
"E L I N C O"
"A" F R A M E
M O T O R S

Bulletin #46-E

June 15, 1952

ELECTRIC INDICATOR COMPANY, STAMFORD, CONNECTICUT

The "ELINCO" "A" frame motor is designed for manufacture both as a D.C. or Universal Commutator Motor and as an Induction or Synchronous Motor. Each type is made in two lengths for a variety of output ratings.

The Commutator Motor is shown on Drawing A-1452 and the Induction or Synchronous Motor is shown on Drawing A-1451.

These units are provided with a base cast integral with housing and machined and tapped for four #10-32 screws for mounting.

As with all "ELINCO" Motors and Generators, the "A" frame units are manufactured to close tolerances and at all stages are thoroughly inspected by trained and experienced personnel to insure that only units fully meeting customers' requirements are shipped. The materials used in these motors are the finest available and have been selected only after meeting strict specifications. Tests are being conducted continually on all new and improved materials and methods of manufacture to insure that these and all other "ELINCO" Units are the finest that can be made.

The "A" frame housing and end bells are cast aluminum and, except for mounting surfaces, are finished in blue mottletone or fine black wrinkle enamel. Special colors or finishes to match or harmonize with other equipment can be furnished. The shaft is carbon steel and all surfaces, except outside diameter of rotor, are ground from centers. The rotor diameter is ground directly from the bearing seats. The rotor is mounted on specially selected, felt seal, precision ball bearings. Bearings are lubricated before assembly with a recommended grease to meet conditions in which motor will operate, and in all except very severe applications, it is necessary to clean and re-lubricate these bearings only once every year.

The stator and rotor laminations are made from thin, dynamo grade, silicon steel, and are stacked and riveted under pressure. The windings are of formex or formvar covered magnet wire. All windings are heated to expel moisture and then, while hot, are impregnated in a clear insulating varnish and baked. Lead wires may be cotton covered asbestos, rayon covered synthetic rubber or nylon coated extruded plastic.

The commutator used on commutator motors is built up of copper and amber mica segments. Although the soft amber mica used is more expensive, it provides for a quieter unit because undercuts on commutators are not necessary and the noise of bouncing brushes is avoided. Commutators with india mica are available and can be used when required. All mica in this type commutator is undercut.

A scientifically designed fan is mounted on rotor inside housing and cooling air is drawn into motor and blown over and through stator and rotor preventing the development of hot spots in the windings.

While the motors shown on Prints A-1451 and A-1452 are considered standard, and parts are carried in stock for prompt delivery, customers are invited to change any dimension or dimensions to suit their requirements. Special end bells machined for face and flange mounting (Drawings A-1547, A-1609 and A-2123), housings smaller or larger in diameter or length, shaft extensions on both ends, threaded, keyway, flats or smaller diameter shafts, and totally enclosed motors have been or can be furnished.

The design of these motors is such that it is possible to furnish required modifications quickly and without large additional expense.

Electrical and other characteristics of some of the units already made are listed on the following pages. However, these are listed merely to show what can be done in these frames. Modifications in windings to meet your own particular problem can easily be made by our engineers.

TYPE AP INDUCTION AND SYNCHRONOUS MOTORS Drawing A-1451

These Induction and Synchronous models are identified by the letters ASP and ALP, which indicate the two lengths available. These units are capacitor start and run type and are wound as two, four or eight pole motors. (Motors of the Hysteresis type are listed separately in our Bulletin 49.) Motors can be wound to operate from any voltage to 220 volts. (Three phase motors are also available.)

Characteristics of most commonly used Induction Motors are as follows:

Input voltage 115 volts, 60 cycle, single phase.

Type	Rated HP	RPM	Duty	Torque at Rated HP In.Oz.	Starting Torque In.Oz.	Stalled Torque In.Oz.	Cap. Reqd.
ASP-181	1/50	1650	Inter.	12.8	13.6	26.4	6 MFD
ALP-191	1/30	1680	Cont.	19.2	22.4	44.0	4 MFD
ALP-210	1/20	3200	Cont.	15.8	16.8	27.0	4 MFD
ASP-261	1/250	500	Cont.	8.0	14.4	15.4	4 MFD
ALP-230*	1/80	500	Cont.	23.0	30.0	30.0	10 MFD

* 115 volt, 25 cycle, single phase.

⚡ An oil filled capacitor rated 220 volts A.C. is recommended.

Input voltage 115 volts, 60 cycle, three phase.

ALP-262	1/20	3400	Cont.	15.0	21.0	25.0	None
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Characteristics of commonly used Capacitor Start and Run Synchronous Motors are listed below. (Hysteresis Synchronous Motors have, in general, superior performance characteristics. For listings, data and outline drawings of these units, see Bulletin #49.)

Input voltage 115 volts, 60 cycle, single phase.

Type	Rated HP	RPM	Duty	Torque at Rated In.Oz.	Starting Torque In.Oz.	Pull-In Torque In.Oz.	Pull-Out Torque In.Oz.	*Cap. Reqd.
ALP-203	1/75	1800	Cont.	7.5	4.8	8.0	10.4	6 MFD
ASP-207	1/150	1800	Cont.	3.7	12.0	4.8	8.5	4 MFD
ASP-217	1/150	3600	Cont.	2.3	3.3	2.4	4.5	4 MFD

*An oil filled Capacitor rated 220 volts A.C. is recommended.

Typical 3 phase machines for either 115 volts or 208 volts, 60 cycles are shown below.

								<u>Voltage</u>
ALP-201	1/75	1800	Cont.	7.5	20.0	9.9	10.4	208
ALP-267	Performance identical to above.							115

Types ASPS and ALPS Split Phase Induction and Synchronous Motors, which do not require a capacitor, are dimensioned on Print A-1451 (lower half). A few typical examples are shown below.

Type	Rated HP	RPM	Duty	Torque at Rated In.Oz.	Starting Torque In.Oz.	Stalled Torque In.Oz.
ASPS-208	1/60	1630	Cont.	10.4	12.8	16.8
ASPS-252	1/50	3350	Cont.	6.0	8.0	13.4

TYPE AC UNIVERSAL AND D.C. MOTORS Drawing A-1452

These Universal and D.C. Motors are identified by the frame letters ASC and ALC, which indicate the two lengths available. These units can be wound as split field, shunt field, series field or with fields to operate from one voltage source and armature to operate from another different voltage source. External leads are provided for connections, and leads can be brought out for almost any type connection required by application; i.e., all four field leads and two armature leads, two field leads and two armature leads, or just two leads with other connections made internally.

These units are also manufactured as Governor Controlled Motors with an increase in length. These Governor Controlled Motors are identified by the letter "G" after the frame designation (i.e., ALGG followed by the type number.

Motors can be wound to operate on any voltage from 6 volts through 300 volts D.C. or Universal Motors from 6 through 220 volts A.C.-D.C. Special windings can be provided for motors to operate from vacuum tubes and minimize input current required.

The armature laminations are skewed to provide even, steady rotation without slot lock or jumping. Commutators are of copper of the built-up type, specially tested for operation at speeds to 20,000 RPM. Either 12 bar or 24 bar commutators are used, depending upon voltage and application of motor. The brush boxes are of bakelite with molded-in brass tube and screw type cap. The boxes are accurately located in cap with reference to commutator and held in position with headless set screws. Beryllium copper springs and brushes of the proper grade and cross section complete the assembly.

Characteristics of some typical shunt and separately excited D.C. Motors are given below.

Type	Volt.	Rated HP	Rated RPM	Current Full Load	Torque at Rated HP In.Oz.	Eff. at Rated Load	No Load Speed RPM
ASC-189	0-300	1/25	0-4200	.26A	Up to 10		0-4600
ASC-206	115	1/50	3600	.300	6.4	45%	3820
ASC-199	115	1/25	5000	.48A	8.0	56%	5400
ASC-282*	6	1/25	5500	13.5A	8.0	40%	7000

* Permanent Magnet Field

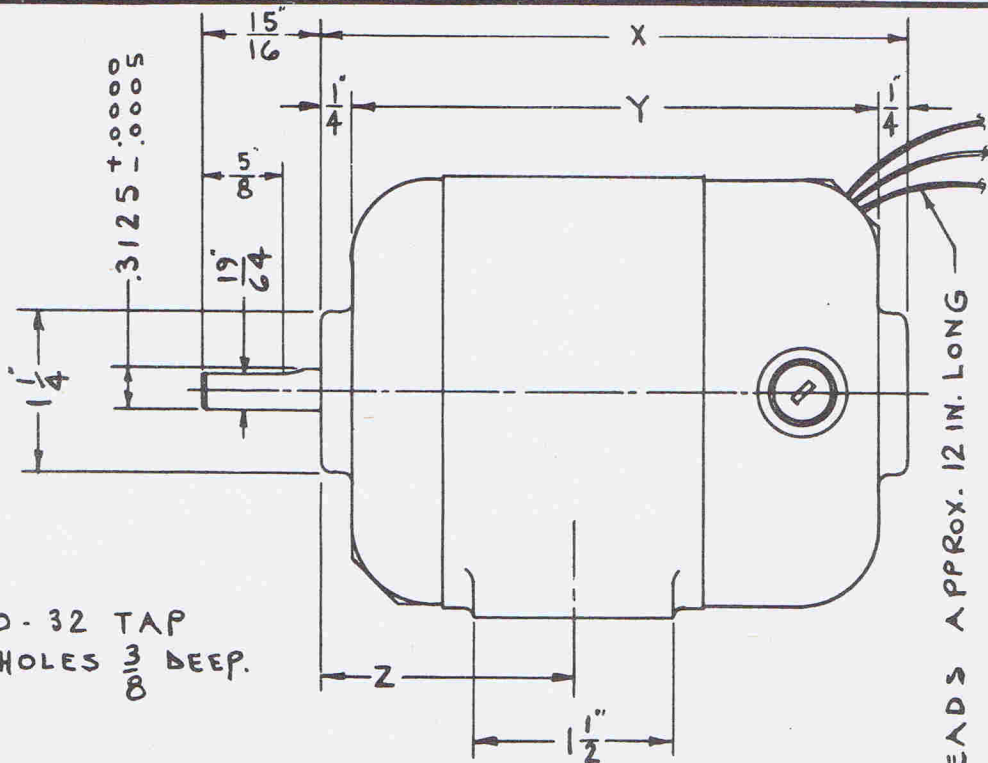
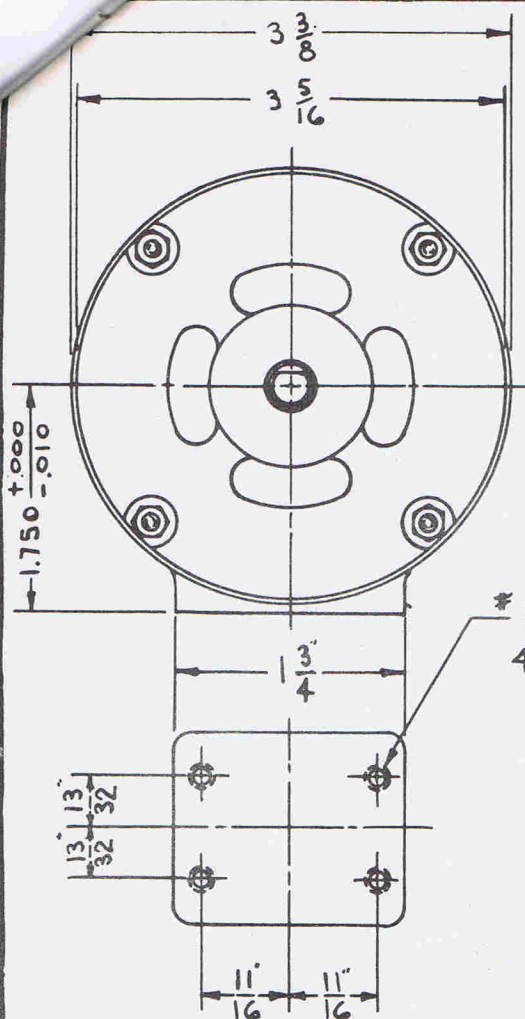
Characteristics of some typical Universal Motors are:

Type	Input Volt.	Rated HP	Rated RPM	Current Full Load	Torque at Rated HP In.Oz.	Eff. at Rated Load	No Load Speed RPM
ALC-173	115	1/6	7000	2.0A	24.0	54%	15400
ASC-192	115	1/15	8000	9.0A	8.4	54%	12200
ALC-200	115	1/5	16000	2.5A	12.6	58%	23000
ASC-242	6	1/100	3000	4.0A	3.4	30%	4400

Governor Controlled Constant Speed Units for A.C. and D.C. in a variety of speeds and ratings are made. Drawing A-1452 (lower half) dimensions these motors. Characteristics of a few of these units are listed below.

Type	Input Volt.	HP	RPM	Current Full Load In Amps.	Torque at Rated HP In.Oz.	Breakdown Torque In.Oz.
ALCG-211	12 DC	1/8 Inter.	6000	25.0	21.6	24
ASCG-237	27.5 DC	1/50	6000	4.0	4.0	24
ALCG-253	115 AC	1/6	8960	2.5	19.2	24
ASCG-255	6 DC	1/50	2400	11.2	8.0	21

In the same basic frame size there may also be obtained such units as Permanent Magnet D.C. Generators and one, two and three phase A.C. Generators. These may be obtained either as separate units or mounted integrally with a motor in a single housing. Such a design is particularly applicable where a feedback voltage is desired which is absolutely linear with speed. The A.C. generators may be of either the standard type or pure sine wave generators.

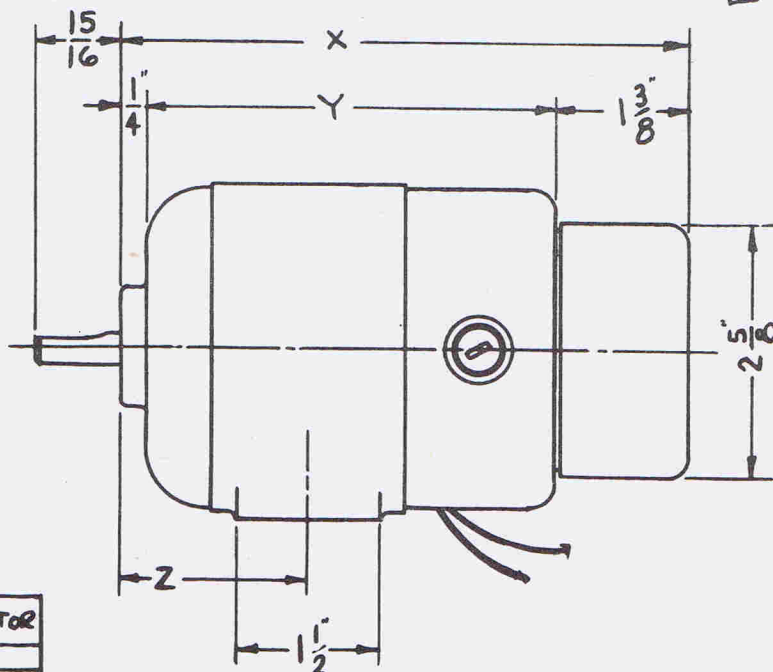


D.C. & UNIVERSAL MOTOR			
TYPE	DIMENSIONS		
	X	Y	Z
ASC	4 7/16	4 1/16	1 29/32
ALC	5 1/16	4 7/16	1 29/32

NOTES -

MADE WITH DOUBLE END SHAFT
WHEN REQUIRED IN WHICH CASE
TYPE NUMBER IS FOLLOWED BY
SUFFIX "D"
HOUSING AND END BELLS MADE
OF CAST ALUMINUM.
FELT SEAL BALL BEARINGS

GOVERNOR CONTROLLED D.C. & UNIVERSAL MOTOR			
TYPE	DIMENSIONS		
	X	Y	Z
ASCG	5 7/8	4 1/4	1 29/32
ALCG	6 3/8	4 3/4	1 29/32



ALL OTHER DIMENSIONS
SAME AS ABOVE

FLEXIBLE LEADS APPROX. 12 IN. LONG

OUTLINE DRAWING OF "A" FRAME COMMUTATOR TYPE MOTORS

DRAWN BY J. M. R.

DATE 6-4-48

APP'D. R.K.

SCALE NONE

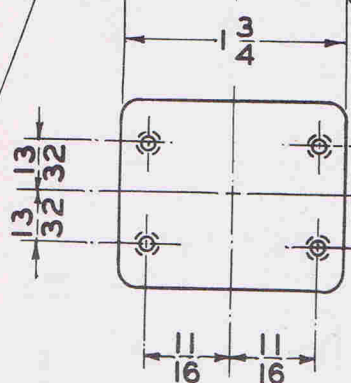
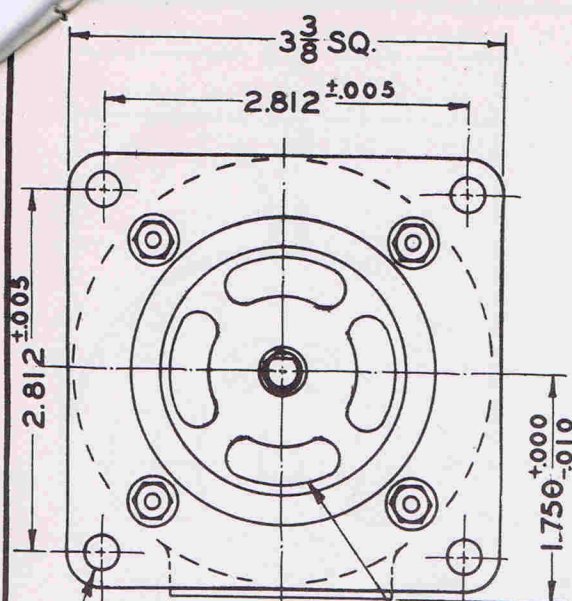
ELECTRIC INDICATOR COMPANY

STAMFORD, CONN.

No. A-1452

A

REVISIONS



THESE HOLES ARE FOR VENTILATION AND MUST NOT BE BLOCKED WITHOUT APPROVAL OF OUR ENG. DEPT.

.005 MAX. ECCENTRICITY TOTAL INDICATOR READING.

THIS SURFACE SQUARE WITH SHAFT WITHIN .005 TOTAL INDICATOR READING.

*10-32 TAP 4 HOLES 3/8 DEEP.

4 HOLES .281 DIA. EQUALLY SPACED & LOCATED AS SHOWN.

NOTES:

MADE WITH DOUBLE END SHAFT WHEN REQUIRED IN WHICH CASE TYPE NUMBER IS FOLLOWED BY SUFFIX "D".

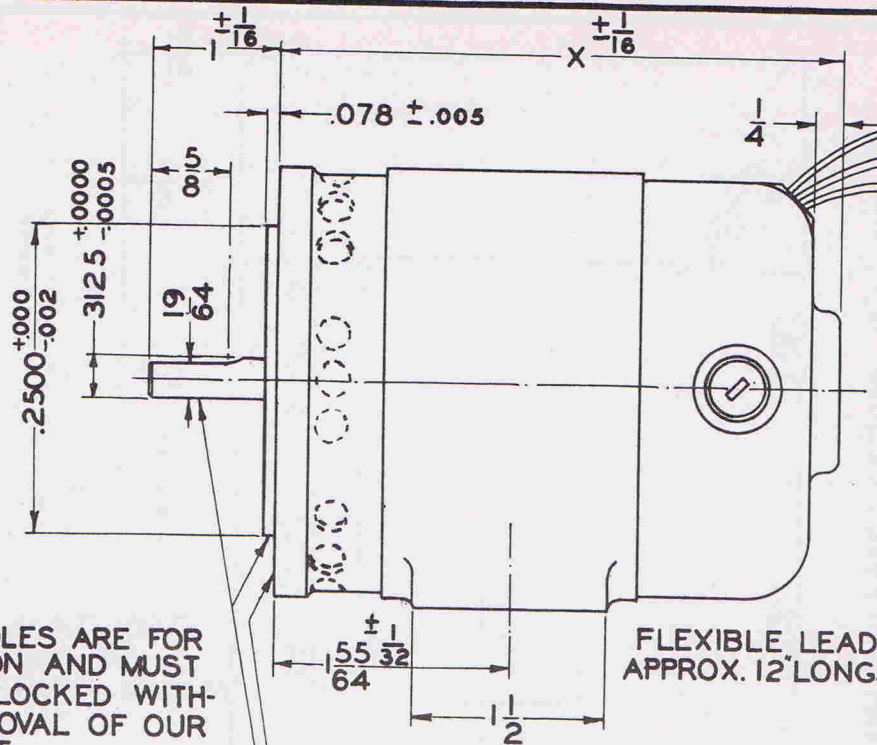
HOUSING AND END BELLS ARE MADE OF CAST ALUMINUM.

FELT SEAL BALL BEARINGS.

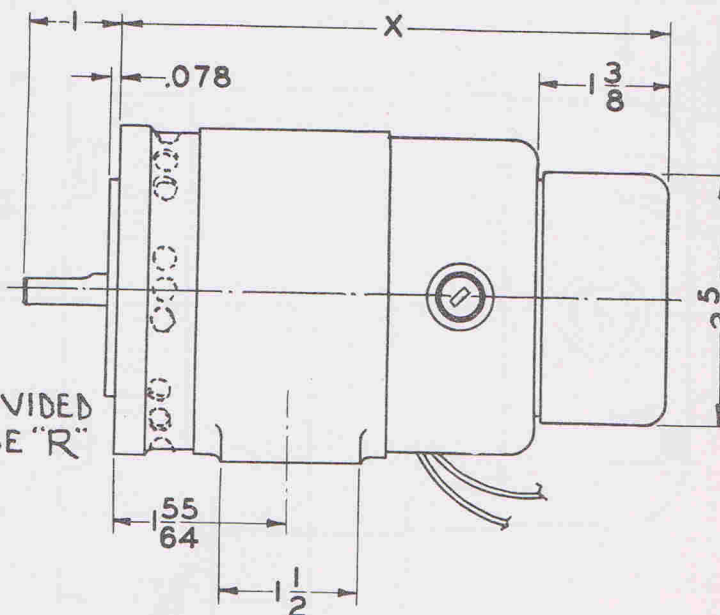
Ⓑ RADIAL AIR HOLES CAN BE PROVIDED IN WHICH CASE TYPE NO. WILL INCLUDE "R"

GOVERNOR CONTROLLED
D.C. & UNIVERSAL MOTOR

TYPE	DIMENSION "X"
ASCGJ	5 53/64
ALCGJ	6 21/64



D. C. & UNIVERSAL MOTOR	
TYPE	DIMENSION "X"
ASCJ	4 33/64
ALCJ	5 1/64



ALL OTHER DIMENSIONS SAME AS ABOVE.

"A" FRAME FLANGE MOUNTED COMMUTATOR TYPE MOTORS

DRAWN BY A J D

DATE 4-8-49

APP'D. R. K.

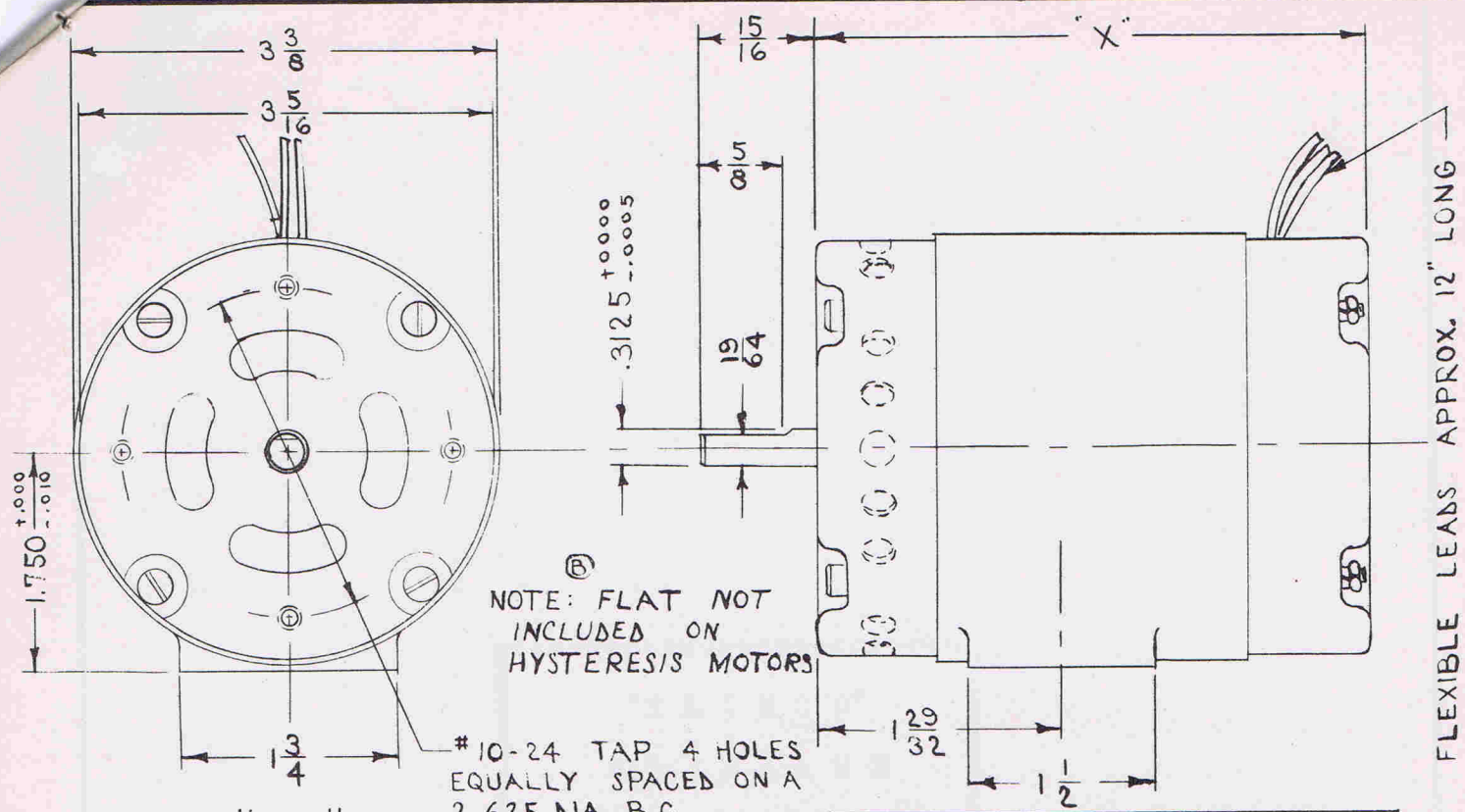
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ELECTRIC INDICATOR COMPANY

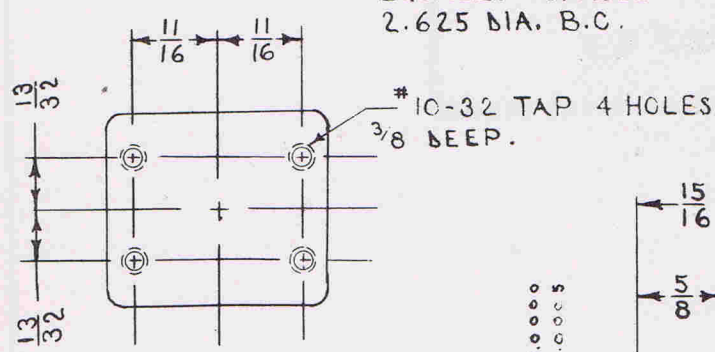
STAMFORD, CONN.

No. A-1609

B 11-6-51 ADD. RAD. HOLES
REVISIONS



#10-24 TAP 4 HOLES EQUALLY SPACED ON A 2.625 DIA. B.C.

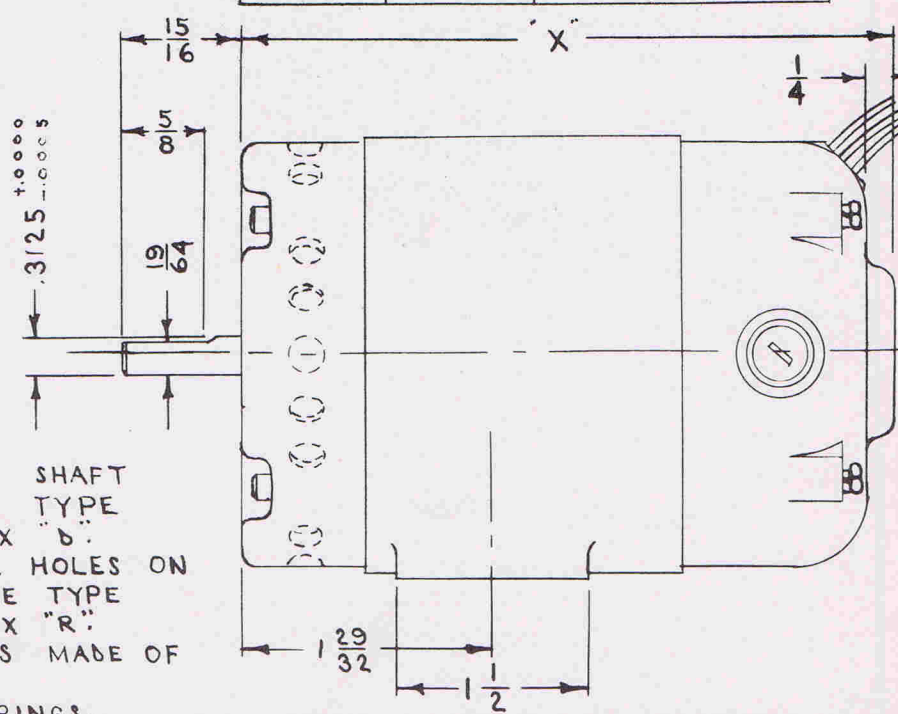


INDUCTION, RELUCTANCE & HYSTERESIS		
TYPE		DIMENSION "X"
ASHN	ASPN	3 13/16
ALHN	ALPN	4 5/16

D.C. & UNIVERSAL	
TYPE	DIMENSION "X"
ASCN	4 9/16
ALCN	5 1/16

ALL OTHER DIMENSIONS SAME AS ABOVE.

NOTES: MADE WITH DOUBLE END SHAFT WHEN REQUIRED IN WHICH CASE TYPE NUMBER IS FOLLOWED BY SUFFIX "D".
MADE WITH RADIAL AIR HOLES ON FRONT END BELL IN WHICH CASE TYPE NUMBER IS FOLLOWED BY SUFFIX "R".
HOUSING AND END BELLS MADE OF CAST ALUMINUM.
FELT SEAL BALL BEARINGS.



FLEXIBLE LEADS APPROX. 12" LONG

ELECTRIC INDICATOR CORPORATION, - STAMFORD, CONN.

OUTLINE OF TYPE "A" FRAME WITH "N" TYPE END BRACKET

REVISED	DATE	APPROVED	THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNTIL DATED AND SIGNED AS CHECKED AND APPROVED	MADE: M	DATE: 7-3-52
				CHECKED:	APPROVED
				SCALE =	
				DESTROY ALL PRINTS MADE	

No. A-2123-B