

Please read and save these instructions. Read carefully before attempting to assemble, install, operate or maintain the product described. Protect yourself and others by observing all safety information. Failure to comply with instructions could result in personal injury and/or property damage! Retain instructions for future reference.

Dayton[®] Fabricated Aluminum Direct Drive Exhaust Fans

Description

NOTE: Manufacturer assumes no obligation or liability on account of any unauthorized recommendations, opinions, or advice as to the choice, installation or use of products.

The Dayton heavy duty exhaust fan is for wall mounted applications. Each fan is equipped with a ball bearing, totally enclosed motor. Unit is furnished with painted steel venturi and fabricated aluminum propeller.

Certified Rating for Air and Sound



Dayton Electric Mfg. Company certifies that the ventilators shown hereon 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 comply with the requirements of the AMCA Certified Ratings Program.

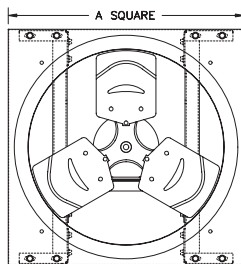
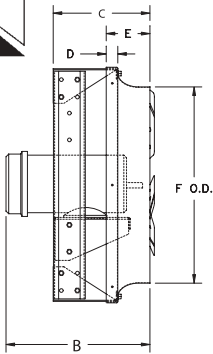


Figure 1 - Dimensions

Model	Propeller Dia.	A Sq.	B	C	D	E	F
3XK50F	12"	16"	14 1/16	8 1/2	1	2 15/16	12 1/4
*3XK51F	12	16	14 1/16	8 1/2	1	2 15/16	12 1/4
*3XK37F	16	20	14 1/16	7 7/8	1	3 9/16	16 5/16
3XK52F	16	20	14 1/16	7 7/8	1	3 9/16	16 5/16
3XK53F	16	20	12 1/16	7 7/8	1	3 9/16	16 5/16
3XK54F	18	22	14 1/16	9	1 1/16	4 1/16	18 5/16
*3XK55F	18	22	14 1/16	9	1 1/16	4 1/16	18 5/16
3XK56F	18	22	13 3/16	9	1 1/16	4 1/16	18 5/16
3XK57F	20	24	15 3/8	9 3/8	1	4 1/2	20 3/8
3XK58F	20	24	14 1/4	9 3/8	1	4 1/2	20 3/8
*3XK59F	20	24	15 3/8	9 3/8	1	4 1/2	20 3/8
3XK60F	24	28	11 7/8	11 1/16	1	4 15/16	24 7/16
*3XK61F	24	28	11 7/8	11 1/16	1	4 15/16	24 7/16
3XK62F	24	28	11 7/8	11 1/16	1	4 15/16	24 7/16
3XK63F	24	28	11 7/8	11 1/16	1	4 15/16	24 7/16
*3XK64F	24	28	11 7/8	11 1/16	1	4 15/16	24 7/16
3XK66F	30	34	14	12 5/8	1 1/16	5 5/8	30 1/2
3XK67F	30	34	14	12 5/8	1 1/16	5 5/8	30 1/2



Unpacking

Receiving and Inspection. Immediately upon receipt of shipment, carefully inspect for damage and/or shortage. Turn the impeller by hand to see that it turns freely and does not bind. If any damage and/or shortage is detected or suspected, the carrier must be notified to conduct an inspection. The customer should not accept shipment without a notation on the delivery receipt indicating items not delivered or the apparent extent of damage.

When shipment is opened and damage is found which was not evident externally (concealed damage), it is mandatory that the customer request an immediate inspection by the carrier. Report any damage to the carrier within 15 days. Failure to report damage within the above time limit could result in rejection of claim.

Handling. When handling fans and their accessories, always use equipment and methods that will not cause damage. To avoid damage fans should be lifted using slings and padding or spreaders.

CAUTION Always make sure that all lifting and handling equipment and techniques conform to current safety standards.

*These units are UL Listed fans for use in Class 1 Group C & D and Class 2 Groups E, F, & G

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Avoid lifting fans in a way that will bend or distort fan parts. Never pass slings or timbers through the fan orifice.

▲ CAUTION *Do not lift by the fan hood.*

Fans with special coatings or paints must be protected in handling to prevent damage.

Storage. Fans are protected against damage during shipment. If they cannot be installed and put into operation immediately upon receipt, certain precautions are necessary to prevent deterioration during storage. Responsibility for integrity of fans and accessories during storage must be assumed by the user. The manufacturer will not be responsible for damage during storage. These suggestions are provided solely as a convenience to the user, who shall make his own decision as to whether to use any or all of them.

Indoor Storage. The ideal storage environment for fans and accessories is indoors, above grade, in a low humidity atmosphere which is sealed to prevent the entry of blowing dust, rain, or snow. Temperatures should be evenly maintained at between 70°F and 105°F (wide temperature swings may cause condensation and "sweating" of metal parts). Windows should be covered to prevent temperature variations caused by sunlight. Provide thermometers and humidity indicators at several points and maintain the atmosphere at 40% relative humidity, or lower.

It may be necessary to use desiccant or a portable dehumidifier to remove moisture from the air in the storage enclosure.

Thermostatically controlled portable heaters (vented to outdoors) may be required to maintain even temperatures inside the enclosure.

▲ CAUTION *Provide fire extinguishers, fire alarms, or emergency response communication to protect building and equipment*

against fire damage. Be sure that building and storage practices meet all local, state and federal fire and safety codes.

The following fans or accessories must be stored indoors, in a clean dry atmosphere:

- Propeller wall fans not in wall housings.
- Any fan protected by a cardboard carton.
- Motors dismounted from fans.
- Spare wheels or propellers.
- Belts, sheaves, bushings and other parts when not mounted on fan.
- Boxes, bags or cartons of hardware.
- Curbs
- Shutters

Remove any accumulations of dirt, water, ice or snow and wipe dry before moving to indoor storage. Allow cold parts to reach room temperature to avoid "sweating" of metal parts. Open boxes or cartons. Remove any accumulated moisture; if necessary use portable electric heaters to dry parts and packages. Leave coverings loose to permit air circulation and to permit periodic inspection.

Rotate impeller by hand to distribute bearing grease over the entire bearing surfaces.

Store at least 3 ½" above the floor on wooden blocks covered with moisture proof paper or polyethylene sheathing. Provide aisles between parts and along all walls to permit air circulation and space for inspection.

Outdoor Storage. Fans designed for outdoor use may be stored outdoors, if absolutely necessary. The storage area should be reasonably level and drained or ditched to prevent accumulation of water. Fencing and lighting for security are desirable.

Roads or aisles for portable cranes and hauling equipment are needed. Consider the use of drift fencing to minimize accumulation of blowing snow or dirt.

The following fans may be stored outdoors, if dry indoor storage space is not available:

- Fans intended for outdoor use that are crated in wood.
- Wall fans installed in wall housings.

All fans must be supported on wooden blocks or timbers above water or normal snow levels. Provide enough blocking to prevent settling into soft ground. Fans should be set in place using the directional arrow markings on the crate as a guide.

Locate pieces far enough apart to permit air circulation, sunlight, and space for periodic inspection. Place all parts on their supports so that rain water will run off, or to minimize water accumulation.

IMPORTANT: Do not cover parts with plastic film or tarps — these cause condensation of moisture from the air passing through heating and cooling cycles.

Fan impellers should be blocked to prevent spinning caused by strong winds.

Inspection and Maintenance During Storage.

Inspect fans and accessories at least once per month, while in storage. Log results of inspection and maintenance performed. A typical log entry should include the following:

- Date
- Inspector's Name
- Name of Fan
- Location
- Condition of Paint or Coating
- Is moisture present?
- Is dirt accumulated?
- Corrective steps taken?

Models 3XK51F, 3XK37F, 3XK55F, 3XK59F, 3XK61F, 3XK64F, 3XK50F, 3XK52F, 3XK54F, 3XK57F, 3XK60F, 3XK62F, 3XK66F, 3XK53F, 3XK56F, 3XK58F, 3XK63F, 3XK67F

If moisture or dirt accumulations are found on parts, the source should be located and eliminated. Fan impellers should be rotated at each inspection by hand ten to fifteen revolutions to redistribute the motor and bearing lubricant.

If paint deterioration begins, consideration should be given to touch-up or repainting. Fans with special coatings may require special techniques for touch-up or repair.

Machined parts coated with rust preventive should be restored to good condition promptly if signs of rust occur. The most critical items are pulleys, shafts and bearing locking collars. At the first sign of rusting on any of the above parts, remove the original rust preventive coating with petroleum solvent and clean lint-free cloths. Polish any remaining rust from surfaces with crocus cloth or fine emery paper and oil.

IMPORTANT: Do not destroy the continuity of the surfaces. Wipe clean with lint-free cloths and recoat surfaces evenly and thoroughly with Tectly 506 (Ashland Oil Company) or equal. For hard to reach internal surfaces or for occasional use, consider using Tectly 511M Rust Preventive or WD40 or equal.

Removing from Storage. As fans are removed from storage to be installed in their final location, they should be protected and maintained in similar fashion, until the fan equipment goes into operation.

Installation

1. The fan should be securely mounted within a rigid framework to prevent flexing or movement of the fan frame during operation. The fan frame should be equally supported on all sides within the framework and caution should be taken to avoid twisting or cocking of the fan frame during installation.

Allowing the fan frame to flex or move during operation will create harmful vibrations which may damage the unit.

- Fans should be mounted in opening within ¼" clearance around perimeter. Venturi framing should be secured to building structure utilizing corrosion resistant fasteners.
- Check rotation after wiring of ventilator to be sure propeller rotates clockwise when facing motor shaft.
- Dampers, if used, must be mechanically operated and clear propeller by at least 2". Fan motor could overheat if operated with damper in closed position.

CAUTION *This fan has rotating parts. Exercise applicable safety precautions during its handling, assembly, operation and maintenance. Disconnect power before handling, assembling, operating or maintaining. If disconnect means is out of sight, lock it in the open position to prevent unexpected starts.*

WARNING *Do not use in hazardous environments where the fan's electrical system could provide ignition to combustible or flammable materials, unless the unit is specifically built for hazardous environments.*

CAUTION *Guards must be installed when the fan is within reach of personnel or within seven (7) feet (2.134m) of working level or when deemed advisable for safety.*

CAUTION *Before proceeding, make sure electrical service to the fan is locked in the "OFF" position.*

WARNING *Check the voltage at the fan to see if it corresponds with the motor nameplate. High or low voltage can seriously damage the motor. Extra care should be taken when wiring two speed motors since improper connections will*

damage the motor and void the motor warranty.

Apply power momentarily and compare the rotation of the impeller with the directional arrow on fan.

WARNING *Operation in the wrong direction will deliver air but will overload the motor to the extent of blowing fuses and seriously damaging the motor. In the case of three phase motors, the direction can be changed by interchanging any two of the three motor leads. In the case of single phase motors, the reversing instructions will appear on the wiring diagram in the motor wiring compartment.*

General Safety Information

- Follow all local electrical and safety codes, as well as the National Electrical Code (NEC) and the Occupational Safety and Health Act (OSHA) in the United States.
- Motor must be securely and adequately grounded. This can be accomplished by wiring with a grounded, metal-clad raceway system by using a separate ground wire connected to the bare metal of the motor frame, or other suitable means.
- 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.
- All moving parts should be guarded.
- Be careful when touching the exterior of an operating motor - it may be hot enough to be painful or cause injury. With modern motors this condition is normal if rated at normal load and voltage - modern motors are built to operate at higher temperatures.

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6. Make certain that the power source conforms to the requirements of your equipment.
7. Wiping or cleaning rags and other flammable waste materials must be placed in a tightly closed metal container and disposed of later in the proper fashion.
8. When cleaning electrical or electronic equipment, always use an approved cleaning agent such as dry cleaning solvent.

Maintenance

1. Periodically clean any guards, dampers, motors, and propeller to prevent decrease in airflow and overheating motor, and make sure all bolts are tight.
2. Under normal usage, no spare parts are recommended for one year of operation. Motor bearings are prelubricated. Consult information printed on motor for lubrication instructions.

⚠ CAUTION Before proceeding, make sure electrical service to the fan is locked in the "OFF" position.

⚠ WARNING Even when the power supply is locked out, fans may cause injury or damage if the impeller is subject to "windmilling" which is the turning of the impeller and drive components due to a draft in the system. To guard against this hazard, the impeller should be secured to physically restrict rotational movement.

Set Screw Tightening Schedule

1. Before initial operation of the fan, tighten set screws according to the procedure outlined below.
2. After 500 operating hours or three months, whichever comes first, tighten set screws to the full recommended torque.
3. At least once a year, tighten set screws to the full recommended torque.

Procedure for Tightening Set Screws in Bearings and Hubs

One Set Screw Application

Using a torque wrench, tighten the set screw to the torque recommended in Table 1.

Two Set Screw Application

1. Using a torque wrench, tighten one set screw to half of the torque recommended in Table 1.
2. Tighten the second set screw to the full recommended torque.
3. Tighten the first set screw to the full recommended torque.

Table 1. Recommended Tightening Torque for Set Screws

Set Screw Diameter	Torque (in-lbs)
#10	35
1/4	80
5/16	126
3/8	240
7/16	384
1/2	744
9/16	1080
5/8	1500
3/4	2580
7/8	3600
1	5400

Variable Frequency Drives and Motors

There are occasions when a Variable Frequency Drive (VFD) will cause poor motor performance and possible damage. To avoid these problems, the manufacturer recommends the following:

1. Select compatible motor and VFD converter; if possible, the motor and the converter should be from the same manufacturer or at least the converter selected should be recommended by the motor manufacturer.
2. A motor shaft grounding system should be used to prevent motor bearing damage from eddy currents.

NOTE: The manufacturer will not honor motor warranty claims if the customer fails to follow these recommendations.

For Repair Parts, call 1-800-323-0620

24 hours a day - 365 days a year

Please provide following information:

- Model number
- Serial number (if any)
- Part descriptions and number as shown in parts list

Address parts correspondence to:

Grainger Parts
 P.O. Box 3074
 1657 Shermer Road
 Northbrook, IL 60065-3074 U.S.A.

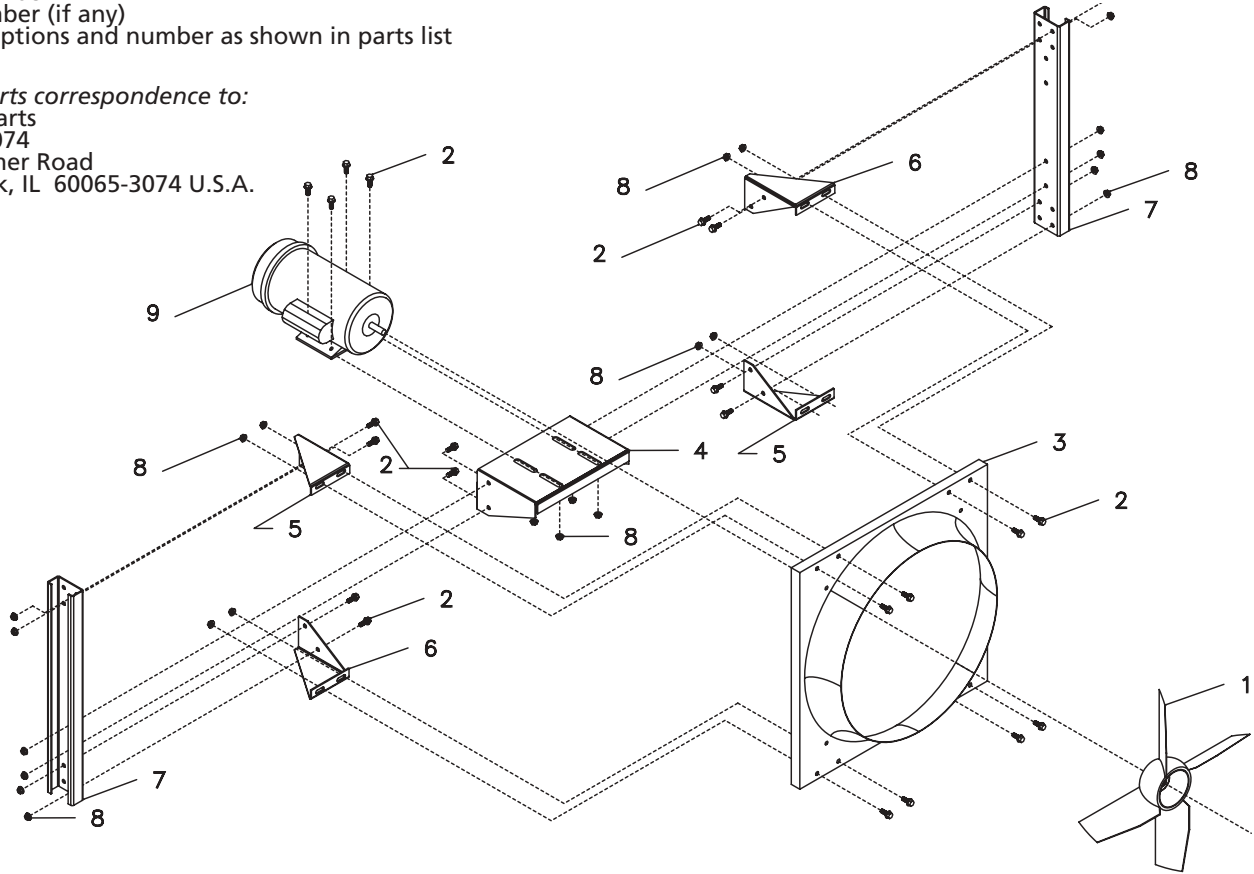


Figure 2 - Repair Parts Illustration

Ref. No.	Description	Part Numbers for Models										Qty.
		3XK50F	3XK51F	3XK37F	3XK52F	3XK53F	3XK54F	3XK55F	3XK56F	3XK57F	3XK58F	
1	Propeller Assembly	506524	506524	506545	506545	506545	506559	506559	506559	506549	1	
2	Bolt 5/16" - 18 x 3/4" Whiz Lock	*	*	*	*	*	*	*	*	*	--	
3	Orifice	506000	506000	506001	506001	506001	506002	506002	506002	506003	1	
4	Motor Base	506063	506063	506064	506064	506064	506056	506056	506056	506056	1	
5	Right Bracket	**	**	**	**	**	506057	506057	506057	506059	2	
6	Left Bracket	**	**	**	**	**	506058	506058	506058	506060	2	
7	Channel Support	**	**	**	**	**	506061	506061	506061	506062	2	
8	Nut 5/16" - 18 Whiz Lock	*	*	*	*	*	*	*	*	*	--	
9	Motor	994224	921745	921745	994224	921755	922253	922254	922255	922767	1	

Ref. No.	Description	Part Numbers for Models										Qty.
		3XK58F	3XK59F	3XK60F	3XK61F	3XK62F	3XK63F	3XK64F	3XK66F	3XK67F	3XK68F	
1	Propeller Assembly	506549	506549	506551	506551	506554	506554	506551	506552	506552	1	
2	Bolt 5/16" - 18 x 3/4" Whiz Lock	*	*	*	*	*	*	*	*	*	--	
3	Orifice	506003	506003	506004	506004	506004	506004	506004	506005	506005	1	
4	Motor Base	506056	506056	506056	506056	506056	506056	506056	506068	506068	1	
5	Right Bracket	506059	506059	506049	506049	506049	506049	506049	506065	506065	2	
6	Left Bracket	506060	506060	506111	506111	506111	506111	506111	506066	506066	2	
7	Channel Support	506062	506062	506048	506048	506048	506048	506048	506067	506067	2	
8	Nut 5/16" - 18 Whiz Lock	*	*	*	*	*	*	*	*	*	--	
9	Motor	922729	922753	922767	922753	923280	923275	923254	923261	923246	1	

(*)Standard hardware items, available locally.

(**) Not required for 3XK50F, 3XK51F, 3XK37F, 3XK52F, 3XK53F.

Models 3XK51F, 3XK37F, 3XK55F, 3XK59F, 3XK61F, 3XK64F, 3XK50F, 3XK52F, 3XK54F, 3XK57F, 3XK60F, 3XK62F, 3XK66F, 3XK53F, 3XK56F, 3XK58F, 3XK63F, 3XK67F

LIMITED WARRANTY

WARRANTY AND DISCLAIMER: Dayton® extends this limited warranty by the manufacturer to the original purchaser and warrants that Dayton® products shall be free from original defects in workmanship and materials for one year from date of shipment, provided same have been properly handled, stored, installed, serviced, maintained and operated. This warranty shall not apply to products which have been altered or repaired in any way so as to affect performance or reliability, nor which have been improperly installed or subjected to misuse, negligence, or accident, or incorrectly used in combination with other substances. The Purchaser assumes all risks and liability for results of use of all products.

PROMPT DISPOSITION. Dayton will make a good faith effort for prompt correction or other adjustment with respect to any product which proves to be defective within limited warranty. For any product believed to be defective within limited warranty, first write or call dealer from whom the product was purchased. Dealer will give additional directions. If unable to resolve satisfactorily, write to Dayton at address below, giving dealer's name, address, date, and number of dealer's invoice, and describing the nature of the defect. Title and risk of loss pass to buyer on delivery to common carrier. If product was damaged in transit to you, file claim with carrier.

Dayton® is not responsible for the cost of removal of the defective product or part, damages due to removal, or any expenses incurred in shipping the product or part to or from Dayton®, or the installation of the repaired or replaced product or part.

The warranties set forth above do not apply to any components, accessories, parts or attachments manufactured by other manufacturers; such being subject to the manufacturer's warranty, if any. To the extent not prohibited by the manufacturer's warranty, Dayton® shall pass through to Purchaser such manufacturer's warranty.

DAYTON®'S WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, ARISING BY LAW OR OTHERWISE, INCLUDING WITHOUT LIMITATION THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, WHICH ARE HEREBY EXPRESSLY DISCLAIMED AND WAIVED. THIS WARRANTY CONSTITUTES DAYTON®'S SOLE AND EXCLUSIVE WARRANTY FOR DEFECTIVE GOODS AND PURCHASER'S SOLE AND EXCLUSIVE REMEDY FOR DEFECTIVE PRODUCTS.

No employee, agent, dealer, or other person is authorized to give any warranties on behalf of Dayton® or to assume for Dayton® any other liability in connection with any of its products except in writing and signed by an officer of Dayton®.

TECHNICAL ADVICE AND RECOMMENDATIONS, DISCLAIMER: Notwithstanding any past practice or dealings or any custom of the trade, sales shall not include the furnishing of technical advice or assistance or system design.

Dayton® assumes no obligation or liability on account of any unauthorized recommendations, opinions or advice as to the choice, installation or use of products.

LIMITATION OF LIABILITY The cumulative liability of Dayton® to the Purchaser and any other persons for all claims in any way relating to or arising out of the products, including, but not limited to, any cause of action sounding in contract, tort, or strict liability, shall not exceed the total amount of the purchase price paid for those products which are the subject of any such claim. This limitation of liability is intended to apply without regard to whether other provisions of this agreement have been breached or have proven ineffective even if Dayton® has been advised of the possibility of such claims or demands. In no event shall Dayton® be liable to the Purchaser or any other person for any loss of profits or any incidental, special, exemplary, or consequential damages for any claims or demands brought by the Purchaser or such other persons.

INDEMNITY Dayton®'s maximum liability to Purchaser and to any end user is as set forth above. Dayton® makes no warranty to anyone for any products not manufactured by Dayton® and shall have no liability for any use or installation of any products (whether manufactured by Dayton® or other manufacturers) not specifically authorized by this sale. Purchaser acknowledges various warnings by Dayton® regarding the products and its installation and use. If Dayton® incurs any claims, lawsuits, settlements, or expenses (including attorney fees) for any loss, injury, death or property damage including, but not limited to, claims arising out of the Purchaser's or any end user's installation or use of the products, the Purchaser shall indemnify and hold Dayton® harmless.

Manufactured for Dayton Electric Mfg. Co., 5959 W. Howard St., Niles, Illinois 60714 U.S.A.