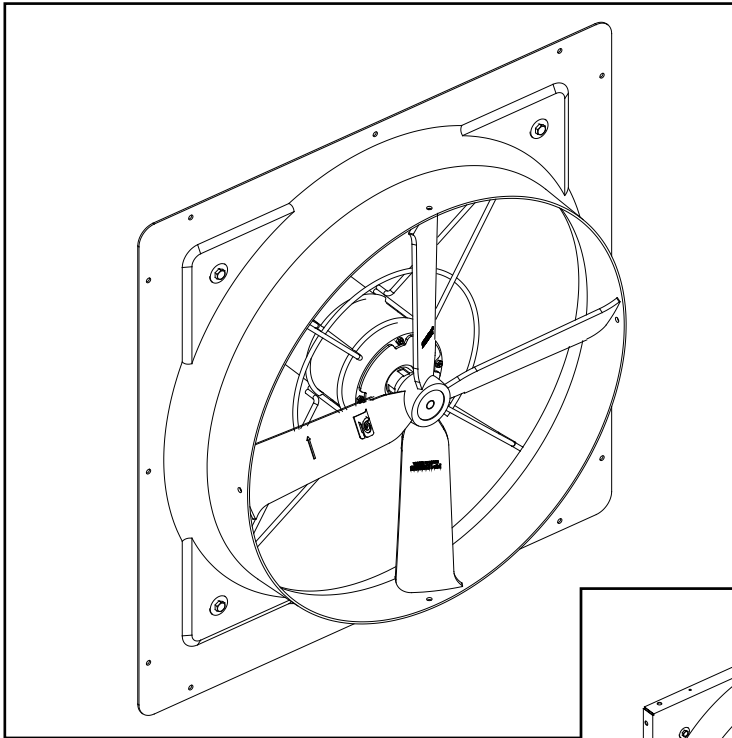
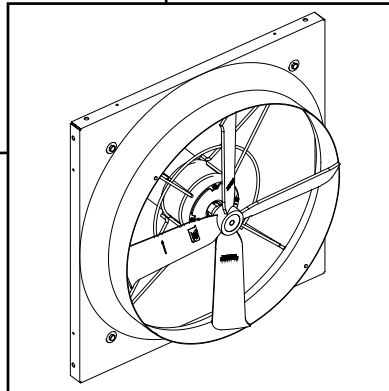


Instruction Manual

14" - 24"
CLASSIC 'AT'
Direct Drive
14" - 24" Fans



AT24F



AT24G

Classic 'AT' Fans Direct Drive

Models: AT14F • AT16F • AT16G • AT18F • AT18G • AT24F •
AT24G • AT24F3 • AT24G3



Classic 'AT' Fan Direct Drive 14", 16", 18", 24" Fans

Instructions for Use and Maintenance

Thank You:

Thank you for purchasing a Munters Classic Fan Direct Drive. Munters equipment is designed to be the highest performing, highest quality equipment you can buy. With the proper installation and maintenance it will provide many years of service.

Please Note:

To achieve maximum performance and insure long life from your Munters product it is essential that it be installed and maintained properly. Please read all instructions carefully before beginning installation.

Warranty:

For Warranty claims information see the "Warranty Claims and Return Policy" form QM1021 available from the [Munters Corporation office at 1-800-227-2376](http://Munters Corporation) or by e-mail at aghort.info@munters.com.

Conditions and Limitations:

- Products and Systems involved in a warranty claim under the "Warranty Claims and Return Policy" shall have been properly installed, maintained and operated under competent supervision, according to the instructions provided by Munters Corporation.
- Malfunction or failure resulting from misuse, abuse, negligence, alteration, accident or lack of proper installation or maintenance shall not be considered a defect under the Warranty.

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Unpacking the Equipment

1.

Before beginning installation, check the overall condition of the equipment. Remove packing materials, and examine all components for signs of shipping damage. Any shipping damage is the customer's responsibility and should be reported immediately to your freight carrier. Fan is shipped complete with all accessories.

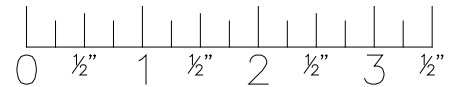
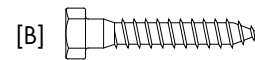
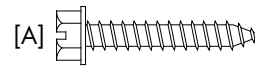
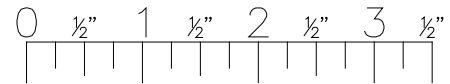
1.1 Parts List

Each Fan includes:

- 1 - Direct Drive Fan
- 1 - Hardware Package as follows:

HP1076 - 14" - 24" Fiberglass Fans

ID	Qty.	Cat. No.	Description
[A]	8	KS2105	#14 x 1.5" Lag Screw, SS
<i>HP1008 - 16" - 24" Galvanized Fans</i>			
[B]	8	KS2463	1/4" x 1.5" Lag Screw, ZP
[C]	8	KW3001	1/4" Flat Washer, ZP

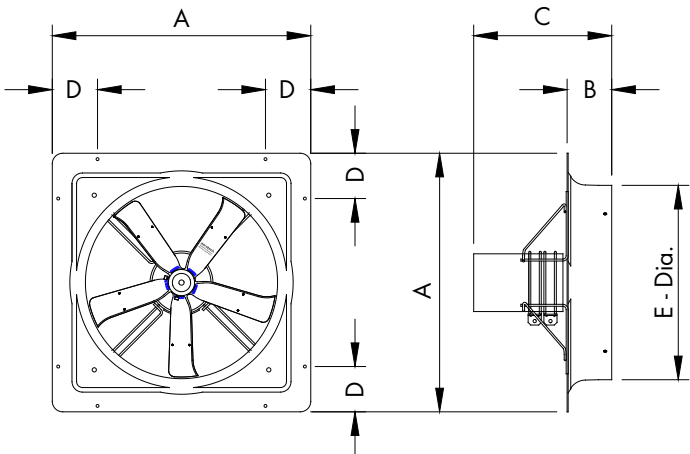


1.2 Fan Dimensions

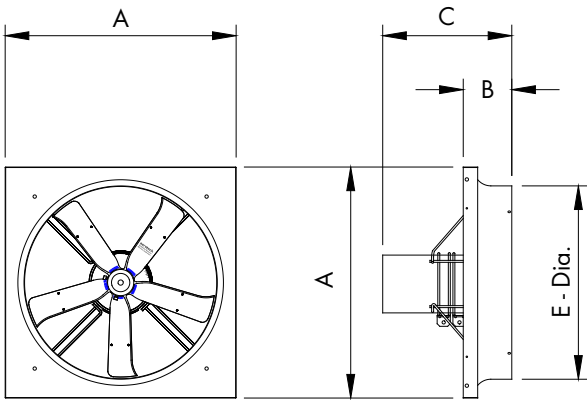
Fan Specifications:

Hertz: 60 50 - 60
 Voltage: 115/230VAC or 190 - 208-230/380 - 460VAC
 Phase: 1 or 3

3 Phase fans only available for AT24



14" - 24" Fiberglass Fans



16" - 24" Galvanized Fans

CAT. NO.	FAN DIA.	NO. OF BLADES	A	B	C	D	E - Dia. (O.D.)	WALL OPENING (I.D., framed)	
								W	H
AT14F	14"	7	19 ⁵ / ₈ "	3 ¹ / ₂ "	10 ³ / ₄ "	3 ¹ / ₂ "	14 ¹ / ₂ "	17 ¹ / ₄ "W	17 ¹ / ₄ "H
AT16F	16"	4	22 ⁵ / ₈ "	4 ¹ / ₄ "	11 ¹ / ₈ "	4 ¹ / ₄ "	16 ¹ / ₂ "	20 ⁵ / ₈ "W	20 ¹ / ₄ "H
AT16G	16"	4	20"	4 ³ / ₄ "	10 ¹ / ₄ "	4 ³ / ₄ "	16 ¹ / ₂ "	20 ⁵ / ₈ "W	20 ¹ / ₄ "H
AT18F	18"	5	24 ⁵ / ₈ "	4 ¹ / ₄ "	12"	4 ¹ / ₄ "	18 ¹ / ₂ "	22 ¹ / ₄ "W	22 ¹ / ₄ "W
AT18G	18"	5	22"	4 ⁵ / ₈ "	11"	4 ⁵ / ₈ "	18 ¹ / ₂ "	22 ¹ / ₄ "W	22 ¹ / ₄ "W
AT24F	24"	4	30 ³ / ₄ "	5 ¹ / ₄ "	12 ¹ / ₈ "	5 ¹ / ₄ "	24 ¹ / ₂ "	28 ¹ / ₄ "W	28 ¹ / ₄ "H
AT24G	24"	4	28"	5 ⁷ / ₈ "	11 ³ / ₈ "	5 ⁷ / ₈ "	24 ¹ / ₂ "	28 ¹ / ₄ "W	28 ¹ / ₄ "H

Installation Instructions

2.

2.1 Install

Step 1

Construct the framed opening to correct size according to the Chart on the previous page. *See Figure 1 and 2.*

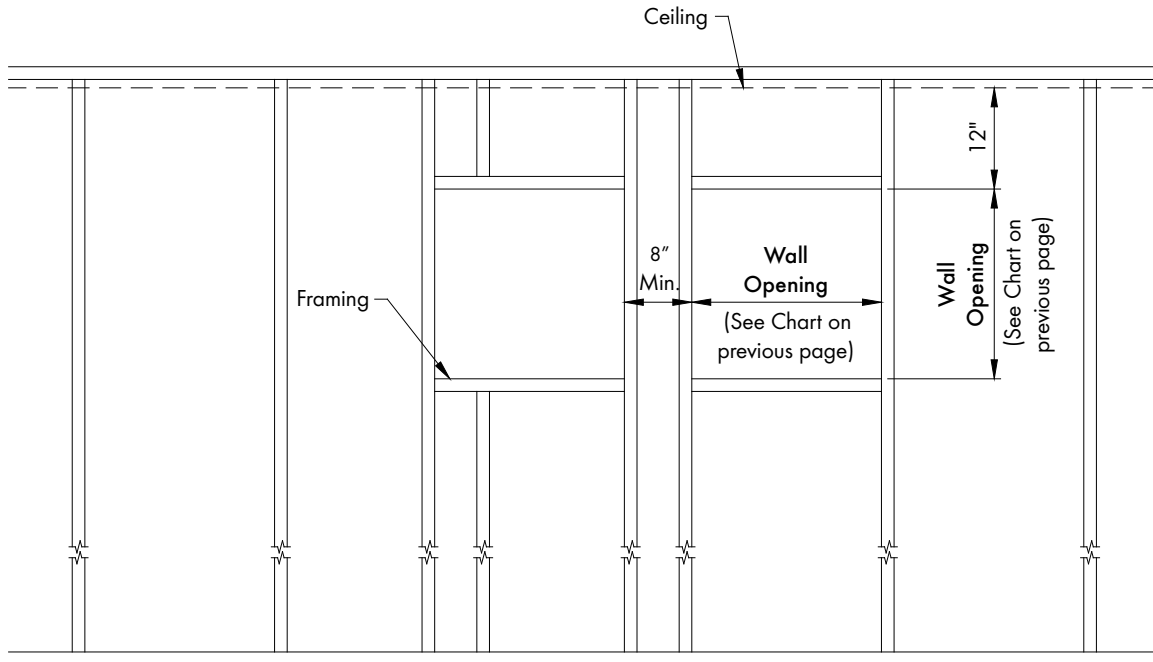


Figure 1

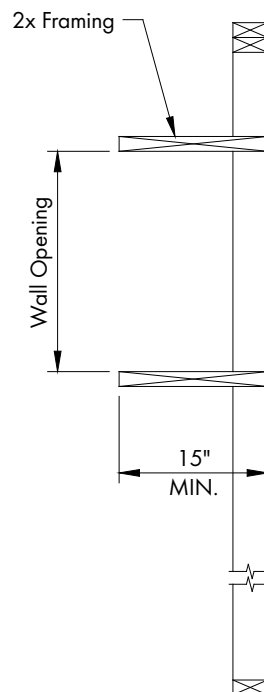


Figure 2

Step 2

Insert fan into framed opening from outside and fasten in place using (8) Lag Screws [A] for Fiberglass Fans or (8) Lag Screws [B] and Washers [C] for Galvanized Fans. Flash and caulk around opening. See Figure 3.

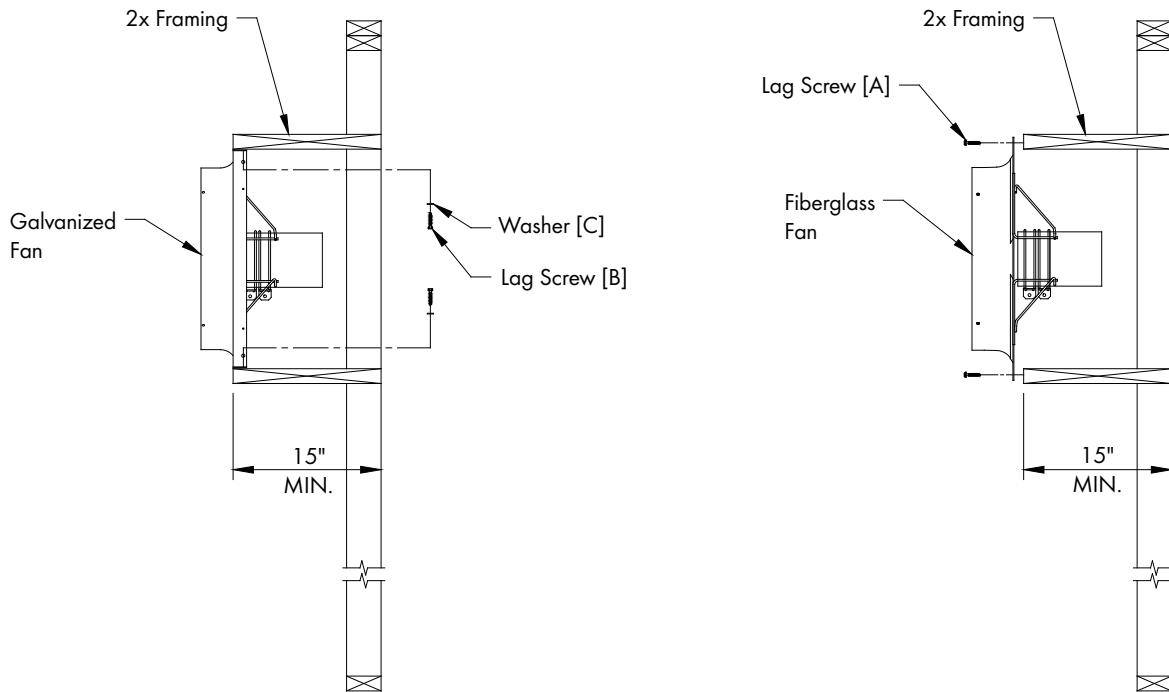


Figure 3

Note:

Outlet of fan comes unguarded, it is recommended that a Munters Discharge Cone with Guard, a Fan Hood with Guard or a guard by others is installed on outlet of fan at this time.

2.2 Shutter Installation

Step 3

If a Shutter was purchased, install it into back of framed opening. See Figure 4. If optional Shutter Clip Kit (FH1192) was purchased, install now using hardware provided with kit. See Figure 4.

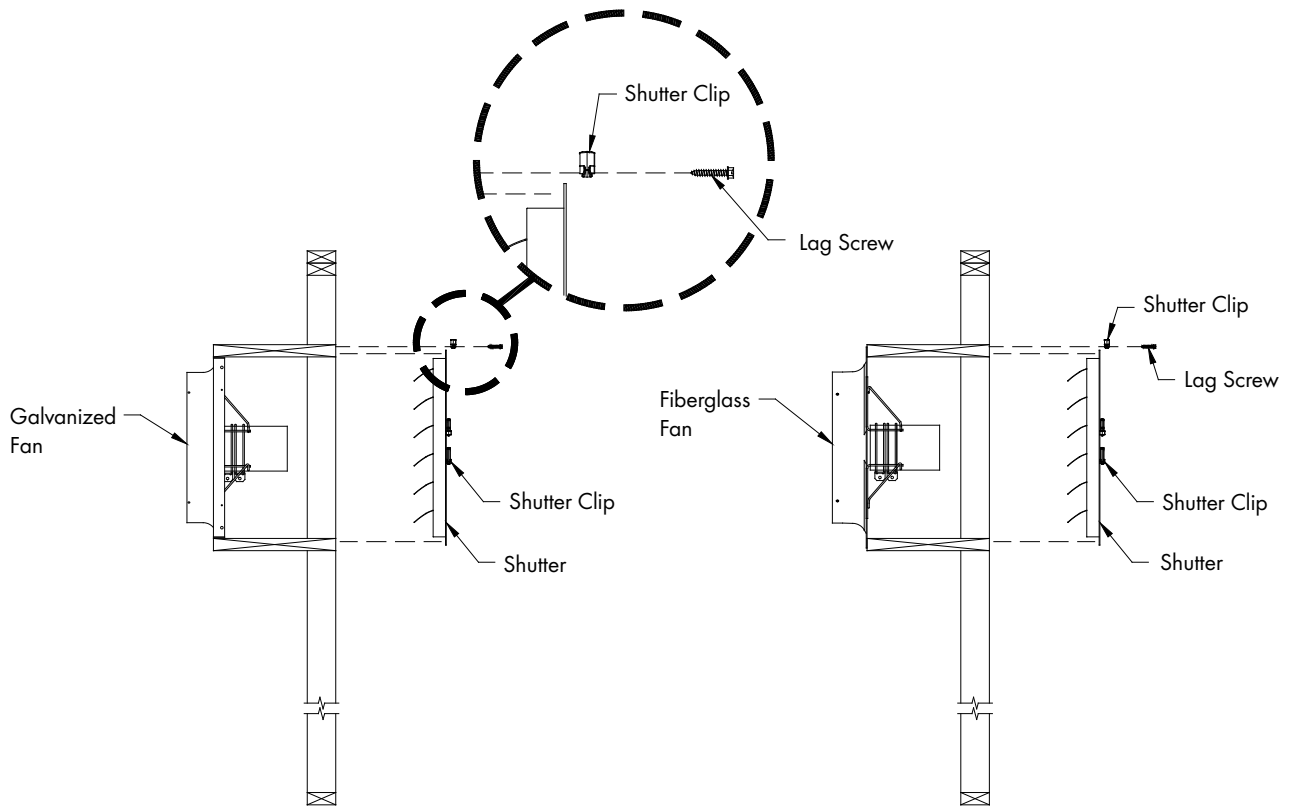


Figure 4

All wiring should be installed in accordance with National, State, and Local electrical codes. Fans used to ventilate livestock buildings or other rooms where continuous air movement is essential should be connected to individual electrical circuits, with a minimum of two circuits per room. For electrical connection requirements, refer to diagram on motor nameplate and to information enclosed with the Munters environmental control to be used. After wiring check for proper motor rotation.

Single Phase Fans: motor overload protection should be provided for each fan. A Circuit Breaker Switch or slow blow motor type fuses must be used, *See Figure 6A. See form QM1400 for proper size.*

Three Phase Fans: motor overload protection should be provided for each fan. A three-pole motor starter or slow blow motor fuses must be used. *See Figure 6B.*

If a frequency drive (inverter) is used, confirm that motors are rated for inverter duty at the voltage used. Shielded power cable between frequency drive and each motor is highly recommended. Installation of line reactors is recommended to reduce voltage spikes and harmonic distortion. Supplemental motor overload protection is also recommended.

NOTE: A safety cut-off switch should be located adjacent to each fan.

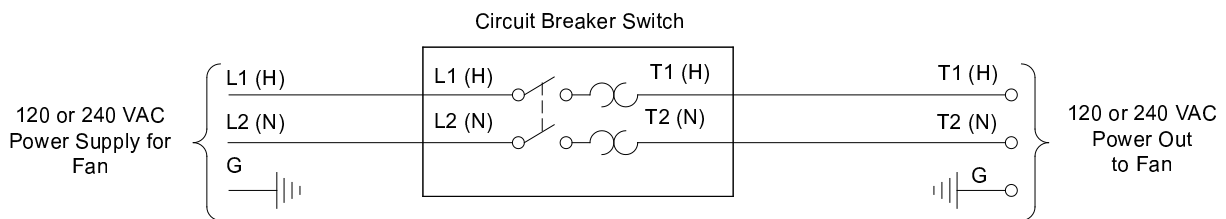


Figure 6A

Single Phase - Motor Overload Protection with Disconnect
(SY2000 or Equivalent)

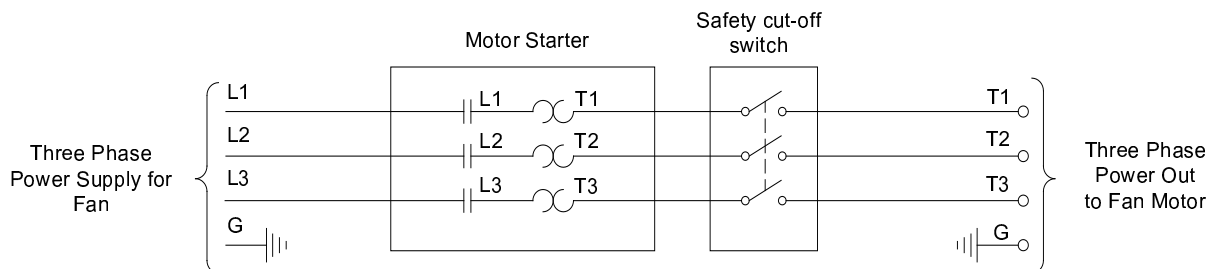


Figure 6B

Three Phase - Motor Overload Protection with Disconnect

KEY:

- L1=Line 1
- L2=Line 2
- L3=Line 3
- H=Hot
- N=Neutral
- G=Ground

NOTE: Information in parenthesis refers to 120 VAC control.

3.1 Recommended Wire Routing:

As the power cable exits the back of motor form a drip loop and then run power cable down along leg of motor mount and "Zip" tie the cable to leg to prevent cable from getting tangled. [See Figure 7](#). Then run the cable out the drain hole to the circuit breaker or control panel. (Continued on next page).

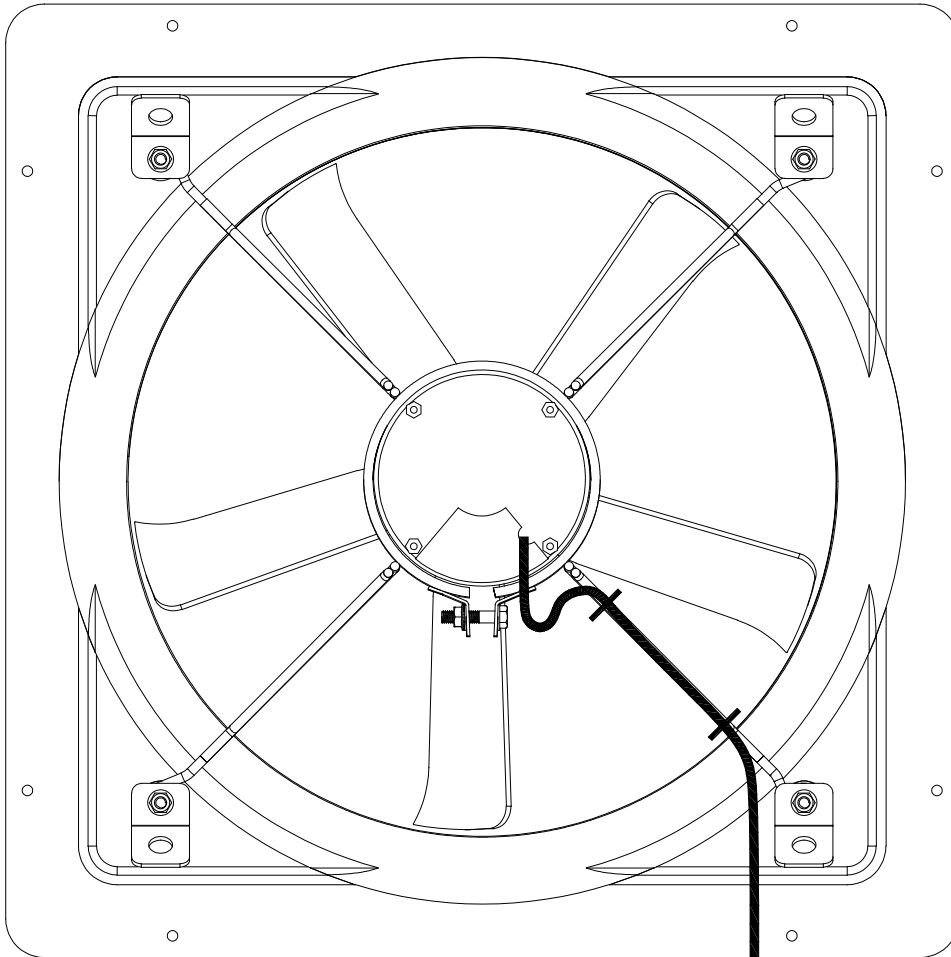


Figure 7

Three Phase Fans:

- 1) The use of a quality frequency drive and the installation of line reactors is recommended to reduce voltage spikes and harmonic distortion.
- 2) Minimum operating frequency of 30 Hz.
- 3) Will require three pole contractors with overload protection (by others).

Operation

4.

4.1 Operation

INITIAL START-UP: With electrical power off, verify that the fan propeller turns freely and that all fasteners are secure. Turn on electrical power and confirm that the fan operates smoothly.

ADJUSTMENTS: Set the fan control to the temperature shown on your ventilations system drawing, or to a value which will provide the desired environmental conditions.

Single Phase Fans: When variable speed controls are used, the fan's idle speed will need to be set to the recommended minimum airflow rate. Refer to the procedures included with each control. The table below provides airflow rates at various propeller speeds for fans wired for 240 VAC.



		A = Fan with cone & shutter				B = Fan with hood & shutter			
		0.02" Static Pressure				0.05" Static Pressure			
		A		B		A		B	
	CFM	RPM	VOLTS	RPM	VOLTS	RPM	VOLTS	RPM	VOLTS
14" Fans	100	--	--	--	--	520	96	520	96
	120	500	95	500	95	600	101	600	101
	150	600	101	600	101	650	107	640	107
	200	620	103	630	103	690	111	700	110
	300	680	107	690	106	810	119	810	118
	400	730	111	750	110	860	123	870	123
	500	780	114	810	114	900	126	920	126
	600	830	118	870	117	940	129	970	130
	800	940	125	980	127	1020	135	1060	136
	1000	1040	132	1080	137	1110	141	1170	144
	1200	1140	139	1220	149	1220	149	1290	152
1600	1390	158	1500	188	1440	169	1540	178	
2000	1650	223	--	--	--	--	--	--	--
16" Fans	140	500	100	510	100	610	101	640	101
	170	580	101	590	101	640	103	670	103
	200	630	102	640	102	680	104	700	105
	300	660	104	680	104	750	108	760	108
	400	700	106	730	106	810	112	820	112
	500	740	109	780	109	880	116	890	116
	600	770	111	820	111	940	119	950	119
	800	840	115	910	116	980	124	1020	124
	1000	910	120	1000	120	1030	127	1090	129
	1250	980	125	1070	128	1080	132	1160	135
	1500	1050	131	1140	136	1130	137	1240	141
	1750	1110	136	1230	144	1190	142	1340	148
	2000	1190	142	1330	152	1270	149	1450	155
	2500	1360	160	1580	205	1420	165	1620	208
3000	1560	198	--	--	1580	207	--	--	
3250	1660	227	--	--	1670	228	--	--	

		A = Fan with cone & shutter				B = Fan with hood & shutter			
		0.02" Static Pressure				0.05" Static Pressure			
		A		B		A		B	
	CFM	RPM	VOLTS	RPM	VOLTS	RPM	VOLTS	RPM	VOLTS
18" Fans	300	--	--	--	--	--	--	540	100
	400	--	--	--	--	--	--	580	103
	500	--	--	500	100	580	103	610	105
	600	560	101	580	102	615	105	650	107
	700	600	102	620	103	640	108	680	110
	800	630	104	650	105	680	110	720	114
	1000	670	107	700	109	730	116	780	119
	1250	720	111	760	114	800	121	850	123
	1500	780	115	820	118	850	124	910	127
	1750	820	119	890	123	910	128	970	131
	2000	890	124	970	128	960	131	1030	135
	2500	1020	133	1120	139	1060	138	1170	146
	3000	1160	143	1310	155	1210	150	1350	162
	3500	1330	158	1480	190	1370	168	1520	202
	4000	1490	193	--	--	1530	204	--	--
4250	1580	213	--	--	1610	221	--	--	
24" Fans	1000	--	--	--	--	--	--	490	115
	1250	490	115	500	116	495	116	510	117
	1500	505	116	515	117	505	117	530	120
	1750	515	117	530	120	515	119	560	124
	2000	530	118	550	122	530	121	580	127
	2250	540	119	570	125	550	124	610	131
	2500	560	121	600	128	580	127	640	134
	2750	580	124	630	131	620	130	680	138
	3000	610	128	660	135	650	134	710	142
	3500	670	133	730	144	710	141	770	152
	4000	710	139	780	154	770	150	840	164
	4500	790	150	870	172	880	159	920	182
	5000	860	160	960	198	900	174	1000	214
	5500	940	178	1040	230	980	196	--	--
	6000	1020	205	--	--	1050	225	--	--
6350	1070	226	--	--	--	--	--	--	

5.1 Maintenance

The following inspection and cleaning procedures should be performed monthly:

- 1) **INSPECT PROPELLER:** Check that propeller is secure on motor shaft and that there are no signs of damage. The blades are of a self-cleaning design and should not require maintenance.
- 2) **CLEAN** regularly for best results:
 - **FAN MOTOR:** Remove any dust accumulation from motor using a brush or cloth. (DO NOT use a pressure washer). A clean motor will run cooler and last longer. At the same time, verify that the motor is secure in its mount.
 - **SHUTTER:** Carefully clean dust from shutter blades and frame so that shutter opens and closes freely. A brush or cloth should be used.
 - **GUARD:** Clean any dust or feathers from fan guards using a brush. Dirty guards can reduce airflow.
- 3) **CHECK FASTENERS:** For safety, all fasteners should be inspected 1 month after initial operation and yearly thereafter. Tighten any loose connections.
- 4) **INSPECT FAN CONTROL:** With power disconnected, inspect all electrical connections. Wiring should be secure and in good condition. Remove any dust build-up from control case and sensor using a soft brush or cloth. **NEVER CLEAN ELECTRICAL EQUIPMENT WITH A PRESSURE WASHER!**



6.1 Winterizing

In most climates, it is probable that the ventilation system will never need to operate at a total capacity during the colder winter months. Consequently, it is advisable to “winterize” those fans which will not be used in cold weather to avoid unnecessary heat loss and condensation.

To winterize, turn fan control “off”. Install the insulated closure panel over the fan intake. If you don’t have an insulated closure panel, a piece of rigid insulation material can be used. Remember the insulation panel must be removed before warmer weather returns.

NOTE: At least one single speed fan should be left uncovered and with power available to provide air movement in the event of variable speed control difficulties.

6.2 Winter Weather Protection

To prevent cone or fan damage from snow or ice sliding off building roof, weather protection must be provided. A weather shelter may be constructed to cover the entire fan, *See Figure 8*, or snow guards may be placed on the roof, *See Figure 9*.

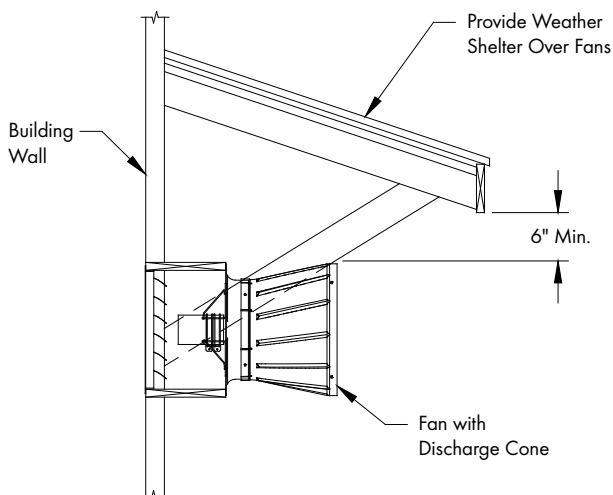


Figure 8

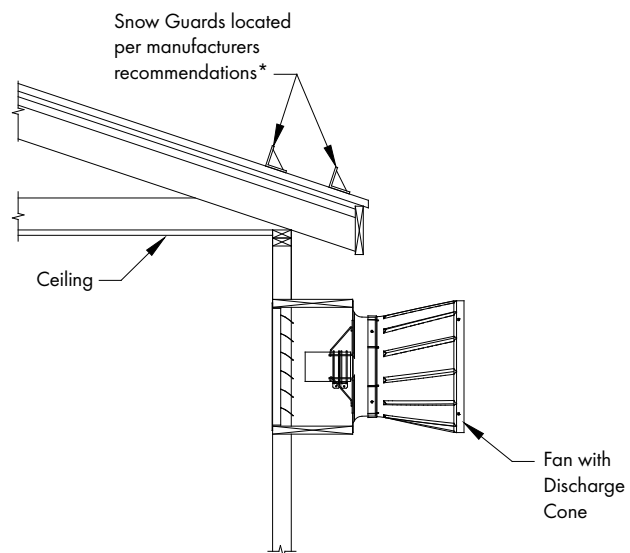


Figure 9

* Snow Guard Suppliers

Company Name	Phone No.	Fax No.	Web Site
Snojax, Inc.	800-766-5291	717-697-2452	www.snojax.com
Polar Blox	800-298-4328	814 629-9090	www.polarblox.com
LM Curbs	800-284-1412	903 759-3598	www.lmcurbs.com
Alpine Snow Guards	888-766-4273	888-766-9994	www.alpinesnowguards.com

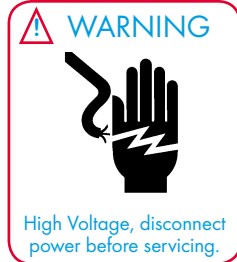


IMPORTANT

Munters Product and System Warranties do not cover cone or fan damage from external sources.

Note: Snow guards are designed to prevent sudden, dangerous snow and ice slides when attached to the building roof according to manufacturers recommendations. The supplier listing above is given as a reference only. Munters does not endorse any specific snow guard product and no performance warranty is implied.

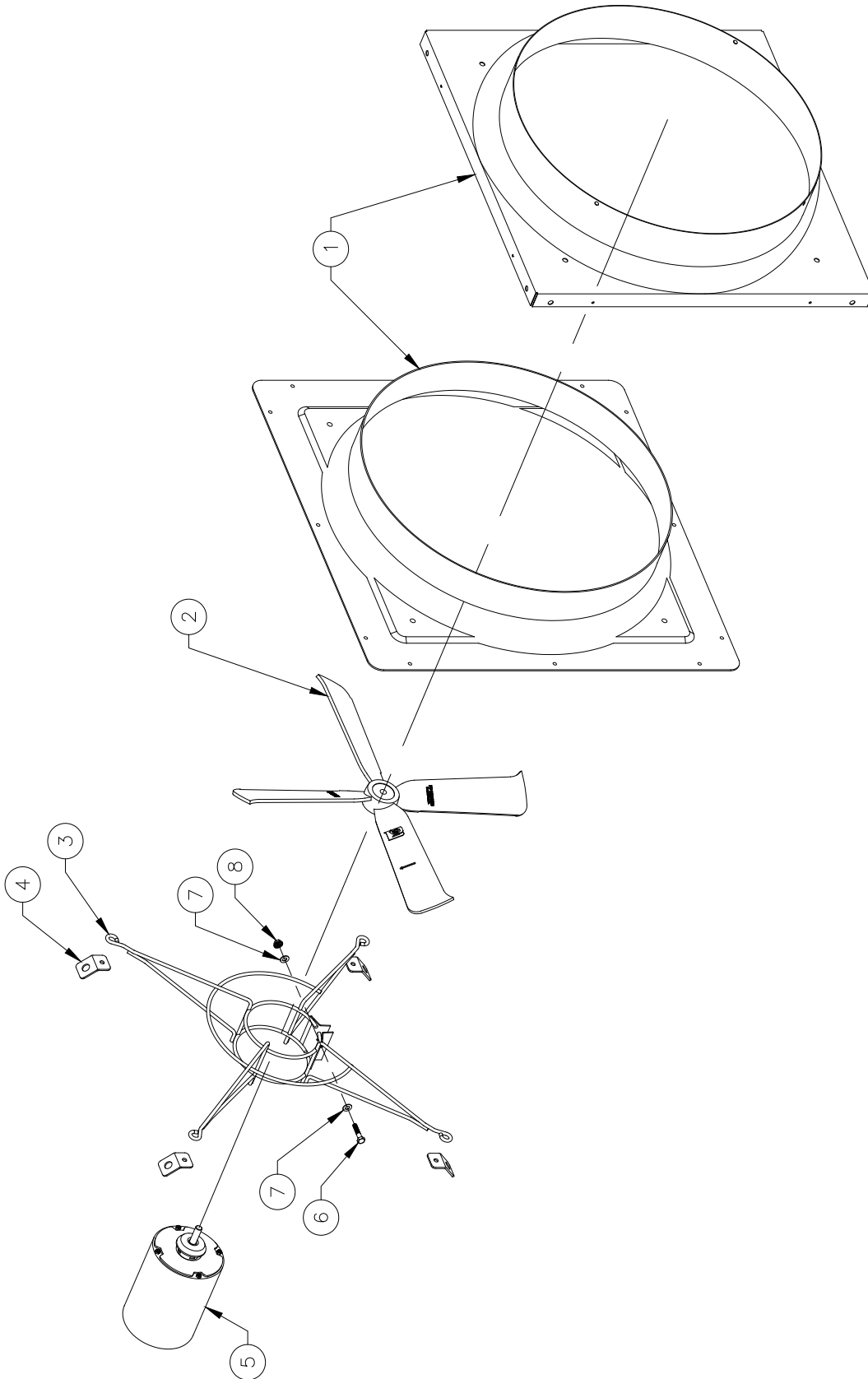
7.1 Troubleshooting



SYMPTOM	POSSIBLE CAUSES	CORRECTIVE ACTION
Fan Not Operating	<ol style="list-style-type: none"> 1. Fan control set above room temperature 2. Blown fuse or open circuit breaker 3. Propeller blade contacting fan housing 4. Fan control defective 5. Motor defective 	<ol style="list-style-type: none"> 1. Set to a lower temperature 2. Replace fuse or reset breaker 3. Realign motor in fan housing 4. Repair or replace control 5. Repair or replace motor
Fan Operating-Insufficient Airflow	<ol style="list-style-type: none"> 1. Variable speed control improperly adjusted 2. Shutter jammed or dirty 3. Guard dirty 	<ol style="list-style-type: none"> 1. See Operation, Step 2 for adjustment guidelines 2. Unjam and clean shutter 3. Clean guard
Excessive Noise	<ol style="list-style-type: none"> 1. Propeller blade contacting fan housing 2. Motor bearing or shaft bearing defective 3. Frequency drive improperly adjusted 	<ol style="list-style-type: none"> 1. Sand fan housing to remove high spot 2. Repair or replace motor or shaft bearings 3. See operation, Step 2 for adjustments guidelines
Excessive Vibration	<ol style="list-style-type: none"> 1. Motor loose on mount 2. Propeller damaged 3. Motor shaft bent 	<ol style="list-style-type: none"> 1. Tighten fasteners 2. Replace propeller 3. Repair or replace motor
Fan never turns off	<ol style="list-style-type: none"> 1. Override thermostat set incorrectly 2. Control set for continuous operation 	<ol style="list-style-type: none"> 1. Set to the correct temperature 2. Set speed control correctly

Exploded View

8.



Item	Catalog No. Fiberglass Fan	Catalog No. Galvanized Fan	Description	Qty.
1	FH3014	-	Orifice Panel, 14" Classic Fan with Labels	1
	FH3016	FH3116	Orifice Panel, 16" Classic Fan with Labels	1
	FH3018	FH3118	Orifice Panel, 18" Classic Fan with Labels	1
	FH3024	FH3124	Orifice Panel, 24" Classic Fan with Labels	1
2	FP1031SS	FP1031SS	Propeller, 14"DD, 7-Blade, Set Screws, AL	1
	FP1038SS	FP1038SS	Propeller, 16"DD, 4-Blade, Set Screws, AL	1
	FP1008SS	FP1008SS	Propeller, 18"DD, 5-Blade, Set Screws, AL	1
	FP1033SS	FP1033SS	Propeller, 24"DD, 4-Blade, Set Screws, AL	1
3	FH1008	FH1008	14" Fan, Motor Mount, PVC Coated	1
	FH1009	FH1009	16"/18" Fan, Motor Mount, PVC Coated	1
	FH1010	FH1010	24" Fan, Motor Mount, PVC Coated	1
4	FH1258	-	Fan Support Clip, AL	4
5	FM1010	FM1010	14" DD, Motor, 1/8 HP, 1625 RPM, 48 Fr., 1 ph., 115/230V	1
	FM1043	FM1043	16" DD, Motor, 1/4 HP, 1625 RPM, 48 Fr., 1 ph., 115/230V	1
	FM1009	FM1009	18" DD, Motor, 1/3 HP, 1625 RPM, 48 Fr., 1 ph., 115/230V	1
	FM1108	FM1108	24" DD, Motor, 1/3 HP, 1075 RPM, 48 Fr., 1 ph., 115/230V	1
	FM1074	FM1074	24" DD, Motor, 1/3 HP, 1140 RPM, 48 Fr., 3 ph., 230/460V	1
6	KS1029	KS1029	5/16"-18 x 1.75" Hex Head Bolt, SS	1
7	KW3004	KW3004	5/16" Narrow Type-A Flat Washer, SS	2
8	KN0704	KN0704	5/16"-18 Hex, Serrated Flange Nut, SS	1

Classic 'AT' Fans are developed and produced by Munters Corporation, Lansing, Michigan U.S.A. 1-800-227-2376



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