



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 of 600-800mm
AV-MPS-800	Suit duct size of 700-900mm
AV-MPS-1000	Suit duct size of 900-1100mm
AV-MPS-1250	Suit duct size of 1150-1350mm
AV-MPS-1500	Suit duct size of 1400-1600mm
AV-MPS-1750	Suit duct size of 1650-1850mm
AV-MPS-2000	Suit duct size of 1900-2100mm

Accessory

PA-TUBE-8MM	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 Stainless steel
Dimensions	26mm 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	52mm dia
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.

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For pricing or any further information, please contact Omni Instruments Ltd.

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Installation

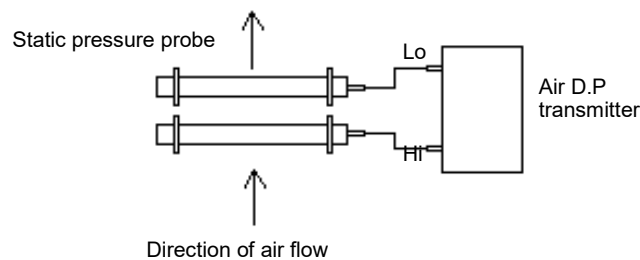
- It's very important to select the correct AV-x probe to suit your duct size. Its always best practice to install the AV-x probe(s) into the widest section of the duct. This will ensure the best possible average readings.
- By selecting the correct size this will ensure that the measurement holes are best suited for your duct size.
- Minimum straight duct

AV-EP	3 x duct size
AV-MPS	2 meters

 Downstream from any heating or cooling devices, source of moisture such as humidifier, fan or bend in the ductwork.
- 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.
- The AV-EP should NOT be used in turbulent air flow conditions.

AV-MPS

1. 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.
2. 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.
3. 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.
4. 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.
5. 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.
6. 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.



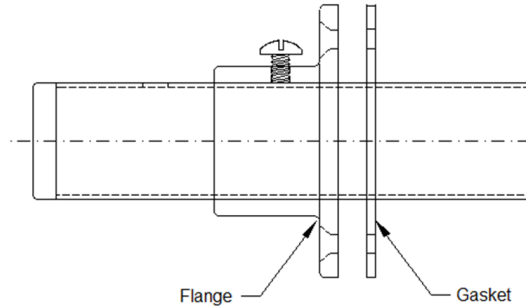
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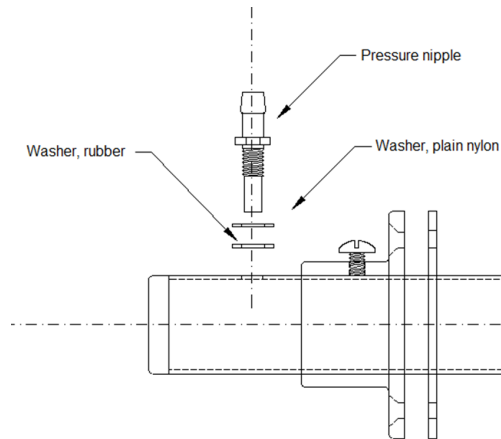


Assembly of AV-MPS

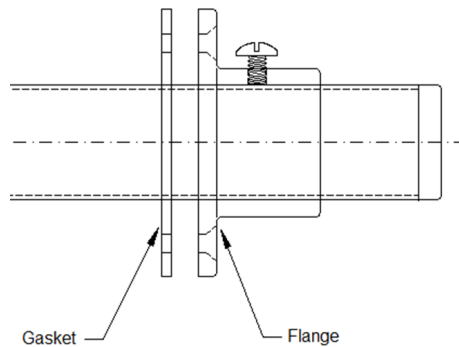
1. Locate the M6 thread cut into one end of the probe.
2. Slide gasket first followed by the flange down the tube approximately 100mm and tighten the grub screw.



3. Place the nylon washer then the rubber washer onto the pressure nipple, and **hand tighten** into the M6 thread hole in the probe.
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.



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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
Velocity (m/s)	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.

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