

VX Fans with "RC" cone

Models: VX36FxCx • VX365FxCx • VX481FxCx • VX4815FxCx • VX511FxCx • VX5115FxCx • VX512FxCx • VX5515FxCx • VX552FxCx





Aerotech

VX Fan

36", 48", 51"&

55" Fans

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VX Fan with "RC" Cone 36", 48", 51"& 55" Fans Instructions for Use and Maintenance

Thank You:

Thank you for purchasing a Munters VX Fan with "RC" Series Discharge Cone. 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 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



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 Belt Drive Fan
- 1 Cone
- 1 Guard
- 1 Shutter
- 1 Hardware Package as follows:

HP1147 - 36"/48"/51"/55" Fan, One Piece Cone, PT/PV Shutter

ID	Qty.	Cat. No.	Description
[A]	12	KS2105	#14 x 1.5" Lag Screw, SS
[B]	8	KS0650	1/4"-20 x 7/8" Truss Head Bolt, SS
[C]	8	KW3012	1/4" x 1" O.D. Flat Washer, SS
[D]	8	KN1717	1/4"-20 Hex Flange, Nylock Nut, SS

0 ½" 1 ½" 2 ½" 3 ½"





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1.2 Fan Dimensions

Fan Specifications:								
Hertz:	60		60					
Voltage:	120/2400	'AC or 208-	240/48	0VAC				
Phase:	1	or	3					
Hertz:	50		50					
Voltage:	110/208-2	220VAC or	190/380	OVAC				
Phase:	1	or	3					



SIDE VIEW

FRONT VIEW

FAN DIA.	А	В	<mark>C1</mark> *	C2*	D	Е	F1*	F2*	G	Н	T	J	K-Dia.	WALL OI (I.D.,	PENING framed)
36″	61/8″	221/8″	61/8″	61/8″	45¾″	45¾″	221/8″	221/8″	50%″	24 ^{1/} 16″	8″	_	50¾″	43″W	43″H
48″	81/8″	281/8″	81/8″	81/8″	57¾″	57¾″	281/8″	281/8″	55%"	247/16"	8″	-	635/8″	55″W	55″H
51"	7"	29 ¹ / ₂ "	7 ¹ / ₂ "	8"	60½"	59"	30¼"	26½"	54 ³ /16"	23 ³ ⁄16"	11"	25/16"	65"	56½″W	57¾″H
55"	7¾"	31¾"	7¾"	7 ³ /4"	63 ⁵ /8"	62¾"	271/8"	31%"	58%16"	25¹⁵⁄16 "	11¾"	25/16"	70"	60″W	61¼″H

*Dimensional Plus/Minus 1/4", Field Verify

Installation Instructions

2.

2.1 Install

Step 1

Construct the framed opening to correct size according to the Chart A. See Figure 1A and 1B.

FAN DIA.	CONE	WALL OPENING (W. X H.)	MINIMUM SPACING 'Z'	CENTER TO CENTER DIMENSION
36″	36RC	43"W. x 43"H.	12" recommended; 8" minimum	51″ Minimum
48″	48RC	55″W. x 55″H.	12" recommended; 9" minimum	64″ Minimum
51″	51RC	56¼″W. x 57¾″H.	12" recommended; 10" minimum	66″ Minimum
55″	55RC	60″W. x 61¼″H.	12" recommended; 10" minimum	70″ Minimum
			Chart A	



Figure 1A Frame Construction



Figure 1B POST Construction

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Step 2A

Insert fan into the framed opening from the inside. While lifting fan up tight to framing, fasten top of fan with (3) Lag Screw [A]. See Figure 2A and 2B. Next, fasten bottom of fan, then both sides with remaining (9) Lag Screw [A]. Install flashing around opening tight to fan and caulk around fan to seal.



Step 2B

If fan needs to be mounted, so that shutter does not stick into building then frame fan as shown in *Figure 3*. Top and sides require 4" minimum and bottom requires 2" minimum.



Step 3

Installing the one piece cone may require 2 people. If temperature is above 50°F then proceed to Step 5. If temperature is below 50°F then proceed to Step 4.

Step 4

Using Locking Sheet Metal Pliers bend the cone tabs outward to allow the cone to slide onto the fan easier. See Figure 4.



Figure 4

Step 5

Look for the "TOP" label on the Polycone and set the top of the Polycone on top of the fan orifice and install (2) Truss Head Bolts [B] through holes in fan outlet through the slots in the cone at about the 10 and 2 o'clock positions and fasten with Washers [C] and Flange Nuts [D]. Truss head of each bolt must be on the inside of the fan outlet; washers and flange nuts must be on outside of cone. See Figure 5A and 5B. Finger tighten nuts only at this time.



Step 6

Work down the sides of the cone, sliding the cone tabs onto the fan until the bottom tab is in place. Keep pressure on the cone to make sure tabs stay on the fan. Install (6) Truss Head Bolts [B], Washers [C] and Flange Nuts [D] in the remaining holes in the fan outlet and slots in the cone to finish securing cone to fan. *See Figure 5B and Figure 6.* Tighten all nuts at this time, making sure not to over tighten.



Step 7

The snap-in guard has a slight conical shape to it so, when installed the center of the guard should protrude out slightly. *See Figure 7A*.



Figure 7A

Chapter 2 Installation Instructions

Step 8

Starting at the bottom of the cone, locate one of the guard tabs and put the guard tab through the guard slot in the cone. See Figure 7B. Then work up around the guard and install each of the other guard tabs in each of the corresponding guard slots. Some force may be required to snap the last tab into the last slot, pull out on the center of the cone while pushing in on the guard tab until it snaps into place.



Step 9

If installing your existing guard into the new cone, locate the flat guard mounting pads on the cone and drill a ³/₃₂" dia. hole in the center of each pad. Then insert existing guard into cone with the guard eyelets facing away from you. Line up each eyelet with a hole in the guard pads. Secure guard to cone using (8) existing Bolts and Nuts. *See Figure 8A and 8B*. Tighten all nuts at this time.





2.2 PT Style Shutter

Step 10

Insert PT Shutter into fan by sliding the bottom flange of shutter into bottom shutter clips and pressing shutter inward. *See Figure 9.*



Step 11

Fasten shutter in place by rotating the side and top shutter clips over the shutter flanges. *See Figure 10.*

Installation is now complete, proceed to Electrical Wiring Section.



Figure 10

2.3 PZ Style Shutter

Step 12

Insert PZ shutter into fan by sliding the bottom flange of shutter into bottom shutter clips and pressing shutter inward, *See Figure 11A*. Fasten shutter in place by rotating the side and top shutter clips over the shutter flanges, *See Figure 11B*.

Installation is now complete, proceed to electrical wiring section.



Figure 11B

Electrical Wiring

3.

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 12A. 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 12B*.

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.



Chapter 3 | Electrical Wiring

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 strut and "Zip" tie the cable to strut to prevent cable from getting tangled in the pulley or belt. *See Figure 13.* Then run the cable out the drain hole to the circuit breaker or control panel. (Continued on next page).



Figure 13

Operation

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							
	CFM		0.02" Static Pressure 0.05" Static Pressure						
			А		В		A		В
		RPM	VOLTS	RPM	VOLTS	RPM	VOLTS	RPM	VOLTS
	750	-	-	-	-	-	-	350	121
	1000	_	_	_	-	370	123	390	128
	1250	330	117	330	119	390	127	410	130
	1500	360	123	360	125	410	131	430	134
	1750	370	125	370	127	425	136	440	136
	2000	380	128	390	130	450	137	460	139
SU	2500	410	131	420	135	470	141	480	143
Fai	3000	430	135	440	138	490	145	500	146
36″	4000	470	142	480	145	520	149	530	151
0	5000	520	148	530	152	560	156	570	158
	6000	560	154	580	159	590	161	600	162
	7000	610	159	640	165	640	166	680	172
	8000	650	166	700	173	690	172	750	179
	9000	710	172	760	185	740	178	810	209
	10,000	770	179	840	225	790	195	-	-
	11300	840	223	_	_	_	_	_	_



WARNING



Moving Parts, D



Three Phase Fans:

- 1) 36" Direct Drive, 3 Phase fan is not suitable for frequency drive.
- 2) The use of a quality frequency drive and the installation of line reactors is recommended to reduce voltage spikes and harmonic distortion.
- 3) Minimum operating frequency of 30 Hz.
- 4) Will require three pole contractors with overload protection (by others).

Maintenance

5.1 Maintenance

The following inspection and cleaning procedures should be performed monthly:

Tools Needed for Maintenance: wrenches: 10mm, 13mm, 17mm, 27mm

- 1) INSPECT PROPELLER: Check that propeller is secure on prop shaft or 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.
 - DAMPER: Carefully clean dust from damper doors and frame so that doors open and close 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!
- 5) GREASE BEARINGS: Grease bearings every 4-6 months. Use no more than 2 shots when greasing fan.
 - A premium non-water based grease is recommended:
 - Shell Alvania #2 - Mobil Mobilux #2
 - Exxon Unirex N2
 - Texaco Premium RB
 - Mobil 532
- Texaco Multifak #2



WARNING





- 6) CHECK DRIVE ALIGNMENT: Check to make sure the belt is centered on the idler pulley, then use a straight edge to check the alignment of the drive pulleys. If an adjustment is needed, remove the belt, then loosen the set screw in one pulley and move it. Remember to tighten the set screw after making an adjustment. Drive alignment is very important for long belt life and proper operation.
- 7) CHECKING PULLEYS: Roll the belt off and look at both pulleys. If the pulley has grooves in it or is no longer smooth, it needs replacement. A loose or slipping belt will reduce fan performance up to 60% and cause premature belt failure.
- BELT TENSIONING: Check condition of belt, if worn, replace belt. If belt is in good condition then make sure the tensioner is in the correct position. Looking from the inlet of the fan, the correct position of the tensioner is approximately the 7 o'clock position. See Figure 14A.

To adjust the tensioner, loosen the 10mm bolt fastening the tensioner to the motor base (using 17mm end wrench) to allow tensioner arm to rotate. Place a $27mm (1 \frac{1}{16''})$ wrench onto the hex on tensioner. Turn the wrench clockwise until the Alignment Mark is at Mark 2 on the tensioner arm. See Figure 14B. Hold tensioner at this setting and tighten the 10mm bolt to 40 ft. lbs. [54 N-m] torque.



Figure 14A



Figure 14B

Winterizing

6.

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 15, or snow guards may be placed on the roof, See Figure 16.



*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.alpinesnowgua

A 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.

Troubleshooting

7.1 Troubleshooting







7.

SYMPTOM	POSSIBLE CAUSES	CORRECTIVE ACTION
Fan Not Operating	 Fan control set above room temperature Blown fuse or open circuit breaker Propeller blade contacting fan housing Fan control defective 	 Set to a lower temperature Replace fuse or reset breaker Realign motor in fan housing Repair or replace control Repair or replace motor
Fan Operating- Insufficient Airflow	 Shutter jammed or dirty Guard dirty Frequency drive improperly adjusted Incorrect Belt Tension/worn belt 	 Unjam and clean shutter Clean guard See operation, Step 2 for adjustments guidelines See Maintenance Section, Belt Tensioning
Excessive Noise	 Propeller blade contacting fan housing Motor bearing or shaft bearing defective Frequency drive improperly adjusted 	 Sand fan housing to remove high spot Repair or replace motor or shaft bearings See operation, Step 2 for adjustments guidelines
Excessive Vibration	 Motor loose on mount Propeller damaged 	 Tighten fasteners Replace propeller Repair or replace motor or propeller shaft



		Catalog No.			
ltem	VX36 D.D	VX36 B.D.	VX48	Description	
1	FH8736	FH8736	FH8748	Guard Kit, One piece cone, PVC CTD	1
2	FH3536	FH3536	FH3548	Discharge cone, Plastic, (1) Piece	1
3	FP1013SS	FP1014SS	FP1016SS	Propeller, BD, 3-blade w/set screws, AL	1
4	FH2136A	FH2136A	FH2148A	Fan housing w/clips, FG	1
5	FH1968	FH1968	FH1968	Pivoting Shutter clip, PL	4
6	FH1967	FH1967	FH1967	Fixed Shutter clip, PL	2
7	FH2737	FH2737	FH2749	Strut, right, VX, w/inserts, AL	1
8	FH2736	FH2736	FH2748	Strut, left, VX, w/inserts, AL	1
9	Various*	Various*	Various*	Motor, 56 frame	1
10	FH2825	FH2820	FH2820	Bracket, BD motor base, CTD-GZ	1
11		FH2815	FH2815	Bracket, bearing mount, CTD-GZ	1
12		FH2402K	FH2402K	Belt tensioner assembly with 3" idler pulley	1
		FH2406	FH2406	3" idler pulley only, with bolt	
		FH2439	FH2439	Tensioner arm only, AL	
13		Various*	Various*	Sheave, A-section, 5%" bore, 3/16" keyseat, CI	1
14		FH2391K	FH2391K	Assembly, Bearings/Shaft, w/pins, VX, STL	1
		FH2036B	FH2036B	Shaft, 1" dia., w/retaining pin hole, STL	1
		FH2057	FH2057	Bearing, 1" bore x 1.44"CL, CI holder	2
15		Various*	Various*	Sheave, A-section, 1" bore, 1/4" keyseat, CI	1
16		Various*	Various*	V-Belt, A-section	1
17	PZ36	PZ36	PZ48	Shutter, all plastic	1
	HP1147	HP1147	HP1147	Hardware Pkg., Fan/Cone Install, PZ Shutter	1

* Contact office for replacement part numbers for your fan configuration.

Chapter 8 Exploded View



	Catalog No.		_	
ltem	VX51	VX55	Description	
1	FH8851	FH8855	Guard Kit, One piece cone, PVC CTD	1
2	FH3551	FH3555	Discharge cone, Plastic, (1) Piece	1
3	FP1151SS	FP1155SS	Propeller, BD, 3-blade w/set screws, AL	1
4	FH2352	FH2356	Fan housing w/clips, FG	1
5	FH1968	FH1968	Pivoting Shutter clip, PL	4/5
6	FH1967	FH1967	Fixed Shutter clip, PL	2
7	FH2723	FH2756	Strut, right, VX, w/inserts, AL	1
8	FH2722	FH2755	Strut, left, VX, w/inserts, AL	1
9	Various*	Various*	Motor, 56 frame	1
10	FH2810	FH2810	Bracket, BD motor base, CTD-GZ	1
11	FH2725	FH2725	Bracket, bearing mount, CTD-GZ	1
12	FH2402K	FH2402K	Belt tensioner assembly with 3" idler pulley	1
	FH2406	FH2406	3" idler pulley only, with bolt	
	FH2439	FH2439	Tensioner arm only, AL	
13	Various*	Various*	Sheave, A-section, 5%" bore, 3/16" keyseat, CI	1
14	FH2395K	FH2395K	Assembly, Bearings/Shaft, w/pins, VX, STL	1
	FH2295	FH2295	Shaft, 1" dia., w/retaining pin hole, STL	1
	FH2057	FH2057	Bearing, 1" bore x 1.44"CL, CI holder	2
15	Various*	Various*	Sheave, A-section, 1" bore, 1/4" keyseat, CI	1
16	Various*	Various*	V-Belt, A-section	1
17	FH1366	FH1366	Drive Guard Kit, PVC CTD (optional)	1
18	PT51	PT553	Shutter, belled inlet, PL	1
19	PV51	PV553	Shutter, all plastic	1
-	HP1147	HP1147	Hardware pkg., fan/cone install, PT/PV shutter	1

* Contact office for replacement part numbers for your fan configuration

VX Fan 36", 48", 51", 55" with "RC" Cone is developed and produced by Munters Corporation, Lansing, Michigan U.S.A. 1-800-227-2376



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