C H A P T E R V

Hardware Reference

The information in this chapter will enable you to:

Use this chapter as a quick-reference for system performance specifications

Z600 Electrical Specifications

Electrical specifications for the Z Drive's input and output power are provided in this section.

Input Power

- □ Voltage (Nominal)
- Voltage (Range)
- □ Frequency (Range)
- **Current (Max. cont.)**
- Dever (Max. cont.)
- □ Fuses
- □ Isolation transformer

120VAC (1 or 3-phase) or 240VAC (1 or 3-phase) 92-130VAC (1 or 3-phase) or 205-252VAC (1 or 3-phase) 47-66 Hz 15A (rms) 3-phase or 26A (rms) 1-phase 6.2 KVA

20A slow blow—Not user accessible Not required

ansiormer Not required

The actual input power and current is a function of the motor's operating point (speed and torque) and the duty cycle. You can de-rate the fuses and isolation transformer by scaling the above numbers by your actual requirements. The numbers above reflect the servo motor and drive operating at rated speed and rated torque at 100% duty.

Output Power

	Voltage	405 VDC (maximum)
	Frequency	0 - 400Hz fundamental (7 kHz PWM)
	Current	20A continuous per phase sinusoidal (14.14Arms)
		40A peak per phase sinusoidal (28.3Arms)
	Regen/power dump	Optional accessory
_		

Z600 Motor/Drive Configuration

The Z600's hardware is pre-configured to control Z600 motors. The Z600 series drives only Z600 motors, the Z800 series drives only Z800 motors, and the Z900 series drives only Z900 motors. *Be sure that your drive type matches your motor type (Z600, Z800, or Z900).* If you have questions about the Z motor/drive configuration, call your local Automation Technology Center (ATC) or distributor.

Z600 Technical Data

	Units	Z-605	Z-606	Z-610	Z-620	Z-630	Z-635	Z-640
Continuous Stall Torque*	oz-in	346	633	867	1743	2475	2458	4114
	lb-in	22	40	54	109	155	154	257
	lb-ft	1.8	3.3	4.5	9.1	12.9	12.8	21.4
	Nm	2.4	4.5	6.1	12.3	17.5	17.4	29.1
Peak Torque (±10%)	oz-in	1083	1954	1733	3486	4951	7008	8228
	lb-in	68	122	108	218	309	438	514
	lb-ft	5.6	10.2	9.0	18.2	25.8	36.5	42.9
	Nm	7.7	13.8	12.2	24.6	35.0	49.5	58.1
Rated Torque (±10%)	oz-in	321	576	616	1538	2172	2054	3729
1 ()	lb-in	20	36	39	96	136	128	233
	lb-ft	1.7	3.0	3.2	8.0	11.3	10.7	19.4
	Nm	2.3	4.1	4.4	10.9	15.3	14.5	26.3
Rated Power	hp	2.0	2.1	4.3	5.6	5.4	6.1	5.9
	kWatts	1.5	1.5	3.2	4.2	4.0	4.5	4.4
Rated Speed	rpm	6200	3600	7000	3700	2500	3000	1600
	rps	103	60	117	62	42	50	27
Rated Current (line)	A (rms)	5.0	5.3	14.1	14.1	14.1	14.1	14.1
Peak Current (3.3 seconds max)	A (rms)	16.6	17.2	28.2	28.2	28.2	28.2	28.2
Max. Cont. AC Input Current (3 phase 240VAC)	A (rms)	6	6	15	15	15	15	15
Rotor Inertia	oz-in ² (mass)	5.45	9.45	13.73	35.87	50.79	56.21	111.21
	. 2	0.01	0.02	0.04	0.09	0.13	0.146	0.29
	Kg-m ² x 1E-6	99.6	172.9	251.2	656.0	929.0	1028.0	2034.0
Motor Weight	lbs	10	13	16	29	32	37	51
	kg(f)	5	6	7	13	15	16	23
Shipping Weight	lbs	51	55	58	70	73	78	92
	kg(f)	23	25	26	32	33	35	42

Z600 Series Indexer/Drive Performance Specifications

Positional Repeatability

Repeatability: ±0.088 degrees, unloaded

Positional Accuracy

Resolver Accuracy: ±7 arc minutes

Resolver-to-Digital Converter Accuracy: ±8 arc minutes (For finer accuracies, contact Compumotor—800-722-2282.)

Motor/Drive Compatibility

Different motors can take different amounts of current and require different tuning parameters for typical loads. The CMTR (Configure Motor Type) command sets up a drive for a particular motor. By issuing CMTR, motor current levels and default parameters are recalled from memory. Do not exceed the current level specified for the motor, excessive current levels will damage the motor. The following information is provided in case you must modify the motor/drive configuration.

WARNING

The following commutation procedure causes violent motor motion. All loads should be removed from the motor shaft before you begin this procedure.

Sets drive for the motor; xxx = 605, 606, 610, 620, 630, 635, or 640

Helpful Hint: This command sequence sets up a drive for a particular motor size and performs the commutation.

Description Turns drive off

Enables the drive

Motor Brakes

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

5 0	1 7 1	5	51	
Brake Characteristics	Z605/606/610	Z620/630	Z640	Units
Supply voltage	24	24	24	VDC
Supply current	0.57	0.93	1.27	A
Static braking torque	960	1152	6720	oz-in

Z600 Motor Brake Characteristics

<u>Command</u>

> 10FF

>

> 10N

1CMTRxxx

Motor Data

The data reflecting motor torque does not assume operation from a Z600 drive. The torque specifications reflect the motor's capabilities. In most cases, the motor windings match the drive's output power with an additional safety margin.

	Motor Size:	Z605		Value	Units	Tolerance	
1	Constant (s):	Torque		68.7	oz-in/A rms	± 10%	
2		Voltage (Sinusodial)		29.4	V rms/Krpm	± 10%	
3		Electrical Time		10.68	milliseconds	nominal	
4		Mechanical Time		1.46	milliseconds	nominal	
5		Thermal		32	minutes	nominal	
6	Torque (s):	Continuous, Stall		367	oz-in	min. [1]	
7		Continuous, Stall		346	oz-in	min. [2]	
8		Continuous, Rated		321	oz-in	min. [2]	
9		Peak, Max w/o Saturatio	n	1085	oz-in	min. [1]	
10		Static Friction		0.96	OZ-IN	max.	
11	<u> </u>	Ripple (of Rated Torque)		5	percent	max. [3]	
12	Speed:	Rated		6200	rpm	reference	
13				6200	rpm	reference	
14	Frequency	Rated		207	HZ A reso	max.	
15	Current:	Rateo		5	A mo	max. [1]	
10	Valtaga	Deted		10.0	A IIIIS	roforonoo	
10	vollage.	Max		240	V IIIIS	reierence	
10	Output Power	Patad		250	v IIIIS kWatte (bp)	min [1]	
19				1.5 (2.0)	will		
20				20		± 30%	
21	D.C. Resistance			2.3		± 10 % [1]	
22	Acceleration at Rated	a Torque		76870		Theoretical	
23	Rotor inertia			99.6	Kgm ² "1E-6	nominal	
24	Damping			0.96	oz-in / krpm	nominal	
25	weight			10		max.	
26	Winding Temperature			170 [4]		max.	
27	Winding Temperature	e Rise (Above Ambient) [1]		145	°C (Celsius)	reference	
28	Insulation Class			H		reference	
29	Thermostat TRIP Ter	mperature		170	°C (Celsius)	±5°C	
30	Thermostat RESET I	emperature		135	°C (Celsius)	± 10° C	
31	Dielectric Strength, (Winding-to-Frame)		1750	VAC	min.		
32	Winding Capacitance	e-to-Frame		0.00122	μF	max.	
33	IP Classification			65 [8]	rated	standard	
34	Shaft:	Radial-Play (Front to Bac	ck)	1.4E-5/8E-6	in/lb	reference	
35		Material [5]		RC-#30	—	reference	
30		Loading [6] 1000 rpm	`		 lbs		
51		2000 rpm	ו ז	67.8	lbs.	max. [7]	
		3000 rpm	י ז	59.1	lbs.	max. [7]	
		4000 rpm	י ו	53.8	lbs.	max [7]	
		5000 rpm	1	50	lbs.	max [7]	
38	Bearing Class Interr	nal/External		1/Class 3	ABEC/AEBMA	reference	
39	Bearing Grease			SRI #2	Manufacturer	reference	
40	Shaft Seal Pressure			0.21 (3)	ka/cm ² (psi)	max.	
41	41 Basic Motor Design			3 phase wve co	nnected 2(P/2)		
42	42 Stator Phase Sequence			A-C-B (viewed from front face plate)			
43	43 Vendor/Supplier			Industrial Drives B-202-C			
44	44 Resolver Type/Accuracy			Single-Speed: Rotor-Excited: + 7 arc min			
45	45 Resolver Manufacturer/Model #			Easco ± 21 -BRCX-335-139			
46	46 Standard Resolver Cable Part Number			71-011777-yy			
47	17 Standard Motor Cable Part Number			71_011777_vv			
48	Ontions: Broke 24//DC (0.574) 060 cz			in Holding Torqu	۵		
10					0		
	Incremental Encoder						
	Tachometer						
	No Keyway						
[1] 25	°C Ambient		[5] R	otor steel is rated	l as fatigue proof		
[2] 40°	°C Ambient		[6] Lo	bads centered 1 i	nch from mounting fl	ange	
[3] Me	asured at 60 rpm (1 rp	s) in Velocity Mode	[7] Lo	oads may be radi	al and axial such tha	t the sum of the	
[4] Ra	ted for 20,000 Hours of	r 40,000 Hours @ 155° C	ra	idial and two time	s the axial does not	exceed this figure.	
	[8] Motor shaft is IP30 rated.						

Z605 Motor Specifications

	Motor Size:	Z606		Value	Units	Tolerance
1	Constant (s):			120	oz-in/A rms	+ 10%
2	Constant (5).	Voltage (sinusodial)		51.2	V rms/Krnm	+ 10%
3		Flectrical Time		15 32	milliseconds	nominal
4		Mechanical Time		0.896	milliseconds	nominal
5		Thermal		34	minutes	nominal
6		Continuous Stall		672		min [1]
0	Torque (S).	Continuous, Stall		624	02-111	min [2]
0		Continuous, Stall		576	02-111	[1][1], [2]
0		Dook Mox w/o Soturatio	n	1057	02-111	min [1]
9		Statia Eriatian	11	1907	02-111	max
10		Dipple (of Deted Terrue)		0.90	02-III	max [2]
10	On a site			0000	percent	
12	Speed:	Rated		3600	rpm	reference
13		Maximum		3600	rpm	reference
14	Frequency	Rated		120	Hz	max.
15	Current:	Rated		53	A rms	max [1]
16	ourront.	Peak		17.2	A rms	nominal
10		1 oux			7.1110	
17	Voltage:	Rated		240	V rms	reference
18	_	Max		250	V rms	maximum
10		Datad		4.0.(0.4)		and a fai
19	Output Power:			1.6 (2.1)	kvvatts (np)	min. [1]
20	Inductance:	lerminal (line-line)		38	mH	± 30%
21	D.C. Resistance	Terminal (line-line)		2.48	ohms	± 10 % [1]
22	Acceleration at Rate	d Torque		80000	rads/sec ²	Theoretical
23	Rotor Inertia			172.9	kgm ² * 1E-6	nominal
24	Damping			1.344	oz-in / krpm	nominal
25	Weight			13.4	lbs.	max.
26	Winding Temperature	9		170 [4]	°C (Celsius)	max.
27	Winding Temperature	e Rise (Above Ambient) [1]		145	°C (Celsius)	reference
28	Insulation Class			Н		reference
20	Thermostat TRIP Ter	mperature		170	°C (Coleiue)	+5 °C
20	Thermostat DESET			125		± 10 °C
30				130		
31		vinding-to-Frame)		1750	VAC	min.
32	Winding Capacitance	e to Frame		0.00201	μ⊢	max.
33	IP Classification			65 [8]	rated	standard
34	Shaft:	Radial-Play (front to bac	k)	1.4E-5/8E-6	in/lb	reference
35		Material [5]		RC-#30	— —	reference
36		Magnet Type		NdFeB		—
37		Loading [6] 1000 rpm	1	90.1	lbs.	max. [7]
		2000 rpm	ו	71.6	lbs.	max. [7]
		3000 rpm	า	62.4	lbs.	max. [7]
		4000 rpm	۱	N/A	lbs.	max. [7]
		5000 rpm	۱	N/A	lbs.	max. [7]
38	Bearing Class, Inter	nal/External		1/Class 3	ABEC/AFBMA	reference
39	Bearing Grease			SRI #2	Manufacturer	reference
40	40 Shaft Seal Pressure		0.21 (3)	kg/cm ² (psi)	max.	
41	Basic Motor Design			3 phase wye connected 2(P/2)		
42	2 Stator Phase Sequence			A-C-B (viewed from front face plate)		
43	3 Vendor/Supplier			Industrial Drives B-204-B		
44	44 Resolver Type/Accuracy		Single-Speed: Rotor-Excited: + 7 arc min			
45 Resolver Manufacturer/Model #		= 21-RRCX-335-130				
46	Standard Resolver C	ard Resolver Cable Part Number		71-011777-yy		
47 Standard Motor Cable Part Number		71_011774_vv				
10	47 Standard Wolfor Cable Part Number			0		
40	Options.	IP67 Classification	-900 02	-in noiding Torqu	e	
IP07 Classification						
	Incremental Encoder					
Νο Κενιναν						
[1] 25	°C Ambient	ito itoyway	[5] P	otor steel is rotor	l as fatique proof	
[2] 40	°C Ambient		[0] K	ade centered 1	nch from mounting	flance
[2] 40	asurad at 60 rpm (1 rp	s) in Velocity Mode		oade may be radi	al and avial such th	at the sum of the
	ted for 20 000 Hours of	r 40 000 Hours @ 155° C		adial and two time	s the axial does no	t exceed this figure
ו נדן ועמ			[8] M	Antor shaft is IP2() rated	conceed this hydre.
L			⊥ L~] 'V			

Z606 Motor Specifications

	Motor Size:	Z610	Value	Units	Tolerance	
1	Constant (s):	Torque	61.4	oz-in/A rms	±10%	
2		Voltage (Sinusodial)	26.2	V rms/Krpm	±10%	
3		Electrical Time	13.16	milliseconds	nominal	
4		Mechanical Time	0.762	milliseconds	nominal	
5		Thermal	36	minutes	nominal	
6	Torque (s):	Continuous, Stall	977	oz-in	min. [1]	
7		Continuous, Stall	921.6	oz-in	min. [2]	
8		Continuous, Rated	653	oz-in	min. [2]	
9		Peak, Max w/o Saturation	2630	oz-in	min. [1]	
10		Static Friction	0.96	oz-in	max	
11		Ripple (of Rated Torque)	5	percent	min. [3]	
12	Speed:	Rated	7000	rpm	reference	
13	_	Maximum	7000	rpm	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	d Torque	73934	rads/sec ²	Theoretical	
23	Rotor Inertia		251.2	kgm ² * 1E-6	nominal	
24	Damping		1.728	oz-in / krpm	nominal	
25	Weight		16.35	lbs.	max.	
26	Winding Temperature)	170 [4]	°C (Celsius)	max.	
27	Winding Temperature	e Rise (Above Ambient) [1]	145	°C (Celsius)	reference	
28	Insulation Class		H		reference	
29	Thermostat TRIP Ter	mperature	170	°C (Celsius)	+5°C	
30	Thermostat RESET T		135	°C (Celsius)	+ 10 °C	
31	Dielectric Strength ()	Winding-to-Frame)	1750		min	
32	Winding Canacitance	-to-Frame	0.00205	uF	may	
32			65 [8]	μι rated	standard	
24	Shoft:	Padial Play (front to back)		in/lb	roforonco	
35	Shan.	Material [5]	PC_#30			
36		Magnet Type	NdFeB		max [7]	
37		Loading [6] 1000 rpm	93.5	lbs	max [7]	
0.		2000 rpm	74.2	lbs.	max. [7]	
		3000 rpm	64.8	lbs.	max. [7]	
		4000 rpm	59	lbs.	max. [7]	
		5000 rpm	54.7	lbs.	max. [7]	
38	Bearing Class, Interr	nal/External	1/Class 3	ABEC/AFBMA	reference	
39	Bearing Grease		SRI #2	Manufacturer	reference	
40	Shaft Seal Pressure		0.21 (3)	kg/cm ² (psi)	max.	
41	Basic Motor Design		3 phase wve c	onnected 2(P/2)		
42	Stator Phase Sequer	nce	A-C-B (viewed	A-C-B (viewed from front face plate)		
43	Vendor/Supplier		Industrial Drives B-206-D			
44	Resolver Type/Accu	racy	Single-Speed	Single-Speed: Rotor-Evolted: + 7 arc min		
45	Resolver Manufactur	er/Model #	Easco # 21-BR	Easco # 21_BRCX_335_130		
46	Standard Resolver C	able Part Number	71_011777_01			
<u>⊿7</u>	Standard Motor Cable	e Part Number	71_011775_01	71-0117775-01		
40	Ontione:	$\frac{1}{2}$		10		
40	Options.	IP67 Classification				
		Incremental Encoder				
		Tachometer				
	No Keyway					
[1] 259	C Ambient	[5] F	Rotor steel is rated	as fatique proof		
2 40	C Ambient	[6] L	oads centered 1 in	ich from mounting fla	ange	
[3] Me	asured at 60 rpm (1 rp	s) in Velocity Mode	oads may be radia	I and axial such that	the sum of the	
[4] Ra	ted for 20,000 Hours o	r 40,000 Hours @ 155° C	adial and two times	s the axial does not e	exceed this figure.	
		[8] M	lotor shaft is IP30	rated.		

Z610 Motor Specifications

	Motor Size:	Z620	Value	Units	Tolerance			
1	Constant (s):	Torque	124.2	oz-in/A rms	±10%			
2		Voltage (Sinusodial)	53	V rms/Krpm	±10%			
3		Electrical Time	23.4	milliseconds	nominal			
4		Mechanical Time	0.82	milliseconds	nominal			
5		Thermal	40	minutes	nominal			
6	Torque (s):	Continuous, Stall	1974	oz-in	min. [1]			
7		Continuous, Stall	1862	oz-in	min. [2]			
8		Continuous, Rated	1632	oz-in	min. [2]			
9		Peak, Max w/o Saturation	5299	oz-in	min. [1]			
10		Static Friction	25	oz-in	max.			
11		Ripple (of Rated Torque)	4.5	percent	min. [3]			
12	Speed:	Rated	3700	rpm	reference			
13	_	Maximum	3700	rpm	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	d Torque	57025	rads/sec ²	Theoretical			
23	Rotor Inertia		656	kgm ² * 1E-6	nominal			
24	Damping		2.496	oz-in / krpm	nominal			
25	Weight		29	lbs.	max.			
26	Winding Temperature		170 [4]	°C (Celsius)	max.			
27	Winding Temperature	e Rise (Above Ambient) [1]	145	°C (Celsius)	reference			
28	Insulation Class		Н		reference			
29	Thermostat TRIP Ter	mperature	170	°C (Celsius)	+5°C			
30	Thermostat RESET T		135	°C (Celsius)	± 0°C			
31	Dielectric Strength (Winding-to-Frame)	1750		± 10 0 min			
32	Winding Canacitance	a-to-Frame	0.0034	uF	max			
22			65 [9]	μ rated	standard			
24	Shoft:	Padial Play		in/lb	roforonco			
35	Shan.	Material [5]	2E-3/7E-0		reference			
36		Magnet Type	NdFoB					
37		Loading [6] 1000 rpm	154 7	lbs	max [7]			
0.		2000 rpm	122.8	lbs.	max. [7]			
		3000 rpm	107.2	lbs.	max. [7]			
		4000 rpm	N/A	lbs.	max. [7]			
		5000 rpm	N/A	lbs.	max. [7]			
38	Bearing Class, Interr	nal/External	1/Class 3	ABEC/AFBMA	reference			
39	Bearing Grease		SRI #2	Manufacturer	reference			
40	Shaft Seal Pressure		0.21 (3)	ka/cm ² (psi)	max.			
41	Basic Motor Design		3 phase wve co	nnected 2(P/2)				
42 Stator Phase Sequence		nce	A-C-B (viewed from front face plate)					
43 Vendor/Supplier		Industrial Drive	Industrial Drives B-404-D					
44 Resolver Type/Accuracy		Single-Sneed	Single-Speed: Rotor-Evolted: + 7 arc min					
15	45 Resolver Manufacturer/Model #		Fasco # 21_PD	$Single-Opeeu, Notor-Exolicu, \pm 7 are min.$				
46 Standard Resolver Cable Part Number		71_011777 vv	F 4360 # 2 FORUA-333-J39					
40	47 Standard Motor Cable Part Number		71_011775 vv	71 011775 yy				
47								
40	Options.	IP67 Classification		ue				
	IF07 Uds5111Ud11U11 Incremental Encoder							
	Tachomatar							
	No Keyway							
[1] 25	°C Ambient	[5] R	otor steel is rated	as fatique proof				
	[1] 20 C Ambient [6] Loads centered 1 inch from mounting flange							
$ _{1} $	C Amplent	[3] Measured at 60 rpm (1 rps) in Velocity Mode [7] Loads may be radial and axial such that the sum of the						
[∠] 40° [3] Me	asured at 60 rpm (1 rp	s) in Velocity Mode	bads may be radia	l and axial such that	the sum of the			
[2] 40 [3] Me [4] Ra	asured at 60 rpm (1 rp	s) in Velocity Mode [7] Li r 40,000 Hours @ 155° C ra	bads may be radia	I and axial such that the axial does not e	the sum of the xceed this figure.			
[∠] 40 [3] Me [4] Ra	asured at 60 rpm (1 rp ted for 20,000 Hours of	s) in Velocity Mode [7] L r 40,000 Hours @ 155° C ra [8] N	bads may be radia Idial and two times lotor shaft is IP30	l and axial such that the axial does not e rated.	the sum of the xceed this figure.			

Z620 Motor Specifications

	Motor Size:	Z630		Value	Units	Tolerance
1	Constant (s):	Torque		175.3	oz-in/A rms	±10%
2		Voltage (Sinusodial)		74.9	V rms/Krpm	±10%
3		Electrical Time		26.7	milliseconds	nominal
4		Mechanical Time		0.68	milliseconds	nominal
5		Thermal		43	minutes	nominal
6	Torque (s):	Continuous. Stall		2788	oz-in	min. [1]
7	- 1 (-)	Continuous, Stall		2630	oz-in	min. [2]
8		Continuous, Rated		2304	oz-in	min. [2]
9		Peak, Max w/o Saturatio	on	7488	oz-in	min. [1]
10		Static Friction		40.7	oz-in	max.
11		Ripple (of Rated Torque)		4.5	percent	min. [3]
12	Speed:	Rated		2500	rpm	reference
13	•	Maximum		2500	rpm	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 Rate	d Torque		5603/	rade/sec ²	
22	Potor Inortio			020	$kam^{2} * 1 = 6$	nominal
23	Rotor menta			929	KgIII- I⊑-0	nominal
24	Damping			2.00	02-in / kipm	nominal
25	vveight			32		max.
26	Winding Temperatur			170 [4]		max.
27	Winding Temperatur	e Rise (Above Ambient) [1]		145	°C (Celsius)	reference
28	Insulation Class			Н		reference
29	Thermostat TRIP Te	mperature		170	°C (Celsius)	±5°C
30	Thermostat RESET	Femperature		132	°C (Celsius)	±5°C
31	Dielectric Strength, (Winding-to-Frame)		1750	VAC	min.
32	Winding Capacitance	e to Frame		0.0038	μF	max.
33	IP Classification			65 [8]	rated	standard
34	Shaft:	Radial-Play		2E-5/7E-6	in/lb	reference
35		Material [5]		RC-#30	—	reference
36		Magnet Type		NdFeB	—	_
37		Loading [6] 1000 rpm		160	lbs.	max. [7]
		2000 rpm		127.1	lbs.	max. [7]
		3000 rpm		N/A	lbs.	max. [7]
		4000 rpm		N/A	lbs.	max. [7]
		5000 rpm		N/A	lbs.	max. [7]
38	Bearing Class, Inter	nal/External		1/Class 3	ABEC/AFBMA	reference
39	Bearing Grease			SRI #2	Manufacturer	reference
40	Shaft Seal Pressure			0.21 (3)	kg/cm² (psi)	max.
41	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; ± 7 arc min.				
45 Resolver Manufacturer/Model #		Fasco # 21-BRCX-335-J39				
46 Standard Resolver Cable Part Number		71-011777-xx				
47	47 Standard Motor Cable Part Number		71-011775-xx			
48	48 Ontions: $\frac{Rr_2k_2}{24}$		Holding Torque			
IP67 Classification		i loiding i oi quo				
	Options:	IP67 Classification				
	Options:	IP67 Classification				
	Options:	IP67 Classification Incremental Encoder Tachometer				
	Options:	IP67 Classification Incremental Encoder Tachometer No Keyway				
[1] 25	Options: °C (Celsius) ambient	IP67 Classification Incremental Encoder Tachometer No Keyway	[5] Ro	tor steel is rated	as fatique proof	
[1] 25° [2] 40°	Options: ² C (Celsius) ambient ² C (Celsius) ambient	IP67 Classification Incremental Encoder Tachometer No Keyway	[5] Ro [6] Loa	tor steel is rated	as <i>fatigue proof</i> ch from mounting t	lange
[1] 25° [2] 40° [3] Me	Options: ^o C (Celsius) ambient ^o C (Celsius) ambient easured at 60 rpm (1 rc	IP67 Classification Incremental Encoder Tachometer No Keyway	[5] Ro [6] Loa [7] Loa	tor steel is rated a ads centered 1 in ads may be radia	as <i>fatigue proof</i> ch from mounting f and axial such tha	lange at the sum of the
[1] 25° [2] 40° [3] Me [4] Ra	Options: ^o C (Celsius) ambient ^o C (Celsius) ambient easured at 60 rpm (1 rp ted for 20,000 hours o	IP67 Classification Incremental Encoder Tachometer No Keyway	[5] Ro [6] Loa [7] Loa rad	tor steel is rated a ads centered 1 in ads may be radia lial and two time:	as <i>fatigue proof</i> ch from mounting f and axial such tha s the axial does no	lange at the sum of the t exceed this figure.
[1] 25 ⁰ [2] 40 ⁰ [3] Me [4] Ra	Options: ^o C (Celsius) ambient ^o C (Celsius) ambient easured at 60 rpm (1 rp ted for 20,000 hours o	IP67 Classification Incremental Encoder Tachometer No Keyway	[5] Ro [6] Loa [7] Loa rad [8] Mo	tor steel is rated a ads centered 1 in ads may be radia lial and two times tor shaft is IP30	as <i>fatigue proof</i> ch from mounting f and axial such tha s the axial does no rated.	lange at the sum of the t exceed this figure.

Z630 Motor Specifications

1 Constant (s): Torque 175.3 oz-in/A rms ± 10% 3 Mechanical Time 70 YmsK/rms ± 10% 4 Mechanical Time 70 ymsK/rms ± 10% 5 Continuous, Stall 20.8 milliseconds nominal 6 Torque (s): Continuous, Stall 2055 oz-in min. [2] 9 Paak, Max w/o Saturation 2054 oz-in min. [2] 9 Continuous, Rated 2054 oz-in min. [1] 10 Static Friction 69 oz-in max. 11 Ripple (of Rated Torque) 4.5 percent max. 12 Speed: Rated 150 Hz max. 13 Current: Rated 150 Hz max. 10 14 Frequency Rated 2300 Vms reference 14 Trequency Rated 230 Vms max. 15 Curatine		Motor Size:	Z635		Value	Units	Tolerance	
2 Vortage (Sinusodia) Mechanical Time 70 V msRkrpm + 10% 4 Mechanical Time 20.8 milliseconds nominal 6 Torque (s): Continuous, Stall 20.8 minutes nominal 7 Torque (s): Continuous, Stall 205 oz-in min. [1] 8 Continuous, Stall 205 oz-in min. [2] 9 Peak, Max wio Saturation 60 oz-in min. [2] 10 Static Friction 69 oz-in max. 11 Rigple (of Rated 3000 rpm reference 13 Speed: Rated 3000 rpm reference 14 Frequency Rated 150 Hz max. 15 Current: Rated 150 V rms max.mum 16 Uput Power: Rated 250 V rms max.mum 17 Voltage: Rated 152 Arms nominal 19 Output Power: Rated 1528 Arms nominal 1	1	Constant (s):	Torque		175.3	oz-in/A rms	±10%	
3 Electrical Time Mechanical Time Thermal 0.77 milliseconds milliseconds nominal nominal 6 Torque (s): Continuous, Stall Continuous, Stall 28.8 milliseconds milliseconds nominal 7 Continuous, Stall Continuous, Stall 2805 oz-in min. [2] 9 Peak, Max w/o Saturation Static Friction 69 oz-in min. [2] 9 Peak, Max w/o Saturation Ripple (of Rated Torque) 4.5 percent max. 11 Peak, Max w/o Saturation Maximum 30000 pm reference 13 Maximum 30000 pm reference 14 Frequency Max 250 V rms reference 14 Duput Power: Rated 45 A rms nominal 17 Voltage: Max 250 V rms reference 18 Max 250 V rms reference 19 Output Power: Rated 10.647 Ohms ± 10.% (1) 21 D.C. Resistanco Terminal (line-line) 0.647 Ohms ±	2		Voltage (Sinusodial)		70	V rms/Krpm	± 10%	
4 Mechanical Time 20.8 milliseconds nominal 6 Torque (s): Continuous, Stall 2805 oz-in min. [1] 7 Continuous, Rated 2054 oz-in min. [2] 9 Peak, Max Wo Saturation 69 oz-in min. [2] 10 Statis Friction 69 oz-in min. [3] 11 Ripple (of Rated Torque) 4.5 percent min. [3] 12 Speed: Rated 150 Hz max. 13 Maximum 3000 rpm reference max. 14 Frequency Rated 150 Hz max. 15 Curnet: Rated 250 V rms medernce 18 Output Power: Rated 4.5 A rms nominal 10 Cutput Power: Rated Torque 0.447 Ohms ± 10% (1] 21 Dc. Cesistance Terminal (line-line) 1.44 rmH ± 30%	3		Electrical Time		0.77	milliseconds	nominal	
5 Thermal 28 minutes nominal 6 Torque (s): Continuous, Stall 2005 oz-in min. [1] 7 Continuous, Stall 2005 oz-in min. [2] 9 Peak, Max w/o Saturation 7008 oz-in min. [2] 10 Static Friction 69 oz-in max. 11 Ripple (of Rated Torque) 4.5 percent min. [3] 12 Speed: Rated 3000 rpm reference 13 Maximum 3000 rpm reference max. 15 Current: Rated 150 A rms nominal 16 Current: Rated 250 V rms reference 18 Max 250 V rms reference max. 19 Outgut Power: Rated 45 (6.1) KWatts (hp) min. [1] 20 Inductance: Terminal (line-line) 0.647 Orms ± 10 % (1] <t< td=""><td>4</td><td></td><td>Mechanical Time</td><td></td><td>20.8</td><td>milliseconds</td><td>nominal</td></t<>	4		Mechanical Time		20.8	milliseconds	nominal	
6 Torque (s): Continuous, Stall 2666 cz-in min. [1] 8 Continuous, Rated 2664 cz-in min. [2] 9 Peak, Max Wo Saturation 69 cz-in min. [2] 10 Static Friction 69 cz-in min. [2] 11 Ripple (of Rated Torque) 4.5 percent max. 12 Speed: Rated 150 Hz max. 13 Maximum 3000 rpm reference 14 Frequency Rated 150 Hz max. 15 Current: Rated 230 V rms medirma. 16 Voltage: Rated 250 V rms medirma. 10 Inductance: Terminal (line-line) 14 rff. NWats (hp) min. [1] 21 D.C. Resistance Terminal (line-line) 0.647 Ohms ± 30% 22 Acceleration at Rated 1028 kgm2*1E-6 nominal <t< td=""><td>5</td><td></td><td>Thermal</td><td></td><td>28</td><td>minutes</td><td>nominal</td></t<>	5		Thermal		28	minutes	nominal	
7 Continuous, Stall 2458 oz-in min. [2] 9 Continuous, Rated 2054 oz-in min. [2] 9 Peak, Max w/o Saturation 69 oz-in max. 11 Ripple (of Rated Torque) 4.5 percent min. [2] 12 Speed: Rated 3000 rpm reference 14 Frequency Rated 150 Hz max. 15 Current: Rated 150 Hz max. 16 Output Power: Rated 250 V rms reference 18 Max 250 V rms reference 19 Output Power: Rated 4.5 (6:1) KVatts (hp) min. [1] 20 Inductance: Terminal (line-line) 1.4 rhd rhd 21 D.C. Resistance Terminal (line-line) 0.647 Ohms 1.0 % (1] 22 Acceleration at Rated Torque 4945 rads/sec ² Theoretical 23 Rotro Inertia 1028 kgm ² 16 nominal 24 Damping 2.88 oz-in / kpm nominal 25 Winding Temperature Rise (Above Ambient) [1] 1.45 'C (Celsiu	6	Torque (s):	Continuous Stall		2605	oz-in	min [1]	
8 Continuous, Rated 2054 cz-in min. [2] 9 Peak, Max Wo Saturation State Friction 69 cz-in min. [2] 11 Ripple (of Rated Torque) 4.5 percent min. [3] 12 Speed: Rated 3000 rpm reference 13 Maximum 3000 rpm reference 14 Frequency Rated 150 Hz max. 15 Current: Rated 150 Hz max. 16 Voltage: Rated 220 V rms reference 16 Output Power: Rated 230 V rms meterence 17 Voltage: Rated 45 A rms max. (1) 16 Output Power: Rated 45 A rms max. (1) 17 Voltage: Rated 45 Con'n Vrms reference 16 Dutectarion at Rate (line-line) 0.44 rth reference Thermostat Ripperature <td>7</td> <td></td> <td>Continuous Stall</td> <td></td> <td>2458</td> <td>oz-in</td> <td>min [2]</td>	7		Continuous Stall		2458	oz-in	min [2]	
o Peak, Max w/o Saturation 7008 oz-in min. [1] 10 Ripple (of Rated Torque) 4.5 percent min. [3] 12 Speed: Rated 3000 rpm reference 14 Frequency Rated 150 Hz max. 15 Current: Rated 150 Hz max. 16 Urent: Rated 150 Hz max. 17 Voltage: Rated 250 V rms maximum 19 Output Power: Rated 45.6 (6.1) KWatts (hp) min. [1] 20 Inductance: Terminal (line-line) 14 rmH ± 30% 12 Acceleration at Rated Torque 48945 rads/sec ² Theoretical 21 Dc. Resistance Terminal (line-line) 14.4 rmH ± 30% 22 Acceleration at Rated Torque 49945 rads/sec ² Theoretical 23 Rotor Inertia 1028 kgm ² + 1 E-6 <	8		Continuous Rated		2054	oz-in	min [2]	
To Static Friction 69 oz.in max.[1] 11 Ripple (of Rated Torque) 4.5 percent min. [3] 12 Speed: Rated 3000 rpm reference 13 Maximum 3000 rpm reference 14 Frequency Rated 15 A rms nominal 15 Current: Rated 230 V rms max.[11] 16 Peak 45 A rms nominal 17 Voltage: Rated 230 V rms maximum 19 Output Power: Rated 4.5 (6.1) KWatts (hp) min. [1] 21 D.C. Resistance Terminal (line-line) 0.647 Ohms ± 10% [1] 22 Acceleration at Rated Torque 48945 rad/sc2 ² Theoretical 23 Rotor Inertia 1028 kgm² ² * 1E-6 nominal 24 Damping 2.88 oz-in / krpm nominal 24 Maxidin	q		Peak Max w/o Saturation		7008	oz-in	min [1]	
11 Ripple (of Rated Torque) 4.5 percent min. [3] 12 Speed: Rated 3000 rpm reference 13 Frequency Rated 150 Hz max. 14 Frequency Rated 150 Hz max. 15 Current: Rated 150 Hz max. 16 Peak 45 Arms nominal 17 Voltage: Rated 230 V rms reference 18 Output Power: Rated 250 V rms maximum 120 Inductance: Terminal (line-line) 14 mH ±30% 21 D.C. Resistance Terminal (line-line) 0.647 Ohrms ±10 % [1] 22 Acceleration at Rated Torque 49945 rads/sec ² Theoretical 23 Rotor Inertia 1028 kgm ² + 1E-6 nominal 24 Damping 2.88 ozin / kgm nominal 25 <td>10</td> <td></td> <td>Static Friction</td> <td></td> <td>69</td> <td>oz-in</td> <td>max</td>	10		Static Friction		69	oz-in	max	
12Speed:Rated3000pmInteraction13Maximum3000pminference14FrequencyRated150Hzmax.15Current:Rated15A rmsmoninal16Peak45A rmsnoninal17Voltage:Rated230V rmsreference18Max250V rmsreference19Output Power:Rated4.5 (6.1)kWatts (hp)min. [1]20Inductance:Terminal (line-line)0.647Ohms $\pm 10\% [1]$ 21D.C. ResistanceTerminal (line-line)0.647Ohms $\pm 10\% [1]$ 22Acceleration at Rated Torque48945rads/sec ² Theoretical23Rotor Inertia1028kgm² * 1E-6noninal24Damping2.88oz-in/ krpmnoninal25Winding Temperature170°C (Celsius)reference26Insulation ClassH-reference27Winding Temperature170°C (Celsius)±5 °C31Dielectric Strength, (Winding to-Frame)1750VACmin.32Winding Capacitate to Frame0.0038µFmax.33IP Classification65ratedstandard34Shaft:Radal-Play Material [5]RC-4303000 rpmN/AIbs.max.[7]38Bearing Class. Internal/External <td< td=""><td>11</td><td></td><td>Ripple (of Rated Torque)</td><td></td><td>4.5</td><td>percent</td><td>min [3]</td></td<>	11		Ripple (of Rated Torque)		4.5	percent	min [3]	
13OpcolMaximum3000rpmreference14FrequencyRated150Hzmax.15Current:Rated150A rmsmax.16Peak45A rmsnominal17Voltage:Rated230V rmsreference18Max250V rmsreference19Output Power:Rated4.5 (6.1)KWatts (hp)min. [1]20Inductance:Terminal (line-line)14rmH $\pm 30\%$ 21D.C. ResistanceTerminal (line-line)0.647Ohms $\pm 10\%$ (1]22Acceleration at Rated Torque48945rads/sec2Theoretical23Rotor Inertia1028kgm2*1E-6nominal24Damping2.880.2*in / kpmmax.25Weight37Ibs.max.26Winding Temperature170 [4]°C (Celsius)reference27Winding Temperature Rise (Above Ambient) [1]145°C (Celsius) $\pm 5^{\circ}$ C28Insulation Classmerature1750VACmin.29Thermostat TRIP Temperature1760VACmin.31IP Classification65ratedstandard34Shaft:Radial-Play22-5/7E-6in/lbreference36Material [5]Material [6]NdFeB——37Loading [6]1000 rpm133.3lbs.max. [7]38 <t< td=""><td>12</td><td>Sneed:</td><td>Rated</td><td></td><td>3000</td><td>rom</td><td>reference</td></t<>	12	Sneed:	Rated		3000	rom	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 maximum 18 Max 250 V rms maximum 19 Output Power: Rated 4.5 (6.1) kWats (hp) min. [1] 20 Inductance: Terminal (line-line) 0.647 Ohms ± 10 % [1] 22 Acceleration at Rated Torque 48945 rads/sec ² Theoretical 23 Rotor Inertia 1028 kgm2* 1E-6 nominal 24 Damping 2.88 oz-in / krpm nominal 25 Weight 37 lbs. max. 26 Winding Temperature Rise (Above Ambient) [1] 145 * C (Celsius) # 35 27 Winding Temperature Rise (Above Ambient) [1] 145 * C (Celsius) # 5°C 28 Insulation Class H - - reference 29 Thermostat REST Temperature 170 * C (Celsius) ± 5°C 31 Dielectric Strength, (Winding-to-Frame) 1750 VAC	13	opood.	Maximum		3000	rom	reference	
15 Current: Rated 15 A rms max.[1] 16 Current: Peak 45 A rms maximum 17 Voltage: Rated 230 V rms reference 18 Max 250 V rms maximum min.[1] 20 Inductance: Terminal (line-line) 14 rrH ± 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 1028 kgm ² * 1E-6 nominal 24 Damping 2.88 oz rin / kpm max. 24 Insulation Class H - reference 27 Winding Temperature 170 42 (Celsius) reference 28 Insulation Class H - reference 29 Thermostat REP Temperature 170 VC (Celsius) ± 5 °C 31 Dielectric Strength. (Winding-to-Frane) 1750 VAC min.	14	Frequency	Rated		150	Hz	max	
10 Outsit: Peak 15 Arms Inter. [1] 17 Voltage: Rated 230 V rms reference 18 Max 250 V rms maximum 19 Output Power: Rated 4.5 (6.1) kWats (pp) min. [1] 10 Inductance: Terminal (line-line) 0.647 Ohms ± 10% [1] 22 Acceleration at Rated Torque 48945 rads/sec ² Theoretical 23 Rotor Inertia 1028 kgm ² * 1E-6 nominal 24 Damping 2.88 oz-in / kpm nominal 25 Weight 37 Ibs. max. 26 Winding Temperature 170 [4] °C (Celsius) max. 27 Winding Temperature Rise (Above Ambient) [1] 145 °C (Celsius) max. 28 Insulation Class H - reference 29 Thermostat REST Temperature 135 °C (Celsius) ± 5 °C 31 Dielectric Strength, (Winding-to-Frame) 1750 VAC min. 32 Winding Capacitance to Frame 0.038 µF max. 33 IP Classification 65 rated standard <td>15</td> <td>Current:</td> <td>Rated</td> <td></td> <td>15</td> <td>Δ rms</td> <td>max. [1]</td>	15	Current:	Rated		15	Δ rms	max. [1]	
10Voltage:Rated Max20Minute Terference maximum17Voltage:Rated Max250V rmsreference maximum19Output Power:Rated4.5 (6.1)KWatts (hp)min. [1]20Inductance:Terminal (line-line)14mH $\pm 30\%$ 21D.C. ResistanceTerminal (line-line)0.647Ohms $\pm 10\%$ [1]22Acceleration at Rated Torque48945rads/sec ² Theoretical23Rotor Inertia1028kgm ² 11-66nominal24Damping2.88oz-in / krpmnominal25Weight37Ibs.max.26Winding Temperature Rise (Above Ambient) [1]145*C (Celsius)reference27Winding Temperature170('C (Celsius) $\pm 5 ^{\circ}$ C30Thermostat TRIP Temperature135*C (Celsius) $\pm 5 ^{\circ}$ C31Dielectric Strength, (Winding-to-Frame)1750VACmin.33IP Classification65ratedstandard34Shaft:Radial-Play2200 rpm193.3lbs.max. [7]33Bearing Class, Internal/External1/Class 3ABEC/AFBMAreference4000 rpm2000 rpm168.8lbs.max. [7]38Bearing Class, Internal/External1/Class 3ABEC/AFBMAreference40Shaft Seal Pressure0.21 (3)kg/0 ^{od} (psi)max.41Basic Motor Design	16	Ourient.	Peak		15	Δrms	nominal	
13 Voltage: Nate 2.50 V mis Interferice 13 Output Power: Rated 4.5 (6.1) KVmis (hp) min. [1] 19 Output Power: Rated 4.5 (6.1) KVmis (hp) min. [1] 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 1028 kgm ² * 1E-6 nominal 24 Damping 2.88 oz-in/ kpm nominal 25 Weight 37 Ibs. max. 26 Winding Temperature Rise (Above Ambient) [1] 145 ~C (Celsius) reference 29 Thermostat TRIP Temperature 170 °C (Celsius) ± 5 °C 30 Thermostat RESET Temperature 135 °C (Celsius) ± 5 °C 31 Dielectric Strength, (Winding-to-Frame) 1750 VAC min. 33 IP Classification 65 rated standard 34 Shaft: Radial-Play 226-5/TE-6 in/lb reference 36 Material [5] Material [5] Mod FeB — — </td <td>17</td> <td>Voltogo:</td> <td>Potod</td> <td></td> <td>40</td> <td>X IIIIS V rmo</td> <td>roforonoo</td>	17	Voltogo:	Potod		40	X IIIIS V rmo	roforonoo	
19 Output Power: Rated 4.5 (6.1) Wattis (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 1028 kgm ² 11E-6 nominal 24 Damping 2.88 oz-in / krpm nominal 25 Weight 37 Ibs. max. 26 Winding Temperature Rise (Above Ambient) [1] 145 "C (Celsius) max. 27 Winding Temperature Rise (Above Ambient) [1] 145 "C (Celsius) max. 28 Insulation Class H - reference 29 Thermostat RESET Temperature 170 "C (Celsius) ±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 2E-5/TE-6 in/lb reference 35 Material [5]<	10	vollage.	Max		250	VIIIIS	movimum	
19 Output Power: Rated 4.3 (6.1) KWatts (np) mill, [1] 20 Inductance: Terminal (line-line) 0.647 Ohms ±10 % [1] 21 D.C. Resistance Terminal (line-line) 0.647 Ohms ±10 % [1] 22 Acceleration at Rated Torque 48945 rads/sec² Theoretical 23 Rotor Inertia 1028 kgm² * 1E-6 nominal 24 Damping 2.88 oz-in/ kpm nominal 25 Weight 37 Ibs. max. 26 Winding Temperature Rise (Above Ambient) [1] 145 °C (Celsius) meterence 27 Winding Temperature Rise (Above Ambient) [1] 145 °C (Celsius) ±5 °C 28 Insulation Class H - reference 29 Thermostat RESET Temperature 170 °C (Celsius) ±5 °C 31 Dielectric Strength, (Winding-to-Frame) 1750 VAC min. 32 Winding Capacitance to Frame 0.0038 µF max. 33 IP Classification 65 max. <td>10</td> <td>Output Davian</td> <td>Niax Datad</td> <td></td> <td>200</td> <td></td> <td></td>	10	Output Davian	Niax Datad		200			
21 D.C. Resistance Terminal (line-line) 14 mH ± 30% 21 D.C. Resistance Tennal (line-line) 0.647 Ohms ± 10 % [1] 22 Acceleration at Rated Torque 48945 rads/sec² Theoretical 23 Rotor Inertia 1028 kgm² * 1E-6 nominal 24 Damping 2.88 oz-in / kpm nominal 25 Weight 37 Ibs. max. 26 Winding Temperature Rise (Above Ambient) [1] 145 °C (Celsius) reference 28 Insulation Class H - reference reference 29 Thermostat RESET Temperature 135 °C (Celsius) ±5 °C 30 Thermostat RESET Temperature 135 °C (Celsius) ±5 °C 31 Dielectric Strength, (Winding-to-Frame) 1750 VAC min. 33 IP Classification 65 rated standard 34 Shaft: Radial-Play RC#30 - - reference 36 Material [5] Material [5] NC#3	19				4.5 (6.1)		min. [1]	
21 D.C. Resistance lerminal (ine-line) 0.647 Ohms ±10% [1] 22 Acceleration at Rated Torque 48945 rads/sec ² Theoretical 23 Rotor Inertia 1028 kgm ² * 1E-6 nominal nominal 24 Damping 2.88 oz-in / kpm max. max. 26 Winding Temperature 170 [4] °C (Celsius) max. 27 Winding Temperature Rise (Above Ambient) [1] 145 °C (Celsius) ±5 °C 28 Insulation Class H - reference reference 29 Thermostat RESE T Temperature 1750 VAC min. max. 31 Dielectric Strength, (Winding-to-Frame) 1750 VAC min. max. 33 IP Classification 65 rated standard standard 34 Shaft: Radial-Play 2E-5/7E-6 in/lb reference reference 36 Material [5] RC #30 - reference - - 37 Loading [6] 1000 rpm 193.3 <t< td=""><td>20</td><td>Inductance:</td><td>lerminal (line-line)</td><td></td><td>14</td><td>mH</td><td>± 30%</td></t<>	20	Inductance:	lerminal (line-line)		14	mH	± 30%	
22 Acceleration at Rated Torque 48945 rad3/sec ² Theoretical 23 Rotor Inertia 1028 kgm² * 1E-6 nominal 24 Damping 2.88 oz-in / krpm nominal 25 Weight 37 lbs. max. 26 Winding Temperature Rise (Above Ambient) [1] 145 °C (Celsius) max. 27 Winding Temperature Rise (Above Ambient) [1] 145 °C (Celsius) ±5 °C 28 Insulation Class H - reference 29 Thermostat RESET Temperature 135 °C (Celsius) ±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 2E-577E-6 in/lb reference 36 Material [5] 2000 rpm 193.3 lbs. max. [7] 37 Bearing Class, Internal/External 1/Class 3 ABEC/AFBMA reference	21	D.C. Resistance	lerminal (line-line)		0.647	Ohms	± 10 % [1]	
23 Rotor Inertia 1028 kg/m² + 1E-6 nominal 24 Damping 2.88 oz-in / krpm nominal 25 Weight 37 lbs. max. 26 Winding Temperature 170 [4] °C (Celsius) max. 27 Winding Temperature (Above Ambient) [1] 145 °C (Celsius) ±5 °C 28 Insulation Class H - reference 29 Thermostat TRP Temperature 170 °C (Celsius) ±5 °C 30 Thermostat TRESET Temperature 135 °C (Celsius) ±5 °C 31 Dielectric Strength, (Winding-to-Frame) 1750 VAC min. 32 Winding Capacitance to Frame 0.0038 µF max. 34 Shaft: Radial-Play 2E-5/TE-6 in/lb reference 35 Material [5] RC-#30 - - - 36 Magnet Type NdFeB - - - 37 Loading [6] 1000 rpm 243.5 lbs. max. [7] 3000 rpm 16	22	Acceleration at Rated	d Torque		48945	rads/sec ²	Theoretical	
24 Damping 2.88 oz.in / krpm nominal 25 Weight 37 Ibs. max. 26 Winding Temperature Rise (Above Ambient) [1] 145 °C (Celsius) reference 28 Insulation Class H reference 29 Thermostat TRIP Temperature 170 °C (Celsius) ±5 °C 30 Thermostat RESET Temperature 135 °C (Celsius) ±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 2E-5/TE-6 in/lb reference 35 Material [5] RC-#30 - reference 36 Magnet Type NdFeB - - 37 Loading [6] 1000 rpm 243.5 lbs. max. [7] 38 Bearing Class, Internal/External 1/Class 3 ABEC/AFBMA reference 39 Bearing Grease SRI #2 Manufacturer reference 40 Shaft Seal Pressure 0.21 (3) wag/orm 2 (psi) max.	23	Rotor Inertia			1028	kgm ² * 1E-6	nominal	
25 Weight 37 Ibs. max. 26 Winding Temperature 170 [4] °C (Celsius) max. 27 Winding Temperature Rise (Above Ambient) [1] 145 °C (Celsius) reference 28 Insulation Class H - reference 29 Thermostat TRIP Temperature 170 °C (Celsius) ±5 °C 30 Thermostat RESET Temperature 135 °C (Celsius) ±5 °C 31 Dielectric Strength, (Winding-to-Frame) 1750 VAC min. 32 Winding Capacitance to Frame 0.0038 µF max. 34 Shaft: Radial-Play 2E-5/7E-6 in/lb reference 35 Magnet Type NdFeB - - reference 36 Magnet Type NdFeB - - reference 37 Loading [6] 1000 rpm 243.5 lbs. max. [7] 38 Bearing Class, Internal/External 1/Class 3 ABEC/AFBMA reference 40 Shaft Seal Pressure 0.21 (3) kg/cm² (psi) max. 41 Basic Motor Design 3 phase wye connected 2(P/2) 42 Stator Phase Sequence—CW rotor rotation A-C-E (vie	24	Damping			2.88	oz-in / krpm	nominal	
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28 Insulation Class H	27	Winding Temperature	Rise (Above Ambient) [1]		145	°C (Celsius)	reference	
29Thermostat TRIP Temperature170°C (Celsius) $\pm 5 ^{\circ}$ C30Thermostat RESET Temperature135°C (Celsius) $\pm 5 ^{\circ}$ C31Dielectric Strength, (Winding-to-Frame)1750VACmin.32Winding Capacitance to Frame0.0038 μ Fmax.33IP Classification65ratedstandard34Shaft:Radial-Play2E-5/TE-6in/lbreference36Material [5]RC-#30-reference36Magnet TypeNdFeB37Loading [6]1000 rpm243.5lbs.max. [7]38Bearing Class, Internal/External1/Class 3ABEC/AFBMAreference39Bearing GreaseSRI #2Manfacturerreference41Basic Motor Design3 phase wye connected 2(P/2)max.[7]41Basic Motor Design3 phase wye connected 2(P/2)max.4141Basic Motor Design3 phase wye connected 2(P/2)max.42Stator Phase Sequence—CW rotor rotationA-C-B (viewed from front face plate)44Resolver Type/AccuracySingle-Speed; Rotor-Excited; \pm 7 arc min.45Resolver Type/AccuracySingle-Speed; Rotor-Excited; \pm 7 arc min.48Options:Brake—24VDC (0.93A)—8.0 Nm holding torque IP67 Classification Incremental Encoder Tachometer No Keyway[5][1]25°C Ambient[6]Coads centered 1 inch from mounting flange[3]Measured at	28	Insulation Class	, , , , , ,		Н	_	reference	
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101 101 101 101 33 IP Classification 65 rated standard 34 Shaft: Radial-Play 2E-5/7E-6 in/lb reference 36 Magnet Type NdFeB - - reference 37 Loading [6] 1000 rpm 243.5 lbs. max. [7] 3000 rpm 193.3 lbs. max. [7] max. [7] 3000 rpm 2000 rpm N/A lbs. max. [7] 38 Bearing Class, Internal/External 1/Class 3 ABEC/AFBMA reference 39 Bearing Grease SRI #2 Manufacturer reference 39 Bearing Grease SRI #2 Manufacturer reference 41 Basic Motor Design 3 phase wye connected 2(P/2) max. 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 Cable Part Number 71-01177-xx 45 Resolver Cable Part Number 71-01177-xx 46 Standard Motor Cable Part Number 71-011775-xx 48 Options: Brake—24VDC (0.93A)—8.0 Nm holding torque IP67 Classification Incremental Encoder Tachometer No	32	Winding Canacitance	to Frame		0.0038	uF	max	
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36 Magnet Type NdFeB – – 37 Loading [6] 1000 rpm 243.5 lbs. max. [7] 30 2000 rpm 193.3 lbs. max. [7] 30 Bearing Class, Internal/External N/A lbs. max. [7] 38 Bearing Class, Internal/External 1/Class 3 ABEC/AFEMA reference 39 Bearing Grease SRI #2 Manufacturer reference 40 Shaft Seal Pressure 0.21 (3) kg/cm² (psi) max. 41 Basic Motor Design 3 phase wye connected 2(P/2) 42 42 Stator Phase Sequence—CW rotor rotation A-C-B (viewed from front face plate) 1 43 Vendor/Supplier Industrial Drives B-406-D 44 44 Resolver Type/Accuracy Single-Speed; Rotor-Excited; ± 7 arc min. 45 Resolver Manufacturer/Model # Fasco # 21-BRCX-335-J39 46 Standard Resolver Cable Part Number 71-011777-xx 47 Standard Motor Cable Part Number 71-011777-sx 48 Options: Brake—24VDC (0.93A)—8.0 Nm holding torque IP67 Classification Incremental Enc	35	Shan.	Material [5]		PC-#30		reference	
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Hoto print N/A Ibs. Indx. [7] 38 Bearing Class, Internal/External 1/Class 3 ABEC/AFBMA reference 39 Bearing Grease SRI #2 Manufacturer reference 40 Shaft Seal Pressure 0.21 (3) kg/cm ² (psi) max. 41 Basic Motor Design 3 phase wye connected 2(P/2) max. 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; ± 7 arc min. 45 Resolver Manufacturer/Model # Fasco # 21-BRCX-335-J39 46 Standard Resolver Cable Part Number 71-011777-xx 47 Standard Motor Cable Part Number 71-011775-xx 48 Options: Brake—24VDC (0.93A)—8.0 Nm holding torque IP67 Classification Incremental Encoder Tachometer No Keyway [1] 25°C Ambient [5] Rotor steel is rated as fatigue proof [2] 40°C Ambient [5] Rotor steel is rated as fatigue proof [3] Measured at 60 rpm (1 rps) in Velocity Mode [7] Loads may be radial and axial such that the sum of the radial and two times the axial does not exceed this figure.			4000 rpm		N/A	lbs.	max [7]	
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39 Bearing Grease SR #2 Manuacturer reference 40 Shaft Seal Pressure 0.21 (3) kg/cm² (psi) 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; ± 7 arc min. 45 Resolver Manufacturer/Model # Fasco # 21-BRCX-335-J39 46 Standard Resolver Cable Part Number 71-011777-xx 47 Standard Motor Cable Part Number 71-011775-xx 48 Options: Brake—24VDC (0.93A)—8.0 Nm holding torque IP67 Classification Incremental Encoder Tachometer No Keyway 8.0 Nm holding torque [1] 25°C Ambient [5] Rotor steel is rated as fatigue proof [2] 40°C Ambient [6] Loads centered 1 inch from mounting flange [3] Measured at 60 rpm (1 rps) in Velocity Mode [7] Loads may be radial and axial such that the sum of the radial and two times the axial does not exceed this figure.	20	Bearing Crass, Inten			1/01235 5 CDI #2	ADEC/AI DIVIA	reference	
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41 Dasic Motor Design 3 pnase 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; ± 7 arc min. 45 Resolver Manufacturer/Model # Fasco # 21-BRCX-335-J39 46 Standard Resolver Cable Part Number 71-011777-xx 47 Standard Motor Cable Part Number 71-011775-xx 48 Options: Brake—24VDC (0.93A)—8.0 Nm holding torque IP67 Classification Incremental Encoder Tachometer No Keyway No Keyway [1] 25°C Ambient [5] Rotor steel is rated as <i>fatigue proof</i> [2] 40°C Ambient [5] Rotor steel is rated as <i>fatigue proof</i> [3] Measured at 60 rpm (1 rps) in Velocity Mode [7] Loads may be radial and axial such that the sum of the radial and two times the axial does not exceed this figure.	40	Snan Seal Pressure			0.21(3)	kg/cm² (pSI)	max.	
42 Stator Phase Sequence—CVV 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; ± 7 arc min. 45 Resolver Manufacturer/Model # Fasco # 21-BRCX-335-J39 46 Standard Resolver Cable Part Number 71-011777-xx 47 Standard Motor Cable Part Number 71-011775-xx 48 Options: Brake—24VDC (0.93A)—8.0 Nm holding torque IP67 Classification Incremental Encoder Tachometer No Keyway Nm holding torque [1] 25°C Ambient [5] Rotor steel is rated as fatigue proof [2] 40°C Ambient [5] Rotor steel is rated as fatigue proof [3] Measured at 60 rpm (1 rps) in Velocity Mode [7] Loads may be radial and axial such that the sum of the radial and two times the axial does not exceed this figure.	41	Basic Motor Design			3 pnase wye connected 2(P/2)			
43 Vendor/Supplier Industrial Drives B-406-D 44 Resolver Type/Accuracy Single-Speed; Rotor-Excited; ± 7 arc min. 45 Resolver Manufacturer/Model # Fasco # 21-BRCX-335-J39 46 Standard Resolver Cable Part Number 71-011777-xx 47 Standard Motor Cable Part Number 71-011775-xx 48 Options: Brake—24VDC (0.93A)—8.0 Nm holding torque IP67 Classification Incremental Encoder Tachometer No Keyway Industrial Drives B-406-D [1] 25°C Ambient [5] Rotor steel is rated as fatigue proof [2] 40°C Ambient [5] Rotor steel is rated as fatigue proof [3] Measured at 60 rpm (1 rps) in Velocity Mode [7] Loads may be radial and axial such that the sum of the radial and two times the axial does not exceed this figure.	42	Stator Phase Sequence—CW rotor rotation			A-C-B (viewed from front face plate)			
44 Resolver Type/Accuracy Single-Speed; Rotor-Excited; ± 7 arc min. 45 Resolver Manufacturer/Model # Fasco # 21-BRCX-335-J39 46 Standard Resolver Cable Part Number 71-011777-xx 47 Standard Motor Cable Part Number 71-011775-xx 48 Options: Brake—24VDC (0.93A)—8.0 Nm holding torque IP67 Classification Incremental Encoder Tachometer No Keyway IP67 Classification Incremental Encoder Tachometer No Keyway [1] 25°C Ambient [5] Rotor steel is rated as <i>fatigue proof</i> [2] 40°C Ambient [5] Rotor steel is rated as <i>fatigue proof</i> [3] Measured at 60 rpm (1 rps) in Velocity Mode [7] Loads may be radial and axial such that the sum of the radial and two times the axial does not exceed this figure.	43	Vendor/Supplier			Industrial Drives	S B-406-D		
45 Resolver Manufacturer/Model # Fasco # 21-BRCX-335-J39 46 Standard Resolver Cable Part Number 71-011777-xx 47 Standard Motor Cable Part Number 71-011775-xx 48 Options: Brake—24VDC (0.93A)—8.0 Nm holding torque IP67 Classification Incremental Encoder Tachometer No Keyway IP67 Classification Incremental Encoder Tachometer No Keyway [1] 25°C Ambient [5] Rotor steel is rated as <i>fatigue proof</i> [2] 40°C Ambient [5] Rotor steel is rated as <i>fatigue proof</i> [3] Measured at 60 rpm (1 rps) in Velocity Mode [7] Loads may be radial and axial such that the sum of the radial and two times the axial does not exceed this figure.	44	Resolver Type/Accuracy			Single-Speed; Rotor-Excited; ± 7 arc min.			
46 Standard Resolver Cable Part Number 71-011777-xx 47 Standard Motor Cable Part Number 71-011775-xx 48 Options: Brake—24VDC (0.93A)—8.0 Nm holding torque IP67 Classification Incremental Encoder Tachometer No Keyway IP67 Classification Incremental Encoder Tachometer No Keyway [1] 25°C Ambient [5] Rotor steel is rated as <i>fatigue proof</i> [2] 40°C Ambient [5] Rotor steel is rated as <i>fatigue proof</i> [3] Measured at 60 rpm (1 rps) in Velocity Mode [7] Loads may be radial and axial such that the sum of the radial and two times the axial does not exceed this figure.	45	Resolver Manufacturer/Model #			Fasco # 21-BRCX-335-J39			
47 Standard Motor Cable Part Number 71-011775-xx 48 Options: Brake—24VDC (0.93A)—8.0 Nm holding torque IP67 Classification Incremental Encoder Tachometer No Keyway IP67 Classification Incremental Encoder Tachometer No Keyway [1] 25°C Ambient [5] Rotor steel is rated as <i>fatigue proof</i> IP67 Classification Incremental Encoder Tachometer No Keyway [1] 25°C Ambient [5] Rotor steel is rated as <i>fatigue proof</i> IP67 Classification Incremental Encoder Tachometer No Keyway [2] 40°C Ambient [5] Rotor steel is rated as <i>fatigue proof</i> IP67 Classification Incremental Encoder Tachometer No Keyway [3] Measured at 60 rpm (1 rps) in Velocity Mode [4] [7] Loads may be radial and axial such that the sum of the radial and two times the axial does not exceed this figure.	46	Standard Resolver Cable Part Number			71-011777-xx			
48 Options: Brake—24VDC (0.93A)—8.0 Nm holding torque IP67 Classification Incremental Encoder Tachometer No Keyway [1] 25°C Ambient [5] Rotor steel is rated as <i>fatigue proof</i> [2] 40°C Ambient [5] Rotor steel is rated as <i>fatigue proof</i> [3] Measured at 60 rpm (1 rps) in Velocity Mode [7] Loads may be radial and axial such that the sum of the radial and two times the axial does not exceed this figure.	47	Standard Motor Cable	e Part Number		71-011775-xx			
IP67 Classification Incremental Encoder Tachometer No Keyway [1] 25°C Ambient [5] Rotor steel is rated as fatigue proof [2] 40°C Ambient [6] Loads centered 1 inch from mounting flange [3] Measured at 60 rpm (1 rps) in Velocity Mode [7] Loads may be radial and axial such that the sum of the radial and two times the axial does not exceed this figure.	48	Options:	Brake—24VDC (0.93A)—8	3.0 Nm	holding torque			
Incremental Encoder Tachometer No Keyway [1] 25°C Ambient [5] Rotor steel is rated as fatigue proof [2] 40°C Ambient [6] Loads centered 1 inch from mounting flange [3] Measured at 60 rpm (1 rps) in Velocity Mode [7] Loads may be radial and axial such that the sum of the radial and two times the axial does not exceed this figure.		IP67 Classification						
Tachometer No Keyway[1] 25°C Ambient[5] Rotor steel is rated as fatigue proof[2] 40°C Ambient[6] Loads centered 1 inch from mounting flange[3] Measured at 60 rpm (1 rps) in Velocity Mode[7] Loads may be radial and axial such that the sum of the radial and two times the axial does not exceed this figure.		Incremental Encoder						
No Keyway[1] 25°C Ambient[5] Rotor steel is rated as fatigue proof[2] 40°C Ambient[6] Loads centered 1 inch from mounting flange[3] Measured at 60 rpm (1 rps) in Velocity Mode[7] Loads may be radial and axial such that the sum of the[4] Rated for 20,000 hours or 40,000 hours @ 155°Cradial and two times the axial does not exceed this figure.		Tachometer						
 [1] 25°C Ambient [2] 40°C Ambient [3] Measured at 60 rpm (1 rps) in Velocity Mode [4] Rated for 20,000 hours or 40,000 hours @ 155° C [5] Rotor steel is rated as <i>fatigue proof</i> [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. 			No Keyway					
 [2] 40°C Ambient [3] Measured at 60 rpm (1 rps) in Velocity Mode [4] Rated for 20,000 hours or 40,000 hours @ 155° C [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. 	[1] 25°	C Ambient		[5] Ro	otor steel is rated	as fatigue proof	<i>a</i>	
[3] Measured at 60 rpm (1 rps) in Velocity Mode[7] Loads may be radial and axial such that the sum of the[4] Rated for 20,000 hours or 40,000 hours @ 155° Cradial and two times the axial does not exceed this figure.	[2] 40°	C Ambient		[6] Lo	ads centered 1 i	nch from mounting	tlange	
[4] Rated for 20,000 hours of 40,000 hours @ 155° C radial and two times the axial does not exceed this figure.	[3] Me	asured at 60 rpm (1 rps	s) in Velocity Mode	[7] Lo	ads may be radi	al and axial such th	hat the sum of the	
	[4] Ra	ted for 20,000 hours or	'40,000 hours @ 155° C	ra	dial and two time	s the axial does no	ot exceed this figure.	

Z635 Motor Specifications

1 Constant (s): Torque 291.5 oc-in/A rms ± 10% 3 Electrical Time 124.5 wms/Krpm ± 10% 4 Mechanical Time 28.2 milliseconds nominal 5 Torque (s): Continuous, Stall 4640 oz-in min. [1] 7 Continuous, Rated 3955 oz-in min. [2] 9 Peak, Max w/s Saturation 7/3 oz-in max. 10 Static Friction 7/3 oz-in max. 11 Ripple (of Rated Torque) 4.5 percent max. 12 Speed: Rated 1600 rpm reference 13 Maximum 1600 rpm reference 14 Frequency Rated 15 A rms max. 16 Current: Rated 230 V rms reference 13 Output Power: Rated 4367 Arms nominal 16 Current: Rat		Motor Size:	Z640		Value	Units	Tolerance
2 Voltage (Sinusodia) 124.5 V malkrpm ± 10% 4 Mechanical Time 0.55 milliseconds nominal 6 Torque (s): Continuous, Stall 4400 oz-in mill.1[1] 7 Continuous, Stall 4478 oz-in min.1[2] 8 Continuous, Stall 4378 oz-in min.1[2] 9 Peak, Max woll Saturation 73 oz-in min.1[2] 10 Static Friction 73 oz-in max. 11 Ripple (of Rated Torque) 4.5 percent max. 12 Speed: Rated 1600 pm reference 14 Frequency Rated 15 Arms max. 11 Current: Rated 200 V ms max. 12 D.C. Resistance 203 V ms reference 14 Paceleration at Rated Torque 2034 Kwati (pp) min.1[1] 12 D.C. Resistance Terminal (in	1	Constant (s):	Torque		291.5	oz-in/A rms	± 10%
3 Electrical Time 26.2 milliseconds nominal 5 Thermal 33 milliseconds nominal 6 Torque (s): Continuous, Stall 4440 0.2-in mill.12 7 Continuous, Stall 4578 0.2-in min. [2] 8 Continuous, Rated 3865 0.2-in min. [2] 9 Peak, Max wo Saturation 73 0.2-in max. [3] 11 Ripple (of Rated Torque) 4.5 percent max. [3] 12 Speed: Rated 1600 pm reference 13 Current: Rated 15 A rms nominal 14 Frequency Rated 220 V rms max. [1] 14 Votage: Rated 4.5 A rms nominal 15 A rms nominal min. [1] min. [1] min. [1] 16 Urbage: Rated 4.5 Minstrum min. [1] 16 D	2		Voltage (Sinusodial)		124.5	V rms/Krpm	± 10%
4Mechanical lime0.55millisecondsnominal5Torque (s):Continuous, Stall46400.2-inmin. [1]7Continuous, Stall45780.2-inmin. [2]8Continuous, Rated39850.2-inmin. [1]9Peak, Max Wo Saturation124610.2-inmin. [1]10Static Friction730.2-inmin. [1]11Speed:Rated1600pmreference12Speed:Rated1600pmreference13FrequencyRated160pmreference14FrequencyRated200V rmsreference15Curent:Rated250V rmsreference18Output Power:Rated200rmH \pm 30% \pm 10% [1]20Inductance:Terminal (ine-line)20rmH \pm 30% \pm 10% [1]21D.C. ResistanceTerminal (ine-line)20rmH \pm 30% \pm 10% [1]22Rotor Inertia203467rads/sec ² Theoretical23Rotor Inertia20467rads/sec ² nominal24Damping15.36oz-in / krpmnominal25Weight51Ibs.max.26Winding Temperature170 [4]'C (Celsius)reference27Winding Temperature170'C (Celsius)± 5° C28Insultator ClassHe170'C (Celsius)	3		Electrical Time		26.2	milliseconds	nominal
5 Inernal 33 Innules nominal 6 Torque (s): Continuous, Stall 4840 oz-in min. [1] 7 Continuous, Stall 4978 oz-in min. [2] 9 Peak, Max wo Saturation 12461 oz-in max. 3 10 Static Friction 73 oz-in max. 3 11 Rippie (of Rated Torque) 4.5 percent max. 3 12 Speed: Rated 1600 rpm reference 13 Current: Rated 15 A rms nominal 16 Peak 45 A rms nominal 17 Voltage: Rated 230 V rms max. 11 16 Dupt Power: Rated 4.7 (6.3) Wvats (hp) min. [1] 17 Voltage: Rated 4.7 (6.3) kvats (hp) min. [1] 17 Voltage: Rated 15.0 0.5.0 max. 16 D.C. Resistance	4		Mechanical Lime		0.55	milliseconds	nominal
6 Lorque (s): Continuous, Stall 4940 D2-in min. [1] 8 Continuous, Stall 4378 D2-in min. [2] 9 Peak, Max Wo Saturation 73 D2-in min. [1] 10 Static Friction 73 D2-in min. [1] 11 Ripple (of Rated Torque) 4.5 percent max. [3] 12 Speed: Rated 80 Hz max. 13 Maximum 1600 rpm reference 14 Frequency Rated 80 Hz max. 15 Current: Rated 250 V rms maximum 16 Curent: Rated 47 (6.3) Watts (hp) min. [1] 20 Inductance: Terminal (ine-line) 0.763 Ohms ± 30% 21 D.C. Resistance Terminal (ine-line) 0.763 Ohms ± 10 % [1] 24 Damping 15.3 Ozin / Kpm nominial 25	5	T ()			33	minutes	nominal
7Continuous, Rated Continuous, Rated Static Friction Reak, Max wo Saturation Static Friction Ripple (of Rated Torque)436 3855 0.2-in 12461Oz-in max, [3] max, [3]11Speed: Rated MaximumRated 1600pm reference referencemax, [3] reference12Speed: Rated Maximum1600 1600pm reference13Frequency Rated Peak80 45Hz max, [1]16Current: PeakRated 4516 A rms max, [1]17Voltage: Voltage: RatedRated 4545 A rms moninal19Output Power: Rated Ductance: Caresistance Permial (ine-line)0.763 2034Vms treference 43667 rads/sec2 Theoretical 2034 Mgm2*1E-6 15.36 2034 	6	Torque (s):	Continuous, Stall		4640	oz-in	min. [1]
aContinuous, Rated Peak, Max Wo Saturation Static Friction13461 7302-11Init. [1] max.10Static Friction Ripple (of Rated Torque)12461 4.502-11 percentmax.11Speed: RatedRated Hoto1600 rpmreference reference13Frequency requency Rated80Hz reference14Frequency RatedRated15A rms rms nominal15Current: MaximumRated230V rms reference18Max Max250V rms reference19Output Power: RatedRated4.7 (6.3)KWats (hp) rakimum20Inductance: Inductance: Terminal (line-line)20rrds/sec² rads/sec²Theoretical23Rotor Inertia Power Roting Temperature2034kgm² 1E-6 rads/sec²Theoretical24Damping15.36oz-in / krpm rominalrads/sec² theoretical25Weight51Ibs. referencereference26Winding Temperature Rise (Above Ambient) [1]145 reference"C (Celsius) theoretical27Winding Temperature Rise (Above Ambient) [1]145 reference"C (Celsius) theoretical28Insulation Class regeture170 [4] reference"C (Celsius) theoretical29Thermostat RESET temperature170 reference"C (Celsius) theoretical30Thermostat RESET temperature1750 referenceNake reference<	/		Continuous, Stall		4378	oz-in	min. [2]
51313131411 <td>0 0</td> <td></td> <td>Peak Max w/o Saturati</td> <td>n</td> <td>12/61</td> <td>02-111 07-in</td> <td>min $[1]$</td>	0 0		Peak Max w/o Saturati	n	12/61	02-111 07-in	min $[1]$
11 Ripple (of Rated Torque) 4.5 percent max [3] 12 Speed: Rated 1600 rpm reference 13 Frequency Rated 1600 rpm reference 14 Frequency Rated 15 A rms max. 15 Current: Rated 15 A rms nominal 16 Peak 45 A rms nominal 17 Voltage: Rated 230 V rms reference 18 Output Power: Rated 201 Vms reference 19 Output Power: Rated 0.763 Ohms ± 10% [1] 24 Decleration at Rated Torque 0.763 Ohms ± 10% [1] 24 Damping 15.36 ozrin / krpm nominal 25 Weight 51 lbs. max. max. 26 Winding Temperature 170 °C (Celsius) ± 5°C 27 Winding Temper	10		Static Friction	511	73	oz-in	max
12 Speed: Rated 1600 rpm reference 13 Maximum 1600 rpm reference 14 Frequency Rated 80 Hz max. 15 Current: Rated 15 A rms nominal 16 Current: Rated 230 V rms reference 17 Voltage: Rated 230 V rms reference 18 Output Power: Rated 4.7 (6.3) KWatts (hp) min. [1] 19 Output Power: Rated 4.7 (6.3) KWatts (hp) min. [1] 24 Dc. Resistance Terminal (line-line) 0.763 Ohms ± 10% [1] 25 Weight Tated 2034 kgm2* 1E-6 nominal 24 Darping 15.36 oz-in / krpm nominal 26 Winding Temperature Rise (Above Ambient) [1] 145 °C (Celsius) reference 27 Winding Temperature Rise (Above Ambient) [1] 170	11		Ripple (of Rated Torque)	4.5	percent	max. [3]
13 Maximum 1600 pm 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 reference 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) 204 kgm2*1E-6 nominal 23 Rotor Inertia 2034 kgm2*1E-6 nominal max. 24 Damping 15.36 0.2*in / kpm nominal max. 25 Weight 51 liss. max. max. 26 Winding Temperature Rise (Above Ambient) [1] 145 C (Celsius) ±10 *C	12	Speed:	Rated	/	1600	rpm	reference
14 Frequency Rated 80 Hz max. 15 Current: Rated 15 A rms max. [1] 16 Peak 45 A rms max. [1] 17 Voltage: Rated 230 V rms reference 18 Max 250 V rms maximum 19 Output Power: Rated 4.7 (6.3) KWatts (pp) min. [1] 20 Inductance: Terminal (line-line) 0.763 Ohms ± 10% (1) 22 Acceleration at Rated Torque 43667 rads/sec ² Theoretical 32 Rotor Inertia 2034 kgm ² * 1E-6 nominal max. 24 Damping 15.36 oz:n / kpm nominal max. 25 Weight 51 Ibs. max. reference 28 Insulation Class H - reference reference 29 Thermostat RESET Temperature 175 VAC min.	13		Maximum		1600	rpm	reference
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 nH ± 30% 11 D.C. Resistance Terminal (line-line) 0.763 Ohms ± 10 % (1] 21 Acceleration at Rated Torque 43667 rads/sec ² Theoretical 23 Rotor Inertia 2034 kgm² + 16 nominal 24 Damping 15.36 oz-in / krpm nominal 25 Weight 51 lbs. max. reference 26 Winding Temperature Rise (Above Ambient) [1] 145 C (Celsius) ±5 °C 30 Thermostat RESET Temperature 135 °C (Celsius) ±10 °C <	14	Frequency	Rated		80	Hz	max.
16 Peak 45 A rms nominal 17 Volage: Rated 230 V rms reference 18 Output Power: Rated 250 V rms reference 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 2034 kgm ² * 1E-6 nominal 24 Damping 15.36 c2-in / kym nominal 25 Weight 51 lbs. max. 26 Winding Temperature Rise (Above Ambient) [1] 145 °C (Celsius) max. 27 Winding Temperature Rise (Above Ambient) [1] 145 °C (Celsius) ± 5 °C 28 Insulation Class H — reference 29 Thermostat RESET Temperature 170 °C (Celsius) ± 5 °C 30 Thermostat RESET Temperature 170 °C (Celsius) max. 31 Delectric Strength, (Winding-	15	Current:	Rated		15	A rms	max. [1]
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 rrH ± 30% 21 D.C. Resistance Terminal (line-line) 0.763 Ohms ± 10 % [1] 22 Acceleration at Rated Torque 43667 rads/sec² Theoretical 23 Rotor Inertia 2034 kgm² tE-6 nominal 24 Damping 15.36 oz-in / kym nominal 25 Weight 51 lbs. max. 26 Winding Temperature 170 *C (Celsius) tference 28 Insulation Class H reference 29 Thermostat TREP Temperature 170 *C (Celsius) ±10 *C 200 Thermostat RESET Temperature 135 *C (Celsius) ±10 *C 31 Dielectric Strenght, (Winding-to-Frame) 0.0082 µF max. <	16		Peak		45	A rms	nominal
18Max250V msmaximum19Output Power:Rated4.7 (6.3)kWatts (hp)min. [1]20Inductance:Terminal (line-line)20mH $\pm 30\%$ 21D.C. ResistanceTerminal (line-line)0.763Ohms $\pm 10\%$ (1]22Acceleration at Rated Torque43667rads/sec ² Theoretical23Rotor Inertia2034kgm ² 1E-6nominal24Damping15.36oz-in / kpmnominal25Weight51libs.max.26Winding Temperature170 [4]°C (Celsius)max.27Winding Temperature Rise (Above Ambient) [1]145°C (Celsius)tefference28Insulation ClassH-reference29Thermostat REST Temperature135°C (Celsius) ± 5 °C30Thermostat REST Temperature135°C (Celsius) ± 10 °C31Dielectric Strength, (Winding-to-Frame)1750VACmin.32Winding Capacitance to Frame0.0082µFmax.33IP Classification65 [8]ratedstandard34Shaft:Radial-Play1E-5/4E-6in/lbreference36Material [5]RC-#30reference37Loading [6] 1000 rpmN/Albs.max. [7]38Bearing Class, Internal/External1/class 3ABEC/AFBMAreference39Bearing GreaseSRI	17	Voltage:	Rated		230	V rms	reference
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/sec² Theoretical 23 Rotor Inertia 2034 kgm² * 1E-6 nominal 24 Damping 15.36 oz-in / kpm nominal 25 Weight 51 lbs. max. 26 Winding Temperature 170 [4] -C (Celsius) reference 27 Winding Temperature Rise (Above Ambient) [1] 145 -C (Celsius) ± 5°C 30 Thermostat TRIP Temperature 170 °C (Celsius) ± 5°C 30 Thermostat RESE Tremperature 135 °C (Celsius) ± 10 °C 31 Dielectric Strength, (Winding-to-Frame) 1750 VAC min. 34 Shaft: Radial-Play 1E-5/4E-6 in/lb reference 36 Material [5] Material [5]	18		Max		250	V rms	maximum
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 2034 kgm ² * 1E-6 nominal 24 Damping 15.36 oz-in / krpm nominal 25 Weight 51 lbs. max. 26 Winding Temperature Rise (Above Ambient) [1] 145 °C (Celsius) reference 28 Insulation Class H - reference reference 29 Thermostat TRIP Temperature 135 °C (Celsius) ± 5 °C 30 Thermostat RESET Temperature 1750 VAC min. 29 Thermostat RESET Temperature 1750 VAC min. 31 Delectric Strength, (Winding-to-Frame) 0.763 - reference 33 IP Classification 65 [8] rated standard 34 Shaft: Radial-Play RC+#30 - -	19	Output Power:	Rated		4.7 (6.3)	kWatts (hp)	min. [1]
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 2034 kgm ² * 1E-6 nominal 24 Damping 15.36 oz-in / kpm nominal 25 Weight 51 lbs. max. 26 Winding Temperature Rise (Above Ambient) [1] 145 °C (Celsius) max. 27 Winding Temperature Rise (Above Ambient) [1] 145 °C (Celsius) ± 5 °C 28 Insulation Class H - reference 29 Thermostat RESET Temperature 135 °C (Celsius) ± 5 °C 30 Thelectric Strength, (Winding to-Frame) 1750 VAC min. 31 Dielectric Strength, (Winding to-Frame) 1750 VAC min. 33 IP Classification 65 [8] rated standard 34 Shaft: Radial-Play 1E-5/4E-6 in/lb reference 36 Material [5] Kg.#30 max. [7] max. </td <td>20</td> <td>Inductance:</td> <td>Terminal (line-line)</td> <td></td> <td>20</td> <td>mH</td> <td>± 30%</td>	20	Inductance:	Terminal (line-line)		20	mH	± 30%
22 Acceleration at Rated Torque 43667 rad/sec ² Theoretical 23 Rotor Inertia 2034 kgm ² * 1E-6 nominal 24 Damping 15.36 oz-in / kpm nominal 25 Weight 51 lbs. max. 26 Winding Temperature Rise (Above Ambient) [1] 145 °C (Celsius) reference 28 Insulation Class H - reference 29 Thermostat REP Temperature 170 °C (Celsius) ± 10 °C 30 Thermostat RESET Temperature 135 °C (Celsius) ± 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 1E-5/4E-6 in/b reference 36 Magnet Type N/A lbs. max. [7] 3000 rpm N/A lbs. max. [7] 37 Loading [6] 1000 rpm Solo rpm<	21	D.C. Resistance	Terminal (line-line)		0.763	Ohms	± 10 % [1]
22 Rotor Inertia 2034 kg/m² + 1E-6 nominal 24 Damping 15.36 oz-in / krpm nominal 25 Weight 51 lbs. max. 26 Winding Temperature 170 [4] °C (Celsius) max. 27 Winding Temperature (Celsius) reference reference 28 Insulation Class H reference 29 Thermostat TRPSET Temperature 170 °C (Celsius) ± 5 °C °C 30 Thermostat RESET Temperature 135 °C (Celsius) ± 10 °C °C 31 Dielectric Strength, (Winding-to-Frame) 1760 VAC min. 32 Winding Capacitance to Frame 0.0082 µF max. 34 Shaft: Radial-Play 1E-5/4E-6 in/lb reference 36 Material [5] RC-#30 - - - 37 Loading [6] 1000 rpm 255.6 lbs. max. [7] 3000 rpm N/A lbs. max. [7] 38 Bearing Grease SRI #2 Manufacturer <td>22</td> <td>Acceleration at Rated</td> <td>d Torque</td> <td></td> <td>43667</td> <td>rads/sec²</td> <td>Theoretical</td>	22	Acceleration at Rated	d Torque		43667	rads/sec ²	Theoretical
24 Damping 15.36 oz. in / krpm nominal 25 Weight 51 lbs. max. 26 Winding Temperature Rise (Above Ambient) [1] 145 °C (Celsius) reference 28 Insulation Class H - (Celsius) t.5°C 29 Thermostat TRIP Temperature 170 °C (Celsius) ±5°C 30 Thermostat RESET Temperature 135 °C (Celsius) ±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 1E-5/4E-6 in/lb reference 36 Magnet Type NdFeB - - - 37 Loading [6] 1000 rpm N/A lbs. max. [7] 38 Bearing Class, Internal/External 1/Class 3 ABEC/AFBMA reference 40 Shaft Seal Pressure 0.21 (3) kg/cm² (psi) max. 41 Basic Motor Design 3 phase wye connected 3(P/2) max. 42 Stand rad Resolver Type/Accuracy Single	23	Rotor Inertia			2034	kgm ² * 1E-6	nominal
25 Weight 51 Ibs. max. 26 Winding Temperature 170 [4] °C (Celsius) max. 27 Winding Temperature Rise (Above Ambient) [1] 145 °C (Celsius) reference 28 Insulation Class H - reference 29 Thermostat TRIP Temperature 170 °C (Celsius) ±5 °C 30 Thermostat RESET Temperature 135 °C (Celsius) ±10 °C 31 Dielectric Strength, (Winding-to-Frame) 1750 VAC min. 32 Winding Capacitance to Frame 0.0082 µF max. 31 P Classification 65 [8] rated standard 34 Shaft: Radial-Play 1E-5/4E-6 in/lb reference 35 Material [5] RC-#30 - - reference 36 Magnet Type N/A Ibs. max. [7] 2000 rpm N/A Ibs. max. [7] 30 2000 rpm N/A Ibs. max. [7] 3000 rpm N/A Ibs. max. [7] 38 Bearing Class, Internal/External 1/Class 3 ABEC/AFBMA reference 39 Bearing Grasse SRI #2 Manufactu	24	Damping			15.36	oz-in / krpm	nominal
26 Winding Temperature 170 [4] °C (Celsius) max. 27 Winding Temperature Rise (Above Ambient) [1] 145 °C (Celsius) reference 28 Insulation Class H - reference 29 Thermostat TRIP Temperature 170 °C (Celsius) ±5 °C 30 Thermostat RESET Temperature 1750 VAC min. 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 1E-5/4E-6 in/lb reference 36 Magnet Type NdFeB - - - 37 Loading [6] 1000 rpm 255.6 lbs. max. [7] 38 Bearing Class, Internal/External 1/Class 3 ABEC/AFBMA reference 39 Bearing Grease SRI #2 Manufacturer reference 400 Shaft Seal Pressure 0.21 (3) kg/cm ² (pi) ma	25	Weight			51	lbs.	max.
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Z640 Motor Specifications

Speed/Torque Curves

The following speed/torque curves represent the available shaft torque at different operating speeds. Operation at 120VAC and 240VAC is shown for each motor size. Actual motor torque may vary $\pm 10\%$ due to motor manufacturing variances. For operation from a 1-phase 120VAC, the output torque stays relatively constant and the top-end speed falls off at the ratio of the input voltage (i.e., A Z610 operating at 240VAC has a rated speed of 7000 rpm; operating at 120VAC, it will have a rated speed of 3500 rpm).



Helpful Hint: Continuous Duty means steady state operation for drive ambient temperatures of 0°C to 50°C. Intermittent Duty means operation for 3.3 seconds or less.



Chapter 7 Hardware Reference

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