

## **UN - EQUAL TEE HEADER HOLE FORMULA**

4" Header OD = 114 mm =>  $\frac{1}{2}$  OD = 57 mm.

2 " Branch ID = 59 mm =>  $\frac{1}{2}$  ID = 29.5 mm.

CL = 16 Center line =>  $360^\circ \div 16 = 22.5^\circ$

### **Un-Equal Tee Branch Cutting Formula:**

$$H\frac{1}{2} \text{ OD} - \sqrt{\{H\frac{1}{2} \text{ OD}^2 - (\sin(\text{Degree}) \times B\frac{1}{2} \text{ ID})^2\}}$$

$$= 57 - \sqrt{\{57^2 - (\sin(22.5) \times 29.5)^2\}} = 01.12 \text{ mm}$$

$$= 57 - \sqrt{\{57^2 - (\sin(45) \times 29.5)^2\}} = 03.95 \text{ mm}$$

$$= 57 - \sqrt{\{57^2 - (\sin(67.5) \times 29.5)^2\}} = 06.93 \text{ mm}$$

$$= 57 - \sqrt{\{57^2 - (\sin(90) \times 29.5)^2\}} = 08.22 \text{ mm}$$

### **HORIZONTAL LINE DISTANCE FORMULA:**

$$\tan^{-1} \{ (B\frac{1}{2} \text{ ID} \times \sin(\text{Degree})) \div (H\frac{1}{2} \text{ OD} - \text{Degree Cutback}) \} \times H\frac{1}{2} \text{ OD} \times \cos 89^\circ$$

$$22.5^\circ \Rightarrow \tan^{-1} \{ (29.5 \times \sin(22.5)) \div (57 - 1.12) \} \times 57 \times \cos 89^\circ = 11.36 \text{ mm}$$

$$45^\circ \Rightarrow \tan^{-1} \{ (29.5 \times \sin(45)) \div (57 - 3.95) \} \times 57 \times \cos 89^\circ = 21.35 \text{ mm}$$

$$67.5^\circ \Rightarrow \tan^{-1} \{ (29.5 \times \sin(67.5)) \div (57 - 6.93) \} \times 57 \times \cos 89^\circ = 28.41 \text{ mm}$$

$$90^\circ \Rightarrow \tan^{-1} \{ (29.5 \times \sin(90)) \div (57 - 8.22) \} \times 57 \times \cos 89^\circ = 31.00 \text{ mm}$$

### **VERTICAL LINE DISTANCE FORMULA:**

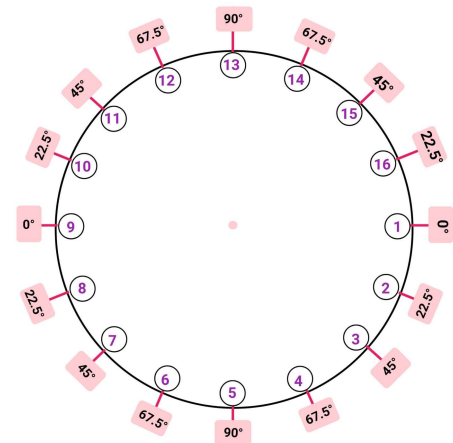
$$B\frac{1}{2} \text{ ID} \times \sin(\text{Degree})$$

$$22.5^\circ \Rightarrow 29.5 \times \sin(22.5) = 11.28 \text{ mm}$$

$$45^\circ \Rightarrow 29.5 \times \sin(45) = 20.85 \text{ mm}$$

$$67.5^\circ \Rightarrow 29.5 \times \sin(67.5) = 27.25 \text{ mm}$$

$$90^\circ \Rightarrow 29.5 \times \sin(90) = 29.5 \text{ mm}$$



[Watch Video for Marking Process](#)  