



Comprehensive Moisture Management Systems



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RAVIN.

ELECTRICITY FOR A BRIGHTER TOMORROW.

A specialist across power and electricity sector, Ravin Group, with an experience of over 7 decades, has carved a niche for itself in the domestic and global markets, as the Electricity Expert. With a view to stay ahead of the curve, Ravin has managed to make its mark and light up lives with its comprehensive solutions and futuristic approach wherever they go and will continue to do so for years to come.



At Ravin, the focus is on providing world class, safe and cutting-edge products and services to satisfy the ever-increasing electricity needs. The products and services, across the electricity spectrum, are laced with technologically advanced solutions that allow us to actively build a safe and strong future for the electrified world.

Ravin Group has a diversified portfolio across the electricity value chain, with its prowess in the manufacturing of **Electric Cables, EHV Cables & EPC Services, Power Equipments, Moisture Management Systems and Solar Energy Solutions.**

OUR VALUES DEFINE US

Our strongly imbibed core values of Safety, Dependability and Sustainability comes across as our strength and the basis of our growth and development across the decades of our operation.



SAFETY to the users, the public in general, our employees and the environment is our priority. Safety coincides with production and quality and is an integral part of our business. A series of pioneering safety innovations has made Ravin a leader in safety over the past few years.



DEPENDABILITY is living up to our word and fulfilling our promises. Our customers and communities deserve our respect, honesty, and expert abilities. When a project is completed, our goal is to be remembered as a trusted partner that delivered the promised results. And to be relied on again.



SUSTAINABILITY for us is an approach that integrates people, planet and profit, resulting in a greener and safer tomorrow. Our aim is to promote a responsible culture and implement robust corporate systems to meet our sustainability goals.

ACHIEVEMENTS

- **Best Infrastructure Brand Award**, 2016 by The Economic Times
- **Export Excellence Awarded** by EEPC since 2001
- Group CMD, **Mr. Vijay P Karia** awarded with **Inspiring Entrepreneurs of India**
- Group CMD, **Mr. Vijay P Karia** awarded with **Asia's Most Promising Business Leaders**





In providing a unique approach to process design, construction and project management, Ravin's engineering expertise, production and process knowledge can provide a range of services to meet requirements like:

- Feasibility Study
- Customised Manufacturing
- Installation
- Design
- Equipment Supply
- Commissioning

Through our process, engineering prowess and reputation, we can deliver a diverse range of process solutions to both domestic and overseas markets.

Our customer base extends to major national and international companies, worldwide private and public sector clients, all of whom have benefited from our ability to adapt technologies and tailor our services to meet the specific requirements of a project.



BUSINESS OFFERINGS

Electric Cables

India's first integrated provider of electricity distribution cables, Ravin group has become a powerhouse supplier of world class electric cables and equipments to the power generation and distribution sector. With manufacturing facilities in India and UAE and a presence in more than 50 countries, Ravin group are expert manufacturers of a wide range of electric cables of various capacities ranging from 1.1 kV to 220 kV and specialties including variable frequency drive, fire survival, low smoke zero halogen, solar and wind cables, among many more.



Electric Cables up to 220 kV



Large scale Termination and Jointing Projects

Ehv Projects And EPC Services

Ravin Group provides a wide range of solutions including designing, manufacturing, cable laying, installation, jointing, termination and maintenance of Extra High Voltage Cables for power transmission directly from power plant sites to primary distribution networks. With its stellar expertise, Ravin Group installs pre-moulded joints and terminations for all voltages from 11 kV onwards to 400kV in India with the support of a fully trained and certified jointing team and an extensive experience of thousands of joints and terminations.

Power Equipment

Ravin Group also offers a high end Molecular Moisture Management System. It includes an on-line molecular sieve that is designed to lower the ppm level of water in the oil to maintain the natural hydrostatic equilibrium, and hence, significantly reduce the water content within the solid insulation. This on-line process not only reduces insulation ageing, but also improves the dielectric strength of the oil and health of the transformers.



Moister Management Systems

Solar Energy Solutions

Ravin's global approach and research in technology is aimed towards delivering sustainable and efficient solar solutions across the globe. Ravin has introduced an innovative and path-breaking tracking system which is a device that orients various solar energy generating components towards the direction of the sun. The revolutionary tracking systems help maximize the energy yield by 15% to 35%, thus increasing the ROI.



The tracking systems include the following design solutions, suited for various applications:

- Single Axis and Dual Axis Tracking System
- Unipolar Tracking Systems
- Rooftop and Ground Mounted Tracking Systems
- Mobile Solar Power Generation Station with a Tractor Trolley



Solar Water Pumping Solutions

Ravin also offers an advanced Solar Water Pumping System with **built in automatic tracking mechanism** to maximize the system output. Some of its features include:

- Non-polluted, clean and efficient energy
- Fully Unattended Automated Operation
- No electricity or fuel costs
- Easy installation on roof or ground
- Long life of over 20 years; Low maintenance
- Solutions for upto 200 meters water head
- Pump Capacity from 0.74 Hp to 24 Hp

POWER EQUIPMENTS

We at Ravin provide molecular sieve moisture management system solutions for power transformers manufactured under license from TRANSEC, UK, in India.

TRANSEC





Overview

- Power and distribution transformers are the most important and expensive assets in an electrical power network.
- Compared to other equipment, they are very reliable and require very little maintenance since they have no continuous moving parts.
- However, the insulating paper material, being organic, degrades with time, thereby reducing the life of the transformer.
- Water is a by-product of the decomposition of the long chain hydrocarbon glucose molecules of cellulose that makes up the paper and pressboard insulation.
- Excessive moisture will saturate the insulation and increase its conductivity.
- At higher temperatures, vapour or free moisture can develop increasing the high risk of partial discharge and flashover faults.
- Moisture has a great influence on the life expectancy and the load carrying capacity of a transformer. Moisture reduces the electrical and mechanical strength of the solid insulation.
- In general, the mechanical life of the insulation is halved for each doubling of the ppm water content; the rate of thermal deterioration of the paper is directly proportional to its water content.

DESCRIPTION

- Ravin Infraproject Pvt. Ltd. introduces TRANSEC (India), an on-line molecular sieve, developed and manufactured in India under license from TRANSEC (UK), that continuously removes water from the oil and from the paper insulation in a power transformer.
- This on-line process not only reduces insulation ageing, but also improves the dielectric strength of the oil, by constantly reducing the level of water contained within the oil & solid insulation, where over 95% of the water is trapped.
- In this way, water gradually moves from the solid insulation, to the oil, and then is trapped by the molecular sieve.
- TRANSEC is designed to be a slow, non-invasive, gradual process, that lowers the ppm level of water in the oil to maintain the natural hydrostatic equilibrium, and hence, significantly reduce the water content within the solid insulation.

CL3AM PERFORMANCE



- The TRANSEC system has the capacity to remove approximately 10 litres of water from a transformer before saturation, but the rate at which it will adsorb water will depend on many factors, mainly, on the level of water present in the oil, and the temperature range through which the transformer will operate.
- The design flow rate of the pumped oil is nominally 60 to 90 litres per hour to give maximum adsorption through the molecular bed. The oil temperature does not have to be elevated to give optimum adsorption.
- The process will slow down as total saturation is reached. Higher the temperature of the transformer, the faster is the rate of ageing of the paper insulation material.
- Typically, a CL3AM on a wet (insulation water content 4% by dry weight) transformer operating in a hot humid ambient climate might saturate in 6 to 9 months.
- A CL3AM on a dry (insulation water content 1% by dry weight) operating at 50°C might take 24 months to saturate.
- A CL3AM on a brand new transformer (insulation water content 0.3% by dry weight) might take 5 years before saturation.
- The product is judged on the amount of water that is removed, which is reported to the client when the cylinders are replaced and regenerated.

We are the only turnkey infrastructure energy solution provider licensed to manufacture and install TRANSEC in Indian markets. Our sophisticated infrastructure; encompassing superior equipments with a team of highly qualified experts enables us to offer full installing and maintenance services.

TRANSEC MOLECULAR SIEVE IS SUITABLE FOR

➤ MID LIFE TRANSFORMERS

To reduce the % moisture in insulation to extend life, and reduce the risk of a life-threatening event

➤ NEWTRANSFORMERS

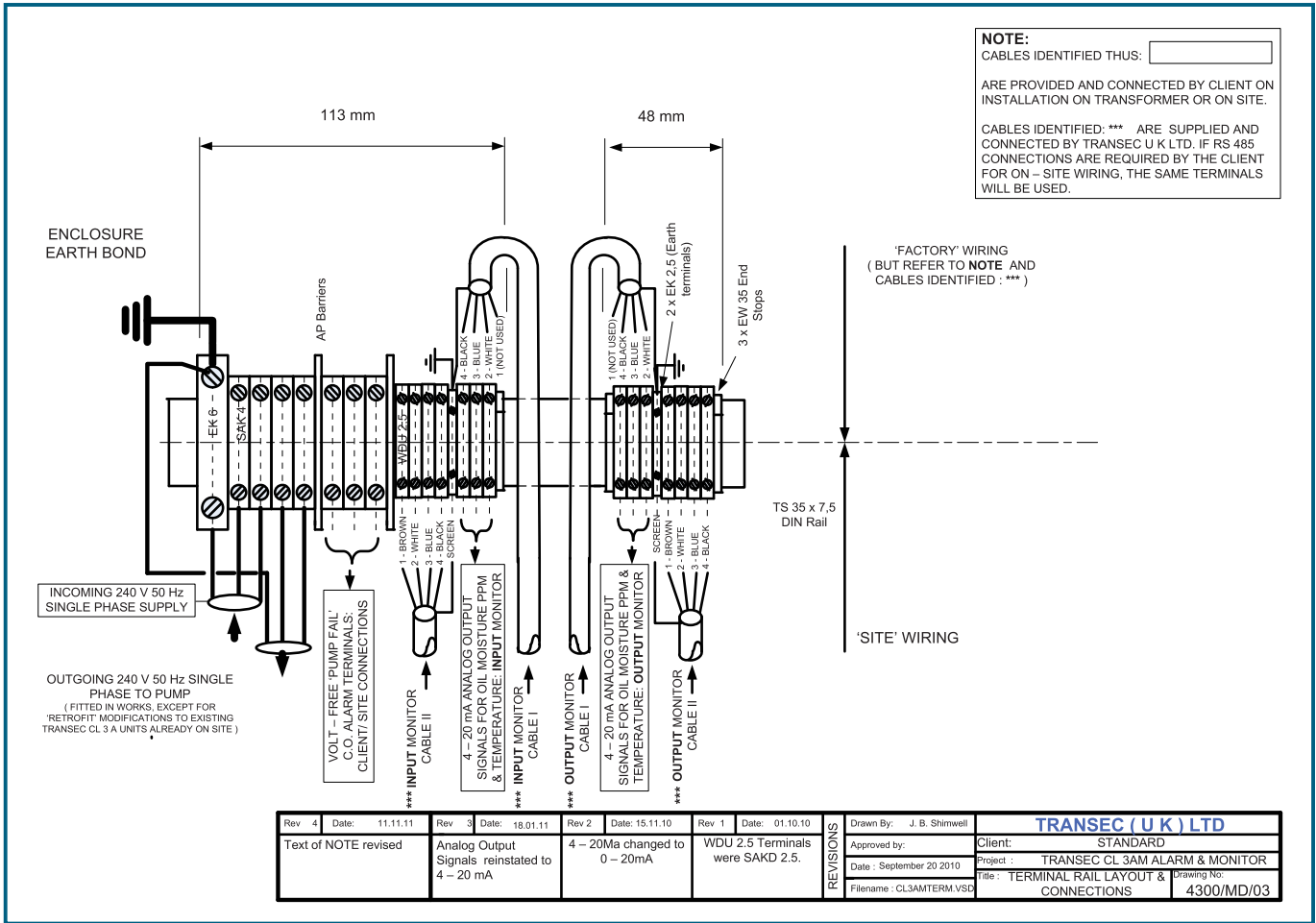
To maintain the insulation of a new transformer in 'new condition', and extend life of the asset

➤ STRATEGIC SPARETRANSFORMERS

To maintain an off-line transformer in a dry condition prior to being commissioned



TECHNICAL SPECIFICATIONS OF TRANSEC SYSTEMS





ADVANTAGES OF TRANSEC



- Reduces insulation ageing
- Improves dielectric strength of oil
- Increases reliability of the transformer
- Increases the life of the transformer
- It is an online process, which removes moisture from transformer while the transformer is on, therefore shutdown can be avoided
- No moving parts, except the pump, hence least chances of failure or breakdown making it maintenance free
- Displays the ppm water in oil along with the temperature (with monitoring)
- Can be installed directly on a transformer, no additional protection required

TRANSEC IS APPROVED BY POWER UTILITIES IN INDIA LIKE

- Power Grid Corporation of India Ltd.
- National Thermal Power Corporation (NTPC)
- Maharashtra State Electricity Transmission Company Ltd.
- Andhra Pradesh GENCO
- Reliance Energy
- HPPTCL

TRANSEC IS THE PREFERRED CHOICE OF

- | | |
|-----------------------------|-----------------------|
| ➤ Crompton Greaves | ➤ Hyundai, Korea |
| ➤ Alstom | ➤ BHEL |
| ➤ ABB | ➤ BTW |
| ➤ Emco | ➤ MSETCL |
| ➤ Transformers & Rectifiers | ➤ Reliance Energy |
| ➤ TBEA | ➤ ZTR - PJSC |
| ➤ Hyosung, Korea | Zaporozhtransformator |
| ➤ Bharat Bijlee | |

AVAILABLE VARIANTS

Model No.	Water Removal Capacity (ltr)	Applicable For
➤ CL 1A	3.5	Transformers with Oil upto 5000 litres
➤ CL 2A	7	Transformers with Oil from 5000 to 10000 litres
➤ CL 3A	10.5	Transformers with Oil above 10000 litres
➤ CL 3AM	10.5	Transformers with Oil above 10000 litres with monitoring
➤ CL 3AM FO	10.5	Transformers with Oil above 10000 litres with monitoring and IEC 61850 compliant

WHY PARTNER US?



With a global approach and comprehensive research, Ravin helps in delivering world-class solutions with a high degree of innovation and quality. Backed by a cutting-edge technology and high levels of customer-centricity,

Ravin provides clients with the highest degree of quality standards. The project management team at Ravin also ensures that each component exhibits outstanding electrical and mechanical properties that makes it the preferred choice for customers across the globe.



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