A circular plane of 60 mm diameter has its surface perpendicular to HP and making an angle of 30\* with VP. Its center is 40 mm above HP and 20 mm in front of VP. Draw its projections

Step 1

Set the screen Limits in mm with 420,297 as upper right corner measurement. Zoom -Auto should be ON along with ORTHO and OSNAP.

Step 2

Set the Dimensioning style.

Choose Dimstyle, go to Modify and click. Choose Symbol and Arrow. Because we are in mm, increase the Arrow size to 7. Go to Text and change the Text height to 10 and 7, Text Placement in Vertical as above, Off set from dim line to 3.0, and then Text alignment as Aligned with dimension line (in line with IS specification).

Step 3

Use Line command to draw XY line.

Since it makes angle with VP and perpendicular to HP, we start with Front view and Top view projections of the circle considering it is parallel to VP and perpendicular to HP with center 40 mm above XY line.

Choose Circle with Center (above 40mm) and Radius (30 mm). Draw a horizontal radius line.

Go to Modify and then to Polar Array. Use Array command. Select Object as radius line and specify center point as the Center of the circle. By default, it is 6. Increase the no of items to 8, by default the angle between Arrays becomes 45\*.

Step 4

Identify the points as 1 to 8.

Process of identifications- Using Autoincrements steps.

Use Single line Text with appropriate size, say 10 and write 1.

Use Copy command to drag 1 to all the 8 points on the Circle.

Select all the 1s serially (in the order autoincrements is wanted).

Use TCOUNT command. Sort selected objects by Select-order, Use start and increment with 1,1 and Placement of number with Overwrite. Numbers 1 to 8 come.

Step 5

Use Text command and make Text height as 10 to draw (‘).

Copy (‘) and use as suffix to identify the points 1 to 8 with (‘) as suffix for Front view.

Step 6

Since the Center is 20 mm in front of VP, draw a line parallel to XY at a 20 mm distance. Draw projections from 1’ to 8’ to intersect the line. Identify the points 1 to 8. This is the Top view of the circle.

Step 7

Go to Properties, change the color from White to Red. Draw a line 1 to 7. Copy the Top view 1 to 5 including the part 1 to 7 with Red and paste on the same line on the right.

Use Rotate command and base point as 3,7 (center) and provide Rotation angle as (-) 30\*. The Red half will show. Copy this and extend the line for the second half. Identify the points with center as 3,7.

Step 8

Draw projections for Front view. Draw projectors from the Circle and identify the new 1’ to 8’.

Use Spline command to get the Ellipse as the projection on the Front view.