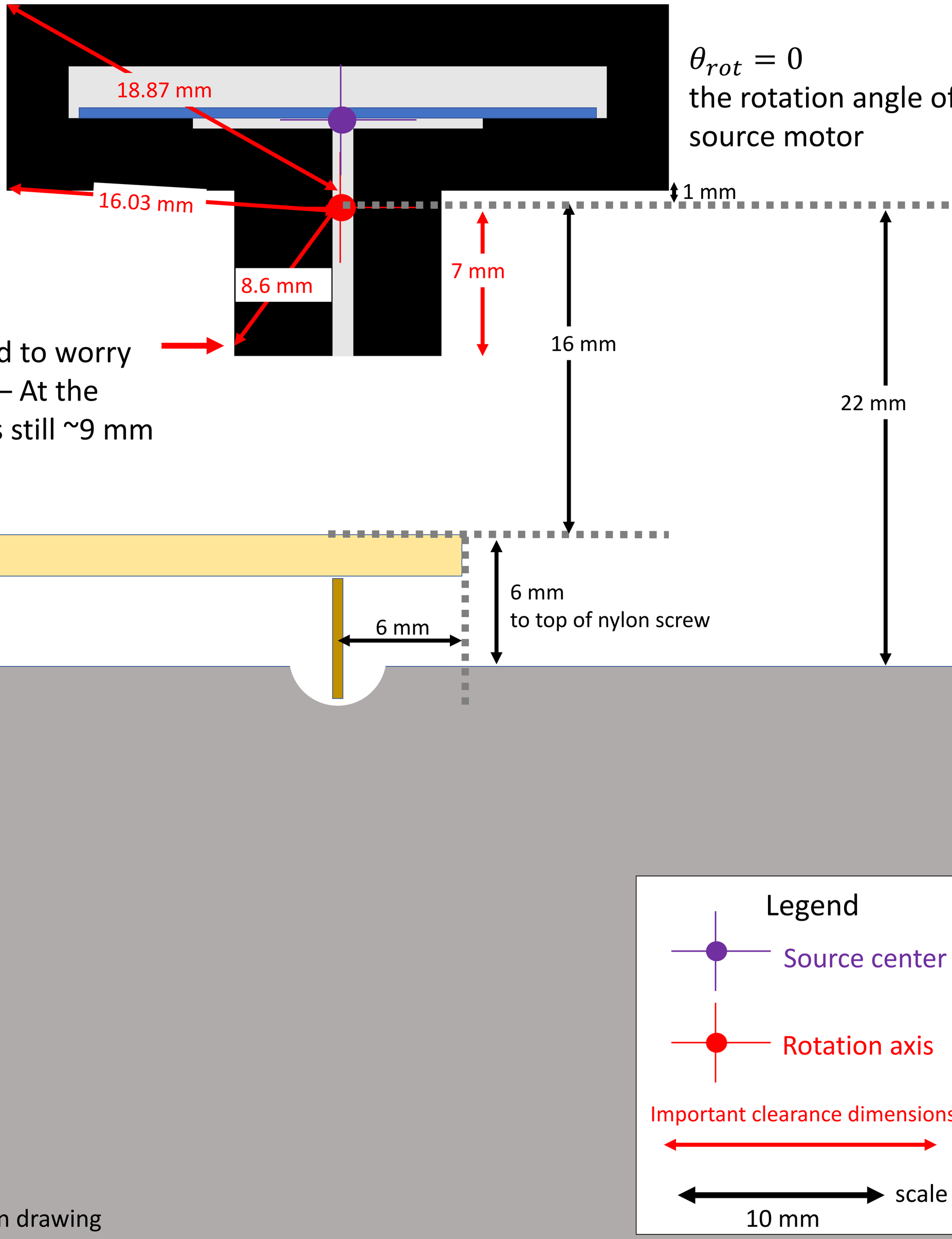
Collimator clearances and rotation: OPPI



Scale: 1 mm real life = 1 cm in drawing

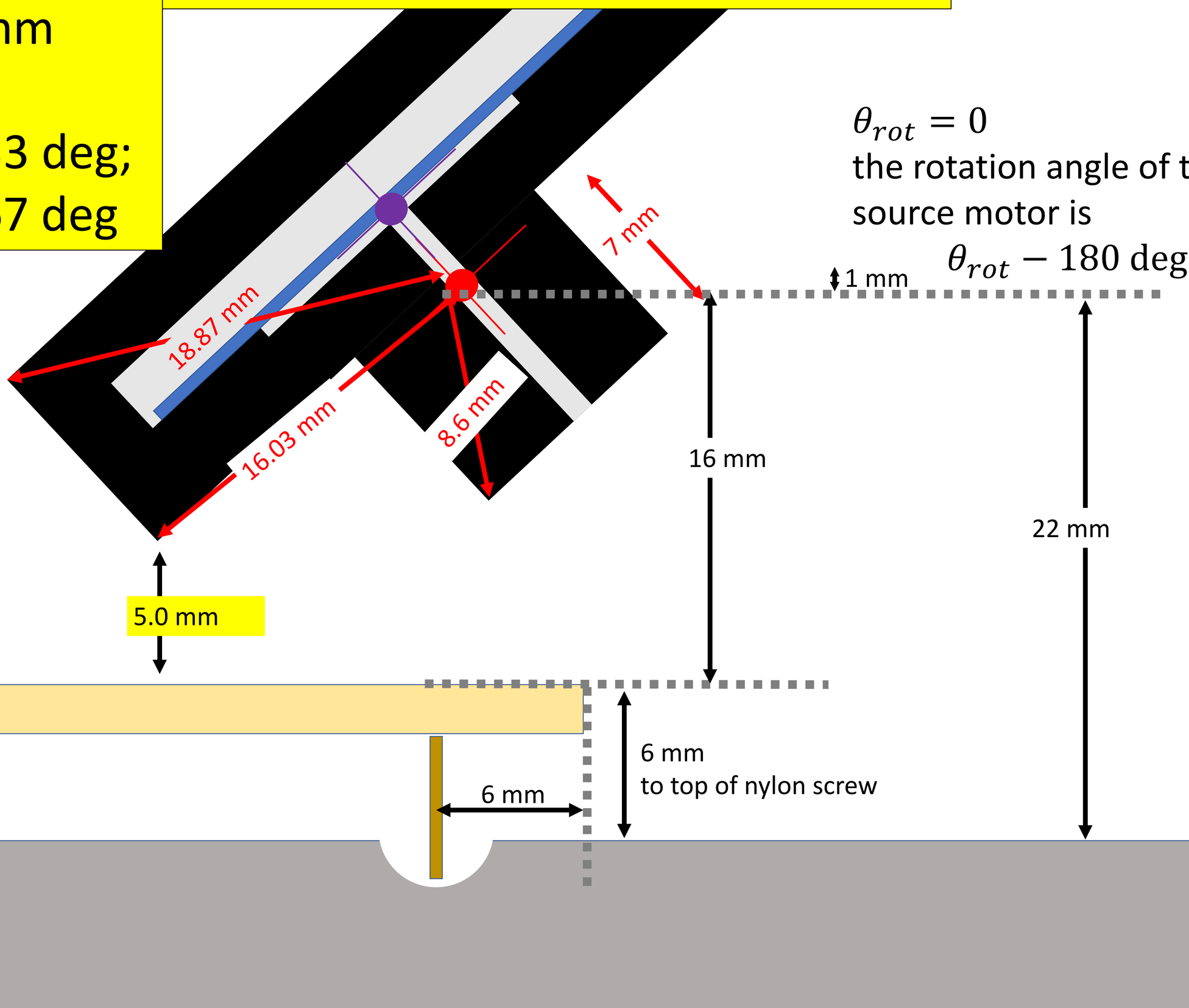
Collimator clearances and rotation: OPPI

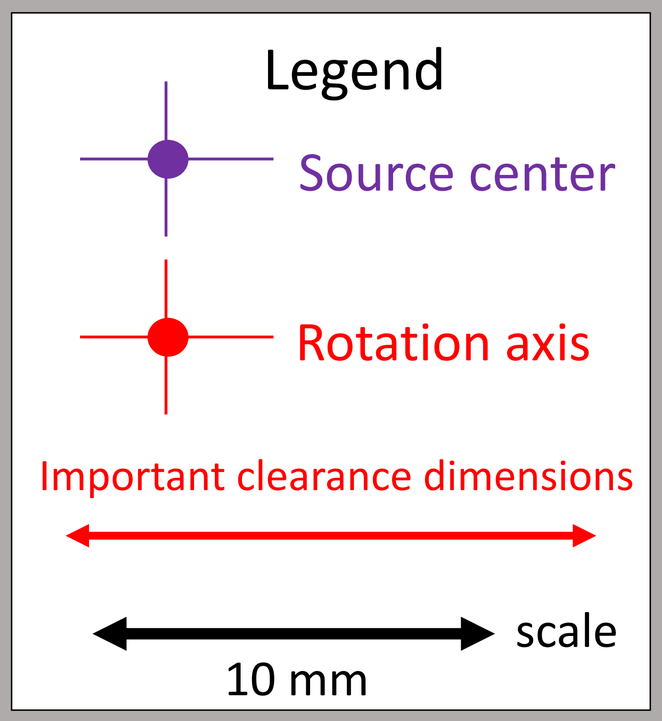
To maintain 5 mm clearance:

θ_{rot_max} = 43.33 deg;

θ_{det_min} = 46.67 deg

Calculated using maxRotation() function within ~/CAGE/sims/source_placement.py





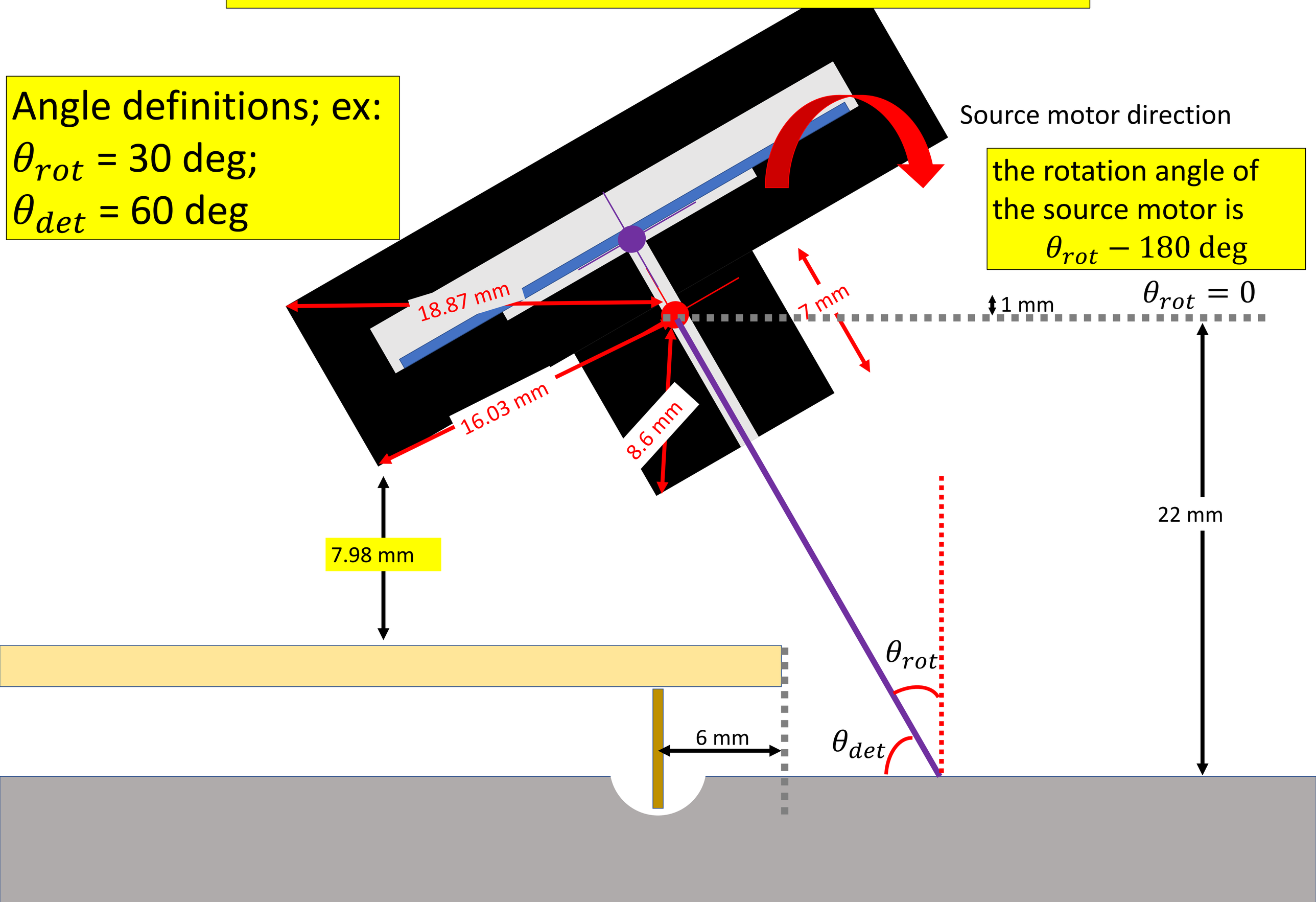
Scale: 1 mm real life = 1 cm in drawing

Angle definitions

Angle definitions; ex:
θ_{rot} = 30 deg;
θ_{det} = 60 deg

Source motor direction

the rotation angle of the source motor is $\theta_{rot} - 180$ deg



Scale: 1 mm real life = 1 cm in drawing

Legend
Source center
Rotation axis
Important clearance dimensions
scale
10 mm

Angle definitions: Parked on limit switch -- zero source

Angle definitions; ex:
θ_{rot} = 180 deg;

Source motor direction

the rotation angle of the source motor is
$\theta_{rot} - 180$ deg

$\theta_{rot} = 0$

7 mm

16.03 mm

1 mm

18.87 mm

22 mm

6 mm

6 mm

Linear motor travel

Legend

Source center

Rotation axis

Important clearance dimensions

scale

10 mm

Scale: 1 mm real life = 1 cm in drawing

Angle definitions:
--move source -90

θ_{rot} = 90 deg;
θ_{det} = 0 deg

Source motor direction

the rotation angle of the source motor is $\theta_{rot} - 180$ deg

$\theta_{rot} = 0$

7 mm

1 mm

22 mm

18.87 mm

16.03 mm

6 mm

Linear motor travel

Legend

Source center

Rotation axis

Important clearance dimensions

scale

10 mm

Scale: 1 mm real life = 1 cm in drawing

Angle definitions:
--move source -150

θ_{rot} = 30 deg;
(-150 deg source motor)
θ_{det} = 60 deg

Source motor direction

the rotation angle of the source motor is $\theta_{rot} - 180$ deg

18.87 mm

16.03 mm

8.6 mm

7 mm

1 mm

$\theta_{rot} = 0$

22 mm

7.98 mm

6 mm

θ_{rot}

θ_{det}

Legend

Source center

Rotation axis

Important clearance dimensions

scale

10 mm

Scale: 1 mm real life = 1 cm in drawing

Angle definitions: -180 (centered) --center source

θ_{rot} = 0 deg;
(-180 deg source motor)
θ_{det} = 90 deg

Source motor direction

the rotation angle of the source motor is
$\theta_{rot} - 180$ deg

18.87 mm

16.03 mm

8.6 mm

1 mm

$\theta_{rot} = 0$

7 mm

16 mm

22 mm

Don’t really need to worry about this point– At the lowest point, it’s still ~9 mm above the LMFE

6 mm

6 mm
to top of nylon screw

Linear motor travel

Legend

Source center

Rotation axis

Important clearance dimensions

scale
10 mm

Scale: 1 mm real life = 1 cm in drawing

Angle definitions: -205 (max)
--move source -205

θ_{rot} = -25 deg;
(-205 deg source motor)
θ_{det} = -65 deg

Source motor direction

the rotation angle of the source motor is
$\theta_{rot} - 180$ deg

18.87 mm

16.03 mm

8.6 mm

7 mm

mm

$\theta_{rot} = 0$

16 mm

22 mm

Don't really need to worry about this point– At the lowest point, it's still ~9 mm above the LMFE

6 mm

6 mm
to top of nylon screw

Linear motor travel

Legend

Source center

Rotation axis

Important clearance dimensions

scale

10 mm

Scale: 1 mm real life = 1 cm in drawing