HatchTech
INCUBATION TECHNOLOGY

Brochure

HatchTech

MicroClimer Setters and Hatchers

HatchTech

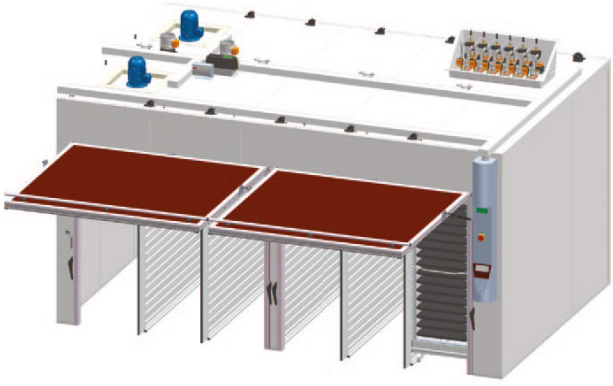
MicroClimer Setters and Hatchers

The key to achieving predictable and constantly superior chick quality is to ensure that the needs of the embryo are consistently and uniformly met during incubation. The embryo temperature, which is determined by the environmental conditions around the egg, is especially important. HatchTech MicroClimer Setters and Hatchers are designed to deliver a uniform incubation environment that specifically meets the needs of the embryo.

Our Setters and Hatchers utilize MicroClimer and laminar airflow technology. This unique airflow system creates ideal environmental conditions in which every embryo in the incubator is kept at the optimal temperature for outstanding development. MicroClimer Setters and Hatchers are available in two series with different capacities:

HatchTech MicroClimer 150 Series

The MicroClimer 150 series is based on the egg-flat capacity of traditional incubation systems. The setter trays hold 150 eggs, and hatcher baskets are available that hold either 75 or 150 eggs. The trays and baskets of the 150-egg series are compatible with all traditional incubation systems machines that utilize 150-egg trays.



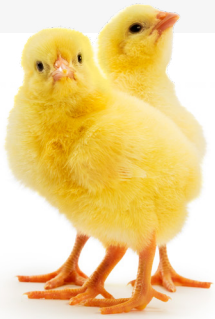
HatchTech MicroClimer 88 Series

The MicroClimer 88 series delivers outstanding space-saving efficiency. Thanks to the patented honeycomb design of the HatchTech 88 Setter Tray, this range can process the highest number of eggs per m^2 in the industry. The HT 88 Setter Tray is smaller than traditional trays. This makes them easier to handle in manual and/or semi-automated hatcheries. In fully-automated hatcheries, the 88 tray delivers the highest processing speeds possible – up to 15% over traditional trays.

Both of the MicroClimer series have other features that work together with the MicroClimer technology to ensure superior chick quality and deliver cost-efficient business operations. These include components that guarantee the cooling, heating and ventilation that the eggs need, high levels of bio-security and lower energy use.

HatchTech MicroClimer Setters and Hatchers

- MicroClimer technology for superior and uniform chick quality
- Excellent bio-security for healthy chick production
- Superb energy efficiency for operational sustainability



MicroClimer Technology

for Superior and Uniform Chick Quality

A high-quality, day-old chick that is optimally developed during incubation is the best guarantee for top performance on the production farm. Superior quality day-old chicks deliver better field performance in terms of better livability, and improved growth rates and breast meat yield at lower feed conversion ratios.

Producing perfect quality day-old chicks starts with understanding the basic needs of the embryo in terms of four key parameters: Oxygen, CO_2 removal, water removal, and embryo temperature control.

The incubator and hatcher create the incubation environment required by the embryo using the following:

- Air temperature.
- Air flow.
- Ventilation to supply O_2, remove CO_2 and moisture.
- Relative humidity.

Each of these parameters must be simultaneously controlled in order to deliver the environmental conditions necessary for optimal embryo development to each and every egg in the incubator.

Perfect temperature

for each embryo and early hatched chick

Incubating each embryo at the optimal temperature is the most crucial factor to achieve good embryo development and superior chick quality. The MicroClimer makes it possible to achieve this in each individual section of the incubator.

How does it work?

- Radiators divide the incubator into sections.
- Each section is equipped with a temperature sensor.
- Sensor information is constantly sent to the MicroClimer Controller.
- The controller sends out a heating or cooling signal to each individual radiator.
- The radiator in each section is cooled or heated by water that runs through it.
- Modulating heating and cooling valves make it possible to fine-tune the temperature according to the needs of the embryos in each section.
- Pressure differentials move air through the perforated holes in the radiator.
- As the air moves through the radiator, it is conditioned to maintain the correct temperature for the embryos in that section.

The MicroClimer constantly controls the temperature in an extremely fine-tuned way. This ensures a perfect temperature for every single embryo in the setter and hatcher, and superior chick quality for our customers.

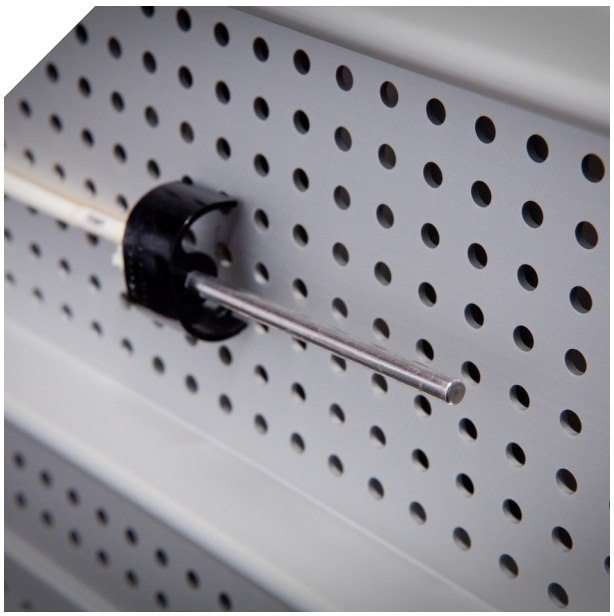
Laminar Airflow
Uniform Environmental Conditions

MicroClimer Setters and Hatchers are equipped with HatchTech's patented laminar airflow technology. The specially designed, perforated radiators create pressure differentials that distribute the air in a uniform flow of parallel air layers. The air speed is uniform throughout the egg mass – from top to bottom as well as from front to back. The airflow is precisely the same at every location within the machine.

How does it work?

- The ventilator creates a pressure differential and moves air to the right side of the incubator.
- The air moves to the left side through small, perforated holes in each radiator. An equal amount of air flows through every perforated hole at an equal velocity.
- The air passes through the eggs in equal laminar layers, providing every embryo in the incubator the same perfect, uniform airflow and temperature.

Laminar airflow ensures that the optimal temperature that the MicroClimer technology produces is homogenously delivered to every single egg. Such precision control of the temperature of each individual embryo translates into chick quality that is not only outstanding, but also highly uniform.



Uniform Embryo Activator™

One of the first and most important steps in the incubation process is the pre-heating of eggs from storage temperature to the optimal incubation temperature.

With the Uniform Embryo Activator™, the complete pre-heating process conveniently takes place inside the incubator itself. The Uniform Embryo Activator™ gradually increases air temperature in incremental steps from the storage temperature to the ideal incubation temperature over a carefully fine-tuned time frame. The MicroClimer laminar airflow technology ensures that air is uniformly delivered to each and every egg.

The Uniform Embryo Activator™ ensures a uniform activation of the development of the embryo's and a small hatching window at the end of the incubation cycle. What's more, a gradual, controlled pre-heating process also results in lower embryonic mortality and higher hatchability results.

Gas-Sealed Incubation – Excellent Heat Transfer

In the first stage of incubation, relatively high humidity and a uniform temperature is required to transfer heat to the embryos. The quality of this humidity is of crucial importance; the smaller the moisture droplet size, the better and more uniform the total heat transfer capacity and distribution will be.

In gas-sealed incubation, moisture that is lost from the eggs is retained inside the incubator. This moisture has a naturally small droplet size that creates the excellent heat transfer environment that is necessary for uniform and optimal, early embryonic development. The construction and design of the MicroClimer Setters and Hatchers ensures perfect gas-sealed incubation.

How does it work?

- Polyurethane sandwich panel construction: up to 200% higher insulation value than traditional Styrofoam panels. 100% silicon sealed inside and outside.
- Closed environment: direct-drive fan motors prevent air leakage into the machine.
- The MicroClimer Door: closes downwards rather than to the side. Two clamps on each side firmly press the seal onto the sturdy aluminum door frame. This creates a perfect gas-sealed closure.

Gas-sealed incubation and the uniform incubation conditions in the MicroClimer create the best possible heat-transfer conditions, and the proof is in the results: eggs hatched under these conditions have a measurably higher overall hatch rate of 1%.

Total O_2 and CO_2 Control

During the incubation process, the needs of the embryos change. In the first stage, the embryo's metabolism – and therefore O_2 consumption and CO_2 production – is low. No ventilation is necessary. Because of the gas-sealed environment, CO_2 levels rise faster. This is beneficial to early embryonic development since high CO_2 levels stimulate blood vessel development.

In MicroClimer Setters and Hatchers, the timing and amount of fresh air that enters the machine is determined by the levels that are set for relative humidity and CO_2 concentration. When either of these levels rise above the maximum set point, the inlet and exhaust vents will gradually open and fresh air will enter the setter or hatcher.

During the final phase of incubation, the embryo requires the most O_2 and is producing high levels of CO_2. Ventilation is increased, which results in lower relative humidity levels. At this stage, laminar airflow, uniform cooling and high air velocity create the optimum late incubation environment, and provide the uniform cooling that embryos need.

U-Vaporator™

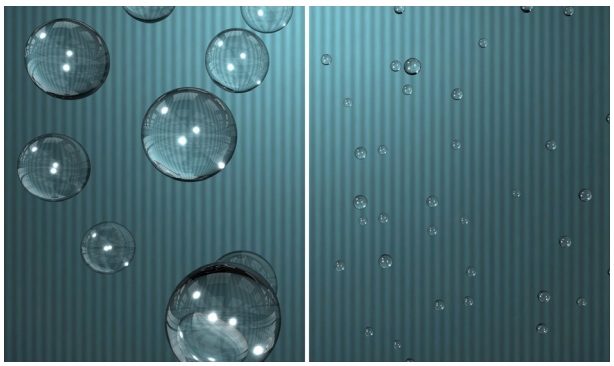
Perfect and Uniform Humidification

After the first phase of the incubation process, ventilation is necessary to provide the embryos with sufficient O_2 and to remove CO_2 and moisture. During this time, it is necessary to maintain minimum relative humidity levels to ensure uniformity of the environment. If the amount of moisture being lost by the eggs is not enough to maintain the minimum relative humidity, the air must then be humidified. To achieve the best relative humidity during this phase, HatchTech has developed the U-Vaporator™, which automatically produces a remarkably fine vapor of water droplets just 1 micron in size.

How does it work?

- The ultrasonic technology in the U-Vaporator™ switches on the moment the sensor indicates that the relative humidity is too low.
- The ultrasonic elements produce small, rapid vibrations to create water droplets of 1 micron – 30 to 50 times smaller than traditional humidifiers.
- The vapor is uniformly transported throughout the incubator by HatchTech's patented laminar airflow technology.

The U-Vaporator™ makes it possible to add moisture precisely when it's necessary during the second and third week of incubation. The extremely fine droplet size ensures the uniform distribution of humidity necessary for a uniform incubation environment.



MicroClimer Controller

Complete overview and total control

The MicroClimer Controller gives you a complete overview and total control of the incubator environment. With a full-color, touch-screen interface and an easy-to-understand menu, it is extremely user-friendly for hatchery personnel.

The main menu screen displays at a glance all the important incubation parameters for each individual section:

- The actual and set-point temperatures.
- A red or blue bar shows if (and how much) each individual section in the HatchTech MicroClimer is cooling or heating.
- The actual and set-point values for CO_2 and humidity.
- If the U-Vaporator™ is running to increase the humidity level.
- The fan speed percentage, which is controlled by the HatchTech Eco Energy Drive™.
- The turning of each individual setter trolley.

The MicroClimer Controller provides power to and control over the ventilator, six temperature sensors (one per section), the CO_2 and humidity sensors, a back-up sensor, the inlet and exhaust vents, the individual trolleys (for egg turning) and the central M6-cooling and heating system. A red/green light on the outside of each controller clearly shows the machine status, on-, off-, or in alarm mode.

HatchTech's in-house hatchery management consultants use the input from the HatchTech Research Department to develop standard incubation profiles. These profiles contain all the set points for each specific phase of the incubation process. Since all HatchTech MicroClimers are linked to the corporate head office in Holland, we are able to provide you with real-time guidance and software updates at any time.

Excellent Bio-Security

for Healthy Chick Production

In order to meet the standards of the global food industry, hatcheries must meet the highest possible bio-security standards. HatchTech products are designed with special attention to bio-security, and include several features that enhance high-level bio-security programs. In addition to food safety, excellent bio-security control results in high hatchability, protects vulnerable chicks from being exposed to bacteria and viruses, and improves the field performance of the chicks.

Fresh, Filtered Air Supply

In traditional situations, return air from common setter or hatcher corridor is used for cooling, which is a source of cross-contamination in a hatchery. The HatchTech MicroClimer uses radiators, not air, for cooling. What's more, the MicroClimer's air supply comes from a special air handling unit. The fresh, conditioned and fully filtered air is ducted directly from the air handling unit into the setter and hatcher. Direct and filtered air supply prevents cross-contamination in the hatchery.

Gas-Sealed Incubation

HatchTech MicroClimers are gas sealed. This is an extremely effective way of safeguarding the climate within the incubator. Air cannot leak into the common hall, nor can untreated air from the hall enter the setter or hatcher. This prevents cross-contamination in the hatchery.

Ultimate Machine Sanitation™

In hatcheries, bacteria are becoming more and more resistant to standard disinfection chemicals. Ultimate Machine Sanitation™ uses heat disinfection in combination with a disinfectant to ensure all micro-organisms are killed during sanitation.

How does it work?

- The UMS™ Program is activated via the MicroClimer Controller.
- The machine heats up to 120 °F to kill micro-organism that are susceptive to temperature.
- A disinfectant is used to kill the micro-organisms that are resistant to heat.
- The laminar airflow spreads the disinfectant throughout the machine to effectively kill the micro-organisms.
- After the disinfection phase is completed, the program gradually decreases to operating temperature, and the machine stops automatically.

Thanks to the combination of heat and chemical disinfection, UMS™ kills all the contaminants in the machine. What's more, the heat also completely dries the incubator, preventing the development of humid areas where bacteria can flourish. The result is a clean and dry incubator, ready for the next set.

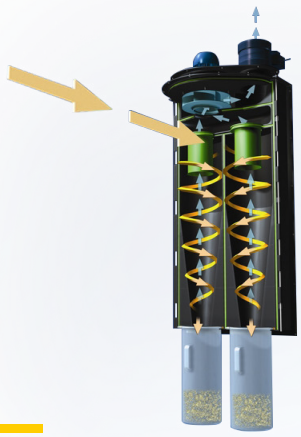
CyClean™

Cross-contamination in hatcheries is often caused by contaminated fluff being discharged from the hatchers and reintroduced into the hatchery via the central ventilation system. The CyClean™ prevents this problem. It makes use of a proven cyclone concept to trap more than 95% of fluff from the air before it leaves the hatcher.

How does it work?

- The CyClean™ is placed in the outgoing airflow of the hatcher.
- The air with fluff goes through the CyClean™.
- The CyClean™ separates the fluff from the air by way of spiral movements (cyclone concept).
- Fluff is collected in fluff bins at the bottom.
- Clean air leaves the hatcher.

The CyClean™ does more than just remove the fluff from the air before it leaves the hatcher, which reduces crosscontamination. It eliminates the need for a fluff room (plenum). This reduces the square meters of space that you need in the hatcher area by approximately 20%, which translates into other business benefits such as lower building, operational and labor costs.



Energy Efficiency

for Operational Sustainability

With energy prices still on the rise, energy efficiency is an important factor to consider when making decisions about a new hatchery. Lower energy consumption leads to significantly reduced operational costs.

The MicroClimer Setters and Hatchers offer a variety of features and components that not only substantially reduce your total business energy needs, but also make a positive contribution to sustainable poultry farming by reducing your CO_2 emissions.

High-Insulation Panels

HatchTech MicroClimers are constructed of 60mm and 100mm-thick sandwich panels. The panels have a polyurethane core, which delivers an excellent insulation value - up to 70% higher than traditional Styrofoam. The combination of a gas-sealed machine design and the high thermal conductivity ratios of the panels minimize energy loss during operation, which reduces energy costs.

Direct-Drive Ventilators

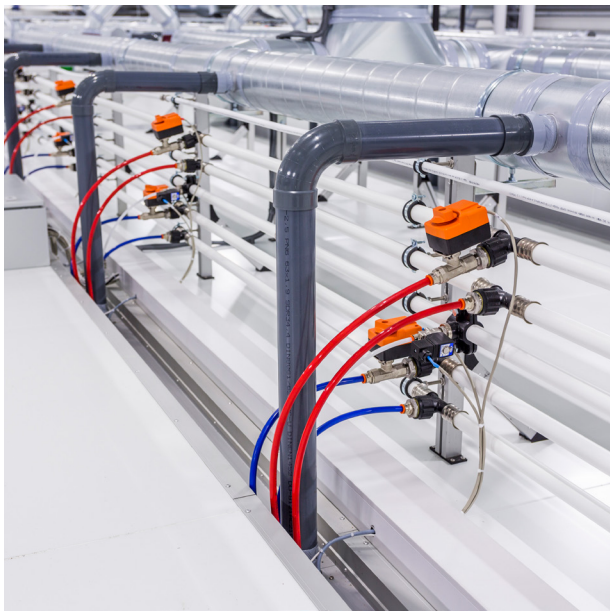
The direct-drive motors that power the ventilators operate with minimum vibration and almost zero friction, which lowers the energy consumption.

Eco Energy Drive™

The HatchTech Eco Energy Drive™ is a standard feature on MicroClimer Setters. This technology monitors the environmental conditions and adapts the fan speed to the real-time needs of the developing embryos. This means that the fan does not operate at full speed unless it's actually necessary, both maintenance and energy costs are minimized.

PID Control and Modulating Valves

The HatchTech MicroClimer incorporates PID controls, which accurately predict heating and cooling requirements for each specific section of the MicroClimer. The MicroClimer also has modulating cold and hot water valves that are continually opening and closing to prevent expensive cooling or heating overshoots.



Efficient Cooling and Heating

Air cooling and heating in the MicroClimers is accomplished by radiators. The radiators are made out of strong anodized aluminum. The temperature of the water that is running through them is rapidly transferred to the air as it passes over the radiator. The generous cooling and heating surface area of the 6 radiators – by far the largest in the industry – reduces heat-up time and ensures effective heat transfer to the air.

HatchTech
MicroClimer Benefits

MicroClimer Technology
for Superior and Uniform Chick Quality

- Perfect embryo temperature control
- Laminar airflow
- Gas-sealed incubation
- Uniform Embryo Activator™
- Total O_2, CO_2 Control
- U-Vaporator™
- MicroClimer Controller

The result: Environmental requirements of the embryo are perfectly met, which results in maximum hatchability and a uniform and optimal chick quality. Outstanding chick quality maximizes the final field performance and the results and profitability of your hatchery.

Excellent Bio-Security
for Healthy Chick Production

- Fresh, filtered air supply
- Gas sealed incubation
- Ultimate Machine Sanitation™
- CyClean™

The result: Excellent bio-security control that meets the highest industry and market standards, protects vulnerable chicks, and increases the number of strong, healthy chicks!

Energy Efficiency
for Operational Sustainability

- High-insulation panels
- Direct-drive ventilators
- Eco Energy Drive™
- PID control and Modulating valves
- Efficient cooling and heating

The result: Energy-efficient features work together to ensure reduced energy consumption, lower energy bills, and a smaller CO_2 footprint.

Technical
Specifications

MicroClimer 88-Series

Setters	**S168960**	**S126720**
Capacity		
Eggs	168960	126720
Trays (88 eggs)	1920	1440
Trolleys	24	18
Eggs/m²	4582	4557
Dimensions		
W x D x H (m)	5,40 x 6,83 x 2,74	5,40 x 5,15 x 2,74
Setters	**S200640**	**S150480**
Capacity		
Eggs	200640	150480
Trays (88 eggs)	2280	1710
Trolleys	24	18
Eggs/m²	5441	5412
Dimensions		
W x D x H (m)	5,40 x 6,83 x 2,74	5,40 x 5,15 x 2,74
Sensors		
Temperature	12	6
Humidity	1	1
CO_2	1	1
Humidification	U-Vaporator™	U-Vaporator™
Turning	Individual per trolley	Individual per trolley
Cooling	100% by water	100% by water
Heating	100% by water	100% by water
UMS™	Standard	Standard
Uniform Embryo Activator™	Standard	Standard

MicroClimer 150-Series

Setters	**S115200**	**S86400**
Capacity		
Eggs	115200	86400
Trays (150 eggs)	768	576
Trolleys	24	18
Eggs/m²	4354	4182
Dimensions		
W x D x H (m)	7,97 x 3,32 x 2,70	4,20 x 4,92 x 2,70
Sensors		
Temperature	6	3
Humidity	1	1
CO_2	1	1
Humidification	U-Vaporator™	U-Vaporator™
Turning	Individual per trolley	Individual per trolley
Cooling	100% by water	100% by water
Heating	100% by water	100% by water
UMS™	Standard	Standard
Uniform Embryo Activator™	Standard	Standard

MicroClimer Turkeys and Ducks

Setters	**S21168**
Capacity	
Eggs	21168
Trays (126 eggs)	168
Trolleys	6
Eggs/m²	2754
Dimensions	
W x D x H (m)	4,47 x 1,72 x 2,70
Sensors	
Temperature	6
Humidity	1
CO_2	1
Humidification	U-Vaporator™
Turning	Individual per trolley
Cooling	100% by water
Heating	100% by water
UMS™	Standard
Uniform Embryo Activator™	Standard

S84480	S42240	S21120	S7040
84480	42240	21120	7040
960	480	240	80
12	6	3	1
4496	4322	3969	1793
5,40 x 3,48 x 2,70	5,40 x 1,81 x 2,70	2,94 x 1,81 x 2,70	2,17 x 1,81 x 2,70
S100320	**S50160**	**S25080**	**S8360**
100320	50160	25080	8360
1140	570	285	95
12	6	3	1
5339	5132	4714	2129
5,40 x 3,48 x 2,74	5,40 x 1,81 x 2,70	2,94 x 1,81 x 2,70	2,17 x 1,81 x 2,70
6	6	3	2
1	1	1	1
1	1	1	1
U-Vaporator™	U-Vaporator™	U-Vaporator™	U-Vaporator™
Individual per trolley	Individual per trolley	Individual per trolley	Individual per trolley
100% by water	100% by water	100% by water	100% by water
100% by water	100% by water	100% by water	100% by water
Standard	Standard	Standard	Standard
Standard	Standard	Standard	Standard

MicroClimer 88-Series

Hatchers	H42240	H21120	H7040
Capacity			
Eggs	42240	21120	7040
Basket (88 eggs)	480	240	80
Dollies	6	3	1
Eggs/m²	4075	3742	1730
Dimensions			
W x D x H (m)	5,40 x 1,92 x 2,70	2,94 x 1,92 x 2,70	2,12 x 1,92 x 2,70
Hatchers	**H50688**	**H25344**	**H8448**
Capacity			
Eggs	50688	25344	8448
Basket (88 eggs)	576	288	96
Dollies	6	3	1
Eggs/m²	4229	3884	1796
Dimensions			
W x D x H (m)	5,40 x 2,22 x 2,70	2,94 x 2,22 x 2,70	2,12 x 2,22 x 2,70
Sensors			
Temperature	3	2	2
Humidity	1	1	1
CO_2	1	1	1
Humidification	Sprayer	Sprayer	Sprayer
Cooling	100% by water	100% by water	100% by water
Heating	100% by water	100% by water	100% by water
UMS™	Standard	Standard	Standard
CyClean™	Standard	Standard	Standard

S57600	S28800
57600	28800
384	192
12	6
4131	3987
4,20 x 3,32 x 2,70	4,20 x 1,72 x 2,70
3	3
1	1
1	1
U-Vaporator™	U-Vaporator™
Individual per trolley	Individual per trolley
100% by water	100% by water
100% by water	100% by water
Standard	Standard
Standard	Standard

MicroClimer 150-Series

Hatchers	H28800
Capacity	
Eggs	28800
Basket (75 eggs)	384
Dollies	6
Eggs/m²	3746
Dimensions	
W x D x H (m)	4,47 x 1,72 x 2,70
Sensors	
Temperature	3
Humidity	1
CO_2	1
Humidification	Sprayer
Cooling	100% by water
Heating	100% by water
UMS™	Standard
CyClean™	Standard

MicroClimer Turkeys and Ducks

Hatchers	H21168
Capacity	
Eggs	21168
Basket 126 (eggs)	168
Basket 63 (eggs)	336
Dollies	6
Eggs/m²	2754
Dimensions	
W x D x H (m)	4,47 x 1,72 x 2,70
Sensors	
Temperature	3
Humidity	1
CO_2	1
Humidification	Sprayer
Cooling	100% by water
Heating	100% by water
UMS™	Standard
CyClean™	Standard

HatchTech
Headquarters
Gildetrom 25
NL-3905 TB
Veenendaal
The Netherlands

E info@hatchtech.com
T +31 (0)318 512511

www.hatchtech.com

HatchTech
INCUBATION TECHNOLOGY

19_314_HAT014