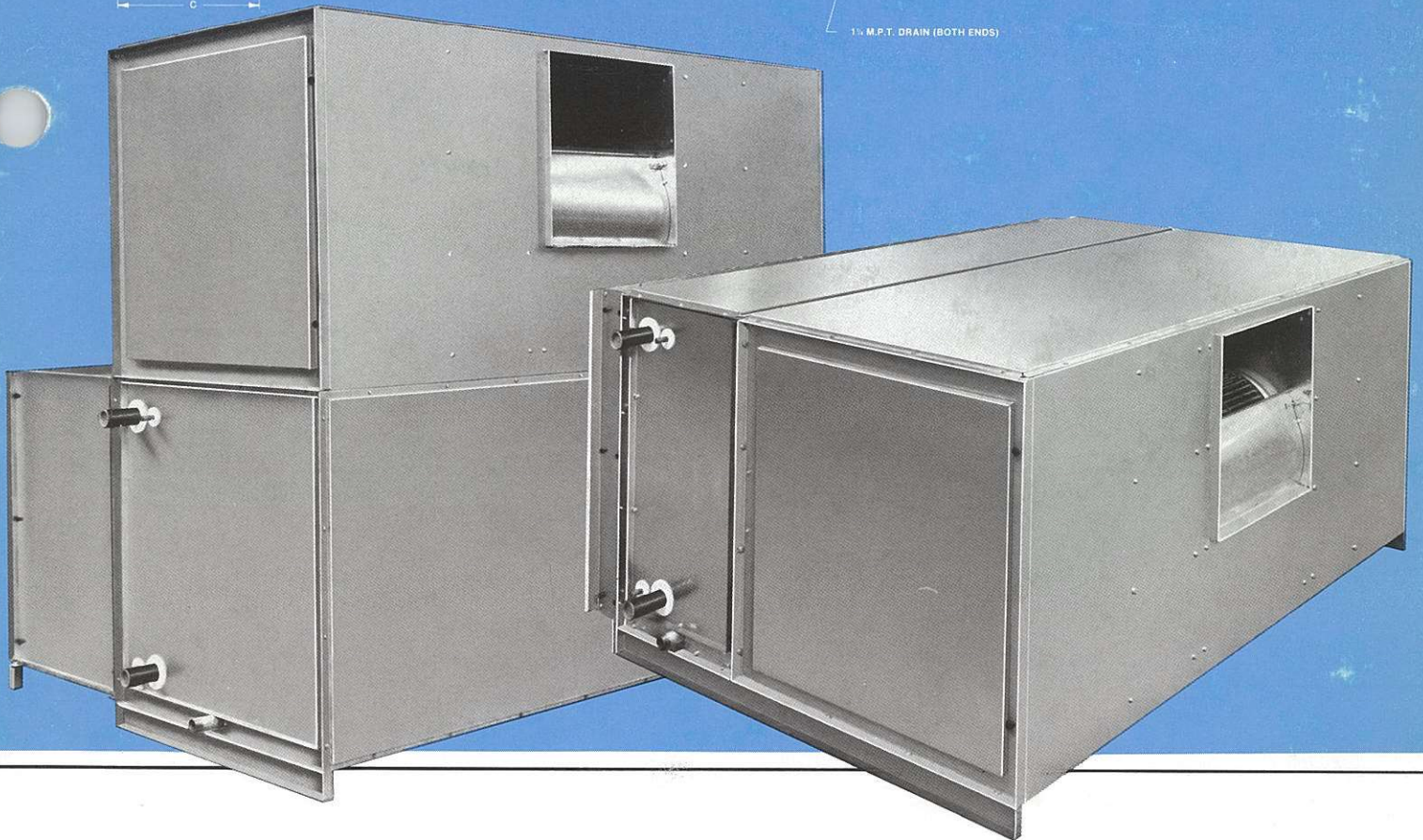
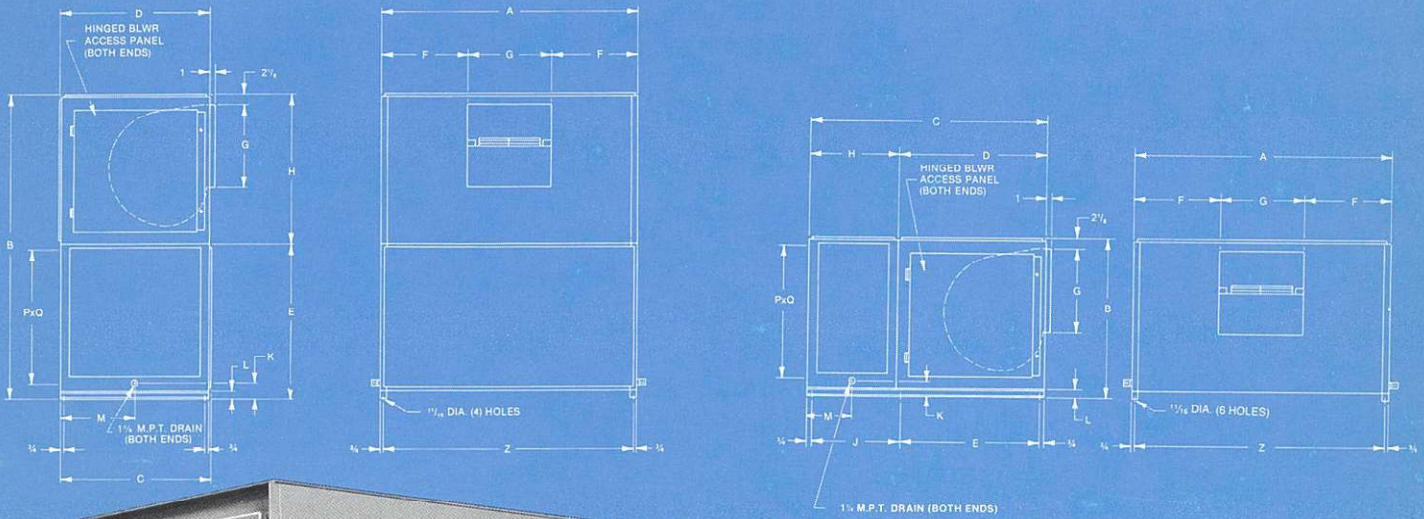




CENTRAL STATION AIR HANDLERS

TECHNICAL BULLETIN
610.1
April 1986

AH



Russell

Russell Coil Company a subsidiary of ARDCO, INC.
221 South Berry Street/Brea, California 92621
(714) 529-1935/(213) 691-3246

Introduction

Superior design and built-in quality make Russell air handling units the best choice for all kinds of commercial, institutional and industrial buildings...



Furthermore, building designers can specify the precise central station air handler features they need from a wide variety of unit configurations and accessory sections. For example, all thirteen unit sizes are available with both small and large face area coils. Nominal coil face areas range from 3 to 50 sq. ft. to meet any application requirement.

In addition, all units have a draw-thru configuration and can be furnished with water cooling or heating coils, DX coils, steam coils, heat reclaim coils, or electric heaters to provide complete year-a-round comfort.

All units are made of the highest quality materials and are assembled and tested to meet our high quality standards. All sections are built with heavy gauge continuous galvanized steel to provide long life and rugged construction. Blower and coil sections

have a rigid unitized construction. All units have solid steel shafting and long life bearing assemblies. Each rotating assembly, including fan wheel, shaft, sheaves, belts and motor, is balanced after final assembly to assure smooth, quiet performance.

Russell air handlers have single forward curved, double width, double inlet fans with internally mounted motors. Each blower section has hinged access panels on both sides for service convenience. Air conditioning units are available for both low and medium pressure applications and all unit sizes can be custom tailored for supermarket applications with our wide selection of DX and heat reclaim coils and electric heat sections.

In short, Russell has the experience and equipment to solve most any air handling problem. Don't hesitate to inquire about customized equipment.

Air Conditioning Units

Available from 900 to 30000 CFM for low or medium pressure applications. All coil sections are designed for either small or large face area coils.

HORIZONTAL UNITS

Most applications can utilize the standard coil section. When additional rows of coil are required, the long coil section can be furnished.

- HS-LP— Low pressure with standard coil section.
- HL-LP— Low pressure with long coil section.
- HS-MP— Medium pressure with standard coil section.
- HL-MP— Medium pressure with long coil section.

VERTICAL UNITS

All units are furnished with the long coil section.

- VL-LP — Low Pressure
- VL-MP— Medium Pressure

Heating & Ventilating Units

Available in horizontal configuration from 900 to 40500 CFM for low pressure applications.

- HH-LP— Blower section with heating only coil section.
- HN-LP— Blower section only.



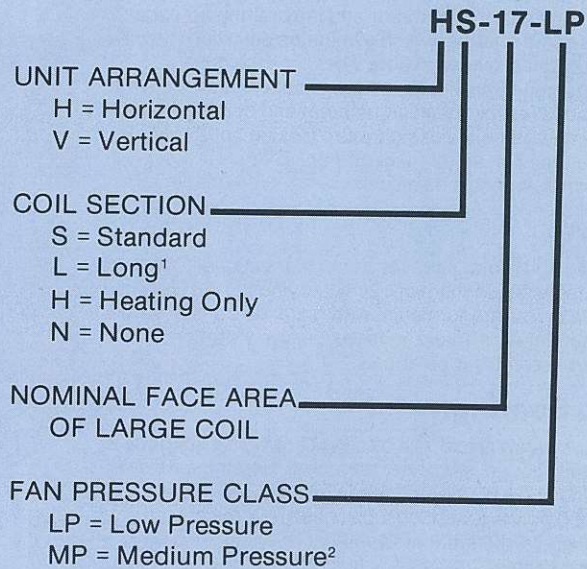
VL-MP UNIT

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Due to continuing product development, these product offerings and their specifications are subject to change without notice.

NOMENCLATURE



¹All Vertical Units Must Use "L" Coil Section
²Not Available When Coil Section = H or N

Construction Features

Cabinet and Frame

All cabinet and frame parts are formed from galvanized steel material. Blower and coil sections are mounted on heavy gauge base rails. On sizes 25 through 50 the base rails surround the entire perimeter of each section. The sides of the blower and coil sections are a unique one-piece formed construction. This construction is very rugged and assures that the sections remain square. The side pieces form the openings for the blower and coil sections to which the access panels are attached. All blower sections have hinged access panels on each side which provide excellent access to the motor and drive components. Unit sizes 36 through 50 have two hinged panels on each side. This makes each panel more manageable to open and provides additional structural support for these large units. A special hinge arrangement is used which allows the panels to be lifted off the unit completely when access space is limited by walls or other obstructions.

Wheels and Housings

All units have single forward curved, double width, double inlet fan wheels. Single wheels eliminate the problem of unequal loading characteristic of units with multiple wheels. Also, the expense of a "pants" type duct connection is avoided.

Slow speed forward curved fans provide quiet unit operation. All fan assemblies are electronically balanced to specifications exceeding those of ARI Standard 435 to assure smooth running operation. Housings are fabricated from heavy gauge material for long service and freedom from vibration. Inlets are die formed into housing sides. Wheel is inserted into the housing through the outlet. Housing design is based on laboratory tests for maximum efficiency compatible with compact design.

Motor

The motor is located inside the blower section which eliminates the need for a bulky belt guard. A heavy gauge steel channel is used to support the adjustable motor mount and motor. The motor and fan bearing are located on the same channel which eliminates belt slippage on start-up and provides a more vibration-free drive arrangement. This design allows excellent access to the drive sheaves for speed adjustment and belt alignment. A sliding motor base design with "jacking bolts" simplifies belt tension adjustment. Either RH or LH motor location is available on all units.

Drive

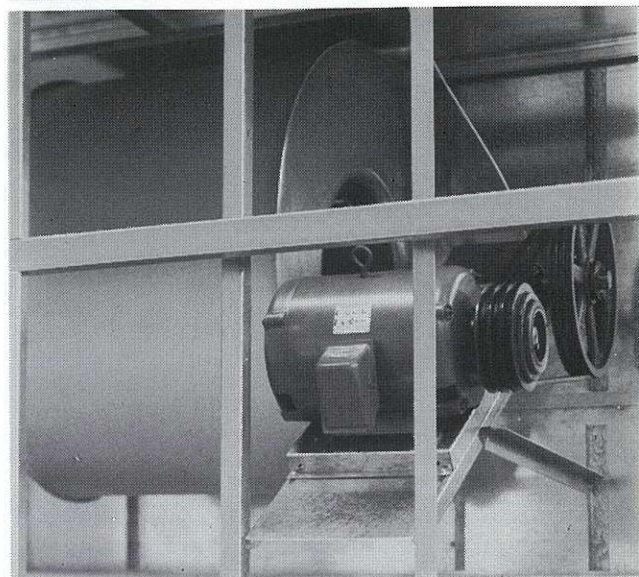
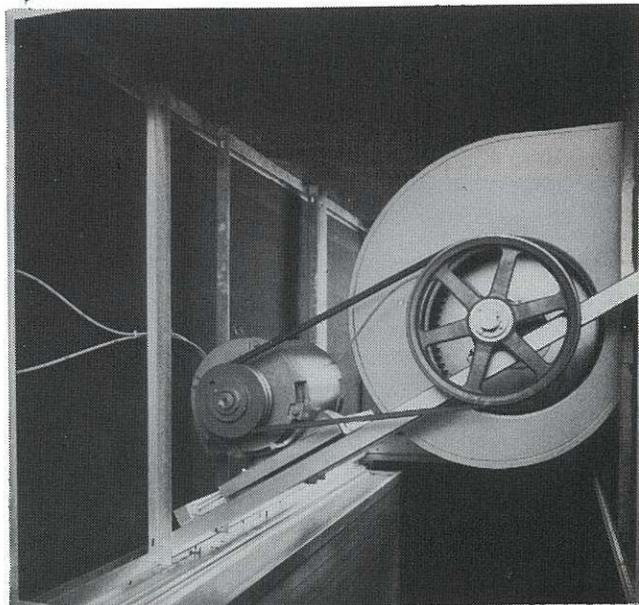
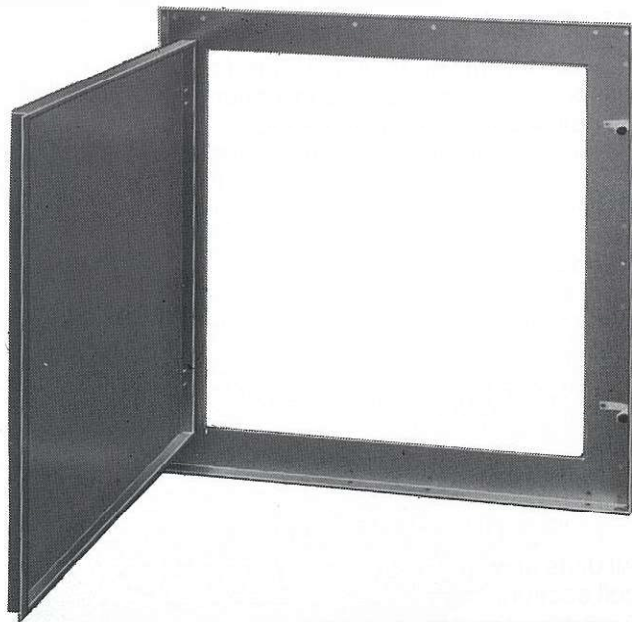
Fan and motor sheaves are of highest quality and are selected at a minimum of 120% service factor. Multi-groove drives are furnished with matched belts. All drive components are analyzed for excessive vibration when the fan assembly is balanced.

Fan Bearings

Two pillow block type bearings are rigidly supported on heavy gauge structural members. Bearings are self-aligning and are selected for an average life in excess of 200,000 hours. Extended lube lines are furnished so bearings can be lubricated without opening the blower section panels.

Fan Shaft

Shafts are solid steel, continuous diameter, turned, ground and polished. They are treated with a non-hardening rust proof compound. Shafts are designed so that critical speed is at least 1.25 times maximum operating speed.



Vibration Isolators

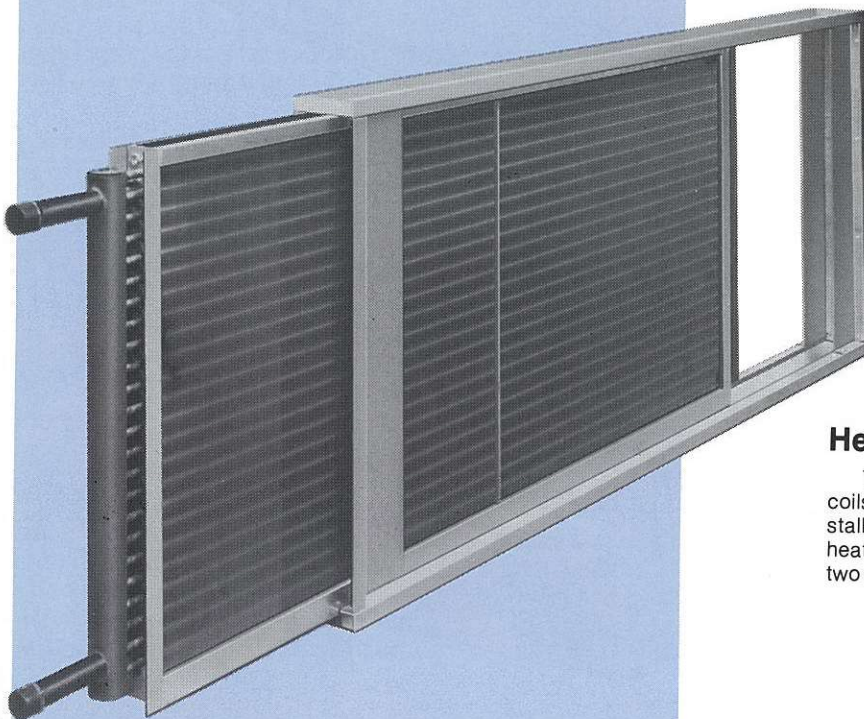
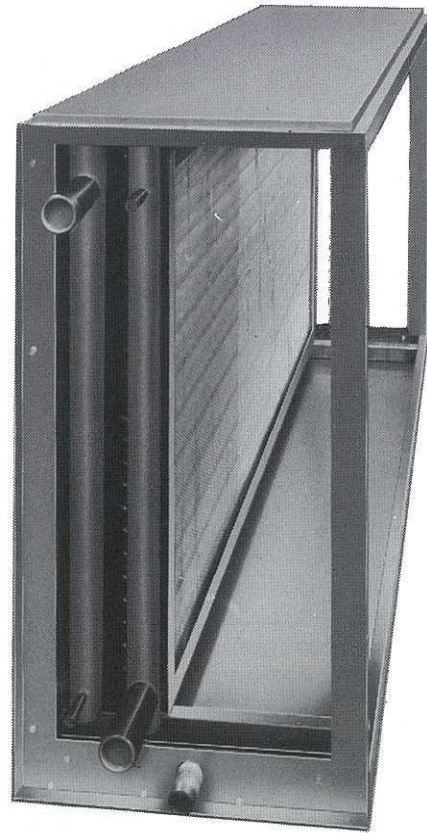
Isolator selections are available in rubber-in-shear or spring type for floor and ceiling mounting. Units are always supported from the base rails. Holes for rods are provided in the cabinet for use when units are ceiling suspended.

Heating-Cooling Coil Sections

Russell heating-cooling coil sections are designed to cover a wide range of application requirements. All sections accommodate either small or large face area coils. Space can be provided between coils when required. Two different coil sections are offered on horizontal units. The standard section, which will handle most applications, and a longer section when more coil or access space is required.

Drain Pan

The drain pan extends to the extremities of the coil sections. It is of double pan construction with insulation between the outer panel and the heavy gauge galvanized steel inner pan. The drain pan has welded corners and is furnished with drain connections on both sides of the unit for field piping convenience. Unit sizes 36 and larger have intermediate drain pans on cooling coils to eliminate excessive water build-up on the lower portion of the coil.



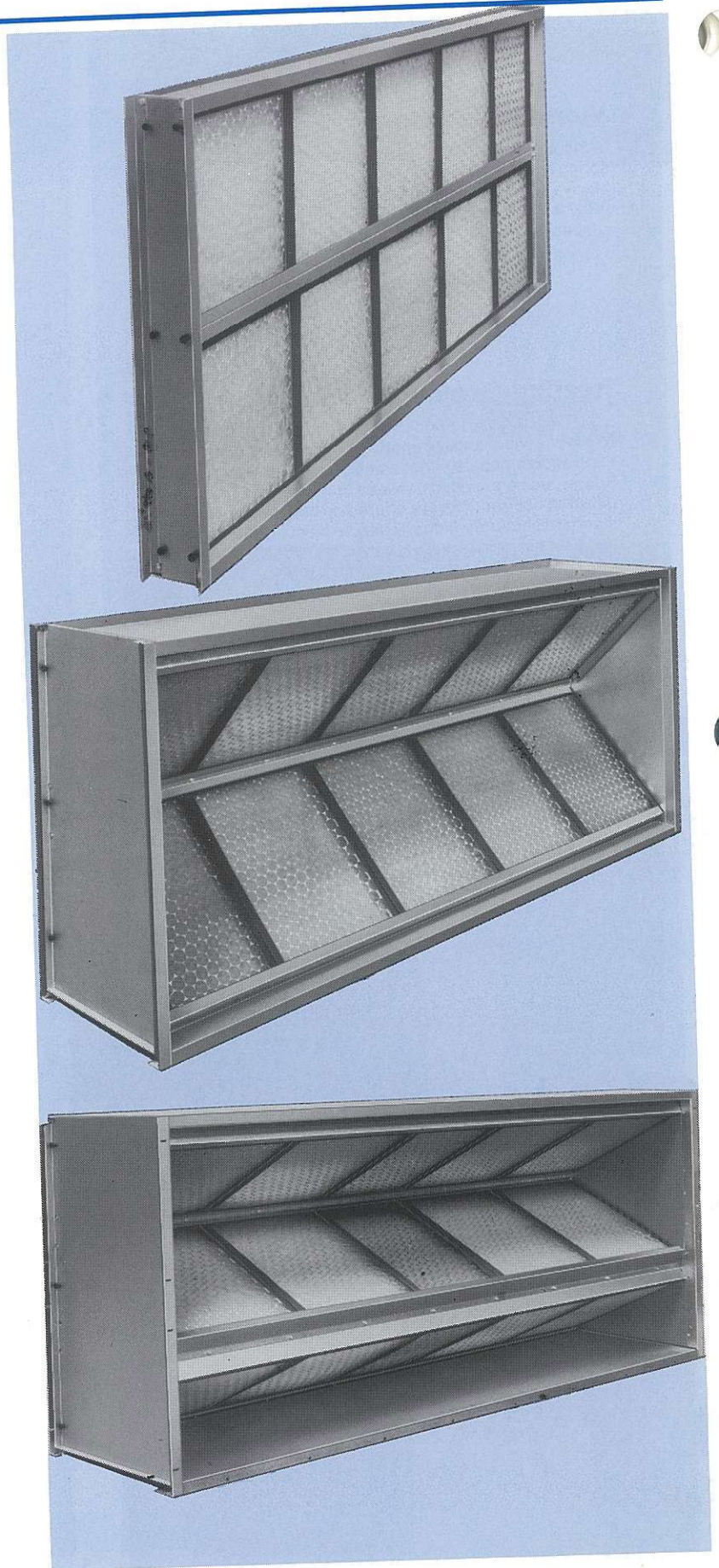
Heating Only Coil Section

This coil section is designed for 1 or 2 row heating coils. It incorporates a slide feature for easy coil installation and removal. Bolt on coils can be provided for heat reclaim applications requiring coils with more than two rows.

Accessory Sections

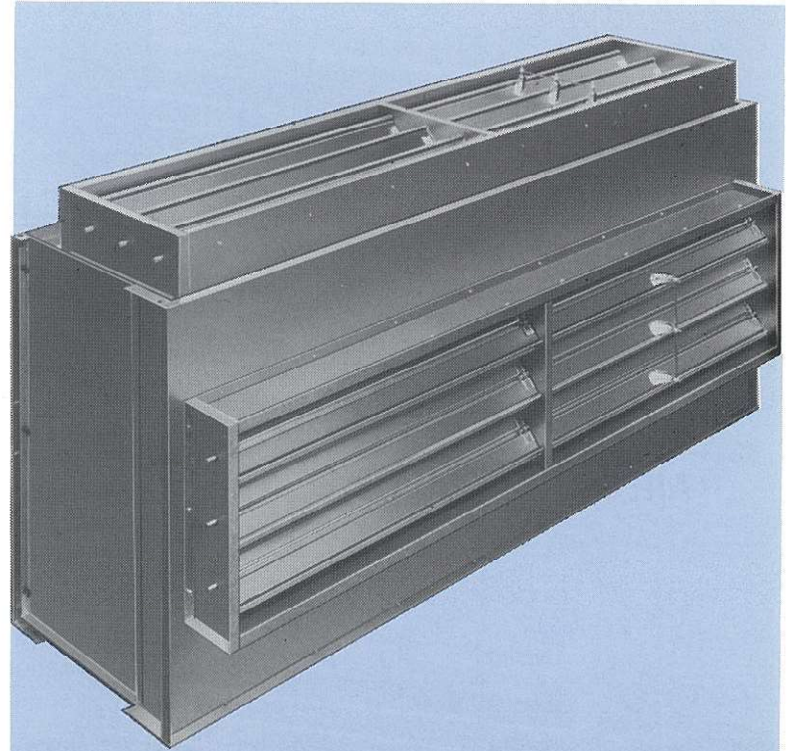
Filters

Flat, angular and heavy duty filter sections are offered. Two inch thick throwaway or high velocity cleanable filters are available in all sections. Filters slide into metal channels and are removable from either end.



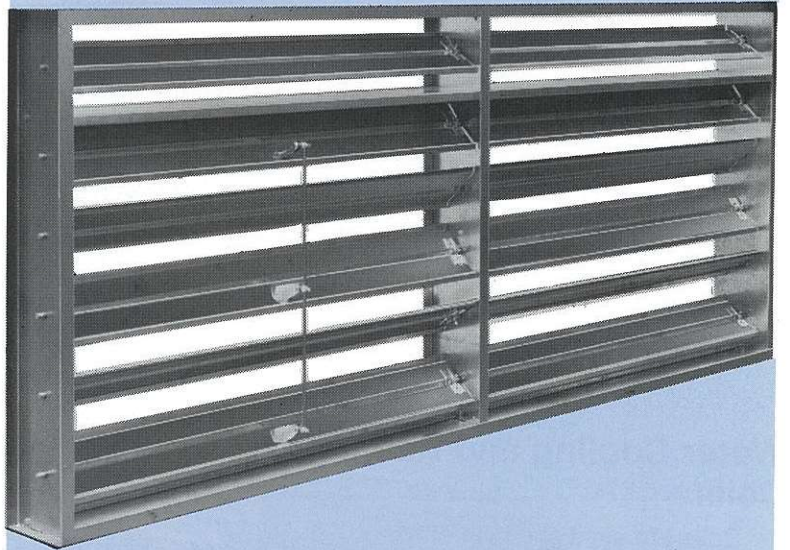
Mixing Boxes

Mixing boxes are of heavy galvanized steel construction. They are available either with or without an angular filter section. When filters are furnished, they are removable from either end. Parallel blade dampers are used and either top and back or bottom and back openings are available.



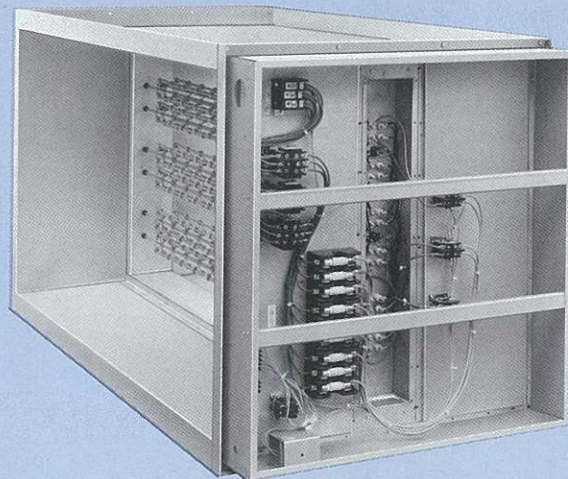
Internal Face and Bypass

This section is offered with balanced opposed blade type dampers with interconnected linkage. A small face area coil must be used with this section.



Electric Heat

Electric heater sections are U.L. Listed for duct installation. The listing applies to the heater only and not the complete air handler. Standard heaters include branch circuit fusing when required, staging contactors, fan interlock switch and terminal blocks for field wiring. Options such as control transformers and airflow switches are also available.

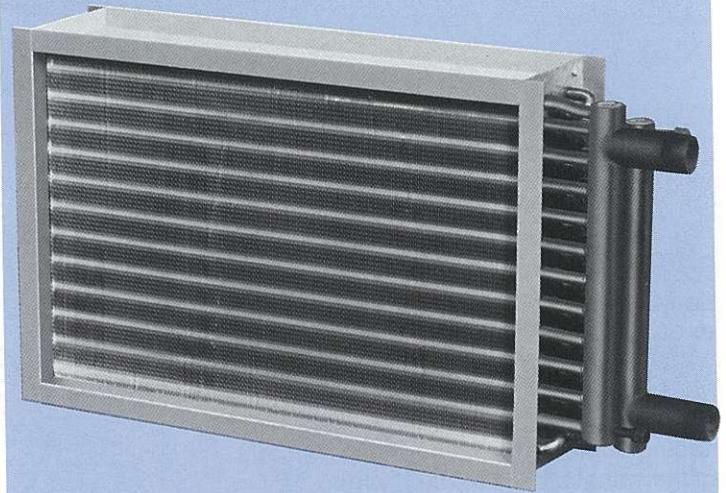


AIR HANDLER COILS

Russell offers a wide variety of coil types to meet the load requirements in a conditioned space. All coils are constructed of seamless copper tubes which are mechanically expanded into the fins to provide maximum heat transfer between the primary and secondary surfaces. Tubes are staggered to increase air turbulence for better coil performance. Corrugated aluminum plate fins with fully collared tube holes are provided. Fin spacing from 4 to 14 FPI is available. Coil casings are heavy gauge galvanized steel. Water and steam coils are provided with steel MPT connections. DX and heat reclaim coils have copper sweat connections. Contact our application department for coil selection and sizing.

Water Cooling and Heating Coils

Coils are available with either $\frac{1}{2}$ " or $\frac{5}{8}$ " tubes and up to 10 rows to meet a wide range of cooling or heating applications. Many different circulating options are available to provide optimum water velocities and reasonable water pressure drops. All coils have completely drainable circuits and are provided with vent and drain connections.



Direct Expansion Cooling Coils

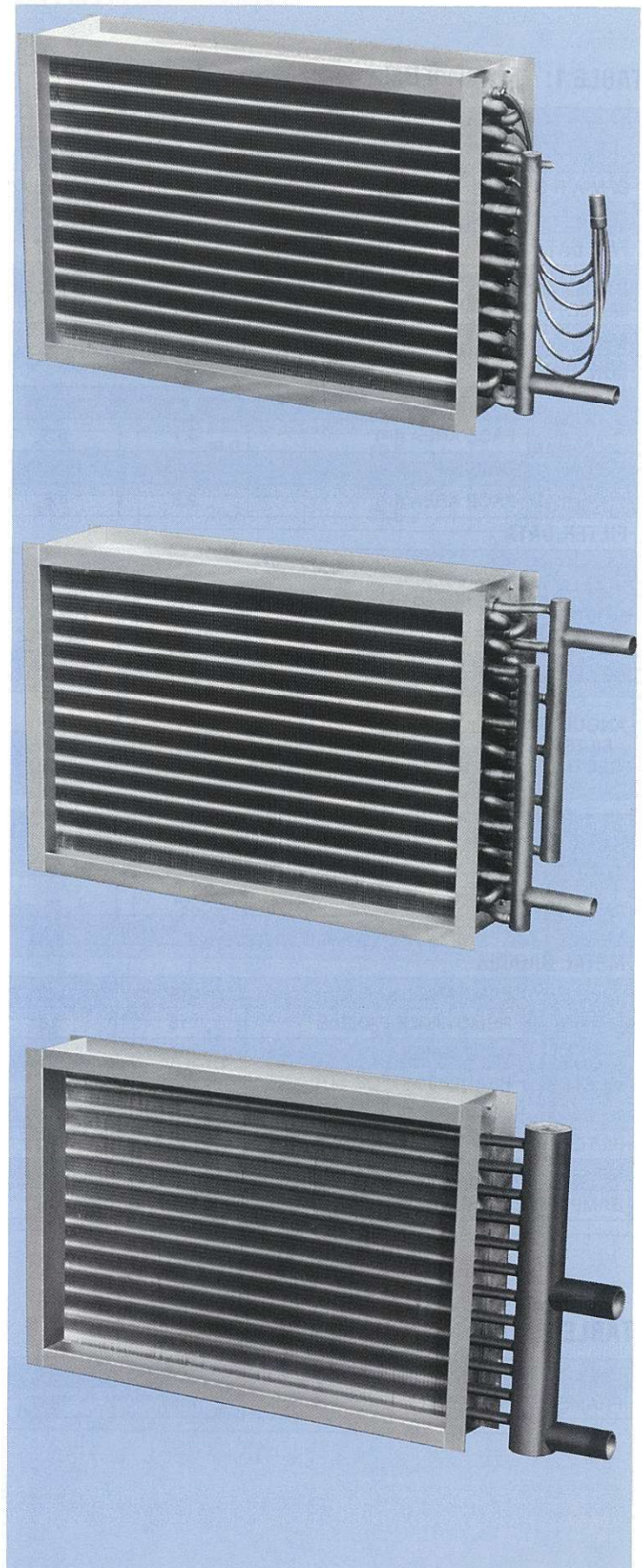
Russell offers a full line of direct expansion coils. Coils are available with $\frac{1}{2}$ " or $\frac{5}{8}$ " tubes and from 3 to 10 rows. Coils are individually circuited for optimum performance. Brass distributors with removable orifices are provided on all coils. A flare equalizer connection is furnished on the suction header. Row split or face split coils are also available.

Heat Reclaim Coils

Russell can provide great flexibility in multi-circuited heat reclaim coils. Coils are available from 2 to 8 rows with either $\frac{1}{2}$ " or $\frac{5}{8}$ " tubes. Coils are circuited to keep internal pressure drop below 5 PSI. All circuits are non-trapping and furnished with copper sweat connections.

Steam Coils

Dual tube non-freeze steam coils can be furnished. Coils have one or two rows with $\frac{5}{8}$ " outer tubes and $\frac{3}{8}$ " internal steam distributing tubes. Internal tubes are directionally lanced for high performance and good condensate removal. Coils are pitched in the casing.



Engineering Information

TABLE 1: Physical Data

DESCRIPTION		UNIT SIZE					
		03	06	08	10	12	14
CFM-AIR CONDITIONING		900-1900	1700-3300	2200-4900	2900-6100	3400-7000	4000-8000
CFM-HEATING & VENTILATING		900-2600	1700-4700	2200-6700	2900-8500	3400-10200	4000-12000
FAN DATA							
NO.—DIAMETER (in.)—TYPE		1-9-FC	1-12-FC	1-15-FC	1-15-FC	1-18-FC	1-18-FC
OUTLET AREA (ft ²)		.84	1.46	2.05	2.05	2.28	2.28
SHAFT & BEARING DIA. (in.)		1	1	1 ⁷ / ₁₆	1 ⁷ / ₁₆	1 ⁷ / ₁₆	1 ⁷ / ₁₆
COIL DATA							
LARGE COIL (LC)	DIMENSIONS H(in) x L(in)	15 x 30	18 x 44	24 x 48	30 x 48	30 x 57	30 x 66
	FACE AREA (ft ²)	3.1	5.5	8.0	10.0	11.9	13.8
SMALL COIL (SC)	DIMENSIONS H(in) x L(in)	12 x 30	15 x 44	18 x 48	24 x 48	24 x 57	24 x 66
	FACE AREA (ft ²)	2.5	4.6	6.0	8.0	9.5	11.0
FILTER DATA							
FLAT FILTER SECTION	NO.	2	2 1	3	6	4 2	6
	SIZE (in)	20x20x2	20x20x2 16x20x2	20x25x2	16x20x2	16x25x2 16x20x2	16x25x2
	FILTER AREA (ft ²)	5.55	7.78	10.42	13.33	15.55	16.67
ANGULAR FILTER SECTION	NO.	4	4 2	6	6	6 2	6 2
	SIZE (in)	16x20x2	20x20x2 16x20x2	20x20x2	20x25x2	16x25x2 20x25x2	20x25x2 16x25x2
	FILTER AREA (ft ²)	8.89	15.55	16.66	20.83	23.61	26.38
HEAVY DUTY FILTER SECTION	NO.	—	—	—	9	9 3	9 3
	SIZE (in)	—	—	—	20x20x2	16x20x2 20x20x2	20x20x2 16x20x2
	FILTER AREA (ft ²)	—	—	—	25.0	28.33	31.66
METAL GAUGES							
FAN AND COIL SECTION	FAN PANEL	16	16	14	14	14	14
	REMOVABLE PANELS	18	18	18	18	18	18
	BASE RAILS	10	10	10	10	10	10
	BEARING/MOTOR SUPPORT	12	12	12	12	12	12
	DRAIN PAN	16	16	16	16	16	16
FILTER SECTION PANELS		18	18	18	18	18	18
MIXING BOX PANELS		18	18	18	18	18	18
DAMPER BLADES		16	16	16	16	16	16

TABLE 2: Maximum Motor Frame Size

UNIT SIZE	03	06	08	10	12	14
FRAME SIZE	145T	184T	213T	215T	215T	215T

UNIT SIZE

17	21	25	31	36	41	50
5100-10500	6100-12400	7000-15000	9000-19000	11000-22000	12000-24000	15000-30000
5100-14700	6100-18000	7000-21000	9000-26000	11000-28000	12000-34500	15000-40500
1-20-FC	1-20-FC	1-25-FC	1-25-FC	1-30-FC	1-30-FC	1-36-FC
3.91	3.91	6.78	6.78	8.74	8.74	10.96
1 ⁷ / ₁₆	1 ⁷ / ₁₆	1 ¹¹ / ₁₆	1 ¹¹ / ₁₆	1 ¹⁵ / ₁₆	1 ¹⁵ / ₁₆	1 ¹⁵ / ₁₆
36 x 69	36 x 84	42 x 84	42 x 108	(2) 24 x 108	(2) 27 x 108	(2) 33 x 108
17.3	21.0	24.5	31.5	36.0	40.5	49.5
30 x 69	30 x 84	33 x 84	33 x 108	39 x 108	42 x 108	(2) 27 x 108
14.4	17.5	19.3	24.8	29.3	31.5	40.5
8	8 2	6 6	6 6	12	6 12	6 12
20x20x2	20x20x2 16x20x2	16x20x2 16x25x2	20x20x2 20x25x2	20x25x2	16x20x2 20x20x2	20x20x2 20x25x2
22.22	26.67	30.0	37.5	41.67	46.67	58.33
8	8 2	4 12	24	24	24	24
20x25x2	20x25x2 16x25x2	16x20x2 16x25x2	16x20x2	16x20x2	20x20x2	20x25x2
27.78	33.33	42.22	53.3	53.33	66.67	83.33
12	12 3	18	18	24	24	30
20x25x2	20x25x2 16x25x2	16x25x2	20x25x2	20x20x2	20x25x2	20x25x2
41.67	50.0	50.0	62.5	66.67	83.33	104
14	14	14	14	14	14	14
18	18	18	18	18	18	18
10	10	10	10	10	10	10
12	12	10	10	10	10	10
16	16	16	16	16	16	16
18	18	18	18	18	18	18
18	18	16	16	16	16	16
16	16	16	16	16	16	16

17	21	25	31	36	41	50
256T	256T	324T	324T	324T	326T	326T

Engineering Information - Continued

TABLE 3: Net Weights (approximate)

DESCRIPTION	UNIT SIZE												
	03	06	08	10	12	14	17	21	25	31	36	41	50
BLOWER AND COIL SECTIONS													
HN-LP	187	254	338	418	456	499	603	652	1070	1163	1537	1677	2029
HH-LP	223	297	389	475	516	562	672	727	1149	1250	1630	1777	2137
HS-LP, HS-MP	349	446	566	693	735	796	946	1019	1357	1484	1918	2066	2444
HL-LP, HL-MP	387	501	614	782	831	900	1107	1201	1599	1773	2256	2477	2865
VL-LP, VL-MP	361	465	567	726	769	831	1022	1102	1612	1784	2235	2441	2896
HEATING AND COOLING COILS (LC) — ALUMINUM FINNS *													
1 ROW	22	33	42	49	56	63	74	87	107	130	177	190	218
2 ROW	29	46	62	73	84	95	115	136	164	203	261	285	333
3 ROW	41	64	85	102	118	133	162	193	228	284	360	395	464
4 ROW	52	82	110	132	153	174	210	251	294	367	461	507	598
5 ROW	62	98	132	159	185	199	244	306	357	448	557	613	726
6 ROW	72	114	155	187	217	247	301	360	420	528	653	720	854
8 ROW	93	148	201	243	283	323	394	472	539	690	847	936	1114
10 ROW	112	180	246	298	347	396	485	581	674	850	1039	1150	1370
FILTER SECTIONS													
FLAT	26	38	44	45	48	56	61	69	83	99	114	143	135
ANGULAR	72	95	101	119	135	146	146	158	165	214	212	242	275
HEAVY DUTY	—	—	—	119	136	148	175	180	196	229	239	266	310
OTHER SECTIONS													
INTERNAL FACE & BYPASS	56	72	83	105	127	149	172	200	168	226	249	274	304
MIXING BOX	145	209	265	290	325	359	374	421	475	581	653	736	829

* To approximate weight of water filled coil, multiply coil weight by 1.35.

TABLE 4: Motor Weights — Drip Proof — 1800 RPM

MOTOR HP	1/2	3/4	1	1 1/2	2	3	5	7 1/2	10	15	20	25	30	40	50
NEMA FRAME	56	56	143T	145T	145T	182T	184T	213T	215T	254T	256T	284T	286T	324T	326T
WEIGHT (LBS.)	18	25	29	31	36	55	69	99	114	191	231	269	300	390	440

TABLE 5: Electric Heat Specifications

HEATER KW	HEATER STAGES			MINIMUM AIRFLOW (CFM)												
				UNIT SIZE												
	208/60/3	240/60/3	480/60/3	03	06	08	10	12	14	17	21	25	31	36	41	50
10	1	1	1	1400	2000	2500	—	—	—	—	—	—	—	—	—	—
20	2	2	2	2150	2500	2800	3450	3950	4300	4900	—	—	—	—	—	—
30	2	2	2	—	3250	3650	4000	4250	4650	5450	6350	7200	8800	—	—	—
40	3	2	2	—	3950	4500	4700	4950	5150	5900	6750	7700	9200	10500	11350	—
60	4	3	3	—	—	5650	6200	6450	6800	7100	7800	8650	10000	11700	12400	13600
80	5	4	4	—	—	—	7300	7900	8050	8750	9200	10250	11200	12400	13450	15450
100	6 ¹	5	4	—	—	—	8250	8700	9300	10050	10650	11700	12600	13550	13950	16350
120	7 ²	6 ¹	4	—	—	—	—	9800	10350	11150	11950	13300	14000	14950	15500	17000
150	9 ²	8 ²	4	—	—	—	—	—	11950	12900	13650	14900	16600	17300	18100	19150
180	11 ²	10 ²	5	—	—	—	—	—	—	—	15100	16650	18200	19150	20150	21000
210	—	12 ²	6	—	—	—	—	—	—	—	16900	18250	20000	21000	22250	23750
240	—	—	7	—	—	—	—	—	—	—	—	19850	21600	23350	23800	24700
260	—	—	7	—	—	—	—	—	—	—	—	—	22600	24300	25850	26550
300	—	—	8	—	—	—	—	—	—	—	—	—	24800	26150	27400	29600

¹ Available only on sizes 17 and larger.

² Available only on sizes 25 and larger.

Available Coil Space

Table 6 shows the coil casing depths for 1 through 10 row coils. The maximum coil space for each heating-cooling coil section is shown in Table 7. The total coil casing depth must not exceed the

values shown. Where space allows, spacer sections with access panels may be installed between coils. Contact factory for details.

TABLE 6:

ROWS	COIL CASING DEPTH (IN.)
1	3.50
2	3.50
3	5.00
4	6.75
5	8.00
6	9.25
8	12.00
10	14.50

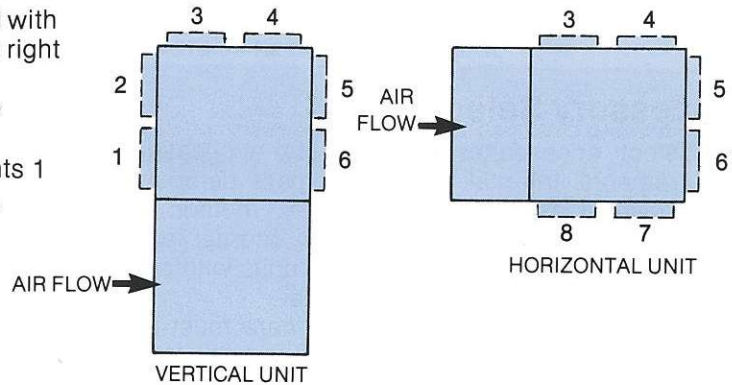
*For 36 and 41 large face area cooling coils and all 50 cooling coils, add 6" to the listed casing depth to allow room for the intermediate drain lines.

TABLE 7:

UNIT ARRANGEMENT	UNIT SIZE	MAXIMUM COIL SPACE (IN.)
HORIZONTAL UNITS WITH STANDARD COIL SECTIONS	03-50	17.50
HORIZONTAL UNITS WITH LONG COIL SECTIONS	03 & 06 08	23.50
	10 - 14	25.50
	17 - 50	37.50
VERTICAL UNITS	03 - 08	17.50
	10 - 50	19.00

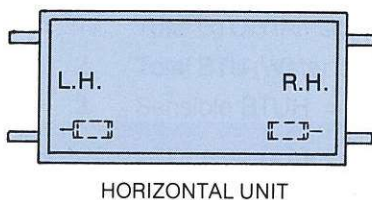
Discharge Arrangements

Discharge arrangement is always specified with the unit viewed so that airflow is from left to right through the coil section. The available arrangements are numbered in a clockwise sequence. Arrangements 7 and 8 are not available on vertical units and arrangements 1 and 2 are not available on horizontal units.

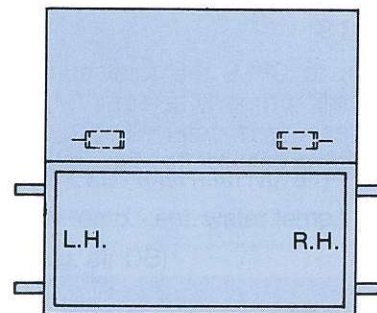


Motor and Coil Connection Locations

The motor and coil connection locations are specified looking in the direction of airflow into the return air intake of the unit.



HORIZONTAL UNIT



VERTICAL UNIT

Unit Selection Information

Unit Size Selection

To select the correct unit size, the CFM requirements for heating, cooling and ventilation must be determined. Normally, the maximum CFM requirement will be for cooling or heating. In certain applications, however, the ventilation CFM requirement could exceed that determined for cooling or heating.

Once the maximum CFM requirement has been established, the optimum unit size can be selected.

The sensible cooling load and the design dry bulb temperature difference across the coil are necessary to determine the cooling CFM requirement. Typical dry bulb temperature differences for cooling range from 12°F to 25°F.

The CFM requirement for heating is also determined by using the sensible heating load and design temperature difference. Typical differences for heating range from 20°F to 50°F.

The minimum CFM requirements for both heating and cooling can be determined by the following formula:

$$\text{CFM} = \frac{\text{Sensible Load (BTUH)}}{1.09 \times \text{Temperature Difference}}$$

Typical coil face velocities range from 400 FPM to 600 FPM for cooling and 400 FPM to 850 FPM for heating.

Divide the maximum CFM by the desired coil face velocity. This will determine the approximate coil face area to be used. Next, enter the fan performance tables on Pages 20 through 27. Select a unit with coil face area closest to the required area. This selection will deliver the required CFM at the desired coil face velocity.

NOTE: If a face and bypass damper is used, select a unit with the desired face velocity based on a small coil.

Coil Selection

Coil selection should be based on the face velocity parameters listed above. See Pages 8 and 9 for types of coils available.

Contact your local representative or Russell Application Department for coil type, row, fin and circuit selections.

Accessory Selection

Select accessories to complete application requirements. Internal face and bypass dampers are available as a "quick response" method of temperature control. When using an internal face and bypass damper, be sure to size units with coil velocities based on the small coil area.

When selecting a filter section, care must be taken not to exceed the maximum face velocity of the filter media being used. See Page 18, Table 9. This will insure the maximum efficiency of the filter

media resulting in a cleaner air. All units are available with flat, angular, and heavy duty (except sizes 03 through 08) filter sections to meet the wide range of filter velocities that may be encountered.

Mixing boxes are available for the mixing of outdoor and recirculated air. They are available with or without an angular filter section and have either top and back or bottom and back openings. Openings can be furnished with or without dampers.

Fan Motors

In addition to CFM, the total static pressure must be known to properly select a fan motor. The total static pressure is determined by adding the external static pressure to the internal static

pressure. Internal static pressure can be determined by adding together the individual air friction values found in Tables 9 through 11.

Electric Heat

When ordering electric heat, specify the required voltage and KW rating. Also specify any desired options such as control transformer or air

flow switch. Make sure that the system's CFM exceeds the minimum shown in Table 5 for the selected heater KW.

Unit Selection Example

SPECIFICATIONS: Desired coil face velocity: 500 FPM — Unit Arrangement: Horizontal — Accessories: Angular filter section with throw away filters — External Static Pressure: 1.5 in. -H₂O

Summer Design Conditions:

Entering Air	80 DB/67 WB
Leaving Air	55 DB/54 WB
Entering Water	42
Leaving Water	52
Sensible BTUH	186300
Total BTUH.....	274019

Winter Design Conditions:

Entering Air	65 DB
Leaving Air.....	110 DB
Entering Water	180
Leaving Water.....	160
Total BTUH.....	282338

PROCEDURE:

1. Determine Coil Size:

$$\text{Cooling CFM} = \frac{\text{Sensible Cooling Load}}{1.09 \times (\text{Entering Air} - \text{Leaving Air})} = \frac{186300}{1.09 \times (80-55)} = 6837 \text{ CFM}$$

$$\text{Heating CFM} = \frac{\text{Total Heating Load}}{1.09 \times (\text{Leaving Air} - \text{Entering Air})} = \frac{282338}{1.09 \times (110-65)} = 5756 \text{ CFM}$$

Use the highest CFM to determine required coil size:

$$\text{Required coil size} = \frac{\text{Highest CFM}}{\text{Desired Coil Vel.}} = \frac{6837}{500} = 13.7 \text{ FT}^2$$

2. Select Unit Size:

Enter the Fan Performance Tables on Pages 20 through 27 and select a unit size with a coil face area closest to the desired face area. Unit size 14 is found to have a large coil face area of 13.8 FT² which provides 495 FPM at 6837 CFM.

3. Coil Selection:

Using given coil data, heating and cooling coils can be selected by your local representative or Russell Application Department. For the above example, cooling coil selection is WF20.4.10.66 and heating coil selection is WF20.1.12.66.

4. Determine Total Static Pressure:

Enter the appropriate Tables on Pages 18 and 19 for the individual static pressure losses.

External Static Pressure	1.50
Filter Section (Table 9)	.08
Cooling Coil WF20.4.10.66 (Table 11)	.55
Heating Coil WF20.1.12.66 (Table 10)	.12
TOTAL STATIC PRESSURE	2.25

5. Select Fan Motor and RPM:

From the fan performance Table for an HS-14-LP (Page 21), the brake HP is 4.6 and the RPM is 870. To account for effect of drive losses, multiply 4.6 HP x 1.03 = 4.7 HP. Therefore, a 5 HP motor is the appropriate selection.

GENERAL FORMULAS

- Total BTUH (Air side) = 4.5 x CFM x (total heat ent. air - total heat lvg. air)
- Total BTU (Water side) = 500 x GPM x (lvg. water temp. - ent. water temp.)
- Sensible BTUH = 1.09 x CFM x (ent. air DB - lvg. air DB)
- Face Area (FT²) = $\frac{\text{CFM}}{\text{Face Velocity (FPM)}}$
- Face Velocity = $\frac{\text{CFM}}{\text{Face Area (FT}^2\text{)}}$

Application Considerations

General

The supporting structure must be adequate to support the air handler, its accessories and its connecting duct work. Adequate space must be provided for routine maintenance and repairs. Cooling coils must have a trap installed in the drain line; therefore, space should be provided for it as well. When possible, all equipment should be located away from areas requiring "low noise". If this is not possible, sound attenuation methods should be considered.

Discharge Dampers

When a discharge damper is used, the best performance is achieved if it is located no less than three times the largest dimension of the fan discharge opening downstream from the fan with the blades perpendicular to the fan shaft. NOTE: Discharge dampers should not be used to close off the total air flow, as some fans may build enough pressure to damage the duct work.

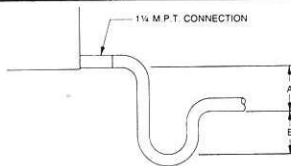
Duct Work Considerations

1. Systems designed with a minimum pressure loss through duct work, supply registers and return grills will result in a lower fan HP and lower operating costs.
2. In addition to pressure loss, consideration must be given to air velocities through the duct work to keep noise levels at a minimum.
3. It is recommended that turns at the discharge of the fan should be a distance at least three times the largest dimension of the fan discharge opening downstream from the fan. Also, elbows turned in the direction of the fan rotation offer the least resistance.
4. Discharge ducts should be the same size as the fan outlet. If the duct size must be increased, a transition with a maximum slope of 15° is recommended.
5. Turning vanes may be used to reduce pressure loss through an elbow.

Drive Losses

When selecting a motor at or near its nameplate rating, consideration should be given to drive losses. Drive losses range from two to six percent (with an average of about three percent) and depend on the belt tension, the number of belts and the type of belts.

Drain Line Trap



A drain line trap must be installed to allow condensate to drain freely. Dimensions A and B must be twice the negative static pressure for the unit to drain correctly. Incorrect trapping can cause the drain pan to over-flow.

Vibration Isolators

The type of isolation and required efficiency depends on the motor HP, fan speed, equipment location and building construction. Consideration should be given to each before making the appropriate selection.

All Russell air handlers are factory balanced to close tolerances and minimal isolation should be adequate in most applications. Contact our application department for pre-determined non-critical isolator selections. All selections are based on actual weight distribution. Should critical isolation be required, our application department can select the optimum isolators for your specific application.

Damper Performance

Internal face and bypass and mixing box dampers are designed for air modulation only and do not close off tightly. Air leakage in cooling applications has no appreciable effect. In heating applications, however, the air temperature may rise several degrees and this should be considered in system design. If low leakage dampers are required, contact our application department.

Correction for Air Density

All of the fan performance tables in this catalog are based on standard air having a density of .075 lbs. per cubic foot. Since fans are constant volume machines, corrections to RPM and BHP must be made when selections are made at other than standard air conditions. Table 8 shows correction factors based on air temperature and altitude. The factors are the ratio of the density of air at operating

conditions to the density of standard air. When a correction is required, divide the external static pressure at operating conditions by the appropriate correction factor from Table 8. Then add this revised ESP value to the internal static pressure to determine the revised total static pressure. Use this value to enter the appropriate fan table and determine the RPM and BHP values. The BHP value obtained from the fan table must be corrected by multiplying it by the correction factor from Table 8.

TABLE 8: Altitude/Temperature Correction Factors

AIR TEMP. (°F)	ALTITUDE (FT)										
	0	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000
0	1.15	1.10	1.08	1.02	.99	.95	.92	.88	.85	.82	.79
20	1.11	1.06	1.02	.98	.95	.92	.88	.85	.82	.79	.76
40	1.06	1.02	.98	.94	.91	.88	.84	.81	.78	.76	.74
60	1.02	.98	.94	.91	.88	.85	.81	.79	.76	.73	.71
70	1.00	.96	.93	.89	.86	.83	.80	.77	.74	.71	.69
80	.98	.94	.91	.88	.84	.81	.78	.75	.72	.70	.67
100	.94	.91	.88	.84	.81	.78	.75	.72	.70	.68	.65
120	.92	.88	.85	.81	.78	.76	.72	.70	.67	.65	.63
140	.89	.85	.82	.79	.76	.73	.70	.68	.65	.63	.61
160	.85	.82	.79	.76	.74	.70	.68	.65	.63	.61	.59

Fan and Motor Heat

FAN HEAT

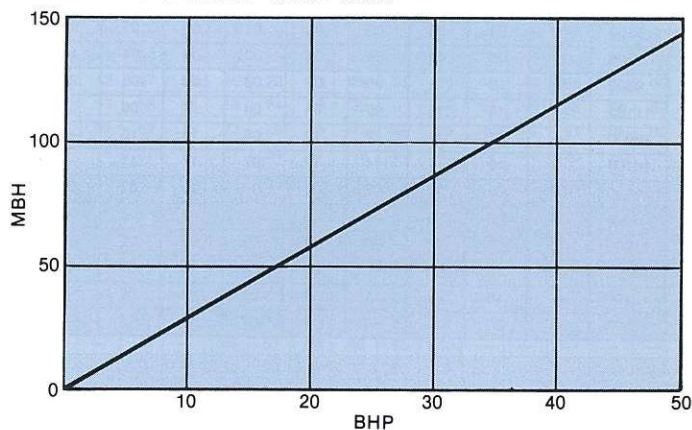
Heat generated by the fan must be considered as a heat gain. The amount of heat generated is proportional to the BHP according to the following formula;

$$\text{Fan Heat Gain (BTUH)} = \text{BHP} \times 2545$$

MOTOR HEAT

The additional heat added to the air stream when a motor and drive are mounted internally, instead of externally, is not great. If the motor were 100% efficient, the only difference would be in the drive loss, which is minimal. For a 90% efficient motor, the difference is approximately 10% of the motor watts. Although this small amount of heat must be added to the cooling load, it can be subtracted from the heating load. In addition, the life of an internally mounted motor will be extended due to its operation in a clean, filtered air stream. The graph at right shows the combined heat gain in MBH for the fan, motor and drive as a function of BHP.

Fan And Motor Heat Gain



Air Friction Data

TABLE 9: Component Air Friction (Inches of Water)

UNIT SIZE	CFM	FILTER SECTION						INT. FACE & BYPASS	MIXING BOX LESS FILTERS	VERT. UNIT CASING
		FLAT		ANGULAR		HEAVY DUTY				
		TA	CLEAN HI-VEL	TA	CLEAN HI-VEL	TA	CLEAN HI-VEL			
03	900	.05	.02	.03	.01	—	—	.01	.02	.07
	1100	.06	.02	.04	.01	—	—	.03	.02	.10
	1400	.08	.04	.05	.02	—	—	.05	.04	.16
	1800	.11	.06	.06	.03	—	—	.08	.06	.27
	2200	.15	.09	.08	.04	—	—	.12	.09	—
	2600	—	.11	.10	.05	—	—	.14	.11	—
06	1700	.07	.03	.03	.01	—	—	.02	.02	.08
	2100	.09	.04	.04	.01	—	—	.03	.03	.12
	2700	.12	.07	.05	.02	—	—	.05	.05	.19
	3300	.16	.10	.06	.03	—	—	.08	.07	.29
	3900	—	.13	.08	.04	—	—	.11	.09	—
08	4700	—	.18	.10	.05	—	—	.15	.12	—
	2200	.06	.03	.04	.01	—	—	.02	.02	.07
	2800	.09	.04	.05	.02	—	—	.03	.02	.10
	3700	.12	.07	.07	.03	—	—	.06	.04	.17
	4900	—	.12	.10	.05	—	—	.10	.07	.30
10	5800	—	.15	.12	.07	—	—	.14	.09	—
	6700	—	.20	.15	.09	—	—	.18	.12	—
	2900	.07	.03	.04	.01	.03	.01	.02	.02	.07
	3700	.09	.05	.05	.02	.04	.01	.04	.03	.11
	4900	.12	.07	.07	.03	.06	.02	.06	.05	.19
12	6100	—	.11	.10	.05	.08	.03	.10	.07	.30
	7300	—	.15	.12	.07	.10	.05	.14	.09	—
	8500	—	.20	.15	.09	.12	.07	.17	.12	—
	3400	.07	.03	.04	.01	.03	.01	.02	.02	.07
	4200	.09	.04	.05	.02	.04	.01	.04	.02	.10
14	5400	.12	.07	.07	.03	.06	.02	.06	.04	.16
	7000	—	.11	.10	.05	.08	.04	.10	.06	.28
	8600	—	.15	.12	.07	.10	.05	.14	.09	—
	10200	—	.20	—	.10	.12	.07	.18	.12	—
	4000	.08	.04	.04	.02	.04	.01	.03	.02	.07
17	5500	.12	.06	.06	.03	.05	.02	.05	.03	.13
	6500	.14	.09	.08	.04	.06	.03	.07	.04	.18
	8000	—	.12	.10	.05	.08	.04	.11	.06	.28
	9500	—	.16	.12	.07	.10	.05	.14	.09	—
	11000	—	.21	.16	.10	.12	.07	.19	.11	—
21	5100	.07	.03	.05	.02	.03	.01	.03	.02	.08
	7500	.11	.06	.09	.04	.05	.02	.05	.04	.15
	9300	.16	.10	.11	.06	.07	.03	.08	.05	.24
	11100	—	.13	.15	.09	.08	.04	.11	.08	.34
	12900	—	.17	—	.12	.10	.05	.15	.10	—
25	14100	—	.19	—	.14	.12	.07	.17	.11	—
	6100	.07	.03	.05	.02	.03	.01	.03	.02	.07
	8900	.11	.06	.09	.04	.05	.02	.05	.03	.14
	11000	.15	.09	.11	.06	.07	.03	.08	.05	.22
	13100	—	.13	.15	.09	.08	.04	.11	.07	.32
31	15200	—	.16	—	.11	.10	.05	.14	.09	—
	17300	—	.20	—	.14	.12	.07	.18	.11	—

TABLE 9 (continued)

UNIT SIZE	CFM	FILTER SECTION						INT. FACE & BYPASS	MIXING BOX LESS FILTERS	VERT. UNIT CASING	
		FLAT		ANGULAR		HEAVY DUTY					
		TA	CLEAN HI-VEL	TA	CLEAN HI-VEL	TA	CLEAN HI-VEL				
25	7000	.07	.03	.05	.02	.04	.01	.03	.02	.07	
	9000	.10	.05	.06	.03	.05	.02	.04	.03	.10	
	11000	.13	.08	.08	.04	.07	.03	.06	.04	.16	
	13000	.17	.10	.10	.06	.08	.04	.09	.05	.23	
	15000	—	.13	.12	.07	.10	.05	.11	.07	.31	
	17000	—	.16	.15	.09	.11	.07	.14	.09	.39	
	19000	—	.19	—	.11	.14	.08	.17	.10	.47	
	21000	—	—	—	.13	.16	.10	—	.12	.55	
	31	9000	.08	.03	.05	.02	.04	.01	.03	.02	.08
		11000	.10	.05	.06	.03	.05	.02	.04	.02	.10
13000		.12	.07	.07	.04	.06	.03	.06	.03	.14	
15000		.15	.09	.09	.05	.08	.04	.08	.04	.18	
18000		—	.13	.11	.07	.10	.05	.11	.06	.24	
20000		—	.15	.13	.08	.11	.06	.13	.07	.33	
23000		—	.18	—	.11	.13	.07	.16	.09	.42	
36	26000	—	—	—	.13	.15	.09	—	.11	.52	
	11000	.08	.04	.06	.02	.05	.02	.03	.02	.08	
	13000	.10	.05	.07	.03	.06	.02	.05	.02	.10	
	15000	.12	.07	.09	.04	.07	.03	.06	.03	.13	
	17000	.15	.09	.11	.06	.08	.04	.08	.04	.18	
	20000	—	.13	.13	.08	.10	.05	.11	.06	.25	
	22000	—	.14	.15	.09	.11	.06	.13	.07	.30	
	25000	—	.18	—	.12	.13	.08	.16	.09	.40	
	28000	—	—	—	.14	.16	.10	.19	.10	.48	
	41	13500	.10	.05	.06	.03	.05	.02	.04	.02	.09
16500		.12	.07	.08	.04	.06	.03	.06	.03	.14	
19500		.16	.10	.10	.05	.07	.03	.08	.04	.19	
22500		—	.13	.11	.06	.09	.04	.11	.06	.25	
25500		—	.15	.14	.09	.10	.05	.13	.07	.33	
28500		—	.18	—	.10	.12	.07	.16	.09	.40	
31500		—	—	—	.12	.13	.08	.19	.10	.47	
34500		—	—	—	.15	.15	.09	—	.12	.55	
50	15000	.08	.04	.05	.02	.04	.01	.03	.02	.08	
	18000	.10	.05	.06	.03	.05	.02	.05	.03	.10	
	21000	.12	.07	.08	.04	.06	.02	.06	.04	.14	
	24000	.15	.09	.10	.05	.07	.03	.08	.05	.19	
	27000	—	.11	.11	.06	.08	.04	.10	.06	.24	
	31500	—	.15	.13	.08	.10	.05	.13	.08	.34	
	36000	—	.18	—	.10	.12	.07	.16	.09	.42	
	40500	—	—	—	.12	.14	.09	—	.11	.51	

TABLE 10:
Dry Coil Air Friction
(Inches of Water)

COIL		1/2 IN. TUBE										5/8 IN. TUBE											
ROWS	FPI	FACE VELOCITY (FPM)										FACE VELOCITY (FPM)											
		350	400	450	500	550	600	650	700	750	800	850	350	400	450	500	550	600	650	700	750	800	850
1	6	.03	.03	.05	.05	.06	.07	.08	.09	.10	.12	.13	.04	.05	.06	.07	.08	.09	.10	.12	.13	.15	.17
	8	.04	.04	.06	.06	.08	.08	.10	.11	.13	.15	.16	.05	.06	.07	.09	.10	.11	.13	.15	.16	.18	.21
	10	.04	.05	.07	.08	.09	.10	.12	.14	.15	.18	.20	.06	.07	.09	.10	.12	.14	.15	.18	.20	.22	.25
2	6	.06	.08	.09	.10	.13	.15	.17	.19	.21	.23	.26	.08	.09	.12	.14	.16	.19	.21	.24	.27	.30	.34
	8	.07	.09	.11	.13	.16	.18	.21	.23	.26	.28	.32	.09	.11	.14	.17	.20	.23	.26	.30	.33	.37	.41
	10	.09	.11	.13	.15	.19	.21	.25	.27	.31	.34	.38	.11	.14	.17	.20	.24	.27	.31	.36	.39	.44	.49
3	6	.09	.12	.13	.16	.19	.22	.25	.28	.32	.35	.39	.12	.15	.17	.21	.24	.28	.32	.36	.41	.45	.50
	8	.11	.14	.16	.19	.23	.26	.31	.35	.39	.43	.48	.14	.18	.21	.26	.30	.34	.39	.44	.50	.55	.61
	10	.13	.17	.20	.23	.28	.31	.37	.42	.47	.51	.58	.17	.21	.26	.31	.36	.41	.47	.53	.60	.66	.73
4	6	.12	.15	.18	.22	.25	.29	—	—	—	—	—	.15	.19	.23	.28	.32	.37	—	—	—	—	
	8	.14	.18	.22	.26	.31	.36	—	—	—	—	—	.18	.23	.28	.34	.40	.45	—	—	—	—	
	10	.17	.21	.26	.31	.37	.43	—	—	—	—	—	.22	.28	.34	.41	.48	.54	—	—	—	—	
5	6	.15	.18	.22	.26	.31	.36	—	—	—	—	—	.19	.24	.29	.34	.41	.46	—	—	—	—	
	8	.18	.22	.27	.32	.38	.44	—	—	—	—	—	.23	.30	.36	.42	.50	.57	—	—	—	—	
	10	.21	.26	.32	.38	.46	.53	—	—	—	—	—	.28	.36	.43	.50	.60	.68	—	—	—	—	
6	6	.17	.22	.28	.32	.38	.43	—	—	—	—	—	.23	.28	.35	.42	.49	.56	—	—	—	—	
	8	.21	.27	.34	.39	.46	.53	—	—	—	—	—	.28	.34	.43	.51	.60	.68	—	—	—	—	
	10	.26	.32	.41	.47	.55	.63	—	—	—	—	—	.34	.41	.51	.61	.71	.82	—	—	—	—	
8	6	.23	.29	.36	.42	.50	.58	—	—	—	—	—	.30	.38	.46	.55	.64	.73	—	—	—	—	
	8	.28	.36	.44	.52	.61	.71	—	—	—	—	—	.37	.47	.57	.67	.78	.89	—	—	—	—	
	10	.34	.43	.53	.62	.73	.85	—	—	—	—	—	.44	.56	.68	.80	.93	1.06	—	—	—	—	
10	6	.30	.37	.45	.53	.63	.74	—	—	—	—	—	.38	.48	.58	.69	.81	.93	—	—	—	—	
	8	.36	.45	.55	.65	.77	.90	—	—	—	—	—	.47	.58	.71	.84	.99	1.14	—	—	—	—	
	12	.44	.54	.66	.78	.93	1.08	—	—	—	—	—	.56	.70	.85	1.01	1.19	1.36	—	—	—	—	

TABLE 11:
Wet Coil Air Friction
(Inches of Water)

COIL		1/2 IN. TUBE										5/8 IN. TUBE											
ROWS	FPI	FACE VELOCITY (FPM)										FACE VELOCITY (FPM)											
		350	400	450	500	550	600	650	700	750	800	850	350	400	450	500	550	600	650	700	750	800	850
1	6	.04	.04	.07	.07	.08	.09	.11	.12	.14	.16	.18	.05	.07	.08	.09	.11	.12	.14	.16	.18	.20	.23
	8	.05	.05	.08	.08	.11	.11	.14	.15	.18	.20	.22	.07	.08	.09	.12	.14	.15	.18	.20	.22	.24	.28
	10	.05	.07	.09	.11	.12	.14	.16	.19	.20	.24	.27	.08	.09	.12	.14	.16	.19	.20	.24	.27	.30	.34
2	6	.08	.11	.12	.14	.18	.20	.23	.26	.28	.31	.35	.11	.12	.16	.19	.22	.26	.28	.32	.36	.41	.46
	8	.09	.12	.15	.18	.22	.24	.28	.31	.35	.38	.43	.12	.15	.19	.23	.27	.31	.35	.41	.45	.50	.55
	10	.12	.15	.18	.20	.26	.28	.34	.36	.42	.46	.51	.15	.19	.23	.27	.32	.36	.42	.49	.53	.59	.66
3	6	.12	.16	.18	.22	.26	.30	.34	.38	.43	.47	.53	.16	.20	.23	.28	.32	.38	.43	.49	.55	.61	.68
	8	.15	.19	.22	.26	.31	.35	.42	.47	.53	.58	.65	.19	.24	.28	.35	.41	.46	.53	.59	.68	.74	.82
	10	.18	.23	.27	.31	.38	.42	.50	.57	.63	.69	.78	.23	.28	.35	.42	.49	.55	.63	.72	.81	.89	.99
4	6	.16	.20	.24	.30	.34	.39	—	—	—	—	—	.20	.26	.31	.38	.43	.50	—	—	—	—	
	8	.19	.24	.30	.35	.42	.49	—	—	—	—	—	.24	.31	.38	.46	.54	.61	—	—	—	—	
	10	.23	.28	.35	.42	.50	.58	—	—	—	—	—	.30	.38	.46	.55	.65	.73	—	—	—	—	
5	6	.20	.24	.30	.35	.42	.49	—	—	—	—	—	.26	.32	.39	.46	.55	.62	—	—	—	—	
	8	.24	.30	.36	.43	.51	.59	—	—	—	—	—	.31	.41	.49	.57	.68	.77	—	—	—	—	
	10	.28	.35	.43	.51	.62	.72	—	—	—	—	—	.38	.49	.58	.68	.81	.92	—	—	—	—	
6	6	.23	.30	.38	.43	.51	.58	—	—	—	—	—	.31	.38	.47	.57	.66	.76	—	—	—	—	
	8	.28	.36	.46	.53	.62	.72	—	—	—	—	—	.38	.46	.58	.69	.81	.92	—	—	—	—	
	10	.35	.43	.55	.63	.74	.85	—	—	—	—	—	.46	.55	.69	.82	.96	1.11	—	—	—	—	
8	6	.31	.39	.49	.57	.68	.78	—	—	—	—	—	.41	.51	.62	.74	.86	.99	—	—	—	—	
	8	.38	.49	.59	.70	.82	.96	—	—	—	—	—	.50	.63	.77	.90	1.05	1.20	—	—	—	—	
	10	.46	.58	.72	.84	.99	1.15	—	—	—	—	—	.59	.76	.92	1.08	1.26	1.43	—	—	—	—	
10	6	.41	.50	.61	.72	.85	1.00	—	—	—	—	—	.51	.65	.78	.93	1.09	1.26	—	—	—	—	
	8	.49	.61	.74	.88	1.04	1.22	—	—	—	—	—	.63	.78	.96	1.13	1.34	1.54	—	—	—	—	
	12	.59	.73	.89	1.05	1.26	1.46	—	—	—	—	—	.76	.95	1.15	1.36	1.61	1.84	—	—	—	—	

Fan Performance

Models HS, HL, HH, HN, VL-LP (Low Pressure Units)

UNIT SIZE	CFM STD. AIR	FAN OUTLET VEL. FPM	COIL FACE VELOCITY FPM		TOTAL STATIC PRESSURE — INCHES OF WATER																					
					0.50		0.75		1.00		1.25		1.50		1.75		2.00		2.25		2.50		2.75		3.00	
					LC	SC	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
03	900	1076	288	360	793	.13	973	.19	1131	.26	1273	.33	1399	.41	1515	.50	1622	.58	1722	.68	1817	.77	*	*	*	*
	1000	1196	321	400	798	.15	970	.21	1126	.28	1265	.36	1393	.45	1509	.53	1618	.62	1719	.72	1816	.82	*	*	*	*
	1100	1315	353	440	806	.17	971	.24	1121	.31	1259	.39	1386	.48	1502	.57	1612	.66	1715	.76	1811	.87	*	*	*	*
	1200	1435	385	480	817	.19	976	.26	1120	.34	1255	.43	1380	.52	1495	.61	1605	.71	1707	.81	1804	.92	*	*	*	*
	1300	1555	417	520	832	.22	983	.30	1122	.38	1253	.47	1375	.55	1490	.65	1599	.75	1701	.86	1798	.97	*	*	*	*
	1400	1674	449	560	848	.25	993	.33	1127	.41	1254	.50	1373	.60	1485	.70	1592	.80	1694	.91	1790	1.02	*	*	*	*
	1500	1794	481	600	867	.29	1005	.37	1135	.46	1257	.55	1373	.65	1483	.75	1588	.86	1688	.97	1784	1.08	*	*	*	*
	1600	1913	513	640	887	.33	1020	.41	1145	.50	1263	.60	1375	.70	1482	.80	1585	.91	1684	1.03	1778	1.14	*	*	*	*
	1700	2033	545	680	910	.38	1036	.46	1157	.56	1271	.65	1380	.76	1484	.86	1585	.98	1681	1.09	1774	1.21	*	*	*	*
	1800	2153	577	720	933	.43	1055	.52	1171	.61	1281	.71	1387	.82	1488	.93	1587	1.04	1681	1.16	1773	1.29	*	*	*	*
	1900	2272	609	760	958	.48	1075	.57	1186	.67	1293	.78	1396	.89	1495	1.00	1590	1.12	1683	1.24	1772	1.37	*	*	*	*
	2000	2392	641	800	985	.54	1096	.64	1203	.74	1307	.85	1407	.96	1503	1.08	1596	1.20	1686	1.32	1773	1.45	*	*	*	*
	2100	2511	673	840	1013	.61	1118	.71	1222	.81	1322	.92	1419	1.04	1513	1.16	1603	1.28	1691	1.41	1777	1.54	*	*	*	*
	2200	2631	705	880	1041	.68	1142	.78	1242	.89	1339	1.01	1433	1.12	1524	1.25	1613	1.37	1698	1.50	1782	1.64	*	*	*	*
	2300	2751	737	—	1071	.76	1167	.86	1263	.98	1357	1.09	1449	1.22	1537	1.34	1623	1.47	1707	1.61	1789	1.74	*	*	—	—
2400	2870	769	—	1102	.85	1193	.95	1286	1.07	1377	1.19	1464	1.31	1551	1.44	1635	1.58	1717	1.71	1797	1.85	*	*	—	—	
2500	2990	801	—	1133	.95	1220	1.05	1309	1.17	1397	1.29	1483	1.42	1567	1.55	1649	1.69	1729	1.83	*	*	—	—	—	—	
2600	3110	833	—	1165	1.05	1248	1.15	1334	1.27	1419	1.40	1502	1.53	1584	1.67	1664	1.81	1742	1.95	—	—	—	—	—	—	

*CONTACT FACTORY FOR SELECTION

UNIT SIZE	CFM STD. AIR	FAN OUTLET VEL. FPM	COIL FACE VELOCITY FPM		TOTAL STATIC PRESSURE — INCHES OF WATER																					
					0.50		0.75		1.00		1.25		1.50		1.75		2.00		2.25		2.50		2.75		3.00	
					LC	SC	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
06	1700	1180	309	371	573	.23	701	.33	817	.44	922	.55	1018	.66	1106	.78	1187	.91	1263	1.03	1334	1.16	*	*	*	*
	1900	1319	345	415	579	.27	699	.38	810	.49	913	.61	1008	.73	1096	.86	1179	1.00	1255	1.13	1327	1.27	*	*	*	*
	2100	1458	382	459	588	.33	702	.43	808	.55	907	.68	1000	.81	1087	.95	1169	1.09	1246	1.23	1318	1.38	*	*	*	*
	2300	1597	418	502	600	.38	708	.50	808	.62	903	.75	993	.89	1079	1.04	1159	1.19	1236	1.34	1309	1.49	*	*	*	*
	2500	1736	455	546	614	.45	717	.57	813	.70	903	.84	990	.98	1073	1.13	1152	1.29	1227	1.45	1300	1.61	*	*	*	*
	2700	1875	491	590	630	.52	728	.65	819	.79	906	.94	989	1.09	1069	1.24	1146	1.40	1220	1.57	1291	1.74	*	*	*	*
	2900	2013	527	633	648	.61	741	.75	828	.89	912	1.04	992	1.20	1069	1.36	1143	1.53	1215	1.70	1285	1.88	*	*	*	*
	3100	2152	564	677	667	.71	756	.85	840	1.00	919	1.16	996	1.32	1070	1.49	1142	1.66	1212	1.84	1280	2.02	*	*	*	*
	3300	2291	600	721	687	.81	772	.96	852	1.12	929	1.28	1003	1.45	1075	1.63	1144	1.81	1212	1.99	1278	2.18	*	*	*	*
	3500	2430	636	764	708	.93	789	1.09	867	1.25	941	1.42	1012	1.60	1081	1.78	1148	1.97	1214	2.16	1278	2.35	*	*	*	*
	3700	2569	673	808	731	1.07	807	1.23	882	1.40	954	1.58	1023	1.76	1089	1.95	1154	2.14	1218	2.34	1280	2.54	*	*	*	*
	3900	2708	709	852	754	1.22	827	1.38	899	1.56	968	1.74	1035	1.93	1099	2.13	1162	2.33	1224	2.53	1284	2.74	*	*	*	*
	4100	2847	745	—	778	1.38	848	1.55	916	1.73	983	1.92	1048	2.12	1111	2.32	1172	2.53	1231	2.74	1289	2.95	*	*	*	*
	4300	2986	782	—	804	1.56	869	1.73	935	1.92	1000	2.12	1063	2.32	1123	2.53	1183	2.74	1240	2.96	1297	3.18	*	*	*	*
	4500	3125	818	—	829	1.75	891	1.93	955	2.13	1017	2.33	1078	2.54	1137	2.76	1195	2.97	1251	3.20	*	*	*	*	*	*
4700	3263	855	—	856	1.97	915	2.15	975	2.35	1035	2.56	1094	2.78	1152	3.00	1208	3.22	1263	3.45	*	*	*	*	*	*	

*CONTACT FACTORY FOR SELECTION

UNIT SIZE	CFM STD. AIR	FAN OUTLET VEL. FPM	COIL FACE VELOCITY FPM		TOTAL STATIC PRESSURE — INCHES OF WATER																					
					0.50		0.75		1.00		1.25		1.50		1.75		2.00		2.25		2.50		2.75		3.00	
					LC	SC	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
08	2200	1094	275	367	472	.28	581	.41	677	.56	763	.71	841	.87	912	1.03	978	1.20	1040	1.37	1098	1.54	1152	1.72	1204	1.90
	2500	1243	313	417	475	.33	579	.47	671	.63	756	.79	834	.96	905	1.14	972	1.32	1034	1.51	1094	1.70	1149	1.89	1202	2.08
	2800	1393	350	467	481	.39	579	.54	668	.71	751	.88	827	1.06	898	1.25	965	1.45	1028	1.65	1087	1.85	1143	2.06	1196	2.27
	3100	1542	388	517	489	.47	583	.62	668	.79	748	.98	822	1.17	892	1.37	958	1.58	1020	1.79	1080	2.01	1136	2.23	1190	2.46
	3400	1691	425	567	499	.56	588	.72	670	.90	747	1.09	819	1.29	887	1.50	952	1.72	1014	1.94	1073	2.17	1129	2.41	1183	2.65
	3700	1840	463	617	511	.66	596	.83	675	1.01	749	1.21	818	1.42	885	1.64	948	1.87	1008	2.10	1066	2.34	1122	2.59	1175	2.84
	4000	1990	500	667	526	.78	605	.95	681	1.14	752	1.35	820	1.56	884	1.79	945	2.03	1005	2.27	1061	2.52	1116	2.78	1169	3.04
	4300	2139	538	717	543	.91	617	1.09	689	1.29	758	1.50	823	1.72	885	1.96	945	2.20	1003	2.46	1058	2.72	1112	2.98	1164	3.26
	4600	2288	575	767	562	1.07	630	1.25	698	1.45	765	1.67	828	1.90	888	2.15	946	2.40	1003	2.66	1057	2.93	1109	3.20	1160	3.49
	4900	2437	613	817	582	1.25	645	1.43	709	1.64	773	1.86	834	2.10	893	2.35	949	2.61	1004	2.88	1057	3.15	1108	3.44	1158	3.73
	5200	2587	650	867	604	1.45	661	1.63	722	1.85	783	2.08	842	2.32	899	2.58	954	2.84	1007	3.12	1059	3.40	1109	3.69	1157	3.99
	5500	2736	688	—	627																					

Models HS, HL, HH, HN, VL-LP (Low Pressure Units)

UNIT SIZE	CFM STD. AIR	FAN OUTLET VEL. FPM	COIL FACE VELOCITY FPM		TOTAL STATIC PRESSURE — INCHES OF WATER																					
					0.50		0.75		1.00		1.25		1.50		1.75		2.00		2.25		2.50		2.75		3.00	
					LC	SC	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
10	2900	1442	290	363	483	.42	580	.57	668	.73	749	.91	825	1.10	896	1.29	962	1.49	1025	1.70	1084	1.90	1141	2.12	1194	2.33
	3300	1641	330	413	495	.53	586	.69	669	.86	747	1.05	820	1.25	889	1.46	954	1.67	1016	1.89	1075	2.12	1131	2.35	1185	2.58
	3700	1840	370	463	511	.66	596	.83	675	1.01	749	1.21	818	1.42	885	1.64	948	1.87	1008	2.10	1066	2.34	1122	2.59	1175	2.84
	4100	2039	410	513	531	.82	609	1.00	683	1.19	754	1.40	820	1.62	884	1.85	945	2.08	1004	2.33	1060	2.59	1115	2.85	1167	3.11
	4500	2238	450	563	555	1.02	625	1.20	695	1.40	762	1.61	826	1.84	887	2.08	946	2.33	1002	2.59	1057	2.85	1110	3.13	1161	3.41
	4900	2437	490	613	582	1.25	645	1.43	709	1.64	773	1.86	834	2.10	893	2.35	949	2.61	1004	2.88	1057	3.15	1108	3.44	1158	3.73
	5300	2636	530	663	611	1.52	667	1.71	727	1.92	787	2.15	845	2.40	901	2.66	956	2.92	1008	3.20	1059	3.49	1109	3.78	1158	4.08
	5700	2835	570	713	643	1.84	692	2.03	747	2.24	802	2.48	858	2.74	912	3.00	964	3.28	1015	3.56	1065	3.86	1113	4.16	1160	4.47
	6100	3034	610	763	676	2.20	720	2.39	769	2.61	821	2.85	873	3.12	925	3.39	975	3.68	1024	3.97	1072	4.27	1119	4.59	1164	4.91
	6500	3233	650	813	710	2.61	750	2.81	794	3.03	842	3.28	890	3.54	939	3.82	988	4.12	1035	4.42	1081	4.74	1127	5.06	1171	5.39
	6900	3432	690	863	745	3.07	781	3.27	821	3.50	865	3.75	910	4.02	956	4.31	1002	4.61	1048	4.92	1093	5.24	1136	5.57	1179	5.91
	7300	3631	730	—	781	3.59	813	3.80	850	4.03	890	4.28	932	4.55	975	4.85	1019	5.15	1063	5.47	1106	5.80	1148	6.14	1189	6.49
	7700	3830	770	—	817	4.17	847	4.38	881	4.62	917	4.87	956	5.15	995	5.44	1038	5.76	1079	6.08	1120	6.42	1161	6.77	1201	7.12
	8100	4029	810	—	854	4.81	882	5.03	912	5.27	946	5.52	982	5.80	1019	6.10	1058	6.42	1097	6.75	1137	7.10	1167	7.45	1215	7.82
	8500	4228	850	—	891	5.52	917	5.74	945	5.98	976	6.24	1009	6.53	1044	6.83	1080	7.15	1117	7.48	1155	7.83	1192	8.20	1230	8.57

UNIT SIZE	CFM STD. AIR	FAN OUTLET VEL. FPM	COIL FACE VELOCITY FPM		TOTAL STATIC PRESSURE — INCHES OF WATER																					
					0.50		0.75		1.00		1.25		1.50		1.75		2.00		2.25		2.50		2.75		3.00	
					LC	SC	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
12	3400	1491	286	358	413	.51	493	.69	565	.87	632	1.06	694	1.26	753	1.48	809	1.70	861	1.93	911	2.17	958	2.41	1003	2.66
	3800	1666	320	400	423	.63	499	.81	567	1.01	632	1.21	692	1.43	749	1.65	803	1.89	855	2.13	904	2.38	951	2.64	996	2.90
	4200	1842	354	442	434	.76	507	.96	573	1.17	634	1.39	692	1.61	747	1.85	800	2.09	850	2.35	899	2.61	945	2.88	990	3.15
	4600	2017	388	484	446	.91	517	1.13	580	1.36	639	1.59	695	1.83	748	2.07	799	2.33	848	2.59	895	2.86	940	3.14	985	3.43
	5000	2192	421	526	459	1.08	528	1.33	589	1.57	646	1.81	699	2.06	751	2.32	800	2.59	847	2.87	893	3.15	938	3.44	981	3.74
	5400	2368	455	568	473	1.27	540	1.54	599	1.80	654	2.06	706	2.33	756	2.60	803	2.88	849	3.17	893	3.46	937	3.76	979	4.07
	5800	2543	489	611	487	1.49	552	1.78	610	2.06	664	2.34	714	2.62	762	2.91	808	3.20	853	3.50	896	3.81	938	4.12	978	4.44
	6200	2719	522	653	502	1.73	565	2.04	622	2.35	675	2.65	724	2.95	770	3.25	815	3.56	858	3.87	900	4.19	940	4.51	980	4.84
	6600	2894	556	695	519	1.99	578	2.33	634	2.66	686	2.98	734	3.30	779	3.62	823	3.94	865	4.27	905	4.60	945	4.94	984	5.28
	7000	3070	590	737	536	2.29	593	2.64	647	3.00	698	3.34	745	3.68	789	4.02	832	4.36	873	4.71	912	5.05	951	5.40	988	5.76
	7400	3246	623	779	555	2.63	608	2.99	661	3.36	710	3.73	757	4.10	800	4.47	842	4.84	882	5.21	921	5.58	959	5.95	995	6.33
	7800	3421	657	821	575	3.00	624	3.37	675	3.76	723	4.15	769	4.54	812	4.93	853	5.32	892	5.71	930	6.10	967	6.49	1003	6.89
	8200	3596	691	863	595	3.41	641	3.79	689	4.19	736	4.61	781	5.02	823	5.43	864	5.84	902	6.25	940	6.66	976	7.07	1011	7.48
	8600	3772	725	—	616	3.86	659	4.25	705	4.67	750	5.10	794	5.53	836	5.96	875	6.39	913	6.82	950	7.25	986	7.68	1020	8.11
	9000	3947	758	—	637	4.36	677	4.75	721	5.18	765	5.63	807	6.08	848	6.53	887	6.98	925	7.43	961	7.88	996	8.33	1030	8.78
9400	4123	792	—	659	4.89	696	5.30	737	5.74	779	6.20	821	6.67	861	7.14	900	7.61	937	8.08	972	8.55	1007	9.02	1040	9.49	
9800	4298	826	—	681	5.48	716	5.89	755	6.34	795	6.81	835	7.30	875	7.79	913	8.29	949	8.78	984	9.27	1018	9.76	—	—	
10200	4474	859	—	704	6.11	737	6.53	773	6.99	811	7.48	850	7.98	889	8.49	925	9.00	962	9.51	—	—	—	—	—	—	

UNIT SIZE	CFM STD. AIR	FAN OUTLET VEL. FPM	COIL FACE VELOCITY FPM		TOTAL STATIC PRESSURE — INCHES OF WATER																					
					0.50		0.75		1.00		1.25		1.50		1.75		2.00		2.25		2.50		2.75		3.00	
					LC	SC	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
14	4000	1754	291	364	429	.69	503	.89	570	1.09	632	1.30	692	1.52	748	1.75	801	1.99	852	2.24	901	2.49	948	2.75	993	3.02
	4500	1973	328	409	443	.87	514	1.09	578	1.31	638	1.54	694	1.77	747	2.01	799	2.27	848	2.53	896	2.80	941	3.07	986	3.36
	5000	2192	364	455	459	1.08	528	1.33	589	1.57	646	1.81	699	2.06	751	2.32	800	2.59	847	2.87	893	3.15	938	3.44	981	3.74
	5500	2412	401	500	476	1.32	543	1.60	602	1.86	657	2.13	708	2.40	757	2.68	804	2.96	850	3.25	894	3.54	937	3.85	978	4.16
	6000	2631	437	545	495	1.60	558	1.90	616	2.20	669	2.49	719	2.78	766	3.08	811	3.38	855	3.68	898	3.99	939	4.31	979	4.64
	6500	2850	474	591	515	1.92	575	2.25	631	2.58	683	2.90	731	3.21	777	3.53	821	3.84	863	4.17	904	4.49	944	4.83	982	5.17
	7000	3070	510	636	536	2.29	593	2.64	647	3.00	698	3.34	745	3.68	789	4.02	832	4.36	873	4.71	912	5.05	951	5.40	988	5.76
	7500	3289	547	682	560	2.72	612	3.09	664	3.47	713	3.84	759	4.21	803	4.57	844	4.94	884	5.30	923	5.67	960	6.04	996	6.41
	8000	3508	583	727	584	3.20	632	3.58	681	3.98	729	4.39	774	4.79	817	5.18	858	5.57	897	5.95	934	6.34	971	6.73	1006	7.12
	8500	3728	620	773	620	3.75	654	4.13	701	4.55	747	4.97	791	5.40	833	5.82	872	6.25	911	6.67	948	7.10	983	7.52	1018	7.95
	9000	39																								

Fan Performance - Continued

Models HS, HL, HH, HN, VL-LP (Low Pressure Units)

UNIT SIZE	CFM STD. AIR	FAN OUTLET VEL. FPM	COIL FACE VELOCITY FPM		TOTAL STATIC PRESSURE — INCHES OF WATER																							
					0.50		0.75		1.00		1.25		1.50		1.75		2.00		2.25		2.50		2.75		3.00			
					LC	SC	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
17	5100	1314	296	355	362	.74	435	1.00	503	1.29	566	1.59	624	1.92	678	2.26	728	2.61	775	2.97	819	3.34	861	3.71	901	4.10		
	5700	1469	330	397	370	.90	438	1.18	502	1.48	562	1.80	619	2.14	672	2.50	722	2.87	769	3.25	814	3.64	856	4.04	897	4.45		
	6300	1623	365	438	379	1.09	444	1.38	504	1.70	561	2.03	616	2.39	667	2.77	717	3.15	764	3.56	808	3.97	851	4.39	891	4.83		
	6900	1778	400	480	391	1.31	452	1.62	508	1.95	563	2.31	615	2.68	665	3.06	713	3.47	759	3.89	803	4.32	845	4.76	885	5.22		
	7500	1932	435	522	403	1.56	461	1.89	515	2.24	566	2.61	616	3.00	664	3.40	710	3.82	755	4.26	798	4.70	840	5.17	880	5.64		
	8100	2087	470	564	417	1.84	472	2.20	523	2.57	572	2.96	620	3.36	665	3.78	710	4.21	753	4.66	795	5.13	836	5.60	875	6.09		
	8700	2242	504	605	431	2.16	484	2.55	533	2.94	580	3.35	625	3.77	669	4.20	712	4.65	753	5.11	794	5.59	833	6.08	872	6.59		
	9300	2396	539	647	446	2.52	497	2.94	544	3.36	589	3.78	632	4.22	674	4.67	715	5.13	755	5.61	794	6.10	832	6.61	870	7.13		
	9900	2551	574	689	461	2.92	510	3.37	556	3.81	599	4.26	641	4.72	681	5.18	721	5.66	759	6.16	796	6.67	833	7.19	870	7.72		
	10500	2706	609	731	477	3.37	524	3.84	568	4.31	610	4.78	650	5.26	689	5.75	727	6.25	764	6.76	800	7.28	836	7.82	871	8.37		
OUTLET AREA 3.88 FT ²	11100	2860	643	772	494	3.87	539	4.37	581	4.86	622	5.36	661	5.86	699	6.37	735	6.89	771	7.41	806	7.95	840	8.51	874	9.07		
	11700	3015	678	814	511	4.41	554	4.94	595	5.46	635	5.99	672	6.51	709	7.04	744	7.58	779	8.13	813	8.68	846	9.25	879	9.83		
	12300	3170	713	856	528	5.01	569	5.56	609	6.12	648	6.67	684	7.22	720	7.77	754	8.33	788	8.90	820	9.47	853	10.06	884	10.66		
	12900	3324	747	—	546	5.67	586	6.25	624	6.83	661	7.40	697	7.98	731	8.56	765	9.14	797	9.73	829	10.33	861	10.93	891	11.54		
	13500	3479	783	—	564	6.39	602	6.99	639	7.59	675	8.20	710	8.80	744	9.41	776	10.01	808	10.62	839	11.24	869	11.87	899	12.50		
	14100	3634	817	—	583	7.17	619	7.79	655	8.42	690	9.05	724	9.69	756	10.32	788	10.95	819	11.58	849	12.22	879	12.87	908	13.52		
	14700	3788	852	—	602	8.01	636	8.66	671	9.31	705	9.97	738	10.63	770	11.29	801	11.95	831	12.61	860	13.27	889	13.94	918	14.61		
	COIL FACE AREA LC=17.3FT ² SC=14.4FT ²	11100	2860	643	772	494	3.87	539	4.37	581	4.86	622	5.36	661	5.86	699	6.37	735	6.89	771	7.41	806	7.95	840	8.51	874	9.07	
11700		3015	678	814	511	4.41	554	4.94	595	5.46	635	5.99	672	6.51	709	7.04	744	7.58	779	8.13	813	8.68	846	9.25	879	9.83		
12300		3170	713	856	528	5.01	569	5.56	609	6.12	648	6.67	684	7.22	720	7.77	754	8.33	788	8.90	820	9.47	853	10.06	884	10.66		
12900		3324	747	—	546	5.67	586	6.25	624	6.83	661	7.40	697	7.98	731	8.56	765	9.14	797	9.73	829	10.33	861	10.93	891	11.54		
13500		3479	783	—	564	6.39	602	6.99	639	7.59	675	8.20	710	8.80	744	9.41	776	10.01	808	10.62	839	11.24	869	11.87	899	12.50		
14100		3634	817	—	583	7.17	619	7.79	655	8.42	690	9.05	724	9.69	756	10.32	788	10.95	819	11.58	849	12.22	879	12.87	908	13.52		
14700		3788	852	—	602	8.01	636	8.66	671	9.31	705	9.97	738	10.63	770	11.29	801	11.95	831	12.61	860	13.27	889	13.94	918	14.61		

UNIT SIZE	CFM STD. AIR	FAN OUTLET VEL. FPM	COIL FACE VELOCITY FPM		TOTAL STATIC PRESSURE — INCHES OF WATER																							
					0.50		0.75		1.00		1.25		1.50		1.75		2.00		2.25		2.50		2.75		3.00			
					LC	SC	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
21	6100	1572	290	349	376	1.02	441	1.31	503	1.62	561	1.95	616	2.30	669	2.67	718	3.06	766	3.45	810	3.86	853	4.27	893	4.70		
	6800	1752	324	389	389	1.27	450	1.58	507	1.91	562	2.26	615	2.63	665	3.01	713	3.41	759	3.83	804	4.26	846	4.70	886	5.15		
	7500	1932	357	429	403	1.56	461	1.89	515	2.24	566	2.61	616	3.00	664	3.40	710	3.82	755	4.26	798	4.70	840	5.17	880	5.64		
	8200	2113	390	469	419	1.89	474	2.26	525	2.63	574	3.02	620	3.43	666	3.85	710	4.28	753	4.73	795	5.20	835	5.68	874	6.17		
	8900	2293	424	509	436	2.28	488	2.68	537	3.08	583	3.49	627	3.91	671	4.35	713	4.80	754	5.27	794	5.76	833	6.25	871	6.76		
	9600	2474	457	549	453	2.72	503	3.15	550	3.58	594	4.01	636	4.46	678	4.92	718	5.39	757	5.88	795	6.38	833	6.89	869	7.42		
	10300	2654	491	589	472	3.22	519	3.68	564	4.14	606	4.60	647	5.07	686	5.56	725	6.05	762	6.55	799	7.07	835	7.60	870	8.15		
	11000	2835	524	629	491	3.78	536	4.28	579	4.77	620	5.26	659	5.76	697	6.26	734	6.78	770	7.30	805	7.84	839	8.39	873	8.95		
	11700	3015	557	669	511	4.41	554	4.94	595	5.46	635	5.99	672	6.51	709	7.04	744	7.58	779	8.13	813	8.68	846	9.25	879	9.83		
	12400	3195	590	709	531	5.12	572	5.67	612	6.23	650	6.79	686	7.34	722	7.90	756	8.46	789	9.03	822	9.61	854	10.20	885	10.80		
OUTLET AREA 3.91 FT ²	13100	3376	624	749	552	5.90	591	6.49	629	7.07	666	7.66	701	8.25	735	8.83	769	9.43	801	10.02	832	10.62	863	11.23	894	11.85		
	13800	3556	657	788	574	6.77	611	7.38	647	8.00	683	8.62	717	9.24	750	9.85	782	10.47	813	11.10	844	11.72	874	12.36	903	13.00		
	14500	3737	690	829	596	7.72	631	8.36	666	9.01	700	9.66	733	10.31	765	10.96	796	11.61	827	12.26	857	12.91	886	13.57	914	14.24		
	15200	3917	724	869	618	8.77	651	9.43	685	10.11	718	10.79	750	11.47	781	12.15	811	12.83	841	13.51	870	14.20	898	14.88	926	15.58		
	15900	4097	757	—	641	9.91	672	10.60	704	11.30	736	12.02	767	12.73	797	13.44	827	14.15	856	14.87	884	15.58	912	16.29	939	17.01		
	16600	4278	790	—	663	11.15	693	11.86	724	12.60	755	13.34	785	14.08	814	14.83	843	15.57	871	16.32	899	17.06	926	17.80	952	18.55		
	17300	4458	824	—	687	12.50	715	13.24	744	13.99	774	14.77	803	15.54	832	16.32	860	17.09	887	17.87	914	18.64	940	19.42	—	—		
	18000	4639	857	—	710	13.96	737	14.72	765	15.50	794	16.30	822	17.11	850	17.91	877	18.72	904	19.53	930	20.33	—	—	—	—		
COIL FACE AREA LC=21.0FT ² SC=17.5FT ²	11100	2835	524	629	491	3.78	536	4.28	579	4.77	620	5.26	659	5.76	697	6.26	734	6.78	770	7.30	805	7.84	839	8.39	873	8.95		
	11700	3015	557	669	511	4.41	554	4.94	595	5.46	635	5.99	672	6.51	709	7.04	744	7.5										

UNIT SIZE	CFM STD. AIR	FAN OUTLET VEL. FPM	COIL FACE VELOCITY FPM		TOTAL STATIC PRESSURE — INCHES OF WATER																							
					0.50		0.75		1.00		1.25		1.50		1.75		2.00		2.25		2.50		2.75		3.00			
					LC	SC	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
31	9000	1341	286	364	287	1.33	346	1.79	400	2.24	453	2.81	503	3.43	549	4.08	592	4.76	631	5.47	668	6.19	703	6.93	735	7.68		
	10000	1490	317	404	293	1.60	347	2.09	397	2.54	447	3.11	495	3.74	541	4.41	584	5.13	624	5.87	662	6.63	698	7.41	731	8.21		
	11000	1639	349	444	301	1.92	351	2.44	397	2.90	444	3.48	490	4.11	534	4.80	576	5.52	616	6.29	654	7.08	690	7.90	725	8.74		
	12000	1788	381	485	310	2.30	357	2.84	400	3.32	444	3.91	486	4.55	528	5.24	569	5.98	608	6.75	646	7.57	682	8.41	717	9.28		
	13000	1937	413	525	321	2.72	365	3.30	405	3.80	446	4.41	486	5.06	525	5.76	564	6.50	602	7.28	639	8.11	674	8.97	709	9.86		
	14000	2086	444	566	332	3.21	374	3.82	412	4.36	450	4.98	488	5.65	525	6.35	561	7.10	598	7.89	633	8.72	668	9.59	701	10.49		
	15000	2235	476	606	344	3.76	383	4.40	420	4.97	456	5.63	492	6.31	527	7.03	561	7.79	595	8.58	629	9.42	662	10.29	695	11.21		
	16000	2385	508	646	356	4.37	394	5.06	429	5.66	463	6.35	497	7.06	530	7.79	563	8.56	595	9.37	627	10.21	659	11.09	691	12.01		
	17000	2534	540	687	369	5.06	405	5.78	439	6.42	472	7.14	504	7.88	535	8.64	566	9.42	597	10.24	628	11.09	658	11.98	688	12.90		
	18000	2683	571	727	382	5.83	417	6.59	449	7.25	481	8.01	511	8.78	542	9.57	571	10.38	600	11.21	630	12.08	658	12.98	687	13.91		
	19000	2832	603	768	395	6.68	429	7.47	460	8.16	490	8.96	520	9.77	549	10.59	577	11.42	605	12.28	633	13.17	661	14.08	688	15.02		
	20000	2981	635	808	409	7.61	441	8.44	471	9.16	501	10.00	529	10.85	557	11.70	584	12.56	611	13.45	638	14.35	664	15.28	691	16.24		
	21000	3130	667	848	423	8.64	454	9.50	482	10.24	511	11.12	539	12.01	566	12.90	592	13.80	618	14.71	644	15.64	669	16.59	694	17.56		
	22000	3279	698	—	—	437	9.76	467	10.56	494	11.40	522	12.34	549	13.27	575	14.20	601	15.13	626	16.07	651	17.03	675	18.01	699	19.00	
23000	3428	730	—	—	452	10.98	480	11.92	506	12.67	534	13.64	560	14.62	585	15.59	610	16.56	634	17.54	658	18.53	682	19.53	705	20.55		
24000	3577	762	—	—	467	12.31	494	13.28	519	14.03	545	15.05	571	16.07	596	17.08	620	18.09	643	19.11	667	20.14	690	21.17	712	22.22		
25000	3726	794	—	—	481	13.75	508	14.75	532	15.49	557	16.56	582	17.62	607	18.68	630	19.73	653	20.79	676	21.85	698	22.92	720	24.00		
26000	3875	825	—	—	496	15.30	522	16.33	545	17.07	570	18.18	594	19.28	618	20.39	641	21.48	663	22.58	685	23.68	707	24.78	728	25.90		

36	11000	1270	306	376	227	1.47	280	2.08	330	2.79	376	3.57	418	4.42	456	5.30	491	6.23	524	7.19	554	8.17	582	9.18	609	10.22
	12000	1386	333	410	228	1.68	278	2.30	326	3.02	371	3.82	413	4.68	451	5.60	487	6.56	520	7.56	551	8.58	580	9.64	607	10.72
	13000	1501	361	444	231	1.92	278	2.56	323	3.29	366	4.09	407	4.97	446	5.91	481	6.90	515	7.93	546	9.00	576	10.09	604	11.22
	14000	1617	389	479	235	2.20	279	2.86	321	3.59	363	4.41	402	5.30	440	6.25	476	7.27	510	8.32	541	9.42	571	10.55	600	11.71
	15000	1732	417	513	239	2.51	281	3.19	321	3.94	360	4.76	398	5.66	435	6.63	470	7.66	504	8.73	536	9.86	566	11.02	595	12.21
	16000	1848	444	547	244	2.86	283	3.57	322	4.33	359	5.17	395	6.07	431	7.05	465	8.08	499	9.18	530	10.32	560	11.50	589	12.73
	17000	1963	472	581	249	3.24	287	3.98	323	4.77	359	5.62	394	6.53	428	7.51	461	8.56	494	9.66	525	10.82	555	12.02	584	13.27
	18000	2079	500	615	255	3.66	291	4.44	326	5.25	360	6.12	393	7.04	426	8.03	458	9.08	489	10.20	520	11.36	550	12.58	578	13.84
	19000	2194	528	650	261	4.12	296	4.94	329	5.78	361	6.67	393	7.61	425	8.60	456	9.66	486	10.78	516	11.96	545	13.19	573	14.46
	20000	2309	556	684	267	4.63	301	5.48	333	6.35	364	7.26	394	8.22	425	9.23	454	10.30	484	11.43	512	12.61	541	13.85	568	15.13
	21000	2425	583	718	274	5.17	306	6.07	337	6.98	367	7.91	396	8.89	425	9.92	454	11.00	482	12.13	510	13.32	537	14.57	564	15.86
	22000	2540	611	752	281	5.76	312	6.70	342	7.65	371	8.62	399	9.62	427	10.67	454	11.76	481	12.90	508	14.10	535	15.35	561	16.65
	23000	2656	639	786	288	6.41	318	7.38	347	8.37	375	9.37	402	10.40	429	11.47	455	12.58	482	13.74	508	14.95	533	16.20	559	17.51
	24000	2771	667	821	295	7.10	325	8.12	353	9.14	380	10.18	406	11.24	432	12.33	457	13.46	483	14.64	508	15.86	532	17.13	557	18.44
25000	2887	694	855	302	7.84	331	8.90	358	9.97	384	11.04	410	12.14	435	13.26	460	14.41	484	15.60	508	16.84	532	18.12	556	19.45	
26000	3002	722	—	—	310	8.65	338	9.75	364	10.85	390	11.97	414	13.09	439	14.24	463	15.42	486	16.64	510	17.89	533	19.18	556	20.52
27000	3118	750	—	—	318	9.51	344	10.65	370	11.79	395	12.95	419	14.11	443	15.29	466	16.50	489	17.74	512	19.01	534	20.32	556	21.67
28000	3233	778	—	—	325	10.43	351	11.61	377	12.79	401	13.99	424	15.19	447	16.40	470	17.64	492	18.91	514	20.20	536	21.53	558	22.90

41	12000	1386	296	381	228	1.68	278	2.30	326	3.02	371	3.82	413	4.68	451	5.60	487	6.56	520	7.56	551	8.58	580	9.64	607	10.72	
	13500	1559	333	429	233	2.06	278	2.71	322	3.43	364	4.25	405	5.13	443	6.08	479	7.08	512	8.13	544	9.21	574	10.32	602	11.46	
	15000	1732	370	476	239	2.51	281	3.19	321	3.94	360	4.76	398	5.66	435	6.63	470	7.66	504	8.73	536	9.86	566	11.02	595	12.21	
	16500	1905	407	524	247	3.05	285	3.77	322	4.55	359	5.39	394	6.30	429	7.27	463	8.32	496	9.41	527	10.56	558	11.76	587	12.99	
	18000	2079	444	571	255	3.66	291	4.44	326	5.25	360	6.12	393	7.04	426	8.03	458	9.08	489	10.20	520	11.36	550	12.58	578	13.84	
	19500	2252	481	619	264	4.37	298	5.20	331	6.06	363	6.96	394	7.91	424	8.91	455	9.98	485	11.10	514	12.28	543	13.51	571	14.79	
	21000	2425	519	667	274	5.17	306	6.07	337	6.98	367	7.91	396	8.89	425	9.92	454	11.00	482	12.13	510	13.32	537	14.57	564	15.86	
	22500	2598	556	714	284	6.08	315	7.04	345	8.00	373	8.99	401	10.00	428	11.06	455	12.16	481	13.31	508	14.52	534	15.77	560	17.07	
	24000	2771	593	762	295	7.10	325	8.12	353	9.14	380	10.18	406	11.24	432	12.33	457	13.46	483	14.64	508	15.86	532	17.13	557	18.44	
	25500	2945	630	810	306	8.24	334	9.32	361	10.40	387	11.50	412	12.61	437	13.74	461	14.91	485	16.11	509	17.68	533	18.64	556	19.97	
	27000	3118	667	857	318	9.51	344	10.65	370	11.79	395	12.95	419	14.11	443	15.29	466	16.50	489	17.74	512	19.01	534	20.32	556	21.67	
	28500	3291	704	—	—	329	10.91	355	12.11	380	13.32	404	14.53	427	15.75	450	16.98	472	18.24	494	19.52	516	20.82	537	22.17	558	23.54
	30000	3464	741	—	—	341	12.46	366	13.71	390	14.98	413	16.26	435	17.54	457	18.83	479	20.13	500	21.45	520	22.80	541	24.18	562	25.59
	31500	3637	778	—	—	354	14.15	377	15.46	400	16.80	422	18.14	444	19.48	465	20.82	486	22.18	506	23.55	526	24.95	546	26.36	5	

Fan Performance - Continued

Models HS, HL, VL-MP (Medium Pressure Units)

Unit Size 03 & 06 Medium Pressure Units — Contact Factory for medium pressure applications.

UNIT SIZE	CFM STD. AIR	FAN OUTLET VEL. FPM	COIL FACE VELOCITY FPM		TOTAL STATIC PRESSURE — INCHES OF WATER															
					3.25		3.50		3.75		4.00		4.25		4.50		4.75		5.00	
					LC	SC	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
08	2200	1094	275	367	1254	2.08	1301	2.26	1347	2.45	1390	2.64	*	*	*	*	*	*	*	*
	2500	1243	313	417	1252	2.28	1300	2.48	1346	2.68	1391	2.89	*	*	*	*	*	*	*	*
	2800	1393	350	467	1247	2.48	1296	2.70	1343	2.92	1389	3.14	*	*	*	*	*	*	*	*
	3100	1542	388	517	1241	2.69	1291	2.92	1338	3.15	1384	3.39	*	*	*	*	*	*	*	*
	3400	1691	425	567	1234	2.89	1284	3.14	1332	3.39	1378	3.64	*	*	*	*	*	*	*	*
	3700	1840	463	617	1227	3.10	1277	3.36	1325	3.62	1371	3.89	*	*	*	*	*	*	*	*
	4000	1990	500	—	1220	3.31	1270	3.58	1317	3.86	1364	4.14	*	*	*	*	*	*	*	*
	4300	2139	538	—	1214	3.54	1263	3.82	1311	4.11	1357	4.40	*	*	*	*	*	*	*	*
	4600	2288	575	—	1210	3.77	1258	4.07	1305	4.37	1350	4.67	1395	4.98	*	*	*	*	*	*
	4900	2437	613	—	1207	4.03	1254	4.33	1300	4.64	1345	4.95	1389	5.27	*	*	*	*	*	*

*CONTACT FACTORY FOR SELECTION

UNIT SIZE	CFM STD. AIR	FAN OUTLET VEL. FPM	COIL FACE VELOCITY FPM		TOTAL STATIC PRESSURE — INCHES OF WATER															
					3.25		3.50		3.75		4.00		4.25		4.50		4.75		5.00	
					LC	SC	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
10	2900	1442	290	363	1246	2.55	1295	2.77	1342	3.00	1388	3.22	*	*	*	*	*	*	*	*
	3300	1641	330	413	1237	2.82	1286	3.06	1334	3.31	1380	3.55	*	*	*	*	*	*	*	*
	3700	1840	370	463	1227	3.10	1277	3.36	1325	3.62	1371	3.89	*	*	*	*	*	*	*	*
	4100	2039	410	513	1218	3.39	1268	3.66	1315	3.94	1361	4.23	*	*	*	*	*	*	*	*
	4500	2238	450	563	1211	3.69	1260	3.98	1307	4.28	1353	4.58	1397	4.89	*	*	*	*	*	*
	4900	2437	490	613	1207	4.03	1254	4.33	1300	4.64	1345	4.95	1389	5.27	*	*	*	*	*	*
	5300	2636	530	—	1205	4.39	1251	4.71	1296	5.03	1340	5.36	1383	5.69	*	*	*	*	*	*
	5700	2835	570	—	1205	4.79	1250	5.12	1294	5.45	1337	5.79	1379	6.13	*	*	*	*	*	*
	6100	3034	610	—	1209	5.24	1252	5.57	1295	5.92	1337	6.26	1378	6.62	*	*	*	*	*	*

*CONTACT FACTORY FOR SELECTION

UNIT SIZE	CFM STD. AIR	FAN OUTLET VEL. FPM	COIL FACE VELOCITY FPM		TOTAL STATIC PRESSURE — INCHES OF WATER															
					3.25		3.50		3.75		4.00		4.25		4.50		4.75		5.00	
					LC	SC	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
12	3400	1491	286	358	1047	2.92	1088	3.18	1128	3.45	1167	3.72	1204	4.00	1240	4.28	1275	4.57	1309	4.86
	3800	1666	320	400	1040	3.17	1082	3.44	1122	3.73	1161	4.01	1198	4.30	1235	4.60	1270	4.90	1304	5.20
	4200	1842	354	442	1033	3.43	1075	3.72	1115	4.02	1154	4.31	1192	4.62	1228	4.93	1264	5.24	1299	5.56
	4600	2017	388	484	1027	3.72	1068	4.02	1108	4.33	1147	4.64	1185	4.96	1221	5.28	1257	5.61	1292	5.94
	5000	2192	421	526	1022	4.04	1063	4.35	1103	4.67	1141	4.99	1178	5.32	1215	5.65	1250	5.99	1285	6.34
	5400	2368	455	568	1019	4.39	1059	4.71	1098	5.04	1136	5.37	1173	5.71	1209	6.06	1244	6.41	1279	6.77
	5800	2543	489	611	1018	4.77	1057	5.10	1095	5.44	1132	5.78	1168	6.13	1204	6.49	1239	6.85	1273	7.22
	6200	2719	522	—	1019	5.18	1057	5.52	1094	5.87	1130	6.23	1166	6.59	1201	6.96	1235	7.33	1268	7.71
	6600	2894	556	—	1021	5.63	1058	5.98	1094	6.35	1130	6.71	1165	7.09	1199	7.46	1232	7.85	1265	8.24
	7000	3070	590	—	1025	6.12	1061	6.49	1096	6.86	1131	7.24	1165	7.62	1198	8.01	1231	8.41	1263	8.81

LC = LARGE COIL
SC = SMALL COIL

Models HS, HL, VL-MP (Medium Pressure Units)

UNIT SIZE	CFM STD. AIR	FAN OUTLET VEL. FPM	COIL FACE VELOCITY FPM		TOTAL STATIC PRESSURE — INCHES OF WATER															
					3.25		3.50		3.75		4.00		4.25		4.50		4.75		5.00	
					RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
14 OUTLET AREA 2.28 FT ² COIL FACE AREA LC=13.8FT ² SC=11.0FT ²	4000	1754	291	364	1036	3.30	1078	3.58	1118	3.87	1157	4.16	1195	4.46	1232	4.76	1267	5.07	1302	5.28
	4500	1973	328	409	1029	3.65	1070	3.95	1110	4.25	1149	4.56	1187	4.87	1223	5.19	1259	5.51	1294	5.84
	5000	2192	364	455	1022	4.04	1063	4.35	1103	4.67	1141	4.99	1178	5.32	1215	5.65	1250	5.99	1285	6.34
	5500	2412	401	500	1019	4.48	1059	4.80	1097	5.13	1135	5.47	1172	5.81	1208	6.16	1243	6.52	1277	6.88
	6000	2631	437	545	1018	4.97	1057	5.31	1094	5.65	1131	6.00	1167	6.36	1202	6.72	1237	7.09	1270	7.46
	6500	2850	474	591	1020	5.51	1058	5.87	1094	6.22	1130	6.59	1165	6.96	1199	7.34	1233	7.72	1266	8.10
	7000	3070	510	—	1025	6.12	1061	6.49	1096	6.86	1131	7.24	1165	7.62	1198	8.01	1231	8.41	1263	8.81
	7500	3289	547	—	1032	6.79	1067	7.17	1101	7.66	1135	7.95	1168	8.35	1200	8.75	1232	9.16	1263	9.58
	8000	3508	583	—	1041	7.52	1075	7.92	1108	8.32	1140	8.73	1172	9.15	1204	9.56	1235	9.99	—	—

UNIT SIZE	CFM STD. AIR	FAN OUTLET VEL. FPM	COIL FACE VELOCITY FPM		TOTAL STATIC PRESSURE — INCHES OF WATER															
					3.25		3.50		3.75		4.00		4.25		4.50		4.75		5.00	
					RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
17 OUTLET AREA 3.91 FT ² COIL FACE AREA LC=17.3FT ² SC=14.4FT ²	5100	1314	296	355	938	4.50	974	4.90	1008	5.31	1042	5.73	1073	6.15	1104	6.58	1134	7.02	1163	7.46
	5700	1469	330	397	935	4.87	972	5.30	1007	5.73	1041	6.17	1073	6.62	1105	7.07	1135	7.54	1165	8.00
	6300	1623	365	438	930	5.27	967	5.72	1003	6.17	1038	6.64	1071	7.11	1103	7.59	1134	8.07	1164	8.56
	6900	1778	400	480	924	5.68	962	6.15	998	6.63	1033	7.12	1066	7.61	1099	8.11	1130	8.62	1161	9.14
	7500	1932	435	522	919	6.12	956	6.61	992	7.11	1027	7.62	1061	8.14	1094	8.66	1126	9.20	1157	9.73
	8100	2087	470	564	913	6.59	950	7.11	986	7.63	1021	8.16	1055	8.69	1088	9.24	1120	9.79	1151	10.35
	8700	2242	504	605	909	7.11	946	7.63	981	8.17	1016	8.72	1049	9.28	1082	9.84	1114	10.42	1145	11.00
	9300	2396	539	—	906	7.66	942	8.21	977	8.76	1011	9.33	1044	9.90	1077	10.49	1108	11.08	1140	11.68
	9900	2551	574	—	905	8.27	940	8.83	974	9.40	1007	9.98	1040	10.57	1072	11.17	1103	11.78	1134	12.40
	10500	2706	609	—	905	8.93	939	9.50	972	10.09	1005	10.68	1037	11.29	1068	11.91	1099	12.54	1130	13.17

UNIT SIZE	CFM STD. AIR	FAN OUTLET VEL. FPM	COIL FACE VELOCITY FPM		TOTAL STATIC PRESSURE — INCHES OF WATER															
					3.25		3.50		3.75		4.00		4.25		4.50		4.75		5.00	
					RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
21 OUTLET AREA 3.91 FT ² COIL FACE AREA LC=21.0FT ² SC=17.5FT ²	6100	1572	290	349	932	5.13	969	5.57	1005	6.02	1039	6.48	1072	6.94	1104	7.41	1134	7.89	1164	8.37
	6800	1752	324	389	925	5.61	963	6.08	999	6.55	1034	7.04	1067	7.53	1100	8.03	1131	8.53	1162	9.04
	7500	1932	357	429	919	6.12	956	6.61	992	7.11	1027	7.62	1061	8.14	1094	8.66	1126	9.20	1157	9.73
	8200	2113	390	469	912	6.68	950	7.19	985	7.71	1020	8.25	1054	8.79	1087	9.34	1119	9.89	1150	10.46
	8900	2293	424	509	908	7.29	944	7.82	979	8.36	1014	8.92	1048	9.48	1080	10.05	1112	10.63	1143	11.22
	9600	2474	457	549	905	7.96	941	8.51	975	9.07	1009	9.65	1042	10.23	1074	10.82	1106	11.43	1137	12.04
	10300	2654	491	589	905	8.70	939	9.27	973	9.85	1006	10.44	1038	11.04	1069	11.66	1100	12.28	1131	12.91
	11000	2835	524	—	907	9.52	940	10.11	972	10.70	1004	11.31	1035	11.93	1066	12.56	1097	13.20	1126	13.85
	11700	3015	557	—	911	10.42	942	11.02	974	11.64	1005	12.26	1035	12.90	1065	13.55	1095	14.21	1124	14.87
	12400	3195	590	—	916	11.41	947	12.03	977	12.66	1007	13.30	1036	13.96	1066	14.62	1094	15.29	1123	15.98

LC = LARGE COIL
SC = SMALL COIL

Fan Performance — Continued

Models HS, HL, VL-MP (Medium Pressure Units)

UNIT SIZE	CFM STD. AIR	FAN OUTLET VEL. FPM	COIL FACE VELOCITY FPM		TOTAL STATIC PRESSURE — INCHES OF WATER																							
					3.25		3.50		3.75		4.00		4.25		4.50		4.75		5.00		5.25		5.50		5.75		6.00	
					LC	SC	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
25	7000	1043	286	364	761	7.20	788	7.86	814	8.53	838	9.20	862	9.89	884	10.59	906	11.29	928	12.01	948	12.71	968	13.44	988	14.18	—	—
	8000	1192	327	416	765	7.84	793	8.55	820	9.28	845	10.01	870	10.76	894	11.51	916	12.27	938	13.04	960	13.82	981	14.61	—	—	—	—
OUTLET AREA 6.78 FT ²	10000	1490	408	519	763	9.03	793	9.86	822	10.69	850	11.54	876	12.40	902	13.27	926	14.15	949	15.02	972	15.91	994	16.81	—	—	—	—
	11000	1639	449	571	757	9.60	789	10.47	818	11.36	847	12.26	874	13.17	900	14.09	926	15.03	950	15.97	974	16.92	997	17.87	—	—	—	—
COIL FACE AREA LC=24.5FT ² SC=19.3FT ²	12000	1788	490	—	750	10.18	782	11.09	812	12.02	842	12.96	870	13.92	897	14.90	923	15.87	948	16.87	972	17.87	996	18.89	—	—	—	—
	13000	1937	531	—	742	10.78	774	11.72	805	12.69	835	13.67	863	14.67	891	15.69	918	16.71	943	17.75	968	18.81	993	19.87	—	—	—	—
14000	2086	571	—	734	11.43	766	12.39	797	13.39	827	14.40	856	15.43	884	16.48	911	17.55	937	18.63	963	19.73	987	20.84	—	—	—	—	
15000	2235	612	—	727	12.15	758	13.13	789	14.14	819	15.17	848	16.23	876	17.31	903	18.41	930	19.53	955	20.66	981	21.81	—	—	—	—	

UNIT SIZE	CFM STD. AIR	FAN OUTLET VEL. FPM	COIL FACE VELOCITY FPM		TOTAL STATIC PRESSURE — INCHES OF WATER																							
					3.25		3.50		3.75		4.00		4.25		4.50		4.75		5.00		5.25		5.50		5.75		6.00	
					LC	SC	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
31	9000	1341	286	364	766	8.44	795	9.22	823	10.00	849	10.79	875	11.60	899	12.40	923	13.22	946	14.05	968	14.89	989	15.73	—	—	—	—
	10000	1490	317	404	763	9.03	793	9.86	822	10.69	850	11.54	876	12.40	902	13.27	926	14.15	949	15.02	972	15.91	994	16.81	—	—	—	—
OUTLET AREA 6.78 FT ²	11000	1639	349	444	757	9.60	789	10.47	818	11.36	847	12.26	874	13.17	900	14.09	926	15.03	950	15.97	974	16.92	997	17.87	—	—	—	—
	12000	1788	381	485	750	10.18	782	11.09	812	12.02	842	12.96	870	13.92	897	14.90	923	15.87	948	16.87	972	17.87	996	18.89	—	—	—	—
COIL FACE AREA LC=31.5FT ² SC=24.8FT ²	13000	1937	413	525	742	10.78	774	11.72	805	12.69	835	13.67	863	14.67	891	15.69	918	16.71	943	17.75	968	18.81	993	19.87	—	—	—	—
	14000	2086	444	566	734	11.43	766	12.39	797	13.39	827	14.40	856	15.43	884	16.48	911	17.55	937	18.63	963	19.73	987	20.84	—	—	—	—
15000	2235	476	606	727	12.15	758	13.13	789	14.14	819	15.17	848	16.23	876	17.31	903	18.41	930	19.53	955	20.66	981	21.81	—	—	—	—	
16000	2385	508	—	721	12.96	752	13.94	782	14.97	811	16.01	840	17.09	868	18.19	895	19.31	922	20.46	947	21.62	973	22.80	998	24.00	—	—	
17000	2534	540	—	718	13.86	747	14.85	776	15.88	804	16.94	832	18.02	860	19.14	887	20.28	913	21.44	939	22.62	965	23.83	989	25.05	—	—	
18000	2683	571	—	716	14.87	744	15.87	772	16.90	799	17.96	826	19.05	853	20.18	880	21.33	906	22.50	931	23.70	957	24.93	981	26.17	—	—	
19000	2832	603	—	715	15.99	742	16.99	769	18.03	796	19.10	822	20.19	848	21.32	874	22.48	899	23.66	924	24.87	949	26.11	974	27.37	998	28.65	

UNIT SIZE	CFM STD. AIR	FAN OUTLET VEL. FPM	COIL FACE VELOCITY FPM		TOTAL STATIC PRESSURE — INCHES OF WATER																							
					3.25		3.50		3.75		4.00		4.25		4.50		4.75		5.00		5.25		5.50		5.75		6.00	
					LC	SC	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
36	11000	1270	306	376	634	11.28	658	12.35	681	13.45	703	14.57	724	15.70	744	16.85	764	18.02	783	19.21	801	20.42	819	21.64	836	22.87	—	—
	12000	1386	333	410	633	11.82	657	12.95	681	14.09	703	15.26	725	16.44	746	17.64	766	18.86	785	20.10	804	21.35	822	22.62	840	23.90	—	—
OUTLET AREA 8.74 FT ²	13000	1501	361	444	630	12.36	655	13.53	679	14.72	702	15.93	724	17.17	746	18.41	766	19.68	786	20.97	805	22.27	824	23.59	—	—	—	—
	14000	1617	389	479	627	12.90	652	14.11	677	15.34	700	16.60	723	17.88	745	19.18	766	20.49	786	21.82	806	23.17	825	24.54	—	—	—	—
COIL FACE AREA LC=36.0FT ² SC=29.3FT ²	15000	1732	417	513	622	13.43	648	14.69	673	15.96	697	17.26	720	18.58	742	19.92	764	21.28	785	22.66	805	24.06	824	25.47	—	—	—	—
	16000	1848	444	547	617	13.98	643	15.27	669	16.58	693	17.92	717	19.28	739	20.66	761	22.07	782	23.49	803	24.93	822	26.39	—	—	—	—
17000	1963	472	581	612	14.55	638	15.87	664	17.21	688	18.59	712	19.99	735	21.41	757	22.85	779	24.31	800	25.80	820	27.30	839	28.82	—	—	
18000	2079	500	615	606	15.15	633	16.49	658	17.86	683	19.27	707	20.70	730	22.16	753	23.64	775	25.14	796	26.66	816	28.21	836	29.77	—	—	
19000	2194	528	—	600	15.78	627	17.14	653	18.54	678	19.97	702	21.43	725	22.92	748	24.43	770	25.97	791	27.53	812	29.11	832	30.72	—	—	
20000	2309	556	—	595	16.47	622	17.84	647	19.26	672	20.71	696	22.19	720	23.71	742	25.25	765	26.82	786	28.42	807	30.03	827	31.67	—	—	
21000	2425	583	—	591	17.20	617	18.59	642	20.02	667	21.49	691	22.99	714	24.53	737	26.10	759	27.69	781	29.32	802	30.97	822	32.64	—	—	
22000	2540	611	—	587	18.00	612	19.40	637	20.84	661	22.32	685	23.84	709	25.40	731	26.99	753	28.60	775	30.25	796	31.93	817	33.63	837	35.35	

LC = LARGE COIL
SC = SMALL COIL

Models HS, HL, VL-MP (Medium Pressure Units)

UNIT SIZE	CFM STD. AIR	FAN OUTLET VEL. FPM	COIL FACE VELOCITY FPM		TOTAL STATIC PRESSURE — INCHES OF WATER																											
					3.25		3.50		3.75		4.00		4.25		4.50		4.75		5.00		5.25		5.50		5.75		6.00					
					LC	SC	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP		
41 OUTLET AREA 8.71 FT ²	12000	1386	296	381	633	11.82	657	12.95	681	14.09	703	15.26	725	16.44	746	17.64	766	18.86	785	20.10	804	21.35	822	22.62	840	23.90	—	—				
	13500	1559	333	429	628	12.63	654	13.82	678	15.04	701	16.27	724	17.52	745	18.80	766	20.09	786	21.40	806	22.72	824	24.06	—	—	—	—				
	15000	1732	370	476	622	13.43	648	14.69	673	15.96	697	17.26	720	18.58	742	19.92	764	21.28	785	22.66	805	24.06	824	25.47	—	—	—	—				
	16500	1905	407	524	614	14.26	641	15.57	666	16.90	691	18.25	715	19.63	737	21.04	759	22.46	781	23.90	801	25.37	821	26.85	—	—	—	—				
	18000	2079	444	571	606	15.15	633	16.49	658	17.86	683	19.27	707	20.70	730	22.16	753	23.64	775	25.14	796	26.66	816	28.21	836	29.77	—	—				
	19500	2252	481	619	598	16.12	624	17.49	650	18.89	675	20.33	699	21.81	722	23.31	745	24.84	767	26.39	789	27.97	810	29.57	830	31.19	—	—				
COIL FACE AREA LC=40.5FT ² SC=31.5FT ²	21000	2425	519	—	591	17.20	617	18.59	642	20.02	667	21.49	691	22.99	714	24.53	737	26.10	759	27.69	781	29.32	802	30.97	822	32.64	—	—				
	22500	2598	556	—	585	18.43	610	19.83	635	21.27	659	22.76	683	24.29	706	25.85	729	27.45	751	29.07	772	30.73	794	32.42	814	34.14	834	35.87				
24000	2771	593	—	581	19.81	605	21.22	629	22.67	653	24.17	676	25.71	698	27.30	721	28.91	743	30.57	764	32.25	785	33.97	806	35.72	826	37.49					

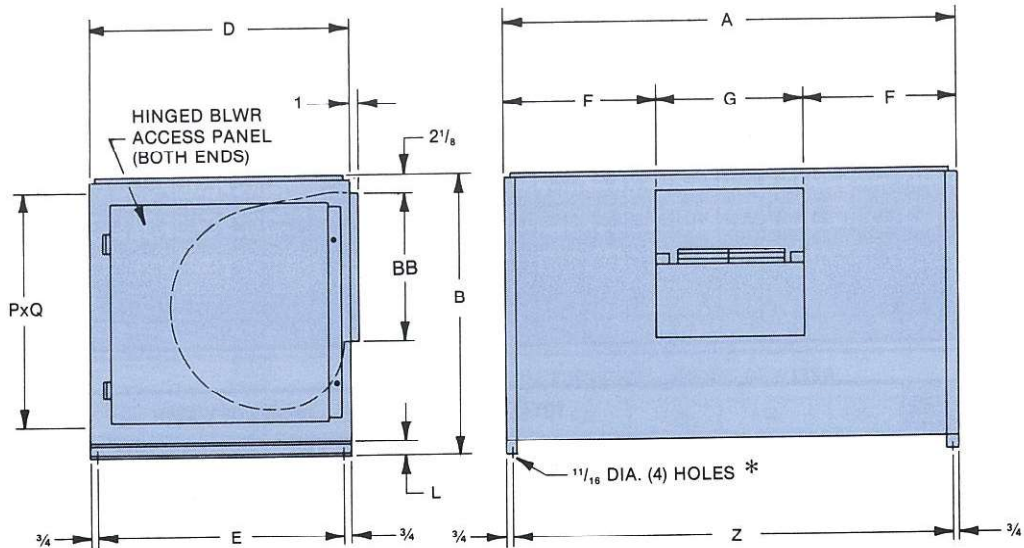
UNIT SIZE	CFM STD. AIR	FAN OUTLET VEL. FPM	COIL FACE VELOCITY FPM		TOTAL STATIC PRESSURE — INCHES OF WATER																											
					3.25		3.50		3.75		4.00		4.25		4.50		4.75		5.00		5.25		5.50		5.75		6.00					
					LC	SC	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP		
50 OUTLET AREA 10.96 FT ²	15000	1379	303	370	540	14.32	562	15.67	583	17.06	603	18.47	623	19.90	642	21.36	660	22.85	678	24.35	696	25.88	—	—	—	—	—	—				
	16500	1517	333	407	535	15.15	557	16.56	579	17.99	599	19.46	619	20.95	639	22.47	657	24.02	675	25.69	693	27.18	—	—	—	—	—					
	18000	1654	364	444	529	16.01	552	17.47	573	18.96	594	20.48	615	22.03	634	23.60	653	25.20	671	26.83	689	28.48	—	—	—	—	—					
	19500	1792	394	481	524	16.93	546	18.43	568	19.96	589	21.53	609	23.13	629	24.75	648	26.41	667	28.09	685	29.79	—	—	—	—	—					
	21000	1930	424	519	519	17.92	541	19.46	562	21.03	583	22.64	604	24.27	624	25.95	643	27.65	661	29.38	680	31.14	697	32.92	—	—	—					
	22500	2068	455	556	514	19.00	536	20.56	557	22.17	578	23.81	598	25.49	618	27.20	637	28.95	656	30.72	674	32.53	692	34.36	—	—	—					
COIL FACE AREA LC=49.5FT ² SC=40.5FT ²	24000	2206	485	593	510	20.18	532	21.77	553	23.40	573	25.08	593	26.79	613	28.54	632	30.32	650	32.14	669	33.98	686	35.85	—	—	—					
	25500	2344	515	—	507	21.46	528	23.08	549	24.74	569	26.45	588	28.19	608	29.97	627	31.78	645	33.63	663	35.51	681	37.42	698	39.37	—					
	27000	2482	545	—	505	22.88	525	24.52	545	26.20	565	27.93	584	29.70	603	31.51	622	33.35	640	35.23	658	37.14	676	39.09	693	41.07	—					
	28500	2619	576	—	503	24.42	523	26.08	543	27.79	562	29.55	581	31.34	600	33.17	618	35.04	636	36.95	654	38.89	671	40.87	688	42.88	—					
30000	2757	606	—	503	26.09	522	27.78	541	29.52	560	31.29	578	33.11	597	34.97	615	36.86	632	38.80	650	40.77	667	42.77	684	44.81	700	46.88					

LC = LARGE COIL
SC = SMALL COIL

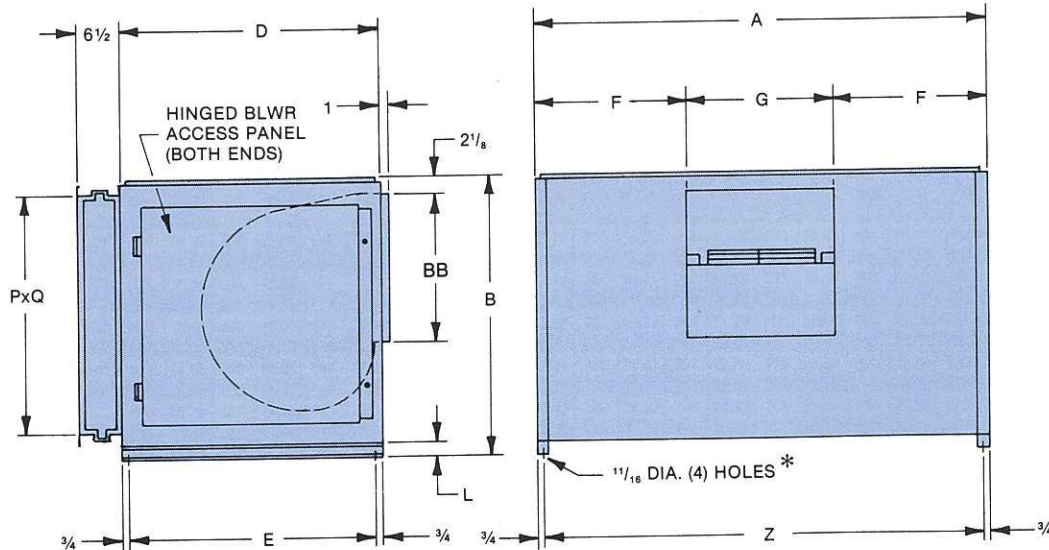
Physical Dimensions

Heating and Ventilating Units

Model HN-LP



Model HH-LP

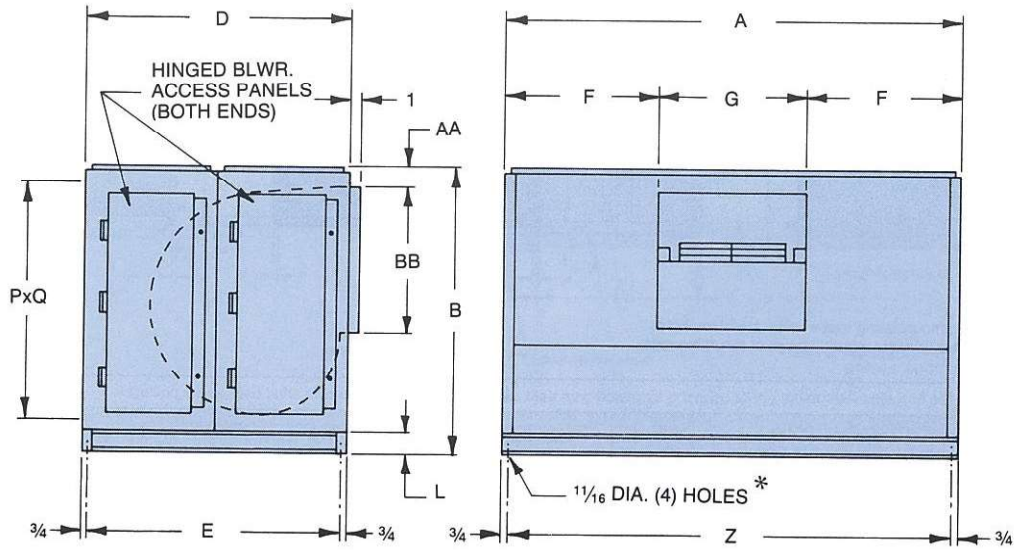


*Ceiling suspended units also mount using these holes. Matching holes are provided in the top of the cabinet to allow passage of mounting rods.

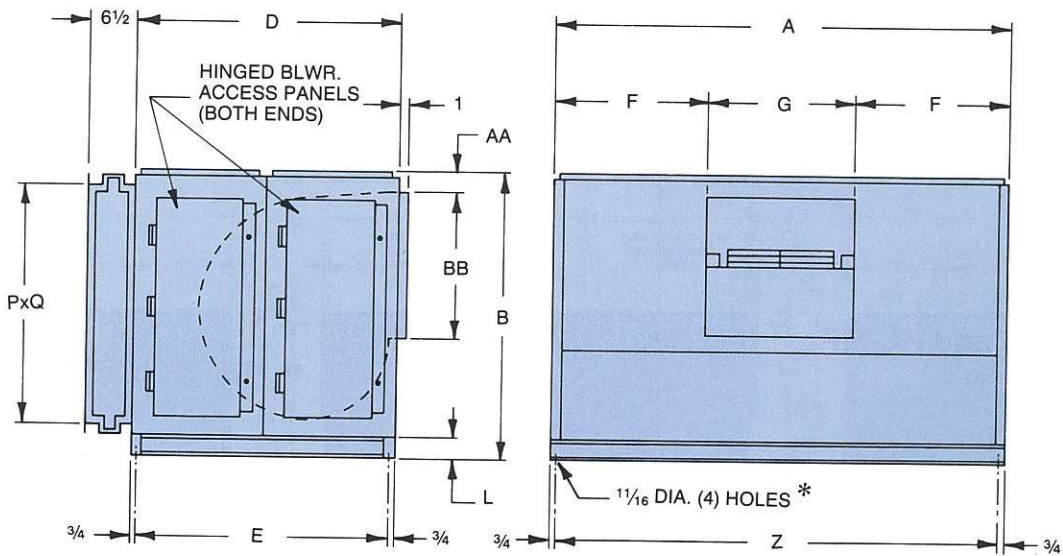
UNIT SIZE	DIMENSIONS								DUCT OPG. (1 1/2 FLANGES)		
	A	B	D	E	F	G	L	BB	P	Q	Z
	03	45	23 5/8	21	19 1/2	16 5/8	11 13/16	2	10 1/4	42	18
06	59	26 5/8	24	22 1/2	21 11/16	15 5/8	2	13 7/16	56	21	57 1/2
08	63	32 5/8	30	28 1/2	22 3/16	18 5/8	2	15 7/8	60	27	61 1/2
10	63	38 5/8	36	34 1/2	22 3/16	18 5/8	2	15 7/8	60	33	61 1/2
12	72	38 5/8	36	34 1/2	27 5/16	17 3/8	2	18 7/8	69	33	70 1/2
14	81	38 5/8	36	34 1/2	31 13/16	17 3/8	2	18 7/8	78	33	79 1/2
17	84	45 5/8	42	40 1/2	30 5/8	22 3/4	3	24 3/4	81	39	82 1/2
21	99	45 5/8	42	40 1/2	38 1/8	22 3/4	3	24 3/4	96	39	97 1/2

Heating and Ventilating Units

Model HN-LP



Model HH-LP



NOTE: MODELS 25 AND 31 HAVE SINGLE ACCESS PANELS (BOTH ENDS)

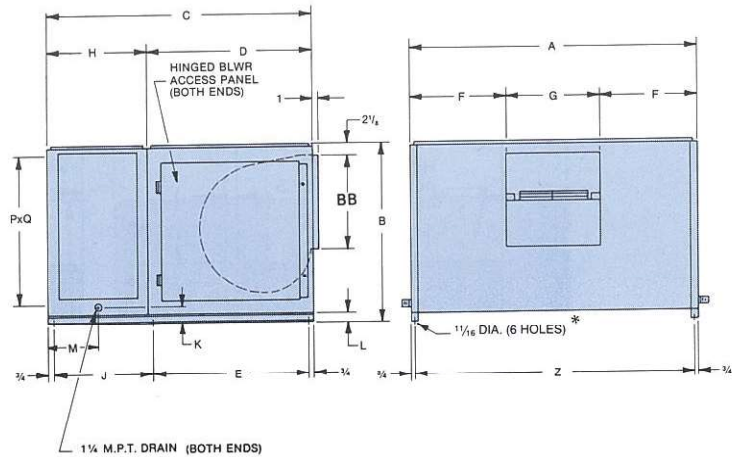
*Ceiling suspended units also mount using these holes. Matching holes are provided in the top of the cabinet to allow passage of mounting rods.

UNIT SIZE	DIMENSIONS									DUCT OPG. (1 1/2 FLANGES)		
	A	B	D	E	F	G	L	AA	BB	P	Q	Z
	25	99	52 5/8	48	46 1/2	33 7/8	31 1/4	4	2 1/8	31 1/4	96	45
31	123	52 5/8	48	46 1/2	45 7/8	31 1/4	4	2 1/8	31 1/4	120	45	121 1/2
36	123	60 5/8	56	54 1/2	44 3/8	34 1/4	4	2 1/8	36 3/4	120	53	121 1/2
41	123	67 5/8	63	61 1/2	44 3/8	34 1/4	4	2 1/8	36 3/4	120	60	121 1/2
50	123	78 1/8	73 1/2	72	43 1/8	36 3/4	4	3 5/8	42 15/16	120	70 1/2	121 1/2

Physical Dimensions - Continued

Horizontal Air Conditioning Units

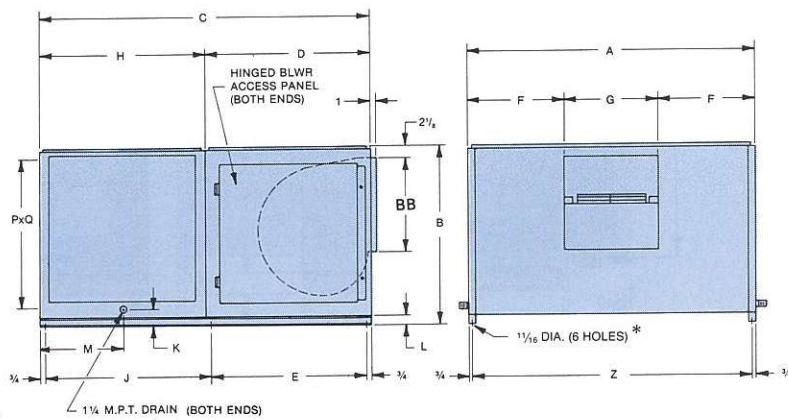
Models HS-LP and HS-MP (With Standard Coil Section)



*Ceiling suspended units also mount using these holes. Matching holes are provided in the top of the cabinet to allow passage of mounting rods.

UNIT SIZE	DIMENSIONS													DUCT OPG. (1 1/2 FLANGES)		
	A	B	C	D	E	F	G	H	J	K	L	M	BB	P	Q	Z
	03	45	23 ⁵ / ₈	43	21	19 ¹ / ₂	16 ⁵ / ₈	11 ¹³ / ₁₆	22	22	3 ⁵ / ₈	2	11	10 ¹ / ₄	42	18
06	59	26 ⁵ / ₈	46	24	22 ¹ / ₂	21 ¹¹ / ₁₆	15 ⁵ / ₈	22	22	3 ⁵ / ₈	2	11	13 ⁷ / ₁₆	56	21	57 ¹ / ₂
08	63	32 ⁵ / ₈	52	30	28 ¹ / ₂	22 ³ / ₁₆	18 ⁵ / ₈	22	22	3 ⁵ / ₈	2	11	15 ⁷ / ₈	60	27	61 ¹ / ₂
10	63	38 ⁵ / ₈	58	36	34 ¹ / ₂	22 ³ / ₁₆	18 ⁵ / ₈	22	22	3 ⁵ / ₈	2	11	15 ⁷ / ₈	60	33	61 ¹ / ₂
12	72	38 ⁵ / ₈	58	36	34 ¹ / ₂	27 ⁵ / ₁₆	17 ³ / ₈	22	22	3 ⁵ / ₈	2	11	18 ⁷ / ₈	69	33	70 ¹ / ₂
14	81	38 ⁵ / ₈	58	36	34 ¹ / ₂	31 ¹³ / ₁₆	17 ³ / ₈	22	22	3 ⁵ / ₈	2	11	18 ⁷ / ₈	78	33	79 ¹ / ₂
17	84	45 ⁵ / ₈	64	42	40 ¹ / ₂	30 ⁵ / ₈	22 ³ / ₄	22	22	4 ⁵ / ₈	3	11	24 ³ / ₄	81	39	82 ¹ / ₂
21	99	45 ⁵ / ₈	64	42	40 ¹ / ₂	38 ¹ / ₈	22 ³ / ₄	22	22	4 ⁵ / ₈	3	11	24 ³ / ₄	96	39	97 ¹ / ₂

Models HL-LP and HL-MP (With Long Coil Section)

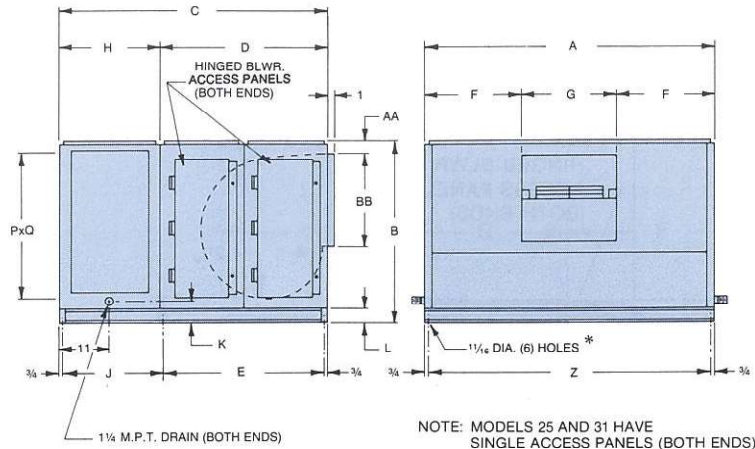


*Ceiling suspended units also mount using these holes. Matching holes are provided in the top of the cabinet to allow passage of mounting rods.

UNIT SIZE	DIMENSIONS													DUCT OPG. (1 1/2 FLANGES)		
	A	B	C	D	E	F	G	H	J	K	L	M	BB	P	Q	Z
	03	45	23 ⁵ / ₈	49	21	19 ¹ / ₂	16 ⁵ / ₈	11 ¹³ / ₁₆	28	28	3 ⁵ / ₈	2	14	10 ¹ / ₄	42	18
06	59	26 ⁵ / ₈	52	24	22 ¹ / ₂	21 ¹¹ / ₁₆	15 ⁵ / ₈	28	28	3 ⁵ / ₈	2	14	13 ⁷ / ₁₆	56	21	57 ¹ / ₂
08	63	32 ⁵ / ₈	60	30	28 ¹ / ₂	22 ³ / ₁₆	18 ⁵ / ₈	30	30	3 ⁵ / ₈	2	15	15 ⁷ / ₈	60	27	61 ¹ / ₂
10	63	38 ⁵ / ₈	72	36	34 ¹ / ₂	22 ³ / ₁₆	18 ⁵ / ₈	36	36	3 ⁵ / ₈	2	18	15 ⁷ / ₈	60	33	61 ¹ / ₂
12	72	38 ⁵ / ₈	72	36	34 ¹ / ₂	27 ⁵ / ₁₆	17 ³ / ₈	36	36	3 ⁵ / ₈	2	18	18 ⁷ / ₈	69	33	70 ¹ / ₂
14	81	38 ⁵ / ₈	72	36	34 ¹ / ₂	31 ¹³ / ₁₆	17 ³ / ₈	36	36	3 ⁵ / ₈	2	18	18 ⁷ / ₈	78	33	79 ¹ / ₂
17	84	45 ⁵ / ₈	84	42	40 ¹ / ₂	30 ⁵ / ₈	22 ³ / ₄	42	42	4 ⁵ / ₈	3	21	24 ³ / ₄	81	39	82 ¹ / ₂
21	99	45 ⁵ / ₈	84	42	40 ¹ / ₂	38 ¹ / ₈	22 ³ / ₄	42	42	4 ⁵ / ₈	3	21	24 ³ / ₄	96	39	97 ¹ / ₂

Horizontal Air Conditioning Units

Models HS-LP and HS-MP (With Standard Coil Section)

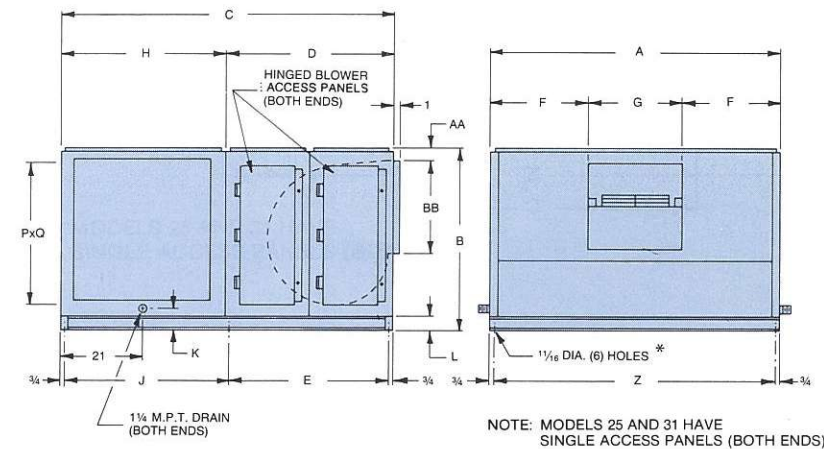


*Ceiling suspended units also mount using these holes. Matching holes are provided in the top of the cabinet to allow passage of mounting rods.

UNIT SIZE	DIMENSIONS													DUCT OPG. (1 1/2 FLANGES)		
	A	B	C	D	E	F	G	H	J	K	L	AA	BB	P	Q	Z
	25	99	52 5/8	70	48	46 1/2	33 7/8	31 1/4	22	22	5 5/8	4	2 1/8	31 1/4	96	45
31	123	52 5/8	70	48	46 1/2	45 7/8	31 1/4	22	22	5 5/8	4	2 1/8	31 1/4	120	45	121 1/2
36	123	60 5/8	78	56	54 1/2	44 3/8	34 1/4	22	22	5 5/8	4	2 1/8	36 3/4	120	53	121 1/2
41	123	67 5/8	85	63	61 1/2	44 3/8	34 1/4	22	22	5 5/8	4	2 1/8	36 3/4	120	60	121 1/2
50	123	78 1/8	95 1/2	73 1/2	72	43 1/8	36 3/4	22	22	5 5/8	4	3 5/8	42 15/16	120	70 1/2	121 1/2

NOTE: HS-25-LP/MP through 41 units are built with blower section and coil section on common base rails. HS-50-LP/MP and HL-25-LP/MP through 50 have split base rails.

Models HL-LP and HL-MP (With Long Coil Section)



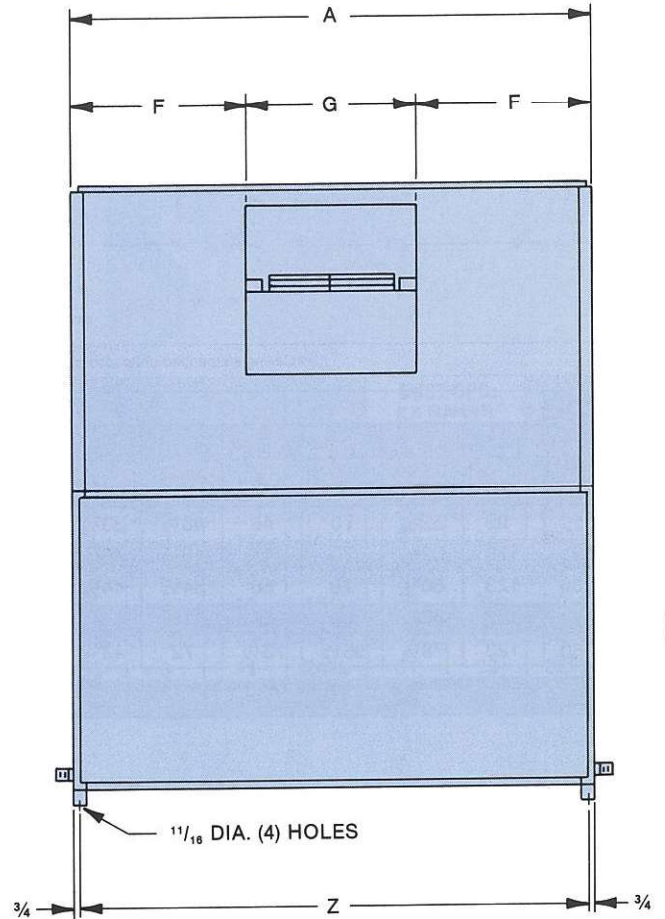
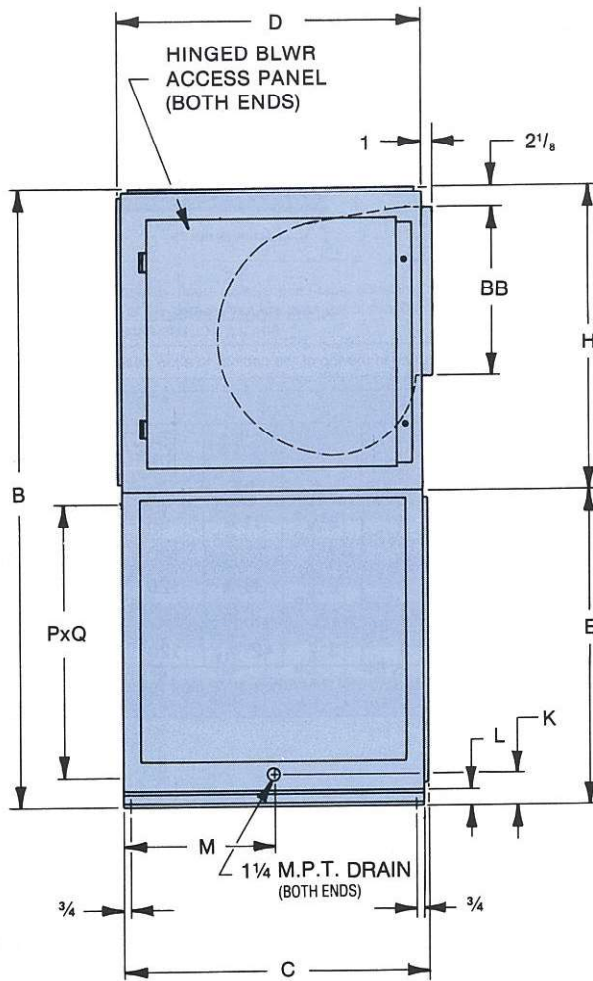
*Ceiling suspended units also mount using these holes. Matching holes are provided in the top of the cabinet to allow passage of mounting rods.

UNIT SIZE	DIMENSIONS													DUCT OPG. (1 1/2 FLANGES)		
	A	B	C	D	E	F	G	H	J	K	L	AA	BB	P	Q	Z
	25	99	52 5/8	90	48	46 1/2	33 7/8	31 1/4	42	42	5 5/8	4	2 1/8	31 1/4	96	45
31	123	52 5/8	90	48	46 1/2	45 7/8	31 1/4	42	42	5 5/8	4	2 1/8	31 1/4	120	45	121 1/2
36	123	60 5/8	98	56	54 1/2	44 3/8	34 1/4	42	42	5 5/8	4	2 1/8	36 3/4	120	53	121 1/2
41	123	67 5/8	105	63	61 1/2	44 3/8	34 1/4	42	42	5 5/8	4	2 1/8	36 3/4	120	60	121 1/2
50	123	78 1/8	115 1/2	73 1/2	72	43 1/8	36 3/4	42	42	5 5/8	4	3 5/8	42 15/16	120	70 1/2	121 1/2

Physical Dimensions - Continued

Vertical Air Conditioning Units

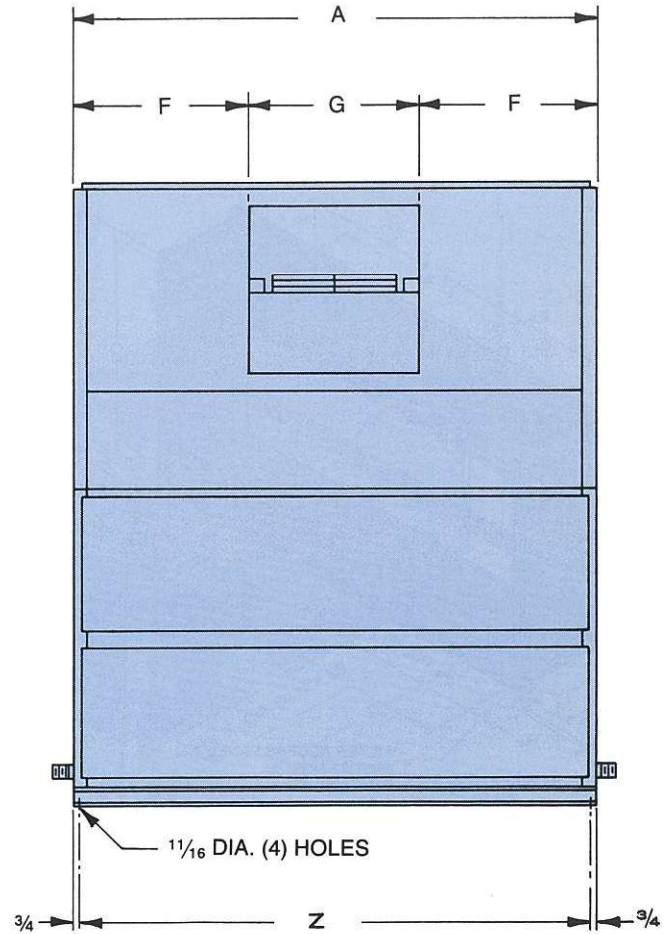
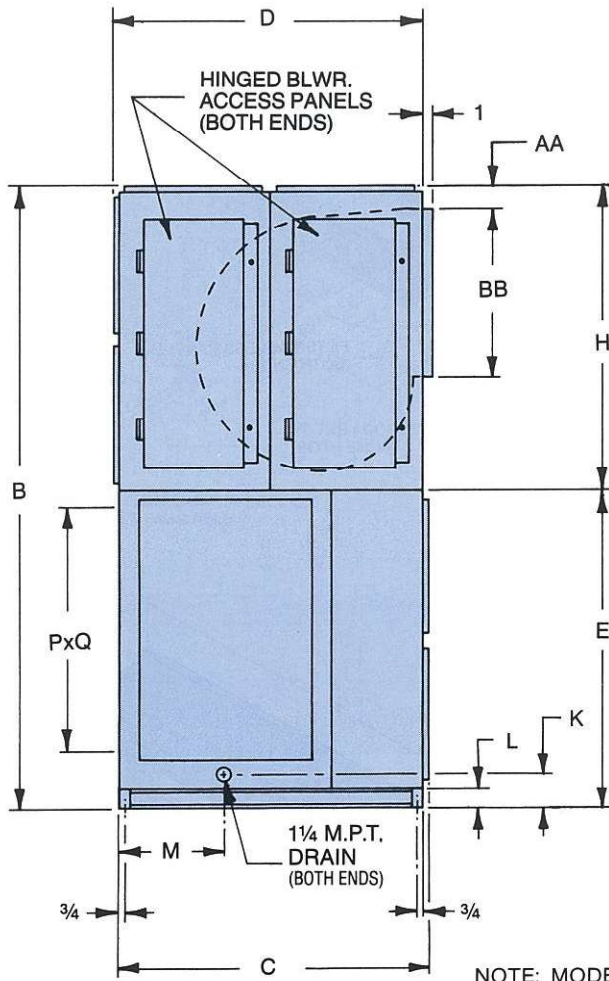
Models VL-LP and VL-MP



UNIT SIZE	DIMENSIONS												DUCT OPG. (1 1/2 FLANGES)		Z
	A	B	C	D	E	F	G	H	K	L	M	BB	P	Q	
	03	45	44 5/8	28 5/8	21 5/8	23	16 5/8	11 13/16	21 5/8	3 5/8	2	14 5/8	10 1/4	42	
06	59	50 5/8	28 5/8	24 5/8	26	21 11/16	15 5/8	24 5/8	3 5/8	2	14 5/8	13 7/16	56	21	57 1/2
08	63	62 5/8	30 5/8	30 5/8	32	22 3/16	18 5/8	30 5/8	3 5/8	2	15 5/8	15 7/8	60	27	61 1/2
10	63	74 5/8	36 5/8	36 5/8	38	22 3/16	18 5/8	36 5/8	3 5/8	2	18 5/8	15 7/8	60	33	61 1/2
12	72	74 5/8	36 5/8	36 5/8	38	27 5/16	17 3/8	36 5/8	3 5/8	2	18 5/8	18 7/8	69	33	70 1/2
14	81	74 5/8	36 5/8	36 5/8	38	31 13/16	17 3/8	36 5/8	3 5/8	2	18 5/8	18 7/8	78	33	79 1/2
17	84	87 5/8	42 5/8	42 5/8	45	30 5/8	22 3/4	42 5/8	4 5/8	3	21 5/8	24 3/4	81	39	82 1/2
21	99	87 5/8	42 5/8	42 5/8	45	38 1/8	22 3/4	42 5/8	4 5/8	3	21 5/8	24 3/4	96	39	97 1/2

Vertical Air Conditioning Units

Models VL-LP and VL-MP



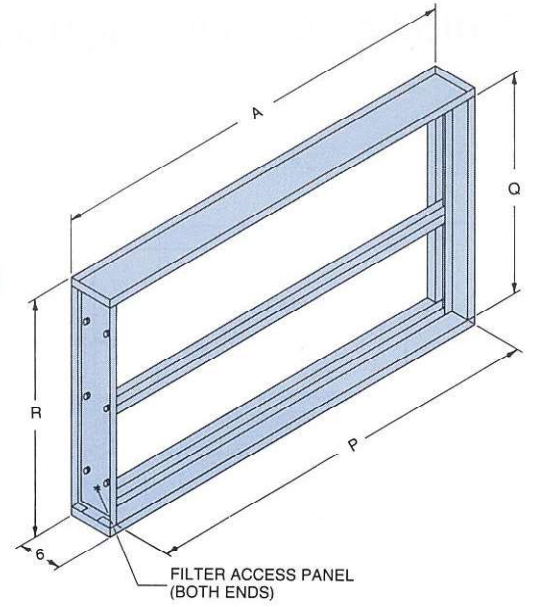
NOTE: MODELS 25 AND 31 HAVE SINGLE ACCESS PANELS (BOTH ENDS)

UNIT SIZE	DIMENSIONS													DUCT OPG. (1/2 FLANGES)		
	A	B	C	D	E	F	G	H	K	L	M	AA	BB	P	Q	Z
	25	99	100 ⁵ / ₈	48 ⁵ / ₈	48 ⁵ / ₈	52	33 ⁷ / ₈	31 1/4	48 ⁵ / ₈	5 ⁵ / ₈	4	21	2 ¹ / ₈	31 1/4	96	45
31	123	100 ⁵ / ₈	48 ⁵ / ₈	48 ⁵ / ₈	52	45 ⁷ / ₈	31 1/4	48 ⁵ / ₈	5 ⁵ / ₈	4	21	2 ¹ / ₈	31 1/4	120	45	121 1/2
36	123	116 ⁵ / ₈	56 ⁵ / ₈	56 ⁵ / ₈	60	44 ³ / ₈	34 1/4	56 ⁵ / ₈	5 ⁵ / ₈	4	21	2 ¹ / ₈	36 ³ / ₄	120	53	121 1/2
41	123	130 ⁵ / ₈	63 ⁵ / ₈	63 ⁵ / ₈	67	44 ³ / ₈	34 1/4	63 ⁵ / ₈	5 ⁵ / ₈	4	21	2 ¹ / ₈	36 ³ / ₄	120	60	121 1/2
50	123	151 ⁵ / ₈	74 ¹ / ₈	74 ¹ / ₈	77 1/2	43 ¹ / ₈	36 ³ / ₄	74 ¹ / ₈	5 ⁵ / ₈	4	21	3 ⁵ / ₈	42 ¹ / ₁₆	120	70 1/2	121 1/2

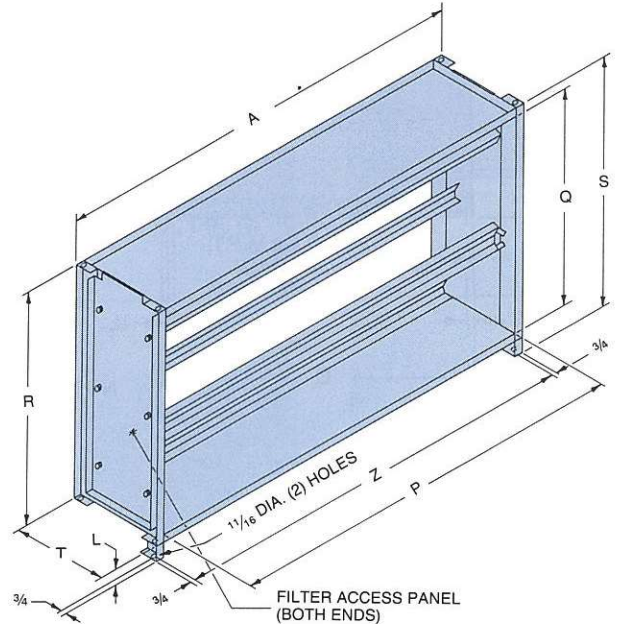
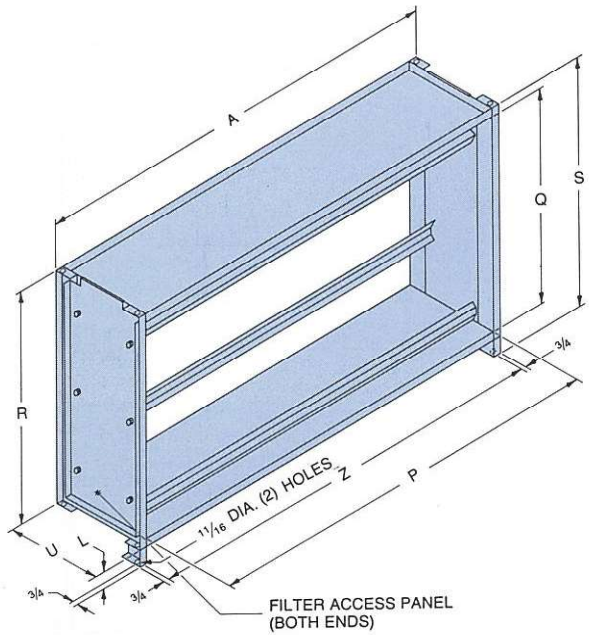
Physical Dimensions - Continued

Accessory Sections

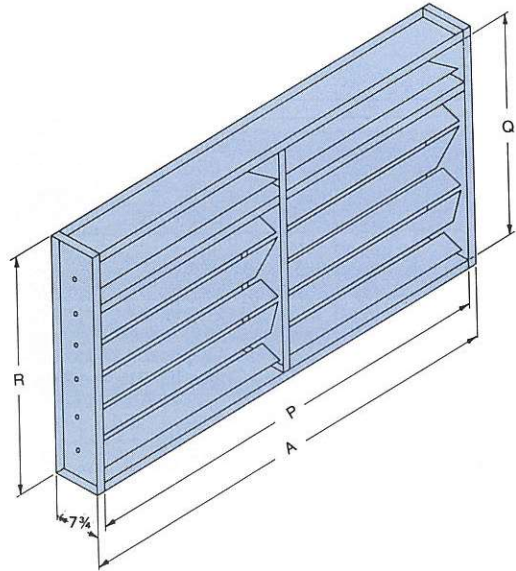
FLAT FILTER SECTION



ANGULAR FILTER SECTION

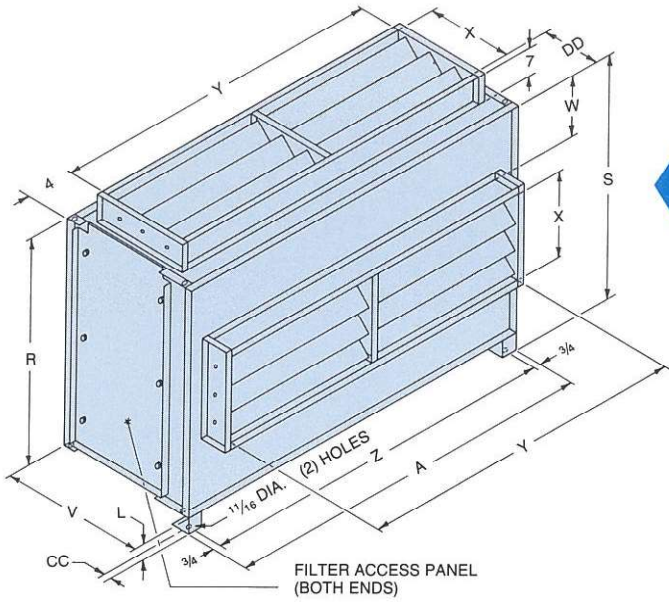


HEAVY DUTY FILTER SECTION



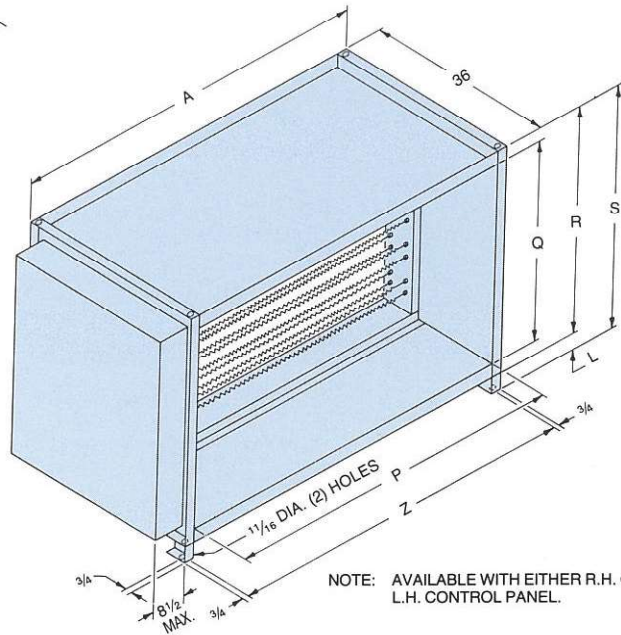
INTERNAL FACE AND BYPASS

Accessory Sections



MIXING BOXES

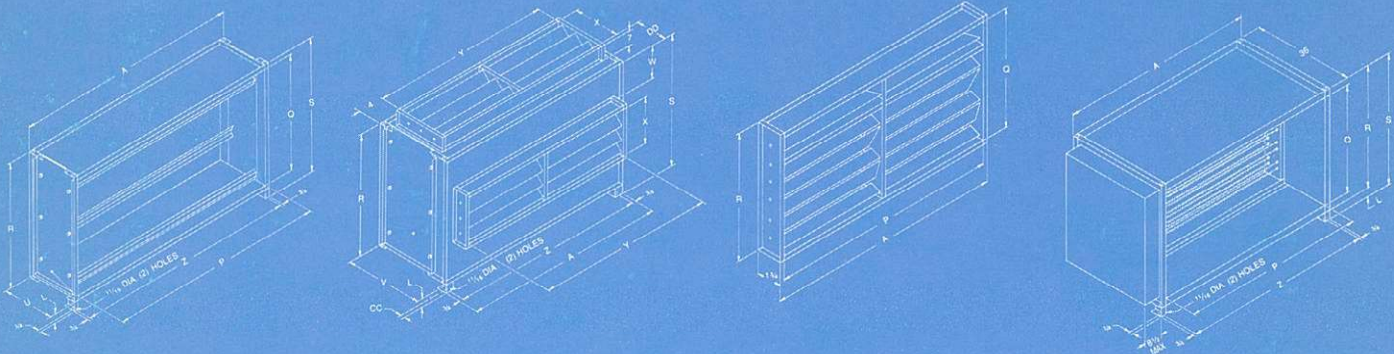
NOTE: BOTTOM DAMPER SECTION ALSO AVAILABLE



ELECTRIC HEAT

NOTE: AVAILABLE WITH EITHER R.H. OR L.H. CONTROL PANEL.

UNIT SIZE	DIMENSIONS														
	A	L	FILTER DUCT OPG. (1 1/2 FLANGES)		R	S	T	U	V	W	DAMPER DUCT OPG. (1 1/4 FLANGES)		Z	CC	DD
			P	Q							X	Y			
03	45	2	42	18	21	23	—	19 1/2	23 1/2	5 1/2	10	37	43 1/2	3/4	1 1/2
06	59	2	56	21	24	26	—	23 1/2	27 1/2	6	10	51	57 1/2	3/4	1 1/2
08	63	2	60	27	30	32	—	22	27	5 1/2	19	55	61 1/2	3/4	1 1/2
10	63	2	60	33	36	38	23 1/4	26	30	8 1/2	19	55	61 1/2	3/4	1 1/2
12	72	2	69	33	36	38	23 1/4	26	30	8 1/2	19	64	70 1/2	3/4	1 1/2
14	81	2	78	33	36	38	23 1/4	26	30	8 1/2	19	73	79 1/2	3/4	1 1/2
17	84	3	81	39	42	45	27 3/4	23 1/4	27 1/4	11 1/2	19	76	82 1/2	3/4	1 1/2
21	99	3	96	39	42	45	27 3/4	23 1/4	27 1/4	11 1/2	19	91	97 1/2	3/4	1 1/2
25	99	4	96	45	48	52	26 3/4	18 3/4	33 1/4	12	24	91	97 1/2	2	2 3/4
31	123	4	120	45	48	52	26 3/4	18 3/4	33 1/4	12	24	115	121 1/2	2	2 3/4
36	123	4	120	53	56	60	22 1/8	17 1/4	39 1/4	13	30	115	121 1/2	2	2 3/4
41	123	4	120	60	63	67	25 5/8	21 1/4	45 1/4	13 1/2	36	115	121 1/2	2	2 3/4
50	123	4	120	70 1/2	73 1/2	77 1/2	27 3/8	25 1/8	51 1/4	15 3/4	42	115	121 1/2	2	2 3/4



MECHANICAL SPECIFICATIONS

GENERAL

Each unit shall be furnished with components as specified. All units and accessories shall be constructed of heavy gauge galvanized steel as specified in Russell Technical Bulletin 610.1, Pages 10 and 11, Table 1.

FAN SECTION

Fan section shall have an access door on each side secured by thumb screws. Hinges shall be of the slip joint kind allowing easy removal of doors.

Fan sections used in cooling application shall be internally insulated with standard 1 inch thick, 1 1/2 lb. bonded mat fiberglass insulation. Insulation shall comply with the requirements of NFPA 90.

Fan sections for heating and ventilating units are not insulated.

COIL SECTION

Heating and cooling — Cooling coil sections shall be internally insulated with 1 inch thick, 1 1/2 lb. bonded mat fiberglass insulation. Insulation shall comply with the requirements of NFPA 90. Heating and ventilation coil sections are not insulated.

Horizontal unit arrangements shall be available with standard and long coil sections. Vertical unit arrangements shall be available with a long coil section only.

Heating coils shall be considered standard in either the preheat or reheat position.

Standard and long coil sections shall have a removable panel on each side to allow easy coil access and removal.

Standard and long coil sections shall have a double drain pan with insulation between the inner and outer pan. The drain pan shall have welded corners and a 1 1/4 inch MPT drain connection on each side.

HEATING ONLY COIL SECTION

One and two row heating coils shall be housed in a specially designed slide-in casing and shall be bolted directly to the fan section. Heating only coils with more than two rows shall be bolted directly to the fan section without a casing.

BLOWERS

Each unit shall contain one forward curved, double width, double inlet blower. Blower wheel and housings are heavy gauge galvanized steel.

Blower wheels shall be statically and dynamically balanced before they are assembled and dynamically balanced after being installed in the fan section.

FAN SHAFT

Shafts shall be solid steel, continuous diameter, turned, ground and polished. Each shaft shall be coated with a non-hardening rust inhibitor.

Shaft critical speed shall be at least 1.25 times the maximum operating speed.

BEARINGS

Pillow block bearings shall be self aligning, noise tested and have air conditioning fit. Average bearing life shall be in excess of 200,000 hours.

Extended lube lines shall be furnished to each bearing to allow lubrication from outside the cabinet.

COILS

All coils shall be staggered tube design, have heavy wall copper headers, and die-formed plate type aluminum fins. Coil casings shall be constructed of 16 gauge galvanized steel.

Water and steam coils shall have steel MPT connections. DX and heat reclaim coils shall have copper sweat connections.

All coils shall be submerged in water and leak tested with 350 PSIG dry nitrogen.

INTERNAL FACE AND BYPASS

Dampers shall be opposed blade type with interconnecting linkage. Blade bearings shall be brass inserts and shall provide smooth operation and corrosion resistance.

MIXING BOX

Mixing box can be furnished with or without an angular filter section and have either top and back or bottom and back openings. Openings can be furnished with or without parallel blade dampers. Blade bearings shall be brass inserts and shall provide smooth operation and corrosion resistance.

When an angular filter section is included, removable panels shall be provided on each side for filter access.

DRIVE

Drive components shall be of the highest quality and statically balanced. Drives are designed to be a minimum of 1.20 times the rated motor horsepower.

MOTORS

Motors shall be mounted inside the blower section, on a heavy gauge steel channel, with the drive side out to provide access to the drive.

Russell

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