

- Equipment weight:11T
- Maximum load:10T
- Hydraulic cylinders + frame:2.65T
- Auxiliary beam+guide rails :2.85T
- Cabin weight:4T
- Horizontal auxiliary beams:0.15T
- $F_n = mg = (11+10)T * 10N/kg$
=210kN
- Bearing capacity required by the ground needs to be $\geq 210kN$
- When equipment is fully loaded it tends to exert vertical downward forces on the ground at two main reaction points along the guide rails. Since reaction forces are approximately the same on both sides, calculating

$$R_2 = R_1$$

-The vertical reaction force R2 need to meet the following conditions:

About point 1

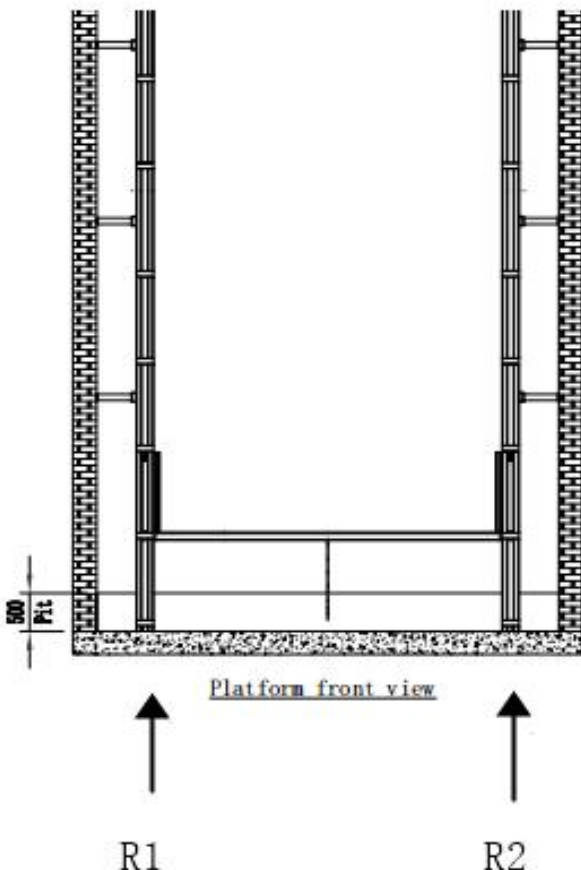
$$R_2(5.72) \geq 27.5(5.72) + 155(2.86)$$

$$R_2 \geq 600.6 / 5.72$$

$$R_2 \geq 105kN$$

The force on each guide rail exerted on the ground is $\geq 105kN$. There are 2 guide rails supporting each side of the lift, therefore the force on exerted on the ground $\geq 210kN$

The concrete cushion below should be able to sustain this amount of force to have a safe and reliable use of this elevator.



A more detailed representation of three orthogonal views showing the bearing points of the Cargo lift on the ground

