winch diameter $r_{cyl} := 6mm$

winch cog pitch diamater $r_{wheel} := \frac{130mm}{2} = 65 \cdot mm$

drive cog pitch diamater $r_{cog} := \frac{7.8mm}{2} = 3.9 \cdot mm$

angle per cog step $ang_{cog} := 1.8deg$

wheel angle per cog step $ang_{wheel} := ang_{cog} \cdot \frac{r_{cog}}{r_{wheel}} = 0.108 \cdot deg$

cable displaced per cof step $disp_{cyl} := \pi \cdot 2 \cdot r_{cyl} \cdot \frac{ang_{wheel}}{360deg} = 11.31 \cdot \mu m$

number of steps per mm $step_{mm} := \frac{1mm}{disp_{cyl}} = 88.419413$

range of total displacement $\frac{28deg}{ang_{wheel} \cdot step_{mm}} = 2.9322$

Spring rate - non-stainless
0.3mm wire, 3mm OD, 40mm length, 13 total coils (11 active coils)
[ref. https://www.acxesspring.com/compression-spring-calculations.html] $k := 0.371 \frac{N}{mm}$

PTFE coefficient friction $\mu := 0.1$

Contact angle $\phi := 90deg$

$T_{hold} := 1N$

$T_{load} := T_{hold} \cdot e^{\mu \cdot \phi} = 1.17\,N$

difference in force can then be used to evaluate the stretch in the wire between pulling and releasing (backlash). In combination with the stiffness of the lever mechanism