SelEggt
EGG HANDLING

EN

Brochure

# SetGate Review-Reject-Refill

## Accurate & Automated Candling from Day 9

# Take Control at Day 9, Instead of Day 18

**Early candling offers clear advantages over traditional candling during transfer at day 18. By shifting the candling process to an earlier moment in time, hatcheries can unlock improvements in efficiency, hatchability and chick quality. Early candling reduces bacterial pressure, leading to higher hatchability and better chick quality. At the same time, it frees up valuable hatchery capacity, typically around 15%, with even greater opportunities in older flocks.**

### Controlling Biological Risk

Hatcheries implement strict hygiene protocols to manage bacterial pressure and safeguard developing embryos. However, one of the most significant contamination risks is often underestimated: The bacterial eggs that crack or explode during incubation, releasing harmful bacteria into the environment.

Non-viable eggs often contain pathogenic bacteria that produce gas over time, increasing the likelihood of breaking. When this occurs, surrounding eggs are exposed to contamination, elevating the risk of infection and negatively impacting chick health post-hatch. The sooner the infertile eggs and decomposing embryos are removed, the lower the risk of cross-contamination.

### Optimised Hatchery Resource Utilisation

Early removal of non-viable eggs improves the use of setter and hatcher capacity. Resources such as space, energy, and labour are only spent on viable eggs. It improves the estimation of expected viable chicks and creates a more stable and efficient hatching and processing environment.



# SetGate:

## Automated and Accurate Candling from Day 9

**On average, top-performing hatcheries lose approximately 14,2% of eggs set*. The percentage of eggs lost depends on multiple variables, such as flock age. In most cases, older flocks have a lower performance.**

The majority of the losses occur within the first nine days of incubation. On average, one third of the loses are infertile eggs and another one third are due to early mortality within the first 9 days of incubation.

SetGate is designed to identify and remove the infertile and dead-in-shell eggs from day 9 onwards without the need of manual labour. Taking out all non-viable eggs at that moment, it ensures only fertile, viable eggs remain in the incubation process.

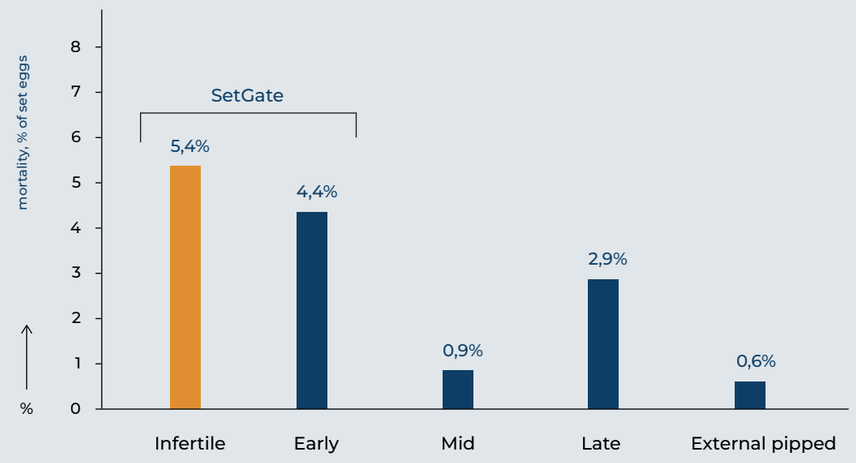
The result is a more controlled incubation process. Early candling significantly improves hygiene conditions within the incubator to higher hatchability, improved chick quality, enhanced performance, and reduced reliance on antibiotics.

### Early Candling

- Reduces bacterial pressure; positively affecting hatchability
- Optimises incubation capacity utilisation by 15% on average
- Optimises the use of resources, lowering manual labor and running costs

* Based on breakout figures from Aviagen, 2009

### Embryo mortality of top performing hatcheries (Aviagen, 2009)



# Proven Accuracy
## Optimised workflow

**Extensive testing by the HatchTech Research Team demonstrates that the SetGate consistently achieves an accuracy exceeding 99,9%*. The system reliably distinguishes viable from non-viable eggs across a broad operating window.**

By day 9, the peak in embryo mortality has already passed. Only minimal losses occur between this stage and transfer to the hatcher, eliminating the need for additional candling later in the process. By candling earlier in the process, potential bangers are identified and removed. With a flexible, multi-day operating window starting on day 9, SetGate allows hatcheries to process batches efficiently across multiple shifts, improving workflow and operational flexibility.

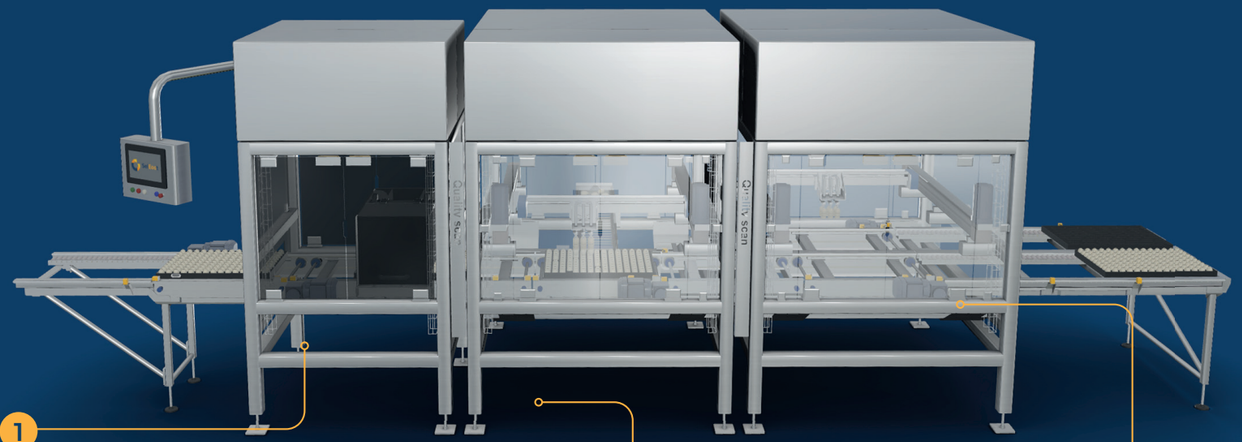
*Based on performance of our 150-tray machine currently operating in a Dutch Hatchery

### Summary

| | Total tested eggs | Total correctly classified | Total correctly classified Viable and Non-viable | |
|---|---|---|---|---|
| DAY 9 | 9.600 | 99,92% | Viable<br>Non-Viable | 99,92%<br>99,89% |
| DAY 10 | 19.199 | 99,99% | Viable<br>Non-Viable | 99,99%<br>100% |
| DAY 11 | 28.751 | 99,99% | Viable<br>Non-Viable | 99,99%<br>100% |
| DAY 12 | 23.975 | 100% | Viable<br>Non-Viable | 100%<br>100% |

# Maximising Incubation Capacity

SetGate combines reviewing, rejecting and refilling into one convenient, space-efficient machine.

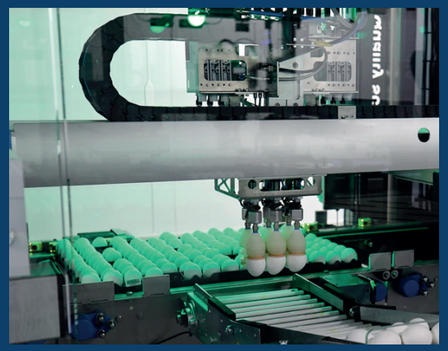


## REVIEW 1

In the first module, the eggs are reviewed. Eggs are illuminated using green LED light while cameras capture internal images. These images are automatically optimised and processed by the AI-powered processor, which analyses blood-vessel patterns to distinguish fertile, dead-in-shell, and infertile eggs. This data is sent to the next module.

## REJECT 2

In the reject module, the non-viable eggs are automatically removed from the tray onto the conveyer by a Planar surface gantry tool. The fertile, viable eggs are left untouched.



## REFILL 3

In case incubators can operate at full capacity with viable eggs, empty tray spots are automatically filled to 100% with viable eggs. If incubators are unable to control the environment with full trays, trays can be filled to 90%.


# SetGate
## Specifications

**When used as a stand-alone product, SetGate can process up to 20.000 eggs per hour. Leading to an average output of fertile eggs of 18.000 eggs per hour.**

The SelEggt Dashboard provides valuable information about the rejected eggs, such as the percentages of infertile and dead-in-shell eggs, helping to optimise hatchery operations. Eggs are handled with optimal care as the SetGate is designed to never exceed the safety threshold of 1 G-force during egg movement, ensuring that hatchability remains uncompromised.

Installation and commissioning are completed within 30 hours upon delivery. The SetGate system integrates seamlessly into existing hatcheries, regardless of the type of setters and hatchers used, without requiring additional investments in electrical infrastructure or external electrical partners for installation, enabling fast and straightforward implementation.

* Infeed available for HT150, HT88, Royal Pas Reform 162, Jamesway 84SST, PeterSime 84

| | Input capacity* | Output of fertile eggs | Floor surface (DxW) | Installation time |
|---|---|---|---|---|
| SETGATE 150 TRAY | 20.000 eggs/h | 18.000 eggs/h | (6,46 x 2,22) 14,34 m² | 30 hours |
| SETGATE 88 TRAY | 13.000 eggs/h | 11.700 eggs/h | (6,46 x 2,22) 14,34 m² | 30 hours |

*based on 10% rejection



# Why SetGate?

## Maximise Hatchery Performance with Early Candling

Early candling reduces bacterial pressure while enabling a more efficient allocation of hatchery resources. Hatcheries can focus capacity, energy, and labour only on eggs with true hatch potential, driving both operational efficiency and output consistency.

## What Are the Alternatives to Early Candling with SetGate?

There are multiple options for candling, for example candling tables and heartbeat detecting technology.

**Candling Table**
The traditional candling table illuminates the setter trays from underneath. Clear eggs light up, while blood rings indicate early mortality. Non-viable eggs are taken out manually. The method is often time consuming and prone to error, especially when the number of clear eggs is high. Light “flooding” through empty spaces makes it increasingly difficult to accurately identify remaining non-viable eggs, limiting its reliability and effectiveness.

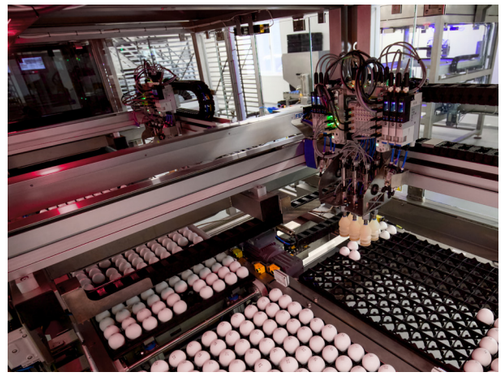
**Heartbeat Technology**
Heartbeat detection is commonly used at day 18 to distinguish viable from non-viable eggs. While effective at this stage, it becomes far less reliable earlier in incubation. At day 9, the embryo’s heartbeat is weak and easily affected by temperature fluctuations, vibrations, and variations in egg positioning, making consistent and accurate early detection challenging.

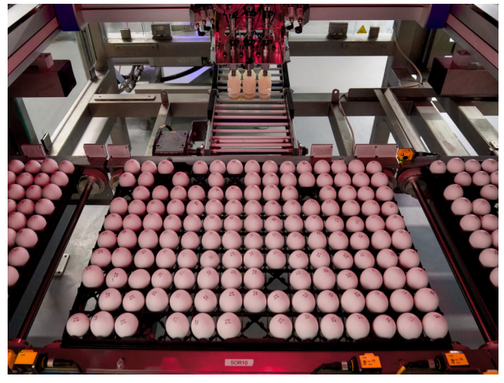
## SetGate offers Flexible Fill Rates for Optimal Resource Use

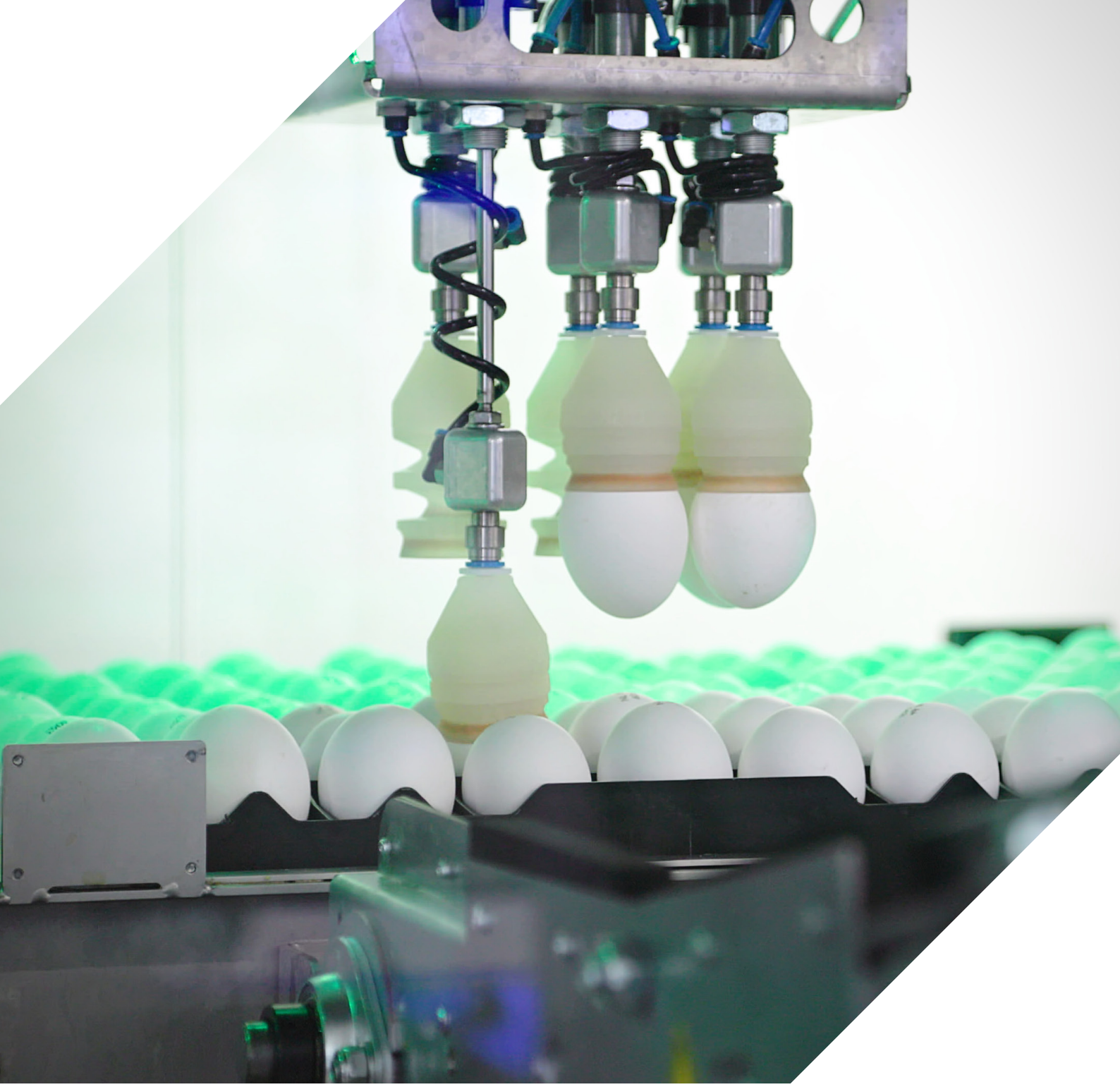
While a 100% tray fill rate maximises efficiency, not all incubation systems are designed to operate at full capacity. SetGate allows hatcheries to adjust refill rates to match the capabilities of their equipment, by offering a fill rate of the tray to 90%. Therefore, SetGate can be used in existing hatcheries, regardless of the type of setters and hatchers used, ensuring optimal performance for every hatchery set-up.

The setter and hatcher systems from HatchTech are equipped with advanced MicroClimer™ technology, delivering uniform and precise conditions for every embryo, even at 100% tray fill.

* Infeed available for HT150, HT88, Royal Pas Reform 162, Jamesway 84SST, PeterSime 84









HatchTech Group
Innovatielaan 3
NL-6745 XW
De Klomp
The Netherlands

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