Temperature calibration probes

It is important to check and calibrate the temperature sensors in setters and hatchers regularly, using a calibration probe which is accurate to 0.2°F, and readable to 0.1°F.

With regular calibration we start to see benefits in consistency and predictability between machines, because their temperatures are exactly the same.

Today, with advancing technology, we have a great opportunity to use new, more accurate tools to calibrate setters and hatchers. It is possible now to buy reliable and accurate calibration thermometers (accuracy of ±0.2°F) at an affordable price. However, it can be a challenge to get the calibration probe into the right place to check the machine sensor. In principle, the best place to put the calibration probe is right beside the machine probe. Unfortunately, this may not be possible if the probe does not have a long lead to reach into the machine.

For this reason, probes are often inserted through a specially drilled hole to just inside the machine door, without first checking how closely the temperature there corresponds to the temperature next to the machine sensor. To achieve a proper calibration, the calibration probe has to be placed at a location which is consistently within 0.2°F points of the air temperature at the machine probe. Without doubt, a position next to the machine probe will give the best accuracy. Unfortunately, some calibration devices have very short cables and simply will not reach to the machine probe from outside the setter door.

In situations like this, if it is not possible to find a close location, the only way to achieve a satisfactory calibration reading is to look for a reachable position which runs at a similar temperature to that around the machine sensor(s). When looking for such a position, the machine should be fully loaded and turned to the calibration position following manufacturer's suggestion. Machine doors and seals should be checked and maintained as necessary to avoid false readings due to air leakage. For single-stage machines, check between days 2 and 3.

For multistage machines, check at least 24 hours after the last set. First, the machine probe should be calibrated properly. For this purpose it is worth the extra trouble to place the calibration probe right next to the machine probe, however difficult this may be. After completing an accurate calibration at the sensor, place the calibration probe in different positions to find a spot which runs at the same temperature as next to the sensor. Each time the probe is moved, allow the machine to run normally for at least one hour before reading the temperature.

When the machine probe and calibration probe readings are similar (less than ±0.2°F difference), drill a hole in the wall or roof to allow the calibration sensor to be inserted at that point. Once you have found the best position in one machine, the same location can be used for all the other machines of that type and capacity.

Figure 1 *A hole drilled in the door and protected with a metal plate allows the insertion of the calibration probe close to the temperature sensor.*