

Double Curvature Arch Geomtric Development
Intersection of Vertical and Horizontal Cylinders

Cord = 16
Height = 2
Vertical Radius = 36
Arch Radius = 17

$$\theta = 2 * \arcsin(\text{cord} / (2 * \text{radius}))$$

$$\theta = 2 * \arcsin(16 / (2 * 36))$$

$$\theta = 12.83959^\circ$$

$$s = \text{radius} * \theta$$

$$s = 36 * (12.83959^\circ * \text{DEG-TO-RAD})$$

$$d = \text{radius} * \cos(\theta/2),$$

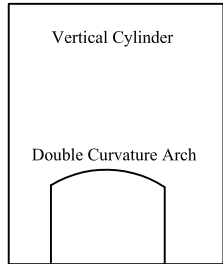
$$d = 36 * \cos((12.83959^\circ * \text{DEG-TO-RAD}) \div 2)$$

$$d = 35.0998575495685$$

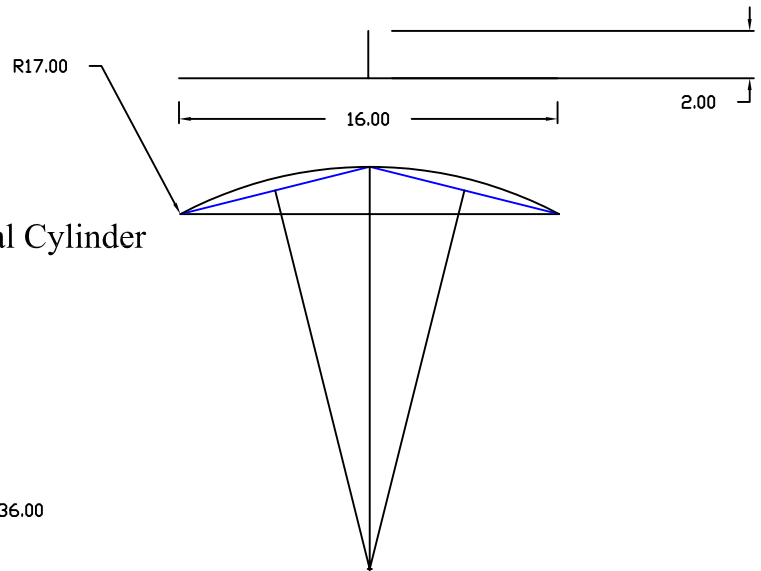
$$h = \text{radius} - d$$

$$h = 36 - 35.0998575495685$$

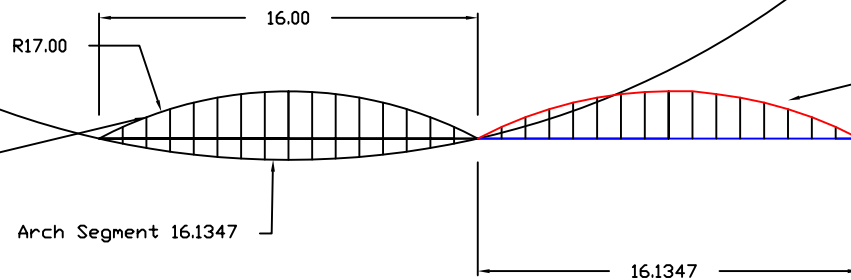
$$h = 0.90014245$$



Plan View of Vertical Cylinder



Elevation View of Horizontal Cylinder



Double Curvature Arch Developed from Ordinates