

SNS COLLEGE OF PHARMACY AND HEALTH SCIENCES



Affiliated To The Tamil Nadu Dr. MGR Medical University, Chennai

Approved by Pharmacy Council of India, New Delhi.

Coimbatore -641035

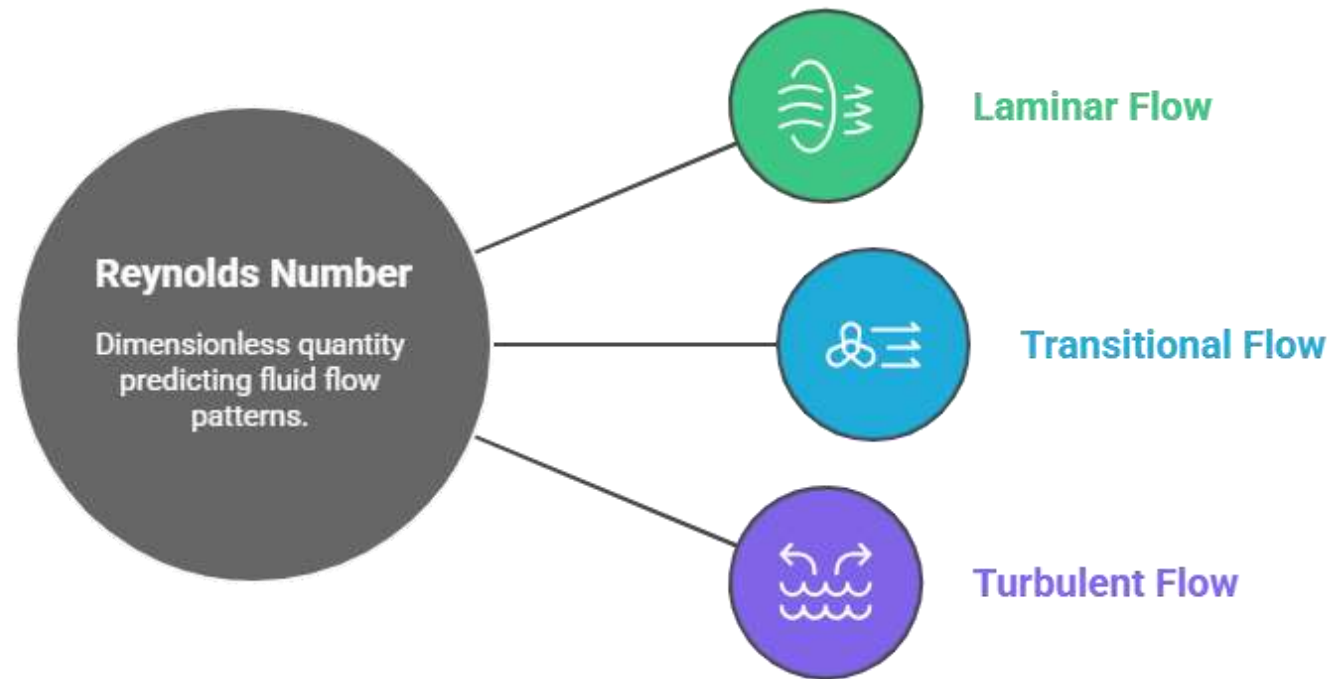
COURSE NAME : PHARMACEUTICAL ENGINEERING (BP404 T)

III SEM / II YEAR

TOPIC 1 : FLOW OF FLUIDS

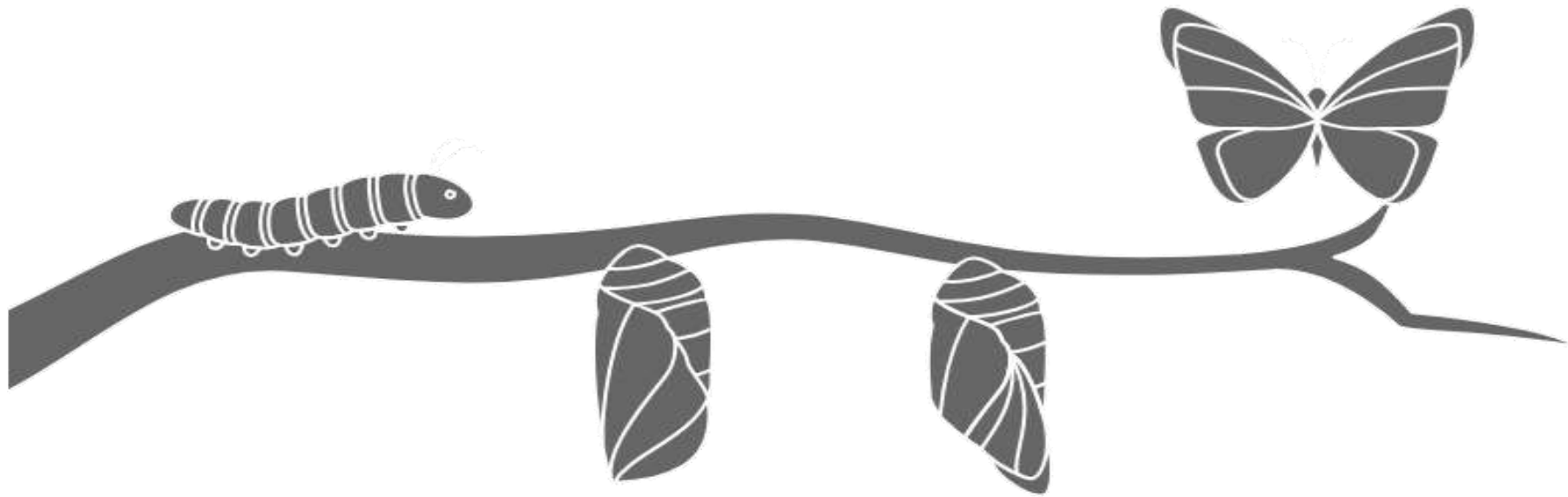
SUBTOPIC:BERNOULLIS THEORM AND FLUID FLOW APPARATUS

Unveiling Fluid Flow Patterns with Reynolds Number



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Fluid Flow Regimes



Laminar Flow

Smooth, parallel layers

Increasing Reynolds Number

Inertial forces start to dominate

Transitional Flow

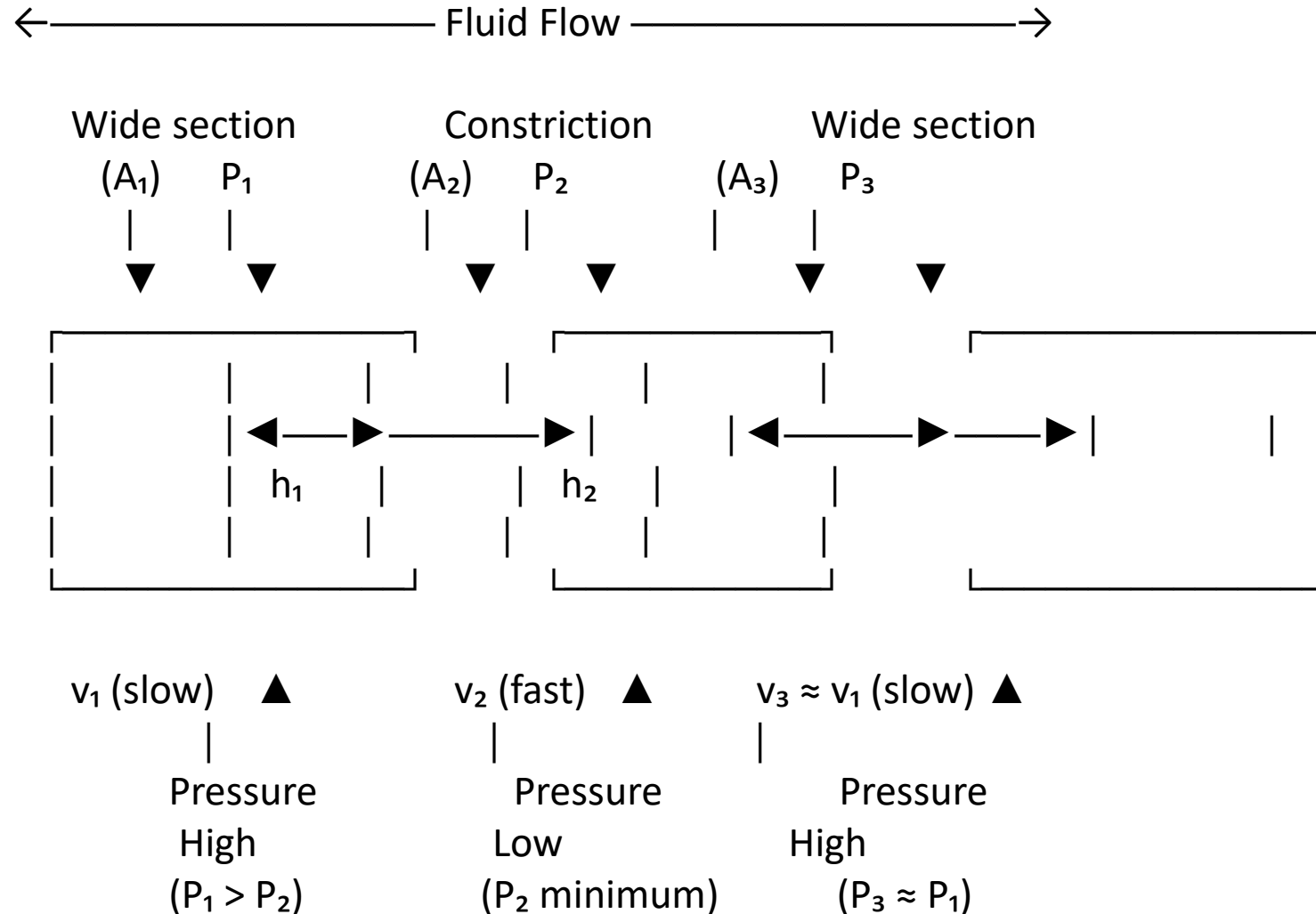
Fluctuations and instabilities appear

Turbulent Flow

Chaotic, irregular motion

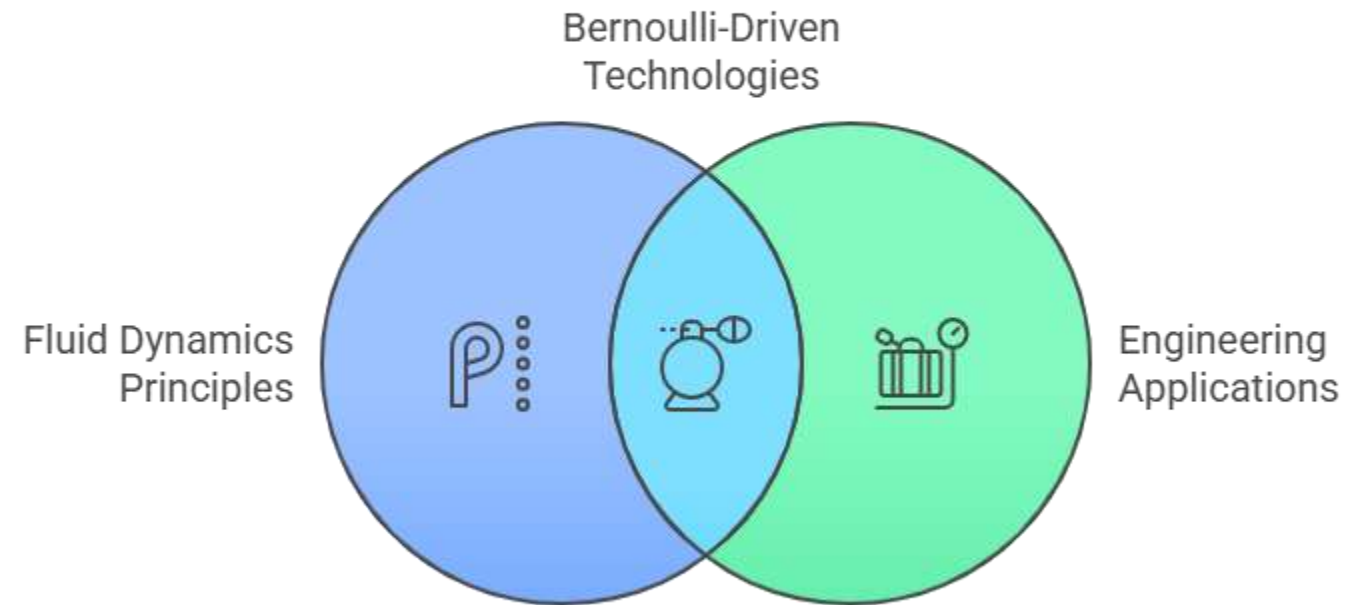
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BERNOULLIS THEORM



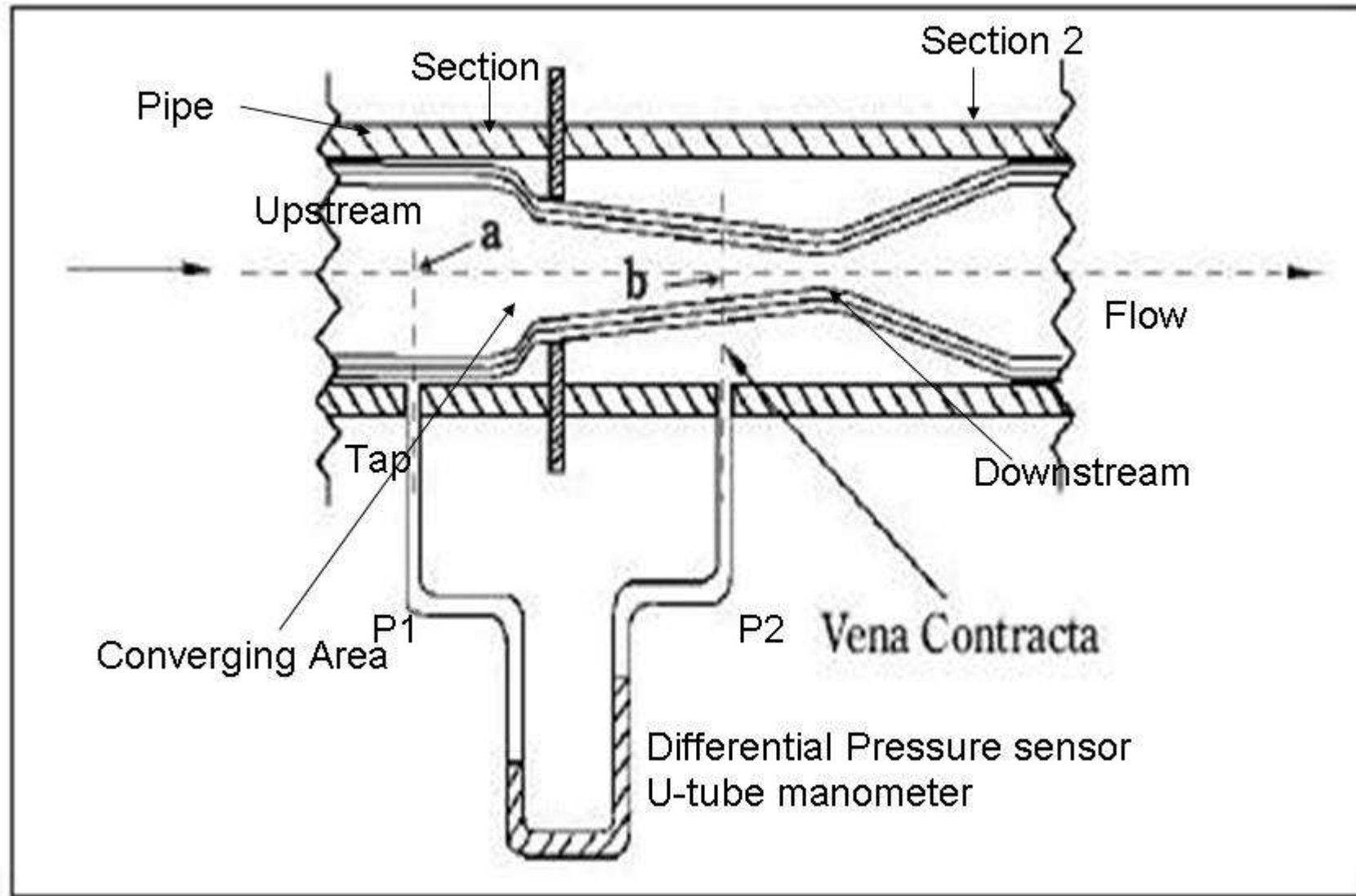
Vertical tubes show static pressure head (height of liquid column \propto pressure)

Applications of Bernoulli's Theorem

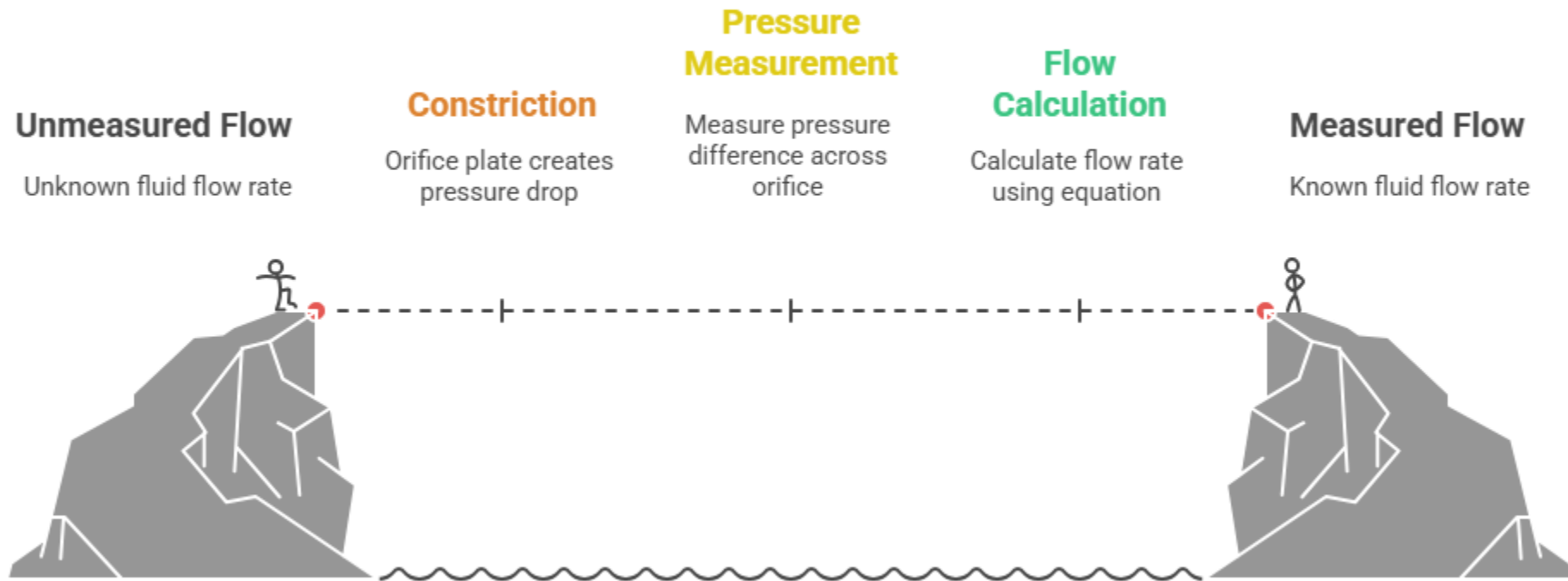


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Orifice Flow Meter

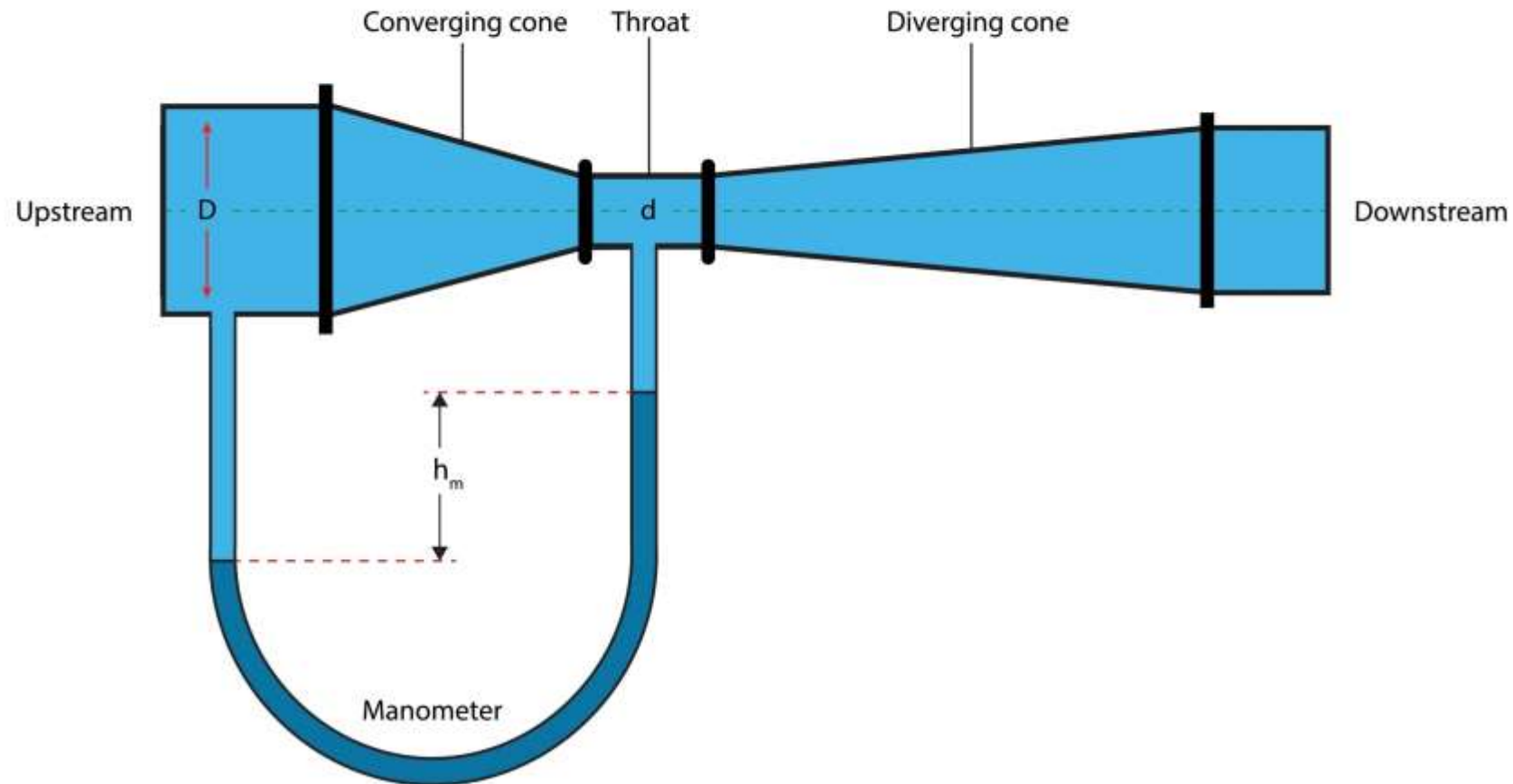


Orifice Meter Flow Measurement

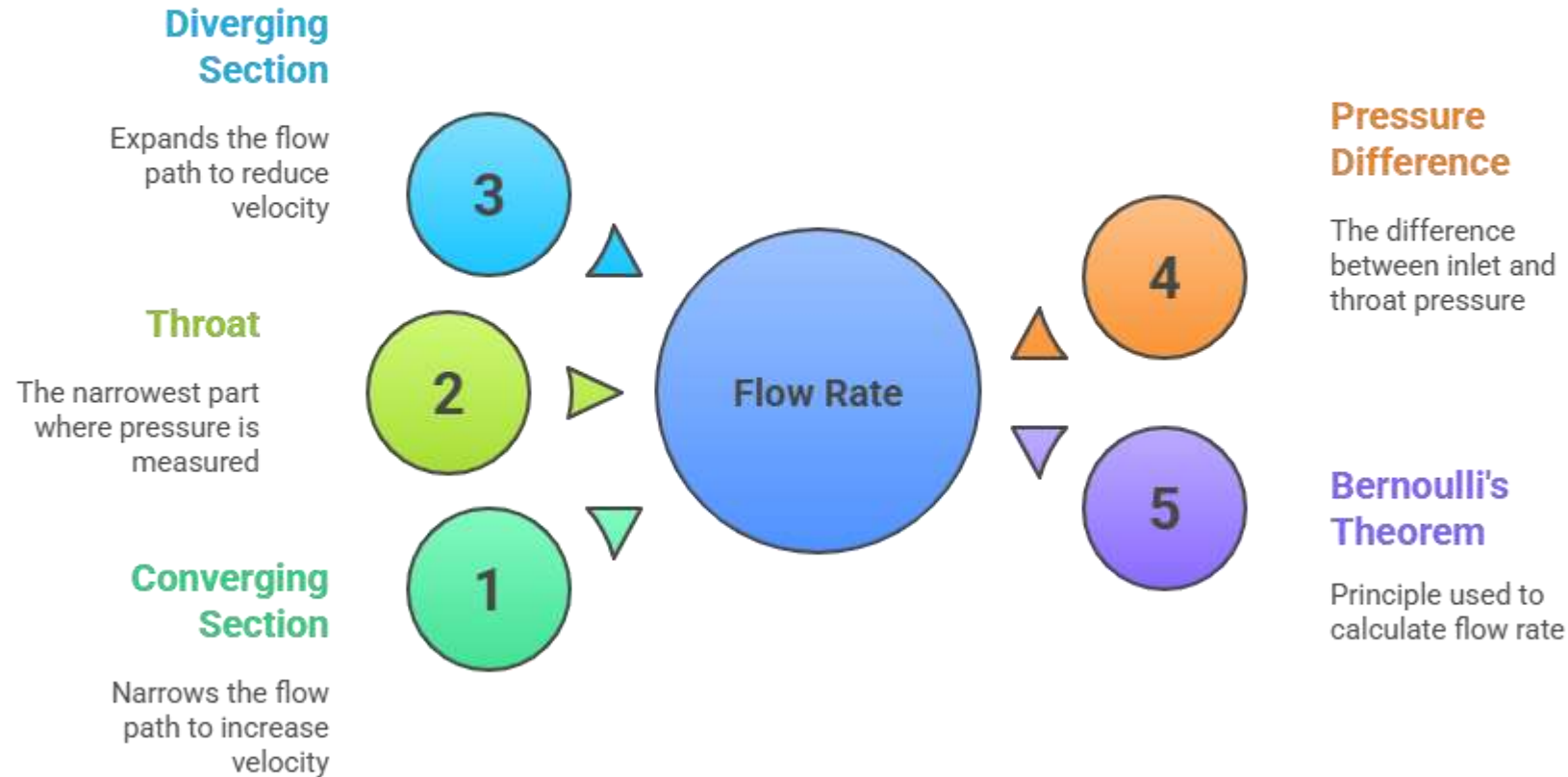


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VENTURIMETER

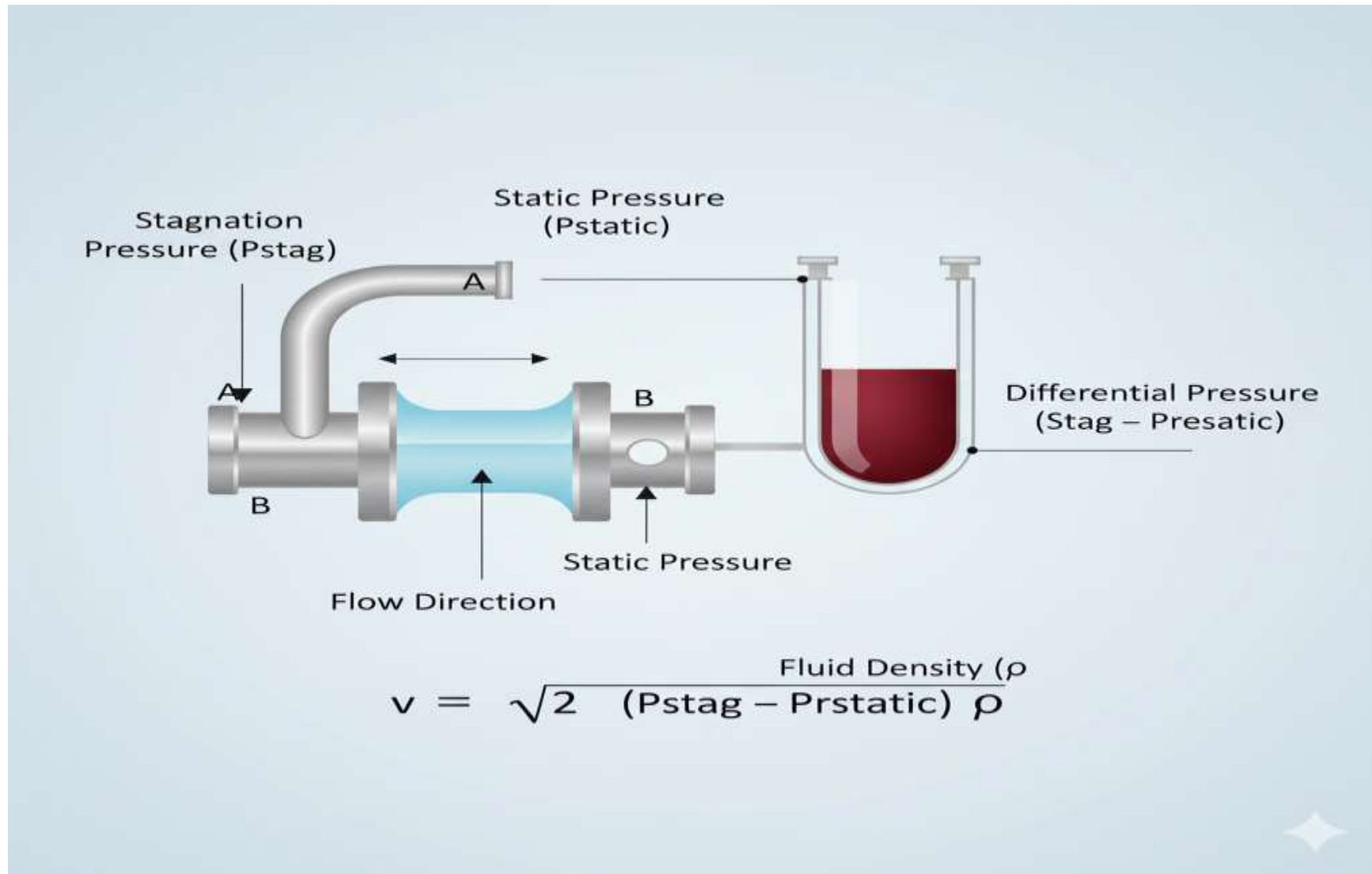


Venturi Meter Components and Function



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PITOTS TUBE



How can I determine the fluid velocity using a Pitot tube?

By measuring both the stagnation pressure and the static pressure, you can use the formula $v = \sqrt{2 * (P_{stag} - P_{static}) / \rho}$.

Where are Pitot tubes commonly used?

They are commonly used to measure the velocity of air in aircraft and wind tunnels.

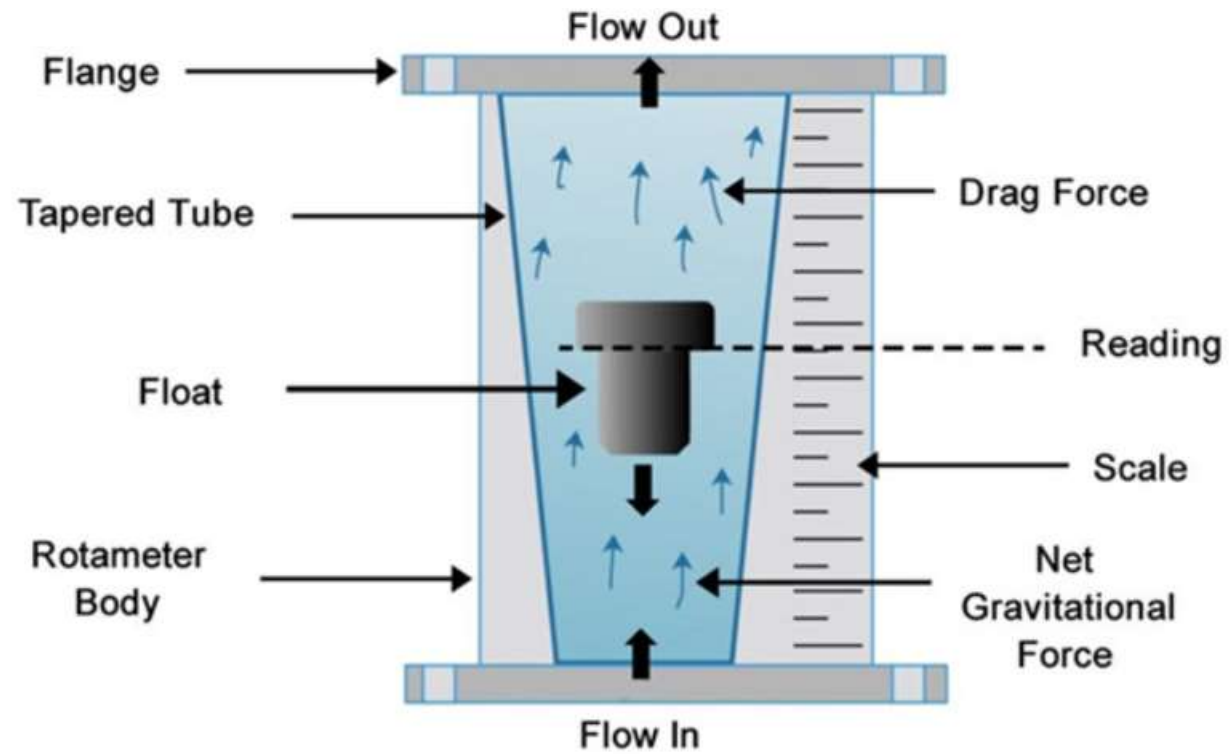


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ROTAMETER

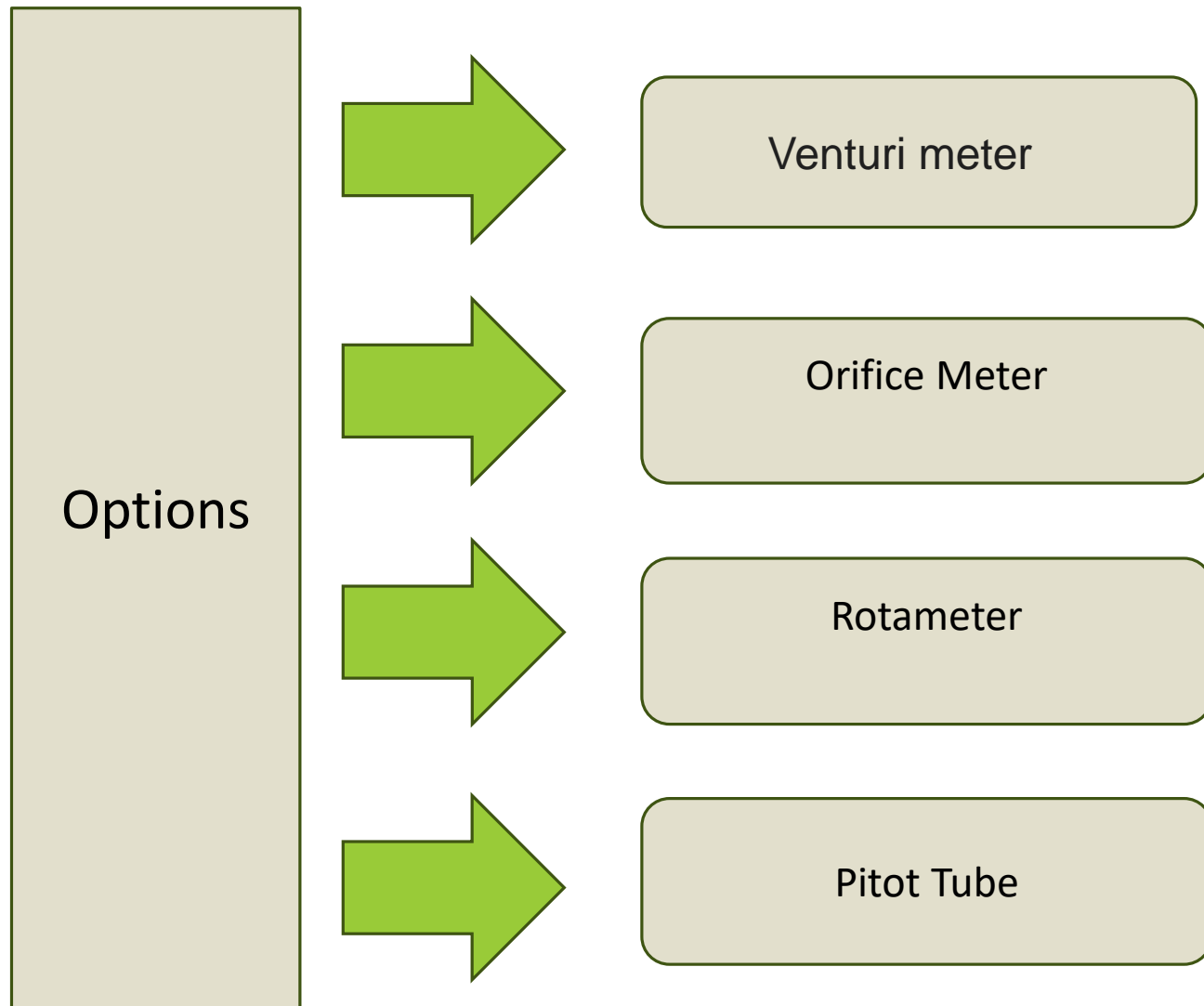


ROTAMETER



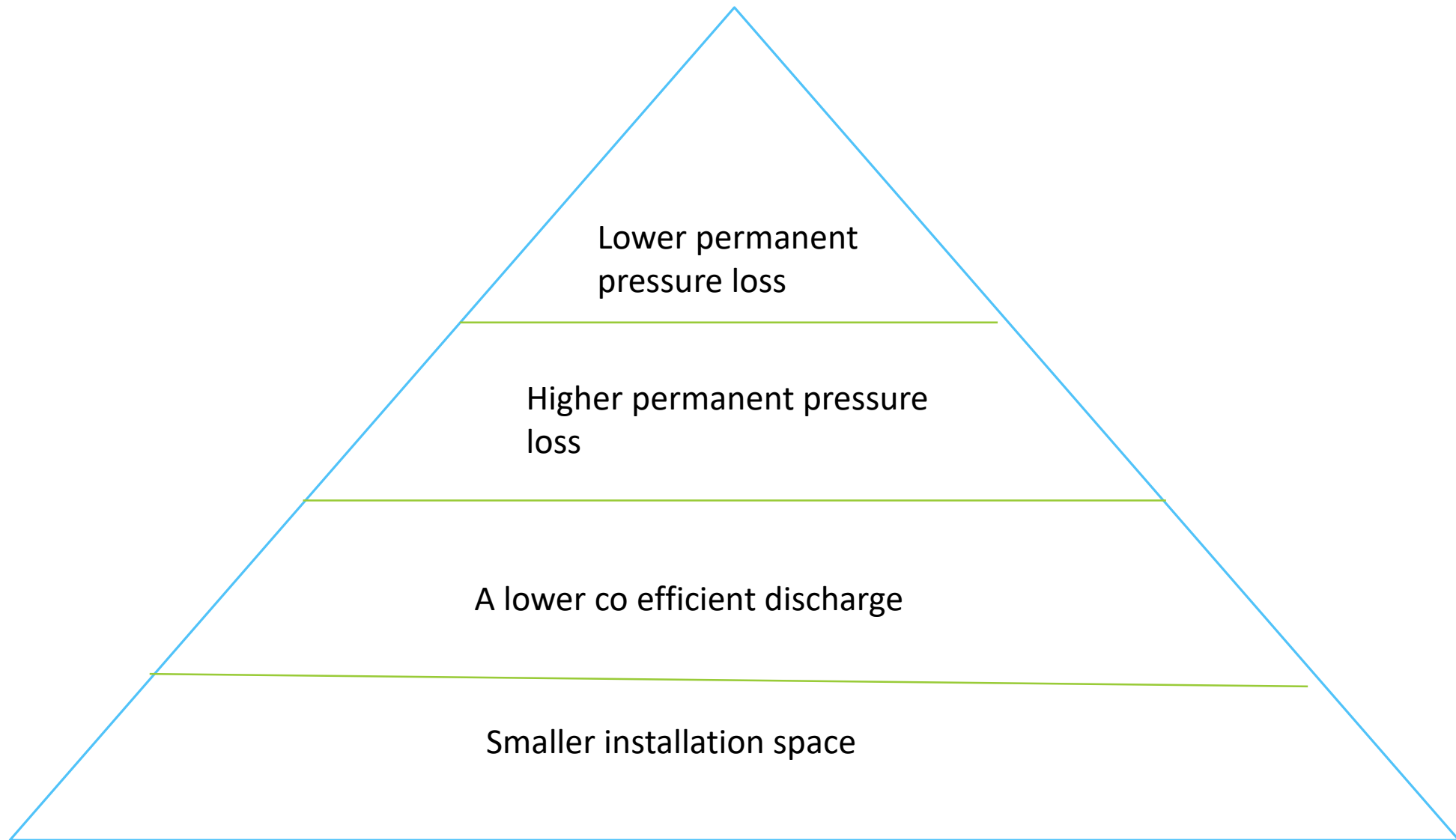
1. Which of the following flow meters operates on the principle of a **variable-area** instead of a differential pressure measurement?





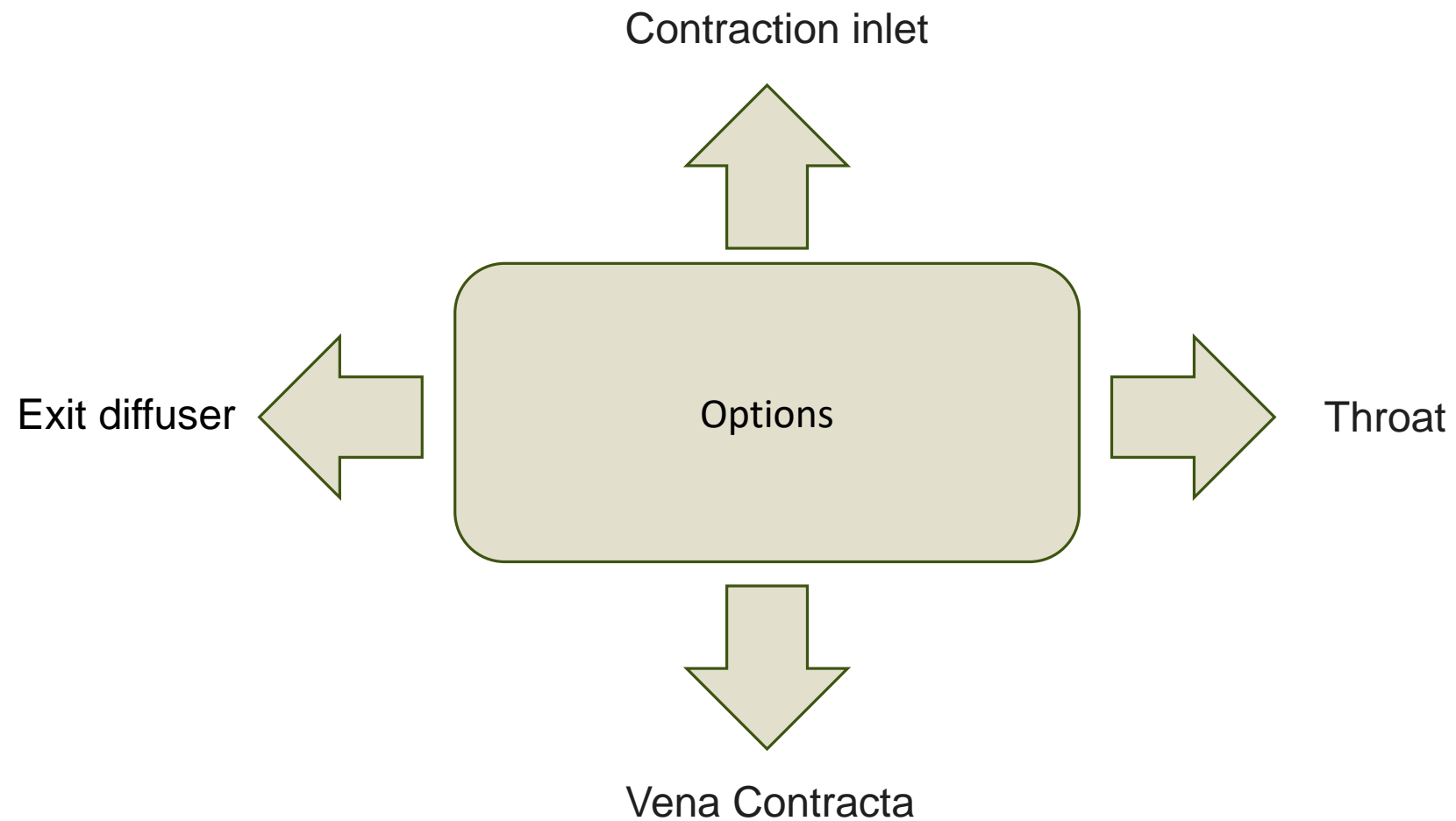
2. Compared to an Orifice Meter, a Venturimeter generally offers:





3. In an Orifice Meter, the point immediately downstream of the orifice plate where the jet area is minimum and the fluid velocity is maximum is known as the:





REFERENCES

1. Yie W. Chien: Novel Drug Delivery Systems, Second Edition, Marcel Dekker, Inc, 1992 Pg no.816.
2. Joseph R. Robinson: Sustained and Controlled Release Drug Delivery Systems, First edition, Volume 6, Marcel Dekker, Inc,1986,pg.618.
3. <https://www.sciencedirect.com/journal/journal-of-controlled-release>
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5. <https://www.scribd.com/document/668313752/Controlled-and-Novel-Drug-Delivery-by-N-K-Jain-1st-Editn-Reprint>



THANK YOU