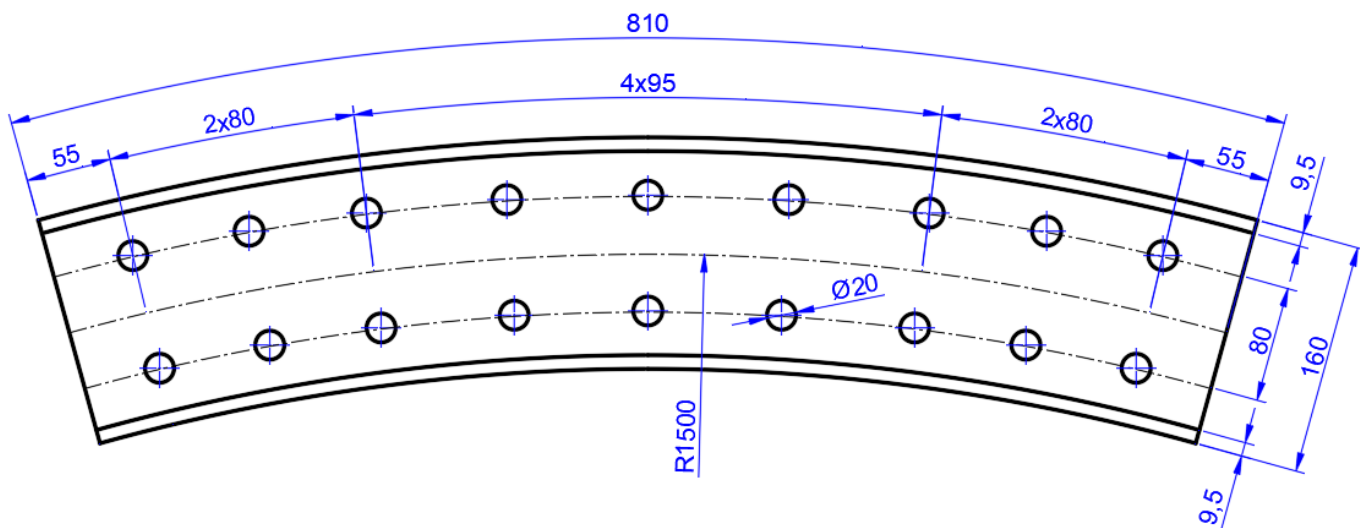


Exercise no 6

6.1. Curved beam

1. Draw left half of the beam axis (middle arc) with radius 1500 using ARC (START, CENTER, LENGTH) – start from the point in the center of the beam and specify the length of chord not less than 405 units (draw the arc in a counter-clockwise direction). Subsequently, draw a point in a distance 405 from the right end of the drawn arc along this arc (use MEASURE command). BREAK AT POINT and DELETE unnecessary objects. As a result, the arc with a length of 405 is obtained.
2. OFFSET the arc to both sides at 40 and 80 units. OFFSET the outer arcs inwards by 9.5. On the left end draw a line to close the beam.
3. On the beam axis (middle arc), using MEASURE command, draw points in a distance 55 from the left end along the arc. Draw lines starting at the first (from the left) point obtained and perpendicular to the nearest arcs. Use BREAK AT POINT command to cut the middle arc at the first point. Delete the remaining points.
4. Similarly, for the shortened beam axis repeat the instructions from the previous step, assuming the distances for the new points 80 and 95 respectively. Leave two new points for each case and delete remaining ones.
5. At the intersection of the drawn lines and the inner arcs (without the beam axis), draw circles with a diameter of 20. Add center marks to the circles.
6. Mirror the beam across the vertical axis of symmetry.
7. Dimension the drawing as shown below. Draw dimensions along the length of the beam as the angular ones and then overwrite the dimension texts. The beam contour and the openings should be drawn with line 0.7, other lines and dimensions with line 0.18. Trim or delete unnecessary lines. Set the beam axis LINETYPE as CENTER and scale it to 0.1 (LTSCALE command). JOIN middle arc.



6.2. Stained glass structure

Draw the stained glass structure as below. Begin with drawing arcs, circles and lines with given coordinates – as in the picture to the right. (**Attention:** please switch off DYNAMIC INPUT). Draw the column capital as rectangle and FILLET it with R=2. Draw the arcs below (R=25) using the same command. Copy the objects drawn using ARRAY, MIRROR, COPY and OFFSET commands. Apply the TRIM, ERASE and FILLET commands to remove the superfluous lines.

