

# What is Static Pressure?

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# Key Pressure Terms

- Static Pressure - *used for fan selection*
- Velocity Pressure - *used for measuring CFM in a system*
- Total Pressure - *used to find velocity pressure*

$$P_T = P_S + P_V$$

All measured in Inches of Water Gauge (W.G.)

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# Static Pressure

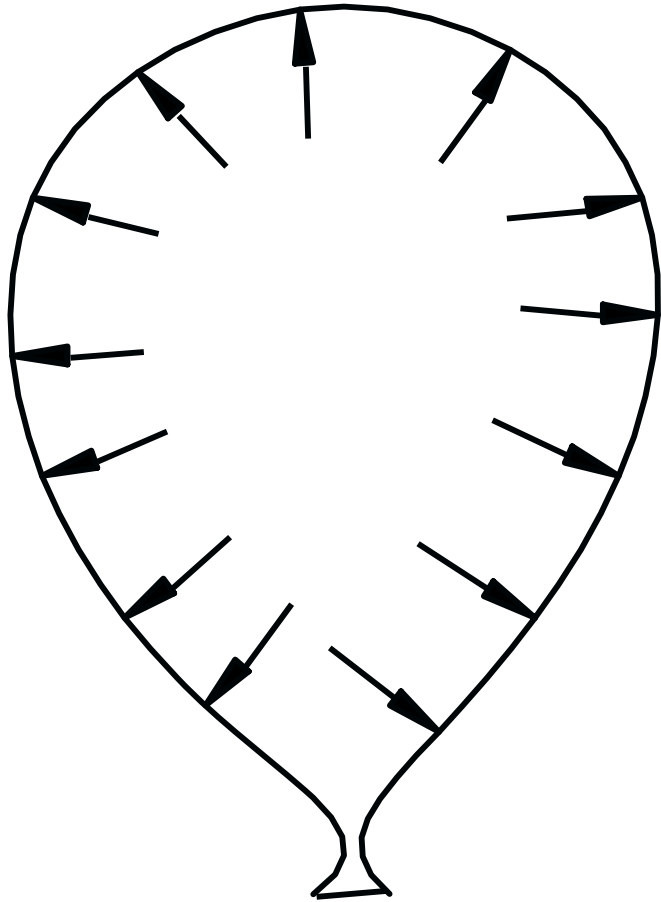
- The resistance to flow (energy added by the fan) measured in Inches of Water Gauge (in wg)

Fan selection is typically based upon a CFM and Static Pressure (i.e. 500 CFM @ 0.125" wg)

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# Static Pressure



- Resistance to flow
- Equal in all directions
- Can be Positive or Negative
- Independent of air velocity
- Measured by pressure tap perpendicular to airflow

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# Total Pressure

- A fluid in motion will exert a Total Pressure on an object in its path.

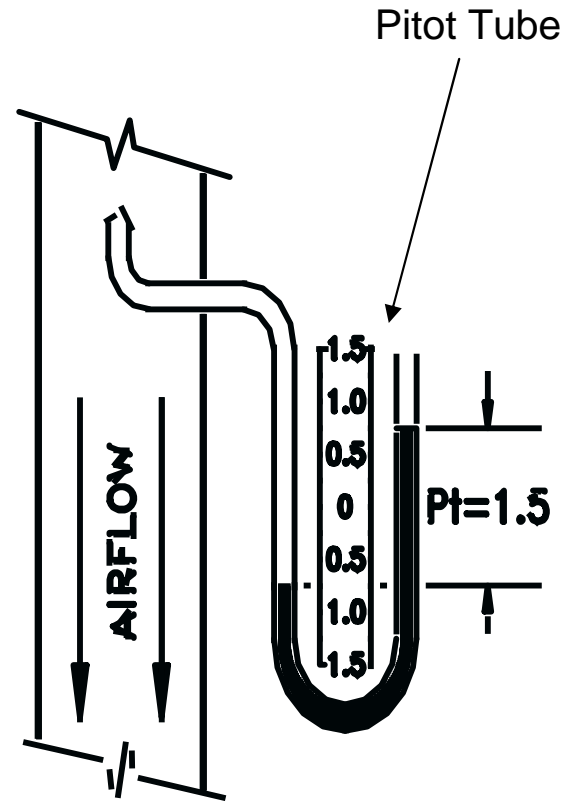


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# Total Pressure

- Measured by pressure tap pointed directly into the air stream

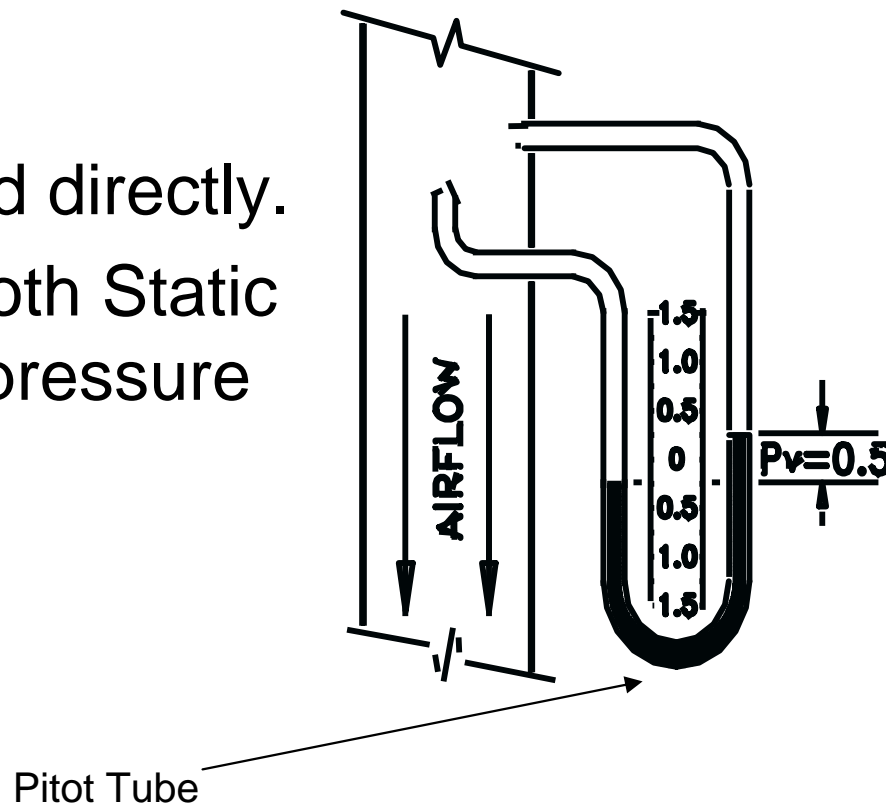


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# Velocity Pressure

- Cannot be measured directly.
- A Pitot Tube uses both Static pressure and Total pressure taps.



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# Velocity Pressure

$$Velocity(ft / min) = 1096 \sqrt{P_v / \rho}$$

$$\rho = 0.75 lb / ft^2$$

$$Velocity = 4005 \sqrt{P_v}$$

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