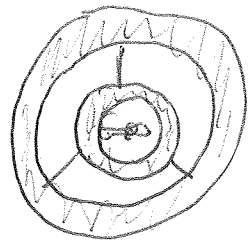
10-86 Rods holding rings together don't matter much according to the problem statement.



That leaves us with two rings contributing

$I = \frac{1}{2} M (R_i^2 + R_o^2)$ each

From the table, $I_{small} = \frac{1}{2}(0.120\,kg)(0.0160^2 + 0.0450^2)\,m^2$

$I_{large} = \frac{1}{2}(0.240)(0.0900^2 + 0.1400^2)\,m^2$

$I_{tot} = I_{small} + I_{large} = 0.00346\,kg\,m^2$

It's key torqued with 12.0N applied at the outer edge which is (0.1400m) from the center for 0.300s

$\vec{\tau} = \vec{r} \times \vec{F}$, and $\tau = I\alpha$, and $\omega = \alpha t$

So: $\omega = \alpha t = \frac{\tau}{I} t = \frac{r \cdot F \cdot t}{I}$

$= \frac{(0.1400m)(12.0N)(0.300s)}{0.00346\,kg\,m^2}$

$\omega = 146 \frac{rad}{s}$