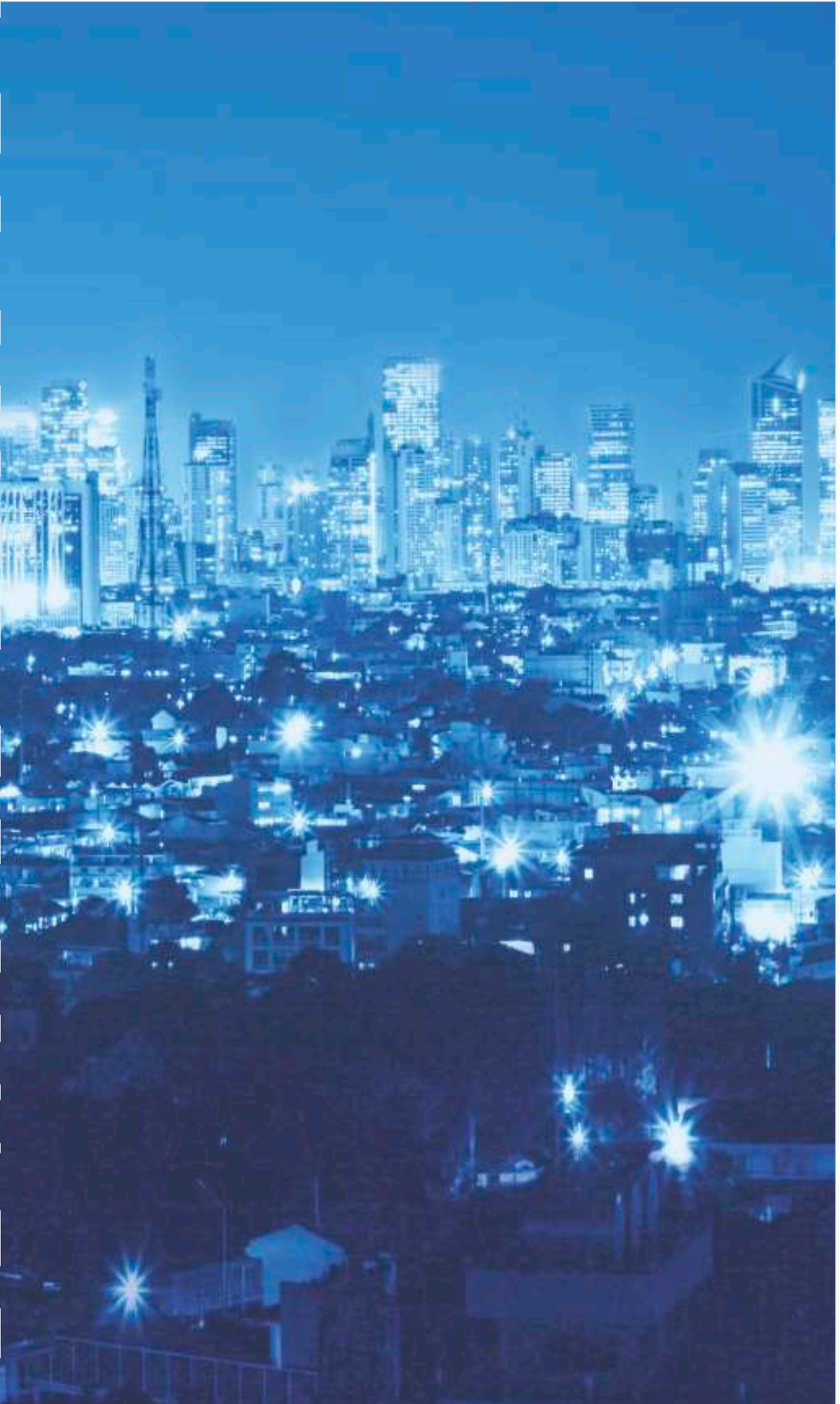


Transformers



Powered by Trust™



Introduction

Over 60 years of enterprise and dedication in putting technology to work, bear testimony to Bharat Bijlee's evolution from a pioneer of electrical engineering in India to one of the biggest and most trusted names in the industry today.

We lay emphasis on the highest professional standards, on superior product performance and on a customer centric outlook that helps us provide specialized solutions to a wide range of domestic and global markets. Our design, application and manufacturing expertise fulfill a wide range of customer needs.

Our plant near Mumbai and our extensive network of sales and service offices are integrated by enterprise-wide management and information systems. Technology and innovation converge to offer our customers, integrated solutions for their specific needs.

Our product portfolio includes power transformers, induction motors, pumps, special maintenance products, AC and DC drive systems and gearless machines for elevators and electrical projects. The common thread is an abiding concern for quality.

For over five decades, our transformers have consistently set high standards in quality, design, efficiency and customer satisfaction.

PWRLEX, our state-of-the-art plant has been specially designed for high productivity, low cycle times and high quality.

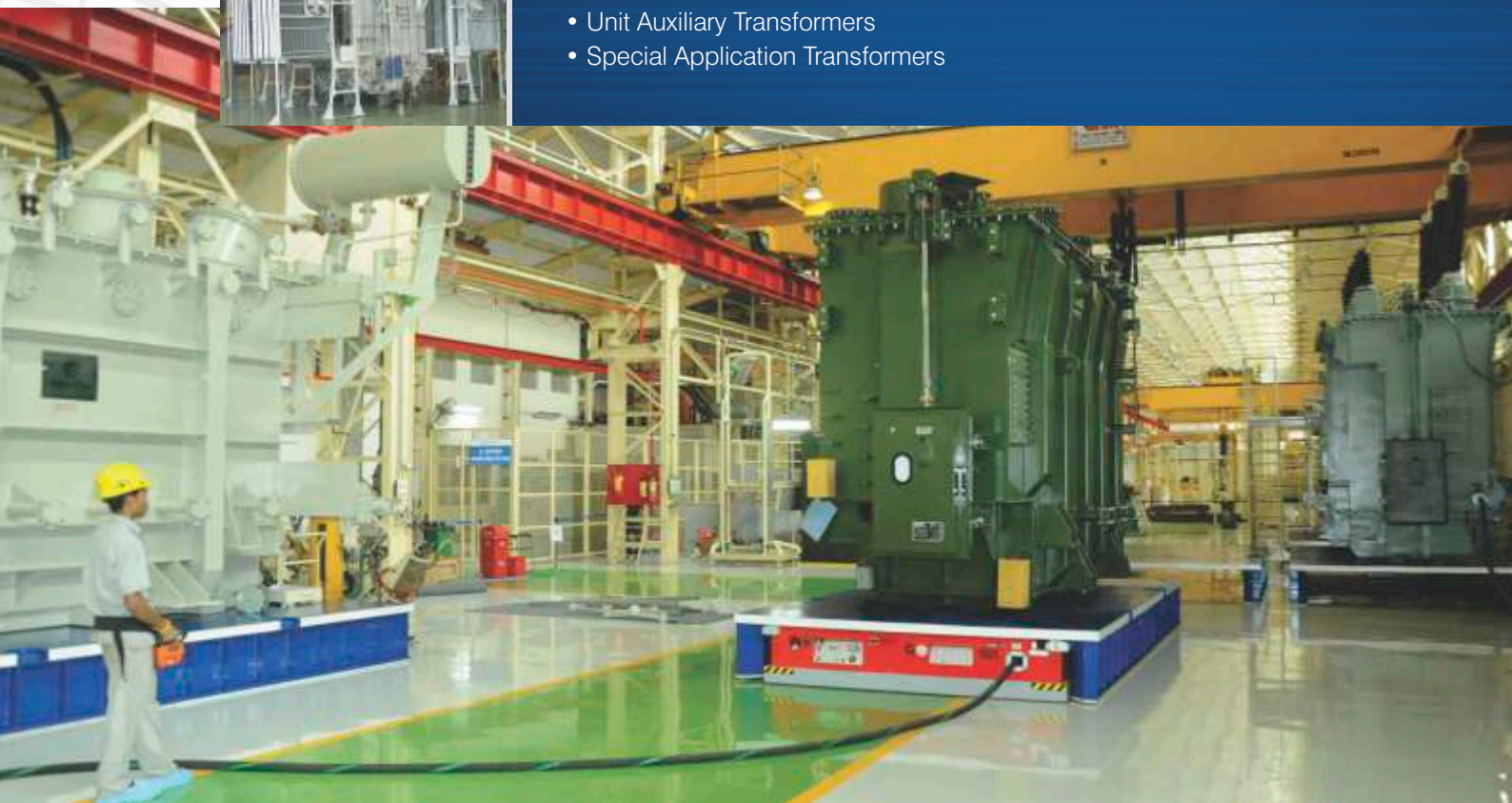
Its total pressurized-air “clean room” environment enables the manufacture of quality high-voltage products. It is equipped with vapour-phase drying and vertical and horizontal winding machines.

With this new best-in-class facility, we now have a capacity in excess of 18,000 MVA per annum. This places us amongst the largest transformer manufacturers in the country.

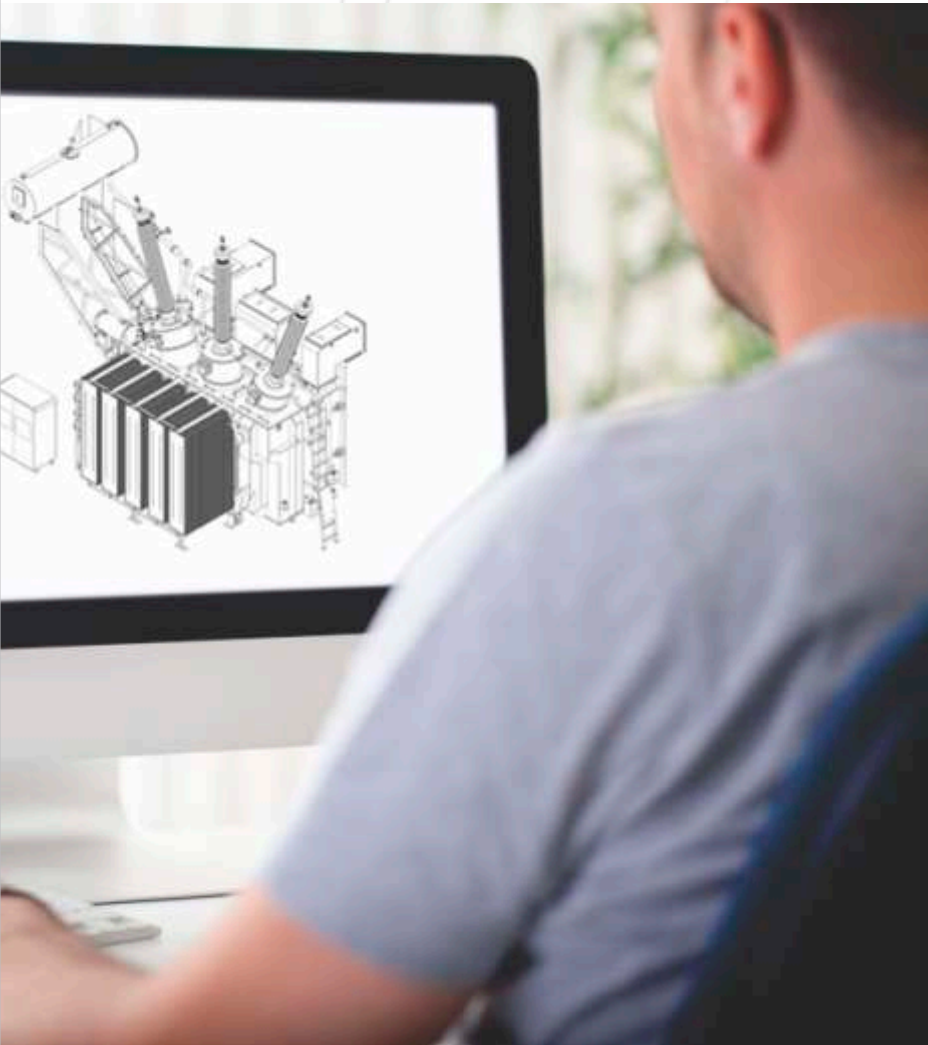


Product Range

- Power Transformers up to 200 MVA and 400 kV
- Generator Transformers
- Unit Auxiliary Transformers
- Special Application Transformers



“Quality at Bharat Bijlee
is a way of life”



Design Philosophy

Over fifty years of design experience and computer-aided design tools combine to ensure the quality, reliability and efficiency of our transformers.

The design process begins with accessing design data from our database, followed by the generation of alternative core and coil designs and finally the selection of the most optimal design. Many of our transformers have successfully undergone short-circuit tests at the Central Power Research Institute.

Transformers are designed as per IS, IEC, ANSI, etc. in line with the customer requirement



Core

The core is built from prime grade silicon steel laminations. Hi-B grade material, step lap construction and boltless assembly reduce the core losses. Limbs are clamped with specified design pressure with the help of resin bonded glass bands. Oil ducts enables effective cooling.



“We are committed to exceeding customer expectations”

Windings

Windings are made from Electrolytic grade copper. Bunched or Continuously Transposed Conductors (CTC) increase the winding space factor and the windings are produced on vertical and horizontal winding machines in a dust free environment.

Depending on the current, the low-voltage windings are either disc or spiral type and are built to withstand compressive radial forces under short-circuit conditions. Axial and radial cooling ducts ensure effective heat dissipation and eliminate hot spots.

The winding are thoroughly dried and the design height achieved using a 120 ton hydraulic press with a force exceeding the maximum axial force that the coil would be subjected to under short circuit.



“Exporting across the globe”

Core and Winding Assembly & Tanking

The windings are assembled on the core and radially supported by pre-compressed pressboard spacers to withstand radial forces generated under short-circuit condition. Clamping the windings in position counters out-of-balance axial forces and ensures that the windings are held in position for the life of the transformer.

Special extra-flexible, insulated copper cables, rigidly braced in position, connect the ends and tapping leads of the windings.

The core and coil assembly are dried in a Vapour Phase Drying plant from MICA FIL.

The coils are hydraulically pressed and locked with pressure blocks to provide mechanical rigidity. The core-coil assembly is located and locked in the tank to prevent movement of the active part in transit.

The tank is filled with oil under vacuum conditions to attain a moisture and gas content well within the desired specification levels.

The transformer is readied for final inspection after assembling the bushings, conservator, radiator and other accessories.





Tanks

Tanks of bell-type or conventional construction are fabricated from low-carbon mild steel plates by welders qualified under ASME Section IX-A and are designed to withstand vacuum and pressure according to CBIP guidelines. They are shot-blasted to achieve a surface profile of Sa 2.5. Dye-penetration tests are performed on welds of load-bearing members such as lifting lugs and jacking pads.

External surfaces are painted initially with epoxy primer, followed by enamel, epoxy or polyurethane paint depending on the environmental conditions at the site. Other surface-coating treatments such as spray galvanizing are also available. Oil-resistant paint is used for internal surfaces.

Special care is taken to eliminate leakage and surface corrosion. Pressure and vacuum tests complying with CBIP norms are performed as routine process tests.

Quality Assurance

Quality is our way of life. It begins with meticulous design and engineering, and continues through every step of the manufacturing process, with an attention to detail and strict compliance with stringent QA guidelines.

We are ISO 9001-2008, ISO14001-2004, OHSAS 18001-2007 certified company by DNV and our testing laboratory is assessed and accredited in accordance with ISO/IEC 17025: 2005 by NABL.



Testing

Our focus on quality is augmented by a well equipped testing laboratory and a test floor with facilities capable of performing routine, type and special tests – temperature rise, DGA, Switching and Lightning impulse, Partial Discharge, SFRA, Noise level, Harmonics – according to Indian and International standards.

Our oil test facility permits conducting all tests as per relevant standards including DGA and oxidation stability

“Exporting since 1968”



Packing and Dispatch

Safe transportation involves proper selection of the transportation means, centre of gravity alignment, firm lashings, securing at the base, and protection for protruding parts. Accessories are packed in standardized wooden crates with safety markings. Our own escort enables regular update on trailer location and the safe and timely movement of the transformer.

After-Sales Service

Customer service is a byword to us and manifests itself in our single-window system. Our wide network & dedicated team enable quick response to calls for assistance with installation, commissioning, supervision, or trouble-shooting.



Exports

Our commitment to exceeding customer expectations has firmly established us in the Indian market. At the same time, our global presence has increased by leaps and bounds, and we are equipped to meet the challenging demands of converting a thorough understanding of specifications into efficient design, of meeting delivery deadlines, dealing with different time zones, cultures and markets, and of complex logistics.

Exporting since 1968, we have already made our foot print to more than 26 countries across the globe.



125 MVA Power Transformer at OETC 132 kV Rusail Grid Station, Sultanate of Oman

List of Short Circuit Test on Power Transformers

Rating Description	Testing Authority	Type Test Report no.	Customer	Year
33MVA 34.5/11kV 3 Phase Transformer	CPRI, Bhopal	95/STN-1/370	GAIL	Jan-96
40MVA 220/6.9kV 3 Phase Transformer	CPRI, Bangalore	HPL/96/197	NTPC	Jan-97
25MVA 132/33kV 3 Phase Transformer	CPRI, Bhopal	2001/STN-1/176	RRVPNL	Jul-01
50MVA 132/66-33kV 3 Phase Transformer	CPRI, Bhopal	2004/STN-1/372	PSEB	Jan-05
50MVA 132/33kV 3 Phase Transformer	CPRI, Bangalore	HPL018142	RRVPNL	Oct-08
50MVA 230/11.6kV 3 Phase Transformer	CPRI, Bangalore	HPL10132	TNEB	Nov-10
20MVA 66/11kV 3 Phase Transformer	CPRI, Bangalore	HPL12179	PSPCL	Oct-12
100MVA 220/66kV 3 Phase Transformer	CPRI, Bangalore	HPL13172	PSTCL	Oct-13
160MVA 220/66kV 3 Phase Transformer	CPRI, Bangalore	HPL15047	PSTCL	Mar-15

Our Clientele

International

Algeria: Ispat ANNABA, Bangladesh: Abulkhair Steel, BPDB, DESCO, DPDC, Shah Cements, Bhutan: Penden Cement, Congo: Shalina Laboratories, Egypt: Alexandria Carbon Black Co, Indonesia: Elegant Textiles, Essar Projects, Ispat Profile, PT Ispat Indonesia, PT Siemens, PLN, PT Ispat Indo, Iran: Shahin Steel, Ivory Coast: Ministry of Mines of Petrol & of Energy, Jordan: Indo Jordan Chemicals, SPIC, Kenya: India Products Trading Co., KPLC, Mombasa Cements, Laos: Laos PDR substation, Malaysia: Siemens Electrical Engg, Mozambique: ARJ Group Cement, Myanmar: Electric Power Corporation, Siemens Burma, Namibia: Ohorongo Cement, Nepal: NEA, Nigeria: African Textile Mfr. Ltd, First Aluminium Company, Oman: MEW, Occidental Mukhaizna LLC, Occidental of Oman Inc., OETC, Philippines: Indophil Textile Mills, UAE: Gulf Cement, MEW, Electricity & Water Department, Sharjah Senegal: ICS, Sri Lanka: CEB, State Fertilizer Corporation, Unilever Ceylon Ltd., Tanzania: TANESCO, Uganda: Birla Sembule Steel, Hima Cement Ltd., Zambia: Ndola Energy

Domestic

ACC, Adani, AEGCL, Ambuja Cement, APTRANSCO, BALCO, BGR Energy, BMM Ispat, BPCL, BSES Rajdhani Power, BSPTCL, CESC, CSPTCL, DVC, DTL, Godrej, Govt. of Goa, Grasim Industries, HPCL, HPPTCL, HVPNL, HZL, IOCL, ISJEC John, ITC Ltd, JK Cement, Jaiprakash Associates, Jayaswal Neco, JSPL, JSW Steel, KPTCL, L&T, Maharashtra Seamless, Mahindra & Mahindra, MPPTCL, MSETCL, NALCO, NDMC, NEEPCO, NTPC, OHPCL, ONGC, PGCIL, PSPCL, PSTCL, Ranbaxy, Reliance Energy, Reliance Industries, RRVPNL, RSWML, SAIL, Shree Cement, Shyama Power, Siemens, Tata Chemicals, Tata Electric Company, Tata Motors, Thermax, TSTRANSCO, Ultratech Cement, UPPTCL, VSP, WBSETCL

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NORTHERN REGION-NEW DELHI

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