।। नमस्ते ।।

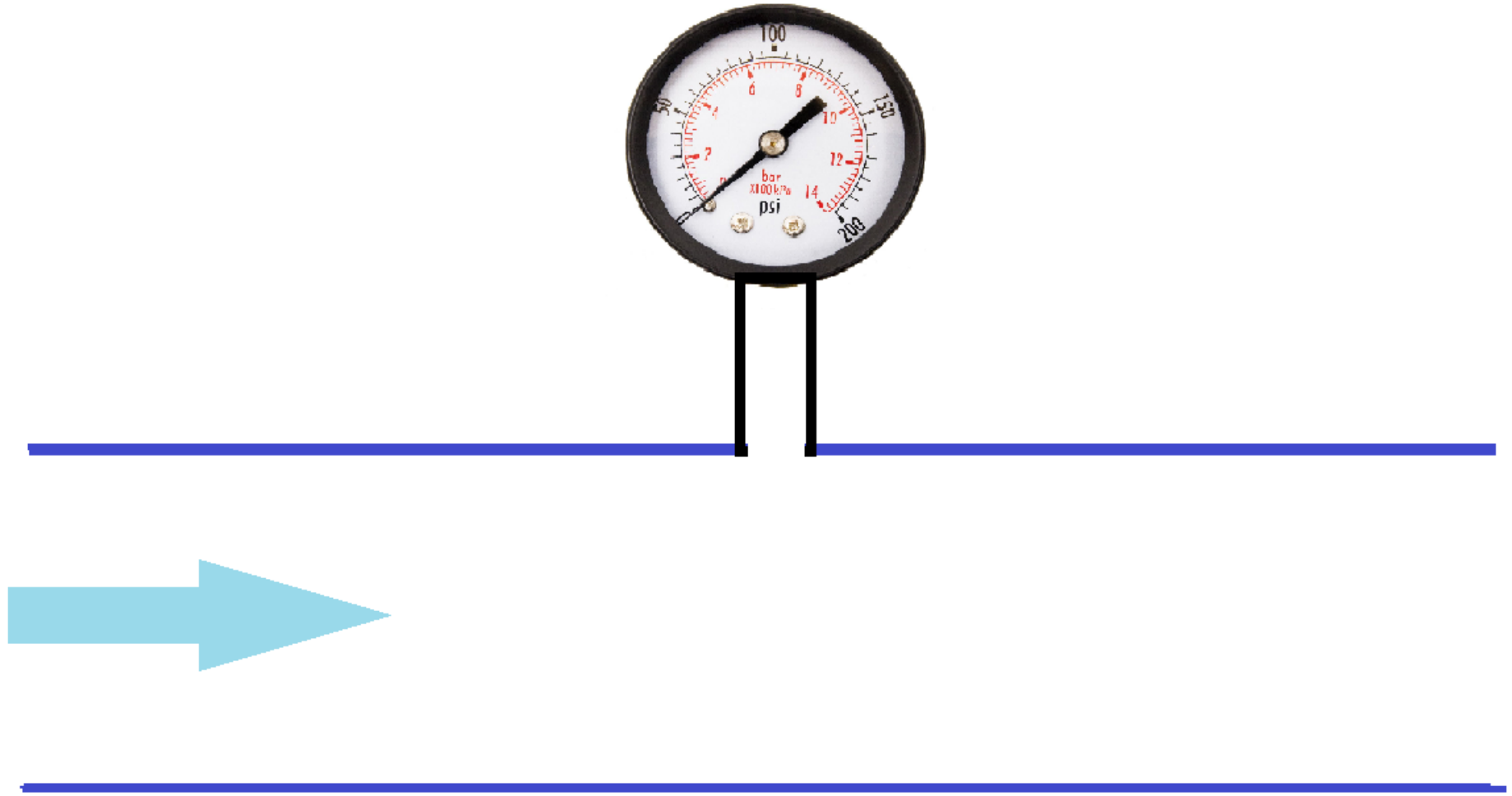
PRESSURE OVER THE AEROFOIL

THERE ARE THREE TYPES OF PRESSURE ON AEROFOIL

1. **Static Pressure**
2. **Dynamic Pressure**
3. **Stagnation / Total Pressure**

1.STATIC PRESSURE

- The Pressure exerted by air at the rest.
- It is denoted by ‘p’
- Static pressure is always measured perpendicular to air flow.
- In General life we always use static pressure.

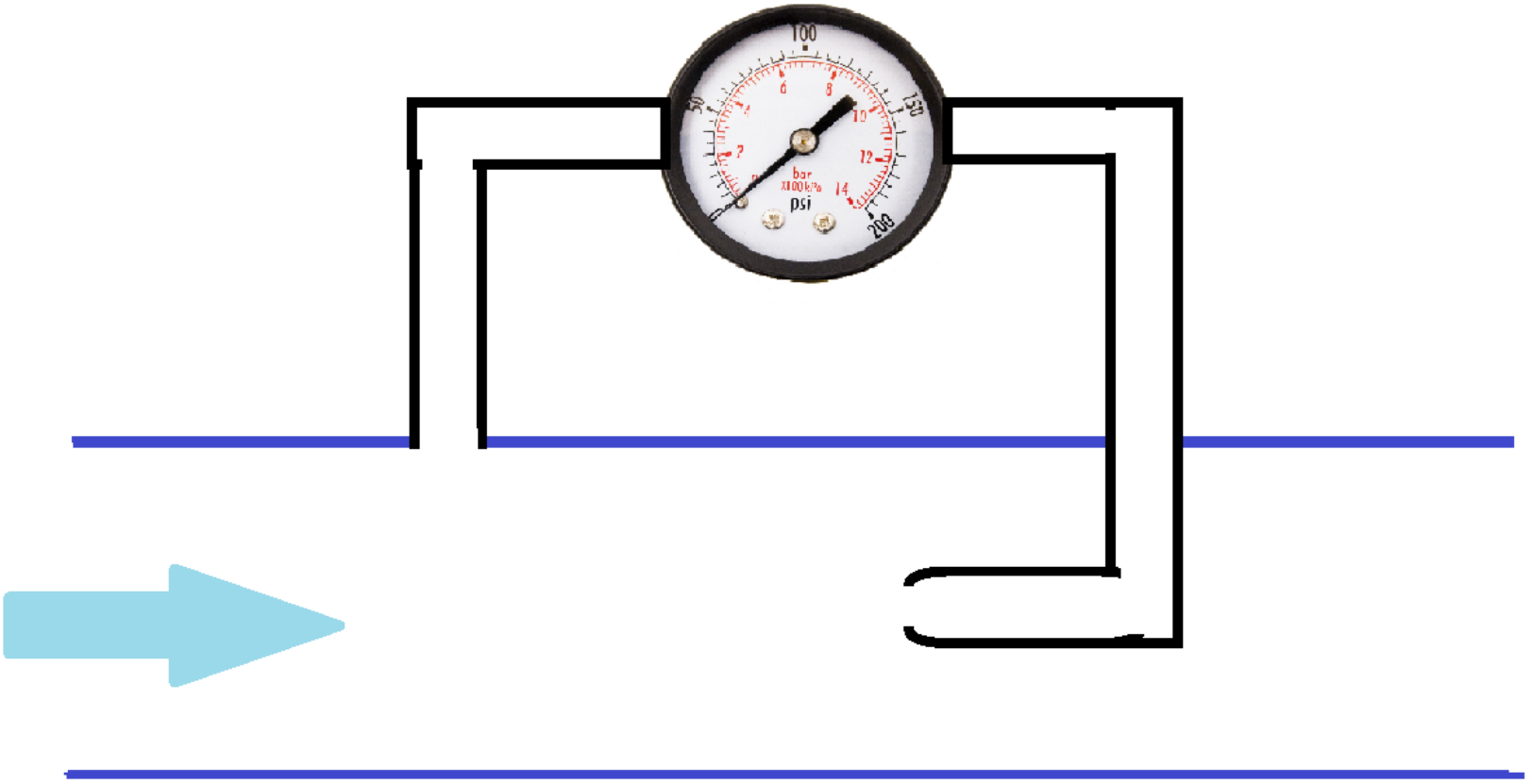


Static Pressure

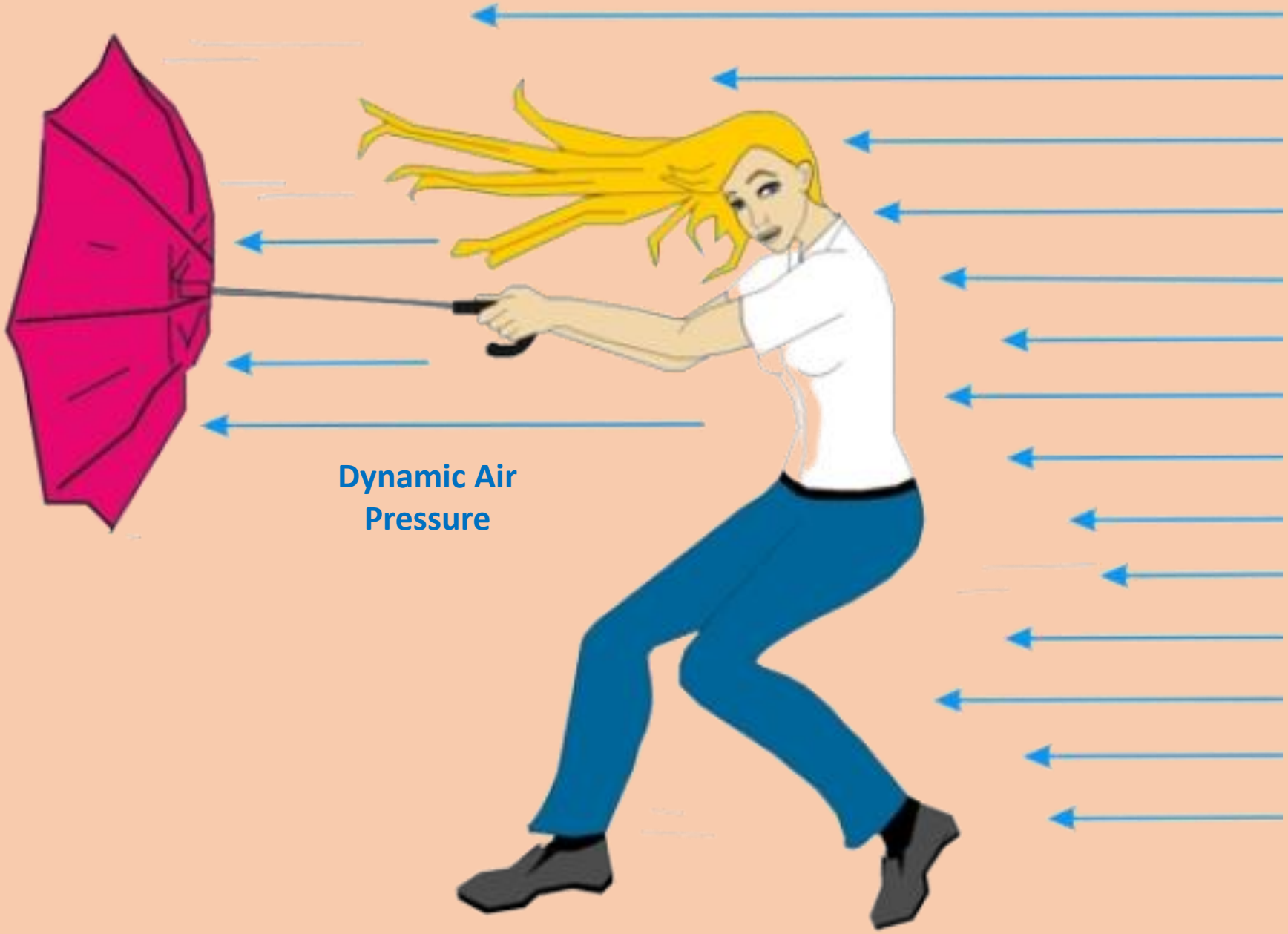

STATIC AIR
PRESSURE

2.DYNAMIC PRESSURE

- The pressure exerted by moving air is called dynamic pressure.
- It is denoted by ‘q’.
- The dynamic pressure is difference between Total and static pressure.
- $q = \frac{1}{2} \times \rho \times v^2$ $\quad unit\ is \quad {}^{N}/_{m^2}$

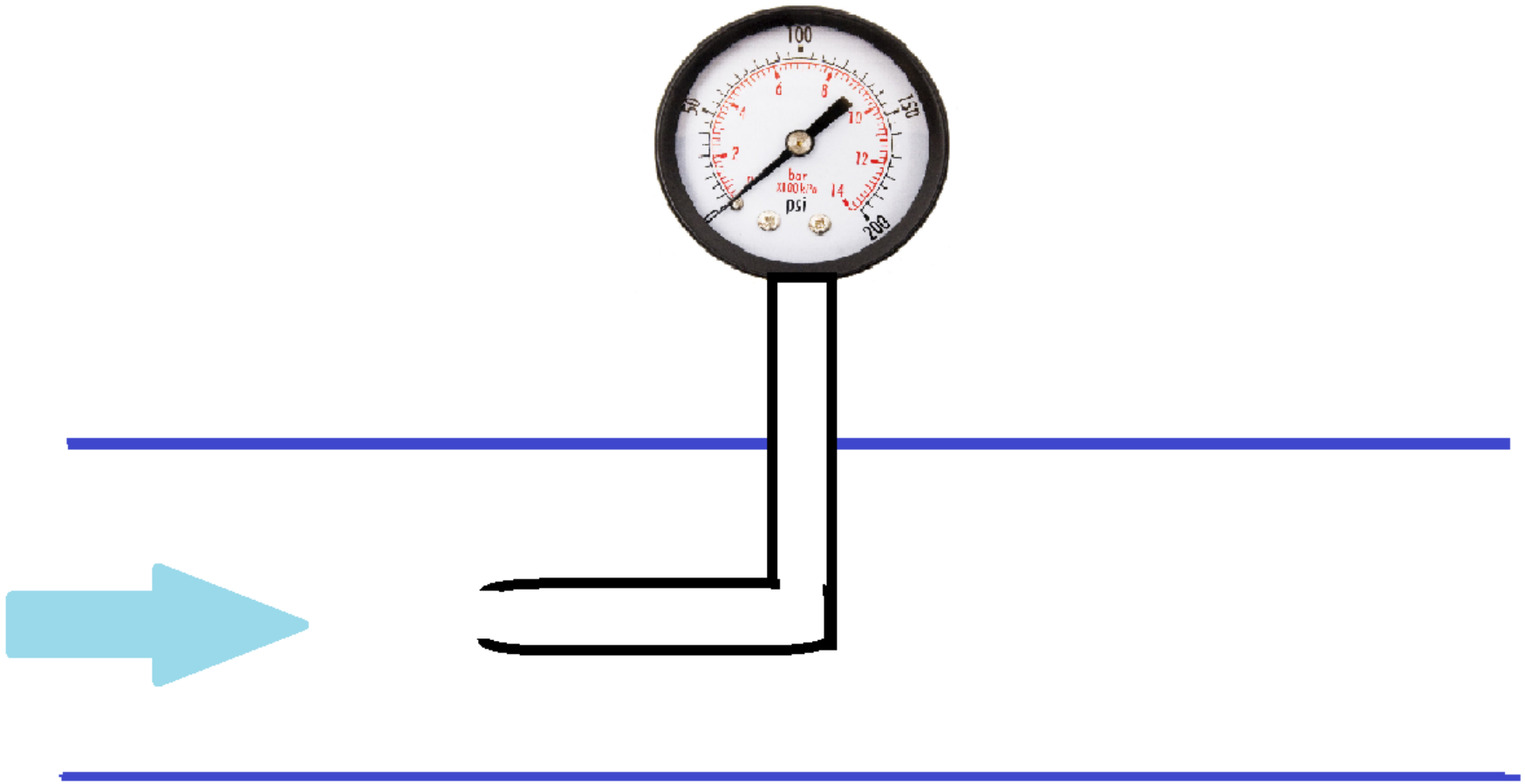


Dynamic Pressure


Dynamic Air
Pressure

3.STAGNATION PRESSURE/ TOTAL PRESSURE

- It is sum of static pressure, dynamic Pressure and gravitational potential energy is called as Total Pressure.
- It is denoted by p_t *or* p_0
- Total pressure is measured parallel to flow.
- $P_t = p + q + \rho gh$
- ***In aerodynamics gravitational potential energy*** (ρgh) ***is neglected***
- **due same reference point.**
- So $P_t = p + q$
- $P_t = p + \frac{1}{2} \times \rho \times v^2$
- Where
- p is static pressure ,
- ρ is air density ,
- v is air velocity



Total Pressure


ANY
QUESTIONS?


Today's Amazing Fact!!
Did You Know?
This tree is
10
years old
(One Ring means One Year)
www.pankajsalunkhe.weebly.com

धन्यवाद

Prepared By
Mr.Pankaj Salunkhe
(M.Tech Design , B-Tech Aerospace, DME)