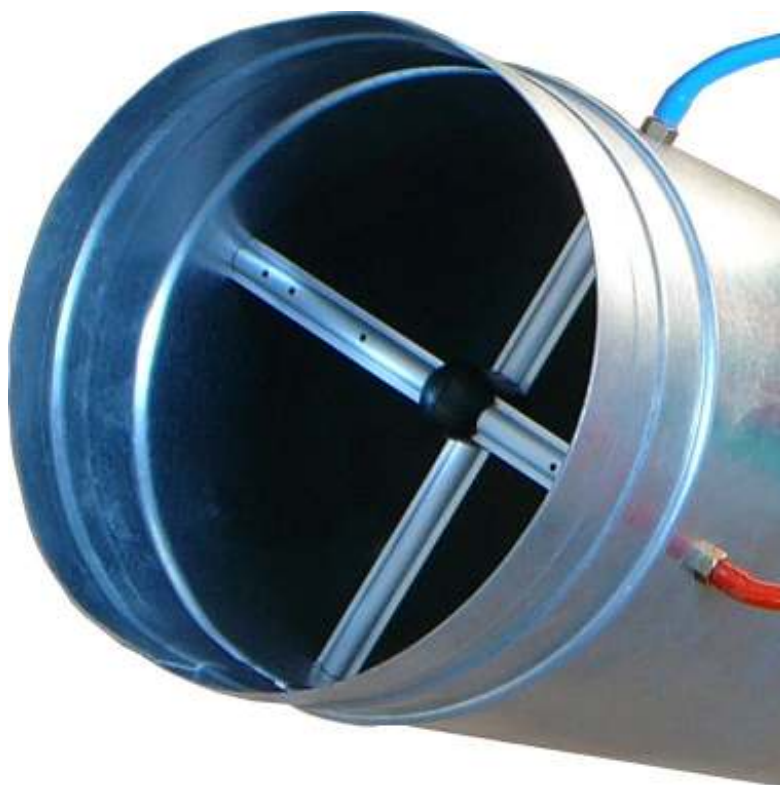


Cross shaped averaging Airflow Sensor

FloXact™-X



AIR-CONCEPTS
air distribution products



Application

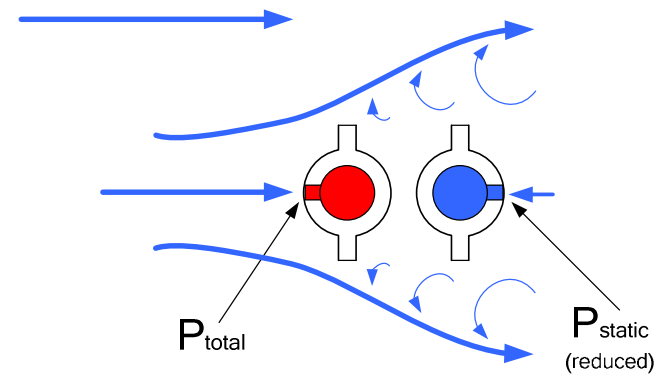
The FloXact™-X is used to measure air velocity / air volume in HVAC systems. The design is suitable for easy installation in new and refurbishment VAV terminals.

The FloXact™-X operates on the pitot tube principle and measures the total and static pressure components of airflow.

The sensor determines the average air velocity, measured over 2x6, 2x8, 2x10 or 2x12 measuring points, depending on the size.

The unique shape of the measuring profile creates a linear amplification of at least 2.5x P_{dyn} making accurate measurements from as low as 1,0 m/s air velocity possible.

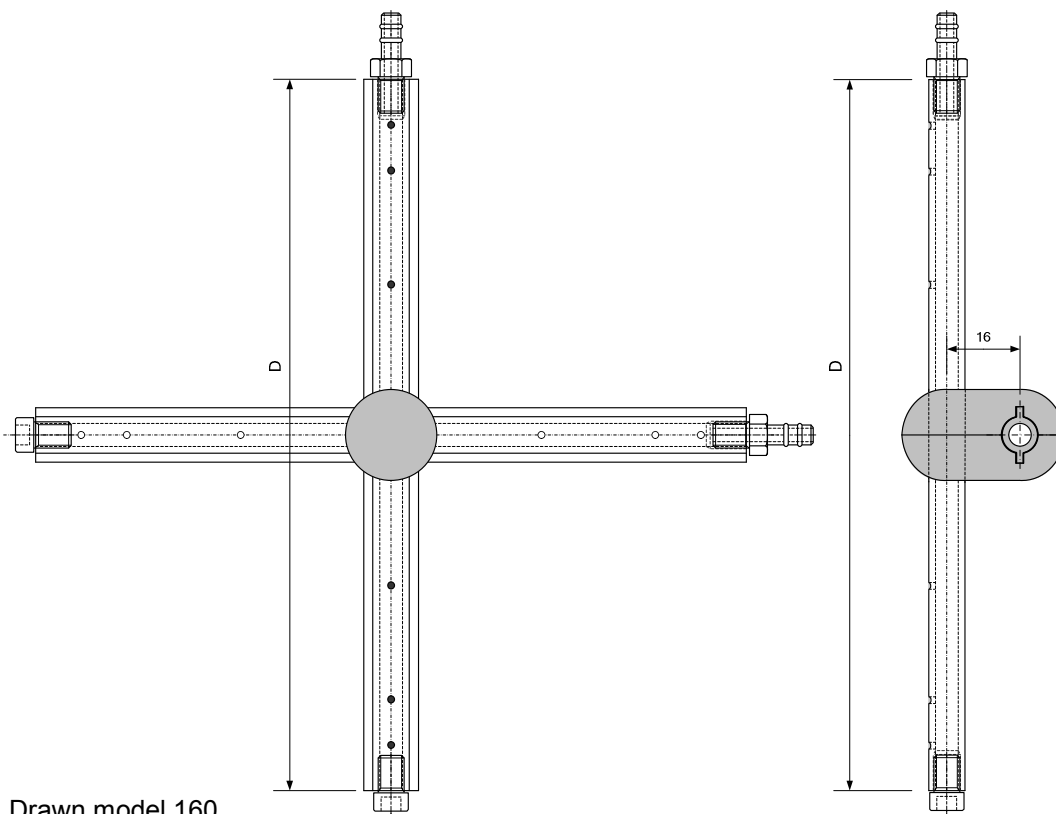
Air Flow Direction



Operation of the FloXact™

Design features

- Easy installation in existing air ducts or terminals
- Multi point averaging according to the “Log-Tchebycheff” method
- 2% accuracy starting from 1,0 m/s air velocity
- The unique shape (patent pending) creates a linear amplification of at least 2.5x P_{dyn} .
- Chamfered entrances to eliminate air direction effects make the FloXact™ Stick insensitive to approaching multi-directional, rotating airflow with yaw and pitch up to 30° from straight flow.
- 8 standard sizes $\varnothing 100$, $\varnothing 125$, $\varnothing 160$, $\varnothing 200$, $\varnothing 250$, $\varnothing 315$, $\varnothing 355$ and $\varnothing 400$, other dimensions or sensors for rectangular duct are available upon request.
- Operating temperature +5 to +95°C



Drawn model 160

Dimensions

Model	D	holes
100	96	12
125	121	
160	156	
200	196	
250	146	16
315	311	
355	351	
400	396	20



Operation

The FloXact™-X operates on the pitot tube principle and measures the total and static pressure components of airflow. The pressure ports located on the leading surface are sensing the total pressure (Pt) and sensing ports positioned at the rear, sense the static pressure (Ps). The difference between the total pressure and the static pressure is the dynamic pressure (Pd) which relates to the squared air velocity as:

$$P_d = \frac{1}{2} \times \rho \times v^2$$

P_d = dynamic pressure in Pa
 ρ = density of the gas (air) in kg/m³
 v = velocity in m/s

Kv value

To simplify mathematics and include the amplification and duct area, the FloXact™-X are provided with a Kv value.

The air volume can be determined with the following formula:

$$Q = K_v \times \sqrt{P_{fs}}$$

Q = air volume in l/s
 K_v = Kv value in l/s/Pa
 P_{fs} = pressure difference measured by the FloXact™-X in Pa

Model	100	125	160	200	250	315	355	400
Kv	5,60	9,17	15,62	25,06	38,43	62,85	80,83	103,76
P_{fs} in Pa	Air volume in l/s							
2	8	13	22	35	54	89	114	147
3	10	16	27	43	67	109	140	180
4	11	18	31	50	77	126	162	208
5	13	21	35	56	86	141	181	232
6	14	22	38	61	94	154	198	254
7	15	24	41	66	102	166	214	275
8	16	26	44	71	109	178	229	293
9	17	28	47	75	115	189	243	311
10	18	29	49	79	122	199	256	328
12	19	32	54	87	133	218	280	359
14	21	34	58	94	144	235	302	388
16	22	37	62	100	154	251	323	415
18	24	39	66	106	163	267	343	440
20	25	41	70	112	172	281	362	464
25	28	46	78	125	192	314	404	519
30	31	50	86	137	210	344	443	568
35	33	54	92	148	227	372	478	614
40	35	58	99	159	243	397	511	656
45	38	62	105	168	258	422	542	696
50	40	65	110	177	272	444	572	734
60	43	71	121	194	298	487	626	804
70	47	77	131	210	322	526	676	868
80	50	82	140	224	344	562	723	928
90	53	87	148	238	365	596	767	984
100	56	92	156	251	384	628	808	1.038
125	63	103	175	280	430	703	904	1.160
150	69	112	191	307	471	770	990	1.271
175	74	121	207	332	508	831	1.069	1.373
200	79	130	221	354	543	889	1.143	1.467
225	84	138	234	376	576	943	1.213	1.556
250	89	145	247	396	608	994	1.278	1.641
275	93	152	259	416	637	1.042	1.340	1.721
300	97	159	270	434	666	1.089	1.400	1.797

- Kv values are based on $D_{nom} = D - 3$ mm.
- The table above is for air with 1.20 kg/m³ density (20°C, 50% r.h. and 1013 mbar).
- The correction for different densities is determined with the following formula : **Corr** = $\sqrt{(\rho/1.20)}$



Cross shaped averaging airflow sensor
Suitable for CAV and VAV terminals with round inlet

Type Designation
Type FloXact™-X

Type Designation

