

# MAXWELL MODEL:

$$\sigma_1 = k \epsilon_1 \quad \text{spring}$$

$$\sigma_2 = \mu \dot{\epsilon}_2 \quad \text{DAMPER}$$

$$= \mu \frac{d\epsilon_2}{dt}$$

IN SERIES

$$\sigma = \sigma_1 = \sigma_2$$

$$\epsilon = \epsilon_1 + \epsilon_2$$

$$\Rightarrow \dot{\epsilon} = \dot{\epsilon}_1 + \dot{\epsilon}_2$$

$$\dot{\epsilon}_2 = \frac{\sigma_2}{\mu}$$

$$\epsilon_1 = \frac{\sigma_1}{k} \Rightarrow \dot{\epsilon}_1 = \frac{\dot{\sigma}_1}{k}$$

$$\dot{\epsilon} = \frac{\sigma_2}{\mu} + \frac{\dot{\sigma}_1}{k} = \frac{\sigma}{\mu} + \frac{\dot{\sigma}}{k}$$

CREEP

const STRESS =  $\sigma_0$

$$\Rightarrow \dot{\sigma} = 0$$

$$\dot{\epsilon} = \frac{\sigma_0}{\mu} + 0 = \text{constant.}$$

$\epsilon$  increasing in a straight line  
FOREVER  
with no limit

THERE WILL BE AN INITIAL ELASTIC

STRETCH EQUAL TO  $\epsilon = \frac{\sigma_0}{k}$

i.e. EQUAL TO final limit of KELVIN ~~model~~ MODEL.