

HEAT AND PRESSURE CONTROL FOR HAKKO AIR PUMPS

Linear style air pumps do run hot to the touch, especially down low on the body. Hakko pumps will normally run around 65 degree C or 150 degrees F. The thermal overload safety will turn the pump off approaching 105 C or 220 F.

There are some precautions to take to prevent the air pump from getting too hot.

1) Position the pump in an area of good external air circulation. If the pump is in a box on a hot day you are likely to throw the thermal overload and the pump will turn off. It will come back on by itself after it cools down.

2) You must provide proper air ventilation of the pump through the air lines and diffusers. The pump cools itself by drawing air in through the top of the housing and pushing the air through the air lines and air diffusers. Kinked air lines or plugged diffusers will cause the pump to run hotter than normal due to excess back pressure. For example the Hakko 80L can produce 80 liters per minute, but if the air distribution system only allows 40 liters per minute, for example, the pump will run hotter. This also relates to water depth. If you are pushing very deep then the pump will have to work harder and will run hot. The built in thermal overload will turn the pump off to allow cooling for 10 or 15 minutes and then it will come back on. If you are seeing your pump turning on and off you must investigate the reason and fix the situation to prevent premature wear and tear of your diaphragms and motor.

- Maximum depth for Hakko is about 10 feet. Some of the pumps can push down to 16 feet but you will be maxing out the pressure and overheating may occur. You will need to replace your diaphragms more frequently.

- Provide large diameter air hose of 1/2" or bigger. 1" air hose puts very little back pressure on the pump. You may split your flow into smaller multiple air lines but your main feed line should be 1/2" or bigger. If you are pushing air long distances you will definitely want to use the 3/4" to 1" feed line if possible.

- Provide sufficient numbers and size of air diffusers to ventilate the full discharge of air. Every air diffuser has a corresponding maximum air flow per diffuser. Choose your air diffusers based on the knowledge of its air flow. The rubber membrane style diffusers are ideal because they have very little back pressure; they can handle high volumes of air flow and do not clog easily.

- Routinely clean ceramic type air stone diffusers in full strength muriatic acid for 1 hour every 1 to 3 months depending on the hardness of your water. Blow through stone diffusers with your mouth to see if it is clogging. If your cheeks puff out it is time to clean or replace them.

- Provide an air bleeder valve if you cannot provide adequate air hose or diffusers.

- Place the pumps in an open air flow area. Provide cross ventilation. If placed in a box you may need to install fans to give the cross flow needed.

- Protect the pump from direct sun, rain, flooding and dirt.

- Periodically clean the top air filter.

Properly installed and with the correct maintenance of air diffusers, Hakko air pumps have been known to go over two years between replacement diaphragms. The record to date is over 4 years for a Hakko 80 which the owner cleaned his air diffusers monthly. If you do need to replace your diaphragms, it is easy. please refer to the section on [diaphragm kits](#).