



## Haydon® Size 17 dual motion actuators provide linear and rotary motions, controllable independently of one another

For a rotary/linear motor, it is desirable that the linear and rotary motions be controllable independently of one another. These devices can be run using a standard two axis stepper motor driver. Performance can be enhanced using chopper and/or microstepping drives.

The actuators are based on unique, patented designs and incorporate proven motor technology. These units simplify product development by replacing what would otherwise be far more bulky and complex mechanisms.



43000 Series  
Dual Motion  
with 57 mm NEMA

### Identifying the 43000 Series Dual Motion part number codes when ordering

LR	43	H	H	4	J	05	910	
<b>Prefix</b> LR = Linear/ Rotary	<b>Series number designation</b> 43 = 43000	<b>Rotary Step Angle</b> H = 1.8° K = 0.9° M = 1.8° Double Stack P = 0.9° Double Stack	<b>Linear Step Angle</b> H = 1.8° K = 0.9°	<b>Coils</b> 4 = Bipolar (4 wire) 6 = Unipolar (6 wire)	<b>Code ID Resolution Travel/Step</b> <b>1.8° Step Angle</b> N = .00012-in (.003) 7 = .000125-in (.0031) P = .00015625-in (.0039) AB = .00019-in (.005) K = .00024-in (.006) 9 = .00025-in (.0063) A = .0003125-in (.0079) AC = .00039-in (.01) J = .00048-in (.0121) 3 = .0005-in (.0127) B = .000625-in (.0158) AQ = .00098-in (.025) Q = .00096-in (.0243) C = 0.00125-in (.0317) BH = .00196-in (.05) R = 0.00192-in (.0487) Y = .0025-in (.0635) AG = .00375-in (.0953) Z = .005-in (.127)	<b>0.9° Step Angle</b> U = .00006-in (.0015) BB = .0000625-in (.0016) V = .00007825-in (.00198) AA = .000098-in (.0025) N = .00012-in (.003) 7 = .000125-in (.0031) P = .00015625-in (.0039) AB = .00019-in (.005) K = .00024-in (.006) 9 = .00025-in (.0063) A = .0003125-in (.0079) AB = .00039-in (.01) K = .00048-in (.0121) 9 = .0005-in (.0127) A = .000625-in (.0158) BG = .00049-in (.0125) J = .00048-in (.0121) B = .000625-in (.0158) AQ = .00098-in (.025) Q = .00096-in (.0243) C = 0.00125-in (.0317) AF = .001875-in (.0476) Y = .0025-in (.0635)	<b>Voltage</b> 05 = 5 VDC 12 = 7.5 VDC SP = Mixed Voltages Custom V available	<b>Suffix:</b> <b>Stroke</b> Example: -910 = 1-in (26 mm) -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 or order entry, call our engineering team at 203 756 7441.

NOTE: SEE PAGE 95  
43000 SERIES HYBRID  
FOR MORE DETAILED  
MOTOR INFORMATION

DUAL MOTION ACTUATOR  
LINEAR & ROTARY MOTION



### Technical Specifications

**43000 Series: 1.8° Step Angle**      **43000 Series: 0.9° Step Angle**

Linear Travel / Step		Load Limit		Order Code I.D.
inches	mm	lbs	N	
0.00012	0.003*	30	133	N
0.000125	0.0031*	30	133	7
0.00015625	0.0039*	30	133	P
0.00019*	0.005	30	133	AB
0.00024	0.0060*	30	133	K
0.00025	0.0063*	30	133	9
0.0003125	0.0079*	50	222	A
0.00039*	0.01	50	222	AC
0.00048	0.0121*	50	222	J
0.0005	0.0127*	50	222	3
0.000625	0.0158*	50	222	B
0.00098*	0.025	50	222	AQ
0.00096	0.0243*	50	222	Q
0.00125	0.0317*	50	222	C
0.00196*	0.05	50	222	BH
0.00192	0.0487*	50	222	R
0.0025	0.0635	50	222	Y
0.00375	0.0953*	50	222	AG
0.005	0.127	50	222	Z

Linear Travel / Step		Load Limit		Order Code I.D.
inches	mm	lbs	N	
0.00006	0.0015*	30	133	U
0.0000625	0.0016*	30	133	BB
0.00007825	0.00198*	30	133	V
0.000098*	0.0025	30	133	AA
0.00012	0.003*	30	133	N
0.000125	0.0031*	30	133	7
0.00015625	0.0039*	50	222	P
0.00019*	0.005	50	222	AB
0.00024	0.0060*	50	222	K
0.00025	0.0063*	50	222	9
0.0003125	0.0079*	50	222	A
0.00049*	0.0125	50	222	BG
0.00048	0.0121*	50	222	J
0.000625	0.0158*	50	222	B
0.00098*	0.025	50	222	AQ
0.00096	0.0243*	50	222	Q
0.00125	0.0317*	50	222	C
0.001875	0.0476*	50	222	AF
0.0025	0.0635	50	222	Y

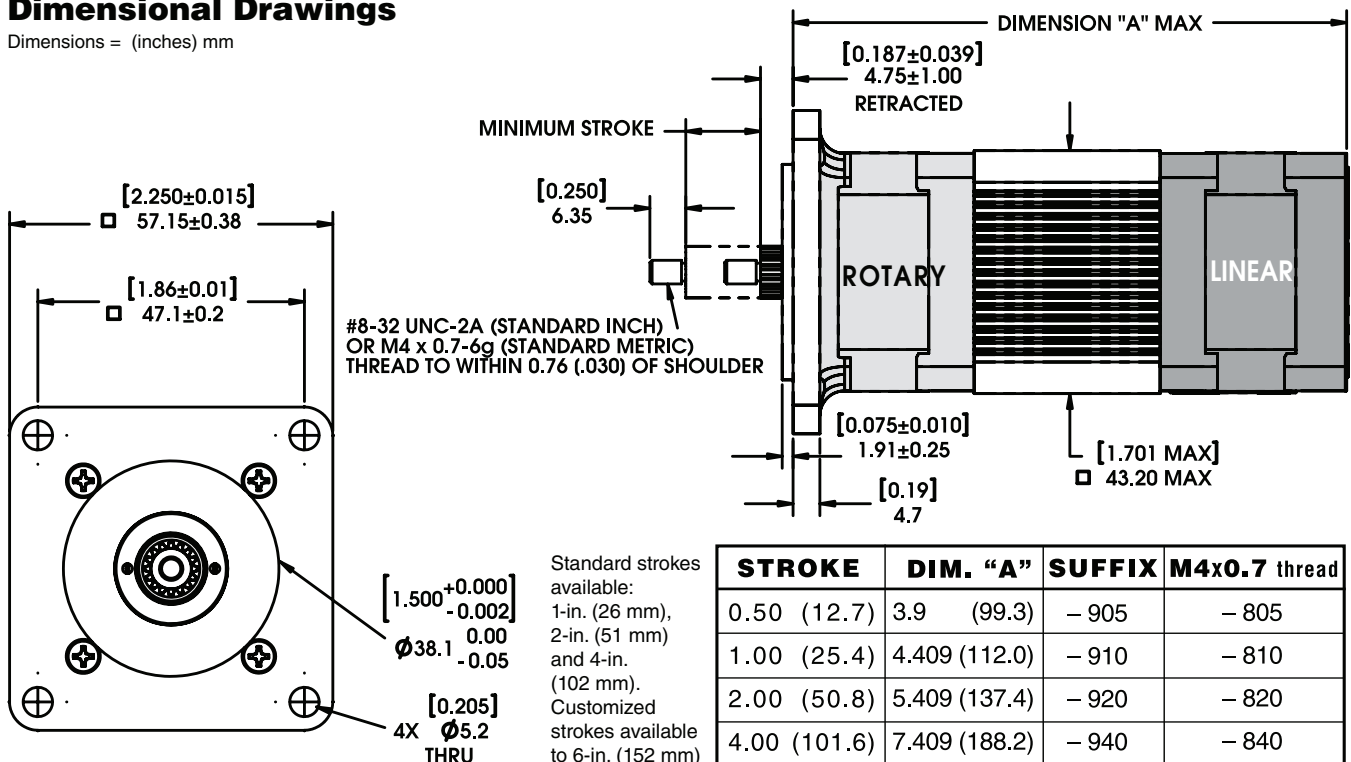
\*Values truncated

Standard motors are Class B rated for maximum temperature of 130°C.

DUAL MOTION ACTUATOR  
LINEAR & ROTARY MOTION

### Dimensional Drawings

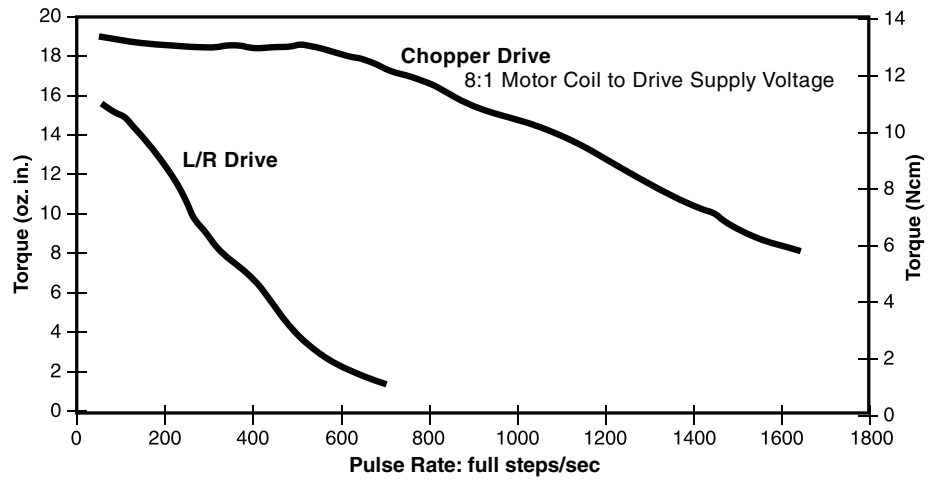
Dimensions = (inches) mm





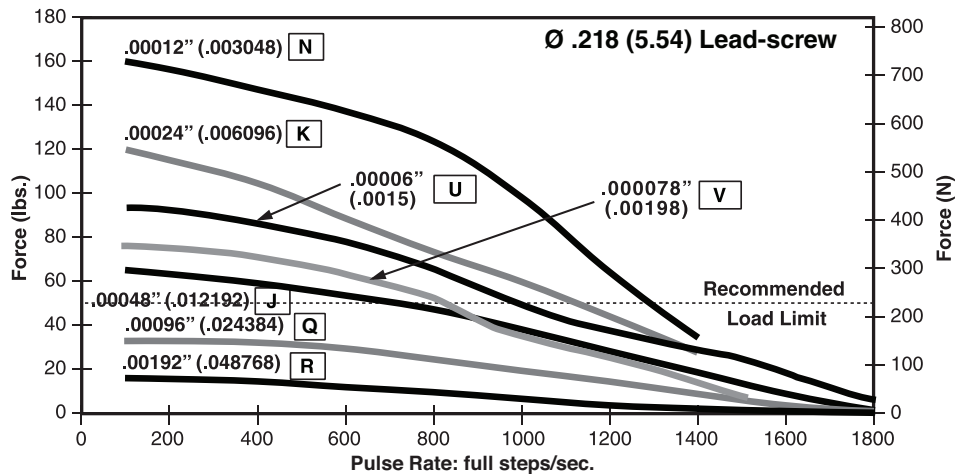
**TORQUE vs. PULSE RATE: ROTARY FUNCTION**

- Bipolar
- 100% Duty Cycle



**FORCE vs. PULSE RATE: LINEAR FUNCTION**

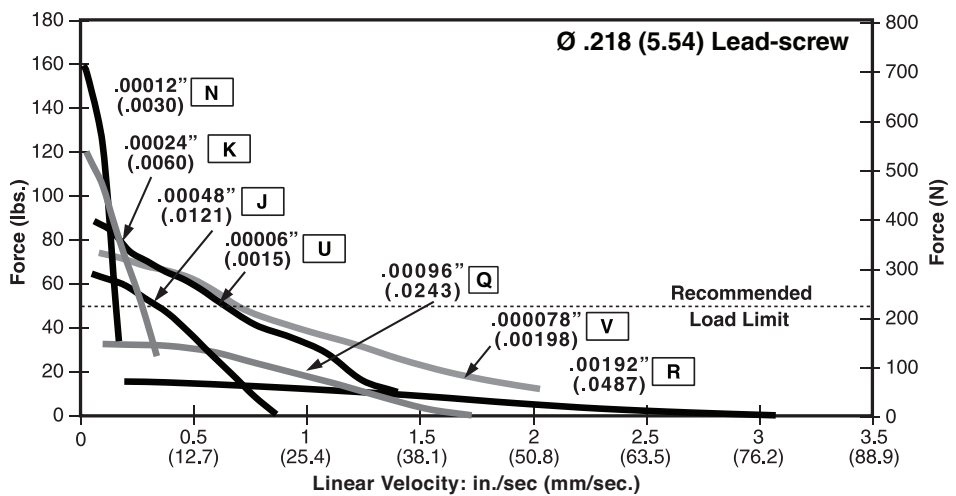
- Chopper
- Bipolar
- 100% Duty Cycle
- 8:1 Motor Coil to Drive Supply Voltage



DUAL MOTION ACTUATOR  
LINEAR & ROTARY MOTION

**FORCE vs. LINEAR VELOCITY**

- Chopper
- Bipolar
- 100% Duty Cycle
- 8:1 Motor Coil to Drive Supply Voltage



NOTE: All chopper drive curves were created with a 5 volt motor and a 40 volt power supply.

Ramping can increase the performance of a motor either by increasing the top speed or getting a heavier load accelerated up to speed faster. Also, deceleration can be used to stop the motor without overshoot.

With L/R drives peak force and speeds are reduced, using a unipolar drive will yield a further 30% force reduction.