

Each robot is 60.5g.

The robot may unattached from the surface due to not enough magnetic force or static friction and hit the wall.

The kinectic energy that unattached robot has is:

The wall is 1/8’’ thick Clear Impact-resistant Polycarbonate.

Then the impact .

The impact strength of Polycarbonate is  *.*

There are 4 M6 screws used for fixing the Steel plate. M6 screws stress area: . The shear strength is about 42,000psi, which give us: 42000\*0.031\*4=5,208lbs=23,166N.

. The safety factor is 23,166/246.96=93.8.