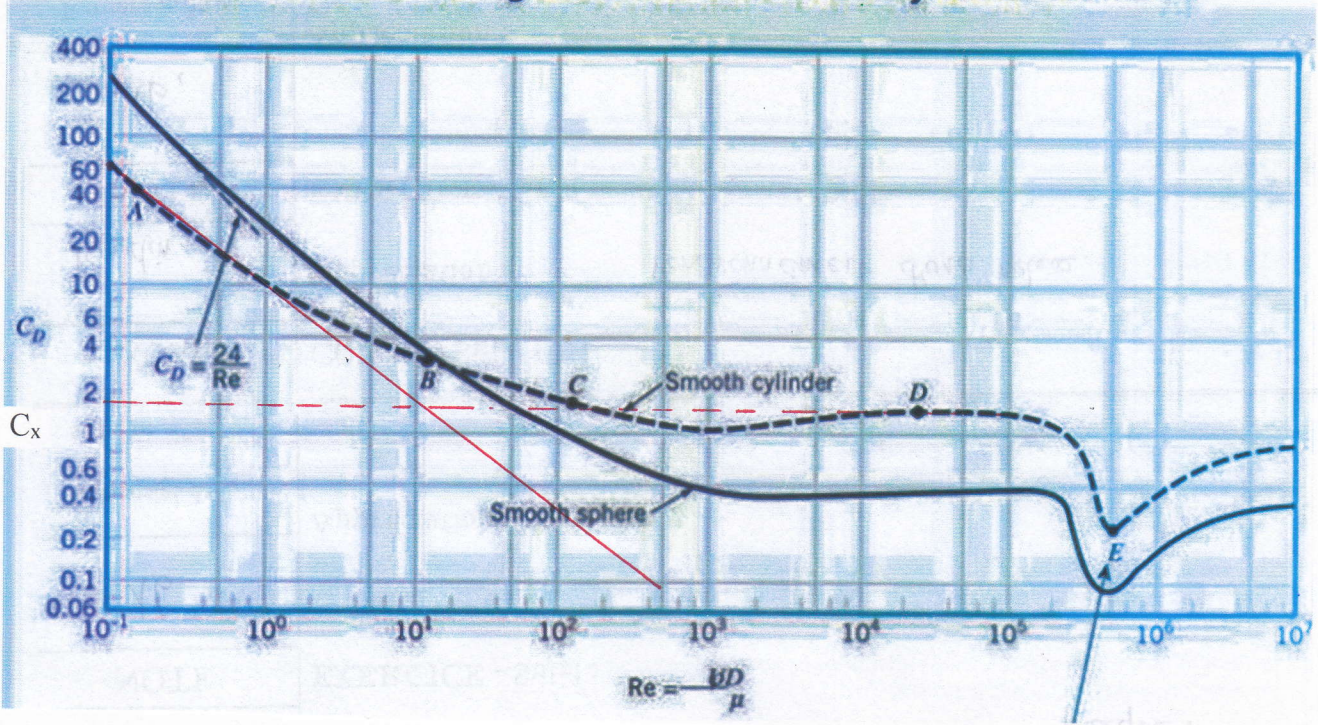


MFS16 - Coefficient de traînée d'un cylindre

Coefficient of Drag as a function of Reynolds Number



Pour $Re < 1$: $\log C_x = A + B \log Re$.

* $Re = 10^0 = 1$: $C_x = 10 \Rightarrow A = \log 10 = 1$

* Pente $B = \frac{\log(10/60)}{\log(\frac{10^0}{10^{-1}})} = -\log 6 = -0,8$

$\Rightarrow \log C_x = \log \frac{10}{Re^{0,8}} \Rightarrow C_x = \frac{10}{Re^{0,8}} = \frac{10^{1,0}}{10^{0,8} \cdot 10^{0,8}}$

$\vec{F} = 5 \left(\frac{\pi}{4} D^{1,2} \cdot 10^{0,2} \cdot U^{0,2} \vec{U} \right)$

Pour $10^4 < Re < 10^5$: $C_x \approx 1,6 \rightarrow \vec{F} \approx 0,8 \left(\frac{\pi}{4} D^2 \cdot U \vec{U} \right)$