



VAPOR HEAT TREATMENT SYSTEM



What is Vapor Heat Treatment System ?

Vapor Heat Treatment is a Plant Quarantine treatment method. Our products have been used around the world anywhere phytosanitary is required for exporting of fresh fruit to Japan, South Korea, China, Australia, New Zealand, EU and elsewhere.

The Vapor Heat Treatment System (hereafter “VHT System”) is a system for steadily killing eggs and larvae of fruit flies parasitizing inside the fruit with vapor and heat without injuring fresh fruits.

The system operates on the following basic principle:

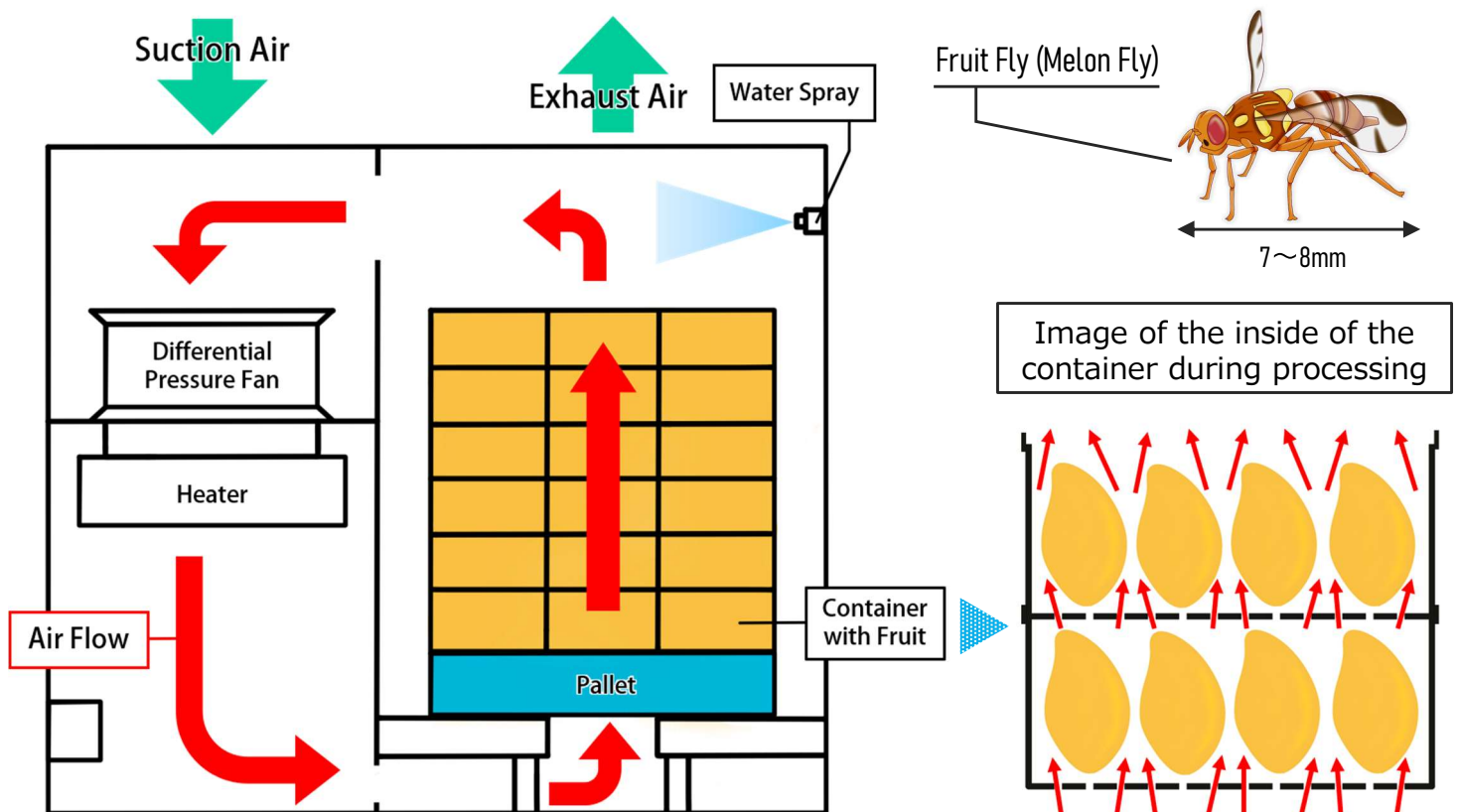
The fruit is exposed to heat at specified temperature and humidity levels, increasing its internal temperature. As a result, parasites are killed while heat injury to the fresh fruit is avoided.

The system of equipment we provide is called the “differential pressure treatment system.” Treatment systems of this type use differential pressure to induce efficient circulation of vapor heat through all spaces in-between fruits so that each and every individual fruit is continuously, evenly and uniformly exposed to vapor heat atmosphere.

Currently, almost all fresh fruits being imported to Japan on the condition of VHT are processed with a differential pressure type treatment system.

▶ VHT machine Outline drawing

The hot air containing saturated vapor is circulated in the treatment chamber to bring the temperature of the target fruits to the specified temperature over several hours to killing fruit flies and larvae.



Feature of the Vapor Heat Treatment System

Our VHT System has the following functions:

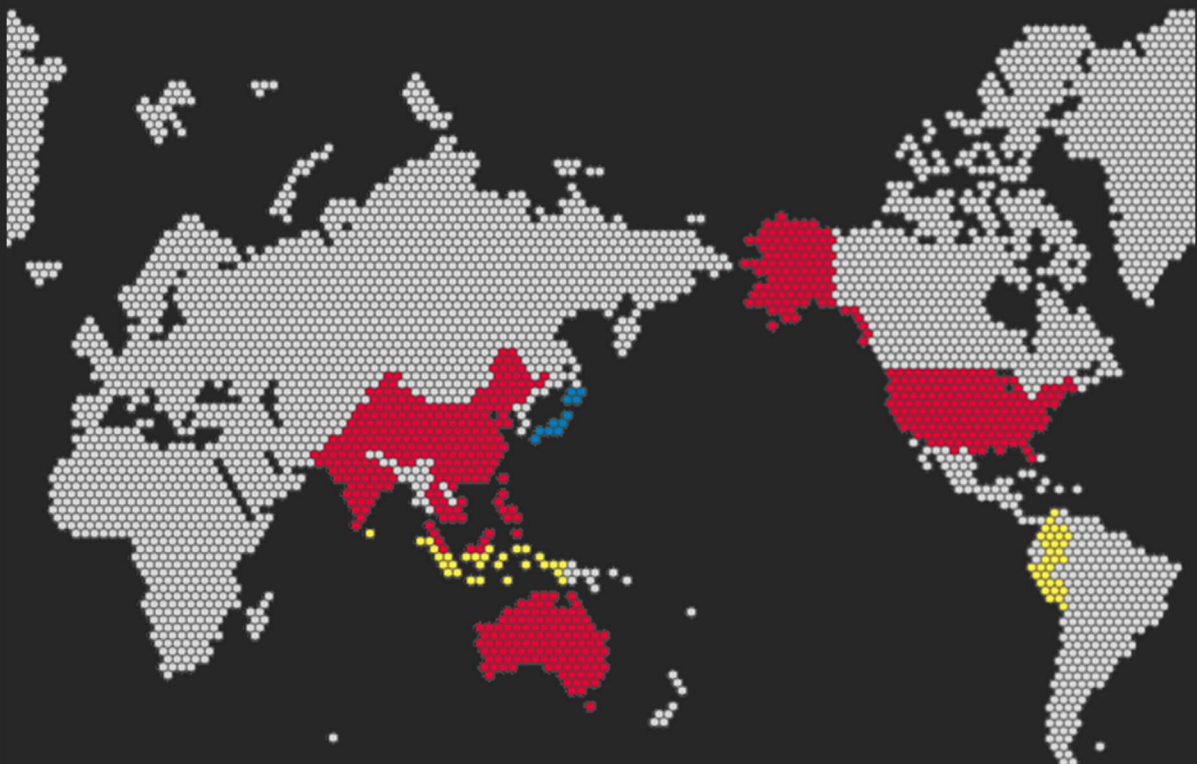
- 1) Fulfilling respective disinfection standards for the time required to heat the core of fresh fruit to the desired temperature and providing saturated vapor;
- 2) Designed to avoid heat-injury while maintaining the quality of fresh fruit during treatment;
- 3) Even if a small capacity machine is installed at first and the required treatment capacity is increased later, it is possible to expand to a larger capacity depending on the required amount without installing another one.
- 4) In the past, it was necessary to operate all treatment chambers, even for small amount of processing. However, our module type VHT system enable partial operation because it can separate each treatment chamber.
- 5) Temperature, humidity, and processing time can be set freely (up to 4 patterns.)
- 6) Automatic control and recording of temperature and humidity during operation.
- 7) Various accompanying safety devices are provided.

Patent

JAPAN : Japanese Patent No. 5816304 / INDONESIA : IDP000054162

VIETNAM : Application No. 1-2014-02734 (as of 2020 September)

Installation record of VHT systems



China, Taiwan, Vietnam, Cambodia, Thailand, Philippines, Malaysia, Indonesia, India, Sri Lanka, Pakistan, Australia, USA(Hawaii), Peru, Colombia

Note: The underlined countries (yellow area on the map) have only had the VHT system installed for testing.

Commercial Vapor Heat Treatment System

For sterilization of fresh fruit in large quantities for export

This machine is capable of sterilization of a large volume of fresh fruit per use. Vapor Heat Treatment used to kill fruit fly eggs and larvae inside fruit that cause serious damage in export destination.

Currently, the commercial module type has the capacity to sterilize 500kg (1 Unit) to 6 tons (12 Unit). It can be designed according to the target fruit and installation location.

Our VHT system is used in more than 10 countries worldwide.

Specifications

MODEL		EHK-300MPC	EHK-500MPC
TREATMENT CAPACITY		3,000kg ※	5,000kg ※
OUTER DIMENSIONS (mm) (L×W×H)		7,260×2,394×3,090	12,100×2,394×3,090
PERFORMANCE	TEMPERATURE RANGE	ROOM TEMP. +10 to 55°C	
	HUMIDITY RANGE	55.0 - 95.0% RH	
REQUIRED SETUP	POWER SOURCE	3φ 200V 50/60Hz (Voltage fluctuation rate within +/-10%)	
	MAXIMUM POWER CONSUMPTION	150kW	230kW
	MAXIMUM WATER CONSUMPTION	When vapor heating: 60ℓ/h When cooling: 360ℓ/m	When vapor heating: 100ℓ/h When cooling: 600ℓ/m

※ depends on the size, shape and weight of Fruit

This specification table is an example. In addition, it is possible to have the machine manufactured with another capacity, so please feel free to contact us for a consultation.

▼ EHK-500MPC : Outward View



Accessories



We provide breathable container baskets and pallets suitable for differential pressure treatment.

In addition, the addition of a corporate logo or mark on the pallets is an option.



▲ EHK-500MPC : Inside View

Vapor Heat Treatment System for Testing

For fruit damage, insecticide and disinfection test

This machine has been installed in the laboratories such as the Plant Protection Stations in Japan and overseas in order to test for fruit damage, insecticide use and disinfection.

It provides various temperature and humidity of environmental conditions with high precision, according to the purpose of the test by differential pressure mechanisms.

In addition, it controls and maintains environmental conditions according to specified requirements and possesses the capacity to record temperature and humidity.

Specifications

MODEL		EHK-500E	EHK-1000E
OUTER DIMENSIONS (mm) (L×W×H)		860×2,370×1,820	1,030×3,250×2,120
TEST CHAMBER DIMENSIONS (mm)(L×W×H)		0.5 CUBIC METERS 700×950×800	1 CUBIC METERS 800×1,560×800
PERFORMANCE	TEMPERATURE RANGE	ROOM TEMP. +10°C to 60°C ※	
	TEMPERATURE ADJUSTMENT RANGE	0.1 °C	
	HUMIDITY RANGE	55% to 98% RH	
	HUMIDITY ADJUSTMENT RANGE	0.1% RH	
RATINGS	POWER SOURCE	3φ 200V 50/60Hz	
	MAXIMUM POWER CONSUMPTION	10kW	20kW
SAFETY DEVICE	Earth-leakage circuit breaker, Over-temperature preventer, Water-empty-heating preventer, Automatic water feeder, Refrigerator high-pressure regulator, Overload relay, Automatic recovery after power outage		

※ The maximum of the TEMPERATURE RANGE includes increases to 90°C by optional modification

▼ EHK-1000E : Outward View



▲ EHK-1000E : Inside View

EHK-1000E : Test Chamber ▶





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