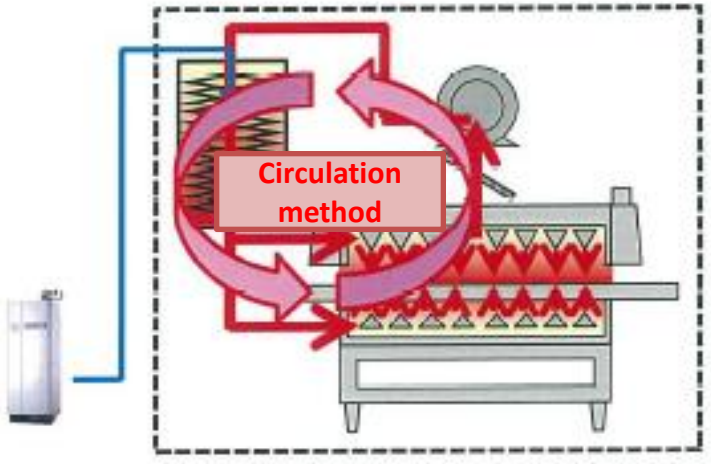
Advantages of circulating Re-Jet method

1 By recovering steam, **reheating and reusing it significant reduction in steam consumption**

2 Increased steam flow rate and flow **rate Heat exchange amount UP ⇒ Time saving**

3 **Four mode selection function** which can select circulating fluid

※ Superheated steam / hot air (dry air) / humidified air (combination) / saturated steam (st

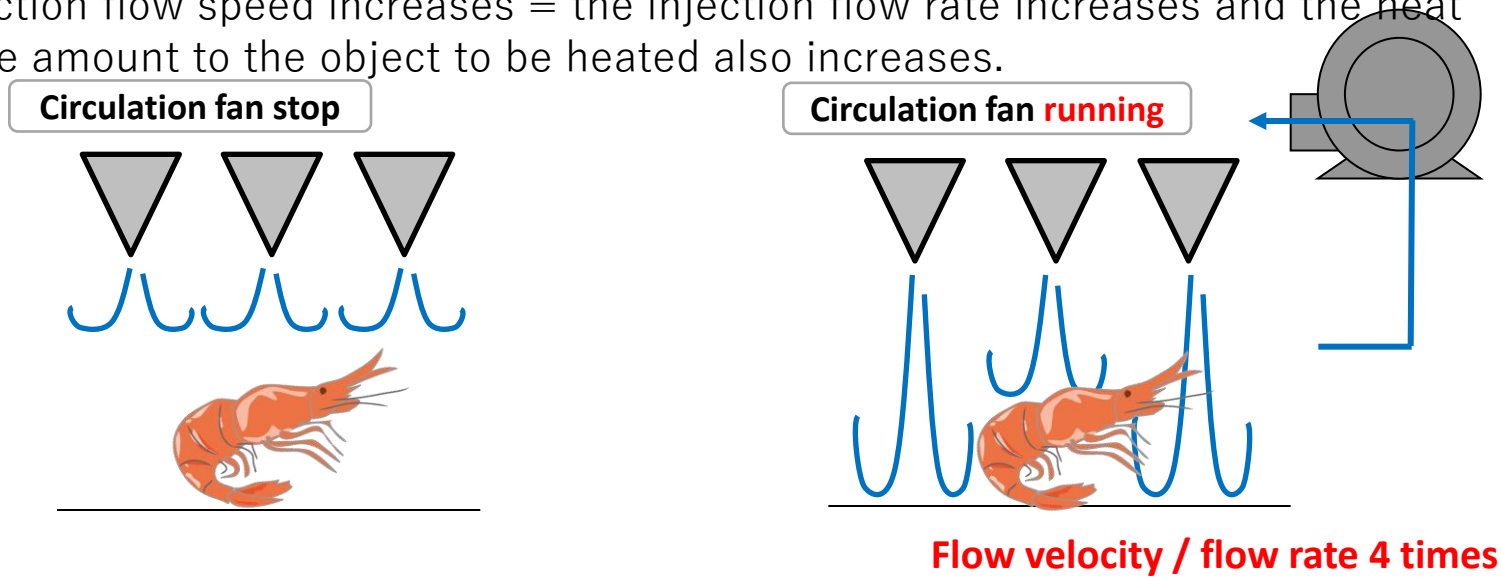


2 Increased steam flow rate and flow rate **Heat exchange amount UP ⇒ Time saving**

Circulating fan operation speeds up circulating steam flow.

Superheated steam injection velocity in the circulation fan stopped state is 5 to 7 m / sec , whereas it is injected at a flow velocity of 25 m / sec (about 4 times) during the circulation fan operation .

The injection flow speed increases = the injection flow rate increases and the heat exchange amount to the object to be heated also increases.



Specification of SV roster

（1） Continuous superheated steam oven

・ Heat exchanger can be selected from electric type and gas type

（2） Oxygen concentration that represents the quality of superheated steam as a numerical value is realized to 0.1 % or less in the heat chamber atmosphere

⇒ Pursuit of superheated steam

・ High quality superheated steam suppresses food oxidation
・ High quality superheated steam reduces cooking time
・ High quality superheated steam, juicy finish with high yield

（3） Circulation Re-Jet system adopted

・ Reduce supply steam volume by circulating Re-Jet system
・ Mode selection is possible by circulating Re-Jet system
・ Circulation Re-Jet system speeds convection of superheated steam inside the heat chamber and reduces cooking time

SV Roaster Structure, features & Cleanliness

Nozzle can be attached
/ detached without tools

□ LCD color touch panel controller

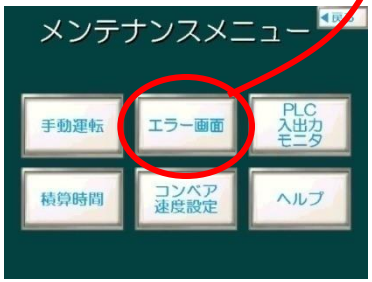
LCD touch panel

Cooking mode screen

Setting of cooking conditions, menu registration is possible. (Menu registration 100 items)

Error screen

In case of emergency trouble, it will be easier to respond because you can understand the error part at a glance.



Maintenance screen

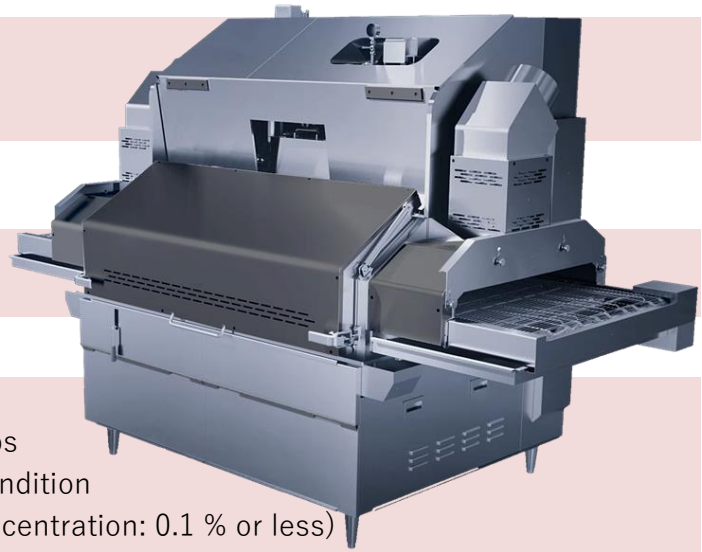
Manual operation, error screen, I / O input / output etc. are searched.

Cleaning mode screen

We perform various operations of cleaning work.

（1） specification ※Electric & gas type

Producing superheated steam method	Saturated water vapor is supplied from equipment and connected, and overheated by a heat exchanger (electric type / gas type) built in the machine
Method of heating food	Continuous conveyor type Overheated steam internal circulation / circulation Re-Jet system
Overheated steam temperature setting range	100 ° C to 250 ° C
Heat treatment time setting range	2 minutes 30 seconds to 25 minutes
Circulation fan setting range	30 Hz to 60 Hz
Oxygen concentration	At least 0.1 % (Nakanishi test data)
Steam amount control	Steam amount can be controlled in 7 steps ※ It is possible to create the following condition ・Superheated steam mode (Oxygen concentration: 0.1 % or less) ・Hybrid mode (Oxygen concentration 5 to 15 %: high temperature moist and hot air) ・Hot air mode (Oxygen concentration 21 %: high temperature dry air) ・Steamer mode (Oxygen concentration 0.1 % or less: saturated steam)
Method of operation	Touch panel operation Cooking condition setting, menu registration 100 item, maintenance mode, cleaning mode
Temperature control	Temperature control is possible for each unit (Multiplexer only)



Specification of SV roster

☆Electrical type specification

	Single-stage SVJ-1E	Duplicate SVJ-2E	Triplet SVJ-3E	Quadruped SVJ-4E	Five-stage SVJ-5E	Six consecutive SVJ-6E
External dimensions (mm)	2,750W × 1,350D × 1,865H	4,500W × 1,350D × 1,865H	6,250W × 1,350D × 1,865H	8,000W × 1,350D × 1,865H	9,750W × 1,350D × 1,865H	11,500W × 1,350D × 1,865H
Power consumption (3 phases 200 V)	49.6kW	98.12kW	147.2kW	196.2kW	245.2kW	294.2kW
Steam consumption	240kg/h	320kg/h	380kg/h	380kg/h	380kg/h	380kg/h

☆Gas type specification

	Single-stage SVJ-1G	Duplicate SVJ-2G	Triplet SVJ-3G	Quadruped SVJ-4G	Five-stage SVJ-5G	Six consecutive SVJ-6G
External dimensions (mm)	2,750W × 1,350D × 1,865H	4,500W × 1,350D × 1,865H	6,250W × 1,350D × 1,865H	8,000W × 1,350D × 1,865H	9,750W × 1,350D × 1,865H	11,500W × 1,350D × 1,865H
Power consumption (3 phases 200 V)	3.81W	7.62kW	11.45kW	15.2kW	18.95kW	22.7kW
Gas consumption	80,625kcal/h (93.75kW)	161,250kcal/h (187.5kW)	241,875kcal/h (281.25kW)	322,500kcal/h (375.0kW)	403,125kcal/h (468.75kW)	483,750kcal/h (562.5kW)
Steam consumption	240kg/h	320kg/h	380kg/h	380kg/h	380kg/h	380kg/h