

Multi-Point Velocity Probe



Features

- 316 Stainless steel
- Push on connectors to suit 4-6mm ID PVC tube
- Neoprene rubber gasket duct seals included

Specification

Probe:

Material	316 Stainless steel
Dimensions	26mm dia.

Connectors:

Material	Plated brass
Connections	To suit 6mm ID PVC tubing

Duct flange:

Material	Stainless steel
Dimensions	52mm dia.

Country of origin UK

Product Codes

AV-MPS700

700mm Multipoint air velocity probe

AV-MPS800

800mm Multipoint air velocity probe

AV-MPS1000

1000mm Multipoint air velocity probe

AV-MPS1250

1250mm Multipoint air velocity probe

AV-MPS1500

1500mm Multipoint air velocity probe

AV-MPS1750

1750mm Multipoint air velocity probe

AV-MPS2000

2000mm Multipoint air velocity probe

Technical Overview

The AV-MPS series of air velocity probes are available in lengths from 700 to 2000mm, and come in pairs. The AV-MPS is for use in larger ducts or where turbulent airflow is likely to be encountered. The AV-MPS is designed to operate with the Sontay's range of D.P. sensors.

Installation

The ductwork needs to be straight for at least 2m either side of the probes, where possible.

The ductwork needs to be a consistent diameter or sectional area for at least 2m either side of the probes, where possible.

Do not install near dampers.

Do not install where condensation is likely (it can block the probe holes).

Ensure that when the probes are mounted that ALL the holes are either inside the duct or blocked up.

One probe should be fixed with the holes pointing directly into the airflow

The other probe can be rotated to achieve the correct reading (via a D.P. sensor) when compared to a reference probe used for commissioning.

All the above is to try to ensure that the probes are sited in laminar airflow rather than turbulent airflow, to achieve maximum accuracy and repeatability.

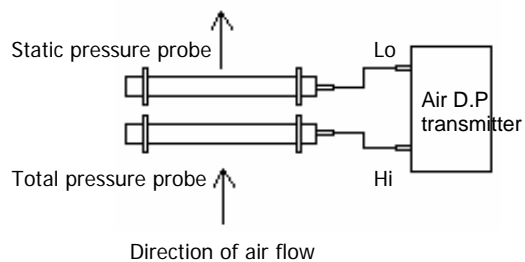
If the probes are to be installed in a round duct mount them side-by-side approx. 100mm apart. If the probes are to be mounted near a bend or branch in the duct mount them above each other approx. 100mm apart. Using a flange as a template, mark the duct work and drill the mounting holes.

1. Turn the total pressure probe so that the holes face directly into the air flow. Lock in position using the pan-head screws on the flanges.
2. If possible, adjust the speed of the fan to give a known air velocity. Turn the static pressure probe so that a differential pressure corresponding to the known air velocity is measured across the 2 probes. Lock in position using the pan-head screws on the flanges.

Installation (continued)

3. Where fan speed adjustment is not possible measure the air velocity with a vane anemometer (or similar). Turn the static pressure probe so that a differential pressure corresponding to the measured air velocity is measured across the 2 probes. Lock in position using the pan-head grub screw.

Connections To D.P Transmitter



Calculation

The AV-EP can be connected to a differential pressure sensor of an appropriate range. (See table on page 3). The output of the sensor represents the air velocity, and is defined by the following equation:-

$$\text{Velocity}^2 = \frac{2 * \text{Velocity pressure}}{1.2}$$

This calculation should be performed in a controller's strategy, to give air velocity in m/s.

Suggested Trend controller strategy to calculate air velocity from differential pressure:

Air Velocity v Differential Pressure Chart

		Velocity (m/s)									
		0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
0	0	0.01	0.02	0.05	0.1	0.15	0.22	0.29	0.38	0.49	
1	0.6	0.73	0.86	1.01	1.18	1.35	1.54	1.73	1.94	2.17	
2	2.4	2.65	2.9	3.17	3.46	3.75	4.06	4.37	4.7	5.05	
3	5.4	5.77	6.14	6.53	6.94	7.35	7.78	8.21	8.66	9.13	
4	9.6	10.09	10.58	11.09	11.62	12.15	12.7	13.25	13.82	14.41	
5	15	15.61	16.22	16.85	17.5	18.15	18.82	19.49	20.18	20.89	
6	21.6	22.33	23.06	23.81	24.58	25.35	26.14	26.93	27.74	28.57	
7	29.4	30.25	31.1	31.97	32.86	33.75	34.66	35.57	36.5	37.45	
8	38.4	39.37	40.34	41.33	42.34	43.35	44.38	45.41	46.46	47.53	
9	48.6	49.69	50.78	51.89	53.02	54.15	55.3	56.45	57.62	58.81	
10	60	61.21	62.42	63.65	64.9	66.15	67.42	68.69	69.98	71.29	
11	72.6	73.93	75.26	76.61	77.98	79.35	80.74	82.13	83.54	84.97	
12	86.4	87.85	89.3	90.77	92.26	93.75	95.26	96.77	98.3	99.85	
13	101.4	102.97	104.54	106.13	107.74	109.35	110.98	112.61	114.26	115.93	
14	117.6	119.29	120.98	122.69	124.42	126.15	127.9	129.65	131.42	133.21	
15	135	136.81	138.62	140.45	142.3	144.15	146.02	147.89	149.78	151.69	
16	153.6	155.53	157.46	159.41	161.38	163.35	165.34	167.33	169.34	171.37	
17	173.4	175.45	177.5	179.57	181.66	183.75	185.86	187.97	190.1	192.25	
18	194.4	196.57	198.74	200.93	203.14	205.35	207.58	209.81	212.06	214.33	
19	216.6	218.89	221.18	223.49	225.82	228.15	230.5	232.85	235.22	237.61	
20	240	242.41	244.82	247.25	249.7	252.15	254.62	257.09	259.58	262.09	
21	264.6	267.13	269.66	272.21	274.78	277.35	279.94	282.53	285.14	287.77	
22	290.4	293.05	295.7	298.37	301.06	303.75	306.46	309.17	311.9	314.65	
23	317.4	320.17	322.94	325.73	328.54	331.35	334.18	337.01	339.86	342.73	
24	345.6	348.49	351.38	354.29	357.22	360.15	363.1	366.05	369.02	372.01	
25	375	378.01	381.02	384.05	387.1	390.15	393.22	396.29	399.38	402.49	
26	405.6	408.73	411.86	415.01	418.18	421.35	424.54	427.73	430.94	434.17	
27	437.4	440.65	443.9	447.17	450.46	453.75	457.06	460.37	463.7	467.05	
28	470.4	473.77	477.14	480.53	483.94	487.35	490.78	494.21	497.66	501.13	
29	504.6	508.09	511.58	515.09	518.62	522.15	525.7	529.25	532.82	536.41	
30	540	543.61	547.22	550.85	554.5	558.15	561.82	565.49	569.18	572.89	
31	576.6	580.33	584.06	587.81	591.58	595.35	599.14	602.93	606.74	610.57	
32	614.4	618.25	622.1	625.97	629.86	633.75	637.66	641.57	645.5	649.45	
33	653.4	657.37	661.34	665.33	669.34	673.35	677.38	681.41	685.46	689.53	
34	693.6	697.69	701.78	705.89	710.02	714.15	718.3	722.45	726.62	730.81	
35	735	739.21	743.42	747.65	751.9	756.15	760.42	764.69	768.98	773.29	
36	777.6	781.93	786.26	790.61	794.98	799.35	803.74	808.13	812.54	816.97	
37	821.4	825.85	830.3	834.77	839.26	843.75	848.26	852.77	857.3	861.85	
38	866.4	870.97	875.54	880.13	884.74	889.35	893.98	898.61	903.26	907.93	
39	912.6	917.29	921.98	926.69	931.42	936.15	940.9	945.65	950.42	955.21	
40	960	964.81	969.62	974.45	979.3	984.15	989.02	993.89	998.78	1003.69	

Using the chart to determine the range of the differential pressure sensor:

From the left hand column (velocity, in 1 m/s increments) and the top row (velocity, in 0.1 m/s increments), read across and down to find the corresponding differential pressure.

Example:

Air velocity is 6.2m/s - Read across from the left to 0.2m/s and down from the top to 6m/s. Where the column and row meet gives a differential pressure of 23.06Pa.

Therefore a differential pressure sensor, with a range of 0 - 25Pa would be selected.