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APEX Motors

IN THIS APPENDIX

- ❏ Inspect the shipment
- ❏ Recommended replacements
- ❏ Configure DIP Switches
- ❏ Mount the motor
- ❏ Connect resolver and motor cables
- ❏ Motor Specifications

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INSPECT THE SHIPMENT

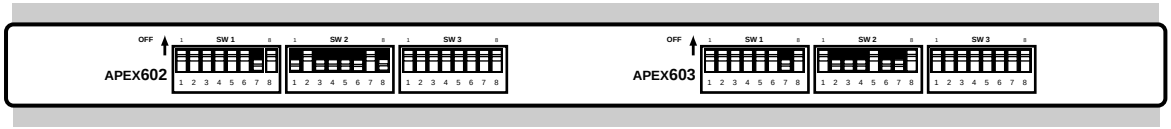
Options/Accessories		Part Number
APEX Series Motor	(motor with resolver)	APEX602-MO, APEX603-MO APEX604-MO, APEX605-MO APEX606-MO, APEX610-MO APEX620-MO, APEX630-MO APEX635-MO, APEX640-MO
Motor Cable:	(For APEX602, 603, 604, 605, 606)	71-013863-xx
	(For APEX610, 620, 630)	71-013864-xx
	(For APEX635, 640)	71-013865-xx
Resolver Cable:	(For all APEX Series Motors)	71-013862-xx
	(For APEX Series Motor with brake)	71-014082-xx
		xx can be 10, 25, 50, 100 feet

RECOMMENDED REPLACEMENTS FOR APEX MOTORS

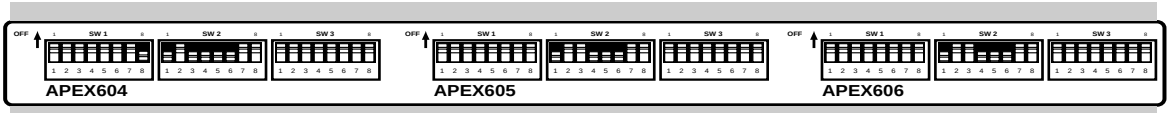
Apex Motor	Replacement
APEX602-MO-NC	N0703GR-KMSN
APEX603-MO-NC	N0704GR-KMSN
APEX604-MO-NC	N0922GR-KMSN
APEX605-MO-NC	N0922JR-KMSN
APEX606-MO-NC	N0923HR-KMSN
APEX610-MO-NC	N0924KR-KMSN

CONFIGURE THE APEX DRIVE'S DIP SWITCHES

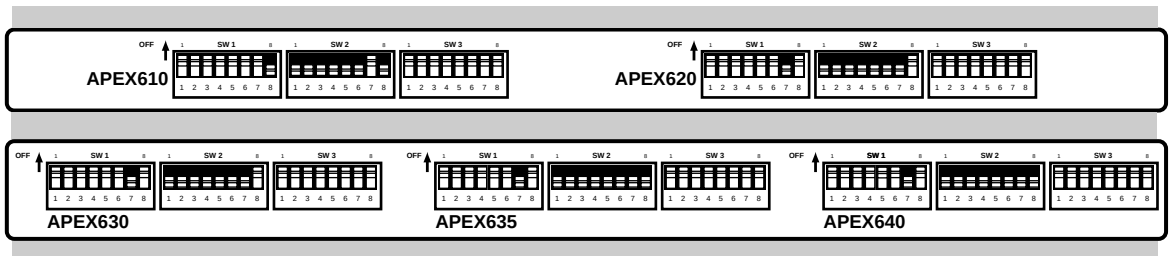
These setting are valid for APEX10 units with serial numbers greater than: 97052700070.



These setting are valid for APEX20 units with serial numbers greater than: 97073000109.



These setting are valid for APEX40 units with serial numbers greater than: 97073000109.



Call Compumotor's Applications Department for settings prior to these serial numbers

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MOUNT THE MOTOR

MOTOR HEATSINKING

APEX (602 - 630 Motors)	APEX (635 & 640 Motors)
8" x 12" x 0.25"	11.5" x 12" x 0.75"
(203 x 304 x 6.3 mm)	(292 x 304 x 19 mm)

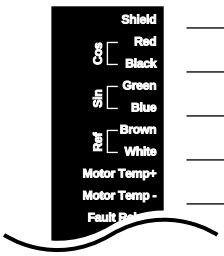
To get rated performance in your application, you must mount the motor to a heatsink of at least the same thermal capability as those listed above. Mounting the motor to a smaller heatsink may result in decreased performance and a shorter service life. Conversely, mounting the motor to a larger heatsink can result in enhanced performance.

CONNECT THE RESOLVER CABLE

RESOLVER CONNECTIONS (COS, SIN, REF)

Use the color code shown in the next drawing when you connect APEX or SM resolver cables. This code is also printed on the front panel of the APEX Drive, near the resolver connector.

The **Shield** terminal is internally connected to **Gnd** (ground) terminals on the front panel of the drive. If you make your own resolver cable, use shielded cable to keep electrical noise from corrupting the resolver signal.



Label on Drive	Function	APEX Cable Color Code
Shield	Shield	Uninsulated
Cos	Stator 3	Red
	Stator 1	Black
Sin	Stator 2	Green
	Stator 4	Blue
Ref	Rotor 1	Brown
	Rotor 2	White
Motor Temp+	Motor Temp+	Yellow
Motor Temp -	Motor Temp -	Orange

CONNECT THE MOTOR CABLE

MOTOR CONNECTIONS

Wire the cable to the motor connector. Use the following color code for APEX motor cables.

Connector Terminal	APEX Cable Wire Color
Phase A	Orange
Phase B	Blue
Phase C	Gray
Motor Ground	Green
Shield	Uninsulated

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MOTOR BRAKES

Optional motor brakes are available. They are mounted directly behind the motor and are pre-assembled at the factory. When ordering the brake option, specify the motor type.

Brake Characteristics	APEX602	APEX603	APEX604	APEX605 APEX606 APEX610	APEX620 APEX630 APEX635	APEX640
Supply voltage (VDC)	24	24	24	24	24	24
Supply current (amps)	0.57	1.27	0.57	1.27	0.93	1.27
Static braking torque (oz-in)	326	850	326	850	1130	6800
(Nm)	2.3	6.0	2.3	6.0	8.0	48

SELECTING DRIVE/MOTOR COMBINATIONS

We recommend selecting motors for use with APEX Drives as follows:

APEX10 Drive: APEX602, APEX603

APEX20 Drive: APEX604, APEX605, APEX606

APEX40 Drive: APEX610, APEX620, APEX630, APEX635, APEX640,

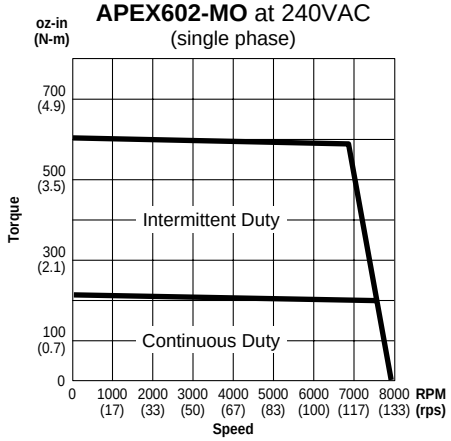
Resolution Resolver: 4096 counts/REV

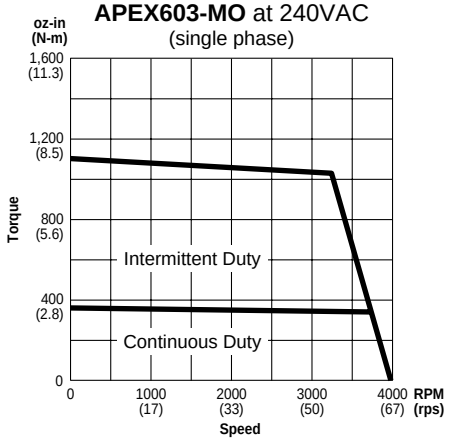
SPEED/TORQUE CURVES

Speed/torque curves on these pages represent the available shaft torque at different operating speeds, under the following conditions:

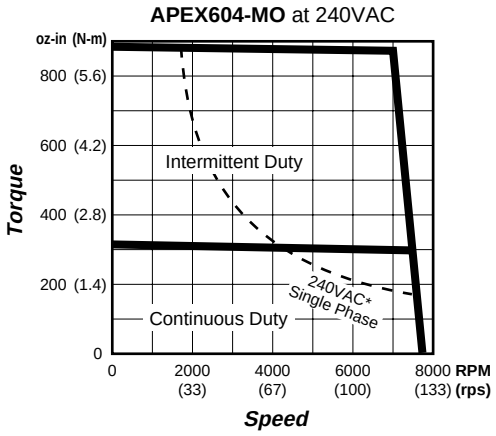
APEX Motors:
40°C (104°F) ambient temperature
Nominal torque constant K_t
Motor mounted to aluminum heatsink:
8" x 12" x 0.25" for APEX602 – APEX630 (203 x 304 x 6.3 mm)
11.5" x 12" x 0.75" for APEX635, APEX640 (292. x 304 x 19 mm)

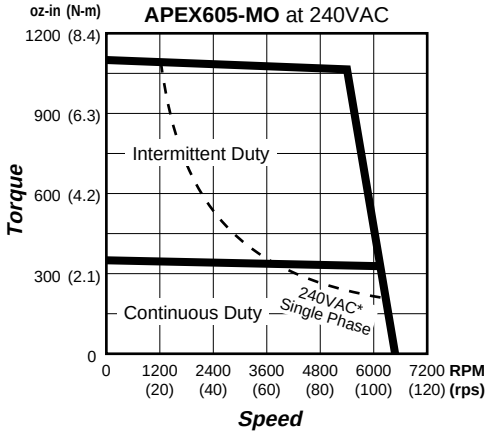
Motor torque may vary ±10% due to motor manufacturing variances.

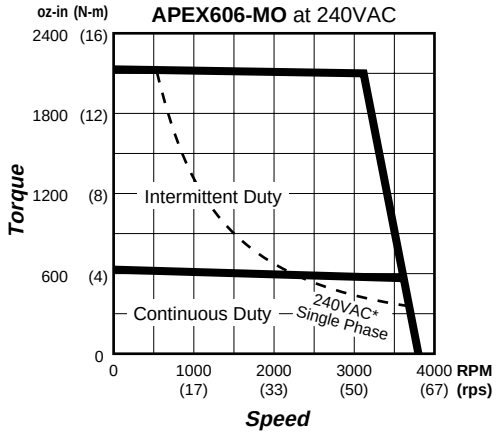


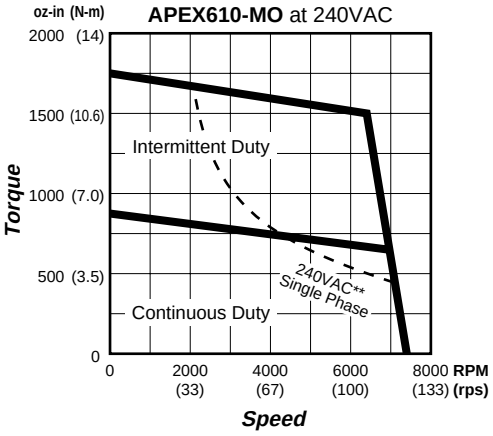


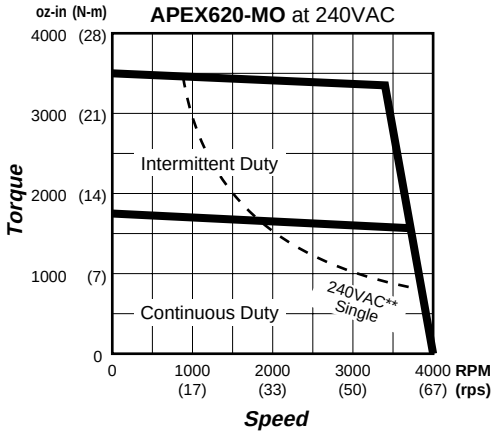
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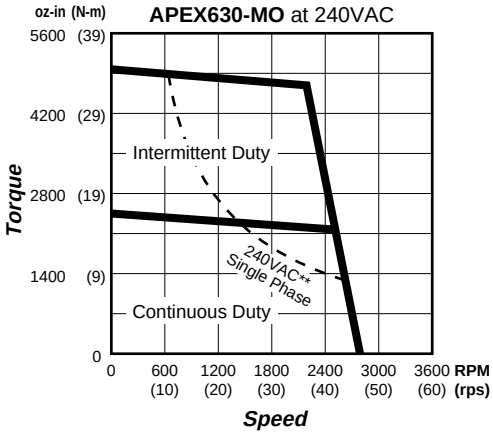


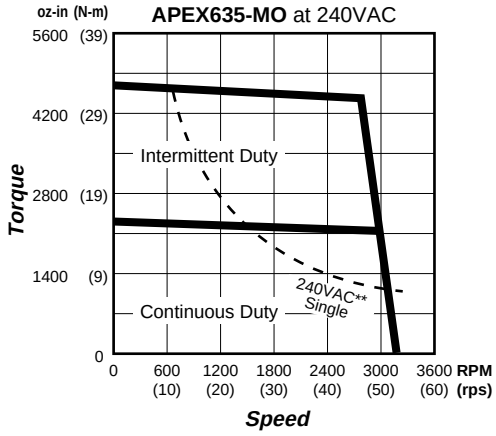


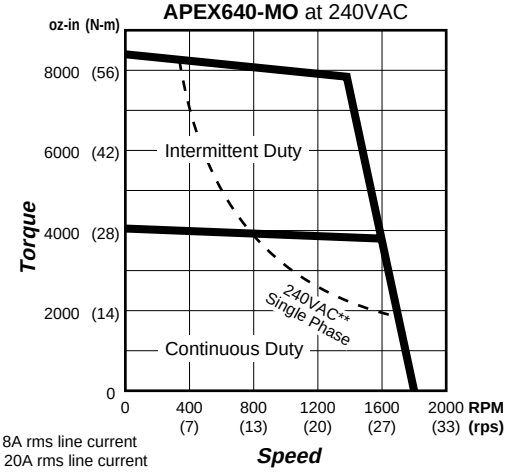












*240VAC single phase, 8A rms line current
**240VAC single phase, 20A rms line current

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APEX MOTOR RESOLVER SPECIFICATIONS

Parameter	Value
Input voltage @ 7000 Hz	4.25 volts
Input current, max.	55 mA
Input power, nominal	0.12 watts
Impedance ZSO (@90∞)	58 +j145 ohms
Impedance ZRO	53 +j72 ohms
Impedance ZRS	42 +j55 ohms
Transformation ratio	0.470 ±5%
Output voltage	2.0 ±5% volts
D.C. rotor resistance	23 ±10% ohms
D.C. stator resistance	19 ±10% ohms
Sensitivity	35 mV/Degree
Max. Error from EZ	±10 minutes
Phase shift, open circuit	5∞ leading ±3
Null voltage (total)	20 mV rms
Impedance ZSS	50 +j128 ohms
Inertia	included in motor specification

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APEX Motor Specifications

	Motor Size:	APEX602	Value	Units	Tolerance
1	Constant (s):	Torque	52.6 (0.37)	oz-in/A rms (Nm/A rms)	± 10%
2		Voltage (Sinusoidal)	22.5	V rms/Krpm	± 10%
3		Electrical Time	5.3	milliseconds	nominal
4		Mechanical Time	1.40	milliseconds	nominal
5		Thermal	11.0	minutes	nominal
6	Torque (s):	Continuous, Stall	236 (1.67)	oz-in (Nm)	min. [1]
7	(NOTE: Values are with	Continuous, Stall	223 (1.57)	oz-in (Nm)	min. [2]
8	rated and peak current,	Continuous, Rated	202 (1.43)	oz-in (Nm)	min. [2]
9	lines 15 & 16 below.	Peak, Max w/o Saturation	630 (4.45)	oz-in (Nm)	min. [1]
10	Drive current, and thus	Static Friction	7.68 (0.05)	oz-in (Nm)	max.
11	torque, may be lower.)	Ripple (of Rated Torque)	5	percent	max. [3]
12	Speed:	Rated	7500 (125)	rpm (rps)	reference
13		Maximum	7500 (125)	rpm (rps)	reference
14	Frequency	Rated	250	Hz	max.
15	Current:	Rated	4.2	A rms	max. [1]
16		Peak	12.6	A rms	nominal
17	Voltage:	Rated	240	V rms	reference
18		Max	250	V rms	maximum
19	Output Power	Rated	1.12 (1.5)	kWatts (hp)	min. [1]
20	Inductance	Terminal (line-line)	14.4	mH	± 30%
21	D.C. Resistance	Terminal (line-line)	2.72	ohms	± 10 % [1]
22	Acceleration at Rated Torque		96500	rads/sec^2	Theoretical
23	Rotor Inertia		2.52 (46.1)	oz-in^2 (kgm^2 * 1E-6)	nominal
24	Damping		0.384 (0.0027)	oz-in/krpm (Nm/krpm)	nominal
25	Weight		7.0 (3.17)	lbs. (kg)	max.
26	Winding Temperature		170°C (338°F) [4]	°C (°F)	max.
27	Winding Temperature Rise (Above Ambient) [1]		145°C (293°F)	°C (°F)	reference
28	Insulation Class		H	—	reference
29	Thermostat TRIP Temperature		170°C (338°F)	°C (°F)	± 5° C
30	Thermostat RESET Temperature		135°C (275°F)	°C (°F)	± 10° C
31	Dielectric Strength, (Winding-to-Frame)		1750	VAC	min.
32	Winding Capacitance-to-Frame		0.000898	µF	max.
33	IP Classification		65 [8]	rated	standard
34	Shaft:	Radial-Play At End	12E-6 (68E-9)	in/lb (m/N)	reference
		At Faceplate	7.0E-6 (40E-9)	in/lb (m/N)	reference
35		Material [5]	RC-#30	—	reference
36		Magnet Type	NdFeB	—	—
37		Loading [6] 1000 rpm (17 rps)	81 (360)	lbs. (N)	max. [7]
		2000 rpm (33 rps)	65 (289)	lbs. (N)	max. [7]
		3000 rpm (50 rps)	56 (249)	lbs. (N)	max. [7]
		4000 rpm (67 rps)	51 (227)	lbs. (N)	max. [7]
		5000 rpm (83 rps)	48 (213)	lbs. (N)	max. [7]
38	Motor Vibration		N	ISO 2373	Standard
39	Bearing Class, Internal/External		1/Class 3	ABEC/AFBMA	reference
40	Bearing Grease		SRI #2	Manufacturer	reference
41	Shaft Seal Pressure		3 (0.21)	psi (kg/cm^2)	max.
42	Basic Motor Design		3 phase wye connected 2(P/2)		
43	Stator Phase Sequence		A-C-B (viewed from front face plate)		
44	Vendor/Supplier		Industrial Drives B-104-B		
45	Resolver Type/Accuracy		Single-Speed; Rotor-Excited; ± 10 arc min.		
46	Resolver Manufacturer/Model #		Fasco # 21-BRCX-335-J39		
47	Standard Resolver Cable Part Number		71-011777-xx		
48	Standard Motor Cable Part Number		71-011774-xx		
49	Options:	Brake—24VDC (0.57A)—326 oz-in (2.3 Nm) Holding Torque		(requires resolver	
		IP67 Classification	No Keyway	cable 71-014082-xx)	
		Incremental Encoder	Shaft Modifications		
		Tachometer	IP65 Shaft Seal		

[1] 25°C (77°F) Ambient
[2] 40°C (104°F) Ambient
[3] Measured at 60 rpm (1 rps) in Velocity Mode
[4] Rated for 20,000 Hours or 40,000 Hours @ 155° C (311°F)
[5] Rotor steel is rated as fatigue proof
[6] Loads centered 1 inch from mounting flange
[7] Loads may be radial and axial such that the sum of the radial and two times the axial does not exceed this figure.
[8] Motor shaft is IP30 rated.

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APEX Motor Specifications

	Motor Size:	APEX603	Value	Units	Tolerance
1	Constant (s):	Torque	114.6 (0.81)	oz-in/A rms (Nm/A rms)	± 10%
2		Voltage (Sinusoidal)	49.0	V rms/Krpm	± 10%
3		Electrical Time	9.7	milliseconds	nominal
4		Mechanical Time	-----	milliseconds	nominal
5		Thermal	18	minutes	nominal
6	Torque (s):	Continuous, Stall	367 (2.59)	oz-in (Nm)	min. [1]
7	(NOTE: Values are with	Continuous, Stall	346 (2.44)	oz-in (Nm)	min. [2]
8	rated and peak current,	Continuous, Rated	356 (2.51)	oz-in (Nm)	min. [2]
9	lines 15 & 16 below.	Peak, Max w/o Saturation	1046 (7.38)	oz-in (Nm)	min. [1]
10	Drive current, and thus	Static Friction	12.0 (0.08)	oz-in (Nm)	max.
11	torque, may be lower.)	Ripple (of Rated Torque)	5	percent	max. [3]
12	Speed:	Rated	3800 (63)	rpm (rps)	reference
13		Maximum	3800 (63)	rpm (rps)	reference
14	Frequency	Rated	126.7	Hz	max.
15	Current:	Rated	3.0	A rms	max. [1]
16		Peak	9.6	A rms	nominal
17	Voltage:	Rated	240	V rms	reference
18		Max	250	V rms	maximum
19	Output Power	Rated	1.0 (1.3)	kWatts (hp)	min. [1]
20	Inductance	Terminal (line-line)	68	mH	± 30%
21	D.C. Resistance	Terminal (line-line)	7.0	ohms	± 10 % [1]
22	Acceleration at Rated Torque		74150	rads/sec^2	Theoretical
23	Rotor Inertia		5.45 (99.6)	oz-in^2 (kgm^2 * 1E-6)	nominal
24	Damping		0.960 (0.0068)	oz-in/krpm (Nm/krpm)	nominal
25	Weight		9.0 (4.08)	lbs. (kg)	max.
26	Winding Temperature		170°C (338°F) [4]	°C (°F)	max.
27	Winding Temperature Rise (Above Ambient) [1]		145°C (293°F)	°C (°F)	reference
28	Insulation Class		H	—	reference
29	Thermostat TRIP Temperature		170°C (338°F)	°C (°F)	± 5° C
30	Thermostat RESET Temperature		135°C (275°F)	°C (°F)	± 10° C
31	Dielectric Strength, (Winding-to-Frame)		1750	VAC	min.
32	Winding Capacitance-to-Frame		0.00122	µF	max.
33	IP Classification		65 [8]	rated	standard
34	Shaft:	Radial-Play At End	14E-6 (80E-9)	in/lb (m/N)	reference
		At Faceplate	8.0E-6 (45E-9)	in/lb (m/N)	reference
35		Material [5]	RC-#30	—	reference
36		Magnet Type	NdFeB	—	—
37		Loading [6] 1000 rpm (17 rps)	85.4 (380)	lbs. (N)	max. [7]
		2000 rpm (33 rps)	67.8 (302)	lbs. (N)	max. [7]
		3000 rpm (50 rps)	59.1 (263)	lbs. (N)	max. [7]
		4000 rpm (67 rps)	53.8 (239)	lbs. (N)	max. [7]
		5000 rpm (83 rps)	50 (222)	lbs. (N)	max. [7]
38	Motor Vibration		N	ISO 2373	Standard
39	Bearing Class, Internal/External		1/Class 3	ABEC/AFBMA	reference
40	Bearing Grease		SRI #2	Manufacturer	reference
41	Shaft Seal Pressure		3 (0.21)	psi (kg/cm^2)	max.
42	Basic Motor Design		3 phase wye connected 2(P/2)		
43	Stator Phase Sequence		A-C-B (viewed from front face plate)		
44	Vendor/Supplier		Industrial Drives B-202-B		
45	Resolver Type/Accuracy		Single-Speed; Rotor-Excited; ± 10 arc min.		
46	Resolver Manufacturer/Model #		Fasco # 21-BRCX-335-J39		
47	Standard Resolver Cable Part Number		71-011777-xx		
48	Standard Motor Cable Part Number		71-011774-xx		
49	Options:	Brake—24VDC (0.57A)—845 oz-in (5.97 Nm) Holding Torque (requires resolver cable 71-014082-xx)			
		IP67 Classification No Keyway			
		Incremental Encoder Shaft Modifications			
		Tachometer IP65 Shaft Seal			

[1] 25°C (77°F) Ambient
[2] 40°C (104°F) Ambient
[3] Measured at 60 rpm (1 rps) in Velocity Mode
[4] Rated for 20,000 Hours or 40,000 Hours @ 155° C (311°F)
[5] Rotor steel is rated as fatigue proof
[6] Loads centered 1 inch from mounting flange
[7] Loads may be radial and axial such that the sum of the radial and two times the axial does not exceed this figure.
[8] Motor shaft is IP30 rated.

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APEX Motor Specifications

	Motor Size:	APEX604	Value	Units	Tolerance
1	Constant (s):	Torque	52.6 (0.37)	oz-in/A rms (Nm/A rms)	± 10%
2		Voltage (Sinusoidal)	22.5	V rms/Krpm	± 10%
3		Electrical Time	58.7	milliseconds	nominal
4		Mechanical Time	1.30	milliseconds	nominal
5		Thermal	12	minutes	nominal
6	Torque (s):	Continuous, Stall	334 (2.36)	oz-in (Nm)	min. [1]
7	(NOTE: Values are with	Continuous, Stall	315 (2.22)	oz-in (Nm)	min. [2]
8	rated and peak current,	Continuous, Rated	269 (1.90)	oz-in (Nm)	min. [2]
9	lines 15 & 16 below.	Peak, Max w/o Saturation	899 (6.35)	oz-in (Nm)	min. [1]
10	Drive current, and thus	Static Friction	9.6 (0.07)	oz-in (Nm)	max.
11	torque, may be lower.)	Ripple (of Rated Torque)	5	percent	max. [3]
12	Speed:	Rated	7500 (125)	rpm (rps)	reference
13		Maximum	7500 (125)	rpm (rps)	reference
14	Frequency	Rated	250	Hz	max.
15	Current:	Rated	6.0	A rms	max. [1]
16		Peak	18.8	A rms	nominal
17	Voltage:	Rated	240	V rms	reference
18		Max	250	V rms	maximum
19	Output Power	Rated	1.5 (2.0)	kWatts (hp)	min. [1]
20	Inductance	Terminal (line-line)	9.4	mH	± 30%
21	D.C. Resistance	Terminal (line-line)	1.6	ohms	± 10 % [1]
22	Acceleration at Rated Torque		82980	rads/sec^2	Theoretical
23	Rotor Inertia		4.18 (76.5)	oz-in^2 (kgm^2 * 1E-6)	nominal
24	Damping		0.580 (0.0041)	oz-in/krpm (Nm/krpm)	nominal
25	Weight		8.5 (3.86)	lbs. (kg)	max.
26	Winding Temperature		170°C (338°F) [4]	°C (°F)	max.
27	Winding Temperature Rise (Above Ambient) [1]		145°C (293°F)	°C (°F)	reference
28	Insulation Class		H	—	reference
29	Thermostat TRIP Temperature		170°C (338°F)	°C (°F)	± 5° C
30	Thermostat RESET Temperature		135°C (275°F)	°C (°F)	± 10° C
31	Dielectric Strength, (Winding-to-Frame)		1750	VAC	min.
32	Winding Capacitance-to-Frame		0.00122	µF	max.
33	IP Classification		65 [8]	rated	standard
34	Shaft:	Radial-Play At End	12E-6 (68E-9)	in/lb (m/N)	reference
		At Faceplate	5.6E-6 (32E-9)	in/lb (m/N)	reference
35		Material [5]	RC-#30	—	—
36		Magnet Type	NdFeB	—	—
37		Loading [6] 1000 rpm (17 rps)	84 (374)	lbs. (N)	max. [7]
		2000 rpm (33 rps)	67 (298)	lbs. (N)	max. [7]
		3000 rpm (50 rps)	58 (258)	lbs. (N)	max. [7]
		4000 rpm (67 rps)	53 (236)	lbs. (N)	max. [7]
		5000 rpm (83 rps)	49 (218)	lbs. (N)	max. [7]
38	Bearing Class, Internal/External		1/Class 3	ABEC/AFBMA	reference
39	Bearing Grease		SRI #2	Manufacturer	reference
40	Shaft Seal Pressure		3 (0.21)	psi (kg/cm^2)	max.
41	Basic Motor Design		3 phase wye connected 2(P/2)		
42	Stator Phase Sequence		A-C-B (viewed from front face plate)		
43	Vendor/Supplier		Industrial Drives B-106-B		
44	Resolver Type/Accuracy		Single-Speed; Rotor-Excited; ± 10 arc min.		
45	Resolver Manufacturer/Model #		Fasco # 21-BRCX-335-J39		
46	Standard Resolver Cable Part Number		71-013862-xx		
47	Standard Motor Cable Part Number		71-013863-xx		
48	Options:	Brake—24VDC (0.57A)—326 oz-in (2.3 Nm) Holding Torque			
		IP67 Classification			
		Incremental Encoder			
		Tachometer			
		No Keyway			

[1] 25°C (77°F) Ambient
[2] 40°C (104°F) Ambient
[3] Measured at 60 rpm (1 rps) in Velocity Mode
[4] Rated for 20,000 Hours or 40,000 Hours @ 155° C (311°F)
[5] Rotor steel is rated as fatigue proof
[6] Loads centered 1 inch from mounting flange
[7] Loads may be radial and axial such that the sum of the radial and two times the axial does not exceed this figure.
[8] Motor shaft is IP30 rated.

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APEX Motor Specifications

	Motor Size:	APEX605	Value	Units	Tolerance
1	Constant (s):	Torque	68.7 (0.49)	oz-in/A rms (Nm/A rms)	± 10%
2		Voltage (Sinusoidal)	29.4	V rms/Krpm	± 10%
3		Electrical Time	10.68	milliseconds	nominal
4		Mechanical Time	1.46	milliseconds	nominal
5		Thermal	18	minutes	nominal
6	Torque (s):	Continuous, Stall	367 (2.59)	oz-in (Nm)	min. [1]
7	(NOTE: Values are with	Continuous, Stall	346 (2.44)	oz-in (Nm)	min. [2]
8	rated and peak current,	Continuous, Rated	321 (2.27)	oz-in (Nm)	min. [2]
9	lines 15 & 16 below.	Peak, Max w/o Saturation	1085 (7.66)	oz-in (Nm)	min. [1]
10	Drive current, and thus	Static Friction	0.96 (0.007)	oz-in (Nm)	max.
11	torque, may be lower.)	Ripple (of Rated Torque)	5	percent	max. [3]
12	Speed:	Rated	6200 (103)	rpm (rps)	reference
13		Maximum	6200 (103)	rpm (rps)	reference
14	Frequency	Rated	207	Hz	max.
15	Current:	Rated	5	A rms	max. [1]
16		Peak	16.6	A rms	nominal
17	Voltage:	Rated	240	V rms	reference
18		Max	250	V rms	maximum
19	Output Power	Rated	1.5 (2.0)	kWatts (hp)	min. [1]
20	Inductance	Terminal (line-line)	25	mH	± 30%
21	D.C. Resistance	Terminal (line-line)	2.3	ohms	± 10 % [1]
22	Acceleration at Rated Torque		76870	rads/sec^2	Theoretical
23	Rotor Inertia		5.43 (99.6)	oz-in^2 (kgm^2 ∗ 1E-6)	nominal
24	Damping		0.96 (0.0068)	oz-in/krpm (Nm/krpm)	nominal
25	Weight		10 (4.5)	lbs. (kg)	max.
26	Winding Temperature		170°C (338°F) [4]	°C (°F)	max.
27	Winding Temperature Rise (Above Ambient) [1]		145°C (293°F)	°C (°F)	reference
28	Insulation Class		H	—	reference
29	Thermostat TRIP Temperature		170°C (338°F)	°C (°F)	± 5° C
30	Thermostat RESET Temperature		135°C (275°F)	°C (°F)	± 10° C
31	Dielectric Strength, (Winding-to-Frame)		1750	VAC	min.
32	Winding Capacitance-to-Frame		0.00122	µF	max.
33	IP Classification		65 [8]	rated	standard
34	Shaft:	Radial-Play At End	14E-6 (80E-9)	in/lb (m/N)	eference
		At Faceplate	8E-6 (45E-9)	in/lb (m/N)	reference
35	Material [5]		RC-#30	—	—
36	Magnet Type		NdFeB	—	—
37		Loading [6] 1000 rpm (17 rps)	85.4 (380)	lbs. (N)	max. [7]
		2000 rpm (33 rps)	67.8 (301)	lbs. (N)	max. [7]
		3000 rpm (50 rps)	59.1 (263)	lbs. (N)	max. [7]
		4000 rpm (67 rps)	53.8 (239)	lbs. (N)	max. [7]
		5000 rpm (83 rps)	50 (222)	lbs. (N)	max. [7]
38	Bearing Class, Internal/External		1/Class 3	ABEC/AFBMA	reference
39	Bearing Grease		SRI #2	Manufacturer	reference
40	Shaft Seal Pressure		3 (0.21)	psi (kg/cm^2)	max.
41	Basic Motor Design		3 phase wye connected 2(P/2)		
42	Stator Phase Sequence		A-C-B (viewed from front face plate)		
43	Vendor/Supplier		Industrial Drives B-202-C		
44	Resolver Type/Accuracy		Single-Speed; Rotor-Excited; ± 10 arc min.		
45	Resolver Manufacturer/Model #		Fasco # 21-BRCX-335-J39		
46	Standard Resolver Cable Part Number		71-013862-xx		
47	Standard Motor Cable Part Number		71-013863-xx		
48	Options:	Brake—24VDC (0.57A)—850 oz-in (6.0 Nm) Holding Torque IP67 Classification Incremental Encoder Tachometer No Keyway			

[1] 25°C (77°F) Ambient
[2] 40°C (104°F) Ambient
[3] Measured at 60 rpm (1 rps) in Velocity Mode
[4] Rated for 20,000 Hours or 40,000 Hours @ 155° C (311°F)
[5] Rotor steel is rated as fatigue proof
[6] Loads centered 1 inch from mounting flange
[7] Loads may be radial and axial such that the sum of the radial and two times the axial does not exceed this figure.
[8] Motor shaft is IP30 rated.

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APEX Motor Specifications

	Motor Size:	APEX606	Value	Units	Tolerance
1	Constant (s):	Torque	120 (0.85)	oz-in/A rms (Nm/A rms)	± 10%
2		Voltage (Sinusoidal)	51.2	V rms/Krpm	± 10%
3		Electrical Time	15.32	milliseconds	nominal
4		Mechanical Time	0.896	milliseconds	nominal
5		Thermal	20	minutes	nominal
6	Torque (s):	Continuous, Stall	672 (4.75)	oz-in (Nm)	min. [1]
7	(NOTE: Values are with	Continuous, Stall	634 (4.48)	oz-in (Nm)	min. [2]
8	rated and peak current,	Continuous, Rated	576 (4.07)	oz-in (Nm)	min. [2]
9	lines 15 & 16 below.	Peak, Max w/o Saturation	1957 (13.82)	oz-in (Nm)	min. [1]
10	Drive current, and thus	Static Friction	0.96 (0.007)	oz-in (Nm)	max
11	torque, may be lower.)	Ripple (of Rated Torque)	5	percent	max. [3]
12	Speed:	Rated	3600 (60)	rpm (rps)	reference
13		Maximum	3600 (60)	rpm (rps)	reference
14	Frequency	Rated	120	Hz	max.
15	Current:	Rated	5.3	A rms	max. [1]
16		Peak	17.2	A rms	nominal
17	Voltage:	Rated	240	V rms	reference
18		Max	250	V rms	maximum
19	Output Power:	Rated	1.6 (2.1)	kWatts (hp)	min. [1]
20	Inductance:	Terminal (line-line)	38	mH	± 30%
21	D.C. Resistance	Terminal (line-line)	2.48	ohms	± 10 % [1]
22	Acceleration at Rated Torque		80000	rads/sec^2	Theoretical
23	Rotor Inertia		9.44 (172.9)	oz-in^2 (kgm^2 * 1E-6)	nominal
24	Damping		1.344 (0.0095)	oz-in/krpm (Nm/krpm)	nominal
25	Weight		13.4 (6.1)	lbs. (kg)	max.
26	Winding Temperature		170°C (338°F) [4]	°C (°F)	max.
27	Winding Temperature Rise (Above Ambient) [1]		145°C (293°F)	°C (°F)	reference
28	Insulation Class		H	—	reference
29	Thermostat TRIP Temperature		170°C (338°F)	°C (°F)	± 5 °C
30	Thermostat RESET Temperature		135°C (275°F)	°C (°F)	± 10 °C
31	Dielectric Strength, (Winding-to-Frame)		1750	VAC	min.
32	Winding Capacitance to Frame		0.00201	µF	max.
33	IP Classification		65 [8]	rated	standard
34	Shaft:	Radial-Play At End	14E-6 (80E-9)	in/lb (m/N)	eference
		At Faceplate	8E-6 (45E-9)	In/lb (m/N)	reference
35		Material [5]	RC-#30	—	—
36		Magnet Type	NdFeB	—	—
37		Loading [6] 1000 rpm (17 rps)	90.1 (401)	lbs. (N)	rmax. [7]
		2000 rpm (33 rps)	71.6 (318)	lbs. (N)	max. [7]
		3000 rpm (50 rps)	62.4 (278)	lbs. (N)	max. [7]
		4000 rpm (67 rps)	N/A	lbs. (N)	max. [7]
		5000 rpm (83 rps)	N/A	lbs. (N)	max. [7]
38	Bearing Class, Internal/External		1/Class 3	ABEC/AFBMA	reference
39	Bearing Grease		SRI #2	Manufacturer	reference
40	Shaft Seal Pressure		3 (0.21)	psi (kg/cm^2)	max.
41	Basic Motor Design		3 phase wye connected 2(P/2)		
42	Stator Phase Sequence		A-C-B (viewed from front face plate)		
43	Vendor/Supplier		Industrial Drives B-204-B		
44	Resolver Type/Accuracy		Single-Speed; Rotor-Excited; ± 10 arc min.		
45	Resolver Manufacturer/Model #		Fasco # 21-BRCX-335-J39		
46	Standard Resolver Cable Part Number		71-013862-xx		
47	Standard Motor Cable Part Number		71-013863-xx		
48	Options:	Brake—24VDC (0.57A)—850 oz-in (6.0 NM) Holding Torque IP67 Classification Incremental Encoder Tachometer No Keyway			

[1] 25°C (77°F) Ambient
[2] 40°C (104°F) Ambient
[3] Measured at 60 rpm (1rps) in Velocity Mode
[4] Rated for 20,000 Hrs or 40,000 Hours@155°C (311°F)
[5] Rotor steel is rated as fatigue proof
[6] Loads centered 1 inch from mounting flange
[7] Loads may be radial and axial such that the sum of the radial and two times the axial does not exceed this figure.
[8] Motor shaft is IP30 rated.

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APEX Motor Specifications

	Motor Size:	APEX610	Value	Units	Tolerance
1	Constant (s):	Torque	61.4 (0.43)	oz-in/A rms (Nm/A rms)	± 10%
2		Voltage (Sinusoidal)	26.2	V rms/Krpm	±10%
3		Electrical Time	13.16	milliseconds	nominal
4		Mechanical Time	0.762	milliseconds	nominal
5		Thermal	21	minutes	nominal
6	Torque (s):	Continuous, Stall	977 (6.90)	oz-in (Nm)	min. [1]
7	(NOTE: Values are with	Continuous, Stall	921.6 (6.51)	oz-in (Nm)	min. [2]
8	rated and peak current,	Continuous, Rated	653 (4.61)	oz-in (Nm)	min. [2]
9	lines 15 & 16 below.	Peak, Max w/o Saturation	2630 (18.57)	oz-in (Nm)	min. [1]
10	Drive current, and thus	Static Friction	0.96 (0.007)	oz-in (Nm)	max
11	torque, may be lower.)	Ripple (of Rated Torque)	5	percent	min. [3]
12	Speed:	Rated	7000 (117)	rpm (rps)	reference
13		Maximum	7000 (117)	rpm (rps)	reference
14	Frequency	Rated	233	Hz	max.
15	Current:	Rated	15	A rms	max. [1]
16		Peak	45	A rms	nominal
17	Voltage:	Rated	230	V rms	reference
18		Max	250	V rms	maximum
19	Output Power:	Rated	3.3 (4.5)	kWatts (hp)	min. [1]
20	Inductance:	Terminal (line-line)	5	mH	± 30%
21	D.C. Resistance	Terminal (line-line)	0.38	ohms	± 10 % [1]
22	Acceleration at Rated Torque		73934	rads/sec^2	Theoretical
23	Rotor Inertia		13.72 (251.2)	oz-in^2 (kgm^2 ∗ 1E-6)	nominal
24	Damping		1.728 (0.0122)	oz-in/krpm (Nm/krpm)	nominal
25	Weight		16.35 (7.43)	lbs. (kg)	max.
26	Winding Temperature		170°C (338°F) [4]	°C (°F)	max.
27	Winding Temperature Rise (Above Ambient) [1]		145°C (293°F)	°C (°F)	reference
28	Insulation Class		H	—	reference
29	Thermostat TRIP Temperature		170°C (338°F)	°C (°F)	± 5 °C
30	Thermostat RESET Temperature		135°C (275°F)	°C (°F)	± 10 °C
31	Dielectric Strength, (Winding-to-Frame)		1750	VAC	min.
32	Winding Capacitance-to-Frame		0.00205	µF	max.
33	IP Classification		65 [8]	rated	standard
34	Shaft:	Radial-Play At End	14E-6 (80E-9)	in/lb (m/N)	reference
		At Faceplate	8E-6 (45E-9)	in/lb (m/N)	reference
35		Material [5]	RC-#30		
36		Magnet Type	NdFeB		
37		Loading [6] 1000 rpm (17 rps)	93.5 (416)	lbs. (N)	max. [7]
		2000 rpm (33 rps)	74.2 (330)	lbs. (N)	max. [7]
		3000 rpm (50 rps)	64.8 (288)	lbs. (N)	max. [7]
		4000 rpm (67 rps)	59 (262)	lbs. (N)	max. [7]
		5000 rpm (83 rps)	54.7 (243)	lbs. (N)	max. [7]
38	Bearing Class, Internal/External		1/Class 3	ABEC/AFBMA	reference
39	Bearing Grease		SRI #2	Manufacturer	reference
40	Shaft Seal Pressure		3 (0.21)	psi (kg/cm^2)	max.
41	Basic Motor Design		3 phase wye connected 2(P/2)		
42	Stator Phase Sequence		A-C-B (viewed from front face plate)		
43	Vendor/Supplier		Industrial Drives B-206-D		
44	Resolver Type/Accuracy		Single-Speed; Rotor-Excited; ± 10 arc min.		
45	Resolver Manufacturer/Model #		Fasco # 21-BRCX-335-J39		
46	Standard Resolver Cable Part Number		71-013862-xx		
47	Standard Motor Cable Part Number		71-013864-xx		
48	Options:	Brake—24VDC (0.57A)—850 oz-in (6.0 Nm) Holding Torque IP67 Classification Incremental Encoder Tachometer No Keyway			

[1] 25°C (77°F) Ambient
[2] 40°C (104°F) Ambient
[3] Measured at 60 rpm (1 rps) in Velocity Mode
[4] Rated for 20,000 Hours or 40,000 Hours @ 155° C (311°F)
[5] Rotor steel is rated as fatigue proof
[6] Loads centered 1 inch from mounting flange
[7] Loads may be radial and axial such that the sum of the radial and two times the axial does not exceed this figure.
[8] Motor shaft is IP30 rated.

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APEX Motor Specifications

	Motor Size:	APEX620	Value	Units	Tolerance
1	Constant (s):	Torque	124.2 (0.877)	oz-in/A rms (Nm/A rms)	± 10%
2		Voltage (Sinusoidal)	53	V rms/Krpm	± 10%
3		Electrical Time	23.4	milliseconds	nominal
4		Mechanical Time	0.82	milliseconds	nominal
5		Thermal	22	minutes	nominal
6	Torque (s):	Continuous, Stall	1974 (13.94)	oz-in (Nm)	min. [1]
7	(NOTE: Values are with	Continuous, Stall	1862 (13.15)	oz-in (Nm)	min. [2]
8	rated and peak current,	Continuous, Rated	1632 (11.52)	oz-in (Nm)	min. [2]
9	lines 15 & 16 below.	Peak, Max w/o Saturation	5299 (37.42)	oz-in (Nm)	min. [1]
10	Drive current, and thus	Static Friction	25 (0.176)	oz-in (Nm)	max.
11	torque, may be lower.)	Ripple (of Rated Torque)	4.5	percent	min. [3]
12	Speed:	Rated	3700 (62)	rpm (rps)	reference
13		Maximum	3700 (62)	rpm (rps)	reference
14	Frequency	Rated	123	Hz	max.
15	Current:	Rated	15	A rms	max. [1]
16		Peak	45	A rms	nominal
17	Voltage:	Rated	230	V rms	reference
18		Max	250	V rms	maximum
19	Output Power:	Rated	4.5 (6)	kWatts (hp)	min. [1]
20	Inductance:	Terminal (line-line)	15	mH	± 30%
21	D.C. Resistance	Terminal (line-line)	0.64	Ohms	± 10 % [1]
22	Acceleration at Rated Torque		57025	rads/sec^2	Theoretical
23	Rotor Inertia		35.8 (656)	oz-in^2 (kgm^2 ∗ 1E-6)	nominal
24	Damping		2.496 (0.0176)	oz-in/krpm (Nm/krpm)	nominal
25	Weight		29 (13.2)	lbs. (kg)	max.
26	Winding Temperature		170°C (338°F) [4]	°C (°F)	max.
27	Winding Temperature Rise (Above Ambient) [1]		145°C (293°F)	°C (°F)	reference
28	Insulation Class		H	—	reference
29	Thermostat TRIP Temperature		170°C (338°F)	°C (°F)	± 5 °C
30	Thermostat RESET Temperature		135°C (275°F)	°C (°F)	± 10 °C
31	Dielectric Strength, (Winding-to-Frame)		1750	VAC	min.
32	Winding Capacitance-to-Frame		0.0034	µF	max.
33	IP Classification		65 [8]	rated	standard
34	Shaft:	Radial-Play At End	20E-6 (114E-9)	in/lb (m/N)	reference
		At Faceplate	7E-6 (40E-9)	in/lb (m/N)	reference
35		Material [5]	RC-#30	—	—
36		Magnet Type	NdFeB	—	—
37		Loading [6] 1000 rpm (17 rps)	154.7 (688)	lbs. (N)	max. [7]
		2000 rpm (33 rps)	122.8 (546)	lbs. (N)	max. [7]
		3000 rpm (50 rps)	107.2 (477)	lbs. (N)	max. [7]
		4000 rpm (67 rps)	N/A	lbs. (N)	max. [7]
		5000 rpm (83 rps)	N/A	lbs. (N)	max. [7]
38	Bearing Class, Internal/External		1/Class 3	ABEC/AFBMA	reference
39	Bearing Grease		SRI #2	Manufacturer	reference
40	Shaft Seal Pressure		3 (0.21)	psi (kg/cm^2)	max.
41	Basic Motor Design		3 phase wye connected 2(P/2)		
42	Stator Phase Sequence		A-C-B (viewed from front face plate)		
43	Vendor/Supplier		Industrial Drives B-404-D		
44	Resolver Type/Accuracy		Single-Speed; Rotor-Excited; ± 10 arc min.		
45	Resolver Manufacturer/Model #		Fasco # 21-BRCX-335-J39		
46	Standard Resolver Cable Part Number		71-013862-xx		
47	Standard Motor Cable Part Number		71-013864-xx		
48	Options:	Brake—24VDC (0.93A)—1130 oz-in (8.0 Nm) Holding Torque IP67 Classification Incremental Encoder Tachometer No Keyway			

[1] 25°C (77°F) Ambient
[2] 40°C (104°F) Ambient
[3] Measured at 60 rpm (1 rps) in Velocity Mode
[4] Rated for 20,000 Hours or 40,000 Hours @ 155° C (311°F)
[5] Rotor steel is rated as fatigue proof
[6] Loads centered 1 inch from mounting flange
[7] Loads may be radial and axial such that the sum of the radial and two times the axial does not exceed this figure.
[8] Motor shaft is IP30 rated.

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APEX Motor Specifications

	Motor Size:	APEX630	Value	Units	Tolerance
1	Constant (s):	Torque	175.3 (1.24)	oz-in/A rms (Nm/A rms)	± 10%
2		Voltage (Sinusoidal)	74.9	V rms/Krpm	± 10%
3		Electrical Time	26.7	milliseconds	nominal
4		Mechanical Time	0.68	milliseconds	nominal
5		Thermal	28	minutes	nominal
6	Torque (s):	Continuous, Stall	2788 (19.69)	oz-in (Nm)	min. [1]
7	(NOTE: Values are with	Continuous, Stall	2630 (18.57)	oz-in (Nm)	min. [2]
8	rated and peak current,	Continuous, Rated	2304 (16.27)	oz-in (Nm)	min. [2]
9	lines 15 & 16 below.	Peak, Max w/o Saturation	7488 (52.88)	oz-in (Nm)	min. [1]
10	Drive current, and thus	Static Friction	40.7 (0.287)	oz-in (Nm)	max.
11	torque, may be lower.)	Ripple (of Rated Torque)	4.5	percent	min. [3]
12	Speed:	Rated	2500 (42)	rpm (rps)	reference
13		Maximum	2500 (42)	rpm (rps)	reference
14	Frequency	Rated	83	Hz	max.
15	Current:	Rated	15	A rms	max. [1]
16		Peak	45	A rms	nominal
17	Voltage:	Rated	230	V rms	reference
18		Max	250	V rms	maximum
19	Output Power:	Rated	4.3 (5.7)	kWatts (hp)	min. [1]
20	Inductance:	Terminal (line-line)	20	mH	± 30%
21	D.C. Resistance	Terminal (line-line)	0.75	Ohms	± 10 % [1]
22	Acceleration at Rated Torque		56934	rads/sec^2	Theoretical
23	Rotor Inertia		50.7 (929)	oz-in^2 (kgm^2 ∗ 1E-6)	nominal
24	Damping		2.88 (0.020)	oz-in/krpm (Nm/krpm)	nominal
25	Weight		32 (14.5)	lbs. (kg)	max.
26	Winding Temperature		170°C (338°F) [4]	°C (°F)	max.
27	Winding Temperature Rise (Above Ambient) [1]		145°C (293°F)	°C (°F)	reference
28	Insulation Class		H	—	reference
29	Thermostat TRIP Temperature		170°C (338°F)	°C (°F)	± 5 °C
30	Thermostat RESET Temperature		135°C (275°F)	°C (°F)	± 5 °C
31	Dielectric Strength, (Winding-to-Frame)		1750	VAC	min.
32	Winding Capacitance to Frame		0.0038	µF	max.
33	IP Classification		65 [8]	rated	standard
34	Shaft:	Radial-Play At End	20E-6 (114E-9)	in/lb (m/N)	reference
		At Faceplate	7E-6 (40E-9)	in/lb (m/N)	reference
35		Material [5]	RC-#30	—	—
36		Magnet Type	NdFeB	—	—
37		Loading [6] 1000 rpm (17 rps)	160 (712)	lbs. (N)	max. [7]
		2000 rpm (33 rps)	127.1 (565)	lbs. (N)	max. [7]
		3000 rpm (50 rps)	N/A	lbs. (N)	max. [7]
		4000 rpm (67 rps)	N/A	lbs. (N)	max. [7]
		5000 rpm (83 rps)	N/A	lbs. (N)	max. [7]
38	Bearing Class, Internal/External		1/Class 3	ABEC/AFBMA	reference
39	Bearing Grease		SRI #2	Manufacturer	reference
40	Shaft Seal Pressure		3 (0.21)	psi (kg/cm^2)	max.
41	Basic Motor Design		3 phase wye connected 2(P/2)		
42	Stator Phase Sequence—CW rotor rotation		A-C-B (viewed from front face plate)		
43	Vendor/Supplier		Industrial Drives B-406-D		
44	Resolver Type/Accuracy		Single-Speed; Rotor-Excited; ± 10 arc min.		
45	Resolver Manufacturer/Model #		Fasco # 21-BRCX-335-J39		
46	Standard Resolver Cable Part Number		71-013862-xx		
47	Standard Motor Cable Part Number		71-013864-xx		
48	Options:	Brake—24VDC (0.93A)—1130 oz-in (8.0 Nm) Holding Torque IP67 Classification Incremental Encoder Tachometer No Keyway			

[1] 25°C (77°F) Ambient
[2] 40°C (104°F) Ambient
[3] Measured at 60 rpm (1 rps) in Velocity Mode
[4] Rated for 20,000 Hours or 40,000 Hours @ 155° C (311°F)
[5] Rotor steel is rated as fatigue proof
[6] Loads centered 1 inch from mounting flange
[7] Loads may be radial and axial such that the sum of the radial and two times the axial does not exceed this figure.
[8] Motor shaft is IP30 rated.

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APEX Motor Specifications

	Motor Size:	APEX635	Value	Units	Tolerance
1	Constant (s):	Torque	164.0 (1.154)	oz-in/A rms (Nm/A rms)	± 10%
2		Voltage (Sinusoidal)	70	V rms/Krpm	± 10%
3		Electrical Time	0.77	milliseconds	nominal
4		Mechanical Time	20.8	milliseconds	nominal
5		Thermal	28	minutes	nominal
6	Torque (s):	Continuous, Stall	2605 (18.39)	oz-in (Nm)	min. [1]
7	(NOTE: Values are with	Continuous, Stall	2458 (17.36)	oz-in (Nm)	min. [2]
8	rated and peak current,	Continuous, Rated	2054 (14.50)	oz-in (Nm)	min. [2]
9	lines 15 & 16 below.	Peak, Max w/o Saturation	7008 (49.49)	oz-in (Nm)	min. [1]
10	Drive current, and thus	Static Friction	69 (0.49)	oz-in (Nm)	max.
11	torque, may be lower.)	Ripple (of Rated Torque)	4.5	percent	min. [3]
12	Speed:	Rated	3000 (50)	rpm (rps)	reference
13		Maximum	3000 (50)	rpm (rps)	reference
14	Frequency	Rated	150	Hz	max.
15	Current:	Rated	15	A rms	max. [1]
16		Peak	45	A rms	nominal
17	Voltage:	Rated	230	V rms	reference
18		Max	250	V rms	maximum
19	Output Power:	Rated	4.5 (6.1)	kWatts (hp)	min. [1]
20	Inductance:	Terminal (line-line)	14	mH	± 30%
21	D.C. Resistance	Terminal (line-line)	0.647	Ohms	± 10 % [1]
22	Acceleration at Rated Torque		48945	$rads/sec^2$	Theoretical
23	Rotor Inertia		56.1 (1028)	$oz\text{-}in^2$ ($kgm^2 * 1E\text{-}6$)	nominal
24	Damping		2.88 (0.020)	oz-in/krpm (Nm/krpm)	nominal
25	Weight		37 (16.8)	lbs. (kg)	max.
26	Winding Temperature		170°C (338°F) [4]	°C (°F)	max.
27	Winding Temperature Rise (Above Ambient) [1]		145°C (293°F)	°C (°F)	reference
28	Insulation Class		H	—	reference
29	Thermostat TRIP Temperature		170°C (338°F)	°C (°F)	± 5 °C
30	Thermostat RESET Temperature		135°C (275°F)	°C (°F)	± 5 °C
31	Dielectric Strength, (Winding-to-Frame)		1750	VAC	min.
32	Winding Capacitance to Frame		0.0038	µF	max.
33	IP Classification		65	rated	standard
34	Shaft:	Radial-Play At End	20E-6 (114E-9)	in/lb (m/N)	reference
		At Faceplate	7E-6 (40E-9)	in/lb (m/N)	reference
35		Material [5]	RC-#30		
36		Magnet Type	NdFeB		
37		Loading [6] 1000 rpm (17 rps)	243.5 (1,083)	lbs. (N)	max. [7]
		2000 rpm (33 rps)	193.3 (860)	lbs. (N)	max. [7]
		3000 rpm (50 rps)	168.8 (751)	lbs. (N)	max. [7]
		4000 rpm (67 rps)	N/A	lbs. (N)	max. [7]
		5000 rpm (83 rps)	N/A	lbs. (N)	max. [7]
38	Bearing Class, Internal/External		1/Class 3	ABEC/AFBMA	reference
39	Bearing Grease		SRI #2	Manufacturer	reference
40	Shaft Seal Pressure		3 (0.21)	psi (kg/cm^2)	max.
41	Basic Motor Design		3 phase wye connected 3(P/2)		
42	Stator Phase Sequence—CW rotor rotation		A-C-B (viewed from front face plate)		
43	Vendor/Supplier		Industrial Drives B-602-C		
44	Resolver Type/Accuracy		Single-Speed; Rotor-Excited; ± 10 arc min.		
45	Resolver Manufacturer/Model #		Fasco # 21-BRCX-335-J39		
46	Standard Resolver Cable Part Number		71-013862-xx		
47	Standard Motor Cable Part Number		71-013865-xx		
48	Options:	Brake—24VDC (0.93A)— 1130 oz-in(8.0 Nm) Holding Torque IP67 Classification Incremental Encoder Tachometer No Keyway			

[1] 25°C (77°F) Ambient
[2] 40°C (104°F) Ambient
[3] Measured at 60 rpm (1 rps) in Velocity Mode
[4] Rated for 20,000 Hours or 40,000 Hours @ 155° C (311°F)
[5] Rotor steel is rated as fatigue proof
[6] Loads centered 1 inch from mounting flange
[7] Loads may be radial and axial such that the sum of the radial and two times the axial does not exceed this figure.
[8] Motor shaft is IP30 rated.

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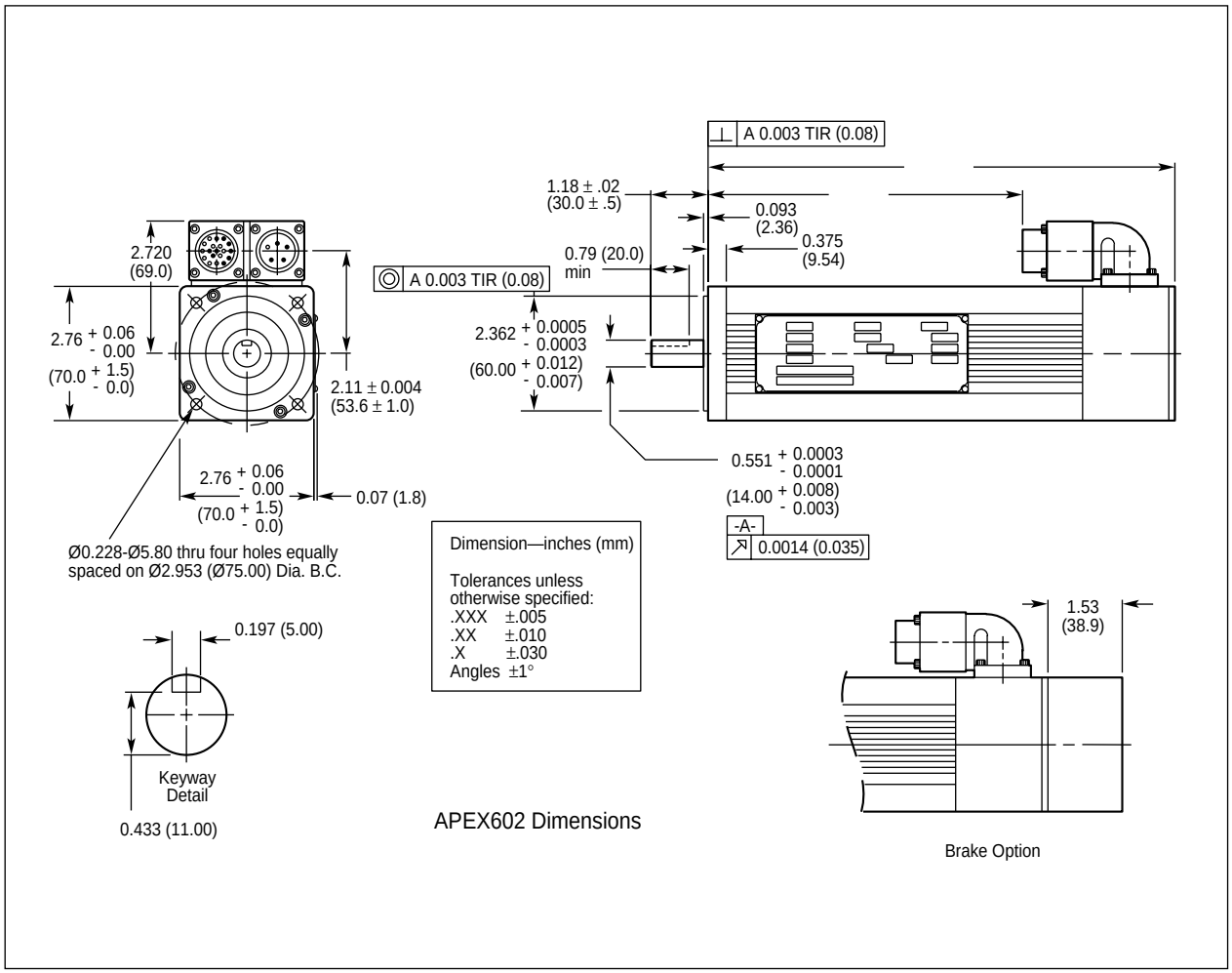
APEX Motor Specifications

	Motor Size:	APEX640	Value	Units	Tolerance
1	Constant (s):	Torque	291.5 (2.06)	oz-in/A rms (Nm/A rms)	± 10%
2		Voltage (Sinusoidal)	124.5	V rms/Krpm	± 10%
3		Electrical Time	26.2	milliseconds	nominal
4		Mechanical Time	0.55	milliseconds	nominal
5		Thermal	33	minutes	nominal
6	Torque (s):	Continuous, Stall	4640 (32.76)	oz-in (Nm)	min. [1]
7	(NOTE: Values are with	Continuous, Stall	4378 (30.92)	oz-in (Nm)	min. [2]
8	rated and peak current,	Continuous, Rated	3955 (27.93)	oz-in (Nm)	min. [2]
9	lines 15 & 16 below.	Peak, Max w/o Saturation	12461 (87.99)	oz-in (Nm)	min. [1]
10	Drive current, and thus	Static Friction	73 (0.52)	oz-in (Nm)	max.
11	torque, may be lower.)	Ripple (of Rated Torque)	4.5	percent	max. [3]
12	Speed:	Rated	1600 (27)	rpm (rps)	reference
13		Maximum	1600 (27)	rpm (rps)	reference
14	Frequency	Rated	80	Hz	max.
15	Current:	Rated	15	A rms	max. [1]
16		Peak	45	A rms	nominal
17	Voltage:	Rated	230	V rms	reference
18		Max	250	V rms	maximum
19	Output Power:	Rated	4.7 (6.3)	kWatts (hp)	min. [1]
20	Inductance:	Terminal (line-line)	20	mH	± 30%
21	D.C. Resistance	Terminal (line-line)	0.763	Ohms	± 10 % [1]
22	Acceleration at Rated Torque		43667	rads/sec^2	Theoretical
23	Rotor Inertia		111.0 (2034)	oz-in^2 (kgm^2 * 1E-6)	nominal
24	Damping		15.36 (0.1085)	oz-in/krpm (Nm/krpm)	nominal
25	Weight		51 (23.2)	lbs. (kg)	max.
26	Winding Temperature		170°C (338°F) [4]	°C (°F)	max.
27	Winding Temperature Rise (Above Ambient) [1]		145°C (293°F)	°C (°F)	reference
28	Insulation Class		H	—	reference
29	Thermostat TRIP Temperature		170°C (338°F)	°C (°F)	± 5 °C
30	Thermostat RESET Temperature		135°C (275°F)	°C (°F)	± 10 °C
31	Dielectric Strength, (Winding-to-Frame)		1750	VAC	min.
32	Winding Capacitance to Frame		0.0082	µF	max.
33	IP Classification		65 [8]	rated	standard
34	Shaft:	Radial-Play At End	10E-6 (57E-9)	in/lb (m/N)	reference
		At Faceplate	4E-6 (23E-9)	in/lb (m/N)	reference
35		Material [5]	RC-#30	—	—
36		Magnet Type	NdFeB	—	—
37		Loading [6] 1000 rpm (17 rps)	255.6 (1,130)	lbs. (N)	max. [7]
		2000 rpm (33 rps)	N/A	lbs. (N)	max. [7]
		3000 rpm (50 rps)	N/A	lbs. (N)	max. [7]
		4000 rpm (67 rps)	N/A	lbs. (N)	max. [7]
		5000 rpm (83 rps)	N/A	lbs. (N)	max. [7]
38	Bearing Class, Internal/External		1/Class 3	ABEC/AFBMA	reference
39	Bearing Grease		SRI #2	Manufacturer	reference
40	Shaft Seal Pressure		3 (0.21)	psi (kg/cm^2)	max.
41	Basic Motor Design		3 phase wye connected 3(P/2)		
42	Stator Phase Sequence—CW rotor rotation		A-C-B (viewed from front face plate)		
43	Vendor/Supplier		Industrial Drives B-604-D		
44	Resolver Type/Accuracy		Single-Speed; Rotor-Excited; ± 10 arc min.		
45	Resolver Manufacturer/Model #		Fasco # 21-BRCX-335-J39		
46	Standard Resolver Cable Part Number		71-013862-xx		
47	Standard Motor Cable Part Number		71-013865-xx		
48	Options:	Brake—24VDC (1.27A)—6800 oz-in (48 Nm) Holding Torque IP67 Classification Incremental Encoder Tachometer No Keyway			

[1] 25°C (77°F) Ambient
[2] 40°C (104°F) Ambient
[3] Measured at 60 rpm (1 rps) in Velocity Mode
[4] Rated for 20,000 Hours or 40,000 Hours @ 155° C (311°F)
[5] Rotor steel is rated as fatigue proof
[6] Loads centered 1 inch from mounting flange
[7] Loads may be radial and axial such that the sum of the radial and two times the axial does not exceed this figure.
[8] Motor shaft is IP30 rated.

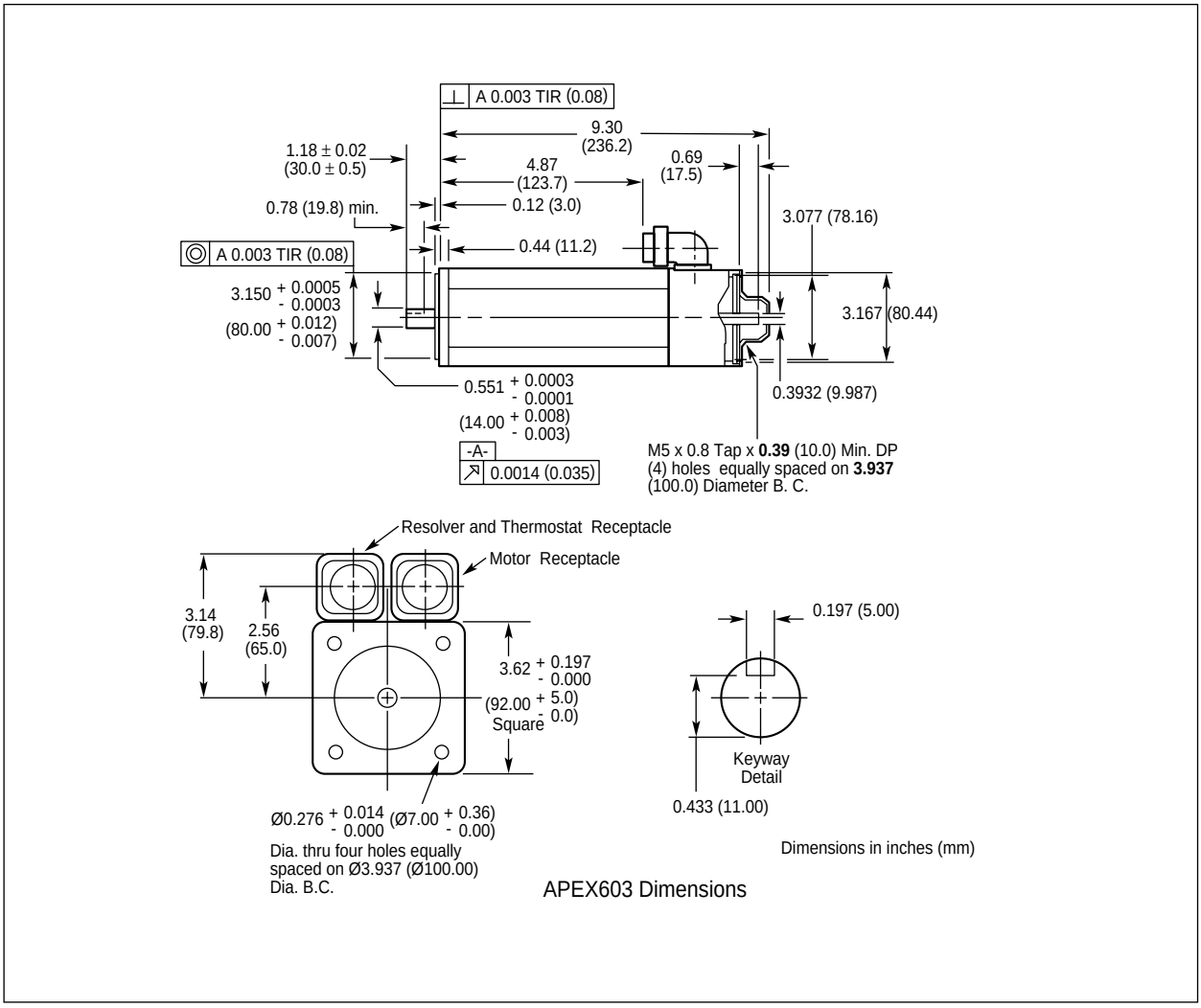
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APEX MOTOR DIMENSIONS



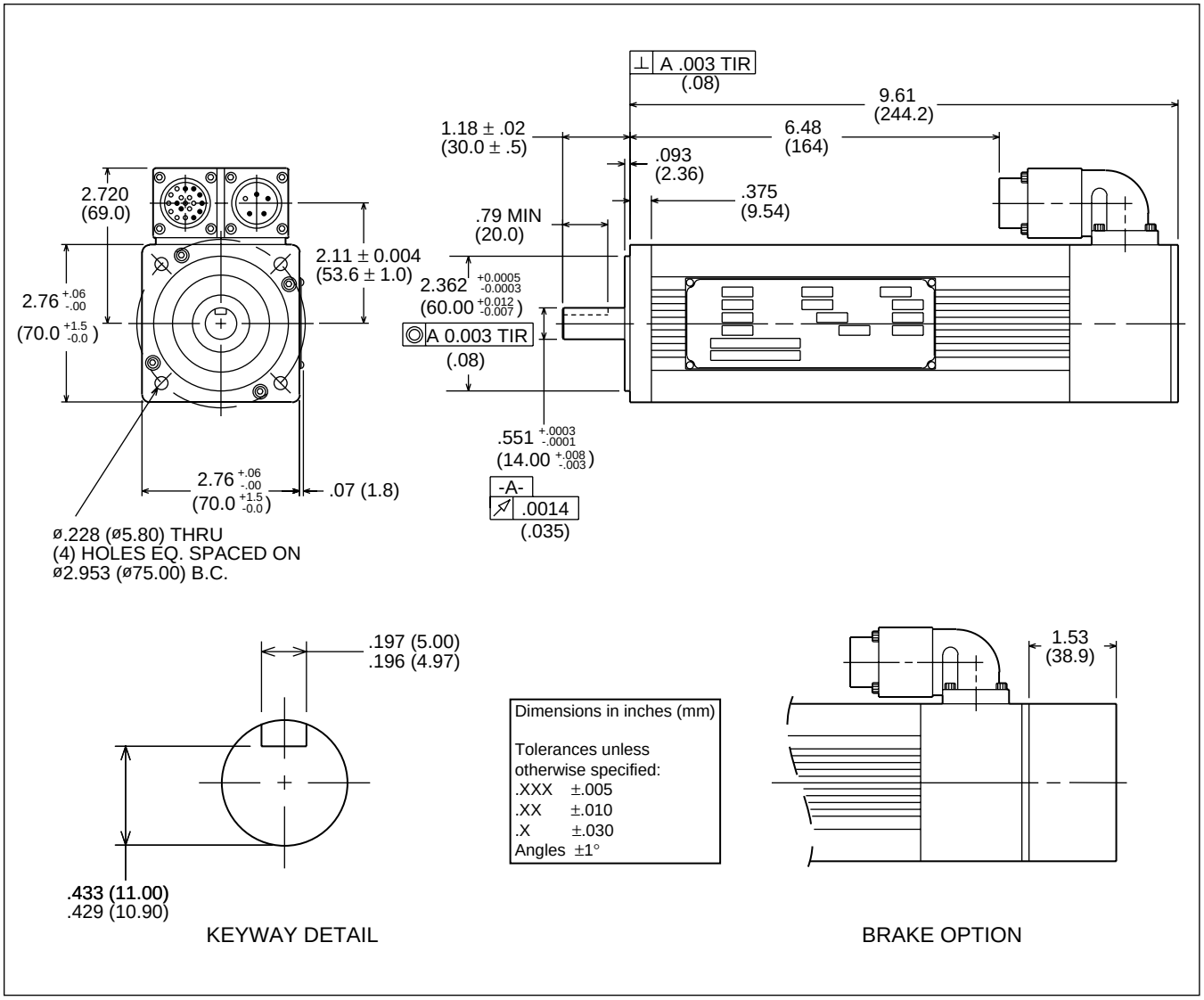
APEX602 Motor Dimensions

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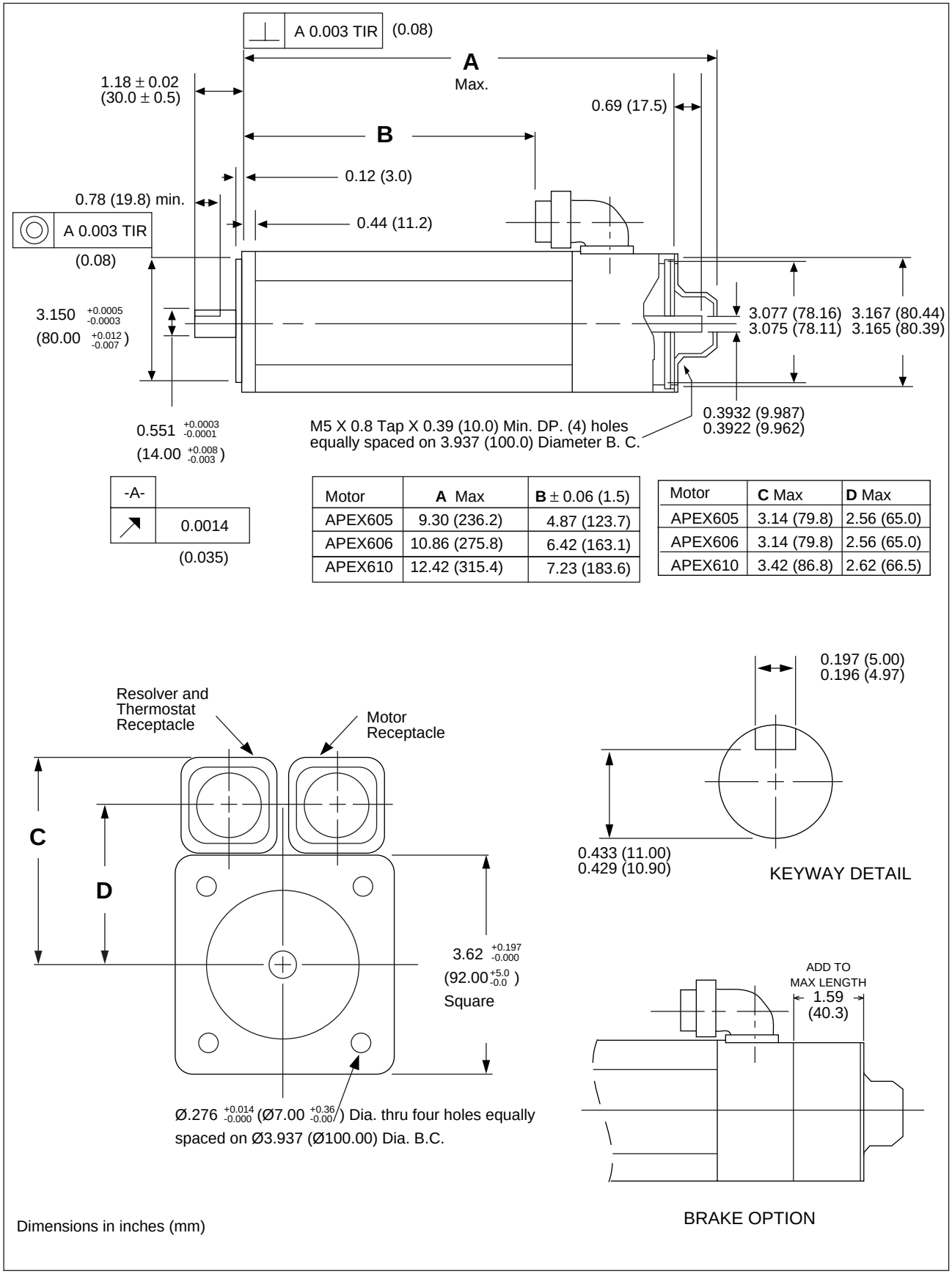
APEX603 Motor Dimensions

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APEX604 Motor Dimensions

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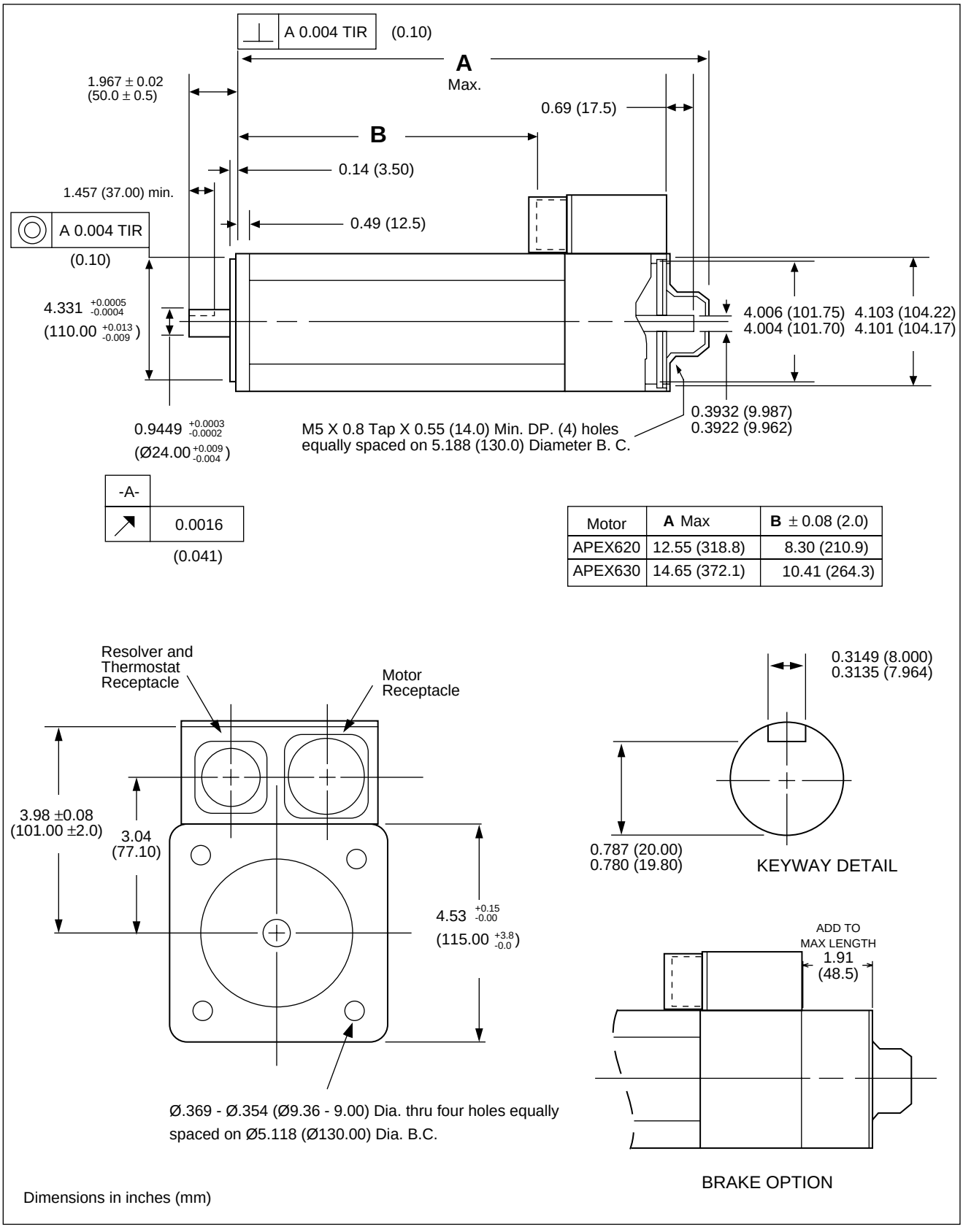


Motor	**A** Max	**B** ± 0.06 (1.5)
APEX605	9.30 (236.2)	4.87 (123.7)
APEX606	10.86 (275.8)	6.42 (163.1)
APEX610	12.42 (315.4)	7.23 (183.6)

Motor	**C** Max	**D** Max
APEX605	3.14 (79.8)	2.56 (65.0)
APEX606	3.14 (79.8)	2.56 (65.0)
APEX610	3.42 (86.8)	2.62 (66.5)

APEX605, APEX606, APEX610 Motor Dimensions

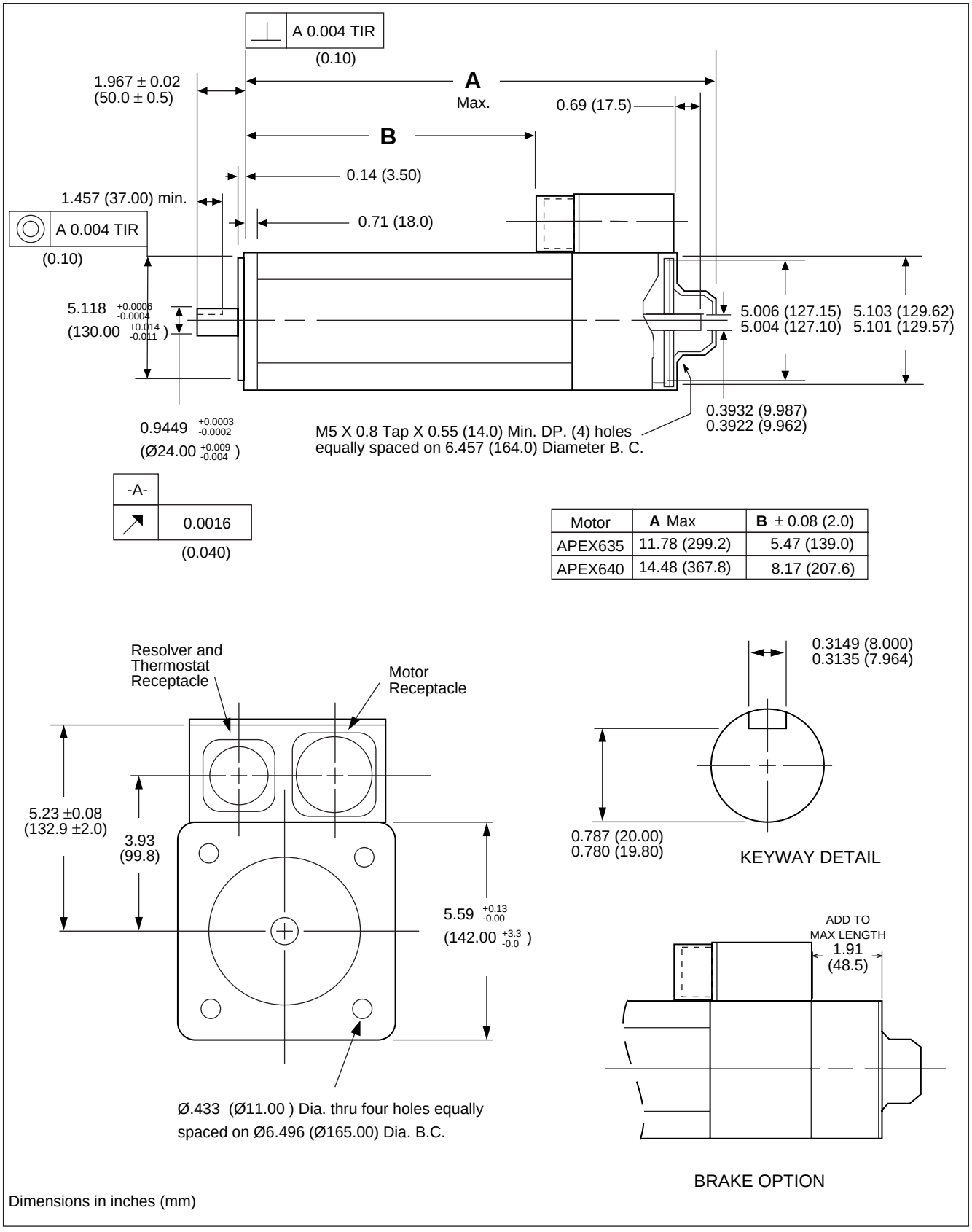
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Motor	**A** Max	**B** ± 0.08 (2.0)
APEX620	12.55 (318.8)	8.30 (210.9)
APEX630	14.65 (372.1)	10.41 (264.3)

APEX620 & APEX630 Motor Dimensions

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Motor	**A** Max	**B** ± 0.08 (2.0)
APEX635	11.78 (299.2)	5.47 (139.0)
APEX640	14.48 (367.8)	8.17 (207.6)

APEX635 & APEX640 Motor Dimensions

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