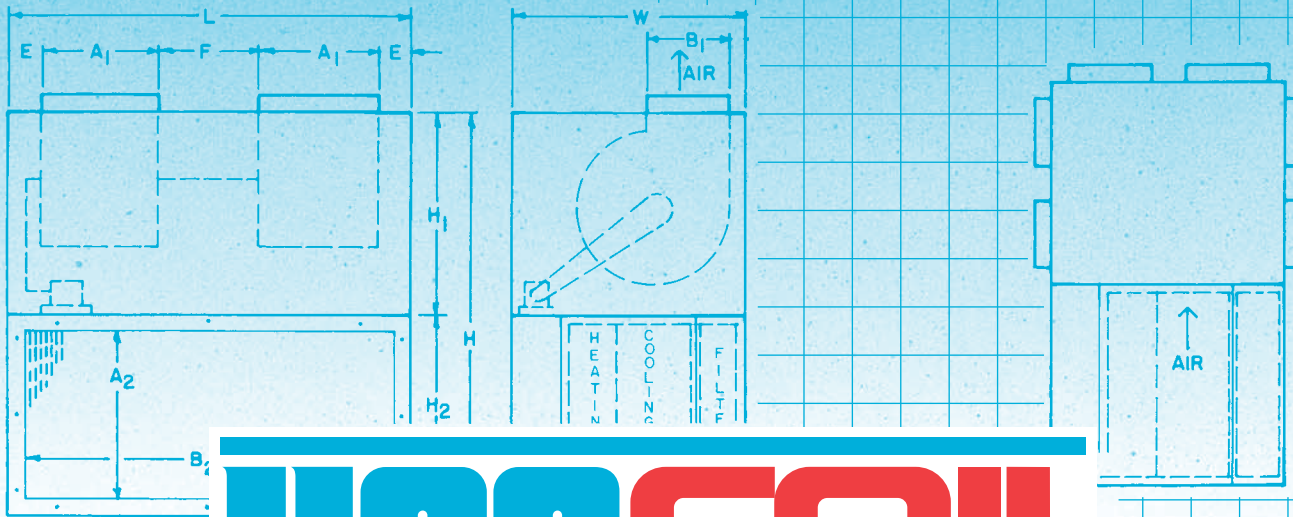
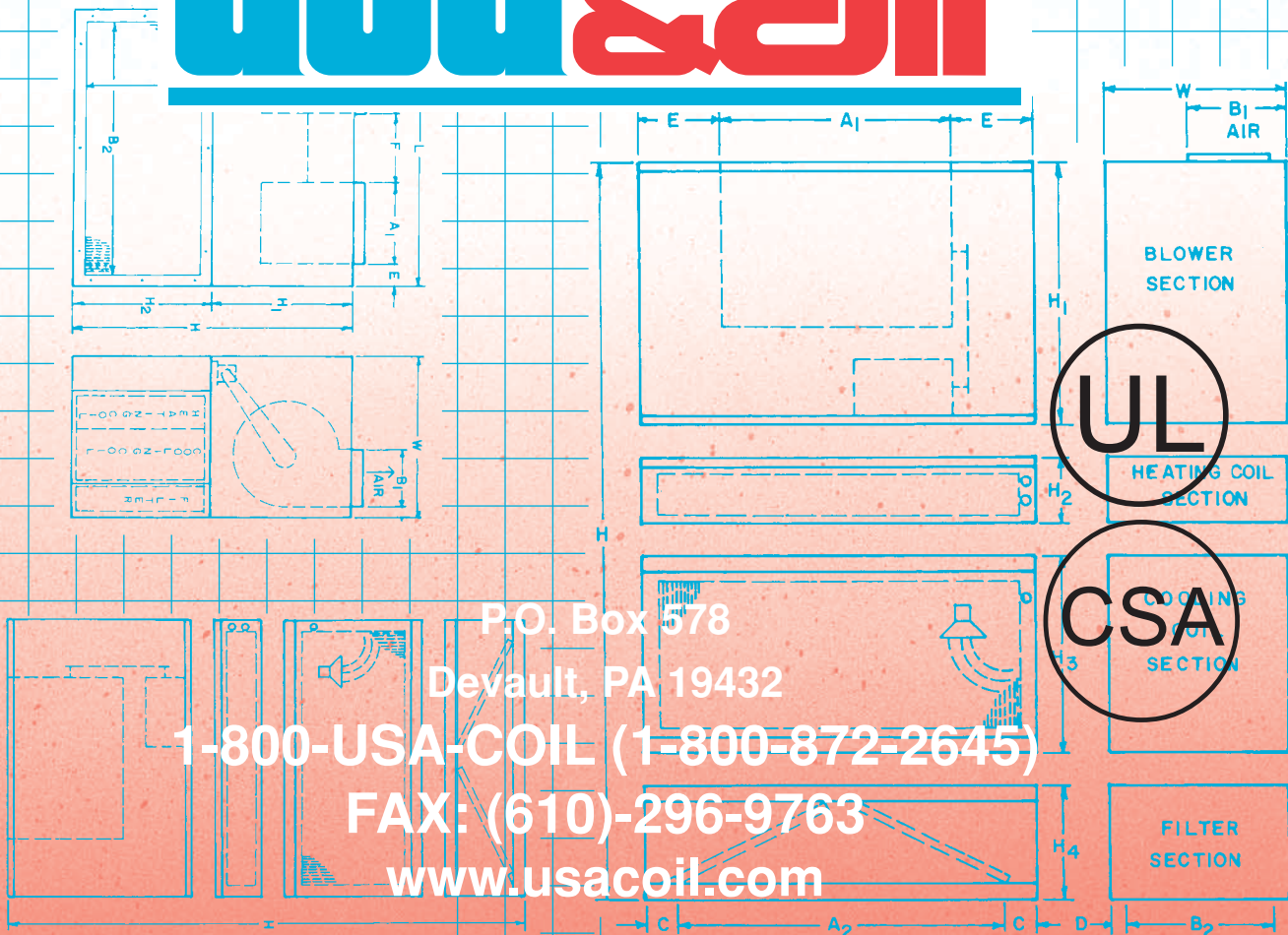


HORIZONTAL AND VERTICAL FAN COIL UNITS



USA COIL & AIR



P.O. Box 578
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Air Handling Units: Fast Shipment, excellent quality, and economical- all at USA Coil & Air



A lot of jobs don't require a full-fledged Central Station Air Handling Unit. USA Coil & Air builds a line of stock Belt Drive Air Handling Units that can be used for almost any "commercial" application that you might run across. Do you have a shopping mall where you need a variety of units in a hurry? Do you have a restaurant where you need

a DX Unit by next week? How about a Chilled Water Unit for a hotel, school, dormitory or small office building? There are a huge number of applications where your Air Handling Unit needs to be reliable and of good construction, but it doesn't have to be "state the art" technology either. You need a unit next week and certainly can't wait 8 to 10 weeks. You want to pay the right amount of money for the proper unit, but the job just doesn't qualify for the best unit in the HVAC Industry. USA offers Belt Drive Units that give you an economical, well-constructed, efficient alternative to a large Central Station Unit or a less expensive Fan/Coil Unit.

We stock Horizontal Units in 11 sizes up to 30 tons, and we stock Vertical Units in 11 sizes up to 20 tons. We can give you a Chilled Water Unit or a DX Unit. We can add Hot Water Coils to any unit, as well as Discharge Grilles, Mixing Boxes and assorted other accessories. We offer you a great unit at economical prices and, we ship it out of stock! What more could you possibly ask for?

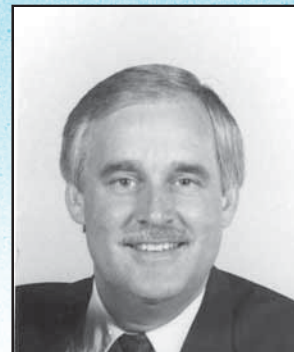
Tom Jacobs

Tom Jacobs
President

As you've probably noticed by now, the "big" companies in our industry are not exactly responsive to customers on small jobs. The HVAC industry seems to get more "production" oriented every year, and unless you have a big job, the big companies don't exactly go out of their way to help you. USA Coil & Air is different. We're not

a "big" company, and we do get our business from a lot of small jobs. With this in mind, we developed a line of units designed specifically for all the small commercial applications that you might see. We've really tried to blend quality, economics and service into our Belt Drive Air Handling Units. Maybe you can buy another unit for a few dollars less, but how does that help you if you can't get it for 3 months? Maybe there are units with slightly better quality, but can you afford to spend megabucks to buy the unit? Maybe you can find another unit in stock, but will it do what you want it to do?

USA is set up to meet the demands of the HVAC Industry and there is a large demand for our Belt Drive Air Handling Units. We hope you will give us a call at your earliest opportunity!



Bob Jacobs

Bob Jacobs
Vice President

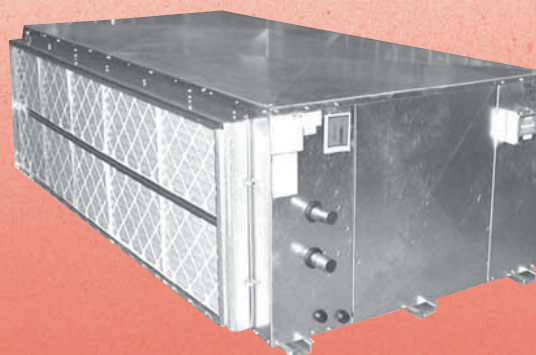
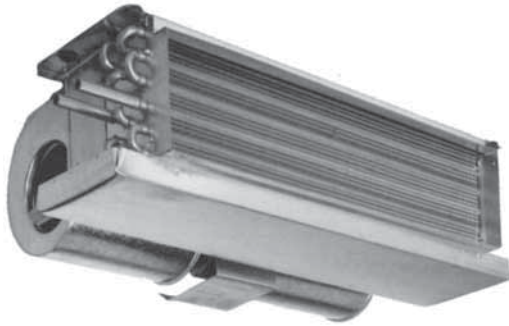


TABLE OF CONTENTS

Section	Description	Pages
Horizontal Small Fan Coil Units	Type and Description	4,5
	Model Number Codes	6
	Suggested Specifications	7
Performance Information	Condensed Performance Tables	8
	Cooling/Heating Selection Instructions	9
	Electric Heat Options	10
	Motor Information	11,12
Dimensions	Basic Unit	13
	Return Plenum Unit	14
	Deluxe Unit	15
	Ceiling Flush Unit	16
	High Static Basic Unit	17
	High Static Return Plenum Unit	18
	Connection Locations Right and Left hand	19,20
Options and Accessories	Filters and Grilles	21
	Piping Packages	22
Horizontal Large Fan Coil Units	Type and Description	23
	Model Number Codes	24
	Suggested Specifications	25
Performance Information	Condensed Performance Tables	26
	Cooling/Heating Selection Instructions	27
	Electric Heat Options	28
	Motor Information	29
Dimensions	Basic Unit	30
	Return Plenum Unit	31
	Deluxe Unit	32
	High Static Galvanized Cabinet	33
Options and Accessories	Filters and Grilles	34
	Piping Packages	35
Vertical Fan Coil Units	Type and Description	36,37
	Model Number Codes	38
	Suggested Specifications	39,40
Performance Information	Condensed Performance Tables	41
	Cooling/Heating Selection Instructions	42
	CFM vs. External Static Pressure	43
	Motor Information	44
	VWB Condensed Performance	45
	Electric Heat Options	46
	Motor Information VFBL, VFCL	47
	Motor Information VFB, VFC, VFCS	48
Dimensions	Basic Unit	49
	Cabinet Unit	50
	Slope Top Unit	51
	Low Boy Basic Unit	52
	Low Boy Cabinet Unit	53
	Basic Recessed Unit	54
Options and Accessories	Supply Grilles	55
	Dampers and Wall Boxes	56
	Decorative Wall Panels	57
	Piping Packages	58
	Control Packages Horizontal and Vertical Units	59

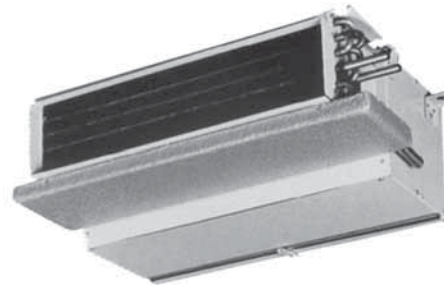
MODEL HBS - BASIC UNIT



The model HBS Horizontal Fan Coil Unit is designed specifically to meet the many varied requirements demanded of the concealed type installation. The versatility of application and the low silhouette styling makes this unit ideally suited to drop-ceiling or over-closet applications. The design of the unit provides a positive pitch to drain when the unit is installed level, assuring rapid and positive condensate removal. HBS is provided standard with a galvanized finish.

MODEL HRS - RETURN PLENUM UNIT

The Model HRS Horizontal Fan Coil Units are easily adaptable for mounting above ceilings in closets, hallways, or bathroom areas by providing a return-air plenum enclosing the fan section of the basic HRS unit. This arrangement allows the unit to be adapted to installations requiring return-air duct work or to be used simply as a return-air plenum with a unit-mounted filter and filter-rack assembly. All model HRS units are shipped from the factory complete, ready for installation with the plenum section in place. HRS is provided standard with a galvanized finish.



MODEL HDS - DELUXE UNIT



This slim, attractively styled cabinet unit is ideally suited for under-ceiling mounting in hotels, motels, hospitals, nursing homes, offices or other commercial establishments. No valuable floor space is required, and the straight-line styling blends with modern decor of all types. The HDS series is applicable in the conversion of older buildings, thereby reducing the requirement for duct work and avoiding the need for modification of walls or ceilings. The unit is finished in an attractive oven-baked paint.

HOW TO SELECT USA UNITS

It's easy to select USA Fan/Coil Units. The basic internal parts to include fan assemblies, coils, etc., are all the same for every size unit. We just change the cabinet around the unit, so that you choose the type that meets your requirements. You'll find that USA has the easiest selection procedure in the industry.

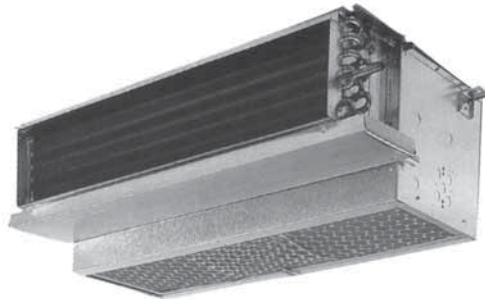
EXAMPLE: Model #HBS04, HRS04, and HDS04 all have the same fan assembly, coil, filter, etc. Only the cabinet around the unit changes.

MODEL HFS - CEILING TELESCOPING HIDEAWAY - (CEILING FLUSH)

The Model HFS unit is a fully recessed horizontal unit for over-ceiling applications. The telescoping frame and hinged panel adapts to any ceiling type and assures exact alignment of panel to ceiling. The hinged bottom panel provides ready access to all internal components. The panel is finished in attractive oven-bakes paint.



MODEL HSRS - HIGH STATIC HIDEAWAY WITH PLENUM - 400 CFM THRU 1000 CFM



The model HSRS Horizontal Fan Coil Units are easily adapted to installations requiring return-air plenum with a mounted filter and filter-rack assembly. All Model HSRS units are shipped from the factory completely ready for installation with the plenum section in place. No field fabrication is required. The plenum section is fabricated of galvanized steel and is completely lined with glass fiber insulation to provide acoustical dampening of air noise. The HSRS is provided standard with a galvanized finish.

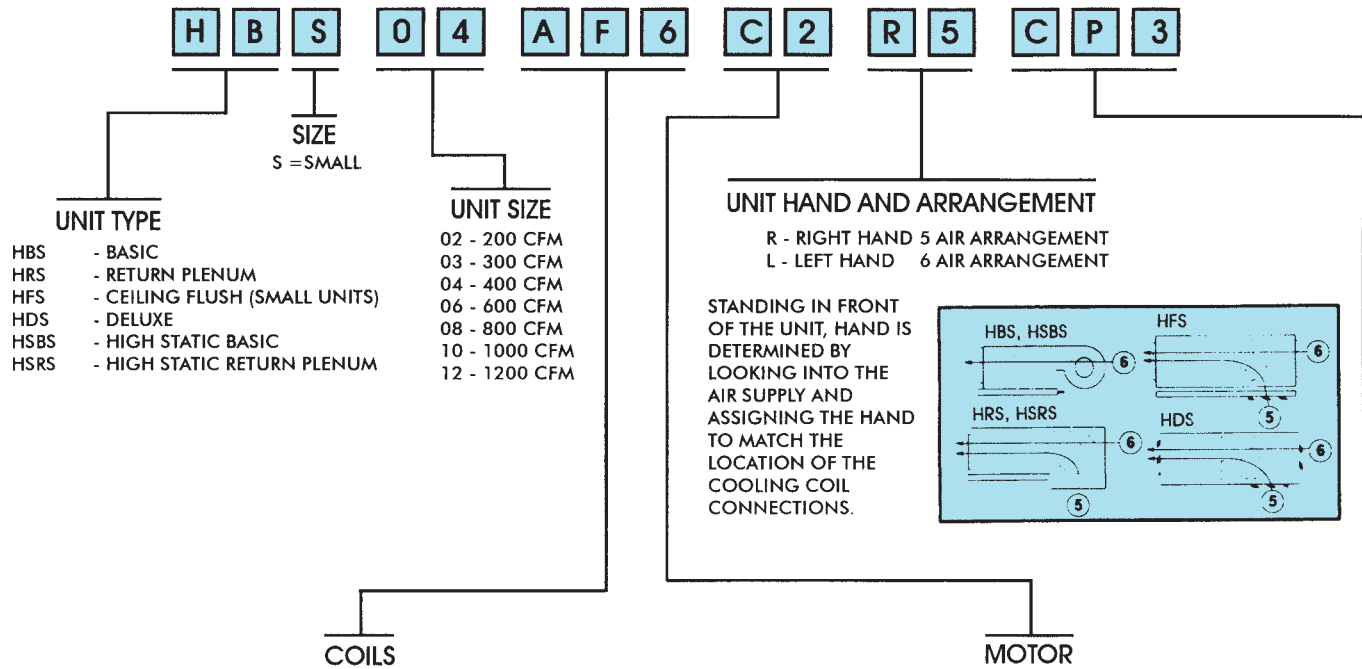
MODEL HSBS - HIGH STATIC HIDEAWAY (BASIC) - 400 CFM THRU 1000 CMF

The Model HSBS Horizontal Fan Coil Unit is designed to meet the demand for a concealed ceiling unit for application with limited distribution ducts. The HSBS unit maintains the approximate depth of the Model HBS unit at the coil and drain pan section, but is furnished with larger diameter wheels to achieve the static pressure required while maintaining a low sound level. HSBS units are provided standard with a galvanized finish.



Descriptive Information

Model Number Codes



2-PIPE COOLING & HEATING
 4-PIPE COOLING COIL

SMALL UNITS

A=2 ROW
 B=3 ROW (STD.)
 C=4 ROW (HI-CAP)
 D=3 ROW DX (STD.)
 E=4 ROW DX (HI-CAP)

4-PIPE HEATING COIL

Y - NONE
 1 - 1 ROW COIL
 2 - 2 ROW COIL

OR IF ELECTRIC HEAT

VOLTAGE

F - 120 VOLT
 G - 208 VOLT
 H - 240 VOLT
 I - 277 VOLT
 J - 220 VOLT

COIL CONNECTION LOCATION

Y - NONE
 S - SAME END COIL CON.
 O - OPPOSITE END COIL CON.

OR IF ELECTRIC HEAT

KW

5 - 0.50 12 - 6.00
 6 - 1.00 13 - 7.00
 7 - 1.50 14 - 8.00
 8 - 2.00 15 - 9.00
 9 - 3.00 16 - 10.00
 10 - 4.00
 11 - 5.00

MOTOR VOLTAGE

C - 115-1-60
 D - 208-1-60
 E - 230-1-60
 F - 265-1-60
 V - 220-1-50

MOTOR TYPE

2 - PERMANENT SPLIT CAPACITOR

UNIT CONTROL PACKAGE (See page 34)

CONTROL VOLTAGE	SYSTEM TYPE	THERMOSTAT
C - 120 VOLT	FAN CYCLE CONTROL	2 - STANDARD ALL MOUNT
D - 208 VOLT	A - MANUAL FAN OPERATION	3 - C-3 WALL MOUNT
E - 240 VOLT	B - 2 PIPE HEAT ONLY	4 - WALL SERIES 4039
F - 277 VOLT	C - 2 PIPE COOL ONLY	5 - WALL SERIES 154
V - 220 VOLT	D - 2 PIPE HEAT & COOL - (MANUAL c/o)	
	E - 2 PIPE HEAT & COOL - (AUTO. c/o)	
	F - 2 PIPE HEAT & COOL - (AUTO. c/o) ALTERNATE	
	VALVE CYCLE CONTROL	
	G - 2 PIPE HEAT ONLY	
	H - 2 PIPE COOL ONLY	
	J - 2 PIPE HEAT & COOL - (MANUAL c/o)	
	K - 2 PIPE HEAT & COOL - (AUTO. c/o)	
	L - 2 PIPE HEAT & COOL W/AUX. ELEC. HEAT (MANUAL c/o)	
	M - 2 PIPE HEAT & COOL W/AUX. ELEC. HEAT (AUTO. c/o)	
	N - 2 PIPE HEAT & COOL W/TOTAL ELEC. HEAT (MANUAL c/o)	
	P - 2 PIPE HEAT & COOL W/TOTAL ELEC. HEAT (AUTO. c/o)	
	Q - 4 PIPE HEAT & COOL - (MANUAL c/o)	
	R - 4 PIPE HEAT & COOL - (AUTO. c/o)	

PERFORMANCE DATA

SAFETY - Units listed with Underwriters Laboratory (UL) Standard 883 and Canadian Standards Association (CSA).

BASIC UNIT

The basic unit is fabricated of galvanized steel. Provision for hanging the unit is provided by slots in the top wrap of the basic housing. The standard arrangement is furnished with a one inch discharge duct collar. The condensate drain pan is fabricated of galvanized steel with closed cell, fire retardant, foam insulation coating. Water never touches the metal pan; thus, the possibility of corrosion is minimized and long, trouble-free life is assured. Removable pan extensions are available at the coil header end of the unit to provide positive control

of condensate from valves and controls. This extension, being easily removable, provides ready access to valves and piping after unit installation. The motor blower assembly is designed for easy removal from the basic unit to provide for ease of servicing these components. Removal of this assembly also provides access to the entering air face of the coil, which is the face that will accumulate any dirt passing through the filter. Thus, cleaning of this face of the coil is a relatively simple matter.

CABINET

The decorative cabinet of the Model HDS Unit and the finished access panel of the Model HFS Unit are heavy gauge steel, bonderized, and finished with an oven-baked paint. Several color selections are available as an optional specification. (See Color Chart) All cabinet panels are lined with 1/2 inch glass fiber acoustic and thermal insulation. The enclosure of the model HFS and the plenum of the Models HRS and HSRS are simi-

larly lined. The bottom panel of the Model HDS Unit is removable and provides complete access to the basic unit. The bottom access panel is complete with stamped grilles and filter rack. Stamped discharge grilles are standard with double deflection grilles furnished when specified as an optional item.

COILS

Coils have 1/2 inch O.D. copper tubes with aluminum fins mechanically bonded to the tubes. All coils are leak tested under water and are suitable for design working pressures of 250 psig @ 200 degree F. A variety of coil selections are available. The standard coil provides adequate capacity for most installations with

an eight to ten degree design water temperature rise. A high capacity coil is offered for those installations requiring the higher latent heat capabilities or those designed for a twelve degree water temperature rise. Also offered is a four-pipe coil consisting of standard or high capacity cooling with one and two rows of heating surface.

FILTERS

Standard filters are one inch throwaway glass fiber. Optional cleanable filters are available.

FANS

The fans are centrifugal, forward-curved, double-width wheels. Blower housings are galvanized steel with special rolled perimeter seams to provide added rigidity.

MOTORS

All motors are resilient-mounted, three speed, with UNDERWRITERS listed thermal overload protection. Motor bearings are of the sleeve type or ball bearing type with oversized oil reservoirs provided to assure positive lubri-

cation with minimum servicing required. Positive speed reduction is assured through careful matching of motor torque to blower loading. Standard motors are permanent split capacitor.



UL APPROVAL

All horizontal units in USA COIL & AIR's Product Line are listed by UNDERWRITERS' LABORATORIES, INC. This listing signifies that USA COIL & AIR's fan coil units have been examined by UL and found to be in complete compliance with applicable standards. The re-examination service also includes periodic visits by UL inspectors at USA COIL & AIR's factory to assure continuing compliance by all listed products.

COIL SIZE - HBS, HRS, HDS, HFS, HSBS, HSRS

UNIT SIZE	HEIGHT x LENGTH
2	7.5 x 16
3	7.5 x 20
4	7.5 x 26
6	8.75 x 31
8	8.75 x 38
10	8.75 x 52
12	8.75 x 60

TABLE #1 - CONDENSED PERFORMANCE

ARI APPROVED STANDARD RATINGS¹

UNIT TYPE	UNIT SIZE / COIL ROWS	NOMINAL CFM	GPM	COOLING CAPACITY		POWER INPUT WATTS
				TOTAL BTUH	SENSIBLE BTUH	PSC
HBS HRS HDS HFS	02/3 ROW	200	1.2	6,000	4,000	50
	03/3 ROW	300	1.8	9,000	6,300	55
	04/3 ROW	400	2.5	12,100	8,800	165
	06/3 ROW	600	3.5	17,300	13,000	225
	08/3 ROW	800	4.6	22,600	16,900	235
	10/3 ROW	1000	5.5	27,500	21,000	305
	12/3 ROW	1200	6.6	32,800	25,000	435
HBS HRS HDS HFS	02/4 ROW	200	1.4	6,900	5,000	50
	03/4 ROW	300	2.1	9,800	6,500	55
	04/4 ROW	400	2.8	13,800	9,800	145
	06/4 ROW	600	4.0	19,600	14,300	220
	08/4 ROW	800	5.1	25,500	18,800	235
	10/4 ROW	1000	6.2	31,000	23,000	300
	12/4 ROW	1200	7.5	37,200	27,700	425
HSBS HSRS	04/4 ROW	400	3.2	16,000	11,600	170
	06/4 ROW	600	4.4	21,800	16,000	205
	08/4 ROW	800	5.3	26,500	19,600	225
	10/4 ROW	1000	7.5	37,200	27,600	355

1. Based on 80 degrees and 67 degrees WB EAT, 45 degrees F EWT, 10 degrees F temperature rise, high fan speed. Motor voltage 115/1/60. Air flow under dry coil conditions. Ducted models tested @ 0.05 ext. static pressure.
2. For all application ratings use the USA Coil & Air computer selection program, the quick-selection ratings in this catalog or contact your local USA Coil & Air representative.

COOLING SELECTION

This catalog provides quick selection tables for selecting all horizontal fan coil units. Different units provide different CFM's based on cabinet type, external static pressures, etc. When CFM deviates either up or down from the standard CFM that the performance tables are based on, then the BTU output of the unit changes also. Correction factors are provided in the table on this page to calculate new BTU outputs.

SELECTION

The cooling coil performance tables on pages 11 thru 14 are based on CFM's at high speed for the following type of units: HRS, HFS, & HDS. When you change the cabinet to any other type of unit or you change the ext. static pressure from 0.0 on any unit, then the actual CFM output of the unit increases or decreases.

1. Select the total BTU from the charts on pages 11 thru 14. You must know required unit size (2 thru 12), delta T on chilled water, and entering air temperature.
2. The actual CFM shown under each unit size is based on 0.0 ext. static pressure and the unit must be one of the following types: HRS, HFS, or HDS. If you have a different unit type or a different ext. static pressure, then you must correct your BTU output. Go to step #3.
3. Go to Table #3 on page 10 and find your unit type under the model. Find your unit size and the coil rows that you want to use (3 or 4 row). Go across the top of the page and locate your ext. static pressure if there is one. This will give you an actual CFM output, which will be either greater than or less than the standard CFM output of the unit.
4. Divide the new CFM by the standard CFM. If, for example, the standard CFM output is 190 and the chart shows that you will actually get 228 CFM then divide 228 by 190. Standard CFM's are found on pages 11-14.

$$\frac{\text{(Actual) } 228 \text{ CFM}}{\text{(Base) } 190 \text{ CFM}} = 1.20 \text{ Ratio}$$

5. Go to the Table #2 on this page and you will find correction factors based on various CFM ratios. You may interpolate between ratios. Multiply these correction factors by BTU's out of tables that you find on pages 11 thru 14. This will give you actual BTU output of the unit.
 - 1.20 Ratio = 1.13 x Total = New Total BTU
 - = 1.14 x Sensible = New Sensible BTU

TABLE #2

BTU CAPACITY CFM CORRECTION FACTORS FOR CONSTANT WATER TEMPERATURE RISE

CFM RATIO (ACTUAL ÷ BASE)	CORRECTION FACTOR TOTAL BTU	CORRECTION FACTOR SENSIBLE BTU
1.40	1.25	1.26
1.35	1.22	1.23
1.30	1.19	1.20
1.25	1.16	1.17
1.20	1.13	1.14
1.15	1.10	1.11
1.10	1.07	1.08
1.05	1.04	1.04
1.00	1.00	1.00
0.95	0.97	0.97
0.90	0.94	0.93
0.85	0.90	0.89
0.80	0.86	0.85
0.75	0.82	0.81
0.70	0.78	0.77
0.65	0.74	0.72
0.60	0.70	0.67
0.55	0.66	0.62
0.50	0.62	0.57
0.45	0.58	0.52
0.40	0.53	0.47
0.35	0.48	0.42
0.30	0.43	0.38
0.25	0.38	0.33

NOTE: If tabular capacity shows a totally sensible coil apply sensible correction factor only. Heating selections use sensible factor only.

Differences in selections may result due to rounding.

$$\begin{aligned} \text{TH} &= \text{TH (Base)} \times \text{Correction Factor} \\ \text{TS} &= \text{TS (Base)} \times \text{Correction Factor} \end{aligned}$$

APPLICATION

Electric heaters are available for installation on USA Coil & Air fan coil units for the following applications.

TOTAL ELECTRIC HEAT

Complete heating during heating season: No boiler is required. Heating and/or cooling may be available on an individual basis the year round with only a two-pipe system. Chilled water is used for cooling, and the electric heater is used for heating. Individual room controls can be supplied to give manual or automatic changeover.

AUXILIARY ELECTRIC HEAT

Heating between seasons or during cooling season when chilled water is being circulated. Individual room controls can be supplied to provide electric heat only when chilled water is being circulated. During regular heating season, heating is provided by hot water being circulated in the system.

CONSTRUCTION

The heater consists of coils of high grade resistance wire which are insulated by incorporating ceramic insulators in plated steel brackets.

High limit thermal cutouts to protect the heater in the event of air failure are provided as standard equipment.

There are many special applications and control sequences for electric heat. Consult factory for special applications.

Electric Heating Capacities (BTUH) = Heater KW x 3415

Electric Heater Amperage = $\frac{\text{Heater KW} \times 1000}{\text{Applied Voltage}}$

TABLE #8

ELECTRIC HEATER SELECTION GUIDE

VOLTAGE	KW	UNIT SIZE							
		02	03	04	06	08	10	12	
120 V	0.5	*	*						
	1.0	*	*	*					
	1.5	*	*						
	2.0	*	*	*	*	*	*	*	*
	3.0		*	*	*	*			
208 V	0.5	*	*						
	1.0	*	*	*					
	1.5	*	*						
	2.0	*	*	*	*	*	*	*	*
	3.0		*	*	*	*			
	4.0				*	*	*	*	*
	5.0				*	*			
	6.0				*	*	*	*	*
240 V 277 V	0.5	*	*						
	1.0	*	*	*					
	1.5	*	*						
	2.0	*	*	*	*	*	*	*	*
	3.0		*	*	*	*			
	4.0				*	*	*	*	*
	5.0				*	*			
	6.0				*	*	*	*	*
	8.0						*	*	*
	10.0								*

NOTE: All heaters are single stage and single phase.

THERMAL OVERLOAD PROTECTION AND UL LISTING

All split capacitor motors furnished by USA Coil & Air contain an internal thermal overload protector which is calibrated to tripout when the winding reaches a predetermined temperature. This protector will automatically reset when the temperature returns to a safe limit.

Underwriters Laboratories, Inc. approves the motor and thermal overload combination at locked rotor conditions only. These combinations are "yellow card listed," and evidence of such protection is stamped directly on the motor.

EFFICIENCY AND POWER FACTOR

The efficiency and power factor of a permanent split capacitor motor are higher than that of a shaded pole motor. Permanent split capacitor motors have an efficiency in the range of 35% to 55% as compared to 20% to 35% for shaded pole motors. The power factor of a shaded pole motor may be in the range of 0.50 to 0.65 while the power factor of a permanent split capacitor motor approaches 0.89 - 1.00.

When current input is critical, the motor selection should be made on the basis of efficiency. This is one reason for the increasing use of permanent split capacitor motors in fan coil units. In many installations the total power factor must be maintained above a set minimum value. If other components of the system have a high power factor, then it may not be objectionable to use a low power factor motor.

TABLE #10

MODELS, HSBS, HSRS							
VOLTAGE	DATA		UNIT SIZE				
			04	06	08	10*	
115 V 60 HZ 1 PHASE	NOM'L HP		1/8	1/8	1/8	(2) 1/8	
	H	AMPS	1.70	1.70	1.80	3.45	
		WATTS	170	205	225	355	
	M	AMPS	1.65	1.65	1.70	3.37	
		WATTS	160	175	195	345	
	L	AMPS	1.45	1.45	1.45	2.95	
		WATTS	135	140	165	290	
	208 V 60 HZ 1 PHASE	NOM'L HP		1/8	1/8	1/8	(2) 1/8
		H	AMPS	0.66	0.73	0.74	1.40
			WATTS	135	150	160	280
M		AMPS	0.60	0.66	0.67	1.25	
		WATTS	120	130	135	250	
L		AMPS	0.54	0.57	0.57	1.05	
		WATTS	105	110	110	205	
230 V 60 HZ 1 PHASE		NOM'L HP		1/8	1/8	1/8	(2) 1/8
		H	AMPS	0.67	0.73	0.75	1.45
			WATTS	150	160	170	300
	M	AMPS	0.58	0.66	0.67	1.30	
		WATTS	128	145	135	260	
	L	AMPS	0.55	0.60	0.57	1.05	
		WATTS	115	127	127	205	
	265 V 60 HZ 1 PHASE	NOM'L HP		1/8	1/8	1/8	(2) 1/8
		H	AMPS	0.54	0.57	0.63	1.13
			WATTS	145	155	170	310
M		AMPS	0.45	0.48	0.54	0.95	
		WATTS	125	130	145	265	
L		AMPS	0.36	0.36	0.39	0.74	
		WATTS	90	90	100	195	
220 V 50 HZ 1 PHASE		NOM'L HP		1/8	1/8	1/8	(2) 1/8
		H	AMPS	1.00	1.00	1.00	2.10
			WATTS	215	220	220	430
	M	AMPS	0.65	0.65	0.65	1.30	
		WATTS	150	159	150	320	
	L	AMPS	0.50	0.50	0.50	1.00	
		WATTS	95	95	100	200	

*NOTE: Total Unit Motor Amps & Watts Shown For 2 Motor Unit (Size 10). Motor Nameplate Amps May Vary.

Performance Dimensions

Motor Information

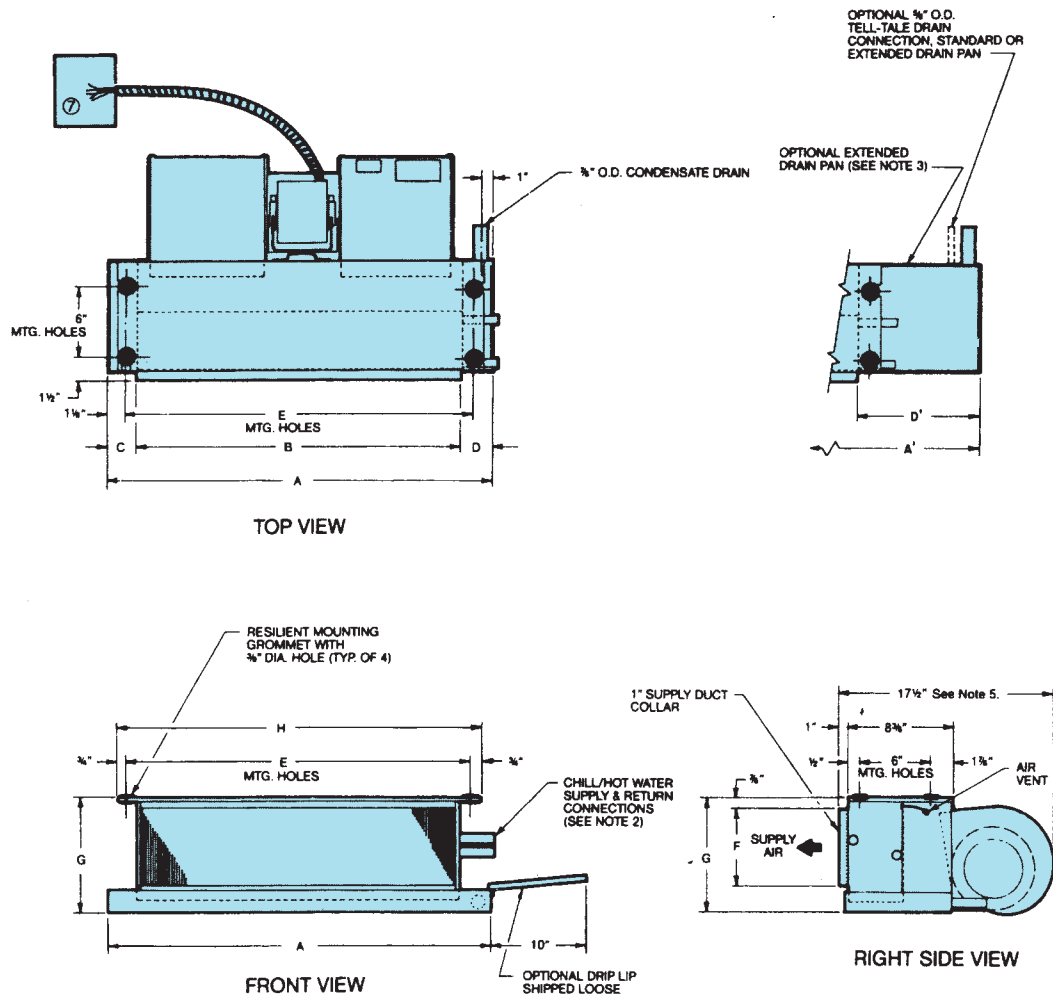
TABLE #10

MODELS HBS, HRS, HDS, HFS

VOLTAGE	DATA		UNIT SIZE						
			02	03	04	06	08	10*	12*
115V 60HZ 1 PHASE	NOMINAL HP		1/30	1/30	1/12	1/12	1/6	(2) 1/12	(2) 1/6
	H	AMPS	0.53	0.53	1.25	1.40	2.10	2.20	4.00
		WATTS	50	55	165	165	235	305	435
	M	AMPS	0.31	0.31	0.70	0.72	1.90	1.40	2.80
		WATTS	35	35	80	80	190	150	305
	L	AMPS	0.27	0.27	0.45	0.45	1.45	0.90	1.20
WATTS		28	30	50	50	145	100	130	
208V 60HZ 1 PHASE	NOMINAL HP		1/30	1/30	1/12	1/12	1/6	(2) 1/12	(2) 1/6
	H	AMPS	0.45	0.46	0.60	0.63	1.00	1.20	2.00
		WATTS	86	89	115	130	195	230	375
	M	AMPS	0.29	0.29	0.43	0.47	0.69	0.82	1.40
		WATTS	60	60	89	100	135	165	300
	L	AMPS	0.15	0.15	0.22	0.24	0.47	0.46	0.90
WATTS		28	28	45	48	90	95	170	
230V 60HZ 1 PHASE	NOMINAL HP		1/30	1/30	1/12	1/12	1/6	(2) 1/12	(2) 1/6
	H	AMPS	0.40	0.40	0.60	0.69	1.00	1.20	2.00
		WATTS	103	106	135	155	210	245	390
	M	AMPS	0.31	0.32	0.45	0.52	0.70	0.90	1.50
		WATTS	70	73	105	115	150	200	300
	L	AMPS	0.15	0.15	0.24	0.28	0.50	0.50	1.10
WATTS		33	33	53	60	105	120	210	
265V 60HZ 1 PHASE	NOMINAL HP		1/30	1/30	1/15	1/15	1/8	(2) 1/12	(2) 1/8
	H	AMPS	0.40	0.40	0.55	1.00	1.00	1.10	1.80
		WATTS	90	95	145	220	225	250	440
	M	AMPS	0.23	0.24	0.25	0.71	0.71	0.41	0.92
		WATTS	64	66	70	125	130	120	250
	L	AMPS	0.10	0.10	0.15	0.35	0.35	0.25	0.66
WATTS		30	30	45	90	90	75	175	
220V 50HZ 1 PHASE	NOMINAL HP		1/30	1/30	1/12	1/12	1/6	(2) 1/12	(2) 1/6
	H	AMPS	0.37	0.39	0.51	0.57	1.10	1.12	2.00
		WATTS	85	90	120	120	170	210	340
	M	AMPS	0.27	0.28	0.44	0.44	0.60	0.80	1.20
		WATTS	65	60	90	92	120	160	230
	L	AMPS	0.15	0.15	0.25	0.25	0.47	0.50	0.92
WATTS		30	35	50	51	85	100	185	

*NOTE: Total Unit Motor Amps & Watts Shown For 2 Motor Units (10 & 12).
Motor Nameplate Amps May Vary

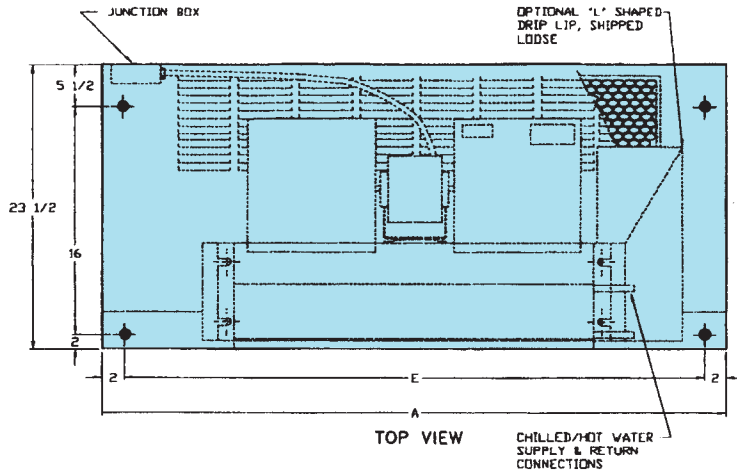
HBS BASIC UNIT - 200 CFM THRU 1200 CFM



MODEL	DIMENSIONS--INCHES									
	A	A ⁶	B	C	D	D ⁶	E	F	G	H
HBS02	21 1/4	31 1/4	16	2 1/4	3	13	18 1/4	6 1/4	9	19 3/4
HBS03	25 1/4	36 1/4	20	2 1/4	3	14	22 1/4	6 1/4	9	23 3/4
HBS04	31 1/4	43 1/4	26	2 1/4	3	15	28 1/4	6 1/4	9	29 3/4
HBS06	36 1/4	43 1/4	31	2 1/4	3	10	33 1/4	7 1/2	10 1/4	34 3/4
HBS08	43 1/4	57 1/4	38	2 1/4	3	17	40 1/4	7 1/2	10 1/4	41 3/4
HBS10	57 1/4	65 1/4	52	2 1/4	3	11	54 1/4	7 1/2	10 1/4	55 3/4
HBS12	65 1/4	75 1/4	60	2 1/4	3	13	62 1/4	7 1/2	10 1/4	63 3/4

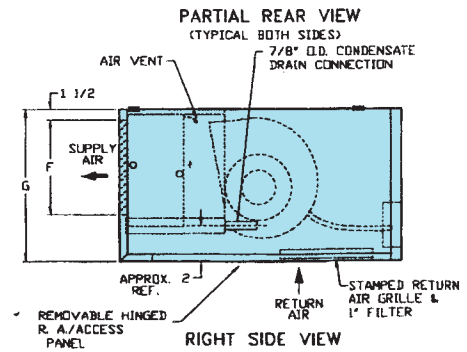
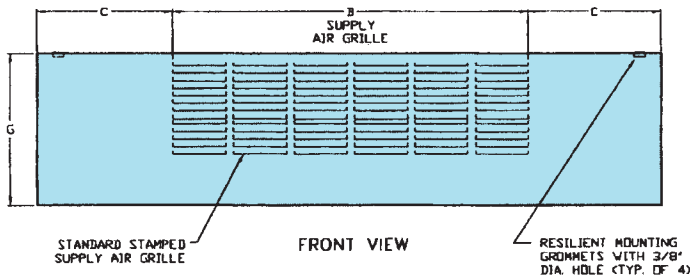
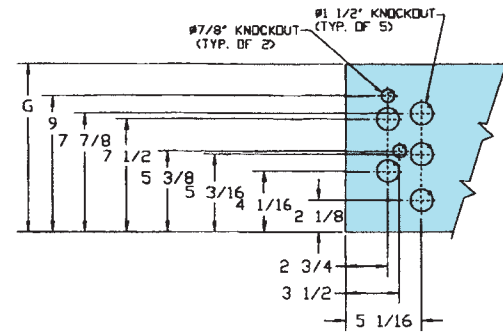
- NOTES:
1. R.H. shown, L.H. opposite.
 2. See pages Coil Connection Dimensions.
 3. Optional drip lip not required with extended drain pan.
 4. All dimensions $\pm 1/4"$.
 5. Add 3 1/2" for electric heat models.
 6. A' and D' dimensions are for extended drain pan option.
 7. 4 x 4 x 2 1/8" J-box or contractor box (as required).

HDS DELUXE UNIT - 200 CFM THRU 1200 CFM



NOTES:

1. R.H. SHOWN, L.H. OPPOSITE.
2. INTERNAL FACTORY VALVE PACKAGES AND DRAINS MAY NOT ALIGN WITH CABINET KNOCKOUTS
3. ALL DIMENSION $\pm 1/4$ "



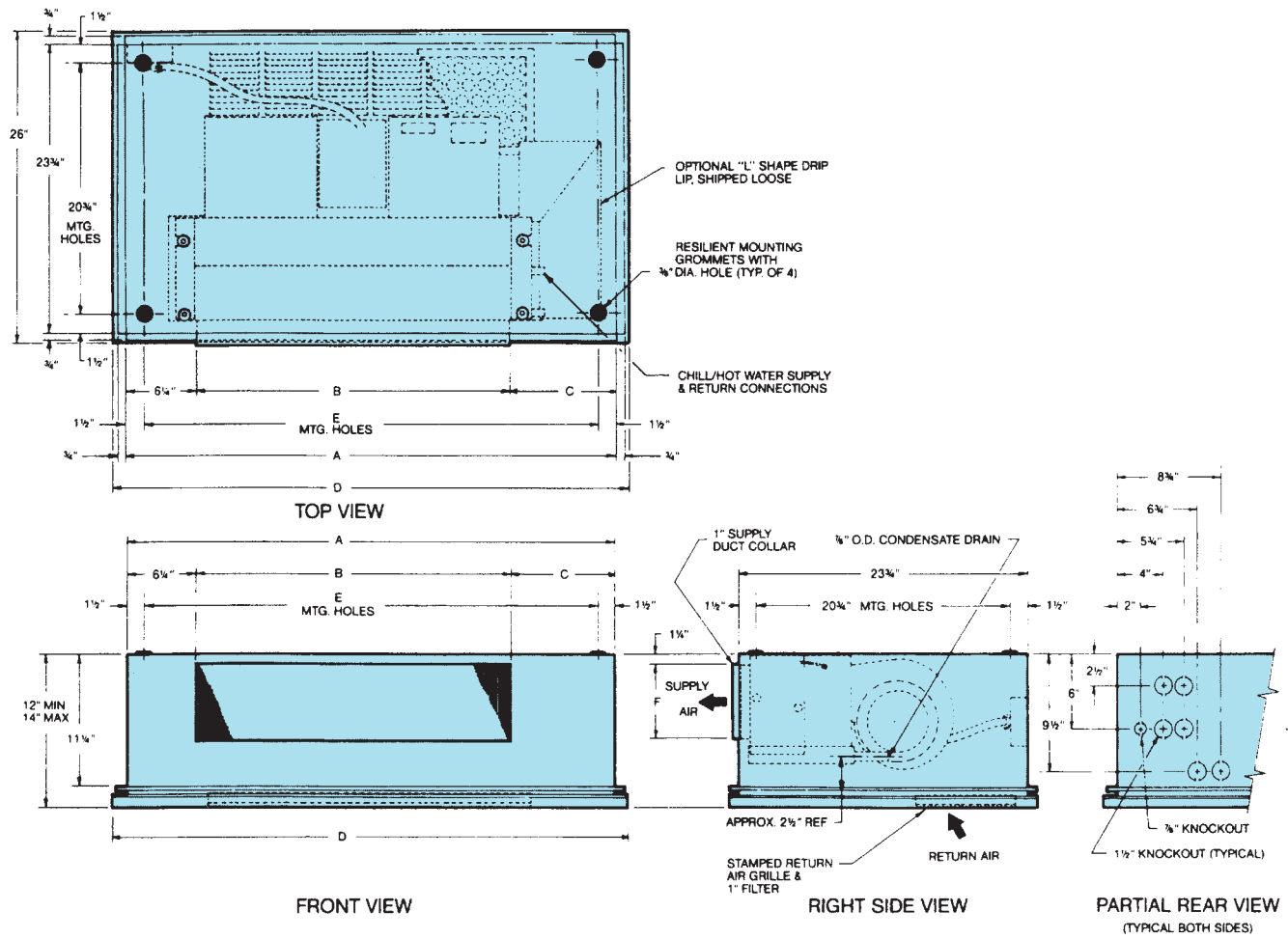
MODEL	DIMENSIONS - INCHES							UNIT QUANTITY	
	A	B	C	D	E	F	G	BLOWER	MOTOR
HDS02	38	17 1/8	10 7/16	-	34	5 3/4	11	1	1
HDS03	42	21 1/2	10 1/4	-	38	5 3/4	11	1	1
HDS04	48	25 7/8	11 1/16	-	44	5 3/4	11	2	1
HDS06	53	34 5/8	9 3/16	-	49	6 3/4	12	2	1
HDS08	60	39	10 1/2	-	56	6 3/4	12	2	1
HDS10	74	52 1/8	10 15/16	-	70	6 3/4	12	4	2
HDS12	82	60 7/8	10 9/16	-	78	6 3/4	12	4	2

- NOTES: 1. R.H. shown, L.H. opposite.
 2. Internal factory valve packages and drains may not align with cabinet knockouts.
 3. All dimensions $\pm 1/4$ ".

Dimensions

Ceiling Flush Unit

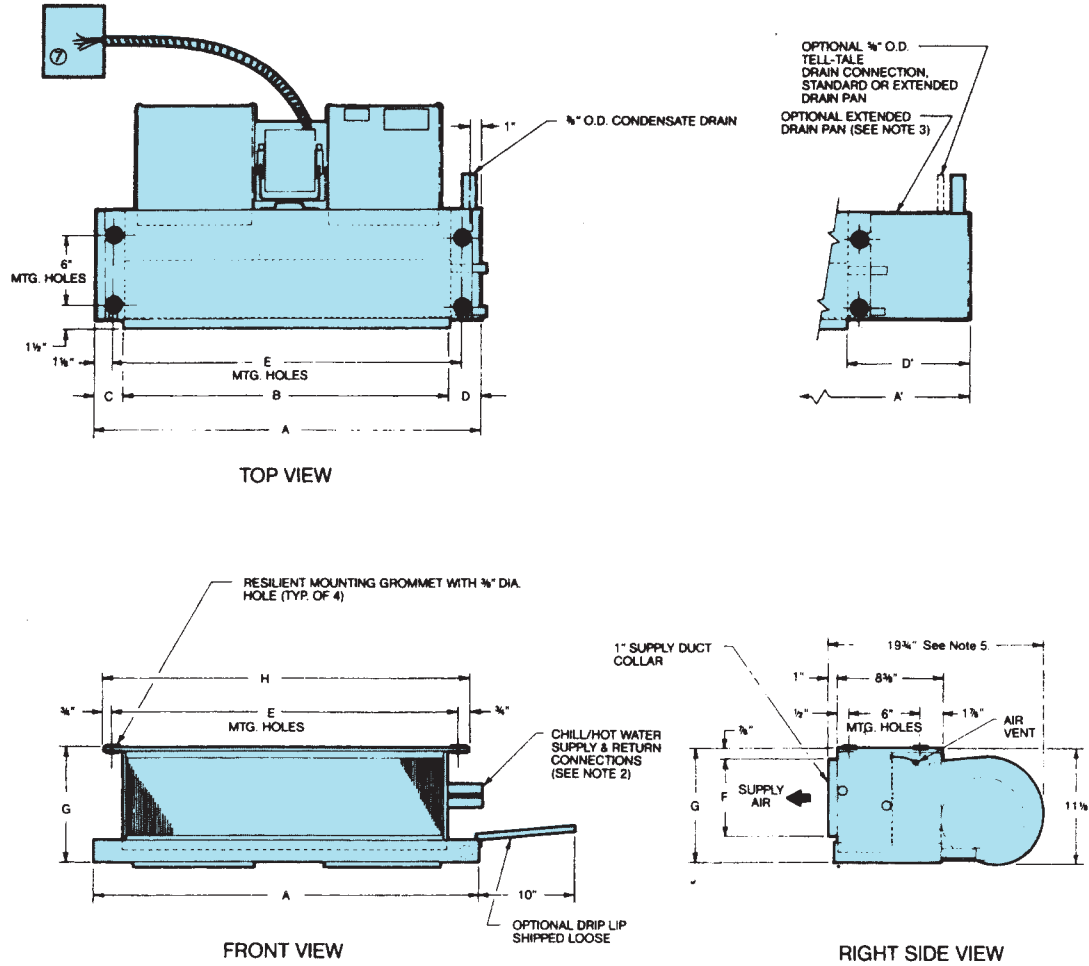
HFS CEILING FLUSH UNIT - 200 CFM THRU 1200 CFM



MODEL	DIMENSIONS--INCHES									
	A	A'	B	C	D	D'	E	F	G	H
HFS02	35	-	16	12 3/4	37	-	32	6	-	-
HFS03	35	-	20	8 3/4	37	-	32	6	-	-
HFS04	41	-	26	8 3/4	43	-	38	6	-	-
HFS06	53	-	31	15 3/4	55	-	50	7	-	-
HFS08	53	-	38	8 3/4	55	-	50	7	-	-
HFS10	75	-	52	16 3/4	77	-	72	7	-	-
HFS12	75	-	60	8 3/4	77	-	72	7	-	-

- NOTES: 1. R.H. shown, L.H. opposite.
 2. Internal factory valve packages and drains may not align with cabinet knockouts.
 3. All dimensions $\pm 1/4"$.
 4. HFS not available with extended drain pans or extended cabinet.

HSBS BASIC UNIT - 400 CFM THRU 1000 CFM



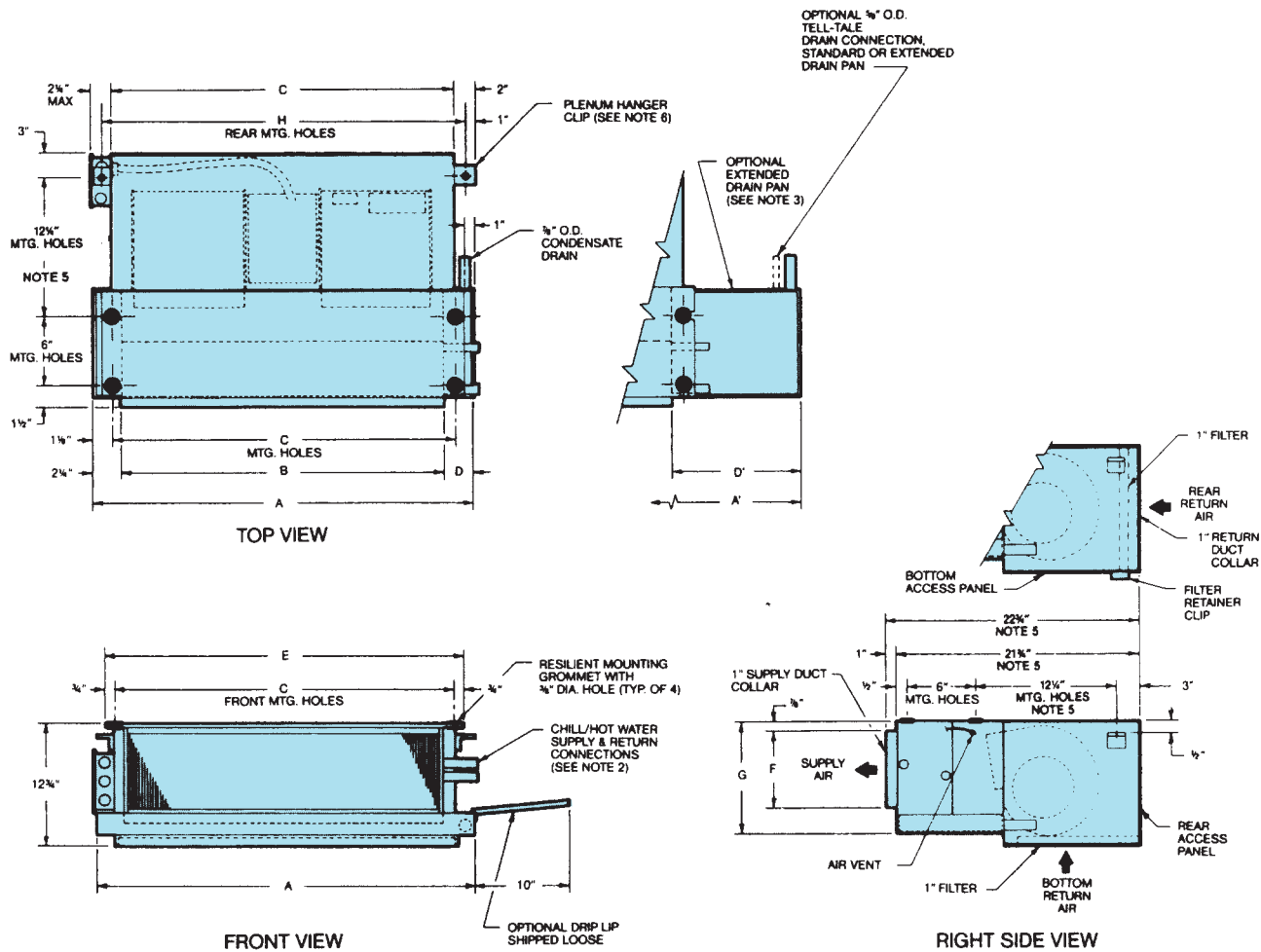
MODEL	DIMENSIONS--INCHES									
	A	A ⁶	B	C	D	D ⁶	E	F	G	H
HSBS04	31 1/4	43 1/4	26	2 1/4	3	15	28 1/4	6 1/4	9	29 3/4
HSBS06	36 1/4	43 1/4	31	2 1/4	3	10	33 1/4	7 1/2	10 1/4	34 3/4
HSBS08	43 1/4	57 1/4	38	2 1/4	3	17	40 1/4	7 1/2	10 1/4	41 3/4
HSBS10	57 1/4	65 1/4	52	2 1/4	3	11	54 1/4	7 1/2	10 1/4	55 3/4

- NOTES:
1. R.H. shown, L.H. opposite.
 2. See pages on Coil Connection Dimensions.)
 3. Optional drip lip not required with optional extended drain pan.
 4. All dimensions $\pm 1/4"$.
 5. Add 4" for electric heat models.
 6. A' and D' dimensions are for extended drain pan option.
 7. 4 x 4 x 2 1/8" J-box or contractor box (as required.)

Dimensions

High Static Return Plenum Unit

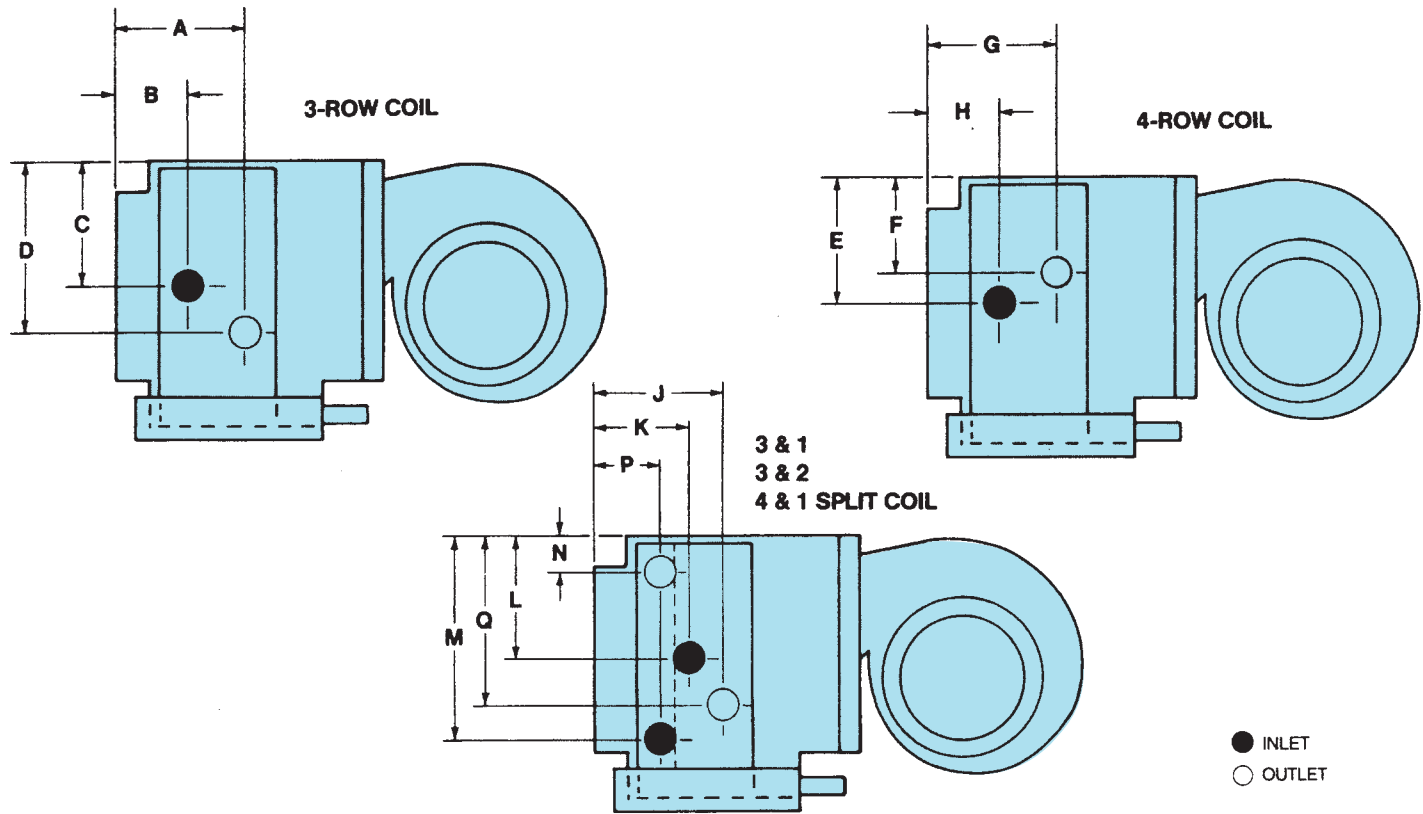
HSRS RETURN PLENUM - 400 CFM THRU 1000 CFM



MODEL	DIMENSIONS--INCHES									
	A	A ⁶	B	C	D	D ⁶	E	F	G	H
HSRS04	31 1/4	43 1/4	26	28 1/4	3	15	29 3/4	6 1/4	9	-
HSRS06	36 1/4	43 1/4	31	33 1/4	3	10	34 3/4	7 1/2	10 1/4	-
HSRS08	43 1/4	57 1/4	38	40 1/4	3	17	41 3/4	7 1/2	10 1/4	-
HSRS10	57 1/4	65 1/4	52	54 1/4	3	11	55 3/4	7 1/2	10 1/4	-

- NOTES:
1. R.H. shown, L.H. opposite.
 2. See pages on Coil Connection Dimensions.
 3. Optional drip lip not required with optional extended drain pan.
 4. All dimensions $\pm 1/4"$.
 5. Add 4" for electric heat models.
 6. A' and D' dimensions are for extended drain pan option.

COIL CONNECTION DIMENSIONS¹ - RIGHT HAND



ALL DIMENSIONS ± 5/8"

		COIL CONNECTION DIMENSIONS														
R I G H T H A N D	UNIT SIZE	3-ROW COIL				4-ROW COIL				3 & 1 SPLIT COIL						
		A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q
	02	4 3/4	2 5/8	4 1/4	4 1/4	3 5/8	4 1/4	5 5/16	2 1/16	5 5/16	3 1/8	4 1/4	5 5/8	1 1/8	2 1/16	4 1/4
	03	4 3/4	2 5/8	4 1/4	4 1/4	3 5/8	4 1/4	5 5/16	2 1/16	5 5/16	3 1/8	4 1/4	5 5/8	1 1/8	2 1/16	4 1/4
	04	4 3/4	2 5/8	4 1/4	4 1/4	3 5/8	4 1/4	5 5/16	2 1/16	5 5/16	3 1/8	4 1/4	5 5/8	1 1/8	2 1/16	4 1/4
	06	4 3/4	2 5/8	3 5/8	4 7/8	5 1/2	4 7/8	5 5/16	2 1/16	5 5/16	3 1/8	4 7/8	6 7/8	2 3/8	2 1/16	4 7/8
	08	4 3/4	2 5/8	3 5/8	4 7/8	3 5/8	4 1/4	5 5/16	2 1/16	5 5/16	3 1/8	4 7/8	6 7/8	2 3/8	2 1/16	4 7/8
	10	4 3/4	2 5/8	4 7/8	3 5/8	4 1/4	4 7/8	5 5/16	2 1/16	5 5/16	3 1/8	5 1/2	6 7/8	2 3/8	2 1/16	4 1/4
	12	4 3/4	2 5/8	4 7/8	3 5/8	4 1/4	4 7/8	5 5/16	2 1/16	5 5/16	3 1/8	5 1/2	6 7/8	2 3/8	2 1/16	4 1/4

3 & 2 SPLIT COIL

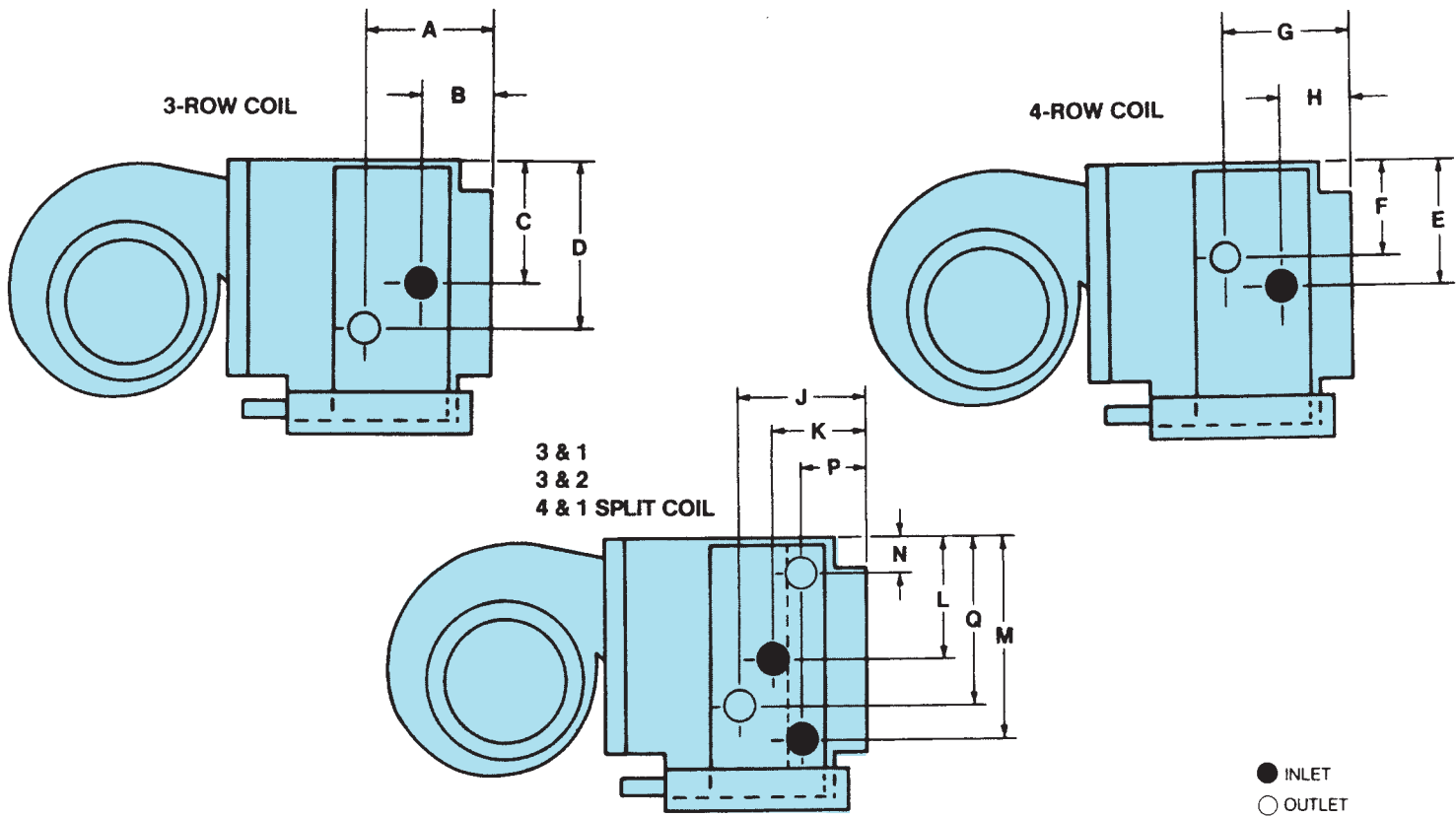
R I G H T H A N D	UNIT SIZE	J	K	L	M	N	P	Q
	02	6 5/16	4 1/8	4 1/4	5 5/8	1 3/4	2 11/16	4 1/4
	03	6 5/16	4 1/8	4 1/4	5 5/8	1 3/4	2 11/16	4 1/4
	04	6 5/16	4 1/8	4 1/4	5 5/8	1 3/4	2 11/16	4 1/4
	06	6 5/16	4 1/8	4 7/8	6 7/8	3	2 11/16	4 1/4
	08	6 5/16	4 1/8	4 7/8	6 7/8	3	2 11/16	4 1/4
	10	6 5/16	4 1/8	5 1/2	6 7/8	3	2 11/16	4 1/4
	12	6 5/16	4 1/8	5 1/2	6 7/8	3	2 11/16	4 1/4

4 & 1 SPLIT COIL

R I G H T H A N D	UNIT SIZE	J	K	L	M	N	P	Q
	02	5 3/16	2 5/8	4 1/4	5 5/8	1 1/8	1 9/16	4 1/4
	03	5 3/16	2 5/8	4 1/4	5 5/8	1 1/8	1 9/16	4 1/4
	04	5 3/16	2 5/8	4 1/4	5 5/8	1 1/8	1 9/16	4 1/4
	06	5 3/16	2 5/8	4 7/8	6 7/8	2 3/8	1 9/16	4 7/8
	08	5 3/16	2 5/8	4 7/8	6 7/8	2 3/8	1 9/16	4 7/8
	10	5 3/16	2 5/8	5 1/2	6 7/8	2 3/8	1 9/16	4 1/4
	12	5 3/16	2 5/8	5 1/2	6 7/8	2 3/8	1 9/16	4 1/4

NOTES: 1. Dimensions do not apply to units with factory valve packages.
2. All connection sizes 5/8" O.D. copper.

COIL CONNECTION DIMENSIONS¹ - LEFT HAND



ALL DIMENSIONS ± 5/8"

		COIL CONNECTION DIMENSIONS														
		3-ROW COIL				4-ROW COIL				3 & 1 SPLIT COIL						
LEFT HAND	UNIT SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q
	02	4 3/4	2 5/8	4 1/4	4 1/4	4 1/4	3 5/8	5 5/16	2 1/16	5 5/16	3 1/8	3 5/8	5	1/2	2 1/16	3 5/8
	03	4 3/4	2 5/8	4 1/4	4 1/4	4 1/4	3 5/8	5 5/16	2 1/16	5 5/16	3 1/8	3 5/8	5	1/2	2 1/16	3 5/8
	04	4 3/4	2 5/8	4 1/4	4 1/4	4 1/4	3 5/8	5 5/16	2 1/16	5 5/16	3 1/8	3 5/8	5	1/2	2 1/16	3 5/8
	06	4 3/4	2 5/8	4 7/8	3 5/8	4 7/8	5 1/2	5 5/16	2 1/16	5 5/16	3 1/8	4 1/4	6 3/4	1/2	2 1/16	4 1/4
	08	4 3/4	2 5/8	4 7/8	3 5/8	4 1/4	3 5/8	5 5/16	2 1/16	5 5/16	3 1/8	4 1/4	6 3/4	1/2	2 1/16	4 1/4
	10	4 3/4	2 5/8	3 5/8	4 7/8	4 7/8	4 1/2	5 5/16	2 1/16	5 5/16	3 1/8	3 5/8	6 3/4	1/2	2 1/16	4 7/8
	12	4 3/4	2 5/8	3 5/8	4 7/8	4 7/8	4 1/2	5 5/16	2 1/16	5 5/16	3 1/8	3 5/8	6 3/4	1/2	2 1/16	4 7/8

3 & 2 SPLIT COIL

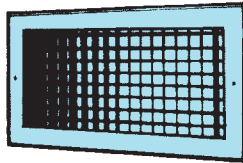
		J	K	L	M	N	P	Q
LEFT HAND	UNIT SIZE							
	02	6 5/16	4 1/8	3 5/8	5	1 1/8	2 11/16	3 5/8
	03	6 5/16	4 1/8	3 5/8	5	1 1/8	2 11/16	3 5/8
	04	6 5/16	4 1/8	3 5/8	5	1 1/8	2 11/16	3 5/8
HAND	06	6 5/16	4 1/8	4 1/4	6 3/4	1 1/8	2 11/16	4 1/4
	08	6 5/16	4 1/8	4 1/4	6 3/4	1 1/8	2 11/16	4 1/4
	10	6 5/16	4 1/8	3 5/8	6 3/4	1 1/8	2 11/16	4 7/8
	12	6 5/16	4 1/8	3 5/8	6 3/4	1 1/8	2 11/16	4 7/8

4 & 1 SPLIT COIL

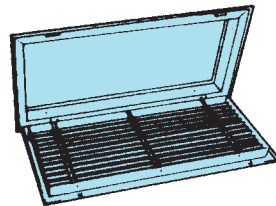
		J	K	L	M	N	P	Q
LEFT HAND	UNIT SIZE							
	02	5 3/16	2 5/8	3 5/8	5	1/2	1 9/16	3 5/8
	03	5 3/16	2 5/8	3 5/8	5	1/2	1 9/16	3 5/8
	04	5 3/16	2 5/8	3 5/8	5	1/2	1 9/16	3 5/8
HAND	06	5 3/16	2 5/8	4 1/4	6 3/4	1/2	1 9/16	4 1/4
	08	5 3/16	2 5/8	4 1/4	6 3/4	1/2	1 9/16	4 1/4
	10	5 3/16	2 5/8	3 5/8	6 3/4	1/2	1 9/16	4 7/8
	12	5 3/16	2 5/8	3 5/8	6 3/4	1/2	1 9/16	4 7/8

NOTES: 1. Dimensions do not apply to units with factory valve packages.
2. All connection sizes 5/8" O.D. copper.

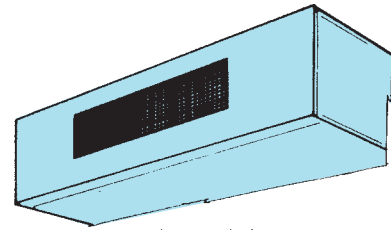
SUPPLY GRILLE SIZES			RETURN GRILLE SIZES		
UNIT SIZE	NOMINAL CFM	SUPPLY GRILLE SIZES	UNIT SIZE	NOMINAL CFM	RETURN AIR
02	200	16"x6"	02	200	24"x10"
03	300	20"x6"	03	300	28"x10"
04	400	26"x6"	04	400	32"x10"
06	600	30"x6"	06	600	42"x10"
08	800	38"x6"	08	800	42"x10"
10	1000	52"x6"	10	1000	54"x10"
12	1200	60"x6"	12	1200	64"x10"



Double Deflection, Aluminum Finish Supply Grille



Hinged, Bar-type, Aluminum Finish Return Grille with Throw-away Filter



Double Deflection, Integral Steel Supply Grille (Painted to match color of unit)

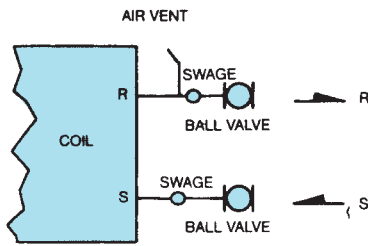
FILTER SIZE CHART

UNIT SIZE	HBS ¹	BOTTOM RET. HRS	REAR RET. HRS	HFS BOTTOM RET. (STAMPED)	HFS REAR RET. (DUCTED)	HDS BOTTOM RET. (STAMPED)	HDS REAR RET. (STAMPED)	HDS REAR RET. (DUCTED)
02	10 x 24	10 x 18	10 x 18	10 x 28	7 x 21	10 x 23 1/2	10 x 23 1/2	10 x 23 1/2
03	10 x 28	10 x 22	10 x 22	10 x 28	7 x 21	10 x 28	10 x 28	10 x 28
04	10 x 32	10 x 28	10 x 28	10 x 33	7 x 27	10 x 32 1/2	10 x 32 1/2	10 x 32 1/2
06	10 x 42	10 x 33	10 x 33	10 x 45	7 x 38	10 x 37	10 x 37	10 x 37
08	10 x 42	10 x 40	10 x 40	10 x 45	7 x 38	10 x 41	10 x 41	10 x 41
10	10 x 54	10 x 54	10 x 54	10 x 62	7 x 52	10 x 54 1/2	10 x 54 1/2	10 x 54 1/2
12	10 x 64	10 x 62	10 x 62	10 x 62	7 x 52	10 x 63	10 x 63	10 x 63

UNIT SIZE	HSBS ¹	HSRS BOTTOM RET. W/HEAT	HSRS BOTTOM RET. W/O HEAT	HSRS REAR RET. W/HEAT	HSRS REAR RET. W/O HEAT
02	N/A	N/A	N/A	N/A	N/A
03	N/A	N/A	N/A	N/A	N/A
04	10 x 32	16 3/4 x 28	12 3/4 x 28	12 3/4 x 28	12 3/4 x 28
06	10 x 42	16 3/4 x 33	12 3/4 x 33	12 3/4 x 33	12 3/4 x 33
08	10 x 42	16 3/4 x 40	12 3/4 x 40	12 3/4 x 40	12 3/4 x 40
10	10 x 54	16 3/4 x 54	13 3/4 x 54	12 3/4 x 54	12 3/4 x 54
12	N/A	N/A	N/A	N/A	N/A

- NOTES: 1. Recommended minimum filter sizes (field furnished and installed).
 2. Sizes shown are nominal ordering sizes.

NO MOTORIZED CONTROL VALVE



BASIC APPLICATION

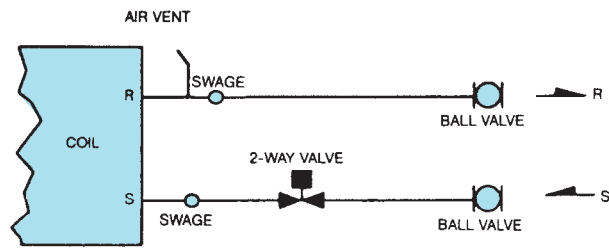
2 PIPE SYSTEM ONLY (One Valve Package)

- A. 2 Pipe - Hydronic Heating Only
- B. 2 Pipe - Hydronic Cooling Only

Notes:

1. Continuous water flow, chilled water or hot water
2. Not recommended for high humidity applications

2-WAY MOTORIZED CONTROL VALVE



BASIC APPLICATION

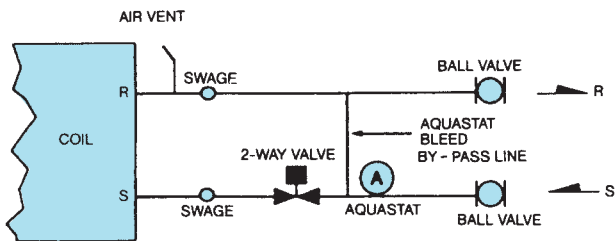
2 PIPE SYSTEM (One Valve Package) or 4-PIPE SYSTEM (Two Valve Packages)

- A. 2 Pipe - Hydronic Heating Only
- B. 2 Pipe - Hydronic Cooling Only
- C. 2 Pipe - Hydronic Cooling with Total Electric Heat
- D. 4 Pipe - Hydronic Cooling and Heating

Notes:

1. Not recommended for 2 Pipe with automatic controls

2-WAY MOTORIZED CONTROL VALVE WITH AQUASTAT BLEED BY-PASS LINE



BASIC APPLICATION

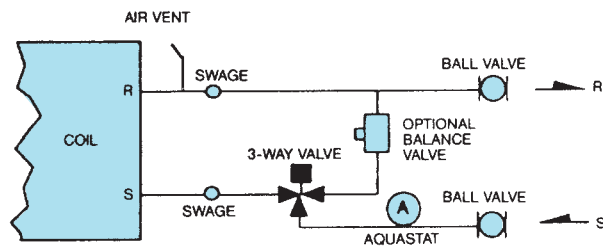
2 PIPE SYSTEM ONLY (One Valve Package)

- A. 2 Pipe - Hydronic Cooling and Heating
- B. 2 Pipe - Hydronic Cooling and Heating with Auxiliary Electric Heat

Notes:

1. Additional aquastat required as noted above

3-WAY MOTORIZED CONTROL VALVE



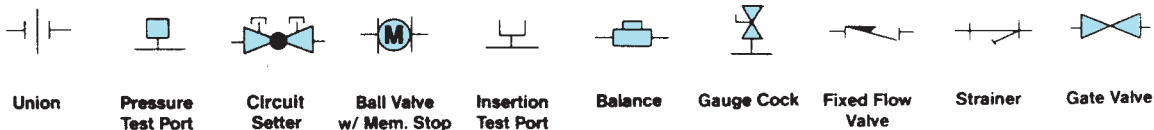
BASIC APPLICATION

2 PIPE SYSTEM (One Valve Package) or 4-PIPE SYSTEM (Two Valve Packages)

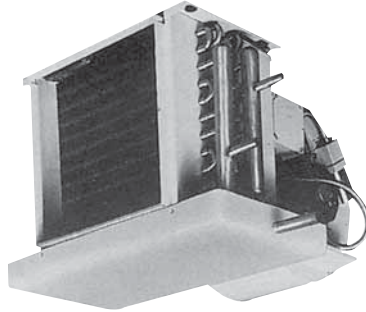
- A. 2 Pipe - Hydronic Heating
- B. 2 Pipe - Hydronic Cooling
- C. Hydronic Cooling and Heating
- D. Hydronic Cooling and Heating with Auxiliary Electric Heat
- E. 2 Pipe - Hydronic Cooling with Total Electric Heat
- F. 4 Pipe - Hydronic Cooling and Heating

OTHER PIPING OPTIONS

Consult USA Coil & Air Valve Packages and Piping Component's Manual for detailed piping and valve information.



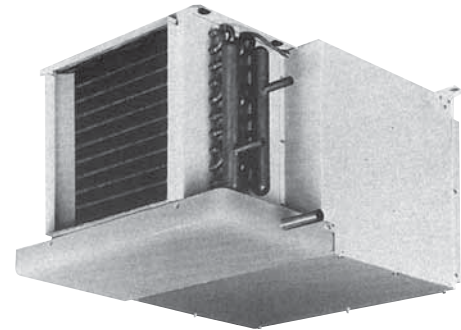
MODEL HBL - HORIZONTAL BASIC - 600 CFM THRU 2000 CFM



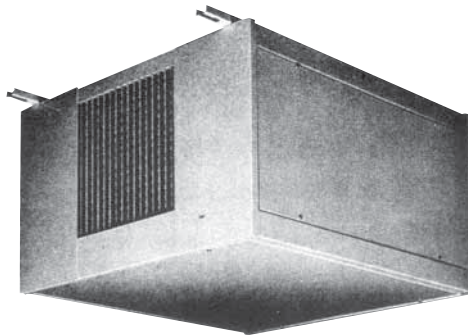
The Model HBL Horizontal Fan Coil Unit is designed specifically to meet the many varied requirements for a ceiling hideaway installation where there is a ducted, high-static application. HBL units are provided standard with a galvanized finish.

MODEL HRL - HORIZONTAL RETURN PLENUM - 600 CFM THRU 2000 CFM

The Model HRL Unit provides the same basic features of the HBL plus a return-air plenum. All Model HRL Units are shipped from the factory completely ready for installation with the plenum section in place. No field fabrication is required. HRL Units are provided standard with a galvanized finish.



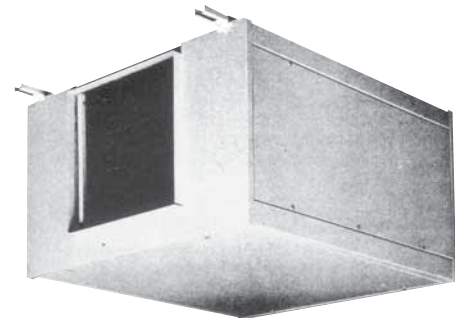
MODEL HDL - HORIZONTAL DELUXE - 600 CFM THRU 2000 CFM



The Model HDL Series is an attractively styled cabinet unit ideally suited for ceiling mounted applications where high capacities are required. The unit is supplied with an integral double-deflection discharge grille and a bar-type return-air grille with a throwaway filter. HDL units are finished in attractive oven baked finish.

MODEL HSDL - HORIZONTAL DELUXE HIGH STATIC - 600 CFM THRU 2000 CFM

The basic unit is fabricated of heavy gauge steel. The HSDL Unit is designed for above or below the ceiling and is for high-static ducted applications only where high output is required. HSDL units are provided standard with a galvanized finish.



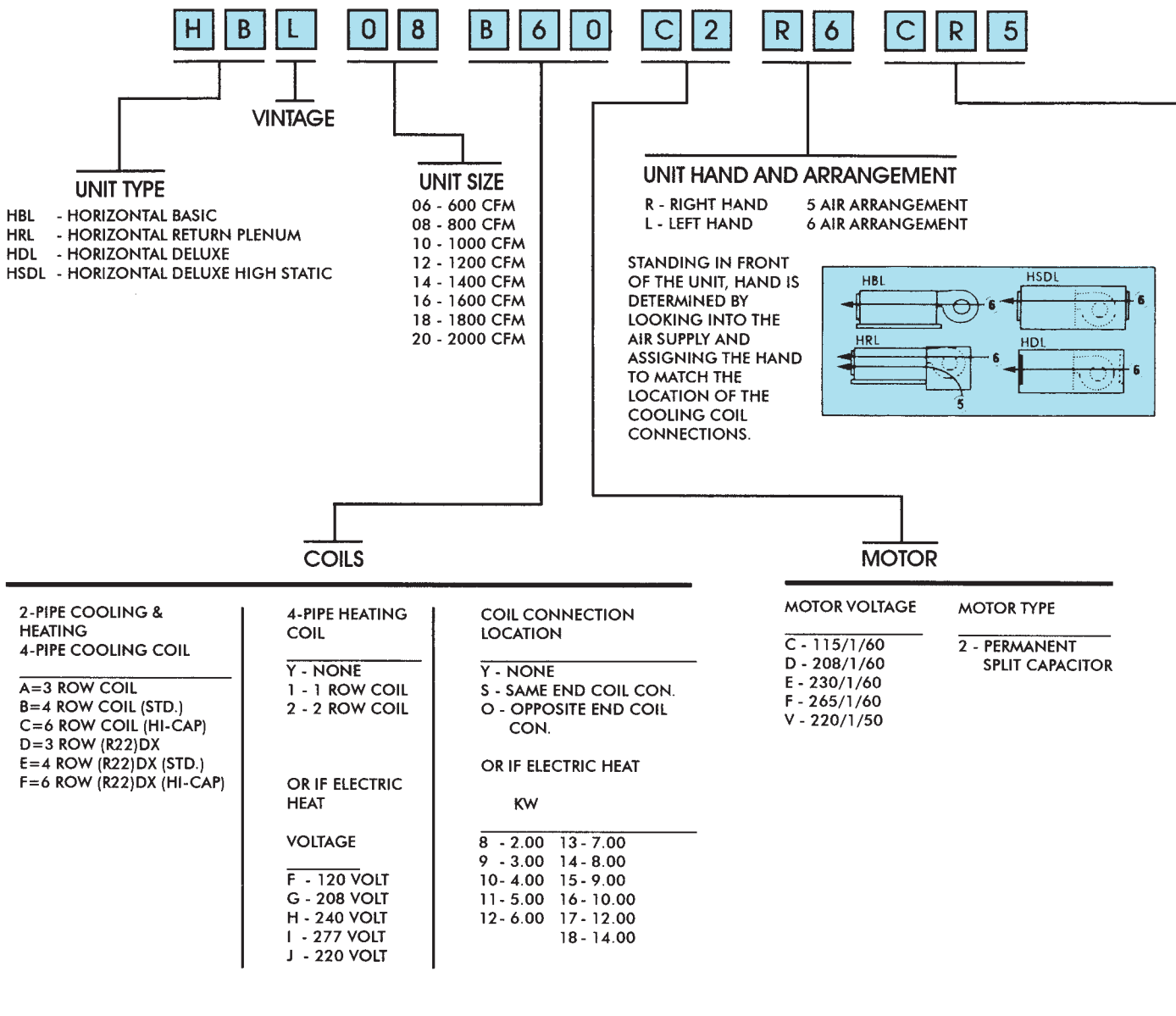
HOW TO SELECT USA UNITS

It's easy to select USA Fan/Coil Units. The basic internal parts to include fan assemblies, coils, etc., are all the same for every size unit. We just change the cabinet around the unit, so that you choose the type that meets your requirements. You'll find that USA has the easiest selection procedure in the industry.

EXAMPLE: Model #HBL, HRL, and HDL all have the same fan assembly, coil, filter, etc. Only the cabinet around the unit changes.

Descriptive Information

Model Number Codes



UNIT CONTROL PACKAGE

CONTROL VOLTAGE	SYSTEM TYPE	THERMOSTAT
C - 120 VOLT	FAN CYCLE CONTROL	2 - STANDARD WALL MOUNT
D - 208 VOLT	A - MANUAL FAN OPERATION	3 - C-3 WALL MOUNT
E - 240 VOLT	B - 2 PIPE HEAT ONLY	4 - WALL SERIES 4039
F - 277 VOLT	C - 2 PIPE COOL ONLY	5 - WALL SERIES 154
V - 220 VOLT	D - 2 PIPE HEAT & COOL - (MANUAL c/o)	
	E - 2 PIPE HEAT & COOL - (AUTO c/o)	
	F - 2 PIPE HEAT & COOL - (AUTO c/o) ALTERNATE	
	VALVE CYCLE CONTROL	
	G - 2 PIPE HEAT ONLY	
	H - 2 PIPE COOL ONLY	
	J - 2 PIPE HEAT & COOL - (MANUAL c/o)	
	K - 2 PIPE HEAT & COOL - (AUTO. c/o)	
	L - 2 PIPE HEAT & COOL W/AUX. ELEC. HEAT (MANUAL c/o)	
	M - 2 PIPE HEAT & COOL W/AUX. ELEC. HEAT (AUTO. c/o)	
	N - 2 PIPE HEAT & COOL W/TOTAL ELEC. HEAT (MANUAL c/o)	
	P - 2 PIPE HEAT & COOL W/TOTAL ELEC. HEAT (AUTO. c/o)	
	Q - 4 PIPE HEAT & COOL - (MANUAL c/o)	
	R - 4 PIPE HEAT & COOL - (AUTO. c/o)	

NOTE: Consult factory for acceptable code item combinations and other code item restrictions.

PERFORMANCE DATA (ALL MODELS)

SAFETY - Units listed with Underwriters Laboratory (UL) Standard 1995 and Canadian Standards Association (CSA) Standard C22.2 No. 236-M90.

BASIC UNIT (HBL, HRL)

The basic HBL is fabricated of galvanized steel. Provision for hanging the unit is provided by slots in the top of the housing. A one inch discharge duct collar is furnished.

The condensate drain pan is lined with closed cell, fire retardant foam insulation. Water never touches the metal pan, minimizing the possibility of corrosion. Every horizontal unit is available with an optional drip lip at the coil header end on the unit to provide positive control of condensate when control valves are used. The motor blower assembly is designed for easy removal from the basic unit for servicing. This also provides access to the entering air face of the coil for easy cleaning.

CABINET (HDL, HSDL)

Horizontal and Vertical Cabinet Models HSDL have galvanized steel panels acoustically and thermally insulated with 1/2 inch fiber glass.

Horizontal Model HSDL and HDL Units have removable side panels for access to motor blower assembly, valves and piping. The HSDL front and rear panels have one inch duct collars for supply and return air duct connections.

COILS

Coils have 1/2 inch O.D. copper tubes with aluminum fins mechanically bonded to the tubes. All coils are leak tested with air under water and are suitable for design working pressures of 250 psig @ 200 degrees F.

A variety of coil selections are available. The standard coil provides adequate capacity for most installations with an 8° to 10° design water temperature rise. A high capacity coil is offered for those installations requiring the higher latent heat capabilities or those designed for a 12° water temperature rise. Also offered is a four-pipe coil consisting of standard or high capacity cooling with one and two rows of heating surfaces.

FILTERS

All cabinet model units have one inch throwaway filters furnished as standard equipment. Cleanable filters are optional except on HDL.

FANS

The fans are centrifugal, forward-curved, double-width wheels. Blower housings are galvanized steel with special rolled perimeter seams to provide added rigidity.

MOTORS

All motors are resilient-mounted, three speed PSC Type, with thermal overload protection. Motor bearings are of the sleeve type. Positive speed reduction is assured through careful matching of motor torque to blower loading. Standard motors are permanent split capacitor.



UL APPROVAL

All Hi-Performance Units in USA COIL & AIR's Product Line are listed by UNDERWRITERS' LABORATORIES, INC. This listing signifies that USA COIL & AIR's fan coil units have been examined by UL and found to be in complete compliance with applicable standards. The re-examination service also includes periodic visits by UL inspectors at USA COIL & AIR's factory to assure continuing compliance by all listed products.

TABLE #1 - CONDENSED PERFORMANCE

ARI APPROVED STANDARD RATINGS¹

UNIT TYPE	UNIT SIZE-COIL ROWS	NOM. CFM	GPM	COOLING CAPACITY		POWER INPUT WATTS PSC
				TOTAL BTUH	SENSIBLE BTUH	
HDL	06 - 4 ROW	600	3.7	18,100	13,700	225
HDL	08 - 4 ROW	800	5.0	23,400	17,600	275
HDL	10 - 4 ROW	1000	6.9	33,300	24,000	400
HDL	12 - 4 ROW	1200	8.7	41,800	30,200	450
HDL	14 - 4 ROW	1400	10.0	48,900	34,000	470

1. Based on 80 degrees and 67 degrees WB EAT, 45 degrees F EWT, 10 degrees F temperature rise, high fan speed. Motor voltage 115/1/60. Air flow under dry coil conditions. Ducted models tested @ 0.05 ext. static pressure.
2. For all application ratings use the USA Coil & Air computer selection program, the quick-selection ratings in this catalog or contact your local USA Coil & Air representative.

COOLING SELECTION

This catalog provides quick selection tables for selecting all horizontal fan coil units. Different units provide different CFM's based on cabinet type, external static pressures, etc. When CFM deviates either up or down from the standard CFM that the performance tables are based on, then the BTU output of the unit changes also. Correction factors are provided in the table on this page to calculate new BTU outputs.

SELECTION

The cooling coil performance tables on pages 10 thru 13 are based on CFM's at high speed for the following type of units: HRL and HDL. When you change the cabinet to any other type of unit or you change the ext. static pressure from 0.0 on any unit, then the actual CFM output of the unit increases or decreases.

1. Select the total BTU from the charts on pages 11 thru 14. You must know required unit size (2 thru 12), delta T on chilled water, and entering air temperature.
2. The actual CFM shown under each unit size is based on 0.0 ext. static pressure and the unit must be one of the following types: HRL or HDL. If you have a different unit type or a different ext. static pressure, then you must correct your BTU output. Go to step #3.
3. Go to Table #3 on page 10 and find your unit type under the model. Find your unit size and the coil rows that you want to use (3 or 4 row). Go across the top of the page and locate your ext. static pressure if there is one. This will give you an actual CFM output, which will be either greater than or less than the standard CFM output of the unit.
4. Divide the new CFM by the standard CFM. If, for example, the standard CFM output is 190 and the chart shows that you will actually get 228 CFM then divide 228 by 190. Standard CFM's are found on pages 11-14.

$$\frac{\text{(Actual) } 228 \text{ CFM}}{\text{(Base) } 190 \text{ CFM}} = 1.20 \text{ Ratio}$$

5. Go to the Table #2 on this page and you will find correction factors based on various CFM ratios. You may interpolate between ratios. Multiply these correction factors by BTU's out of tables that you find on pages 11 thru 14. This will give you actual BTU output of the unit.
 - 1.20 Ratio = 1.13 x Total = New Total BTU
 - = 1.14 x Sensible = New Sensible BTU

TABLE #2

BTU CAPACITY CFM CORRECTION FACTORS FOR CONSTANT WATER TEMPERATURE RISE

CFM RATIO (ACTUAL ÷ BASE)	CORRECTION FACTOR TOTAL BTU	CORRECTION FACTOR SENSIBLE BTU
1.40	1.25	1.26
1.35	1.22	1.23
1.30	1.19	1.20
1.25	1.16	1.17
1.20	1.13	1.14
1.15	1.10	1.11
1.10	1.07	1.08
1.05	1.04	1.04
1.00	1.00	1.00
0.95	0.97	0.97
0.90	0.94	0.93
0.85	0.90	0.89
0.80	0.86	0.85
0.75	0.82	0.81
0.70	0.78	0.77
0.65	0.74	0.72
0.60	0.70	0.67
0.55	0.66	0.62
0.50	0.62	0.57
0.45	0.58	0.52
0.40	0.53	0.47
0.35	0.48	0.42
0.30	0.43	0.38
0.25	0.38	0.33

NOTE: If tabular capacity shows a totally sensible coil apply sensible correction factor only. Heating selections use sensible factor only. Differences in selections may result due to rounding.

$$\begin{aligned} \text{TH} &= \text{TH (Base)} \times \text{Correction Factor} \\ \text{TS} &= \text{TS (Base)} \times \text{Correction Factor} \end{aligned}$$

APPLICATION

Electric heaters are available for installation on USA Coil & Air fan coil units for the following applications.

TOTAL ELECTRIC HEAT

Complete heating during heating season: No boiler is required. Heating and/or cooling may be available on an individual basis the year round with only a two-pipe system. Chilled water is used for cooling, and the electric heater is used for heating. Individual room controls can be supplied to give manual or automatic changeover.

AUXILIARY ELECTRIC HEAT

Heating between seasons or during cooling season when chilled water is being circulated. Individual room controls can be supplied to provide electric heat only when chilled water is being circulated. During regular heating season, heating is provided by hot water being circulated in the system.

CONSTRUCTION

The heater consists of coils of high grade resistance wire which are insulated by incorporating ceramic insulators in plated steel brackets.

High limit thermal cutouts to protect the heater in the event of air failure are provided as standard equipment.

There are many special applications and control sequences for electric heat. Consult factory for special applications.

$$\text{Electric Heating Capacities (BTUH)} = \text{Heater KW} \times 3415$$

$$\text{Electric Heater Amperage} = \frac{\text{Heater KW} \times 1000}{\text{Applied Voltage}}$$

TABLE #9

ELECTRIC HEATER SELECTION GUIDE

VOLTAGE	KW	UNIT SIZE							
		06	08	10	12	14	16	18	20
120V	2.0	*	*	*					
	3.0	*	*	*					
208 V 240 V 277 V	2.0	*	*	*					
	3.0	*	*	*					
	4.0	*	*	*	*	*	*	*	*
	5.0		*	*	*	*	*	*	*
	6.0		*	*	*	*	*	*	*
	7.0			*	*	*	*	*	*
	8.0				*	*	*	*	*
	9.0				*	*	*	*	*
	10.0					*	*	*	*
	12.0						*	*	*
14.0								*	

NOTE: All heaters are single stage and single phase. Heaters over 47.9 AMPS are subdivided and fused.

THERMAL OVERLOAD PROTECTION AND UL LISTING

All split capacitor motors furnished by USA Coil & Air contain an internal thermal overload protector, which is designed to tripout when the winding reaches a predetermined temperature. This protector will automatically reset when the temperature returns to a safe limit.

Underwriters' Laboratories, Inc. approves the motor and thermal overload combination at locked rotor conditions only. These combinations are "yellow card listed" and evidence of such protection is stamped directly on the motor.

TABLE #11

MODEL HBL (BASIC)

VOLT-AGE	DATA	UNITS									
		06	08	10	12*	14*	16*	18*	20*		
115V 60Hz 1 PH.	NOMINAL HP	1/8	1/5	1/4	1/10(2)	1/5(2)	1/5(2)	1/4(2)	1/4(2)		
	H	AMPS	2.70	3.10	5.60	5.30	6.40	8.80	11.80	11.80	
		WATTS	280	330	470	550	650	900	1180	1180	
	M	AMPS	2.00	2.25	3.70	2.92	4.60	6.90	8.30	8.20	
		WATTS	200	225	360	305	440	705	770	770	
	L	AMPS	1.50	1.44	2.60	1.93	3.00	4.20	5.30	5.30	
		WATTS	140	135	240	205	280	430	460	460	
	208/230V 60Hz 1 PH. **	NOMINAL HP	1/10	1/5	1/4	1/10(2)	1/10(2)	1/5(2)	1/4(2)	1/4(2)	
		H	AMPS	1.10	1.80	2.00	2.10	2.10	3.60	4.10	4.10
			WATTS	240	420	430	450	465	740	925	925
		M	AMPS	.74	1.26	1.20	1.45	1.45	1.80	2.48	2.48
			WATTS	175	280	260	325	325	360	545	545
L		AMPS	.50	.73	.80	1.00	1.00	1.20	1.60	1.60	
		WATTS	110	155	165	215	220	220	330	330	
265V 60Hz 1 PH. **		NOMINAL HP	1/5	1/5	1/4	1/5(2)	1/4(2)	1/4(2)	1/4(2)	1/4(2)	
		H	AMPS	1.15	1.21	1.62	2.40	2.70	3.60	3.72	3.72
			WATTS	275	275	425	550	735	940	980	980
		M	AMPS	.69	.69	1.04	1.38	1.90	2.20	2.20	2.20
			WATTS	175	175	260	355	510	560	550	550
	L	AMPS	.33	.34	.65	.67	1.30	1.40	1.40	1.40	
		WATTS	90	90	155	175	330	335	320	320	
	220V 50Hz 1 PH.	NOMINAL HP	1/10	1/5	1/4	1/10(2)	1/5(2)	1/4(2)	1/4(2)	1/4(2)	
		H	AMPS	.84	1.40	2.40	1.80	2.60	4.70	5.14	5.20
			WATTS	180	285	515	360	495	1015	1100	1150
		M	AMPS	.64	.95	1.90	1.25	1.80	3.80	4.11	4.11
			WATTS	140	190	410	270	345	815	875	875
L		AMPS	.48	.76	1.30	.95	1.50	2.50	2.70	2.70	
		WATTS	100	145	270	190	285	540	570	570	

NOTES: 1. *Total Unit Motor Amps & Watts Shown For 2 Motor Units (Sizes 12 through 20).
2. Motor Nameplate Amps May Vary.

TABLE #11

MODEL HRL, HSDL (RETURN PLENUM & DELUXE HIGH STATIC)

VOLT-AGE	DATA	UNITS									
		06	08	10	12*	14*	16*	18*	20*		
115V 60Hz 1 PH.	NOMINAL HP	1/8	1/5	1/4	1/10(2)	1/5(2)	1/5(2)	1/4(2)	1/4(2)		
	H	AMPS	2.60	3.00	4.50	5.40	6.80	9.80	10.20	10.20	
		WATTS	265	310	440	550	690	900	1015	1020	
	M	AMPS	1.95	2.30	3.40	3.90	5.40	7.70	7.80	7.80	
		WATTS	195	220	330	390	560	725	745	750	
	L	AMPS	1.54	1.50	2.50	3.10	3.50	5.24	5.30	5.30	
		WATTS	155	140	225	305	280	450	450	460	
	208/230V 60Hz 1 PH. **	NOMINAL HP	1/10	1/5	1/4	1/5(2)	1/5(2)	1/5(2)	1/4(2)	1/4(2)	
		H	AMPS	1.00	1.45	1.80	3.20	3.30	3.00	3.70	3.70
			WATTS	235	325	410	700	720	660	820	820
		M	AMPS	.72	.95	1.10	2.00	2.00	2.00	2.20	2.20
			WATTS	165	210	250	430	440	445	500	510
L		AMPS	.49	.62	.76	1.48	1.48	1.33	1.50	1.50	
		WATTS	110	135	160	305	310	285	330	330	
265V 60Hz 1 PH. **		NOMINAL HP	1/5	1/5	1/4	1/5(2)	1/4(2)	1/4(2)	1/4(2)	1/4(2)	
		H	AMPS	1.10	1.40	1.51	2.40	2.65	3.20	3.50	3.52
			WATTS	270	275	395	535	700	830	900	925
		M	AMPS	.70	.69	1.10	1.40	1.96	2.00	2.23	2.23
			WATTS	175	175	260	360	495	510	550	550
	L	AMPS	.33	.34	.65	.70	1.30	1.30	1.36	1.36	
		WATTS	90	90	155	190	300	300	320	320	
	220V 50Hz 1 PH.	NOMINAL HP	1/5	1/5	1/4	1/5(2)	1/5(2)	1/4(2)	1/4(2)	1/4(2)	
		H	AMPS	1.33	1.40	2.25	2.25	2.52	4.80	4.80	4.80
			WATTS	250	280	490	445	460	1040	1060	1080
		M	AMPS	.86	.87	1.90	1.56	1.62	3.90	3.92	3.94
			WATTS	170	180	400	310	320	830	850	870
L		AMPS	.70	.74	1.30	1.15	1.35	2.65	2.65	2.65	
		WATTS	135	130	270	220	280	560	570	580	

MODEL HDL (DELUXE)

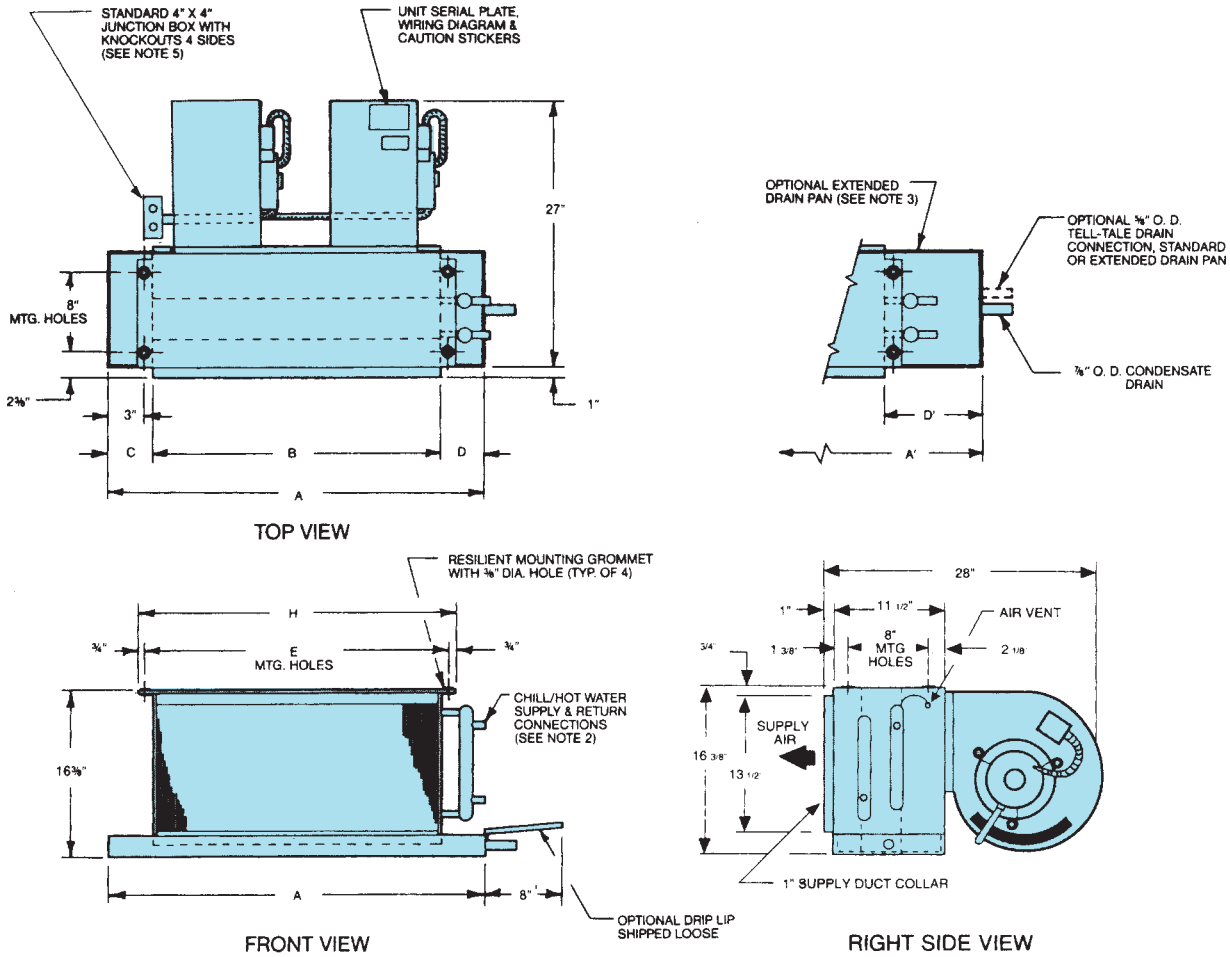
VOLT-AGE	DATA	UNITS									
		06	08	10	12*	14*	16*	18*	20*		
115V 60Hz 1 PH.	NOMINAL HP	1/10	1/8	1/5	1/10(2)	1/10(2)	1/5(2)	1/5(2)	1/5(2)		
	H	AMPS	2.40	3.10	3.70	4.40	5.00	6.50	7.40	8.20	
		WATTS	260	275	380	490	520	670	800	840	
	M	AMPS	1.70	2.10	3.00	3.00	3.00	4.80	6.60	6.60	
		WATTS	195	205	300	310	320	470	670	685	
	L	AMPS	1.15	1.58	2.00	2.10	2.10	3.10	4.10	4.20	
		WATTS	125	155	210	210	210	300	420	435	
	208/230V 60Hz 1 PH. **	NOMINAL HP	1/10	1/8	1/4	1/10(2)	1/10(2)	1/8(2)	1/5(2)	1/4(2)	
		H	AMPS	1.00	1.05	1.80	2.00	2.10	2.90	3.20	3.44
			WATTS	235	230	410	450	470	590	705	810
		M	AMPS	.72	.65	1.05	1.40	1.50	2.10	2.00	2.20
			WATTS	165	145	220	300	340	440	420	495
L		AMPS	.48	.48	.75	1.05	1.10	1.45	1.55	1.50	
		WATTS	105	105	160	225	230	300	315	320	
265V 60Hz 1 PH. **		NOMINAL HP	1/10	1/10	1/5	1/10(2)	1/10(2)	1/10(2)	1/5(2)	1/4(2)	
		H	AMPS	.72	.90	1.27	1.44	1.60	1.70	2.80	3.30
			WATTS	205	270	285	370	450	470	620	870
		M	AMPS	.51	.71	.73	.89	1.28	1.20	1.65	2.20
			WATTS	140	190	180	235	330	350	420	545
	L	AMPS	.31	.57	.37	.63	.90	.90	.95	1.36	
		WATTS	90	155	95	135	250	250	230	320	
	220V 50Hz 1 PH.	NOMINAL HP	1/10	1/10	1/5	1/10(2)	1/10(2)	1/5(2)	1/5(2)	1/4(2)	
		H	AMPS	.84	.84	1.40	1.60	1.70	2.80	2.90	4.50
			WATTS	160	175	290	330	360	500	960	1050
		M	AMPS	.63	.63	.89	1.20	1.25	1.67	1.70	2.90
			WATTS	130	130	185	240	270	340	340	600
L		AMPS	.50	.50	.76	.84	.91	1.40	1.20	1.76	
		WATTS	100	100	160	190	200	290	230	360	

NOTES: 1. *Total Unit Motor Amps & Watts Shown For 2 Motor Units (Sizes 12 through 20).
2. Motor Nameplate Amps May Vary.

Dimensions

Basic Unit

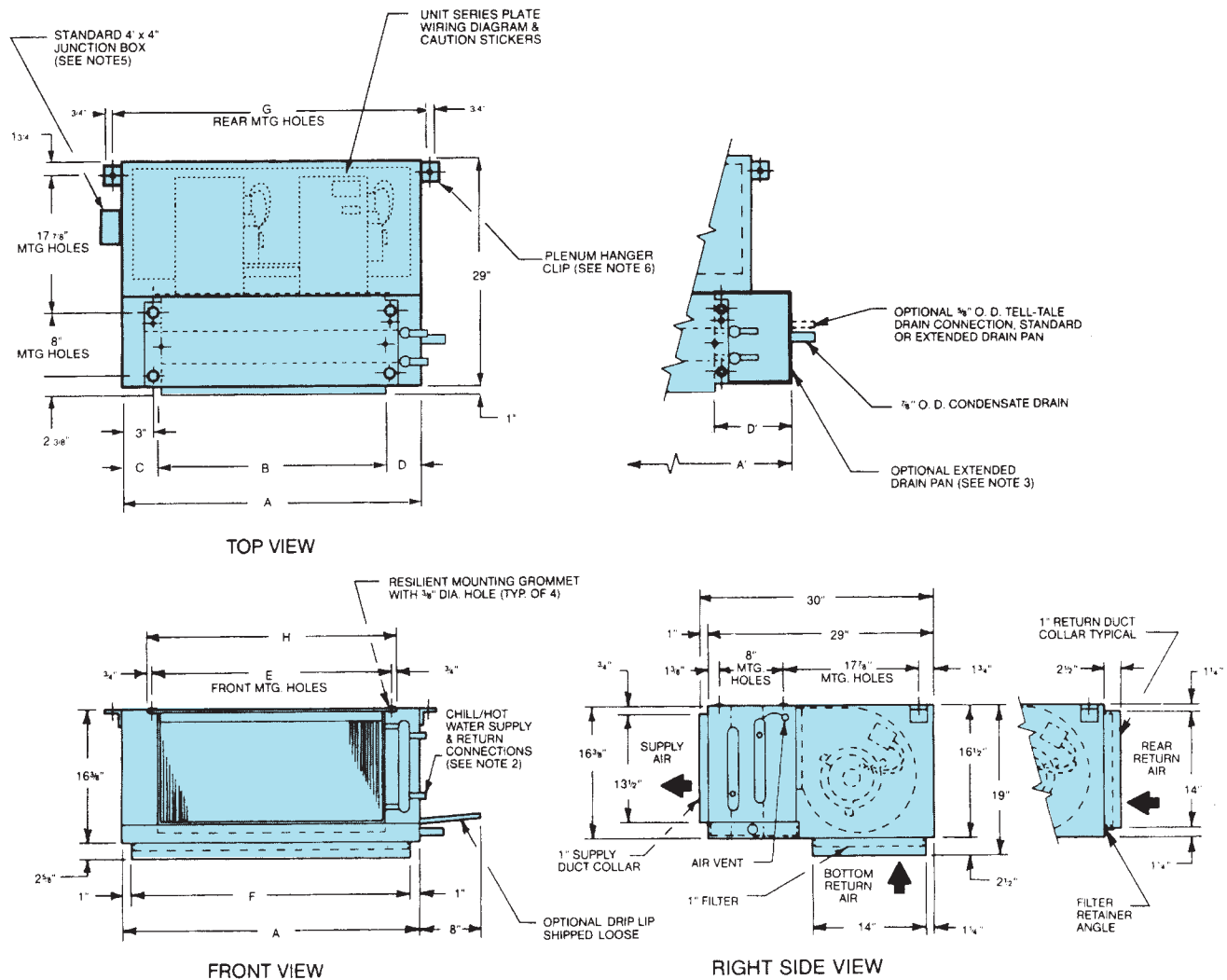
HBL - BASIC UNIT - 600 CFM THRU 2000 CFM



MODEL	DIMENSIONS - INCHES							
	A	A'	B	C	D	D'	E	H
HBL06	23	32	14	4 1/2	4 1/2	13 1/2	17	18 1/2
HBL08	28	37	19	4 1/2	4 1/2	13 1/2	22	23 1/2
HBL10	32	42	23	4 1/2	4 1/2	14 1/2	26	27 1/2
HBL12	37	47	28	4 1/2	4 1/2	14 1/2	31	32 1/2
HBL14	42	52	33	4 1/2	4 1/2	14 1/2	36	37 1/2
HBL16	47	56	38	4 1/2	4 1/2	13 1/2	41	42 1/2
HBL18	52	62	43	4 1/2	4 1/2	14 1/2	46	47 1/2
HBL20	56	66	47	4 1/2	4 1/2	14 1/2	50	51 1/2

- NOTES: 1. R.H. shown, L.H. opposite.
 2. See submittal drawing for coil connections.
 3. Optional drip lip not required with optional extended drain pan.
 4. All dimensions +/- 1/4".
 5. Junction box size and location may vary.
 6. A' and D' dimensions are for extended pan option.

HRL - RETURN PLENUM UNIT - 600CFM THRU 2000 CFM



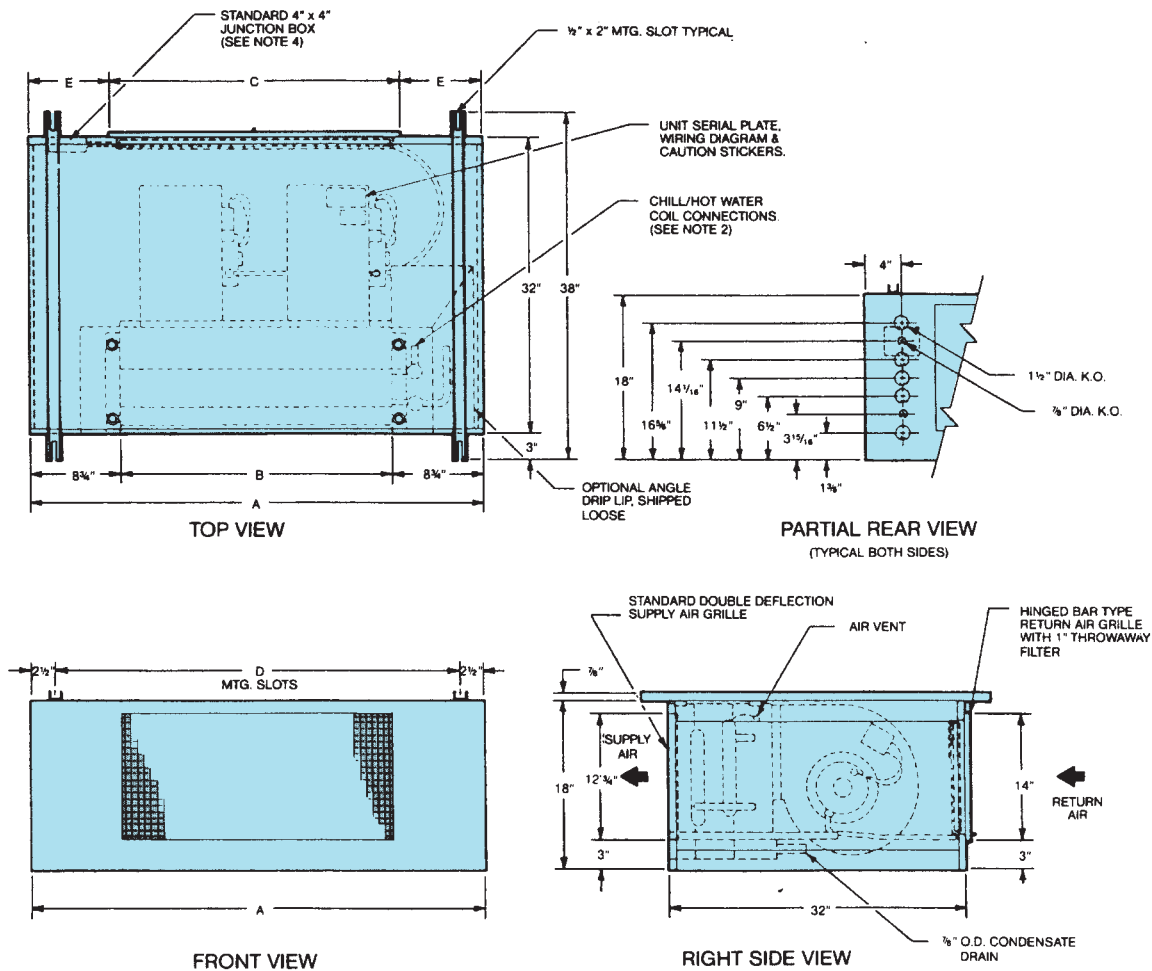
MODEL	DIMENSIONS - INCHES									
	A	A'	B	C	D	D'	E	F	G	H
HRL06	23	32	14	4 1/2	4 1/2	13 1/2	17	21	25 1/4	18 1/2
HRL08	28	37	19	4 1/2	4 1/2	13 1/2	22	26	30 1/4	23 1/2
HRL10	32	42	23	4 1/2	4 1/2	14 1/2	26	30	34 1/4	27 1/2
HRL12	37	47	28	4 1/2	4 1/2	14 1/2	31	35	39 1/4	32 1/2
HRL14	42	52	33	4 1/2	4 1/2	14 1/2	36	40	44 1/4	37 1/2
HRL16	47	56	38	4 1/2	4 1/2	13 1/2	41	45	49 1/4	42 1/2
HRL18	52	62	43	4 1/2	4 1/2	14 1/2	46	50	54 1/4	47 1/2
HRL20	56	66	47	4 1/2	4 1/2	14 1/2	50	54	58 1/4	51 1/2

- NOTES: 1. R.H. shown, L.H. opposite.
 2. See submittal drawing for coil connections.
 3. Optional drip lip not required with optional extended drain pan.
 4. All dimensions +/- 1/4".
 5. Junction box may vary.
 6. Plenum hanger clip location may vary depending on unit accessories.
 7. A' and D' dimensions are for extended pan option.

Dimensions

Deluxe Unit

HDL - DELUXE UNIT - 600CFM THRU 2000 CFM



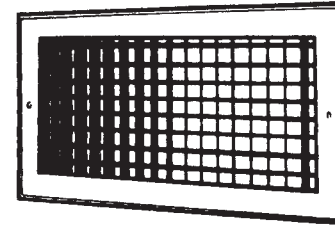
MODEL	DIMENSIONS - INCHES				
	A	B	C	D	E
HDL06	31	13	14	26	8 1/2
HDL08	36	18	20	31	8
HDL10	40	22	24	35	8
HDL12	45	27	28	40	8 1/2
HDL14	50	32	34	45	8
HDL16	55	37	38	50	8 1/2
HDL18	60	42	44	55	8
HDL20	64	46	48	59	8

- NOTES: 1. R.H. shown, L.H. opposite.
 2. See submittal drawing for coil connections.
 3. All dimensions +/- 1/4".
 4. Junction box may vary.

SUPPLY AIR GRILLES

SUPPLY AIR GRILLE SIZES			
UNIT SIZE	NOMINAL CFM	RECOMMENDED GRILLE SIZES	
		HBL, HRL	HSDL
06	600	14" X 14"	15" X 14"
08	800	19" X 14"	20" X 14"
10	1000	23" X 14"	24" X 14"
12	1200	28" X 14"	29" X 14"
14	1400	33" X 14"	34" X 14"
16	1600	38" X 14"	39" X 14"
18	1800	43" X 14"	44" X 14"
20	2000	47" X 14"	48" X 14"

NOTE: 1. Refer to Physical Data pages for actual unit return opening dimensions. Field furnished duct transitions may be required.

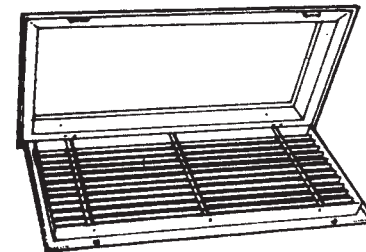


Double Deflection, Aluminum Finish Supply Grille

RETURN AIR GRILLES

RETURN AIR GRILLE SIZES			
UNIT SIZE	NOMINAL CFM	RECOMMENDED GRILLE SIZES	
		HBL, HRL	HSDL
06	600	21" X 14"	15" X 14"
08	800	26" X 14"	30" X 14"
10	1000	30" X 14"	24" X 14"
12	1200	35" X 14"	29" X 14"
14	1400	40" X 14"	34" X 14"
16	1600	45" X 14"	39" X 14"
18	1800	50" X 14"	44" X 14"
20	2000	54" X 14"	48" X 14"

NOTE: 1. Refer to Physical Data pages for actual unit return opening dimensions. Field furnished duct transitions may be required.

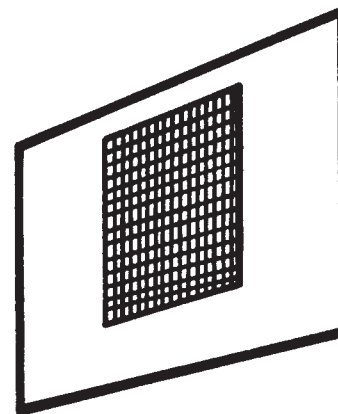


Hinged, Bar-type, Aluminum Finish Return Grille with Throw-away Filter

FILTERS

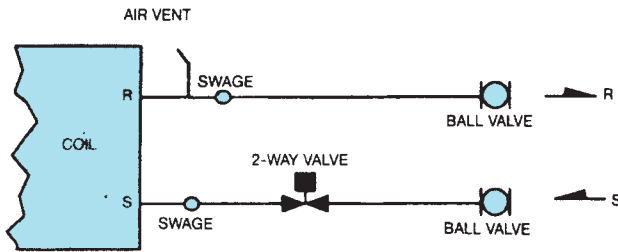
UNIT SIZE	NOMINAL 1" FILTER SIZE	
	HBL, HRL	HDL, HSDL
06	14" X 21"	14" X 14 3/4"
08	14" X 26"	14" X 19 3/4"
10	14" X 30"	14" X 23 3/4"
12	14" X 35"	14" X 28 3/4"
14	14" X 40"	14" X 33 3/4"
16	14" X 45"	14" X 38 3/4"
18	14" X 50"	14" X 43 3/4"
20	14" X 54"	14" X 47 3/4"

NOTE: 1. Use when bottom return and 6" legs are supplied.
2. Filter size for HBL Model is the recommended filter size only. No filter is factory provided with this model.



Double Deflection, Integral Supply Grille (Painted to match color of unit)

2-WAY MOTORIZED CONTROL VALVE

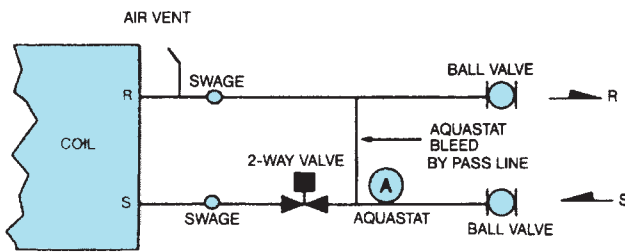


CODE

APPLICATION

- G. 2-PIPE - HYDRONIC HEATING ONLY
- H. 2-PIPE - HYDRONIC COOLING ONLY
- N, P 2-PIPE - HYDRONIC COOLING WITH TOTAL ELECTRIC HEAT
- Q, R. 4-PIPE - HYDRONIC COOLING AND HEATING

2-WAY MOTORIZED CONTROL VALVE (W/BY-PASS)

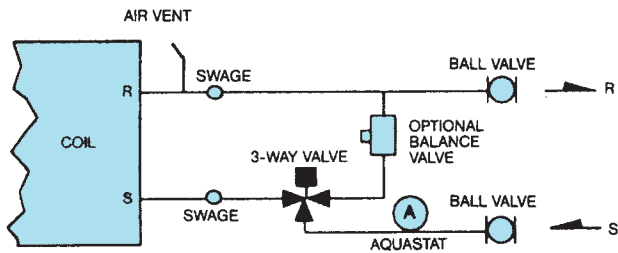


CODE

APPLICATION

- J, K. 2-PIPE - COOLING AND HEATING
- L, M. 2-PIPE - HYDRONIC HEATING WITH AUXILIARY ELECTRIC HEAT

3-WAY MOTORIZED CONTROL VALVE



CODE

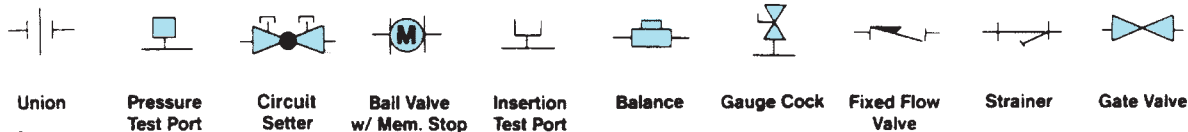
APPLICATION

- G. 2-PIPE - HYDRONIC HEATING ONLY
- H. 2-PIPE - HYDRONIC COOLING ONLY
- J, K. 2-PIPE - COOLING AND HEATING
- L, M. 2-PIPE - HYDRONIC HEATING WITH AUXILIARY ELECTRIC HEAT
- N, P 2-PIPE - HYDRONIC COOLING WITH TOTAL ELECTRIC HEAT
- Q, R. 4-PIPE - HYDRONIC COOLING AND HEATING

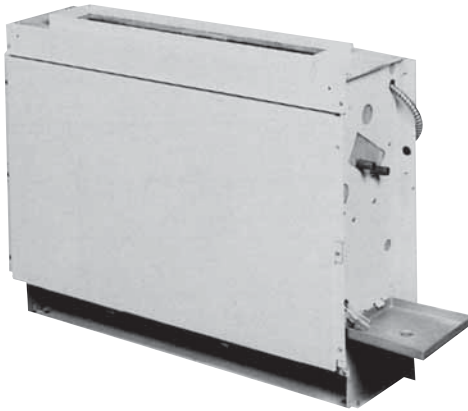
Consult USA Coil & Air valve package and piping components manual or your local representative for detailed piping and valve application information

Factory provided valve packages are assembled, brazed, wired electrically and fit to the coil connections before preparing for shipment. Field brazing to the coil completes the installation. Some applications dictate ship loose isolation valves.

OTHER PIPING OPTIONS



MODEL VFB - VERTICAL FLOOR BASIC (HIDEAWAY) - 200 CFM THRU 1200 CFM

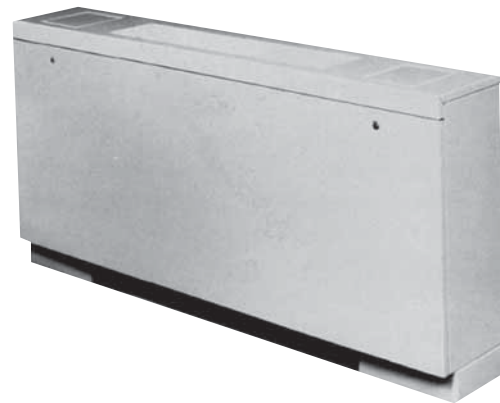


The model VFB Vertical Unit is designed for concealed applications and is also ideal for perimeter heating and cooling. The slim design makes this unit ideal for typical applications in public buildings, offices, hospitals, and hotels.

The coil section is completely lined with glass fiber insulation to provide positive protection against sweating and maximum dampening of air noise. VFB units are provided standard with a galvanized finish.

MODEL VFC - VERTICAL CABINET (EXPOSED) - 200 CFM THRU 1200 CFM

This slim, attractively styled, floor cabinet model is ideal for the perimeter heating and cooling requirements in public buildings, offices, hospitals, and hotels. The clean, straight-line modern styling blends with any decor. The entire cabinet is fabricated of heavy gauge steel and the overlapping top panel design adds rigidity and ruggedness, essential in the exposed unit. The VFC models have a removable, one-piece front panel providing complete access to the basic unit. The standard finish is an attractive oven baked paint.



MODEL VFCS - FLOOR EXPOSED WITH SLOPED TOP - 200 CFM THRU 1200 CFM



The VFCS Series has an attractively styled cabinet, designed for applications in schools, hospitals, and public buildings, where it is likely books and other items would be placed over the discharge grilles of a flat-top design. The entire cabinet is fabricated of heavy gauge steel and the overlapping top panel design adds rigidity and ruggedness, essential in the exposed unit. The VFCS models have a removable one-piece front panel providing complete access to the basic unit. The standard finish is an attractive oven baked paint.

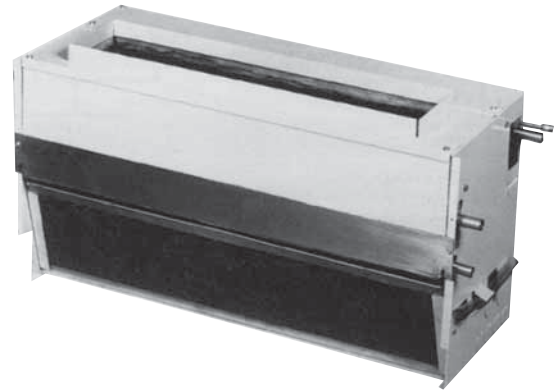
HOW TO SELECT USA UNITS

It's easy to select USA Fan/Coil Units. The basic internal parts to include fan assemblies, coils, etc., are all the same for every size unit. We just change the cabinet around the unit, so that you choose the type that meets your requirements. You'll find that USA has the easiest selection procedure in the industry.

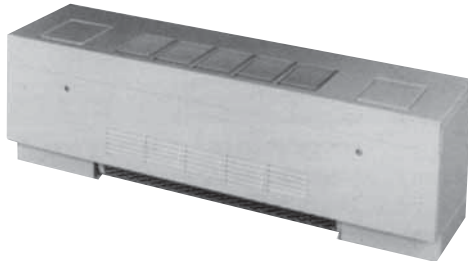
EXAMPLE: Model #VFB-04, VFC-04, and VFCS-04 all have the same fan assembly, coil, filter, etc. Only the cabinet around the unit changes.

MODEL VFBL - LOWBOY HIDEAWAY - 200 CFM THRU 600 CFM

The Model VFBL Lowboy Vertical Unit is designed for concealed under window applications. The low design makes this unit ideal for applications in public buildings, offices, hospitals, and hotels. Due to the low silhouette, it does not interfere with vision through the window, obstruct light, or detract from the motif in the room. VFBL units are provided standard with a galvanized finish. "Tall" cabinet models are required for use with electric heat.



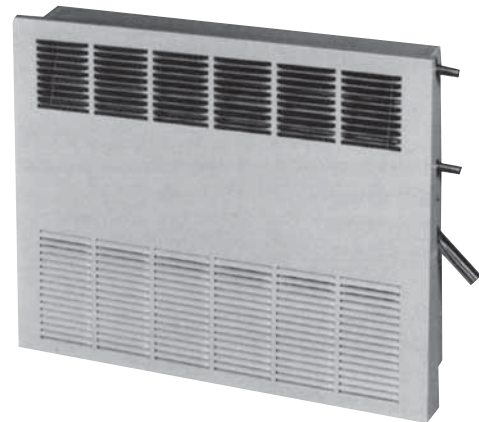
MODEL VFCL - LOWBOY EXPOSED - 200 CFM THRU 600 CFM



The Model VFCL Lowboy Vertical Unit is designed for exposed under window applications. The standard VFCL unit has two flush die-formed doors for access to three-speed fan control and optional thermostats. The standard finish is an attractive oven baked paint. "Tall" cabinet models are required for use with electric heat.

MODEL VWB - WALL RECESSED - 150 CFM THRU 300 CFM

The VWB Unit is designed for recessed wall installation where space is at a premium. The VWB unit was specifically designed to be installed between the studs, thus simplifying installation. The VWB unit is ideal for foyers, bathrooms and other small areas. The access panel is finished in an attractive oven baked paint. When using any kind of valve package, an extended cabinet VWB is required.



Descriptive Information

Model Number Codes

V F C 0 4 B F 6 C 2 R 5 C P 3

VINTAGE

UNIT TYPE

- VFB - FLOOR HIDEAWAY
- VFC - FLOOR CABINET
- VFCS - FLOOR CABINET (SLOPED TOP)
- VFBL - LOWBOY HIDEAWAY
- LOWBOY HIDEAWAY TALL CABINET MODEL
- VFCL - LOWBOY CABINET
- LOWBOY CABINET TALL CABINET MODEL
- VWB - WALL RECESSED (STUD)
- WALL RECESSED (STUD) WITH VALVE COMP.

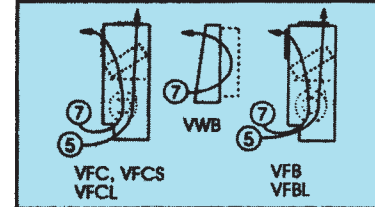
UNIT SIZE

- 02 - 200 CFM
- 03 - 300 CFM
- 04 - 400 CFM
- 06 - 600 CFM
- 08 - 800 CFM
- 10 - 1000 CFM
- 12 - 1200 CFM

UNIT HAND AND ARRANGEMENT

- R - RIGHT HAND
- L - LEFT HAND
- 5 AIR ARRANGEMENT
- 6 AIR ARRANGEMENT

STANDING IN FRONT OF THE UNIT, HAND IS DETERMINED BY LOOKING INTO THE AIR SUPPLY AND ASSIGNING THE HAND TO MATCH THE LOCATION OF THE COOLING COIL CONNECTIONS.



COILS

2-PIPE COOLING & HEATING
4-PIPE COOLING COIL

SMALL UNITS

- A=2 ROW(STD.-LOWBOY)
- B=3 ROW (STD.)
- C=4 ROW (HI-CAP)
- D=3 ROW DX (STD.)
- E=4 ROW DX (HI-CAP)

4-PIPE HEATING COIL

- Y - NONE
- 1 - 1 ROW COIL
- 2 - 2 ROW COIL

OR IF ELECTRIC HEAT

VOLTAGE

- C - 120 VOLT
- D - 208 VOLT
- E - 240 VOLT
- F - 277 VOLT
- V - 220 VOLT

COIL CONNECTION LOCATION

- Y - NONE
- S - SAME END COIL CON.
- O - OPPOSITE END COIL CON.

OR IF ELECTRIC HEAT

KW

- 5 - 1.00
- 6 - 1.50
- 7 - 2.00
- 8 - 3.00
- 9 - 4.00
- 10 - 5.00
- 11 - 6.00

MOTOR

MOTOR VOLTAGE

- C - 115-1-60
- D - 208-1-60
- E - 230-1-60
- F - 265-1-60
- V - 220-1-50

MOTOR TYPE

- 1 - SHADED POLE ONLY ON VWB UNITS
- 2 - PERMANENT SPLIT CAPACITOR

UNIT CONTROL PACKAGE

CONTROL VOLTAGE

- C - 120 VOLT
- D - 208 VOLT
- E - 240 VOLT
- F - 277 VOLT
- V - 220 VOLT

SYSTEM TYPE

FAN CYCLE CONTROL

- A - MANUAL FAN OPERATION
- B - 2 PIPE HEAT ONLY
- C - 2 PIPE HEAT & COOL - (AUTO. c/o) ALTERNATE

VALVE CYCLE CONTROL

- G - 2 PIPE HEAT ONLY
- H - 2 PIPE COOL ONLY
- J - 2 PIPE HEAT & COOL - (MANUAL c/o)
- K - 2 PIPE HEAT & COOL - (AUTO. c/o)
- L - 2 PIPE HEAT & COOL W/AUX. ELEC. HEAT (MANUAL c/o)
- M - 2 PIPE HEAT & COOL W/AUX. ELEC. HEAT (AUTO. c/o)
- N - 2 PIPE HEAT & COOL W/TOTAL ELEC. HEAT (MANUAL c/o)
- P - 2 PIPE HEAT & COOL W/TOTAL ELEC. HEAT (AUTO. c/o)
- Q - 4 PIPE HEAT & COOL - (MANUAL c/o)
- R - 4 PIPE HEAT & COOL - (AUTO. c/o)

THERMOSTAT

- 1 - STANDARD UNIT MOUNT
- 2 - STANDARD WALL MOUNT
- 3 - C-3 WALL MOUNT
- 4 - WALL SERIES 4039
- 5 - WALL SERIES 154

PERFORMANCE DATA (ALL MODELS)

SAFETY - Units listed with Underwriters Laboratory (UL) Standard 883 and Canadian Standards Association (CSA) Standard C22.2 No. 236-M90.

BASIC FLOOR MODELS (VFB, VFC, VFCS)

The basic unit is fabricated of galvanized steel with glass fiber lining throughout the coil section. The combination condensate pan and fan deck is fabricated of galvanized steel and insulated with fire retardant, closed cell foam insulation. Removal of the unit front access panel exposes this pan for easy cleaning. The entire pan and blower assembly is readily removed from the unit for servicing.

CABINET

The decorative cabinet of the model VFC and VFCS units are fabricated of heavy gauge steel, bonderized and finished with an attractive, oven-baked paint. Several baked enamel colors are available as optional selections. (See color chart) The removable front panel is lined with 1/2" woven glass fiber for thermal insulation and acoustic treatment. This panel is readily removed and provides complete access to the basic unit, controls compartment and piping compartment. Die formed discharge grilles and flush access doors are provided in the top panel. Several other types of discharge grilles are available as optional selections. On VFC and VFCS models, the filter is completely concealed above the return air toe space and can be removed for servicing without removal of the front panel.

COILS

Coils are constructed with 1/2" O.D. copper tubes with aluminum fins mechanically bonded to the tubes. All coils are leak tested with an air under water test and are suitable for design working pressures of 250 psig @ 200 F. A variety of coil selections are available. The standard coil provides adequate capacity for most cooling applications with an eight to ten degree design water temperature rise. A high capacity coil is offered for those applications requiring higher latent heat capabilities or those designed for higher water temperature rises. Coils are available for both two-pipe and four-pipe applications.

FILTERS

Standard filters are one inch throwaway glass fiber. Optional cleanable filters are available.

FANS

The fans are centrifugal, forward-curved, double-width wheels. Blower housings are galvanized steel with special rolled perimeter seams to provide added rigidity.

MOTORS

All motors are resilient-mounted, three speed, with UNDERWRITERS listed thermal overload protection. Motor bearings are of the sleeve type or ball bearing type with oversized oil reservoirs provided to assure positive lubrication with minimum servicing required. Positive speed reduction is assured through careful matching of motor torque to blower loading. Standard motors are permanent split capacitor.

LOWBOY MODELS (VFBL, VFCL)

The basic unit is fabricated of galvanized steel with glass fiber lining throughout the coil section. The combination condensate pan and fan deck is fabricated of galvanized steel and insulated with fire retardant, closed cell foam insulation. Removal of the unit front access panel exposes this pan for easy cleaning. The entire pan and blower assembly is readily removed from the unit for servicing.

CABINET

The decorative cabinet of the model VFCL unit are fabricated of heavy gauge steel, bonderized and finished with an attractive, oven-baked paint. Several baked enamel colors are available as optional selections. (See color chart) The removable front panel is lined with 1/2" woven glass fiber for thermal insulation and acoustic treatment. This panel is readily removed and provides complete access to the basic unit, controls compartment and piping compartment. Die formed discharge grilles and flush access doors are provided in the top panel. Several other types of discharge grilles are available as optional selections. On VFCL models, the filter is completely concealed above the return air toe space and can be removed for servicing without removal of the front panel.

COILS

Coils are constructed with 1/2" O.D. copper tubes with aluminum fins mechanically bonded to the tubes. All coils are leak tested with an air under water test and are suitable for design working pressures of 250 psig @ 200 F. A variety of coil selections are available. The standard coil provides adequate capacity for most cooling applications with an eight to ten degree design water temperature rise. A high capacity coil is offered for those applications requiring higher latent heat capabilities or those designed for higher water temperature rises. Coils are available for both two-pipe and four-pipe applications. Optional steam coils are available and are suitable for working pressures up to 5 psig.

FILTERS

Standard filters are one inch throwaway glass fiber. Optional cleanable filters are available.

FANS

The fans are centrifugal, forward-curved, double-width wheels. Blower housings are galvanized steel with special rolled perimeter seams to provide added rigidity.

MOTORS

All motors are resilient-mounted, three speed, with UNDERWRITERS listed thermal overload protection. Motor bearings are of the sleeve type or ball bearing type with oversized oil reservoirs provided to assure positive lubrication with minimum servicing required. Positive speed reduction is assured through careful matching of motor torque to blower loading. Standard motors are permanent split capacitor.

WALL RECESSED MODELS (VWB)

The basic unit is fabricated of galvanized steel with glass fiber lining throughout the coil section. The combination condensate pan and fan deck is fabricated of galvanized steel and insulated with fire retardant, closed cell foam insulation. Removal of the unit front access panel exposes the coil, drain pan, motor/blower, controls and valve package for easy servicing.

CABINET

The decorative cabinet of the model VWB unit is fabricated of heavy gauge steel, bonderized and finished with an attractive, oven-baked paint. Several baked enamel colors are available as optional selections. (See color chart) The removable front panel is lined with 1/2" woven glass fiber for thermal insulation and acoustic treatment. This panel is readily removed and provides complete access to the basic unit, controls compartment and piping compartment. Die formed discharge grilles and flush access doors are provided in the top panel.

COILS

Coils are constructed with 1/2" O.D. copper tubes with aluminum fins mechanically bonded to the tubes. All coils are leak tested with an air under water test and are suitable for design working pressures of 250 psig @ 200F. The standard coil is a two-row coil available for 2-pipe heating or cooling applications.

FILTERS

Standard filters are one inch throwaway glass fiber.

FANS

The fans are centrifugal, forward-curved, double-width wheels. Blower housings are galvanized steel with special rolled perimeter seams to provide added rigidity.

MOTORS

All motors are resilient-mounted, three speed, with UNDERWRITERS listed thermal overload protection. Motor bearings are of the sleeve type or ball bearing type with oversized oil reservoirs provided to assure positive lubrication with minimum servicing required. Positive speed reduction is assured through careful matching of motor torque to blower loading. Standard motors are shaded pole type.



UL APPROVAL

All vertical units in USA COIL & AIR's Product Line are listed by UNDERWRITERS' LABORATORIES, INC. This listing signifies that USA COIL & AIR's fan coil units have been examined by UL and found to be in complete compliance with applicable standards. The re-examination service also includes periodic visits by UL inspectors at USA COIL & AIR's factory to assure continuing compliance by all listed products.

TABLE #1

ARI APPROVED STANDARD RATINGS¹

UNIT TYPE	UNIT SIZE-COIL	NOM. CFM	GPM	COOLING CAPACITY		POWER INPUT WATTS
				TOTAL BTUH	SENSIBLE BTUH	
VFB VFC VFCS (SLOPE)	02 - 3 ROW	200	1.1	4,800	3,500	50
	03 - 3 ROW	300	1.5	7,200	5,300	80
	04 - 3 ROW	400	2.4	11,200	7,900	130
	06 - 3 ROW	600	3.0	13,900	10,400	180
	08 - 3 ROW	800	4.0	19,100	13,500	210
	10 - 3 ROW	1000	4.8	22,000	16,800	240
	12 - 3 ROW	1200	5.3	26,300	20,000	370
VFB VFC VFCS (SLOPE)	02 - 4 ROW	200	1.4	6,600	4,100	50
	03 - 4 ROW	300	2.0	9,900	7,000	80
	04 - 4 ROW	400	2.7	13,100	8,600	130
	06 - 4 ROW	600	3.8	18,600	13,600	170
	08 - 4 ROW	800	4.2	20,600	14,100	195
	10 - 4 ROW	1000	5.9	29,500	19,600	240
	12 - 4 ROW	1200	7.8	35,300	26,300	370
VWB SHADED POLE MOTOR	01 - 2 ROW	150	0.6	3,000	2,500	50
	03 - 2 ROW	300	1.5	7,800	6,600	*100
VFBL VFCL	02 - 2 ROW	200	1.2	5,100	3,600	68
	03 - 2 ROW	300	2.0	8,600	6,700	135
	04 - 2 ROW	400	2.6	12,300	8,300	150
	06 - 2 ROW	600	3.6	18,300	13,200	260
VFBL VFCL	02 - 3 ROW	200	1.3	5,500	3,800	68
	03 - 3 ROW	300	2.4	10,900	7,100	130
	04 - 3 ROW	400	3.0	13,400	8,800	145
	06 - 3 ROW	600	4.1	21,100	14,600	250

1. Based on 80 degrees and 67 degrees WB EAT, 45 degrees F EWT, 10 degrees F temperature rise, high fan speed. Motor voltage 115/1/60. Air flow under dry coil conditions. Ducted models tested @ 0.05 ext. static pressure.
 2. For all application ratings use the USA Coil & Air computer selection program, the quick-selection ratings in this catalog or contact your local USA Coil & Air representative.

COOLING SELECTION

This catalog provides quick selection tables for selecting all vertical fan coil units. Different units provide different CFM's based on cabinet type, external static pressures, etc. When CFM deviates either up or down from the standard CFM that the performance tables are based on, then the BTU output of the unit changes also. Correction factors are provided in the table on this page to calculate new BTU outputs.

SELECTION

The cooling coil performance tables on pages 12 thru 17 are based on CFM's at high speed for the following type of units: VFB, VFC, VFCS, VFBL, and VFCL. When you change the cabinet to any other type of unit or you change the ext. static pressure from 0.0 on any unit, then the actual CFM output of the unit increases or decreases.

1. Select the total BTU from the charts on pages 12 thru 17. You must know required unit size (2 thru 12), delta T on chilled water, and entering air temperature.
2. The actual CFM shown under each unit size is based on 0.0 ext. static pressure and the unit must be one of the following types: VFB, VFC, VFCS, VFBL, or VFCL. If you have a different unit type or a different ext. static pressure, then you must correct your BTU output. Go to step #3.
3. Go to Table #3 on page 11 and find your unit type under the model. Find your unit size and the coil rows that you want to use (3 or 4 row). Go across the top of the page and locate your ext. static pressure if there is one. This will give you an actual CFM output, which will be either greater than or less than the standard CFM output of the unit.
4. Divide the new CFM by the standard CFM. If, for example, the standard CFM output is 190 and the chart shows that you will actually get 228 CFM then divide 228 by 190.

$$\frac{\text{(Actual) } 228 \text{ CFM}}{\text{(Base) } 190 \text{ CFM}} = 1.20 \text{ Ratio}$$

5. Go to the Table #2 on this page and you will find correction factors based on various CFM ratios. You may interpolate between ratios. Multiply these correction factors by BTU's out of tables that you find on pages 12 thru 17. This will give you actual BTU output of the unit.

$$1.20 \text{ Ratio} = 1.13 \times \text{Total} = \text{New Total BTU}$$

$$= 1.14 \times \text{Sensible} = \text{New Sensible BTU}$$

TABLE #2

HYDRONIC CAPACITY CFM CORRECTION FACTORS FOR CONSTANT WATER TEMPERATURE RISE

CFM RATIO (ACTUAL ÷ BASE)	CORRECTION FACTOR TOTAL BTU	CORRECTION FACTOR SENSIBLE BTU
1.40	1.25	1.26
1.35	1.22	1.23
1.30	1.19	1.20
1.25	1.16	1.17
1.20	1.13	1.14
1.15	1.10	1.11
	1.07	1.08
1.05	1.04	1.04
1.00	1.00	1.00
0.95	0.97	0.97
0.90	0.94	0.93
0.85	0.90	0.89
0.80	0.86	0.85
0.75	0.82	0.81
0.70	0.78	0.77
0.65	0.74	0.72
0.60	0.70	0.67
0.55	0.66	0.62
0.50	0.62	0.57
0.45	0.58	0.52
0.40	0.53	0.47
0.35	0.48	0.42
0.30	0.43	0.38
0.25	0.38	0.33

NOTE: If tabular capacity shows a totally sensible coil apply sensible correction factor only. Heating selections use sensible factor only. Differences in selections may result due to rounding.

$$\text{TH} = \text{TH (Base)} \times \text{Correction Factor}$$

$$\text{TS} = \text{TS (Base)} \times \text{Correction Factor}$$

TABLE #3 ACTUAL CFM OUTPUT

UNIT			CFM @ 0.0E.S.P. FOR FAN SPEED INDICATED			HIGH SPEED CFM @ E.S.P. INDICATED			
MODEL	SIZE	COIL	HI	MED	LOW	0.05	0.10	0.15	0.20
VFC VFB VFCS	02	3 ROW	240	210		195	150	105	-
	03		295	250	205	260	220	185	155
	04		410		225	370	335	310	290
	06		620	460	310	565	515	475	440
	08		700	575		640	600	545	500
	10		915	675	490	850	780	725	655
	12	1100		580	1025	970	920	865	
	02	4 ROW	215	130	165	170	135	95	-
	03		285	240		245	205	170	140
	04		395	280	220	355	325	300	260
	06		605		305	550	505	465	430
	08		690	570	350	630	590	540	490
	10		885	650	475	820	755	700	635
	12	1070	910	565	995	945	895	840	
VFBL VFCL	02	2 ROW	250		125	225	190	150	120
	03		370	285	195	345	305	275	235
	04		480	350	240	440	400	360	320
	06		750	575	395	700	660	600	560
	02	3 ROW	230		115	210	180	145	115
	03		345	265	185	315	285	255	230
	04		460	335	230	420	385	345	310
	06		670	510	355	625	580	540	495

Note: Tabled values are standard CFM at sea level, 70°F with dry coil for 60 Hz motors only. The ratings above include filter and/or grille static pressure losses where applicable.

COIL SIZE - VFC, VFB, VFCL

UNIT SIZE	HEIGHT X LENGTH
2	7.5 X 16
3	7.5 X 20
4	7.5 X 26
6	7.5 X 36
8	8.75 X 38
10	8.75 X 52
12	8.75 X 60

COIL SIZE - VFBL, VFCL

UNIT SIZE	HEIGHT X LENGTH
2	10 X 17
3	10 X 22
4	10 X 30
6	10 X 44

Performance Information

50 Cycle Correction Factors
Altitude Correction Factors

TABLE #5

This table provides correction factors for 50Hz application selections at high speed (o.o E.S.P.) only. Consult your USA representative for other applications.

UNIT			CFM (HIGHSPEED)	BASE CFM	CFM RATIO	Ct	Cs
MODEL	SIZE	COIL					
VFB VFC VFCS	02	3 ROW	250	240	1.04	1.03	1.03
	03		275	295	.93	.96	.95
	04		395	410	.96	.98	.98
	06		500	620	.81	.87	.85
	08		540	700	.77	.84	.82
	10		730	915	.80	.86	.84
	12	860	1100	.78	.85	.83	
	02	4 ROW	235	215	1.09	1.06	1.07
	03		260	285	.91	.95	.94
	04		385	395	.97	.98	.98
	06		480	605	.79	.86	.84
	08		520	690	.75	.82	.80
	10		710	885	.80	.86	.84
	12	840	1070	.79	.86	.84	
VFBL VFCL	02	2 ROW	275	250	1.10	1.07	1.08
	03		335	370	.91	.95	.94
	04		410	480	.85	.90	.89
	06		560	750	.75	.82	.81
	02	3 ROW	260	230	.79	.85	.84
	03		325	345	.94	.96	.96
	04		400	460	.87	.92	.91
	06		540	670	.81	.87	.86

ALTITUDE CORRECTION FACTORS

ELEVATION	TOTAL BTU	SENSIBLE BTU
1000	0.99	0.96
2000	0.96	0.93
3000	0.97	0.89
4000	0.96	0.86
5000	0.94	0.83
6000	0.93	0.80

TABLE #4

BASE COOLING & HEATING CAPACITIES (VWB) - BTUH

UNIT SIZE	UNIT CFM	GPM	PD Ft. of H2O	COOLING			HEATING	
				EWT			EWT	
				40°F	45°F	50°F	160°F	180°F
VWB-01	150	1.0	0.8	4240	3450	2750	8200	10000
		1.5	1.6	4950	4080	3270	8750	10850
		2.0	2.7	5320	4500	3500	9220	11300
		2.5	3.6	5500	4650	3620	9450	11700
		3.0	5.5	5590	4850	3770	9700	12300
VWB-03	300	1.0	1.5	7850	6400	5100	15500	18900
		1.5	2.9	8850	7800	6250	16700	20400
		2.0	4.8	10200	8660	6730	17300	21100
		2.5	6.4	10800	9100	7130	17600	21500
		3.0	9.7	11100	9650	7500	18000	22000

NOTES: Cooling capacity based on standard conditions of 80°F DB, 67°F WB entering air temperature. To approximate sensible use S.H.R. of .84 to above BTUH.

UNIT DATA

UNIT SIZE	COIL ROWS	COIL SIZE	COIL CONN. SIZE	DRAIN CONN. SIZE	FILTER SIZE
VWB-01	TWO	10 X 7 1/2	5/8" O.D.	3/4"	10X 14 1/2 X 1
VWB-03	TWO	24 X 7 1/2	5/8" O.D.	3/4"	10 X 28 X 1

MOTOR DATA (115/1/60 SHADED POLE)

UNIT SIZE	HIGH SPEED			MEDIUM SPEED			LOW SPEED		
	AMPS	WATTS	RPM	AMPS	WATTS	RPM	AMPS	WATTS	RPM
VWB-01	1.0	50	1200	0.50	39	980	0.30	30	790
VWB-03	2.0	100	1200	1.00	78	980	0.60	60	790

APPLICATION

Electric heaters are available for installation on USA Coil & Air fan coil units for the following applications.

TOTAL ELECTRIC HEAT

Complete heating during heating season: No boiler is required. Heating and/or cooling may be available on an individual basis the year round with only a two-pipe system. Chilled water is used for cooling, and the electric heater is used for heating. Individual room controls can be supplied to give manual or automatic changeover.

AUXILIARY ELECTRIC HEAT

Heating between seasons or during cooling season when chilled water is being circulated. Individual room controls can be supplied to provide electric heat only when chilled water is being circulated. During regular heating season, heating is provided by hot water being circulated in the system.

CONSTRUCTION

The heater consists of coils of high grade resistance wire which are insulated by incorporating ceramic insulators in plated steel brackets.

High limit thermal cutouts to protect the heater in the event of air failure are provided as standard equipment.

There are many special applications and control sequences for electric heat. Consult factory for special applications.

$$\text{Electric Heating Capacities (BTUH)} = \text{Heater KW} \times 3415$$

$$\text{Electric Heater Amperage} = \frac{\text{Heater KW} \times 1000}{\text{Applied Voltage}}$$

TABLE #8

ELECTRIC HEATER SELECTION GUIDE

VOLTAGE	KW	UNIT SIZE						
		02	03	04	06	08	10	12
120V	0.5	F						
	1.0	L	F/L	F/L	F/L			
	1.5		F/L	F/L	F/L			
	2.0			F/L	F/L	F		
	3.0				F/L	F	F	F
240V 277V	0.5	F						
	1.0	L	F/L	F/L	F/L			
	1.5		F/L	F/L	F/L			
	2.0			F/L	F/L	F		
	3.0				F/L	F	F	F
	4.0					F	F	F
	5.0						F	F
208V	0.5	F						
	1.0	L	F/L	F/L	F/L			
	1.5		F/L	F/L	F/L			
	2.0			F/L	F/L	F		
	3.0				F/L	F	F	F
	4.0					F	F	F
	5.0						F	F

NOTE: All heaters are single stage and single phase. Available KW for VFB, VFC, VFCS are indicated F (floor). Available KW for VFBL, VFCL are indicated L (lowboy).

TABLE #10

THERMAL OVERLOAD PROTECTION AND UL LISTING

All split capacitor motors furnished by USA Coil & Air contain an internal thermal overload protector which is calibrated to tripout when the winding reaches a predetermined temperature. This protector will automatically reset when the temperature returns to a safe limit.

Underwriters Laboratories, Inc. approves the motor and thermal overload combination at locked rotor conditions only. These combinations are "yellow card listed," and evidence of such protection is stamped directly on the motor.

EFFICIENCY AND POWER FACTOR

The efficiency and power factor of a permanent split capacitor motor are higher than that of a shaded pole motor. Permanent split capacitor motors have an efficiency in the range of 35% to 55% as compared to 20% to 35% for shaded pole motors. The power factor of a shaded pole motor may be in the range of 0.50 to 0.65 while the power factor of a permanent split capacitor motor approaches 0.89 - 1.00.

When current input is critical, the motor selection should be made on the basis of efficiency. This is one reason for the increasing use of permanent split capacitor motors in fan coil units. In many installations the total power factor must be maintained above a set minimum value. If other components of the system have a high power factor, then it may not be objectionable to use a low power factor motor.

MODELS - VFBL, VFCL

VOLTAGE	DATA		UNIT SIZE				
			02	03	04	06*	
115 V 60 HZ 1 PHASE	NOM'L HP		1/20	1/12	1/12	1/12(2)	
	H	AMPS	0.34	1.35	1.45	2.70	
		WATTS	68	135	450	260	
	M	AMPS	45	65	65	125	
		WATTS	0.30	0.60	0.60	1.20	
	L	AMPS	0.20	0.30	0.30	0.80	
		WATTS	25	40	40	85	
	208 V 60 HZ 1 PHASE **	NOM'L HP		1/20	1/12	1/12	1/12(2)
		H	AMPS	0.46	0.56	0.60	1.00
			WATTS	56	109	116	205
L		AMPS	0.20	0.30	0.30	0.50	
		WATTS	35	55	58	103	
230 V 60 HZ 1 PHASE **		NOM'L HP		1/20	1/12	1/12	1/12(2)
	H	AMPS	0.50	0.60	0.64	1.10	
		WATTS	64	128	138	245	
	L	AMPS	0.22	0.28	0.30	0.52	
		WATTS	42	65	67	120	
	265 V 60 HZ 1 PHASE	NOM'L HP		1/20	1/12	1/12	1/12(2)
H		AMPS	0.35	0.58	0.58	1.16	
		WATTS	85	135	140	260	
M		AMPS	0.12	0.33	0.34	0.65	
		WATTS	45	85	88	155	
L		AMPS	0.07	0.22	0.22	0.40	
		WATTS	35	55	57	100	
220 V / 240 V 50 HZ 1 PHASE		NOM'L HP		1/20	1/12	1/12	1/12(2)
	H	AMPS	0.36	0.38	0.39	.76	
		WATTS	80	145	150	280	
	M	AMPS	0.15	0.30	0.30	0.67	
		WATTS	40	70	70	130	
	L	AMPS	0.11	0.17	0.17	0.21	
		WATTS	30	40	40	80	

*NOTE: Total Unit Motor Amps & Watts Shown For 2 Motor Units (Size 6).

**Motors are two-speed

All motors PSC type. Motor Nameplate Amps May Vary.

Performance Information

Motor Information

TABLE #

MODELS VFB, VFC, VFCS

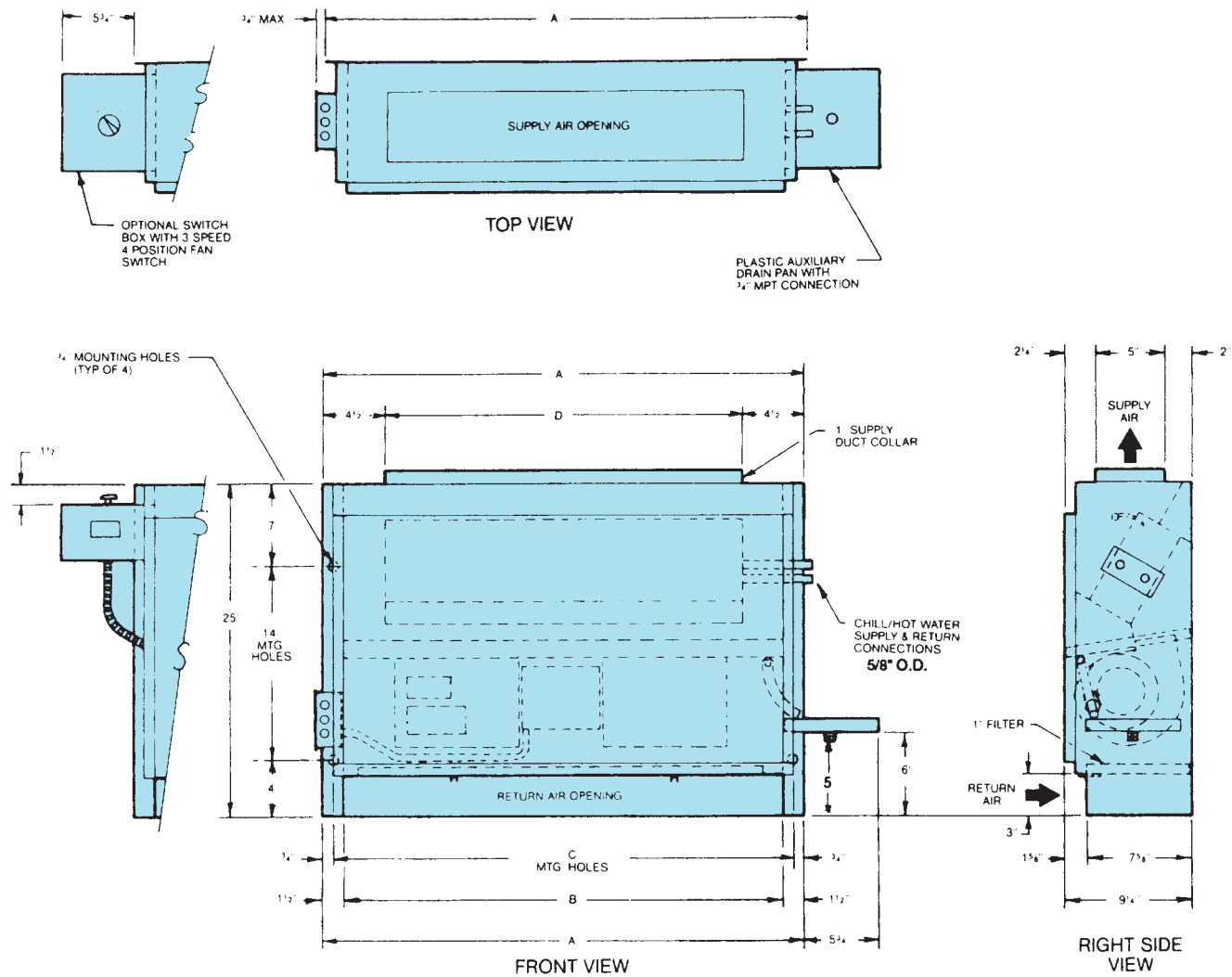
VOLTAGE	DATA		UNIT SIZE						
			02	03	04	06	08	10*	12*
115V 60HZ 1 PHASE	NOMINAL HP		1/30	1/30	1/12	1/6	1/6	(2) 1/12	(2) 1/6
	H	AMPS	0.53	0.83	1.25	2.00	2.10	2.20	4.00
		WATTS	50	80	130	180	210	240	370
	M	AMPS	0.31	0.48	0.70	1.30	1.30	1.30	2.50
		WATTS	35	50	75	140	140	145	265
	L	AMPS	0.27	0.33	0.47	0.57	0.61	0.90	1.25
WATTS		28	35	50	60	65	100	125	
208V 60HZ 1 PHASE	NOMINAL HP		1/30	1/30	1/12	1/6	1/6	(2) 1/12	(2) 1/6
	H	AMPS	0.45	0.46	0.64	1.00	1.00	1.20	2.00
		WATTS	85	85	110	190	195	210	340
	M	AMPS	0.29	0.29	0.40	0.59	0.69	0.80	1.15
		WATTS	60	60	89	130	135	160	220
	L	AMPS	0.14	0.14	0.22	0.47	0.47	0.45	0.84
WATTS		28	28	45	90	90	90	170	
230V 60HZ 1 PHASE	NOMINAL HP		1/30	1/30	1/12	1/6	1/6	(2) 1/12	(2) 1/6
	H	AMPS	0.45	0.46	0.64	1.00	1.00	1.20	2.00
		WATTS	100	102	120	205	215	235	370
	M	AMPS	0.31	0.31	0.43	0.71	0.71	0.85	1.40
		WATTS	70	70	100	150	155	190	285
	L	AMPS	0.15	0.15	0.24	0.50	0.50	0.50	1.00
WATTS		33	33	55	105	110	115	200	
265V 60HZ 1 PHASE	NOMINAL HP		1/30	1/30	1/12	1/6	1/6	(2) 1/12	(2) 1/6
	H	AMPS	0.33	0.34	0.63	0.92	0.92	1.26	1.84
		WATTS	80	82	140	205	210	270	370
	M	AMPS	0.26	0.26	0.44	0.57	0.58	0.82	1.10
		WATTS	65	67	110	140	140	200	255
	L	AMPS	0.16	0.17	0.25	0.34	0.35	0.45	0.65
WATTS		40	43	65	80	85	125	145	
220V 50HZ 1 PHASE	NOMINAL HP		1/30	1/30	1/12	1/6	1/6	(2) 1/12	(2) 1/6
	H	AMPS	0.37	0.39	0.52	1.00	1.10	1.00	2.00
		WATTS	80	85	105	165	170	210	320
	M	AMPS	0.27	0.27	0.39	0.60	0.60	0.80	1.15
		WATTS	60	60	82	115	120	160	220
	L	AMPS	0.15	0.15	0.25	0.46	0.47	0.50	0.90
WATTS		30	30	50	90	95	100	170	

*NOTE: Total Unit Motor Amps & Watts Shown For 2 Motor Units (10 & 12).

All motors PSC type.

Motor Nameplate Amps May Vary.

VFB - VERTICAL FLOOR BASIC (HIDEAWAY) - 200 CFM THRU 1200 CFM



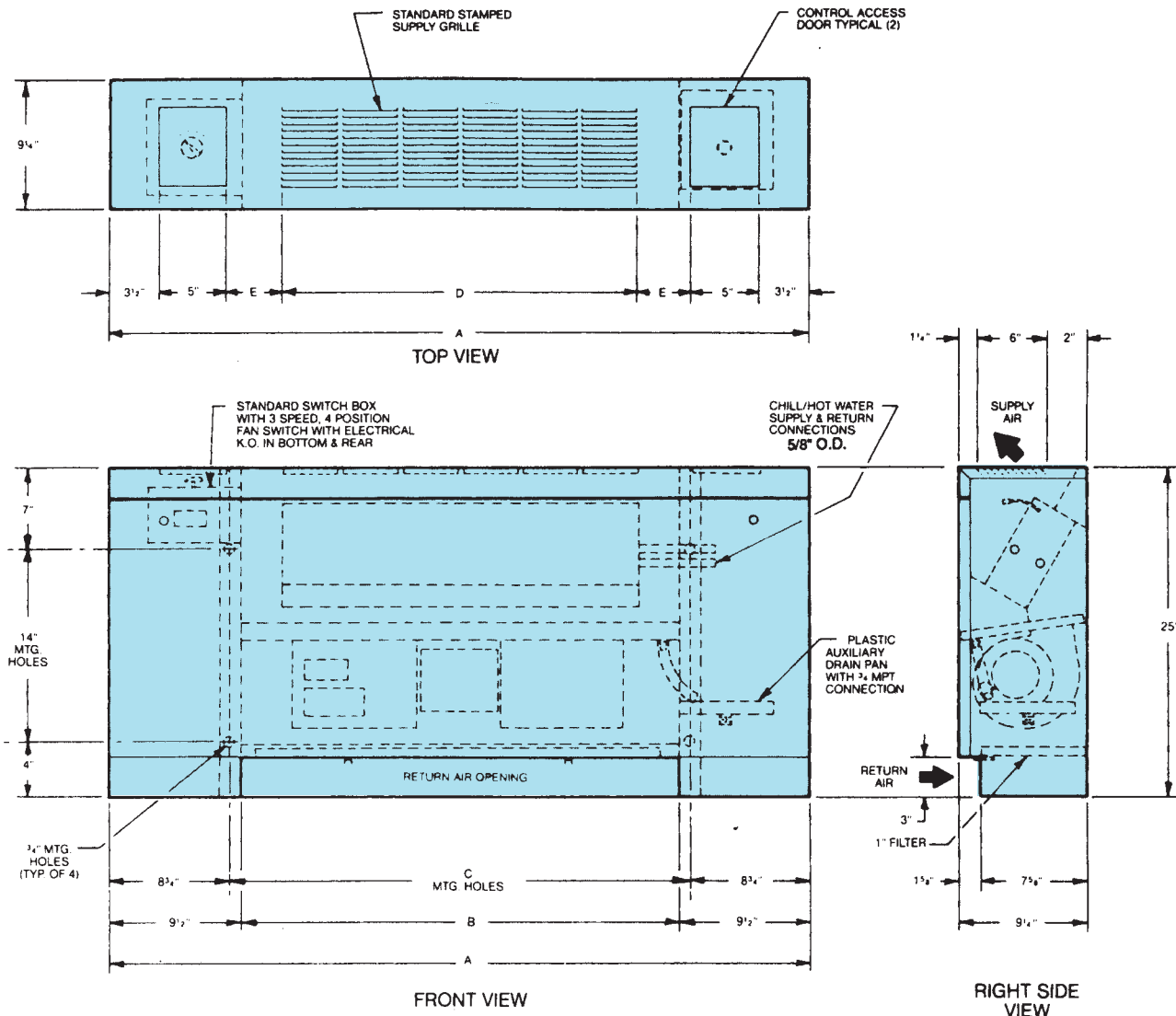
MODEL	DIMENSIONS - INCHES			
	A	B	C	D
VFB02	25	22	23 1/2	16
VFB03	29	26	27 1/2	20
VFB04	35	32	33 1/2	26
VFB06	45	42	43 1/2	36
VFB08	47	45	46 1/2	38
VFB10	61	58	59 1/2	52
VFB12	69	66	67 1/2	60

NOTES: 1. R.H. shown, L.H. opposite.
 2. All dimensions +/- 1/4".
 3. Junction box may vary.

Dimensions

VFC - Vertical Floor Cabinet

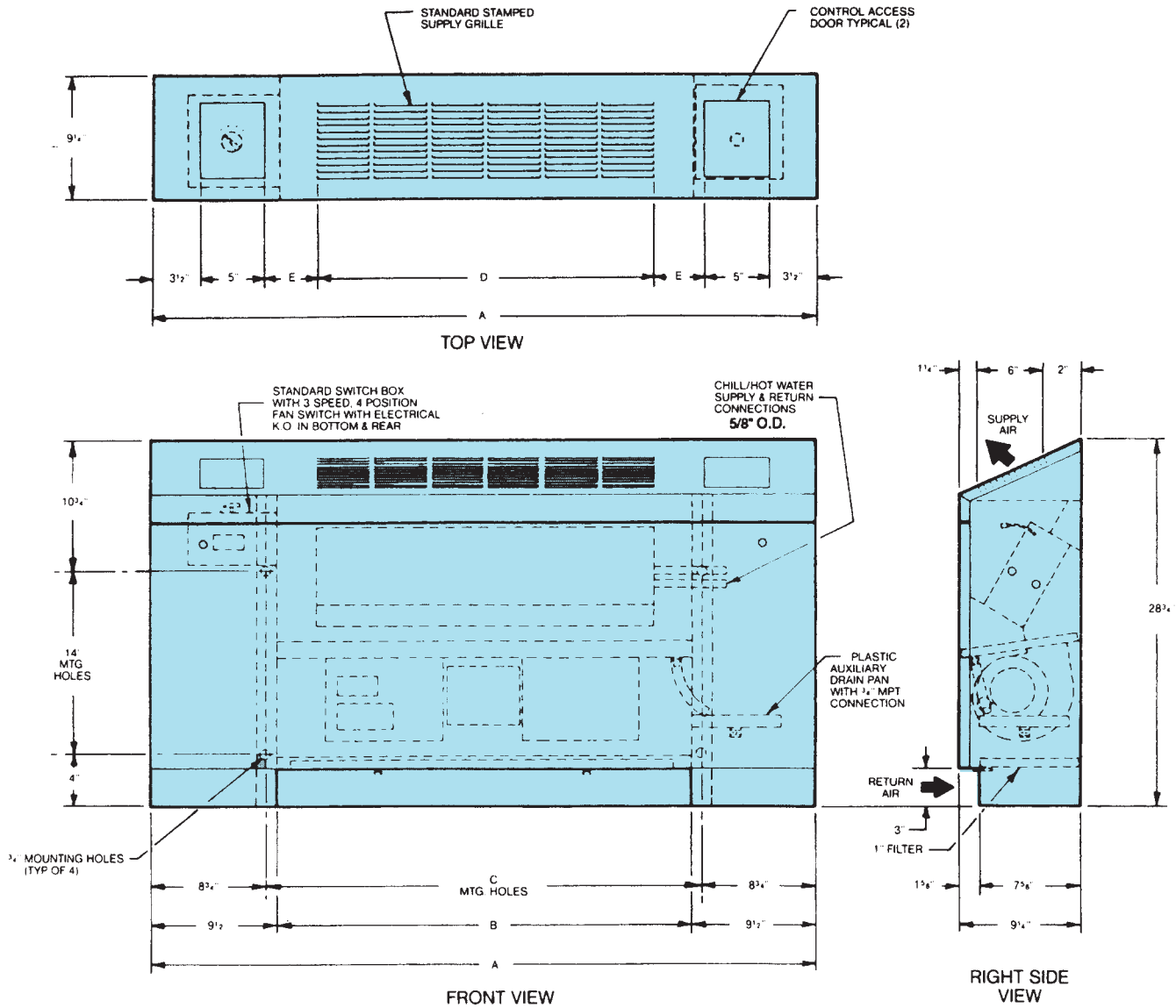
VFC - VERTICAL FLOOR CABINET (EXPOSED) - 200CFM THRU 1200 CFM



MODEL	DIMENSIONS - INCHES				
	A	B	C	D	E
VFC02	41	22	23 1/2	17 1/8	3 7/16
VFC03	45	26	27 1/2	21 1/2	3 1/4
VFC04	51	32	33 1/2	25 7/8	4 1/6
VFC06	61	42	43 1/2	39	2 1/2
VFC08	63	44	45 1/2	39	3 1/2
VFC10	77	58	59 1/2	52 1/8	3 15/16
VFC12	85	66	67 1/2	60 1/8	3 9/16

NOTES: 1. R.H. shown, L.H. opposite.
2. All dimensions +/- 1/4".

VFCS - VERTICAL FLOOR CABINET (EXPOSED SLOPE TOP) - 200CFM THRU 1200 CFM



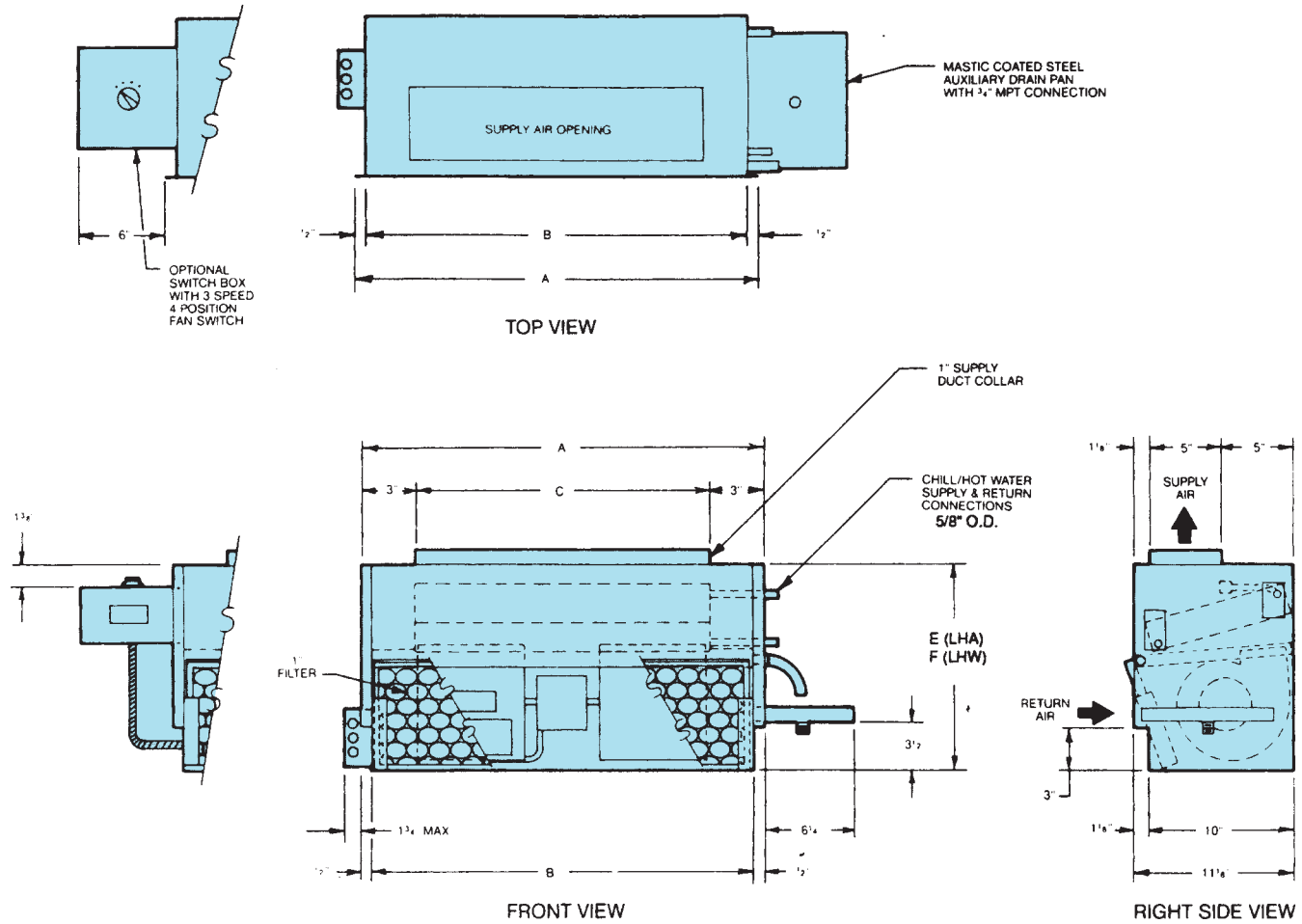
MODEL	DIMENSIONS - INCHES				
	A	B	C	D	E
VFCS02	41	22	23 1/2	17 1/8	3 7/16
VFCS03	45	26	27 1/2	21 1/2	3 1/4
VFCS04	51	32	33 1/2	25 7/8	4 1/6
VFCS06	61	42	43 1/2	39	2 1/2
VFCS08	63	44	45 1/2	39	3 1/2
VFCS10	77	58	59 1/2	52 1/8	3 15/16
VFCS12	85	66	67 1/2	60 1/8	3 9/16

NOTES: 1. R.H. shown, L.H. opposite.
2. All dimensions +/- 1/4".

Dimensions

VFBL - Vertical Floor Basic Lowboy

VFBL - VERTICAL FLOOR BASIC LOWBOY (HIDEAWAY) - 200CFM THRU 600 CFM

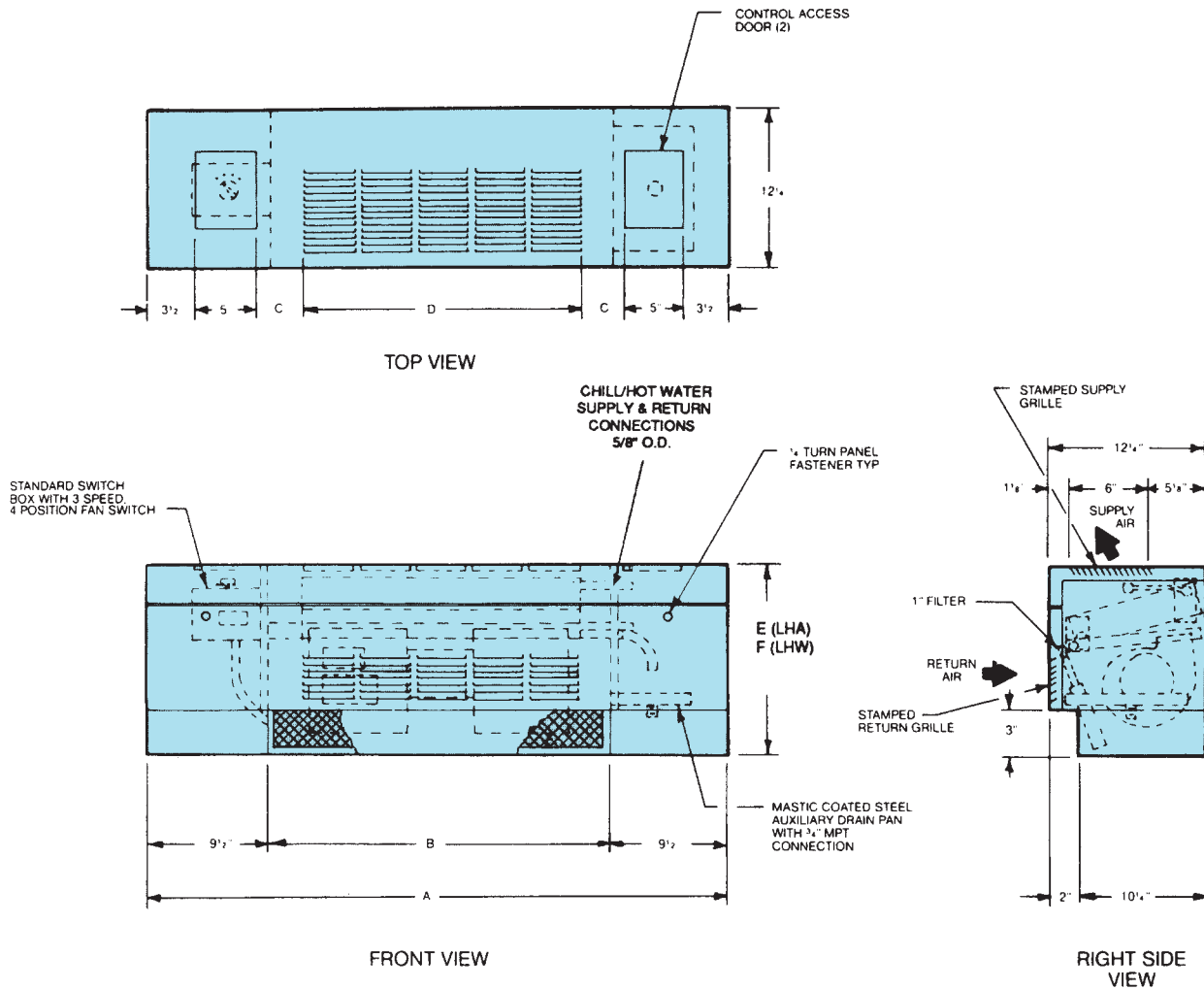


"Tall" Cabinet is used for applications w/electric heat. Cabinet is 2" taller than standard cabinet. Contact Factory for specific dimensions and drawing.

MODEL	DIMENSIONS - INCHES				
	A	B	C	D	E
VFBL02	23	22	17	14 3/8	16 3/8
VFBL03	28	27	22	14 3/8	16 3/8
VFBL04	36	35	30	14 3/8	16 3/8
VFBL06	50	49	44	14 3/8	16 3/8

- NOTES: 1. R.H. shown, L.H. opposite.
 2. All dimensions +/- 1/4".
 3. For applications using electric heat or double deflection grille assemblies, consult factory for specific unit dimensions.

VFCL - VERTICAL FLOOR CABINET LOWBOY (EXPOSED) - 200CFM THRU 600 CFM



"Tall" Cabinet is used for applications w/electric heat. Cabinet is 2" taller than standard cabinet. Contact Factory for specific dimensions and drawing.

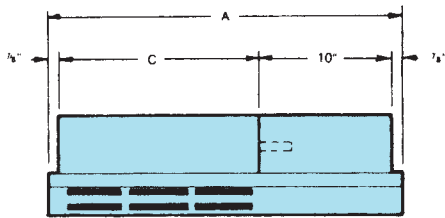
MODEL	DIMENSIONS - INCHES					
	A	B	C	D	E	F
VFCL02	41	22	3 7/13	17 1/8	14 1/2	16 1/2
VFCL03	46	27	3 3/4	21 1/2	14 1/2	16 1/2
VFCL04	54	35	3 3/8	30 1/4	14 1/2	16 1/2
VFCL06	68	49	3 13/16	43 3/8	14 1/2	16 1/2

- NOTES: 1. R.H. shown, L.H. opposite.
 2. All dimensions +/- 1/4".
 3. For applications using electric heat or double deflection grille assemblies, consult factory for specific unit dimensions.

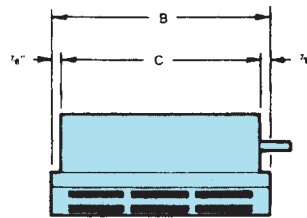
Dimensions

VWB - Vertical Wall Basic Recessed

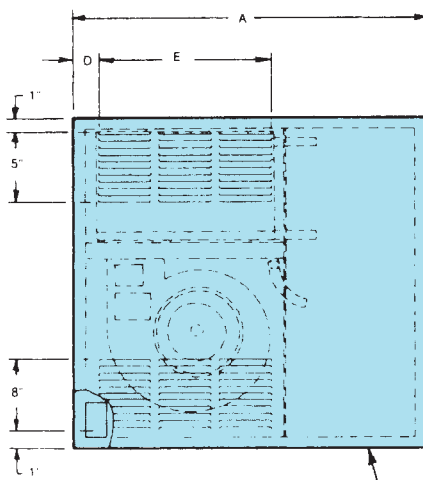
VWB - VERTICAL WALL BASIC (RECESSED) - 150 CFM THRU 300 CFM



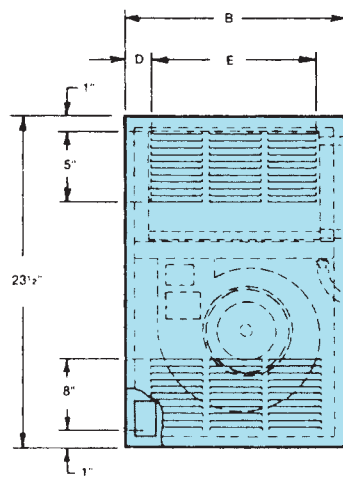
TOP VIEW
VWB W/EXTENDED CABINET



TOP VIEW
VWB

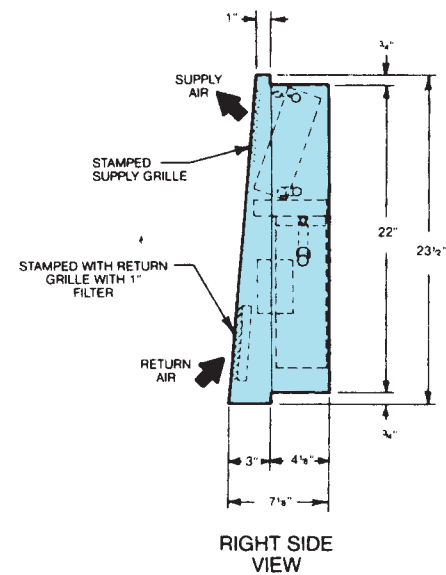


FRONT VIEW
(WITH VALVE COMPARTMENT)
* VWB EXTENDED CABINET



FRONT VIEW
(STANDARD)
VWB

CHILL/HOT WATER
SUPPLY & RETURN
CONNECTIONS
5/8" O.D.



RIGHT SIDE
VIEW

MODEL	DIMENSIONS - INCHES					
	A	B	C	D	E	F
VWB01	25 3/4	15 3/4	14	1 1/2	12 3/4	1 1/2
VWB03	39 3/4	29 3/4	28	1 15/16	25 7/8	1 15/16

- NOTES: 1. R.H. shown, L.H. opposite.
2. Junction box size may vary.
*3. Use extended cabinet model whenever any valve package components are scheduled.

SUPPLY GRILLES

(STYLE F & G) MODELS VFC, VFCS, VFCL

SUPPLY GRILLE SIZES			
UNIT SIZE	NOMINAL CFM	VFC, VFCS GRILLE SIZES	VFCL GRILLE SIZES
02	200	16" X 6"	16" X 6"
03	300	20" X 6"	22" X 6"
04	400	26" X 6"	30" X 6"
06	600	36" X 6"	44" X 6"
08	800	38" X 6"	-
10	1000	52" X 6"	-
12	1200	60" X 6"	-

NOTE: 1. Grille dimensions are nominal for standard top supply air.
 2. Maximum total rows of coil for D.D. supply grille application:
 VFB, VFCS - 5 rows
 VFC - 4 rows
 VFBL, VFCL - 2 rows
 VFBL, VFCL (Tall Cabinet) - 3 rows

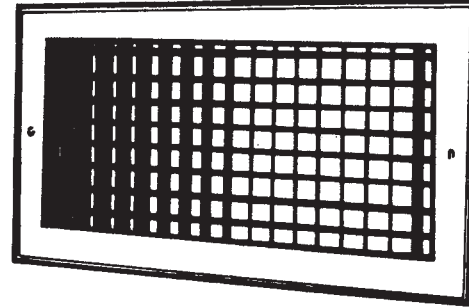
(STYLE J) MODELS VFB, VFBL

SUPPLY GRILLE SIZES			
UNIT SIZE	NOMINAL CFM	VFB GRILLE SIZES	VFBL GRILLE SIZES
02	200	16" X 5"	16" X 5"
03	300	20" X 5"	22" X 5"
04	400	26" X 5"	30" X 5"
06	600	36" X 5"	44" X 5"
08	800	38" X 5"	-
10	1000	52" X 5"	-
12	1200	60" X 5"	-

ACTUAL FILTER DIMENSIONS (INCHES)		
UNIT SIZE	VFB, VFC, VFCS	VFBL, VFCL
02	7 3/4" X 21 3/4"	16" X 5"
03	7 3/4" X 25 3/4"	22" X 5"
04	7 3/4" X 31 3/4"	30" X 5"
06	7 3/4" X 41 3/4"	44" X 5"
08	7 3/4" X 43 3/4"	-
10	7 3/4" X 57 3/4"	-
12	7 3/4" X 65 3/4"	-

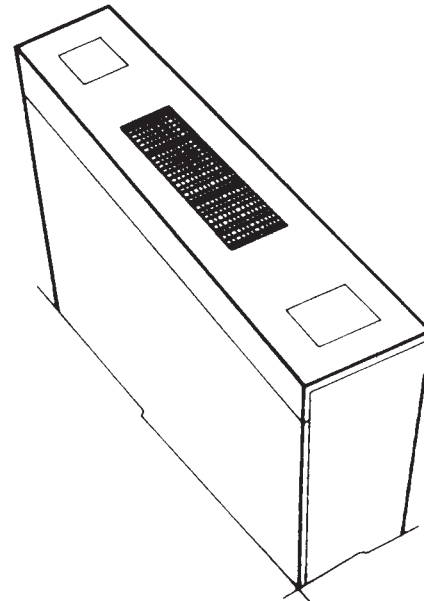
STYLE F & J - DOUBLE DEFLECTION

Full aluminum framed grille, factory installed (Style F) on models VFC, VFCS and VFCL or shipped loose (Style J) on models VFB and VFBL.

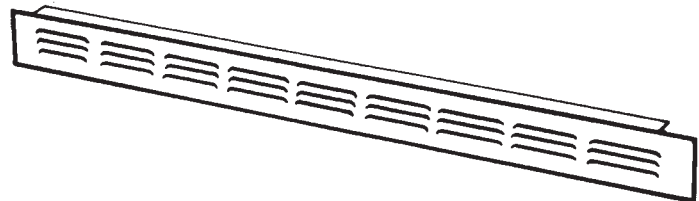


STYLE G - DOUBLE DEFLECTION

Integral hidden steel frame, aluminum blade grille factory installed and painted to match the unit cabinet. Models VFC, VFCS and VFCL only.



RETURN AIR GRILLE



STYLE C - VFC, VFCS OPTIONAL STAMPED RETURN AIR GRILLE

Options & Accessories

Dampers & Wall Boxes

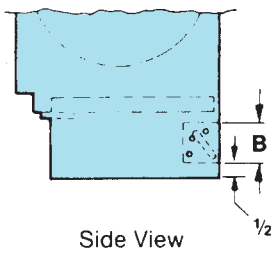
OUTSIDE AIR DAMPERS

VFB, VFC, VFCS, VFBL AND VFCL models may be supplied with an outside air inlet connection. A damper for control of the outside air is provided. Several styles of outside air damper control are available.

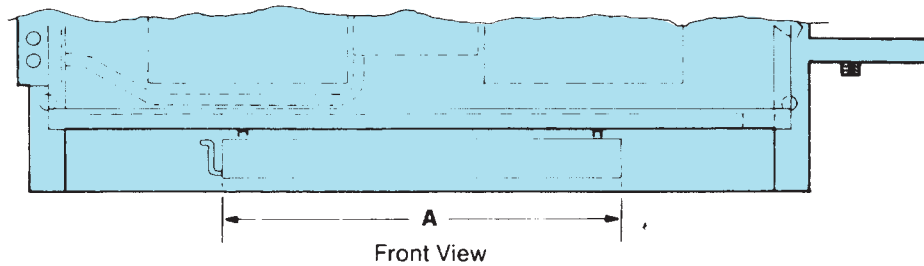
Style A - Control of the damper is by manual operation of the damper itself in the unit return air toe space. Models VFB, VFC and VFCS are provided with a lever arm on the damper. Models VFBL and VFCL are provided with a sliding damper blade.

Style B - A remote damper operator is provided which allows control of the damper from under one of the control access doors. Models VFB, VFC and VFCS only.

Style C - Control of the damper is achieved by a motorized operator installed in the left hand access compartment. Models VFB, VFC and VFCS only. (Consult factory for application restrictions).



Side View



Front View

OUTSIDE AIR OPENING DIMENSIONS (INCHES) DAMPERS

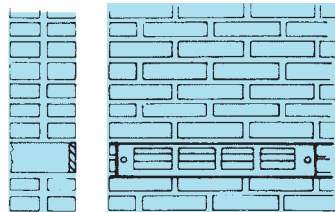
UNIT SIZE	NOMINAL CFM	VFB, VFC, VFCS		VFBL, VFCL	
		A	B	A	B
02	200	8	2	6	2
03	300	10	2	6	2
04	400	12	2	6	2
06	600	14	2	6	2 (2)
08	800	18	2	-	-
10	1000	27	2	-	-
12	1200	27	2	-	-

*The wall panel provides the air seal for the front of the unit. Therefore the alignment to the unit is critical.

OUTSIDE AIR WALL BOXES (VFB, VFC, VFCS ONLY)

Optional outside air wall boxes are constructed of aluminum to minimize corrosion. A louvered grille caps the wall box on the exterior side. A fine mesh insect screen is installed on the inside of the box.

Standard wall box depth is (6") with the width and length dimensions established to be used with the outside air openings shown above.

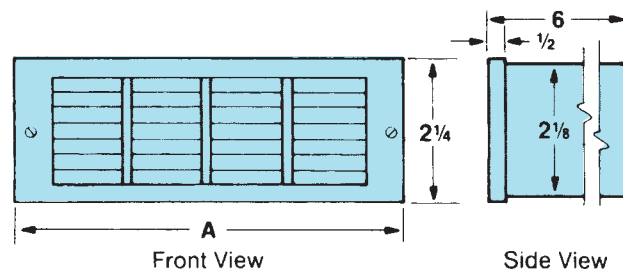
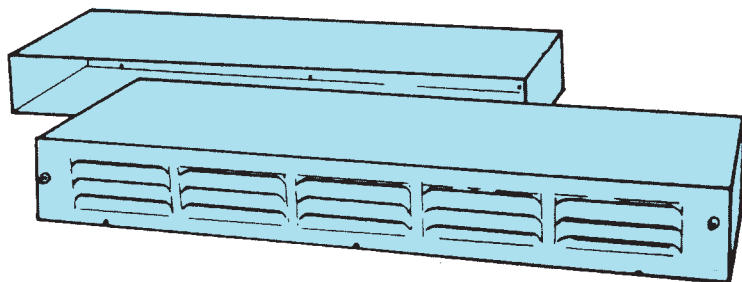


Typical Wall Installation

OUTSIDE AIR OPENING DIMENSIONS (INCHES) WALL BOX

UNIT SIZE	NOMINAL CFM	VFB, VFC, VFCS	
		A	B
02	200	8 1/4	2 1/8
03	300	10 1/4	2 1/8
04	400	12 1/4	2 1/8
06	600	14 1/4	2 1/8
08	800	18 1/4	2 1/8
10	1000	27 1/4	2 1/8
12	1200	27 1/4	2 1/8

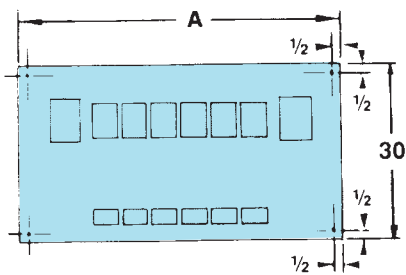
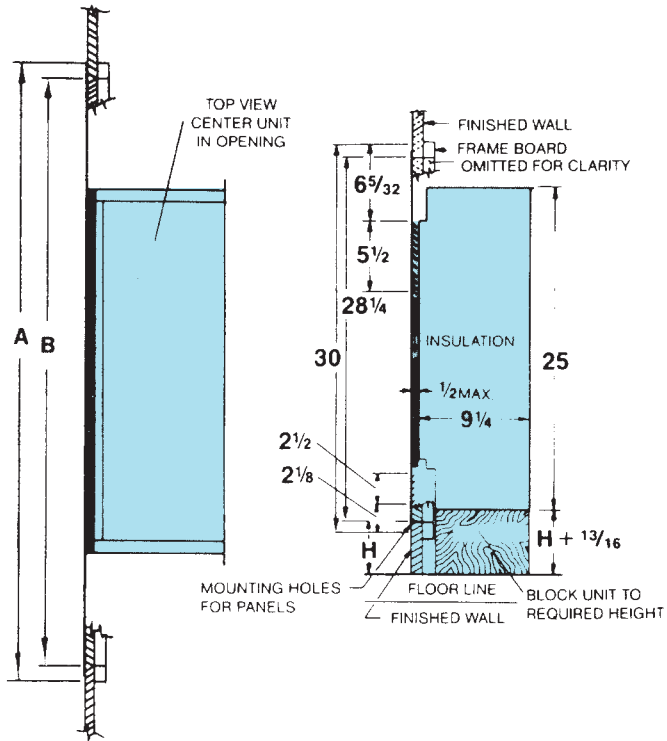
*The wall panel provides the air seal for the front of the unit. Therefore the alignment to the unit is critical.



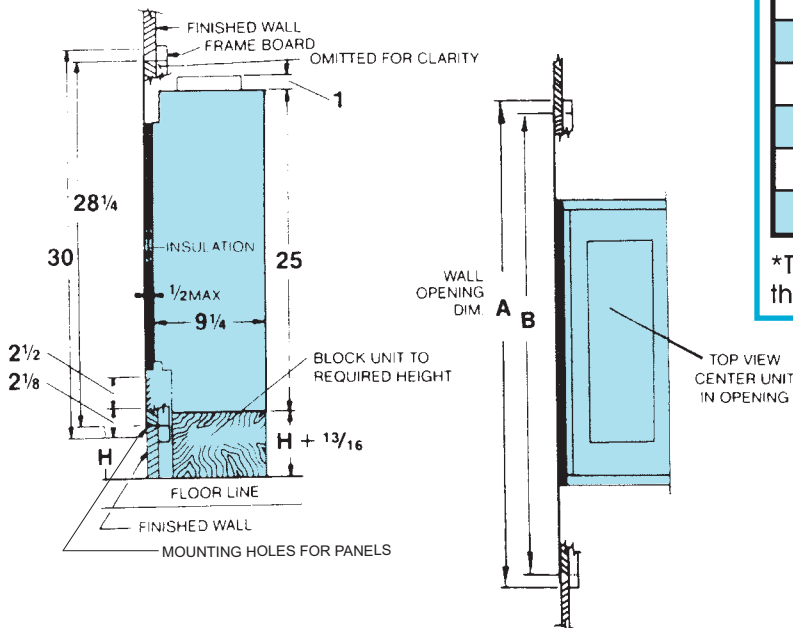
Front View

Side View

STYLE 1*



STYLE 2*



FOR FULLY RECESSED UNIT

The Floor Hideaway Series, Model VFB are fully recessed and built into the wall of the conditioned area. They cover the recess opening on all sides, and are easily removed for access to the unit. The hinged access door to the three speed switch, as shown on Style 1, is available on all panels. Standard wall panel arrangements are shown. Consult factory for various combination arrangements of access doors and supply grilles.

STYLE 1

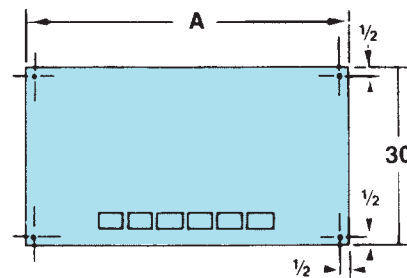
CFM	A	B
	PANEL WIDTH	WALL OPENING DIMENSION
200	40	38 1/4
300	44	42 1/4
400	50	48 1/4
600	60	58 1/4
800	62	60 1/4
1000	76	74 1/4
1200	84	82 1/4

*The wall panel provides the air seal for the front of the unit. Therefore the alignment to the unit is critical.

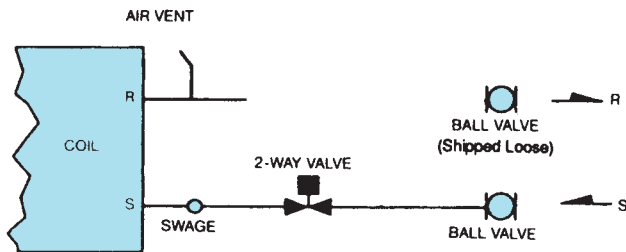
STYLE 2

CFM	A	B
	PANEL WIDTH	WALL OPENING DIMENSION
200	40	38 1/4
300	44	42 1/4
400	50	48 1/4
600	60	58 1/4
800	62	60 1/4
1000	76	74 1/4
1200	84	82 1/4

*The wall panel provides the air seal for the front of the unit. Therefore the alignment to the unit is critical.



2-WAY MOTORIZED CONTROL VALVE



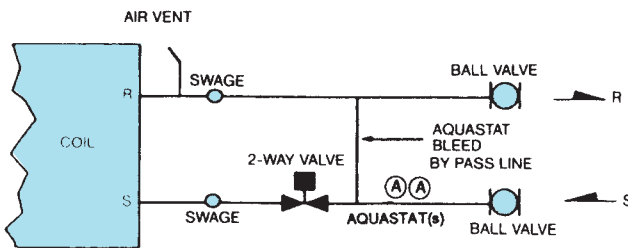
CODE

G.
H.
N, P.
Q, R.

APPLICATION

2-PIPE - HYDRONIC HEATING ONLY
2-PIPE - HYDRONIC COOLING ONLY
2-PIPE - HYDRONIC COOLING WITH
TOTAL ELECTRIC HEAT
4-PIPE - HYDRONIC COOLING AND
HEATING

2-WAY MOTORIZED CONTROL VALVE (W/BY-PASS)



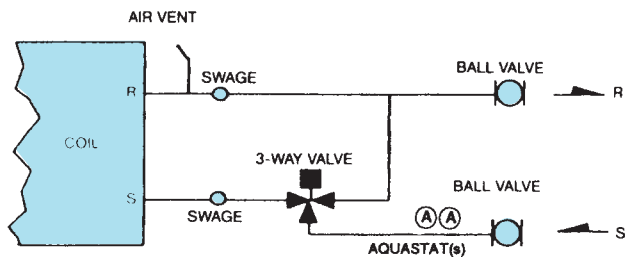
CODE

J, K.
L, M.

APPLICATION

2-PIPE - COOLING AND HEATING
2-PIPE - HYDRONIC COOLING AND
HEATING WITH AUXILIARY
ELECTRIC HEAT

3-WAY MOTORIZED CONTROL VALVE



CODE

G.
H.
J, K.
L, M.

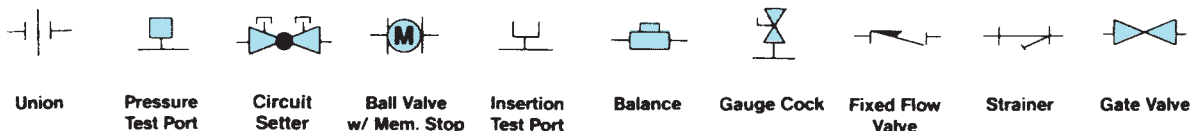
N, P.
Q, R.

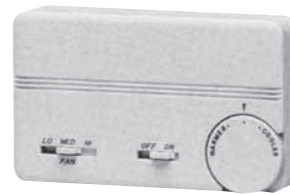
APPLICATION

2-PIPE - HYDRONIC HEATING ONLY
2-PIPE - HYDRONIC COOLING ONLY
2-PIPE - COOLING AND HEATING
2-PIPE - HYDRONIC COOLING AND
HEATING WITH AUXILIARY
ELECTRIC HEAT
2-PIPE - HYDRONIC COOLING WITH
TOTAL ELECTRIC HEAT
4-PIPE - HYDRONIC COOLING AND
HEATING

Factory provided valve packages are assembled, brazed, wired electrically and fit to the coil connections before preparing for shipment. Field brazing to the coil completes the installation. Some applications dictate ship loose isolation valves.

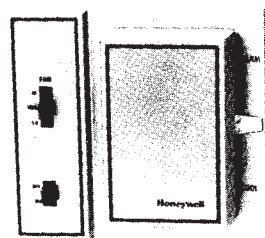
OTHER PIPING OPTIONS



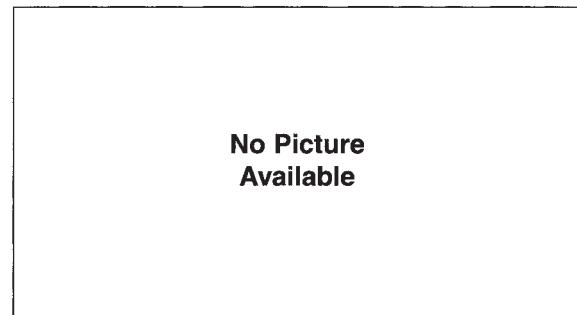


155-A

155-B



Wall Series 4039



Wall Mount Switch

UNIT TYPE	CONTROL OPTION	SYSTEM TYPE	CHANGEOVER	UNIT MOUNTED C-12/C-17	1. SERIES 155-A Horiz./Vert.	2. SERIES 155-B Horiz./Vert.	WALL SERIES #4039	OPTIONAL UNIT MOUNT SWITCH ONLY	OPTIONAL WALL MOUNT SWITCH ONLY	
2 PIPE	Valve Cycle	Heat Only	None	X		X	X	X	X	
		Cool Only	None	X		X	X	X	X	
	Continuous Fan Operation	Heat/Cool	Manual			X		X		
			Auto	X			X	X	X	X
		Heat/Cool w/Aux. Electric Heat	Manual			X		X		
			Auto	X			X	X	X	X
Cool w/Total Electric Heat	Manual			X		X				
	Auto	X			X	X	X	X		
4 PIPE	Valve Cycle Continuous Fan Operation	Heat/Cool	Manual		X		X			
			Auto	X			X	X	X	

1. Use 155-A in Horiz. or Vertical for 2 Pipe or 4 Pipe – Manual c/o only
 2. Use 155-B in Horiz. or Vertical for Heat only/Cool only or Automatic c/o only

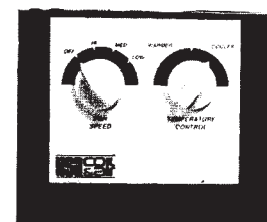
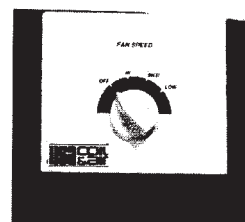
OTHER CONTROL OPTIONS (Consult Factory)

- Control packages with valve cycle control are continuous fan operation only.
- All wall mount control packages shipped loose for field installation.
- Aquastats included in pricing of package (as required).
- Use optional switch only when thermostats are to be field furnished and installed. Factory will provide fan switch, aquastat (if required) and a U.L. wiring diagram to match the application.
- Low voltage – 24V. control application – consult factory
- Single power source wiring – consult factory
- Unit mounted speed switch and remote mounted t'stat – consult factory

UNIT MTD CONTROLS

C/12

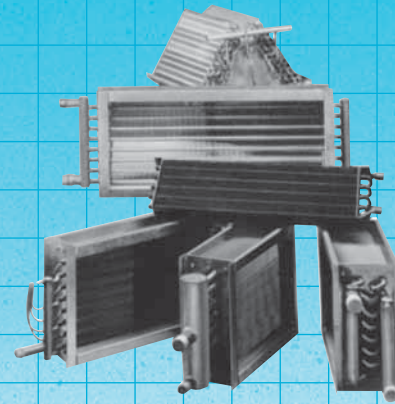
C/17





Quick Ship Cooling and Heating Coils

Quick shipment of Chilled Water and DX Cooling Coils for Vertical or Horizontal Airflow. Also available are 1 row and 2 row Flanged or Slip & Drive Hot Water/Low Pressure Steam Coils from 6 x 6 to 30 x 72.



HVAC and Industrial Coils

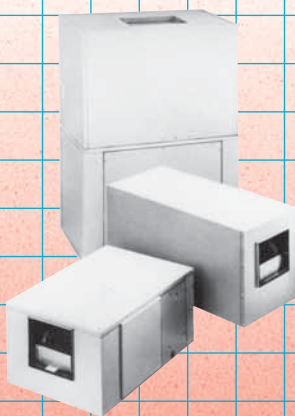
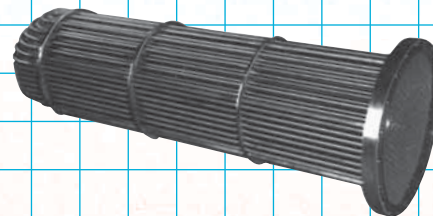
Fast Shipment on all types of HVAC Coils to include: steam, hot water, chilled water, DX, and condenser replacement for any existing coil available in 5 or 10 work days.

USA Coil & Air.

An outstanding product line *plus*, service, availability and quality.

Replacement Tube Bundles and Heat Exchangers

5 and 10 working day shipments available for most U-Tube and Straight-Tube bundles constructed of copper. Cupronickel, carbon steel, brass and stainless steel also available.



Central Station Air Handling Units

Fast shipment on a complete line of Horizontal and Vertical Units. Cooling up to 50,000 CFM and heating up to 60,000 CFM. Options include forward curved or airfoil fans, special coils, filter sections and mixing boxes also are available.



Represented by:

Belt Drive Fan-Coil Units

Immediate shipment available on nominal 2 ton to 20 ton Horizontal or Vertical Units for either Chilled Water or Refrigerant Cooling. Options include hot water or steam heating, mixing box and discharge grills.