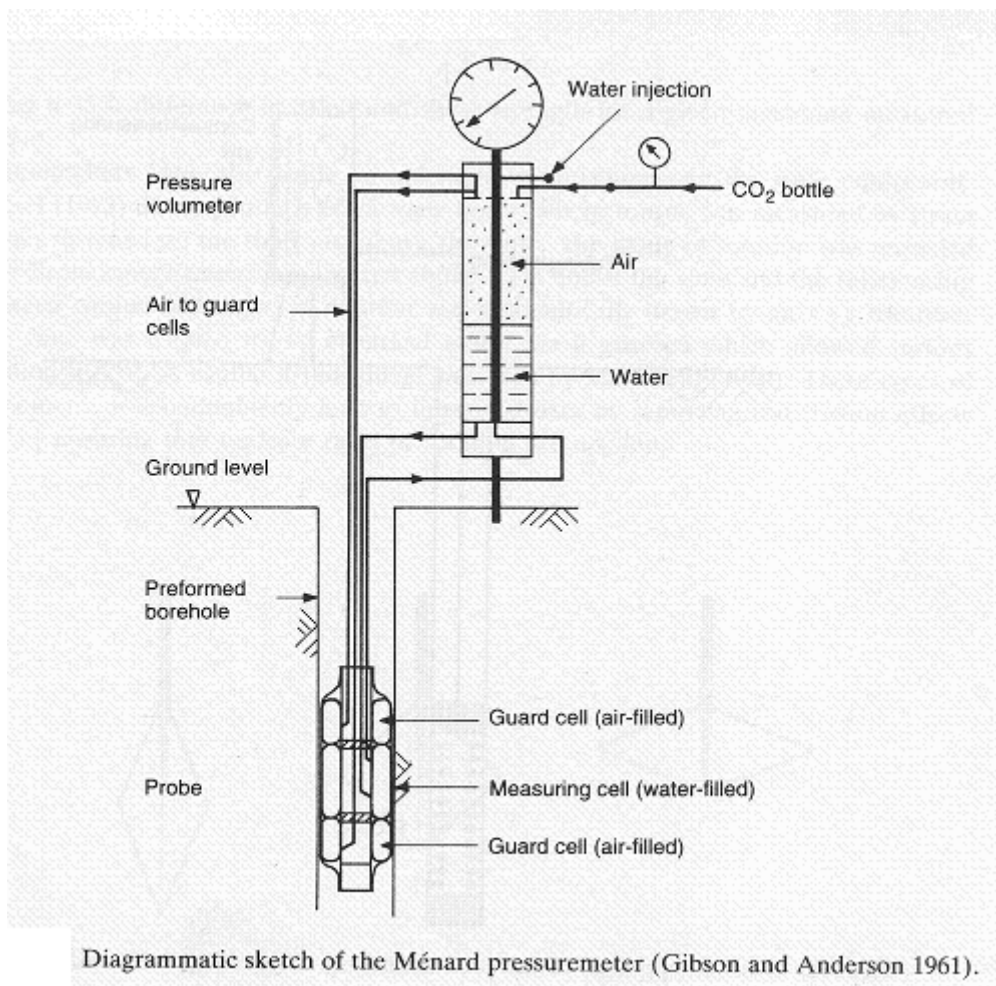


3.5 Pressuremeter Test (PMT)

(1) General

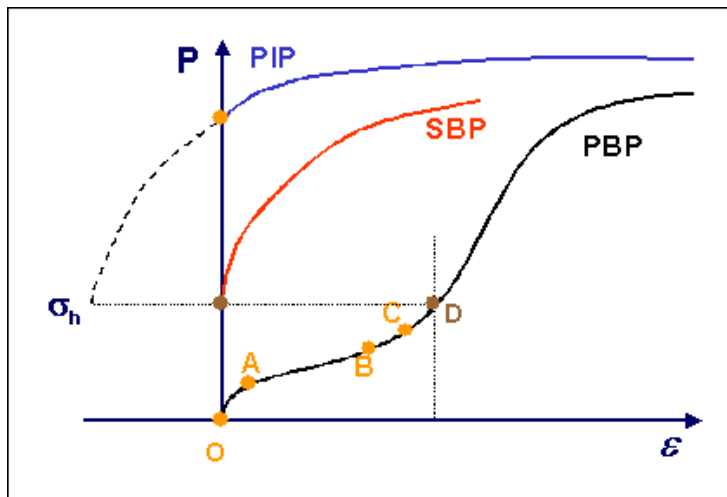
- The PMT is conducted by inflating or deflating cylindrical shape probe in a borehole

- Type of PMT
 - Prebored pressuremeter
 - Self-boring pressuremeter
 - Push-in pressuremeter

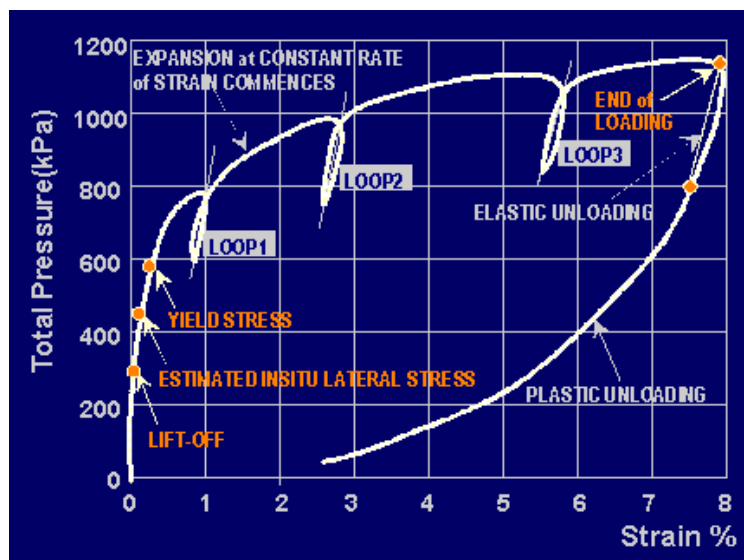


(2) Test results

- Pressurometer curve



<Pressurometer curve>



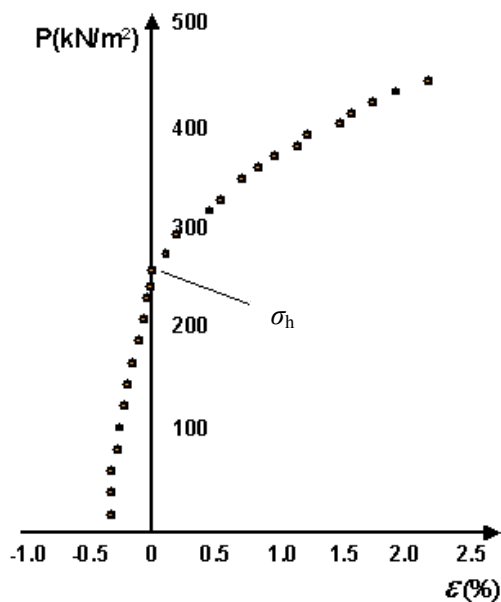
<Pressurometer curve from SBPT>

(3) Determination of soil parameters (based on SBPT)

- Parameters: σ_h , G , S_u , c_h , Soil classification, stress history, friction angle of sandy soil
lift-off method

i) σ_h

- Lift-off method



<Lift-off method to determine σ_h >

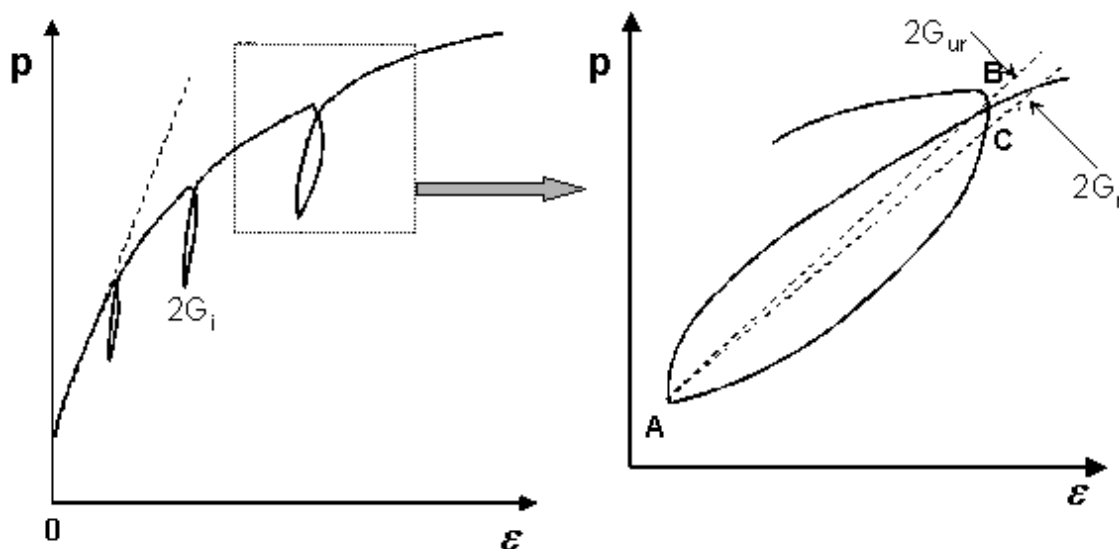
ii) Shear modulus, G

- Initial shear modulus

$$G_i = \frac{0.5(p - \sigma_h)}{\epsilon}$$

- Shear modulus from unload-reload curve

$$G_{ur} = 0.5\left(\frac{\Delta p}{\Delta \epsilon}\right) = V\left(\frac{\Delta p}{\Delta V}\right)$$



< Unload-reload curve >

iii) S_u

- Relationship between τ and ε_c (early strain)

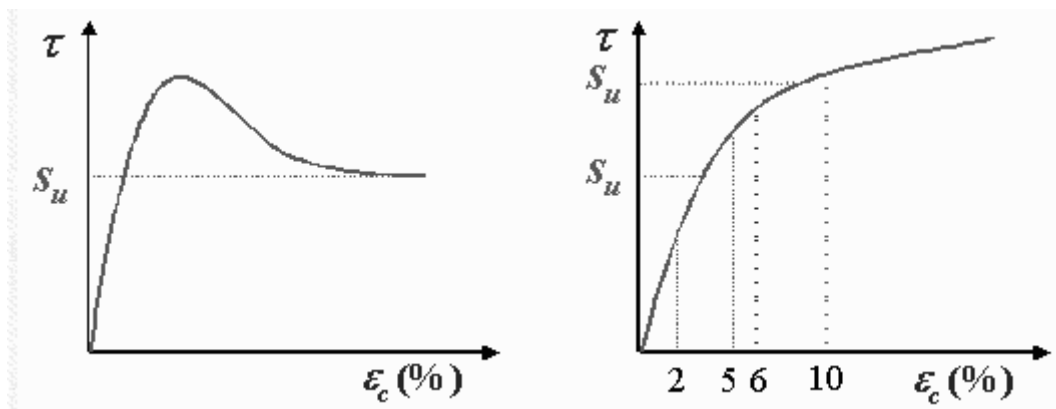
$$\tau = 0.5\varepsilon(1 + \varepsilon)(2 + \varepsilon) \frac{dp}{d\varepsilon}$$

↓ Assumption of small strain

$$\tau = \varepsilon \frac{dp}{d\varepsilon}, \quad \tau = \frac{dp}{d \ln\left(\frac{\Delta V}{V}\right)}$$

↓

Plot $\tau - \varepsilon_c$



<strain-softening>

<strain-hardening>

iv) c_h

Based on dissipation test

↳ Measuring pore pressure with time during holding 10% cavity strain

$$c_h = \frac{T_{50} \cdot r_0^2}{t_{50}}$$

