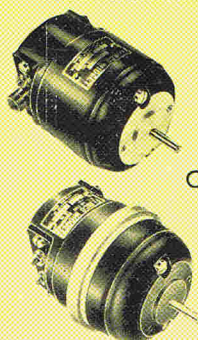


OTHER UNITS

Low Inertia AC Induction Servo Motors
AC Induction Generators
AC Motor Driven Induction Generators
AC Motor Generator Sets
DC Motor Generator Sets
Blower Motors

ELINCO

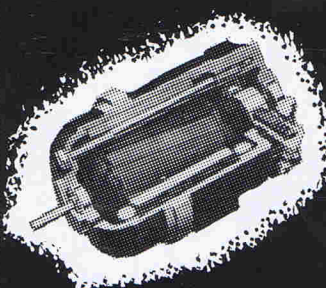
D.C. GENERATORS



Catalogue
EI-1A

A.C. GENERATORS

COMMUTATOR

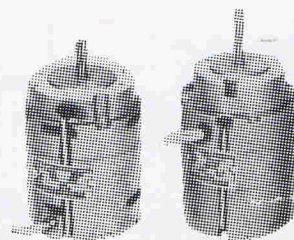


MOTORS

Catalogue EI-2A

INDUCTION MOTORS

TORQUE MOTORS



Catalogue EI-3A

synchronous motors

catalogue EI-4A.

Self-Synchronous Motors



Catalogue EI-5A

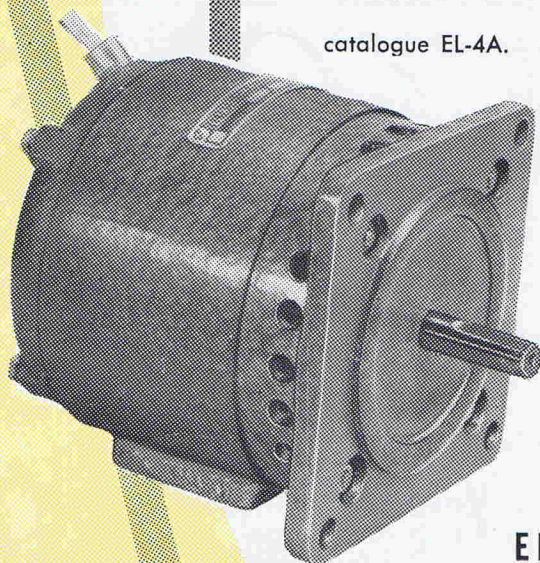
ELINCO Motors

FOR

DEPENDABLE

PRECISION

PERFORMANCE



ELECTRIC INDICATOR COMPANY, INC.
SPRINGDALE, CONNECTICUT

D.C. PERMANENT MAGNET GENERATORS

D.C. permanent magnet generators have an output voltage proportional to speed and are used extensively as tachometer generators. These generators are available with ratings from .25 to 170 volts per 1000 RPM and power outputs of .5 to 10 watts per 1000 RPM. The linearity of these units is guaranteed to be better than 1%. Operating speeds up to 10,000 RPM or 300 volts maximum whichever ever occurs first. Five frame sizes are available.

D.C. WOUND FIELD GENERATORS

D.C. wound field generators deliver an output voltage proportional to both speed and field excitation within the operating range. They are used where a D.C. voltage source is required or where power amplification is desired by use of field control. If these units are to be used as tachometer generators, their linearity will not be as good as permanent magnet units due to changes in field flux due to heating, this deviation from good linearity will of course depend on individual unit design and operating conditions.

A.C. PERMANENT MAGNET AND SINE WAVE GENERATORS

A.C. permanent magnet generators which have a voltage and frequency output proportional to speed can be supplied 2-4-6-8-12-16-24 poles single phase; 2-4-6-8-12 poles two phase and for 2-4-8 poles three phase. These units have an output rating from 1 to 200 volts and $\frac{1}{2}$ to 40 watts per 1000 RPM. The harmonic content of these units depends on the number of poles in the unit, the larger number of poles having the greater harmonic content. For applications where a pure sine wave is desired special sine wave units are available with less than $\frac{1}{2}$ of 1% harmonic content, however these units are designed primarily as voltage source and they cannot deliver any power output. A.C. permanent magnet generators can be used as a source of sinusoidal waveform or in speed control systems where frequency is the criteria.

A.C. INDUCTION DRAG CUP TACHOMETER GENERATORS

The induction A.C. drag cup tachometer generator is the A.C. counterpart of the D.C. permanent magnet generator. This consists of a two-phase winding, of which one phase is excited, the other phase will then have an output voltage proportional to speed and of the same frequency as used to excite the unit. These units are available with frequencies up to 400 cycles and voltage outputs from 1.0 to 10 volts per 1000 RPM. The linearity of these units is dependent on the voltage output desired and range of operating speeds. The residual in the output voltage and the phase shift between excitation and output voltage will depend on individual unit design.

"ELINCO" has a wide range of precision built commutator motors from 1/3000 to 1/6 HP, and ranging from 1 $\frac{5}{8}$ " to 3 $\frac{3}{8}$ " in diameter. They are available as flange, face or base mounting, with a variety of shaft dimensions. General characteristics of various types are as follows:

PERMANENT MAGNET MOTORS

Have shunt motor characteristics, they are often used where it is desired to have armature speed control and it is not desirable to have another constant D.C. voltage source to supply excitation. For a constant torque load on these motors, the motor speed will vary proportionally to the armature voltage. These motors should not be used for reversing applications where the plugging operations might tend to weaken the magnetic field and finally demagnetize the magnet.

D.C. SHUNT MOTORS

Maintain a speed that is quite constant over a wide range of load variations, they have high starting torque; lend themselves to speed control either through use of a rheostat for field or armature control, or if desired by separately exciting the field and using variations in armature voltage for speed control. In addition they can be wound as split field motors to reverse rotation by field control.

SERIES MOTORS

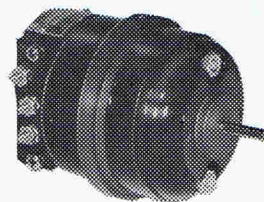
Can be used on both A.C. and D.C. The speed of a series motor varies inversely with load. Motors classified as Universal will operate successfully on both D.C. and A.C. up to the frequency at which they are rated, but they will be universal only over a limited speed and torque range. Some D.C. split field series are used as servo and torque motors where it is desired to have simple switching for reversible motors. On 60 cycles it is only possible to get speeds over 3600 RPM by use of a commutator motor, and it is possible to get considerable power from a small frame size in this type of motor.

GOVERNOR MOTORS

Are made as shunt D.C. or series A.C. and D.C. motors. This limits the no load speed, enables motors to operate at the same speed on both D.C. and A.C., and maintains constant speed over a wide range of load and voltage variations.

TORQUE MOTORS

Torque Motors are induction motors designed to operate under stall conditions or at some speed in reverse direction of normal motor rotation to maintain tension, these are used in recording devices, machine tools, valve or switch operations, etc. Such motors are built in frames from 2¼ inches in diameter by 2½ inches long up to 4¾ inches in diameter by 8½ inches long. Voltages up to 440 volts, 1, 2 or 3 phase, torques up to 80 oz. in. Mountings can be face, flange or base and shafts can be practically as desired. Some units have provisions for pipe connections to provide forced air cooling.



INDUCTION MOTORS

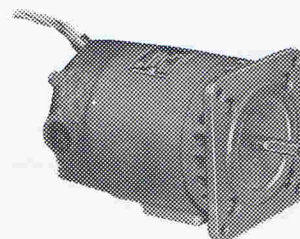
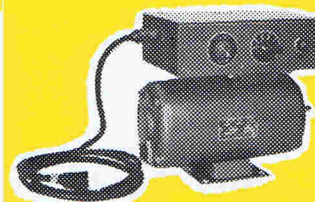
LOW INERTIA A.C. INDUCTION SERVO MOTORS

"ELINCO" Low Inertia A.C. Servo Motors are available in the new DP and M7 frames. These two-phase induction motors have low inertia squirrel cage rotors designed to eliminate cogging at low speeds, provide high torque to inertia ratios, linear torque speed characteristics with maximum torque at stall, and low starting voltage. They can be wound with 2 or 4 poles, for 60 or 400 cycle operations and provide a maximum stall torque of 6.5 oz. in. at 60 cycles.

STANDARD INDUCTION MOTORS

"ELINCO" Induction Motors are custom engineered to provide high output at high efficiency for a given frame size, and are available in six different sizes. They have been designed for operating frequencies of 60 and 400 cycles as well as frequencies above and below these values. They can be wound with 1, 2 and 3 phases, for capacitor, split field, dual voltage and dual speed operation and can deliver outputs from 1/1000 to 1/6 HP. The larger sizes contain a fan mounted on the rotor for forced ventilation with a resulting increased rating.

Flexibility of designs permits meeting unusual performance requirements as well as variations in shaft and mounting features. A single phase brake motor, for example, type BS-229-B has a solenoid operated brake that instantly stops the motor when the excitation is removed.

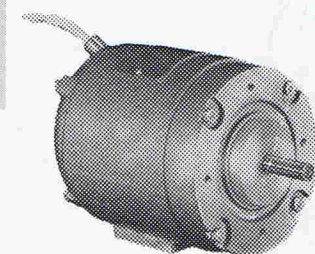
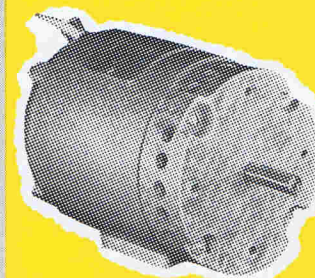


MOTOR GENERATOR SETS

Motor Generator sets are available as A.C. motors and A.C. generators, D.C. motors and D.C. generators, and A.C. motor D.C. generator combinations are in development stage.

A.C. MOTOR DRIVEN INDUCTION GENERATORS

"ELINCO" A.C. Motor Driven Induction Generators combine, in one frame, an induction motor having a high torque to inertia ratio with a linear drag cup generator. This simplifies the coupling problem by providing positive alignment in one housing having accurately machined dimensions. These motor generators are available in the new ELINCO MG8 and MG10 frames. For example, stall torques to 0.8 and 6.7 oz. in. and output volts per 1000 RPM to 3.5 and 7.0 respectively are available at 60 cycles. At 400 cycles, stall torques to 0.8 and 2.5 oz. in. and output voltages to 3.5 and 7.0 volts, 1000 RPM respectively can be obtained.

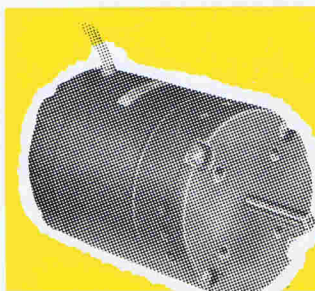


A.C. MOTOR AND GENERATOR SETS

A.C. motor and generator sets are available with A.C. synchronous motors combined with an A.C. permanent magnet generator. These units can provide a source of odd frequency from standard frequency lines, such as 15-30-90-180 cycles, etc. The synchronous motor is supplied with shaft extension and can be used to drive a load, with the A.C. permanent magnet generator then used as a reference to indicate the position of the load at any instant. Another use is where these generators are provided with a rotating housing so that any phase shift from 0 to 360° can be simulated either with respect to another generator on the same unit; or to some external source. Horsepower rating of motor can be furnished to ½ HP with generators with an output voltage to 200 volts per 1000 RPM.

continued on page 4

Specific Technical Data Available On Over 950 Standard Units. Special Units Designed To Meet Your Requirements.



MOTOR GENERATOR SETS

continued from page 3

D.C. MOTOR AND GENERATOR SETS

New ELINCO D.C. motor and generator set combinations are available and consist of a D.C. motor to drive a load with D.C. tachometer generator to indicate speed, combined in one frame.

A.C. AND D.C. MOTOR GENERATOR SETS

A line of low inertia A.C. servo motors combined with a D.C. tachometer generator is now under development.

SYNCHRONOUS MOTORS

"ELINCO" manufactures a wide variety of synchronous motors, both in the hysteresis and salient pole induction type.

Whenever possible it is recommended that hysteresis type synchronous motors be used, since they are much quieter and are capable of pulling high inertia loads into synchronism. Their only disadvantage is that they will pull into synchronism in any position with respect to line voltage phasing. Salient pole synchronous motors are inherently noisy, they cannot pull high inertia loads into synchronism and their only advantage is that they will lock in at some definite position, number of locks in position being the same as the number of poles in the motor.

Ratings are from 1/750 to 1/10 HP at speeds from 300 to 12,000 RPM, frequencies from 30 to 400 cycles, voltages up to 440 volts, 1, 2 or 3 phase. Frame sizes are available from 2¼" diameter by 2½" long, to 4¾" diameter by 8½" long. Face, flange or base mounting can be supplied. All types can be supplied with ball bearings, some with sleeve bearings.

SELF-SYNCHRONOUS UNITS

"ELINCO" has been manufacturing commercial type synchros for 25 years. Self-synchronous synchros in midget "B" or "F" frame have an accuracy of 3° and a maximum torque of 2.5 oz. in.; in the "FB" frame the accuracy of 2° and maximum torque of 3.5 oz. in.; in the "A" frame the accuracy of 1° and a maximum torque of 18 oz. in. The midget frame is either 2¼ or 2½ inches in diameter by 3 inches long, "FB" frame 2½ inches in diameter by 4 inches long, and the "A" frame 3¾" diameter by 6¾" long. Mounting can be face, flange or base. These units have 115 volts 60 cycles primary and 34 volts secondary. Units for other frequencies and voltages are available. The "A" frame motor may be used as a master transmitter to several midget receivers.

In addition "ELINCO" manufactures rotating self-synchronous units, differential units, single phase rotating transformers and 3 phase, phase shifting rotary transformers.

PRECISION DESIGN with ELINCO

"ELINCO" has increased its engineering staff threefold during the past year, and has added thousands of dollars in engineering and development facilities.

"ELINCO" has developed during the past year over 75 new electrical rotary units, to meet difficult military and commercial specifications.

ELECTRIC INDICATOR COMPANY, INC.
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