

# Installation and Operational Manual

## 1WMC • 1WMS Series

Wall Mount Cabinet Exhaust and Supply Fans



Fantech, Inc. and Systemair Mfg. certify that the ventilators shown herein are licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 211 and AMCA Publication 311 and comply with the requirements of the AMCA Certified Ratings Program.

### United States

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Note	Warning / Important note	Information	Technical information	Practical tip



**Do not depend on any switch as the sole means of disconnecting power when installing or servicing the fan. If the power disconnect is out-of-sight, lock it in the open position and tag to prevent application of power. Failure to do so may result in fatal electrical shock.**

1. Follow all local electrical and safety codes in the United States and Canada, as well as the National Electrical Code (NEC) and the Occupational Safety and Health Act (OSHA) in the United States, and the Canadian Electric Code (CEC) in Canada.
2. Make certain that the power source conforms to the requirements of your equipment.
3. Motor must be properly grounded by wiring with a grounded metal raceway system, using a separate ground wire connected to the bare metal of the motor frame or other suitable means.

**Motor will restart without warning after protector trips.**

4. Protect the power cable from coming into contact with sharp objects.
5. Do not kink the power cable and never allow the cable to come in contact with oil, grease, hot surfaces, or chemicals.

**Do not use in explosive atmospheres.**

**In America to reduce the risk of injury to persons, OSHA complying guards are required when fan is installed within 8 feet of floor, ground, or working level.**

**In Canada to reduce the risk of injury to persons, CSA complying guards are required when fan is installed below 2.5 meters (8.2 feet) above floor or grade level.**

7. Always disconnect power source before working on or near a motor or its connected load. If the power disconnect point is out-of-sight, lock it in the open position and tag to prevent unexpected application of power.

## Description

Wall cabinet exhaust and supply fans are high volume, belt-drive fans used for ventilation in commercial, industrial, and agricultural applications with static pressures up to 0.25 wg.

Fans are completely assembled, ready for installation. Units feature a galvanized venturi and housing, high efficiency propeller, rubber isolated, press-fit pillow block ball bearings, and totally enclosed, air over, ball bearing motors. All fans are UL Listed, Subject 705, and CSA approved. Guards comply with United States OSHA Federal 1/2" opening requirement. Fan drives feature a variable pitch motor pulley to reduce fan speed by approximately 20% to provide proper air volume for specific applications.



1WMC54KY is UL Listed Only and features a polyester powder coated venturi and cast iron pillow block bearings. Models 1WMC36G7 and 1WMC48H7 are not UL listed or CSA certified.

## Unpacking and inspection

1. When receiving fan, inspect carefully for any damage that may have occurred during transit. Check for loose, missing, or damaged parts.
2. Before installing, rotate the propeller to be sure there are no obstructions which would interfere with proper operation. Adjust as required.



Do not insert fingers or foreign objects into fan.

# Dimensions

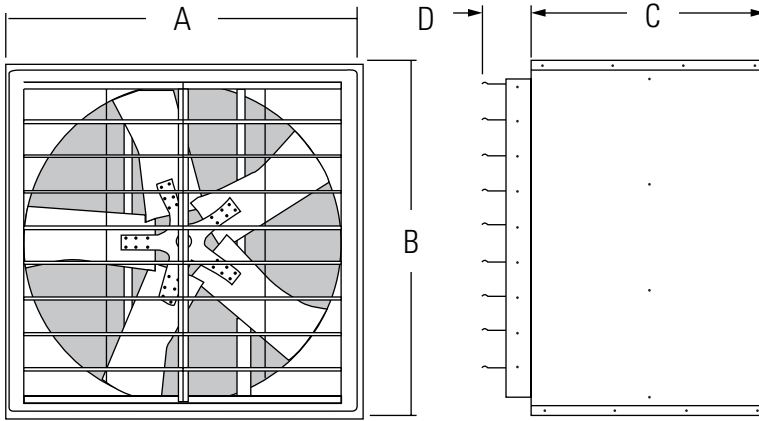


Figure 1: Dimensions

Table 1: Dimensional data Exhaust Fans

Model	Fan size	A	B	C	Shipping Weight (Lbs)
1WMC24	24	28 1/4	28 1/4	24 1/4	123
1WMC30	30	34 1/4	34 1/4	25 1/4	176
1WMC36	36	40 1/4	40 1/4	26 1/4	196
1WMC42	42	46 1/4	46 1/4	28 1/4	242
1WMC48	48	54 1/4	54 1/4	28 1/4	288
1WMC54	54	60 1/4	60 1/4	47 3/4	635

Dimensional information is in inches.

Table 2: Supply Fans

Model	Fan size	A	B	C	Shipping Weight (Lbs)
1WMS24	24	28 1/4	28 1/4	30	143
1WMS36	36	40 1/4	40 1/4	32 1/4	208
1WMS48	48	54 1/4	54 1/4	33 3/4	311

Dimensional information is in inches.

# Installation

## Drive Assembly

- Place the motor base so that the flanges are facing UP.



On motors with side conduit boxes. Interference may occur with the side plates. In such instances, turn the base over (flanges down).

- Secure the motor base to the frame tubes using the bolts provided.



Do not tighten the nuts at this time.

- Mount the pulleys (motor and fan) on their respective shafts. A key is included in the hardware package for the fan pulley. In all instances, the larger diameter pulley mounts on the fan shaft. For some horsepower/drive combinations, a bushed pulley is provided. The motor pulley should be as close to the motor face as possible.
- Slip the belt(s) into the fan pulley grooves.
- Place the motor on the motor base so that the belt(s), hanging freely

from the fan pulley, slip into the motor pulley grooves.

- Position the motor on the base with the end of the motor shaft approximately even with the outer edge of the frame tubing. Align the motor holes with the base holes and, using the bolts provided in the hardware package, securely mount the motor. As the motor is drawn down into position, tension will also be applied to the belt(s).



When assembling the motor and drive, the pulleys must be aligned to keep the belt(s) straight. This is accomplished by ensuring that the motor and fan pulley grooves are directly in line with one another.

- Adjust the motor base height as required to assure proper belt tension.



Proper tension is approximately 1/4" to 1/2" movement of the belt when pressed at midspan under normal thumb pressure. Do not overtighten the belt(s). However, new belts should be tighter than used belts. On multiple belt installations, belts should be matched and replaced only in sets.

## Installation

- Fans should be installed in a framed rigid wall opening located where there will be no obstruction to the flow of air into or out of the fan.



NOT recommended for portable or mobile installations or suspension mounting with wire or chain.

- Once a location has been determined; an opening should be made in the wall and framed to provide 1/4 to 1/2" total clearance around the fan housing, (Refer to "Dimension" table).
- Framing must be able to support the weight of the fan assembly, (Refer to "Dimension" table for weight). Reinforce wall, depending on the construction of the wall.
- Position fan assembly in the framed opening. It is recommended that, for maximum weather protection, the fan housing extend beyond the exterior of the building as little as possible. Supply fans require a weather hood to reduce the risk of moisture entering the building.
- Attach (4) mounting angles to the fan housing and wall framing, (Refer to Figure 2).
  - Use pre-punched holes in mounting angles as a template for drilling holes in fan housing.

- Bolt angles to housing using bolts, (5/16" recommended, not supplied with unit). Every hole must be used. Do not skip holes.
- Mounting angles must be securely fastened to wall framing using hardware, (not furnished) appropriate for the wall construction.



Fan housing must be square in the wall opening. The housing should be level or tilted a maximum of 5° down to the exhaust side.

- Any gap between the fan housing and the wall opening should be sealed from the outside of the building.
- Make certain that power source conforms to the requirements of the fan.
- Access the fan motor by removing the intake guard.



The guard may be pivoted up, (or down) by removing all but the (2) top, (or bottom) corner fasteners. Corner fasteners can act as hinges to pivot guard and secure it out of way. DO NOT overtighten fasteners to avoid stripping the threads.



All electrical connections should be made by a qualified electrician.

- Connect power to the motor using an approved wiring method (motor terminal connection data is provided on the motor nameplate and on the motor terminal box cover plate). Use adequate size wire for all branch and feeder runs.



The fan motor must be securely and adequately grounded to a suitable electrical ground such as a grounded water pipe or ground wire system!



Motor cable should be routed through fan housing using any one of the knock-out positions provided. Use grommet provided to protect the motor cable from the knock-out hole edges.

- Before activating fan, inspect to be sure that there are no obstructions or debris that would interfere with propeller or the shutter.
- Reposition intake guard in place and reinstall all fasteners.
- Unit is ready for operation.

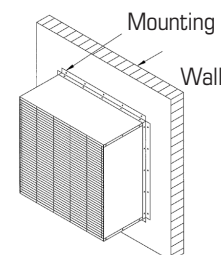


Figure 2 -  
Mounting Angles

# Operation

1. Apply power to start and stop the fan. Be sure that the rotation of the propeller is correct as shown on the directional arrow on the unit.
2. Adjust for proper air volume.
  - a. Motor pulley is set from the factory for maximum fan speed/air volume.
  - b. Motor pulley can be adjusted by loosening set screw and unscrewing pulley by 1/2 turn (to keep set screw on flat surface).
  - c. Adjust motor pulley until proper air volume is being exhausted.



If motor pulley has been adjusted, belt must be re-aligned by repositioning the propeller pulley on the fan shaft.

3. Upon initial operation, amps and, if possible, motor RPM should be checked against nameplate values to determine that fan is not being overloaded.
4. V-belt tension should be adjusted after first 24 hours for proper operation. Belt(s) should deflect 1/4" to 1/2" when depressed by thumb midpoint between pulleys.

# Maintenance



Do not depend on any switch as the sole means of disconnecting power when installing or servicing the fan. If the power disconnect is out-of-sight, lock it in the open position and tag to prevent application of power. Failure to do so may result in fatal electrical shock.

1. Periodically check belt tension and adjust as necessary. Refer to "Operation" section.
2. When checking for belt tension, it is advisable to clean the intake guard, propeller, and exhaust shutter blades. This will remove any accumulated dirt which could reduce air volume or cause propeller unbalance resulting in excessive vibration.
3. Fan pillow block bearings are prelubricated at the factory and require no further lubrication.

# Repair Parts List for Exhaust Fans

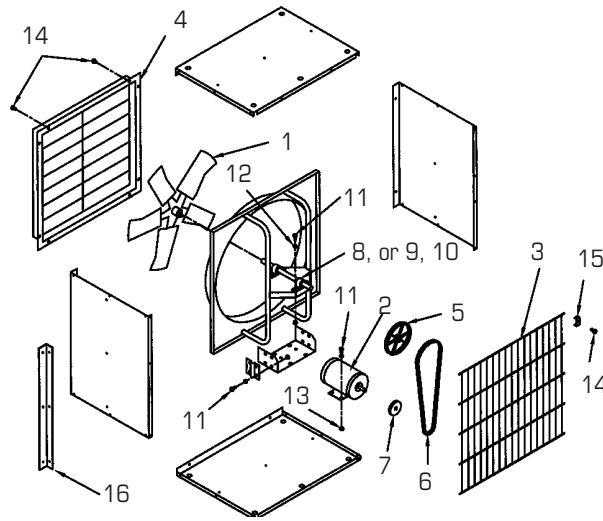


Figure 3: Repair parts illustration

Ref no.	Description	Part number for models:
		WHV 24
1	Propeller	1
2	Motor	1
3	Intake guard	1
4	Exhaust shutter	1
5	Fan pulley	1
6	V-belt	1
7	Motor pulley	1
8	† Shaft/bearing assembly	1
9	1" Bearing, 6205 double dealed	2
10	Rubber bearing isolator	2
11	5/16-24 x .75 HHC screw*	16
12	5/16 x .688 x .065 F;at washer*	16
13	5/16-24 Spinlock nut*	16
14	10-32 x 1.0 HWH screw*	20-26
15	Guard retaining clip	12-14
16	Mounting angle	4

\* Standard hardware item, available locally

† Replace entire shaft/bearing assembly (Item #8) unless facilities are available for pressing bearings onto shaft.

# Troubleshooting

Symptom	Possible causes	Corrective Action
Excessive noise and/or vibration	<ol style="list-style-type: none"> <li>1. Defective bearing or foreign material inside bearing</li> <li>2. Pulley not tight on shaft</li> <li>3. Loose propeller</li> <li>4. Loose belt(s)</li> <li>5. Belt(s) are worn, oily or dirty</li> <li>6. Misaligned pulley(s)</li> <li>7. Crooked or damaged propeller</li> <li>8. Motor or motor base not securely anchored</li> <li>9. Bent fan shaft</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace entire shaft/bearing assembly</li> <li>2. Check alignment and tighten setscrew</li> <li>3. Tighten setscrews</li> <li>4. Adjust tension</li> <li>5. Clean or replace</li> <li>6. Realign</li> <li>7. Replace</li> <li>8. Secure properly</li> <li>9. Replace shaft/bearing assembly</li> </ol>
Fan inoperative	<ol style="list-style-type: none"> <li>1. Blown fuse or open circuit breaker</li> <li>2. Broken belt</li> <li>3. Loose pulley</li> <li>4. Defective motor</li> <li>5. Electricity turned off</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace fuse or reset circuit breaker</li> <li>2. Replace</li> <li>3. Check alignment and tighten</li> <li>4. Repair or replace</li> <li>5. Contact local power company</li> </ol>
Too much airflow	<ol style="list-style-type: none"> <li>1. Insufficient static pressure (SP)</li> <li>2. Propeller running too fast</li> </ol>	<ol style="list-style-type: none"> <li>1. Correct system pressure accordingly</li> <li>2. Adjust variable pitch pulley to reduce propeller speed/air flow</li> </ol>
Insufficient air flow	<ol style="list-style-type: none"> <li>1. Shutter stuck shut</li> <li>2. Fan speed too slow</li> <li>3. Belt slippage</li> </ol>	<ol style="list-style-type: none"> <li>1. Repair</li> <li>2. Check for proper pulley adjustment</li> <li>3. Replace and/or adjust tension</li> </ol>

## Warranty

Fantech, Inc. warrants to the original purchaser that our products will be free from defects in material and workmanship for a period of one (1) year from the date of shipment. THIS IS OUR SOLE AND EXCLUSIVE PRODUCT WARRANTY AND IS IN LIEU OF AND EXCLUDES ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, ARISING BY OPERATION OF LAW OR OTHERWISE, INCLUDING WITHOUT LIMITATION, MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE WHETHER OR NOT THE PURPOSE OR USE HAS BEEN DISCLOSED TO US IN SPECIFICATIONS, DRAWINGS OR OTHERWISE, AND WHETHER OR NOT OUR PRODUCTS ARE SPECIFICALLY DESIGNED AND/OR MANUFACTURED BY US FOR PURCHASER'S USE OR PURPOSE.

This warranty does not cover any losses or damages due to misuse, accident, abuse, neglect, normal wear and tear, negligence (other than ours), unauthorized alteration, use beyond rated capacity, or improper installation, maintenance or application. This warranty shall be null and void to the extent that purchaser supplied incorrect information to us about the necessary product specifications or the environment in which the products were to be used, and our selection or design of the products for the purchaser was based in part on such information.

### Limitation of Warranty and Liability

THE SOLE AND EXCLUSIVE REMEDY FOR BREACH OF ANY WARRANTY HEREUNDER SHALL BE LIMITED TO REPAIR, CORRECTION OR REPLACEMENT, OR REFUND OF THE PURCHASE PRICE UNDER THE PRECEDING PARAGRAPH ENTITLED "LIMITED WARRANTY". FANTECH VENTILATION PRODUCTS SHALL NOT BE LIABLE FOR DAMAGES CAUSED BY DELAY IN PERFORMANCE AND IN NO EVENT, REGARDLESS OF THE FORM OF THE CLAIM OR CAUSE OF ACTION, SHALL OUR LIABILITY TO PURCHASER AND/OR ITS CUSTOMERS EXCEED THE PRICE PAID BY PURCHASER FOR THE SPECIFIC PRODUCT PROVIDED BY US THAT GAUE RISE TO THE CLAIM OR CAUSE OF

If within thirty (30) days after purchaser's discovery of any warranty defects within the warranty period, purchaser notifies us thereof in writing, we shall, at our option, repair, correct or replace F.O.B. point of manufacture, or refund the purchase price for, the products that we have found to be defective. Failure by purchaser to give such written notice within the 30-day time period shall be deemed an absolute and unconditional waiver of purchaser's claim for such defects. Products repaired or replaced shall be covered by this warranty for the remainder of the original warranty period or ninety (90) days from the date of shipment, whichever is longer.

Warranty claims should be sent to Fantech, Inc., Attn: Quality Department, 10048 Industrial Blvd., Lenexa, KS 66215. Included in the claim should be Order Number, Model Numbers, Serial Numbers and a detailed description of the issues.

Purchaser assumes all other responsibility for any loss, damage or injury to persons or property arising out of the use of our products, either alone or in combination with other products or components.

ACTION. PURCHASER AGREES THAT IN NO EVENT SHALL OUR LIABILITY TO PURCHASER AND/OR ITS CUSTOMERS EXTEND TO INCLUDE INCIDENTAL, CONSEQUENTIAL OR PUNITIVE DAMAGES. The term "consequential damages" shall include, but not be limited to, loss of anticipated profits, business interruption, loss of use or revenue, cost of capital, or loss or damage to property or equipment. It is expressly understood that any technical advice furnished by us with respect to the use of our products is given without charge, and we assume no obligation or liability for the advice given, or results obtained, all such advice being given and accepted.

### Warning

Fantech products are designed and manufactured to provide reliable performance, but they are not guaranteed to be 100% free from defects. Even reliable products will experience occasional failures and this possibility should be recognized by the user. If these products are

used in a life support ventilation system where failure could result in loss or injury, the user should provide adequate backup ventilation, supplementary natural ventilation, failure alarm system, or acknowledge willingness to accept the risk of such loss or injury.

**For Customer/Technical Support call (800) 565-3548**



# Notes

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Fantech reserves the right to make technical changes.  
For updated documentation please refer to [www.fantech.net](http://www.fantech.net)

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