



Features and Benefits

- Push-on connectors to suit 6mm i/d PVC tubing
- Neoprene rubber gaskets duct seals included
- Averages across the duct
- Easy installation
- Fully compatible with Sontay's range of DP pressure transmitters

Technical Overview

The AV-x series of air velocity probes are available in lengths from (AV-EP) 100 to 600mm & (AV-MPS) 700 to 2000mm. The AV-MPS is for use in larger ducts or where turbulent airflow is likely to be encountered.

When connected to a differential pressure sensor of an appropriate range, the output of the sensor represents the air velocity, and is defined by the following equation:-

$$\text{Velocity} = \sqrt{(2 \times \text{Velocity pressure}) / 1.2}$$

Product Codes

AV-EP-100	100mm Multi point probe
AV-EP-200	200mm " "
AV-EP-300	300mm " "
AV-EP-400	400mm " "
AV-EP-500	500mm " "
AV-EP-600	600mm " "
AV-MPS-700	Suit duct size 600 to 800mm
AV-MPS-800	" " 700 to 900mm
AV-MPS-1000	" " 900 to 1100mm
AV-MPS-1250	" " 1150 to 1350mm
AV-MPS-1500	" " 1400 to 1600mm
AV-MPS-1750	" " 1650 to 1850mm
AV-MPS-2000	" " 1900 to 2100mm

Accessories

PA-TUBE-CLEAR	PVC Clear Tube 8mm o/d x 1.5mm wall, 30m reel
PA-TUBE-RED	PVC Red Tube 8mm o/d x 1.5mm wall, 30m reel
PA-TUBE-BLUE	PVC Blue Tube 8mm o/d x 1.5mm wall, 30m reel

Specification

Probe:

AV-EP	
Material	ABS Flame retardant (V0)
Dimensions	10 x 24mm

AV-MPS	
Material	304 Brushed stainless steel
Dimensions	25mm dia.

Pressure connections:

Material	Plated brass
Connections	To suit 6mm i/d PVC tubing

Duct flange:

Material	Stainless steel
Dimensions:	

AV-EP	30 x 60mm
AV-MPS	51mm dia.

Environmental:

Humidity	0 to 95% non-condensing
Temperature	-10 to +60°C

Country of origin

UK

WEEE Directive:



At the end of the products useful life please dispose as per the local regulations. Do not dispose of with normal household waste. Do not burn.

Probe Selection & Installation Guidelines

Selecting the Correct Probe

- Always select the AV-EP/MPS probe size appropriate for your duct dimensions.
- Install the probe(s) in the **widest section of the duct** to ensure the most accurate average readings.
- Correct sizing ensures the measurement holes are positioned optimally for the duct size.

Minimum Straight Duct Requirements

- **AV-EP:** Minimum straight length = **3 × duct size**
- **AV-MPS:** Minimum straight length = **2 meters**
(Measured downstream from heating/cooling devices, moisture sources such as humidifiers, fans, or bends in the ductwork.)
- This ensures the probes are in laminar, not turbulent, airflow for maximum accuracy and repeatability.

Placement Guidelines

- **Do not** install near dampers.
- **Do not** install where condensation may occur (blocked probe holes can affect accuracy).
- Ensure that **all probe holes** are either fully inside the duct.
- The AV-EP probe **should not be used in turbulent airflow conditions**.

AV-MPS Installation

- 1) One probe should be fixed with the holes pointing directly into the airflow. The other probe can be rotated until the differential pressure sensor reading matches the reference probe used for commissioning.
- 2) In round ducts, mount probes side-by-side about 100 mm apart. Near bends or branches, mount them vertically about 100 mm apart. Use a flange as a template to mark and drill the duct.
- 3) Turn the total pressure probe so its holes face the airflow and lock with pan-head screws. If possible, adjust fan speed to give a known velocity, then rotate the static pressure probe until the differential pressure matches this velocity and lock it.
- 4) If fan speed cannot be adjusted, measure velocity with a vane anemometer (or similar), then rotate the static probe until the differential pressure matches the measured velocity. Lock with the pan-head grub screw.

Assembly of AV-MPS

- 1) Locate the M6 thread cut into one end of the probe.
- 2) Slide gasket first followed by the flange down the tube approximately 100mm and tighten the grub screw, **see fig.1**.
- 3) Place the nylon washer then the rubber washer onto the pressure nipple, and **hand tighten** into the M6 thread hole in the probe, **see fig.2**.
- 4) Cut 32mm diameter holes at opposite sides of the duct.
- 5) Pass through the end without the gasket/flange into the duct until this is out the other side.
- 6) Fit the remaining gasket followed by the flange.
- 7) Making sure that there is good compression on both side of the ducts allowing the gaskets to make an air tight seal, secure the flanges in place using the supplied screws then tighten the grub screws, **see fig.3**.

Fig.1

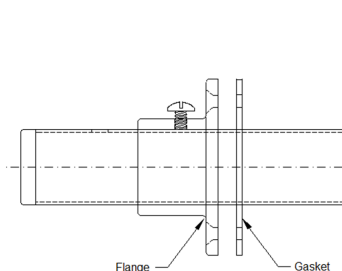


Fig.2

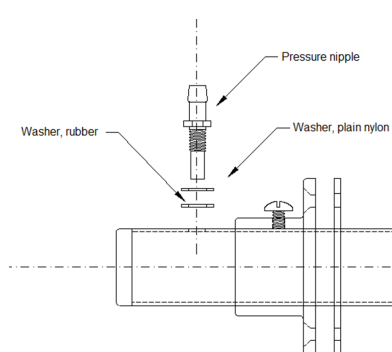
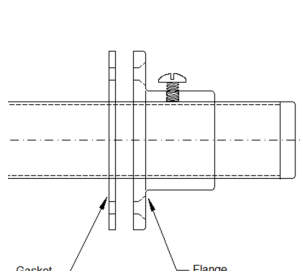
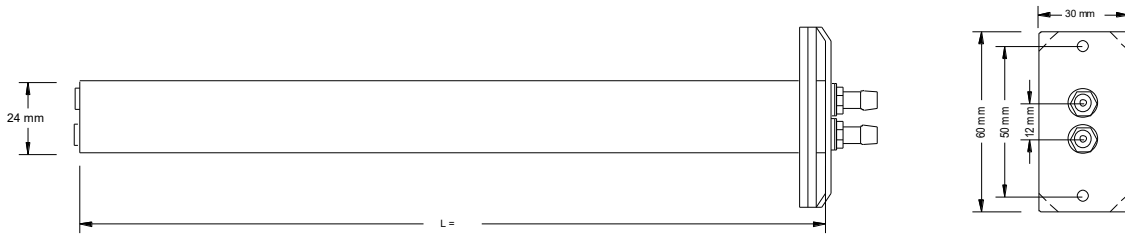


Fig.3

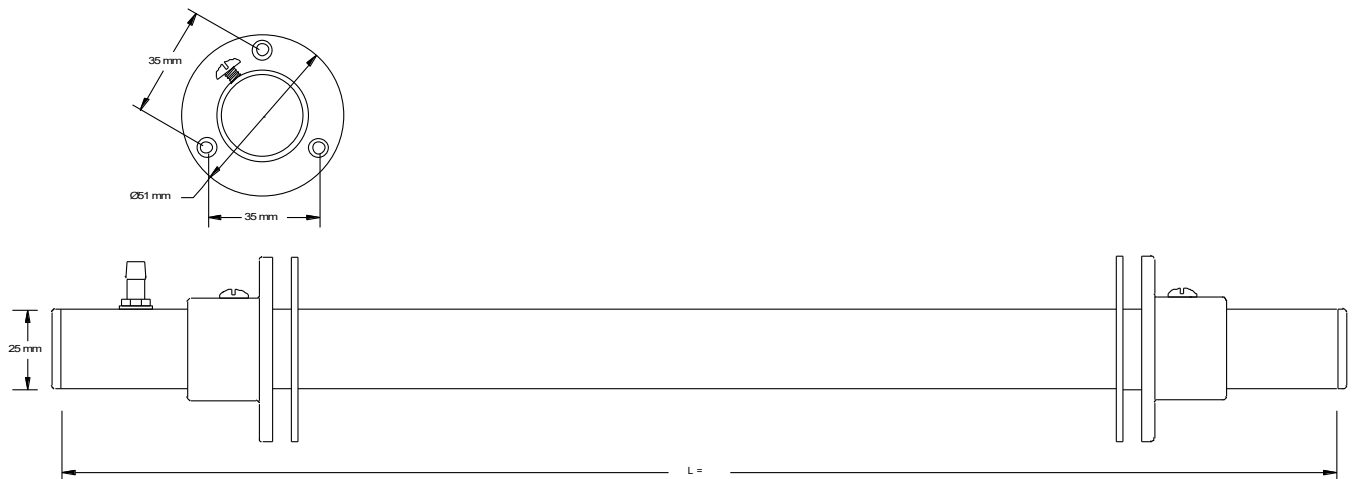


Dimensions

AV-EP:



AV-MPS:



L =			
AV-EP-100	100mm	AV-MPS-700	850mm
AV-EP-200	200mm	AV-MPS-800	950mm
AV-EP-300	300mm	AV-MPS-1000	1150mm
AV-EP-400	400mm	AV-MPS-1250	1400mm
AV-EP-500	500mm	AV-MPS-1500	1650mm
AV-EP-600	600mm	AV-MPS-1750	1900mm
		AV-MPS-2000	2150mm

Air Velocity v Differential Pressure Chart:

		Velocity (m/s)									
Velocity (m/s)		0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
	0	0.00	0.01	0.02	0.05	0.10	0.15	0.22	0.29	0.38	0.49
	1	0.60	0.73	0.86	1.01	1.18	1.35	1.54	1.73	1.94	2.17
	2	2.40	2.65	2.90	3.17	3.46	3.75	4.06	4.37	4.70	5.05
	3	5.40	5.77	6.14	6.53	6.94	7.35	7.78	8.21	8.66	9.13
	4	9.60	10.09	10.58	11.09	11.62	12.15	12.70	13.25	13.82	14.41
	5	15.00	15.61	16.22	16.85	17.50	18.15	18.82	19.49	20.18	20.89
	6	21.60	22.33	23.06	23.81	24.58	25.35	26.14	26.93	27.74	28.57
	7	29.40	30.25	31.10	31.97	32.86	33.75	34.66	35.57	36.50	37.45
	8	38.40	39.37	40.34	41.33	42.34	43.35	44.38	45.41	46.46	47.53
	9	48.60	49.69	50.78	51.89	53.02	54.15	55.30	56.45	57.62	58.81
	10	60.00	61.21	62.43	63.65	64.90	66.15	67.42	68.69	69.98	71.29
	11	72.60	73.93	75.26	76.61	77.98	79.35	80.74	82.13	83.54	84.97
	12	86.40	87.85	89.30	90.77	92.26	93.75	95.26	96.77	98.30	99.85
	13	101.40	102.97	104.54	106.23	107.74	109.35	110.98	112.61	114.26	115.93
	14	117.60	119.29	120.98	122.69	124.42	126.15	127.90	129.65	131.42	133.21
	15	135.00	136.81	138.62	140.45	142.30	144.15	146.02	147.89	149.78	151.69
	16	153.60	155.53	157.46	159.41	161.38	163.35	165.34	167.33	169.34	
	17	173.40	175.45	177.50	179.57	181.66	183.75	185.86	187.97	190.10	192.25
	18	194.40	196.57	198.74	200.93	203.14	205.35	207.58	209.81	212.06	214.33
	19	216.60	218.89	221.18	223.49	225.82	228.15	230.50	232.85	235.22	237.61
	20	240.00	242.41	244.82	247.25	249.70	252.15	254.62	257.09	259.58	262.09
	21	264.60	267.13	269.66	272.21	274.78	277.35	279.94	282.53	285.14	287.77
	22	290.40	293.05	295.70	298.37	301.06	303.75	306.46	309.17	311.90	314.65
	23	317.40	320.17	322.94	325.73	328.54	331.35	334.18	337.01	339.86	342.73
	24	345.60	348.49	351.38	354.29	357.22	360.15	363.10	366.05	369.02	372.01
	25	375.00	378.01	381.02	384.05	387.10	390.15	393.22	396.29	399.38	402.49
	26	405.60	378.01	381.02	384.05	387.10	421.35	424.54	427.73	430.94	434.17
	27	437.40	440.65	411.86	415.01	418.18	453.75	457.06	460.37	463.70	467.05
	28	470.40	473.77	443.90	447.17	450.46	487.35	490.78	494.21	497.66	501.13
	29	504.60	508.19	477.14	480.53	483.94	522.15	525.70	529.25	532.82	536.41
	30	540.00	543.61	511.58	515.09	518.62	558.15	561.82	565.49	569.18	572.89

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 to 25Pa would be selected.

Whilst every effort has been made to ensure the accuracy of this specification, Sontay cannot accept responsibility for damage, injury, loss or expense resulting from errors or omissions. In the interest of technical improvement, this specification may be altered without notice.