CANARM® HVAC

HRE SERIES – HORIZONTAL RESTAURANT EXHAUSTER

OPERATION INSTRUCTIONS AND PARTS MANUAL

MODELS: HRE-13, HRE-16, HRE-20, HRE-24

GENERAL SAFETY

Rotating parts on fans should not be exposed. Where these components are not protected by ductwork, cabinets or covers, appropriate guards should be employed to restrict exposure to rotating parts. Access doors should not be opened with the fan operating to avoid foreign objects being drawn into the system. On initial start-up a careful inspection should be carried out to ensure no foreign material is present which could become airborne in the system.

Read installation and operation instructions carefully before attempting to install, operate or service Delhi HRE Series Blowers. Failure to comply with instructions could result in personal injury and/or property damage. Retain instructions for future reference.

UNIT DESCRIPTION

Restaurant duty HRE Models are specifically designed as a quiet and efficient blower for vapor removal from commercial cooking equipment. These backwardly inclined, single inlet blowers have a standard CW rotation and upblast discharge. The blower housing is constructed from continuously welded 16 gauge steel, complete with tilted access and 2" drain for cleaning.

Complete access for motor and drive installations and servicing may be completed by removal of the drive compartment cover. Pre-lubricated ball bearings, curb cap, motor adjustment hardware and a dynamically balanced wheel are standard equipment. Operating temperature range is –30 to 400 deg. F. For Unit dimensions, refer to Figure 1/Table 1.

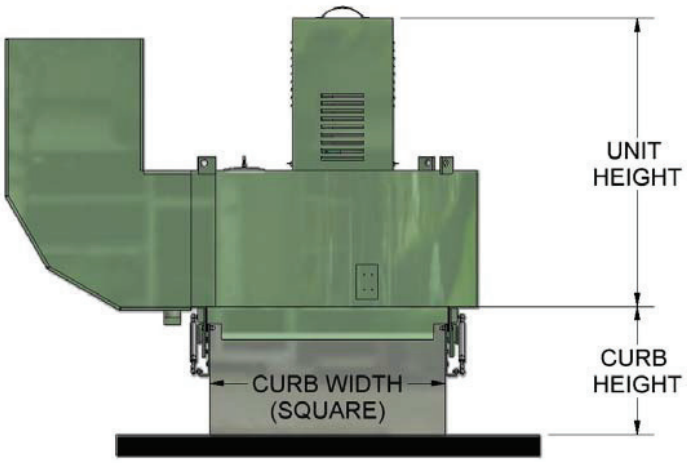


Figure 1

MODEL	MAX. HP	MAX. FRAME SIZE	SHAFT DIA
13	2	143T	1"
16	3	143T	1-3/16
20	5	215T	1-3/16"
24	7-1/2	215T	1-7/16"

MODEL	UNIT HEIGHT	CURB WIDTH	MIN. CURB HEIGHT
13	30-15/16"	20-1/2"	18"
16	34-1/4"	24-1/2"	18"
20	40-1/16"	28-1/2"	18"
24	43-5/8"	33-3/8"	18"

GENERAL SAFETY INSTRUCTIONS

1. Always disconnect power source before working on or near a motor or its connected load. Lock the power disconnect in the open position and tag to prevent unauthorized application of power.
2. Follow all local and national electrical and safety codes.
3. Blower must be electrically grounded. This can be accomplished by using a separate ground wire connected to the bare metal of blower frame, or other suitable means.
4. Ensure that the power source conforms to the requirements of your equipment.
5. Do not put hands near or allow loose or hanging clothing to be near belts, pulleys, or blower wheel while the unit is running.

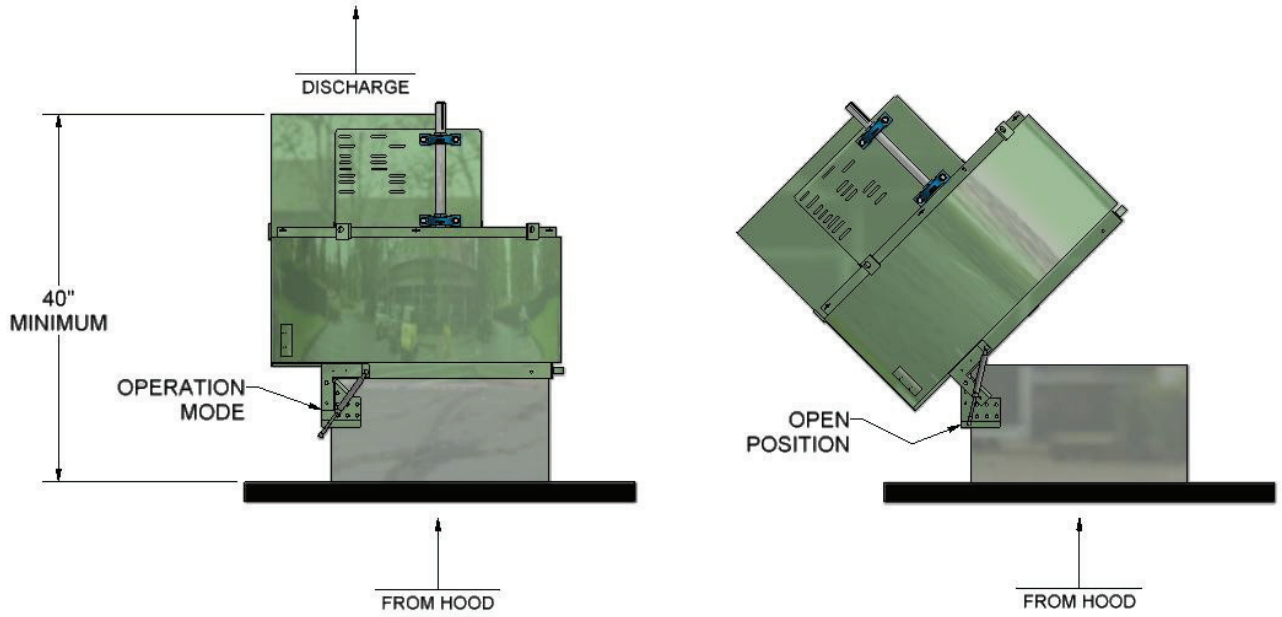
UNPACKING

Once the packaging has been removed inspect the unit carefully. Check for loose, missing, or damaged parts. Rotate the wheel by hand to ensure the wheel spins freely. Tighten all set screws.

INSTALLATION

1. Complete ductwork termination to the top of the curb per Figure 2.

Figure 2: Installation Method



Note: Check the interior of the blower housing. It should be clean and free of debris.

2. Hoist the exhauster onto the curb. This may be accomplished by attaching hooks into the eye hooks provided. Do not lift unit by placing a sling around the shaft.

3. Position exhauster onto curb and secure using hinge kit provided in the parts bag. Note: Bottom bolt on hinge kit should be tightened during operation and moved to the center hole when opened.

4. Rotate the blower wheel by hand. It should not rub against the housing inlet. If rubbing occurs, loosen the set screws on the wheel hub and shift the wheel to obtain clearance. Retighten all set screws.

5. Insert the four 3/8” bolts through the slotted motor platform to match the bolting configuration of the motor to be installed. Note: Loosely mount the motor to the sliding motor platform using the four 3/8” hex bolts, nuts and flat washers provided.

6. Mount the blower sheave on the blower shaft and tighten its set screw securely on the key of the shaft. (See Table 1 for Drive Data)

7. Mount the motor sheave on the motor shaft. Leave some clearance between the pulley and the motor end bell. Tighten the set screws on the key of the motor shaft.

8. With the motor positioned as close as possible to the blower shaft, install the V belt within the sheave grooves. Adjust the sheave on the blower shaft to ensure proper pulley alignment (See Figure 3) and secure in place. A straight edge across the face of the driven pulley should be parallel to the belt once proper alignment has been achieved. (see Figure 3)

WARNING: Excessive belt tension is the most frequent cause of bearing wear and resulting noise. Proper belt tension is critical for quiet efficient operation.

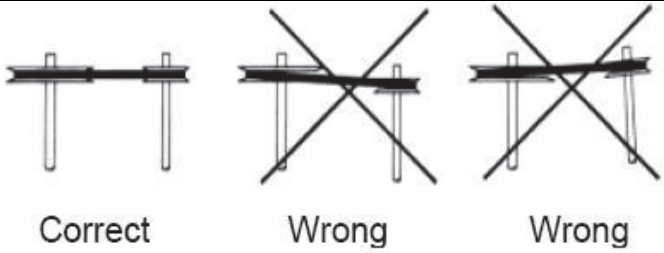


Figure 3: Pulley Alignment

9. Slide the motor within the slotted platform to adjust belt tension. Ideal belt tension is the lowest tension at which the belt will not slip during start up. Belt should be adjusted to allow 1/4" to 3/16" of deflection per foot of belt length. Tighten the motor mounting bolts once proper belt tension has been achieved.

10. Before connecting the motor to the electrical supply, check the electrical characteristics and wiring instructions as indicated on the motor nameplate to ensure proper voltage and phase. Make your electrical connections.

Table 1: Drive Table

RPM	MOTOR PULLEY	BLOWER PULLEY	HRE SIZE (13 / 16) SHAFT SIZE (1" / 1-3/16") MAX RPM (3000 / 2400)		
			56 CNTR DISTANCE (9-1/16" / 8-3/4")	143T/145T CNTR DISTANCE (8-3/4" / 8-11/16")	182T/184T CNTR DISTANCE (8-1/16" / 8")
646-862	1VL34	BK70H	B32	B31	--
862-1022		BK60H	B30	(B30 / B29)	
1022-1254		BK50H	B28	(B28 / B27)	
1254-1533		BK40H	B26	B26	
725-950	1VL44	BK80H	B35	B34	B33
950-1100		BK70H	B33	B33	B31
1100-1300		BK60H	B31	B31	B29
1300-1600		BK50H	B29	B29	B27
1600-1950		BK40H	B28	B28	B26
1108-1355	1VP71	BK90H	(B39 / B40)	(B38 / B39)	(B37 / B38)
1355-1538		BK80H	B38	B37	B36
1539-1778		BK70H	B36	B36	B34
1778-2108		BK60H	B34	B33	B32
2108-2587		BK50H	B32	B32	**B30 ****

RPM	MOTOR PULLEY	BLOWER PULLEY	HRE SIZE (20 / 24) SHAFT SIZE(1-3/16 / 1-7/16) MAX RPM (1950 / 1600)			
			56 CNTR DISTANCE (11-1/2")	143T/145T CNTR DISTANCE (11-1/8")	182T/184T CNTR DISTANCE (9-15/16")	213T/215T CNTR DISTANCE (10-7/16" / 10-3/8")
646-862	1VL34	BK70H	B36	B36	--	**--**
862-1022		BK60H	B35	B34		
1022-1254		BK50H	B33	B32		
1254-1533		BK40H	B32	B31		
725-950	1VL44	BK80H	B39	B39	B36	**--**
950-1100		BK70H	B38	B37	B35	
1100-1300		BK60H	B36	B35	B33	
1300-1600		BK50H	**B34 ****	**B34 ****	**B31 ****	
1600-1950		BK40H	**(B33 ** / NONE **)**	**(B32 ** / NONE **)**	**(B30 ** / NONE **)**	
1108-1355	1VP71	BK90H	B44	B44	B41	**--**
1355-1538		BK80H	B43	B42	B40	
1539-1778		BK70H	**B41 ****	**B40 ****	**B38 ****	
1778-2108		BK60H	**(B39 ** / NONE **)**	**(B38 ** / NONE **)**	**(B36 ** / NONE **)**	
459-618	2VP71	2B200SF	--	--	B68 (2)	B68 (2)
618-837		2B154SK			B56 (2)	B57 (2)
837-1034		2B110SK			B46 (2)	B47 (2)
1034-1211		2B94SK			B43 (2)	B44 (2)
1211-1538		2B74SK			B40 (2)	B41 (2)
1538-1778		2B64SDS			**B38 (2) ****	**B39 (2) ****

****- BLOWER WHEEL MEETS OR EXCEEDS MAXIMUM RPM.**

**- Basic drive selections shown above. For more drive selection options, refer to the Delair Drive Selection program.

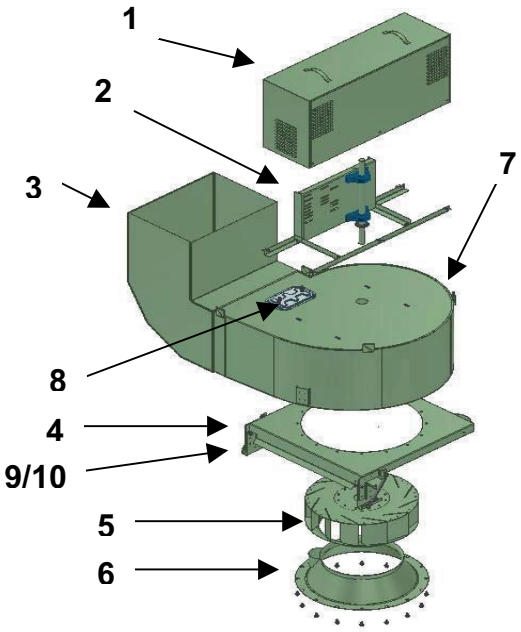
OPERATION

1. After electrical connections are completed, energize the unit momentarily and ensure that the rotation of the wheel is correct. Apply full power.
2. With the air systems in full operation and all ducts and access panels attached, measure current input to the motor and ensure that it is less than the rated full load motor amperage.
3. Proper adjustment to the belt tension is critical for quiet efficient operation.

MAINTENANCE

Ensure power supply is disconnected and locked out prior to performing maintenance

1. Inspect and tighten the wheel set screw after the first 50 to 100 hours of operation and periodically thereafter.
2. Follow the motor manufacturer's instructions for motor lubrication. Remove any excess lubrication.
3. Check the Drives:
   - **a.** Tighten set screws on sheaves, wheel and bearing locking collars.
   - **b.** Check belt tension and alignment.
   - **c.** Replace cracked or worn belts.
4. Check the wiring to be sure its secure and well insulated.
5. Blower bearings are pre-lubricated by the manufacturer. Generally, bearings should be lubricated at six to twelve month intervals. The recommended lubricant is Shell Alvania #2 or S3. A small amount of grease should be added slowly when the shaft is rotating. Note: Over greasing may cause damage to the bearing. Avoid rupturing the bearing seal.
6. Inspect V-belts for wear and proper tension. If it is necessary to replace one belt on a multiple belt drive, replace all the belts with a matched set. Do not use belt dressing.
7. Clean the blower wheel periodically. Material build up on the blades can cause wheel imbalance which may result in wheel or bearing failure.
8. To reinstall replacement ball bearings, remove any burrs on the shaft with emery cloth or a fine file. Wipe shaft with a clean cloth. Slide the bearing and housing on the shaft, position it and bolt pillow block securely to the bearing support. Position the shaft to ensure the wheel properly fits to the inlet venturi. Alternatively tighten each set screw with the proper hex head socket wrench until the wrench starts to spring.
9. Should further service to the blower be necessary, refer to the exploded view illustration (see Figure 4).



PARTS LIST

1. DRIVE COVER ASSEMBLY
2. DRIVE FRAME ASSEMBLY
3. BLOWER HOUSING
4. LIFTING FRAME CAP
5. BACKWARD INCLINED WHEEL
6. VENTURI
7. GREASE DRAIN
8. ACCESS DOOR
9. HINGE
10. GAS SPRING

Figure 4: Exploded view

WARRANTY

This equipment is warrantied for a period of one year against manufacturing defects in material and workmanship when operating under normal conditions. Liability is limited to the replacement of defective parts. Labour and transportation costs are not included.