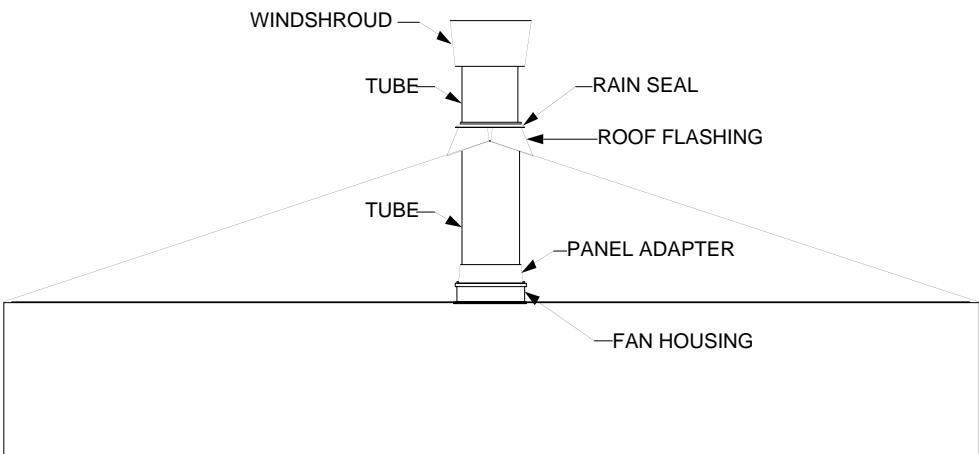
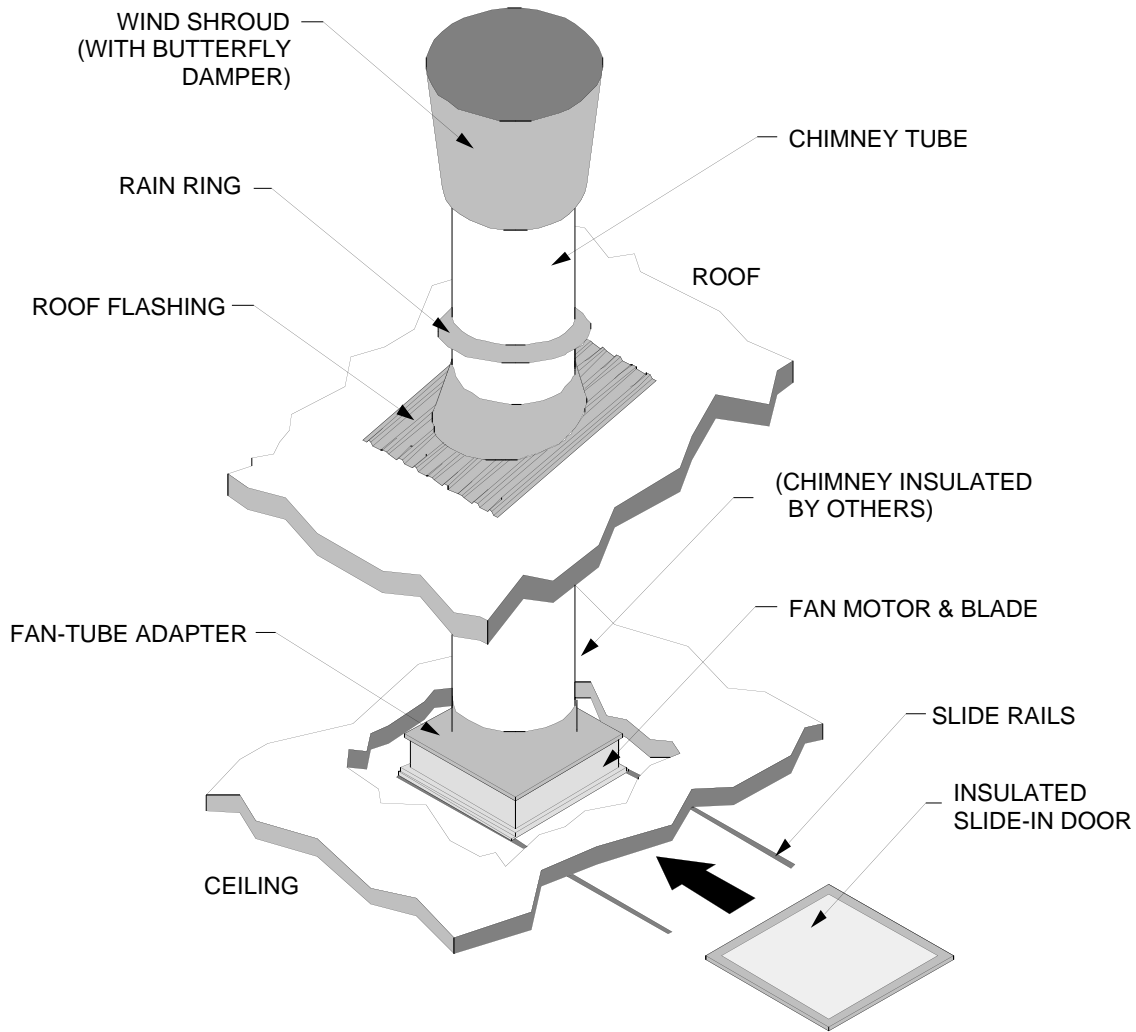


INSTALLATION INSTRUCTIONS

CFII-05/95



Typical Installation (Modified Roof Flashing for Ridge Mounting)

CF-4K
CF-10K

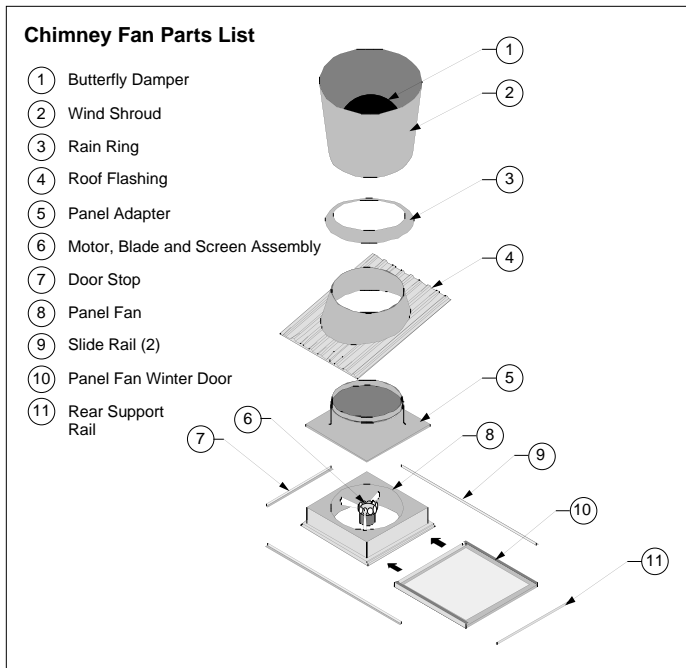


Figure 1 Exploded view

An exploded view of the DEL-AIR CF series chimney fans is shown above in Figure 1. Detailed instructions for assembly, use, and maintenance of your chimney fan are presented here to help ensure that all components are installed properly.

LOCATING THE CHIMNEY FAN

1. Placement of ventilation fans is very important. **AVOID** positioning fans any closer than 5' (1.5m) beside a ceiling or wall mount inlet.
2. An appropriate electrical outlet or junction box should be located within 2' (0.6m) of the fan.
3. Note: the CF4K will fit between rafters @ 24" O.C.. The CF10K fits between 48" O.C. rafters only!

FAN INSTALLATION

1. Check that there are no hidden structures, wiring, plumbing, or heating components in the chosen location.
2. Mark and cut the rough openings in the ceiling and roof as indicated in Table 1 and Figure 2. Use a plumb bob to ensure alignment.
3. Frame the rough opening in the ceiling with framing lumber toe-nailed in place.
4. Ensure that a plywood or O.S.B. decking is installed under the roofing around the rough opening to facilitate the attachment of the roof flashing.
5. Insert the chimney tube through the ceiling rough opening or lower through the roof rough opening and stand it up in the attic out of the way.
6. Install the fan and fan-tube adapter into the rough opening in the ceiling with the screws supplied. Caulk around the fan housing with a construction grade sealant. Secure the panel firmly in place with the lag screws provided.

Table 1 Rough Opening Dimensions

Dimension	CF4K	CF10K
Ceiling Rough Opening	22-1/2" X 25"	43" X 43"
Roof Rough Opening	22"	38"

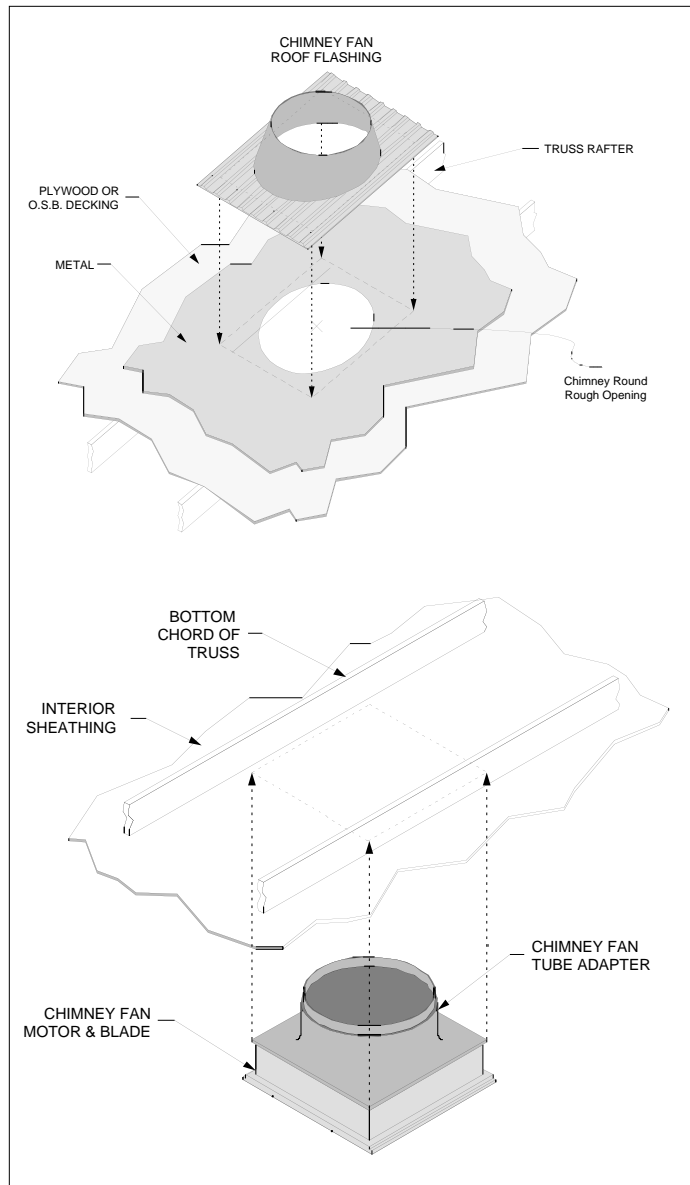


Figure 2 Rough opening details

7. Assemble the chimney tube according to the supplied instructions and attach it to the fan-tube adapter with the screws supplied. Tubes can be joined together for lengths greater than 7 feet. Cut the chimney to length, making sure it extends at least 12 inches (300mm) above the roof opening. Remove the bell end if necessary. Excess length can be used in another chimney fan. Secure the tube to the roof trusses to help support the weight of the tube.
8. In cold climates, insulate chimney sections through the attic. This reduces condensation. Duct wrap or foil insulation is best (not supplied by DEL-AIR).
9. Slide the roof flashing over the chimney tube. Roof flashing is designed to fit 6" corrugated metal roofing. For other roofing profiles, contact your DEL-AIR representative or roofing supplier for suggestions on sealing the roof flashing.
10. Apply a construction grade sealant to the perimeter of the roof flashing and to the roof opening and attach the roof flashing using the screws supplied.
11. Slide the rain ring over the tube, apply a construction grade sealant, and press it into place onto the roof flashing.
12. Attach the wind shroud to the using the screws supplied. Ensure the damper operates freely.
13. **BEFORE YOU PLUG THE FAN IN** turn the fan blade to assure that it turns freely. If the blade touches, loosen the mounts and reposition the motor and blade.
15. Plug in the fan to see that it is running smoothly.

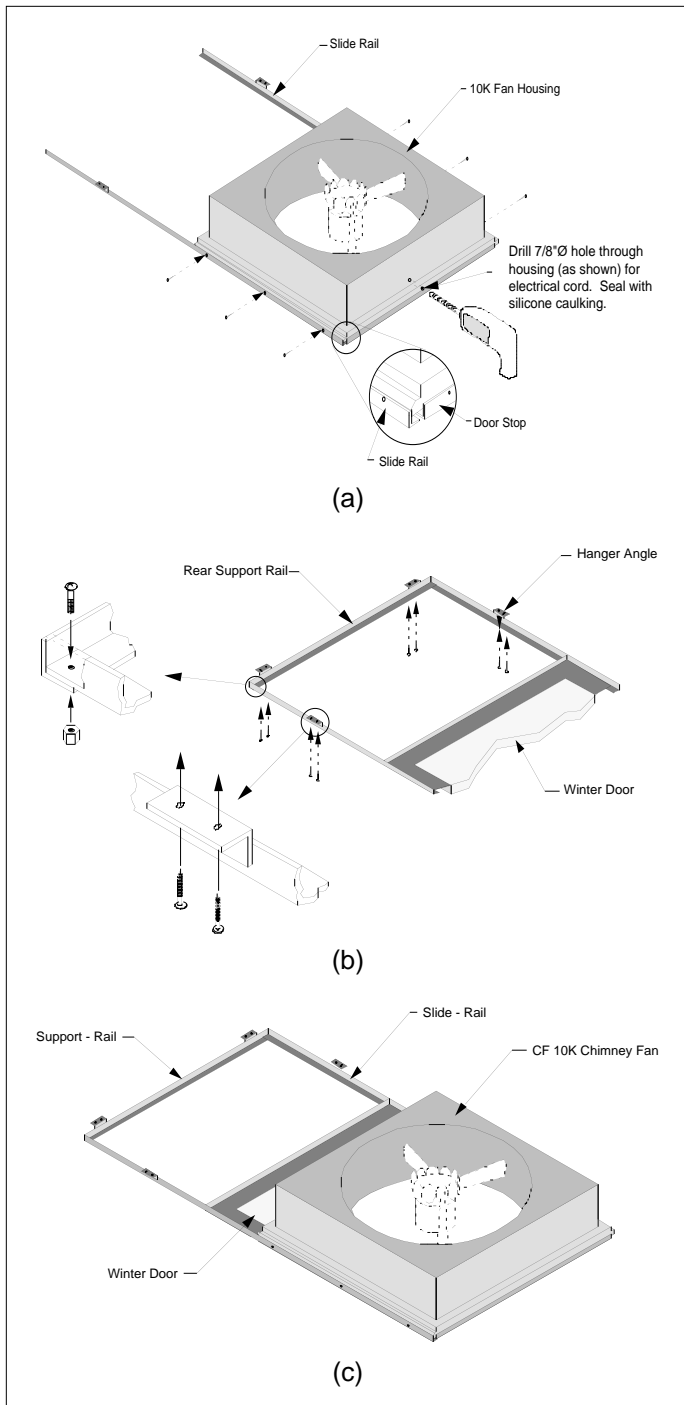


Figure 3 Winter door installation

WINTER DOOR INSTALLATION

1. Attach the slide rails and door stop to the fan housing as shown in Figure 3 (a) using the screws supplied.
2. Slide the winter door onto the rails.
3. Secure the rear support rail to the slide rails using the bolts and nuts supplied and mount the rails to the ceiling with the screws supplied (Figure 3 (b)).
4. Ensure winter door slides freely yet fits snugly in the slide rails with only slight free movement. Make any necessary adjustments to the rails to achieve a snug, free sliding fit. An assembly is shown in Figure 3 (c).

MAINTENANCE

1. Routinely clean fan to avoid imbalance, vibration and overheating of the motor and to ensure that you are getting the maximum airflow from the fan. ALWAYS RUN MOTOR FOR 15 MINUTES AFTER WASHING!

2. Always spin blades by hand before starting units in the spring. If motor will not turn or sounds rough, replace bearings.
3. Replacement parts for chimney fans are available and are listed in Table 2, below.

Table 2 Replacement Parts

Del-Air Part No.	Description
000312	6203 Bearing (All Motors)
417307	CF4K Slide Kit for Winter Door
417324	CF10K Slide Kit for Winter Door
001118	CF4K Motor
001119	CF10K Motor

LIMITED WARRANTY

DEL-AIR SYSTEMS LTD. offers an additional "System Performance Guarantee™" to purchasers who take advantage of the free ventilation planning service. Contact your dealer for details, or call a Del-Air Sales Representative.

DEL-AIR SYSTEMS LTD. warrants to the purchaser the full repair or replacement value of any part proven to be defective in material or workmanship, for one year from date of original purchase.

OTHER EXTENDED WARRANTIES:

MOTORS - 3 year pro-rated. Full value in first year, 2/3 value in second year, 1/3 value in 3rd year.

PLASTIC HOUSINGS - 10 year full value.

HRV CORES - 10 years full value.

TERMS AND CONDITIONS

1. The owner is obligated to exercise due care and attention in the installation and use of this product.
2. This warranty is applicable only to DEL-AIR ventilation systems installed for agricultural confinement livestock operations.
3. Parts replaced or repaired under this warranty are warranted only through the remainder of the original warranty.
4. This warranty does not cover cost of shipping defective or repaired or replaced parts to or from original customer.
5. DEL-AIR Systems Ltd. reserves the right to make changes and improvements to its products at any time with the express understanding that such changes and improvements do not impose any obligation to install such changes and improvements on products previously sold.

DEL-AIR SYSTEMS LTD.

P.O. Box 2500
1704 - 4th Avenue
Humboldt, SK S0K 2A0
Phone: (306) 682-5011
Toll Free: 1-800-667-0737
Fax: (306) 682-5559

DEL-AIR AMERICAS LTD.

12201 Nicollet Avenue South
Burnsville, MN 55337
Phone: (612) 890-5240
Toll Free: 1-800-667-1722

DEL-AIR Systems offers a full range of ventilation equipment to suit your diverse needs, including exhaust fans, air inlets and heat exchangers. Contact us about our FREE ventilation design service including a computer drawing of the required ventilation layout and heat and moisture balance calculation for your building.

DEL-AIR's complete line of ventilation equipment:

Heat Exchangers (RA Series, V Series)

- Humidity, airflow and heat control.
- Automatic core washing and removable cores.

Fans (NW, CF Series)

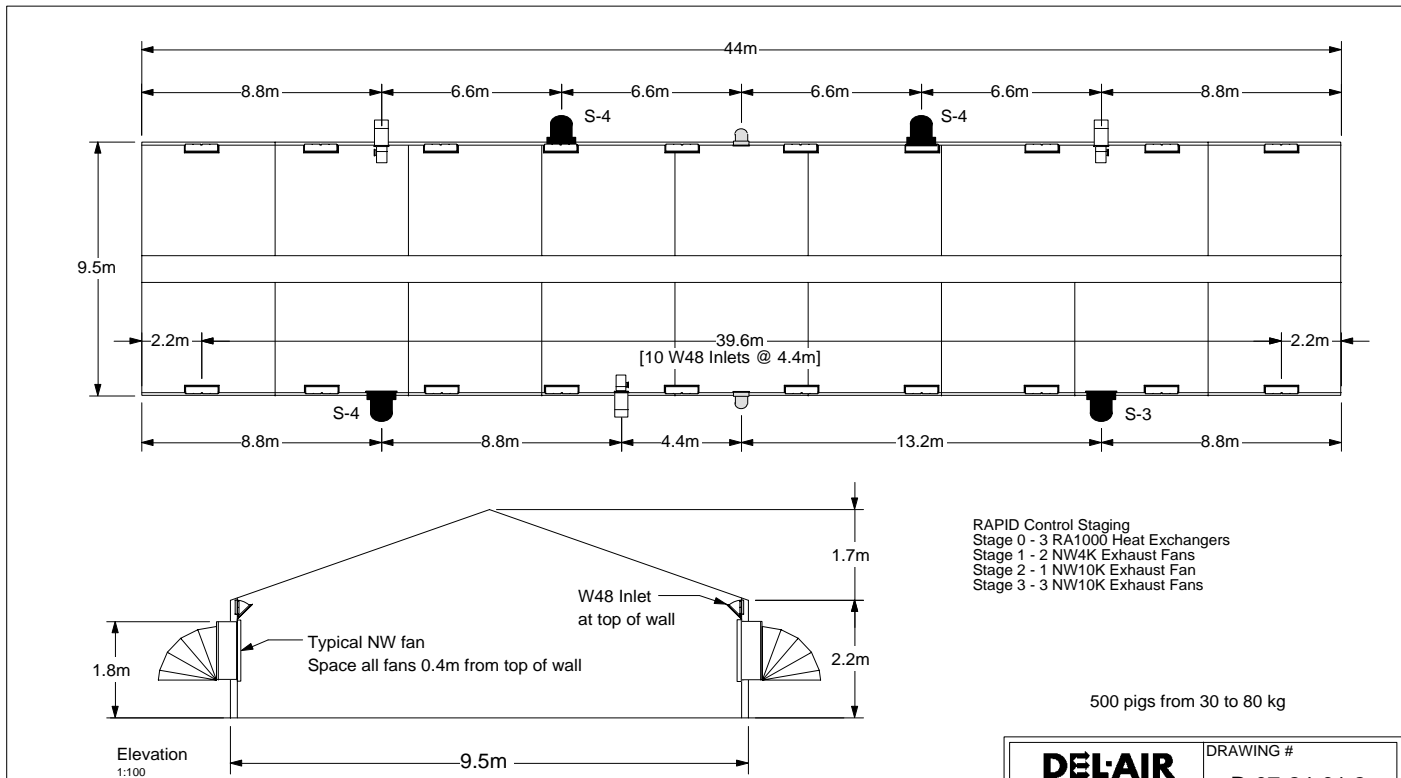
- Efficient exhaust
- Reliable
- Complete

Inlets (W, C, HiFlo Series)

- Easy to install
- Simple to operate
- Fully automatic operation

Controls

- 8 different models for single room or single zone control.
- System 60 Computer for total facility control.



RAPID Control Staging
 Stage 0 - 3 RA1000 Heat Exchangers
 Stage 1 - 2 NW4K Exhaust Fans
 Stage 2 - 1 NW10K Exhaust Fan
 Stage 3 - 3 NW10K Exhaust Fans

500 pigs from 30 to 80 kg

SYMBOL	ITEMS	ROUGH OPENING			ELECT. SPECS	
		H cm	W cm	L cm	Volts	Amps
	NW4K Exhaust Fan	63.5	57	-	208/230	1.8/1.7
	NW6K Exhaust Fan	80	80	-	208/230	1.9/1.8
	NW10K Exhaust Fan	109	109	-	208/230	2.4/2.2
	RA1000 Heat Exchanger	75	56	-	120	3.6
	W48 Side Wall Inlet	26.7	118	-	-	-

REQUIRED EQUIPMENT
 2 - NW4K Exhaust Fans
 4 - NW10K Exhaust Fans
 3 - RA1000 Heat Exchangers
 20 - W48 Side Wall Inlets
 1 - RAPID Control

DEL-AIR SYSTEMS		DRAWING # R-07-24-01.2
DRAWING TITLE: Fan Installation Drawing		
CUSTOMER: A Valued Customer		
SOLD BY: A Knowledgeable Distributor		
DATE: Aug 11/98	SCALE: 1: 200	DESIGN/DRAWN BY: E.V. / J.R.

This Product was Quality Assured by:

Independent test lab results show DEL-AIR's Northwind direct drive, axial fans to be the most energy efficient in the industry. The Northwind fans have been designed for efficient, trouble-free use in confinement barns for year round ventilation. The straight-wall housing makes installation a breeze.

DEL-AIR exhaust fans are conveniently named for their air moving capacity to simplify selection and sizing. Five sizes to choose from deliver 750 to 10,000 cfm. All Northwind fans come with the trademark engineered weather hoods, ensuring the fan will perform in all weather conditions.

DEL-AIR's reputation for durability comes from well-engineered construction of polyethylene, stainless steel, nylon, and other corrosion-proof materials. These fans can be used for exhaust or re-circulation in a wide variety of configurations.

When farming relies on healthy livestock . . . farmers rely on DEL-AIR.

Northwind Fans

North America's #1 Exhaust Fan



A high energy-efficient North-American built motor powers this fan. It is variable speed controllable to adapt to any requirement. Double-sealed ball bearings provide maximum protection and long life. Backed by a 3-year warranty, this fan is the leader in the industry.



Stainless Steel Motor



DEL-AIR fans are built to withstand the extremes – Canadian winters to Australian summers.

DEL-AIR
S Y S T E M S

ISO 9001 PENDING

Northwind Fan Specifications

MODEL	AIRFLOW		EFFICIENCY CFM/Watt (m ³ /hr)	ROUGH OPENING			ATTACHMENTS	
	@ 0.05" wg CFM			Width inches (mm)	Height inches (mm)	Diameter inches (mm)	Standard	Optional
NW750	646	(1641)	4.8	12.00 (310)	12.00 (310)	8.00 (200)		
NW750P*	720	(1223)	4.9	12.00 (310)	12.00 (310)	8.00 (200)		
NW1200*	1220	(2073)	6.8	17.00 (432)	17.00 (432)	12.00 (310)		
NW1200P*	1310	(2225)	7.3	16.00 (410)	16.00 (410)	12.00 (310)		
NW2K*	2355	(5982)	9.8	19.00 (480)	19.00 (480)	16.00 (410)		
NW2KP*	2500	(6350)	11.0	19.00 (480)	19.00 (480)	16.00 (410)		
NW4K	4410	(7493)	12.2	22.50 (580)	25.00 (640)	20.25 (520)		
NW4KP	4550	(7730)	13.1	22.50 (580)	25.00 (640)	20.25 (520)		
NW6K	6190	(10517)	15.1	31.50 (800)	31.50 (800)	27.00 (690)		
NW6KP	6490	(11027)	16.1	31.50 (800)	31.50 (800)	27.00 (690)		
NW10K	9130	(15512)	18.1	43.00(1100)	43.00(1100)	36.50 (930)		
NW10KP	9520	(16175)	20.3	43.00(1100)	43.00(1100)	36.50 (930)		
NW20K	23000	(29017)	17.0	56.50(1435)	56.50(1435)	48.00(1219)		
CF2K*	2100	(3568)	9.8	19.00 (480)	19.00 (480)	16.00 (410)		
CF4K*	4410	(7493)	12.2	22.50 (580)	25.00 (640)	20.25 (520)		
CF6K*	6190	(10517)	15.1	31.50 (800)	31.50 (800)	27.00 (690)		
CF10K*	9130	(15512)	18.1	43.00(1100)	43.00(1100)	36.50 (930)		
TF500*	691	(1174)	5.7	-	-	8.00 (200)	fits 8", 10" or 12" Pipe	
TF2000*	2355	(5982)	11.0	18.00 (457)	18.00 (457)	16.00 (410)		
TF4000*	4550	(7730)	13.1	22.00 (559)	22.00 (559)	20.00 (500)		
TF6000*	6490	(11027)	16.1	30.00 (762)	30.00 (762)	28.00 (711)		
TF10,000*	9520	(16175)	20.3	38.00 (965)	38.00 (965)	36.00 (914)		

All fans tested by PAMI or B.E.S.S. Labs unless otherwise indicated.

* Manufacturer's test results.



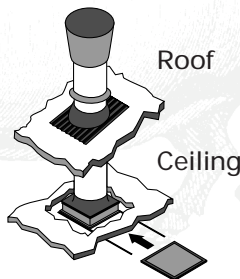
Northwind Fans



Butterfly Damper



Chimney Fan Cross Section



*All DEL-AIR fans operate 208/230 VAC 60/50 Hz except for NW750 and the TF500 which are 115 VAC only.

Product Features

- Energy-efficient
- 3-year warranty
- Variable speed control
- Trademark wind hoods
- Polyethylene construction
- Nylon and stainless steel hardware
- Direct drive
- Weather protected
- Independent lab tested
- CSA approved

Typical Applications

Exhaust fans are sized to deliver different levels of ventilation at different stocking levels and outdoor weather conditions. Winter ventilation rates are often 1/10 to 1/20 the maximum summer capacity. Variable speed fans allow for some flexibility, but at least two sizes of fans are often required in a room to meet changing conditions. Consult your DEL-AIR representative for recommendations.