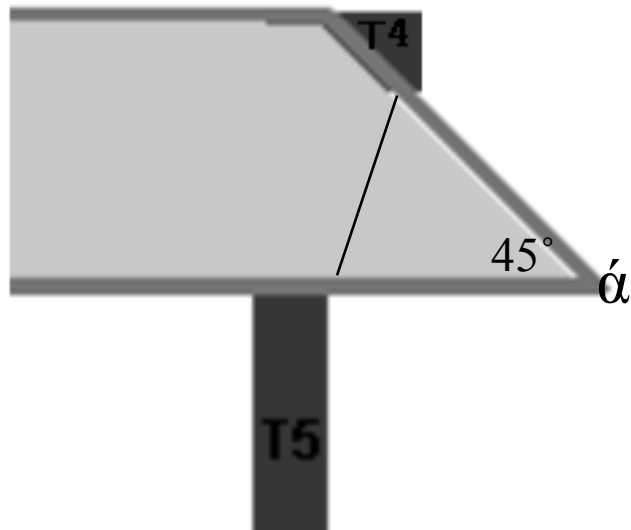


Group Exercise C&C1: Exploring associated clearance = actual measured clearance



- Imagine something similar to 07e30. The angle of the cutout is 45° . For simplicity $T5 \alpha = \alpha T4$, T4 extends vertically from the cut-out.
- Distance $T4 T5 = 2.4\text{mm}$
- Calculate the creepage distance T4 to T5 for PD1, PD2, PD3 and for the case where the clearance is divided by 3.
- Comment on the effect of the relevant clause in 60664-1

PD1

PD 2

PD 3

$X = \text{clearance} \div 3$

The effect of the relevant clause in 60664-1

~~Group Exercise C&C2: Exploring associated clearance = “required clearance”~~

Review the text from a participant, and discuss the points raised. Include in the discussion whether you agree or disagree with each point.

1. The practical application of the C/3 reduction when applied for required clearances less than 3mm leads for a the great majority of products marketed (rated voltage less than 300 V) to the case that the exception becomes the rule.
2. The C/3 criteria makes no distinction between pollution degrees which leads, for example, to the case that for pollution degree 1 the result is not to increase the measured creepage distance but to reduce it (while for pollution degree 2 or 3 the application leads to an increase of the measured creepage distance).
3. Another point difficult to understand is the relation with other requirement of the standard IEC 60664: Table 2 indicates in note (3) that for all the lower impulse voltages of the standard the minimum clearance required for pollution degree 2 and 3 are limited not by the overvoltage value but this is limited by the “reduced capacity of the associated creepage distance to support voltage in humid conditions”. This limit is 0,2 mm for PD 2 and 0,8 mm for PD 3.
4. If associated clearance is identified with required clearance, for a typical 230 V equipment with overvoltage category II, the required clearance is 1,5 mm for all pollution degrees. The C/3 value is then 0,5 mm. Comparing this with the data of the previous paragraph, we see that for pollution degree II this could be consistent (0,5mm > absolute minimum of 0,2mm), but for Pollution Degree 3, 0,5mm is less than the 0,8mm absolute minimum required.
5. If it is accepted that a clearance shorter than 0,8 mm could be bridged in a PD 3 environment, then it is not logical to accept that a 0,5 mm clearance can break a creepage trajectory.

Point 1

Agree/disagree

Why?

Point 2

Agree/disagree

Why?

Point 3

Agree/disagree

Why?

Point 4

Agree/disagree

Why?

Point 5

Agree/disagree

Why?