



Johnson Make-Up Air Systems

The Firefox™---100% MUA Unit---Unit Capacity Chart

STANDARD UNIT WITH FORWARD CURVE DWDI FAN

UNIT CFM	Max MBH		MODEL	MOTOR & FAN REQUIREMENTS @ TOTAL STATIC PRESSURE SHOWN											
	Nat. Gas	LP Gas		1.00"		1.25"		1.50"		1.75"		2.00"		2.50"	
				FAN	BHP	FAN	BHP	FAN	BHP	FAN	BHP	FAN	BHP	FAN	BHP
800	127	91	FF17	10-5	0.25	10-5	0.32	10-5	0.35	CF		CF		CF	
1,250	199	142		10-5	0.68	10-5	0.75	10-5	0.82	10-5	0.87	10-5	1.00	10-5	1.05
1,750	235	185		9-7	0.75	9-7	0.86	10-5	1.53	10-5	1.63	10-5	1.91	10-5	1.89
2,000	319	228	FF30	9-7	1.09	9-7	1.18	9-7	1.25	9-7	1.38	10-5	2.40	10-5	2.65
2,500	375	285		10	1.10	10	1.25	10	1.41	9-7	2.15	9-7	2.26	9-7	2.51
3,000	375	330		10	1.50	10	1.70	10	1.85	10	2.10	10	2.29	CF	
3,500	375	330		10	2.10	10	2.30	10	2.50	10	2.70	CF		CF	
3,500	450	375	FF100	12	1.4	10	2.3	10	2.5	10	2.7	10	2.9	10 HD	3.5
4,500	450	375		12	2.4	12	2.6	12	2.8	12	3.0	10 HD	4.7	CF	
5,500	450	375		15	2.6	15	2.9	15	3.3	15-10	3.8	15-10	4.0	15-10	4.5
4,500	718	513	FF200	12	2.4	12	2.6	12	2.8	12	3.0	10 HD	4.7	CF	
5,500	877	627		15	2.6	15	2.9	15	3.3	15-10	3.8	15-10	4.0	15-10	4.5
6,500	940	720		15	3.6	15	4.0	15	4.3	15	4.7	15-10	5.8	15-10	6.2
6,000	957	684	FF300	15	3.0	15	3.4	15	3.7	15-10	4.5	15-10	4.8	CF	
8,000	1,125	912		18	3.5	18	3.8	15 HD	6.5	15HD	6.9	15 HD	7.4	15 HD	8.4
9,000	1,125	1,026		18	4.8	18 HD	5.4	18 HD	5.8	18 HD	6.2	18 HD	6.6	18 HD	7.5
10,000	1,596	1,140	FF400	20	4.0	20	4.5	20	5.1	20	5.6	18	7.3	18	8.3
12,000	1,915	1,368		20	5.9	20	6.4	20	6.9	20	7.5	20	8.2	18	11.8
14,000	2,025	1,550		20	8.4	20	9.0	20	9.5	20	10.3	20	11.0	20	12.2
13,000	2,074	1,482	FF500	22	5.6	22	6.1	22	6.7	22	7.3	22	8.1	20	10.8
15,000	2,394	1,710		22	7.4	22	8.2	22	8.9	22	9.5	22	10.4	22	11.8
17,000	2,713	1,938		22	9.8	22	10.8	22	11.5	22	12.3	22	13.0	22	14.6
20,000	2,800	2,215		22	14.3	22	15.6	22	16.5	22	17.2	22	18.2	22	20.0
18,000	2,872	2,052	FF600	25	7.7	25	8.6	25	9.5	25	10.5	25	11.5	25	13.4
21,000	3,351	2,394		25	10.8	25	11.7	25	12.7	25	13.6	25	14.7	25	17.1
23,000	3,615	2,622		25	13.2	25	14.2	25	15.4	25	16.3	25	17.6	25	19.8
25,000	3,615	2,770		25	16.2	25	17.3	25	18.3	25	19.2	25	20.7	25	23.1
26,000	4,149	2,964	FF700	30	10.6	30	11.9	30	13.1	30	14.2	30	15.7	30.0	18.2
30,000	4,788	3,420		30	14.1	30	15.7	30	17.1	30	18.4	30	19.8	30	22.8
35,000	4,900	3,880		30	19.6	30	21.4	30	23.0	30	24.7	30	26.4	30	29.8
34,000	5,426	3,876	FF800	33	16.2	33	17.7	33	19.3	33	21.1	30	25.0	30	28.3
37,000	5,905	4,218		33	19.5	33	21.3	33	23.0	33	24.5	30	29.5	30	33.4
40,000	6,000	4,560		33	23.3	33	25.4	33	27.1	33	28.7	33	31.3	30	38.8
45,000	6,000	5,130		33	30.6	33	32.9	33	35.0	33	36.5	33	39.0	30	48.1
50,000	6,000	5,545		33	38.9	33	41.7	33	44.3	33	46.7	33	48.9	CF	

Maximum MBH on re-circulating units limited to the lesser of the MBH shown or temperature rise of 130°F for natural gas and 100°F for propane (LP) gas.
Above table is subject to change without notice. Consult factory (CF) for specific applications and as noted.

The Firefox™---100% MUA Unit

STATIC PRESSURE DROP FOR UNIT AND OPTIONS

Description	Pressure In. w. c.
Base Unit (Cabinet, Burner)	0.90
Inlet Hood with Birdscreen	0.05
Filtered Inlet Hood (Includes 1" Alum. Mesh Filters, CLEAN)	0.10
Motorized Inlet Damper	0.10
Motorized Discharge Damper	0.18
3-Way Single Deflection Diffuser (Horizontal Blades)	0.25
3-Way Double Deflection Diffuser (Horiz. & Vert. Blades)	0.35
4-Way Single Deflection Diffuser (Horizontal Blades)	0.20
4-Way Double Deflection Diffuser (Horiz. & Vert. Blades)	0.25
Side Access Filter Section - 2" 30% Pleated (CLEAN)	0.25
Side Access Filter Section - 1" Aluminum Mesh (CLEAN)	0.10
Filter-Mix Box - 2" 30% Pleated (CLEAN)	0.20
Filter-Mix Box - 1" Aluminum Mesh (CLEAN)	0.05
Filter-Mix Box - 2" Aluminum Mesh (CLEAN)	0.10
Evaporative Cooling Section (for 6" Thick Media)	0.15
Evaporative Cooling Section (for 12" Thick Media)	0.30
Typical CW or DX Coil Box (Estimate)	0.60 - 0.90
Typical Steam or HW Coil Box (Estimate)	0.30 - 0.40

Filters should be changed below 0.60" w. c.

Any external static losses from ductwork or other factors must be added to determine Total Static Pressure

The Firefox™ ---100% MUA Unit

The Firefox™ Motor and Fan Requirements

PREMIUM UNIT WITH AIRFOIL PLENUM FAN

UNIT CFM	Max MBH	MODEL	MOTOR & FAN REQUIREMENTS @ TOTAL STATIC PRESSURE SHOWN															
			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	518	FF18-3	2	1.4	2	1.6	2	1.8	3	2.0	3	2.5	3	2.9	5	3.4	5	3.9
6,000	778		3	2.7	3	3.0	5	3.3	5	3.6	5	4.2	5	4.8	<u>7.5</u>	<u>5.4</u>	<u>7.5</u>	<u>6.1</u>
6,000	778	FF20-3	3	2.4	3	2.7	3	3.0	5	3.3	5	3.9	5	4.5	<u>7.5</u>	<u>5.2</u>	<u>7.5</u>	<u>5.8</u>
8,000	1,037		5	4.0	5	4.4	5	4.8	<u>7.5</u>	<u>5.1</u>	<u>7.5</u>	<u>5.9</u>	<u>7.5</u>	<u>6.7</u>	<u>7.5</u>	<u>7.5</u>	<u>10</u>	<u>8.4</u>
7,000	907	FF27-3	2	2.0	3	2.4	3	2.8	5	3.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10,000	1,296		5	3.3	5	3.8	5	4.2	5	4.7	<u>7.5</u>	<u>5.7</u>	<u>7.5</u>	<u>6.7</u>	<u>10</u>	<u>7.8</u>	<u>10</u>	<u>8.9</u>
13,000	1,685	FF27-4	<u>7.5</u>	<u>5.1</u>	<u>7.5</u>	<u>5.7</u>	<u>7.5</u>	<u>6.3</u>	<u>7.5</u>	<u>6.9</u>	<u>10</u>	<u>8.1</u>	<u>10</u>	<u>9.3</u>	<u>15</u>	<u>10.5</u>	<u>15</u>	<u>11.8</u>
13,000	1,685	FF33-3	5	4.4	5	5.0	<u>7.5</u>	<u>5.6</u>	<u>7.5</u>	<u>6.2</u>	<u>7.5</u>	<u>7.5</u>	<u>10</u>	<u>8.8</u>	<u>15</u>	<u>10.1</u>	<u>15</u>	<u>11.5</u>
15,000	1,944		FF33-4	<u>7.5</u>	<u>5.6</u>	<u>7.5</u>	<u>6.3</u>	<u>7.5</u>	<u>6.9</u>	<u>10</u>	<u>7.6</u>	<u>10</u>	<u>9.0</u>	<u>15</u>	<u>10.5</u>	<u>15</u>	<u>11.9</u>	<u>15</u>
17,000	2,203	FF36-3	<u>7.5</u>	<u>7.0</u>	<u>10</u>	<u>7.8</u>	<u>10</u>	<u>8.5</u>	<u>10</u>	<u>9.3</u>	<u>15</u>	<u>10.8</u>	<u>15</u>	<u>12.4</u>	<u>15</u>	<u>14.0</u>	<u>20</u>	<u>15.6</u>
17,000	2,203		FF36-4	<u>7.5</u>	<u>5.5</u>	<u>7.5</u>	<u>6.3</u>	<u>7.5</u>	<u>7.1</u>	<u>10</u>	<u>7.9</u>	<u>10</u>	<u>9.6</u>	<u>15</u>	<u>11.4</u>	<u>15</u>	<u>13.2</u>	<u>20</u>
19,500	2,527	FF36-4	<u>7.5</u>	<u>7.0</u>	<u>10</u>	<u>7.8</u>	<u>10</u>	<u>8.6</u>	<u>10</u>	<u>9.5</u>	<u>15</u>	<u>11.3</u>	<u>15</u>	<u>13.3</u>	<u>20</u>	<u>15.3</u>	<u>20</u>	<u>17.3</u>
22,000	2,851		<u>10</u>	<u>8.7</u>	<u>10</u>	<u>9.6</u>	<u>15</u>	<u>10.5</u>	<u>15</u>	<u>11.5</u>	<u>15</u>	<u>13.5</u>	<u>20</u>	<u>15.5</u>	<u>20</u>	<u>17.6</u>	<u>20</u>	<u>19.8</u>
22,000	2,851	FF40-3	8	7.4	10	8.4	10	9.4	15	10.4	15	12.5	15	14.8	20	17.0	20	19.4
26,000	3,370	FF40-4	10	10.0	15	11.1	15	12.2	15	13.3	20	15.7	20	18.1	25	20.6	<u>25</u>	<u>23.3</u>
30,000	3,888		15	13.4	15	14.6	20	15.7	20	17.0	<u>20</u>	<u>19.5</u>	<u>25</u>	<u>22.2</u>	<u>25</u>	<u>25.0</u>	<u>30</u>	<u>27.8</u>
30,000	3,888	FF44-3	15	10.9	15	12.2	15	13.5	15	14.9	20	17.6	25	20.5	25	23.5	30	<u>26.6</u>
32,500	4,212		FF44-4	15	12.8	15	14.1	20	15.4	20	16.9	20	19.8	25	22.8	<u>30</u>	<u>25.9</u>	<u>30</u>
35,000	4,536	FF49-3	15	14.8	20	16.2	20	17.6	20	19.1	25	22.1	<u>30</u>	<u>25.2</u>	<u>30</u>	<u>28.6</u>	<u>40</u>	<u>31.9</u>
35,000	4,536		FF49-4	15	12.4	15	13.9	20	15.4	20	17.0	25	20.2	25	23.7	30	27.3	40
37,500	4,860	FF49-4	15	14.0	20	15.6	20	17.2	20	18.9	25	22.3	30	25.8	30	29.5	40	<u>33.4</u>
40,000	5,184		20	16.0	20	17.5	20	19.2	25	20.9	25	24.5	30	28.2	40	<u>32.0</u>	40	<u>36.0</u>
40,000	5,184	FF54-3	15	13.4	20	15.2	20	17.0	20	18.8	25	22.7	30	26.7	40	30.9	40	35.3
45,000	5,832		FF54-4	20	16.5	20	18.4	25	20.3	25	22.3	30	26.5	40	30.7	40	35.3	40
50,000	6,480	FF60-3	25	20.3	25	22.2	25	24.3	30	26.5	40	30.9	40	35.5	50	40.1	50	<u>45.1</u>
50,000	6,480		FF60-4	20	17.0	20	19.2	25	21.4	25	23.7	30	28.4	40	33.5	40	38.7	50
55,000	7,128	FF66-3	25	20.1	25	22.4	25	24.8	30	27.3	40	32.3	40	37.5	50	43.1	50	<u>48.7</u>
60,000	7,776		FF66-4	25	23.9	30	26.2	30	28.7	40	31.3	40	36.6	50	42.2	50	47.8	60
60,000	7,776	FF73-3	25	20.2	25	22.8	30	25.5	30	28.3	40	34.0	50	40.1	50	46.4	60	52.9
65,000	8,424		FF73-4	25	23.4	30	26.0	30	28.9	40	31.8	40	37.8	50	44.1	60	50.7	60
70,000	9,072	FF80-3	30	26.8	30	29.6	40	32.6	40	35.7	50	42.0	50	48.5	60	55.3	75	<u>62.4</u>
75,000	9,720		FF80-4	40	30.8	40	33.6	40	36.8	40	40.0	50	46.5	60	53.4	75	60.3	75
75,000	9,720	FF89-3	30	25.6	30	28.9	40	32.2	40	35.7	50	42.7	60	50.3	60	58.0	75	66.0
80,000	10,368		FF89-4	30	28.8	40	32.2	40	35.6	40	39.2	50	46.6	60	54.3	75	62.4	75
85,000	11,016	FF89-4	40	32.2	40	35.7	40	39.4	50	43.1	60	50.8	60	58.6	75	67.0	100	<u>75.6</u>
85,000	11,016		FF80-3	30	27.5	40	31.3	40	35.2	40	39.1	50	47.7	60	56.4	75	65.5	75
92,500	11,988	FF89-4	40	31.8	40	35.8	40	39.9	50	44.1	60	52.8	75	62.0	75	71.6	100	81.4
105,000	13,608		50	40.3	50	44.4	50	48.9	60	53.5	75	62.9	75	72.8	100	82.9	100	<u>93.5</u>
95,000	12,312	FF89-3	30	29.3	40	33.7	40	38.1	50	42.8	60	52.6	75	62.7	75	73.7	100	84.3
110,000	14,256		FF89-4	40	37.2	50	41.9	50	46.9	60	51.9	75	62.4	75	73.5	100	84.9	100
130,000	16,848		60	50.7	60	55.8	75	61.3	75	67.0	100	78.6	100	90.7	125	103.1	125	<u>116.1</u>

N/A: Not available.

Underlined sections require a class II fan. All units rated at 100% outside air.

Model Designation: *-3 includes a welded casing, *-4 includes upgraded frame construction.

Above table is subject to change without notice. Consult factory for specific applications.

The Firefox™---100% MUA Unit

<i>PREMIUM UNIT WITH AIRFOIL PLENUM FAN (FF*-3 & 4)</i>	
<i>Static Pressure Drops for Base Cabinets</i>	in. w.c.
Horizontal 100% OA	0.90
Vertical 100% OA	0.95
<i>Static Pressure Drops for Filters</i>	in. w.c.
Side Access Filter Section - 2" 30% Pleated (CLEAN)	0.30
Side Access Filter Section - 2" Aluminum Mesh (CLEAN)	0.15
Side Access Filter Section - 1-1/2" Dust-Lock (CLEAN)	0.20
Filter Mix-Box - 2" 30% Pleated (CLEAN)	0.30
Filter Mix-Box - 2" Aluminum Mesh (CLEAN)	0.15
Filter Mix-Box - 1-1/2" Dust-Lock (CLEAN)	0.20
<i>Static Pressure Drops for Options</i>	in. w.c.
Inlet Hood with Birdscreen	0.05
Filtered Inlet Hood (Includes 2" Alum. Mesh Filters, CLEAN)	0.15
Motorized Inlet Damper	0.10
Motorized Discharge Damper	0.20
3-Way Single Deflection Diffuser (Horizontal Blades)	0.20
3-Way Double Deflection Diffuser (Horiz. & Vert. Blades)	0.25
4-Way Single Deflection Diffuser (Horizontal Blades)	0.10
4-Way Double Deflection Diffuser (Horiz. & Vert. Blades)	0.15
Evaporative Cooling Section (for 6" Thick Media)	0.15
Evaporative Cooling Section (for 12" Thick Media)	0.30
CW or DX Coil Box (Estimate)	0.60 - 0.90
Steam or HW Coil Box (Estimate)	0.30 - 0.40
<i>Static Pressure Drops for Discharge Configurations</i>	
Axial Discharge w/ 3'-0" of Straight Duct (Minimum)	0.15
Axial Discharge w/o 3'-0" of Duct or a Plenum	0.20
Radial Discharge w/ 3'-0" of Duct or a Plenum (Minimum)	0.00
Radial Discharge w/o 3'-0" of Duct or a Plenum	0.10

Filters should be changed below 0.60" w. c.

Any external static losses from ductwork or other factors must be added to determine Total Static Pressure