

## TECH TUESDAY - WEBINAR SERIES

---

### ‘Hatchery Ventilation’



**People tend to set pressures to max and I think there are some problems such as uneven EST when set to max. How do you think we need to decide what we need between -10 to -30pa?**

The key to getting the correct pressure is to measure and monitor the airflow through the machines - comparing this to the desired airflow for the egg setting capacity of that machine to ensure the pressure settings are not too high or low.

**Can you explain the classic static pressure that inherently let the incubation suck the fresh air into the machine and exhaust the air please?**

As the six overhead recirculation fans operate, a very negative pressure is created at the inlet side of the fan. The incubator has a fresh air intake duct that runs the length of the machine and it has openings above each of the fans creating a natural suction of fresh air into the machine.

**We have trouble with fluff build-up and clogging the cooling coils on the hatchers. Is this a water temp/pressure issue, static pressure issue, or both?**

It very well could be both so best to check. Ideally, you're looking for a chilled water temp of 55-60F and you also need to ensure you have adequate airflow through the machine to aid in heat removal and remove the excess humidity.

## **What are the recommend CFM for a Classic hatcher?**

10-15 CFM per 1000 chicks. The difference between the low side to high side of the range depends completely on the ventilation system and its ability to control the room temperature.

## **We have aux-fans on our hatchers. Should I measure the CFM with the aux-fan on or off?**

The CFM should be measured with the fan off and then with the fan on.

## **What about the pressure standard that we have been using (9 PA) on the CC3? While according to you the recommended pressure is only 5 PA. What is the effect?**

The pressure setting in use will vary from the standard depending on local conditions. The recommendation is a starting point which works for most applications. This would have been altered during commissioning by our ventilation engineer to ensure the best airflow through the incubators. The difference between 5 to 9 PA is very minimal.

## **For Classic Hatcher machine, why do you set room pressure +0.015"wc but you set plenum pressure at a -0.02"wc? I think there is unbalance condition between air supply and air exhausted?**

The positive air pressure in a hatcher room is there for two reasons. The first is to ensure the room has a positive condition compared to the connected rooms to encourage air to move from clean areas to dirty to avoid contamination. The second is to verify that you have enough fresh air available in the room to feed the hatchers. The negative setting in the exhaust plenums is controlled by a reference back to the room and therefore the negative setting for the plenum is actually controlling the differential pressure across the machine. The actual setting for the plenum completely depends on how much air you need to pull through the machines so this will vary greatly depending on the room conditions and the type of machine you have.

## **In order to maintain a positive pressure in the egg room, you will need to ventilate your storage. Do you think this is energy efficient? Also, will this affect room humidity and is there any risk of contamination?**

To ventilate an egg store room to maintain a positive pressure only requires a minimal amount of fresh air, which will have very little impact on the humidity but will have a big impact on biosecurity so the risk of contamination will be reduced.

## **During transfer, do you want a negative or positive pressure?**

A positive pressure in the setter and hatcher rooms should always be maintained as much as possible. The transfer room should also be positive, but controlled to a setting slightly lower than the setter room to insure air flows from the setter room to the transfer room.

## **Is it important to supply air to egg room and set the right pressure inside this particular room, given the egg room has its own air-cooling unit?**

Yes, it is important to ventilate an egg storeroom to maintain a positive pressure. It only requires a minimal amount of fresh air and this will improve biosecurity.

## **In tropical countries, we have a problem with high humidity. If the setpoint for relative humidity in the setter room is lower than the environment, we lose in energy efficiency because of dehumidification. What can be done to help with this situation?**

Consistently higher room humidity will result in lower than desired moisture loss, especially in older flocks. There are a few things that can help with the situation. First, modify the stage program for setters by allowing the damper to switch to automatic humidity control as much as 24 hours earlier to increase the rate of air exchange and aid in moisture loss. In addition, lowering the RH setpoint of the setter across the board will again aid in moisture loss. The next step is to change the plenum pressure setting to slightly more negative, which will also help increase the rate of air flow through the machine resulting in lower setter RH.

### **If storing eggs for longer than four days, is it recommended to lower the temperature setpoint?**

Yes. For normal operating conditions we generally recommend an egg room temperature to be maintained between 62-68°F, or 17-20°C. If eggs are to be stored for longer periods of time then it is common to recommend a slightly lower than normal temperature and if the eggs are only going to be stored for a day, then a slightly higher than normal temperature setting is recommended.

### **How would you compensate for loss of pressure in front of the hatchers due to open room doors and cleaning of hatchers in process?**

We know that it is a common practice to leave the hatcher room doors open during pull, processing and cleaning, which causes the loss in room pressure. It is important to try to keep these doors closed as much as possible, which will help the room adjust automatically and it will help prevent chick down and dirt from migrating to other areas of the hatchery and causing cross over contamination. Self-closing high-speed rollup doors are a great improvement on hatcher rooms to help with this situation.

### **Do we need ducting in rooms with ceiling void or the roof supply HVAC?**


Ducting on roof top HVAC units is generally not recommended. These units re-circulate air and therefore are continuously pulling return air from the room back up into the unit for conditioning. This causes a tremendous amount of contamination and bacteria loading in the unit and this will carry over to the ducting and require extensive repetitive cleaning. Its best to make sure to adjust the discharge air grills so air is evenly distributed throughout the room and not directed straight into the fresh air intake on a machine.

### **When measuring CFM, why is it in reference with the outgoing air, not the incoming air?**

In general, it is easier to take measurements at the exhaust of both setters and hatchers versus measuring the fresh air intake. With the exhaust being smaller and round, a good measurement can be achieved by only taking one reading in the center of the exhaust. In order to get a good reading on the intake, several factors come into play. You first must take several readings because the opening is square or rectangular and average these together. In addition, if the intake has a register or a louvered grill, you must apply a deduction multiplier due to the restriction and it can be difficult to calculate depending on the type of grill.


#### **CHICK MASTER INCUBATOR CO.**

945 Lafayette Rd.  
Medina, OH 44256, USA

 **Tel:** +1 (330) 722-5591  
**Fax:** +1 (330) 723-0233

#### **CHICK MASTER UK LIMITED**

1 The Leggar, Bridgwater  
Somerset, TA6 4AF, UK

 **Tel:** +44 1278 411000  
**Fax:** +44 1278 452323



[www.chickmaster.com](http://www.chickmaster.com)  
[sales@chickmaster.com](mailto:sales@chickmaster.com)

