

DRAFT AMENDMENT NO. 3 NOVEMBER 2017
TO
IS 1180 (PART 1) : 2014 OUTDOOR/INDOOR TYPE OIL IMMERSSED DISTRIBUTION
TRANSFORMERS UPTO AND INCLUDING
2 500 kVA, 33kV — SPECIFICATION
(Fourth Revision)

(Foreword, para 7) — Substitute the following for the existing:

In the preparation of this standard, assistance has been derived from REC Specifications on distribution transformers, R-APDRP Technical Specification for such transformers, BEE recommendations for star 1 rated distribution transformers, Guidelines for Specifications of Energy Efficient Outdoor Type Three Phase and Single Phase Distribution Transformers published by CEA and CBIP Manual on Transformers, Publication 317.

(Foreword, para 8) — Substitute the following for the existing:

This standard recommends maximum total losses corresponding to 1 star labelled transformers as prescribed by BEE. It is expected that transformers shall conform to these maximum total losses. In due course of time with improvements in technology and materials, higher levels of energy efficient transformers shall be progressively used.

[Page 1, clause 1 (see also amendment no. 1)] — Insert following new entry under Note 1:

r) Transformers for Static VAR Compensator

(Page 2, clause 6.8.1) — Substitute the following for the existing:

6.8.1 Maximum total losses

[Page 3, Table 3 (see also amendment no. 1)] — Substitute the following for the existing table:

Table 3 Maximum Total Losses Upto 11kV Class Transformers

(Clauses 6.8.1.1, 6.8.1.2, 6.8.1.3 and 6.8.2)

Sl No.	Rating (kVA)	Impedance (Percent)	Maximum Total Loss (W)	
			50 % Load	100 % Load
(1)	(2)	(3)	(4)	(5)
i)	6.3	4.0	53	173
ii)	10	4.5	84	240

iii)	16	4.5	135	440
iv)	20	4.5	159	527
v)	25	4.5	190	635
vi)	40	4.5	249	834
vii)	63	4.5	340	1 140
viii)	100	4.5	475	1 650
ix)	160	4.5	670	1 950
x)	200	4.5	780	2 300

(Page 4, clause 7.8.1) — Substitute the following for the existing:

7.8.1 Maximum total losses

[Page 4, Table 6 (see also amendment no. 1)] — Substitute the following for the existing table:

Table 6 Maximum Total Losses Upto 11kV Class Transformers
(Clause 7.8.1.1)

SI No.	Rating (kVA)	Impedance (Percent)	Maximum Total Loss (W)	
			50 % Load	100 % Load
(1)	(2)	(3)	(4)	(5)
i)	250	4.50	980	2 930
ii)	315	4.50	1025	3 100
iii)	400	4.50	1 225	3 450
iv)	500	4.50	1 510	4 300
v)	630	4.50	1 860	5 300
vi)	800	5.00	2 287	6 403
vii)	1 000	5.00	2 790	7 700
viii)	1 250	5.00	3 300	9 200
ix)	1 600	6.25	4 200	11 800
x)	2 000	6.25	5 050	15 000
xi)	2 500	6.25	6 150	18 500

(Page 5, clause 8.8.1) — Substitute the following for the existing:

8.8.1 Maximum total losses

[Page 5, Table 9 (see also amendment no. 1)] — Substitute the following for the existing table:

Table 6 Maximum Total Losses Upto 11kV Class Transformers
(Clauses 8.8.1.1, 8.8.1.2 and 8.8.1.3)

SI No.	Rating (kVA)	Impedance (Percent)	Maximum Total Loss (W)	
			50 % Load	100 % Load

(1)	(2)	(3)	(4)	(5)
i)	5	2.50	35	95
ii)	10	4.00	60	170
iii)	16	4.00	82	224
iv)	25	4.00	110	300
v)	50	4.00	210	590
vi)	75	4.00	310	880
vii)	100	4.00	410	1 140

(Page 7, clause 13.1) — Insert following Note at the end:

NOTE — Energy Efficiency Level as shown in Fig. 1 and Fig. 2 is not required to be marked.

(Page 8, clause 15.2.1) — Substitute the following for the existing:

15.2.1 For single phase transformers up to 25 kVA, the transformer tank shall be of robust construction round in shape and shall be capable of withstanding a pressure of 100 kPa and a vacuum of 760 mm of mercury.

For single phase transformers from above 25 kVA to 100 kVA and three phase transformers up to 200 kVA, plain tank shall be capable of withstanding a pressure of 80 kPa and a vacuum of 250 mm of mercury.

Limiting values of the deflections for three phase transformers up to 200 kVA are specified in **21.5.1**.

For transformers above 200 kVA, plain tank shall be capable of withstanding a pressure of 80 kPa and a vacuum of 500 mm of mercury.

Limiting values of the deflections are specified in **21.5.2**.

NOTE — For single phase transformers from above 25 kVA upto and including 100 kVA, the transformer tank shall be of robust construction round/rectangular in shape.

(Page 8, clause 15.2.2) — Substitute the following for the existing:

15.2.2 For three phase transformers up to 2 500 kVA and single phase transformers from above 25 kVA to 100 kVA, transformer tanks with corrugations shall be designed for a pressure of 15 kPa measured at the top of the tank with no leakage.

[Page 12, clause 20.1 (r) (see also amendment no. 1)] — Insert the following Note:

NOTE — For cable box/ busduct arrangement, Arcing horns are not required.

[Page 14, clause 21.5.1.1(see also amendment no. 1)] — Insert following as Note 2:

- 2 Vacuum is not applicable for corrugations.

[Page 14, clause 21.5.2.1(see also amendment no. 1)] — Insert following as Note 2:

2 Vacuum is not applicable for corrugations.

(Page 15, clause 21.5.3.1) — Substitute the following for the existing:

21.5.3.1 Pressure test (type test)

For transformers up to 25 kVA

The tank shall be subjected to air pressure of 100 kPa above atmospheric pressure for 30 mins. There should be no leakage at any point and there is no deformation of tank.

For transformers above 25 kVA up to 100 kVA

For non-sealed and sealed type transformers, the transformer tank shall be subjected to air pressure of 80 kPa for 30 min (15 kPa for 30 min for corrugated tanks) and vacuum of 250 mm of mercury for 30 min. There should be no air leakage at any point.

NOTES

- 1. Permanent deflection is not applicable for corrugations.
- 2. Vacuum is not applicable for corrugations.