



A True Solution Provider for Capacitive Transformer Bushings



YASH MAKE 145 KV OIP BUSHINGS RETEOFITTED ON A TRANSFORMER TO REPLACE OLD SRBP BUSHINGS

24/7 Reliable and affordable power in today's scenario is essential for everyone including households, industry, commercial businesses, public needs, agriculture and many more applications. Today, a nation's development can almost directly be equated to its electricity consumption and innovation in power infrastructure. In order to ensure continual progress and sustainable development, governments across the globe have formulated various strategies and policies with dedicated focus on effective and efficient power generation, transmission and distribution networks. YASH Highvoltage Ltd. through its niche and varied Condenser Graded High Voltage and High Current Transformer Bushings solutions has been playing a pivotal role across the globe for over 20 years in helping power utilities and transformer OEMs alike to help realize the goal of uninterrupted and sufficient power supply by ensuring minimal downtime of transformers due to unavailability of a highly critical component of transformers – Capacitive Bushings.

It is well known that capacitive transformer bushings are mission-critical devices for a power transformer/reactor/GIS and power

substations to help conduct power from/to overhead transmission lines/IPBDs, etc. to/from the active part of the transformation equipment, which essentially requires passage of the power safely through an earthed barrier at extremely high voltages. Though the cost of a transformer bushing is negligible in comparison to that of the transformer or the substation equipment around it, the failures of these products can be catastrophic not only in terms of collateral equipment damage and life-risks, but also in terms of disruption of power supply to the grid and thereby to the users. The critical operational requirements for transformer bushings demand their own set of stringent qualification requirements and business maturation time along with dedicated investment in specialized processes, R&D, know-how, infrastructure, human resources and, above all, a slow gestation period for brand recognition and establishment of trust with customers, which is the primary reason that globally there are only a handful of recognized manufacturers for transformer bushings – with YASH being a part of this distinguished list.

There are several surveys and technical papers internationally on power transformer failures

(transformers catching fire and explosive failure leading to disruption of power availability), clearly indicating that transformer bushings contribute to an average >18 to 20% of power transformer failures, several of which are at times catastrophic in nature causing damage also to the surrounding equipment. If the transformers are repairable, the time to repair runs in several months thereby disrupting transmission/generation. In view of the above-mentioned consequences, several utilities around the world are now increasing vigilance on bushing condition monitoring as well as adopting strategies to timely replace/retrofit old transformer bushings which are either displaying unacceptable results or are nearing the end of their service life. There are several bushing designs even today which are operational in the field but for which spares are not available either due to legacy designs, at times unavailability of the original manufacturer, or change in technologies and capabilities.

guided by seasoned technical experts hailing from transformer bushing industry from Europe and India as well as utility stalwarts in field of HV/EHV power substation and engineering design – all of them having a combined experience of 120+ years between them.

Possessing the ability to offer a combination of all bushing technologies under one roof and across applications, viz. retrofitting potential of SRBP to OIP, OIP to OIP, OIP to RIP/RIS are available from a single window along with engineering support for choice of the correct bushing and technicalities of application, gives relief to the customer. The presence of a dedicated PAN India Regional Services team of trained and knowledgeable engineers provide quick access and swift support to customers as an added advantage, whether it requires consulting or to simply take measurements of the existing bushings at site which are to be retrofitted.



36 KV 16 KA HIGH CURRENT BUSHING WITH 8 PALM TERMINATIONS, CUSTOM ENGINEERED FOR A GENERATION STATION

Replacing them requires a lot of value engineering, involving considerable time, effort and risk purchasing. Being an independent manufacturer solely focused on transformer bushings, YASH possesses the ability to adapt and deliver made-to-order solutions whether the requirement is for a few bushings or for many, through a lean and responsive team which has a separate and dedicated focus for custom engineering, while maintaining industry best development times even for non-standard parts. The solutions are developed by an experienced and passionate in-house engineering team



36 KV 16,000 A HC BUSHING SUPPLIED AS A RETROFIT SOLUTION TO US, TURKEY & OTHER MARKETS

YASH being an independent manufacturer solely focused on transformer bushings with global supply experience of 27,000+ bushings across 50+ countries, has developed a unique identity of being more than an established bushing manufacturer, and as a one-stop solution provider to power industry (generation and transmission) for all combination of transformer bushings which has been appreciated alike by the end users and global MNCs such as Siemens, GE, Hitachi-ABB, Toshiba, CG, Schneider, Hyundai, BTW, and many more. In addition to a well-established

and standardized product range, YASH possesses the ability to offer flexible and highly customizable retrofit bushings solutions to all customers alike for the comprehensive product basket of transformer bushings not only to transformer OEMs as well as transformer overhauling/repairing and servicing companies, but also directly to the end user sites with supply of interchangeable transformer bushings retrofitted to any reputed global bushing make hence justifying itself as a solution provider rather than merely a bushing supplier.

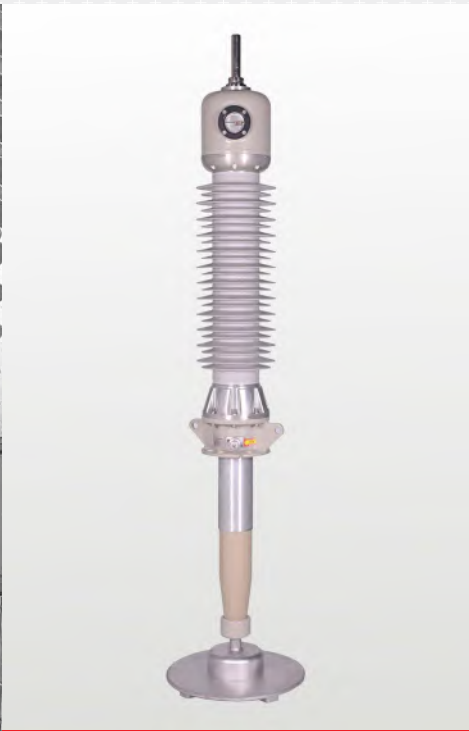


*ONE STOP SHOP FOR HIGH CURRENT,
HIGH VOLTAGE, OIP/RIP/RIS BUSHINGS,
WALL BUSHINGS*

There have been plenty of situations wherein transformers have been under breakdown due to problems with the existing bushings and identical spares being non-available. This not only results in heavy losses to the end user but also forces them to replace the complete transformer driving the cost of maintenance in millions at times. A very similar situation was witnessed by a huge thermal power generating station in Turkey (2x660 MW) where power generation was hindered due to issues faced in LV high current bushings for seven generator step up transformers thereby crippling the entire plant's generation. The LV high current bushings of 36 kV 16,000 A had to be custom engineered and retrofitted. YASH successfully managed to develop this solution in record lead



*145 KV OIL TO OIL
BUSHING SUPPLIED
AS RETROFIT SOLUTION*



time overcoming the issues posed by the then ongoing COVID-19 pandemic. These special efforts by YASH were highly appreciated by the end user and helped restore power to a million households as well as industry and hospitals especially during COVID. Similar executions have been made for the power generating and transmission substations across the world including some noteworthy executions of 36 kV 16,000 A HC bushings and 34.5 kV 8,000A IEEE design high current bushings for multiple power generating stations of USA, 170 kV 1,250 A 860 CT OIP and 36 kV 10,000 A 0 CT high current bushings for Ecuador, to name a few.

Not limiting its capabilities of providing solutions for Oil-Air bushings, YASH has been pivotal in providing similar customized retrofit solutions for oil-oil and air to air bushings applications. There have been numerous other such instances where end users – both private and govt., whether they are industry,



RETROFIT SOLUTIONS TO DESIGNS OBSOLETE BY THE ORIGINAL BUSHING OEMS, WITH A VARIETY OF TERMINATION AND DIMENSIONAL CUSTOMIZATIONS



transmission application or generation applications, have been given respite by receiving the timely support and solutions through YASH retrofits value stream in the domestic as well as exports markets.

Globally there are several solution providers for power transformer repairs and overhauling, but YASH remains unrivaled in providing retrofit/repair solutions specific to transformer bushings, and this capability is well appreciated and welcomed by global utilities/power substations/EPCs and transformer repairing/overhauling enterprises.



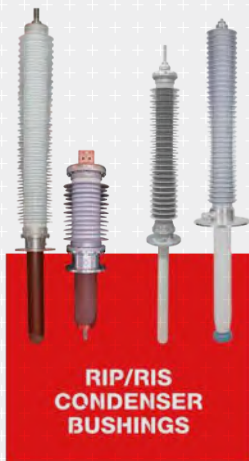
600 KV EHV TEST LAB AT YASH

Superior infrastructure capabilities paving way for multifold growth

The critical operation requirements for transformer bushings also warrants an utmost attention to detail towards quality and testing. YASH factory consists of world class manufacturing and testing equipment sourced from reputed manufacturers in Germany, Switzerland, the USA, and other parts of Europe to enable a facility that is second to none for bushings manufacturing including automatic winding machines, SCADA controlled autoclave systems, industry best handling and storage systems, state of the art testing and evaluation

equipment, including an in-house EHV test laboratory capable of all routine tests and several type tests in line with IEC 60137:2017 standard, enabling a 100% test capability of each and every product which departs from the factory.

The infrastructure is further strengthened by integrated ERP systems and world class 2D-3D designing software and modelling. YASH continues to invest in addition and upgradation of its infrastructure and CAPEX each passing year, with a view to cater the global bushing market and be the preferred transformer bushing solution provider to our discerning customers.



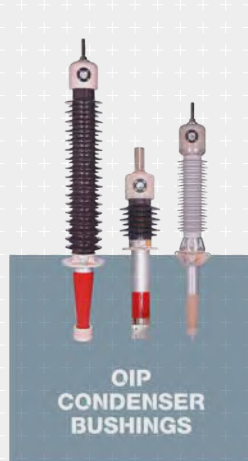
**RIP/RIS
CONDENSER
BUSHINGS**

Rated Voltage
24kV-245kV
Rated Current
400 A to 6300 A*
Standard
IEC 60137:2017
Connection
Draw lead/Draw
Rod/Stem type
Housing
Composite/Silicone
Rubber
*6300 and other special
current ratings also
available on request
Technology Collaboration



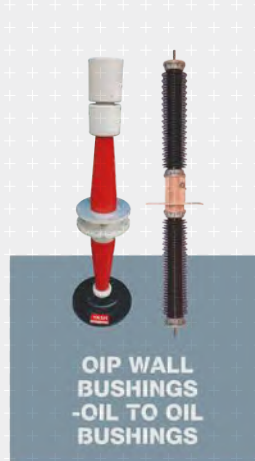
**HIGH CURRENT
BUSHINGS**

Rated Voltage
24 kV ~ 36 kV
Rated Current
4000 ~ 25000 A
Standard
IEC-60137:2017/IEEE
Types
Oil filled /
Communicating /OIP
Condenser



**OIP
CONDENSER
BUSHINGS**

Rated Voltage
24 kV ~ 245 kV
Rated Current
Upto 4000 A
Standards
IEC-60137:2017/
ANSI/IEEE
Connection
Draw lead/Draw
Rod/Stem type
Housing
Porcelain/
Composite



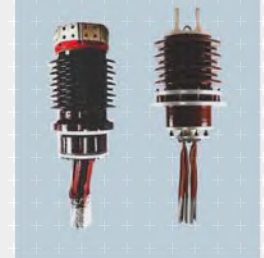
**OIP WALL
BUSHINGS
-OIL TO OIL
BUSHINGS**

Rated Voltage
24 kV ~ 245 kV
Rated Current
400 A ~ 3150 A*
Standard
IEC-60137:2017 OR IEEE
C.57.19.00/01
Connection
Draw lead/Draw Rod/Solid
Conductor
Housing
Porcelain/Composite
Silicone-Polymer
*Customized Rated Current
>3150A are available upon request



**RETROFIT
SOLUTIONS**

Interchangeable
solutions with
global reputed
makes



YASH CONSOLIDATED PRODUCT RANGE

About Yash Highvoltage Ltd.

Established in 2002, YASH Highvoltage Ltd, is an ISO 9001 certified independent and indigenous manufacturer of niche condenser graded transformer bushings. From a humble beginning as manufacturer of high current bushings, today YASH has grown steadily and has craved a niche for itself not only in terms of product range and business volumes of 27,000 products supplied globally but also in terms of the customers and 50+ markets served, as a true "one-stop solution provider" with a wide product basket comprising of OIP (Oil Impregnated Paper) Capacitive Bushings up to 245kV for Oil – Air, Oil – Oil and Air - Air application in power transmission, High Current Capacitive Bushings up to 25kA for generator step up transformers, Resin Impregnated Paper (RIP) Capacitive bushings up to 245 kV under technology and equity partnership with Moser Glaser – Switzerland, IEEE range of OIP condenser bushings and many more.



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