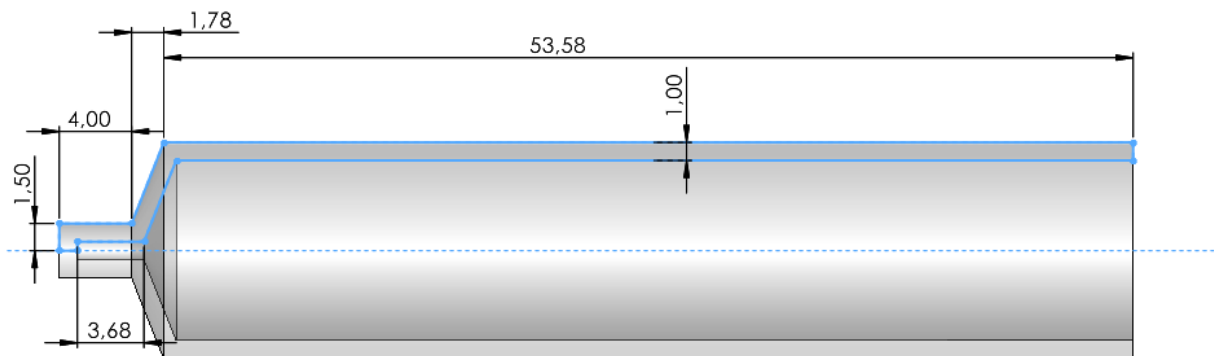


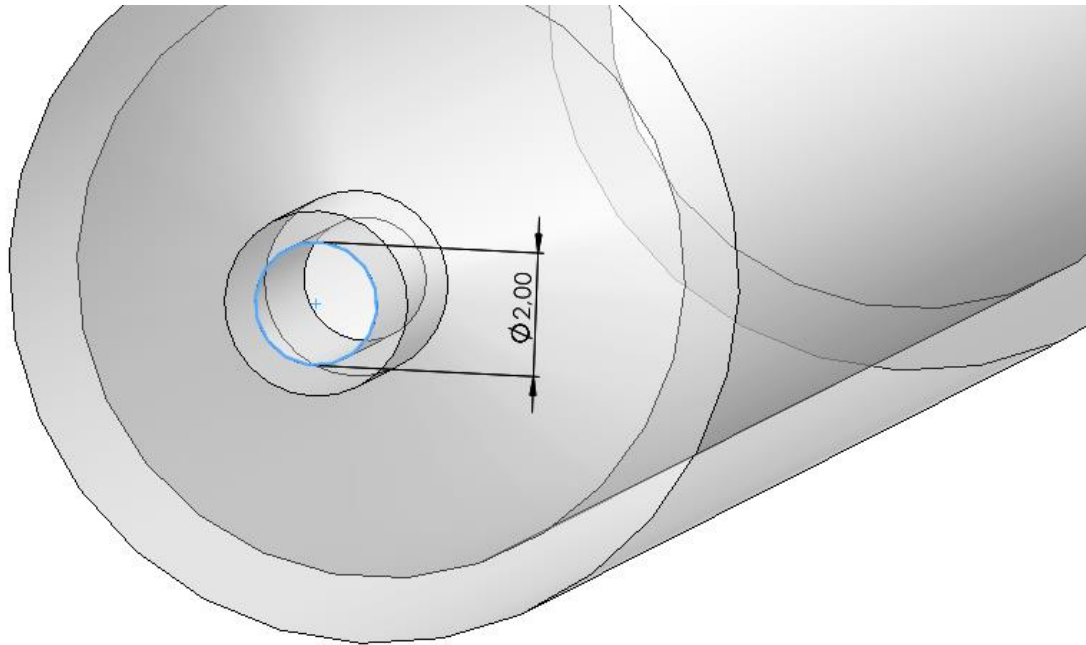
Syllabus of the practical part:

1. syringe body
2. syringe plunger
3. syringe assembly
4. connecting rod body
5. piston head
6. pin for connection
7. engine piston assembly

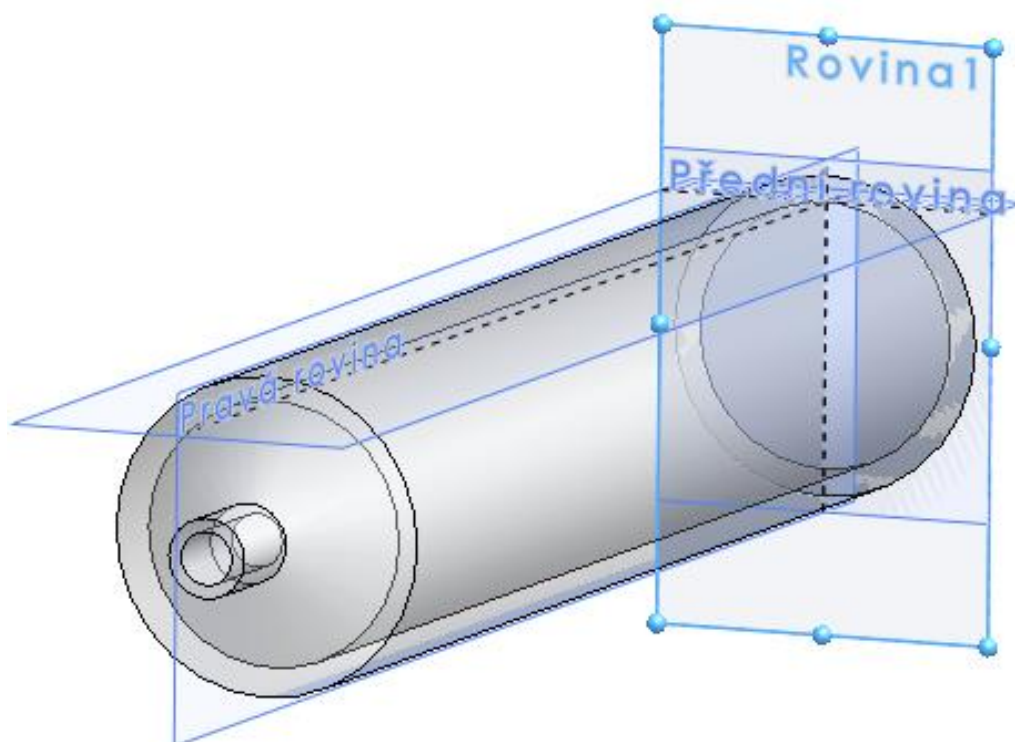
1.1 Draw a sketch of half of the peripheral wall of the syringe and rotate the element around the central axis you have created.



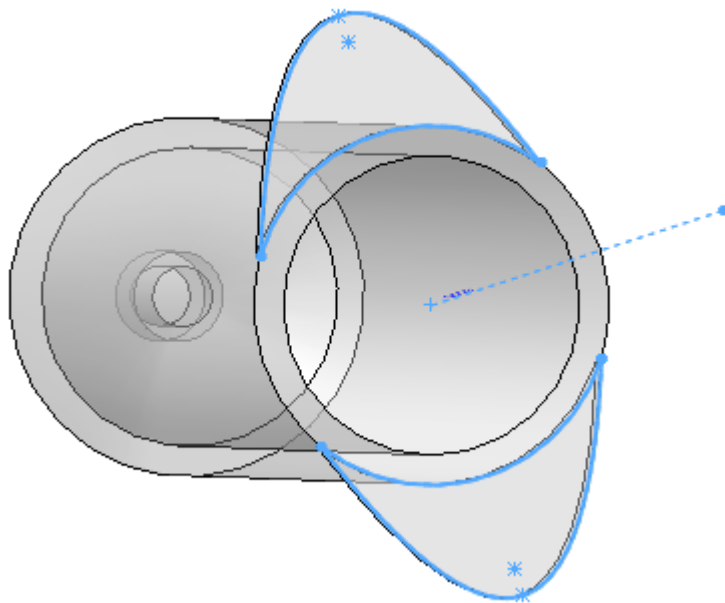
1.2 draw a sketch of a circle at the mouth of the syringe and remove by cut the base. TIP: try to draw the syringe in such a way that you don't have to pull it out.



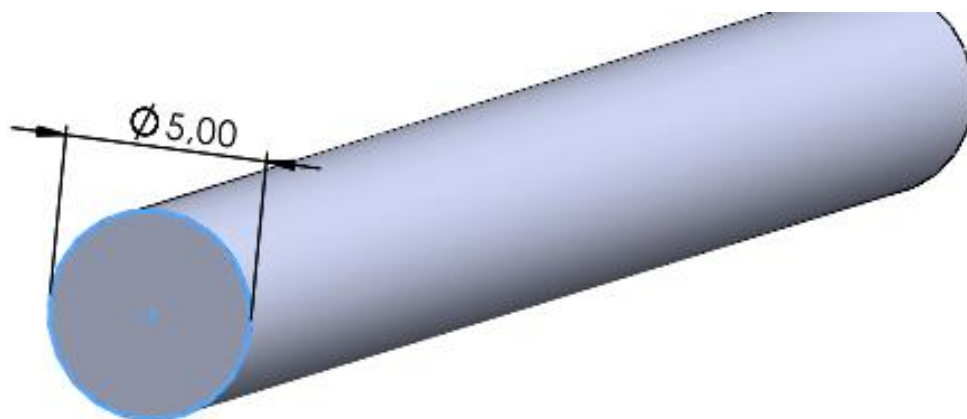
1.3 Add a reference plane to the top of the syringe.



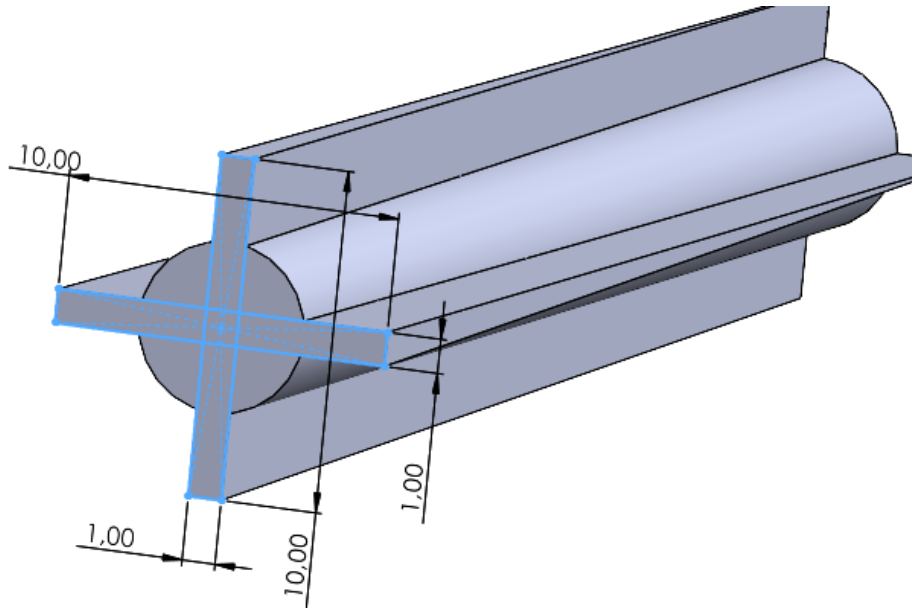
1.4 Draw a sketch that will copy the shape of the finger support. Use mirroring.



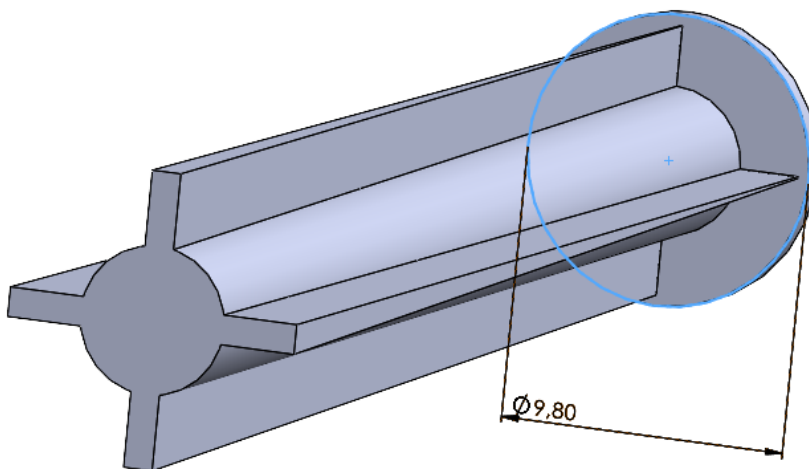
2.1 draw a circle sketch and add by extruding.



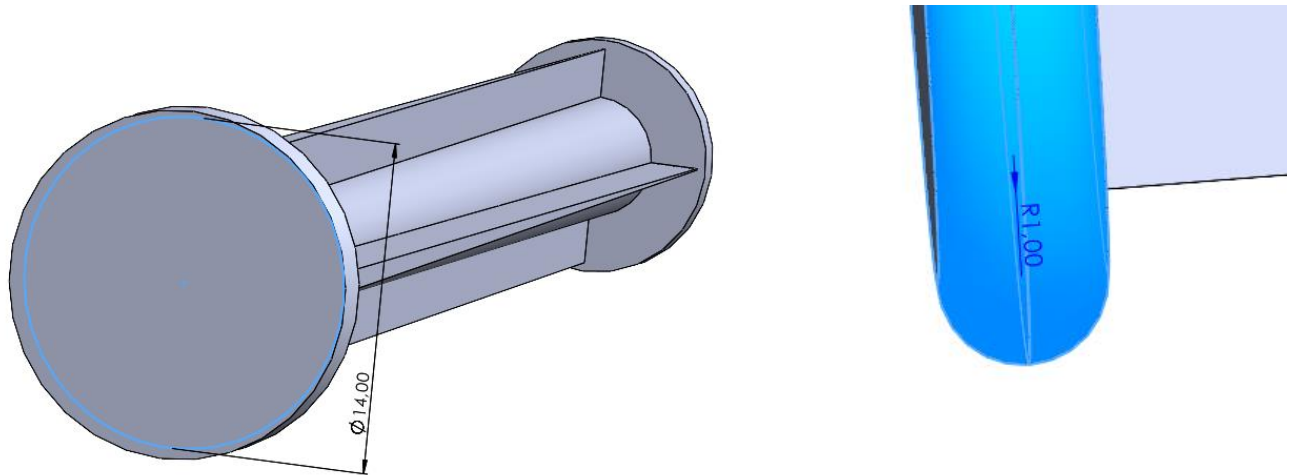
2.2 Draw a sketch of a cross using two rectangles. TIP: try using a different tool to draw the slime sketch. Add an extrude and a 45° bevel.



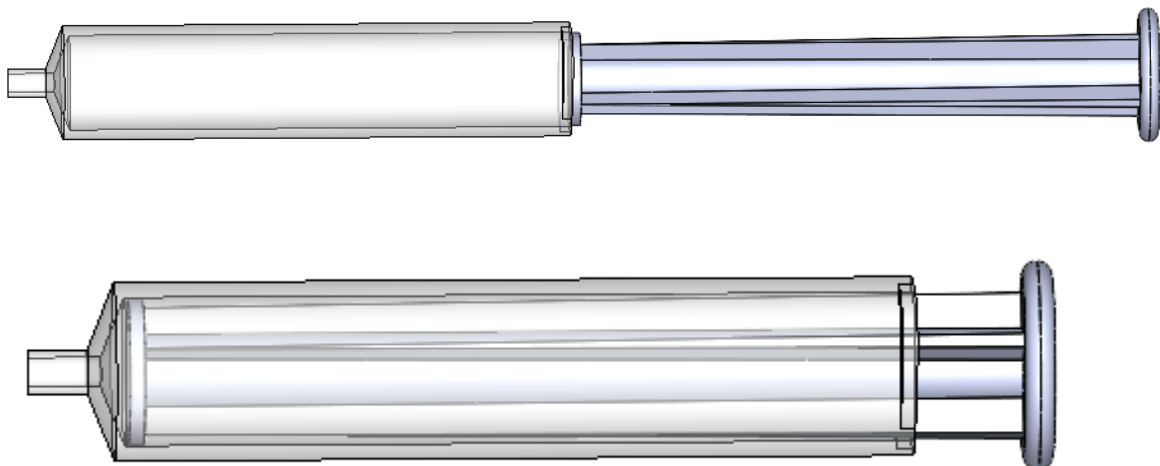
2.3 Draw a circle sketch and add by extruding. This creates a support under the thumb.



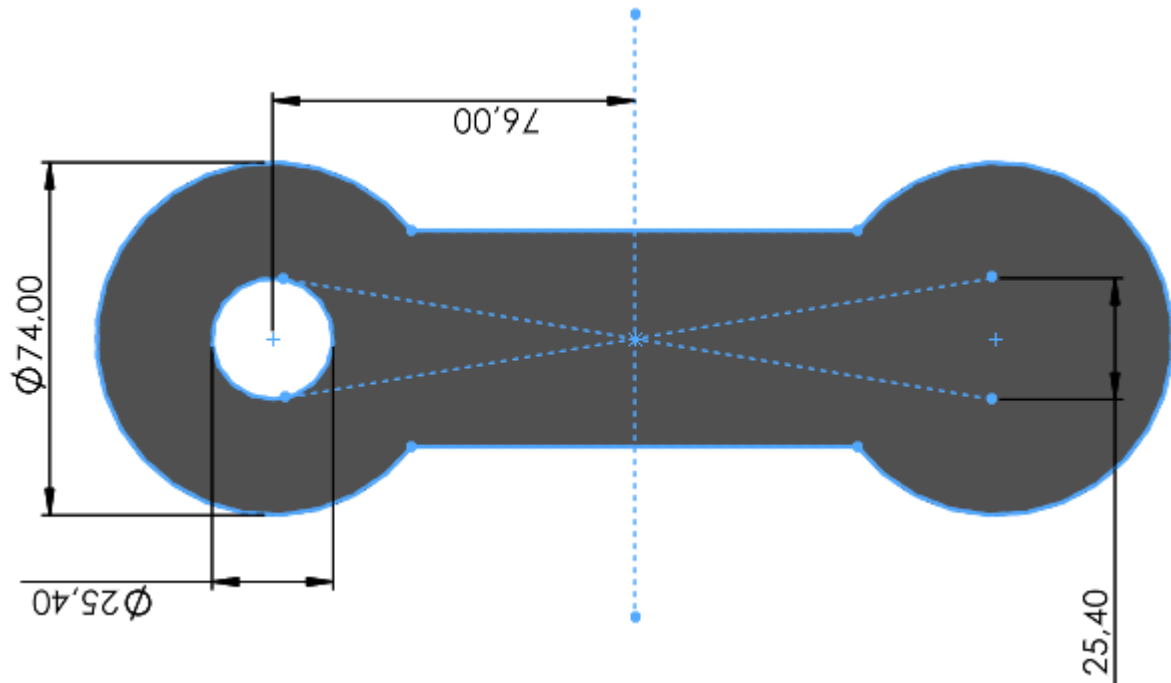
2.4 Create the piston pressure head. For your model, it will be the same size as the inside diameter of the syringe body. Round the element.



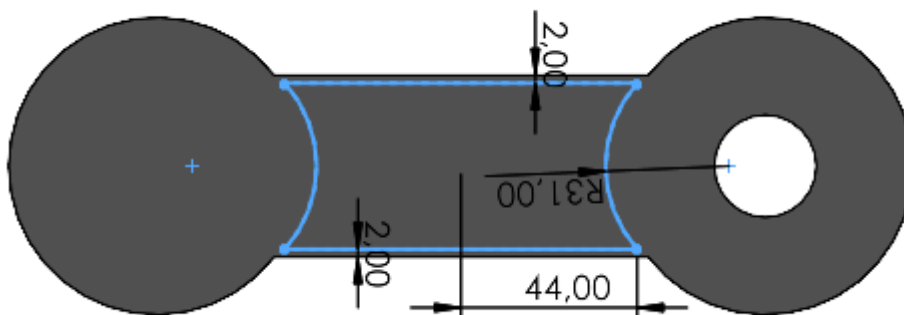
3.1 Create an assembly with both elements. Define the concentric bond and then limit the piston movement distances so that there are no overlaps, check this in the data analysis. TIP: change the dimensions of the syringe so that the element can be marked out and the assembly is functional (it was possible to insert the piston into the syringe and at the same time there was no leakage of the filling outside the exit hole).

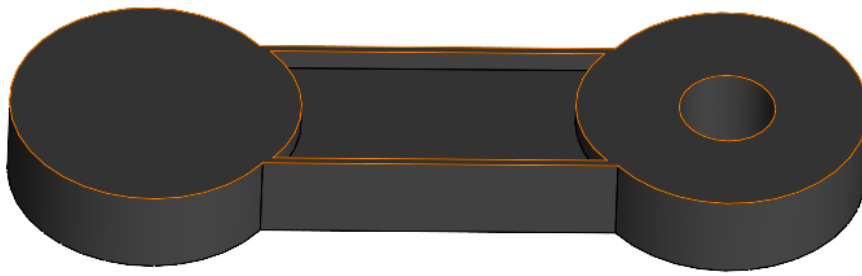


4.1 Connecting Rod - Draw a sketch of the connecting rod body shape and add 24mm by extruding it. TIP: Use mirroring.

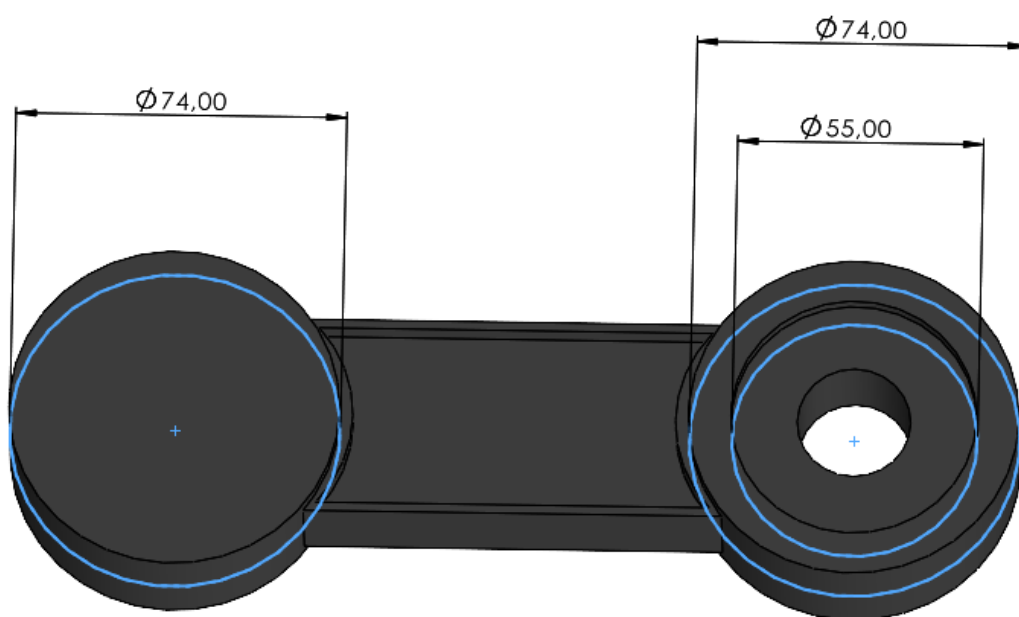


4.2 Draw a sketch of the extrusion and remove by pushing out 6 mm. Mirror the press on the other side of the connecting rod as well.

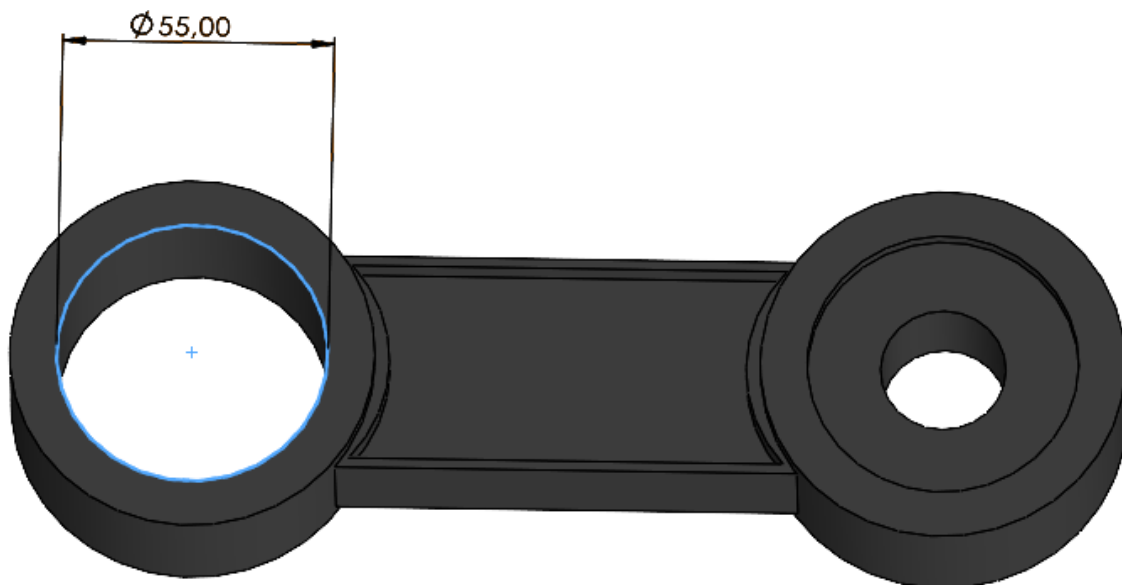




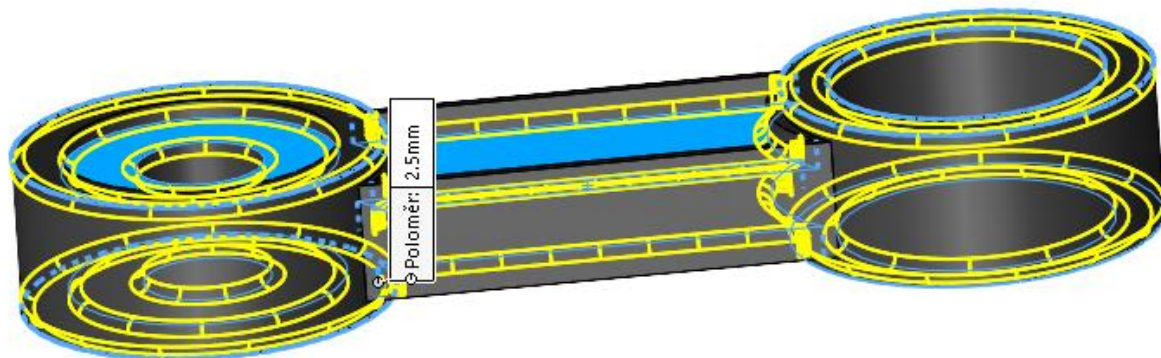
4.3 Draw sketches of concentric circles with the original sketch and add by extruding.



4.4. Draw a concentric crossbones sketch in the lower solid part of the connecting rod and remove by sliding through everything.

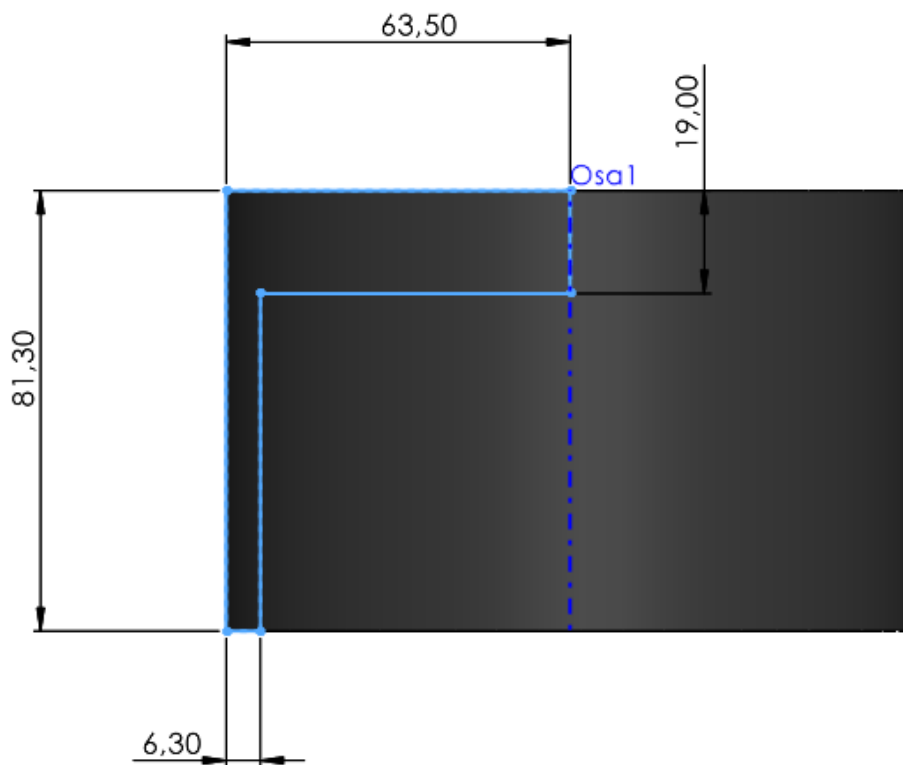


4.5 Round all outer edges with a radius of 2.5 mm.

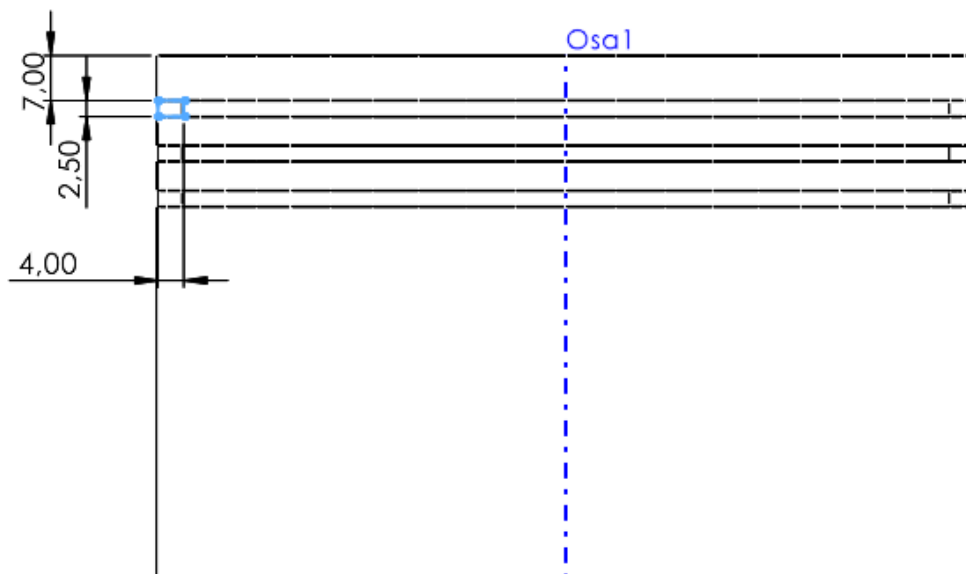




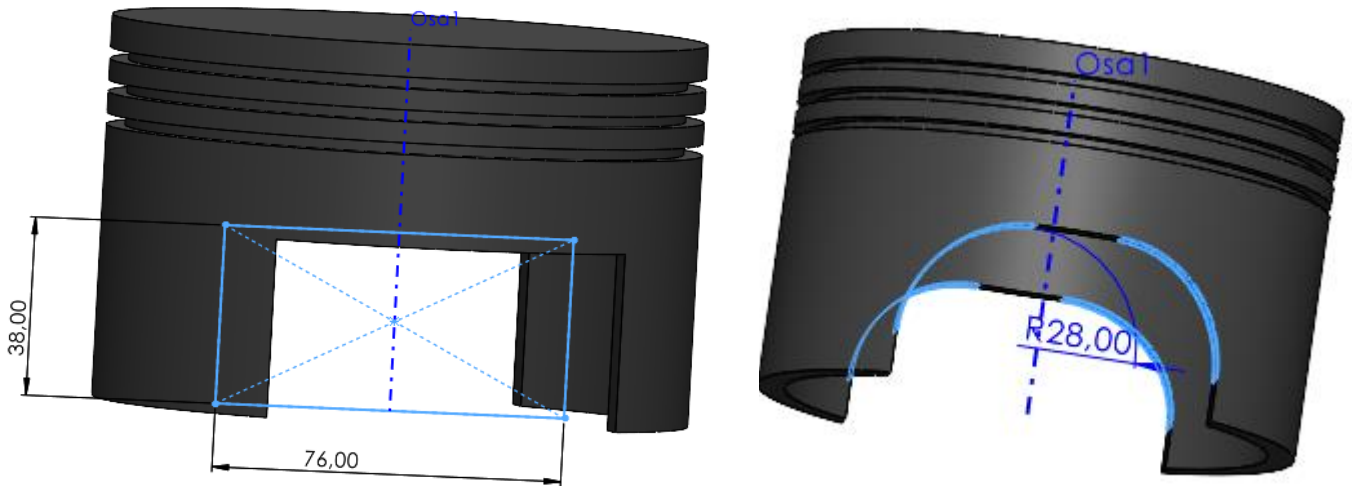
5.1 Draw a sketch for the basic outline of the piston head and add rotation around the inserted reference axis.



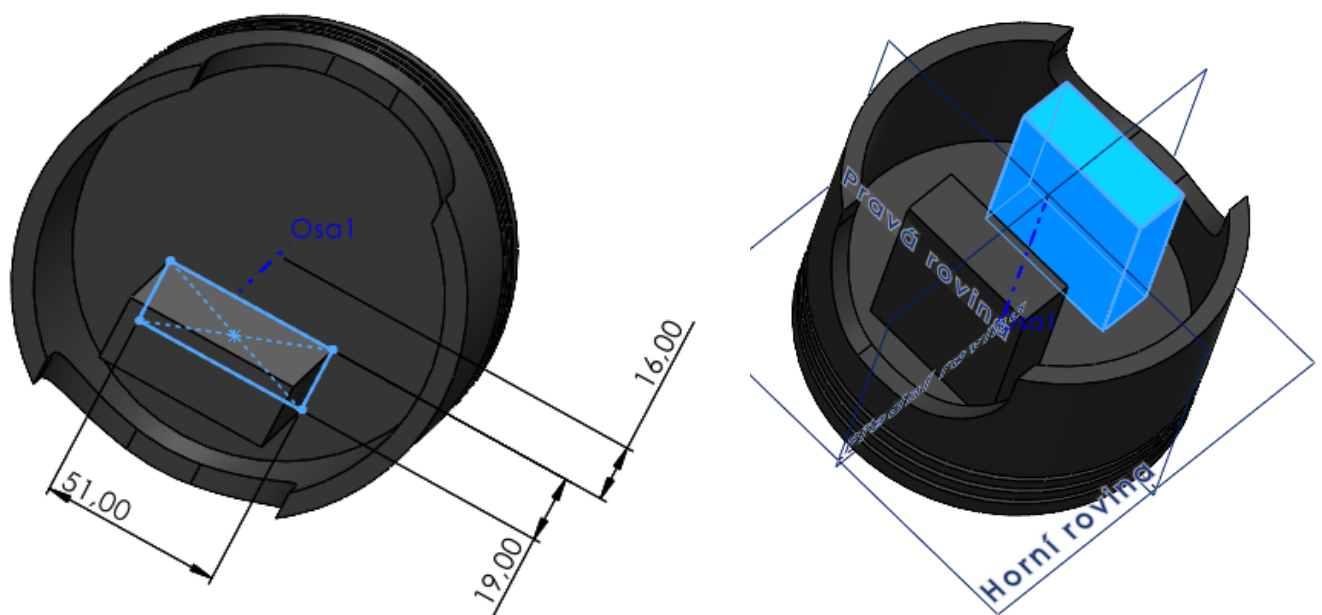
5.2 Sketch a sketch of the rectangle in contact from the side of the piston head. Remove by rotating around the prepared reference axis. Then add two more grooves using a linear array with a spacing of 7 mm.



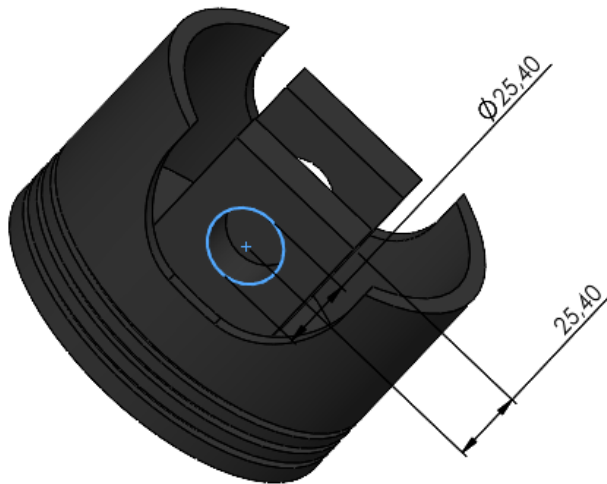
5.3 Draw a rectangle centered on the axis in the new sketch. Remove the inside of the piston head by rotating it. Round the entrance edges with a radius of 28 mm.



5.4 draw a sketch of the rectangle asymmetrically from the central axis. Mirror this element around the right plane.



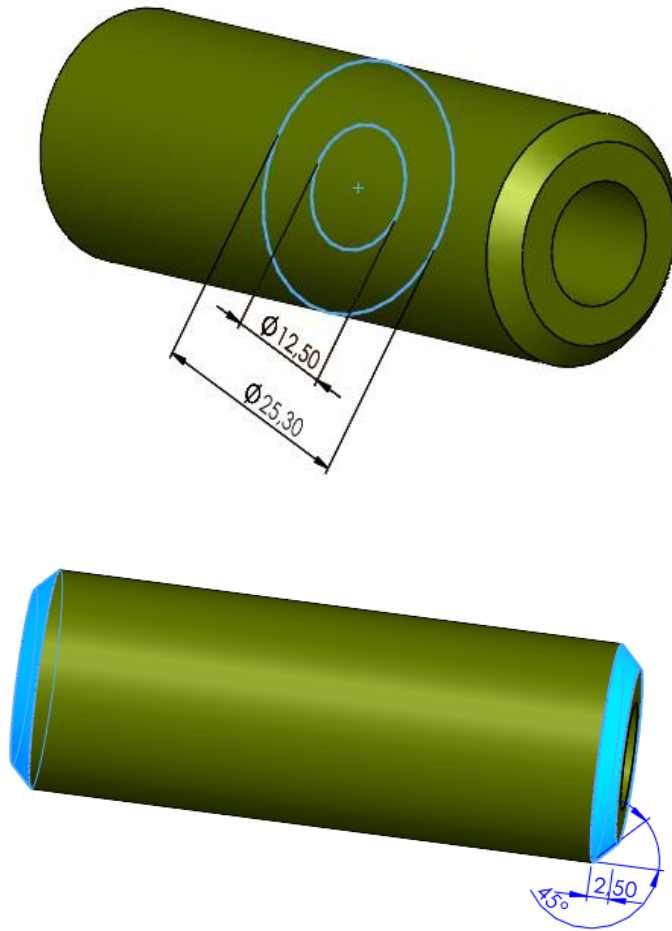
5.5 Make a circular hole in the struts prepared in the previous step.



5.6 Round the edges.



6.1 Sketch the two centers of the circles and add 70 mm by extension. Bevel the bottom and top surfaces of the hollow cylinder.



7.1 Assemble the piston and limit the range of motion in the assembly so that there is no overlap. Check for zero overlaps in the data analysis.

