Model Selection and Performance

Table 1: Static Pressure Drops for Base Cabinets[1]

	Horizontal Models Inches W.C.	Upright Models Inches W.C.
O or V (100% OA)	0.90	0.95
M (85/15 Modulating)[2]	1.05	1.10
B (85/15 Two-Position)[2]	0.95	1.00
F (85/15 Fixed Air Rotation)[2]	0.95	1.00

Table 2: Static Pressure Drops for Options/Accessories

Description	Inches W.C.
Inlet Hood with Birdscreen	0.05
Louvered Inlet Plenum	0.13
Inlet Plenum Base	0.06
Filtered Inlet Hood (Includes 2" Aluminum Mesh Filters)[3]	0.10
Motorized Inlet Damper	0.10
Motorized Discharge Damper	0.15
3-Way Single-Deflection Diffuser (Horiz. Blades)	0.20
3-Way Double-Deflection Diffuser (Horiz. and Vert. Blades)	0.25
4-Way Single-Deflection Diffuser (Horiz. Blades)	0.20
4-Way Double-Deflection Diffuser (Horiz. and Vert. Blades)	0.25
Discharge Plenum	0.10
Side Access Filter Section (2" 30% Pleated)[3]	0.30
Side Access Filter Section (2" Aluminum Mesh)[3]	0.15
Side Access Filter Section (1.5" Dust-Lock)[3]	0.20
Filter/Mix Box (2" 30% Pleated)[3]	0.30
Filter/Mix Box (2" Aluminum Mesh)[3]	0.15
Filter/Mix Box (1.5" Dust-Lock)[3]	0.15
Evaporative Cooling Section (with 6" Thick Media)	0.15
Evaporative Cooling Section (with 12" Thick Media)	0.30
Typical CW or DX Coil Box[4]	0.60 – 0.90
Typical Steam or HW Coil Box[4]	0.30 – 0.40

Table 3: Static Pressure Drops for Discharge Configurations

Description	Inches W.C.
Axial Discharge (with 3-feet of Straight Duct Minimum)	0.15
Axial Discharge (without a Plenum or 3-feet Straight Duct)	0.20
Radial Discharge (without a Plenum or 3-feet Straight Duct)	0.10

NOTES:

1. Base cabinet static pressure drops are calculated using 25ºF entering air temperature and 90ºF exiting air temperature. They are also calculated using a radial discharge (side, up or down) with at least 3-feet of straight duct. Static pressure drops for filter sections, inlet hoods and other options and accessories must be added.
2. Includes static pressure drops for dampers.
3. This includes the initial static pressure drop of "clean" filters.
4. Consult factory for exact coil losses in your application.

Important: On units with a filter option, the filters should be changed when the filter pressure drop reaches 0.60" w.c. Consult factory for change recommendations on high-efficiency filtering options.

Total Static Pressure Drop: After adding the losses from the base cabinet and options/accessories, also add project-specific ductwork losses. These are typically found in the owner specification.

Maximum MBH Capacities[1]

Model	100% OA Models[2]		Return Air Models[3]	
	Natural Gas	LP Gas	Natural Gas	LP Gas
R318	795	635	665	610
R320	1,060	850	885	810
R327 - R427	1,720	1,380	1,440	1,320
R330 - R430	2,250	1,805	1,885	1,725
R336 - R436	2,915	2,335	2,440	2,235
R340 - R440	3,975	3,190	3,325	3,050
R344 - R444	4,640	3,720	3,880	3,555
R349 - R449	5,305	4,250	4,435	4,065
R354 - R454	6,630	5,315	5,545	5,080
R360 - R460	7,955	6,380	6,655	6,100
R366 - R466	9,945	7,975	8,315	7,625
R373 - R473	11,270	9,035	9,425	8,640
R380 - R480	13,925	10,635	11,645	10,165
R389 - R489	17,240	12,760	14,420	12,200

NOTES:

1. Maximum MBH Capacities listed are based on a unit operating at 750-feet elevation and an outside air (OA) temperature of - 10°F.
2. On 100% Outside Air (OA) models, selections are limited to the lesser of the Maximum MBH shown or a temperature rise of 125°F for natural gas or 95°F for propane (LP) gas.
3. On Return Air (RA) models, selections are limited to the lesser of the Maximum MBH shown or a temperature rise of 100°F for natural gas or 90°F for propane (LP) gas.

Model Selection, Fan and Motor Requirements

Unit CFM	Model	Motor and Fan Requirements @ Total Static Pressure Shown																Outlet Velocity[2] (FPM)
		1.25"		1.50"		1.75"		2.00"		2.50"		3.00"		3.50"		4.00"		
		HP	BHP	HP	BHP	HP	BHP	HP	BHP	HP	BHP	HP	BHP	HP	BHP	HP	BHP	
4,000	R318	2	1.39	2	1.60	2	1.81	3	2.02	3	2.46	3	2.93	5	3.41	5	3.91	1,058
6,000		3	2.73	3	3.00	5	3.30	5	3.60	5	4.20	5	4.81	*7.5*	*5.43*	*7.5*	*6.06*	1,588
6,000	R320	3	2.35	3	2.65	3	2.95	5	3.25	5	3.87	5	4.51	7.5	5.16	7.5	5.82	1,588
8,000		5	3.99	5	4.38	5	4.76	7.5	5.14	*7.5*	*5.93*	*7.5*	*6.72*	7.5	*7.50*	*10*	*8.35*	2,117
7,000	R327 R427	2	2.00	3	2.38	3	2.76	5	3.15	NA	NA	NA	NA	NA	NA	NA	NA	955
10,000		5	3.28	5	3.75	5	4.22	5	4.70	7.5	5.69	7.5	6.71	10	7.78	10	8.88	1,364
13,000		7.5	5.11	7.5	5.69	7.5	6.28	7.5	6.87	10	8.07	*10*	*9.29*	*15*	*10.54*	*15*	*11.82*	1,773
13,000	R330 R430	5	4.38	5	4.98	7.5	5.59	7.5	6.20	7.5	7.46	10	8.76	15	10.10	15	11.51	1,156
15,000		7.5	5.57	7.5	6.25	7.5	6.93	10	7.62	10	9.02	15	10.46	*15*	*11.93*	*15*	*13.42*	1,333
17,000		7.5	7.00	10	7.76	10	8.52	10	9.28	*15*	*10.84*	*15*	*12.42*	*15*	*14.02*	*20*	*15.61*	1,511
17,000	R336 R436	7.5	5.51	7.5	6.28	7.5	7.07	10	7.87	10	9.58	15	11.36	15	13.20	20	15.11	1,511
19,500		7.5	6.95	10	7.78	10	8.64	10	9.52	15	11.32	15	13.26	20	15.26	20	17.31	1,733
22,000		10	8.73	10	9.60	15	10.53	15	11.48	15	13.45	20	15.50	*20*	17.59	*20*	*19.80*	1,956
22,000	R340 R440	8	7.40	10	8.37	10	9.37	15	10.39	15	12.52	15	14.76	20	17.03	20	19.42	1,460
26,000		10	10.00	15	11.07	15	12.18	15	13.31	20	15.66	20	18.11	25	20.63	*25*	*23.27*	1,725
30,000		15	13.40	15	14.56	20	15.70	20	16.96	*20*	*19.54*	*25*	*22.20*	*25*	*24.95*	*30*	*27.79*	1,991
30,000	R344 R444	15	10.94	15	12.21	15	13.52	15	14.85	20	17.63	25	20.50	25	23.52	*30*	*26.63*	1,500
32,500		15	12.78	15	14.06	20	15.44	20	16.85	20	19.76	25	22.79	*30*	*25.89*	*30*	*29.16*	1,625
35,000		15	14.83	20	16.22	20	17.59	20	19.08	25	22.12	*30*	*25.21*	*30*	*28.56*	*40*	*31.89*	1,750
35,000	R349 R449	15	12.36	15	13.86	20	15.40	20	16.98	25	20.20	25	23.69	30	27.27	40	30.95	1,750
37,500		15	14.01	20	15.59	20	17.20	20	18.85	25	22.27	30	25.78	30	29.53	*40*	*33.36*	1,875
40,000		20	15.99	20	17.48	20	19.19	25	20.91	25	24.46	30	28.17	*40*	*31.95*	*40*	*35.95*	2,000
40,000	R354 R454	15	13.39	20	15.15	20	16.95	20	18.82	25	22.67	30	26.74	40	30.94	40	35.28	1,565
45,000		20	16.48	20	18.39	25	20.33	25	22.33	30	26.47	40	30.74	40	35.27	*40*	*39.90*	1,761
50,000		25	20.28	25	22.20	25	24.31	30	26.45	40	30.86	40	35.45	*50*	*40.10*	*50*	*45.07*	1,957
50,000	R360 R460	20	16.97	20	19.15	25	21.39	25	23.69	30	28.44	40	33.49	40	38.70	50	44.07	1,744
55,000		25	20.11	25	22.43	25	24.81	30	27.25	40	32.31	49	37.53	50	43.06	*50*	*48.73*	1,918
60,000		25	23.85	30	26.19	30	28.72	40	31.30	40	36.63	50	42.18	*50*	*47.84*	*60*	*53.84*	2,092
60,000	R366 R466	25	20.22	25	22.83	30	25.53	30	28.31	40	34.04	50	40.10	50	46.37	60	52.85	1,654
65,000		25	23.38	30	26.04	30	28.87	40	31.78	40	37.82	50	44.08	60	50.67	*60*	*57.93*	1,791
70,000		30	26.84	30	29.63	40	32.61	40	35.66	50	41.97	50	48.54	60	55.31	*75*	*62.39*	1,929
75,000		40	30.78	40	33.62	40	36.76	40	39.96	50	46.52	60	53.38	*75*	60.28	*75*	*67.71*	2,067
75,000	R373 R473	30	25.64	30	28.88	40	32.22	40	35.66	50	42.73	60	50.26	60	58.02	75	66.01	1,852
80,000		30	28.76	40	32.15	40	35.63	40	39.20	50	46.61	60	54.29	75	62.37	*75*	*70.68*	1,976
85,000		40	32.18	40	35.74	40	39.36	50	43.07	60	50.75	60	58.57	75	67.01	*100*	*75.63*	2,099
85,000	R380 R480	30	27.54	40	31.31	40	35.22	40	39.12	50	47.66	60	56.37	75	65.47	75	74.89	1,702
92,500		40	31.78	40	35.77	40	38.87	50	44.09	60	52.76	75	62.03	75	71.57	100	81.35	1,852
100,000		40	36.56	50	40.78	50	45.09	50	49.52	60	58.70	75	68.17	100	78.20	*100*	*88.49*	2,002
105,000[1]		50	40.26	50	44.44	50	48.91	60	53.47	75	62.92	75	72.77	100	82.90	*100*	*93.52*	2,102
95,000	R389 R489	30	29.30	40	33.66	40	38.08	50	42.81	60	52.55	75	62.72	75	73.71	100	84.29	1,589
110,000		40	37.17	50	41.95	50	46.86	60	51.93	75	62.38	75	73.47	100	84.92	100	96.73	1,840
120,000		50	43.39	50	48.40	60	53.66	60	59.00	75	70.07	100	81.52	100	93.60	*125*	*106.01*	2,007
130,000[2]		60	50.72	60	55.83	75	61.34	75	66.95	100	78.56	100	90.66	*125*	*103.05*	*125*	*116.11*	2,174

1. Denotes 100% OA units ONLY, the Maximum CFM for R_80 Recirculation models is 100,000.
2. Denotes 100% OA units ONLY, the Maximum CFM for R_89 Recirculation models is 120,000.

Italic & Underlined Selections Require a Class II Fan.

CF = Consult Factory N/A = Not Available

All BHP's listed include drive losses, Fan performance based on 750 Ft. elevation & 90 F discharge temperature.

ABOVE DATA IS SUBJECT TO CHANGE WITHOUT NOTICE. CONSULT FACTORY FOR SPECIFIC APPLICATIONS

Gas Manifold Sizing & Selection

Burner Output Sizing (Nominal)

Approximate burner output on an R-Series unit is calculated based on the desired CFM capacity and discharge temperature rise: ***CFM x 1.14 x Temperature Rise (ΔT) = BTUH***

Example: **14,000 CFM unit with a 76 ΔT … 14,000 x 1.14 x 76 = 1,212,600 BTUH (or 1,213 MBH)**

Note: Actual BTU capacities will be calculated by AbsolutAire at the time of order, based upon temperature rise and project specifics, using the following formula:

$$BTU = \frac{CFM \times \rho \times C_p \times 60 \times \Delta T}{0.92}$$

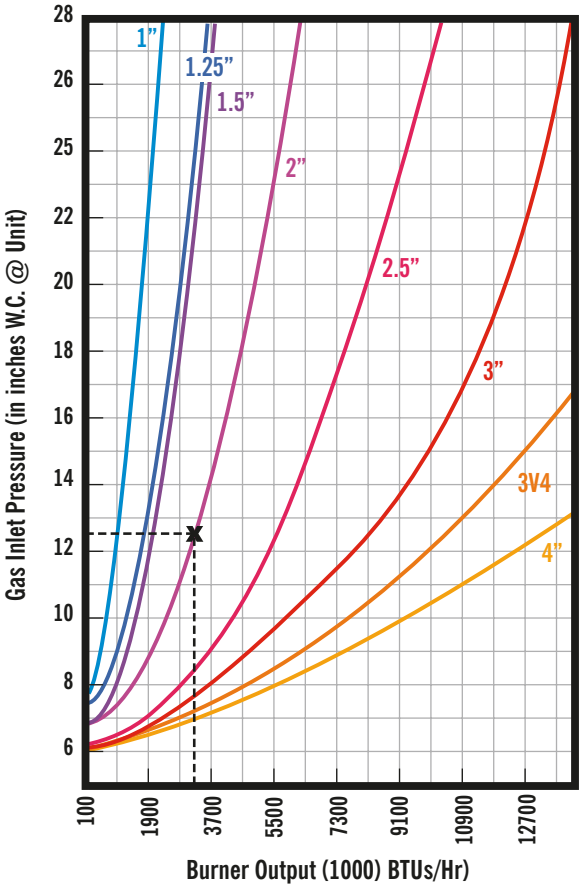
ρ = air density at fan C_p = specific heat ΔT = temp. rise

Gas Manifold Sizing

R-Series gas manifolds are sized using the sizing chart, which determines the manifold size based on the inlet gas pressure and calculated burner output. Draw a vertical line from the Burner Output until it intersects any of the manifold size curves, then draw a horizontal line to the left to determine Minimum Gas Pressure. If the vertical line does not intersect a manifold size curve, select the next largest size (to the right).

Example: **Gas Pressure = 12.5" WC**
Burner Output = 3,250,000 BTUH
Select a two-inch (2") manifold

Note: If you cannot get a low enough gas pressure by selecting a larger manifold to meet your project requirements, consult factory for "Low Pressure Alternatives." For inlet gas pressures below 6" WC, consult factory. Pressures above 1 psi (28" WC = 1 psi) are considered 1 psi for manifold sizing and selection.



Controls & Special Solutions

R-Series direct-gas-fired systems offer a range of standard and optional control systems and various "special solutions" for selected operating parameters and application challenges.

Standard and Optional Controls

AbsolutAire's standard control system for R-Series models has a main control panel at the unit and a diagnostic remote control panel in the area being served. This basic failsafe strategy monitors and precisely controls building pressurization and/or space temperature.

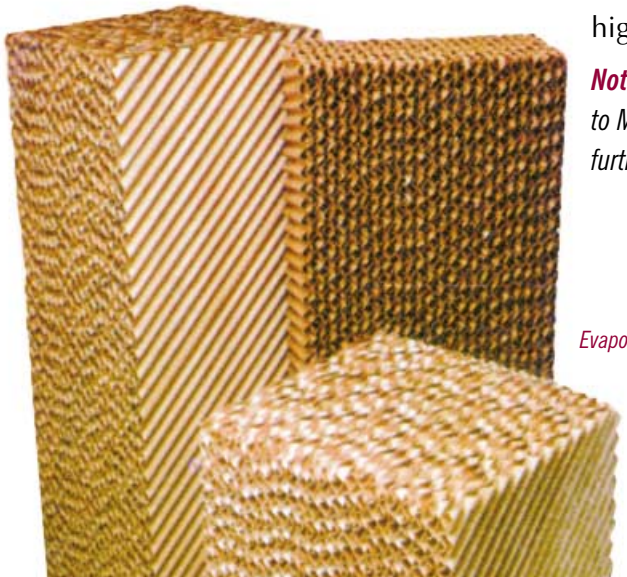
Maxitrol Series 14 discharge temperature controls are standard on 100% OA models; Series 44 controls on "F" models. Maxitrol DFM digital space temperature controls are standard on M- and B-type Return Air models. Optional controls include advanced microprocessor systems for networking and total facility air management control.

Note: *Refer to AbsolutAire's "HVAC Monitoring & Control Systems" brochure for further information about our DDC control options.*

Special Solutions

AbsolutAire's innovative and versatile R-series design technology offers almost limitless system configurations. Key operating options include:

Humidification – Direct evaporative media can be used on R-series units for space humidification and area cooling. Grains of moisture are added to the discharge air stream, increasing space humidity content. A cooling effect is achieved by the evaporation of the water from the saturated media, which reduces the dry bulb temperature. Other options for humidification include steam and water atomization.



Evaporative Media

DX Evaporator Coil or Chilled Water Cooling – Direct expansion (DX) evaporator coils or Chilled Water (CW) coils can be used with AbsolutAire's standard burner system to provide seasonal cooling. Or, they can be used alone for cooling only.

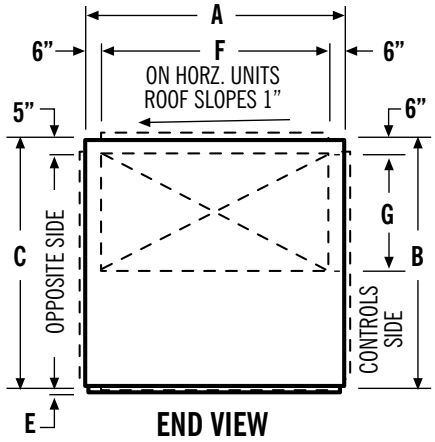
Hot Water and Steam Heating – Hot water coils and steam coils can be used for heat generation, especially in facilities having ample process heat or boiler systems. Such coils can replace the burner system, or be included with a burner to provide fuel flexibility and operating choices.

Electric Coil Heating – In some applications, where electricity is plentiful and relatively inexpensive, electric resistance heating coils may be used. Today's high-efficiency coils are available in a range of kilowatt capacities, complete with safety devices such as fusing, airflow switches and high-limit thermal cutouts.

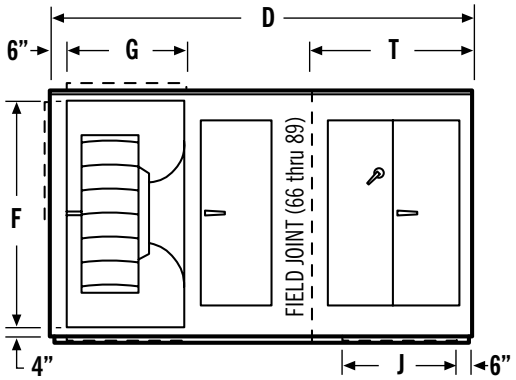
Note: *Refer to AbsolutAire's "Commitment to Meeting Special Challenges" brochure for further information about special solutions.*

Dimensional Data

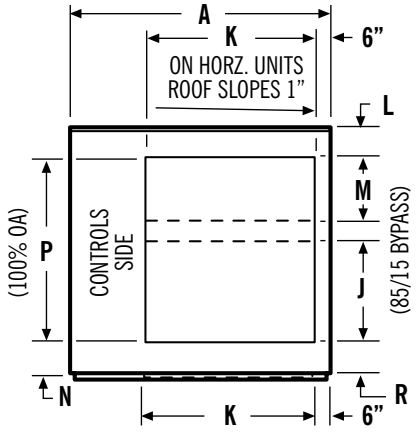
Horizontal Cabinets



END VIEW

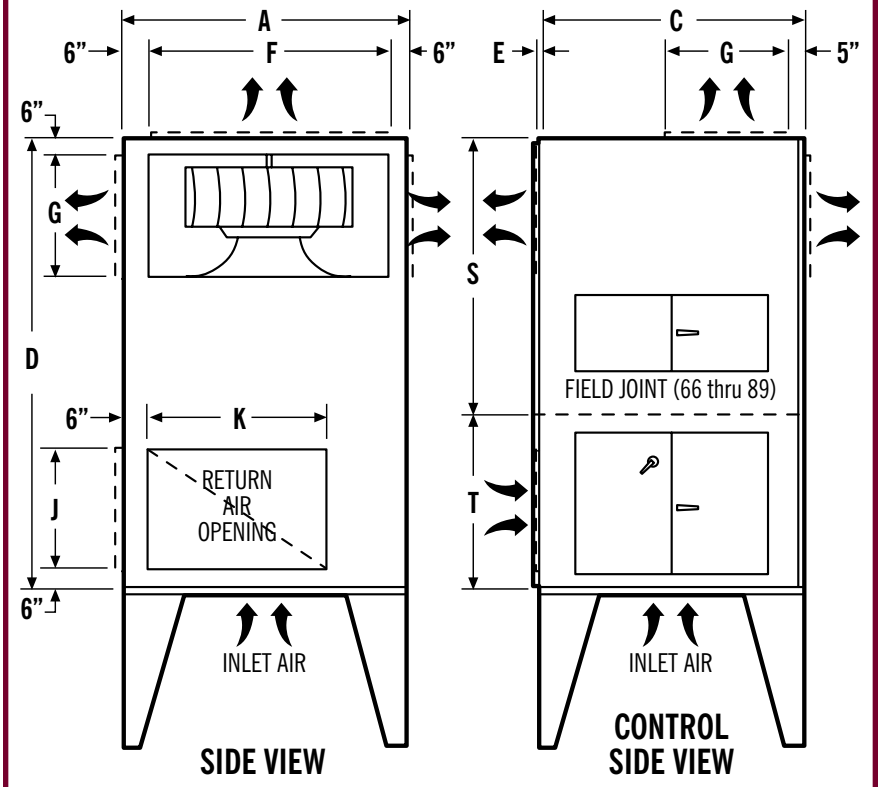


CONTROL SIDE



INLET VIEW

Upright Cabinets

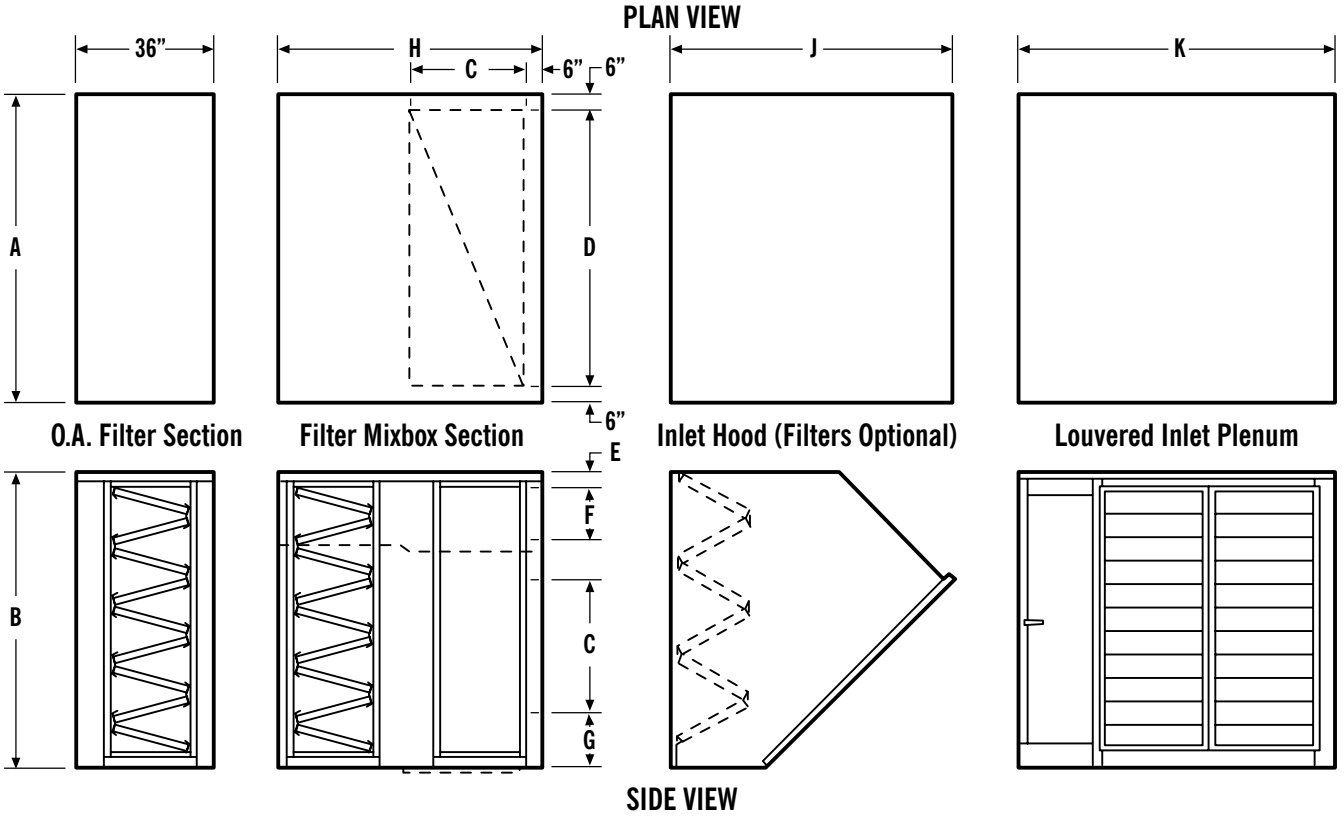


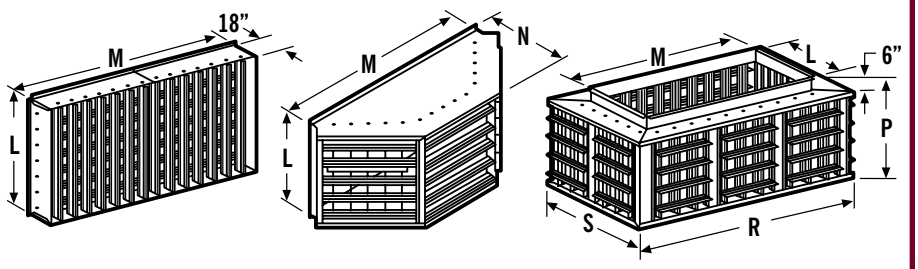
***PLEASE NOTE - R400's** STANDING SEAM SIDING ADDS 1-1/2" TO DIMS. B, C & D, ALSO ADDS 3" TO DIM. A & DIM. E IS ALWAYS 3".

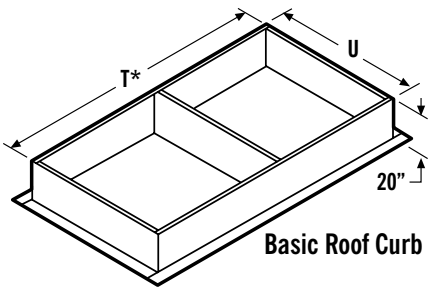
R300 & R400 Series Cabinet Dimensional Data, Inches

Fan Size(s)	A	B	C	D	E	F	G	J	K	L	M	N	P	R	S	T
27	56	53	52	118	2	44	24	27	34	6	5	10	32	7	–	–
30 & 36	66	63	62	126	2	54	30	34	44	7	6	9	44	7	–	–
40	74	71	70	130	2	62	35	44	48	5	8	9	52	8	–	–
44 & 49	84	81	80	140	2	72	40	49	58	7	9	9	62	8	–	–
54	92	89	88	153	3	80	46	54	64	6	10	9	70	8	–	–
60	98	95	94	160	3	86	48	60	70	8	11	8	78	8	–	–
66	107	104	103	180	3	95	55	68	79	7	12	9	85	9	100	80
73	118	115	114	180	3	106	55	68	90	11	12	9	96	9	100	80
80	128	125	124	200	3	116	62	68	98	13	12	8	108	12	120	80
89	135	132	131	214	3	123	70	74	105	13	13	8	115	12	128	86

NOTE: All dimensions are subject to change without notice.







Options & Accessories

R300 & R400 Series Option and Accessory Dimensional Data, Inches																		
Fan Size(s)	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	S	T*	U
27	56	53	23	44	7	5	7	59	74	68	24	44	28 1/8	22 1/8	71	51	113	51
30 & 36	66	63	30	54	7	5	9	66	74	76	30	54	31	28 1/8	81	57	121	61
40	74	71	34	62	8	6	13	70	74	82	35	62	33 3/8	32 1/8	89	62	125	69
44 & 49	84	81	40	72	9	7	11	76	84	88	40	72	36 1/4	36 1/8	99	67	135	79
54	92	89	44	80	8	8	12	80	98	92	46	80	38 5/8	40 1/8	107	73	148	87
60	98	95	49	86	8	9	11	85	98	100	48	86	40 3/8	44 1/8	113	75	155	93
66	107	104	57	95	8	10	11	93	98	106	55	95	43	46 1/8	122	82	175	102
73	118	115	58	106	8	10	13	94	98	108	55	106	46 1/4	52 1/8	133	82	175	113
80	128	125	58	116	9	10	13	94	110	108	62	116	49 1/8	54 1/8	143	89	195	123
89	135	132	64	123	9	11	15	100	110	132	70	123	51 1/4	57 1/8	150	97	209	130

*Dimensions shown are for basic curb only - consult factory for curb size if options (mixbox, louver plenum, etc.) are added to unit.

NOTE: All dimensions are subject to change without notice.