

Sheet Metal Bending

Mechanical Engineering

Why the flat blank is shorter than the sum of the legs.

A bend stretches the outside and compresses the inside, so the flat length is not the sum of the legs.

Bend allowance = $(\pi \div 180) A (R + K t) \cdot K \approx 0.33 \text{ to } 0.5$

90 degrees, $R = t = 2$

Taking $K = 0.44$.

Allowance about 4.5 mm

Bend radius below t

Keep R at least t .

The outside cracks

Hole close to a bend

Keep $2.5t$ clear.

The hole distorts

THE COMMON MISTAKE

✗ **Adding the two flange lengths for the blank**

✓ **Subtract the bend deduction**

Bending shortens the developed length. Adding the legs makes every part long, and the error compounds with each extra bend.

The K -factor depends on material, radius and tooling. Measure a test bend before cutting production blanks.