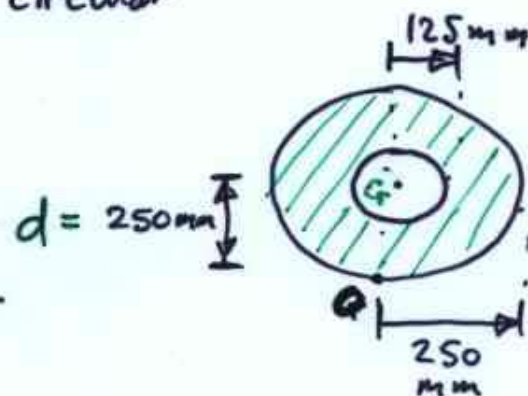


FIND M.O.I of 10mm thick circular plate about axis $\perp$ to page thru O

PLATE HAS HOLE AS SHOWN.



Composite body ...

intact disk $I_G = \frac{1}{2} m r^2$

// axis thm: $I_O = I_G + m d^2 = \frac{1}{2} m r^2 + m d^2$

$m_{\text{DISK}} = \rho_{\text{DISK}} V_{\text{DISK}} = \overset{\text{Pot steel}}{8000 \text{ kg/m}^3} [\pi (0.25)^2 (0.01)]$
 $= 15.71 \text{ kg}$

$(I_{\text{DISK}})_O = m_D \left(\frac{1}{2} r_D^2 + d^2 \right)$
 $= 1.473 \text{ kg m}^2$

Now ... look @ HOLE

$m_{\text{HOLE}} = \rho_H V_H = 8000 \text{ kg/m}^3 [\pi (0.125)^2 (0.01)]$
 $= 3.93 \text{ kg}$

$(I_H)_O = m_H \left(\frac{1}{2} r_H^2 + d^2 \right)$
 $= 0.276 \text{ kg m}^2$

$(I_{\text{PLATE}})_O = (I_{\text{DISK}})_O - (I_{\text{HOLE}})_O$
 $= 1.473 - 0.276$
 $= 1.20 \text{ kg m}^2$

