

FUNDAMENTALS
of
OPERATIONS and MAINTENANCE
for
AIRCON MATERIAL-HANDLING FANS

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INTRODUCTION and OPERATING PRINCIPLE

Aircon "P" series material-handling fans fall under the general category of centrifugal fans. These types of fans pull in air axially into the center and force air outward in a direction tangential to the fan wheel (90 degrees from the inlet). By contrast, axial fans force air out axially 180 degrees away from the intake. Centrifugal fans include forwardly curved fans, backwardly inclined fans, radial fans, and radial tip fans. The radial fan is the design used by Aircon. While a radial fan may not produce the high mechanical efficiencies relative to other types of centrifugal fans, it does prove to be the most durable material-handling fan available. Radial fans are also capable of producing relatively high static pressures from medium-to-low air flow volumes.

The impellers of all Aircon fans are constructed from 1/4" to 1/2" thick plate. The durability of these blades make these fans ideal for humid environments where an excessive amount of moisture often causes the conglomeration of wet wood chips or long strands of paper. The heavy-duty construction of Aircon fan scrolls and housings make these units appropriate for most types of industrial environments.

OPERATING INSTRUCTIONS

RECEIVING

Fans should be checked for any possible misalignment that may have occurred during shipping. The carrier is responsible for any damage incurred in transit. All damage reports must be made with the carrier upon receipt of order.

INSTALLATION

Aircon fans are typically either ARRANGEMENT 1 or ARRANGEMENT 9. In an Arrangement 1 assembly, the motor is set on its own motor base, which rests on the ground beside the fan housing. In an Arrangement 9 assembly, the motor is fastened to the side of the fan housing instead of a separate motor base. In most cases, the fan, motor, motor base, drives, and belt guards will all be shipped completely assembled. However, units may be purchased with only the fan housing, wheel, shaft, and bearings; in which case the customer would supply the motor and drives.

1. Fans are most often mounted on steel platforms and less frequently on concrete. The weight of the concrete must be at least four times the weight of the fan.
2. Check the clearance between the wheel and the inside of the fan housing. The wheel should be centered with the clearance equal on both sides. Turn the wheel by hand to make sure its movement is unobstructed.
3. The motor must be wired according to the diagram on its nameplate. All wiring and fusing must be done in accordance with both the National Electrical Code and local standards.

OPERATING REQUIREMENTS

All Aircon fans are driven by three-phase TEFC (Totally Enclosed Fan Cooled) motors either 1800 or 3600 nominal RPM (revolutions per minute). Operating voltage is 230 or 460 VAC (volts of alternating current) at 60 hertz.

START-UP CHECKLIST

1. Make sure the belt drives are properly tensioned with belt guard in place.
2. Do not grease shaft bearings on initial start-up. Since these bearings are installed pre-lubricated, an additional amount of grease could rupture the seals.
3. Check to see if the fan housing and all ductwork to which it is connected are clean and free of debris. Any water accumulated inside the fan scroll must be drained.
4. Check proper voltage and phase of the electrical supply, and direction of rotation of fan wheel. If the wheel is not turning in the desired direction, reverse the two leads of the three-phase motor according to the instructions of the motor manufacturer.
5. Upon start-up, check the motor hourly to see if the motor is operating within the specified temperature range of the manufacturer. Relubricate the motor according to the instructions of the manufacturer.
6. After four to six hours of operation, shut down the fan and re-adjust the tension on the belt drives. Also, recheck the tightness of all set-screws, keys, and any bolts holding down the fan housing.

ROUTINE MAINTENANCE

Monthly

Check motor and shaft bearings for temperature, proper lubrication, and excessive vibrations that may be present.

Remove material slugs and foreign objects within the wheel that may cause an imbalance.

Quarterly (every three months)

Check seals on inlet and outlet flanges for air leakage.

SAFETY

Before conducting any maintenance procedures on the fan, please observe the following safety precautions:

1. Turn off, disconnect, and lock out power to the fan. Also, turn off and lock out all electrical disconnects for all associated and auxiliary equipment.
2. Do not touch the outer surface of the motor housing until the motor has been turned off and allowed to cool for at least thirty minutes.

STANDARD FEATURES OF AIRCON "P" SERIES FANS

1. Expanded metal shaft guard.
2. Drain plug in bottom of unit used to discharge any water accumulated inside the scroll prior to installation and start-up.
3. One coat of rust-inhibitive primer and one coat of Aircon Machine Gray enamel paint.

OPTIONAL FEATURES OF AIRCON "P" SERIES FANS

1. Units available with motor, motor base, and drives (sheaves, bushings, belts, and belt guard).
2. Paint per customer specifications.

SUGGESTED SPARE PARTS LIST

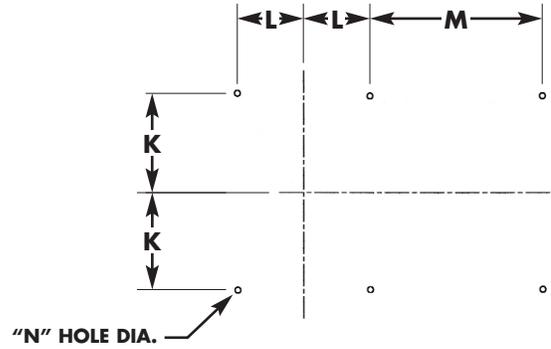
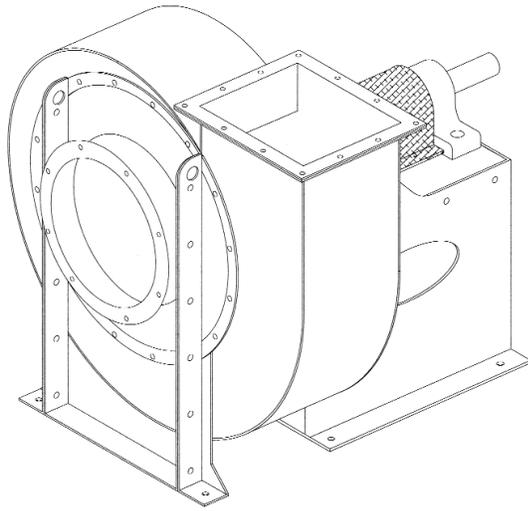
MODEL	QTY.	DESCRIPTION
P-11	(2) (1)	Linkbelt P324 pillow block bearings Set of belts
P-13	(2) (1)	Linkbelt P331 pillow block bearings Set of belts
P-15	(2) (1)	Linkbelt P335 pillow block bearings Set of belts
P-17	(2) (1)	Linkbelt P339 pillow block bearings Set of belts
P-19	(2) (1)	Linkbelt P343 pillow block bearings Set of belts
P-21	(2) (1)	Linkbelt P343 pillow block bearings Set of belts
P-23	(2) (1)	Linkbelt P347 pillow block bearings Set of belts



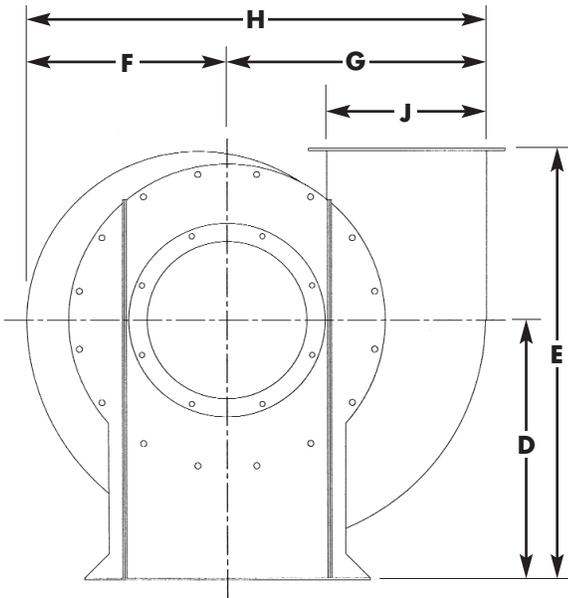
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**Extra Heavy-Duty
 "P" BLOWERS**

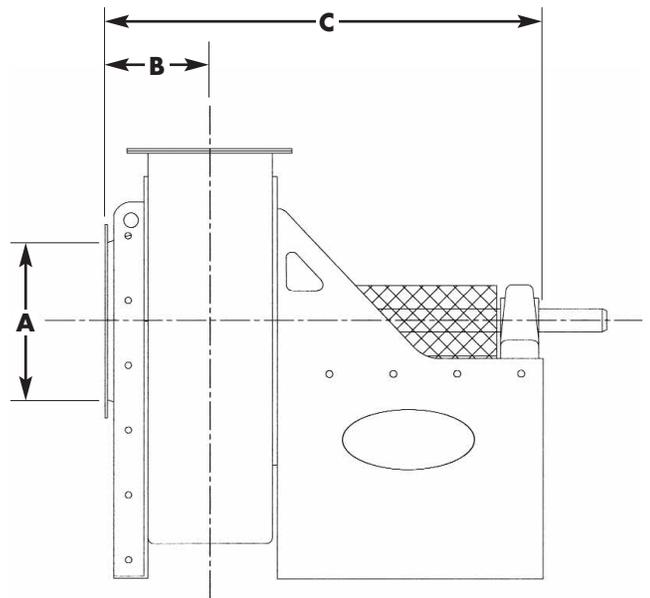
EFFECTIVE:
January 1, 2002
 SUPERSEDES: January 1, 2000



BASE HOLE LAYOUT



FRONT VIEW



SIDE VIEW

Model #	A	B	C	D	E	F	G	H	J	K	L	M	N	Shaft Dia.	Ship WT.
P-9	9"	7 1/4"	25 1/8"	14 15/16"	24 1/2"	11 1/4"	13 9/16"	24 13/16"	8 5/8"	8 3/4"	5 7/16"	11 1/4"	5/8"	1 3/8"	225
P-11	11"	8 3/16"	27 3/8"	16 1/16"	28 5/8"	12 1/8"	14 3/8"	26 1/2"	10 1/8"	9 1/8"	6 1/16"	11 3/4"	5/8"	1 1/2"	334
P-13	13"	9"	37"	22"	36"	16 3/8"	21 1/8"	37 1/2"	12 5/8"	10 1/2"	7"	19"	5/8"	1 15/16"	551
P-15	15"	9 1/8"	40"	25"	41 1/8"	18 15/16"	24 3/8"	43 5/16"	14 9/16"	11 1/8"	8"	20 3/8"	3/4"	2 3/16"	711
P-17	17"	11 1/8"	42 3/4"	27"	45 5/16"	21 3/16"	27 9/16"	48 3/4"	16 1/2"	12 1/8"	9"	20 3/8"	3/4"	2 7/16"	893
P-19	19"	12 1/8"	44 5/8"	29"	49 5/16"	23 7/8"	30 13/16"	54 11/16"	18 7/16"	13 1/4"	9 1/2"	20 3/4"	3/4"	2 11/16"	1089
P-21	21"	12 3/4"	46 1/2"	33"	55 5/8"	26 1/8"	34"	60 1/8"	20 3/8"	15 1/4"	10 1/2"	21"	7/8"	2 11/16"	1333
P-23	23"	13 1/2"	48"	37"	61 3/4"	28 5/8"	37 3/16"	65 13/16"	22 5/16"	15"	11 1/8"	21 1/2"	7/8"	2 15/16"	1610

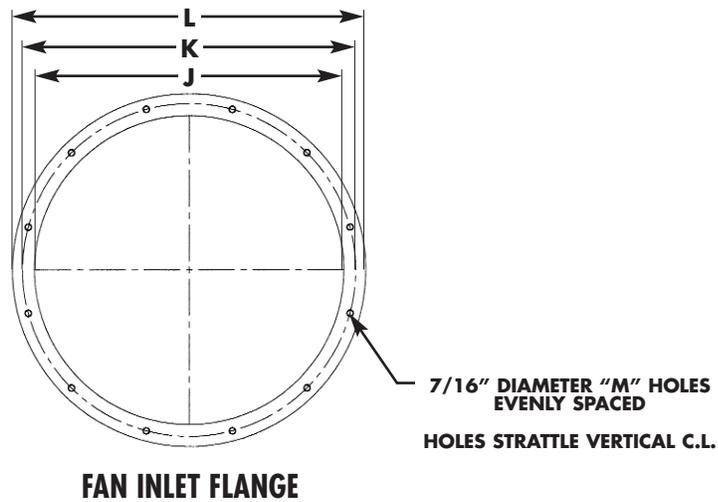
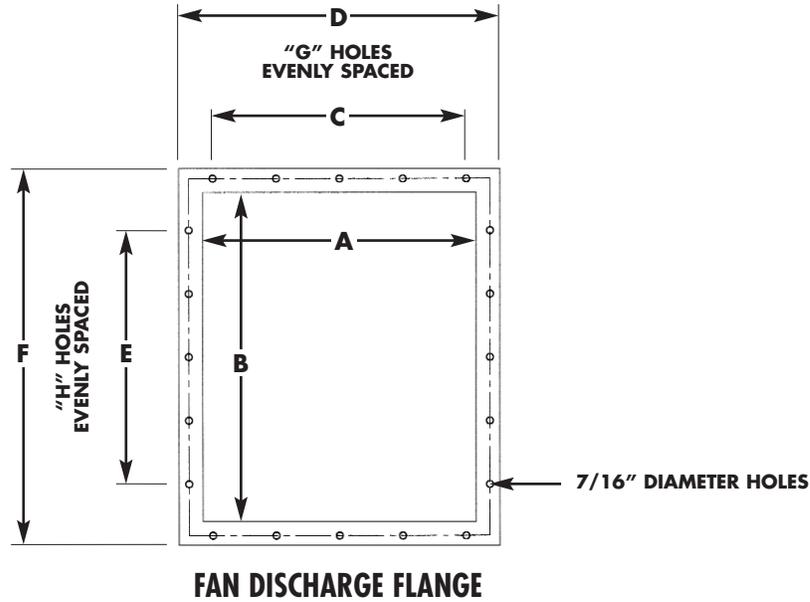
Information on this page for quotation purposes only, not for construction unless certified. Data subject to change without notice. All dimensions are in inches unless noted.



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EFFECTIVE:
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 SUPERSEDES: January 1, 2000



Model #	A	B	C	D	E	F	G	H	J	K	L	M
P-9	7 7/8"	8 5/8"	8"	10 7/8"	8"	11 5/8"	3	3	9 1/8"	10 5/8"	11 5/8"	6
P-11	9 1/2"	10 1/8"	8"	12 1/2"	8"	13 1/8"	3	3	11 1/8"	12 3/4"	14"	6
P-13	10 3/8"	12 5/8"	12 1/8"	13 3/8"	14 3/8"	15 5/8"	4	4	13 1/8"	15"	16 1/8"	8
P-15	12"	14 9/16"	13 3/4"	15"	16 5/16"	17 9/16"	4	4	15 1/8"	17"	18 1/8"	8
P-17	13 5/8"	16 1/2"	15 3/8"	16 5/8"	18 1/4"	19 1/2"	4	4	17 1/8"	19"	20 1/8"	8
P-19	15 3/16"	18 7/16"	16 15/16"	18 3/16"	20 3/16"	21 7/16"	4	4	19 1/8"	21 3/8"	23 1/8"	12
P-21	16 3/4"	20 3/8"	18 1/2"	19 3/4"	22 1/8"	23 3/8"	4	5	21 1/8"	22 3/4"	24 1/8"	12
P-23	18 3/8"	22 5/16"	20 1/8"	21 3/8"	24 1/16"	25 5/16"	5	5	23 1/8"	24 7/8"	26 1/8"	12