

**Input data for distribution transformer temperature rise calculation**

No	Transformer Rate (kVA)	Inner Coil	Outer Coil
	<b>Data</b>		
1	Winding Type		
3	Number of Strands in radial direction (Per Core)		
4	Strands dimension in radial direction (mm)		
5	Number of strands in Axial Direction Per core		
6	Number of strands in Axial Direction Per turn		
7	Strands dimension in Axial direction (mm)		
8	Duct thickness Before Winding (mm)		
9	<sup>14</sup> DIA_IN Before winding (mm)		
10	<sup>14</sup> DIA_Out After winding (mm)		
11	Number of Inner Duct		
12	Inner Duct thickness (mm)		
13	Dimension of axial ducts in turn		
14	Dimension of axial ducts between turn		
15	Outer Duct thickness (mm)		
16	Clearance BTW Outer-Inner coil (mm)		
17	Winding A.C. Losses in Watts (on specified tapping)		
18	Total Losses in Watts (on specified tapping)		
19	Heat Dissipation Areal in Sq.cm		
20	Tank Height (mm)		

21	Top oil temperature rise (k)	
22	Inner winding temperature rise (k)	
23	Outer winding temperature rise (k)	

**Winding type and copper strand shape**

F=Foil L=Layer without axial ducts

1L Layer type with axial ducts between turn,

2L Layer type with axial ducts between turn and inner turn

**Conditions of input data**

1.Total losses value Min 300 W to Max 35000 W

2. Tank height Min 600 mm to Max 1500 mm. And ratio of tank height to average (inner and outer ) of number of stands in Axial multiply stand dimension in axial are Min 1.9 to Max 3.5

3.Heat Dissipation Areal (Sq.cm) should not less than Min value and more than Max value (Member can view on <https://transformerstd.com>)

4.Ratio of coil thickness (conductor only) / coil thickness(including layer insulation but not including inner ducts) Min 0.6 to Max 0.95

5. Number of inner ducts Min 0 to Max 6

6.Inner duct thickness Min 2 mm to Max 6 mm

7. Max outer coil thickness 65 mm and Max inner coil thickness 40 mm

( DIA\_OUT-DIA\_IN)/2

8. Percentage of Winding AC Losses/Transformer rating , Min 0.52% to Max 1.8 %

9.Percentage of Total losses / Transformer rating, Min 0.7% To 2 %

11.Ratio of Inner AC winding losses/Outer AC winding losses, Min 0.5 To Max 1.2

12.Axial ducts thickness Min 2 mm

13.Tank Height (mm) = distance from tank bottom to tank cover or thermometer

14.DIA\_IN and DIA\_Out are distance to conductor

