

Keep Everybody Happy - Avoid these Six Installation Mistakes

Here is a quick heads up on six common aeration system installation mistakes that create an electrical, physical or temperature environment beyond the system's design specifications that voids the equipment's 3-year warranty. All of the following problems can be avoided by identifying them and communicating the situation to your Vertex design team before you order or install the system.

Installing a cabinet inside a box, shed or other enclosure traps the cabinet exhaust heat and rapidly overheats the compressor and motor.

Compressing air requires significant energy and creates a lot of heat, most of which radiates into the cabinet interior. High capacity cooling fans sweep this heat off the compressors and manifolds and exhaust it outside while pulling in cooler air. Placing the cabinet inside an enclosure without power ventilation or air conditioning forces the recirculation of hot exhaust back into the cabinet, which damages the motor windings and other components. Usually, compressor noise is the reason boxes or sheds are placed over a cabinet. The best solution is to order the cabinet equipped with a sound kit and preemptively work with your Vertex design team to layout the equipment specifications with the cabinet in a more remote location, using a shoreline valve box if necessary. Other ideas to reduce noise are to avoid placing the cabinet on a concrete pad or near concrete walls as they tend to reflect and not adsorb noise. Placing the cabinet in a landscaped area on top of mulch helps to lower noise levels.

Undersized electrical supply wires that can't maintain required voltage when compressor is running under load causes high resistance, severe compressor vibration and premature motor failure, and compressor head damage.

The best and easiest way to check voltage under load is to open the cabinet, unplug one of the fans, and insert your multimeter leads into that receptacle while the system is running at its normal operating pressure. If the meter reads less than 5% of the specified voltage, the system should be unplugged and left off until the power supply is replaced with an adequate gauge wire.

Not replacing cabinet cooling fan(s) during every compressor rebuild cycle causes compressor(s) failure as fans will eventually fail; allowing cabinet temperatures to rise rapidly above design limits and destroying the motor.

Compressors generally run about 22,000 hours between rebuilds, which is 2.5 years if run 24/7. Cool running compressors running at lower pressures go longer between rebuilds than do compressors running at higher pressures and temperatures. The risk of cabinet cooling fans failing increases beginning at around 33,000 hours and are fairly reliable through 44,000 hours. The low cost of changing out one or two fans during a rebuild compared to the replacement cost of one or two compressors supports a fan replacement policy.

Painting the cabinet exterior causes increased sunlight adsorption and elevated interior cabinet temperature and motor/compressor failure.

The powder coating paint material, surface texture and color were specifically chosen for their ability to reflect sunlight and maintain lower interior cabinet temperatures. Painting the cabinet any other color, especially a dark color, will raise cabinet temperatures higher than they would otherwise be.

Installing a cabinet in too low an elevation will subject it to possible flooding. Water entering the cabinet will quickly destroy the motor, compressor, cabinet fan(s) and GFIC receptacle.

This seems like a no-brainer but people tend to forget over time how much that last 10 year storm raised their lake's water level. Place the cabinet on higher ground and/or bolt on matching aluminum leg extensions available from Vertex.

Installing the cabinet in unusually dirty environments can damage the motors and compressors.

Problems arise when our cabinets are placed in unusual, hostile air environments. These conditions occur when cabinets are installed on, or close to, areas of bare ground where dirt, dust, sand or grit are picked up by the wind and sucked into the cabinet. These airborne particles require more frequent air filter replacements, but more importantly, they work their way into the motor windings and bearings, damaging the motor. This contamination also gets into the compressor between the piston cups and cylinder sleeves significantly shortening the period between rebuilds.