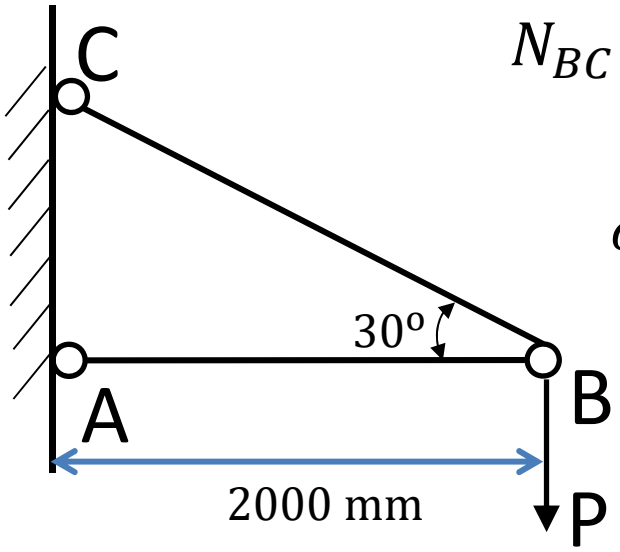
6-9一吊架如图所示，AB与BC两根直杆皆为圆形截面，圆杆直径d为40mm，AB长为2000mm，材料均为Q235-A钢，$[\sigma]=160$ MPa，$E=2\times10^5$MPa，稳定安全系数$[n_w]=4$。A、B、C均为铰链，试求此结构的许可载荷$[P_{max}]$。



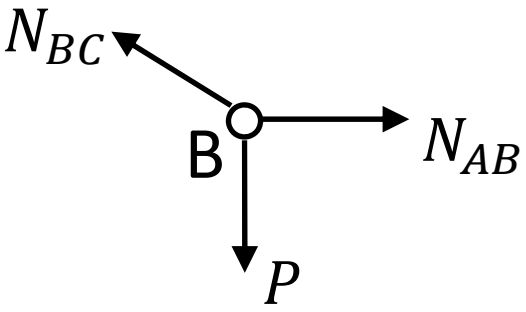
$$N_{BC}=P/\sin 30°=2P \quad N_{AB}=P/\tan 30°=\sqrt{3}P$$

$$\sigma_{BC}=N_{BC}/A=\frac{2P}{\pi d^2/4}\le[\sigma] \quad P\le 100530\ \text{N}$$

$$\lambda_{AB}=\mu l/i=\frac{1\times2000}{40/4}=200>\lambda_p$$

$$\sigma_{cr}=\pi^2E/\lambda^2=49.3\ \text{MPa}$$

$$[\sigma_{cr}]=\sigma_{cr}/[n_w]=12.3\ \text{MPa}$$



$$\sigma_{AB}=N_{AB}/A=\frac{\sqrt{3}P}{\pi d^2/4}\le[\sigma_{cr}] \quad P\le 8924\ \text{N}$$

$$\therefore [P_{max}]=8924\ \text{N}$$