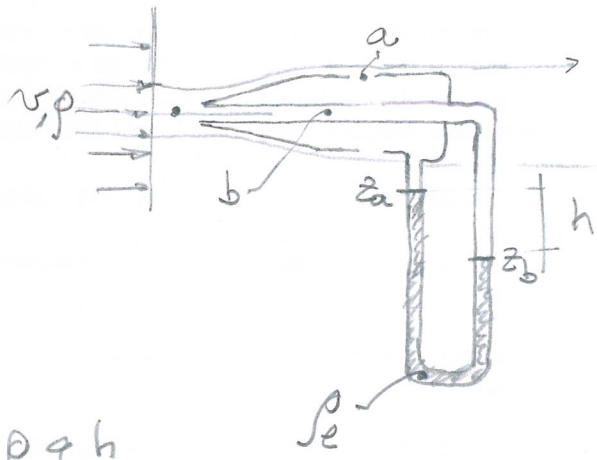
Tubo di Pitot



pressione statica

$$p_a + \frac{1}{2}\rho v^2 = p_b$$

$$p_b = p_a + \rho_e g h$$

$$\Rightarrow \cancel{p_a} + \frac{1}{2}\rho v^2 = \cancel{p_a} + \rho_e g h$$

$$v^2 = 2gh \cdot \frac{\rho_e}{\rho}$$

$$v = \sqrt{2gh \cdot \frac{\rho_e}{\rho}}$$

Quale deve essere ρ_e, per leggere 10 cm ad una velocità di 300 km/h?

$$\rho_e = \frac{1}{h} \cdot \rho \cdot \frac{v^2}{2g}$$

$\rho_{aria} \cong 1{,}2 \ kg/m^3 \Rightarrow$

$$\rho_e = \frac{1}{0{,}10} \cdot 1{,}2 \cdot \left(\frac{300}{3{,}6}\right)^2 \cdot \frac{1}{2 \cdot 9{,}81}$$

$$\vdots$$

$$\cong 4250 \ kg/m^3$$