

נוסחאות

$$B \text{ (block size)} = nsb \cdot S$$

$$IBG = nsb \cdot ISG$$

$$TRK \text{ (track size)} \approx nst \cdot (S + ISG) \approx nbt \cdot (B + IBG)$$

No spanning, R and B of fixed length:

$$Bfr = \left\lfloor \frac{B}{R} \right\rfloor$$

$$W = W_B + W_G$$

$$W_G = \frac{IBG}{Bfr}$$

$$W_B = \frac{B - (Bfr \cdot R)}{Bfr}$$

R and B of variable length, with spanning:

$$Bfr = \frac{B}{R + P}$$

$$W = W_B + W_G$$

$$W_G = \frac{IBG + P}{Bfr}$$

$$W_B = P$$

$$r = \frac{1}{2} \cdot \frac{60 \cdot 1000}{RPM} \text{ (ms)}$$

$$a = s + r$$

$$s_l = s_c + \delta \cdot l$$

$$s_l = s_c + \delta \cdot l \Rightarrow s_l \approx s_c, \quad s_l \approx \frac{1}{3} \cdot 2r$$

$$s = s_c + \delta \cdot \frac{N}{3}$$

$$btt = \frac{B}{t} = \frac{\text{number of blocks}}{\text{transfer time}}$$

$$t = \frac{TRK}{2r}$$

$$T_R = \frac{R + W}{t}$$

$$T_B = \frac{B + IBG}{t} \approx btt$$

$$T_{TRK} = \frac{TRK}{t} = \frac{nbt \cdot (B + IBG)}{t} = 2r$$

$$T_{cyl} = \frac{ntc \cdot TRK}{t} = \frac{ntc \cdot nrt \cdot (R + W)}{t}$$

$$t'_{cyl} = \frac{ntc \cdot nrt \cdot R}{T_{cyl}} = t \cdot \frac{R}{R + W}$$

$$s' = \frac{2r}{nrt} = \frac{T_{TRK}}{nrt} = \frac{R + W}{t}$$

$$t' = \frac{R}{\frac{R + W}{t} + s'} = \frac{R}{2 \cdot \frac{R + W}{t}} = \frac{1}{2} \cdot t \cdot \frac{R}{R + W} = \frac{1}{2} \cdot t'_{cyl}$$