

Edometer $M_v \equiv E_{oed} = -\frac{\Delta\sigma'_{zz}}{\Delta e} (1+e) = -\frac{d\sigma'_{zz}}{de} (1+e)$

Triosna deformacijska preiskava:

ZVEZE MED DEFORMACIJSKIMI PARAMETRI

	E	ν	K	G	E_{oed}
E, ν	E	ν	$\frac{E}{3(1-2\nu)}$	$\frac{E}{2(1+\nu)}$	$\frac{E(1-\nu)}{(1+\nu)(1-2\nu)}$
E, K	E	$\frac{1}{2} - \frac{E}{6K}$	K	$\frac{3EK}{9K-E}$	$\frac{3K(E+3K)}{9K-E}$
E, G	E	$\frac{E}{2G} - 1$	$\frac{EG}{3(3G-E)}$	G	$\frac{G(4G-E)}{3G-E}$
ν, K	$3K(1-2\nu)$	ν	K	$\frac{3K(1-2\nu)}{2(1+\nu)}$	$3K \frac{(1-\nu)}{(1+\nu)}$
ν, G	$2G(1+\nu)$	ν	$\frac{2G(1+\nu)}{3(1-2\nu)}$	G	$\frac{2G(1-\nu)}{(1-2\nu)}$
ν, E_{oed}	$\frac{(1+\nu)(1-2\nu)}{(1-\nu)} E_{oed}$	ν	$\frac{1+\nu}{3(1-\nu)} E_{oed}$	$\frac{1-2\nu}{2(1-\nu)} E_{oed}$	E_{oed}
K, G	$\frac{9KG}{3K+G}$	$\frac{3K-2G}{2(3K+G)}$	K	G	$K + \frac{4}{3}G$
K, E_{oed}	$\frac{9K(E_{oed}-K)}{3K+E_{oed}}$	$\frac{3K-E_{oed}}{3K+E_{oed}}$	K	$\frac{3}{4}(E_{oed}-K)$	E_{oed}
G, E_{oed}	$\frac{G(3E_{oed}-4G)}{E_{oed}-G}$	$\frac{2G-E_{oed}}{2(G-E_{oed})}$	$E_{oed} - \frac{4}{3}G$	G	E_{oed}

$$\epsilon_1 = \frac{\Delta h}{h_0}, \epsilon_V = \frac{\Delta V}{V_0}$$

$$\epsilon_V = \epsilon_1 + 2\epsilon_3, \epsilon_3 = \frac{\epsilon_V - \epsilon_1}{2}$$

$$2G = \frac{2}{3} \frac{(\Delta\sigma_1 - \Delta\sigma_3)}{(\Delta\epsilon_1 - \Delta\epsilon_3)} = 2 \frac{\Delta\sigma_1 - \Delta\sigma_3}{3\Delta\epsilon_1 - \Delta\epsilon_V}$$

$$3K = \frac{1}{3} \frac{(\Delta\sigma_1 + 2\Delta\sigma_3)}{(\Delta\epsilon_1 + 2\Delta\epsilon_3)} = \frac{\Delta\sigma_1 + 2\Delta\sigma_3}{\Delta\epsilon_V}$$

Konsolidacija: končni posedek: $\rho = \frac{A_\infty}{E_{oed}}, A_\infty = \int \Delta\sigma_{zz} dz, A_t = \int \Delta\sigma'_{zz} dz, A_u u = \int \Delta u dz$

Začetne vrednosti pornih tlakov:	$\Delta u(z, t=0) = \Delta u_0 = \Delta\sigma_{zz}$		
Brezkrajna obtežba:	$\Delta u(z, t) = \frac{4 \Delta\sigma_{zz}}{\pi} \sum_{m=1}^{\infty} \frac{1}{2m-1} \sin \frac{(2m-1)\pi z}{2h} \exp \left[-\frac{(2m-1)^2 \pi^2}{4} T_v \right]$		
Stopnja konsolidacije: $U_v = U_v(T_v)$	$U_v = \frac{\rho_t}{\rho_\infty}$	$U_v = \frac{A_t}{A_\infty} = \frac{A_\infty - A_u}{A_\infty} = 1 - \frac{A_u}{A_\infty}$	$T_v = \frac{C_v t}{h_{dren}^2} = \frac{k E_{oed} t}{\gamma_w h_{dren}^2}$
Konec konsolidacije:	$T_v = \frac{k E_{oed} t}{\gamma_w h^2} = 2 \Rightarrow t_\infty = \frac{2 \gamma_w h^2}{k E_{oed}}$	Kombinacije izohron:	$U_v = \frac{U_{v(i)} A_{\infty(i)} \pm U_{v(j)} A_{\infty(j)}}{A_{\infty(i)} \pm A_{\infty(j)}}$
Večslojna tla:	$E_{oed}^* = \frac{\sum_{i=1}^n A_{\infty i}}{\sum_{i=1}^n \rho_i}$	$h_i^* = h_i \sqrt{\frac{c_{v i}^*}{c_{v i}}} = h_i \sqrt{\frac{k^* E_{oed}^*}{k_i E_{oed i}}}$	$h^* = \sum_{i=1}^n h_i^*$

Račun vertikalnih dodatnih napetosti $\Delta\sigma_{zz}$ in pomikov (skrčkov) pod obtežnimi ploskvami:

<p>Točkovna sila</p> <p>$\Delta\sigma_z = \frac{3P}{2\pi R^2} \cos^3 \vartheta$</p> <p>$u_z = \frac{P(1+\nu)}{2\pi E} \left[\frac{z^2}{R^3} + 2(1-\nu) \frac{1}{R} \right]$</p>	<p>Pasovna (trakasta) obt.</p> <p>$\Delta\sigma_{zz} = \frac{q}{\pi} (2\epsilon + \sin 2\epsilon \cos 2\psi)$</p> <p>$2\epsilon = \beta_2 - \beta_1, \quad 2\psi = \beta_2 + \beta_1$</p> <p>$u_z = \infty$</p>	<p>Krožna obtežba</p> <p>$\Delta\sigma_{zz} = q (1 - \cos^3 \alpha)$</p> <p>$u_z = \frac{q r}{E} \frac{(1+\nu)}{\sin \alpha} [2(1-\nu) + (2\nu-1) \cos \alpha - \cos^2 \alpha]$</p>
<p>Pravokotna obtežba</p> <p>$\frac{\Delta\sigma_{zz}}{q} = \frac{\Delta\sigma_{zz}}{q} \left(\frac{a}{b}, \frac{z}{b} \right)$</p> <p>$s = \frac{q b}{E} f$</p> <p>$f = f \left(\frac{a}{b}, \frac{z}{b}, \nu \right)$</p>		

Dovoljeni diagrami in table: Uv-TV diagram, table in diagrami za račun napetosti in pomikov (krog, pravokotnik)