



# HIGH PERFORMANCE CASED VERTICAL FAN COILS

400 - 2,200 CFM



ADVANCED  
HYDRONICS

# CONTENTS

MORE THAN FAN COILS	3
FAN COIL & AIR HANDLERS MODEL IDENTIFICATION SYSTEM	4
HIGH PERFORMANCE CASED VERTICAL MODELS	5
STANDARD FEATURES	8
OPTIONS	9
HIGH PERFORMANCE CASED VERTICAL FAN COIL CU SERIES	10
AHRI CERTIFIED COOLING CAPACITY	10
HEATING PERFORMANCE	11
COIL DATA	12
ELECTRIC HEAT	13
AIR FLOW DATA	14
MOTOR DATA	15
SOUND DATA	16
WEIGHTS AND MEASUREMENTS	17
CERTIFIED DIMENSIONAL DRAWINGS	18
GENERAL INFORMATION	23



## **ETL LISTED**

Williams High Performance Cased Vertical Fan Coils are listed by Intertek (ETL). The ETL listing ensures that Williams High Performance Cased Vertical Fan Coils have been examined by ETL and comply with the organization's applicable standards. ETL's re-examination service includes periodic visits by ETL inspectors to Williams' factory to ensure continued compliance for all listed products. Materials and equipment acceptance for use by the New York Department of Buildings: AH 008-120 / MEA 414-05-E



## **AHRI CERTIFIED**

Williams High Performance Cased Vertical Fan Coils are labeled and approved by the Air Conditioning, Heating & Refrigeration Institute (AHRI). This designation signifies that High Performance Cased Vertical Fan Coils units have been rated as follows in accordance with the latest edition of ANSI/AHRI 440 with Addendum 1 Performance Rating of Room Fan Coils and subject to rating accuracy by AHRI sponsored, independent, third-party testing.



## **ALS-TRUESDAIL CERTIFICATION MARK FOR DRINKING WATER SYSTEM COMPONENTS - HEALTH EFFECTS**

Certified Product and/or packaging, and/or documentation certified to both NSF/ANSI 61 and NSF/ANSI 372 by Truesdail shall bear this Certification mark to identify the compliance.

# MORE THAN JUST FAN COILS

For over 100 years, Williams has been a market leader in providing high quality HVAC products for residential and commercial buildings. Today, Williams continues the proud tradition by offering to the commercial/industrial market more configurations and size options of quality fan coils and blower coils/air handlers than any other HVAC company in North America.

Williams is based in Colton California, serving all US and overseas markets with complete application engineering, sales, marketing and administrative services.

Our pledge is to provide complete, high quality and timely support for the successful completion of your construction projects involving engineered products offered by Williams. We believe in a partnering attitude that creates superior projects and high levels of satisfaction.

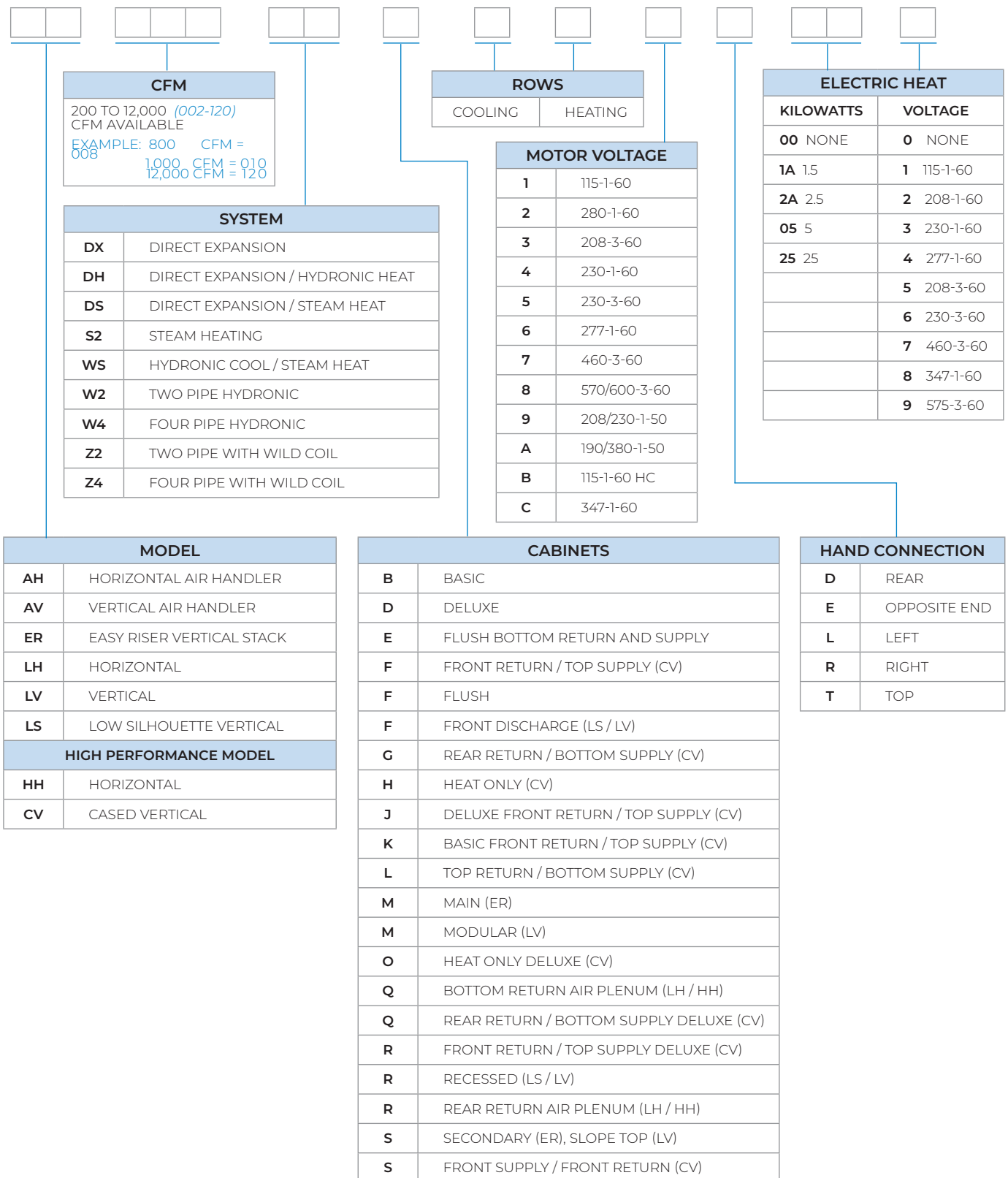


COLTON, CALIFORNIA

FAN COIL ASSEMBLY

AIR HANDLER ASSEMBLY

# WILLIAMS FAN COIL AND AIR HANDLERS MODEL IDENTIFICATION SYSTEM



# HIGH PERFORMANCE CASED VERTICAL MODELS - CV SERIES

400 - 2,200 CFM

## HIGH PERFORMANCE CASED / CLOSET BASIC BOTTOM RETURN / CV-B

The Cased Vertical Basic (CV-B) is a high performance, high static (up to .70 ESP), ducted vertical fan coil with a bottom return. Primarily used in floor mounted or hideaway applications, the CV-B is furred into partition walls, hidden closets, or utility rooms with a ducted discharge. A removable front access panel facilitates easy servicing. The CV-B comes with a coil, easy slide out blower/motor assembly with quick connect plug and a galvanized steel, powder coated epoxy drain pan covered with  $\frac{1}{8}$ " thick insulation. The galvanized steel cabinet is insulated with  $\frac{1}{2}$ " thick, over three pound density, neoprene coated fiberglass. A one inch duct flange is standard on the top panel.

*Front Return Basic (CV-K) and Front Return Deluxe (CV-J) also available. Customized drawings available upon request.*



## HIGH PERFORMANCE CASED / CLOSET BOTTOM RETURN DELUXE PAINTED CABINET / CV-D

The Cased Vertical Deluxe (CV-D) is a high performance, high-static (up to .70 ESP), ducted vertical fan coil with a bottom return. Primarily use in floor mounted exposed applications the cabinet is finished in a soft white powder coated epoxy. A removable front access panel facilitates easy servicing. The CV-D comes with a coil, easy slide out blower/motor assembly with quick connect plug and a galvanized steel, powder coated epoxy drain pan covered with  $\frac{1}{8}$ " thick insulation. The cabinet is insulated with  $\frac{1}{2}$ " thick, over three pound density, neoprene coated fiberglass. A one inch duct flange is standard on the top panel.

*Front Return Basic (CV-K) and Front Return Deluxe (CV-J) also available. Customized drawings available upon request.*



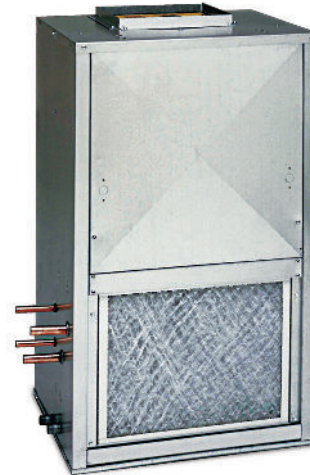
# HIGH PERFORMANCE CASED VERTICAL MODELS - CV SERIES

400 - 2,200 CFM

## HIGH PERFORMANCE CASED / CLOSET FRONT RETURN / CV-F

The Cased Vertical Front Return (CV-F) is a high performance, high static (up to .70ESP), ducted vertical fan coil for installation in a closet type enclosure. A removable front access panel facilitates easy servicing. The CV-F comes with a coil, easy slide out blower/motor assembly with quick-connect plug and a galvanized steel, powder coated epoxy drain pan covered with 1/8" thick insulation. The galvanized steel cabinet is insulated with 1/2" thick, over three pound density, neoprene coated fiberglass. A one inch duct flange is standard on the top panel.

*Rear Return/Bottom Supply (CV-G) and Rear Return/Bottom Supply Deluxe (CV-Q) also available. Customized drawings available upon request.*



## HIGH PERFORMANCE CASED CLOSET FRONT RETURN PAINTED CABINET / CV-R

The Cased Vertical Front Return (CV-R) is a high performance, high static (up to .70ESP), ducted vertical fan coil for installation in a closet type enclosure. A removable front access panel facilitates easy servicing. The CV-R comes with a coil, easy slide-out blower/motor assembly with quick connect plug and a galvanized steel, powder coated epoxy drain pan covered with 1/8" thick insulation. The galvanized steel cabinet has a front access panel finished in a soft white powder-coat epoxy and insulated with 1/2" thick, over three pound density, neoprene coated fiberglass. A one-inch duct flange is standard on the top panel.



## HIGH-PERFORMANCE CASED / CLOSET REAR-RETURN / CV-G

The Cased/Closet Vertical Bottom Supply with Rear Return (CV-G) is a high performance, high static (up to .70 ESP), ducted vertical fan coil. Primarily used in floor-mounted or hideaway applications, the CV-G is furred into partition walls, hidden closets, or utility rooms with a ducted discharge. A removable access panel facilitate easy servicing. The CV-G comes with a coil, easy slide out blower/motor assembly with quick-connect plug and a galvanized steel, powder coated epoxy drain pan



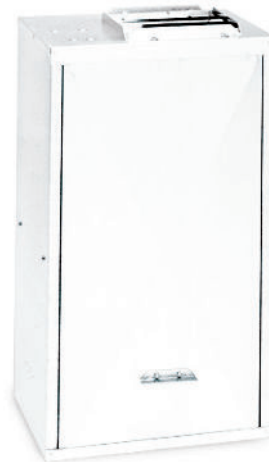
covered with 1/8" thick insulation. The galvanized steel cabinet is insulated with 1/2" thick, over three pound density, neoprene coated fiberglass. A one inch duct flange on return and supply air openings is standard.

### **HIGH-PERFORMANCE CASED / CLOSET REAR RETURN / CV-Q**

The Cased Vertical Bottom Supply with Rear Return (CV-Q) is a high performance, high static (up to .70 ESP), ducted vertical fan coil. Primarily used in floor mounted or hideaway applications, the CV-Q is furred into partition walls, hidden closets, or utility rooms with a ducted discharge. A removable access panel facilitate easy servicing. The CV-Q comes with a coil, easy slide out blower/motor assembly with quick connect plug and a galvanized steel, powder coated epoxy drain pan covered with 1/8" thick insulation. The galvanized steel cabinet is insulated with 1/2" thick, over three pound density, neoprene coated fiberglass. A one inch duct flange on return and supply air openings is standard. *(This is a custom designed fan coil, certified dimensional drawings provided upon request.)*

### **HIGH PERFORMANCE CASED / CLOSET HEAT ONLY PAINTED CABINET / CV-O**

The Cased Vertical (CV-O) is a Heat Only model. It is a high performance, high-static (up to .70 ESP) ducted vertical fan coil for installation virtually anywhere. The front panel is removable for easy filter removal and service access to the slide out blower, equipped with a quick connect plug. The top discharge opening has a one inch duct collar. This heat only version does not need a drain pan and may be installed horizontally. The CV-O is finished in a soft white powder coated epoxy.

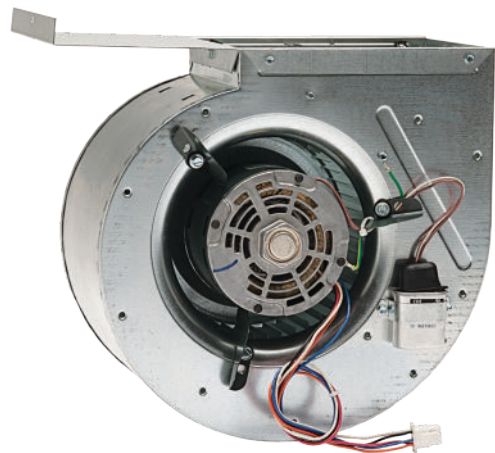


# STANDARD FEATURES

- Heavy gauge galvanized steel cabinet with neoprene coated 1/2" thick fiberglass insulation with 1.5 PCF density. Confirm New Insulation
- Coils are made of 1/2" OD copper tube with aluminum fins (12 FPI) equipped with manual air vent. DX and steam coils do not include manual air vent. Coils are 100% underwater pressure tested at 350 PSI with a 300 PSI working pressure.
- Galvanized drain pan is powder coated epoxy and subjected to a 650 hour salt spray test in accordance with ASTM-B117. Also comes with 1/8" thick closed cell insulation and primary and secondary drain connections.
- Three-speed, 115/1/60 PSC motor with quick connect plug.
- Easy slideout draw-through blower and motor assembly



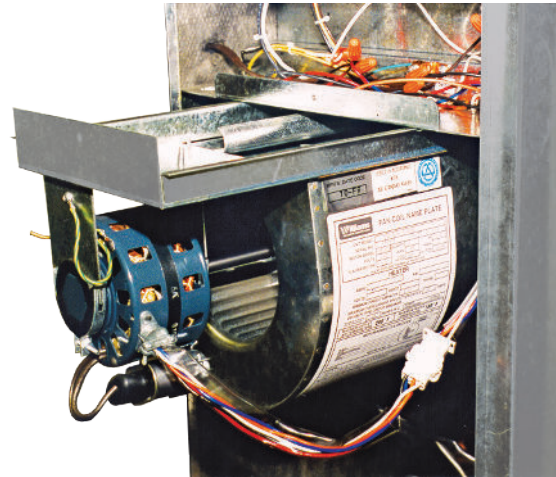
- Controls and motors are factory wired and terminated in a junction box for single point power supply.
- One inch, reinforced duct collar on supply air openings.
- One inch fiberglass, throwaway filter.
- Protective cardboard covers openings during shipment and construction.
- Individually tagged, crated and shipped as scheduled for installation.
- ETL approved, AHRI certified.
- 100% factory tested.





# OPTIONS

- Soft white, powder coated epoxy cabinet that's subjected to a 1500 hour salt spray test in accordance with ASTM-B117.
- Drain Pans - stainless steel.
- Insulation foil face, elastomeric and double wall separate foam insulation.
- Coils - custom tubes, phenolic coated, stainless steel end plates. All options are available on one to six rows. Copper coils, copper fins.
- Three speed, 208-230/1/50-60 or 277/1/60 PSC motor with quick-connect plug.
- Systems - two or four pipe, hydronic cooling/heating, steam, direct expansion (DX) and/or electric heat. Steam heat.
- Cabinet - Deluxe
- ECM™ motors; programmed 3 speed, or variable volume, 120-240/1/60 or 277/1/60.
- Controls - wide selection of factory mounted valves and controls.
- Filters - two inch thick throwaway, washable, metallic and pleated.
- Flow control circulator for water heating custom applications.
- Grilles eliminate the need for closet doors, available in custom colors.
- Electric Strip Heat from 1 to 9 kW.
- Flow-Control pump for water heating applications.
- Ultraviolet lights.



# AHRI CERTIFIED COOLING CAPACITY

Williams High Performance Cased Vertical Fan Coils are labeled and approved by the Air Conditioning, Heating & Refrigeration Institute (AHRI). This designation signifies that Williams High Performance Cased Vertical Fan Coil units have been rated as follows in accordance with the latest edition of ANSI/AHRI 440 with Addendum 1 Performance Rating of Room Fan Coils and subject to rating accuracy by AHRI sponsored, independent, third-party testing.



AHRI APPROVED STANDARD RATINGS						COOLING CAPACITY	
MODEL SIZE	MODEL TYPE	CABINET STYLE	RATED CFM	GPM	WPD (FT/H2O)	TOTAL COOLING (BTUH)	SENSIBLE COOLING (BTUH)
004	CV SERIES (STANDARD)	B,D	525	4.0	4.4	19,955	14,531
		F,R					
		G,Q	760	5.3	5.7	26,504	20,095
006	CV SERIES (STANDARD)	B,D	610	4.6	5.1	22,808	16,734
		F,R	750	4.8	4.4	28,857	18,943
		G,Q	830	5.7	6.2	28,381	21,726
	CV SERIES (EC)	B,D,F,R,G,Q	600	4.0	3.6	20,068	15,532
008	CV SERIES (STANDARD)	B,D	780	4.5	3.7	18,540	22,576
		F,R	965	5.2	4.4	26,047	22,048
		G,Q	770	4.5	3.6	22,393	18,349
	CV SERIES (EC)	B,D,F,R,G,Q	800	4.6	3.7	22,934	18,917
010	CV SERIES (STANDARD)	B,D	930	5.2	5.0	25,791	21,206
		F,R	1,100	5.8	6.0	29,251	24,380
		G,Q	1,100	6.3	7.3	31,442	25,414
	CV SERIES (EC)	B,D,F,R,G,Q	1,000	5.4	5.3	26,852	22,353
012	CV SERIES (STANDARD)	B,D	1,135	5.6	5.7	28,192	24,015
		F,R	1,350	7.1	4.9	35,675	29,762
		G,Q	1,290	6.7	3.0	33,697	28,006
	CV SERIES (EC)	B,D,F,R,G,Q	1,200	5.8	5.9	28,890	24,841
015	CV SERIES (STANDARD)	B,D	1,625	11.6	7.4	57,72	43,328
		F,R	1,594	11.1	6.5	55,301	41,961
		G,Q	1,602	10.6	5.9	52,964	41,139
	CV SERIES (EC)	B,D,F,R,G,Q	1,500	10.9	7.0	54,499	40,467
018	CV SERIES (STANDARD)	B,D	1,898	13.9	7.0	69,375	51,368
		F,R	1,868	12.4	5.5	62,153	48,137
		G,Q	1,849	11.7	4.9	58,627	46,517
	CV SERIES (EC)	B,D,F,R,G,Q	1,800	13.3	6.8	66,623	49,049
022	CV SERIES (STANDARD)	B,D	2,075	14.8	7.4	74,048	55,435
		F,R	2,038	14.4	6.8	71,758	54,064
		G,Q	2,088	14.9	7.4	74,378	55,728
	CV SERIES (EC)	B,D,F,R,G,Q	2,200	15.4	7.6	77,136	58,220

- Notes:** 1) Based on 80°F DB and 67°F WB EAT, 45°F EWT, 10°F temperature rise, high fan speed. Motor voltage 115/1/60 power source. Air flow under dry coil conditions. Water pressure drops shown in feet of water. All units are listed under UL Category Control No. LZFE.  
 2) Ratings are based on actual CFM. Standard coils for 004 is 3 rows and 006-022 is 4 rows.  
 3) Legend - B = Basic; D = Deluxe; F = Front return; R = Front return deluxe; G = Rear return and bottom supply; Q = Rear return and bottom supply deluxe.

# HEATING PERFORMANCE

AHRI APPROVED STANDARD RATINGS						HEATING CAPACITY
MODEL SIZE	MODEL TYPE	CABINET STYLE	RATED CFM	GPM	WPD (FT/H2O)	TOTAL HEATING (BTUH)
004	CV SERIES (STANDARD)	B,D	529	5.9	4.3	
		F,R				
		G,Q	760	7.6	0.9	67,637
006	CV SERIES (STANDARD)	B,D	610	6.7	5	67,480
		F,R	759	7.7	4.7	77,217
		G,Q	830	8.1	0.9	81,684
	CV SERIES (EC)	B,D,F,R,G,Q	600	6.6	4.9	66,452
008	CV SERIES (STANDARD)	B,D	780	7.4	4.5	74,375
		F,R	965	8.7	5.5	86,778
		G,Q	890	7.2	0.5	72,879
	CV SERIES (EC)	B,D,F,R,G,Q	800	7.6	4.6	75,756
010	CV SERIES (STANDARD)	B,D	930	8.3	6.1	85,530
		F,R	1,100	9.4	7.2	93,764
		G,Q	1,100	9.3	1	93,680
	CV SERIES (EC)	B,D,F,R,G,Q	1,000	8.7	6.5	87,569
012	CV SERIES (STANDARD)	B,D	1,135	9.3	7	92,883
		F,R	1,333	11.5	5.9	115,486
		G,Q	1,290	10.1	1.2	101,445
	CV SERIES (EC)	B,D,F,R,G,Q	1,200	9.5	7.3	95,485
015	CV SERIES (STANDARD)	B,D	1,625	17.5	6.4	174,947
		F,R	1,616	17.2	5.8	172,492
		G,Q	1,602	16.8	5.4	168,559
	CV SERIES (EC)	B,D,F,R,G,Q	1,500	16.3	6.1	163,347
018	CV SERIES (STANDARD)	B,D	1,898	20.8	9.1	208,270
		F,R	1,868	20	7.5	199,916
		G,Q	1,864	19.6	6.9	196,418
	CV SERIES (EC)	B,D,F,R,G,Q	1,800	19.9	8.8	198,688
022	CV SERIES (STANDARD)	B,D	2,075	22.5	9.7	224,920
		F,R	2,075	22.4	9.2	223,693
		G,Q	2,088	22.6	9.7	226,109
	CV SERIES (EC)	B,D,F,R,G,Q	2,200	23.4	6.7	234,493

**Notes:** Based on 70°F DB EAT, 180°F EWT, 40°F temperature drop, high fan speed. Motor voltage 115/1/60 power source. Air flow under dry coil conditions. Water pressure drops shown in feet of water.

# COIL DATA

Coils are made from ½" O.D. copper tubing with .016" wall thickness, and tubes are staggered for maximum heat transfer. A manual air vent is standard on all hydronic coils. DX and steam coils do not include manual air vent. All coils are 100% underwater pressure tested to 350 PSIG with a 300 PSIG working pressure. Steam coils are rated for up to 15 PSIG or 250°F.

Coils are available in one to eight row configurations for CV Series units. All units available with any combination of chilled or hot water, steam or direct expansion. Custom circuiting is available.

## VERTICAL (CV SERIES)

COIL ROW	003	004	006	008	010	012	015	018	022
Single-Row Coil									
Two-Row Coil					OPTIONAL				
Three-Row Coil									
Four-Row Coil									
Five-Row Coil									
Six-Row Coil					STANDARD				
Seven-Row Coil									
*Eight-Row Coil									

\* Seven-row coil maximum when selecting a DX coil with a hot water coil.

### COIL OPTIONS:

- DX – Includes distributor and nozzle, TXV must be field furnished and installed
- Steam – 1-15 PSIG
- Preheat Coil Position – Standard coil is reheat position
- Phenolic Anti-Corrosion Coating (PAC) custom.
- 10-15 Fins Per Inch (Standard is 12 FPI)

Coil connections on the chilled water side for CV004-006 is ½" and ¾" on CV008-022. The hot water connection is ½" on the CV004-022.

# ELECTRIC HEAT

## VERTICAL (CV SERIES)

MODEL / SIZE	kW	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5	9.0
	VOLTAGE	AMPS																
004	115	8.7	13.0	17.4	21.7	26.1												
	208	4.8	7.2	9.6	12.0	14.4	16.8	19.2										
	230	4.4	6.5	8.7	10.9	13.0	15.2	17.4										
	277	3.6	5.4	7.2	9.0	10.8	12.6	14.4										
006	115	8.7	13.0	17.4	21.7	26.1												
	208	4.8	7.2	9.6	12.0	14.4	16.8	19.2	21.6	24.0								
	230	4.4	6.5	8.7	10.9	13.0	15.2	17.4	19.6	21.7								
	277	3.6	5.4	7.2	9.0	10.8	12.6	14.4	16.3	18.1								
008	115	8.7	13.0	17.4	21.7	26.1												
	208	4.8	7.2	9.6	12.0	14.4	16.8	19.2	21.6	24.0								
	230	4.4	6.5	8.7	10.9	13.0	15.2	17.4	19.6	21.7								
	277	3.6	5.4	7.2	9.0	10.8	12.6	14.4	16.3	18.1								
010	115	8.7	13.0	17.4	21.7	26.1												
	208	4.8	7.2	9.6	12.0	14.4	16.8	19.2	21.6	24.0	26.4	28.9	31.3	33.7	36.1	38.5		
	230	4.4	6.5	8.7	10.9	13.0	15.2	17.4	19.6	21.7	23.9	26.1	28.3	30.4	32.6	34.8		
	277	3.6	5.4	7.2	9.0	10.8	12.6	14.4	16.3	18.1	19.9	21.7	23.5	25.3	27.1	28.9		
012	115	8.7	13.0	17.4	21.7	26.1												
	208	4.8	7.2	9.6	12.0	14.4	16.8	19.2	21.6	24.0	26.4	28.9	31.3	33.7	36.1	38.5	40.9	43.3
	230	4.4	6.5	8.7	10.9	13.0	15.2	17.4	19.6	21.7	23.9	26.1	28.3	30.4	32.6	34.8	37.0	39.1
	277	3.6	5.4	7.2	9.0	10.8	12.6	14.4	16.3	18.1	19.9	21.7	23.5	25.3	27.1	28.9	30.7	32.5
015	115	8.7	13.0	17.4	21.7	26.1												
	208	4.8	7.2	9.6	12.0	14.4	16.8	19.2	21.6	24.0	26.4	28.9	31.3	33.7	36.1	38.5	40.9	43.3
	230	4.4	6.5	8.7	10.9	13.0	15.2	17.4	19.6	21.7	23.9	26.1	28.3	30.4	32.6	34.8	37.0	39.1
	277	3.6	5.4	7.2	9.0	10.8	12.6	14.4	16.3	18.1	19.9	21.7	23.5	25.3	27.1	28.9	30.7	32.5
018	115	8.7	13.0	17.4	21.7	26.1												
	208	4.8	7.2	9.6	12.0	14.4	16.8	19.2	21.6	24.0	26.4	28.9	31.3	33.7	36.1	38.5	40.9	43.3
	230	4.4	6.5	8.7	10.9	13.0	15.2	17.4	19.6	21.7	23.9	26.1	28.3	30.4	32.6	34.8	37.0	39.1
	277	3.6	5.4	7.2	9.0	10.8	12.6	14.4	16.3	18.1	19.9	21.7	23.5	25.3	27.1	28.9	30.7	32.5
022	115	8.7	13.0	17.4	21.7	26.1												
	208	4.8	7.2	9.6	12.0	14.4	16.8	19.2	21.6	24.0	26.4	28.9	31.3	33.7	36.1	38.5	40.9	43.3
	230	4.4	6.5	8.7	10.9	13.0	15.2	17.4	19.6	21.7	23.9	26.1	28.3	30.4	32.6	34.8	37.0	39.1
	277	3.6	5.4	7.2	9.0	10.8	12.6	14.4	16.3	18.1	19.9	21.7	23.5	25.3	27.1	28.9	30.7	32.5

# AIR FLOW DATA

## VERTICAL (CV SERIES)

AIR FLOW DATA		EXTERNAL STATIC PRESSURE																	
MODEL SIZE	CABINET STYLE	0.00			0.05			0.10			0.15			0.20			0.25		
		HI	MED	LOW	HI	MED	LOW	HI	MED	LOW	HI	MED	LOW	HI	MED	LOW	HI	MED	LOW
004 (Standard)	B,D	525	430	355	515	420	340	505	405	325	495	395	310	485	385	295	480	375	280
	F,R	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	G,Q	745	660	530	730	630	500	700	605	470	675	580	445	645	560	420	625	540	395
006 (Standard)	B,D	610	480	375	595	465	355	575	450	335	560	453	310	545	420	290	530	405	270
	F,R	750	640	555	730	625	540	710	605	525	685	590	505	665	570	490	640	555	475
	G,Q	839	760	660	795	730	630	765	700	605	735	675	580	705	645	560	675	625	540
006 (ECM)	B,D,F,R,G,Q	600	450	300	600	450	300	600	450	300	600	450	300	600	450	300	600	450	300
008 (Standard)	B,D	780	605	510	760	595	495	740	580	480	720	565	470	700	555	455	680	540	440
	F,R	975	855	670	955	835	655	930	810	640	905	790	630	880	765	615	855	745	600
	G,Q	890	780	660	870	770	640	845	755	615	820	740	595	795	725	575	775	705	560
008 (ECM)	B,D,F,R,G,Q	800	600	400	800	600	400	800	600	400	800	600	400	800	600	400	800	600	400
010 (Standard)	B,D	930	705	545	905	690	535	885	675	520	860	665	510	840	650	500	815	635	485
	F,R	1,100	965	790	1,060	935	765	1,025	905	745	990	875	725	955	845	700	920	815	680
	G,Q	1,100	965	785	1,060	935	755	1,025	905	725	990	870	695	955	845	665	920	815	635
010 (ECM)	B,D,F,R,G,Q	1,000	750	500	1,000	750	500	1,000	750	500	1,000	750	500	1,000	750	500	1,000	750	500
012 (Standard)	B,D	1,135	930	705	1,100	905	690	1,070	885	675	1,040	860	665	1,010	840	650	980	815	635
	F,R	1,350	1,115	630	1,315	1,100	625	1,280	1,080	615	1,240	1,060	610	1,205	1,045	600	1,165	1,025	590
	G,Q	1,290	1,100	965	1,255	1,065	935	1,220	1,030	905	1,085	995	875	1,150	960	845	1,115	925	815
012 (ECM)	B,D,F,R,G,Q	1,200	900	600	1,200	900	600	1,200	900	600	1,200	900	600	1,200	900	600	1,200	900	600
015 (Standard)	B,D	1,625	1,335	1,150	1,580	1,305	1,120	1,540	1,280	1,095	1,495	1,250	1,065	1,455	1,220	1,040	1,410	1,195	1,010
	F,R	1,625	1,335	1,150	1,580	1,305	1,120	1,540	1,280	1,095	1,495	1,250	1,065	1,455	1,220	1,040	1,410	1,195	1,010
	G,Q	1,610	1,325	1,140	1,570	1,295	1,105	1,530	1,260	1,075	1,495	1,230	1,045	1,460	1,200	1,015	1,460	1,200	1,015
015 (ECM)	B,D,F,R,G,Q	1,500	1,125	750	1,500	1,125	750	1,500	1,125	750	1,500	1,125	750	1,500	1,125	750	1,500	1,125	750
018 (Standard)	B,D	1,910	1,760	1,530	1,850	1,705	1,480	1,790	1,650	1,430	1,730	1,590	1,375	1,670	1,535	1,325	1,615	1,480	1,275
	F,R	1,910	1,760	1,530	1,850	1,705	1,480	1,790	1,650	1,430	1,730	1,590	1,375	1,670	1,535	1,325	1,615	1,480	1,275
	G,Q	1,870	1,610	1,330	1,840	1,295	1,570	1,810	1,535	1,265	1,775	1,495	1,235	1,745	1,460	1,205	1,715	1,430	1,175
018 (ECM)	B,D,F,R,G,Q	1,800	1,350	900	1,800	1,350	900	1,800	1,350	900	1,800	1,350	900	1,800	1,350	900	1,800	1,350	900
022 (Standard)	B,D	2,090	1,985	1,410	2,015	1,915	1,370	1,945	1,845	1,330	1,870	1,775	1,290	1,800	1,700	1,250	1,725	1,630	1,210
	F,R	2,090	1,985	1,410	2,015	1,915	1,370	1,945	1,845	1,330	1,870	1,775	1,290	1,800	1,700	1,250	1,725	1,630	1,210
	G,Q	2,100	1,985	1,810	2,040	1,945	1,775	1,985	1,910	1,735	1,935	1,870	1,700	1,885	1,835	1,660	1,835	1,795	1,620
022 (ECM)	B,D,F,R,G,Q	2,200	1,650	1,100	2,200	1,650	1,100	2,200	1,650	1,100	2,200	1,650	1,100	2,200	1,650	1,100	2,200	1,650	1,100

**Notes:** Ratings and capacity tables based on nominal CFM.

# MOTOR DATA

Motors are wired to a junction box ready for single-point field connection.

## OUTSTANDING MOTOR FEATURES:

- Quick connect plug
- Permanent split capacitor
- Thermal overload protection
- 1050 RPM for lower operating costs
- Oversized bearings and permanently lubricated and sealed
- 122°F maximum operating temperature
- Custom motor mounts designed to reduce noise and eliminate vibration
- Stators are epoxy dipped for more efficient motor cooling

## OPTIONAL MOTORS:

- 208V-1Ø-60 motors
- 277V-1Ø-60 motors
- 230/220V-1Ø-60 motors
- 50-Hz motors in specified voltages

60 HERTZ SINGLE-PHASE MOTORS (1100 RPM)				3.6 VOLTAGE / WATTS							
				115V		208V		230V		277V	
SIZE	MODEL / MOTOR TYPE	HP (QTY)	BLOWERS	AMPS	WATTS	AMPS	WATTS	AMPS	WATTS	AMPS	WATTS
004	CV basic/deluxe (std)	1/10 (1)	1	1.5	175	0.80	175	0.7	175	0.5	175
	CV front return (std)	1/10 (1)	1	1.4	228	0.70	228	0.6	228	0.5	228
006	CV basic/deluxe (std)	1/10 (1)	1	1.6	181	0.90	181	0.8	181	0.8	181
	CV front return (std)	1/6 (1)	1	2.3	260	1.20	260	1.1	260	0.8	260
008	CV basic/deluxe (std)	1/6 (1)	1	2.2	316	1.10	316	1.0	316	1.3	316
	CV front return (std)	1/4 (1)	1	3.2	360	1.60	360	1.5	360	1.2	360
010	CV basic/deluxe (std)	1/6 (1)	1	2.4	356	1.20	356	1.1	356	1.5	356
	CV front return (std)	1/4 (1)	1	3.3	383	1.80	383	1.6	383	1.3	383
012	CV basic/deluxe (std)	1/4 (1)	1	3.2	413	1.70	413	1.5	412	1.7	413
	CV front return (std)	1/3 (1)	1	4.5	540	2.60	540	2.4	540	1.8	540
015*	CV basic/deluxe (std)	1/6 (2)	2	4.6	547	2.30	547	3.1	547	1.6	547
	CV front return (std)	1/6 (2)	2	4.6	553	2.40	553	2.2	553	1.6	553
018*	CV basic/deluxe (std)	1/4 (2)	2	6.4	644	3.30	644	3.0	644	2.4	644
	CV front return (std)	1/4 (2)	2	6.4	654	3.30	654	3.0	654	2.5	654
022*	CV basic/deluxe (std)	1/3 (2)	2	9.0	793	5.30	793	4.8	793	3.6	793
	CV front return (std)	1/3 (2)	2	9.0	798	5.30	798	4.8	798	3.6	798

\* Data reflects combined performance of (2) motors for both Horizontal and Vertical units. Notes: Motor full load amps listed refer to NEC amps. Actual motor nameplate amps may vary.

# SOUND DATA

## VERTICAL (CV SERIES)

SIZE	MODEL	FAN SPEED	OCTAVE BAND						
			2	3	4	5	6	7	8
			CENTER FREQUENCY (CPS)						
			125	250	500	1000	2000	4000	8000
004	CV series basic / deluxe	high	58.1	51.8	48.6	44.5	36.3	32.5	30.8
		medium	54.5	39.5	38.1	33.6	27.3	24.3	26.3
		low	49.6	38.5	37.2	32.1	26.1	22.7	24.6
006	CV series basic / deluxe	high	59.2	50.1	49.1	43.2	38.1	34.7	35.1
		medium	56.3	47.3	44.6	38.8	33.4	32.0	33.4
		low	50.9	45.5	41.2	35.6	30.7	27.3	26.1
	CV series front return	high	59.2	52.1	51.6	46.4	41.4	36.0	33.6
		medium	53.6	49.3	47.7	41.2	35.5	33.8	26.0
		low	51.8	47.1	44.3	36.4	34.2	31.5	24.4
008	CV series basic / deluxe	high	62.1	56.6	53.3	48.3	44.2	40.8	36.5
		medium	56.6	48.2	45.7	41.6	38.2	32.9	29.7
		low	51.8	44.6	39.6	36.2	33.8	27.8	34.4
	CV series front return	high	60.1	57.0	55.7	52.0	49.7	45.0	37.0
		medium	56.7	52.3	47.0	45.4	41.2	34.2	27.8
		low	53.4	46.5	43.7	42.2	39.6	32.7	25.4
010	CV series basic / deluxe	high	63.2	56.9	57.3	53.1	47.3	41.8	39.8
		medium	58.1	51.7	58.3	48.3	42.4	37.2	31.7
		low	55.5	46.9	46.1	41.4	35.8	32.3	29.1
	CV series front return	high	61.5	59.8	57.2	56.0	52.1	47.1	39.1
		medium	57.2	54.1	52.2	49.3	42.1	38.9	27.3
		low	54.1	48.6	45.8	44.5	39.7	36.7	26.1
012	CV series basic / deluxe	high	65.3	61.4	60.1	56.5	49.9	45.1	42.1
		medium	60.4	55.9	54.2	52.1	44.7	41.1	35.4
		low	56.3	51.7	46.8	44.3	36.9	35.6	30.1
	CV series front return	high	62.5	61.3	59.8	57.8	54.7	47.6	40.8
		medium	58.8	57.2	54.1	50.3	44.1	38.6	28.7
		low	54.3	53.7	48.6	46.5	41.4	34.2	27.7
015	CV series front return	high	58.5	55.5	53.0	49.0	47.0	45.0	40.8
		medium	54.3	51.4	48.1	44.3	42.1	38.9	29.0
		low	51.0	48.4	45.4	41.2	38.7	35.4	26.8
018	CV series front return	high	61.0	57.5	55.5	51.5	50.0	47.0	42.4
		medium	56.2	53.3	52.1	49.5	46.4	42.0	32.1
		low	52.4	50.5	40.4	48.4	41.4	38.5	30.8
022	CV series front return	high	62.5	60.0	58.6	53.2	51.7	48.4	45.6
		medium	58.0	56.4	55.3	51.4	49.5	44.1	32.7
		low	53.1	51.5	50.4	47.4	45.4	41.8	31.9

- Notes:** 1) Power levels are in dB RE 10-12 watts.  
 2) Sound data tested in accordance with ASHRAE standard 68 and AHRI standard 260 and 350.  
 3) Air flow under dry coil conditions.



# WEIGHTS AND MEASUREMENTS

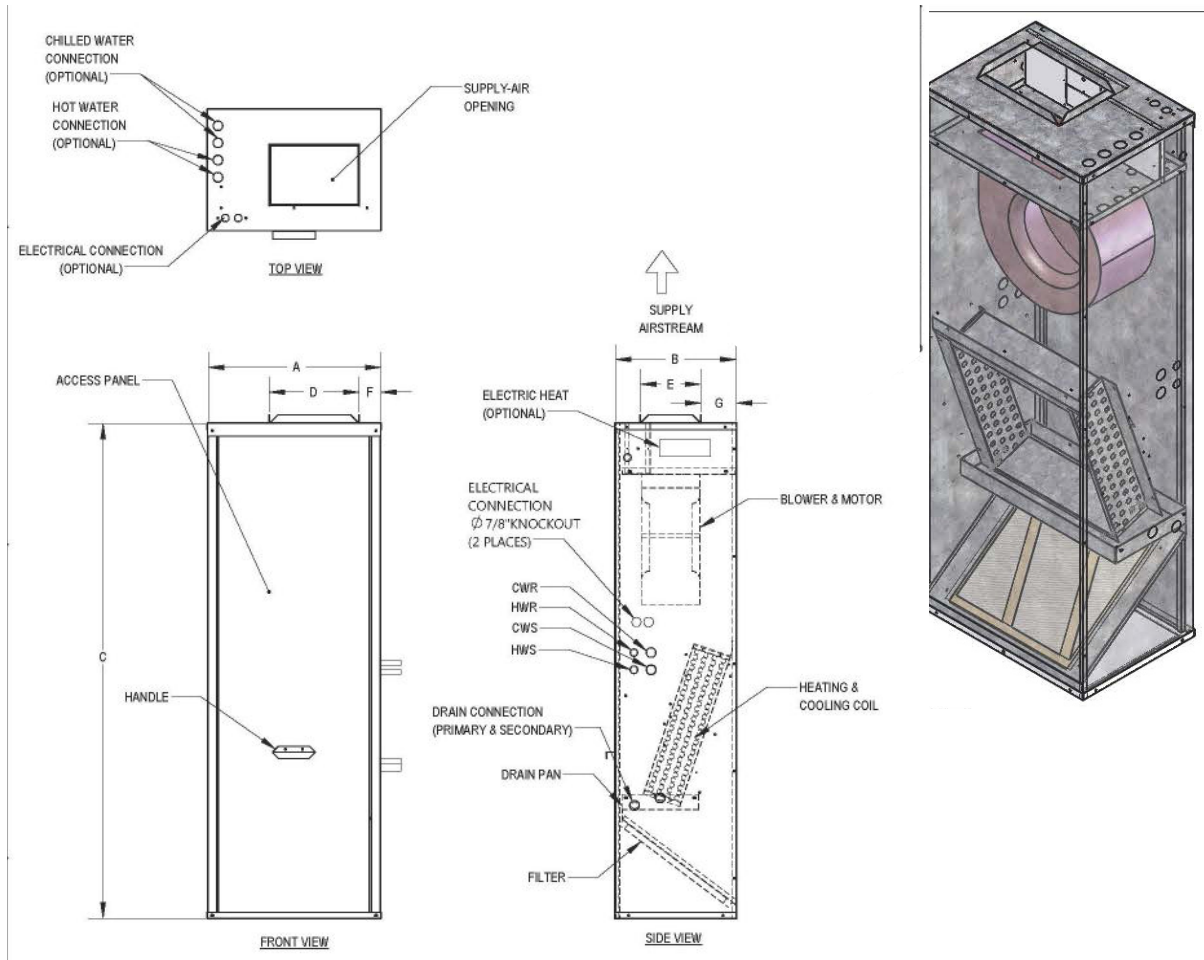
The following CV Series weights and measures are based on fan coil units only. Add approximately 20% for packaging and crating.

UNIT	MODEL	ROWS	DIMENSIONS / INCHES			WEIGHT / LBS.		DIMENSIONS / MILLIMETERS			WEIGHT / KG	
			HEIGHT	WIDTH	DEPTH	DRY	WET	HEIGHT	WIDTH	DEPTH	DRY	WET
CV SERIES BASIC / DELUXE	004	3	59	21	15	104	109	1,499	533	381	47	50
	004	4	59	21	15	109	116	1,499	533	381	49	53
	006	3	59	21	15	110	115	1,499	533	381	50	52
	006	4	59	21	15	116	122	1,499	533	381	52	55
	008	3	59	21	15	142	147	1,499	533	381	64	67
	008	4	59	21	15	147	154	1,499	533	381	67	70
	010	3	59	21	21	151	156	1,499	533	533	58	71
	010	4	59	21	21	156	163	1,499	533	533	71	74
	012	3	59	21	21	167	172	1,499	533	533	76	78
	012	4	59	21	21	172	179	1,499	533	533	78	81
	015	3	59	22	30	224	234	1,499	559	762	102	106
	015	4	59	22	30	230	243	1,499	559	762	104	110
	018	3	59	22	30	234	244	1,499	559	762	106	111
	018	4	59	22	30	240	253	1,499	559	762	109	115
	022	3	59	22	30	234	244	1,499	559	762	106	111
	022	4	59	22	30	240	253	1,499	559	762	109	115
CV SERIES FRONT RETURN	004	3	43	21	15	116	121	1,092	533	508	53	55
	004	4	43	21	15	121	128	1,092	533	508	55	58
	006	3	43	21	15	116	121	1,092	533	508	53	55
	006	4	43	21	15	121	128	1,092	533	508	55	58
	008	3	43	25	15	131	136	1,092	635	508	59	62
	008	4	43	25	15	136	142	1,092	635	508	62	65
	010	3	46	25	21	141	146	1,092	635	508	64	66
	010	4	46	25	21	146	153	1,168	635	508	66	70
	012	3	46	30	21	152	157	1,168	762	508	69	71
	012	4	46	30	21	157	164	1,168	762	508	71	75
	015	3	49	37	30	202	212	1,168	940	508	92	96
	015	4	49	37	30	208	221	1,245	940	508	94	100
	018	3	49	37	30	213	223	1,245	940	508	97	101
	018	4	49	37	30	219	232	1,245	940	508	99	105
	022	3	49	41	30	230	240	1,245	1041	508	104	109
	022	4	49	41	30	236	249	1,245	1041	508	107	113

# HIGH PERFORMANCE CASED VERTICAL

## CV-B/D CASED CLOSET BASIC BOTTOM RETURN

### 400 - 800 CFM



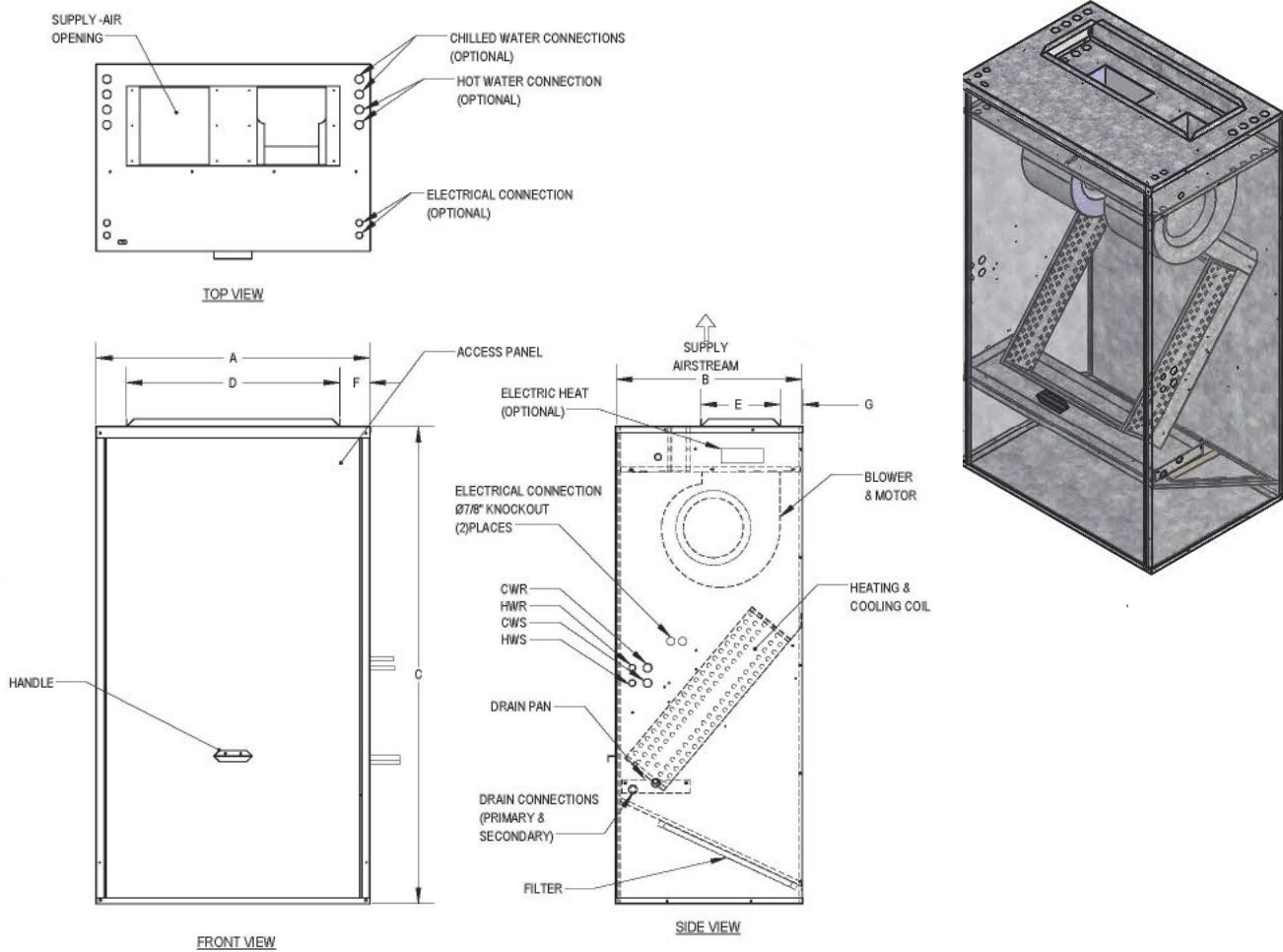
MODEL SIZE BASIC/DELUXE	A	B	C	D	E	F	G	BLOWER	FILTER SIZE
400	20-5/32	14-5/32	57-5/8	10-15/32	7-3/32	2-7/32	3-1/32	1	16 X 16 X 1
600	20-5/32	14-5/32	57-5/8	10-15/32	8-15/32	2-7/32	3-1/32	1	16 X 20 X 1
800	20-5/32	14-5/32	57-5/8	10-15/32	9-13/32	2-7/32	3-1/32	1	20 X 20 X 1

- Right hand unit shown, left hand unit opposite.
- Coil connections determined by facing the front access panel.
- Electrical junction box is located on the same side as the coil connections.
- Unit must be installed level and condensate drain lines should be trapped.
- Drain pan is powder coated epoxy with a 1/8" thick closed-cell insulation and has 3/4" NPT, primary and secondary drain connections.
- Entire cabinet, scroll and blower wheel are heavy gauge, galvanized steel.
- Coil connections: 1/2" CW and HW on CV004-008.

# HIGH PERFORMANCE CASED VERTICAL

## CV-B/D CASED CLOSET BASIC BOTTOM RETURN

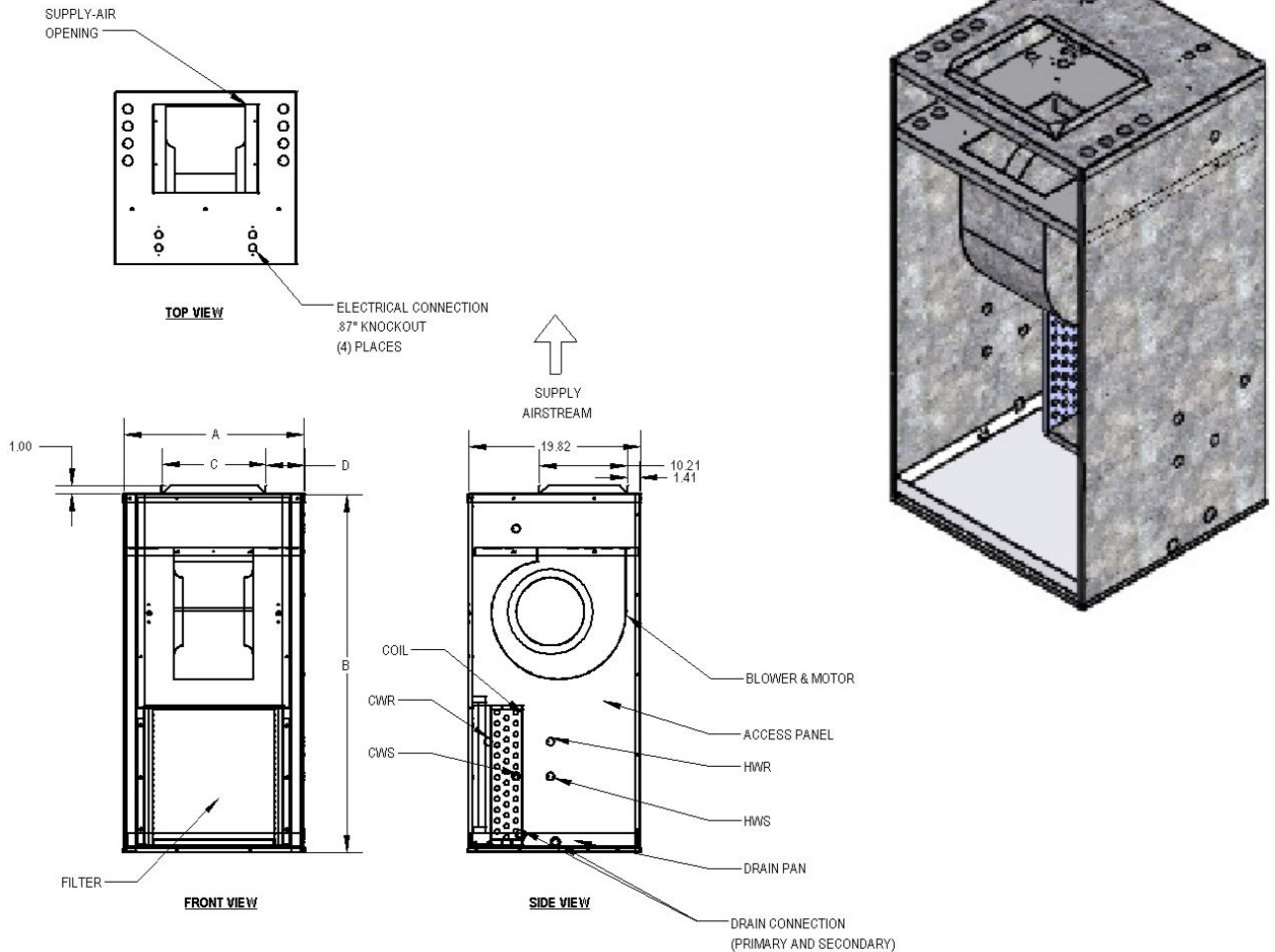
1,000 - 2,200 CFM



MODEL BASIC/DELUXE	A	B	C	D	E	F	G	BLOWER	FILTER SIZE
1000	20-11/32	20-5/16	57-5/8	10-3/8	11-15/16	2-1/8	3-1/16	1	20 x 20 x 1
1200	20-11/32	20-5/16	57-5/8	10-3/8	11-15/16	2-1/8	3-1/16	1	20 x 20 x 1
1500	36	24-5/8	62-3/4	24	10-1/2	3	3	2	30 x 24 x 1
1800	36	24-5/8	62-3/4	24	10-1/2	3	3	2	30 x 24 x 1
2200	36	24-5/8	62-3/4	24	10-1/2	3	3	2	30 x 24 x 1

- Right hand unit shown, left hand unit opposite.
- Coil connections determined by facing the front access panel.
- Electrical junction box is located on the same side as the coil connections.
- Unit must be installed level and condensate drain lines should be trapped.
- Drain pan is powder coated epoxy with a 1/8" thick closed-cell insulation and has 3/4" NPT, primary and secondary drain connections.
- Entire cabinet, scroll and blower wheel are heavy gauge, galvanized steel.
- Coil connections: 1/2" CW on CV010, 3/4" on CV012-022 and 1/2" HW on CV010-022.

# HIGH PERFORMANCE CASED VERTICAL CV-R/F FRONT RETURN / TOP SUPPLY 400 - 1,200 CFM



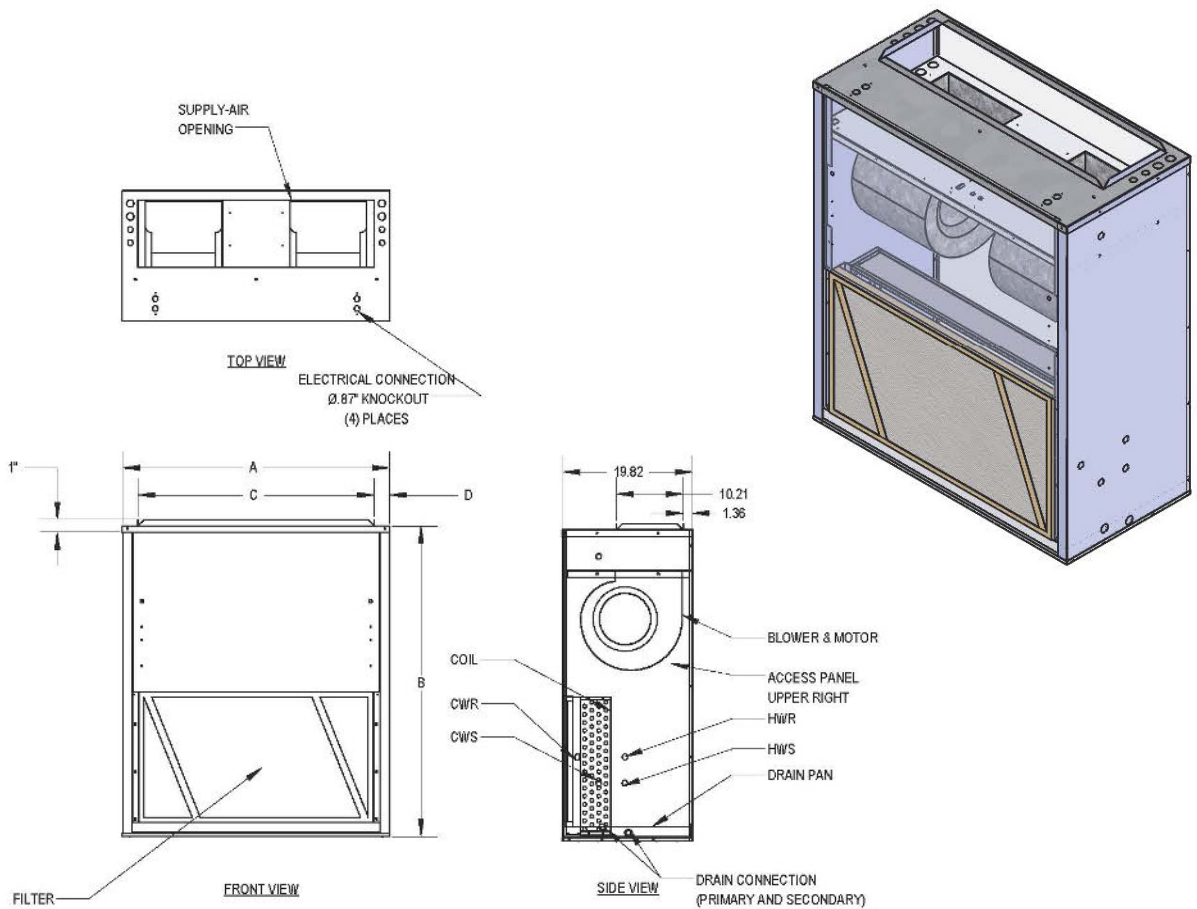
MODEL FRONT RETURN /TOP	A	B	C	D	BLOWER	FILTER SIZE
400	21	42	12.25	4.37	1	16 X 16 X 1
800	25	42	12.25	6.37	1	16 X 20 X 1
1000	25	45	12.25	6.37	1	20 X 20 X 1
1200	30	45	12.25	8.87	1	20 X 25 X 1

- All sizes shown in inches.
- Right hand unit shown, left hand unit opposite.
- Coil connections determined by facing the supply air opening.
- Electrical junction box is located on the same side as the coil connections.
- Unit must be installed level and condensate drain lines should be trapped.
- Drain pan is powder coated epoxy with a 1/8" thick closed cell insulation and has 3/4" NPT primary and secondary drain connections.
- Entire cabinet, scroll and blower wheel are heavy gauge, galvanized steel.
- Coil connections: 1/2" CW on CV004-008. 3/4" CW on CV010-012 and 1/2" HW on CV004-012

# HIGH PERFORMANCE CASED VERTICAL

R/F FRONT RETURN / TOP SUPPLY

1,500 - 2,200 CFM



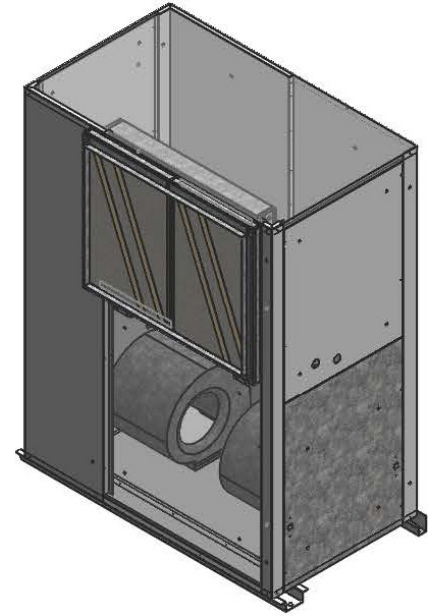
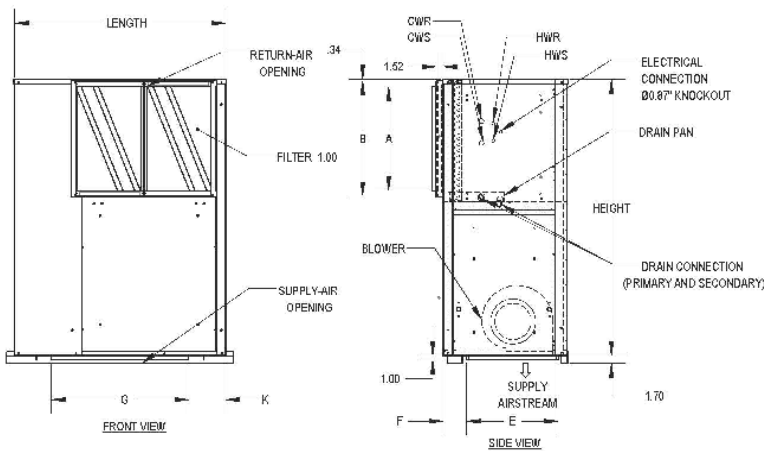
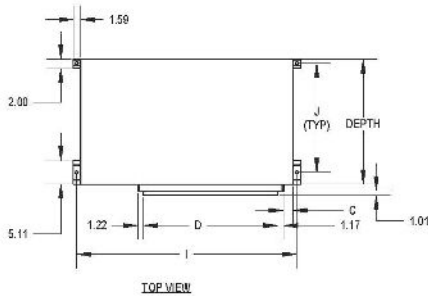
MODEL FRONT RETURN /TOP	A	B	C	D	BLOWER	FILTER SIZE
1500	37	48	25.25	5.87	1	25 X 25 X 1
1800	37	48	34.25	22.87	2	25 X 16 X 1
2200	41	48	36.25	2.37	2	25 X 16 X 1

- All sizes shown in inches.
- Right hand unit shown, left hand unit opposite.
- Coil connections determined by facing the supply air opening.
- Electrical junction box is located on the same side as the coil connections.
- Unit must be installed level and condensate drain lines should be trapped.
- Drain pan is powder coated epoxy with a 1/8" thick closed cell insulation and has 3/4" NPT primary and secondary drain connections.
- Entire cabinet, scroll and blower wheel are heavy gauge, galvanized steel.
- Coil connections: 1/2" CW on CV010, 3/4" on CV015-022 and 1/2" HW on CV015-022.

# HIGH PERFORMANCE CASED VERTICAL

## CV-G / CV-Q REAR RETURN / BOTTOM SUPPLY

400 - 3,000 CFM



UNIT SIZE	OVERALL			RETURN DUCT				SUPPLY DUCT			H	I	J	BLOWERS	FILTER SIZE
	LENGTH	HEIGHT	DEPTH	A	B	C	D	E	F	G					
400	24.06	46	27.3	17.5	20	1	13.65	14	11	20	26	23.8	2	1	16 X 16 X 1
600	24.06	46	27.3	17.5	20	1	13.65	14	11	20	26	23.8	2	1	16 X 16 X 1
800	30.06	46	27.3	17.5	20	1	13.65	14	11	20	26	23.8	2	1	16 X 20 X 1
1000	30.06	46	27.3	17.5	20	1	22.65	14	11	20	32	23.8	5	1	20 X 20 X 1
1200	30.06	46	27.3	17.5	20	1	22.65	14	11	20	32	23.8	5	1	20 X 25 X 1
1500	38.06	46	27.3	17.5	20	2	30	16	9	22	40	23.8	8	2	25 X 25 X 1
1800	38.06	54	27.3	17.5	20	2	30	18	7	24	40	23.8	7	2	25 X 16 X 1
2200	46.32	60	27.3	22.5	25	2	30	20	5	30	48	23.8	8	2	25 X 20 X 1
3000	46.32	60	27.3	22.5	25	2	30	20	5	30	48	23.8	8	2	25 X 20 X 1

- Right hand unit shown, left hand unit opposite.
- Coil connections determined by facing the return air.
- Unit must be installed level and condensate drain lines should be trapped.
- Drain pan is powder coated epoxy with a 1/4" thick closed cell insulation and has 3/4" NPT CVG/Q04-18, 1 5/16" NPT (CVG/Q22/30) primary and secondary drain connections.
- Entire cabinet, scroll and blower wheel are heavy gauge, galvanized steel.
- Coil connections: 1/2" CW on CV004-006 3/4" on CV008-030; 1/2" HW on CV004-030.

# GENERAL INFORMATION

Furnish and install Williams CV Series Vertical Direct Drive fan coil units as indicated on the plans and in the specifications. All units shall be completely factory assembled, tested and shipped as one working unit. All units shall be capable of meeting or exceeding the scheduled capacities for cooling, heating and air delivery. Dimensions for each model and size shall be considered maximums. Units shall be UL listed and also in compliance with UL/ANSI Standard 1995, and be certified as complying with the latest edition of AHRI Standard 440.

## CONSTRUCTION

All unit chassis shall be fabricated of heavy gauge galvanized steel panels able to meet 125 hour salt spray test per ASTM B-117. All exterior panels shall be insulated with 1/2" thick, 1.5 pound per cubic foot, dual density fiberglass insulation rated for a maximum air velocity of 3600 f.p.m. Insulation shall conform to UL 181 for erosion and NFPA 90A and 90B for flame spread (25) and smoke developed (50) rating per ASTM E-84 and UL 723 and CAN./ULC, S102-M88.

**OPTION:** Provide foil faced insulation in lieu of standard. Foil insulation shall meet or exceed the requirements stated above, and in addition, meet ASTM Standards C665 and C-1136 for biological growth in insulation. Insulation shall be lined with aluminum foil, fiberglass scrim reinforcement, and 30 pound kraft paper laminated together with a flame resistant adhesive. All exposed edges shall be sealed to prevent any fibers from reaching the air stream.

**OPTION:** Provide elastomeric closed cell foam insulation in lieu of standard. Insulation shall conform to UL 181 for erosion and NFPA 90A for fire, smoke and melting, and comply with a 25/50 flame spread and smoke developed Index per ASTM E-84 or UL 723. Additionally, insulation shall comply with antimicrobial performance rating of zero, no observed growth, per ASTM G21. Polyethylene insulation is not acceptable.

**OPTION:** For exposed units, provide double deflection discharge grille.

## PAINTED FINISH

All exposed cabinet exterior panels shall be provided with soft white powder coated epoxy finish and

subjected to a 1500 hour salt spray test in accordance with ASTM B117.

## SOUND

Units shall have published sound power level data tested in accordance with AHRI Standard 350-2000 (non-ducted equipment) and AHRI Standard 260-2001 (ducted equipment).

## FAN ASSEMBLY

Unit fan shall be a dynamically balanced, forwardly curved, DWDI centrifugal type constructed of heavy gauge zinc coated galvanized steel for corrosion resistance. Motors shall be high efficiency, permanently lubricated sleeve bearing, permanent split capacitor type with UL and C-UL listed automatic reset thermal overload protection and three separate horsepower taps. Single speed motors are not acceptable.

The fan assembly shall be easily removable for servicing the motor and blower at or away from the unit.

**OPTION:** Devices used to energize and deenergize (switch) fan speeds must be totally silent. Mercury and/or quiet relays and/or contractors are not acceptable.

## COILS

All cooling and heating coils shall optimize rows and fins per inch to meet the specified capacity. Coils shall have seamless copper tubes and shall be mechanically expanded to provide an efficient, permanent bond between the tube and fin. Fins shall have high efficiency aluminum surface optimized for heat transfer, air pressure drop and carryover.

All coils shall be hydrostatically tested at 350 PSIG air pressure under water, and rated for a maximum of 300 PSIG working pressure at 200°F maximum water temperature. Direct expansion cooling coils shall include a fixed orifice distributor and nozzle.

Steam coils shall be standard steam type suitable for temperatures above 35°F and 15 PSIG maximum working pressure.

# GENERAL INFORMATION

**OPTION:** Coil casing shall be fabricated from 304 stainless steel. All coils shall be provided with a manual air vent fitting to allow for coil venting.

**OPTION:** Provide automatic air vents in lieu of manual air vents.

Cooling and heating coils shall be in the common coil casing, heating coils shall be furnished in the re-heat or pre-heat position on the unit with chilled water coils, and DX heating coil shall be in pre-heat position only.

## DRAIN PANS

Condensate drain pans shall be single wall, heavy gauge, powder-coated epoxy subjected to a 650 hour salt spray test in accordance with ASTM B117, and shall extend under the entire cooling coil. Drain pans shall be of one piece construction and be positively sloped for condensate removal. Drain pans shall have primary and secondary drain connections.

The drain pan shall be externally insulated with a closed cell foam insulation. The insulation shall carry no more than a 25/50 Flame Spread and Smoke Developed Rating per ASTM E-84 and UL 723 and fungi resistant per ASTM G21/C1338, bacteria resistant per ASTM G22 and mold growth per UL 181.

**OPTION:** Provide a single wall primary drain pan constructed entirely of heavy gauge type 304 stainless steel for superior corrosion resistance. Stainless steel drain pans shall be externally insulated and meet or exceed the requirements stated above.

Provide a secondary drain connection on the primary drain pan for condensate overflow.

**OPTION:** Provide a condensate overflow switch in the primary drain pan for condensate overflow.

## FILTERS

All plenum and exposed units shall be furnished with a minimum 1" nominal glass fiber throwaway filter. Filters shall be tight fitting to prevent air by-pass. Plenum and exposed unit filters shall be easily removable from the bottom or rear of the unit without the need for tools.

**OPTION:** Provide unit with 2" pleated filters rated at 25-30% efficiency and MERV 8 & 13 based on ASHRAE

## 52.2 - 1999 Electrical (Option)

Units shall be furnished with single point power connection. Provide an electrical junction box with terminal strip for motor and other electrical terminations.

**OPTION:** The factory mounted terminal wiring strip consists of a multiple position screw terminal block to facilitate wiring terminations for the electric control valves and thermostats.

## ELECTRIC HEAT

Furnish an electric resistance heating assembly as an integral part of the fan coil unit, with the heating capacity, voltage and kilowatts scheduled. The heater assembly shall be designed and rated for installation on the fan coil unit without the use of duct extensions or transitions, and be located in the unit as to not expose the fan assembly to excessive leaving air temperatures that could affect motor performance.

The heater and unit assembly shall be listed for zero clearance and meet all NEC requirements, and be UL listed with the unit as an assembly in compliance with UL/ANSI Standard 1995.

All heating elements shall be open coil type Nichrome wire mounted in ceramic insulators and located in an insulated heavy gauge galvanized steel housing. All elements shall terminate in a machine staked stainless steel terminal secured with stainless steel hardware for corrosion resistance. The element support brackets shall be spaced no greater than 3-1/2" on center. All internal wiring shall be rated for 105°C minimum.

All heaters shall include over temperature protection consisting of an automatic reset primary thermal limit and back up secondary thermal limit. All heaters shall be single stage.

An incoming line power distribution block shall be provided and designated to accept single point power wiring capable of carrying 125% of the calculated load current.

**OPTION:** Devices used to energize and de-energize (switch) electric heat must be totally silent. Mercury and/or quiet relays and/or contactors are not acceptable.



## PIPING PACKAGES (OPTION)

Provide a factory assembled valve piping package to consist of a 2 or 3 way, on/off, motorized electric control valve and two ball isolation valves. Control valves are piped normally closed to the coil. Maximum entering water temperature on the control valve is 180°F, and maximum close-off pressure is 75 PSIG (1/2") or 50 PSIG (3/4"). Maximum operating pressure shall be 300 PSIG.

**OPTION:** Provide 3 wire floating point modulating control valve in lieu of standard 2 position control valve with factory assembled valve piping package.

**OPTION:** Provide either a fixed or adjustable flow control device for each piping package.

**OPTION:** Provide pressure temperature ports for each piping package.

Piping packages are shipped installed on all units and can be shipped separately by request only.

# NOTES

# NOTES



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