



MAGNETIC AND CONTROLS

An ISO 9001-2015 Certified Company

The Transformer People



POWER
SOLUTION
EXPERTS

The Company

Our Company was established in 2001 by a well qualified and experienced team of professionals with diversified interest to manufacture wide range of transformers. Our transformers are continuously evolved to suit the technical developments and applications. Our company is situated in India and we supply transformers within the country and export our product to export market. Our technical team is capable to design and make difference types of transformers for different application to meet customer requirement. We are specialized in all kind of transformers, power saving and conditioning equipments, energy audit and solutions to all electrical related problems in a factory. We are verified ISO9001:2015 company. We manufacture CE marked transformers which are designed in compliance with IEC 60076

OUR STRENGTH

We have our own manufacturing plant in India with highly skilled technical team who has the capability to design and develop quality transformers as per the customer requirements. We also have a factory in Kingdom of Saudi Arabia in a Joint venture with Falah Saeed Al Hajri Factory for Electrical Transformers, Al-Kharj, Kingdom of Saudi Arabia.



Magnetic Control Electrical System
KSA



Magnetic and Controls
INDIA

OUR VISION

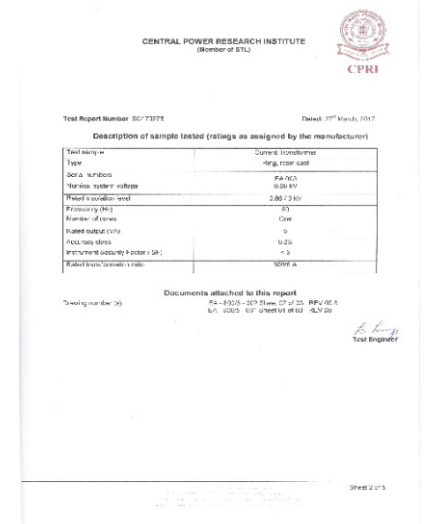
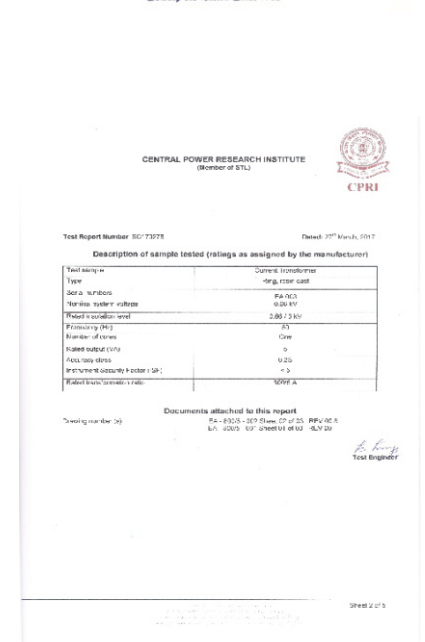
"To contribute to the infrastructure development of Nations in the field of power conditioning, which will lead to prosperity"

OUR MISSION

To continually develop, innovate and use latest technologies & processes that will help us provide better equipment & services, meeting the international standards.

- To expand & diversify market & products
- To satisfy our customers





“Reliable power is the foundation of progress. Ensuring high power quality is not just a technical necessity but a commitment to efficiency and sustainability.”





Our Certificates

CENTRAL POWER RESEARCH INSTITUTE
(Member of STL)

CPRI

TEST REPORT

Test Report Number: SC170276 Dated: 27th March, 2017

Name & Address of the Customer: M/s. Excel Automation,
Plot No. 121, V.G. Rao Nagar, (Phase-1),
Ganapathy Post, Coimbatore -641 006,
Tamil Nadu, India.

Name & Address of the Manufacturer: M/s. Excel Automation,
Plot No. 121, V.G. Rao Nagar, (Phase-1),
Ganapathy Post, Coimbatore -641 006,
Tamil Nadu, India.

Particulars of sample tested: LT Current Transformer
Condition of the sample on receipt: Good

Type: Ring, resin cast
Description of the test sample: 660 V, 200/5 A Current Transformer
Serial number(s): EA 001
Number of samples tested: One
Date (s) of test (s): 7th & 8th February, 2017
CPRI sample no(s): SC17S0077

Particulars of tests conducted:

- 1) Verification of terminal marking and polarity
- 2) Power frequency dry withstand tests on primary winding
- 3) Power frequency dry withstand tests on secondary winding
- 4) Over-voltage inter-turn test
- 5) Determination of errors

Test in accordance with Standard / specification: Sub-clause 9.1.2 a), b), c), d), f) of IS 2705 (Part 1): 1992 (Reaffirmed 2012)

Sampling plan: Not applicable

Customer's requirement: Nil

Deviations if any: Nil

Name of the witnessing persons: Mr. M. Sateesh Kumar, Testing Engineer
Customer's representative: None
Other than customer's representative: None
Test subcontracted with address of the laboratory: None

Documents constituting this report (in words):
Number of sheet: Five
Number of oscillograms: Nil
Number of graphs: Nil
Number of photos: Nil
Number of test circuit diagrams: Nil
Number of drawings: Two

(G. Girija) Test Engineer

(Swara) Kumar Das Joint Director

Sheet 1 of 5

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(Member of STL)

CPRI

Test Report Number: SC170276 Dated: 27th March, 2017

Description of sample tested (ratings as assigned by the manufacturer)

Test sample	Current Transformer
Type	Ring, resin cast
Serial numbers	EA 001
Nominal system voltage	0.66 kV
Rated insulation level	0.66 / 3 kV
Frequency (Hz)	50
Number of cores	One
Rated output (VA)	5
Accuracy class	0.2S
Instrument Security Factor (ISF)	< 5
Rated transformation ratio	200/5 A

Documents attached to this report: EA- 200/5-002 Sheet 02 of 03 REV 00 & EA- 200/5-001 Sheet 01 of 03 REV 00

Drawing number (s):

(P. Srinivas) Test Engineer

Sheet 2 of 5

SAUDI ARAMCO VENDOR CERTIFICATE

Saudi Arabian Oil Company
Supplier Relationship Management
8-102 North Felt 2
Dhahran 31211
Saudi Arabia

Tel: (966 13) 874-0958
Fax: (966 13) 874-1495

أرامكو السعودية
saudi aramco

November 27, 2019

SRQU-131-19

FALAH S. ALHAJRI, General Manager
Magnetic Control for Electrical Transformer Factory
P. O. Box 7736
ALKHARJ 16271
Fax : 011-858-7518

Mr. ALHAJRI,

We are pleased to inform you that your company is included in the Saudi Aramco Supplier Information System under Vendor Code No. 10065128, for the following products provided your company continues to meet relevant Saudi Arabian and Saudi Aramco standards.

SCOM	Description
6000000759	TRANSFORMER, CONTROL POWER, DRY TYPE;
6000010253	TRANSFORMER, POWER, DRY 500 KVA MAX
6000000757	TRANSFORMER, AUTO

This approval, however, should not be construed as a commitment by Saudi Aramco to purchase from you. Being approved as a supplier only grant your company the opportunity, along with other approved sources, to respond to requests for submitting proposals in accordance with Saudi Aramco's established policies and procedures. All purchase agreements and orders will be issued based on the name and address stated in your commercial registration (CR), as stated above.

Saudi Aramco wishes to remind you that being recognized as a potential supplier is a privilege which carries with it serious obligations and responsibilities to act in a legal and ethical manner. We wish to remind you of the Saudi Aramco Supplier Code of Conduct (SCOC) which you acknowledged. Failure to abide by the principles set forth in the SCOC can result in adverse actions being taken by Saudi Aramco against you including suspension of you as a supplier. Saudi Aramco also expects each of its suppliers to satisfy each of the requirements of any purchase agreements or orders which might be placed and to act responsibly and reliably as a supply chain supplier.

Saudi Aramco Company General Use
Page 1 of 2

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Please note that evidence of representation from your supply source(s) must be supported by letter(s) of confirmation stipulating the territorial coverage and specific product lines involved. Your supply sources must have been accepted as qualified suppliers of the range of materials that you wish to supply. It is also important that you advise us immediately of any changes in the agreements which you have negotiated with your supply sources and/or any changes in your contact information such as postal address, telephone and fax numbers.

Suppliers should apply for Saudi Aramco Supplier Portal access by forwarding a request to portal-registration@aramco.com. The Supplier Portal is the main electronic business tool used between Saudi Aramco and its suppliers and serves to improve the flow and accuracy of key supply chain information.

For linking applicable SCATs, please communicate with Standardization Engineers: Wade Al Ekhan on 8742429 or on wadea.ekhan@aramco.com

For further information or assistance please contact Adnan Jaman on 874-0336 or the Supplier Help Desk on (013) 874-2222 or on SupplierHelpDesk@aramco.com

(Dawoud S Nuweis) Supervisor (A)
Supplier Registration & Qualification Unit

It is the responsibility of the supplier to notify Saudi Aramco Supplier Relationship Management Unit of the following:

1. Change of Name/ Address/ Owner(s)
2. Any change of the supplier location (for sourcing fabrication of major components)
3. Discontinuation of fabrication or supply of approved commodities (SCOMs, SCATs and/or MSSGs)

Saudi Aramco Company General Use
Page 2 of 2

شهادة ترخيص باستخدام علامة الجودة
Saudi Standards, Metrology and Quality Org.

License No: 201800526211

SASO certifies that:

Address:

Grant the right to use SASO quality mark on a following product:

25 - 20 - 15 - 12 - 10 - 8 - 7 - 6 - 5 - 4 - 3 - 2.5 - 2 - 1.5 - 1
محولات الطاقة من النوع الجاف، المحولات الإلكترونية، المحولات (25 - 20 - 15 - 12 - 10 - 8 - 7 - 6 - 5 - 4 - 3 - 2.5 - 2 - 1.5 - 1 KVA/1000 - 950 - 900 - 850 - 800 - 750 - 700 - 650 - 600
الف (Magnetic Control & Electrical) علامة تجارية (KVA/1000 - 950 - 900 - 850 - 800 - 750 - 700 - 650 - 600

After fulfilling the required requirements according to the normative documents:

SASO IEC 61558-1:2010 , SASO IEC 61558-2-13:2009

Date of issue: 2018/09/20
Date of renewal: -
Date of expiry: 2021/09/19

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Saudi Aramco Company General Use
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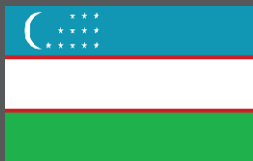
Our wide Range of Products are

- ISOLATION ULTRA ISOLATION TRANSFORMERS
- K-RATED ISOLATION TRANSFORMERS
- POWER DISTRIBUTION UNIT(PDU)
- SOLAR TRANSFORMERS
- RESIN CAST ISOLATION TRANSFORMERS
- STEP UP/ STEP DOWN AUTO TRANSFORMERS
- OIL COOLED TRANSFORMERS
- LIGHTING TRANSFORMERS
- CONTROL TRANSFORMERS
- DRIVE INPUT /OUTPUT CHOKES
- TUNED AND DE-TUNED HARMONIC REACTORS
- SHUNT REACTORS
- CURRENT RESISTING REACTORS
- CURRENT TRANSFORMERS
- VARIABLE AUTO TRANSFORMERS
- SERVO CONTROLLED VOLTAGE STABILIZERS
- LOAD BANK

Our Exports



KSA



UZBEKISTAN



UAE



SRI LANKA



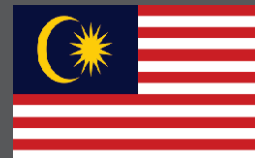
BANGLADESH



QATAR



ETHIOPIA



MALAYSIA



SINGAPORE



OMAN



KUWAIT



BAHRAIN



TANZANIA



THAILAND

Manufacturing & Delivery

Magnetic and Controls has a manufacturing facility in Coimbatore, Tamilnadu and Kingdom of Saudi Arabia. This multi national strategy allows Magnetic and Controls the ability to shift products between plants as required to give customers key advantages in delivery schedules, flexible capacity management and balancing foreign content.....

Magnetic and Controls team have a passion for continuous improvement in all phases of design and manufacturing process in order to meet the requirements of a broad range of customers.

“QUALITY CONTROL AND CONTINUAL IMPROVEMENT IS PART OF EVERYONE’S JOB”



TESTING FACILITY

Our in house testing facility ensures every transformers are tested and under go stringent testing as per IEC 60076 standards, guaranteeing performance, safety and reliability.

Our Testing Capabilities Include :

Routine test

- 1) Measurement of Voltage ratio & Polarity test
- 2) Vector group test
- 3) No load loss & current
- 4) Load loss & Impedance
- 5) Seperate source voltage test
- 6) Induced over voltage test
- 7) Winding resistance test

Special test

- 1) Noise level test
- 2) CMNR test
- 3) Magnetic balance test
- 4) Inrush current test
- 5) Measurement of Harmonics

Type test :

Temperature rise test



K-RATED ISOLATION TRANSFORMERS

K factor is value used to determine how much harmonic current a transformer can withstand without exceeding its maximum temperature level. Huge numbers of single phase loads like computer also create a non-linear harmonics. A standard transformer can not handle the harmonics due to non-linear loads. When harmonics enter to the transformer the core gets saturated, as result it produces lot of heat causing the failure of transformer.

K-rated transformers are specially designed to withstand this non-linear harmonics. K-rating differs according to the harmonic level like K1, K4, K7, K13, K20 etc.,

We are designing our K-rated transformers according to its guidelines and specifications given by ANSI C57 standards NFPA-70, UL 1449 and UL 1567, We use high grade CRGO laminations for our K-rated transformers.

Our K-rated transformers are class H, which will withstand 180 continuously. We use notching type lamination for our K-rated transformers, because of which our transformer core will not saturate even in high voltage.

We also manufacture Aluminum wound transformers with the same quality to minimize the initial investments.

Our design will support to maintain the same performance of copper transformers in aluminium transformers too.

We manufacture aluminium wound transformers upto 800KVA.

K-RATED RECOMMENDATION GIVEN BY ANSI STANDARD

Multiple K-rating selection.i.e., K-1, K-4, K-9, K-13, K-20

- Copper wound construction mainly strip in parallel to reduce skin effect
- Notching type of lamination (CRGO) which can prevent core saturation due to Non-linear harmonics.
- Multi shielded transformers where you will get higher common mode noise attenuation
- 100% linear harmonic attenuation and more than 75% on non-linear loads.
- 10 to 15% over voltage also the core will not saturate
- Class H insulation, High temperature withstanding capacity
- Tapping in the primary side of the transformer.
- Attenuate triplen harmonics from the line.
- Ultimate design
- Excellent transverse mode noise attenuation
- Working with very high flux density
- Compact size
- Solve 88% of tropical power disturbance
- Low Temperature raise.



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✉ magneticcontrols@transformershop.org



POWER DISTRIBUTION UNIT

Data centres face challenges in power protection and management solutions. This is why many data centres rely on PDU monitoring to improve efficiency, uptime and growth.

A Power Distribution Unit (PDU) is a device fitted with multiple output to distribute electric power, especially to racks of computers and networking equipments located within a data centre. In data centres larger PDUS are needed to power multiple server cabinets.

These PDUs are typically composed of transformers and circuit breakers and may optionally include monitoring controllers using protocols such as Modbus.

There are variety of distinct industry segments in which data centres are needed:

Financial Institutions | Telecom services | Information Technology services
Healthcare services | Government | Corporation retails | Manufacturing Utilities

FEATURES OF PDU

- PDU with built in K-rated Isolation Transformer
- Dedicated Neutral
- Intelligent microprocessor based monitoring
- Branch circuit monitoring
- Protection switch gears
- Communication ports
- Manual soft start with contactor logic
- Auto Soft start with contactor logic
- Auto soft start with motorized breaker logic
- Different monitoring like Input and Output



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Isolation and Ultra Isolation Transformers

An Isolation transformer is a device which is used to decouple two circuits, the load to the isolation transformer and the Input supply. Isolation transformer suppress electrical noise which occurs in transmission line. An isolation transformers block transmission of DC signal from one circuit to other allowing AC signal to transmit. It is also prevents interference cost by ground looping.

Ultra Isolation transformers are used where high attenuation level is required like communication systems, Wireless station, sensitive medical equipments etc., These special type transformers are manufactured by splitting primary and secondary coils resulting in reduction of coupling in transformer circuit.

COMMON MODE NOISE

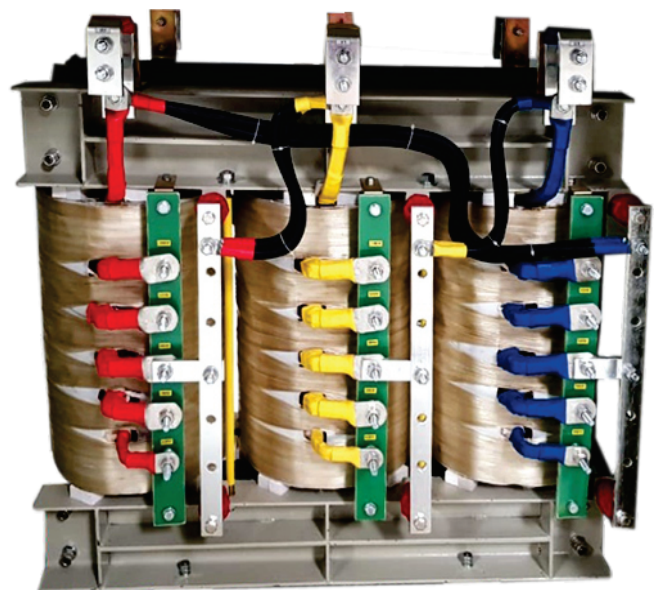
This noise appears between both sides of power line and ground. These high frequencies noise occurs between ground and conductor

FEATURES

- Very high noise attenuation capacity
- Reduced coupling capacitance.
- Lesser leakage current
- Suitable for higher harmonic loads
- Operating temperature: Ambient 0°C to 40°C
- Storage Temperature: Ambient 10°C to 40°C
- 50Hz operating range: 47-53Hz
- 60Hz operating range: 57-63Hz
- Relative operating humidity: 90% non-condensing
- High thermal withstanding capacity
- Low losses
- Very high efficiency
- Rugged construction
- Core will not saturate even if the applied voltage is high
- As per IS:2026 standards UL 1561 standards adapted

Specifications

- KVA rating: 50VA to 1500KVA
- Input: 3phase, 3 wire plus ground
- Class of insulation: Class F/H
- Thermal withstanding capacity:
Class F-120deg. + Ambient
Class H-180Deg./220Deg + Ambient
- Single phase type: shell
- Three phase type: Shell/ Core



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FOIL WOUND TRANSFORMER AND INDUCTORS

Magnetic and Controls has capability to manufacture and test foil wound transformer both in copper wound and aluminium wound.

In foil wound transformers the current carrying capacity of transformers is high compared to strip wound transformers. This is because the foil wound transformers foil distributes the current evenly across its surface reducing the skin effect and allowing for higher current densities.

The flat shape in our foil wound transformer allows for better heat dissipation compared to strip wound transformer. This can help improve the thermal capacitance of the transformer.

Our foil wound transformer also reduces the proximity effect which is the phenomenon where the magnetic fields from adjacent conductors interfere each other. This can lead to lower loss & improved efficiency. Foil wound transformer also has lower temperature rise than strip wound transformer due to sufficient cooling ducts placed in foil wound transformers.

FEATURES OF FOIL WOUND TRANSFORMERS:

- Increased Reliability
- Reduced size and weight
- Higher ambient temperature operating capability
- Improved electrical efficiency
- Increased electrical stress resistance
- Better overall regulation
- Cost effectiveness
- Light weight design
- Good Electrical and thermal conductivity
- Ease of fabrication
- Corrosion resistance
- Environment friendliness
- High conductivity
- High current carrying capacity
- Better heat dissipation
- Reduced proximity effect
- Improved mechanical strength
- Lower AC resistance



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RESIN CAST ISOLATION TRANSFORMERS

The transformers with an Iron core, High voltage and low voltage windings which are completely embedded in cast resin, and cooling channels formed inside the cast resin body which holds and insulate the windings.

A cast resin transformer is known from Magnetic and controls Transformers, where in all windings of a poly-phase current system are enclosed in a cast resin block, which on one hand has perforations for holding the legs of an Iron core, and on the other hand has recesses in front of the end faces of the windings for holding an upper and a lower yoke. In such an apparatus, the recesses which hold the yokes are water-tightly closed to the outside by caps. Because there is no cooling provide inside the coil and inside the core, transformers of this type of construction are limited to relatively small nominal power applications.

FEATURES

- **Compact Design**
Smaller and lighter than oil-cooled transformers, making them ideal for space-constrained installations.
- **Maintenance-Free Operation**
No oil is required, eliminating the need for oil level checks or periodic maintenance.
- **Enhanced Fire Safety**
Self-extinguishing epoxy resin insulation minimizes the risk of fire hazards.
- **Moisture Resistance**
Epoxy resin encapsulation provides excellent protection against moisture, making them suitable for high-humidity environments.
- **Eco-Friendly**
No oil leakage risk or harmful emissions, ensuring environmentally safe operation.
- **High Short-Circuit Strength**
Robust winding construction ensures excellent mechanical stability under short-circuit conditions.
- **Low Partial Discharge**
Minimal electrical noise and extended lifespan due to low partial discharge levels.
- **Wide Application Range**
Suitable for indoor and outdoor installations, including industrial, commercial, and renewable energy applications.
- **Low Noise Levels**
Advanced core design minimizes operational noise, making them suitable for noise-sensitive areas.
- **Customizable Configurations**
Available in various capacities, voltage ratings, and designs to meet specific requirements.



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SOLAR AUXILLARY TRANSFORMER

Solar auxiliary transformer is a transformer used in solar grid. It is designed to step up and step down voltage levels to match the requirements of system voltage.

These transformers are essential for converting the voltage from solar panels or inverters to level suitable for distribution in the electrical grid or for lighting application.

This solar auxiliary transformers facilitate the integration of renewable solar energy into existing electrical infrastructure. Solar transformers supports the cleaner environment by reducing reliance on fossil fuels , lowering carbon emissions and promoting cleaner environment. Our solar auxillary transformer are designed to regulate the voltage levels ensuring that the output voltage matches the requirements of electrical grid.

FEATURES OF SOLAR AUXILLARY TRANSFORMER :



- Voltage Regulation
- High efficiency
- Compact design
- Wide operating range
- Reliability
- Compatibility
- Grid stability
- Environmental Impact
- Energy efficiency
- Optimal Energy conversion



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OIL COOLED TRANSFORMER

Transformers are designed for Induction furnace, Arc furnace and submerged Arc furnace application are generally deigned with Oil cooled transformers. Our Oil cooled low voltage transformers provide an essential solutions for efficient electrical power distribution. With our proven reliability, energy efficiency and ability to meet stringent standards they are ideal for a wide range of applications. We offer robust, customized solutions to meet specific standards backed by comprehensive support & service.

FEATURES

■ Efficient Cooling System

Utilizes mineral oil or synthetic oil for effective heat dissipation, enhancing the transformer's thermal performance and longevity.

■ High Overload Capacity

Designed to handle overload conditions efficiently with minimal impact on performance and lifespan.

■ Durable Construction

Robust tank and enclosure designed to withstand environmental factors and mechanical stress.

■ Improved Insulation

Transformer oil provides excellent electrical insulation, ensuring reliable operation and reduced risk of internal faults.

■ Extended Service Life

Built with high-quality materials and oil filtration systems to ensure long operational life with minimal maintenance.

■ Versatile Applications

Suitable for industrial, utility, and commercial applications, including power distribution and high-voltage systems.

■ Environmental Adaptability

Available with sealed or conservator-type designs to prevent contamination and adapt to various environmental conditions.

■ Low Noise Levels

Optimized core design reduces vibration and noise, ensuring quieter operation in urban or sensitive areas.

■ Thermal Monitoring Options

Equipped with temperature gauges, Buchholz relays, and oil level indicators for efficient monitoring and control.

■ Customizable Ratings and Configurations

Available in various capacities, voltage ratings, and cooling types (ONAN, ONAF)



CONTROL TRANSFORMER

A Control Transformer is a device used to transform or "Step down" a high main circuit voltage to a lower voltage which is then used to operate the control or switching components of the main circuit. These devices are commonly used in industrial starter circuits where the main circuit voltage is not suitable for use in the control circuit and where a separate control circuit feed would not be practical.

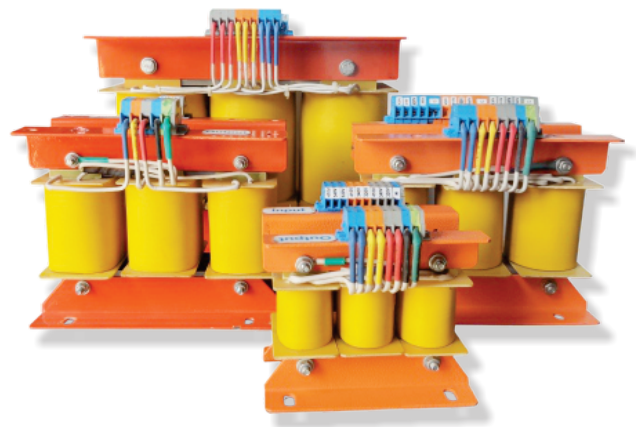
A control transformer is used to supply control power thus allowing lower, safer and more efficient control circuit voltage to be used in high working voltage applications. The excellent inrush current handling characteristics of the transformer also makes the system more efficient.

We manufacture single phase control transformer from the range of 50VA to 10KVA and three phase control transformer from the range of 50VA to 10KVA, in compliance with IEC 60076. Electrical core lamination with optimum quality and high efficient copper wire with terminal blocks are used in our product.



FEATURES

- Compact design
- Extends the life of motor
- Multiple voltage in the secondary side
- Excellent performance
- Minimum power loss
- Saturation
- Short circuit capability
- Low heat dissipation



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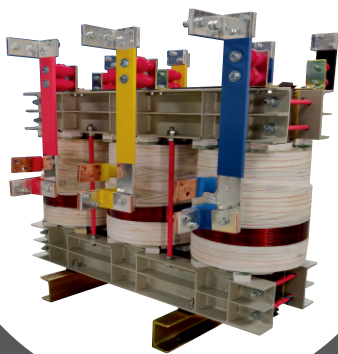
LIGHTING TRANSFORMER

Lighting transformer is a transformer special designed for use with lighting systems

Lighting transformers are used to step down the voltage from the main supply to voltage in the lighting fixtures. They ensure the lighting system receives the appropriate voltage for safe & efficient operations. Lighting transformers are primarily used for voltage conversion stepping down the voltage from main supply (415 V) to lower voltage required for lighting fixtures

Magnetic and controls can also design transformers with dimming capabilities .This kind of lighting transformer can adjust the output voltage to control the brightness of lighting fixtures providing flexibility in lighting design and energy efficiency

This lighting transformers can be used in various application including residential lighting application, commercial lighting, outdoor lighting and industrial lighting. Overall lighting transformers play a crucial role in providing the right voltage levels for lighting systems contributing to energy savings ,safety and effective illuminations in various environment



FEATURES OF LIGHTING TRANSFORMERS:

- Voltage Regulation
- High efficiency
- Compact design
- Wide operating range
- Reliability
- Compatibility
- Grid stability
- Environmental Impact
- Energy efficiency
- Optimal Energy conversion



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STEP UP / STEP DOWN AUTO TRANSFORMER

An Auto transformer is a transformer with only one winding wound on a laminated core. An auto transformer is similar to a two winding transformer but differ in the way the primary and secondary winding are interested. A part of the winding is common to both primary and secondary sides.

SPECIFICATION

- 50VA-2500 KVA
- 3-Phase, 3 Wire Plus Ground
- Insulation Class F/H
- Thermal Withstanding Capacity
 - Class F-120°C + Amb.
 - Class H180°C/220°C +Amb. Temp
- Single Phase Type: Shell
- Three Phase Type: Shell / Core



FEATURES

- Operating Temperature: Ambient 0°C to 40°C
- Storage Temperature: Ambient 10°C to 40°C
- 60 Hz Operating Range: 57-63 Hz
- Relative Operating Humidity: 90% Non Condensing



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TUNED & DE-TUNED HARMONIC FILTER REACTORS

De-tuned reactors are specific three phase inductors dedicated to attenuating the amplification of harmonics on highly polluted network and to protect the different components of installation. These are used in series with the capacitor bank in power factor correction units. For proper selection of reactors the effect of harmonic voltage spectrum on the current flowing through the reactors needs to be understood to minimize the heat generated and to avoid saturation levels.

A detuned reactor with capacitor system works as a function of power factor correction and prevent harmonic current and voltage from further amplification due to resonance. Voltage increase in capacitors due to harmonics will lead to premature failure of the capacitor. Hence it is warmly recommended to use proposed coupling of capacitor and reactor.

FEATURES

- Linearity more than 160%
- Winding: Electrolytic grade copper winding and Aluminium winding available.
- Coil wound with multiple conductor to reduce skin effect.
- Gives harmonic free supply to your requirements.
- Reactance factors 5.67%, 7%, 14% or any other customer built.
- Can be designed for any system voltage 400V, 415V, 440V, 525V, 690V.
- Tolerance of inductance +/-3%
- Range from 1KVAR to 100KVAR
- All reactors designed based in IEC:60076 standards
- Vacuum impregnated reactors.
- Low loss and High precision core.

APPLICATIONS

- Better impedance to the system.
- Protection of capacitors against harmonics and improvement of system power factor.
- Protection of switch gear and contactors used in capacitor panels.
- Avoid overheating of transmission cables.
- Enhancing lifetime of the capacitors.
- Avoid over current during switching on capacitors.
- Avoid interference on data transmission system.
- Unexplainable faults in electronic boards



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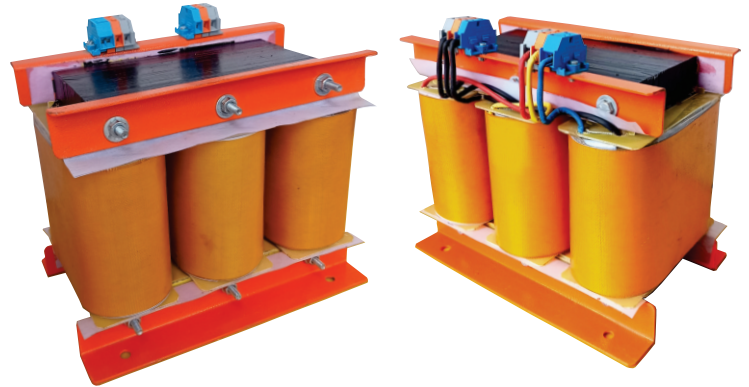
SHUNT REACTOR

Shunt Reactors are similar to transformers in construction, winding design and insulation. For optimum reliability, cost efficiency and minimum life cycle cost as well as in inrush current a simple and robust build up is adopted.

A shunt reactor is an absorber of reactive power, thus increasing the energy efficiency of the system. It is the most compact device commonly used for reactive power compensation. A shunt reactor is used to absorb reactive power which means used to compensate the undesirable voltage due to line capacitance (Ferranti effect). Here the receiving end voltage is higher than the sending end voltage.

This shunt reactor reduces the voltage when receiving end is higher than the sending end voltage. Therefore it increases the energy efficiency of the system. It is the most compact device used for reactive power compensation in the cable system. The basic function of the reactor is to provide an inductance. In practice the magnetic field must be contained by a core leading the flux through winding.

During design of the shunt reactor the major factor considered is the mechanical integrity of the core, its manufacturing precision and its long term stability. If it is not properly managed it may result in increased noise, excessive vibrations which may lead to fatigue in external steel parts.



APPLICATIONS:

- Shunt reactor is connected in parallel in inductive load system which can be used to absorb reactive power to reduce excessive voltage rise generated by cable capacitance.
- They are used where inductive load is needed.
- In the long overhead cables.
- In the test environment where the inductive current is needed.
- Reactive energy produced by the UPS or Capacitor panels.

FEATURES OF SHUNT REACTOR

Compact Design | Low losses | High mechanical stability

Precision in manufacturing | High purity copper | Low loss core

High linearity

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DRIVE INPUT & OUTPUT CHOKES

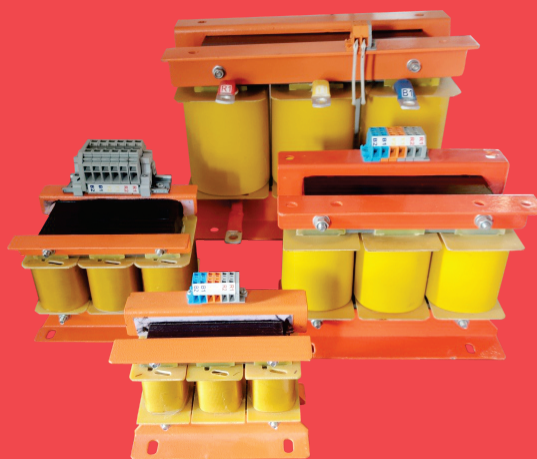
Utilizing variable speed drives to control motor speed has impacted industry in energy saving and increased efficiencies. The challenges for today's designers is dealing with non-linear waveform generated by solid state devices. By choosing our line reactor, many line problems can be eliminated. Additionally performance life expectancy of both the motor and the drive itself are significantly enhanced.

BENEFITS OF USING CHOKES

- Eliminate Nuisance Tripping
- Extend the life of switching components
- Saturation
- Extends the life of motor
- Low heat dissipation
- Minimize harmonic distortion
- Short circuit capability
- Reduced line notching

FEATURES

- Reduced Harmonics on the input side of the Drive
- Protect drive from voltage surge
- Compact Design
- High Performance
- Overload Capacity
- Reduced inrush Current
- Reduced line notching



APPLICATION

- di/dt Protection Systems
 - 3%, 5% & 7% Impedance
 - Line & Load Applications
- 50 Hz to 5kHz VFD's



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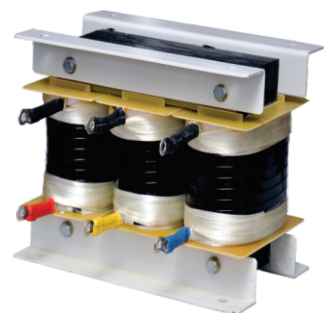


CURRENT RESISTING REACTORS

FEATURES OF INRUSH CURRENT RESISTING CAPACITORS:

- In normal case with Detuned reactor is used for harmonic blocking and also prevents from higher order harmonics from getting into the system. In general normal detuned reactor with 5.67%, 7%, 14% reactance is used.
- Besides this we have introduced Inrush current resisting reactors for blocking the inrush current to the capacitor with "Flux Compensated Magnetic Amplified" or "FCMA" technology.
- This FCMA choke is connected in series with the capacitors.
- When capacitors connected with Detuned reactors the capacitor voltage connected to the system will be 480 V or 525 V. In this a reactive power compensation of 28KVAR has to be introduced in the system where 25kvar capacitors will provide the necessary reactive power.
- With this "Inrush current resisting reactors" capacitors with 440 V can be introduced in the system which reduces the prices as well as the capacitor voltage rating. Here the terminal voltage of the capacitor will not rise.
- The price of the Inrush current resisting capacitors will be much economical compared to Detuned reactor.
- The power loss of the Inrush current resisting capacitors are much low.
- In general when the capacitors are used without series reactor it takes huge inrush current which deteriorates the life of the capacitor but using this Inrush current resisting reactors enhances the life time of the capacitor by 2 to 3 times.
- Greater technology to suppress the three phase capacitor switching transients.
- Simple and reliable configuration.
- The Inrush current resisting reactors insertion will not affect the steady state performance of the capacitor.
- As a general rule the inrush current on energization of capacitor is higher when:
 - Line transformer rating is high.
 - Line impedance is low.
 - When a huge sum of capacitor is switched into the circuit it takes a huge inrush current.
 - Damages the contacts of the circuit breaker or electromagnetic switch.
 - This inrush transient may lead the sensitive equipment to operate abnormally.

Considering a grid voltage of 400V for 50 Hz
Transformer short circuit impedance voltage of 6%
Transformer output: 1500 KVA
Capacitor Q=25 kvar; Ir:35A



$$I = \sqrt{((2 * (1500 \text{ KVA}) / 0.06) / 25 \text{ KVAR}) * 35} = 1565 \text{ A}$$

The inrush current is approximately 45 times the rated current.
From this it can be derived that typically inrush current are 10-50 times the rated current.

HT AIR CORE SERIES REACTOR

The HT Air Core Series Reactor offers state-of-the-art technology for optimal performance in industrial and commercial power systems. Specifically designed to provide a reliable and energy-efficient solution for voltage regulation, harmonic filtering, and system protection, the HT Air Core Reactor is the ideal choice for enhancing the efficiency and stability of electrical grids.

FEATURES

■ Air Core Design

The HT Air Core Series Reactor utilizes an air core, eliminating the need for magnetic core materials, thereby offering higher reliability, lower maintenance, and better performance in various environmental conditions.

■ High Voltage Rating

With a range of voltage ratings available, these reactors are designed to perform effectively in systems from low voltage to high voltage applications.

■ Compact and Lightweight

The reactor's compact design and use of air as the core material make it a lightweight solution, which is easier to install and maintain.

■ Low Loss Operation

The reactor is engineered for minimal power losses, which translates to cost savings and a greener, more energy-efficient operation.

■ Enhanced Protection

Provides protection against short-circuit currents and helps to stabilize power distribution networks by limiting the inrush currents during system faults.

■ Durability and Longevity

Built with rugged materials and designed to withstand harsh environmental conditions, the HT Air Core Reactor promises a long service life with minimal maintenance.



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CURRENT TRANSFORMERS

Current transformer is an electrical device which is used for measurement of electric current from the current conductor without breaking the current circuit. The core of the current transformer with the secondary winding is clamped around the main conductor which acts as the primary winding of current transformer.

Magnetic and Controls manufactures all kind of LT Current Transformers under the brand name of 'Excel Automation' which CPRI tested and Approved.

PRODUCT TYPE

- Tape wound
- Resin cast
- Window and Bar primary Ct's
- Polycarbonate body

CONSTRUCTION

- Ring type
- Rectangle type
- WPL type
- Auxiliary type
- Split core type

APPLICATIONS

- Metering
- Protection
- Core balanced
- Ps class and Special purpose



CLASS

High accuracy such as 1.0,0.5,2.0,0.5s,0.2s suitable for metering applications and 5P10, 10P10, 15P20 for relaying applications



ELECTRICAL PARAMETERS

System Voltage	Upto 720V
Insulation Level	Upto 3kV
Primary Current	Upto 5000A
Secondary Current	1A,5A and Customized
Metering class	Upto 0.2s
Protection Class	5P,10P & 15P
Accuracy level factor	5,10,15 & 20
Standards	As per IEC, IS 2705
Inner Dimension	As per Customer requirement
Instrument security factor	Upto <5

(We manufacture Customized also)



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SINE WAVE FILTER FOR CLEANING PWM OUTPUT FROM VFD

Our Sine Wave Filter for cleaning PWM (Pulse Width Modulation) output from VFDs is specifically designed to address the noise, harmonics, and distortion that often result from variable frequency drive (VFD) systems. These systems are commonly used in motor control applications, but their PWM output can create significant electrical noise and harmonic interference, which can negatively affect sensitive equipment and motor performance. Our sine wave filter smooths and cleans the output, converting the distorted waveform into a true sine wave, improving motor efficiency, reducing wear and tear, and minimizing electromagnetic interference (EMI).

Applications

Industrial Motors | HVAC System | Pumps & Fans | Conveyor Systems
Renewable Energy Systems | Water Treatment Facilities

■ PWM Noise Elimination

Effectively filters out high-frequency noise and harmonics generated by VFD systems, providing a cleaner, more stable sine wave output.

■ True Sine Wave Output

Converts the harsh PWM waveform into a smooth, pure sine wave, which is ideal for sensitive motors and equipment that require stable power.

■ Reduced Harmonics

Minimizes harmonic distortion, reducing the potential for overheating, vibration, and premature failure in motors and drives.

■ Enhanced Motor Efficiency

By cleaning the waveform, the filter improves motor performance, increasing lifespan and reducing energy consumption.

■ Electromagnetic Interference (EMI) Reduction

Significantly lowers EMI levels, ensuring that sensitive electronic equipment and systems are protected from interference.

■ Improved System Reliability

Helps reduce electrical noise, voltage spikes, and surges, leading to more reliable operation of both VFDs and connected equipment.

■ Compact and Robust Design

Built for easy integration in industrial and commercial environments with minimal space requirements, offering durability and long service life.



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SERVO CONTROLLED VOLTAGE STABILIZER

- High Reliability due to digital monitoring and controlling using micro controller.
- Air components sourced from reputed manufactures, confirm to IS/BS/VDU Standards.
- All raw materials inspection as per internal components manual.
- Individual assemblies and sub assemblies testing separately
- All electronic tested on full load at 55 deg C in oven for 48 hours to minimise failure
- Final equipment tested for accelerated life test to identify and replace any weak links.



SALIENT FEATURES

- High Efficiency & Fast response
- Wide input voltage range & Audible alarm for trip conditions
- 99.99% failure proof control circuit
- No over under, shoots and Hunting
- Build in bypass switch up to 100 KVA
- Less active components avoids failure ratings.
- Special Electronic circuit to operate on gensets.
- No effect of power factor and frequency variations
- Single PCB for three phase sensing and correction.
- Voltage at speed related to rate of fluctuations and avoids oscillations & hunting in DC motor drive.
- Variable speed high torque DC servo motor proportionally controls corrections
- Rugged and smooth AC motor drive control through upto-isolator circuit which is highly reliable.
- Separate isolated PCB for triac switching for motor

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VARIABLE AUTO TRANSFORMERS

As with two winding Transformer, auto Transformers may be equipped with many taps and automatic switchgear to allow them to act as automatic voltage regulators, to maintain a steady voltage at the customers service during a wide range of load conditions.

By exposing part of the winding coils and making the secondary connection through a sliding brush, a contiguously variable turns ratio can be obtained, allowing for very smooth control of voltage. Applicable only for relatively low voltage designs, this device is known as a variable AC Transformer

OIL COOLED MOTORISED

- Very high efficiency
- Good voltage regulation
- No waveform distortion
- Reliable and compact design
- High short time surge capacity
- Continuous, step less and smooth control of Output

FEATURES

- Range from 2A to 2000 A
- 300 A in Single Coil
- Air Cool Model up to 600 A
- Low No load losses at 300 phase to Neutral
- Optimum Design
- Motorized Model
- Optional Metering Facility



SINGLE PHASE VARIAC

- Very high efficiency
- Good voltage regulation
- No waveform distortion
- Reliable and compact design
- High short time surge capacity

THREE PHASE OPEN TYPE

- Very high efficiency
- Good voltage regulation
- No waveform distortion
- Reliable and compact design
- High short time surge capacity
- Continuous, step less and smooth control of output

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LOAD BANK

Load bank is a device which develops an electrical load, applies the load to an electrical power source and converts or dissipates the resultant power output of the source.

Performance Testing of any equipment is very crucial step ensuring that it would function very efficiently without breakdown when the actual load is used. The importance of this test is slowly being realised in different sectors of the Electrical and Power electronic industry and is on its way to becoming mandatory norm for erection, commissioning and maintenance of electrical equipment's. These load bank has been employed as dummy loads to energy generators to keep voltage regulation in check.

We offers the art load banks that can be provided on rental basis as well as manufactured as per customers' requirements. We have the capacity of building the load bank with a large range for portable as well as fixed applications.

FEATURES OF LOAD BANK

- Power range upto 2000KW upto customers. requirement with any resolution
- Any voltage rating
- Designed for Indoor and Outdoor application with suitable canopy and cover
- Individual load circuit breakers
- Trailer or wheel mounted depending on the degree of portability

APPLICATION

- Generator test bench.
- Transformer test Bench.
- UPS systems.
- Braking of Electric motors.
- Discharging Batteries

SAFETY FEATURES

- Exhaust fan: Our load banks comes with carefully spaced exhaust fans for continuous dissipation of heat for ensuring long testing hour.
- MCCB for short circuit protection.
- Bus-bar's for reliable power connection.
- Robust construction for much need mechanical and electrical strength



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OUR OVERSEAS CUSTOMERS

OIL & GAS SECTOR

أرامكو السعودية
saudi aramco



PETRA
Petra Engineering Industries Co.

PETRO CHEMICALS & MINING

سابك
sabk

سامرف
Samref



FARABI
PETROCHEMICALS

معادن
MAADEN

HALLIBURTON

S-Chem

ينبت
ynpet

Chevron

INFRASTRUCTURE



NEOM

Johnson
Controls



Shapoorji Pallonji

Red Sea
Global



الفنار
alfanar

مطارات الرياض
riyadh airports

GOVERNMENT OF KSA

وزارة العدل
Ministry of Justice



Ministry of Interior
Kingdom of Saudi Arabia

وزارة الصحة
Ministry of Health



وزارة الدفاع
MINISTRY OF DEFENSE

GACA
الهيئة العامة للطيران المدني
General Authority of Civil Aviation



COMMUNICATION & IT



BANKING & FINANCE



EPC CONTRACT



POULTRY & HOSPITALS



INDIAN CUSTOMERS

METRO PROJECTS



SOLAR PROJECTS



UPS MANUFACTURERS



AIRPORT PROJECTS



GOVERNMENT PROJECTS



IIRCON
Turnkey Infrastructure Construction Company



DATACENTERS & IT



AUTOMOBILE & ELECTRONICS



BANKING & FINANCE



We understand your world

Semiconductor Sector

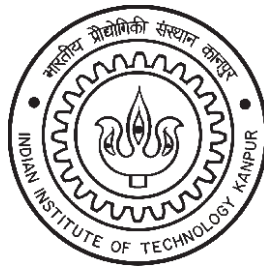


NVIDIA®



TATA ELECTRONICS

Education sector:



Research & Development



Healthcare & Pharmaceuticals





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