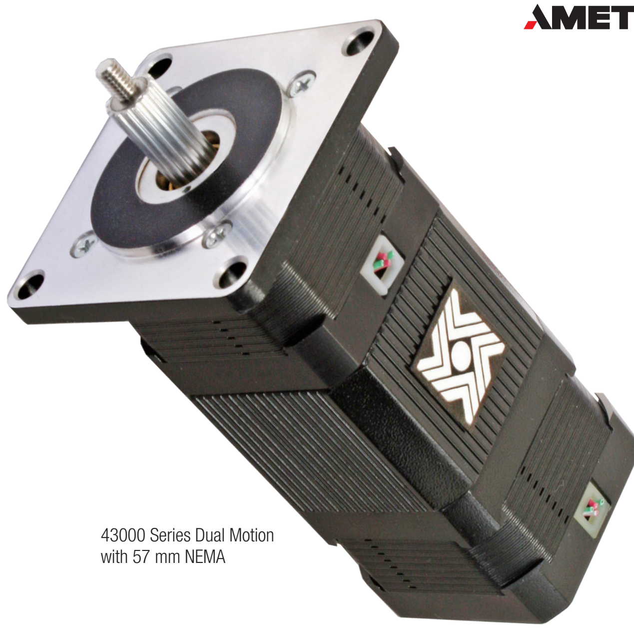
HaydonKerk Motion Solutions
AMETEK

Dual Motion
Size 17 Linear/Rotary Actuators



43000 Series Dual Motion
with 57 mm NEMA

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.

Identifying the Series 43000 Series Dual Motion Part Number Codes when Ordering

LR	43	H	H	4	J		—	05	—	910
Prefix	**Series Number Designation**	**Rotary Step Angle**	**Linear Step Angle**	**Coils**	**1.8° Step Angle Code ID Resolution Travel/Step**	**0.9° Step Angle Code ID Resolution Travel/Step**		**Voltage**		**Suffix**
LR = Linear/Rotary	**43** = 43000	**H** = 1.8°	**H** = 1.8°	**4** = Bipolar (4 wire)	**N** = .00012-in (.003)	**U** = .00006-in (.0015)		**05** = 5 VDC		Stroke
		K = 0.9°	**K** = 0.9°	**6** = Unipolar (6 wire)	**7** = .000125-in (.0031)	**BB** = .0000625-in (.0016)		**12** = 12 VDC		Example: –910 = 1-in (26 mm)
		M = 1.8° Double Stack			**P** = .00015625-in (.0039)	**V** = .00007825-in (.00198)		**SP** = Mixed Voltages		–XXX = Proprietary suffix assigned to a specific customer application. The identifier can apply to either a standard or custom part.
		P = 0.9° Double Stack			**AB** = .00019-in (.005)	**AA** = .000098-in (.0025)		Custom V available		
					K = .00024-in (.006)	**N** = .00012-in (.003)				
					9 = .00025-in (.0063)	**7** = .000125-in (.0031)				
					A = .0003125-in (.0079)	**P** = .00015625-in (.0039)				
					AC = .00039-in (.01)	**AB** = .00019-in (.005)				
					J = .00048-in (.0121)	**K** = .00024-in (.006)				
					3 = .0005-in (.0127)	**9** = .00025-in (.0063)				
					B = .000625-in (.0158)	**A** = .0003125-in (.0079)				
					AQ = .00098-in (.025)	**BG** = .00049-in (.0125)				
					Q = .00096-in (.0243)	**J** = .00048-in (.0121)				
					C = 0.00125-in (.0317)	**B** = .000625-in (.0158)				
					BH = .00196-in (.05)	**AQ** = .00098-in (.025)				
					R = 0.00192-in (.0487)	**Q** = .00096-in (.0243)				
					Y = .0025-in (.0635)	**C** = .00125-in (.0317)				
					AG = .00375-in (.0953)	**AF** = .001875-in (.0476)				
					Z = .005-in (.127)	**Y** = .0025-in (.0635)				

NOTE: Dashes must be included in Part Number (–) as shown above. For assistance call our Engineering Team at 203 756 7441.
See 43000 Series Hybrid Linear Data Sheet for More Detailed Motor Information.

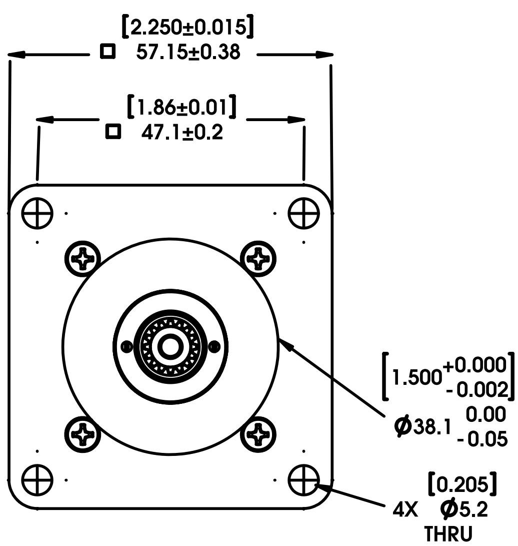
43000 Series: 1.8° Step Angle				
Linear Travel / Step		Load Limit		Order Code I.D.
inches	mm	lbs	N	
0.00012	0.003*	30	133	N
0.000125	0.0031*	30	133	7
0.00015625	0.0039*	30	133	P
0.00019*	0.005	30	133	AB
0.00024	0.0060*	30	133	K
0.00025	0.0063*	30	133	9
0.0003125	0.0079*	50	222	A
0.00039*	0.01	50	222	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

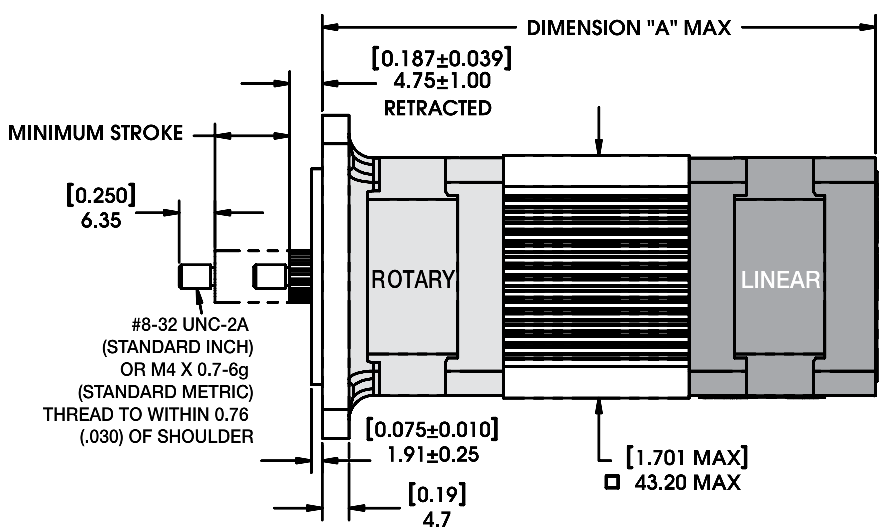
*Values truncated. Standard motors are Class B rated for maximum temperature of 130°C.

43000 Series: 0.9° Step Angle				
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.

Dimensions = (mm) inches



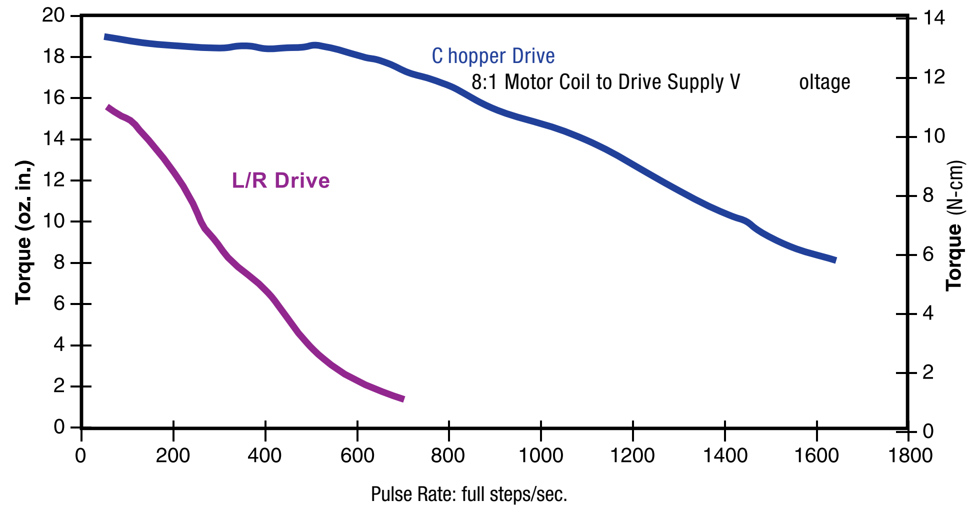


Stroke	Dim. "A"	Suffix #	M4x0.7 Thread
0.500 (12.7)	3.9 (99.3)	–905	–805
1.00 (25.4)	4.409 (112.0)	–910	–810
2.00 (50.8)	5.409 (137.4)	–920	–820
4.00 (101.6)	7.409 (188.2)	–925	–825

Standard strokes available:
1-in. (26 mm), 2-in. (51 mm) and 4-in. (102 mm).
Customized strokes available to 6-in. (152 mm)

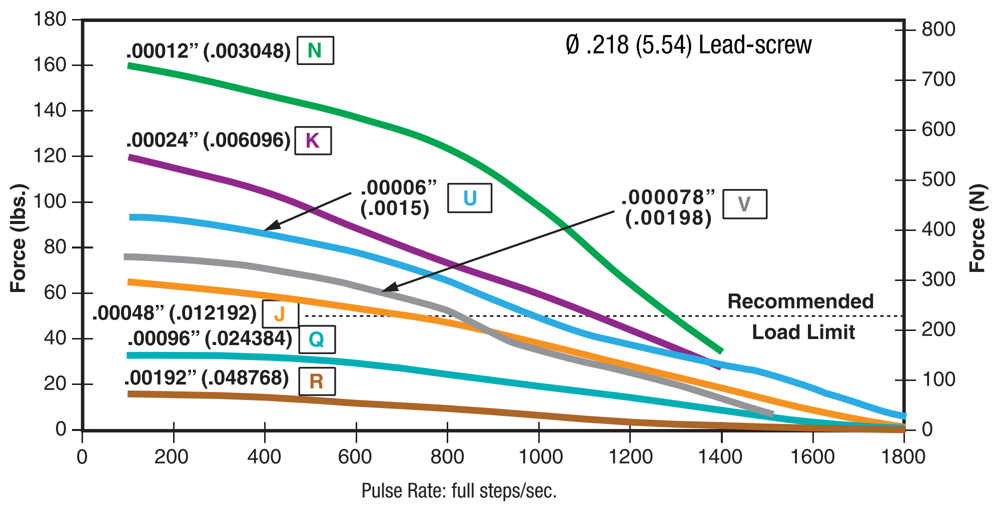
TORQUE vs. PULSE RATE: ROTARY FUNCTION

– Bipolar
– 100% Duty Cycle



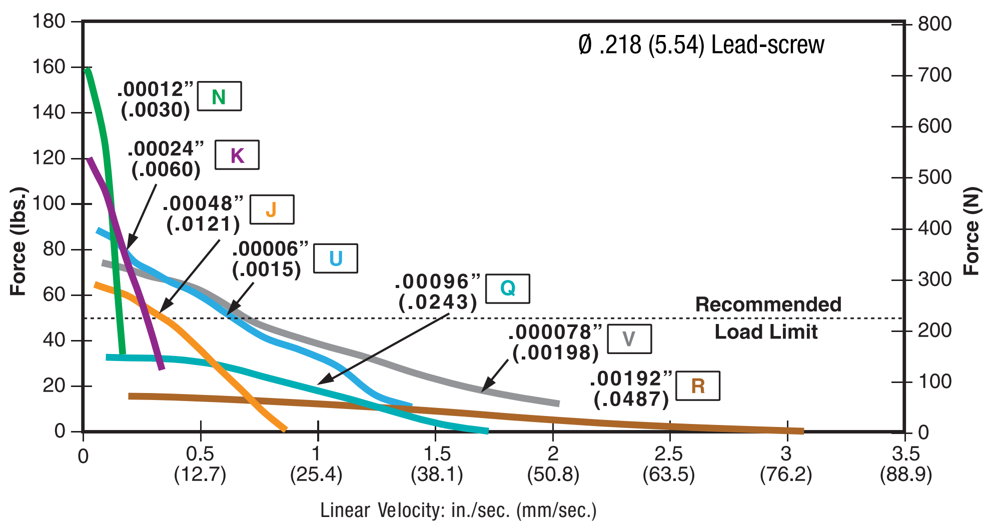
FORCE vs. PULSE RATE: LINEAR FUNCTION

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



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.

NOTE: