Engineered Comfort

VERTICAL FLOOR/SILL MOUNT

Engineered Comfort

Model series 41V • Vertical Floor Fan Coil Units
Models: 41VC, 41VS and 41VX

AHRI CERTIFIED™ www.ahridirectory.org Room Fan-Coils AHRI Standard 440

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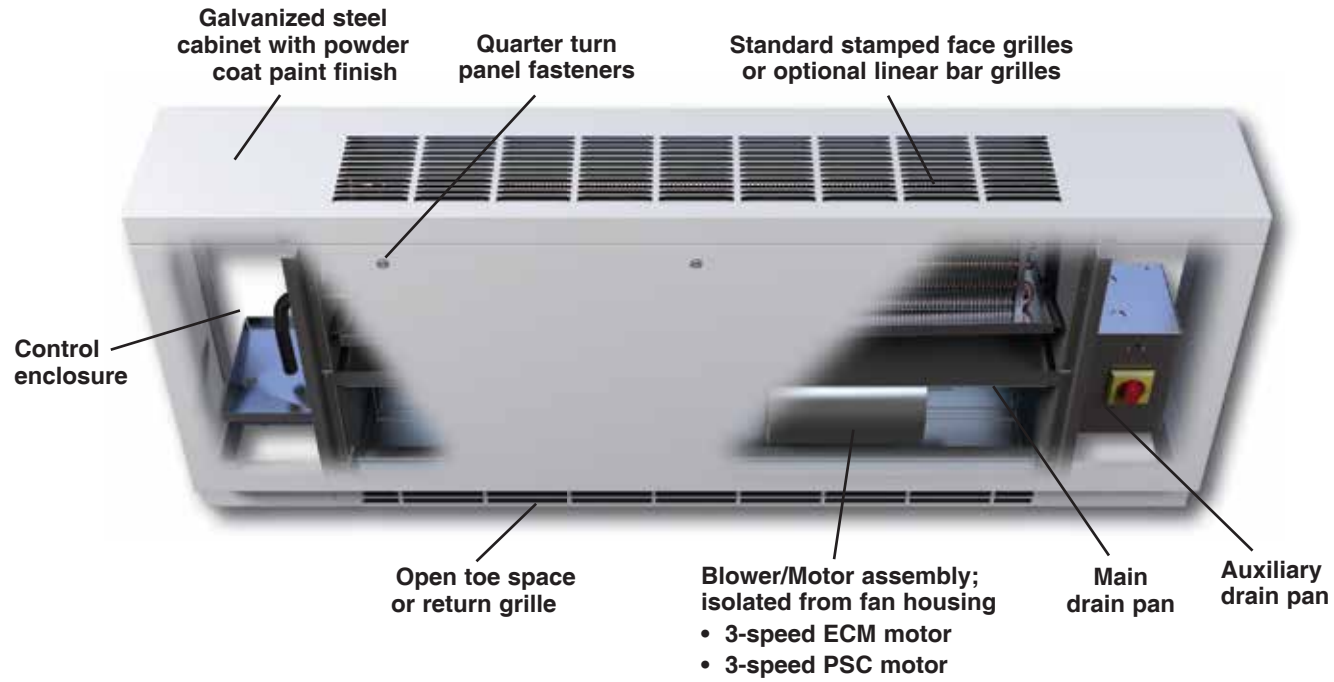

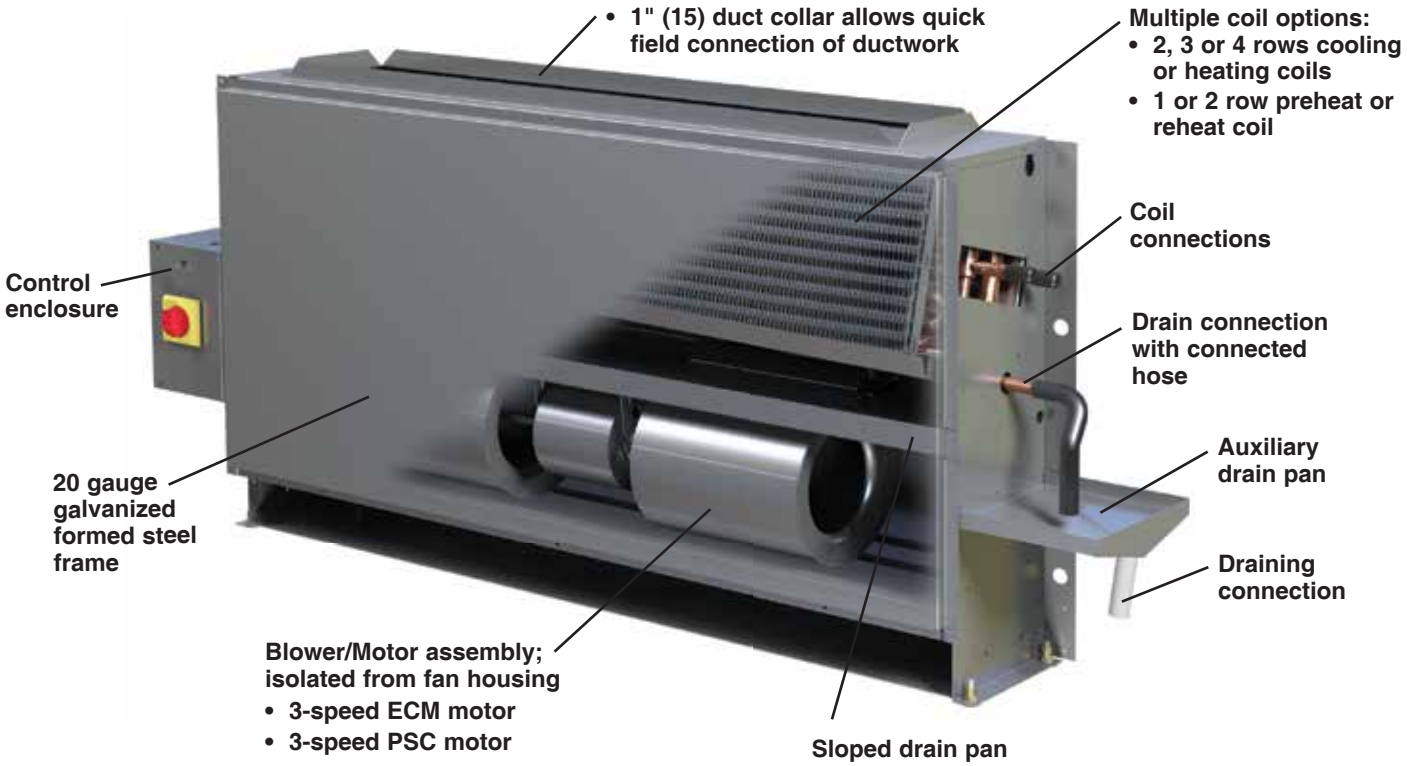

Model Series 41V • Vertical Floor Fan Coil Units
Models: 41VC, 41VS and 41VX

41VX - Exposed Flat Top Cabinet

41VS - Exposed Sloped Top Cabinet

41VC - Concealed

CONSTRUCTION ALL UNITS
- 20 ga. (1.00) galvanized steel casing.
- Return air open toe space.
- 1/2" (13) thick, 2 lb/cu. ft. density fiberglass (tough guard) insulation with water repellent facing.
- 1" (25) throwaway filter.
- AHRI 440 certified and labeled.
- Insulated galvanized auxiliary drain pan.

Model 41VC Concealed Units
- Top supply air with 1" (25) duct collar.

Model 41VX Exposed/Model 41VS Sloped Cabinet Units
- Top stamped louver supply grille (Model 41VX only).
- Architectural linear bar grille (Standard: Model 41VS, optional: Model 41VX).
- ¼-turn slotted cabinet fastener(s).
- Durable powder coat paint.
- End pockets with removable panels.
- 20 ga. (1.00) exterior panel construction.

FAN/MOTOR ASSEMBLIES
- Forward curved type blowers.
- Single phase, 3-speed tap PSC induction motors with thermal overload protection.
- Quick disconnect motor connections.
- Easily removable slide out fan/motor deck for service.

COILS
- 2-pipe System:
- Type Z: 2, 3 & 4 row coil for cooling or heating.
- Type ZE: 2, 3 & 4 row coil for cooling or heating with auxiliary heat.
- Type W: 1 or 2 row coil for heating.

4-pipe system:
- Type ZW: 3, 4 or 5 row coil for cooling and heating.
- 1/2" (12.7) O.D. seamless copper tubes.
- 0.016" (0.406) tube wall thickness.
- 0.0045" (0.114) aluminum corrugated fins.
- Right hand coil connections.
- Re-heat position.
- Easily removable for service.
- Manual air vent(s).
- AHRI 410 certified and labeled.

DRAIN PANS
- Single wall galvanized steel with fiber-free elastomeric external insulation.
- Positively sloped to drain connection.
- Galvanized drain pan.
- Galvanized auxiliary drain pan.

ELECTRICAL
- ETL listed for safety compliance.
- Electrical junction box for field wiring terminations.
- Terminal block for field connections.
- 120, 208, 240 or 277 Volts (60 Hz) power supply.

ELECTRIC HEAT
- ETL listed as an assembly.
- Integral electric heat assembly with removable elements for easy service.

PAINTED FINISH
- All painted cabinet exterior panels shall be finished with a TGIC Polyester powder paint of the standard factory color.

Model Series 41V • Vertical Floor Fan Coil Units
Models: 41VC, 41VS and 41VX

Options and Accessories

CONSTRUCTION ALL UNITS
- Foil faced fiberglass insulation.
- Elastomeric closed cell foam insulation.
- Outside Air Inlets.
- Spare 1" (25) throwaway filters
- 1" (25) MERV 8 pleated filter.
- 1" (25) adjustment leveling legs.

Model 41VC Concealed Units
- Wall recessing panels.
- Front supply air with 1" (25) duct collar.
- Tamper proof fasteners.

Model 41VX Exposed/Model 41VS Sloped Cabinet Units
- 16 ga. (1.61) front panel.
- Return air stamped toe kick grille.
- 2" (51) to 8" (203) false backs.
- 1" (25) to 12" (305) increase parametric cabinet height or width.
- Extended end pockets.

FAN ASSEMBLIES
- Ultra energy efficient proportional ECM fan motor(s) with thermal overload protection.
- 3-speed ECM fan motor(s) with thermal overload protection.

COILS
- Left hand coil connections.
- Automatic air vent(s).
- Stainless steel coil casings.
- Pre-heat position.
- 1/2" O.D. seamless copper tubes.

DRAIN PANS
- Stainless steel drain pan.
- Stainless steel auxiliary drip pan
- Extended auxiliary galvanized drip pan (for extended end pocket).
- Extended auxiliary stainless steel drip pan (for extended end pocket).

ELECTRICAL
- Fan relay packages.
- Toggle disconnect switch.
- Main fusing.
- Unit mounted 3-speed fan switches (unit mounted three speed switch is located under access door on exposed, flat and sloped top vertical floor mount units).

CONTROLS
- Digital VAV sequences.
- 3-speed fan electric sequences with LCD digital display or programmable thermostat.
- EZstat digital controls thermostat (BACnet ready).
- Digital display and/or programmable thermostat.
- Unit or remote mounted thermostat with integral three speed fan switch.
- 2-pipe and 4-pipe control sequences.
- Automatic and manual changeover.

PIPING PACKAGES
- Factory assembled – Factory mounted or shipped loose for field installation.
- 1/2" (13), 2-way and 3-way normally closed, two position electric motorized valves.
- Isolation ball valves with memory stop.
- Fixed and adjustable flow control device.
- Unions and P/T ports.
- Modulating valves.

PAINTED FINISH
- Models 41VX and 41VS vertical floor fan coil units are available in a variety of woodgrain finishes.

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Model series 41V • Flat Top Exposed Cabinet • 2 & 4 pipe cooling/heating
Model: 41VX • Unit Sizes 3 – 12

TYPE:

Z Chilled Water (2-pipe system)
Coil Options:
- 2 Row C/HW
- 3 Row C/HW
- 4 Row C/HW

ZW Chilled & Hot Water (4-pipe system)
Coil Options:
- 2/1 CW/HW Rows
- 3/1 CW/HW Rows
- 4/1 CW/HW Rows
- 2/2 CW/HW Rows
- 3/2 CW/HW Rows

ZE Chilled/Hot Water & Electric Heat (2-pipe system)
Coil Options:
- 2 Row C/HW
- 3 Row C/HW
- 4 Row C/HW

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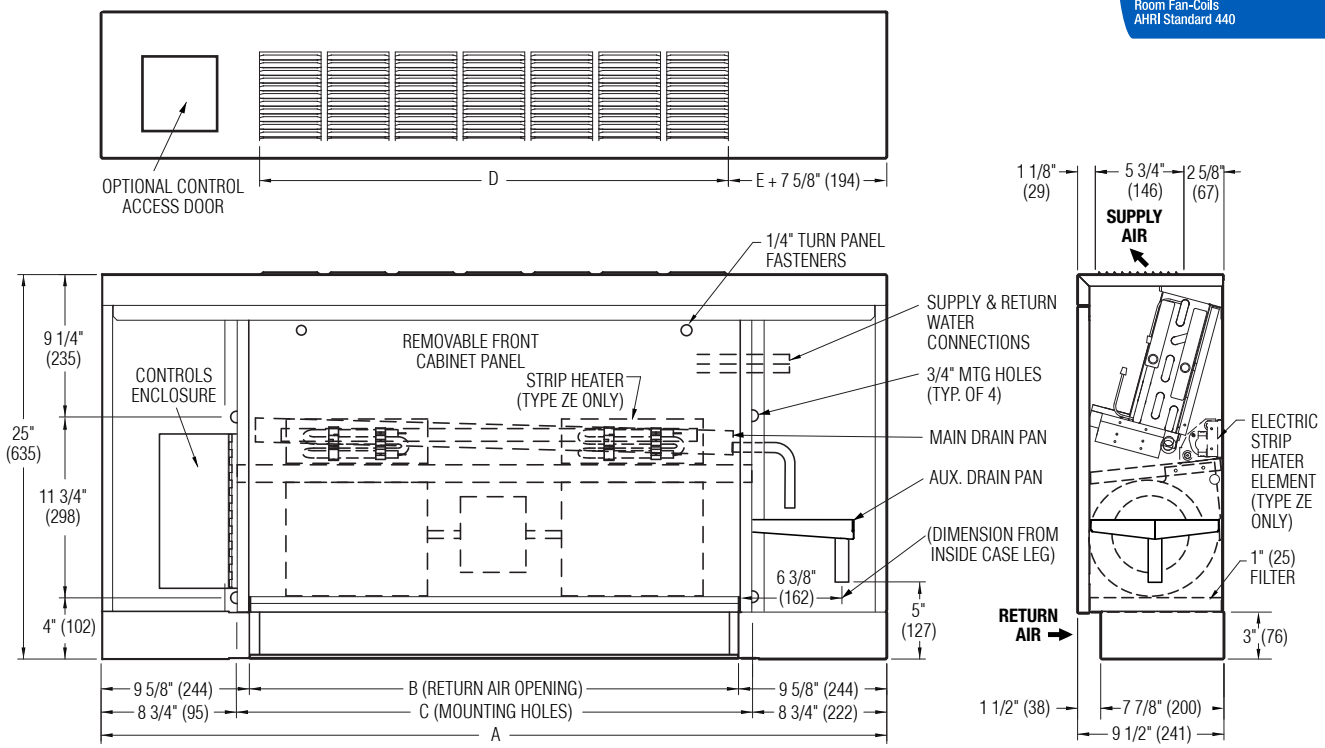

Dimensional Data

Unit Size	Nominal CFM (l/s)	A	B	C	D	E	Filter Size Width x Height
3	300 (142)	45 (1143)	25 7/8 (657)	27 1/2 (699)	21 5/8 (549)	4 (102)	26 x 7 1/2 (660 x 191)
4	400 (189)	51 (1295)	31 7/8 (810)	33 1/2 (851)	30 1/2 (775)	2 5/8 (67)	32 x 7 1/2 (813 x 191)
6	600 (283)	61 (1549)	41 7/8 (1064)	43 1/2 (1105)	39 1/4 (997)	3 1/4 (83)	42 x 7 1/2 (1067 x 191)
8	800 (378)	63 (1600)	43 7/8 (1114)	45 1/2 (1156)	39 1/4 (997)	4 1/4 (108)	44 x 7 1/2 (1118 x 191)
10	1000 (472)	77 (1956)	57 7/8 (1470)	59 1/2 (1511)	52 1/2 (1334)	4 5/8 (117)	58 x 7 1/2 (1473 x 191)
12	1200 (566)	85 (2159)	65 7/8 (1673)	67 1/2 (1715)	61 1/4 (1556)	4 1/4 (108)	66 x 7 1/2 (1676 x 191)

Engineered Comfort

Model series 41V • Sloped Exposed Cabinet • 2 & 4 pipe cooling/heating
Model: 41VS • Unit Sizes 3 – 12

TYPE:

Z Chilled Water (2-pipe system)
Coil Options:
- 2 Row C/HW
- 3 Row C/HW
- 4 Row C/HW

ZW Chilled & Hot Water (4-pipe system)
Coil Options:
- 2/1 CW/HW Rows
- 3/1 CW/HW Rows
- 4/1 CW/HW Rows
- 2/2 CW/HW Rows
- 3/2 CW/HW Rows

ZE Chilled/Hot Water & Electric Heat (2-pipe system)
Coil Options:
- 2 Row C/HW
- 3 Row C/HW
- 4 Row C/HW

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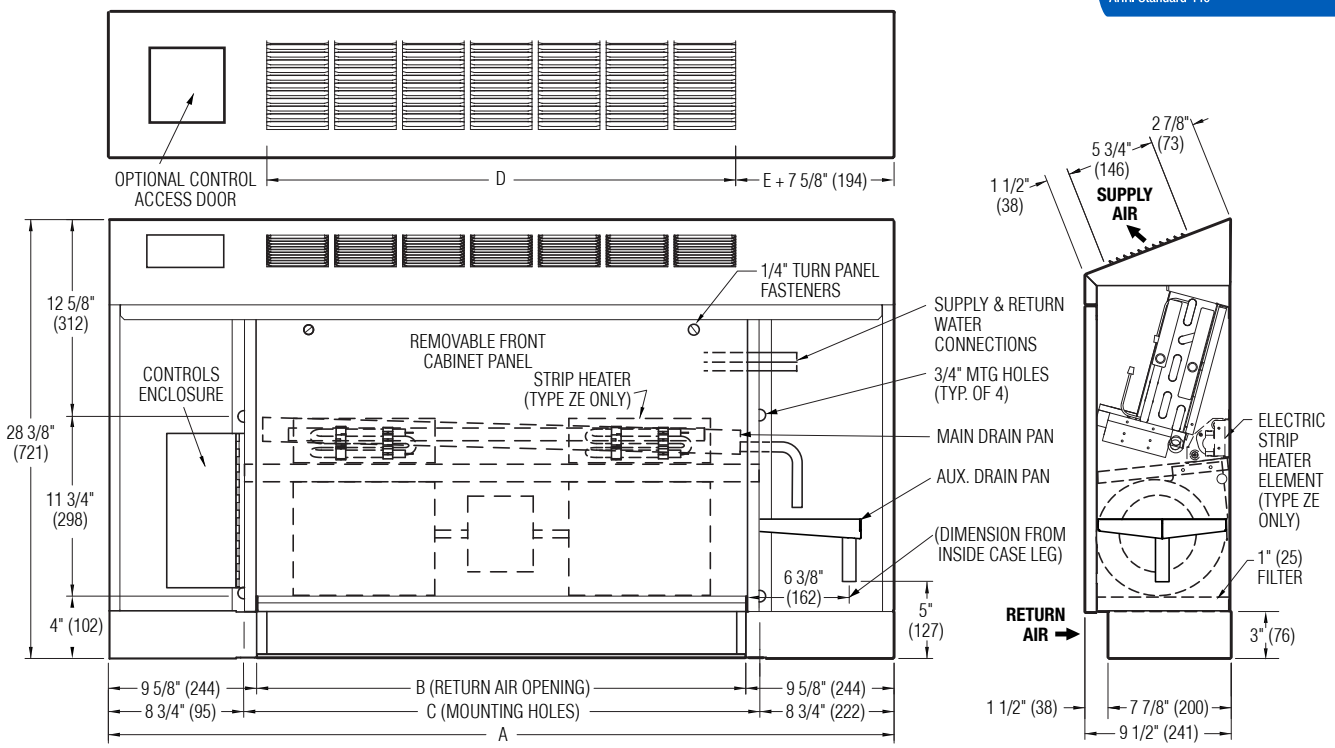

Dimensional Data

Unit Size	Nominal CFM (l/s)	A	B	C	D	E	Filter Size Width x Height
3	300 (142)	45 (1143)	25 7/8 (657)	27 1/2 (699)	21 5/8 (549)	4 (102)	26 x 7 1/2 (660 x 191)
4	400 (189)	51 (1295)	31 7/8 (810)	33 1/2 (851)	30 1/2 (775)	2 5/8 (67)	32 x 7 1/2 (813 x 191)
6	600 (283)	61 (1549)	41 7/8 (1064)	43 1/2 (1105)	39 1/4 (997)	3 1/4 (83)	42 x 7 1/2 (1067 x 191)
8	800 (378)	63 (1600)	43 7/8 (1114)	45 1/2 (1156)	39 1/4 (997)	4 1/4 (108)	44 x 7 1/2 (1118 x 191)
10	1000 (472)	77 (1956)	57 7/8 (1470)	59 1/2 (1511)	52 1/2 (1334)	4 5/8 (117)	58 x 7 1/2 (1473 x 191)
12	1200 (566)	85 (2159)	65 7/8 (1673)	67 1/2 (1715)	61 1/4 (1556)	4 1/4 (108)	66 x 7 1/2 (1676 x 191)

Engineered Comfort

Model series 41V • Concealed Unit • Top Supply
Model: 41VC • Unit Sizes 3 – 12

TYPE:

Z Chilled Water (2-pipe system)
Coil Options:
- 2 Row C/HW
- 3 Row C/HW
- 4 Row C/HW

ZW Chilled & Hot Water (4-pipe system)
Coil Options:
- 2/1 CW/HW Rows
- 3/1 CW/HW Rows
- 4/1 CW/HW Rows
- 2/2 CW/HW Rows
- 3/2 CW/HW Rows

ZE Chilled/Hot Water & Electric Heat (2-pipe system)
Coil Options:
- 2 Row C/HW
- 3 Row C/HW
- 4 Row C/HW

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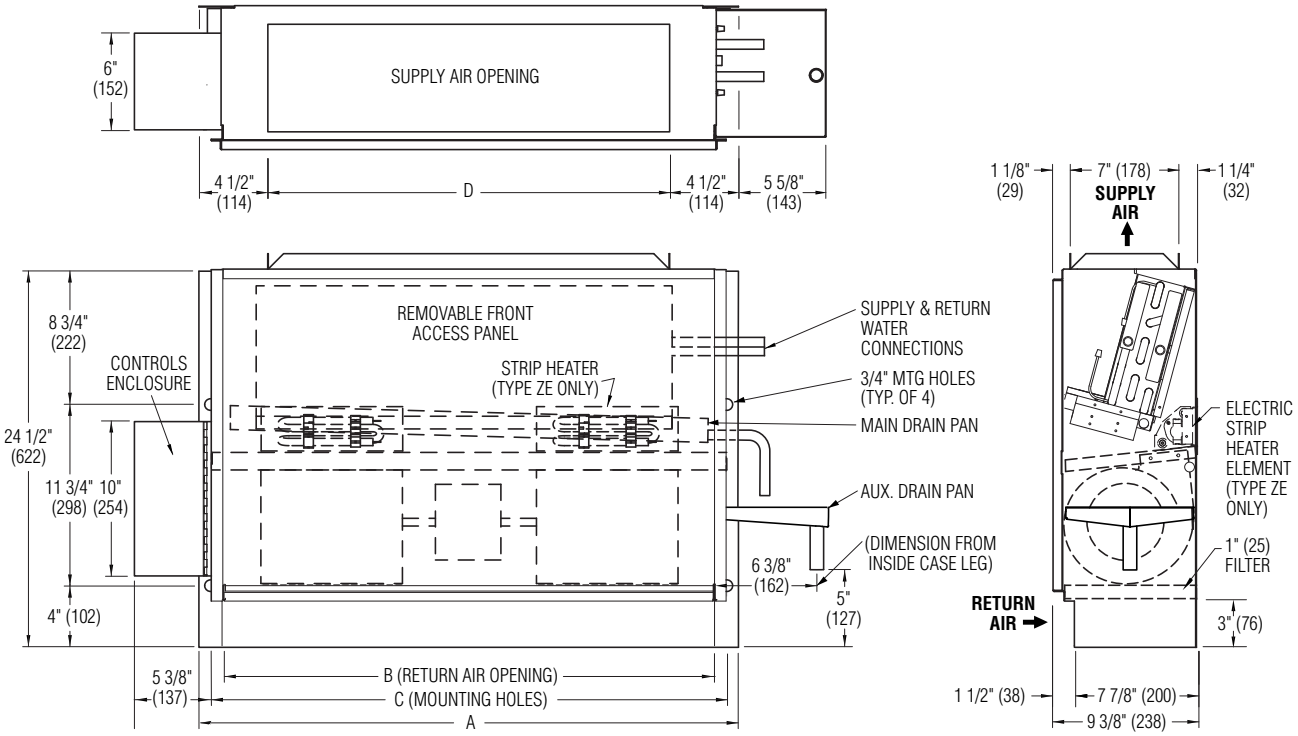


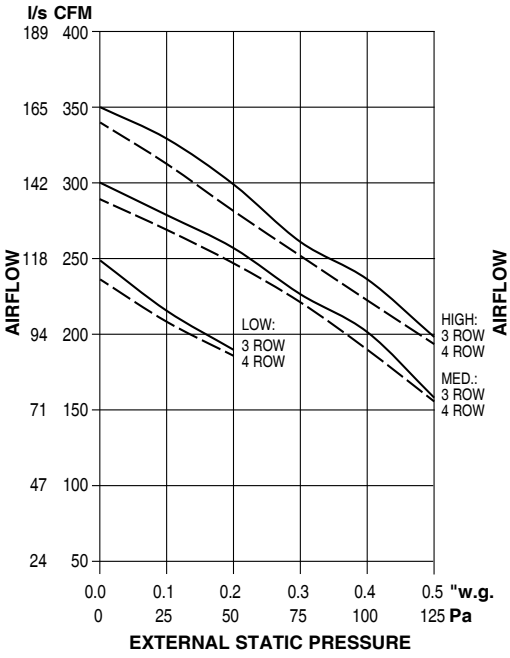
Dimensional Data

Unit Size	Nominal CFM (l/s)	A	B	C	D	Filter Size Width x Height
3	300 (142)	29 (737)	25 7/8 (657)	27 1/2 (699)	20 (508)	26 x 7 1/2 (660 x 191)
4	400 (189)	35 (889)	31 7/8 (810)	33 1/2 (851)	26 (660)	32 x 7 1/2 (813 x 191)
6	600 (283)	45 (1143)	41 7/8 (1064)	43 1/2 (1105)	36 (914)	42 x 7 1/2 (1067 x 191)
8	800 (378)	47 (1194)	43 7/8 (1114)	45 1/2 (1156)	38 (965)	44 x 7 1/2 (1118 x 191)
10	1000 (472)	61 (1549)	57 7/8 (1470)	59 1/2 (1511)	52 (1321)	58 x 7 1/2 (1473 x 191)
12	1200 (566)	69 (1753)	65 7/8 (1673)	67 1/2 (1715)	60 (1524)	66 x 7 1/2 (1676 x 191)

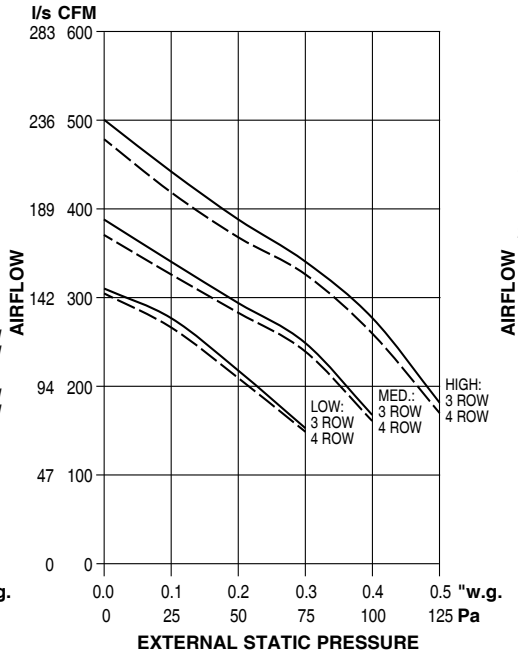
Model 41VC Concealed • PSC Motor Fan Performance Curves

Airflow vs. External Static Pressure

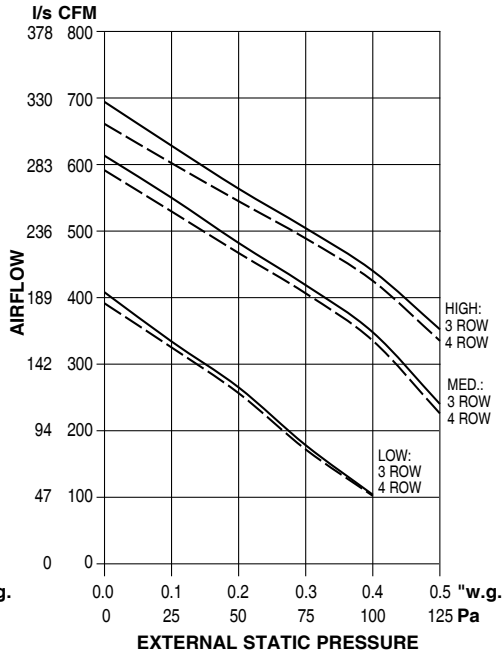
Unit Size 3



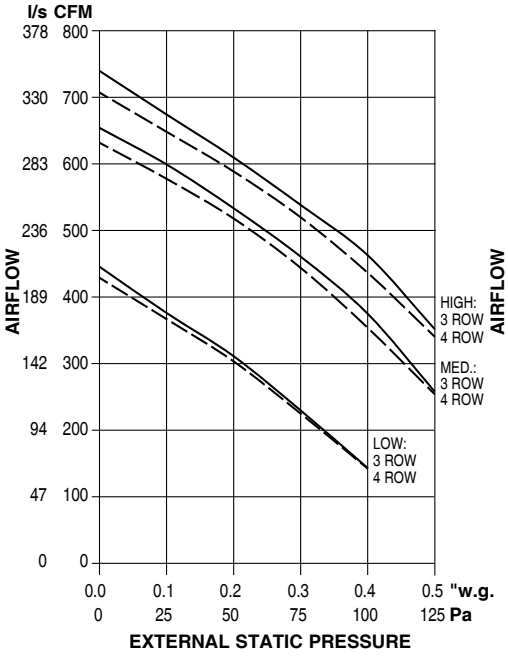
Unit Size 4



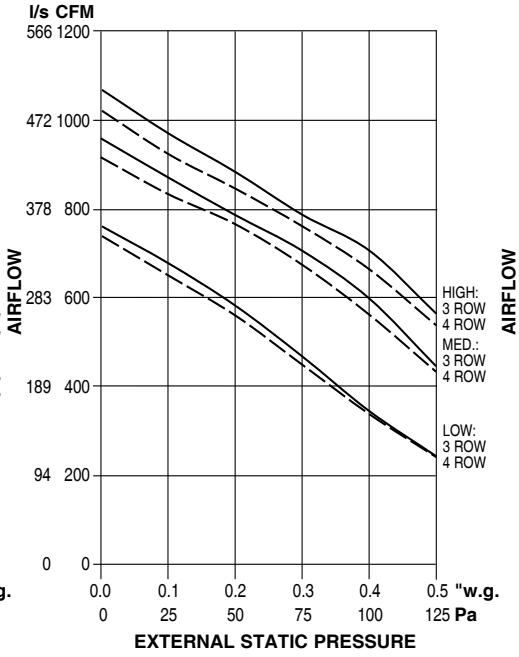
Unit Size 6



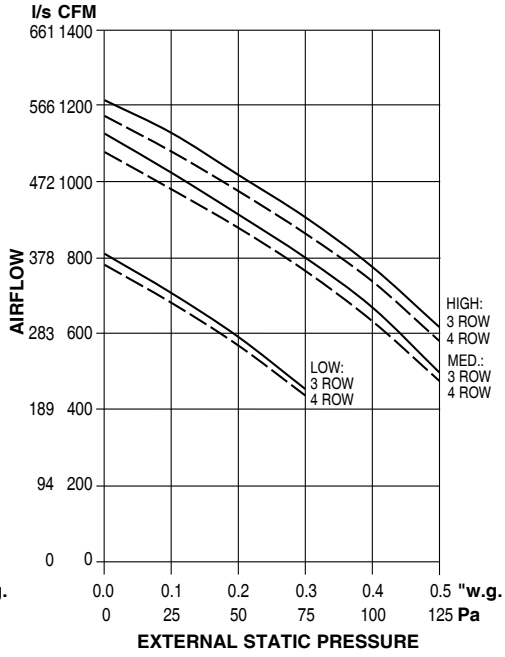
Unit Size 8



Unit Size 10



Unit Size 12

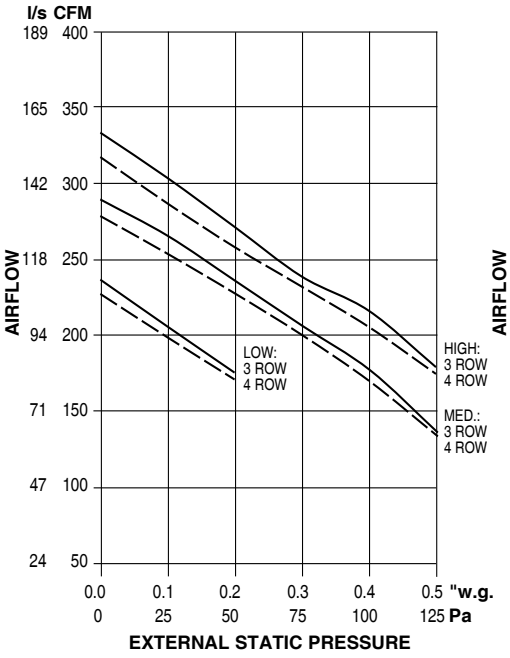


PSC Motor Fan Notes:

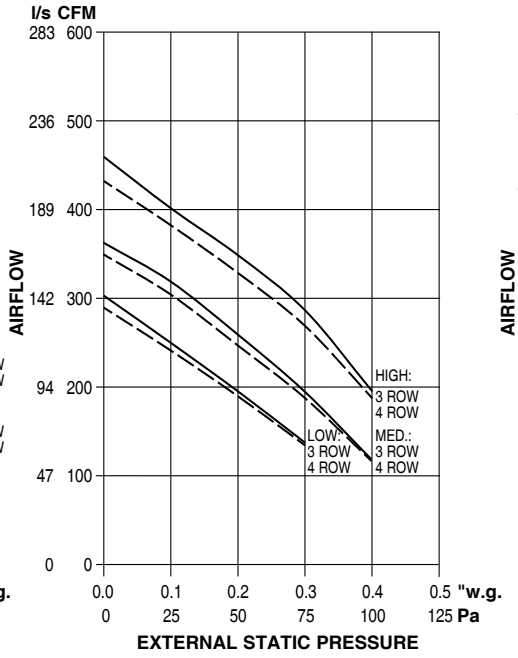
1. Permanent split capacitor (PSC) motors are of the three speed type with separate taps (High, Medium and Low) which provide variable horsepower outputs. Commonly, units are selected and sized on a conservative basis and actual airflow and/or external static pressure requirements are lower than specified. When this is the case, the unit fan motor can be run at low or medium speed, reducing power consumption and operating cost.
2. All fan curves shown are for 120 volt single phase, 3-Speed PSC motors and include internal losses for cabinet, electric heater and 3 or 4 row water coil.
3. For other coil combinations and type of filters, adjust performance curves based on pressure losses or use Selectworks.
4. Filter pressure drops table shown on page D13.

Models 41VX & 41VS Exposed Cabinet
PSC Motor Fan Performance Curves
Airflow vs. External Static Pressure

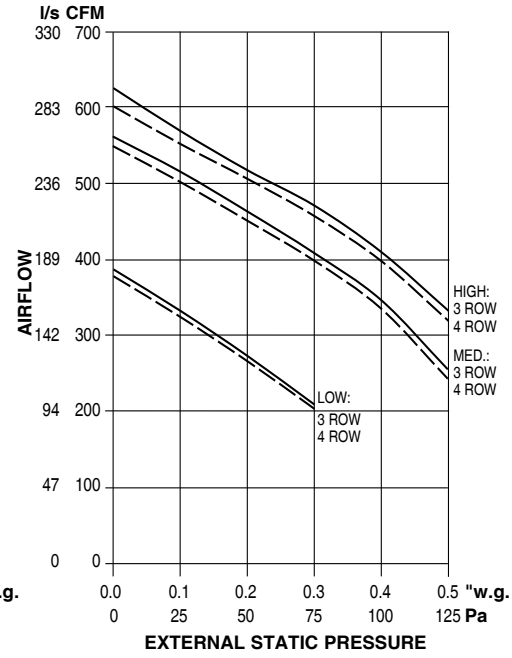
Unit Size 3



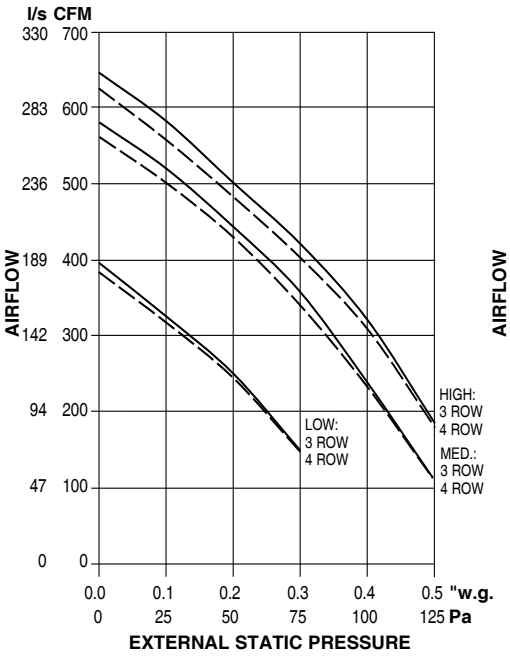
Unit Size 4



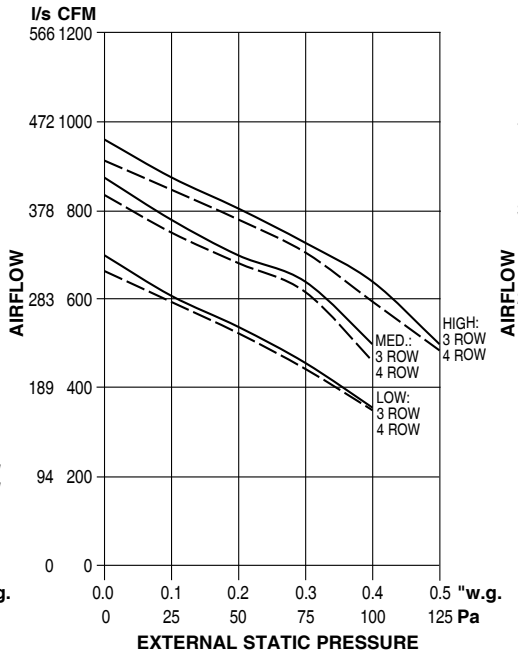
Unit Size 6



Unit Size 8



Unit Size 10



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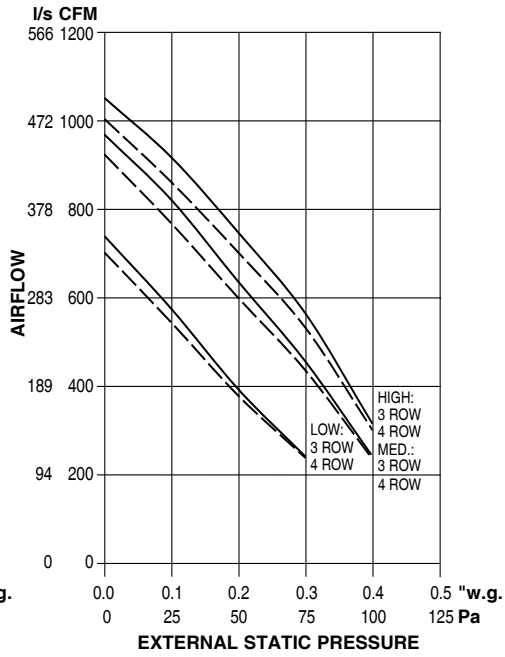


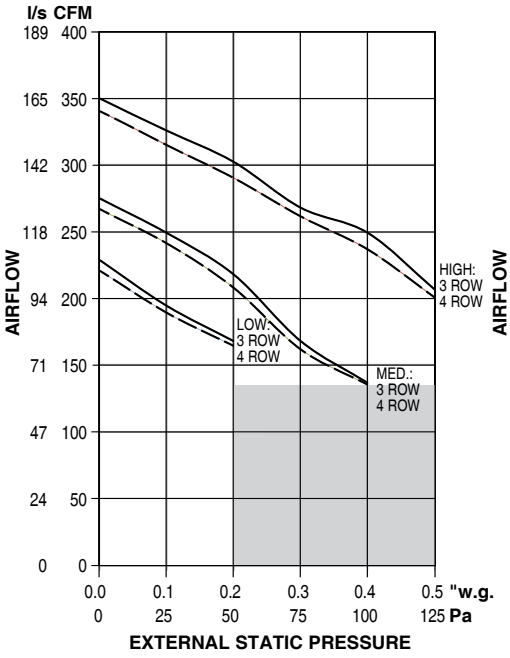
PSC Motor Fan Notes:

1. Permanent split capacitor (PSC) motors are of the three speed type with separate taps (High, Medium and Low) which provide variable horsepower outputs. Commonly, units are selected and sized on a conservative basis and actual airflow and/or external static pressure requirements are lower than specified. When this is the case, the unit fan motor can be run at low or medium speed, reducing power consumption and operating cost.
2. All fan curves shown are for 120 volt single phase, 3-Speed PSC motors and include internal losses for cabinet, electric heater and 3 or 4 row water coil.
3. For other coil combinations and type of filters, adjust performance curves based on pressure losses or use Selectworks.
4. Filter pressure drops table shown on page D13.

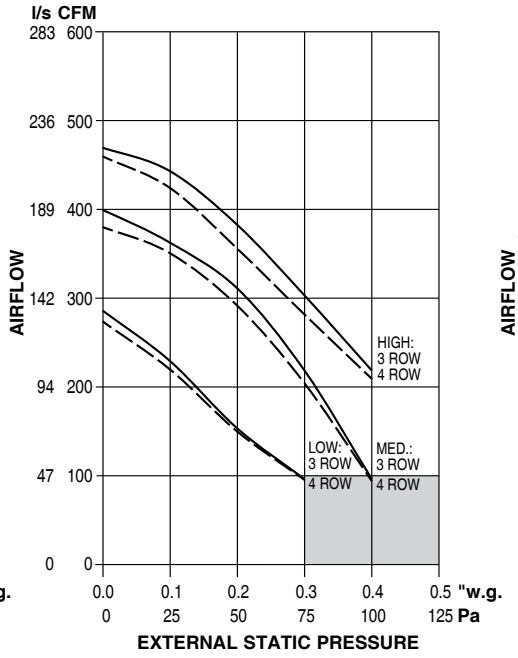
12-5-19

Model 41VC Concealed & 41VX/41VS Exposed Cabinet
3-Speed ECM Fan Performance Curves
Airflow vs. External Static Pressure

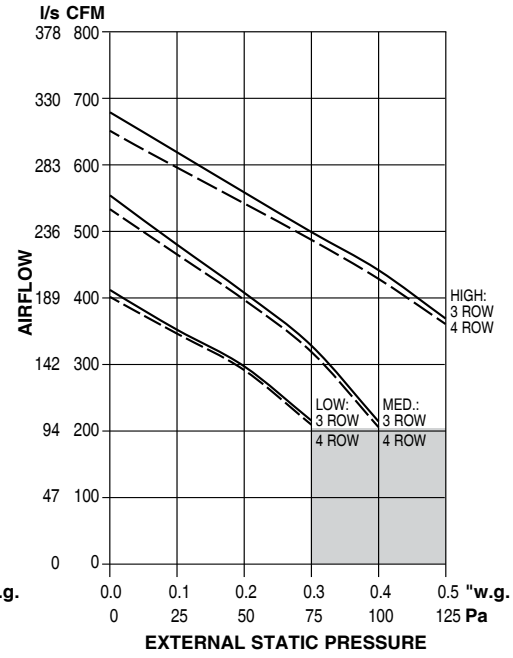
Unit Size 3



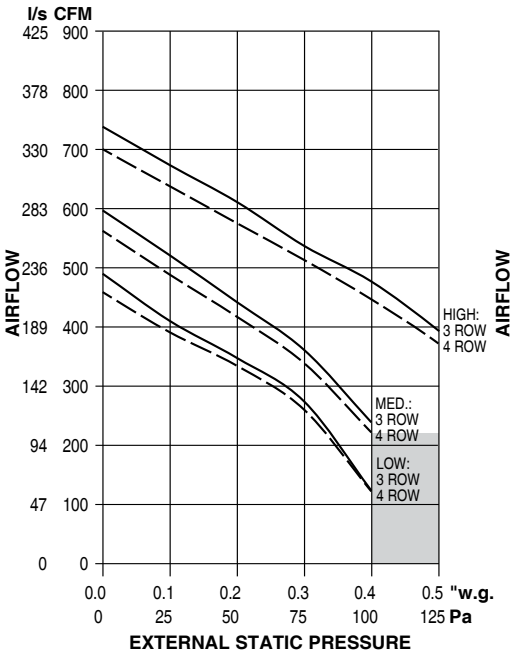
Unit Size 4



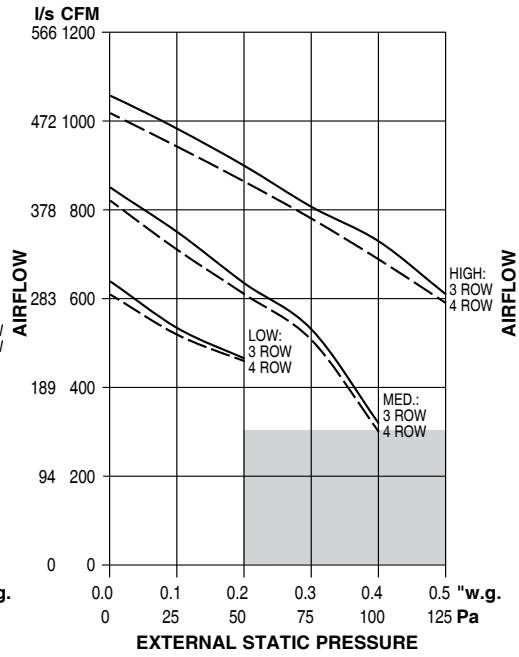
Unit Size 6



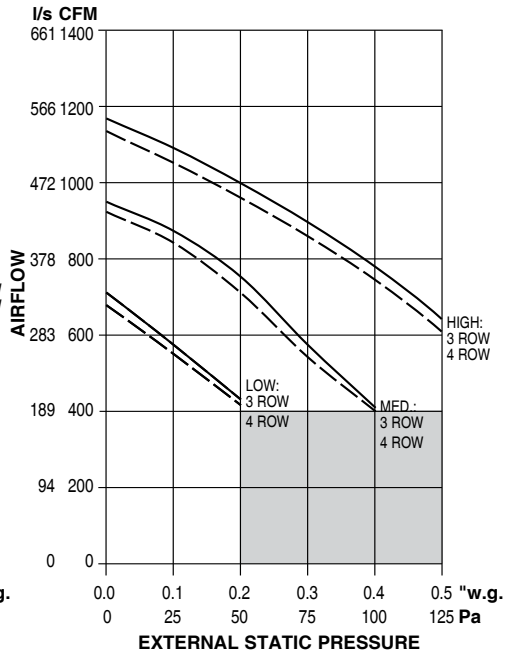
Unit Size 8



Unit Size 10



Unit Size 12



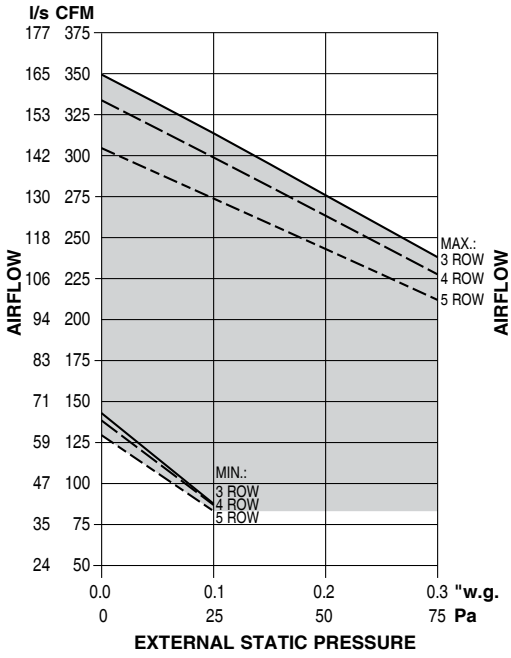
3-Speed ECM Motor Fan Notes:

1. Fan coil units equipped with 3-Speed ECM Motors have discrete inputs (High, Medium and Low) which provide variable horsepower outputs. Commonly, units are selected and sized on a conservative basis and actual airflow and/or external static pressure requirements are lower than specified. When this is the case, the unit fan motor can be run at low or medium speed, reducing power consumption and operating cost.
2. Fan curves are applicable to all models. All fan curves shown are for 120 volt single phase, 3-Speed ECM Motors and include internal losses for cabinet, electric heater and 3 or 4 row water coil.
3. For other coil combinations and addition of a filter, adjust performance curves based on pressure losses or use Selectworks.
4. Filter pressure drops table shown on page D13.
5. Area within shaded area not predictable.

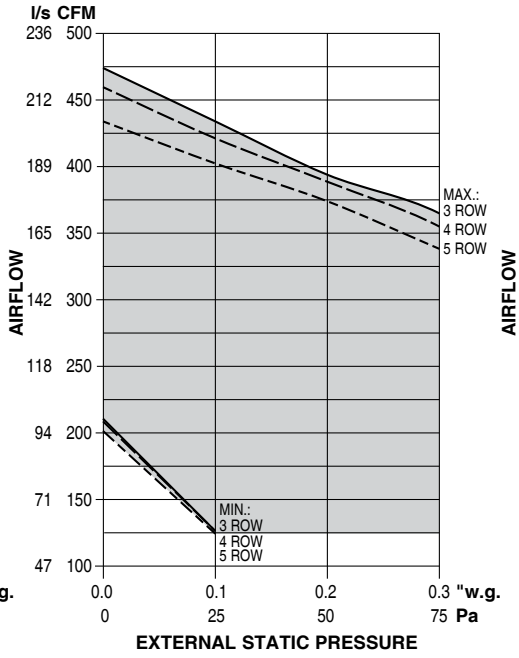
12-5-19

Model 41VC Concealed & 41VX/41VS Exposed Cabinet
Proportional ECM Fan Performance Curves • Airflow vs. External Static Pressure

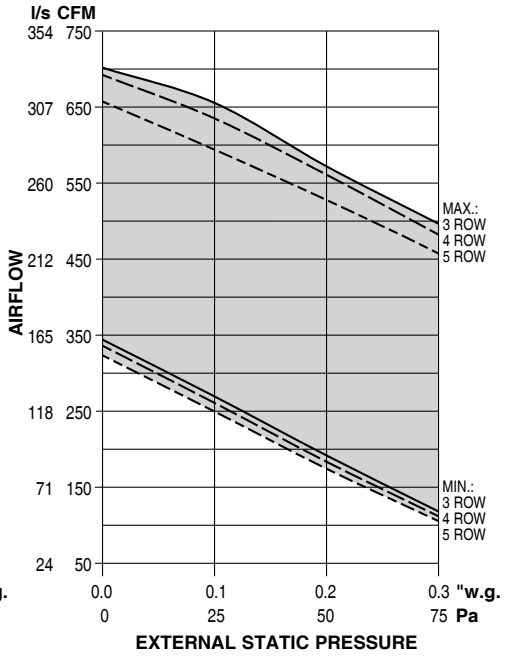
Unit Size 3



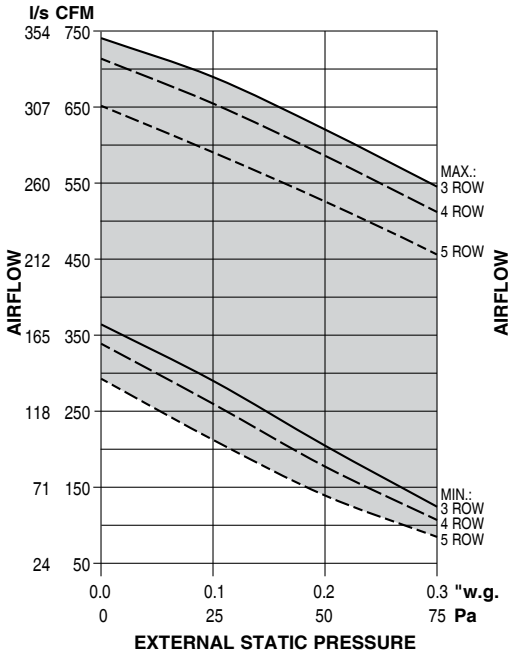
Unit Size 4



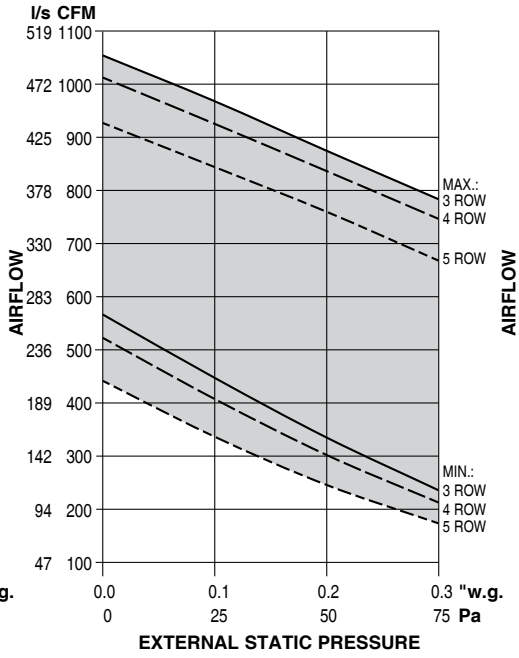
Unit Size 6



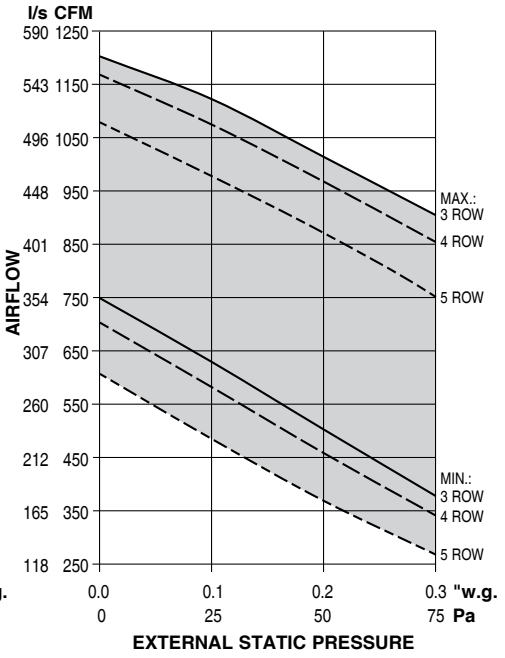
Unit Size 8



Unit Size 10



Unit Size 12



Proportional ECM Motor Fan Notes:

1. Airflow can be set to operate at any point within shaded area under the selected water coil curve using the ECM Fan Card volume controller provided.
2. Fan curves shown are applicable to 120/208/240 and 277 volt, single phase Proportional ECM (motors).
3. The maximum curve represents unit performance with a 3-row coil. For one (1) or two (2) row hot water coils [41V Series with (W) heating unit] performance will be slightly better. See SelectWorks for performance data Characteristics.
4. Filter pressure drops table shown on page D13.

Model Series 41V • Performance Data
Electrical Motor Characteristics

Unit Size	Voltage	No. of Fans/ Motors	3-Speed PSC Motor			3-Speed ECM			Proportional ECM		
			HP	FLA	Full Load Watts	HP	FLA	Full Load Watts	HP	FLA	Full Load Watts
3	120 208 230 277	1/1	1/15	1.0 0.5 0.5 0.5	109	1/8	1.1 0.7 0.7 0.7	75	1/4	1.1 0.7 0.7 0.7	50
4	120 208 230 277	2/1	1/15	1.1 0.8 0.5 0.9	125	1/8	1.0 0.7 0.7 0.7	72	1/4	1.0 0.7 0.7 0.7	65
6	120 208 230 277	2/1	1/6	1.9 1.0 1.0 1.0	223	1/4	1.8 1.3 1.3 1.3	135	1/4	1.8 1.3 1.3 1.3	80
8	120 208 230 277	2/1	1/6	2.0 1.0 1.1 1.1	227	1/4	2.2 1.5 1.4 1.3	141	1/4	2.2 1.5 1.4 1.3	120
10	120 208 230 277	3/2	1/6 & 1/15	3.2 1.9 2.0 1.7	378	1/8 & 1/4	2.6 1.8 1.7 1.7	207	2 @ 1/4	2.6 1.8 1.7 1.7	175
12	120 208 230 277	4/2	2 @ 1/6	3.5 1.8 1.9 1.8	418	2 @ 1/4	3.0 2.2 2.0 2.1	245	2 @ 1/4	3.0 2.2 2.0 2.1	200

The FLA and watts are shown at the maximum setting for selected motor type and unit size. Refer to SelectWorks selection software for application specific data.

Electric Heat Tables

120 Volt • Single Phase, One Stage

Unit Size	Kilowatt Range			
	1.0	1.5	2.0	3.0
3	X	X	—	—
4	X	X	X	—
6	X	X	X	X
8	X	X	X	X
10	X	X	X	X
12	X	X	X	X

208/240 and 277 Volt • Single Phase, One Stage

Unit Size	Kilowatt Range						
	1.0	1.5	2.0	3.0	4.0	5.0	6.0
3	X	X	—	—	—	—	—
4	X	X	X	—	—	—	—
6	X	X	X	X	—	—	—
8	X	X	X	X	X	—	—
10	X	X	X	X	X	X	—
12	X	X	X	X	X	X	X

Note:

1. Electric heat voltage must be the same as motor voltage.
2. A minimum airflow of 70 cfm per kW is required across the coil during heating. Available in the above kW's only. $\Delta T = \frac{kW \times 3160}{CFM}$

   Do not size heaters with leaving air temperature greater than 105°F.
3. Coils are wired to the control panel for a single point electrical connection.
4. The coils listed are restricted to a maximum of 48 amps (with motor) and do not require circuit fusing to meet NEC requirements.

Model Series 41V • Filter Pressure Drop Adjustments (in w.g.)

Unit Size	Airflow		Velocity		Filter Type		Filter Size
	CFM	l/s	FPM	m/s	1" (25) Throwaway	1" (25) MERV 8	
3	350	165	258	1.313	0.054	0.173	7 1/2 x 26 (191 x 660)
	300	142	222	1.125	0.039	0.144	
	250	118	185	0.938	0.025	0.114	
	200	142	222	1.125	0.010	0.085	
4	500	236	300	1.524	0.071	0.206	7 1/2 x 32 (191 x 813)
	390	184	234	1.189	0.044	0.154	
	310	146	186	0.945	0.025	0.115	
	250	118	150	0.762	0.011	0.086	
6	690	316	315	1.602	0.078	0.220	7 1/2 x 42 (191 x 1067)
	615	290	281	1.428	0.064	0.143	
	405	191	185	0.941	0.025	0.116	
	350	165	160	0.813	0.015	0.095	
8	740	349	323	1.640	0.081	0.227	7 1/2 x 44 (191 x 1118)
	655	309	286	1.452	0.066	0.147	
	445	210	194	0.986	0.029	0.123	
	400	189	175	0.887	0.021	0.107	
10	1070	505	354	1.799	0.094	0.254	7 1/2 x 58 (191 x 1473)
	930	439	308	1.564	0.076	0.216	
	760	359	252	1.278	0.053	0.170	
	650	307	215	1.093	0.038	0.141	
12	1215	573	353	1.796	0.094	0.253	7 1/2 x 66 (191 x 1676)
	1130	533	329	1.670	0.084	0.233	
	810	382	236	1.197	0.046	0.158	
	700	330	204	1.034	0.033	0.132	

NOTES:

1. Pressure drop based on clean filters. Using any type of filter will lower unit airflow.
2. To determine fan airflow with the addition of a filter, add the filter pressure drop to the external static pressure on the fan curve or use Selectworks.

Front: 1" (25) Throwaway
Back: 1" (25) MERV 8 Pleated

Model Series 41V • Performance Data • Sound Data

Unit Size	Fan Speed	Airflow		Sound Power Levels							dBA
				Octave Bands							
		CFM	l/s	2/125	3/250	4/500	5/1000	6/2000	7/4000	8/8000	
3	High	330	155	63	66	61	58	52	47	40	63
	Medium	267	126	58	62	56	53	46	40	31	58
	Low	197	93	51	54	48	43	37	28	22	50
4	High	441	207	63	64	59	57	48	41	33	61
	Medium	355	167	57	57	55	48	40	32	24	55
	Low	281	132	52	53	48	41	33	23	22	49
6	High	710	334	66	67	63	62	52	48	42	65
	Medium	618	290	61	64	61	55	48	42	34	61
	Low	386	181	52	54	48	43	35	26	22	50
8	High	740	348	66	67	62	61	52	48	41	65
	Medium	645	303	62	63	59	56	48	43	35	61
	Low	395	186	52	53	48	43	34	26	23	49
10	High	845	397	68	69	64	61	55	49	43	66
	Medium	743	349	64	66	61	58	51	45	38	63
	Low	626	294	60	61	57	53	46	39	31	58
12	High	1065	500	71	71	67	68	59	54	48	71
	Medium	944	444	66	66	63	63	53	46	39	66
	Low	631	296	55	55	54	47	40	29	23	53

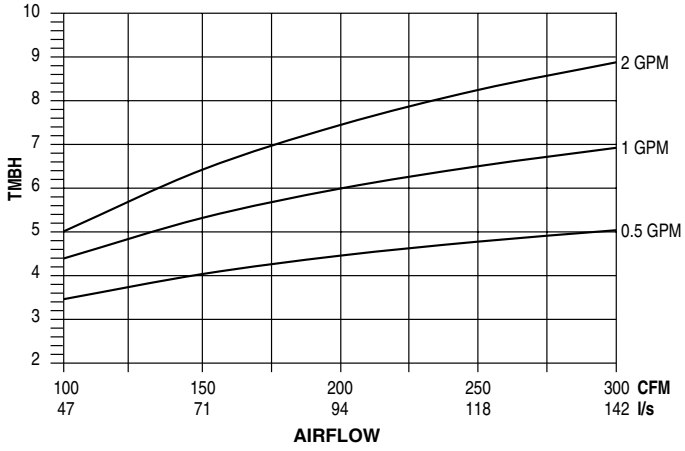
Performance Notes:

1. Sound power levels in decibels, dB re 10^{-12} watts.
2. All sound data listed by octave band is raw data without any corrections for room absorption or duct attenuation.
3. Total sound level data based on model 41VX with airflow at corresponding motor tap with 120 volt 3-Speed PSC motor, 3 row 12 FPI coil, throwaway filter and 0.0" external static pressure.
4. Data derived from independent tests conducted in accordance with AHRI Standard 350.

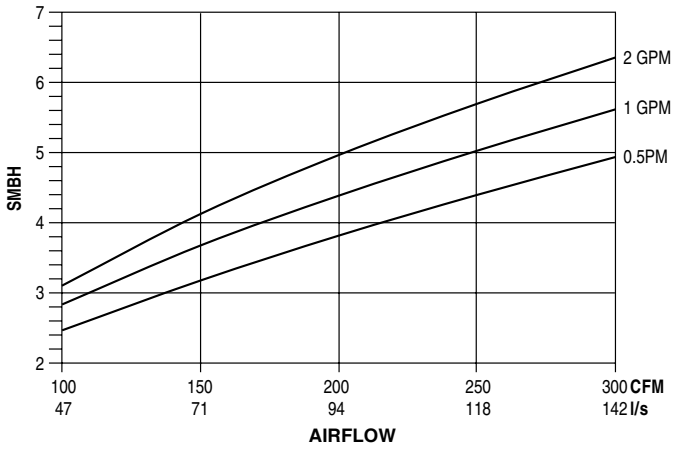
Model Series 41V • Chilled Water Coil Performance Data • Unit Size 3

Data Based on 80°F DB, 67°F WB Entering Air & 45°F Entering Water

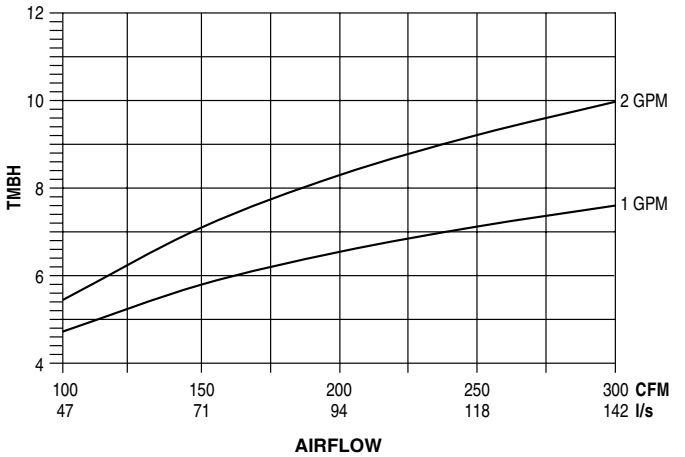
2 Row (Total MBH)



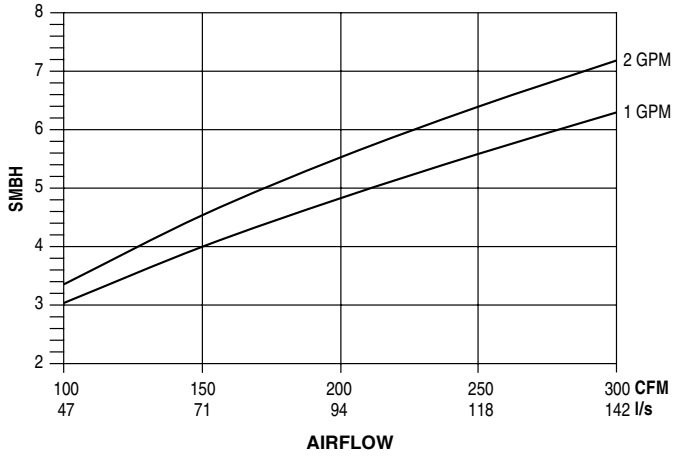
2 Row (Sensible MBH)



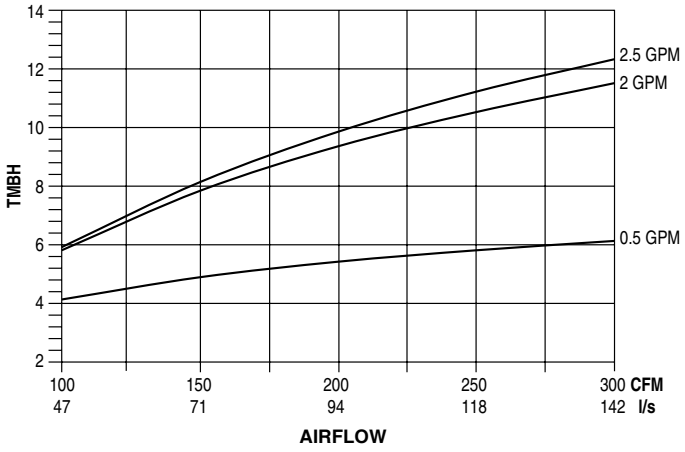
3 Row (Total MBH)



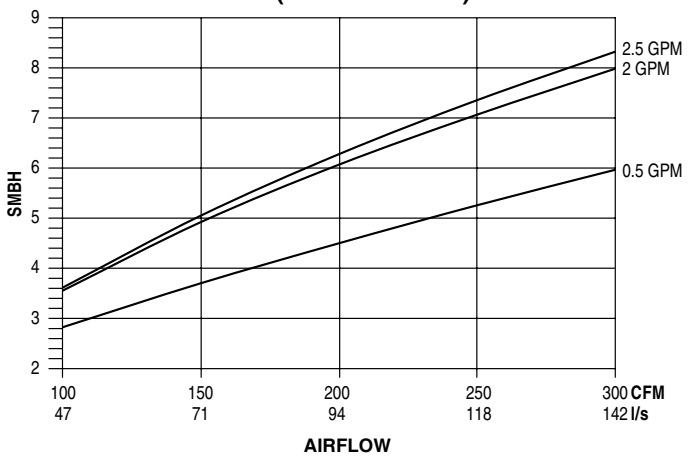
3 Row (Sensible MBH)



4 Row (Total MBH)



4 Row (Sensible MBH)



Altitude Correction Factors

Altitude (ft.)	0	1000	2000	3000	4000	5000	6000	7000
Air Density (lb./cu. ft)	0.075	0.072	0.070	0.067	0.065	0.063	0.060	0.058
Total Capacity	1000	0.988	0.986	0.983	0.981	0.979	0.977	0.975
Sensible Capacity	1000	0.960	0.930	0.900	0.860	0.830	0.800	0.770
Static Pressure	1000	0.960	0.930	0.900	0.860	0.830	0.800	0.770

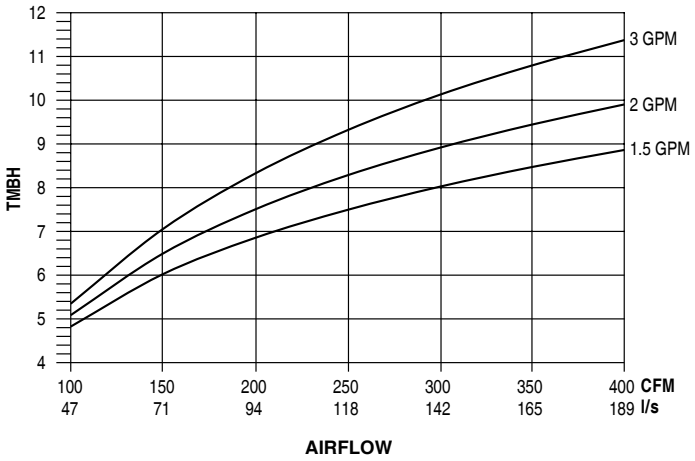
NOTES:

1. Capacity and static pressure will be affected for applications above sea level. To apply correction factors, multiply the coil capacity or fan curve data by the tabulated correction factor.
2. Connections: 5/8" (15.9) O.D. male solder.

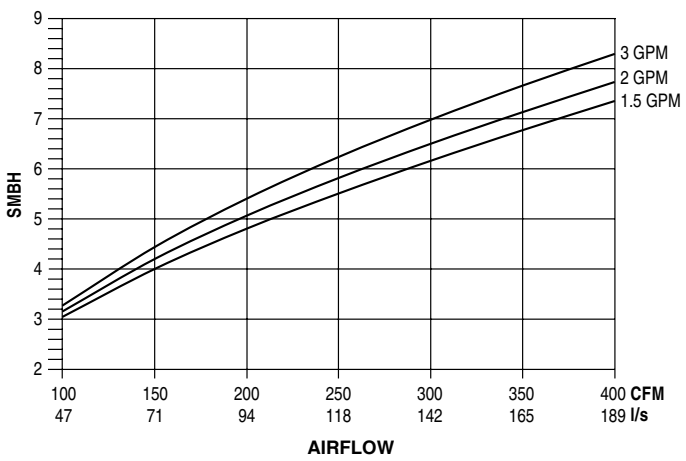
Model Series 41V • Chilled Water Coil Performance Data • Unit Size 4

Data Based on 80°F DB, 67°F WB Entering Air & 45°F Entering Water

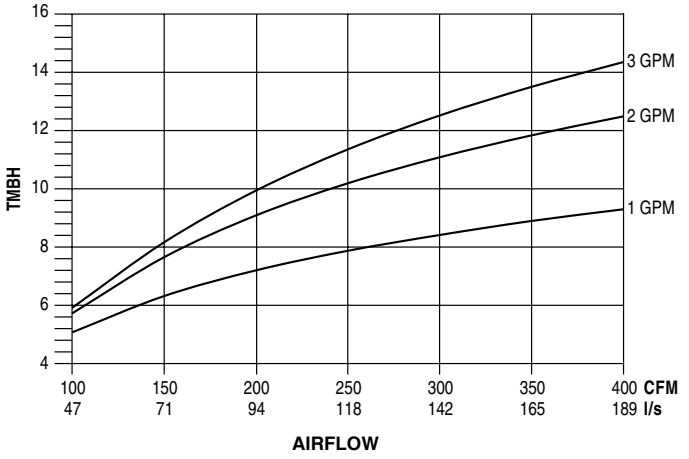
2 Row (Total MBH)



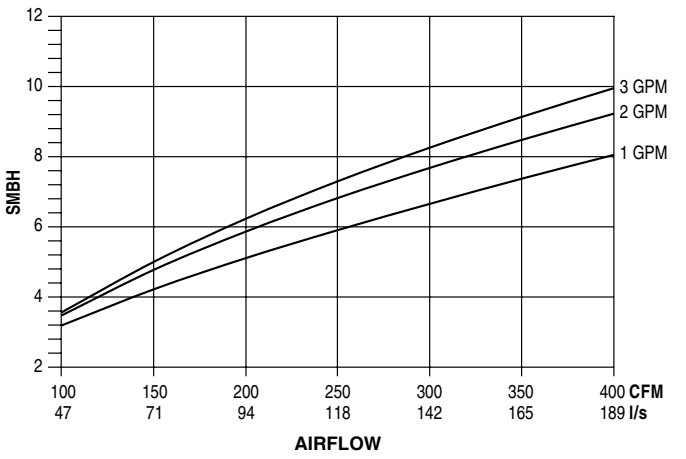
2 Row (Sensible MBH)



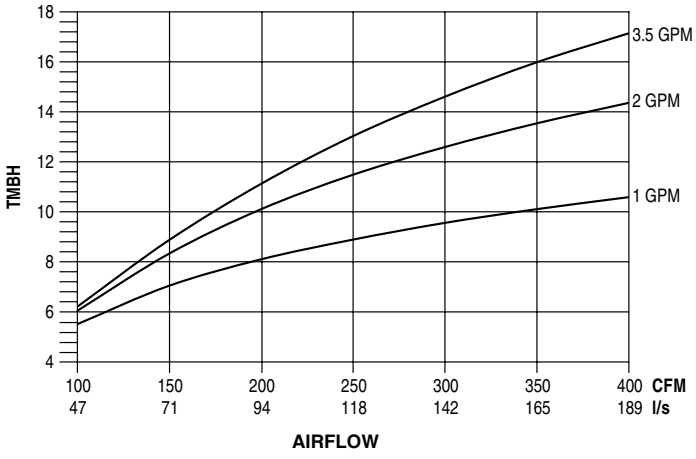
3 Row (Total MBH)



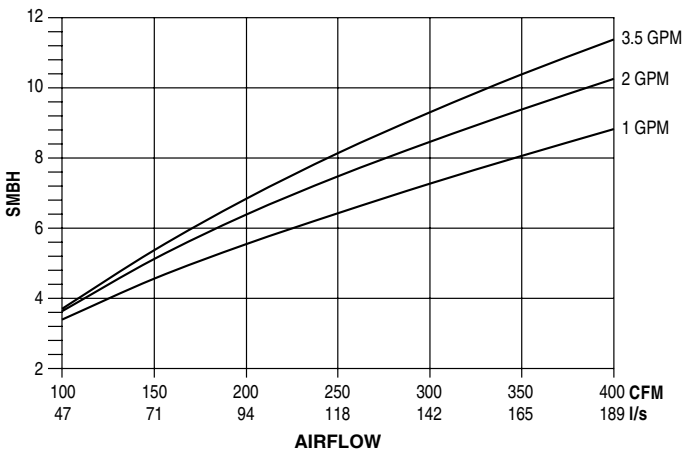
3 Row (Sensible MBH)



4 Row (Total MBH)



4 Row (Sensible MBH)



Altitude Correction Factors

Altitude (ft.)	0	1000	2000	3000	4000	5000	6000	7000
Air Density (lb./cu. ft)	0.075	0.072	0.070	0.067	0.065	0.063	0.060	0.058
Total Capacity	1000	0.988	0.986	0.983	0.981	0.979	0.977	0.975
Sensible Capacity	1000	0.960	0.930	0.900	0.860	0.830	0.800	0.770
Static Pressure	1000	0.960	0.930	0.900	0.860	0.830	0.800	0.770

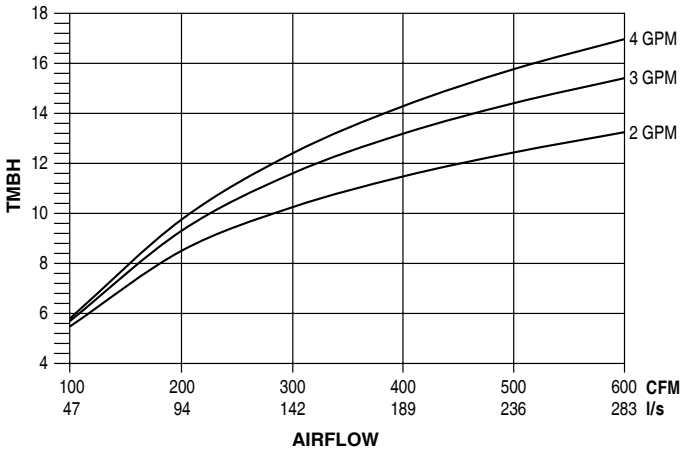
Notes:

1. Capacity and static pressure will be affected for applications above sea level. To apply correction factors, multiply the coil capacity or fan curve data by the tabulated correction factor.
2. Connections: 5/8" (15.9) O.D. male solder.

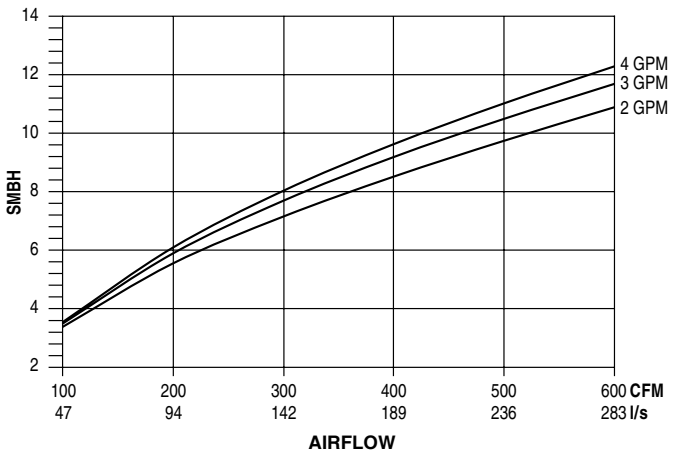
Model Series 41V • Chilled Water Coil Performance Data • Unit Size 6

Data Based on 80°F DB, 67°F WB Entering Air & 45°F Entering Water

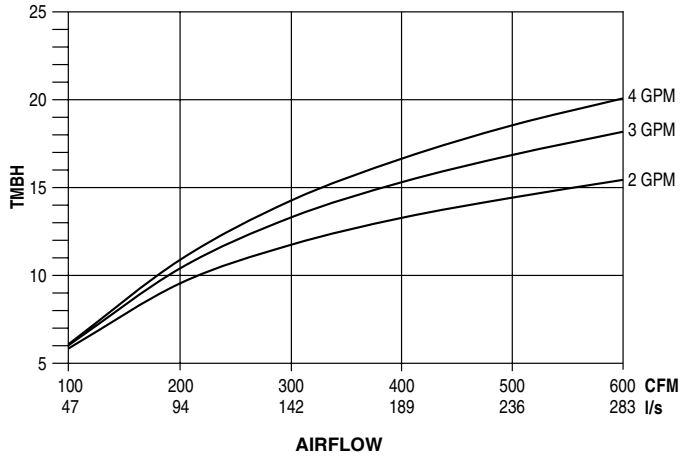
2 Row (Total MBH)



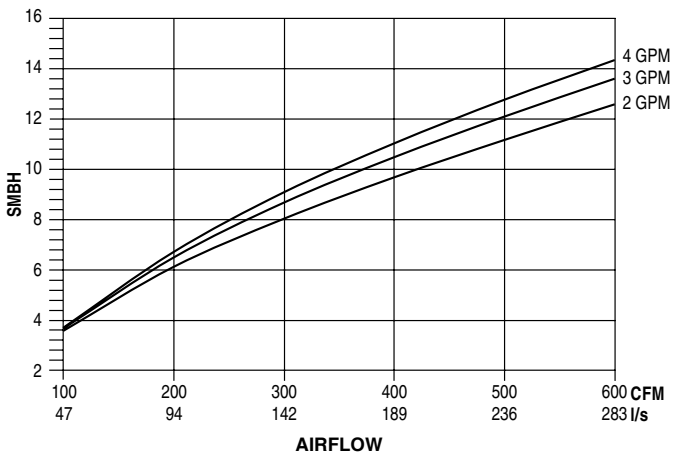
2 Row (Sensible MBH)



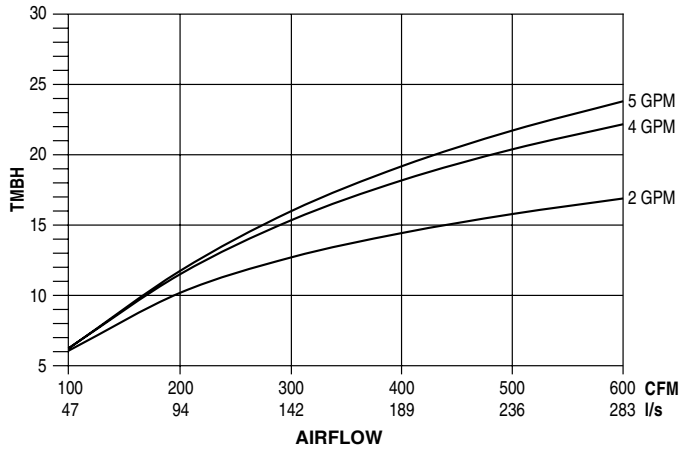
3 Row (Total MBH)



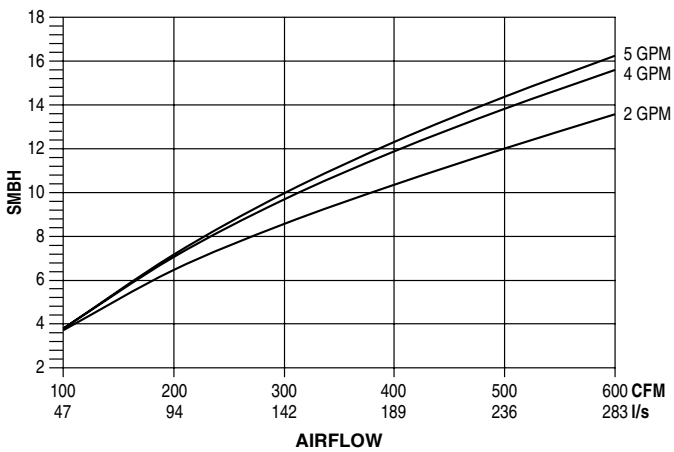
3 Row (Sensible MBH)



4 Row (Total MBH)



4 Row (Sensible MBH)



Altitude Correction Factors

Altitude (ft.)	0	1000	2000	3000	4000	5000	6000	7000
Air Density (lb./cu. ft)	0.075	0.072	0.070	0.067	0.065	0.063	0.060	0.058
Total Capacity	1000	0.988	0.986	0.983	0.981	0.979	0.977	0.975
Sensible Capacity	1000	0.960	0.930	0.900	0.860	0.830	0.800	0.770
Static Pressure	1000	0.960	0.930	0.900	0.860	0.830	0.800	0.770

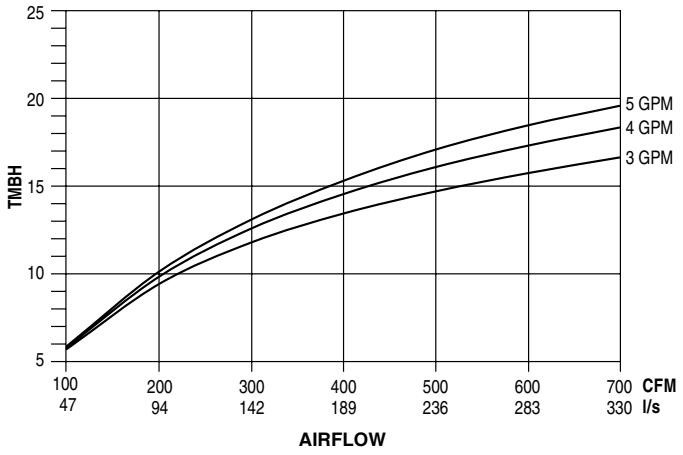
NOTES:

1. Capacity and static pressure will be affected for applications above sea level. To apply correction factors, multiply the coil capacity or fan curve data by the tabulated correction factor.
2. Connections: 5/8" (15.9) O.D. male solder.

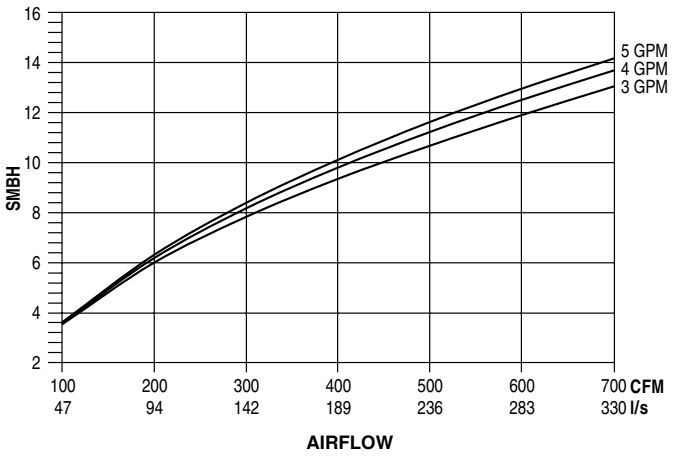
Model Series 41V • Chilled Water Coil Performance Data • Unit Size 8

Data Based on 80°F DB, 67°F WB Entering Air & 45°F Entering Water

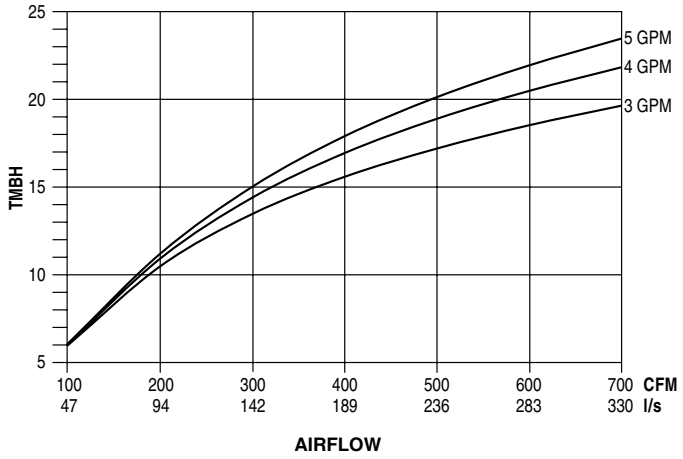
2 Row (Total MBH)



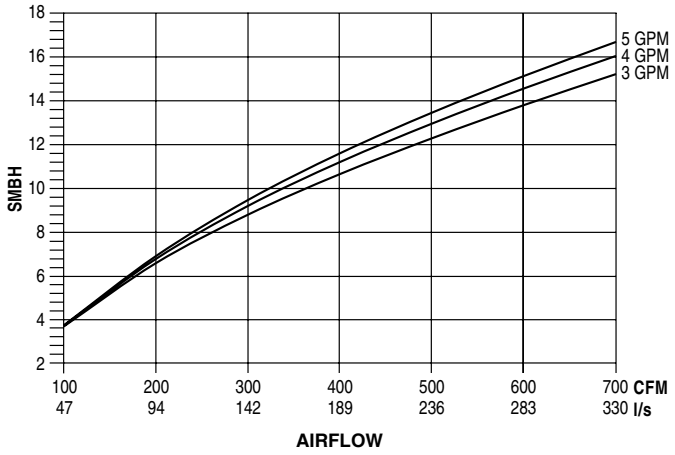
2 Row (Sensible MBH)



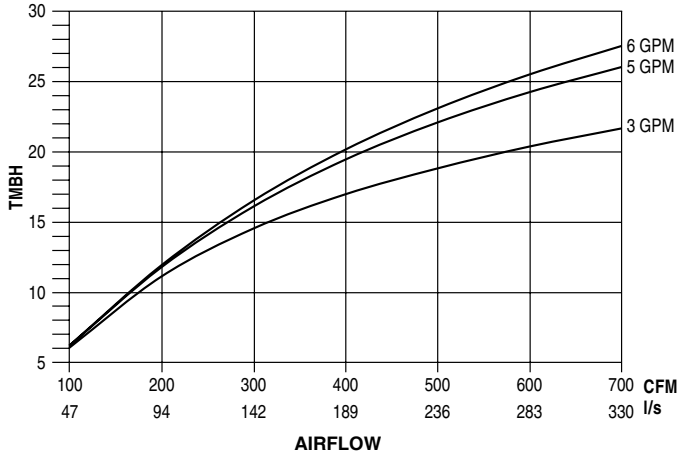
3 Row (Total MBH)



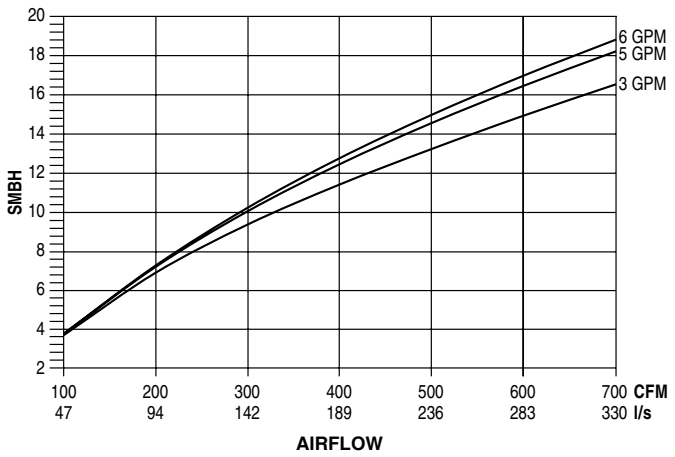
3 Row (Sensible MBH)



4 Row (Total MBH)



4 Row (Sensible MBH)



Altitude Correction Factors

Altitude (ft.)	0	1000	2000	3000	4000	5000	6000	7000
Air Density (lb./cu. ft)	0.075	0.072	0.070	0.067	0.065	0.063	0.060	0.058
Total Capacity	1000	0.988	0.986	0.983	0.981	0.979	0.977	0.975
Sensible Capacity	1000	0.960	0.930	0.900	0.860	0.830	0.800	0.770
Static Pressure	1000	0.960	0.930	0.900	0.860	0.830	0.800	0.770

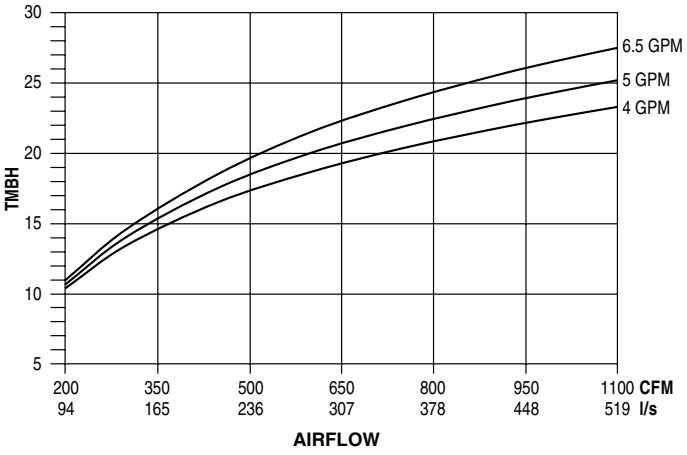
Notes:

1. Capacity and static pressure will be affected for applications above sea level. To apply correction factors, multiply the coil capacity or fan curve data by the tabulated correction factor.
2. Connections: 5/8" (15.9) O.D. male solder.

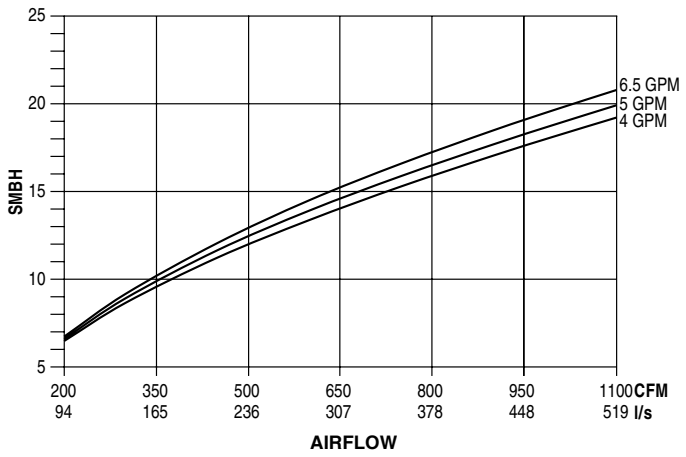
Model Series 41V • Chilled Water Coil Performance Data • Unit Size 10

Data Based on 80°F DB, 67°F WB Entering Air & 45°F Entering Water

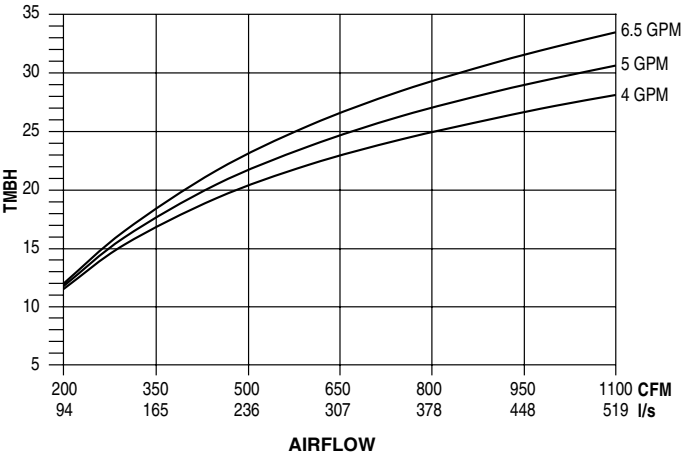
2 Row (Total MBH)



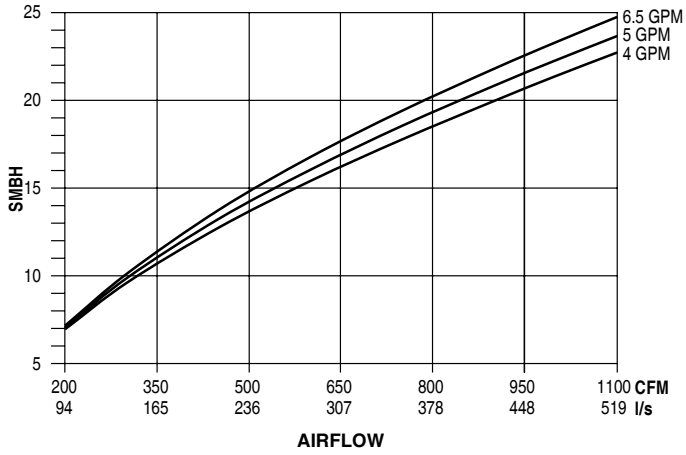
2 Row (Sensible MBH)



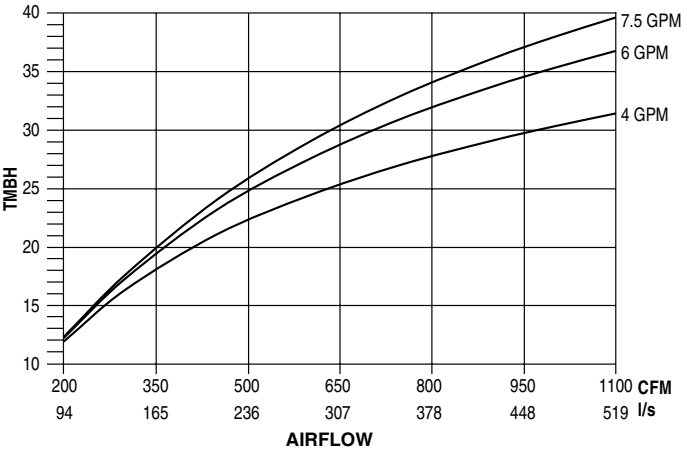
3 Row (Total MBH)



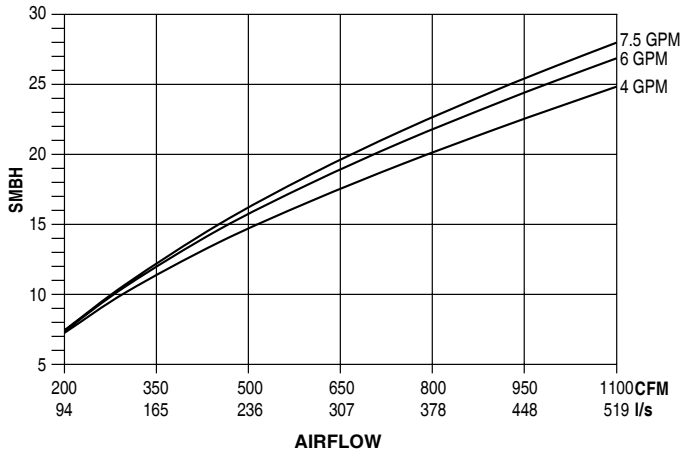
3 Row (Sensible MBH)



4 Row (Total MBH)



4 Row (Sensible MBH)



Altitude Correction Factors

Altitude (ft.)	0	1000	2000	3000	4000	5000	6000	7000
Air Density (lb./cu. ft)	0.075	0.072	0.070	0.067	0.065	0.063	0.060	0.058
Total Capacity	1000	0.988	0.986	0.983	0.981	0.979	0.977	0.975
Sensible Capacity	1000	0.960	0.930	0.900	0.860	0.830	0.800	0.770
Static Pressure	1000	0.960	0.930	0.900	0.860	0.830	0.800	0.770

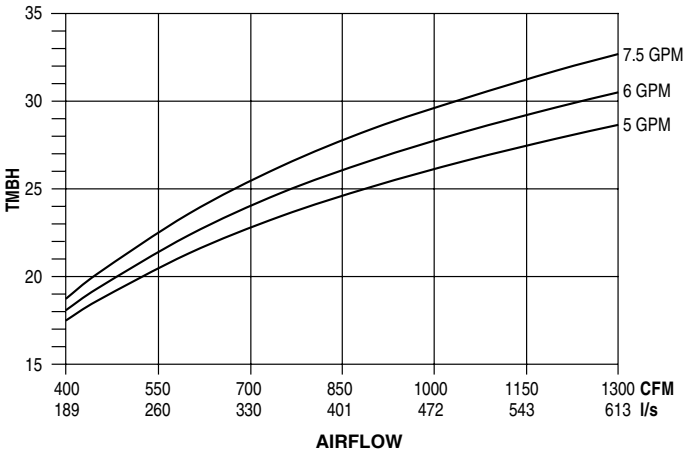
Notes:

1. Capacity and static pressure will be affected for applications above sea level. To apply correction factors, multiply the coil capacity or fan curve data by the tabulated correction factor.
2. Connections: 5/8" (15.9) O.D. male solder.

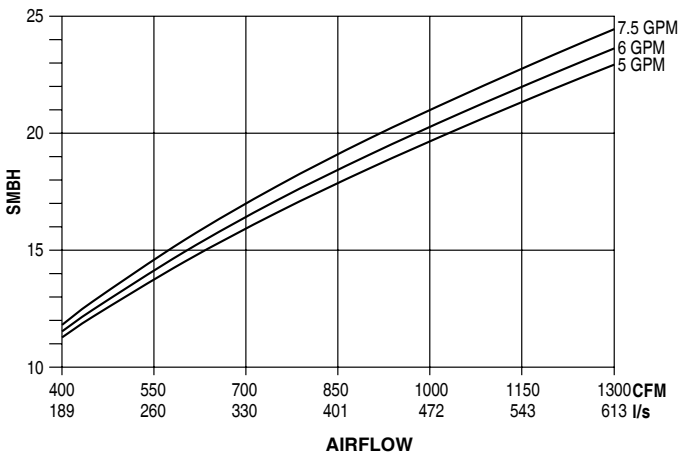
Model Series 41V • Chilled Water Coil Performance Data • Unit Size 12

Data Based on 80°F DB, 67°F WB Entering Air & 45°F Entering Water

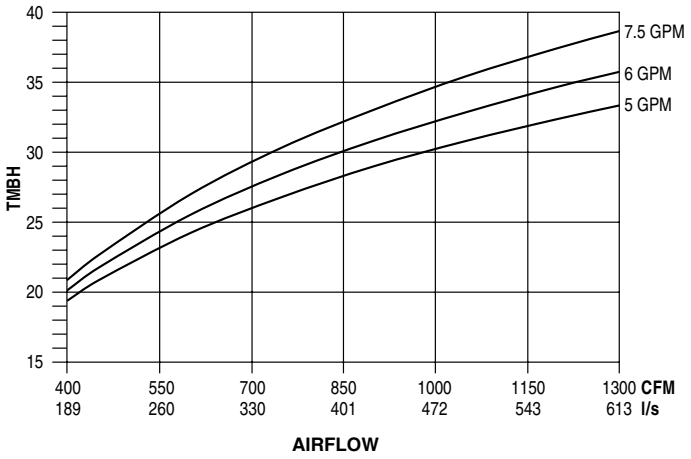
2 Row (Total MBH)



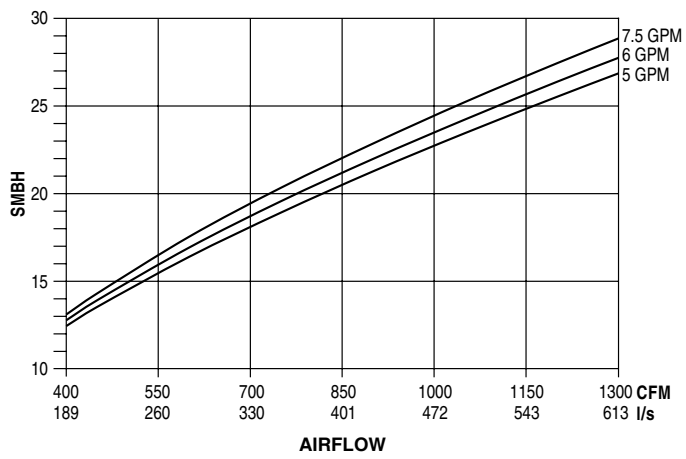
2 Row (Sensible MBH)



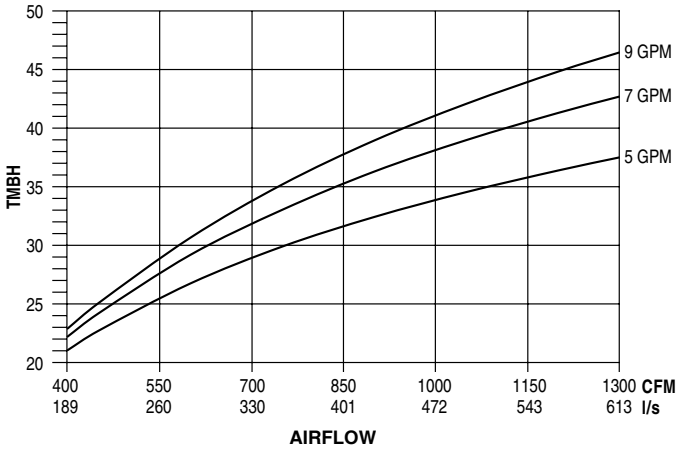
3 Row (Total MBH)



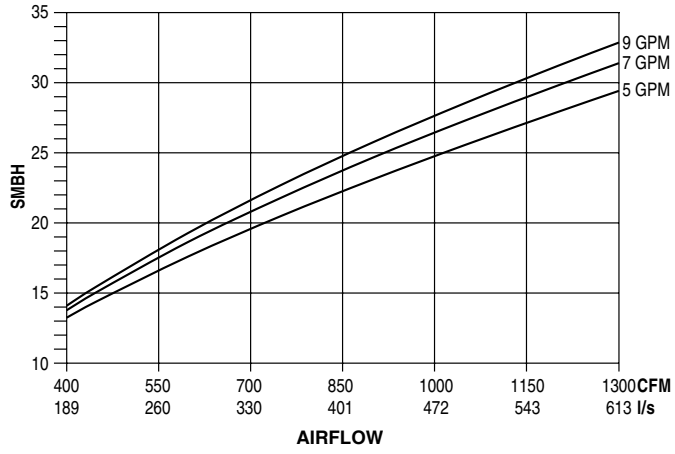
3 Row (Sensible MBH)



4 Row (Total MBH)



4 Row (Sensible MBH)



Altitude Correction Factors

Altitude (ft.)	0	1000	2000	3000	4000	5000	6000	7000
Air Density (lb./cu. ft)	0.075	0.072	0.070	0.067	0.065	0.063	0.060	0.058
Total Capacity	1000	0.988	0.986	0.983	0.981	0.979	0.977	0.975
Sensible Capacity	1000	0.960	0.930	0.900	0.860	0.830	0.800	0.770
Static Pressure	1000	0.960	0.930	0.900	0.860	0.830	0.800	0.770

NOTES:

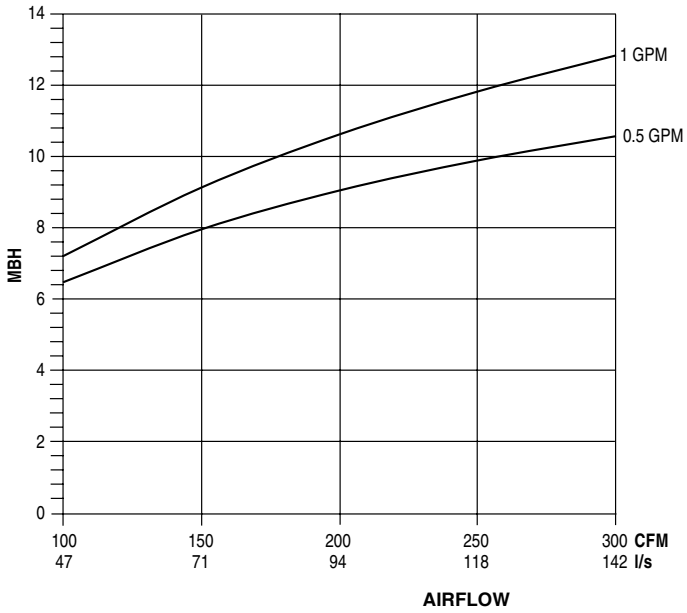
1. Capacity and static pressure will be affected for applications above sea level. To apply correction factors, multiply the coil capacity or fan curve data by the tabulated correction factor.
2. Connections: 5/8" (15.9) O.D. male solder.

Model Series 41V • Hot Water Coil Performance Data

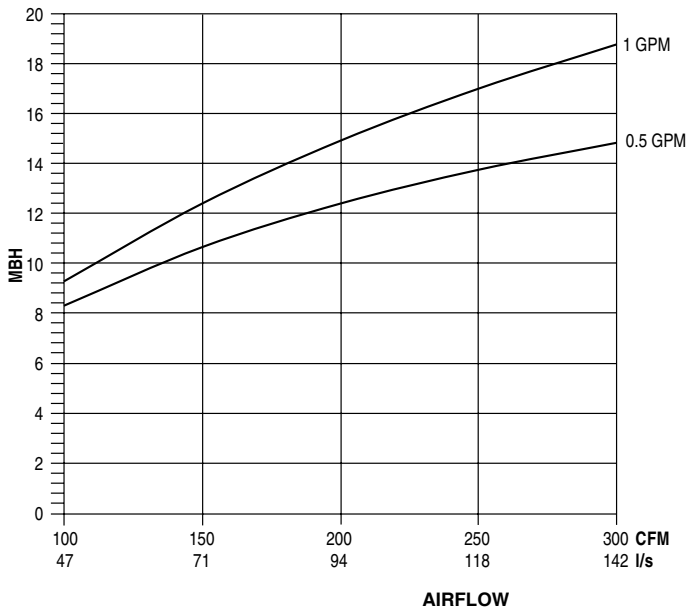
Data Based on 70°F DB Entering Air & 180°F Entering Water

Unit Size 3

1 Row (MBH)

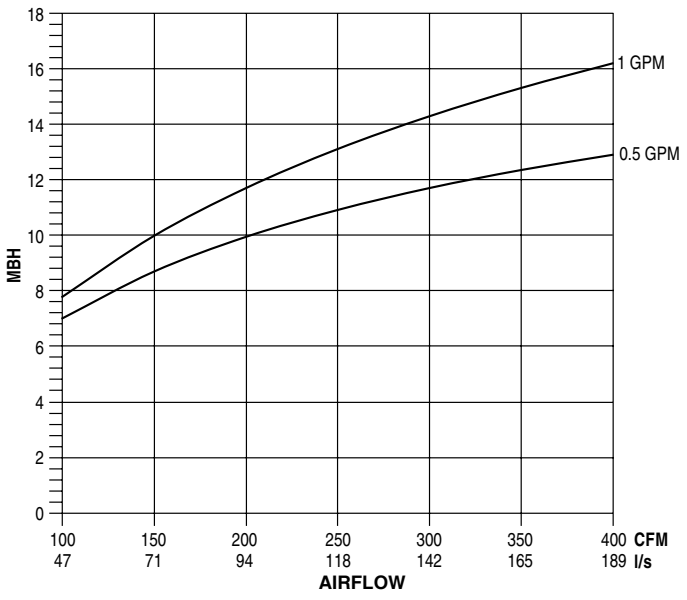


2 Row (MBH)

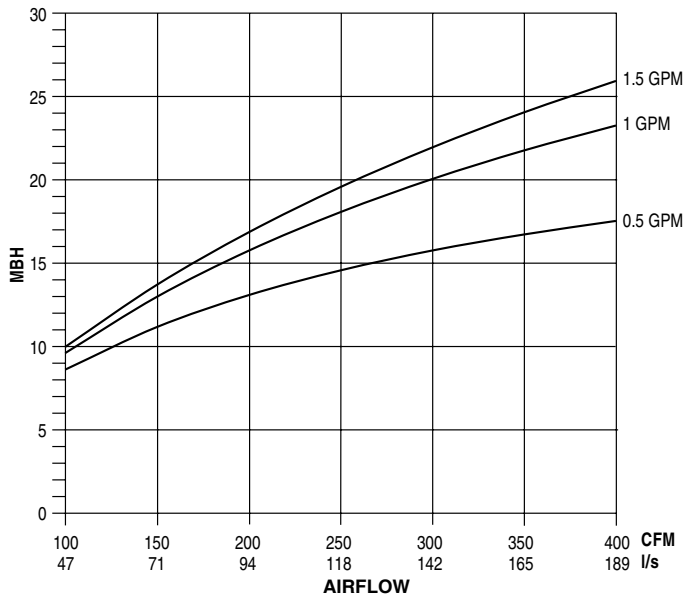


Unit Size 4

1 Row (MBH)



2 Row (MBH)



NOTES:

1. Capacities are in MBH (kW), ***thousands of Btu per hour (kiloWatts)***.
2. MBH (kW) values are based on a Δt (temperature difference) of 110°F (61°C) between entering air and entering water. For other Δt's; multiply the MBH (kW) values by the factors below.
3. Air Temperature Rise.
   ATR (°F) = 927 x $\frac{MBH}{CFM}$, ATR (°C) = 829 x $\frac{kW}{l/s}$
4. Water Temp. Drop.
   WTD (°F) = 2.04 x $\frac{MBH}{GPM}$, WTD (°C) = .224 x $\frac{kW}{l/s}$
5. Connections: One and two row 1/2" (12.7) O.D. male solder.

Altitude Correction Factors:

Altitude ft. (m)	Sensible Heat Factor
0 (0)	1.00
2000 (610)	0.94
3000 (914)	0.90
4000 (1219)	0.87
5000 (1524)	0.84
6000 (1829)	0.81
7000 (2134)	0.78

Correction factors at other entering conditions:

Δt °F (°C)	50 (28)	60 (33)	70 (39)	80 (44)	90 (50)	100 (56)	110 (61)	120 (67)	130 (72)	140 (78)	150 (83)
Factor	.455 (.459)	.545 (.541)	.636 (.639)	.727 (.721)	.818 (.820)	.909 (.918)	1.00 (1.00)	1.09 (1.10)	1.18 (1.18)	1.27 (1.28)	1.36 (1.36)

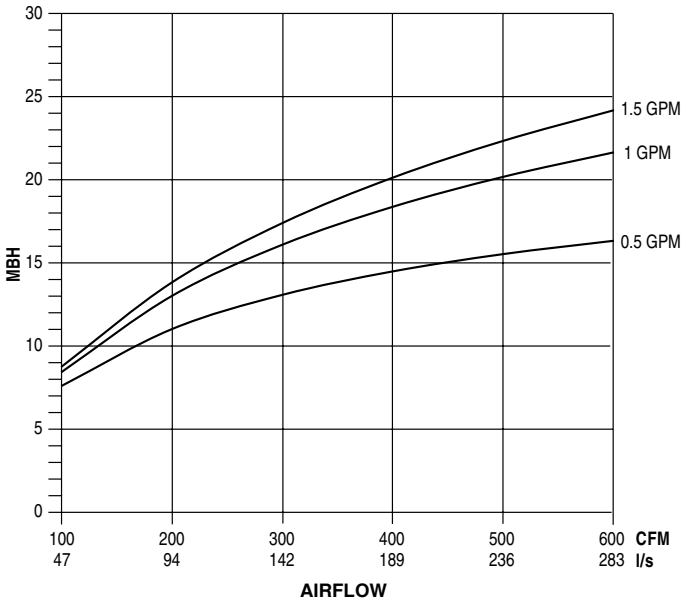
Engineered Comfort

Model Series 41V • Hot Water Coil Performance Data

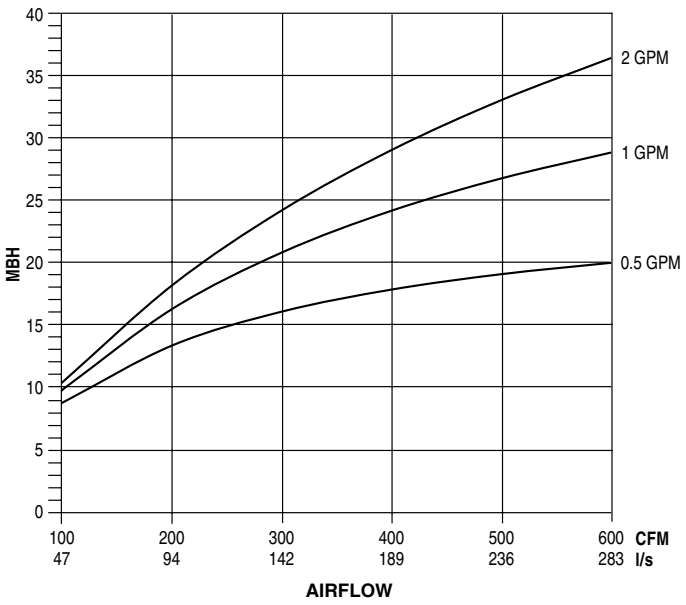
Data Based on 70°F DB Entering Air & 180°F Entering Water

Unit Size 6

1 Row (MBH)

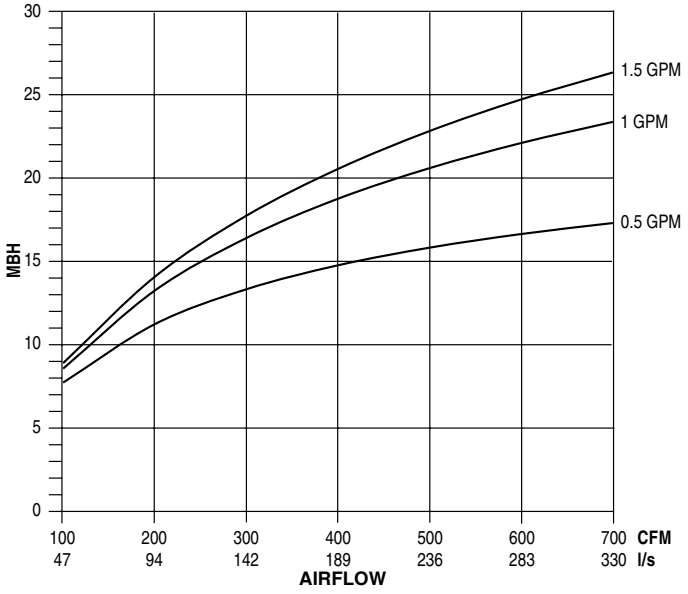


2 Row (MBH)

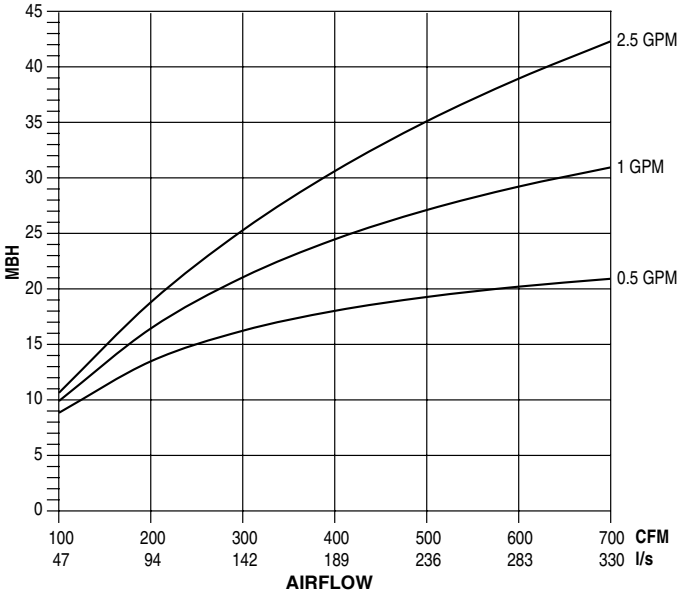


Unit Size 8

1 Row (MBH)



2 Row (MBH)



NOTES:

1. Capacities are in MBH (kW), ***thousands of Btu per hour (kiloWatts)***.
2. MBH (kW) values are based on a Δt (temperature difference) of 110°F (61°C) between entering air and entering water. For other Δt's; multiply the MBH (kW) values by the factors below.
3. Air Temperature Rise.
   ATR (°F) = 927 x $\frac{MBH}{CFM}$, ATR (°C) = 829 x $\frac{kW}{l/s}$
4. Water Temp. Drop.
   WTD (°F) = 2.04 x $\frac{MBH}{GPM}$, WTD (°C) = .224 x $\frac{kW}{l/s}$
5. Connections: One and two row 1/2" (12.7) O.D. male solder.

Altitude Correction Factors:

Altitude ft. (m)	Sensible Heat Factor
0 (0)	1.00
2000 (610)	0.94
3000 (914)	0.90
4000 (1219)	0.87
5000 (1524)	0.84
6000 (1829)	0.81
7000 (2134)	0.78

Correction factors at other entering conditions:

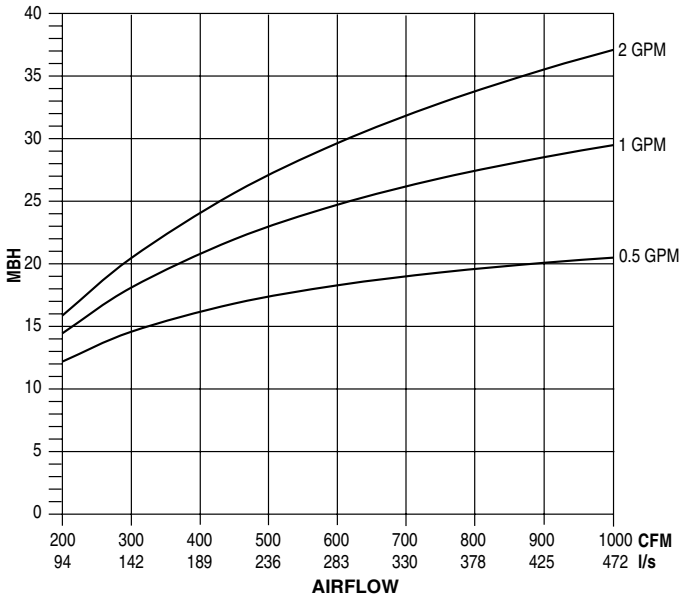
Δt °F (°C)	50 (28)	60 (33)	70 (39)	80 (44)	90 (50)	100 (56)	110 (61)	120 (67)	130 (72)	140 (78)	150 (83)
Factor	.455 (.459)	.545 (.541)	.636 (.639)	.727 (.721)	.818 (.820)	.909 (.918)	1.00 (1.00)	1.09 (1.10)	1.18 (1.18)	1.27 (1.28)	1.36 (1.36)

Model Series 41V • Hot Water Coil Performance Data

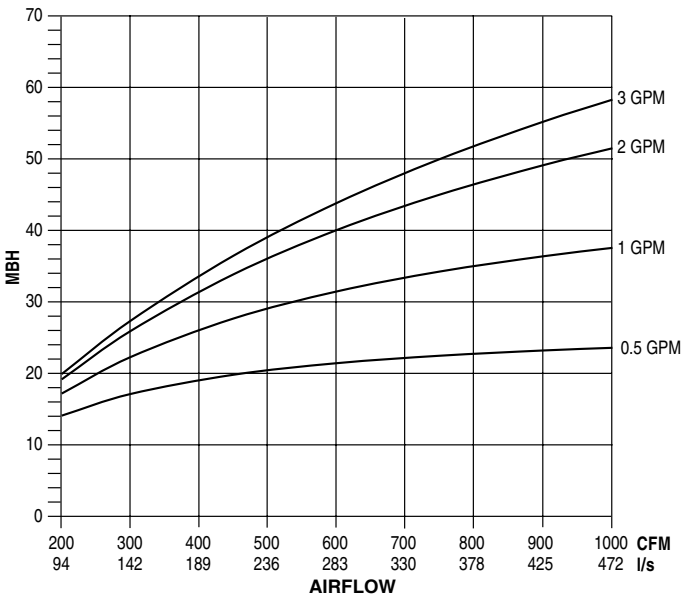
Data Based on 70°F DB Entering Air & 180°F Entering Water

Unit Size 10

1 Row (MBH)

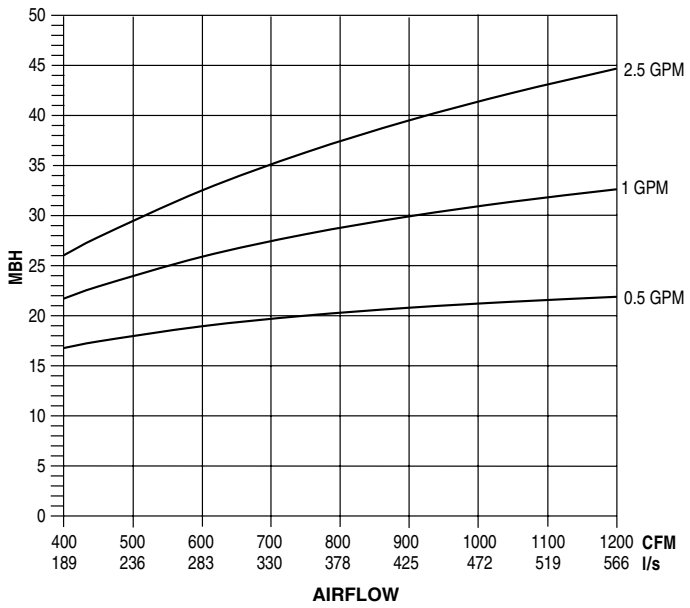


2 Row (MBH)

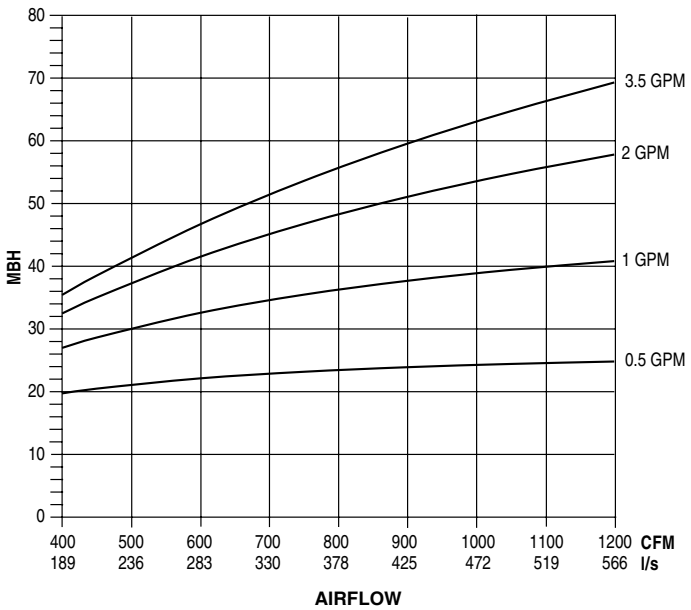


Unit Size 12

1 Row (MBH)



2 Row (MBH)



NOTES:

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2. MBH (kW) values are based on a Δt (temperature difference) of 110°F (61°C) between entering air and entering water. For other Δt's; multiply the MBH (kW) values by the factors below.
3. Air Temperature Rise.
   ATR (°F) = 927 x $\frac{MBH}{CFM}$, ATR (°C) = 829 x $\frac{kW}{l/s}$
4. Water Temp. Drop.
   WTD (°F) = 2.04 x $\frac{MBH}{GPM}$, WTD (°C) = .224 x $\frac{kW}{l/s}$
5. Connections: One and two row 1/2" (12.7) O.D. male solder.

Altitude Correction Factors:

Altitude ft. (m)	Sensible Heat Factor
0 (0)	1.00
2000 (610)	0.94
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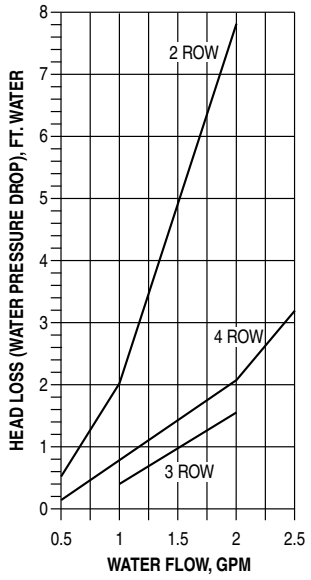
Correction factors at other entering conditions:

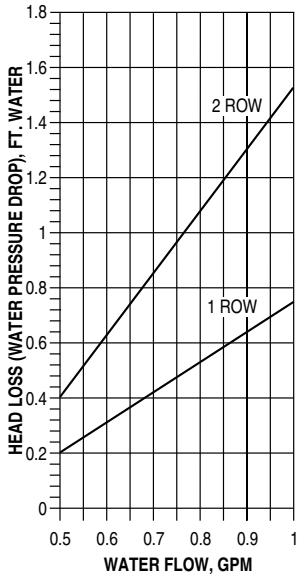
Δt °F (°C)	50 (28)	60 (33)	70 (39)	80 (44)	90 (50)	100 (56)	110 (61)	120 (67)	130 (72)	140 (78)	150 (83)
Factor	.455 (.459)	.545 (.541)	.636 (.639)	.727 (.721)	.818 (.820)	.909 (.918)	1.00 (1.00)	1.09 (1.10)	1.18 (1.18)	1.27 (1.28)	1.36 (1.36)

Model Series 41V • Coil Performance Data • Pressure Drop
Unit Size 3

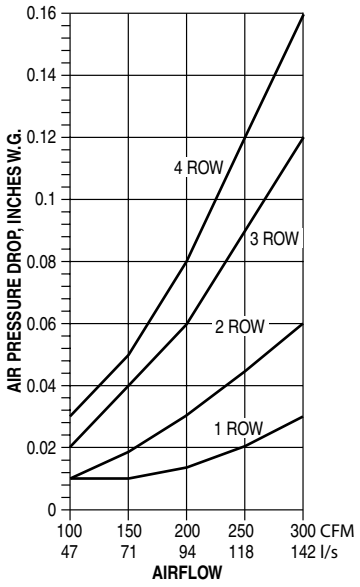
Chilled Water Pressure Drop



Hot Water Pressure Drop

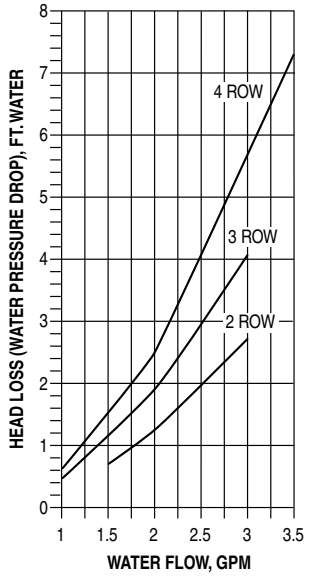


Chilled and Hot Water Air Pressure Drop

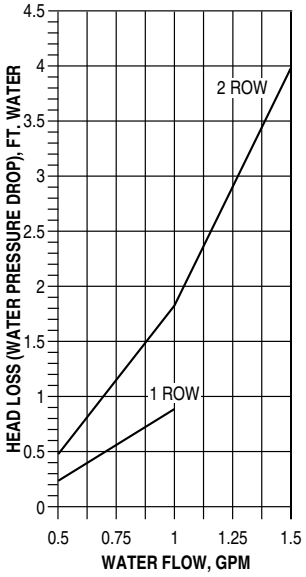


Unit Size 4

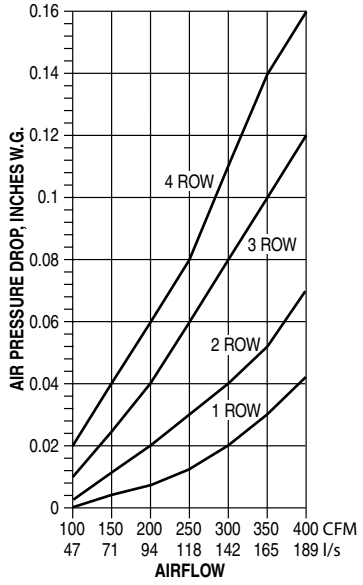
Chilled Water Pressure Drop



Hot Water Pressure Drop



Chilled and Hot Water Air Pressure Drop

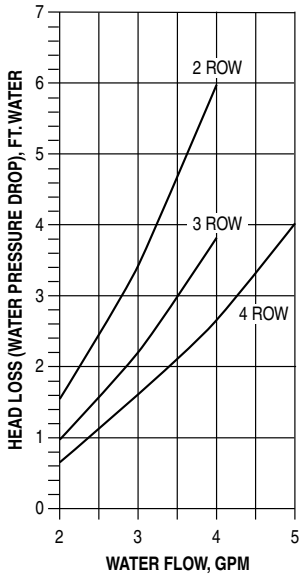


Metric Conversion Factors:

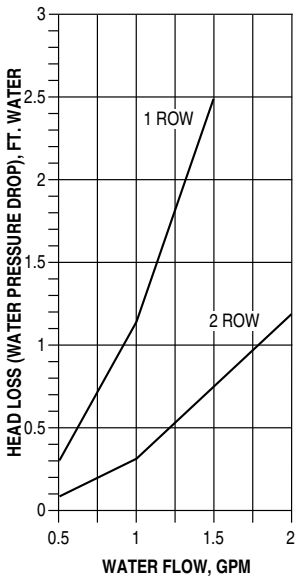
1. Water Flow (liters per second)
   l/s = gpm x 0.6309
2. Water Head Loss (kilopascals):
   kPa = ft. w.g. x 2.9837
3. Airflow Volume (liters per second)
   l/s = CFM x 0.472
4. Air Pressure Drop (Pascals):
   Pa = in. w.g. x 248.6
5. Heat (kilowatts):
   kW = Mbh x 0.293
6. Air Temperature Rise.
   $ATR = 927 \times \frac{Mbh}{CFM}$
7. Water Temp. Drop.
   $WTD = 2.04 \times \frac{Mbh}{GPM}$

Model Series 41V • Coil Performance Data • Pressure Drop
Unit Size 6

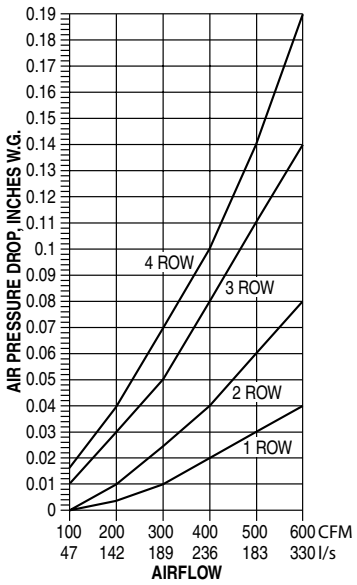
Chilled Water Pressure Drop



Hot Water Pressure Drop

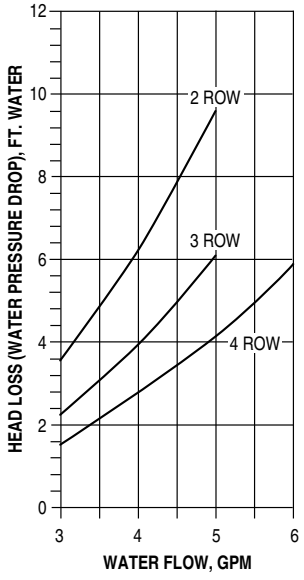


Chilled and Hot Water Air Pressure Drop

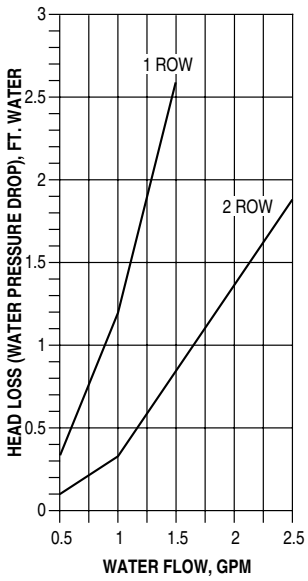


Unit Size 8

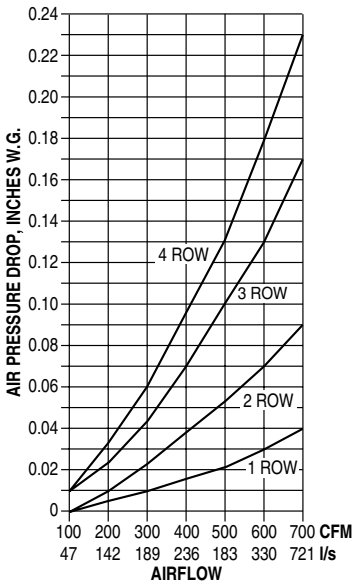
Chilled Water Pressure Drop



Hot Water Pressure Drop



Chilled and Hot Water Air Pressure Drop

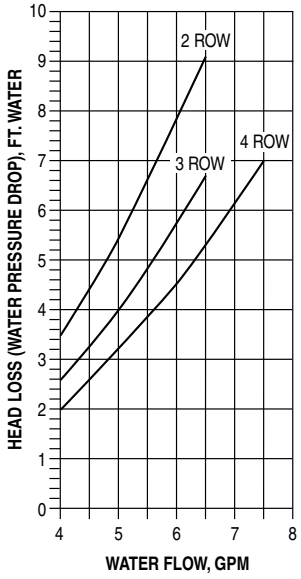


Metric Conversion Factors:

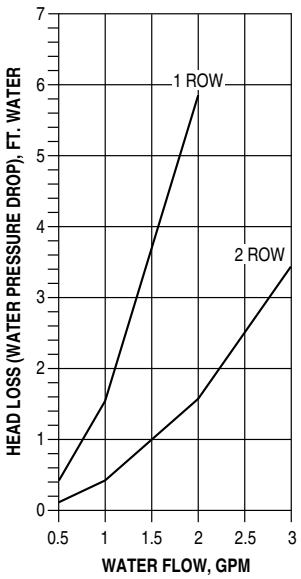
1. Water Flow (liters per second)
   l/s = gpm x 0.6309
2. Water Head Loss (kilopascals):
   kPa = ft. w.g. x 2.9837
3. Airflow Volume (liters per second)
   l/s = CFM x 0.472
4. Air Pressure Drop (Pascals):
   Pa = in. w.g. x 248.6
5. Heat (kilowatts):
   kW = Mbh x 0.293
6. Air Temperature Rise.
   $ATR = 927 \times \frac{Mbh}{CFM}$
7. Water Temp. Drop.
   $WTD = 2.04 \times \frac{Mbh}{GPM}$

Model Series 41V • Coil Performance Data • Pressure Drop
Unit Size 10

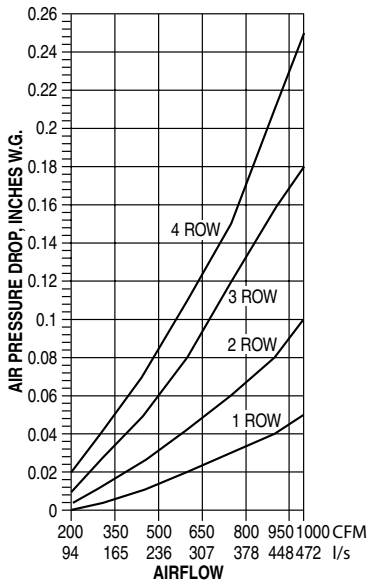
Chilled Water Pressure Drop



Hot Water Pressure Drop

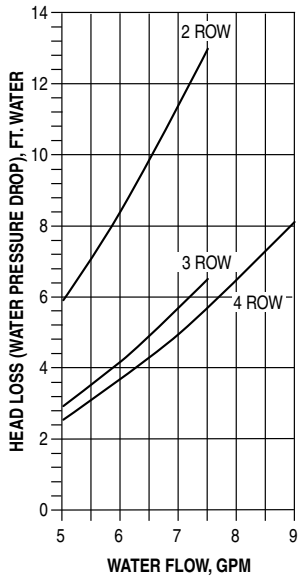


Chilled and Hot Water Air Pressure Drop

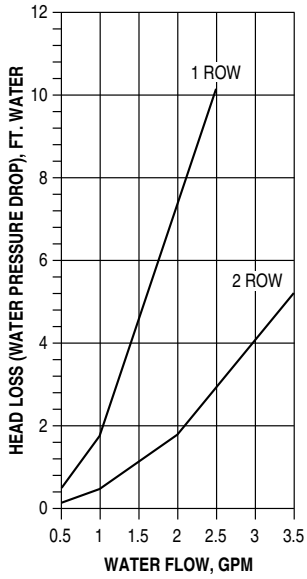


Unit Size 12

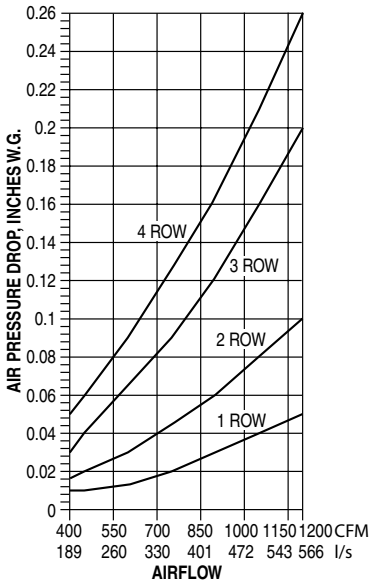
Chilled Water Pressure Drop



Hot Water Pressure Drop



Chilled and Hot Water Air Pressure Drop



Metric Conversion Factors:

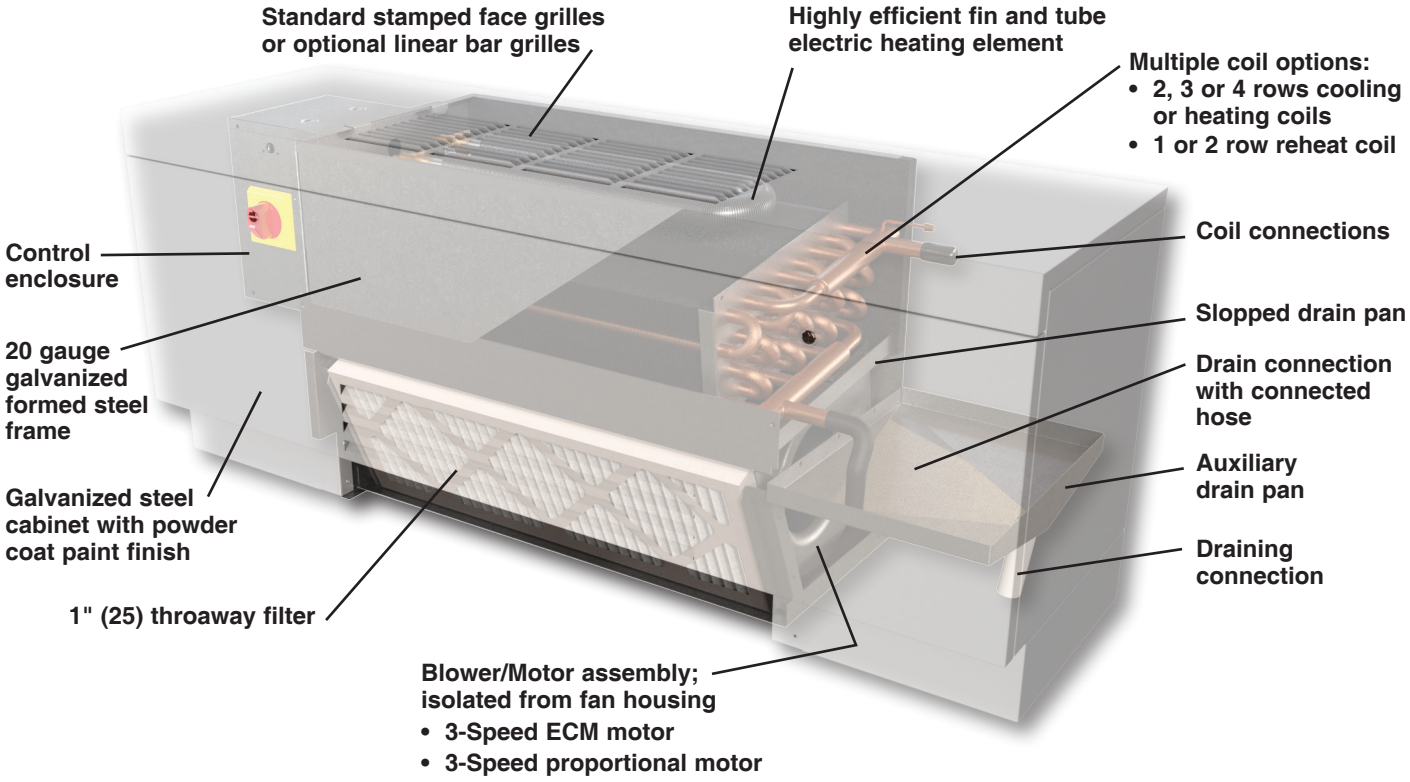
1. Water Flow (liters per second)
   l/s = gpm x 0.6309
2. Water Head Loss (kilopascals):
   kPa = ft. w.g. x 2.9837
3. Airflow Volume (liters per second)
   l/s = CFM x 0.472
4. Air Pressure Drop (Pascals):
   Pa = in. w.g. x 248.6
5. Heat (kilowatts):
   kW = Mbh x 0.293
6. Air Temperature Rise.
   $ATR = 927 \times \frac{Mbh}{CFM}$
7. Water Temp. Drop.
   $WTD = 2.04 \times \frac{Mbh}{GPM}$

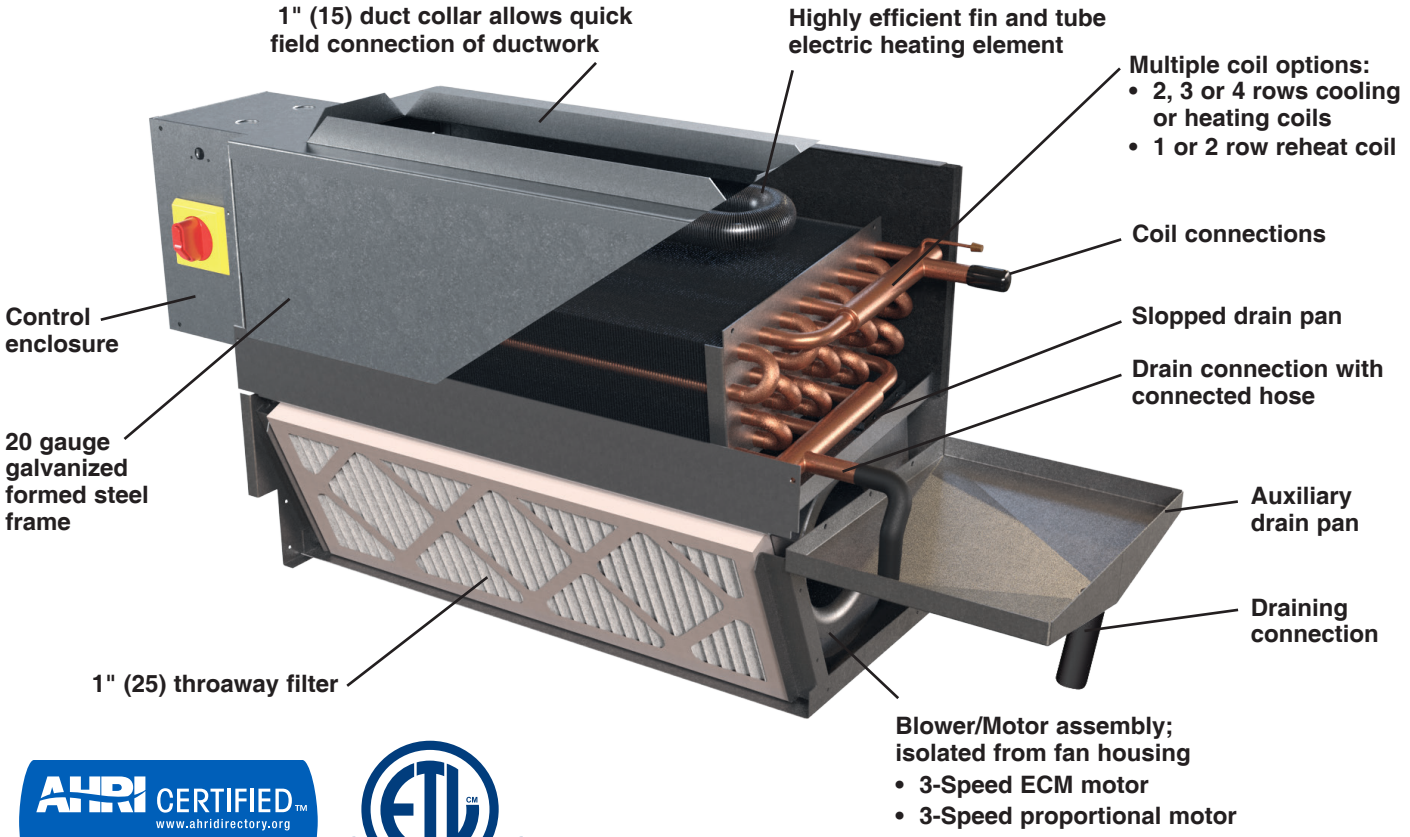
Model Series 41V • Suggested Specifications

1. General
   Furnish and install Engineered Comfort® Vertical Floor Direct Drive Fan Coil Units where indicated on the plans and in the specifications. All units shall be capable of meeting or exceeding the scheduled capacities for cooling, heating and air delivery. Units shall be ETL listed in compliance with UL/ANSI Standard 1995, and be certified as complying with ARI Standard 440.
2. Construction
   a. 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 unit chassis panels shall be insulated with 2 lb/cu.ft water repellent fiberglass insulation. 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 0, no observed growth, per ASTM G-21.
   b. All exposed units shall have exterior panels fabricated of not less than 20-gauge galvanized steel. Optional: 16-gauge front panel on exposed units.
   The front panel shall be attached with quarter turn quick open fasteners to allow for easy removal and access for service.
   Optional: The front panel shall be attached with tamper proof fasteners.
   c. Top panel shall be removable from fan coil without the need to disconnect piping or electrical wiring. The top panel shall be removed through no more than 8 screws.
   d. Model 41VX exposed units shall include a recessed stamped louver discharge grille.
   Model 41VS exposed sloped top units include an architectural grade linear bar discharge grille with a powder coated paint finish to match cabinet color. Optional on 41VX exposed units.
   e. All concealed units shall have a minimum 1" (25) duct collar on the discharge.
3. Painted Finish
   All painted cabinet exterior panels shall be finished with a TGIC Polyester powder paint of the standard factory color. Optional
   • Models 41VX and 41VS vertical floor fan coil units are available in a variety of woodgrain finishes.
4. Sound
   Units shall have published sound power level data tested in accordance with AHRI Standard 350.
5. Power
   Units shall not exceed scheduled power consumption.
6. Fan & Motor
   a. Unit fan shall be dynamically balanced, forward curved, DWDI centrifugal type constructed of galvanized steel for corrosion resistance. Motors shall be high efficiency, permanently lubricated sleeve bearing, permanent split-capacitor type with UL and CSA listed automatic reset thermal overload protection and three separate speed taps. Shaded pole motors are not acceptable. Single speed motors are not acceptable.
   b. The fan/motor assembly shall be removable and serviceable through the front panel. Each fan/motor assembly shall be fastened by no more than 2 screws. The motors shall have quick connectors to allow service and removal without the need for tools.
7. Drain Pan
   a. Primary condensate drain pans shall be single wall, heavy gauge galvanized steel for corrosion resistance, and extend under the entire coil section. Drain pans shall be of one-piece construction and be positively sloped for condensate removal. Drain pan access that requires removal of coils is not acceptable.
   b. The primary drain pan shall be externally insulated with a fire retardant, elastomeric 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 an Antimicrobial Performance Rating of 0, no observed growth, per ASTM G-21.
   Optional
   • Provide a primary drain pan constructed entirely of heavy gauge stainless steel for superior corrosion resistance.
8. Coils
   a. All cooling and heating coils shall optimize rows 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. Minimum copper tube thickness shall be 0.016". Optional: 0.025".
   High efficiency aluminum fins optimized for efficient heat transfer, air pressure drop and carryover. Lanced fins shall not be acceptable. Optional: Copper fins.
   b. All coils shall be tested at 325 PSIG air pressure under water, and rated for a maximum 300 PSIG working pressure at 200°F (93°C). Coils shall be circuited for counter flow to maximize unit efficiency.
   All water coils shall be designed to connect with 1/2" (13) nominal pipe connections.
   c. Coil Casing shall be fabricated from galvanized steel.
   Optional: Stainless steel.
   d. Heating coils shall be furnished in the re-heat. Optional: Pre-heat position.
   e. All water coils shall be provided with a manual air vent to allow for coil venting.
9. Filters
   All units shall be furnished with a minimum 1" (25) fiberglass throwaway. Optional: 1" (25) pleated MERV 8 filter.
   Filters shall be tight fitting to prevent air bypass. Filters shall be easily removable from the return air opening without the need for tools.
10. Electrical
    Units shall be furnished with single point power connection. Provide an electrical control box for motor and other electrical terminations.
11. Electric Heat:
    a. 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 rated for installation on the fan coil unit and be located so as not to expose the fan assembly to excessive leaving air temperatures that could affect motor performance.
    b. The heater and unit assembly shall be listed for zero clearance and meet all NEC requirements, and be ETL listed with the unit as an assembly in compliance with UL/ANSI Standard 1995.
    c. All heating elements shall be open coil type high grade Class A 80/20 Ni-Chrome wire mounted in ceramic insulators. All internal wiring shall be rated for 221°F (105°C) minimum.
    d. All heaters shall include over temperature protection consisting of an automatic reset primary thermal limit. All heaters shall be single stage.
12. Piping Packages:
    a. Provide a standard factory assembled valve piping package to consist of a 2 or 3-way, on/off, motorized electric control valve and two isolation ball valves.
    b. Control valves shall be piped normally closed to the coil. Maximum entering water temperature on the control valve shall be 200°F (93°C) and maximum operating pressure shall be 190 PSIG.
    c. Unions shall be provided to allow removal of piping package from unit without the need for brazing or cutting pipe.
    Optional
    • Provide modulating control valve (fail-in-place), in lieu of standard 2-position control valve with factory assembled valve piping package.
    • Provide either a fixed or adjustable flow control device for each piping package.
    • Provide pressure/temperature ports (P/T) for each piping package to allow measurement across the coil.
    Piping packages shall be completely factory assembled, including interconnecting pipe and shipped loose for field installation.

Engineered Comfort

Model Series 42V • Vertical Low Profile Floor Fan Coil Units
Models: 42VC and 42VX





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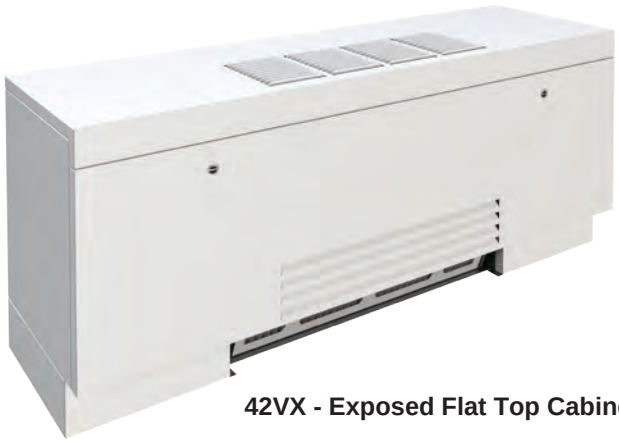
ETL LISTED C US Intertek

Model Series 42V • Vertical Low Profile Floor Fan Coil Units
Models: 42VC and 42VX



42VX - Exposed Flat Top Cabinet

42VC - Concealed

Standard Features

CONSTRUCTION ALL UNITS
- 20 ga. (1.00) galvanized steel casing.
- Return air open toe space.
- 1/2" (13) thick, dual density fiberglass (tough guard) insulation with water repellent facing.
- 1" (25) throwaway filter.
- AHRI 440 certified and labeled.
- Insulated galvanized auxiliary drain pan.

MODEL 42VC CONCEALED UNITS
- Top supply air with 1" (25) duct collar.

MODEL 42VX EXPOSED CABINET UNITS
- Top stamped louver supply grille.
- ¼-turn slotted cabinet fastener(s).
- Durable powder coat paint.
- End pockets with removable panels.
- 20 ga. (1.00) exterior panel construction.

FAN/MOTOR ASSEMBLIES
- Forward curved type blowers.
- Single phase, 3-Speed ECM motor(s).
- Quick disconnect motor connections.
- Easily removable slide out fan/motor deck for service.

COILS

2-pipe System:
- Type Z: 2, 3 & 4 row coil for cooling or heating.
- Type W: 1, 2 & 3 row coil for heating.

4-pipe System:
- Type ZW: 3 & 4 row coil for cooling and heating.
- 1/2" (12.7) O.D. seamless copper tubes.
- 0.016" (0.406) tube wall thickness.
- 0.0045" (0.114) aluminum corrugated fins.
- Right or Left (optional) hand connections. Same end.
- Re-heat position.
- Easily removable for service.
- Manual air vent(s).
- AHRI 410 certified and labeled.

DRAIN PANS
- Single wall galvanized steel with fiber-free elastomeric external insulation.
- Positively sloped to drain connection.
- Galvanized auxiliary drip pan.
- 3/4" (19) MPT drain connection.

ELECTRICAL
- ETL listed for safety compliance.
- Electrical junction box for field wiring terminations.
- Terminal block for field connections.
- 120, 208, 240 or 277 Volts (60 Hz) power supply.

ELECTRIC HEAT
- Finned tubular element, protects against electric shock.
- cETL listed as an assembly.
- Integral electric heat assembly with removable elements for easy service.
- Automatic reset hi-limit cut-out(s).
- Single point electrical connection.

PAINTED FINISH
- All painted cabinet exterior panels shall be finished with a TGIC Polyester powder paint of the standard factory color.

Model Series 42V • Vertical Low Profile Floor Fan Coil Units
Models: 42VC and 42VX

Options and Accessories

CONSTRUCTION ALL UNITS
- 16 1/2" (419) Extended Height.
- Foil faced fiberglass insulation.
- Elastomeric closed cell foam insulation.
- Outside air damper.
- Spare 1" (25) throwaway filters.
- 1" (25) MERV 8 pleated filter.
- 1" (25) adjustment leveling legs.

Model 42VX Exposed Cabinet Units
- Architectural linear bar discharge grille.
- Tamper proof fasteners.

FAN ASSEMBLIES
- Ultra energy efficient proportional ECM fan motor(s) with thermal overload protection.

COILS
- Automatic air vent(s).
- Stainless steel coil casings.
- 1/2" O.D. seamless copper tubes.
- 0.025" (0.635) Tube wall.

DRAIN PANS
- Stainless steel construction with elastomeric external insulation.
- Stainless steel auxiliary drip pan

ELECTRICAL
- Proportional (variable air volume) ECM Motor
- Fan relay packages.
- Toggle disconnect switch.
- Door interlocking disconnect switch.
- Main fusing.
- Unit mount 3-speed switch.

CONTROLS
- Digital VAV sequences.
- 3-Speed fan electric sequences with LCD digital display or programmable thermostat.
- EZstat digital controls thermostat (BACnet ready).
- Digital display and/or programmable thermostat.
- Unit or remote mounted thermostat.
- 2-pipe and 4-pipe control sequences.
- Automatic and manual changeover.

PIPING PACKAGES
- Factory assembled – Factory mounted or shipped loose for field installation.
- 1/2" (13), 2-way and 3-way normally closed, two position electric motorized valves.
- Isolation ball valves with memory stop.
- Fixed and adjustable flow control device.
- Unions and P/T ports.
- Modulating valves.

PAINTED FINISH
- Model 42VX vertical floor fan coil units are available in a variety of woodgrain finishes.

Engineered Comfort

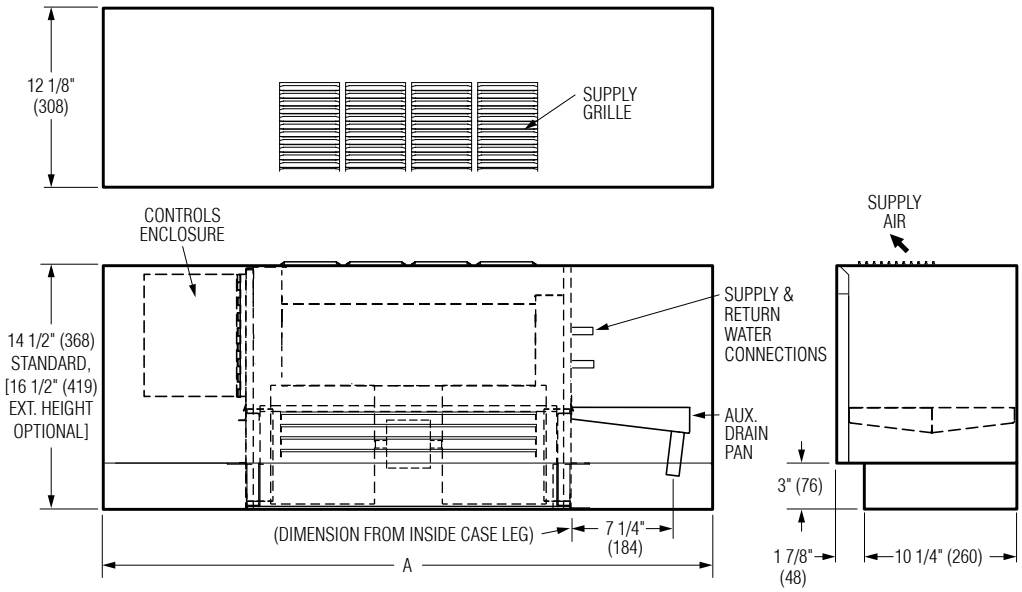
Model Series 42V • Low Profile
Model: 42VX • Exposed Flat Top Cabinet

TYPE:

Z Chilled/Hot Water (2-pipe system)
Coil Options:
- 2 Row C/HW
- 3 Row C/HW
- 4 Row C/HW

W Hot Water Only (2-pipe system)
Coil Options:
- 1 Row
- 2 Rows
- 3 Rows

ZW Chilled & Hot Water (4-pipe system)
Coil Options:
- 2/1 CW/HW Rows
- 3/1 CW/HW Rows
- 2/2 CW/HW Rows



Dimensional Data

Unit Size	Nominal CFM (l/s)	A	Filter Size W x H
2	200 (94)	41 (1041)	21 3/4 x 7 (552 x 178)
3	300 (142)	46 (1168)	26 3/4 x 7 (679 x 178)
4	400 (189)	54 (1372)	34 3/4 x 7 (883 x 178)
6	600 (283)	68 (1727)	48 3/4 x 7 (1238 x 178)

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Engineered Comfort

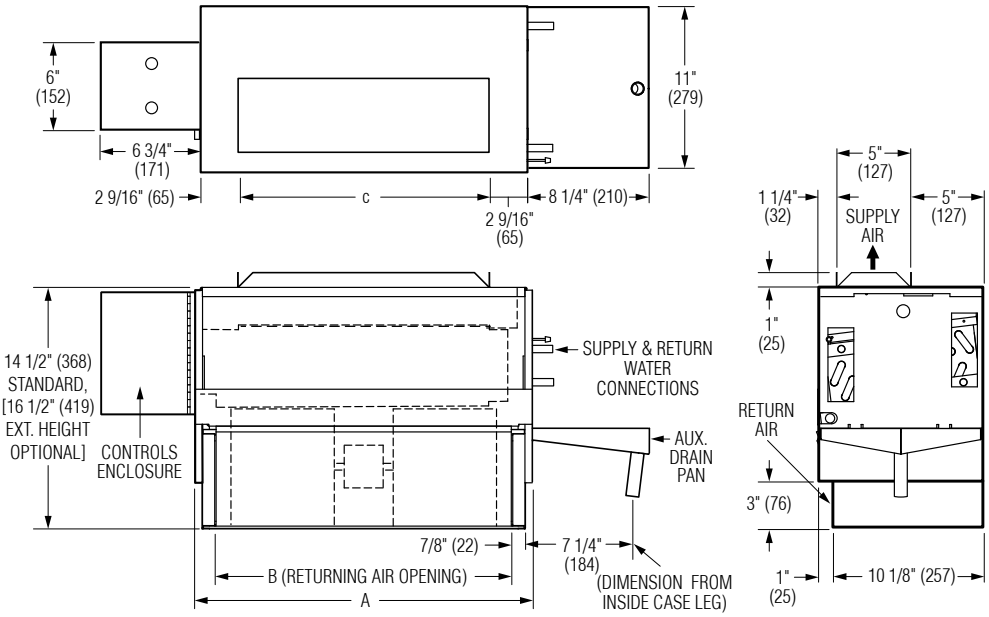
Model Series 42V • Low Profile
Model: 42VC • Concealed Unit • Top Supply

TYPE:

Z Chilled/Hot Water (2-pipe system)
Coil Options:
- 2 Row C/HW
- 3 Row C/HW
- 4 Row C/HW

W Hot Water Only (2-pipe system)
Coil Options:
- 1 Row
- 2 Rows
- 3 Rows

ZW Chilled & Hot Water (4-pipe system)
Coil Options:
- 2/1 CW/HW Rows
- 3/1 CW/HW Rows
- 2/2 CW/HW Rows



Dimensional Data

Unit Size	Nominal CFM (l/s)	A	B	C	Filter Size W x H
2	200 (94)	22 1/8 (562)	20 (508)	17 (432)	21 3/4 x 7 (552 x 178)
3	300 (142)	27 1/8 (689)	26 (660)	22 (559)	26 3/4 x 7 (679 x 178)
4	400 (189)	35 1/8 (892)	34 (864)	30 (762)	34 3/4 x 7 (883 x 178)
6	600 (283)	49 1/8 (1248)	47 3/4 (1213)	44 (1118)	48 3/4 x 7 (1238 x 178)

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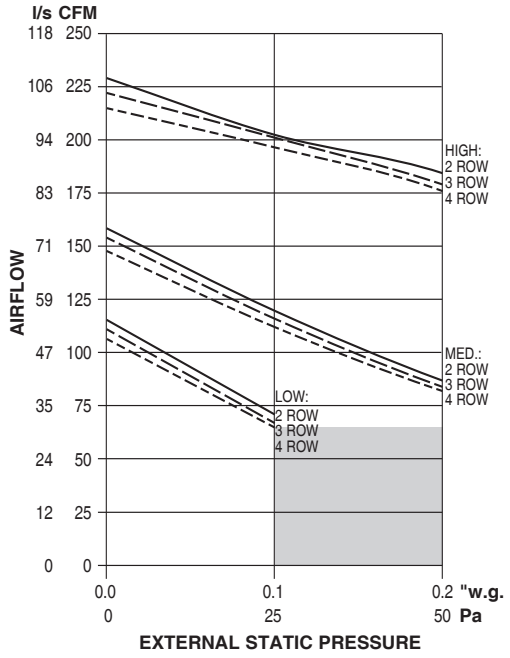
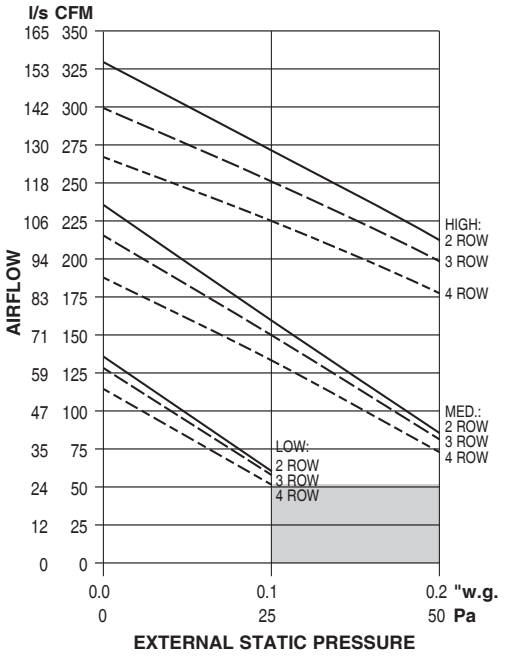
Model 42VC Concealed and 42VX Exposed Cabinet
3-Speed ECM Fan Performance Curves
Airflow vs. External Static Pressure

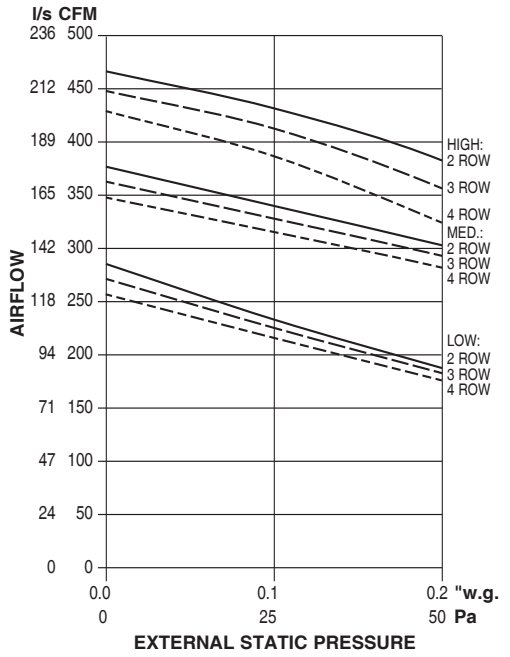
Unit Size 2



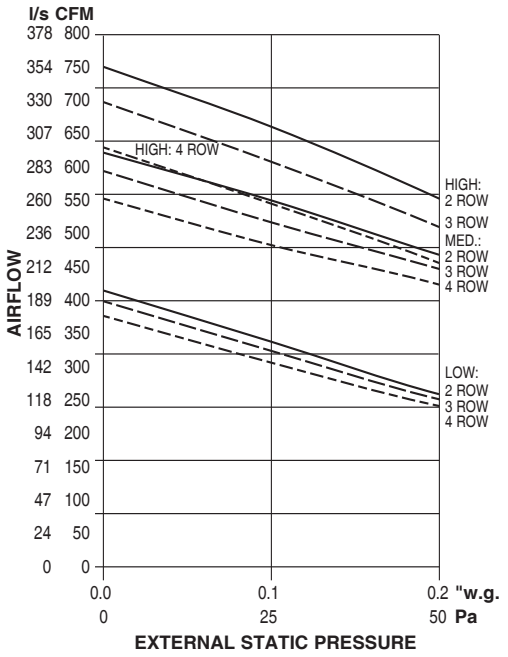
Unit Size 3



Unit Size 4



Unit Size 6

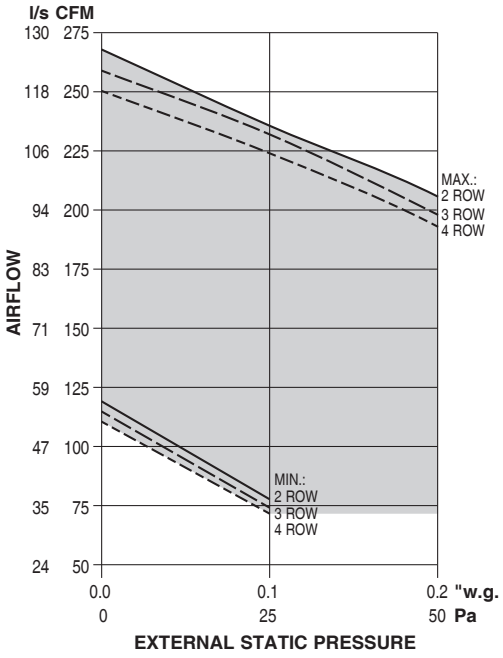


3-Speed ECM Motor Fan Notes:

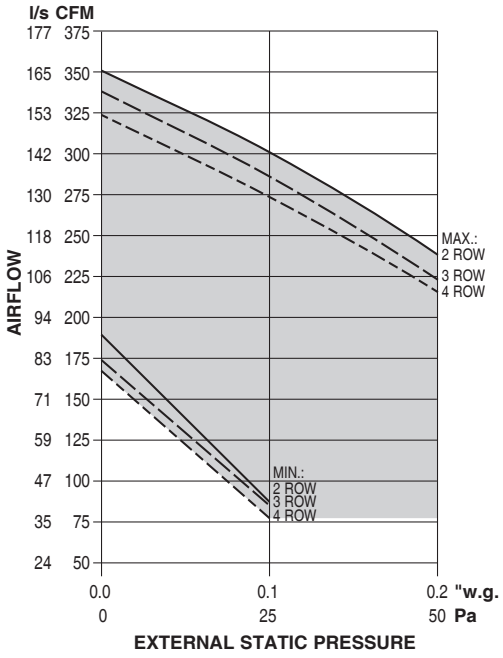
1. Fan coil units equipped with 3-Speed ECM Motors have discrete inputs (High, Medium and Low) which provide variable horsepower outputs. Commonly, units are selected and sized on a conservative basis and actual airflow and/or external static pressure requirements are lower than specified. When this is the case, the unit fan motor can be run at low or medium speed, reducing power consumption and operating cost.
2. Fan curves are applicable to all models. All fan curves shown are for 120 volt single phase, 3-Speed ECM Motors and include internal losses for cabinet, electric heater and 3 or 4 row water coil.
3. For other coil combinations and addition of a filter, adjust performance curves based on pressure losses or use Selectworks.
4. Filter pressure drops table shown on page D36.
5. Area within shaded area not predictable.

Model 42VC Concealed and 42VX Exposed Cabinet
Proportional ECM Fan Performance Curves • Airflow vs. External Static Pressure

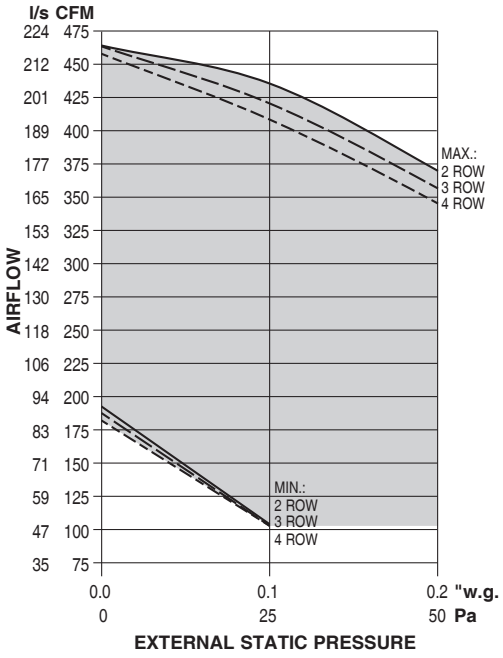
Unit Size 2



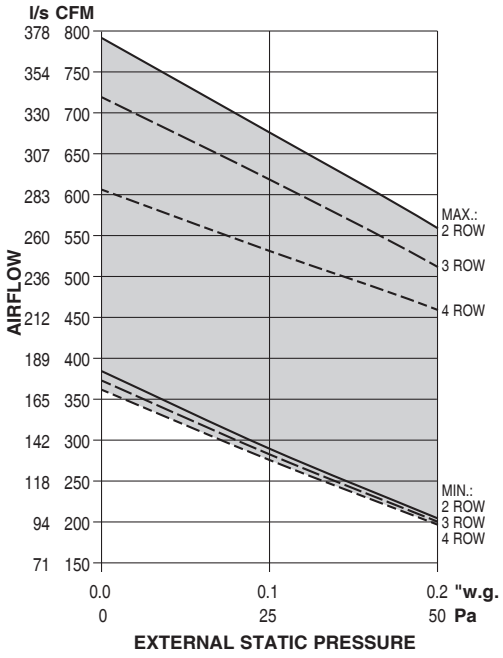
Unit Size 3



Unit Size 4



Unit Size 6



Proportional ECM Motor Fan Notes:

1. The PROP ECM is a pressure dependent constant torque device. It is designed for variable air volume (variable speed) applications.
2. Min./Max. Airflow can be set to operate at any point within shaded area under the selected water coil curve using an appropriate controller.
3. Fan curves shown are applicable to 120/208/240 and 277 volt, single phase Proportional ECM (motors).
4. The maximum curve represents unit performance with a 3-row coil. For one (1) or two (2) row hot water coils [42V Series with (W) heating unit] performance will be slightly better. See SelectWorks for performance data Characteristics.
5. Filter pressure drops table shown on page D36.

Model Series 42V • Performance Data
Electrical Motor Characteristics

Unit Size	Voltage	No. of Fans	Motor HP & Qty.	3-Speed and Proportional ECM Motor FLA	
				FLA	Full Load Watts
2	120 208 230 277	1	1/4	0.7 0.4 0.4 0.4	50
3	120 208 230 277	2	1/4	0.8 0.5 0.5 0.5	50
4	120 208 230 277	2	1/4	1.1 0.7 0.7 0.7	80
6	120 208 230 277	3	2 @ 1/4	1.9 1.3 1.2 1.2	150

The FLA and watts are shown at the maximum setting for selected motor type and unit size. Refer to SelectWorks selection software for application specific data.

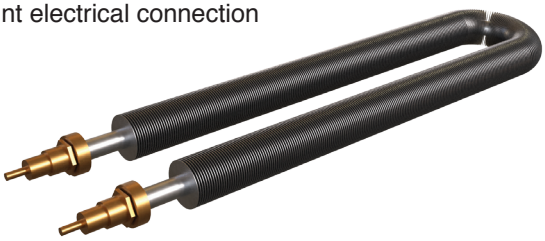
Electric Heat Section

HEATER

Electric heater is a finned tubed element that contains a high grade resistance wire contained within a metal tube. The tube is surrounded by a helically wound corrugated metal fin to increase heat transfer. The heater is factory mounted in the reheat position above the coil. The heater and units are listed and labeled by the ETL testing Laboratory as an integrated package.

STANDARD FEATURES

- Automatic reset hi-limit cut-out(s)
- cETL Listed as an assembly.
- Integral electric heat assembly with removable elements for easy service
- Single point electrical connection



Unit Size	MBH	3.4	5.1	6.8	10.2
	kW	1	1.5	2	3
	Voltage	Amps			
2	120	8.70	—	—	—
	208	4.81	—	—	—
	230	4.35	—	—	—
	277	3.61	—	—	—
3	120	8.70	13.04	—	—
	208	4.81	7.21	—	—
	230	4.35	6.52	—	—
	277	3.61	5.42	—	—
4	120	8.70	13.04	17.39	26.09
	208	4.81	7.21	9.62	14.42
	230	4.35	6.52	8.70	13.04
	277	3.61	5.42	7.22	10.83
6	120	8.70	13.04	17.39	26.09
	208	4.81	7.21	9.62	14.42
	230	4.35	6.52	8.70	13.04
	277	3.61	5.42	7.22	10.83

Note:

1. Electric heat voltage must be the same as motor voltage.
2. A minimum airflow of 70 cfm per kW is required across the coil during heating.
   Available in the above kW's only. $\Delta T = \frac{kW \times 3160}{CFM}$
   Do not size heaters with leaving air temperature greater than 105°F.
3. Coils are wired to the control panel for a single point electrical connection.
4. The coils listed are restricted to a maximum of 48 amps (with motor) and do not require circuit fusing to meet NEC requirements.

Model Series 42V • Filter Pressure Drop Adjustments (in w.g.)

Unit Size	Airflow		Velocity		Filter Type		Filter Size
	CFM	l/s	FPM	m/s	1" (25) Throwaway	1" (25) MERV 8	
2	250	114	236	1.201	0.045	0.156	21 3/4 x 7 (552 x 178)
	215	98	227	1.155	0.032	0.129	
	195	89	206	1.047	0.024	0.114	
	150	69	159	0.806	0.007	0.080	
3	350	160	269	1.367	0.058	0.182	26 3/4 x 7 (679 x 178)
	300	137	231	1.172	0.043	0.151	
	250	114	192	0.977	0.028	0.120	
	200	91	154	0.781	0.012	0.089	
4	450	206	266	1.353	0.121	0.180	34 3/4 x 7 (883 x 178)
	385	176	228	1.158	0.096	0.149	
	315	144	186	0.947	0.070	0.116	
	250	114	148	0.752	0.045	0.085	
6	750	343	316	1.608	0.234	0.220	48 3/4 x 7 (1238 x 178)
	615	281	260	1.318	0.183	0.174	
	485	222	205	1.040	0.134	0.130	
	350	160	148	0.750	0.083	0.085	

NOTES:

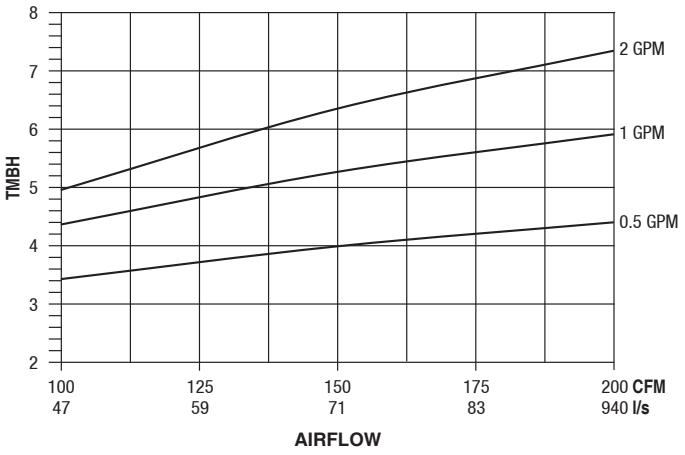
1. Pressure drop based on clean filters. Using any type of filter will lower unit airflow.
2. To determine fan airflow with the addition of a filter, add the filter pressure drop to the external static pressure on the fan curve or use Selectworks.

Front: 1" (25) Throwaway
Back: 1" (25) MERV 8 Pleated

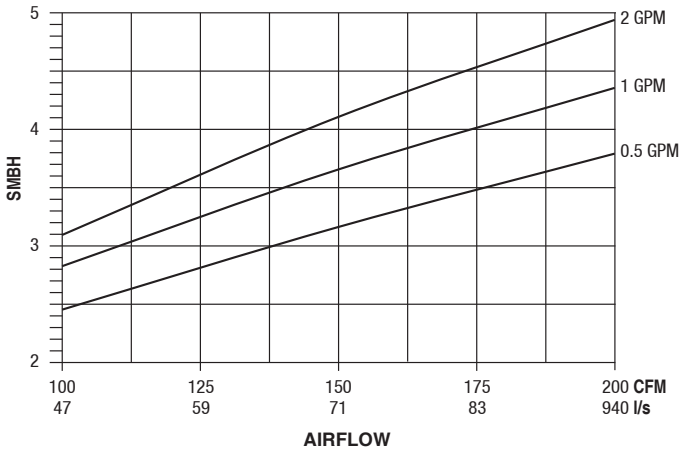
Model Series 42V • Chilled Water Coil Performance Data • Unit Size 2

Data Based on 80°F DB, 67°F WB Entering Air & 45°F Entering Water

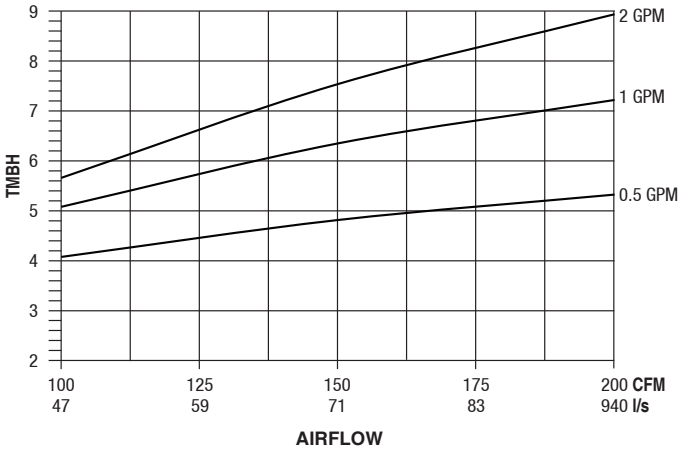
2 Row (Total MBH)



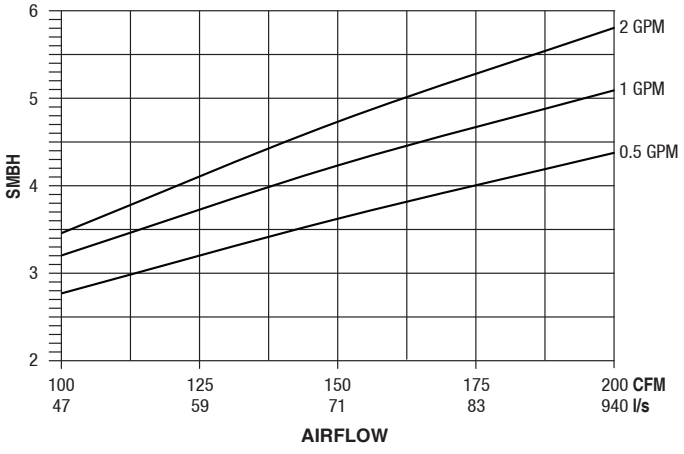
2 Row (Sensible MBH)



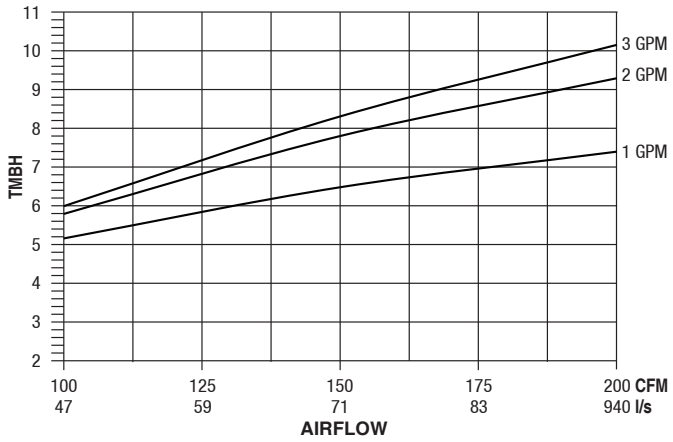
3 Row (Total MBH)



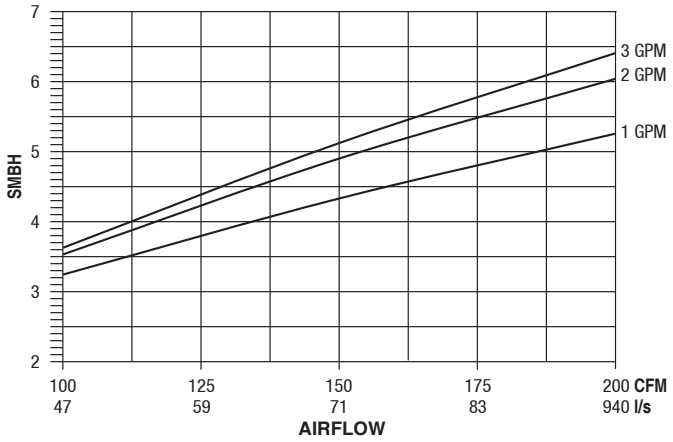
3 Row (Sensible MBH)



4 Row (Total MBH)



4 Row (Sensible MBH)



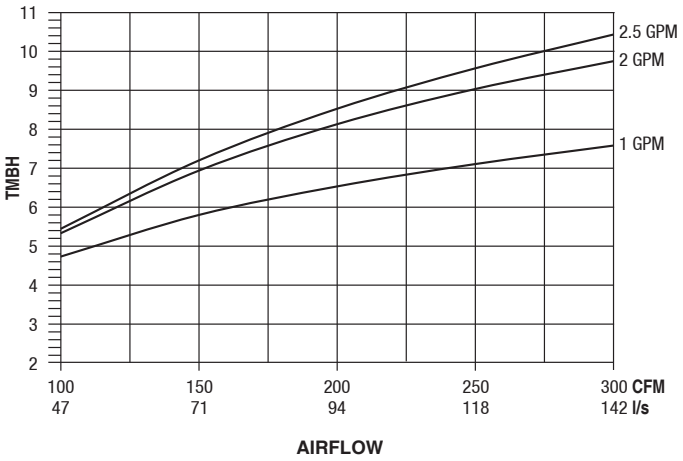
NOTES:

1. Capacity and static pressure will be affected for applications above sea level. To apply correction factors, multiply the coil capacity or fan curve data by the tabulated correction factor.
2. Connections: 5/8" (15.9) O.D. male solder.

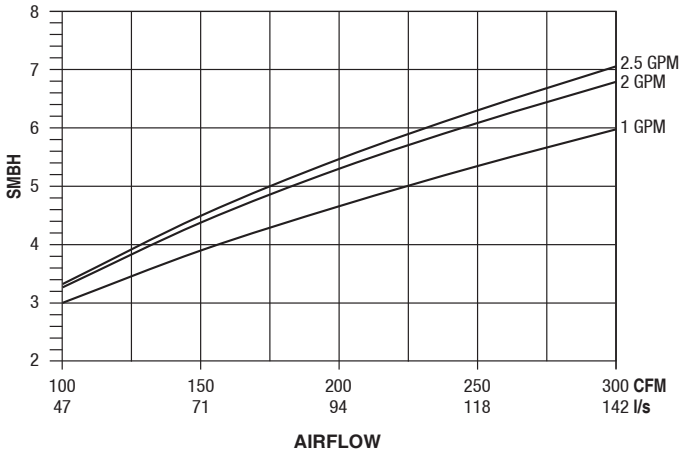
Model Series 42V • Chilled Water Coil Performance Data • Unit Size 3

Data Based on 80°F DB, 67°F WB Entering Air & 45°F Entering Water

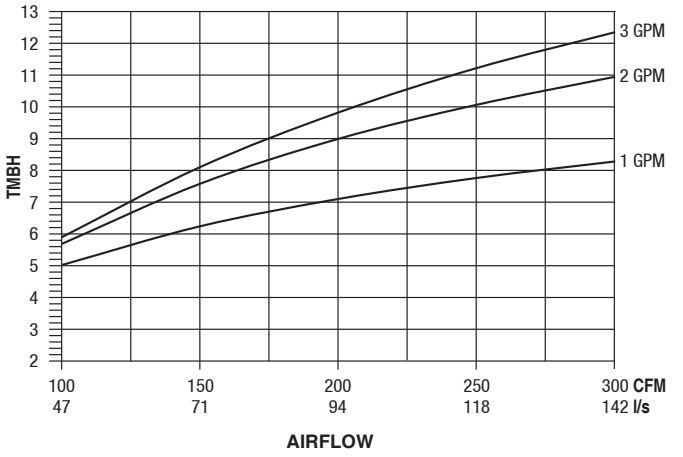
2 Row (Total MBH)



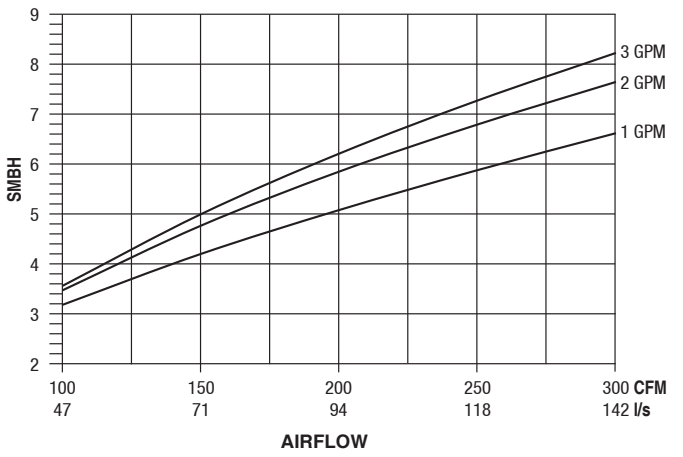
2 Row (Sensible MBH)



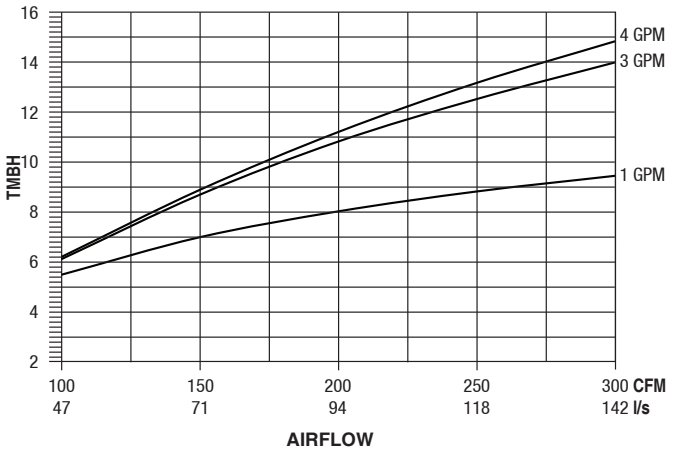
3 Row (Total MBH)



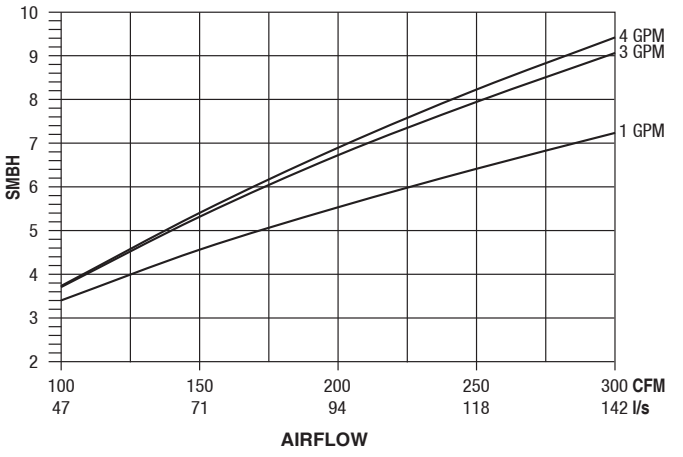
3 Row (Sensible MBH)



4 Row (Total MBH)



4 Row (Sensible MBH)



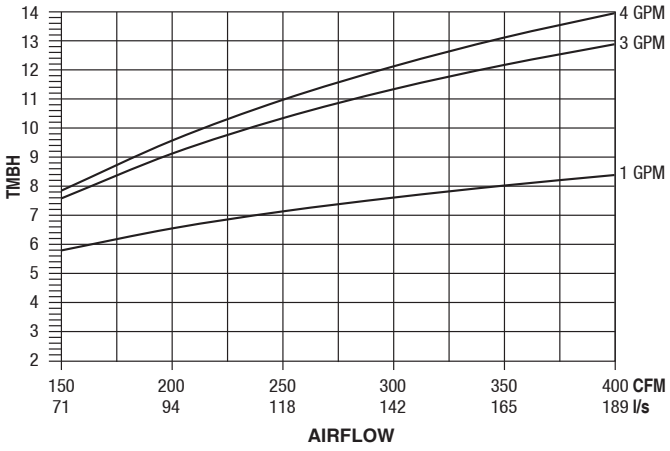
NOTES:

1. Capacity and static pressure will be affected for applications above sea level. To apply correction factors, multiply the coil capacity or fan curve data by the tabulated correction factor.
2. Connections: 5/8" (15.9) O.D. male solder.

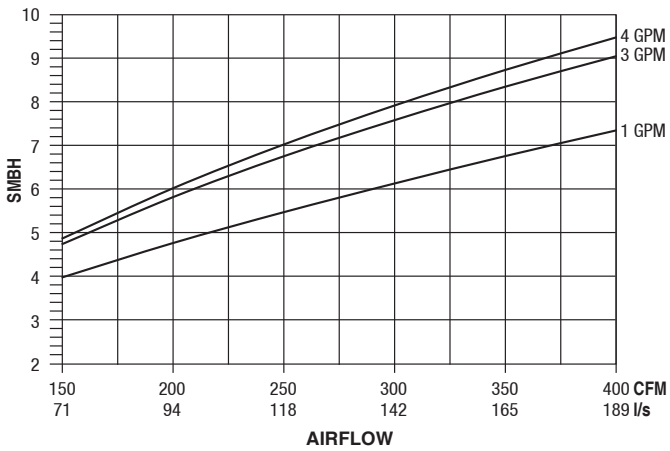
Model Series 42V • Chilled Water Coil Performance Data • Unit Size 4

Data Based on 80°F DB, 67°F WB Entering Air & 45°F Entering Water

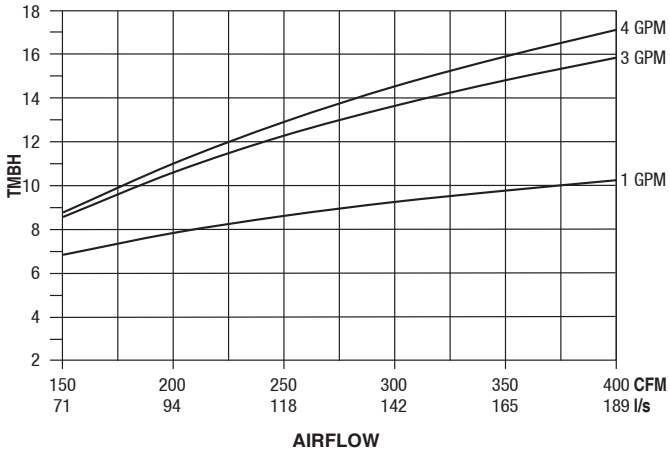
2 Row (Total MBH)



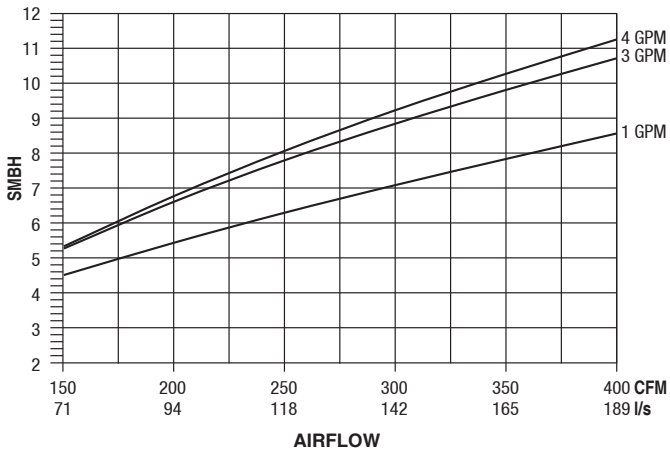
2 Row (Sensible MBH)



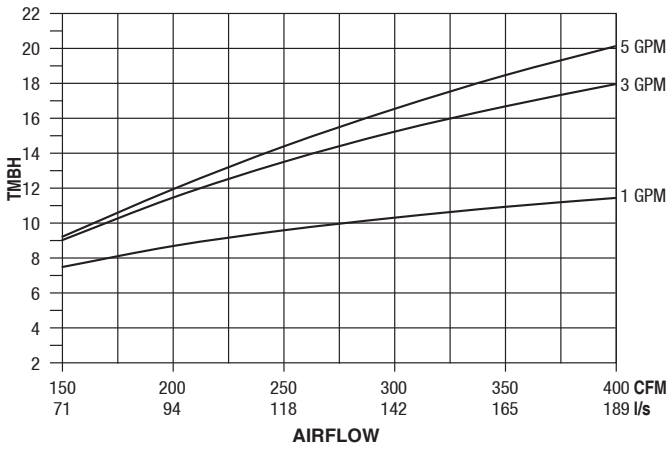
3 Row (Total MBH)



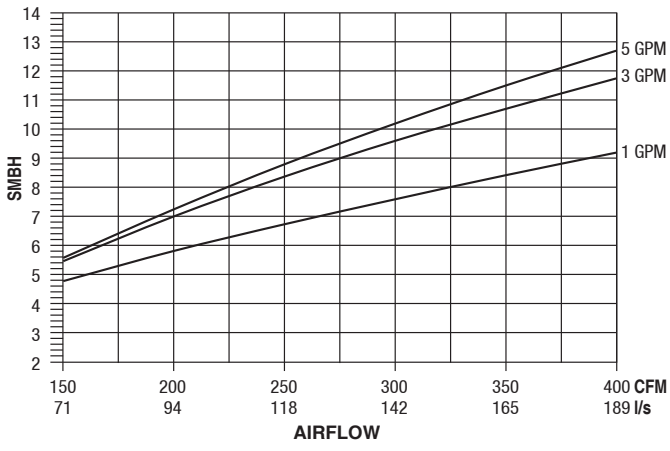
3 Row (Sensible MBH)



4 Row (Total MBH)



4 Row (Sensible MBH)



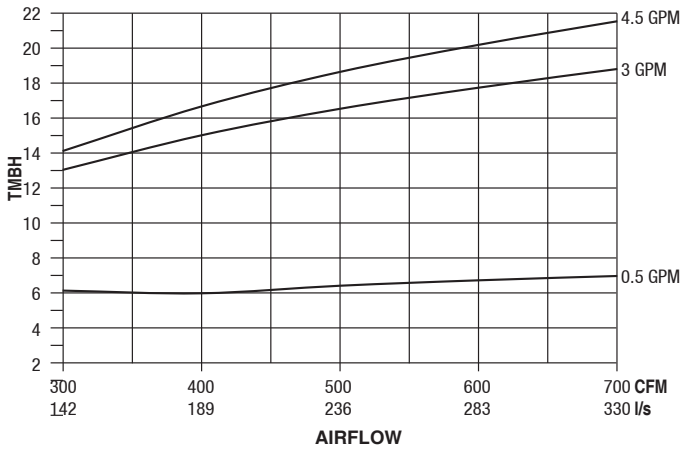
NOTES:

1. Capacity and static pressure will be affected for applications above sea level. To apply correction factors, multiply the coil capacity or fan curve data by the tabulated correction factor.
2. Connections: 5/8" (15.9) O.D. male solder.

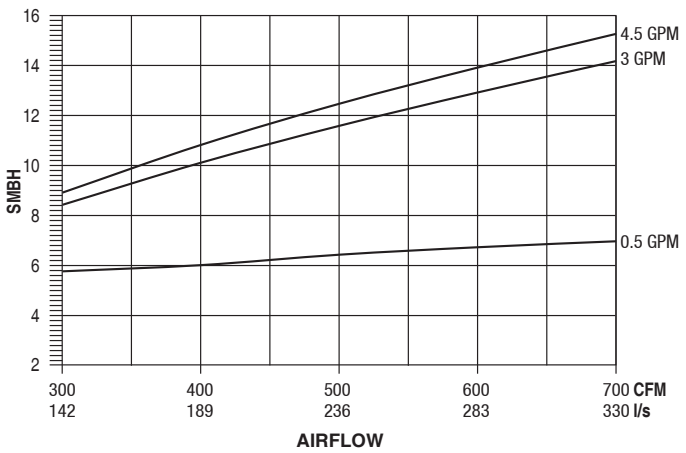
Model Series 42V • Chilled Water Coil Performance Data • Unit Size 6

Data Based on 80°F DB, 67°F WB Entering Air & 45°F Entering Water

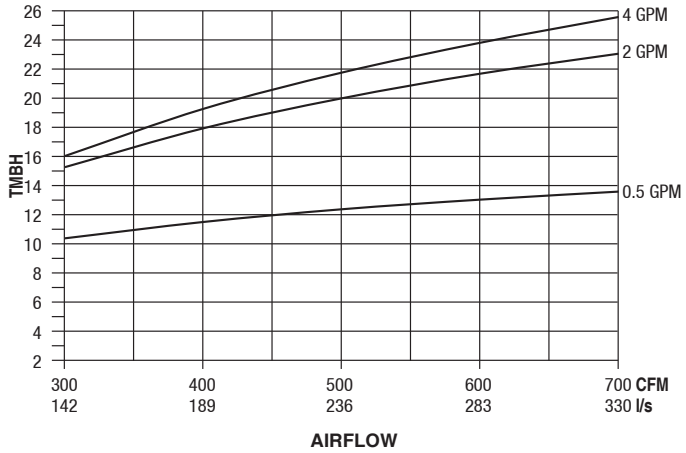
2 Row (Total MBH)



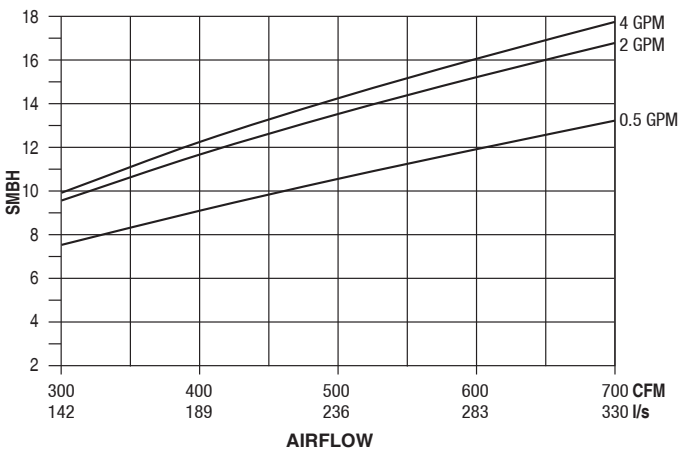
2 Row (Sensible MBH)



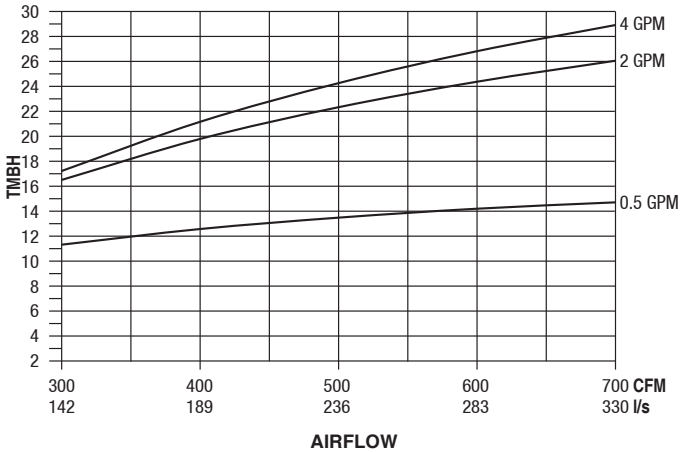
3 Row (Total MBH)



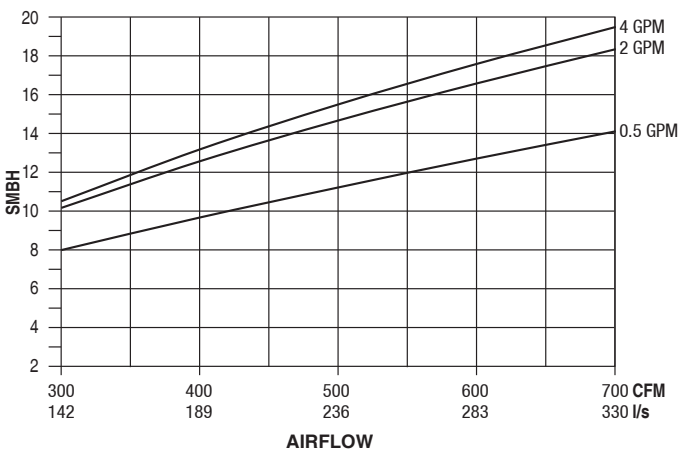
3 Row (Sensible MBH)



4 Row (Total MBH)



4 Row (Sensible MBH)



NOTES:

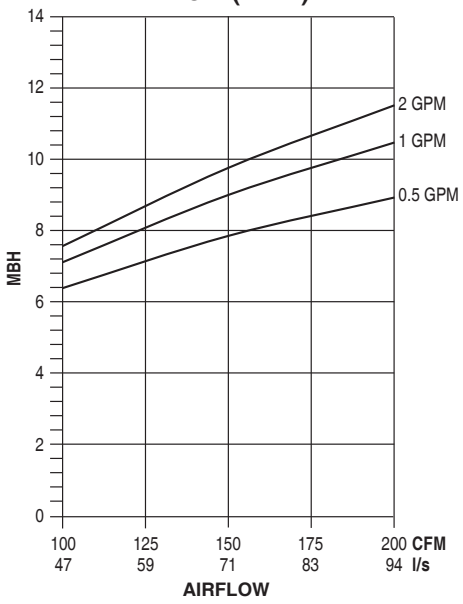
1. Capacity and static pressure will be affected for applications above sea level. To apply correction factors, multiply the coil capacity or fan curve data by the tabulated correction factor.
2. Connections: 5/8" (15.9) O.D. male solder.

Model Series 42V • Hot Water Coil Performance Data

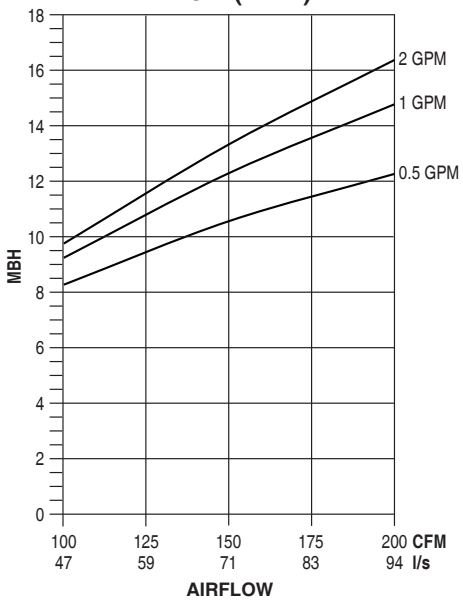
Data Based on 70°F DB Entering Air & 180°F Entering Water

Unit Size 2

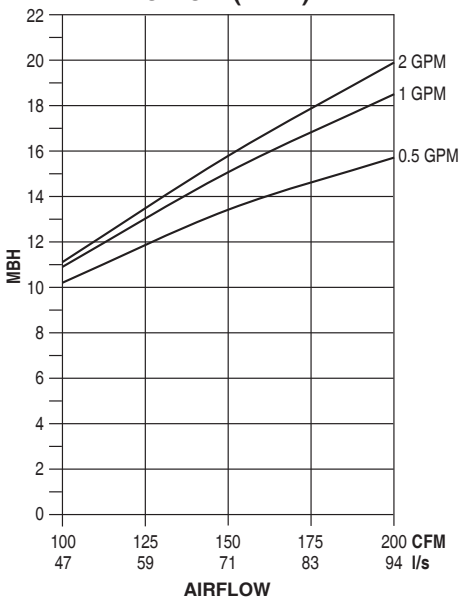
1 Row (MBH)



2 Row (MBH)

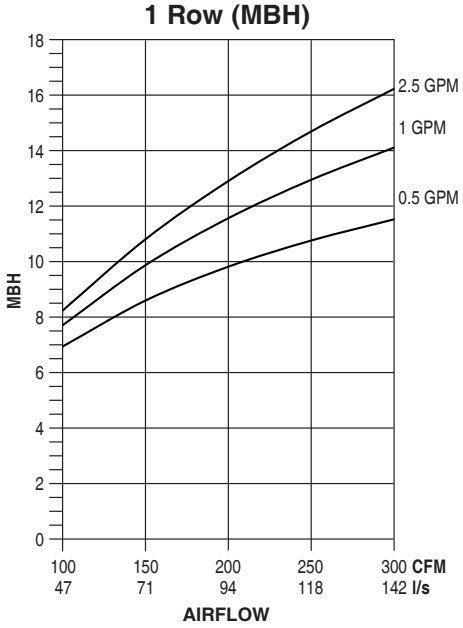


3 Row (MBH)

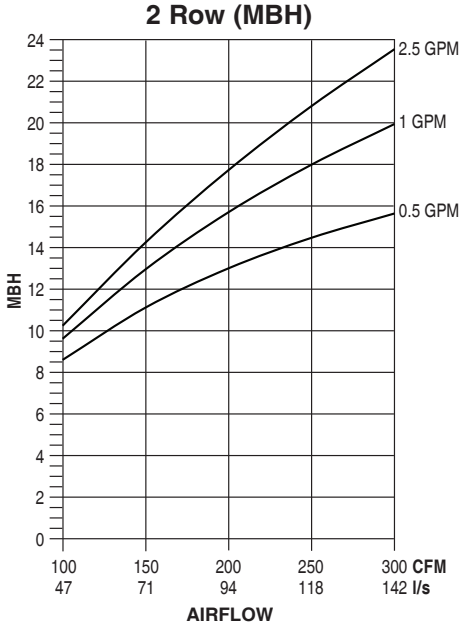


Unit Size 3

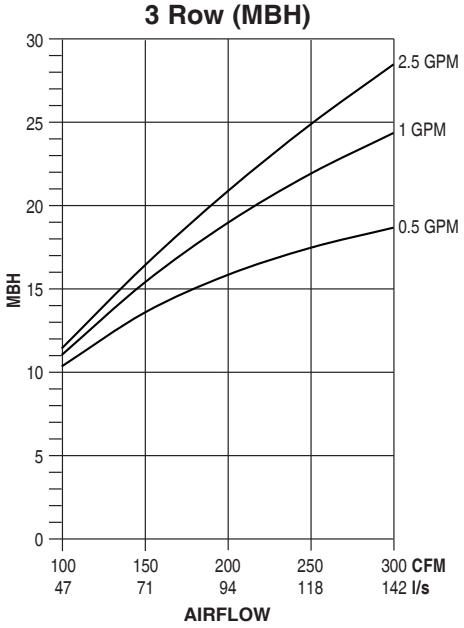
1 Row (MBH)



2 Row (MBH)



3 Row (MBH)



NOTES:

1. Capacities are in MBH (kW), ***thousands of Btu per hour (kiloWatts)***.
2. MBH (kW) values are based on a Δt (temperature difference) of 110°F (61°C) between entering air and entering water. For other Δt's; multiply the MBH (kW) values by the factors below.
3. Air Temperature Rise.
   ATR (°F) = 927 x $\frac{MBH}{CFM}$, ATR (°C) = 829 x $\frac{kW}{l/s}$
4. Water Temp. Drop.
   WTD (°F) = 2.04 x $\frac{MBH}{GPM}$, WTD (°C) = .224 x $\frac{kW}{l/s}$
5. Connections: One and two row 1/2" (12.7) O.D. male solder.

Altitude Correction Factors:

Altitude ft. (m)	Sensible Heat Factor
0 (0)	1.00
2000 (610)	0.94
3000 (914)	0.90
4000 (1219)	0.87
5000 (1524)	0.84
6000 (1829)	0.81
7000 (2134)	0.78

Correction factors at other entering conditions:

Δt °F (°C)	50 (28)	60 (33)	70 (39)	80 (44)	90 (50)	100 (56)	110 (61)	120 (67)	130 (72)	140 (78)	150 (83)
Factor	.455 (.459)	.545 (.541)	.636 (.639)	.727 (.721)	.818 (.820)	.909 (.918)	1.00 (1.00)	1.09 (1.10)	1.18 (1.18)	1.27 (1.28)	1.36 (1.36)

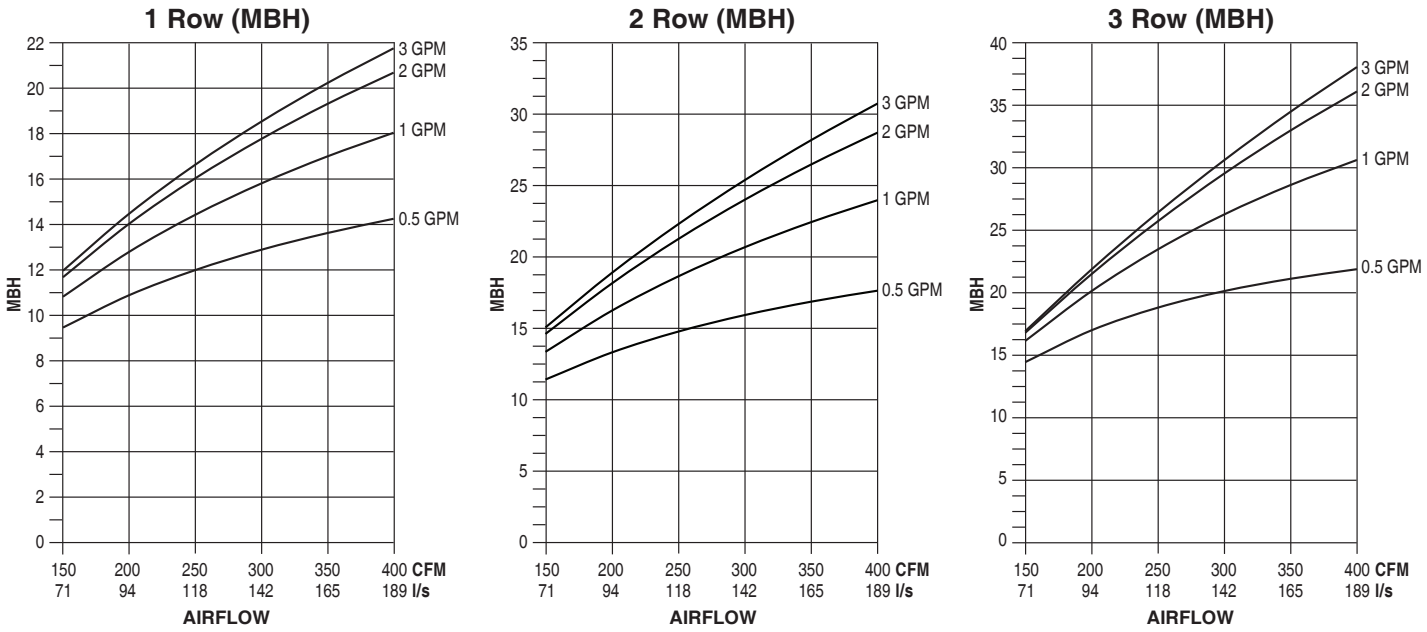
9-8-20

Engineered Comfort

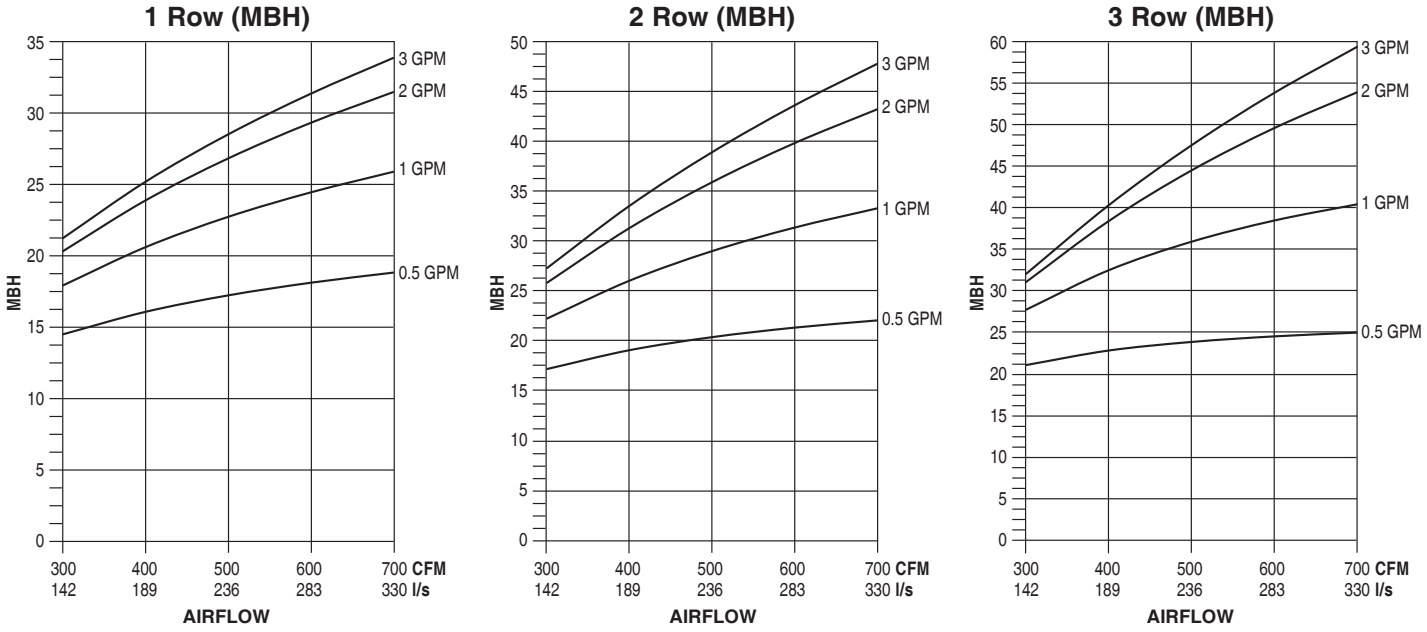
Model Series 42V • Hot Water Coil Performance Data

Data Based on 70°F DB Entering Air & 180°F Entering Water

Unit Size 4



Unit Size 6



NOTES:

1. Capacities are in MBH (kW), ***thousands of Btu per hour (kiloWatts)***.
2. MBH (kW) values are based on a Δt (temperature difference) of 110°F (61°C) between entering air and entering water. For other Δt's; multiply the MBH (kW) values by the factors below.
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   ATR (°F) = 927 x $\frac{MBH}{CFM}$, ATR (°C) = 829 x $\frac{kW}{l/s}$
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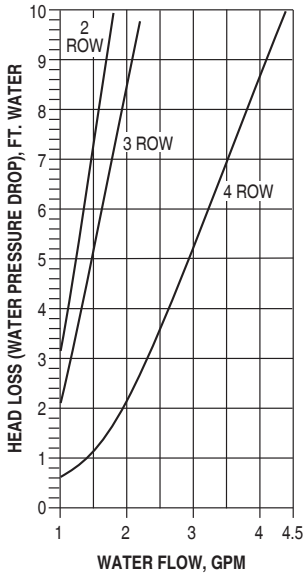
9-8-20

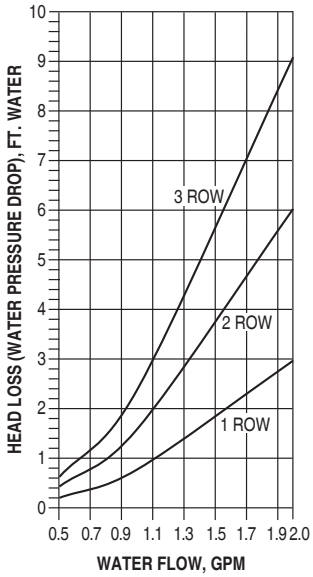
Model Series 42V • Coil Performance Data • Pressure Drop

Unit Size 2

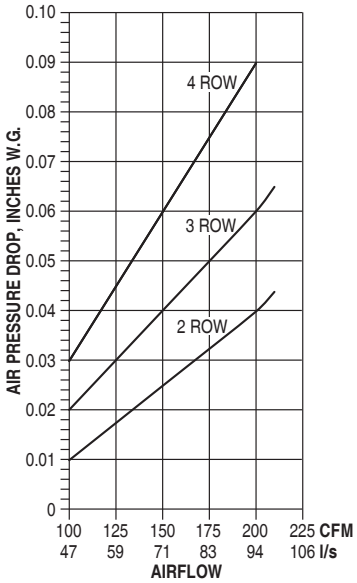
Chilled Water Pressure Drop



Hot Water Pressure Drop

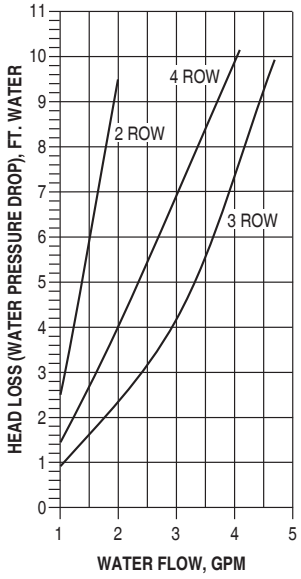


Chilled and Hot Water Air Pressure Drop

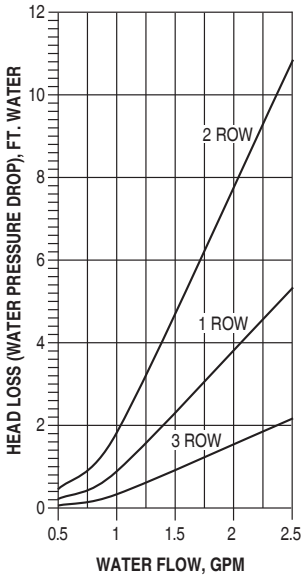


Unit Size 3

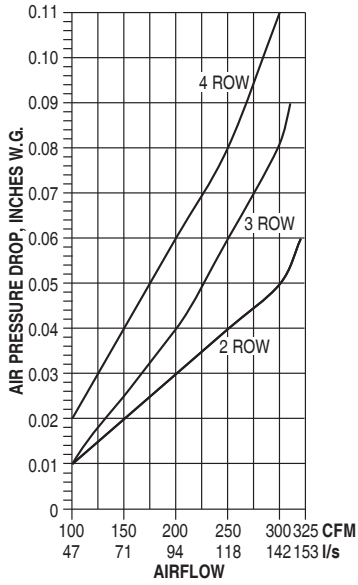
Chilled Water Pressure Drop



Hot Water Pressure Drop



Chilled and Hot Water Air Pressure Drop



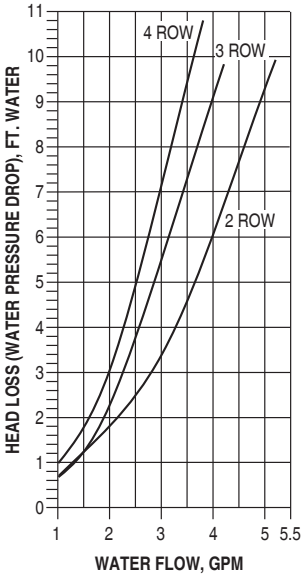
METRIC CONVERSION FACTORS:

1. Water Flow (liters per second)
   l/s = gpm x 0.6309
2. Water Head Loss (kilopascals):
   kPa = ft. w.g. x 2.9837
3. Airflow Volume (liters per second)
   l/s = CFM x 0.472
4. Air Pressure Drop (Pascals):
   Pa = in. w.g. x 248.6
5. Heat (kilowatts):
   kW = Mbh x 0.293
6. Air Temperature Rise.
   $ATR = 927 \times \frac{Mbh}{CFM}$
7. Water Temp. Drop.
   $WTD = 2.04 \times \frac{Mbh}{GPM}$

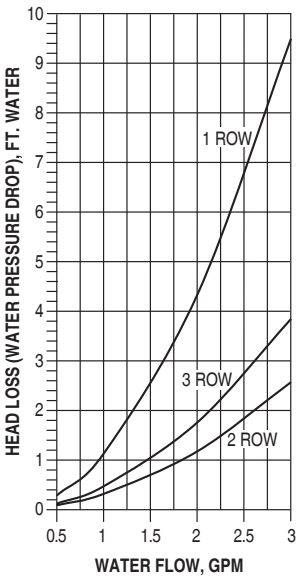
11-9-20

Model Series 42V • Coil Performance Data • Pressure Drop
Unit Size 4

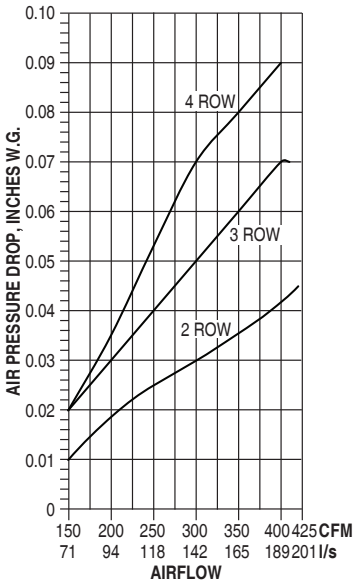
Chilled Water Pressure Drop



Hot Water Pressure Drop

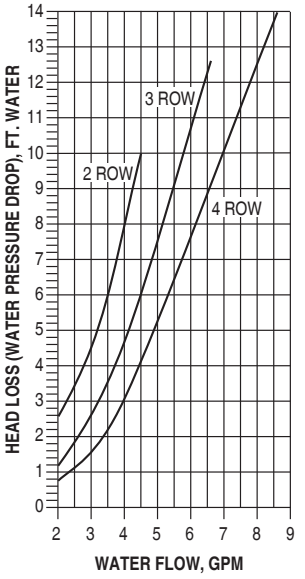


Chilled and Hot Water Air Pressure Drop

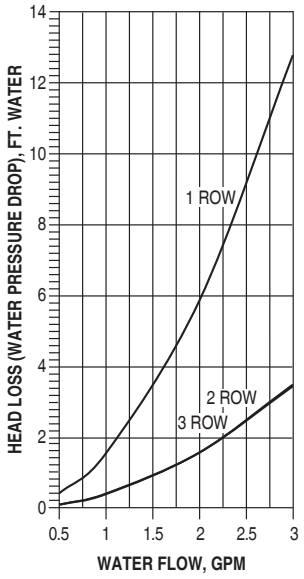


Unit Size 6

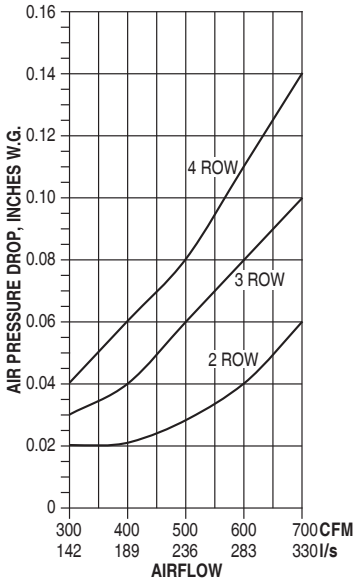
Chilled Water Pressure Drop



Hot Water Pressure Drop



Chilled and Hot Water Air Pressure Drop



METRIC CONVERSION FACTORS:

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   l/s = gpm x 0.6309
2. Water Head Loss (kilopascals):
   kPa = ft. w.g. x 2.9837
3. Airflow Volume (liters per second)
   l/s = CFM x 0.472
4. Air Pressure Drop (Pascals):
   Pa = in. w.g. x 248.6
5. Heat (kilowatts):
   kW = Mbh x 0.293
6. Air Temperature Rise.
   $ATR = 927 \times \frac{Mbh}{CFM}$
7. Water Temp. Drop.
   $WTD = 2.04 \times \frac{Mbh}{GPM}$

Model Series 42V • Suggested Specifications

1. General
   Furnish and install Engineered Comfort® Vertical Floor Direct Drive Fan Coil Units where indicated on the plans and in the specifications. All units shall be capable of meeting or exceeding the scheduled capacities for cooling, heating and air delivery. Units shall be ETL listed in compliance with UL/ANSI Standard 1995, and be certified as complying with AHRI Standard 440.
2. Construction
   a. 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 unit chassis panels shall be insulated with 2 lb/cu.ft water repellent fiberglass insulation. 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 0, no observed growth, per ASTM G-21.
   b. All exposed units shall have exterior panels fabricated of not less than 20-gauge galvanized steel.
   The front panel shall be attached with quarter turn quick open fasteners to allow for easy removal and access for service.
   Optional: The front panel shall be attached with tamper proof fasteners.
   c. Top panel shall be removable from fan coil without the need to disconnect piping or electrical wiring. The top panel shall be removed through no more than 8 screws.
   d. Model 42VX exposed units shall include a recessed stamped louver discharge grille.
   e. All concealed units shall have a minimum 1" (25) duct collar on the discharge.
3. Painted Finish
   All painted cabinet exterior panels shall be finished with a TGIC Polyester powder paint of the standard factory color. Optional
   • Model 42VX is available in a variety of woodgrain finishes.
4. Sound
   Units shall have published sound power level data tested in accordance with AHRI Standard 350.
5. Power
   Units shall not exceed scheduled power consumption.
6. Fan & Motor
   a. Unit fan shall be dynamically balanced, forward curved, DWDI centrifugal type constructed of galvanized steel for corrosion resistance. Motors shall be high efficiency, permanently lubricated sleeve bearing, with UL and CSA listed automatic reset thermal overload protection and three separate speed taps. Shaded pole motors are not acceptable. Single speed motors are not acceptable.
   b. The fan/motor assembly shall be removable and serviceable through the front panel. Each fan/motor assembly shall be fastened by no more than 2 screws. The motors shall have quick connectors to allow service and removal without the need for tools.
7. Drain Pan
   a. Primary condensate drain pans shall be single wall, heavy gauge galvanized steel for corrosion resistance, and extend under the entire coil section. Drain pans shall be of one-piece construction and be positively sloped for condensate removal. Drain pan access that requires removal of coils is not acceptable.
   b. The primary drain pan shall be externally insulated with a fire retardant, elastomeric 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 an Antimicrobial Performance Rating of 0, no observed growth, per ASTM G-21.
   Optional
   • Provide a primary drain pan constructed entirely of heavy gauge stainless steel for superior corrosion resistance.
8. Coils
   a. All cooling and heating coils shall optimize rows 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. Minimum copper tube thickness shall be 0.016". Optional: 0.025".
   High efficiency aluminum fins optimized for efficient heat transfer, air pressure drop and carryover. Lanced fins shall not be acceptable. Optional: Copper fins.
   b. All coils shall be tested at 325 PSIG air pressure under water, and rated for a maximum 300 PSIG working pressure at 200°F (93°C). Coils shall be circuited for counter flow to maximize unit efficiency.
   All water coils shall be designed to connect with 1/2" (13) nominal pipe connections.
   c. Coil Casing shall be fabricated from galvanized steel.
   Optional: Stainless steel.
   d. Heating coils shall be furnished in the re-heat.
   e. All water coils shall be provided with a manual air vent to allow for coil venting.
9. Filters
   All units shall be furnished with a minimum 1" (25) fiberglass throwaway. Optional: 1" (25) pleated MERV 8 filter.
   Filters shall be tight fitting to prevent air bypass. Filters shall be easily removable from the return air opening without the need for tools.
10. Electrical
    Units shall be furnished with single point power connection. Provide an electrical control box for motor and other electrical terminations.
11. Electric Heat:
    a. 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 rated for installation on the fan coil unit and be located so as not to expose the fan assembly to excessive leaving air temperatures that could affect motor performance.
    b. The heater and unit assembly shall be listed for zero clearance and meet all NEC requirements, and be ETL listed with the unit as an assembly in compliance with UL/ANSI Standard 1995.
    c. Model series 42V heating elements shall be constructed of nickel chromium resistance wire centered in tubes and fins. Terminals and hardware shall be sealed and constructed of stainless steel. All internal wiring shall be rated for 220ºF (105ºC) minimum.
    d. All heaters shall include over temperature protection consisting of an automatic reset primary thermal limit. All heaters shall be single stage.
12. Piping Packages:
    a. Provide a standard factory assembled valve piping package to consist of a 2 or 3-way, on/off, motorized electric control valve and two isolation ball valves.
    b. Control valves shall be piped normally closed to the coil. Maximum entering water temperature on the control valve shall be 200°F (93°C) and maximum operating pressure shall be 190 PSIG.
    c. Unions shall be provided to allow removal of piping package from unit without the need for brazing or cutting pipe.
    Optional
    • Provide modulating control valve (fail-in-place), in lieu of standard 2-position control valve with factory assembled valve piping package.
    • Provide either a fixed or adjustable flow control device for each piping package.
    • Provide pressure/temperature ports (P/T) for each piping package to allow measurement across the coil.
    Piping packages shall be completely factory assembled, including interconnecting pipe and shipped loose for field installation.