# EQUAL TEE HEADER HOLE FORMULA

Header OD = 114 mm => ½ OD = 57 mm.
Branch ID = 113 mm => ½ ID = 56.5 mm.
CL = 16 Center line => 360° ÷ 16 = 22.5°

## Equal Tee Branch Cutting Formula:

**$H\frac{1}{2}$ OD - √{$H\frac{1}{2}$ OD² - ($B\frac{1}{2}$ ID × Sin(D))²}**

= 57 - √{57² - (56.5 × Sin(22.5))²} = 04.26 mm
= 57 - √{57² - (56.5 × Sin(45))²} = 16.34 mm
= 57 - √{57² - (56.5 × Sin(67.5))²} = 34.10 mm
= 57 - √{57² - (56.5 × Sin(90))²} = 49.46 mm

## HORIZONTAL LINE DISTANCE FORMULA:

**$Tan^{-1}$ {($B\frac{1}{2}$ID × Sin(Degree)) ÷ ($H\frac{1}{2}$ OD - Degree Cutback)} × $H\frac{1}{2}$ OD × Cos89°**

22.5 => $Tan^{-1}$ {(56.5 × Sin(22.5)) ÷ (57 - 4.26)} × 57 × Cos 89° = 22.17 mm
45° => $Tan^{-1}$ {(56.5 × Sin(45)) ÷ (57 - 16.34)} × 57 × Cos 89° = 44.26 mm
67.5° => $Tan^{-1}$ {(56.5 × Sin(67.5)) ÷ (57 - 34.10)} × 57 × Cos 89° = 65.96 mm
90° => $Tan^{-1}$ {(56.5 × Sin(90)) ÷ (57 - 49.46)} × 57 × Cos 89° = 81.96 mm

## VERTICAL LINE DISTANCE FORMULA:

**$B\frac{1}{2}$ID × Sin(Degree)**

22.5 => 56.5 × Sin(22.5) = 21.62 mm
45° => 56.5 × Sin(45) = 39.95 mm
67.5° => 56.5 × Sin(67.5) = 52.19 mm
90° => 56.5 × Sin(90) = 56.50 mm