

READ AND SAVE THESE INSTRUCTIONS

Model BCF Belt Drive Centrifugal Cabinet Fans

Installation, Operation, and Maintenance Manual



Please read and save these instructions for future reference. Read carefully before attempting to assemble, install, operate or maintain the unit. Failure to comply with instruction could result in personal injury and/or property damage!

Upon receiving unit, check for any damage that may have occurred during transit and report it immediately to the shipper. Also, check to see that all accessory items are accounted for.

Typical Installation

WARNING: Always disconnect, lock and tag power source before installing or servicing. Failure to disconnect power source can result in fire, shock, serious injury or death.

Move fan to the desired location and determine the position of the access door. Provide adequate door opening clearance for servicing the motor and blower assembly. Attach the fan to a suitable framework as specified. Use of optional hanging or base vibration isolators are recommended. Optional

hanging isolators can be sized to support the weight of the fan only or the fan with filter/mixing boxes. Separate support should be used for ductwork.

The motor voltage and amperage rating must be checked for compatibility with the electrical supply. Supply wiring may be routed through knockouts which are provided on each side of the fan housing. Provide adequate wiring to permit the access door to open for servicing. Wiring should be secured inside the fan to prevent interference with the drive components.

Inlet and discharge collars are provided for duct connection. The inlet panel is removable for attaching optional filter and mixing box accessories.

Mounting Dimensions

Hanging or Base Mounts				
BCF Size	A	B	C	D
106	19½ (493)	42½ (1080)	52½ (1334)	24¼ (616)
107	25 (635)	47¾ (1213)	60¾ (1543)	27¼ (692)
108	29 (737)	52⅝ (1330)	69 (1753)	30¼ (768)
110	29½ (749)	56⅝ (1426)	75 (1905)	36¼ (921)
112	38 (965)	64⅞ (1648)	87¾ (2229)	40½ (1029)
206	19½ (493)	42½ (1080)	52½ (1334)	38¼ (972)
207	25 (635)	47¾ (1213)	60¾ (1543)	42¼ (1073)
208	29 (737)	52⅝ (1330)	69 (1753)	48¼ (1226)
210	29½ (749)	56⅝ (1426)	75 (1905)	52¼ (1327)
212	38 (965)	64⅞ (1648)	87¾ (2229)	62¼ (1581)

All dimensions are in inches (mm).

NOTE: Only four (4) hanging or base mounts required per unit.

NOTE: Fan can NOT be mounted vertically.

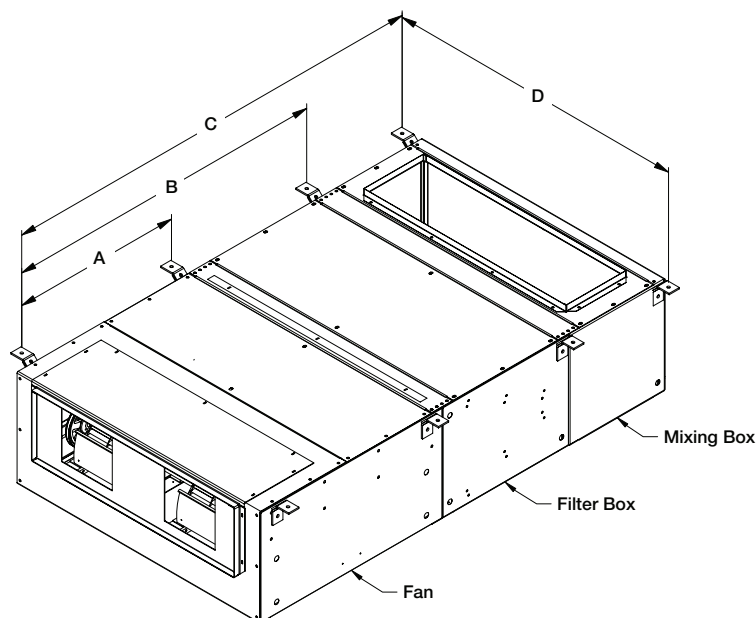


Fig. 1 - Mounting Dimensions

Dimensional Data

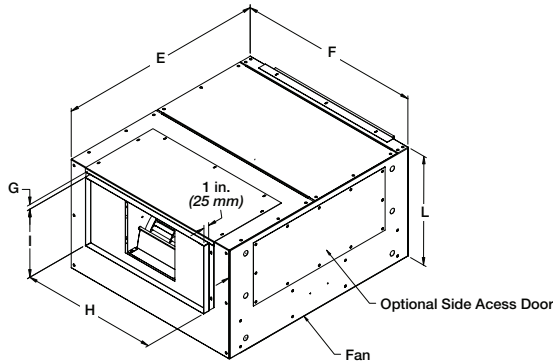


Fig. 2 - BCF Unit Dimensions

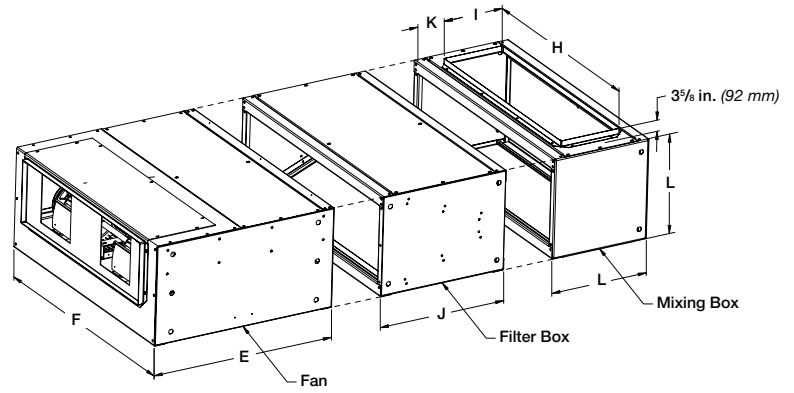


Fig. 3 - BCF with Filter and Mixing Box Unit Dimensions

BCF Size	E	F	G	H	I	J		Filter Size			K	L	
						Slide-Out	Sloped	Slide-Out	Qty.	Sloped			Qty.
106	23¼ (591)	20 (508)	-	12 (305)	6 (152)	6 (152)	22 (559)	19½ x 10¼ (495 x 260)	1	16 x 20 (406 x 508)	1	2½ (64)	11 (279)
107	29 (737)	23 (584)	5/8 (16)	15 (381)	8 (203)	6 (152)	23 (584)	22⅞ x 12¼ (581 x 311)	1	16 x 20 (406 x 508)	1	2½ (64)	13 (330)
108	32 (813)	26 (660)	5/8 (16)	18 (457)	10 (254)	6 (152)	24 (610)	25⅞ x 15½ (657 x 394)	1	16 x 20 (406 x 508)	2	3 (76)	16 (406)
110	36 (914)	32 (813)	5/8 (16)	24 (610)	12 (305)	7 (178)	25 (635)	31⅞ x 18½ (810 x 470)	1	20 x 20 (508 x 508)	2	3½ (89)	19 (483)
112	42 (1067)	36 (914)	5/8 (16)	28 (711)	14 (356)	7 (178)	27 (686)	35⅞ x 22⅞ (911 x 568)	1	16 x 20 (406 x 508)	4	4½ (114)	23 (584)
206	23¼ (591)	34 (864)	5/8 (16)	26 (660)	6 (152)	6 (152)	22 (559)	33⅞ x 10¼ (860 x 260)	1	20 x 20 (508 x 508)	1	2½ (64)	11 (279)
207	29 (737)	38 (965)	5/8 (16)	30 (762)	8 (203)	6 (152)	23 (584)	37⅞ x 12¼ (962 x 311)	1	16 x 20 (406 x 508)	2	2½ (64)	13 (330)
208	32 (813)	44 (1118)	5/8 (16)	36 (914)	10 (254)	6 (152)	24 (610)	43⅞ x 15½ (1114 x 394)	1	16 x 20 (406 x 508)	4	3 (76)	16 (406)
210	36 (914)	48 (1219)	5/8 (16)	40 (1016)	12 (305)	7 (178)	25 (635)	47⅞ x 18½ (1216 x 470)	1	20 x 20 (508 x 508)	4	3½ (89)	19 (483)
212	42 (1067)	58 (1473)	5/8 (16)	50 (1270)	14 (356)	7 (178)	27 (686)	57⅞ x 22½ (1470 x 572)	1	20 x 25 (508 x 635)	4	4½ (114)	23 (584)

All dimensions are in inches (mm).

Weight Information

BCF Size	*Unit	Filter Box		Mixing Box	
		Slide-Out	Sloped	Without Damper	With Damper
106	80 (36)	9 (229)	24 (610)	14 (356)	29 (737)
107	100 (45)	10 (254)	26 (660)	17 (432)	36 (914)
108	120 (54)	12 (305)	39 (991)	23 (584)	45 (1143)
110	265 (120)	20 (508)	64 (1626)	40 (1016)	69 (1753)
112	340 (157)	28 (711)	86 (2184)	64 (1626)	100 (2540)
206	145 (66)	12 (305)	35 (889)	19 (483)	42 (1067)
207	207 (84)	14 (356)	36 (914)	23 (584)	52 (1321)
208	220 (100)	17 (432)	50 (1270)	31 (787)	67 (1702)
210	345 (156)	26 (660)	79 (2007)	51 (1295)	93 (2362)
212	515 (234)	38 (965)	119 (3023)	86 (2184)	142 (3607)

All weights are in lb. (kg)

*Unit weight is cataloged with the largest Open Proof Motor available.

Pre-Starting Checks

WARNING: Disconnect and secure to the “OFF” position all electrical power to the fan prior to inspection or servicing. Failure to comply with this safety precaution could result in serious injury or death.

Check all fasteners for tightness. The blower wheel should rotate freely and not rub on the fan panel venturi. Turn the fan on momentarily to check for unusual vibration or noise. Do not run the fan more than a few seconds without being connected to the system for which it was designed. Motor overloading and burnout may result from lack of system static pressure.

Direction of wheel rotation is critical. Reversed rotation will result in poor air performance, motor overloading and possible burnout. Check wheel rotation by momentarily energizing the unit. Rotation is always in the same direction as airflow at the outlet. See Fig. 4.

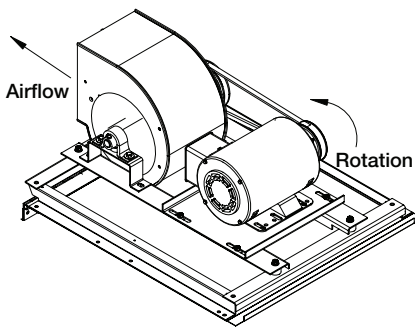


Fig. 4 - Wheel Rotation

Belt tension should be checked after the first 24 hours of operation, after 100 hours of operation and periodically thereafter. Premature belt failures are frequently caused by improper belt tension (either too tight or loose) or misaligned pulleys. The proper tension for operating a V-belt is the lowest tension at which the belts will not slip.

Belt tension can be adjusted by loosening the four fasteners on the drive frame (pointed out in Fig. 5) and sliding the motor base away from the blower housing.

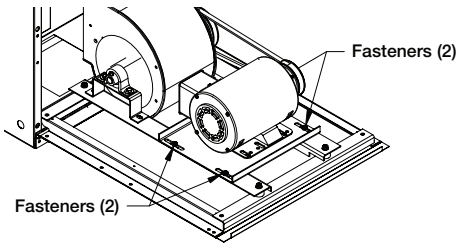


Fig. 5 - Drive Frame Fasteners

Belt tension should be adjusted to allow 1/64 inch (0.4 mm) of belt deflection per inch of belt span. For example, a 16 inch (406 mm) belt span should have 16/64 inch (6.4 mm) or 1/4 inch (6.4 mm) of deflection using moderate thumb pressure at mid-point between pulleys, see Fig. 6. Overtightening will cause excessive bearing wear and noise. Too little tension will cause slippage at startup and uneven wear.

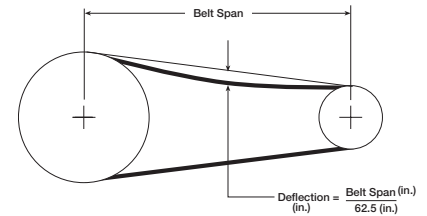


Fig. 6 - Belt Tension

It is very important that the pulleys remain in proper alignment after adjustments are made. Misalignment of pulleys will result in premature belt wear, noise, vibration and power loss. See Fig. 7.

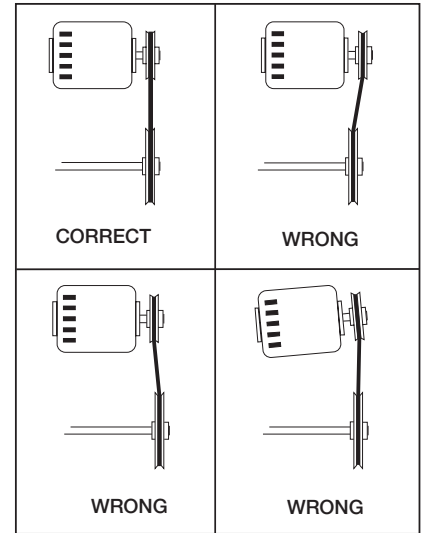


Fig. 7 - Pulley Alignment

Maintenance

WARNING: Before servicing or cleaning the unit, switch power off at service panel and lock service disconnecting means to prevent power from being switched on accidentally. When the service disconnecting means cannot be locked, securely fasten a prominent warning device, such as a tag, to the service panel.

Once the fan has been put into operation, a periodic maintenance program should be set up to preserve the reliability and performance of the fan. Items to be included in this program are:

BELTS, BEARINGS, MOTOR, FASTENERS, and WHEEL(S).

To access the fan motor, drives and blower simply remove the fasteners attaching the bottom access door

and remove door carefully. Hinged access doors are provided on fan models 106, 107, 206, and 207. Provide support for hinged access doors before removing fasteners. The door supports weight of the motor, blower, and drive components. Bolted access doors are provided on fan models 108, 110, 112, 208, 210, and 212. Bolted access doors do not support weight of any components.

BELTS

Belts tend to stretch after a period of time. They should be checked periodically for wear and tightness. When replacing belts, use the same type as supplied with the unit. Loosen the sliding motor plate to allow removal of the belt by hand. Do not force belts on or off. This may cause cords to break, leading to premature belt failure. Once installed, adjust belts as shown in “Pre-Starting Checks”, Fig. 6 and Fig. 7.

MOTOR

Motor maintenance is generally limited to cleaning and lubrication (where applicable). Cleaning should be limited to exterior surfaces only. Removing dust and grease build-up on motor housing assures proper motor cooling. Use a brush or vacuum to remove dust. Motors should never be sprayed with water or solvents.

Greasing of the motor is only intended when fittings are provided. Many motors are permanently lubricated and should not be lubricated further.

Motors supplied with grease fittings should be greased in accordance with manufacturer’s recommendations. Use caution not to over lubricate. Oil spillage collects dust and dirt which may obstruct motor cooling openings.

Where motor temperatures do not exceed 104°F (40°C), the grease should

be replaced after 2,000 hours of running times as a general rule.

WHEEL(S)

Wheels should be inspected for dust and dirt accumulation at each maintenance interval. Left unchecked, dirt may cause wheel imbalance and cause vibration. Keeping the wheel(s)

clean helps maintain a smooth and quiet running fan.

FASTENERS

Any fan vibration has a tendency to loosen mechanical fasteners. A periodic inspection should include checking all fasteners and set screws for tightness prior to restarting the unit.

Troubleshooting

WARNING: Disconnect and secure to the "OFF" position all electrical power to the fan prior to inspection or servicing. Failure to comply with this safety precaution could result in serious injury or death.

PROBLEM	CAUSE	CORRECTIVE ACTION
REDUCED AIRFLOW	System resistance is too high.	Check dampers for proper operation. Remove obstructions in ductwork. Clean dirty filters. Check for adequate supply air.
	Unit running backwards.	Correct. Adjust as described in "Pre-Starting Checks", Fig. 4.
	Excessive dirt on wheel.	Clean wheel.
	Loose belt or pulleys.	Refer to Fig. 6 and adjust tension.
EXCESSIVE NOISE	Mechanical looseness.	Check all fasteners and set screws for tightness. Check the ductwork for rattles.
	Wheel unbalanced.	Check for dirt build-up and clean wheel if required.
	Bad bearings.	Replace bearings.
	Incorrect belt tension.	Adjust belts as described in "Pre-Starting Checks", Fig. 6.
	Foreign objects in blower.	Remove objects, check for damage or unbalance.
	Defective motor.	Replace motor.

Parts List

- BCF Sizes 106 thru 112

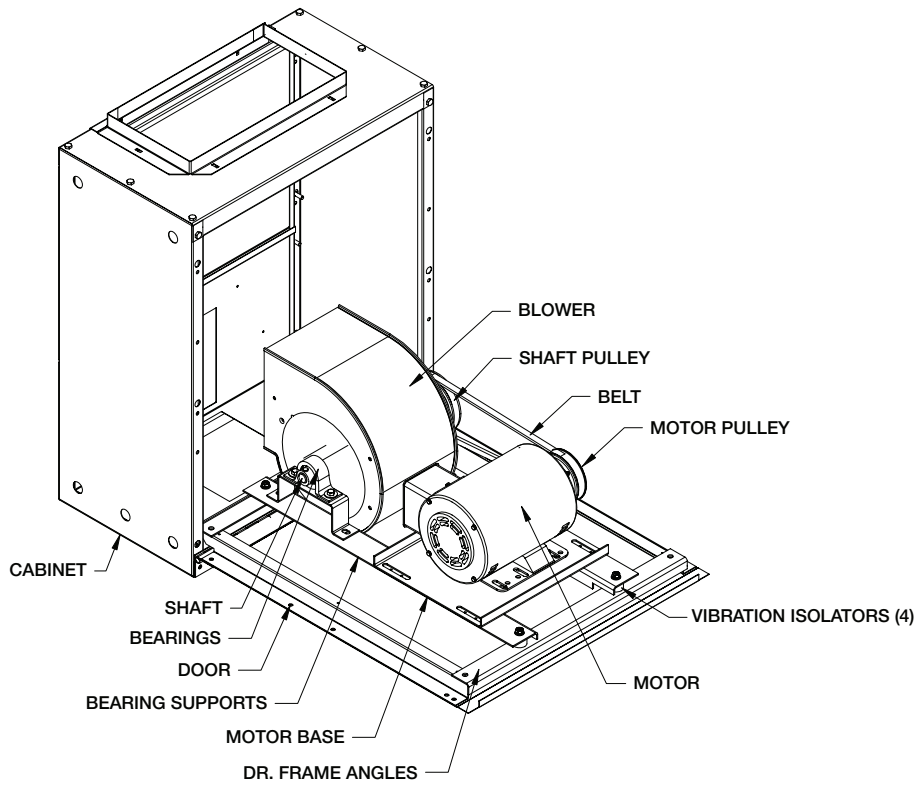


Fig. 8 - Replacement Parts Single Blower

- BCF Sizes 206 thru 212

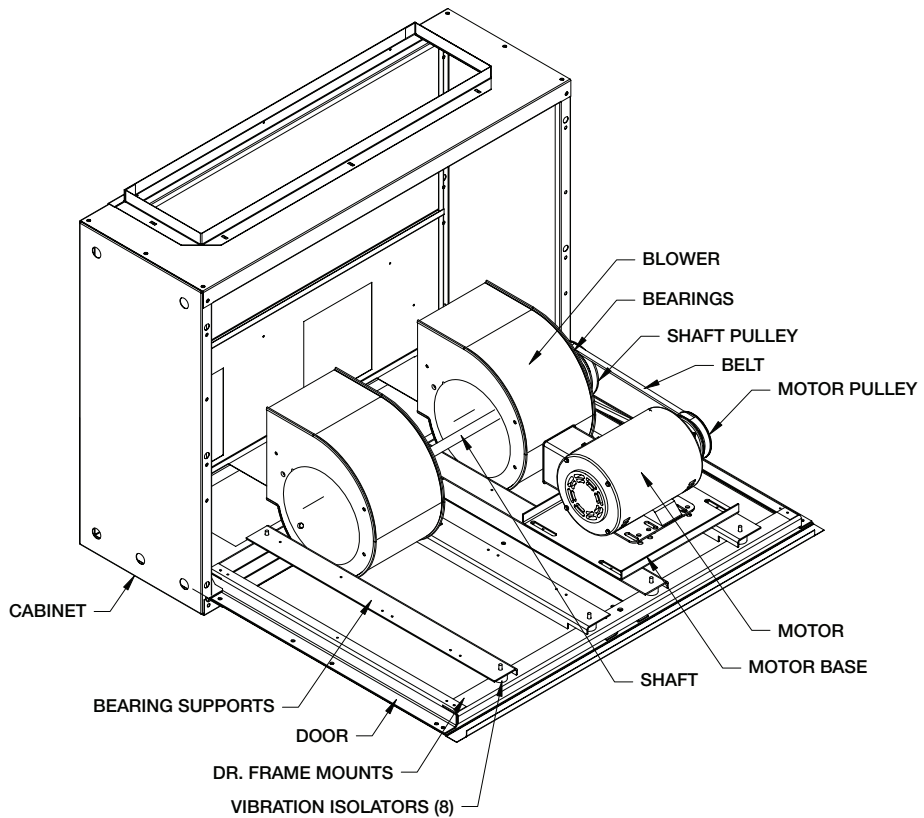


Fig. 9 - Replacement Parts Double Blower

WARRANTY

Greenheck warrants this equipment to be free from defects in material and workmanship for a period of one year from the date of purchase. Any units or parts which prove to be defective during the warranty period will be replaced at our option when returned to our factory, transportation prepaid. Motors are warranted by the motor manufacturer for a period of one year. Should motors furnished by Greenheck prove defective during this period, they should be returned to the nearest authorized motor service station. Greenheck will not be responsible for any removal or installation costs.

As a result of our commitment to continuous improvement, Greenheck reserves the right to change specifications without notice.

