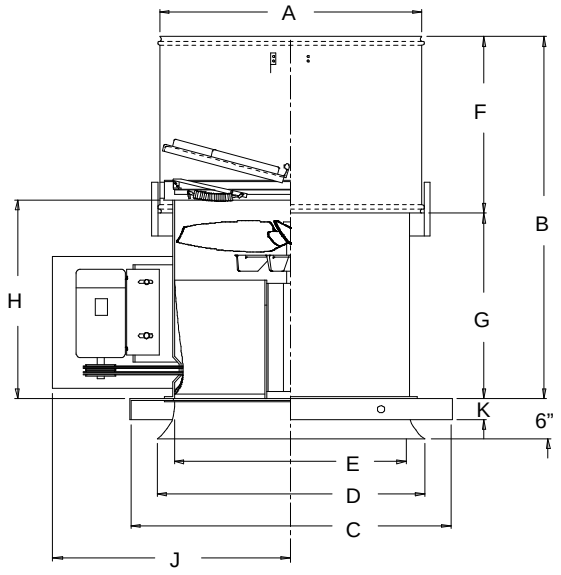
Type HSE
Heat & Smoke
Power Roof Ventilators

AMERICAN Coolair®

Type HSE

BELT DRIVE — 1,760 to 48,300 CFM
0" to 5/8" STATIC PRESSURE



Application

The HSE upblast power roof ventilators are designed and built to meet the increasing need for power venting the combustion by-products of a fire.

These units are designed to be installed in the roof systems of shopping centers, wholesale warehouses, hotel atriums and any other place where building codes require the removal of smoke and heat by power roof ventilators.

Construction

MATERIALS: All critical components required for the continuous and safe operation of the unit and exposed to the air stream are ferrous construction to withstand high temperature conditions. These heavy gauge materials prevent warping of the fan parts and malfunction at elevated temperatures. All ferrous materials are painted with thermosetting epoxy paint for corrosion protection.

The wind shroud is made of galvanized steel and the damper doors are made of fiberglass with ultraviolet inhibitors.

The belts and bearings are protected from the airstream, enclosed in a ventilated tube. A heat slinger/impeller mounted on the same shaft as the PRV's axial impeller, isolates the fan bearings from the damaging heat and draws cooler outside air through the motor compartment and over the belts and bearings. This is a vital factor for the successful operation of the HSE unit.

A spring loaded, fusible link activated device automatically opens the damper doors when the temperature at the doors exceeds 165° F. This enables the HSE fan to also function as a gravity ventilator prior to powered operation or in the event of a motor or electrical failure. The PRV's are designed for all weather operation. The steel wheel assemblies are statically and dynamically balanced for smooth operation.

The belt driven units are available from 18" to 60" in diameter and most models come with variable pitch pulleys allowing for final system balance adjustment.

The steel fan shaft is supported by two (2) heavy-duty pillow-block bearings that are mounted in an enclosed tube to provide reliable and continuous service under harsh conditions.

The motor is located out of the airstream and is thus protected from the high temperatures of the airstream. Standard TEFC motors are used on most models to reduce cost and provide additional cooling and ensure prompt repair or replacement if required.

Dimensions

Dimension A is the diameter of the circular wind shroud.

Dimension B is the overall height above the curb.

Dimension C is the I.D. of the curb cap flange.

Dimension D is the inside curb minimum. (Inlet orifice is not furnished with 18" size.)

Dimension E is the inside diameter of the fan housing.

Dimension F is the height of the wind shroud.

Dimension G is the height of the unit from the curb to the wind shroud.

Dimension H is the height of the unit above the curb less the wind shroud and damper assembly.

Dimension J is the distance from the center of the PRV to the outside edge of the motor cover.

	Dimensions in Inches										Metal Gauge		
Fan Size	A	B	C	D	E	F	G	H	J	K	Fan Hsg.	Wind Shroud	Curb Cap
18	23	47 7/16	32	24	18 1/8	27 5/8	19 13/16	21 1/16	23 1/4	2 1/2	14	22	14
24	32	47 7/16	38	30 1/4	25 1/2	27 5/8	19 13/16	21 1/16	28	3	14	22	14
30	38	52 5/16	44	36 1/4	31 1/4	32 1/2	19 13/16	21 1/16	31 1/4	3	14	22	14
36	44	62 3/8	50	42 1/4	37 1/4	32 1/2	29 7/8	31 1/8	37 3/4	3	12	22	12
42	50	67 1/4	56	48 1/2	43 1/4	37 3/8	29 7/8	31 1/8	41	3	12	20	12
48	56	67 1/4	62	54 5/8	49 1/4	37 3/8	29 7/8	31 1/8	44 1/4	3	12	20	12
54	62	71 11/16	68	59 1/2	55 1/4	41 13/16	29 7/8	31 1/8	52	3	12	18	10
60	68	74 11/16	77	65 5/8	61 3/8	44 13/16	29 7/8	31 1/8	55 1/8	3	12	18	10

Listings

American Coolair's HSE fans were tested under the auspices of Underwriters Laboratory Inc., and met the following time vs. temperature limits:

270 minutes at 500° F (260° C)
90 minutes at 700° F (371° C)
30 minutes at 1,000° F (538° C)

This high temperature capability exceeds the UL requirements of "Power Ventilators for Smoke Control Systems" (UL793), the IRI requirement to operate at 500° F for 4 hours minimum, and the SBCCI requirement to operate at 1000° F for 15 minutes.

UL LISTED

UL793 – MH18299

Type HSE ventilators are Listed by Underwriters Laboratory Inc.

Typical Specifications

Heat and smoke removal power roof ventilators shall be American Coolair Type HSE as manufactured by American Coolair Corporation, Jacksonville, Florida; specific models shall be as shown in the fan schedule. PRV(s) shall be designed and tested to operate at XXX degrees F for XXX minutes. PRV shall be UL Listed as a "Power Ventilator for Smoke Control Systems."

Motor shall be out of the airstream, with the belts and bearings enclosed in tubes to protect them from the high temperature airstream. Positive ventilation of the motor compartment and the belt and bearing tubes shall be provided.

Optional features such as external lubrication lines, local disconnect switch, emergency ventilation control center, roof curbs, etc. shall be as listed in the fan schedule or specification.

American Coolair Corporation certifies that the Type HSE PRVs shown herein are licensed to bear the AMCA seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 211 and AMCA Publication 311 and comply with the requirements of the AMCA Certified Ratings Program.

Item No.	Cubic Feet Per Minute (CFM) at Static Pressure[1] 0"	1/8"	1/4"	3/8"	1/2"	5/8"	Fan Model[2]	Fan Size	Motor HP	Fan RPM	Sone Rating[3]	MAX BHP[4]	Approx. Ship Wt.
1	2,496	2,245	---	---	---	---	**HSE18J**	18	1/2	1422	22	.50	195
2	2,830	2,653	2,384	---	---	---	**HSE18K**		3/4	1612	28	.75	200
3	3,097	2,967	2,684	2,437	1,760	---	**HSE18L**		1	1764	32	1.00	205
4	3,544	3,447	3,191	3,010	2,762	2,159	**HSE18M**		1 1/2	2019	38	1.50	210
5	6,172	5,531	6,810	---	---	---	**HSE24K**	24	3/4	1062	23	0.75	325
6	6,678	6,092	5,450	---	---	---	**HSE24L**		1	1149	27	1.00	330
7	7,532	7,019	6,459	5,869	5,144	---	**HSE24M**		1 1/2	1296	33	1.50	330
8	8,287	7,825	7,325	6,807	6,237	5,529	**HSE24N**		2	1426	40	2.00	335
9	9,554	9,155	8,737	8,292	7,841	7,357	**HSE24P**		3	1644	49	3.00	350
10	9,523	8,519	7,420	---	---	---	**HSE30L**	30	1	815	25	1.00	390
11	10,785	9,908	8,974	7,892	---	---	**HSE30M**		1 1/2	923	32	1.50	395
12	11,778	10,979	10,135	9,235	8,042	5,429	**HSE30N**		2	1008	38	2.00	400
13	13,519	12,827	12,106	11,358	10,560	9,576	**HSE30P**		3	1157	51	3.00	415
14	16,417	15,850	15,270	14,670	14,057	13,427	**HSE30Q**		5	1405	70	5.00	430
15	12,940	11,582	9,808	---	---	--	**HSE36M**	36	1 1/2	829	24	1.50	575
16	14,345	13,179	11,613	9,316	---	---	**HSE36N**		2	919	29	2.00	580
17	16,343	15,359	14,053	12,674	10,193	---	**HSE36P**		3	1047	36	3.00	595
18	19,308	18,496	17,538	16,351	15,199	13,734	**HSE36Q**		5	1237	49	5.00	610
19	18,404	16,634	14,770	---	---	---	**HSE42N**	42	2	784	30	2.00	755
20	20,822	19,191	17,670	15,994	13,645	---	**HSE42P**		3	887	37	3.00	770
21	24,602	23,193	22,000	20,546	19,166	17,473	**HSE42Q**		5	1048	50	5.00	785
22	28,522	27,317	26,161	25,189	23,861	22,663	**HSE42R**		7 1/2	1215	65	7.50	825
23	24,776	22,472	19,938	17,002	---	---	**HSE48P**	48	3	689	26	3.00	850
24	29,415	27,494	25,451	23,266	20,848	16,367	**HSE48Q**		5	818	35	5.00	865
25	33,730	32,062	30,333	28,493	26,570	24,503	**HSE48R**		7 1/2	938	44	7.50	905
26	37,361	35,859	34,320	32,705	31,015	29,266	**HSE48S**		10	1039	54	10.00	915
27	26,708	23,811	20,507	---	---	---	**HSE54P**	54	3	562	32	3.00	980
28	31,698	28,969	27,123	23,649	18,847	---	**HSE54Q**		5	667	43	5.00	1005
29	36,213	33,623	32,042	30,002	26,730	22,680	**HSE54R**		7 1/2	762	54	7.50	1040
30	39,730	37,257	35,708	34,259	31,773	28,738	**HSE54S**		10	836	64	10.00	1050
31	32,239	27,705	22,119	---	---	---	**HSE60P**	60	3	467	28	3.00	1136
32	38,452	34,635	30,962	24,962	17,294	---	**HSE60Q**		5	557	38	5.00	1160
33	44,113	40,851	37,515	34,181	28,183	21,130	**HSE60R**		7 1/2	639	48	7.50	1200
34	48,324	45,390	42,240	39,387	35,825	29,255	**HSE60S**		10	700	58	10.00	1210

1 — Performance shown is for Installation Type A: free inlet, free outlet. Performance ratings do not include the effects of appurtenances in the airstream.

2 — The first three letters of the model number identify **fan type, drive configuration** and **style.** The next two numbers indicate **fan size,** the next letter identifies **motor horsepower.** Example: Model HSE18J is Type "HSE", 18" size, 1/2 H.P.

3 — The sound ratings shown are loudness values in fan sones at 5 ft. (1.5m) in a hemispherical free field calculated per AMCA Standard 301. Values shown are for Installation Type A: free inlet fan sones levels. The sound ratings shown are at 0" static pressure.

4 — Maximum brake horsepower (BHP) within the catalog performance range. Power Ratings (BHP) do not include drive losses. Bearing losses are included. BHP at most static pressures listed is less than that shown, in some cases substantially less. For specific BHP values at individual static pressure points contact your American Coolair representative

Accessories

PROTECTIVE COATINGS: For most applications the American Coolair powder coating system will provide the necessary surface protection for painted parts. This system includes a thermosetting epoxy powder coating to an average thickness of 3 mils and baked at 400° F for hardness, impact resistance, adhesion and chemical resistance.

The fan assembly and curb cap are heavy gauge steel using all welded construction throughout. The standard finish is thermosetting epoxy.

The wind shroud on all units is fabricated of galvanized steel. A finish coat of thermosetting epoxy can be specified on all galvanized components, if desirable.

For applications that require more specialized surface protection, American Coolair offers alternatives: 6 mil epoxy and others. For more information about special protective coatings, contact your American Coolair representative.

INLET AND OUTLET GUARD: Inlet and outlet guards are constructed of 1" x 1", 14-gauge galvanized wire mesh. The outlet guard mounts on the top edge of the wind shroud. These guards prevent entry of foreign objects that might damage units.

SAFETY DISCONNECT SWITCH: This switch is designed to mount on the fan and serve as a safety disconnect from the power supply.

EMERGENCY VENTILATION CONTROL CENTER (EVCC): The EVCC is an optional, engineered control package which can be furnished with the type HSE PRV. It contains a safety disconnect switch, a magnetic motor starter, a control circuit and a high temperature thermostat with a remote bulb mounted in the inlet airstream of the PRV. The EVCC also contains the necessary relays and other electrical components to effect proper control operation under emergency fire conditions. It comes mounted to the PRV (located outside the fire area); it is completely wired and factory tested. Terminals are provided for field connection to the power supply, the push button station for daily operation, and any control devices which may be required in addition to the thermostat.

The HSE PRV can be started and stopped manually using a conventional push button station. An additional push button station can be provided and located in a remote area for manual control of the PRV in the event of a fire. If the PRV is activated by any one of the automatic detection devices, it cannot be turned off by either of the push button stations. Additionally, the PRV will continue to operate if the push button station or the automatic devices are destroyed by fire. With these built in safeguards, no special wiring is required from the EVCC to any of the controls. Once automatically activated, the PRV can be turned off only by the safety disconnect switch at the EVCC or by disconnecting the power supply to the EVCC. Either of these actions would be available to the fire fighting force. Push button station and automatic detection devices other than the high temperature thermostat are furnished by others.

To convert air performance (CFM and SP) and power (BHP) to metric units, multiply CFM x .000472 to obtain cubic meters per second (m^3/s). Multiply SP x 248.36 to obtain Pascals (Pa). Multiply BHP x .7457 to obtain Kilowatts (kW).

Example: 3904 CFM X .000472 = 1.84 m^3/s
0.125 PS X 248.36 = 31.05 Pa
.886 BHP X .7457 = .661 kW

Limited Warranty

In the sale of its products, American Coolair Corporation agrees to correct, by repairs or replacement, any defects in workmanship or material that may develop under proper and normal use during the period of one year from date of shipment from factory. Any product or part proving, upon American Coolair's examination, to be defective during limited warranty period will be repaired or replaced, at American Coolair's option, f.o.b. factory, without charge.

Deterioration or wear caused by chemicals, abrasive action or excessive heat shall not constitute defects.

Motors are guaranteed only to the extent of manufacturer's warranty.

American Coolair's limited warranty does not apply to any of its products or parts that have been subject to accidental damage, misuse by the user, unauthorized alterations, improper installation or electrical wiring, or lack of proper lubrication or other service requirements as established by American Coolair.

Repairs or replacement provided under the above terms shall constitute fulfillment of all American Coolair's obligations with respect to limited warranty.

THE LIMITED WARRANTY STATED HEREIN IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS, STATUTORY OR IMPLIED, INCLUDING WITHOUT LIMITATION THAT OF MERCHANTABILITY AND FITNESS.

NO LIABILITY FOR REINSTALLATION COST OR FOR ANY SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES OF ANY NATURE IS ASSUMED OR SHALL BE IMPOSED UPON AMERICAN COOLAIR.

WARNING CAUTION

DO NOT INSTALL FAN WITH MOVING PARTS WITHIN 8 FEET OF FLOOR OR GRADE LEVEL WITHOUT A GUARD THAT COMPLIES WITH OSHA REGULATIONS. **DO NOT** USE UNLESS ELECTRICAL WIRING COMPLIES WITH ALL APPLICABLE CODES. **DO NOT** WIRE WITHOUT PROVIDING FOR A POWER SOURCE DISCONNECT AT THE FAN ITSELF. **DO NOT** SERVICE EXCEPT BY A QUALIFIED MAINTENANCE TECHNICIAN AND ONLY AFTER DISCONNECTING THE POWER SOURCE. FAILURE TO OBSERVE THESE PRECAUTIONS CAN RESULT IN SERIOUS INJURY OR DEATH.

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