Replacement Fan-board Assembly Upgrades from EmTech

For: **Chick Master** Fixed Rack Setters, **Buckeye** Trolley Setters
Buckeye Nova Fixed Rack Setters, **Newmark** Fixed Rack Setters,
Bekoto Fixed Rack Setters and many more makes and models

"Our Chick Master Fixed Rack Setters are now performing better than they have ever done"

"Payback can be as little as one year"

Features and Benefits

- The full Bell Mouth fan assembly allows a smooth air intake with considerably less resistance than the older systems
- In most cases your return on investment is less than one year
- Highly efficient and lightweight induction motor
- Produces greater than 25% average air flow through the egg mass
- Airflow pattern produces greater air pressure to the floor of the machine corridor, promoting higher air velocities through the lower racks of the machine providing a greater heat transfer and tighter temperature bandwidth throughout the egg mass
- Polypropylene coated fan-board with tough plastic edging
- Stainless steel hinges for safe and secure mounting
- Key lock latches for safe and secure fixing when operational
- Robust electrical junction box and wiring to IP66
- Stainless Steel Protection grill

Specifications

- Fan board – PPL 2 sides coated – to EN 13986, EN636-2, EN314-2 Class 3 Bonded – RAL9010- sealed throughout
- 6 bladed fan unit
- Fan Diameter 500mm
- Fan Board dimensions – 945mm X 1080mm
- Fan Rotation speed - RPM – 1379
- Airflow –at a typical 70Pa resistance – 1.813 M^3 /second (3800 CFM)
- Full Load current – 2.53A – 0.543 kW
- Noise level 57 dBA at 3M
- Single Phase 220v-240v – 50 Hz mains supply
- Maximum environmental humidity 95% RH

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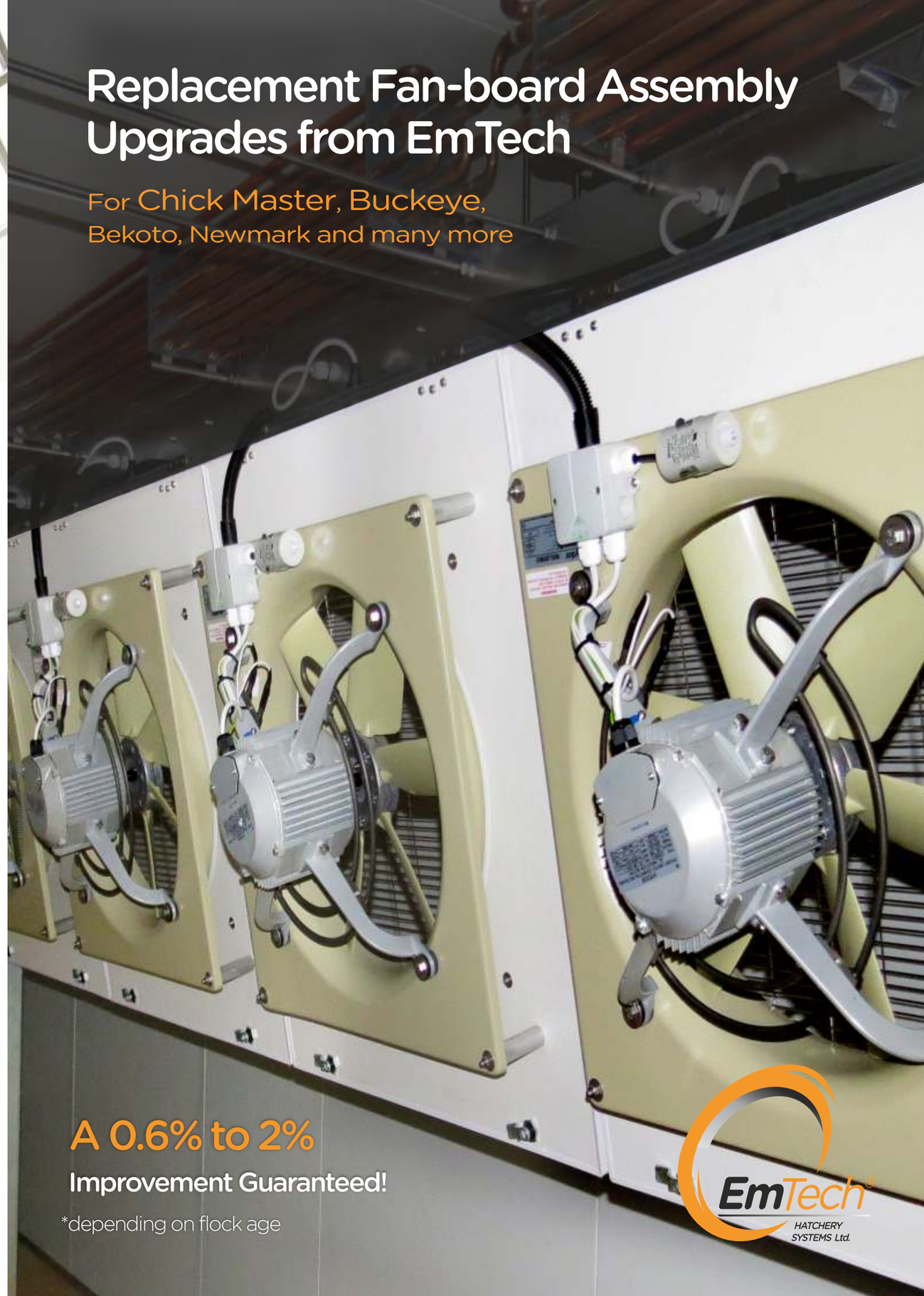


A 0.6% to 2%

Improvement Guaranteed!

*depending on flock age

How the EmTech Fan-board Upgrade can improve your older multistage setters

Surely a multistage environment can never compare to that of a single stage for performance and chick quality? Well maybe not entirely but, think again, the EmTech NovaTech Setter has proved to have a very tight temperature bandwidth and consistently shows excellent results.

This proved to be the motivation for EmTech to design several high-performing upgrades so that many other makes and models can profit from the same benefits - even in older systems. The Replacement Fan-board Upgrade with the unique design of its high performing air circulation fans and powerful and efficient fan-board assembly is one such upgrade and is one of the main reasons why the NovaTech setter works so well.

To test the effectiveness of the Replacement Fan-board Upgrade and its ability to improve heat transfer and the removal of heat from the exothermic embryos, especially at the later stages of development, we used thermal imaging cameras to show exactly what was happening within the incubator cabinet.

There is no better test of a setter's ability to transfer heat than that of egg shell temperature measurement, therefore thermal Imaging is a great way to check a setters thermal characteristics.

For best performance, egg shell temperatures should ideally be within a range of 37.8°C to 38.3°C. As previously stated, this is very much dependent on the setters ability to create a good airflow and to efficiently transfer heat from embryos at the later stages of incubation to the embryos during the early stages of incubation, with the excess heat removed by the cooling system.

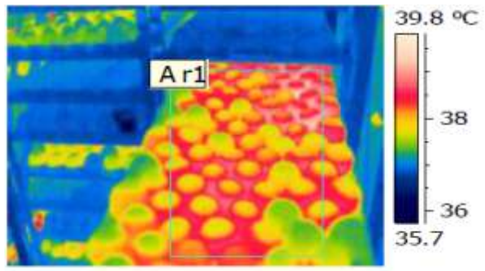
There will always be some deviation in temperatures within any setter. Such deviations tend to be greatest at the extremities of the cabinet. High egg shell temperatures within the setter can result in late deaths and poor chick quality. Conversely, low egg shell temperatures for the freshly set eggs can result in dragging hatches and a prolonged hatch window.

The thermal imaging comparisons that EmTech has conducted are extremely conclusive. With embryos at 18 days of incubation the setter before the upgrade shows maximum egg shell temperatures of 39.5°C and 39.3°C. Whereas after installing our Replacement Fan-Board Assembly Upgrade, measurements from the same trolley and tray positions show maximum egg shell temperatures of 38.3°C and 38.2°C. That is 1.2°C cooler and, consequently, produces better chick uniformity and chick quality. If we now focus on the early stages of incubation. For embryos at just 1 day of incubation the setter, prior to upgrading, shows average egg shell temperatures of 36.3°C and 36.6°C, while for the upgraded setter measurements from the same trolley and tray positions show average egg shell temperatures of 36.7°C to 37.5°C. That is 1.1°C warmer which will compresses the hatch window giving improved chick uniformity and quality.

Thermal imaging comparisons before upgrading

Before Upgrading - Setter Trolley 3, top eggs at 18 days of incubation

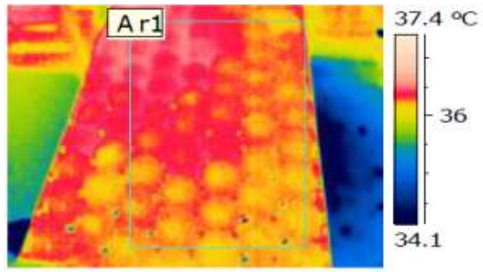
Ar1 Max. Temperature	39.3°C
Ar1 Min. Temperature	37.0°C



Thermal Image of a tray of eggs showing the egg shell temperatures with embyros at 18 days of incubation from a 10 year old Buckeye Setter, from the top of Trolley 3. Note temperatures in excess of 39.2°C, which can be detrimental to chick quality. The yellow/green colours are likely to indicate infertile eggs

Before Upgrading - Setter Trolley 7, bottom eggs at 1 day of incubation

Ar1 Max. Temperature	36.6°C
Ar1 Min. Temperature	34.0°C

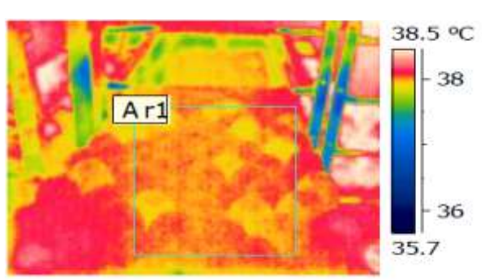


Thermal image from a Buckeye Setter, trolley 7 bottom, looking at eggs freshly set and only 1 day into incubation, shows a minimum temperature of only 34°C and has an average temp-erature of 36.3°C with a maximum temperature of only 36.6°C

Thermal imaging comparisons after the EmTech Fan-board Assembly Upgrade

After Upgrading - Setter Trolley 3, top eggs at 18 days of incubation

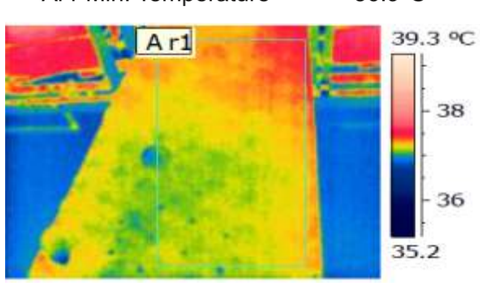
Ar1 Max. Temperature	38.2°C
Ar1 Min. Temperature	37.8°C



Thermal Image of a tray of eggs showing the egg shell temperatures with embyros at 18 days of incubation from the upgraded setter, same trolley and position – Trolley 3 – Top. Note that the temperatures are within the ideal range of between 37.8°C and 38.3°

After Upgrading - Setter Trolley 7, bottom eggs at 1 day of incubation

Ar1 Max. Temperature	37.5°C
Ar1 Min. Temperature	36.9°C



Thermal image from the upgraded setter's trolley 7, bottom, note the much higher temperatures, showing a minimum temperature of 36.9°C, an average temperature of 37.2°C and a maximum temperature of 37.5°C

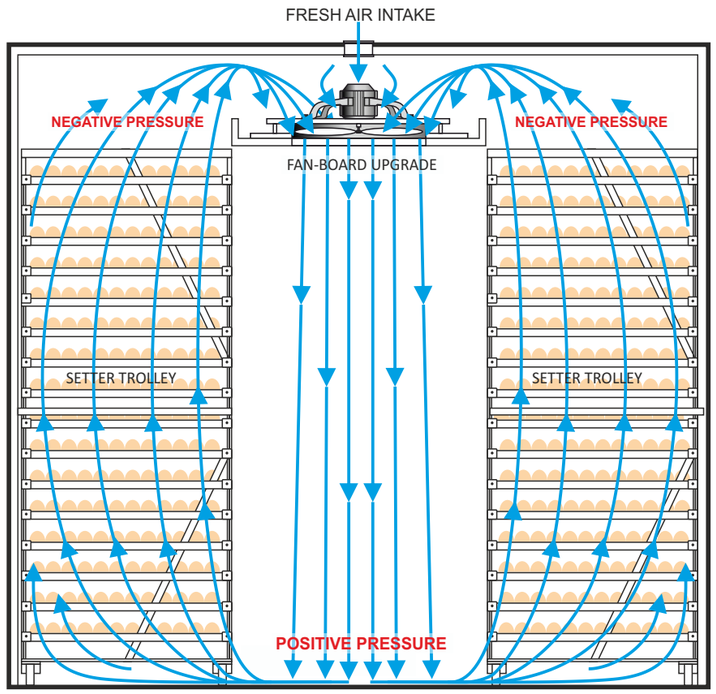
"Powerful impeller fans drive the re-circulated air to the setter floor creating negative pressure at the top of the cabinet"

Ken Baker- Managing Director

EmTech, trolley based, NovaTech Setter

Fan-boards easily lowered for maintenance

Upgraded CM Classic setter viewed from above



TYPICAL MULTISTAGE SETTER INTERIOR CROSS-SECTION

Highly efficient and powerful impeller fans and a redesigned fan-board will provides over 25% greater average air flow through the egg mass. This will facilitate a greater heat transfer resulting in a tighter temperature bandwidth and shorter hatch window.

The improved airflow also creates a greater air pressure at the machine floor giving higher air velocities throughout the lower egg racks. The negative air at the top of the machine then draws air back through the trolleys