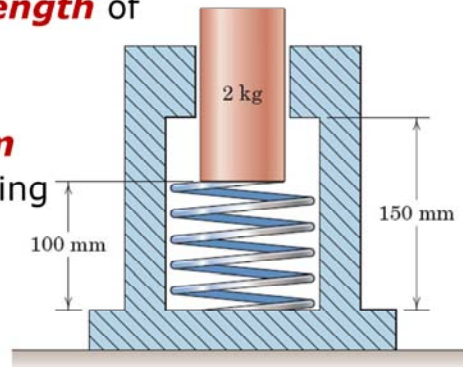


Question of the Day

The **2-kg** plunger is released from rest in the position shown. The spring has a **stiffness** of **500 N/m** and **resting length** of **200 mm**.

Determine the **maximum height h** above the starting position reached by the plunger.



ME 231: Dynamics

$$\boxed{3/151} \quad \Delta T + \Delta V_e + \Delta V_g = 0, \quad \Delta T = 0$$

$$\Delta V_e = \frac{1}{2} k (x_2^2 - x_1^2) = \frac{1}{2} 500 (0.050^2 - 0.100^2) = -1.875 \text{ J}$$

$$\Delta V_g = mg\Delta h = 2(9.81)h = 19.62h$$

$$\text{Thus } 0 - 1.875 + 19.62h = 0, \quad h = 0.0956 \text{ m or } \underline{h = 95.6 \text{ mm}}$$