

# How to calculate the cut when making bends in cable trays

## Article Overview

The size of the cut for a cable tray bend is calculated based on the tray width and the desired bend angle or offset, using simple division or multiplier formulas to determine V-cut dimensions.

### Calculating a Cut for a Pre-Determined Angle

- o Determine the bend angle you want to create (e.g., 22°).
- o Divide 90° by the bend angle to find a factor (C). For example,  $90 / 22 = 4.09$ .
- o Divide the tray width (A) by this factor to get the cut size (D). For a 600 mm tray:  $600 / 4.09 = 147$  mm. This is the width of the section to cut from the tray side to form the desired angle .

### Calculating a Cut for a Parallel Offset

When routing around obstacles or creating an offset:

- o Measure the straight-line distance over which the offset will occur (e.g., 1500 mm).
- o Divide this distance by the tray width to get a factor:  $1500 / 600 = 2.5$ .
- o Divide the total offset distance by this factor to determine the cut size:  $350 / 2.5 = 140$  mm. This ensures a smooth bend without exceeding the cable's minimum bend radius .

### Using Bend Radius and Arc Length

For curved elbows:

- o Centerline radius (CLR) is measured from the center of the curve to the midpoint of the tray width.
- o Arc length is calculated by converting the bend angle to radians and multiplying by the CLR. This determines the exact length of tray material needed for the bend .
- o Always check the minimum cable bend radius to prevent damage to cables, which varies by cable type (e.g., Cat6 UTP requires 4x cable diameter, coaxial cables 10x diameter), .

### Practical Tips

- o Use V-cut calculators or fabrication tools to get precise half-width and full-width cut dimensions for horizontal or vertical bends .
- o For compound offsets, multiply the total offset distance by a standard multiplier based on the bend angle to locate cut marks accurately .
- o Always verify against NEC, IEC, or NEMA standards and cable manufacturer recommendations to ensure safe installation .
- o Start with the first cut, then adjust subsequent cuts on-site for the most accurate alignment. By following



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these methods, you can accurately calculate the cut size for both angled bends and offsets, ensuring smooth cable transitions and compliance with safety standards.

Calculate horizontal, vertical, or compound cable tray offsets based on bend angle, offset distance, and available installation space.

Electrical engineering knowledge sharing. asm chart resembles with, state box of asm chart represents, oltc, cable tray

In this guide, you will learn the bend radius formula, how to calculate 90-degree bends, minimum bend radius

Use this cable tray bend calculator to check radius margin, bend take-up, fill utilization, and cable count for cleaner tray layouts. Try it

As for where to start cutting in relation to where the bend ends up, I don't have any rules for that. But with a large

Make cable tray 90 Degree Bend by 3 Cut Formula. 200 mm cable tray making Theory.All

Calculate cable tray bend dimensions, centerline arc lengths, setback distances, and offset configurations. Ensure compliance with

I worked with cable tray about 40 years ago and remember I created a couple of simple formulae to work out how

The document provides instructions for forming various bends and joints in electrical trunking and cable trays. It describes: 1) How to

The document discusses Metstrut cable tray systems, including their configuration, materials, dimensions, and compliance with

Table 2 of NEC provides the minimum radius of conduit bends. Is there some similar table or other reference available

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