Dual Motion Actuators

The Haydon Kerk line of dual motion hybrid actuators provide independent linear and rotary motion from a single compact actuator package. The actuators are based on unique, patented designs and incorporate Haydon Kerk proven linear and rotary motor technology. These units simplify product development by replacing what would otherwise be far more bulky and complex mechanisms.

Distributors for Australia & New Zealand

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Dual Motion
Size 14 Linear/Rotary Actuators

Axially move components to their insertion positions and then rotate them.

Based on unique, patented designs and incorporate proven motor technology. Units simplify product development by replacing what would otherwise be far more bulky and complex mechanisms.

Another feature of this design is to provide an electric motor in which linear and rotary motions are 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.

Encoders available. US Digital E5 for linear, E6 for rotary.

35000 Series Dual Motion with 47 mm NEMA

35000 Series: 1.8° Step Angle				
Linear Travel / Step		Load Limit		Order Code I.D.
inches	mm	lbs	N	
0.00006	0.0015*	10	44.4	U
0.000098*	0.0025	10	44.4	AA
0.00012	0.0030*	15	67	N
0.00019*	0.005	15	67	AB
0.00024	0.0061*	15	67	K
0.00039*	0.01	15	67	AC
0.00048	0.0121*	15	67	J
0.00078*	0.02	15	67	AD
0.00157*	0.04	15	67	AE

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

35000 Series: 0.9° Step Angle				
Linear Travel / Step		Load Limit		Order Code I.D.
inches	mm	lbs	N	
0.00003	0.00076*	10	44.4	BP
0.00005*	0.00125	10	44.4	AY
0.00006	0.0015*	15	67	U
0.000098*	0.0025	15	67	AA
0.00012	0.0030*	15	67	N
0.00019*	0.005	15	67	AB
0.00024	0.0061*	15	67	K
0.00039*	0.01	15	67	AC
0.00079*	0.02	15	67	AD

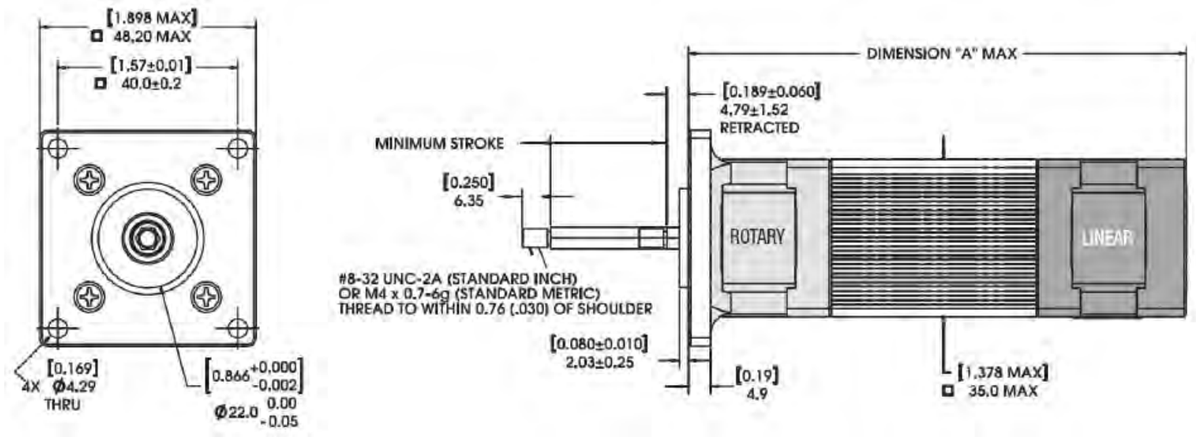
*Values truncated. Standard motors are Class B rated for maximum temperature of 130°C.

Identifying the Series 35000 Series Dual Motion Part Number Codes when Ordering

LR	35	H	H	4	J		—	05	—	910
Prefix **LR** = Linear/Rotary	**Series Number Designation** **35** = 35000	**Rotary Step Angle** **H** = 1.8° **K** = 0.9° **M** = 1.8° Double Stack **P** = 0.9° Double Stack	**Linear Step Angle** **H** = 1.8° **K** = 0.9°	**Coils** **4** = Bipolar (4 wire) **6** = Unipolar (6 wire)	**1.8° Step Angle Code ID Resolution Travel/Step** **U** = .00006-in (.0015) **AA** = .000098-in (.0025) **N** = .00012-in (.0030) **AB** = .00019-in (.005) **K** = .00024-in (.0061) **AC** = .00039-in (.01) **J** = .00048-in (.0121) **AD** = .00078-in (.02) **AE** = .00157-in (.04)	**0.9° Step Angle Code ID Resolution Travel/Step** **BP** = .00003-in (.00076) **AY** = .00005-in (.00125) **U** = .00006-in (.0015) **AA** = .000098-in (.0025) **N** = .00012-in (.0030) **AB** = .00019-in (.005) **K** = .00024-in (.0061) **AC** = .00039-in (.01) **AD** = .00078-in (.02)		**05** = 5 VDC **12** = 12 VDC **SP** = Mixed Voltages Custom V available		**Suffix** Stroke 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 call our Engineering Team at 203 756 7441.
See 35000 Series Hybrid Linear Data Sheet for More Detailed Motor Information.

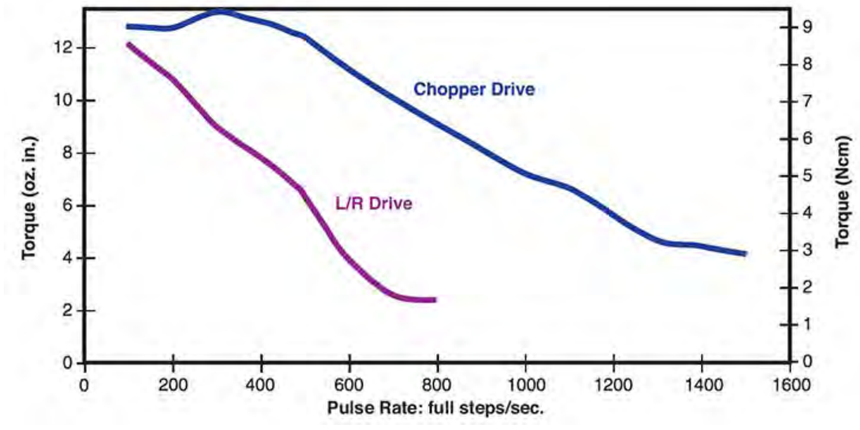
Dimensions = (mm) inches



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



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.

Dual Motion
Size 17 Linear/Rotary 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.

Encoders available. US Digital E5 for linear, E6 for rotary.

43000 Series Dual Motion with 57 mm NEMA

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

LR	43	H	H	4	J	—	05	—	910
Prefix **LR** = Linear/Rotary	**Series Number Designation** **43** = 43000	**Rotary Step Angle** **H** = 1.8° **K** = 0.9° **M** = 1.8° Double Stack **P** = 0.9° Double Stack	**Linear Step Angle** **H** = 1.8° **K** = 0.9°	**Coils** **4** = Bipolar (4 wire) **6** = Unipolar (6 wire)	**1.8° Step Angle Code ID Resolution Travel/Step** **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) **0.9° Step Angle Code ID Resolution Travel/Step** **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) **BG** = .00049-in (.0125) **J** = .00048-in (.0121) **B** = .000625-in (.0158) **AQ** = .00098-in (.025) **Q** = .00096-in (.0243) **C** = .00125-in (.0317) **AF** = .001875-in (.0476) **Y** = .0025-in (.0635)		**Voltage** **05** = 5 VDC **12** = 12 VDC **SP** = Mixed Voltages Custom V available		**Suffix** Stroke 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 call our Engineering Team at 203 756 7441.
See 43000 Series Hybrid Linear Data Sheet for More Detailed Motor Information.

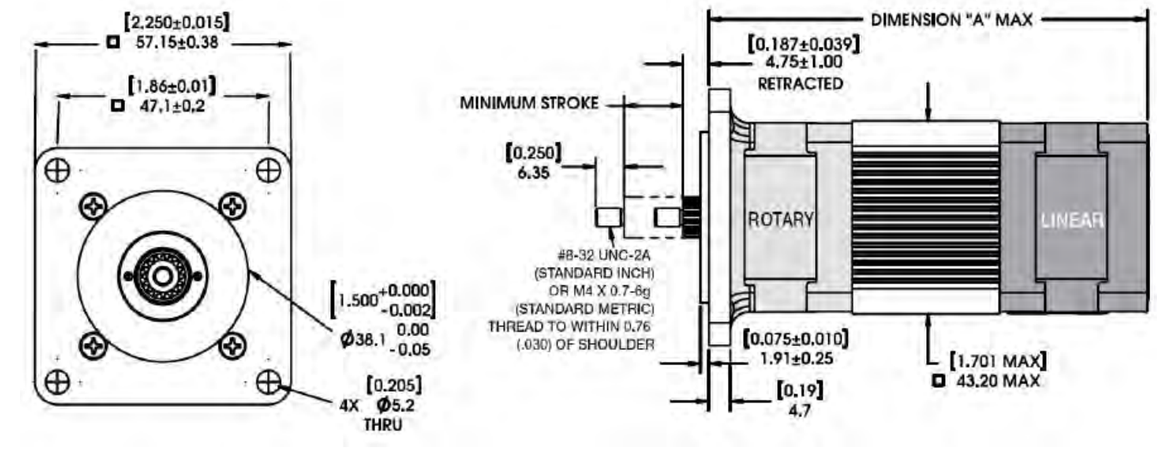
43000 Series: 1.8° Step Angle				
Linear Travel / Step		Load Limit		Order Code I.D.
inches	mm	lbs	N	
0.00012	0.003*	30	133	N
0.000125	0.0031*	30	133	7
0.00015625	0.0039*	30	133	P
0.00019*	0.005	30	133	AB
0.00024	0.0060*	30	133	K
0.00025	0.0063*	30	133	9
0.0003125	0.0079*	50	222	A
0.00039*	0.01	50	222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

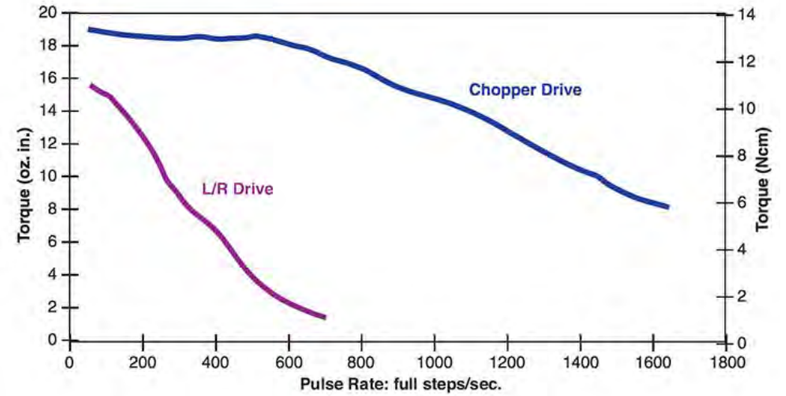


Stroke	Dim. "A"	Suffix #	M4x0.7 Thread
0.500 (12.7)	3.9 (99.3)	–905	–805
1.00 (25.4)	4.409 (112.0)	–910	–810
2.00 (50.8)	5.409 (137.4)	–920	–820
4.00 (101.6)	7.409 (188.2)	–925	–825

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

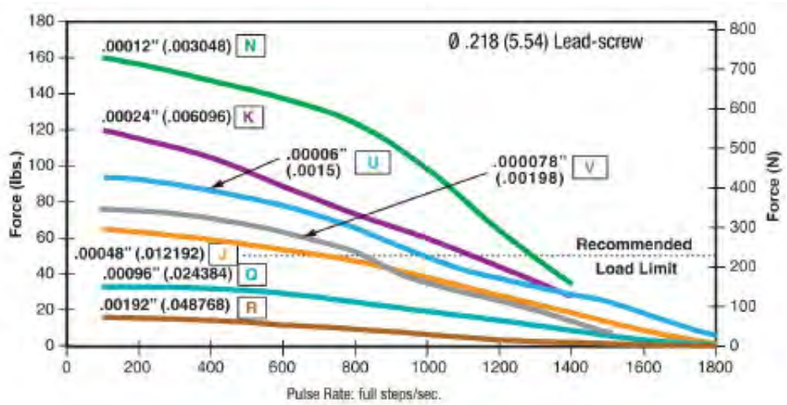
TORQUE vs. PULSE RATE: ROTARY FUNCTION

– Bipolar
– 100% Duty Cycle



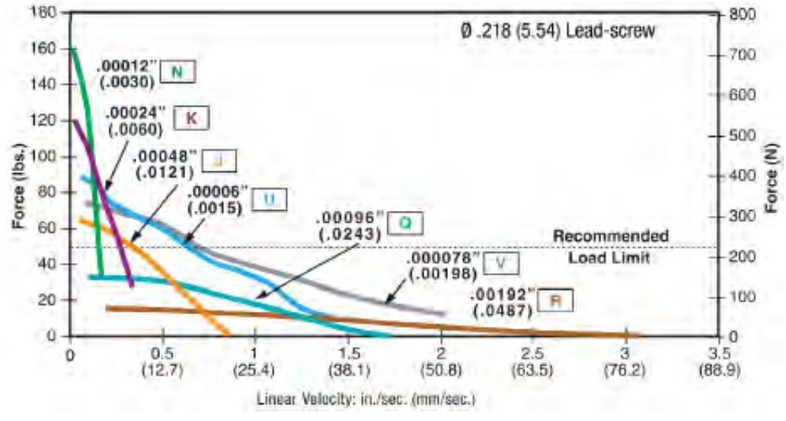
FORCE vs. PULSE RATE: LINEAR FUNCTION

– 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



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