

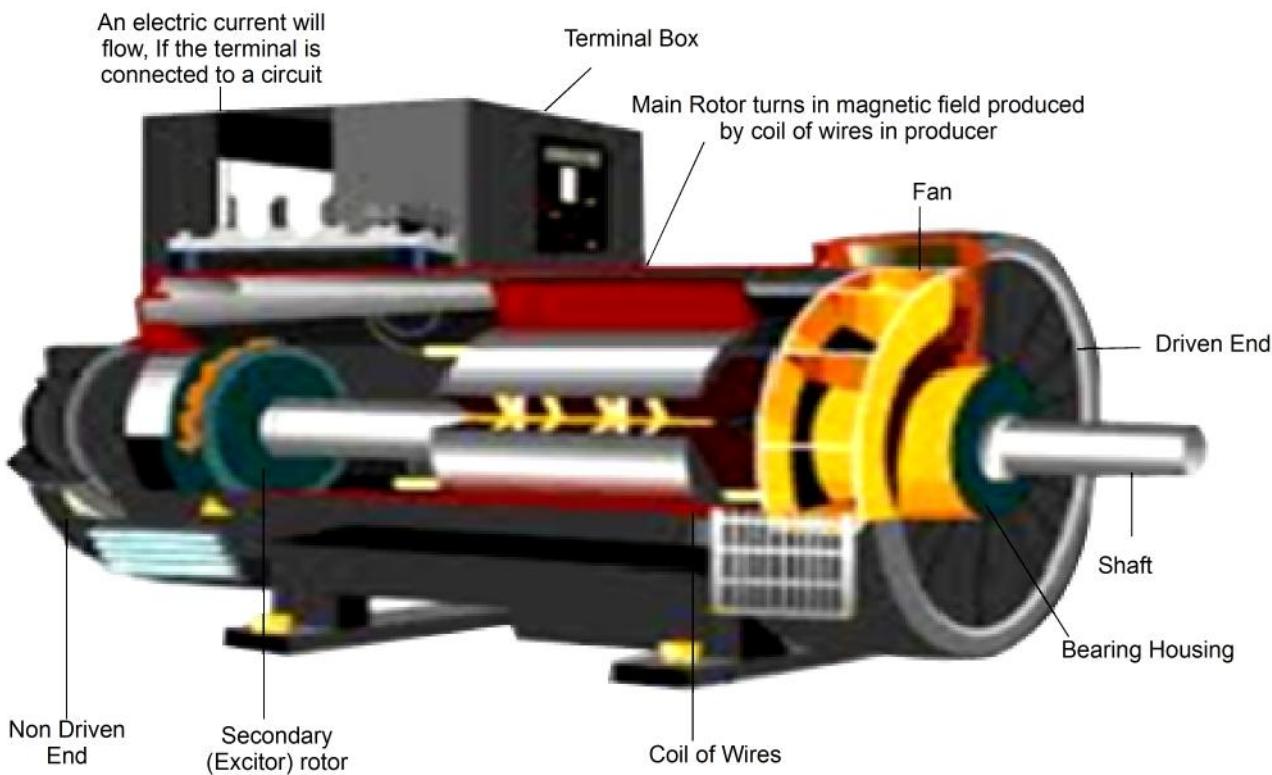


Since 1985

INDUSTRIAL ENGINEERS (INDIA)

-Group of Company

(Regd:- Multi Task Industrial motor Rewinding Company)



INDUSTRIAL ENGINEERS (INDIA)-IEI, is one of the most leading Pioneer Industries in Electrical Motor Rewinding & Service in India, IEI was found in 1985 by B.RAJKUMAR. B.E.

INDUSTRIAL ENGINEERS (INDIA), Today with a proven track record of over 30 years, IEI- has grown and still remains India's leading pioneer and most reputed Organization in Electrical Re-windings & Redesigns. IEI- has Quality service management & conservation.

We are Specialized for High Voltage & Low Voltage A.C /D.C Electric Motors, Generators, Transformers, Traction Motors, Servo/Spindle Motors, Wind Mill Generators, Turbo Generator (Stators/ Rotors) & Hydro Generator(Stators/ Rotors). IEI-is a well diversified Company with an Ultimate Goal to increase its Customer's satisfactory. IEI- also has a machine shop and does customer, progressive Electrical Engineering Repairs and does custom jobs on a regular basis.

IEI- has Resources & Expertise to maintaining High Level of Quality & Workmanship to our Valued Customers within these Organization. IEI has capacity to design and produce required to perform complicated Task & has contributed to the Success.

17, Kumarasamy Street, Lakshmiapuram, Chromepet, Chennai-600 044, Tamilnadu.

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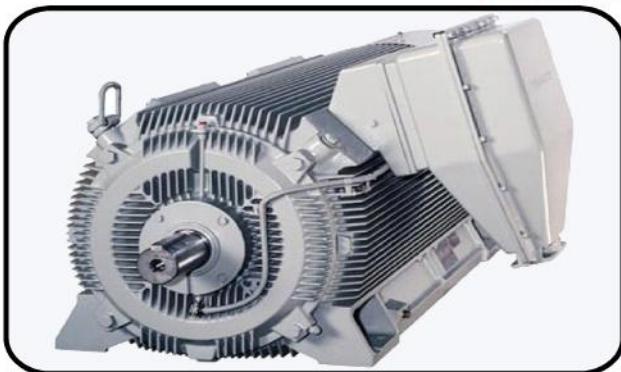
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About The Company

INDUSTRIAL ENGINEERS(INDIA) were started in chennai-44, as a small unit. A small unit small unit caters to Rewind & Service up 50 H.P Motor. Through continuous and constant Development and sincere hard work, today we have established, as one of the leading service industries in India. Now we are repairing /refurbishment of Rotating machines up to 2 MW with all in Facilities. We undertake Repairs/Re-windings of all types of A.C / D.C Induction motors & traction motors, Generators, Alternators, Turbo Generators, Wind Mill Generators, L.T & H.T- Transformers, A.C / D.C SERVO motors, Torque Motors & Spindle Motors. We also manufacture and supply special Transformers, LT motors, Special Solenoid Coils, Brake Coils for Hoists and extra.

INDUSTRIAL ENGINEERS (INDIA) has Re-Winding & Repairing of Rotating machines in Electrical & Mechanical as per International Standards with latest Technologies and Facilities in India. Rewinding & Repairing of all A.C motors from 25 H.P to 2MW..

H.T / L.T MOTORS:-



INDUSTRIAL ENGINEERS (INDIA), have Rewinding & Servicing of LT motors having a capacity of 2 MW, HT Motors having a voltage range from 11 KW / 33 KW in different makes & models. IEI has service offers complete, Rewinding, Reconditioning & Re-manufacturing.

INDUSTRIAL ENGINEERS (INDIA) has advanced repair facilities in our Company and use the finest quality Rewinding & winding coils by latest machineries. Advancing technology is used for the proper winding which makes the machine durable and helps it to provide high Quality and long lasting with superior performance. The final product goes under stringent quality testing to check the accurate dimensions of the product.

INDUSTRIAL ENGINEERS (INDIA) having considerable Experience in Rewinding & Refurbishment of A.C/D.C machines.

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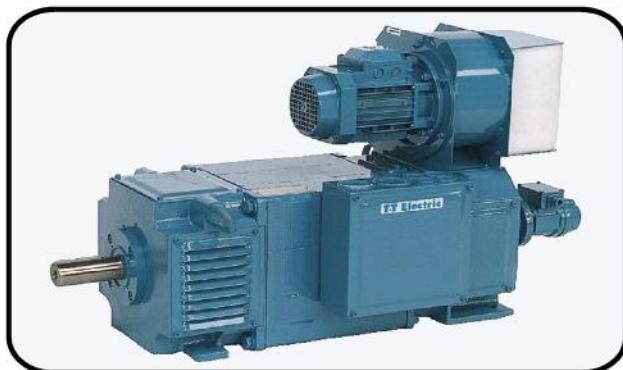
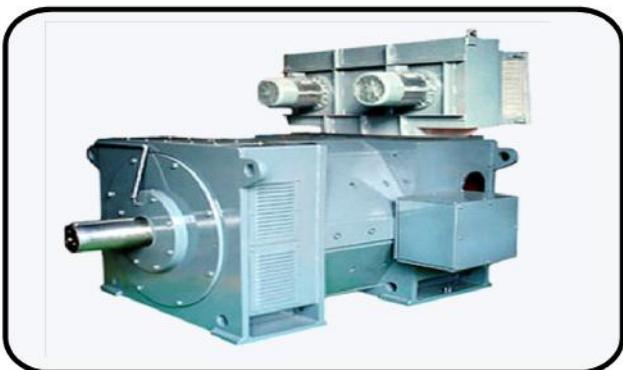
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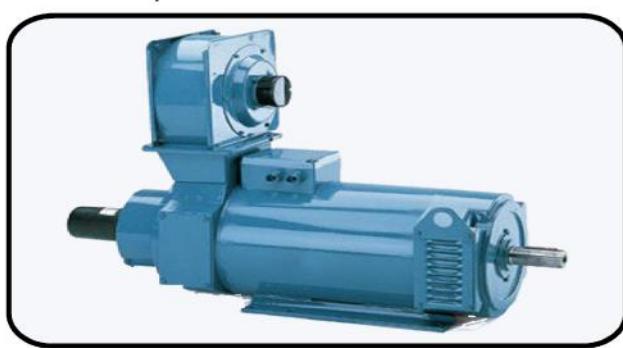
D.C MOTORS

INDUSTRIAL ENGINEERS (INDIA) have Rewound & Repairing of D.C Motors From FHP to 2000 HP. INDUSTRIAL ENGINEERS (INDIA), provides overhaul, Rewinding, Repairing, Servicing for DC Motors, We also provide Rewinding, Repairing, servicing for laminated yoke DC generators up-to 5 MW.

- (1) Field Coils (2) Armature Coils (3) Commutator (4) Compensatory Winding
- (5) Inter Pole Shunt Coils.



Motor types: Wound-field DC Motors are usually classified by shunt-wound, series-wound, and compound-wound. In addition to these, permanent-magnet and brushless types are also available, normally as fractional-horsepower motors. Motors may be further classified for intermittent or continuous duty. Continuous-duty motors can run without an off period.



Being a Well-Established Company with years of Experience, IEI is ready, and capable of taking on New Challenges in Electrical Motors Re-windings & Services.

The company imbibed their attitude of "Success through total customer Satisfaction" and "All-Round Excellence in Every Sphere". Backed by these factors, IEI began Transforming Opportunities into Profitable Ventures.

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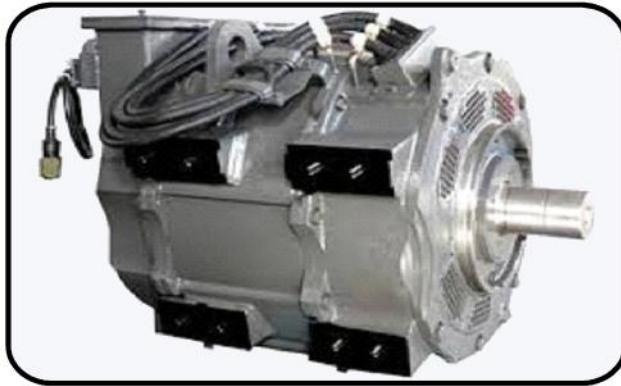
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TRACTION MOTORS

A Traction known as DC motor in simple words, It is a device that converts direct current (electrical energy) into mechanical energy. It's of vital importance for the industries today, and is equally important for engineers to look into the working principle of D.C motor.

INDUSTRIAL ENGINEERS (INDIA), having maximum & latest facility provides overhaul and Rewinding, Repairing, Servicing for TRACTION MOTORS, The company has the capability to Rewinding with Repairing, TRACTION MOTORS & TRACTION ALTERNATORS up-to 800 HP. It is mainly used for railways & Industrial material handling Equipments & Traction.



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GENERATOR / ALTERNATOR

The generator works on the principle of electromagnetic induction discovered by Michael Faraday in 1831-32. Faraday discovered that the above flow of electric charges could be induced by moving an electrical conductor, such as a wire that contains electric charges, in a magnetic field. This movement creates a voltage difference between the two ends of the wire (conductor). Which in turn causes the electric charges to flow, thus generating electric current.

The dynamo was succeeded by many later inventions, especially the AC alternator, which was capable of generating alternating current.

Alternating current generating systems were known in simple forms from Michael Faraday's original discovery of the magnetic induction of electric current.

(a) Stator – This is the stationary component. It contains a set of electrical conductors wound in coils over an iron core.

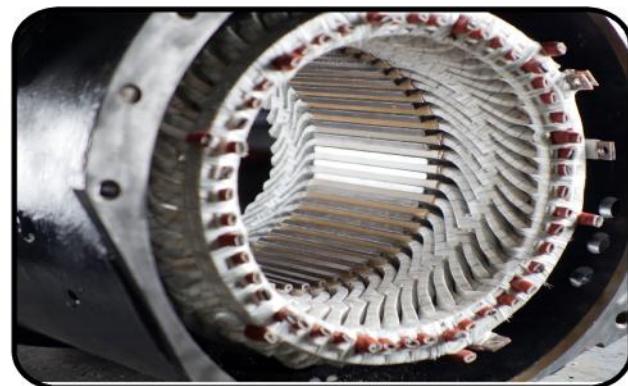
(b) Rotor / Armature – This is the moving component that produces a rotating magnetic field in any one of the following three ways:

(i) By induction – These are known as brushless alternators and are usually used in large generators.

(ii) By permanent magnets – This is common in small alternator units.

(iii) By using an exciter – An exciter is a small source of direct current (D.C) that energizes the rotor through an assembly of conducting slip rings and brushes.

The rotor generates a moving magnetic field around the stator, which induces a voltage difference between the windings of the stator. This produces the alternating current (A.C) output of the generator.



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TURBO GENERATORS

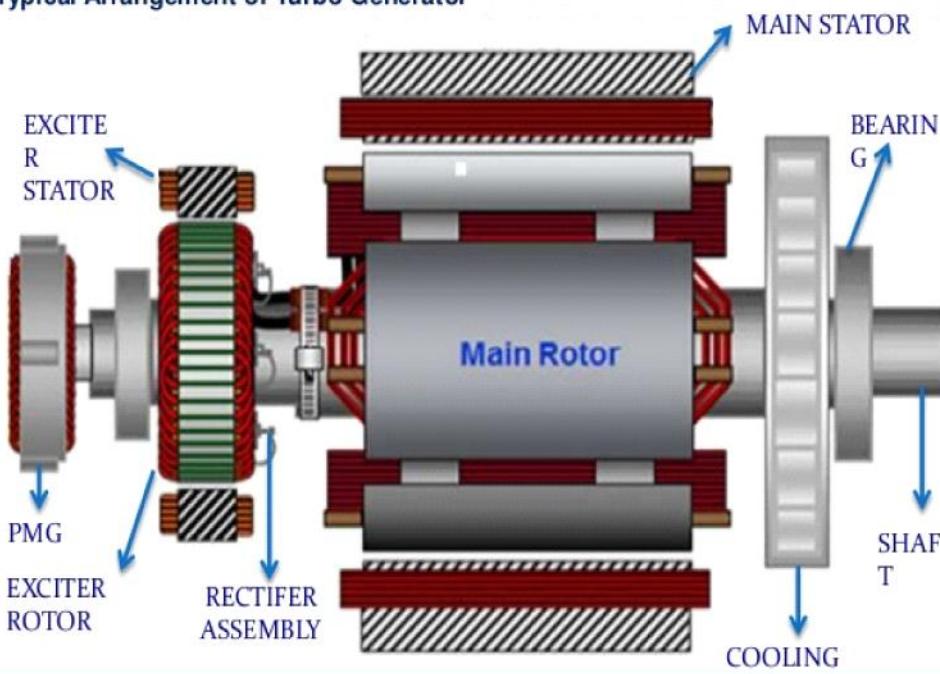
INDUSTRIAL ENGINEERS (INDIA), having latest Technology CNC Winding & Forming machines for Re-winding purpose, and also having Latest testing equipments.

INDUSTRIAL ENGINEERS (INDIA) has Rewinding & Repairing facility up-to 250 MW Turbo Alternators. Turbo generator is a turbine directly connected to electrical generators for the generation of electric power. These machines are the largest energy converters found in the world. They can also be used as auxiliary power units. They are of 3 types (1) Steam turbine generators 2) Gas turbine generators 3) Hydro turbine generators.

The function of a turbo-generator is to convert rotational mechanical energy into electrical energy. It can be configured with different prime movers such as a steam turbine, a gas turbine in single-cycle or combined-cycle arrangement.

An electric current is induced in a conductor in proportion to the rate of change in the lines of magnetic flux."Essentially" this means that if there is relative motion between a conductor and a magnetic field, then current will be generated in the conductor. The amount of current generated is proportional to the density of the magnetic field and the speed of the relative motion between the conductor and the magnetic field.

❖Typical Arrangement of Turbo Generator



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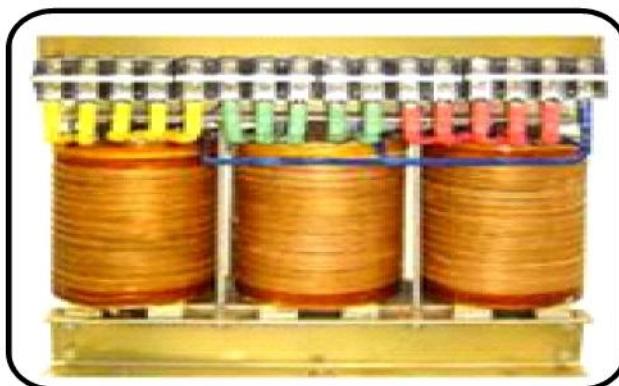
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H.T/L.T-TRANSFORMERS

INDUSTRIAL ENGINEERS (INDIA), having High Quality, latest Technology testing equipments. Provides overhaul and Rewinding, Repairing, Servicing for H.T/L.T TRANSFORMERS and also manufacturing of LT TRANSFORMERS. We have Rewinding facility up-to 6.5MV in HT Transformers(33/11KVA),Distribution Transformers, Energy Efficient Transformers, Power - Transformers in LT TRANSFORMERS. (up-to 2000KVA)

We are one of the Transformer manufacturing company in India, And we are the manufacturer of Current Transformers, Auto Transformers, Servo Transformers, Step-down & Step-up Transformers, and Special application Transformers in any range & Models.

We have the service for Substations Transformers, Rectifier Transformers, Furnace Transformers, Step-Down Transformers, Servo Transformers, General purpose Transformers. whether it is an Oil-Cooled, Dry-Type, Shell Form & Core Form Transformers,



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SERVO / SPINDLE / TORQUE - MOTORS

INDUSTRIAL ENGINEERS (INDIA), having the Business in all over India, we have latest Testing facilities & Equipments for Rewinding, Repairing, Servicing & Testing for AC/DC Servo motors , Spindle motors, Torque Motors & Stepped motors.

INDUSTRIAL ENGINEERS (INDIA), is committed to offer a flawless High quality range of Industrial Level Rewinding, Repairing & Servicing of AC/DC Servo Motors, Spindle Motors, Stepped Motors, Torque Motors with Sales Branded AC, DC & Servo Motors, Servo Drives, Encoders (Incremental & Absolute), Decoders, Resolvers.

SERVO MOTOR is a simple electrical motor, controlled with the help of servomechanism. If the motor as controlled device, associated with servomechanism is a DC motor, then it is commonly known DC Servo Motor. If the controlled motor is operated by AC, it is called AC Servo Motor.

There are some special types of application of electrical motor where rotation of the motor is required for just a certain angle not continue for a long period of time. For these applications some special types of motor are required with some special arrangement which makes the motor to rotate a certain angle for a given electrical input (feedback).



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We have covered following machines and activities:

- 1) AC / DC Motors
- 2) All types of Alternators & Generators
- 3) AC Slip ring induction machines.
- 4) Manufacturing and supply of coils.
- 5) Re-insulate Edge wound Synchronous Coils
- 6) Rewinding with Resin rich Insulation.
- 7) Rebuild Synchronous Pole pieces.
- 8) Rebar ring/ Re casting of all types of Rotors
- 9) Rewinding with Resin poor Insulation(VPI)
- 10) Rewind Synchronous Field Coils.
- 11) Rewind Salient pole / Non Salient Pole Synchronous rotors
- 12) Insulation System Designs and Upgrades.
- 13) Stator core Restacking and Recoating.
- 14) Surge Testing, Hi-Potential Testing.
- 15) Re designing to Customer needs - Pole changing
- 16) Rotor Dynamic Balancing.
- 17) We have testing facilities to run the motors on No load at rated voltage.
- 18) Re designing to customer needs- Frequency conversion

STATIC / DYNAMIC BALANCING:- REDUCED VIBRATION OF ROTATING MACHINES:-

In Order to provide smooth, Reduced Vibration, Performance and Longer life for your Rotating Electric machines. INDUSTRIAL ENGINEERS (INDIA) Offers complete Static, Dynamic balancing services. No matter the make, Model or Age of your machine, IEI- Dynamic balancing machinery assures Virtually Vibration Free Operation of new and Reconditioned/Repaired machines. INDUSTRIAL ENGINEERS (INDIA)- workmanship is 100% Guaranteed according to ISO Standards



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TESTING EQUIPMENTS



TESTING IS CARRIED OUT

AT DIFFERENT STAGES OF REWINDING:-

- 1) Motor Testing before dismantling. (static testing)
- 2) Flux test on core after stripping(for detection of Hot spots).
- 3) Test during Coil Making.
- 4) Test during & after mounting of coils.
- 5) Testing after assembling.

TESTING FACILITIES :

- | | |
|----------------------------|----------------------------------|
| 1). AC / DC Hi Pot Tester | 5). Surge Comparison Tester |
| 2). Tan Delta Tester | 6). Micro Omic Tester |
| 3). No Load Running Tester | 7). Rotor Balancing |
| 4) Insulation Tester | 8) And all other Routine Testers |



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Complete In House Facility For:-

Electrical As Well As Mechanical Repairs / Renovations / Modification / Upgradation of Electrical Rotating Machines.

SERVICES [Core Activities]:-

- 1) Rewinding / Repairs of A/C Induction Motors, D/C Motors & Traction Motors, Transformer HT / LT, Turbo Generators, Servo / Spindle / Torque - Motors, Brakes Coils, Electrostatic Commutators, Shaft Replacement without damaging of winding, Precision dynamic balance.
- 2) Rebuilding of core stacks by Staggering, Re-Varnishing or Replacement of Laminations.
- 3) Shaft Replacement without damaging of Rotor / Armature winding.
- 4) Precision Dynamic Balancing
- 5) Value Additions :-
 - i) Output Capacity Up-gradation of Machines.
 - ii) Redesigning for Supply Frequency Change (60Hz to 50 Hz),
 - iii) Voltage Up-gradation e.g. 220 V to 440 V.
 - iv) Customer needs frequency conversion.
- 6) Repairs / Rewinding / Reconditioning of Electric Machine up to 2 MW Motors at our Company.
- 7) Rewinding of A/C. Generators up to 2 MW Capacity. Pole coils up to 2 MVA capacities.
- 8) Rewinding of D.C. Motors up to 2 MW.
- 9) Repairs / Staggering of Core Laminations of Stator, Rotors & Armatures.
- 10) Replacement of Rotors Shafts of any size without Damaging of Windings. This activity includes Fabrication and Machining of New Shaft Required for Replacement.
- 11) Dynamic Balancing of Armature, Rotor, Shaft, Cooling Fans, Impellors etc.
(up to 1 Tons Weight, 1.20 mtrs. In Diameters - Extended 1.5 Mtrs.).
- 12) Any other Mechanical Work Related to Electric Rotating Machines such as Shaft, Relining of White Metal Bearings, Repairs of Bearing Housings, End Shields & Cooling Fans etc.
- 13) No load testing Of A/C & D/C Motors.
- 14) Mechanical Repairs and Rewinding of Electro Magnet Brakes.



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Quality Assurance

It is the aim of INDUSTRIAL ENGINEERS (INDIA) to provide its clients with a maximum quality service. To meet customer needs and expectations, a Quality Assurance system, in line with the ISO quality management standard have been implemented through the use of a management-led control system. A dynamic approach has been developed in order to meet our client's ever-changing needs and requirements.

The directors of INDUSTRIAL ENGINEERS (INDIA) have the responsibility of ensuring that all staff of the company complies with their instructions regarding Quality Assurance. The documented Quality Assurance system is maintained through the management functions and it is mandatory for all staff to adhere to the agreed procedures and to support the drive for excellence. The Company employs a management structure which develops authority and responsibility for Quality Assurance, workplace safety and customer satisfaction. There is a dedicated management representative who has the responsibility to establish and maintain the documented Quality Assurance and Safety systems and is charged with ensuring its continual improvement. The management system has established procedures for regular quality audits, which review and report on quality and safety arrangements and recommend action to be taken to prevent Recurrence of a problem, Identifying, where appropriate, any additional resource requirements. A nominated management representative monitors and measures performance against stated objectives and is responsible for ensuring the Company policy is communicated to, and understood by, all staff. To offer our clients the most efficient service, regular reviews of existing standards are undertaken to ensure that the service provided reflects the current expectations of the market.

ADMINISTRATION & WORKS

INDUSTRIAL ENGINEERS (INDIA)



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HI - TECH ENGINEERS

(Regd.H.T/L.T Transformers, Motors, Alternators/Generators Re-winding company)
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Our Group of Companies



HI-TECH INDUSTRIAL AUTOMATIONS

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