

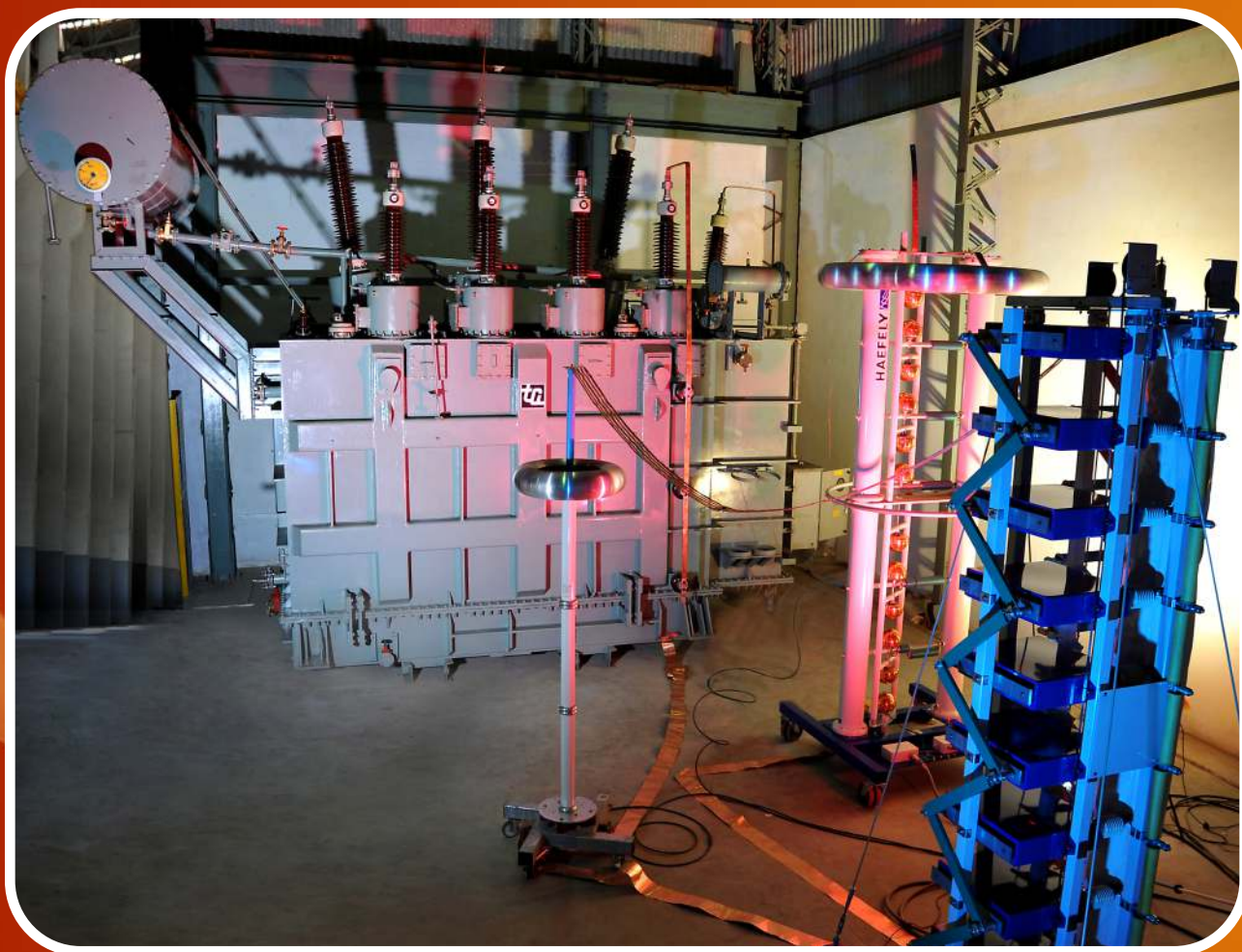
Energising India since 1969...



**TECHNICAL  
ASSOCIATES  
LIMITED**

An ISO 9001 : 2008 Company

**Power Transformers up to 200 MVA, 220 KV**



WE TRANSFORM THE NATION'S POWER

# INTRODUCTION

- Technical Associates Ltd. (TAL) is one of the **Top Ten manufacturers** of Power Transformers in India.
- Manufacturing Capacity: 11,000 MVA p.a.
- Range: Single phase / Three phase transformers up to 200 MVA, 220 KV:
  - Generator Transformers
  - Station Transformers
  - Auto Transformers
  - System Transformers
- Additional infrastructure available to manufacture 765 KV Class transformers.
- More than 400 Power Transformers already delivered & successfully commissioned for various customers in India.
- All delivered transformers successfully type tested from accredited 3<sup>rd</sup> party test houses (as per IEC 60076 and IS 2026).
- In-house design team of highly experienced engineers uses CAD techniques for development and continuous improvement of reliable, cost-effective transformers in conformance with IS, IEC or ANSI standards.
- Designs for Power Transformer take care of Electro-magnetic, Electro-mechanical & Thermal aspects based on individual customer needs. Software based design techniques ensure structural strength, short circuit withstand capacity, lightning impulse withstand capacity, short duration overload, noise disturbances and vibration. Special software is used for optimization of material cost and labour.
- Sophisticated and calibrated testing equipments for in-house Routine and Type Tests.
- Strict Quality control for incoming stock, process monitoring and finished products using SQC techniques.
- Installation, commissioning and repairing of Power and Distribution Transformers by trained and experienced engineers backed by timely supply of spares.



Design using CAD technique

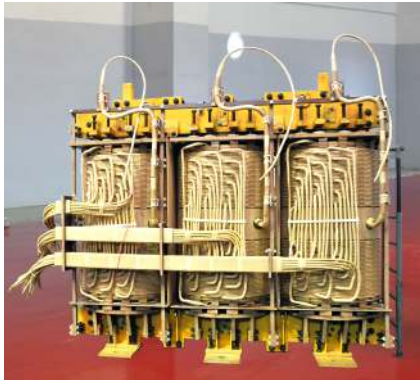


Power Transformer Bay



EHV Plant at Sitarganj

# MANUFACTURING PROCESS AND INFRASTRUCTURE



Core-Coil Assembly



Horizontal Winding Machine



Core Building



Vapour Phase Drying

- Lucknow works for Power Transformers (2,000 MVA p.a.) with 5000 sq.m of covered sheds.
- Sitarganj works for EHV, Power Transformers (9,000 MVA p.a.) with 23000 sq.m of covered sheds.
- Manufacturing activities certified by BSI, UK as complying to ISO 9001:2008 standards.
- In-house facilities for Core slitting, cutting & annealing, Conductor manufacturing & paper covering, Tank fabrication, Oil storage and filtration, Insulation processing using latest machineries for QC and JIT approach.
- Sophisticated manufacturing, process & handling equipments such as Vapour Phase Drying Plant, Winding Machines with Variable Frequency Drives, etc. ensure product reliability.
- Excellent material handling facilities such as EOT Cranes up to 300 MT, Air Castors and innovative plant layouts for easy and fast movement of components.



Material Handling facility up to 300 MT

# TESTING

- Documented in-process checks ensure low lead times and process reliability.
- Fully computerized automatic testing facilities for all routine tests as per IS, IEC, ANSI.
- Tests on each Power Transformer include:
  - Turns ratio check
  - Polarity check
  - No load current and loss measurement
  - Percentage impedance and load loss measurement
  - Induced over voltage test, separate source voltage withstand test
  - Insulation resistance measurement
  - Winding resistance measurement
  - Pressure test for detection of oil leakage
- Impulse testing facilities from Haefely (Switzerland) (1600 KV<sub>p</sub>, 160 KJ & 99 KV<sub>p</sub>, 45 KJ) installed up-gradeable for testing of 400 KV transformers.
- In-house Temperature rise test plant.
- PD measurement facility.
- DGA for Oil analysis.
- Short-circuit test at Independent accredited Laboratories as per customers' requirement.



Computerized Test Bench



Impulse Testing Lab



Impulse Testing Facility

# QUALITY



## TAL Quality Policy

We, at Technical Associates Ltd., are committed to achieve total satisfaction of our customers by:

- Effectively implementing and continually improving the Quality System.
- Delivering on time, products conforming to agreed specifications at competitive prices.
- Collectively and individually striving to do things right-the first time and every time-both in personal life as well as at the workplace.
- Continuous up-gradation of technology and active involvement of all employees and associates in productivity improvement.

# SERVICES



- TAL also undertakes installation and commissioning of Power Transformers of its own make on customer request for the same.
- TAL service team consists of experienced Engineers having expertise of installation, commissioning and repairing. We also offer comprehensive maintenance of all TAL installations. Our service is backed by supply of spares and components in shortest time as per customer needs.
- TAL also undertakes specialized service activities which include: Repair of Power Transformers up to 400 KV and Turnkey Execution of Power Projects.

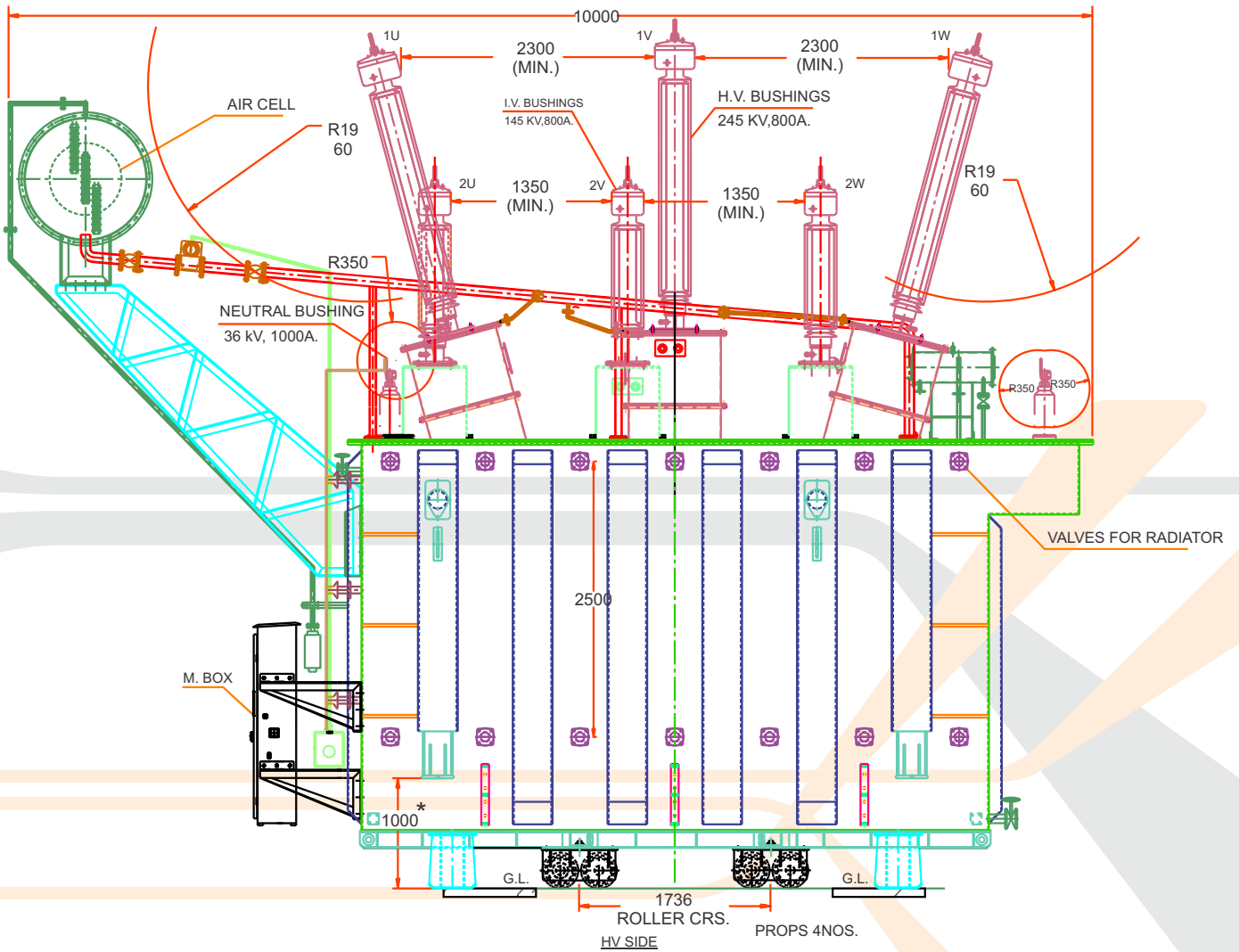
## TYPICAL PARAMETERS OF POWER TRANSFORMERS

33 KV Power Transformers								
Sl. No.	Rating	Voltage Class	% Z	No Load Loss (KW)	Load Loss (KW)	Dimension (mm)		
						Length	Breadth	Height
1	8 MVA	33/11 KV	8.35%	7.00	48.00	3100	2200	2800
2	10 MVA	33/11 KV	8.35%	10.00	53.00	4800	3600	3500
66 KV Power Transformers								
Sl. No.	Rating	Voltage Class	% Z	No Load Loss (KW)	Load Loss (KW)	Dimension (mm)		
						Length	Breadth	Height
1	12.5 MVA	66/11 KV	10.00%	11.30	39.55	5460	4150	4200
2	12.5/16 MVA	66/11 KV	10.00%	11.00	55.00	5600	4200	4500
3	20 MVA	66/11 KV	10.00%	14.00	48.00	5600	3900	4800
4	25/31.5 MVA	66/11 KV	10.00%	15.00	76.50	5900	4200	4800
132 KV Power Transformers								
Sl. No.	Rating	Voltage Class	% Z	No Load Loss (KW)	Load Loss (KW)	Dimension (mm)		
						Length	Breadth	Height
1	10/16 MVA	132/11 KV	10.00%	10.00	62.59	5460	4150	4300
2	12.5 MVA	132/11 KV	12.50%	11.20	39.00	6300	3900	5200
3	20 MVA	132/11 KV	12.50%	14.50	48.00	5800	2500	3400
4	20/25 MVA	132/33 KV	10.00%	14.00	69.00	6300	5000	5000
5	40 MVA	132/33 KV	12.50%	17.00	185.00	6600	5620	5600
6	50 MVA	132-110/33 KV	10.00%	25.00	110.00	7500	5100	6000
220 KV Power Transformers								
Sl. No.	Rating	Voltage Class	% Z	No Load Loss (KW)	Load Loss (KW)	Dimension (mm)		
						Length	Breadth	Height
1	100/75 MVA	220/132/11 KV	12.00%	24.50	168.50	10000	4800	7840
2	160 MVA	220/132/11 KV	10.00%	24.00	220.00	12500	7600	9200

Note : The above figures are indicative only.

Customised transformers in Intermediate sizes can be built as per specification with ON LOAD / OFF LOAD tap changer.

## OUTLINE GENERAL ARRANGEMENT OF 100/75 MVA, 220/132/11 KV, 3 $\phi$ , 50 Hz. (AUTO TRANSFORMER)



FM 561794  
An ISO 9001:2008 Company

### Technical Associates Limited

**Lucknow Plant (Corporate Office)**

8th Km., Faizabad Road, Ismailganj,  
Lucknow 226 016

Phone: +91 (522) 4053600 Fax : +91 (522) 4053601

**Sitarganj Plant**

B-7, Eldeco Sidcul Industrial Park, Sitarganj,  
U.S.Nagar, Uttarakhand - 262405

Phone: +91 (594) 8256032 Fax : +91 (594) 8256031

Email: [marketing@techasso.com](mailto:marketing@techasso.com), Web: [www.techasso.com](http://www.techasso.com)