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USER GUIDE

FloXact

Produal

Distributed by AKRIBIS



PRODUAL

PART OF BEMSIQ GROUP

FloXact airflow volume probes

USER GUIDE

Made in Finland

5 years warranty

MANAGEMENT SYSTEM CERTIFICATION DNV ISO 9001 · ISO 14001 Finland

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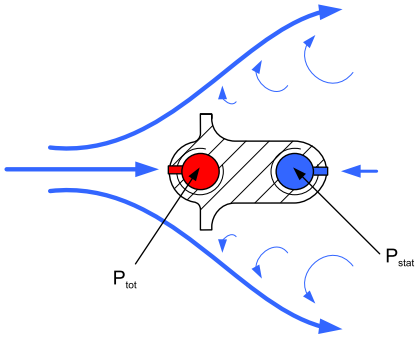
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1 Introduction

The FloXact airflow volume probes are designed for airflow volume measurement, operating together with air volume transmitters or other transmitters with an airflow output. They are also easy to install to existing ventilation ducts. These probes operate on the pitot tube principle and measure the total (*Ptot*) and static (*Pstat*) pressure components of airflow according to the following figure.



Airflow direction

The probe collects the airflow measurement over several measuring points using multi-point averaging that is based on the *Log-Tchebycheff* method. The number of measuring points depends on the size and shape of the ventilation duct. The probe shape enables accurate measurement at air speeds of 1.0 m/s and above. The air volume transmitter can calculate the average airflow volume based on the differential pressure.

You can very easily connect these probes to Produal DPT-Flow airflow transmitters. The recommended model is DPT-Flow-1000-AZ-D because the typical pressure range in a ventilation duct is 0…250 Pa. The measurement range of DPT-Flow-1000-AZ-D is 0...1000 Pa. You can also connect the probe to a differential pressure transmitter. However, to achieve the best accuracy, use an output that is linear to airflow rather than pressure.

1.1 About this user guide

This user guide contains important information about the installation and use of the product. Read this guide carefully before you install the product or operate the product. Make sure that you fully understand all instructions before you start work. If you are not sure what the instructions mean, contact the seller or the manufacturer.

Follow all instructions in this user guide carefully. Always obey the applicable local rules and regulations.

The original instructions were written in English. If there are differences between the English instructions and the translations, refer to the English instructions.

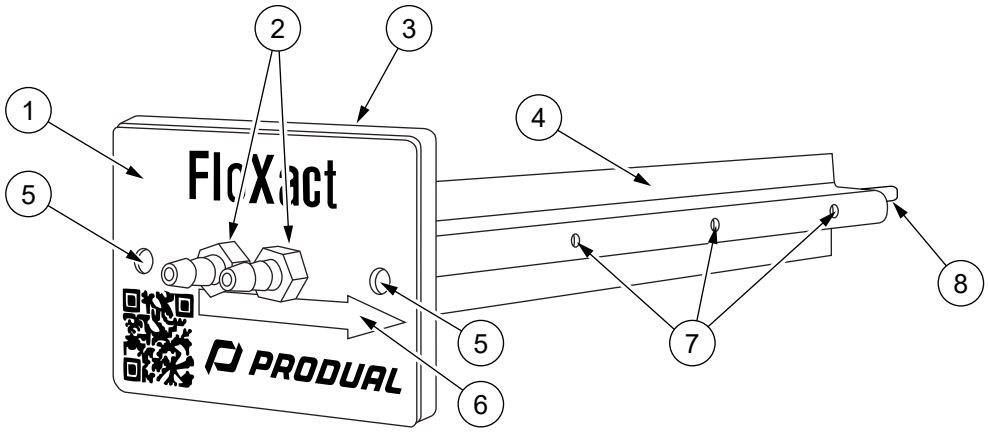
If you find a mistake in the English instructions or in the translations, please send the details to the manufacturer.

1.2 Intended use

The FloXact probes are intended for airflow volume measurement. They are intended to be used with an airflow volume transmitters or other transmitters with an airflow output. They are compatible with dry air. The FloXact probes are not intended to be used with flammable or corrosive gases.

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2 Main components



1	Front plate	2	Hose connectors
3	Gasket	4	Probe
5	Mounting point	6	Airflow direction arrow
7	Measuring point	8	Threaded stud, washer and nut for mounting the probe end (in 350 mm and longer probes).

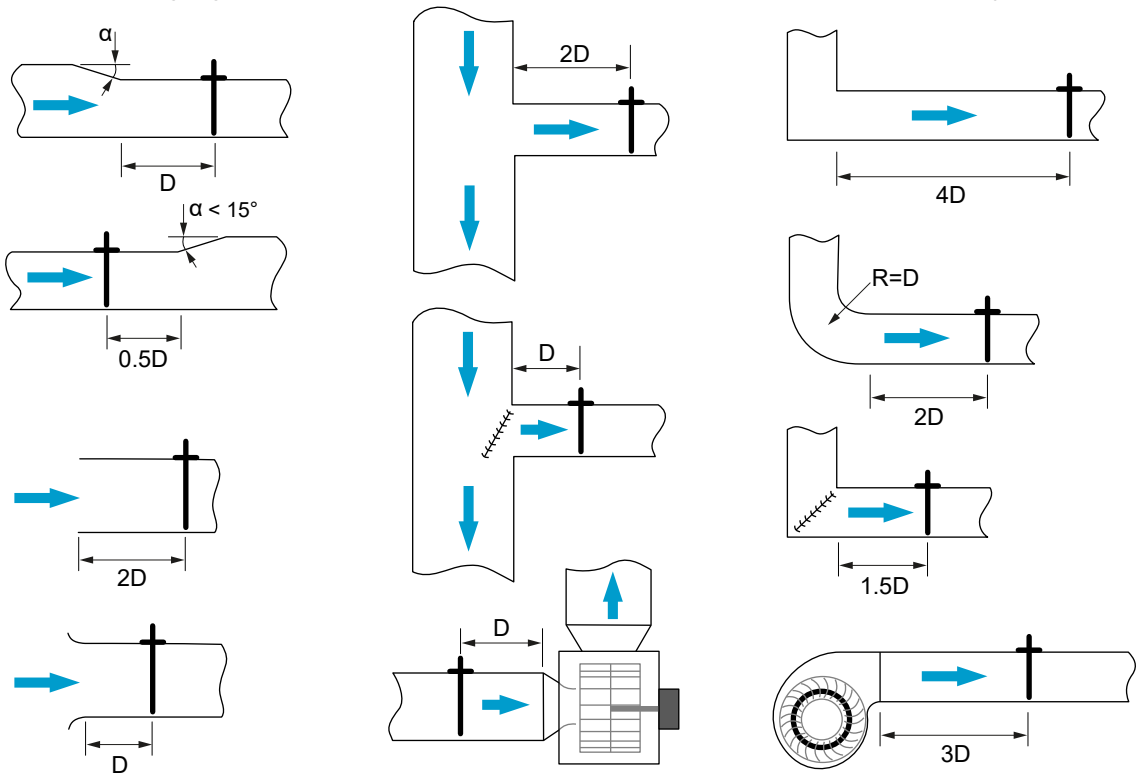
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3 Mounting

3.1 Mounting probes in round duct

Important: Remove the device from the ventilation duct before cleaning the duct.

1. Check that the product is not damaged during transportation.
2. Check that the probe size and type is compatible with the duct or terminal to which it is going to be mounted.
   This instruction is for -R, -RS, -6R and -6RS models.
3. Select the mounting location.
   The following figure illustrates the minimum distances to duct discontinuity points.



   D = duct diameter
4. Drill a hole to the duct.
   The hole size is Ø15 mm for 202 mm and shorter probes and Ø25 mm for longer probes.
5. If you are mounting 350 mm or longer probe, drill a Ø6 mm hole to the opposite side of the duct.
6. Mount the probe to the duct with two suitable screws.
   The front plate holes are Ø4 mm.
   If you are mounting 350 mm or longer probe, install a washer and a nut to the threaded stud at the tip of the probe. The washer and the nut are included in the delivery.
7. Connect suitable measurement hoses between the probe and the measuring device.
8. Configure the measuring device.
   The Kv value is written on the front plate of the probe.

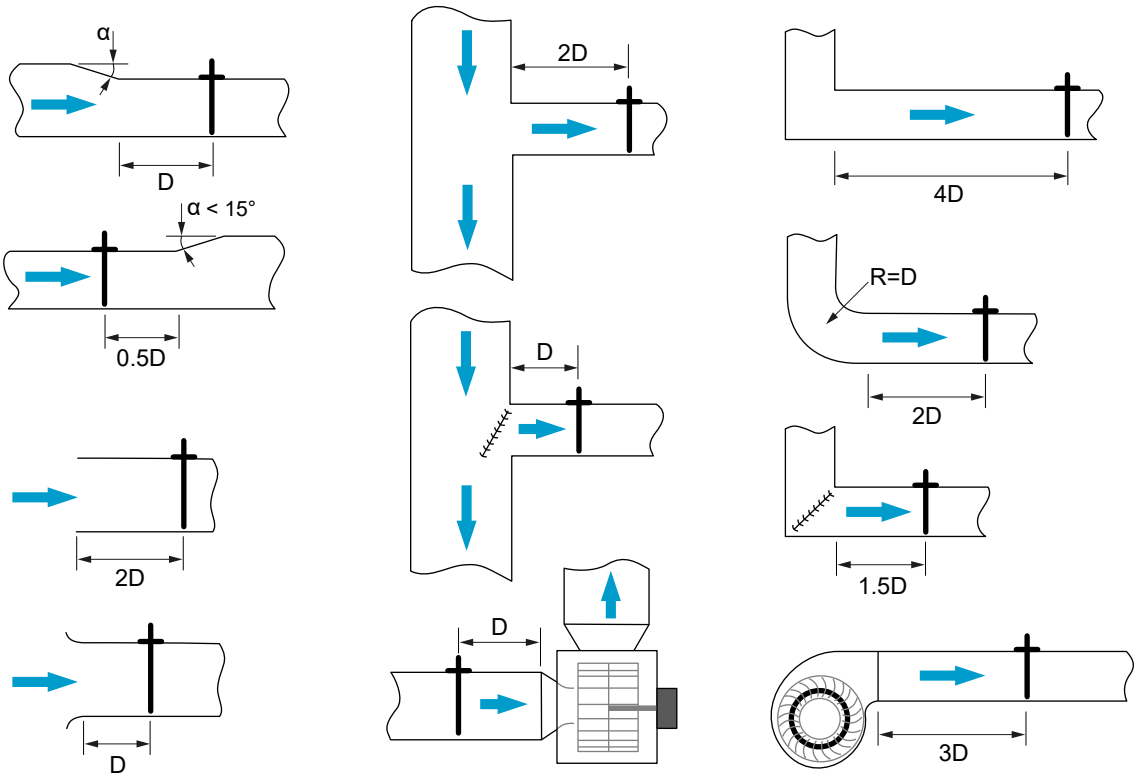
3.2 Mounting probes in rectangular duct

Important: Remove the device from the ventilation duct before cleaning the duct.

1. Check that the product is not damaged during transportation.
2. Check that the probe size and type is compatible with the duct or terminal to which it is going to be mounted.
   This instruction is for -L, -LS, -6L and -6LS models.
3. Determine the required number of probes.

Duct height	Number of probes
<300 mm	1
301...600 mm	2
601...900 mm	3
901...1200 mm	4
1201...1500 mm	5
>1501 mm	6

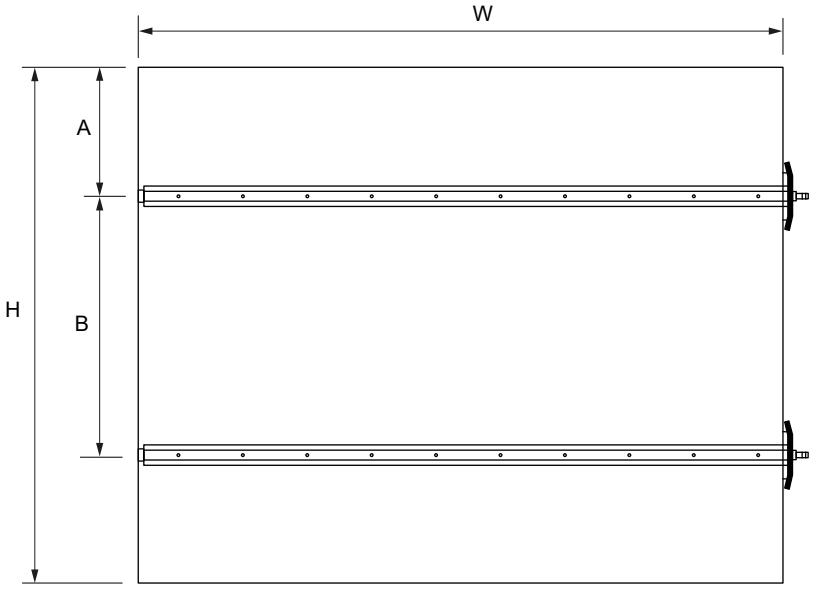
4. Select the mounting location.
   The following figure illustrates the minimum distances to duct discontinuity points.



If there is a horizontal curve or change in the duct size, D = duct width

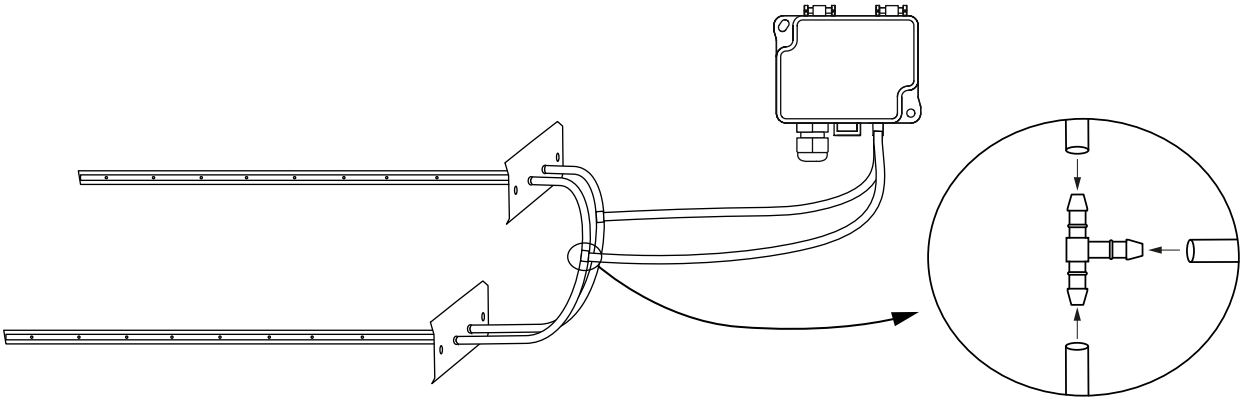
If there is a vertical curve or change in the duct size, D = duct height

5. Drill one Ø25 mm hole to the duct for each probe.
   Align these holes vertically.
   See the following figure for the correct positioning of the probes.



H	Duct height
W	Duct width
A	Distance from the duct edge, max. 150 mm
B	Distance between probes, max. 300 mm

6. If you are mounting 350 mm or longer probe, drill a Ø6 mm hole to the opposite side of the duct.
7. Mount the probes to the duct with two suitable screws.
   The front plate holes are Ø4 mm.
   If you are mounting 350 mm or longer probe, install a washer and a nut to the threaded stud at the tip of the probe. The washer and the nut are included in the delivery.
8. Connect suitable measurement hoses between the probe and the measuring device.
   Connect the probes in parallel, if there is more than one probe in the same mounting position.



9. Configure the measuring device.
   See the section Kv values for rectangular duct probes on page 7.

3.2.1 Kv values for rectangular duct probes

You can calculate the Kv value using the following formula:

$k = 921 \times W \times (H - 0.025 \times n)$, where

k Kv value for the measuring device (l/sPa).

W duct width (m)

H duct height (m)

n number of probes

See the following tables for Kv values for the most common applications. The values are applicable for air with 1.20 kg/m^3 density (20 °C, 50 %rH and 1013 hPa).

		Width											
Height	Probe Qty	200	250	300	350	400	450	500	550	600	650	700	750
150	1	23.0	28.8	34.5	40.3	46.0	51.8	57.5	63.3	69.1	74.8	80.6	86.3
200		33.1	41.1	49.7	58.0	66.3	74.6	82.9	88.6	96.7	105	113	121
250		41.4	51.8	62.1	72.5	82.9	93.2	104	114	124	135	145	155
300		47.0	58.7	70.4	82.2	94.0	106	117	139	152	165	177	190
350	2	55.2	69.1	82.9	96.7	110	124	138	152	166	180	193	207
400		64.4	80.6	96.7	113	129	145	161	177	193	209	226	242
450		73.7	92.1	110	129	147	166	184	203	221	239	258	276
500		82.9	104	124	145	166	186	207	228	249	269	290	311
600		101	127	152	177	203	228	253	279	304	329	354	380
700	3	115	144	173	201	230	259	288	316	345	374	403	432
800		134	167	200	234	267	300	334	367	401	434	467	501
900		152	190	228	266	304	342	380	418	456	494	532	570
1000	4	166	207	249	290	331	373	414	456	497	539	580	621
1100		184	230	276	322	368	414	460	506	552	598	644	691
1200		203	253	304	354	405	456	506	557	608	658	709	760
1300	5	216	270	325	379	433	487	541	595	649	703	757	811
1400		235	293	352	411	470	528	587	646	704	763	822	880
1500		253	316	380	443	506	570	633	696	760	823	886	949

		Width											
Height	Probe Qty	800	850	900	950	1000	1050	1100	1150	1200	1300	1400	1500
150	1	92.1	97.9	104	109	115	121	127	132	138	150	161	173
200		129	137	145	153	161	169	177	185	193	210	226	242
250		166	176	187	197	207	218	228	238	249	269	290	311
300		203	215	228	241	253	266	279	291	304	329	355	380

		Width											
Height	Probe Qty	800	850	900	950	1000	1050	1100	1150	1200	1300	1400	1500
350	2	221	235	249	262	276	290	304	318	331	359	387	414
400		258	274	290	306	322	338	354	371	387	419	451	483
450		295	313	331	350	368	387	405	424	442	479	516	552
500		331	352	373	394	414	435	456	476	497	539	580	621
600		405	430	456	481	506	532	557	582	608	658	709	760
700	3	460	489	518	547	575	604	633	662	691	748	806	863
800		534	567	601	634	668	701	734	768	801	868	935	1001
900		608	646	684	722	760	798	836	874	911	987	1063	1139
1000	4	663	704	746	787	829	870	911	953	994	1077	1160	1243
1100		737	783	829	875	921	967	1013	1059	1105	1197	1289	1381
1200		810	861	911	962	1013	1063	1114	1165	1215	1317	1418	1519
1300	5	865	920	974	1028	1082	1136	1190	1244	1298	1406	1515	1623
1400		939	998	1057	1115	1174	1233	1291	1350	1409	1526	1643	1761
1500		1013	1076	1139	1203	1266	1329	1393	1456	1519	1646	1772	1899

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4 Calculating air volume

You can calculate the air volume using the following formula:

$q = k\sqrt{\Delta P}$, where

q	airflow (l/s)
k	probe's Kv value (l/sPa).
ΔP	measured differential pressure

This formula is applicable for air with 1.20 kg/m^3 density (20 °C, 50 %rH and 1013 hPa).

If you need to calculate the air volume for different air densities, calculate the correct Kv value using the following formula:

$k_{new} = k_{old}\sqrt{\frac{\rho}{1.20}}$, where

k_{new}	new Kv value
k_{old}	old Kv value (for 1.20 kg/m^3 air density)
ρ	air density

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5 Maintenance

5.1 Cleaning the probe

Dust, grease and other dirt can accumulate on the probe over time and decrease the airflow and measurement accuracy. Clean the probe regularly. The required cleaning interval depends on the air cleanliness.

- Clean the probe with soft cloth or compressed air.
  You can use mild detergent, if necessary.

  Important: Make sure that the detergent is suitable for metal surfaces and does not damage the gasket.

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6 Disposal

Generally all metals can be recycled as material. Plastics and cardboard packaging material can be used in energy recovery. Contact your local Produal distributor for further information on environmental aspects and recycling instructions for professional recyclers.

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