

BTA®-Series Brushless Torque

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2EVM

BTA® Series Rotary Actuators

BTA Solenoids

2EVM

Dimensions (mm)	∅ 30 x 18
Duty cycle	continuous or intermittent
Operation	Quiet, shock-free operation; true rotary motion with no axial displacement
Life	100 M cycles
Power (W)	20–100
Supply (V)	3.1–80 VDC
Power	Low power consumption; moderate torque output
Functional Advantages	High speed cycle rate; can provide closed loop velocity and position control



Technical Data

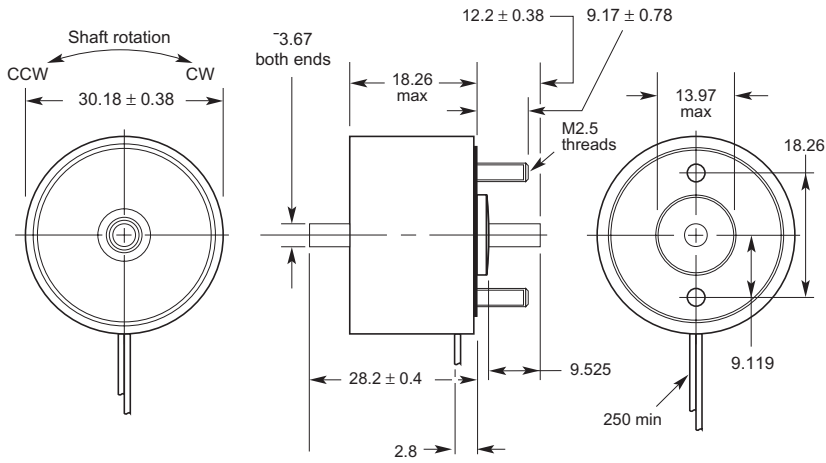
Dielectric Strength	1000 VRMS
Recommended Minimum Heat Sink	Maximum watts dissipated by the Ultimags are based on an unrestricted flow of air at 20°C, with the Ultimags mounted on the equivalent of an aluminium plate measuring 86 x 86 x 3.2 mm
Stroke	45°
Thermal Resistance	10.8 (°C/watt)
Rotor Inertia	2.56 (gm-cm ²)
Weight	85 g

Preferred Range

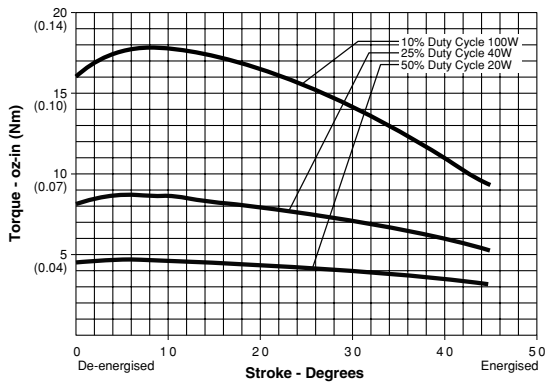
Type	Size	Nominal voltage	Duty Cycle	Nominal power	Net starting torque	max. "On time"	Rotation
195927-030	∅ 30 X 18 mm	12.4 VDC	50%	20 W @20°C	0.03 Nm	15 sec	Clockwise

2EVM

Dimensions



Performance chart



Notes:
 Torque curves shown are without spring.
 Typical standard spring has a torque of 7,6 mNm.
 Torque values are for reference only.

Ordering Reference

Type Clockwise Rotation 195927-(0XX)
 Anti Clockwise Rotation 195936-(0XX)

Performance			50%	25%	10%	
Maximum Duty Cycle*						
Maximum ON Time when pulsed continuously ¹		sec	15	6	2	
Typical Energise Time		msec ²	15	11	8	
Watts		@ 20°C	20	40	100	
Ampere Turns		@ 20°C	469	663	1048	
Gross Starting Torque		Nm	0.03	0.06	0.12	
Gross Final Torque		Nm	0.02	0.04	0.07	
Maximum Stroke		degrees				
Coil Data		Resistance (@20°C)	# Turns ⁴	VDC (Nom)	VDC (Nom)	VDC (Nom)
024	0.47	72	3.1	4.3	6.9	
025	0.67	82	3.7	5.2	8.2	
026	0.94	92	4.3	6.1	9.7	
027	1.33	104	5.2	7.3	11.5	
028	2.86	174	7.6	10.7	16.9	
029	4.01	195	9.0	12.7	20.0	
030	7.69	292	12.4	17.5	27.7	
031	10.80	328	14.7	20.8	32.9	
032	19.26	460	19.6	27.8	43.9	
033	26.96	515	23.2	32.8	52.0	
034	45.82	690	30.3	42.8	68.0	
035	63.76	768	35.7	50.0	80.0	

- ¹ Continuously pulsed at stated watts and duty cycle
- ² Typical energise time based on a 3.53 mNm load including 14 gm-cm² of inertia
- ³ Other coil awg (wire diameter) sizes available — please enquire
- ⁴ Reference number of turns

All data is at 20°C coil temperature. Torque outputs degrade with increased temperatures.

3EVM

BTA® Series Rotary Actuators

BTA Solenoids

3EVM

Dimensions (mm)	∅ 35 x 23
Duty cycle	continuous or intermittent
Operation	Quiet, shock-free operation; true rotary motion with no axial displacement
Life	100 M cycles
Power (W)	13–130
Supply (V)	1.9–78.7 VDC
Power	Low power consumption; moderate torque output
Functional Advantages	High speed cycle rate; can provide closed loop velocity and position control



Technical Data

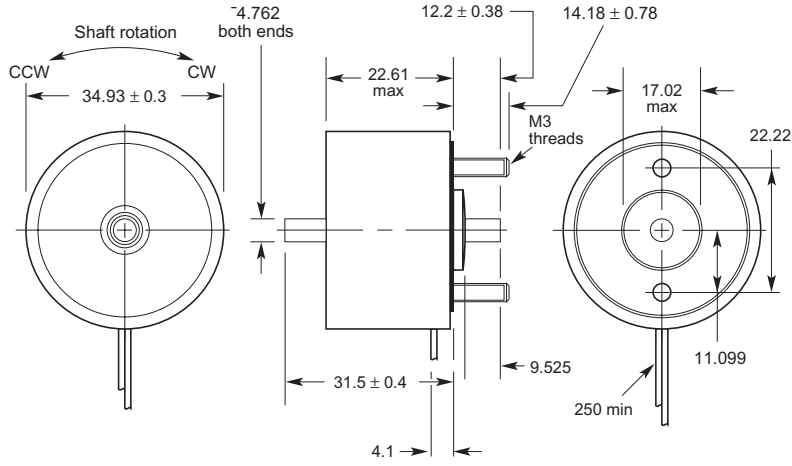
Dielectric Strength	1,000 VRMS (23-28 awg) (wire diameter); 1,200 VRMS (29-34 awg) (wire diameter)
Recommended Minimum Heat Sink	Maximum watts dissipated by the Ultimags are based on an unrestricted flow of air at 20°C, with the Ultimags mounted on the equivalent of an aluminium plate measuring 117 x 117 x 3,2 mm
Stroke	45°
Thermal Resistance	8.53 (°C/watt)
Rotor Inertia	9.14 (gm-cm ²)
Weight	142 g

Preferred Range

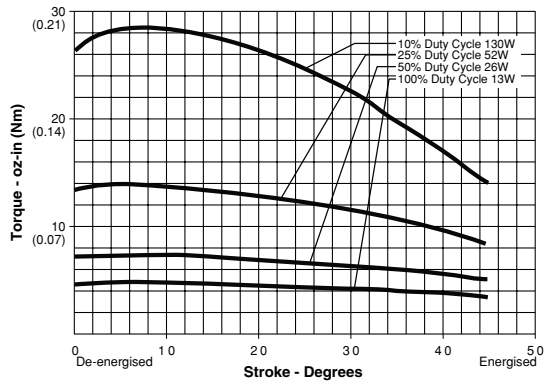
Type	Size	Nominal voltage	Duty Cycle	Nominal power	Net starting torque	max. "On time"	Rotation
195928-029	∅ 35 X 23 mm	10,5 VDC	50%	26 W @20°C	0,05 Nm	10 sec	Clockwise

3EVM

Dimensions



Performance chart



Notes:

- Torque curves shown are without spring.
- Typical standard spring has a torque of 7,6 mNm.
- Torque values are for reference only.

3EVM

Ordering Reference

Type Clockwise Rotation 195928-(0XX)
Anti Clockwise Rotation 195937-(0XX)

Performance		100%	50%	25%	10%	
Maximum Duty Cycle		∞	10	3	1	
Maximum ON Time when pulsed continuously ¹	sec					
Typical Energise Time	msec ²	25	17	12	9	
Watts	@ 20°C	13	26	52	130	
Ampere Turns	@ 20°C	362	512	729	1,144	
Gross Starting Torque	Nm	0.03	0.05	0.10	0.19	
Gross Final Torque	Nm	0.03	0.04	0.06	0.10	
Maximum Stroke	degrees	45				
Coil Data		#	VDC	VDC	VDC	VDC
awg (0XX) ³	Resistance (@20°C)	Turns ⁴	(Nom)	(Nom)	(Nom)	(Nom)
023	0.26	44	1.9	2.6	3.7	5.9
024	0.38	50	2.2	3.1	4.4	7.0
025	0.53	56	2.6	3.7	5.2	8.3
026	1.54	126	4.5	6.3	9.0	14.2
027	2.15	140	5.3	7.5	10.6	16.7
028	3.04	158	6.3	8.9	12.6	19.9
029	4.24	176	7.4	10.5	14.9	23.5
030	9.16	297	10.9	15.4	21.8	34.5
031	12.90	333	12.9	18.3	25.9	40.9
032	18.04	372	15.3	21.6	30.6	48.4
033	34.10	552	21.0	29.8	42.1	66.5
034	47.70	616	25.0	35.2	49.8	78.7

¹ Continuously pulsed at stated watts and duty cycle

² Typical energise time based on a 3.53 mNm load including 14 gm-cm² of inertia

³ Other coil awg (wire diameter) sizes available — please enquire

⁴ Reference number of turns

All data is at 20°C coil temperature. Torque outputs degrade with increased temperatures.

4EVM

BTA® Series Rotary Actuators

BTA Solenoids

4EVM

Dimensions (mm)	∅ 41 x 27
Duty cycle	continuous or intermittent
Operation	Quiet, shock-free operation; true rotary motion with no axial displacement
Life	Field proven over 100 million cycles
Power (W)	14.5–145
Supply (V)	3.2–115 VDC
Power	Low power consumption; moderate torque output
Functional Advantages	High speed cycle rate; can provide closed loop velocity and position control



Technical Data

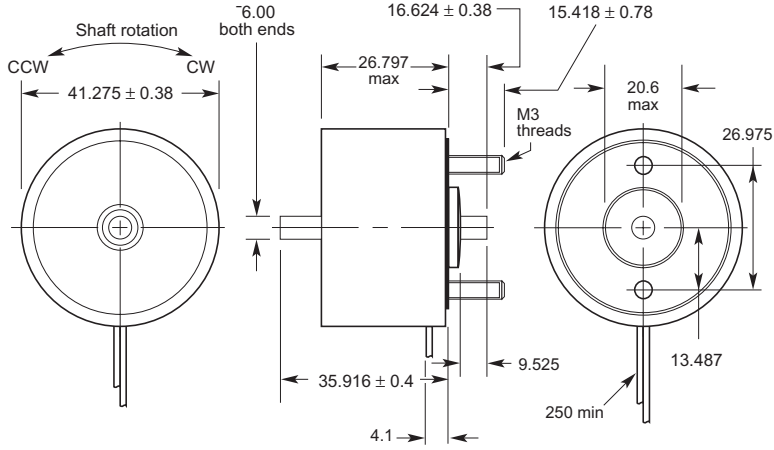
Dielectric Strength	1000 VRMS (23-24 awg) (wire diameter); 1200 VRMS (25-33 awg) (wire diameter)
Recommended Minimum Heat Sink	Maximum watts dissipated by the Ultimags are based on an unrestricted flow of air at 20°C, with the Ultimags mounted on the equivalent of an aluminium plate measuring 159 x 159 x 3.2 mm
Stroke	45°
Thermal Resistance	7.63 (°C/watt)
Rotor Inertia	13.92 (gm-cm ²)
Weight	227 g

Preferred Range

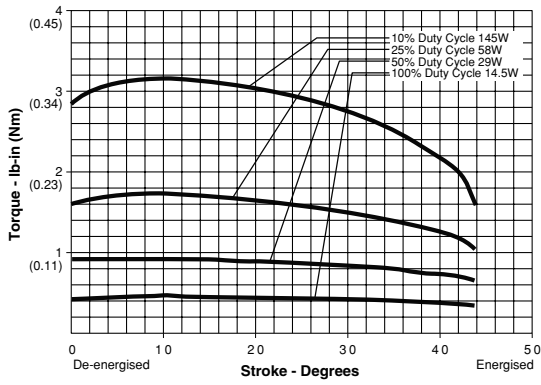
Type	Size	Nominal voltage	Duty Cycle	Nominal power	Net starting torque	max. "On time"	Rotation
195929-027	∅ 41 X 27 mm	12.9 VDC	50%	29 W @20°C	0.11 Nm	40 sec	Clockwise

4EVM

Dimensions



Performance chart



Notes:
 Torque curves shown are without spring.
 Typical standard spring has a torque of 7,6 mNm.
 Torque values are for reference only.

Ordering Reference

Type Clockwise Rotation 195929-(0XX)
 Anti Clockwise Rotation 195938-(0XX)

Performance		100%	50%	25%	10%	
Maximum Duty Cycle		∞	40	15	4	
Maximum ON Time when pulsed continuously ¹	sec					
Typical Energise Time	msec ²	27	19	14	10	
Watts	@ 20°C	14.5	29	58	145	
Ampere Turns	@ 20°C	510	721	1020	1613	
Gross Starting Torque	Nm	0.05	0.11	0.18	0.33	
Gross Final Torque	Nm	0.04	0.07	0.12	0.18	
Maximum Stroke	degrees	45				
Coil Data		#	VDC	VDC	VDC	VDC
avg (0XX) ³	Resistance (@20°C)	Turns ⁴	(Nom)	(Nom)	(Nom)	(Nom)
023	0.71	104	3.2	4.5	6.4	10.1
024	1.54	174	4.7	6.7	9.4	14.9
025	2.15	195	5.6	7.9	11.2	17.6
026	3.01	219	6.6	9.3	13.2	20.9
027	5.78	328	9.2	12.9	18.3	28.9
028	8.09	368	10.8	15.3	21.7	34.3
029	14.40	515	14.5	20.4	28.9	45.7
030	20.11	575	18.9	26.7	37.7	59
031	34.40	774	22.3	31.6	44.6	71.0
032	56.60	1008	28.7	40.5	57.0	91.0
033	91.40	1288	36.0	52.0	73.0	115.0

¹ Continuously pulsed at stated watts and duty cycle
² Typical energise time based on a 3,53 mNm load including 14 gm-cm² of inertia
³ Other coil avg (wire diameter) sizes available — please enquire
⁴ Reference number of turns

All data is at 20°C coil temperature. Torque outputs degrade with increased temperatures.

5 EVM

BTA® Series Rotary Actuators

BTA Solenoids

5 EVM

Dimensions (mm)	∅ 49 x 32
Duty cycle	continuous or intermittent
Operation	Quiet, shock-free operation; true rotary motion with no axial displacement
Life	100 M cycles
Power (W)	21–210
Supply (V)	4.7–168 VDC
Power	Low power consumption; moderate torque output
Functional Advantages	High speed cycle rate; can provide closed loop velocity and position control



Technical Data

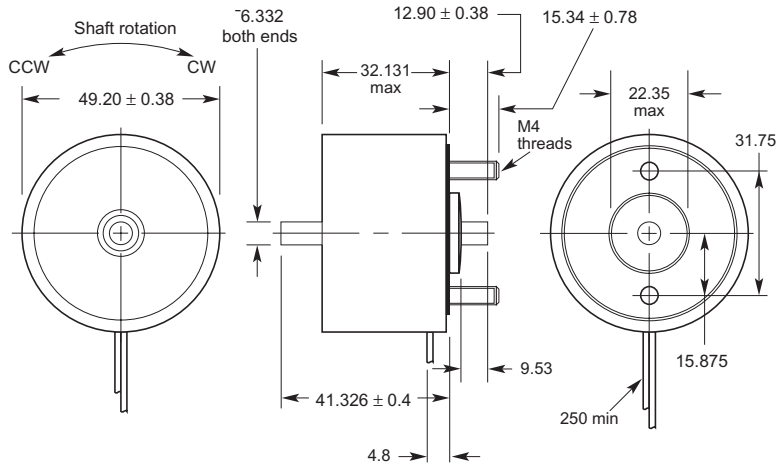
Dielectric Strength	1000 VRMS (23 awg) (wire diameter); 1200 VRMS (24-33 awg) (wire diameter)
Recommended Minimum Heat Sink	Maximum watts dissipated by the Ultimags are based on an unrestricted flow of air at 20°C, with the Ultimags mounted on the equivalent of an aluminium plate measuring 191 x 191 x 3,2 mm
Stroke	45°
Thermal Resistance	5.36 (°C/watt)
Rotor Inertia	30.36 (gm-cm ²)
Weight	382 g

Preferred Range

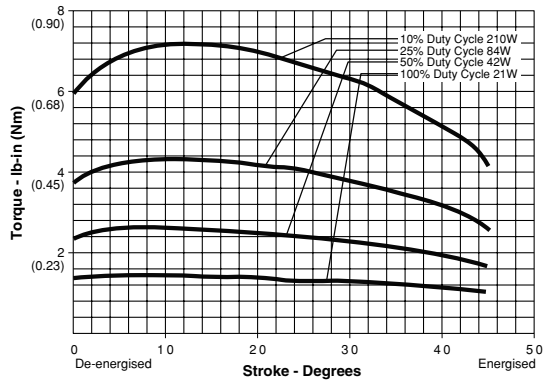
Type	Size	Nominal voltage	Duty Cycle	Nominal power	Net starting torque	max. "On time"	Rotation
195930-025	∅ 49 X 32 mm	11,5 VDC	50%	42 W @20°C	0,27 Nm	40 sec	Clockwise

5EVM

Dimensions



Performance chart



Notes:
 Torque curves shown are without spring.
 Typical standard spring has a torque of 7,6 mNm.
 Torque values are for reference only.

5EVM

Ordering Reference

Type	Clockwise Rotation 195930-(0XX) Anti Clockwise Rotation 195939-(0XX)						
Performance	Maximum Duty Cycle		100%	50%	25%	10%	
	Maximum ON Time when pulsed continuously ¹	sec	∞	40	15	4	
	Typical Energise Time	msec ²	27	18	14	10	
	Watts	@ 20°C	21	42	84	210	
	Ampere Turns	@ 20°C	621	878	1242	1964	
	Gross Starting Torque	Nm	0.16	0.27	0.43	0.69	
	Gross Final Torque	Nm	0.12	0.19	0.30	0.48	
	Maximum Stroke	degrees	45				
Coil Data	awg (0XX) ³	Resistance (@20°C)	# Turns ⁴	VDC (Nom)	VDC (Nom)	VDC (Nom)	VDC (Nom)
	023	1.05	128	4.7	6.6	9.4	14.8
	024	2.24	213	6.9	9.7	13.7	21.7
	025	3.16	240	8.1	11.5	16.3	25.8
	026	4.45	270	9.7	13.7	19.3	30.6
	027	8.50	404	13.4	18.9	26.7	42.2
	028	11.90	452	15.8	22.3	31.6	50.0
	029	21.10	630	21.0	29.7	42.1	67.0
	030	29.50	705	24.9	35.2	49.8	78.7
	031	50.30	948	32.5	46.0	65.0	103.0
	032	82.70	1232	41.7	59.0	83.0	132.0
	033	134.00	1576	53.0	75.0	106.0	168.0

¹ Continuously pulsed at stated watts and duty cycle

² Typical energise time based on a 3,53 mNm load including 14 gm-cm² of inertia

³ Other coil awg (wire diameter) sizes available — please enquire

⁴ Reference number of turns

All data is at 20°C coil temperature. Torque outputs degrade with increased temperatures.

6EVM

BTA® Series Rotary Actuators

BTA Solenoids

6EVM

Dimensions (mm)	∅ 59 x 41
Duty cycle	continuous or intermittent
Operation	Quiet, shock-free operation; true rotary motion with no axial displacement
Life	100 M cycles
Power (W)	32–320
Supply (V)	9.2–313 VDC
Power	Low power consumption; moderate torque output
Functional Advantages	High speed cycle rate; can provide closed loop velocity and position control



Technical Data

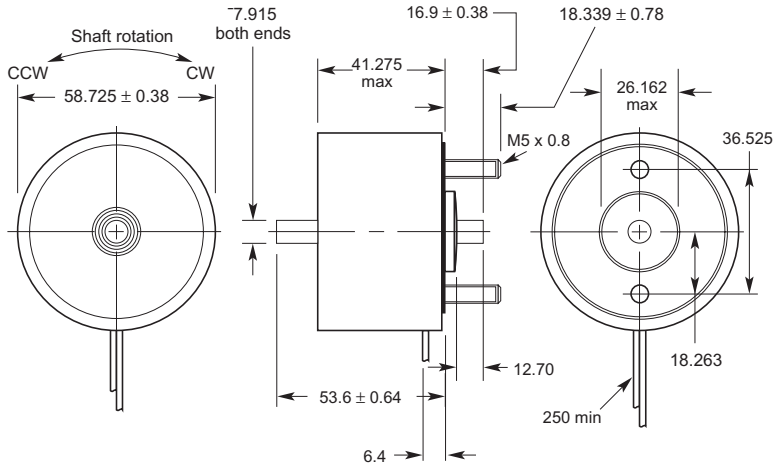
Dielectric Strength	1,000 VRMS (23 awg) (wire diameter); 1200 VRMS (24-33 awg) (wire diameter)
Recommended Minimum Heat Sink	Maximum watts dissipated by the Ultimags are based on an unrestricted flow of air at 20°C, with the Ultimags mounted on the equivalent of an aluminium plate measuring 314 x 314 x 3.2 mm
Stroke	45°
Thermal Resistance	3.58 (°C/watt)
Rotor Inertia	67.15 (gm-cm ²)
Weight	709 g

Preferred Range

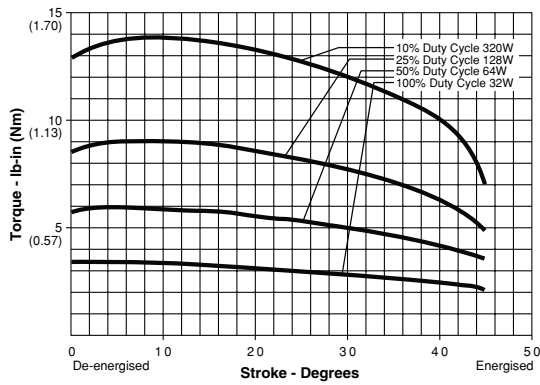
Type	Size	Nominal voltage	Duty Cycle	Nominal power	Net starting torque	max. "On time"	Rotation
195931-023	∅ 59 X 41 mm	13 VDC	50%	64 W @20°C	0.67 Nm	40 sec	Clockwise

6EVM

Dimensions



Performance chart



Notes:
 Torque curves shown are without spring.
 Typical standard spring has a torque of 7,6 mNm.
 Torque values are for reference only.

Ordering Reference

Type	Clockwise Rotation 195931-(0XX) Anti Clockwise Rotation 195940-(0XX)						
Performance	Maximum Duty Cycle		100%	50%	25%	10%	
	Maximum ON Time when pulsed continuously ¹	sec	∞	40	15	5	
	Typical Energise Time	msec ²	48	21	15	11	
	Watts	@ 20°C	32	64	128	320	
	Ampere Turns	@ 20°C	980	1386	1960	3100	
	Gross Starting Torque	Nm	0.39	0.67	0.99	1.48	
	Gross Final Torque	Nm	0.23	0.43	0.58	0.81	
	Maximum Stroke	degrees	45				
Coil Data	awg (0XX) ³	Resistance (@20°C)	# Turns ⁴	VDC (Nom)	VDC (Nom)	VDC (Nom)	VDC (Nom)
	023	2.65	267	9.2	13.0	18.4	29.1
	024	5.02	396	12.7	17.9	25.4	40.1
	025	7.03	444	15.0	21.2	30.0	47.4
	026	12.60	625	20.1	28.4	40.2	63.5
	027	17.60	700	23.8	33.6	47.5	75.1
	028	29.90	936	30.9	43.7	61.9	97.8
	029	49.50	1225	39.8	56.0	80.0	126.0
	030	79.70	1560	51.0	71.0	101.0	160.0
	031	126.50	1962	64.0	90.0	127.0	201.0
	032	198.30	2440	80.0	113.0	159.0	252.0
	033	306.20	2992	99.0	140.0	198.0	313.0

¹ Continuously pulsed at stated watts and duty cycle
² Typical energise time based on a 3.53 mNm load including 14 gm-cm² of inertia
³ Other coil awg (wire diameter) sizes available — please enquire
⁴ Reference number of turns

All data is at 20°C coil temperature. Torque outputs degrade with increased temperatures.