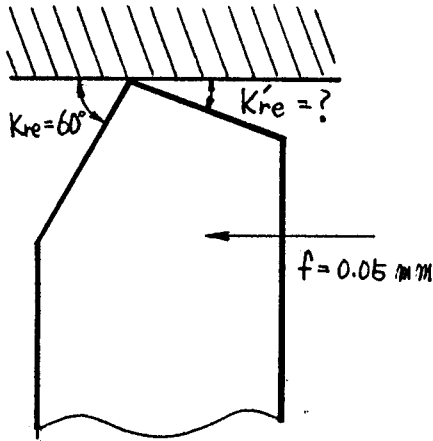


제 7 장

문제 1 풀이



$$R_a = \frac{f}{4(\cot K_{re} + \cot K_{re})} \text{ 에 서}$$

$$4R_a \cdot \cot K_{re} = f - 4R_a \cdot \cot K_{re}$$

$$\therefore \cot K_{re} = \frac{f}{4 \cdot R_a} - \cot K_{re}$$

$$= \frac{0.05 \times 10^{-3}}{4 \times 3 \times 10^{-6}} \cot 60^\circ$$

mm → m

$$\therefore \cot K_{re} = 3.57, \quad \therefore K_{re} = 15.37^\circ$$

[답] 부절도각 $K_{re} = 15.37^\circ$

문제 2 풀이

$$R_a = \frac{0.0321 f^2}{r_e} \text{ 에 서}$$

$$r_e = \frac{0.0321 f^2}{R_a} = \frac{0.0321 \times (0.25 \times 10^{-3})^2}{10 \times 10^{-6}}$$

$$\frac{3.21 \times 10^{-2} \times 0.25^2 \times 10^{-6}}{10 \times 10^{-6}} = 10^{-3} \times 0.2006 \text{ mm}$$

$$\doteq 0.2 \text{ mm.}$$

[답] 공구의 곡률반경 $r_e = 0.2 \text{ mm}$

문제 3 풀이

$$R_a = \frac{0.0642}{d_t} \left(\frac{V_f}{m_t} \right)^2 \quad (\text{one-tooth cutter에 대하여})$$

\therefore 10-teeth cutter에 대하여

$$\begin{aligned} R_a &= \frac{0.0642}{d_t} \left(\frac{V_f}{10 \cdot m_t} \right)^2 \\ &= \frac{0.0642}{150 \times 10^{-3}} \left(\frac{1.5 \times 10^{-3}}{10 \times 3} \right)^2 \\ &= \frac{6.42 \times 10^{-2}}{1.5 \times 10^2 \times 10^{-3}} \times \frac{1.5^2 \times 10^{-6}}{10^2 \times 9} \\ &= \frac{6.42 \times 1.5^2}{1.5 \times 9} \times \frac{10^{-2} \times 10^{-6}}{10^2 \times 10^3 \times 10^2} \\ &= 1.07 \times 10^{-9} = 1.07 \times 10^{-3} \mu.m. \end{aligned}$$

[답] 이론적 평균조도 $R_a = 1.07 \times 10^{-3} \mu.m$

문제 4, 5, 6, 7 은 제7장 본문참조.