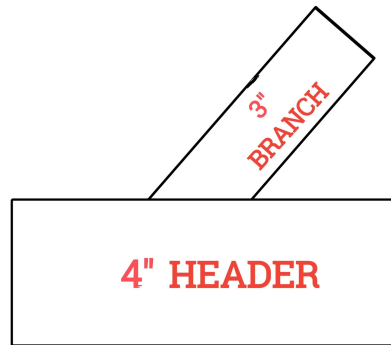


UN-EQUAL LATERAL TEE BRANCH FORMULA



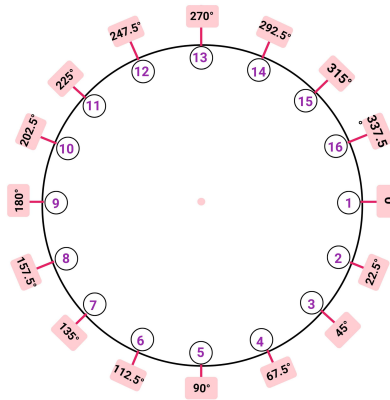
4" Header OD = 114 mm

3" ID = 88 mm , 1/2 ID = 44 mm

Degree = 45°

16 Center Line = 360° ÷ 16 = 22.5°

Branch Pipe Center Line Marking Layout



Cutback Formula:

$$(H\frac{1}{2}OD - \sqrt{(H\frac{1}{2}OD^2 - (\sin(\theta) \times B\frac{1}{2}ID)^2}) \div \sin(\text{Deg}) + B\frac{1}{2}ID (1 - \cos(\theta)) \div \tan(\text{Deg})$$

$$22.5^\circ = (57 - \sqrt{(57^2 - (\sin(22.5^\circ) \times 44)^2}) \div \sin(45^\circ) + 44(1 - \cos(22.5^\circ)) \div \tan(45^\circ) = 6.94 \text{ mm}$$

$$45^\circ = (57 - \sqrt{(57^2 - (\sin(45^\circ) \times 44)^2}) \div \sin(45^\circ) + 44(1 - \cos(45^\circ)) \div \tan(45^\circ) = 22.95 \text{ mm}$$

$$67.5^\circ = (57 - \sqrt{(57^2 - (\sin(67.5^\circ) \times 44)^2}) \div \sin(45^\circ) + 44(1 - \cos(67.5^\circ)) \div \tan(45^\circ) = 51.26 \text{ mm}$$

$$90^\circ = (57 - \sqrt{(57^2 - (\sin(90^\circ) \times 44)^2}) \div \sin(45^\circ) + 44(1 - \cos(90^\circ)) \div \tan(45^\circ) = 73.36 \text{ mm}$$

$$112.5^\circ = (57 - \sqrt{(57^2 - (\sin(112.5^\circ) \times 44)^2}) \div \sin(45^\circ) + 44(1 - \cos(112.5^\circ)) \div \tan(45^\circ) = 84.94 \text{ mm}$$

$$135^\circ = (57 - \sqrt{(57^2 - (\sin(135^\circ) \times 44)^2}) \div \sin(45^\circ) + 44(1 - \cos(135^\circ)) \div \tan(45^\circ) = 88.18 \text{ mm}$$

$$157.5^\circ = (57 - \sqrt{(57^2 - (\sin(157.5^\circ) \times 44)^2}) \div \sin(45^\circ) + 44(1 - \cos(157.5^\circ)) \div \tan(45^\circ) = 88.24 \text{ mm}$$

$$180^\circ = (57 - \sqrt{(57^2 - (\sin(180^\circ) \times 44)^2}) \div \sin(45^\circ) + 44(1 - \cos(180^\circ)) \div \tan(45^\circ) = 88 \text{ mm}$$

$$202.5^\circ = (57 - \sqrt{(57^2 - (\sin(202.5^\circ) \times 44)^2}) \div \sin(45^\circ) + 44(1 - \cos(202.5^\circ)) \div \tan(45^\circ) = 88.24 \text{ mm}$$

$$225^\circ = (57 - \sqrt{(57^2 - (\sin(225^\circ) \times 44)^2}) \div \sin(45^\circ) + 44(1 - \cos(225^\circ)) \div \tan(45^\circ) = 88.18 \text{ mm}$$

$$247.5^\circ = (57 - \sqrt{(57^2 - (\sin(247.5^\circ) \times 44)^2}) \div \sin(45^\circ) + 44(1 - \cos(247.5^\circ)) \div \tan(45^\circ) = 84.94 \text{ mm}$$

$$270^\circ = (57 - \sqrt{(57^2 - (\sin(270^\circ) \times 44)^2}) \div \sin(45^\circ) + 44(1 - \cos(270^\circ)) \div \tan(45^\circ) = 73.36 \text{ mm}$$

$$292.5^\circ = (57 - \sqrt{(57^2 - (\sin(292.5^\circ) \times 44)^2}) \div \sin(45^\circ) + 44(1 - \cos(292.5^\circ)) \div \tan(45^\circ) = 51.26 \text{ mm}$$

$$315^\circ = (57 - \sqrt{(57^2 - (\sin(315^\circ) \times 44)^2}) \div \sin(45^\circ) + 44(1 - \cos(315^\circ)) \div \tan(45^\circ) = 25.95 \text{ mm}$$

$$337.5^\circ = (57 - \sqrt{(57^2 - (\sin(337.5^\circ) \times 44)^2}) \div \sin(45^\circ) + 44(1 - \cos(337.5^\circ)) \div \tan(45^\circ) = 6.94 \text{ mm}$$

MARKING LAYOUT

