Fiberglass Centrifugal Fans

IM-180
April 2005

General Installation, Operation and Maintenance Instructions For Aerovent Products

Throughout this manual, there are a number of HAZARD WARNINGS that must be read and adhered to in order to prevent possible personal injury and/or damage to equipment. The signal word "CAUTION" is used to indicate the severity of a hazard and is preceded by the safety alert symbol.

⚠ CAUTION
Used when minor or moderate injury or product / equipment damage MAY result from misuse or failure to follow specific instructions.

It is the responsibility of all personnel involved in installation, operation and maintenance to fully understand the ⚠ Caution procedures by which hazards are to be avoided.

Aerovent solid fiberglass fans are designed for long, trouble-free service in severe corrosive conditions. Care should be exercised during installation and operation in order to obtain maximum life.

Inspection

1. Inspect the equipment for any shipping damage. Freight damage claims should be filed immediately with the carrier if any damage is noted. Remove any foreign material such as tags or packing from any moving parts or from within the housing.
2. Turn motor, drive and impeller by hand to see that no misalignment has taken place in shipment. (All units have been test run before shipment.)
3. Check all bolts, fasteners, lube lines, etc., and tighten if necessary.
4. Compare the voltage, hertz and phase stamped on the motor with the current characteristics of the line to which the motor is to be connected.

⚠ CAUTION

Temperature limitations for use with fiberglass fans must be carefully observed. Do not install adjacent to steam lines or in any location where 200°F temperature may be exceeded. Fumes carried by the ducts must also be held below this temperature.

Installation

For satisfactory operation, a good foundation and/or support is essential. Foundations should be level, rigid and of sufficient mass. A concrete base with mass at least 2 to 3 times the weight of the fan and drive is preferred. If a steel platform is used, all supports should be sturdy, rigid and braced in all directions.

When mounting, do not distort or twist. Shim or grout under fan base, if necessary, to see that mating parts are accurately aligned before tightening bolts to avoid applying excessive pressures at the flanges.

Use gaskets between the fan flanges and the connecting duct flanges to eliminate condensate leakage. A soft compressible corrosion resistant gasket should be employed. It is recommended that new gaskets be used anytime a joint is to be replaced.

For best results, a flexible connection consisting of a flexible sleeve and corrosion proof tie bands are recommended. An access door in the scroll of the fan is convenient for quick inspection of the fan to check for build-up of dirt on blades, etc. Do not support the weight of the stack or duct by the inlet or outlet connections.

Operation

1. Fans must not be operated under conditions which would lead to the build-up of solids on the fan blades. This could cause an unbalanced condition and lead to premature failure. (Each fan has been statically and dynamically balanced before leaving the factory.)
2. Check alignment of the V-belt drive by means of a straightedge. Align and adjust belt tension, if necessary. An adjustable motor base is provided as standard on Arrangement 9 and 10. After adjustment, be sure adjusting bolts are tight. (See Installation and Maintenance Manual IM-100.)
3. All fans are lubricated at the factory and have been given a run-in test before shipment. Aerovent's fiberglass centrifugal fans are furnished as standard with a shaft hole closure consisting of a thin Teflon membrane secured with a stainless steel plate to minimize the leakage of corrosive gases around the bearings. However, as a further precaution against bearing contamination, a more frequent lubrication schedule than that outlined in IM-100 is recommended.
4. Turn the wheel over by hand to make sure that it runs free and clear. Adjust if necessary.
5. Jog the fan electrically and note rotation. Each centrifugal fan is marked to indicate direction of rotation. Reverse electrical leads, if necessary, to obtain proper rotation.
6. Do not exceed maximum operating speed as shown in the table below.

Max. Safe Speeds For Wheels At 70°F Temp

SIZE	CL I	CL II	CL III
12	3080	4005	5082
16	2425	3153	4002
20	1941	2523	3046
25	1540	2002	2372
32	1213	1576	1837
39	970	1261	1455

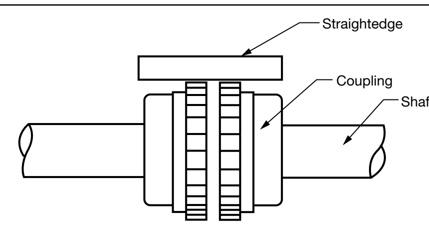
Correction Factors For Max. Speed at Various Temps

TEMP. °F	FACTOR
70	1.00
100	1.00
150	0.85
200	0.55

Couplings

Direct-coupled fans should be checked for correct coupling alignment before putting the unit in operation. Also, check lubricant following manufacturer's recommendations for type and amount of lubricant used. For field installation, the coupling should be mounted as follows:

1. Remove dirt or rust from fan and motor shafts and coat with grease or oil for easy mounting of coupling.
2. Mount the coupling halves on the shafts with the fans separated by the coupling manufacturer's specified gap.
3. The coupling should be checked for parallel and angular alignment with a straightedge and feeler gauge. Exact tolerances are specified by the coupling manufacturer.
4. Once a proper alignment is assured, complete the assembly and lubricate the coupling before putting the unit into operation. After a short period of operation, recheck alignment.



Maintenance

Regular and systematic inspection of all fan parts is the key to good fan maintenance. Frequency of inspection is determined by the severity of the application and local conditions. Once a maintenance schedule is established, it should be strictly adhered to. Regular fan maintenance should include the following:

1. Check after one day operation.
2. Check after one week operation.
3. Check periodically once a month until experience indicates that a longer period is satisfactory.

Fan Wheel

The fan wheel must be kept reasonably clean if it is to perform properly. Dirt or chemical deposits will usually build up on the wheel evenly and they present no problem to performance or operation until they become thick enough to break away in crust-like pieces. When this happens, the wheel may be thrown out of balance and the resulting vibration could be serious. When removing this crustaceous accumulation, care should be taken not to clean the fan wheel with sharp objects which might damage the laminated surface and reduce corrosion resistance. Should the wheel show excessive wear, it should be replaced.

V-Belts

On belt driven units, check V-belt drive for proper alignment and tension (see IM-101). If belts show wear, they should be replaced with a matched set of belts. If unit is direct coupled, check coupling alignment.

Fan Bearings

Check fan bearings for adequate lubrication, wear, tightness and overheating. (See bearing section of IM-100 for lubrication specifications.)

Fasteners

Check tightness of all nuts and bolts taking care not to overtighten nuts on encapsulated housing bolts.

Condensate Drain

If fan is equipped with a condensate drain in the housing, check to be sure it is not clogged.

Spare Parts

A spare parts list is not supplied with the fan. There are very few parts which would ever require replacing. For ordering these, mention part by name such as wheel, bearing or shaft and refer to model number and serial number on label. If possible, advise order number and date of original purchase.