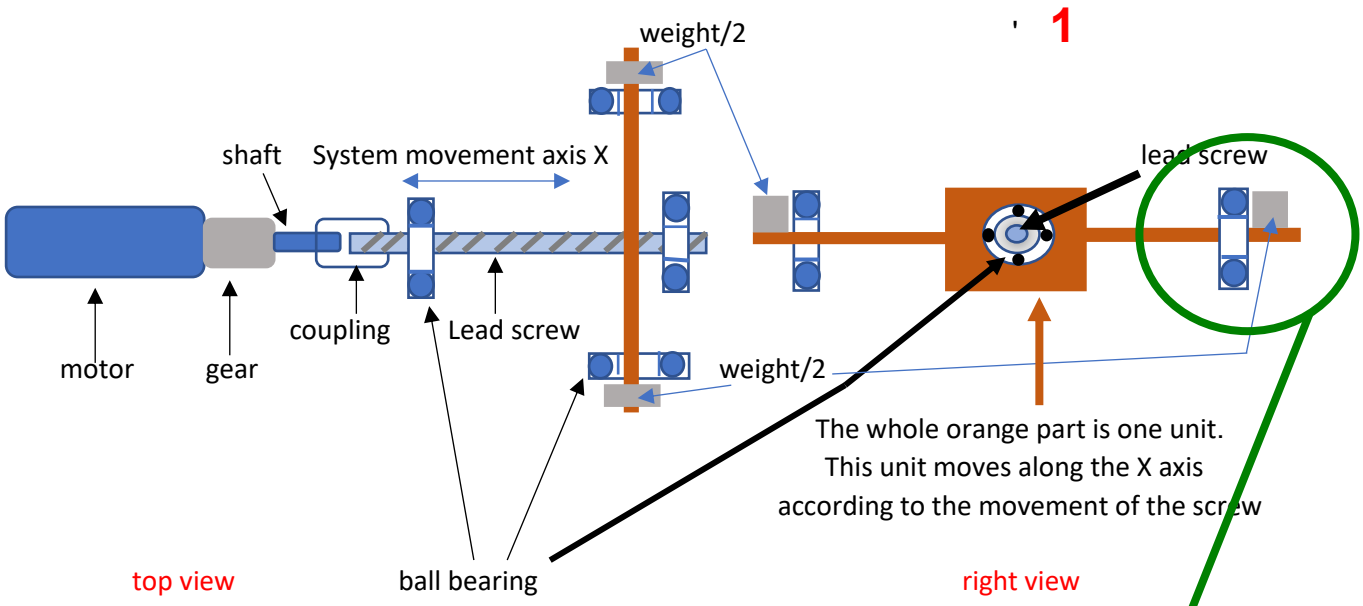
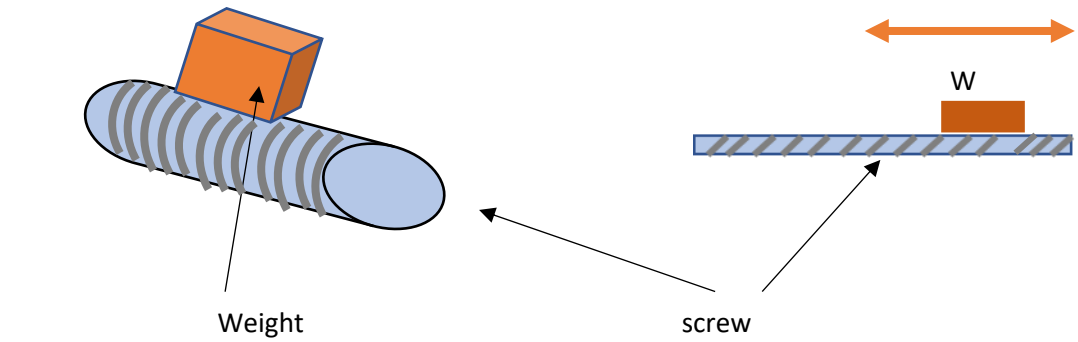


The orange part don't rotate around the screw .

it's moved only at axis X . The screw attracts and reject it

How do I calculate the moment inertia .when the system is this (#1) ?

view detail in the second page



The weight moves along the X axis it's don't rotate with the screw

The system moment inertia is : $J_t = J_{screw} + J_{weight}$

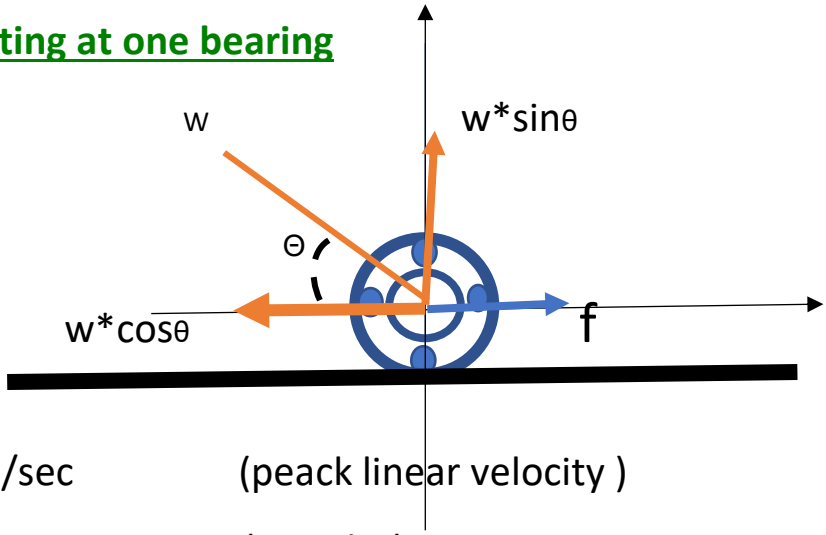
J_{screw} from datasheet

$J_{weight} = m * (L/(2*pi))^2$

w= weight [Kg]

L= lead screw [m] from datasheet

Diagram of forces operating at one bearing



Vpk= 3S/(2t) =0.0375 m/sec (peack linear velocity)

W=5 kg (weight)

m=5(Kg)*9.81(m/sec^2)= 50N (mass)

μ= 0.15 - 0.09 (friction coefficient)

Lscrew= 0.0127 m (LENGTH lead screw 1 ONE REVOLUTION)

ω1 = 200.0000 rev/min (screw angular velocity)

ω 2 = ω1*2*pi/60= 20.9440 rev/sec

t1= 2.6667 sec (acceleration time)

a= Vpk/t1= 0.0141 m/sec^2 (linear acceleration)

α= a*2*pi/lscrew = 6.9573 rev/sec^2 (angular acceleration)

ΣFy=0 w*sinθ*g=N

ΣFx=m*a w*cosθ - f =ma

f= μ*N = μ* w*sinθ*g

w*cosθ - μ* W*sinθ*g =ma

w* cosθ =m*a+ W*g*μ*sinθ =50*a+ 50* 0.1*sinθ

" w* cosθ " Is it the weight component that the power screw feels

And the total inertia is :

Jt=Jscrew + Jweight= Jscrew + (w* **cosθ***Lscrew/(2*pi))=Jt