# Alternating Current (AC) Hybrid Linear Actuators

Stepping motors can also be run on Alternating Current (AC). However, one phase must be energized through a properly selected capacitor. In this case, the motor is limited to only one synchronous speed.

For instance, if 60 hertz is being supplied, there are 120 reversals or alterations of the power source. The phase being energized by a capacitor is also producing the same number of alterations at an offset time sequence. The motor is really being energized at the equivalent of 240 steps per second.

In the case of a linear actuator the linear speed produced is dependent on the resolution per step of the motor. For example, if 60 hertz is supplied to a .001-in/step motor the resulting speed is .240-in per second (240 steps per second times .001-in/step). Many of our stepping motors are available as 300 or 600 RPM AC synchronous motors.
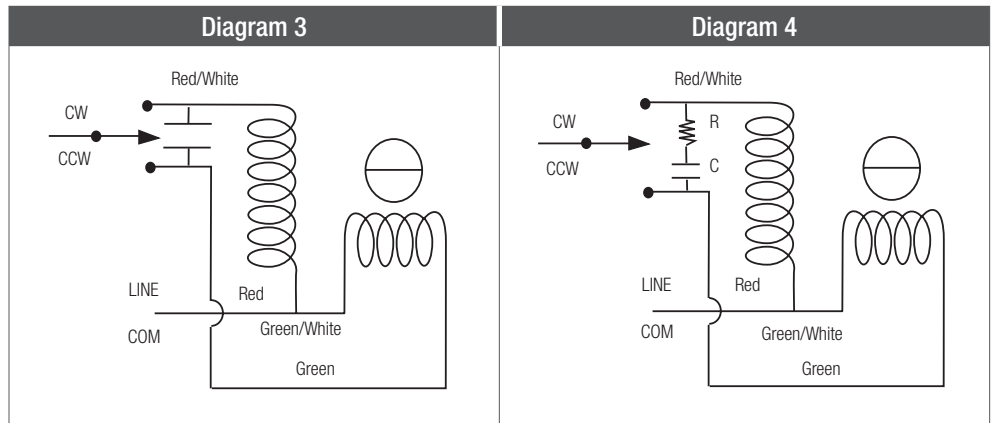
Diagram 3	Diagram 4

Electrical Data

Series	Size	Watts	Amps	Capacitor (Mfd) @ 60 Hz	Capacitor (Mfd) @ 50 Hz	Coil Resistance (Ohms)		Connection Diagram
						Main Wind.	Cap. Wind.	
35000	14	5.7	0.21	15	15	300	300	3
43000	17	6.5	0.27	15	15	104	104	3
57000	23	13.0	0.60	30	40	35	35	3
87000*	34	30.0	2.00	200	200	2.3	2.3	4

* With 12 OHM, 100 watt resistor in series.

Identifying the AC Hybrid Part Number Codes when Ordering

A	35	H	4	N	—	24	—	800

A — Prefix

A = A Coil)

35 — Series Number Designation

35 = 35000 (Size 14)
43 = 43000 (Size 17)
57 = 57000 (Size 23)
87 = 87000 (Size 34)

H — Style

F = 1.8° Non-captive
H = 1.8° Captive or External (use "E" or "K" Prefix for External version)
J = 0.9° Non-captive
K = 0.9° Captive or External (use "E" or "K" Prefix for External version)

4 — Coils

4 = Bipolar (4 wire)

N — 35000 and 43000 Series Code ID Resolution Travel/Step

N = .00012-in (.0030)
K = .00024-in (.0060)
J = .00048-in (.0121)
Q = .00096-in (.0243)
P = .00015625-in (.0039)
A = .0003125-in (.0079)
B = .000625-in (.0158)
C = .00125-in (.0317)
R = .00192-in (.0478)

High Resolution
U = .00006-in (.0015)
V = .000078-in (.00198)

57000 Series Code ID Resolution Travel/Step

7 = .000125-in (.0031)
S = .0004167-in (.01058418)
3 = .0005-in (.0127)
1 = .001-in (.0254)
A = .0003125-in (.0079)
T = .0008333-in (.0211)
2 = .002-in (.0508)

High Resolution
P = .00015625-in (.003969)
X = .00020833-in (.00529166)
9 = .00025-in (.0635)

87000 Series Code ID Resolution Travel/Step

3 = .0005-in (.0127)
B = .000625-in (.0158)
C = .00125-in (.0317)
Y = .0025-in (.0635)
Z = .005-in (.127)

24 — Voltage

24 = 24 VDC

800 — Suffix

−800 = External linear (added to Captive shaft part number)

−XXX = Proprietary suffix assigned to a specific customer application. The identifier can apply to either a standard or custom part.

NOTE: Dashes must be included in Part Number (−) as shown above. For assistance call our Engineering Team at 203 756 7441.

Motor part numbers are for a captive shaft. **For a non-captive shaft**, change the middle letter from an "H" to an "F". Example 1: A35H4N-24 with a non-captive shaft becomes A35F4N-24.

Exception: A43K4U-24 (high resolution) and A43K4V-24 (High resolution), for a non-captive shaft substitute "J" in place of the "K". Example 2: A43K4U-24 with a non-captive shaft becomes A43J4U-24.

For an external linear shaft, add the three digit suffix – 800 to the captive shaft part number.

Example 3: A35H4N-24 with an external linear shaft becomes A35H4N-24–800.

All standard motors operate at 24 Volts, represented in the part number by the number – 24 (A35H4N-24). No other suffix is required.