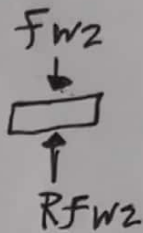
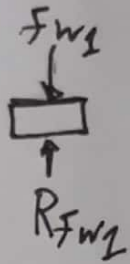


Shaft: S_1, S_2

The only force on the shafts is the weights
in this case: F_{w1}, F_{w2}



reactions: R_{fw1}, R_{fw2} | we need values of reactions only

~~assume~~ suppose $R_{fw1} = R_{fw2} = 12 \text{ kN}$ | $\leftarrow P$ To simplify
and shaft $= 75 \text{ mm}$

we will use SKF catalog to

and suppose single ball bearings for high temperature
Application
we assume that the legs are symmetrical, and snat
and shafts
represent the joints in this case

if we want to calculate the lifetime of the bearing by
the number of revolutions we will use $L_{10} = \left(\frac{C}{P}\right)^3$, where C is
dynamic factor

$$L_{10} \left(\frac{76.5 \times 10^3}{12 \times 10^3} \right)^3 = 259.08 \text{ million revolutions}$$

by number of hours: $L_{10h} = \frac{10^6}{60h} L_{10}$, where h is number of revolutions
let $h = 360 \text{ rpm}$, $L_{10h} = \frac{10^6}{60 \times 360} L_{10} = 11994.4 \text{ hour}$