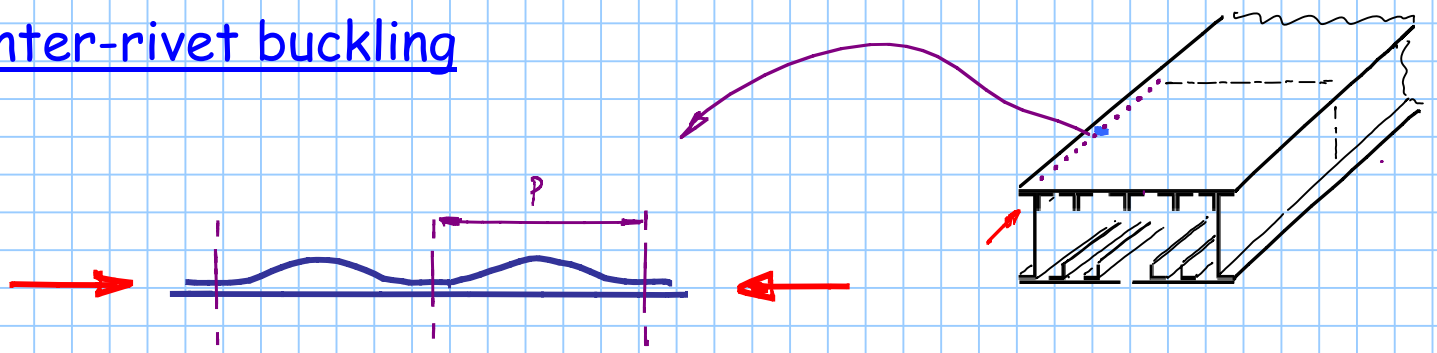
Inter-rivet buckling



Inter-rivet buckling can occur in the skin between rivets under compressive end loading.

Using an adaption of panel buckling methods we can check for this potential failure mode and design out by ensuring the rivet pitch p is sufficiently small.

Use: $\frac{\sigma_{IR\,CRIT}}{2} = K E \left(\frac{t}{p}\right)^2$ where: $K = \frac{\pi^2}{12(1-\nu^2)} c \approx 0.9c$ for $\nu = 0.3$

See APM

and: c = 4 for bolts
= 3 for solid protruding head rivets
= 1.5 for csk tension head rivets
= 1.0 for csk or dimpled shear head rivets

Use c = 1.0 for DBT pop rivets and compare with the applied compressive stress.