



INSTALLATION AND OPERATION MANUAL CROSS-FLOW SENSOR K-FACTORS FOR VAV TERMINAL UNITS

Model Series:

- 3000** Single Duct
- 3210** Dual Duct
- 35S-OAI** Series Fan Powered w/ O.A. Damper
- 38S** Underfloor Fan Powered

Inlet Size	Type	Duct Area (sq. ft.)	K-Factor (cfm)	Velocity (fpm)	F-Factor (amp.)
4	ROUND	0.087	202	2322	2.98
5		0.136	325	2390	2.81
6		0.196	524	2673	2.24
7		0.267	714	2674	2.24
8		0.349	987	2828	2.01
9		0.441	1235	2800	2.05
10		0.545	1575	2890	1.92
12	OVAL	0.754	2230	2958	1.83
14		0.970	2629	2710	2.18
16		1.186	3247	2738	2.14
24 x 16	RECT.	2.667	7760	2910	1.89

Model Series:

- 36VRS** Square/Rectangular Retrofit

Inlet Size	Type	Damper (valve) Size (inches)	Damper (valve) Area (sq. ft.)	K-Factor (cfm)	Velocity (fpm)	F-Factor (amp.)
7	SQUARE OR RECT.	5 x 5	0.174	437	2509	2.82
8		6 x 6	0.250	696	2786	2.25
9		8 x 6	0.333	972	2920	2.01
10		10 x 8	0.555	1621	2920	2.01
11		14 x 8	0.778	2272	2920	2.01
11A		18 x 6	0.750	2089	2786	2.25
12		12 x 10	0.833	2469	2964	1.92
13		18 x 10	1.250	3704	2964	1.92
14		18 x 12	1.500	4612	3075	1.77
15		20 x 14	1.944	5562	2861	2.03
15A		30 x 12	2.500	7687	3075	1.77
16		22 x 16	2.444	7283	2980	1.87
17		24 x 18	3.000	8940	2980	1.87
18		30 x 20	4.167	12349	2964	1.92
19		40 x 20	5.555	16462	2964	1.92

Model Series:

- 3100** Single Duct
- 3230** Dual Duct
- 3240** "Blendmaster" Dual Duct
- 33SZ** Chilled Water Fan Powered
- 35N** Parallel Fan Powered
- 35S** Series Fan Powered
- 35S-CVP** Pressurization Series Fan Powered
- 35SST** Stealth Series Fan Powered
- 35SXC** Stealth XC Series Fan Powered
- 36VRR** Round Retrofit

Inlet Size	Type	Duct Area (sq. ft.)	K-Factor (cfm)	Velocity (fpm)	F-Factor (amp.)
4	ROUND	0.087	202	2315	2.99
5		0.136	325	2509	2.82
6		0.196	524	2669	2.25
7		0.267	714	2672	2.25
8		0.349	987	2828	2.01
9		0.441	1235	2795	2.05
10		0.545	1575	2888	1.92
12		0.785	2363	3009	1.77
14		1.068	3002	2808	2.03
16		1.395	4093	2931	1.87
24 x 16	RECT.	2.667	7760	2910	1.89

Model Series:

- 37N** Low Profile Parallel Fan Powered
- 37S** Low Profile Fan Powered
- 37SST** Low Profile Stealth Fan Powered
- 37SXC** LowProfile Stealth XC Series Fan Powered

Inlet Size	Type	Duct Area (sq. ft.)	K-Factor (cfm)	Velocity (fpm)	F-Factor (amp.)
4	ROUND	0.087	202	2322	2.98
5		0.136	325	2509	2.81
6		0.196	524	2673	2.24
8		0.349	987	2828	2.01
10		0.545	1575	2890	1.92
14 x 8	RECT.	0.777	2197	2828	2.01
14 x 10		0.972	2807	2890	1.92

Equations:

$$Q = K \times \sqrt{\Delta P} \quad \Delta P = \left(\frac{Q}{K} \right)^2 \quad F = \left(\frac{4005 \times A}{K} \right)^2$$

Where: Q = Airflow Rate (cfm)

ΔP = Sensor Differential Pressure ("w.g.)

K = K-Factor Calibration Constant (standard air)

F = Amplification Factor (sensor gain)

A = Nom. Duct Area (sq. ft.)

The K-Factors tabulated in the above tables are the airflow required to produce a 1.0" w.g. differential pressure at the Cross-Flow Sensor.

Model Series:

30HQX Single Duct Exhaust (Hospital Grade)

30X Single Duct Exhaust

Inlet Size	Type	Value Inlet Size (inches)	Valve Inlet Area (sq. ft.)	K-Factor (cfm)	Velocity (fpm)	F-Factor (amp.)
4	SQUARE OR RECT.	3.4 x 3.4	0.080	197	2468	2.98
5		4.3 x 4.3	0.128	316	2468	2.81
6		5.5 x 5.5	0.210	527	2509	2.24
7		5.8 x 6.3	0.254	637	2509	2.24
8		6.7 x 7.2	0.335	933	2786	2.01
9		8.6 x 7.1	0.424	1175	2772	2.05
10		9.5 x 8.0	0.528	1542	2920	1.92
12		13.6 x 8.1	0.765	2234	2920	1.77
14		12.9 x 10.8	0.968	2869	2964	2.03
16		18.3 x 10.8	1.373	3928	2861	2.14
24 x 16		26.1 x 16.3	2.954	8709	2948	1.89

Equations:

$$Q = K \times \sqrt{\Delta P} \quad \Delta P = \left(\frac{Q}{K} \right)^2 \quad F = \left(\frac{4005 \times A}{K} \right)^2$$

Where: Q = Airflow Rate (cfm)

ΔP = Sensor Differential Pressure ("w.g.)

K = K-Factor Calibration Constant (standard air)

F = Amplification Factor (sensor gain)

A = Nom. Duct Area (sq. ft.)

The K-Factors tabulated in the above tables are the airflow required to produce a 1.0" w.g. differential pressure at the Cross-Flow Sensor.



Houston, Texas
Tel: 281-590-1172
Fax: 281-590-3086

Las Vegas, Nevada
Tel: 702-648-5400
Fax: 702-638-0400

Toronto, Canada
Tel: 416-744-3300
Fax: 416-744-3360

Calgary, Canada
Tel: 403-279-8619
Fax: 403-279-5035