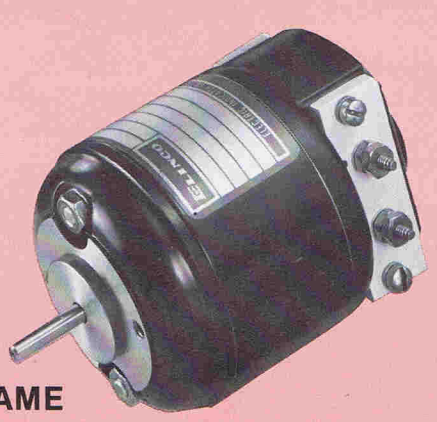
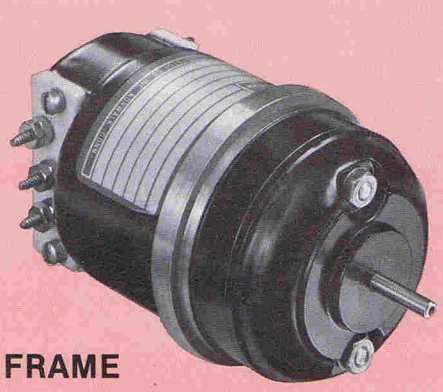
CATALOGUE No. EI-5D

SELF SYNCHRONOUS MOTORS

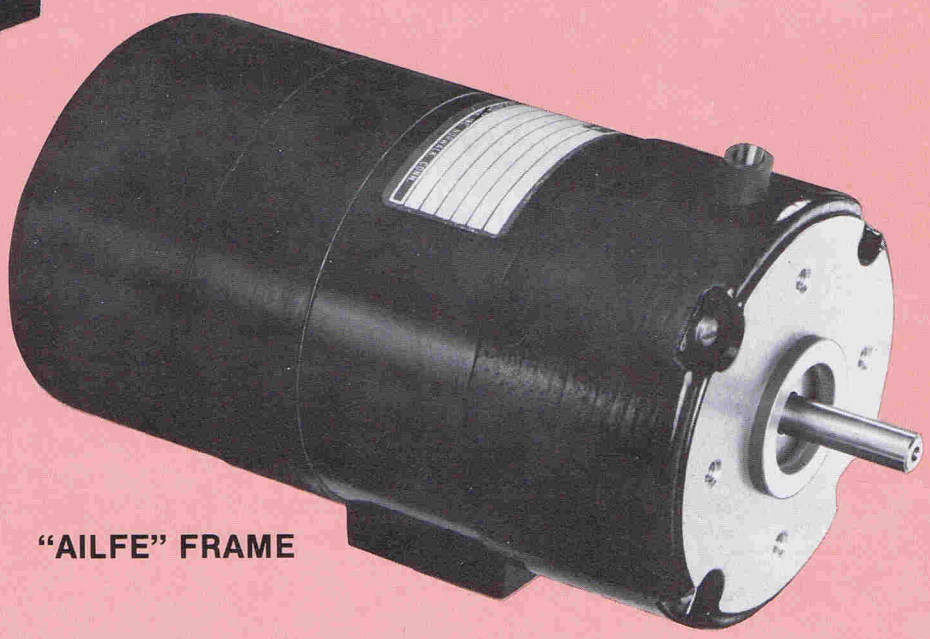


"F" FRAME



"RL" FRAME

"BL" FRAME



"AILFE" FRAME

ELINCO | ELECTRIC INDICATOR COMPANY, INC.

Electric Indicator Company, Inc., 272 Main Ave., Norwalk, Conn. 06851, Phone (203) 847-5861

ELINCO SELF SYNCHRONOUS MOTORS (SYNCHROS)

SYNCHROS, which are electromagnetic devices resembling electric motors, are used primarily for transfer of angular position data. They are essentially transformers whose primary to secondary coupling may be varied by changing the angular position of the rotor with respect to the stator.

SYNCHRO SYSTEMS consist of two or more interconnecting synchros, plus auxiliary units such as indicators and capacitors where required. Systems which provide low power mechanical output capable of positioning indicating devices, activating sensitive switches, or moving light loads are known as TORQUE SYSTEMS. Systems which provide an electrical output and are primarily used as follow-up links and error detectors in servo automatic control systems are known as CONTROL SYSTEMS. One system may often perform both torque and control functions. Some torque units can be used as control units, but control units cannot be used as torque units. Units are generally grouped according to their intended use. The functional classifications are as follows:

Torque Transmitter — Transmits angular data according to the position of its rotor with respect to its stator. The rotor is positioned mechanically in accordance with the information to be transmitted. The output is electrical data corresponding to the position of the rotor. Torque transmitters are usually used to drive receivers, or combinations of differentials and control transformers.

Control Transmitter — Performs the same function as torque transmitters except they use less exciting current. They are more frequently connected to control transformers and less often to a differential or control transformer series.

Torque Differential Transmitter — Electrically transmits angular data (obtained from a torque transmitter and the position of its rotor with respect to its stator) equal to the algebraic sum or difference of the electrical input on its stator. The electrical output is used by a torque receiver, another torque differential transmitter or torque differential receiver.

Control Differential Transmitter — Performs the same function as torque differential transmitter, except that it is used in control rather than torque systems.

Torque Receiver — A unit whose rotor assumes an angular position determined by the electrical data supplied to its stator from a torque transmitter. Its rotor must be connected in parallel with the rotor of its associated torque transmitter, and both units energized from the same power source.

Torque Differential Receiver — A unit whose rotor assumes a position determined by the algebraic sum or difference of the electrical input supplied to it by two torque transmitters, or two torque differential transmitters, or one of each.

Control Transformer — A unit which accepts electrical data from a transmitter or differential transmitter to produce an electrical output proportional to the sine of the difference between the control transformer rotor angle and the electrical angle fed to its input.

Rotary Transformers have a single phase salient pole rotor primary and a single phase non-sinusoidally wound stator secondary. The windings are electrically isolated and the resolution is essentially unlimited.

Resolver — Used for vector addition and to resolve a vector voltage into its quadrature components.

Phase Shifter — Basically a resolver specially made and calibrated as a phase shifter. The error is the plus or minus difference, in degrees, between the time phase of the output and the physical input angle of the rotor.

TRANSMITTERS OR RECEIVERS

B, F or R FRAME, PAGE 6

Type No.	Frequency Hz.	PRIMARY Volts	* Amps.	* Watts	No. Phases	D. C. Resistance Ohms	SECONDARY Volts	No. Phases	D. C. Resistance Ohms	Torque Gradient Oz-In./°	Max. Torque Oz-In.	Static Accuracy	Service	Connection Diagram Page 5
19	60	24	.19	2	1	60	15	3	16	.02	1.5	±3°	Indicate	1
2901	60	24	1.15	13	1	5	24	3	56	.04	2.5	±2°	Indicate	1
408	60	115	.15	5	1	195	34	3	62	.04	2.5	±2°	Indicate	1
409	60	115	.15	5	1	195	34	3	62	.04	2.5	±3°	Rotating	1
857	60	115	.15	5	1	195	34	3	62	.04	2.5	±1°	Indicate	1
691	60	115	.15	5	1	210	34	3	62	.04	2.5	±2°	Indicate	1
1127	60	115	.45	15	1	78	34	3	25	.07	5.0	±1°	Rotating	4
1130	60	115	.16	8	1	170	90	3	382	.04	2.3	±2°	Indicate	4
179	25	115	.15	5	1	300	34	3	914	.04	2.5	±3°	Indicate	1
331	40	115	.15	5	1	430	34	3	220	.04	2.5	±2°	Indicate	1
373	50	115	.15	5	1	295	34	3	94	.04	2.5	±2°	Indicate	1
1120	400	115	.35	12	1	12	34	3	5	.04	3.2	±2°	Rotating	1
2535	60	115	.15	5	1	130	55	3	179	.04	2.2	±2°	Indicate	1
2188	400	115	.35	12	1	13	34	3	5	.04	3.2	±2°	Indicate	1
1778	60	115	.14	5	1	174	34	3	31	.04	2.5	±3°	Indicate	1

BL, FL or RL FRAME, PAGE 6

410	60	115	.23	9	1	84	34	3	21	.07	4.2	±2°	Indicate	1
1247	60	115	.23	9	1	84	34	3	21	.07	4.2	±1°	Rotating	1
626	60	115	.80	30	1	32	34	3	9	.25	12.0	±1°	Indicate	1
1389	60	115	.43	15	1	53	90	3	107	.14	9.2	±1°	Rotating	1
823	25	115	.16	10	1	67	34	3	185	.05	2.7	±2°	Rotating	1
1099	50	115	.23	9	1	125	34	3	32	.08	4.5	±1°	Indicate	1
2399	60	115	.23	5	1	83	57.5	3	80	.07	4.2	±1°	Indicate	1
1751	60	115	.10	9	1	84	57.5	3	21	.07	4.2	±1°	Indicate	1

AIFE FRAME, PAGE 7

881	60	220	.20	6	1	176	90	3	97	.20	14	±1°		1

AILFE or AILFEX FRAME, PAGE 7

689	60	115	.30	6	1	28	34	3	8	.30	17	±1°		1
958	60	115	.48	7	1	15	34	3	5	.37	30	±1°		1
1447	60	115	.94	11	1	10	34	3	3	.64	54	±1°		1
847	60	115	.35	5	1	28	90	3	38	.35	25	±1°		1
1113	60	115	1.40	20	1	7	90	3	10	.95	64	±1°		1
753	60	115	.30	4	1	23	107	3	71	.30	17	±1°		1
861	50	115	.40	6	1	24	90	3	44	.45	35	±1°		1
1223	400	115	1.40	10	1	0.8	90	3	1.4	.30	40	±1°		1
1792	60	115	1.00	20	1	7	34	3	1.8	.95	55	±1°		1

*Input with secondary circuit open.

HOW TO ORDER Frame designation, followed by dash, should precede Type No.
Examples: B-19, FL-410,
AIFE-881, AILFEX-1223

DIFFERENTIALS

B, F or R FRAMES, PAGE 6

Type No.	Frequency Hz.	PRIMARY Volts	* Amps	* Watts	No. Phases	D. C. Resistance Ohms	SECONDARY Volts	No. Phases	D. C. Resistance Ohms	Service	Connection Diagram Page 5
407	60	34	.26	7.5	3	138	34	3	48	Indicate	2
411	60	34	.26	7.5	3	138	34	3	48	Rotating	2
539	60	55	.175	11.5	3	360	55	3	152	Rotating	2
1132	60	90	.37	23.5	3	800	90	3	225	Indicate	2

AILFE or AILFEX FRAME, PAGE 7

1115	60	90	1.65	90	3	16	90	3	16	Indicate	3

CONTROL TRANSFORMERS

B, F or R FRAMES, PAGE 6

Type No.	Frequency Hz.	PRIMARY Volts	No. Phases	D. C. Resistance Ohms	SECONDARY Volts	No. Phases	D. C. Resistance Ohms	Voltage Gradient V/Deg.	Connection Diagram Page 5
819	60	34	3	250	49	1	525	.86	1
1131	60	90	3	170	115	1	382	1.80	4
1692	50	34	3	250	49	1	525	.86	1

ROTARY TRANSFORMERS

AILFE or AILFEX FRAMES, PAGE 7

Type No.	Frequency Hz.	PRIMARY Volts	* Amps	* Watts	No. Phases	D. C. Resistance Ohms	SECONDARY Volts	No. Phases	D. C. Resistance Ohms	Connection Diagram Page 5
1492	60	115	1.2	18	1	10	34.5	1	1.20	6
611	60	115	.3	6	1	28	128	1	29	6
1213	60	115	1.2	18	1	10	150	1	19	6
704	60	220	.14	4	1	86	270	1	125	6

RESOLVERS

B, F or R FRAMES, PAGE 6

Type No.	Frequency Hz.	PRIMARY Volts	* Amps	* Watts	No. Phases	D. C. Resistance Ohms	SECONDARY Volts	No. Phases	D. C. Resistance Ohms	Voltage Gradient V/Deg.	Static Accuracy	Connection Diagram Page 5
777	60	115	.054	5	1	1300	13	2	35.4	.225	±1°	5

AILFE or AILFEX FRAME, PAGE 7

1220	60	115	1.20	20	1	10	150	2	24	3.0	±1°	5

PHASE SHIFTERS

B, F or R FRAMES, PAGE 6

Type No.	Frequency Hz.	PRIMARY Volts	No. Phases	D. C. Resistance Ohms	SECONDARY Volts	No. Phases	D. C. Resistance Ohms	Connection Diagram Page 5
595	60	220	3	1590	120	3	976	3

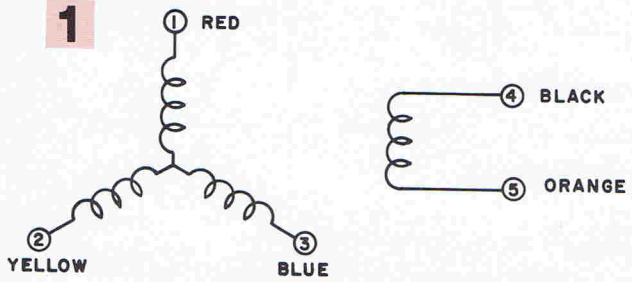
AILFE or AILFEX FRAME, PAGE 7

1168	240	120	3	7	120	3	6	3

*Input with secondary circuit open.

CONNECTION DIAGRAMS

1



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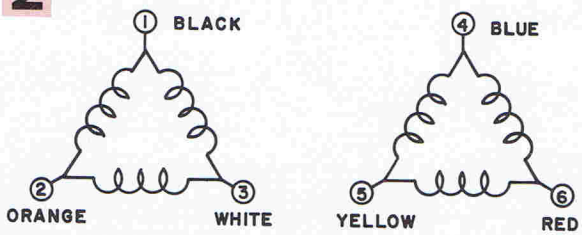

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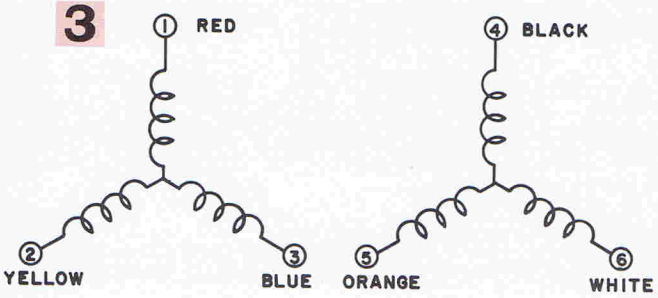

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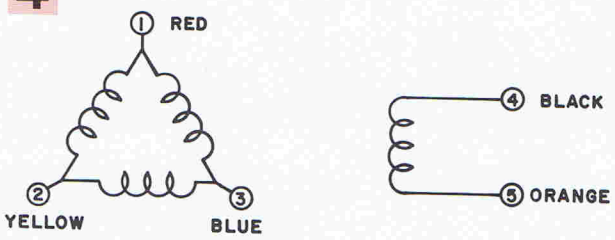

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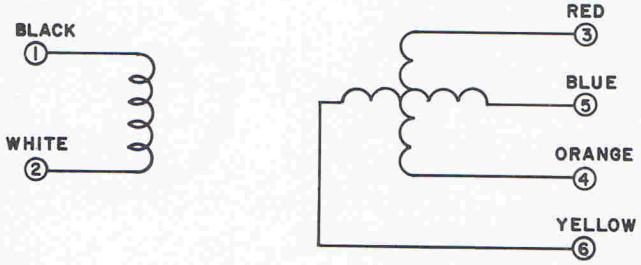

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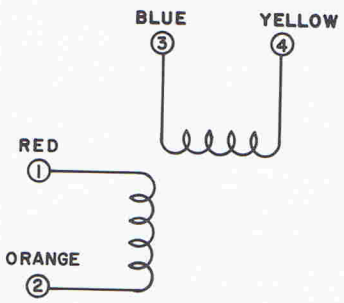
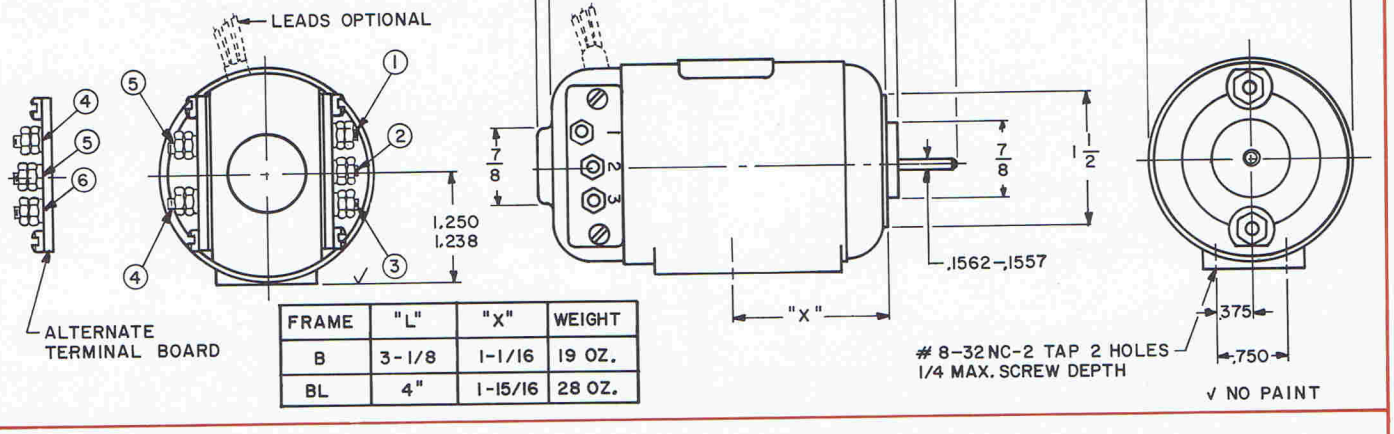


B or BL FRAME

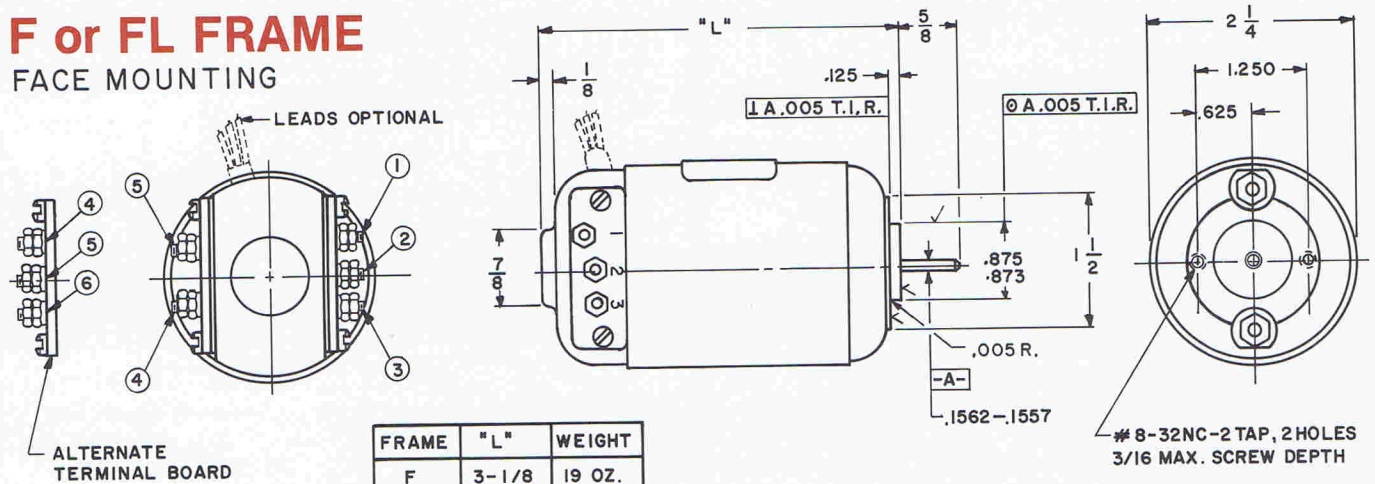
BASE MOUNTING



FRAME	"L"	"X"	WEIGHT
B	3-1/8	1-1/16	19 OZ.
BL	4"	1-15/16	28 OZ.

F or FL FRAME

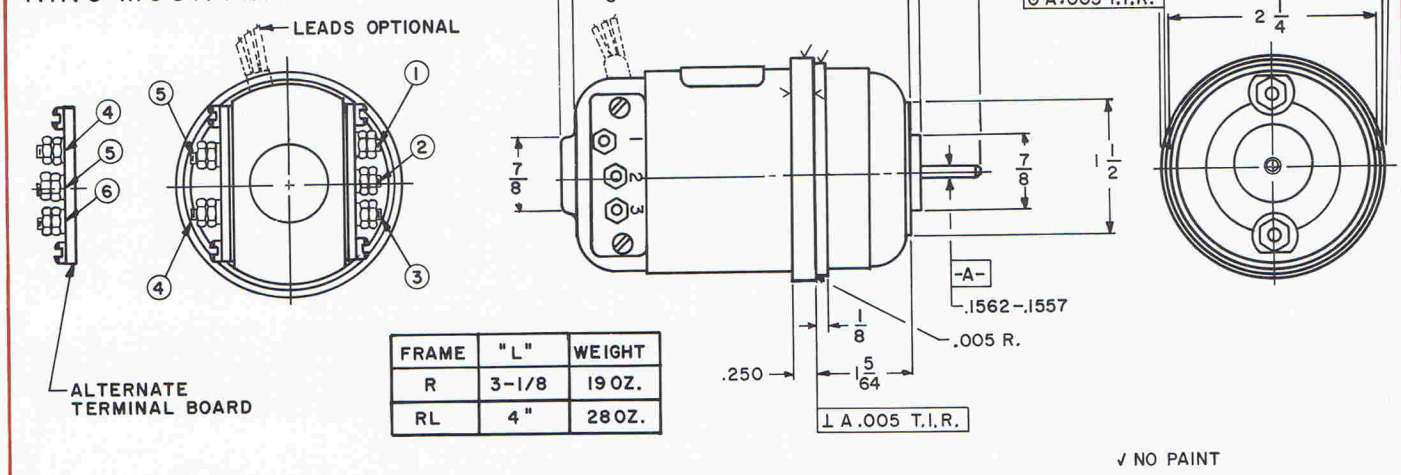
FACE MOUNTING



FRAME	"L"	WEIGHT
F	3-1/8	19 OZ.
FL	4"	28 OZ.

R or RL FRAME

RING MOUNTING



FRAME	"L"	WEIGHT
R	3-1/8	19 OZ.
RL	4"	28 OZ.

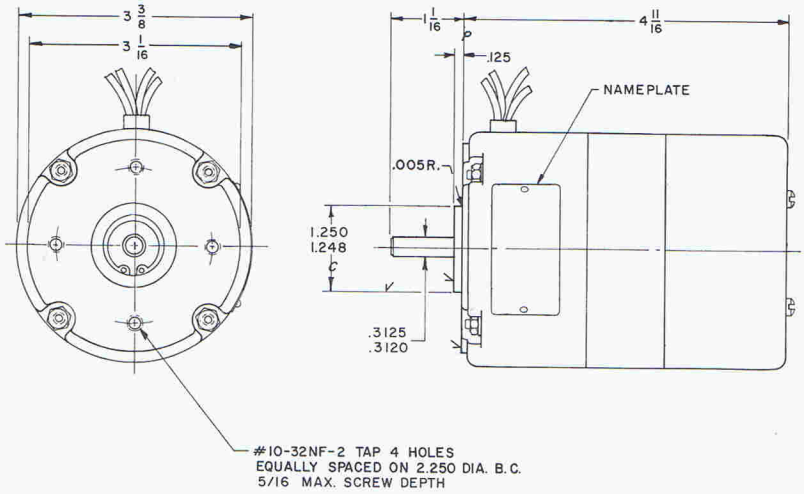
TOLERANCES

FRACTIONS : ± 1/64
DECIMALS : ± .005

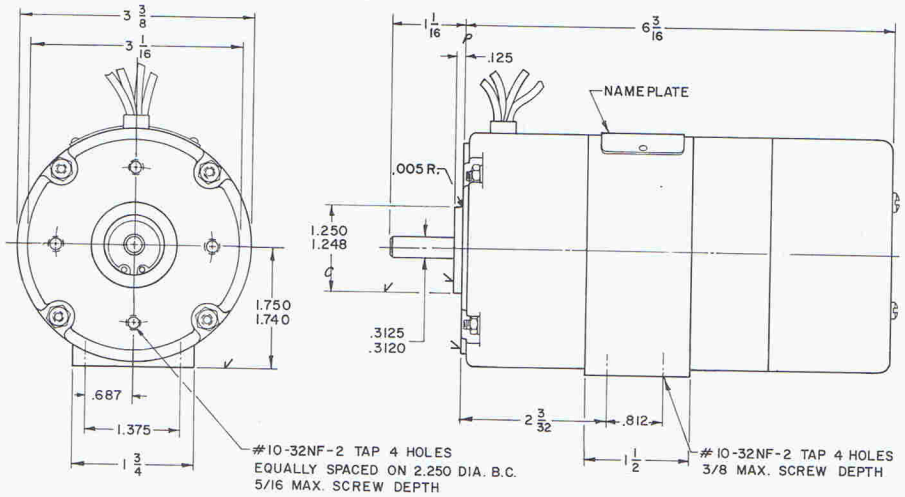
NOTE

1.- ALUMINUM FRAME
2.- STAINLESS STEEL SHAFT
3.- BALL BEARING CONSTRUCTION
4.- MOTOR LEADS 12" LONG OPTIONAL
5.- FINISH - BLACK
6.- SHAFT RUNOUT .001 T.I.R.
7.- BASE (B), FACE (F), OR RING (R) MOUNTING CAN BE ORDERED IN ANY COMBINATION WHEN SPECIFIED (EX. FB=FACE & BASE MTG.)

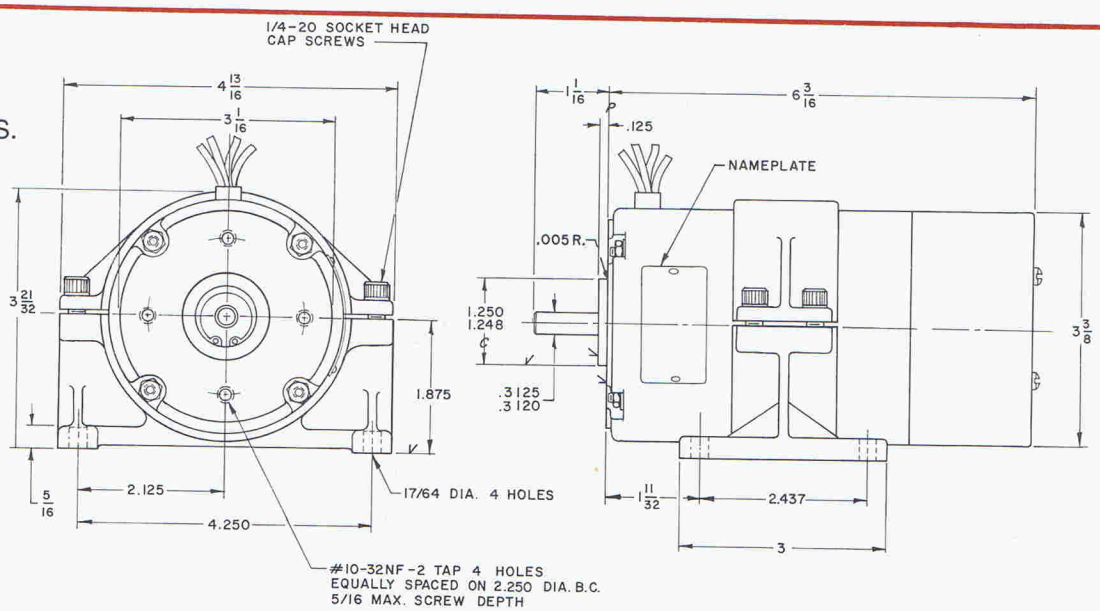
AIFE FRAME
WEIGHT 3 1/4 LBS.



AILFE FRAME
WEIGHT 4 1/4 LBS.



AILFEX FRAME
WEIGHT 5 LBS.

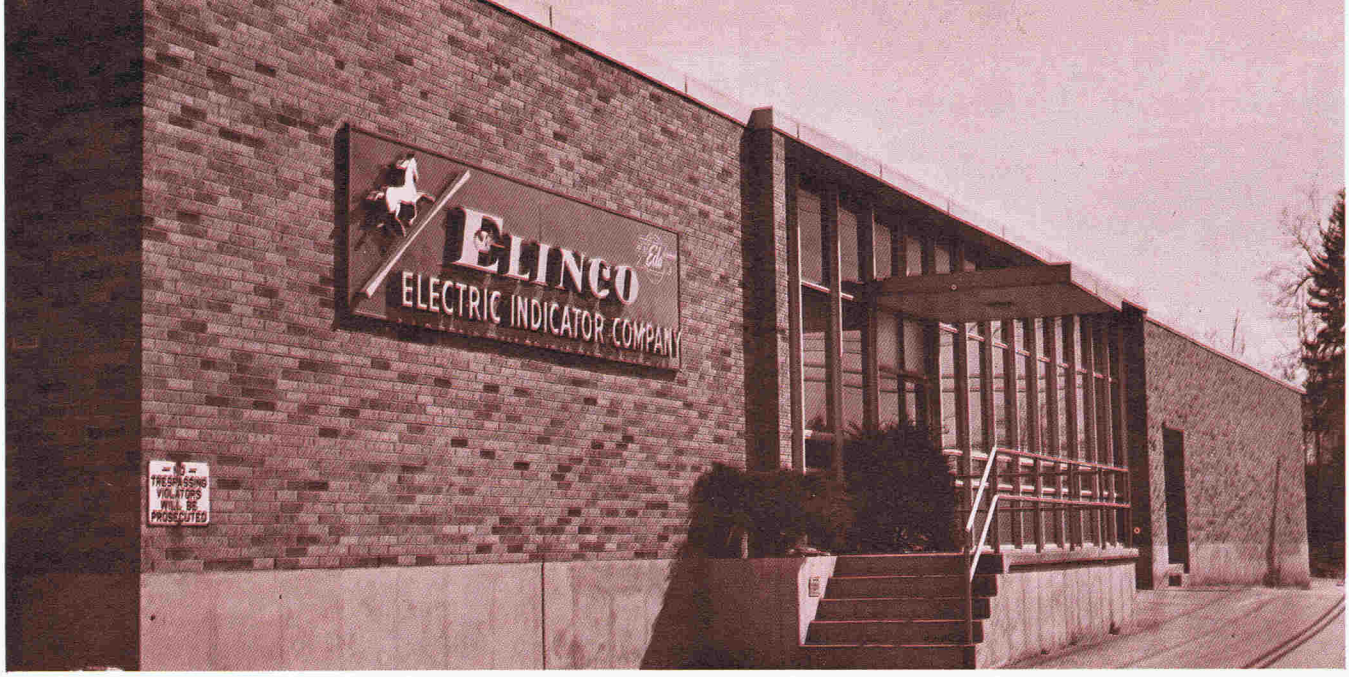


TOLERANCES

FRACTIONS : ± 1/64
DECIMALS : ± .005

NOTE

1.- ALUMINUM FRAME
2.-STAINLESS STEEL SHAFT
3.- BALL BEARING CONSTRUCTION
4.- MOTOR LEADS 12" LONG OPTIONAL
5.—FINISH - BLACK
6.- SHAFT RUNOUT .001 T.I.R.



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- D.C. Permanent Magnet Generators (Tachometers)
- D.C. Speed-Squared Generators
- D.C. Wound Field Generators

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- D.C. Governor Motors
- D.C. Permanent Magnet Motors
- D.C. Series Motors
- D.C. Split Field Series Motors
- D.C. Separately Excited Shunt Motors
- D.C. Shunt Motors
- D.C. Split Field Shunt Motors

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