GTPL

Transformer & LT, HT Panel Manufacturer

GENNEX
TRANSFORMERS PVT LTD

Our Products and services Power Transformers Distribution Transformers

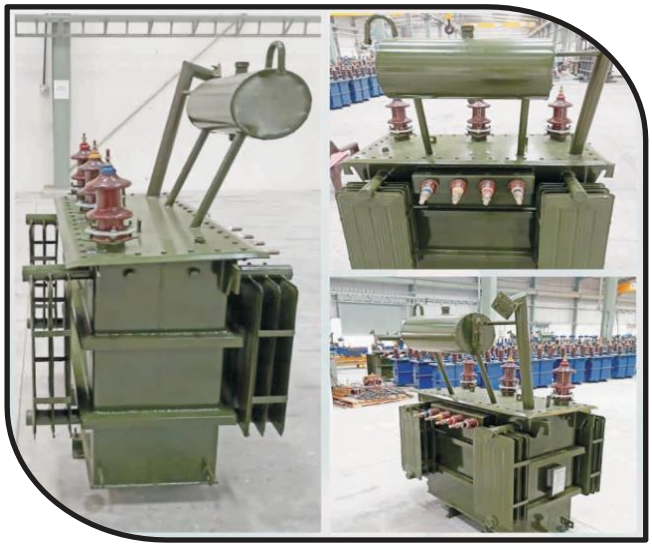
Dry type (CRT/VPI) Transformer Package Substations (PSS/CSS)

Skid type substation(SMS)

LT Switchboards/Control panels Bus duct/ Rising main

Cable trays Customized solutions Service & supports









GENNEX TRANSFORMERS PVT. LTD.

Transformer Manufacturer, Repair & Service

G1- 545 A, Riico industrial Area, Khushkhera
Bhiwadi, Rajasthan - 301019

gennextransformerspvtltd@gmail.com

+91-9257044771, 72

GTPL Products & Range

Power Transformer 3.15 MVA to 5 MVA- 33 KV



A power transformer is used primarily to couple electrical energy from a power supply line to a circuit system, or to one or more components of the system. A power transformer used with solid state circuits is called a rectifier transformer. A power transformer's rating is given in terms of the secondary's maximum voltage and current -delivering capacity. The power transformer is above 5 MVA are being used in Boards Substations & other upto 6.3 MVA ratings mainly are being used in different applications for heavy load in Industry, Hospitals, Railways, Refinery, Substations etc. This is normally being used for customise power requirements of distribution.

Distribution Transformer 5 KVA to 2500 KVA



A transformer is an electrical device which, by the principles of electromagnetic induction, transfers electrical energy from one electric circuit to another, without changing the **frequency.** The energy transfer usually takes place with a change of voltage and current. Transformers either increases or decreases AC voltage. Transformers are used to meet a wide variety of needs. Same transformers can be several stories. No matter what the shape or size, a transformers purpose remains the same: transforming electrical power from one type to another. There are many different types of transformers in use today. This resource will take a closer look at Power Transformers, Auto Transformers, Distribution Transformers, **Instrument** Transformers,Isolation Transformers, Potential Transformers and Current Transformers. The majority of transformer is distribution transformer.Up to 100 KVA Transformers mainly used in electricity board & electrification of different type of governments schemes. other ratings mainly are being used in different applications like Industry, Hospital Colleges,Highways, Railways, Refinery, Substations etc. this is normally being used for distribution & customise power requirements.

LT Transformers Up to 1.1 KV



Three phase or single phase dry - type low voltage (LV) transformers are used as isolation transformers or to adjust the voltage level in the LV distribution grid. The windings are made of aluminium or copper and impregnated with epoxy resin of thermal class F or H by simple or vacuum pressure impregnation (VPI). ATS low voltage transformers are widely used in industrial applications and in commercial and public building. They are also used for adjusting the voltage from 690 V to 400 V or as isolation transformers with a voltage rat!o of 1:1,providing galvanic separation. Dedicated products are available for various applications in renewable power generation including:—Wind or photo voltaics—Transportation (i.e., marine or railways) —Uninterruptible power supply (UPS) —Chemical, oil and gas industry —Converters

Rated Power : 10 KVA to 1000 KVA (Other on request)

No. of Phase : 3 or 1

Primary/Secondary Voltage :
220, 230, 240, 380, 400, 415, 433, 600, 690 Valts

Frequency : 50, 60 Hz

Low losses

Low weight and compact dimensions

Non-flammable and non-explosive

IP23 enclosures (optional)

With air cooling based on natural convection (AN) optional with forced air cooling (AF) Standards All units are built in accordance with IS, IEC and EN

GTPL Products & Range



Dry Type Transformer

(100 IKVAto 2.5 MVA)-up to 33 KV
The dry type transformer are two type.

Cast resin dry type transformer (CRT) Is used in the high moisture prone areas. It js because of its. primary and secondary windings are encapsulated with epoxy resin. This encąpsulation helps to prewnt moisture to penetrate to affect the winding material. Complete protection is achieved by this best resin encapsulation so that the transformer can work without disruption in highly moisture prone erea . Thus this transformer is non hygroscopic . This type of transformer Ts available in ratings of 100 KVA to 2500 KVA. withinsulation class of F (90^C Temp. Rise).

Cast Resin Dry Type Transformer (CRT)

Better over load capacity. Low partial discharge along with low lose. Hence efficiency is very good. As it is wlth non inflammable winding insulation, it offers zere risk to fire hazard. So it Is suitable for 1ndoor installation. Can be filled outdoor in IP 45 enclosure. And oficœurse non hygroscopic.



This type of transformer has some featured Advantages. They are

This type of transformer is made with minimum flammable material as insulafion of windings. The windings of this trandormer are made in foil or strip in a continuous layer. But for higher vokages, the winding is made of disks that are connected in series or parallel as per power rating with respect to voltage level. The insulation ofthe winding is void free impregnatìon that is made with Class H polyester resin. The primary and secondary winding with core are laced safely within a vacuum protective box. Moisture Ingress Protection is high and it never gets affected by moisture. This type of transformer is avaiİable from 5 KVA to 2.5 MVA with insulation Grade F(155°C) and H(180 C). It's with Protection up to lp56.

Vacuum Pressure Impregnated Transformer(VPI)

High mechanical strength.
Void free insulation.
No ternperäturë fluctuatien.
Easy maintenance.
'Less prone tõ fire hazard.

This type of transformer has several has several advantages. They are

Safety for ğeõple and ğropërty..
”Màinteriähče and pollution-free solution.
Easy installation.
'*'Side clearance iš less.
'*' Environmentally friendly.
+ Excellent capacity to support overloads.
Raduced.cost on civil installation works and fire protection systems.
'Excellent performance \nœse of seismic events.
'No fire hazard.
'Excellent resistance to short **circuit** currents.
*Long lasting due to low thermal and dielectric heatirig,
”suited for damp ańd contaminated areas.

But \here are some disadvantages of dry type transformer.

Dry. Type transformer is long lasting.and with *less.*chance of winding failure. But once It fails whole set up is to changed,.i.e.complete change of high voltage and low voltage winding with limb.
' For same power and voltage rating, dry type **transformer is** costlier than oil cooled transformer.

Application of Dry Type Transformer

Dry ţype transformer are widely used In

Chemical, oilarid gas iṅdusUy

Environment sensitive areas (e.g. water protectiòn areas)

FIre-rìsk areas (h.g. forests)

◆ Inner-city substations

' indoor and underground *substations,*

Renewable generation (e.g. oP-shore wind turbines)

The Manufacturing Stage Of Transformer

Core Assembly



The magnetic core of the transformer is built-up of cold rolled grain oriented (CRGO) steel lamination.Hi-B grade & laser scribed lamination is used to reduce the no load losses & noise level of transformer.Lamination are cut at an angle of 45Deg, Core Leg & Core yoke laminations are interleaved in mitred joints in order to facilitate the passage of magnetic flux & to avoidhotspots & reduce No Load Losses, No Loadcurrent & noise level.

Coil Winding



The windings are designed to optimize dynamic,thermal,mechanical & electrical stresses depending upon the current & voltage requirements.Spiral crossover, Helical continuous disc, Fully or partly interleaved winding are used depending on the specific design criteria. The winding machines are equipped with hydraulic break system which ensures the proper tension is maintained during the winding.Dovetailed key spacers are employed to give the extra strength to the winding, Axial & radial cooling ducts in and between sections of the windings allow the free flow of transformer oil around the conductor. Individual coils are dried & pressed to size in accordance with the calculated short circuit foxes to obtain the design height & to guarantee full shortcircuit resistance.

Core Coil Assembly



The magnetic core with the windings and some accessories fitted together forms the active part of the transformer The windings are slipped over the core legs & laminations of the upper yoke are interleaved. All connections beMeen windings and bushings & tappings to tap changer are made. the tap changer allows the increase or decrease of a certain no of turns in the high vokage winding in order to compensate for a vokage drop or to adopt the transformer to an unstable supply,so that the rated low voltage can be maintained. Subsequently the top cover, on which the bushing for high voltage andlow voltage arealreadyfixed, is fitted.

Drying/ Ovening



A transformer may contain no trace of humidity; otherwise there will be a danger of flash over within the windings. The active part of transformer is completely dried before transformer is filled with transformer oil under vacuum. The tank with active part in it, is connected to an oil supply and placed inside a vacuum chamber A vacuum is applied & when the required vacuum is reached, the oil is admitted into the tank.The rising oil drives out any remaining air & the active part is completely immersed.

Tank/ Tanking



Ourtank design is fully computerized.The computer determinesthe optimum sizeand the number and location of required tank supports. Occasionally the corners of the tank will be roundedoffto further reduce the transformer weight without sacrificing quali and reliability. Theobjective is to reduce thetank size and weight as much as possible, which facilitates easier handling, transportation, assembly and installation on site. All tanks are designed to withstand full vacuum and aremanufactured fromhigh - quali steel plate.The transformer can be designed with a welded or a bolted cover or as a belltype tank. All metal parts aregrit blast cleaned to remove weldplatter, mill scale andoxides, providing an excellent surface forthe adherence of theprimer and paint. The inside of thetank is painted with a white oil-resistant paint to create good visibility during internal inspection. All metal parts are extensively tested on oil tightness via penetrant and pressure test at the tank manufacturer and with an extra 24 hours leakage test after complete assembly.

Surface Treatment & Painting



'We use satisfactory protection against corrosion & rusting, all surfaces of steel parts are shot blasted in compliance with Swedish Standard SIS 055900 to Sa 2.S quali prior to painting. There after tanks and steel parts are painted with one primer and two final coats with **minimum** thickness of 160 microns.

PANEL DEVISION

Design & Development is a continuous system, Ahighly qualified and experienced personals are involved in the latest technology and products. The transformer is being designed to meet the latest national & international standard, including IS, BIS, IEC, BS, DIN, NEME, ANSI/IEEE.etc

Design are made for optimisation in terms of

The switchgear is being used from the best in class manufacturing globally. The other B & C Class material is being used as per IS & IEC standard and from the approved vendor only. The ATS is committed to investing in the best machines and manpower

The GTPL transformer are CPRI / ERDA tested forentire range suitable for BIS application and is the first company which is BIS approved for an entire range up to Energy EMciency Level - 3 (5 Star)

We always provide the Specified performance characteristics such as impedance, temperature rise, efficiency & noise levels to our client and we trained them so that clients able to understand the quality of product and they can choose **products** as per application.

Mechanical design with fittngs & accessories for specifying maximum overall dimensions & net weight so that client would be ready for basic requirements like space, foundation andanother arrangement for installation to avoid delay at the last moment.

The product is being designed, manufactured and tested to withstand the

thermal & dynamic effects of shorts condifions. The design parameter also

considers the distribution of voltage

stresses underimpulse, lighting & switching surgery conditions.

We always analyze of those areas where high electrical stresses can occur during any type of fault and major short circuit and calculation for minimizing stray losses, hot spots, electrical gradients, etc by electrical & magnetic field analysis.

Transformers are designed and tested to the following standards

- Distribution and power transformers: IS: 1180-2014, 2026, BS: 171, IEC: 76 & OES
- Convertir transformers: IS: 4540, IEC: 146 & IEEE: 444
- Furnace transformers: IS: 2026
- System earthing transformers: IS: 3150 &BS: 4944
- Dry Type Transformer: IS 11171, IEC 60726, ANSI, NEMA, andIndian Standard.
- Low Voltage Control Panel: IS 8623 (Part),IEC Pub 439 - 3, IEC 61439

The company is capable of manufacturing transformers to any other standards as per customer/consultant requirements. The cast resin dry-type transformers are designed and tested to comply with national & international standards. We can develop units with any voltage combination, tap arrangements, winding options, andenclosure types.

GTPL

LT Control Panel



- PCC Panel
- MCC Panel
- AMF Panel
- APFC Panel
- VFD Panel
- PLC Panel

Gennex Transformer Pvt. Ltd.

Distribution and Control of Various Power Source

AMF Panel

Auto Main Failure Panels, also known as AMF panels, are used to automatically changeover from mains electricity supply to stand-by generator on failure of the mains supply . When the mains supply is restored, the system automatically changes back and stops the Generator. The stand-by generator will be eventually shut down after a short cooling down period. We customised these panels (both automatic and manual modes) to meet client-specific requirements.



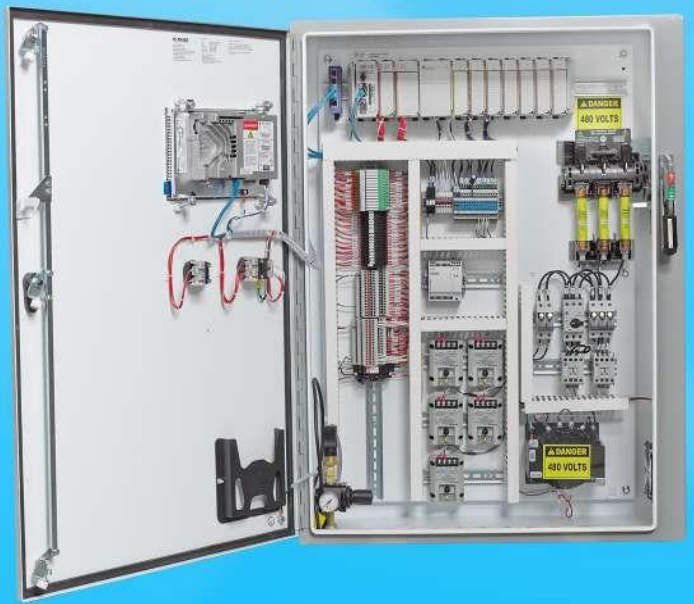
APFC Panel

APFC or Automatic Power Factor Control Panels are mainly used for the improvement of Power Factor. Power Factor can be explained as ratio of active power to apparent power and it is a key factor in measuring electrical consumption. Use of these control panels becomes indispensable in those industries where electrical installations are meant to supply to large electrical load.
Range up to 1600 KVAR , 230 – 525 Volts,
IP - 52 , Switching – Contactor / Thyristor.



VFD Panel

A Variable Frequency Drive (VFD) is a type of motor controller that drives an electric motor by varying the frequency and voltage supplied to the electric motor. Other names for a VFD are variable speed drive, adjustable speed drive, adjustable frequency drive, AC drive, micro drive, and inverter.



DG Synchronising Panel

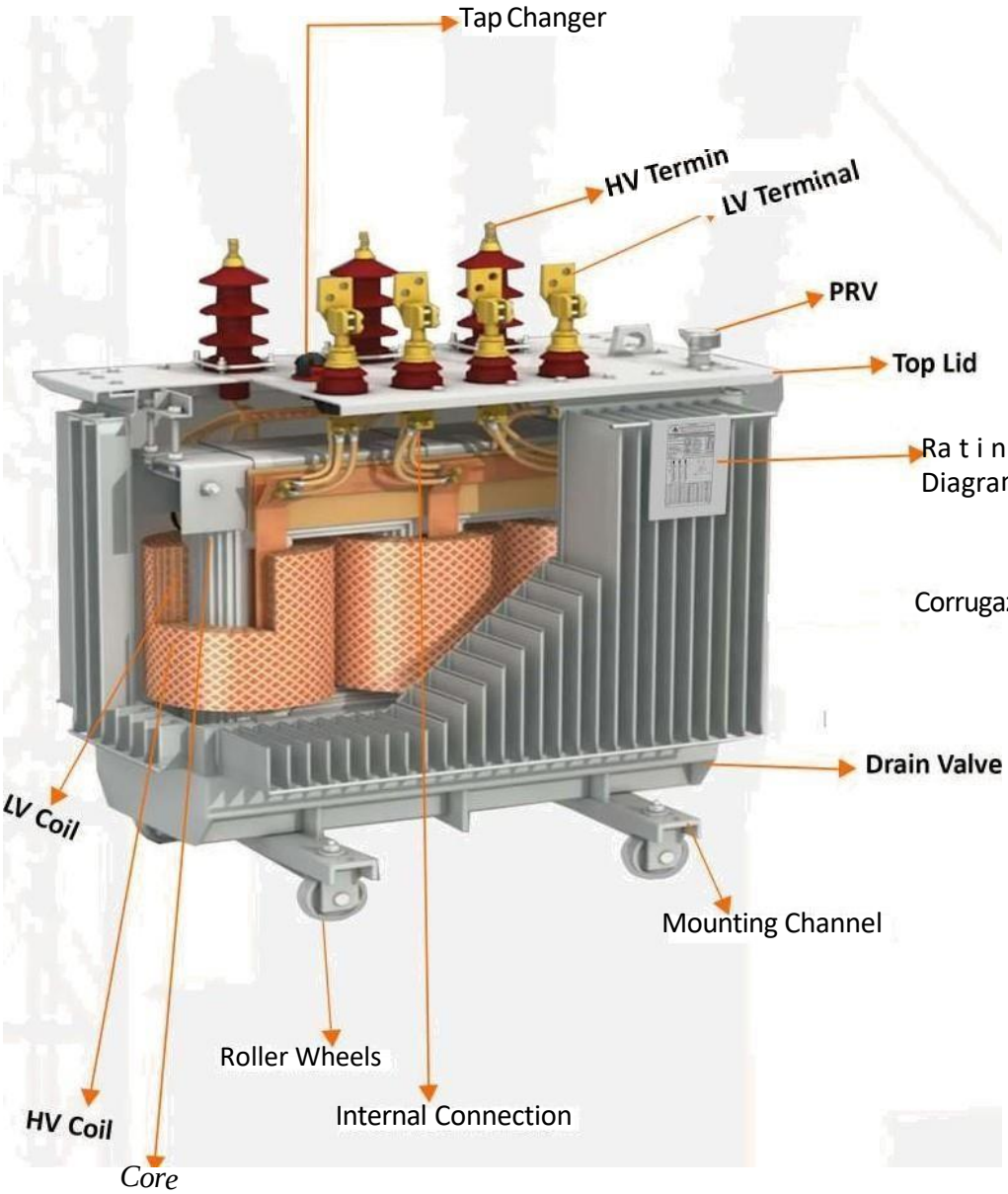
We are actively involved in manufacturing of high performance DG Synchronisation Panel which comes complete with Controlling & Protection Relays capable of synchronising of more than one DG sets/with Mains & DG and with necessary protections . The offered product is precisely designed and manufactured by utilising optimum quality raw material and best technology.



PLC Panel

Programmable logic controller (PLC) control panel are known as PLC Automation Panel are one of the most important and efficient kinds of control panels. Which are generally used in variety of electronic and electrical circuit fittings. PLC Control Panels are highly capable of giving higher output at less power consumption. Integrated with solid PLC logic and flawless PLC hardware programming . We are engaged in designing and manufacturing of PLC & Automation Panels that is widely appreciated for longer service life and high efficiency. All these panels are hard wired; PLC based and electrically controlled and is used for various machines.

Transformer Parts



Testing



All transformers are subject to all roune tests in our sophiscated laboratory at factorv confirming to latest nafional and international standard specifications.Test are intended for use for the basic validation of design & basis for performance, safety & reliability of the transformers. GTPL is equipped with adequate digital Precision digital meters such as digital power analyser, WT-300 (latest) of Yokogawa of Japan make are used for measuring the Load losses, impedance voltage, no load losses & no load currents. All transformers are subject to all rounder tests.

All transformers are subject to all-rounder tests.This íncludes following tests Which iS In-house facilities

- lnsuiation Resistance Test
- Resistance measurement of winding
- Turn ratio Test
- Polarity and phase sequence test
- No load losses & Impedance voltage test
- Load loss measurement
- Insulafion of oil test
- Dielectric test
- Leakage test of transformer tank
- Temperature rise

TYPE TEST : Type test are special optional test. These test are carried out at an addifional applicafion fee. to be born by the customer. These tests are • Impulse Voltage Test• Short Circuit Test•

(9001:2015 quality System): Our all products design, manufactured & supplied under TQM system, we continually strive to improve the skill quality & competency of the products along with services.We follow the quality control across different stage of manufacturing process through dedicated quality assurance team. We comply all tesrng facilities in house to ensure & assure the products made as per our and our customer norms. We have state of the art testing facilities up to 10000 KVA & 33KV for all products. Each and every instruments have own calibration record to meet the actual testing.

SERVICES

DISTRIBUTION TRANSFORMERS & POWER TRANSFORMERS



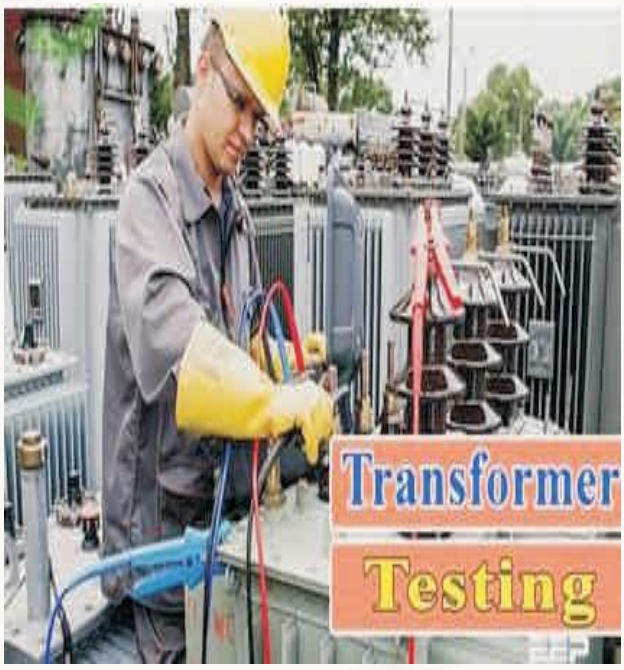
ONLINE/OFFLINE OIL FILTRATION AND LEAKAGE ATTEND WORK



REPAIRING/WINDING SERVICES



RENTAL SERVICES



TESTING OF DISTRIBUTION TRANSFORMERS

Transformer Technical Data

GTPL transformers are manufactured i accordance to IS 1180 & IEC 76 for temperature rise, dielectric test & insulation level. The over load with stand capacity of transformer is as per IEC 354. Tolerances applicable for no load loss,total 1osess.impedance voltage & voltago ratio are in accordance to IS 1180 & IEC 76 tapping ratio for standard transformer high voltage winding variation as per client equipment. Distribution Transformer. are with oil natural, air natural cooling wound with copper conductor. The transformers are supplied both with pressed steel radiators and with corrugated tanks

SPECIFICATIONS OF DISTRIBUTION TRANSFORMER ACCORDING TO IS - 1180 (2014-Part-1)

Maximum Total Losses Upto 11 kV Class Transformers								
SI No.	Rating (Rating)	Impedance	Maximum Total Loss (w) AS PER IS - **1180-2014-PART-1**					
			Energy Efficiency Level-1		Energy Efficiency Level-2			
	KVA	Z%	50% Load.	100% Load.	50% Load.	100%Load.		
1.	16	4.50	155	**440**	120	400		
2.	25	4.50	190	635	175	595		
3.	63	4.50	340	1140	300	1050		
4.	**100**	4.50	475	1650	439	1500		
5.	**160**	4.50	670	1950	570	1700		
6.	200	4.50	780	2300	670	2100		
7.	250	4.50	980	2930	920	2700		
8.	315	4.50	1025	3100	955	2750		
9.	400	4.50	1225	3450	1150	3330		
10.	500	4.50	1510	4300	1430	4100		
11.	630	4.50	1860	**5300**	1745	4850		
12.	800	4.50	2287	6402	2147	5837		
13.	**1000**	9.00	2790	7700	2620	7000		
14.	**1250**	5.00	5300	9200	3220	g4oo		
15.	**1600**	6.25	4200	1180	3970	11300		
16.	**2000**	6.25	5050	1500	4790	14100		
17.	**2500**	6.25	6150	18500	5900	17500		

Maximum Total Losses Upto 22 kV Class Transformers

Sl No	Rafing (Rating)	Impedance	Maximum Total Loss(W) AS PER IS - 1180-2014-PART-1					
			Energy Efficiency Level-1		Energy Efficiency Level-2			
	KVA	%	50% Load.	100% Load.	50% Load.	100% Load.		
1.	16	4.50	142	462	126	420		
2.	25	4.50	200	667	184	625		
3.	63	4.50	357	1197	315	1103		
4.	100	4.50	499	1733	457	1575		
5.	160	4,50	704	2048	599	1785		
6.	200	4.50	819	2415	704	2205		
7.	250	450	1029	3077	966	2835		
8.	315	4.50	1076	3255	1003	2888		
9.	400	4.50	1286	3623	1208	3497		
10.	500	4.50	1586	4515	1502	4305		
11.	630	4.50	1953	5565	1832	5093		
12.	800	4.50	2401	6722	2254	6129		
13.	1000	5.00	2930	8085	2751	7350		
14.	1250	5.00	3465	9660	3381	8820		
15.	1600	6.25	4410	12390	4169	11865		
16.	2000	6.25	5303	15750	5030	14805		
17.	2500	6.25	6458	19425	6195	18375		

Maximum Total Losses Upto 33 kV Class Transformers

SI No.	Rating (Rating)	Impedance	Maximum Total Loss (w) ASPERIS - 1180-2014-PART-1					
			Energy Efficiency Level-1		Energy Efficiency Level-2			
	KVA	Zä	50% Load.	100a Load.	50% Load.	100% Load.		
1.	16	4.50	145	473	129	430		
2.	25	4.50	204	683	188	640		
3.	63	4.50	366	1226	323	1129		
4.	100	4.50	511	1774	468	1613		
5.	160	4.50	720	2096	613	1828		
6.	200	4.50	839	2473	720	2258		
7.	250	4.50	1054	3150	989	2903		
8.	315	4.50	1102	3333	1027	2956		
9.	400	4.50	1317	3709	1236	3508		
10.	500	4.50	1623	4623	1537	4408		
11.	630	4.50	2000	5698	1876	5214		
12.	800	4.50	2459	6882	2308	6275		
13.	1000	5.00	2999	8278	2817	7525		
14,	1250	5.00	3548	9890	3462	9030		
1S.	1600	6.25	4515	12685	4268	12148		
16.	2000	6.25	5429	16125	5149	15575		
17.	2500	6.25	6611	19888	6343	18813		

Type tests & Certificates



800KVA, 11/.433
Energy Efficiancy Level 2



CPRI



1000KVA, 11/.433
Energy Efficiancy Level 2



BIS Certificate

GENNEX
— TRANSFORMERS PVT. LTD. —



ISO Certificate



2500KVA, 11/.433
Energy Efficiancy Level1



2500KVA, 11/.433
Energy Efficiancy Level 2



ERDA


BKT
GROWING TOGETHER


SIGNATURE GLOBAL
REALTY. RELIABILITY. RESPONSIBILITY.


JINDAL


GROZ


OMAXE
Turning dreams into reality


BELRISE
INDUSTRIES


JAKPOWER


hpm
yielding prosperity


भा रा रा प्रा
NHAI


AMTEK
GROUP


JK LAKSHMI
CEMENT Ltd.


The Oberoi Group


motherson


BESTECH
BUILDING MORE THAN TRUST


bdi
POWERED BY VALUES


REVENT


BOMBAY COATED & SPECIAL STEELS PVT. LTD.
A Complete Steel Service Centre.




ichiban
CROP SCIENCE LTD.


DANA




सकरनी
UNIVERSAL STAINER
WITH HIGH ACTIVE PIGMENT


SKH


Bhagwati
Products Ltd.







GENNEX

TRANSFORMERS PVT. LTD.







VISION

To
be most trusted brand
nationally & globally

GenNex Quality Policy

engineering excellence and continuous improvements to meet orexceed the expectation of our customers in respect of quality delivering of products and completion of projects on schedule.

MISSION

To
produce best products & quality
service network at every
level with affordable cost

MAKE IN INDIA

स्वच्छ भारत
एक कदम स्वच्छता की ओर

IS: 1180
CERTIFIED