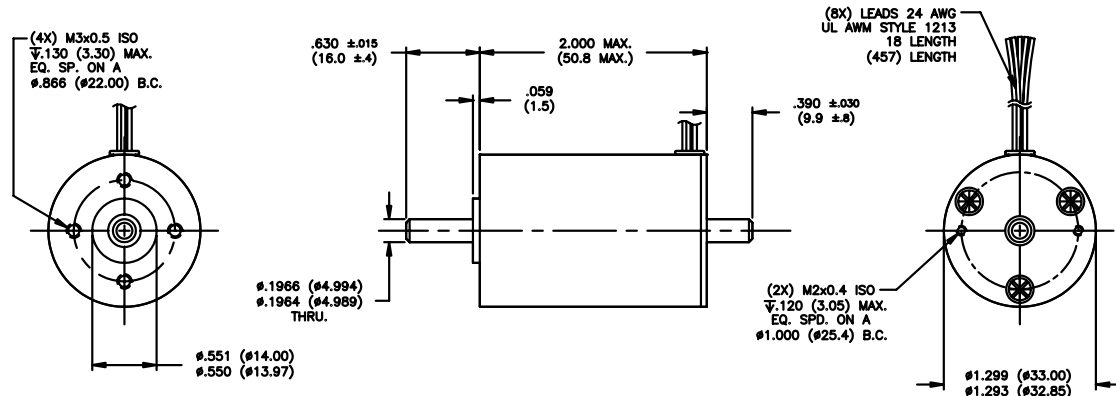


Specification	Units	Part/Model Number							
		1301 4.78 V	1301 6.0 V	1301 7.58 V	1301 9.55 V	1301 12.0 V	1301 15.2 V	1301 19.1 V	1301 24.0 V
Supply Voltage	VDC	4.78	6.0	7.58	9.55	12.0	15.2	19.1	24.0
Continuous Torque	oz-in Nm	3.5 0.0247	3.5 0.0247	3.5 0.0247	3.5 0.0247	3.5 0.0247	3.5 0.0247	3.5 0.0247	3.5 0.0247
Speed @ Cont. Torque	RPM	3500	3910	4140	4390	4580	4560	4660	4780
Current @ Cont. Torque	Amps (A)	5.01	4.00	3.08	2.50	2.00	1.54	1.25	1.00
Continuous Output Power	Watts (W)	9.1	10.1	10.7	11.4	11.9	11.7	12.1	12.4
Motor Constant	oz-in/sqrt W	1.4	1.5	1.5	1.5	1.6	1.6	1.6	1.6
	Nm/sqrt W	0.01	0.011	0.011	0.011	0.011	0.011	0.011	0.011
Torque Constant	oz-in/A	0.879	1.095	1.433	1.758	2.204	2.853	3.515	4.394
	Nm/A	0.006	0.008	0.01	0.012	0.016	0.02	0.025	0.031
Voltage Constant	V/krpm	0.65	0.81	1.06	1.30	1.63	2.11	2.60	3.25
	V/rad/s	0.006	0.008	0.01	0.012	0.016	0.02	0.025	0.031
Terminal Resistance	Ohms	0.39	0.57	0.86	1.29	1.94	3.14	4.81	7.36
Inductance	mH	0.14	0.22	0.38	0.57	0.90	1.5	2.3	3.6
No-Load Current	Amps (A)	0.45	0.36	0.28	0.23	0.18	0.14	0.11	0.09
No-Load Speed	RPM	7070	7120	6940	7110	7160	6980	7130	7170
Peak Current	Amps (A)	12.1	10.5	8.79	7.40	6.18	4.84	3.97	3.26
Peak Torque	oz-in	10.3	11.2	12.2	12.6	13.2	13.4	13.6	14.0
	Nm	0.0727	0.0791	0.0861	0.089	0.0932	0.0946	0.096	0.0988
Coulomb Friction Torque	oz-in	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
	Nm	0.0028	0.0028	0.0028	0.0028	0.0028	0.0028	0.0028	0.0028
Viscous Damping Factor	oz-in/krpm	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014
	Nm s/rad	9.4E-7	9.4E-7	9.4E-7	9.4E-7	9.4E-7	9.4E-7	9.4E-7	9.4E-7
Electrical Time Constant	ms	0.36	0.39	0.44	0.44	0.46	0.48	0.48	0.49
Mechanical Time Constant	ms	12	11	10	10	9.4	9.0	9.1	8.9
Thermal Time Constant	min	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8
Thermal Resistance	Celsius/W	15	15	15	15	15	15	15	15
Max. Winding Temperature	Celsius	130	130	130	130	130	130	130	130
Rotor Inertia	oz-in-sec ²	0.00017	0.00017	0.00017	0.00017	0.00017	0.00017	0.00017	0.00017
	kg-m ²	1.2E-6	1.2E-6	1.2E-6	1.2E-6	1.2E-6	1.2E-6	1.2E-6	1.2E-6
Weight (Mass)	oz	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
	g	127.6	127.6	127.6	127.6	127.6	127.6	127.6	127.6

Performance (24 V Winding)	Standard Features	Connection Chart																		
<p>Speed (rpm) vs Torque (oz-in) and Current (A) vs Torque (oz-in) graph. The speed curve (solid line) decreases from approximately 7000 rpm at 0 oz-in to 0 rpm at 15 oz-in. The current curve (dashed line) increases from 0 A at 0 oz-in to approximately 3.5 A at 15 oz-in.</p>	<ul style="list-style-type: none"> Shielded Ball Bearings 4-Pole Rotor Neodymium Magnets 3-Phase Stator Hall Sensors Aluminum Housing 	<table border="1"> <thead> <tr> <th>Color/Pin</th> <th>Function</th> </tr> </thead> <tbody> <tr><td>Brown</td><td>Motor ΦA</td></tr> <tr><td>Red</td><td>Motor ΦB</td></tr> <tr><td>Orange</td><td>Motor ΦC</td></tr> <tr><td>Grey</td><td>Sensor 1</td></tr> <tr><td>Blue</td><td>Sensor 2</td></tr> <tr><td>White</td><td>Sensor 3</td></tr> <tr><td>Violet</td><td>Vcc</td></tr> <tr><td>Black</td><td>Ground</td></tr> </tbody> </table> <p>120° Electrical Spacing</p>	Color/Pin	Function	Brown	Motor Φ A	Red	Motor Φ B	Orange	Motor Φ C	Grey	Sensor 1	Blue	Sensor 2	White	Sensor 3	Violet	Vcc	Black	Ground
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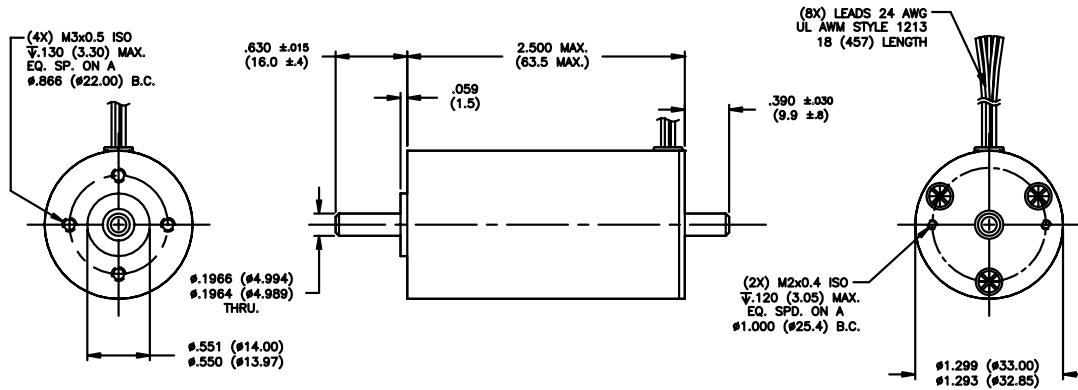
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Specification	Units	Part/Model Number								
		1302 9.55 V	1302 12.0 V	1302 15.2 V	1302 19.1 V	1302 24.0 V	1302 30.3 V	1302 38.2 V	1302 48.0 V	
Supply Voltage	VDC	9.55	12.0	15.2	19.1	24.0	30.3	38.2	48.0	
Continuous Torque	oz-in	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	
	Nm	0.0494	0.0494	0.0494	0.0494	0.0494	0.0494	0.0494	0.0494	
Speed @ Cont. Torque	RPM	5320	5510	5520	5690	5800	5640	5800	5890	
Current @ Cont. Torque	Amps (A)	4.24	3.39	2.61	2.12	1.70	1.31	1.06	0.85	
Continuous Output Power	Watts (W)	24	24	24	25	26	25	26	26	
Motor Constant	oz-in/sqrt W	2.45	2.45	2.45	2.45	2.45	2.45	2.45	2.45	
	Nm/sqrt W	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	
Torque Constant	oz-in/A	1.758	2.204	2.853	3.515	4.394	5.719	7.044	8.802	
	Nm/A	0.012	0.016	0.02	0.025	0.031	0.04	0.05	0.062	
Voltage Constant	V/krpm	1.30	1.63	2.11	2.60	3.25	4.23	5.21	6.51	
	V/rad/s	0.012	0.016	0.02	0.025	0.031	0.04	0.05	0.062	
Terminal Resistance	Ohms	0.58	0.87	1.35	2.06	3.13	5.12	7.88	12.1	
Inductance	mH	0.27	0.42	0.71	1.1	1.7	2.9	4.3	6.8	
No-Load Current	Amps (A)	0.34	0.27	0.21	0.17	0.14	0.10	0.09	0.07	
No-Load Speed	RPM	7180	7180	7180	7180	7180	7180	7180	7180	
Peak Current	Amps (A)	16	14	11	9.3	7.7	5.9	4.8	4.0	
Peak Torque	oz-in	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	
	Nm	0.2259	0.2259	0.2259	0.2259	0.2259	0.2259	0.2259	0.2259	
Coulomb Friction Torque	oz-in	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	
	Nm	0.0042	0.0042	0.0042	0.0042	0.0042	0.0042	0.0042	0.0042	
Viscous Damping Factor	oz-in/krpm	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	
	Nm s/rad	1.54E-6	1.54E-6	1.54E-6	1.54E-6	1.54E-6	1.54E-6	1.54E-6	1.54E-6	
Electrical Time Constant	ms	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	
Mechanical Time Constant	ms	6	6	6	6	6	6	6	6	
Thermal Time Constant	min	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	
Thermal Resistance	Celsius/W	13	13	13	13	13	13	13	13	
Max. Winding Temperature	Celsius	130	130	130	130	130	130	130	130	
Rotor Inertia	oz-in-sec ²	0.00028	0.00028	0.00028	0.00028	0.00028	0.00028	0.00028	0.00028	
	kg-m ²	1.98E-6	1.98E-6	1.98E-6	1.98E-6	1.98E-6	1.98E-6	1.98E-6	1.98E-6	
Weight (Mass)	oz	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	
	g	184.3	184.3	184.3	184.3	184.3	184.3	184.3	184.3	

Performance (24 V Winding)	Standard Features	Connection Chart																		
<p>Speed (rpm) vs Torque (oz-in) and Current (A) vs Torque (oz-in) graph.</p>	<ul style="list-style-type: none"> Shielded Ball Bearings 4-Pole Rotor Neodymium Magnets 3-Phase Stator Hall Sensors Aluminum Housing 	<table border="1"> <thead> <tr> <th>Color/Pin</th> <th>Function</th> </tr> </thead> <tbody> <tr><td>Brown</td><td>Motor ΦA</td></tr> <tr><td>Red</td><td>Motor ΦB</td></tr> <tr><td>Orange</td><td>Motor ΦC</td></tr> <tr><td>Grey</td><td>Sensor 1</td></tr> <tr><td>Blue</td><td>Sensor 2</td></tr> <tr><td>White</td><td>Sensor 3</td></tr> <tr><td>Violet</td><td>Vcc</td></tr> <tr><td>Black</td><td>Ground</td></tr> </tbody> </table>	Color/Pin	Function	Brown	Motor Φ A	Red	Motor Φ B	Orange	Motor Φ C	Grey	Sensor 1	Blue	Sensor 2	White	Sensor 3	Violet	Vcc	Black	Ground
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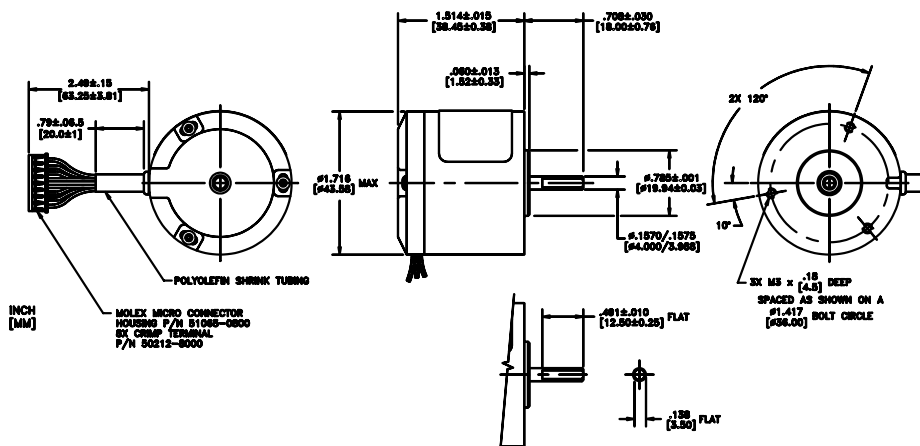
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Specification	Units	Part/Model Number							
		1303 12.0 V	1303 15.2 V	1303 19.1 V	1303 24.0 V	1303 30.3 V	1303 38.2 V	1303 48.0 V	1303 60.0 V
Supply Voltage	VDC	12.0	15.2	19.1	24.0	30.3	38.2	48.0	60.0
Continuous Torque	oz-in Nm	8.5 0.06	8.5 0.06	8.5 0.06	8.5 0.06	8.5 0.06	8.5 0.06	8.5 0.06	8.5 0.06
Speed @ Cont. Torque	RPM	6000	6350	6480	6350	6550	6670	6440	6530
Current @ Cont. Torque	Amps (A)	4.91	3.99	3.19	2.45	1.99	1.59	1.23	1.00
Continuous Output Power	Watts (W)	37.7	39.9	40.7	39.9	41.2	41.9	40.5	41.0
Motor Constant	oz-in/sqrt W Nm/sqrt W	2.9 0.02	3.0 0.021	3.1 0.022	3.2 0.023	3.1 0.022	3.2 0.023	3.2 0.023	3.2 0.023
Torque Constant	oz-in/A Nm/A	2.150 0.015	2.637 0.019	3.299 0.023	4.286 0.03	5.273 0.037	6.598 0.047	8.572 0.061	10.60 0.075
Voltage Constant	V/krpm V/rad/s	1.59 0.015	1.95 0.019	2.44 0.023	3.17 0.03	3.90 0.037	4.88 0.047	6.34 0.061	7.81 0.075
Terminal Resistance	Ohms	0.53	0.77	1.17	1.84	2.82	4.32	7.10	11.0
Inductance	mH	0.26	0.39	0.62	1.0	1.6	2.5	4.2	6.3
No-Load Current	Amps (A)	0.37	0.30	0.24	0.19	0.15	0.12	0.09	0.08
No-Load Speed	RPM	7440	7670	7710	7460	7650	7720	7460	7580
Peak Current	Amps (A)	22.6	19.6	16.3	13.0	10.7	8.83	6.77	5.48
Peak Torque	oz-in Nm	47.6 0.3361	51.0 0.3601	53.1 0.3749	55.1 0.389	55.9 0.3947	57.5 0.406	57.2 0.4038	57.1 0.4031
Coulomb Friction Torque	oz-in Nm	0.80 0.0056	0.80 0.0056	0.80 0.0056	0.80 0.0056	0.80 0.0056	0.80 0.0056	0.80 0.0056	0.80 0.0056
Viscous Damping Factor	oz-in/krpm Nm s/rad	0.032 2.15E-6	0.032 2.15E-6	0.032 2.15E-6	0.032 2.15E-6	0.032 2.15E-6	0.032 2.15E-6	0.032 2.15E-6	0.032 2.15E-6
Electrical Time Constant	ms	0.49	0.51	0.53	0.56	0.56	0.57	0.59	0.58
Mechanical Time Constant	ms	6.3	6.1	5.9	5.5	5.5	5.4	5.3	5.4
Thermal Time Constant	min	11	11	11	11	11	11	11	11
Thermal Resistance	Celsius/W	11	11	11	11	11	11	11	11
Max. Winding Temperature	Celsius	130	130	130	130	130	130	130	130
Rotor Inertia	oz-in-sec ² kg-m ²	0.00039 2.75E-6	0.00039 2.75E-6	0.00039 2.75E-6	0.00039 2.75E-6	0.00039 2.75E-6	0.00039 2.75E-6	0.00039 2.75E-6	0.00039 2.75E-6
Weight (Mass)	oz g	8.50 241	8.50 241	8.50 241	8.50 241	8.50 241	8.50 241	8.50 241	8.50 241

Performance (24 V Winding)	Standard Features	Connection Chart																		
	<ul style="list-style-type: none"> Shielded Ball Bearings 4-Pole Rotor Neodymium Magnets 3-Phase Stator Hall Sensors Aluminum Housing 	<table border="1"> <thead> <tr> <th>Color/Pin</th> <th>Function</th> </tr> </thead> <tbody> <tr><td>Brown</td><td>Motor ΦA</td></tr> <tr><td>Red</td><td>Motor ΦB</td></tr> <tr><td>Orange</td><td>Motor ΦC</td></tr> <tr><td>Grey</td><td>Sensor 1</td></tr> <tr><td>Blue</td><td>Sensor 2</td></tr> <tr><td>White</td><td>Sensor 3</td></tr> <tr><td>Violet</td><td>Vcc</td></tr> <tr><td>Black</td><td>Ground</td></tr> </tbody> </table>	Color/Pin	Function	Brown	Motor Φ A	Red	Motor Φ B	Orange	Motor Φ C	Grey	Sensor 1	Blue	Sensor 2	White	Sensor 3	Violet	Vcc	Black	Ground
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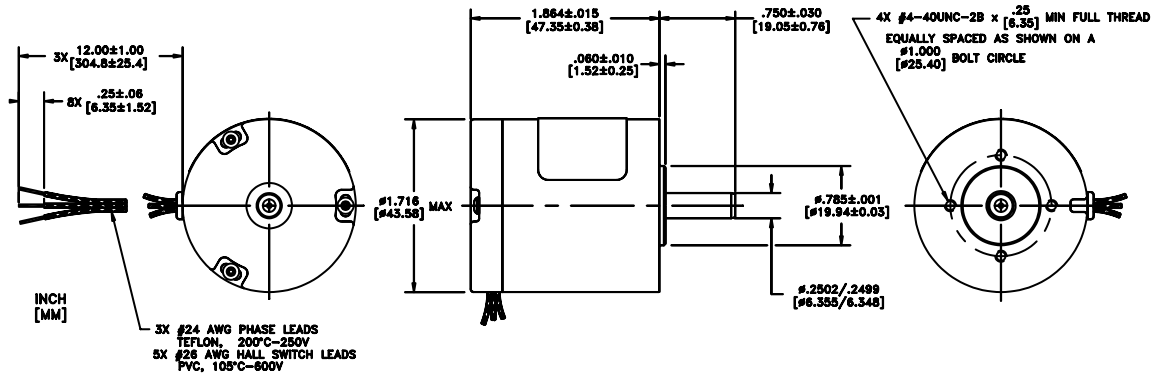
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		Part/Model Number
Specification	Units	150090-02
Supply Voltage	VDC	24.0
Continuous Torque	oz-in	3.0
	Nm	0.0212
Speed @ Cont. Torque	RPM	10750
Current @ Cont. Torque	Amps (A)	1.60
Continuous Output Power	Watts (W)	24
Motor Constant	oz-in/sqrt W	2.3
	Nm/sqrt W	0.016
Torque Constant	oz-in/A	2.704
	Nm/A	0.019
Voltage Constant	V/krpm	2.00
	V/rad/s	0.019
Terminal Resistance	Ohms	1.41
Inductance	mH	0.25
No-Load Current	Amps (A)	0.40
No-Load Speed	RPM	12000
Peak Current	Amps (A)	11.5
Peak Torque	oz-in	31.0
	Nm	0.2189
Electrical Time Constant	ms	0.18
Mechanical Time Constant	ms	3.7
Thermal Resistance	Celsius/W	3.6
Max. Winding Temperature	Celsius	105
Rotor Inertia	oz-in-sec ²	1.40E-6
	kg-m ²	1.0E-8
Weight (Mass)	oz	6.6
	g	187.1

Performance (150090-02)	Standard Features	Connection Chart																		
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	Notes <ol style="list-style-type: none"> All values specified at 25°C ambient temperature and without heat sink. Peak values are theoretical and supplied for reference only. Continuous Torque recorded at max. winding temperature at 25°C ambient, mounted to a 5.0"x5.0"x0.25" heat sink. 	120° Electrical Spacing																		

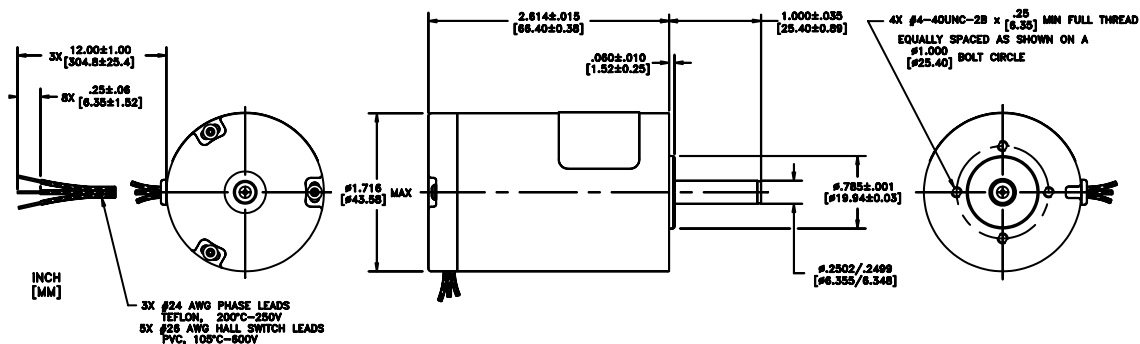
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Specification	Units	Part/Model Number
		119272
Supply Voltage	VDC	24
Continuous Torque	oz-in	5.75
	Nm	0.0406
Speed @ Cont. Torque	RPM	2425
Current @ Cont. Torque	Amps (A)	1.0
Continuous Output Power	Watts (W)	10
Motor Constant	oz-in/sqrt W	2.37
	Nm/sqrt W	0.017
Torque Constant	oz-in/A	7.396
	Nm/A	0.052
Voltage Constant	V/krpm	5.47
	V/rad/s	0.052
Terminal Resistance	Ohms	9.74
Inductance	mH	2.66
No-Load Current	Amps (A)	0.16
No-Load Speed	RPM	4388
Peak Current	Amps (A)	1.7
Peak Torque	oz-in	12.7
	Nm	0.0897
Electrical Time Constant	ms	0.273
Mechanical Time Constant	ms	0.202
Thermal Resistance	Celsius/W	3.5
Max. Winding Temperature	Celsius	105
Rotor Inertia	oz-in-sec ²	8.00E-6
	kg-m ²	5.6E-8
Weight (Mass)	oz	8.2
	g	232.5

Performance (119272)	Standard Features	Connection Chart																		
	<ul style="list-style-type: none"> Shielded Ball Bearings 4-Pole Rotor (8-Pole Option) Neodymium Magnets 3-Phase Stator Hall Sensors Aluminum Housing 	<table border="1"> <thead> <tr> <th>Color/Pin</th> <th>Function</th> </tr> </thead> <tbody> <tr> <td>Red</td> <td>Motor ΦA</td> </tr> <tr> <td>White</td> <td>Motor ΦB</td> </tr> <tr> <td>Black</td> <td>Motor ΦC</td> </tr> <tr> <td>Purple</td> <td>Vcc</td> </tr> <tr> <td>Orange</td> <td>Ground</td> </tr> <tr> <td>Yellow</td> <td>Sensor 1</td> </tr> <tr> <td>Green</td> <td>Sensor 2</td> </tr> <tr> <td>Blue</td> <td>Sensor 3</td> </tr> </tbody> </table>	Color/Pin	Function	Red	Motor ΦA	White	Motor ΦB	Black	Motor ΦC	Purple	Vcc	Orange	Ground	Yellow	Sensor 1	Green	Sensor 2	Blue	Sensor 3
	Color/Pin	Function																		
	Red	Motor ΦA																		
	White	Motor ΦB																		
Black	Motor ΦC																			
Purple	Vcc																			
Orange	Ground																			
Yellow	Sensor 1																			
Green	Sensor 2																			
Blue	Sensor 3																			
	Complementary Products <ul style="list-style-type: none"> Encoders Gearboxes Drives Brakes 																			
	Notes <ol style="list-style-type: none"> All values specified at 25°C ambient temperature and without heat sink. Peak values are theoretical and supplied for reference only. Continuous Torque recorded at max. winding temperature at 25°C ambient, mounted to a 5.0"x5.0"x0.25" heat sink. 	60° Electrical Spacing (120° Available)																		

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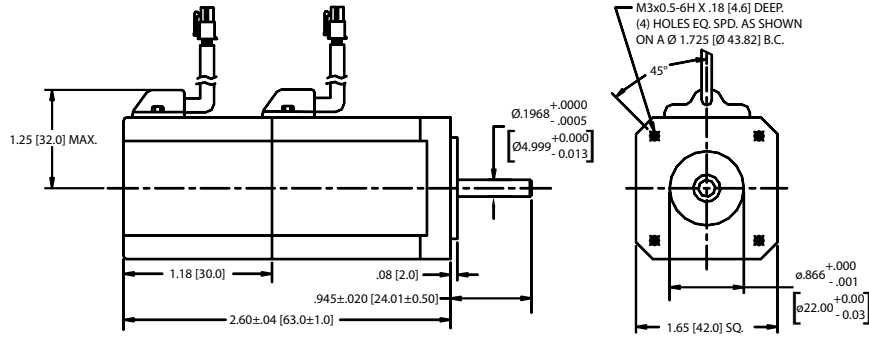
		Part/Model Number
Specification	Units	119275
Supply Voltage	VDC	24
Continuous Torque	oz-in	11
	Nm	0.0777
Speed @ Cont. Torque	RPM	3000
Current @ Cont. Torque	Amps (A)	1.75
Continuous Output Power	Watts (W)	24
Motor Constant	oz-in/sqrt W	4.12
	Nm/sqrt W	0.029
Torque Constant	oz-in/A	7.531
	Nm/A	0.053
Voltage Constant	V/krpm	5.57
	V/rad/s	0.053
Terminal Resistance	Ohms	3.34
Inductance	mH	1.13
No-Load Current	Amps (A)	0.18
No-Load Speed	RPM	4308
Peak Current	Amps (A)	6.8
Peak Torque	oz-in	51.3
	Nm	0.3622
Electrical Time Constant	ms	0.339
Mechanical Time Constant	ms	0.134
Thermal Resistance	Celsius/W	1.9
Max. Winding Temperature	Celsius	105
Rotor Inertia	oz-in-sec ²	1.60E-5
	kg-m ²	1.13E-7
Weight (Mass)	oz	12.5
	g	354.4

Performance (119275)	Standard Features	Connection Chart																				
	<ul style="list-style-type: none"> Shielded Ball Bearings 4-Pole Rotor (8-Pole Option) Neodymium Magnets 3-Phase Stator Hall Sensors Aluminum Housing 	<table border="1"> <thead> <tr> <th>Color/Pin</th> <th>Function</th> </tr> </thead> <tbody> <tr> <td>Red</td> <td>Motor ΦA</td> </tr> <tr> <td>White</td> <td>Motor ΦB</td> </tr> <tr> <td>Black</td> <td>Motor ΦC</td> </tr> <tr> <td>Purple</td> <td>Vcc</td> </tr> <tr> <td>Orange</td> <td>Ground</td> </tr> <tr> <td>Yellow</td> <td>Sensor 1</td> </tr> <tr> <td>Green</td> <td>Sensor 2</td> </tr> <tr> <td>Blue</td> <td>Sensor 3</td> </tr> <tr> <td colspan="2">60° Electrical Spacing (120° Available)</td> </tr> </tbody> </table>	Color/Pin	Function	Red	Motor ΦA	White	Motor ΦB	Black	Motor ΦC	Purple	Vcc	Orange	Ground	Yellow	Sensor 1	Green	Sensor 2	Blue	Sensor 3	60° Electrical Spacing (120° Available)	
	Color/Pin	Function																				
	Red	Motor ΦA																				
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	Complementary Products <ul style="list-style-type: none"> Encoders Gearboxes Drives Brakes 																					
	Notes <ol style="list-style-type: none"> All values specified at 25°C ambient temperature and without heat sink. Peak values are theoretical and supplied for reference only. Continuous Torque recorded at max. winding temperature at 25°C ambient, mounted to a 5.0"x5.0"x0.25" heat sink. 																					

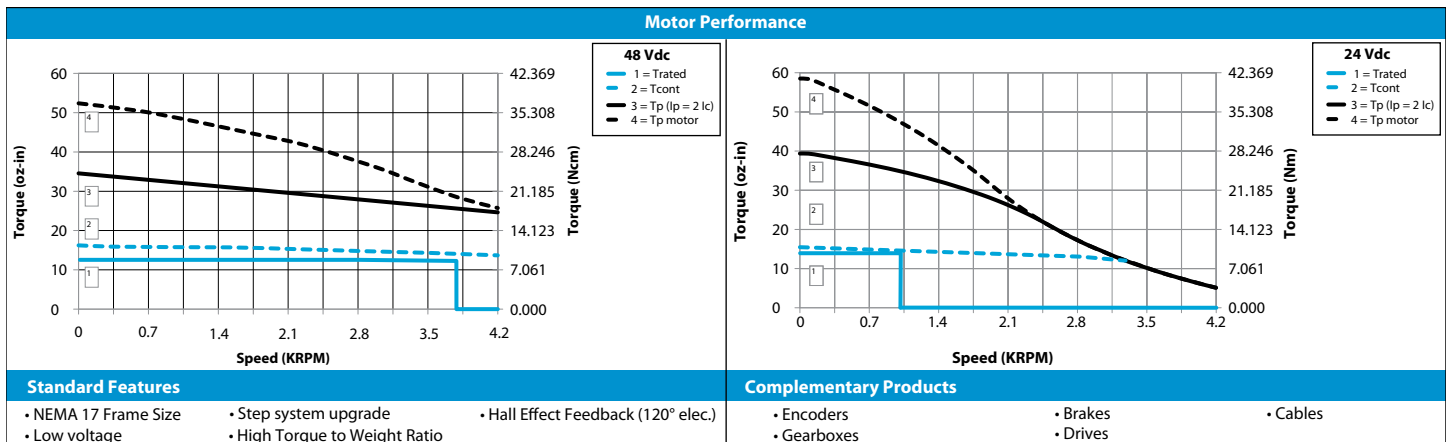
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A042 Series

A0421046NC



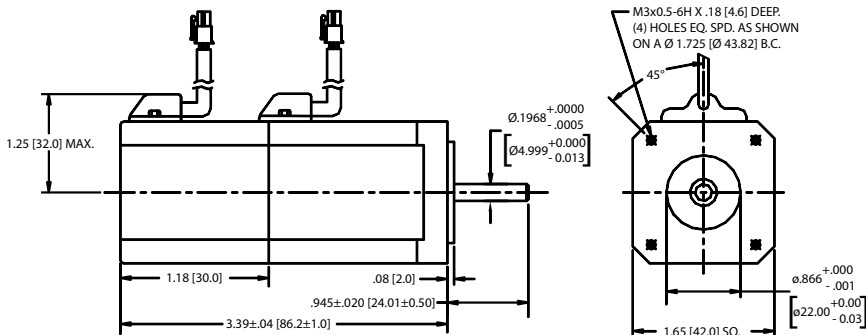
		Part/Model Number
		A0421046NC
Specification	Units	
Supply Voltage	VDC	48
Continuous Stall Torque	oz-in	17
	Nm	0.12
Speed @ Cont. Torque	RPM	4000
Current @ Cont. Torque	Amps (A)	2.75
Continuous Output Power	Watts (W)	50.26
Motor Constant	oz-in/sqrt W	3.89
	Nm/sqrt W	0.027
Torque Constant	oz-in/A	6.179
	Nm/A	0.044
Voltage Constant	V/krpm	4.57
	V/rad/s	0.044
Terminal Resistance	Ohms	2.52
Inductance	mH	1.66
Max. Speed	RPM	4500
Peak Current	Amps (A)	8.25
Peak Torque	oz-in	51
	Nm	0.3601
Coulomb Friction Torque	oz-in	1.7
	Nm	0.012
Viscous Damping Factor	oz-in/krpm	0.1570
	Nm s/rad	1.05E-5
Electrical Time Constant	ms	0.6587
Mechanical Time Constant	ms	3.64
Thermal Time Constant	min	10
Thermal Resistance	Celsius/W	3.12
Max. Winding Temperature	Celsius	125
Rotor Inertia	oz-in-sec ²	.00040
	kg-m ²	2.83E-6
Weight (Mass)	oz	12.48
	g	353.8



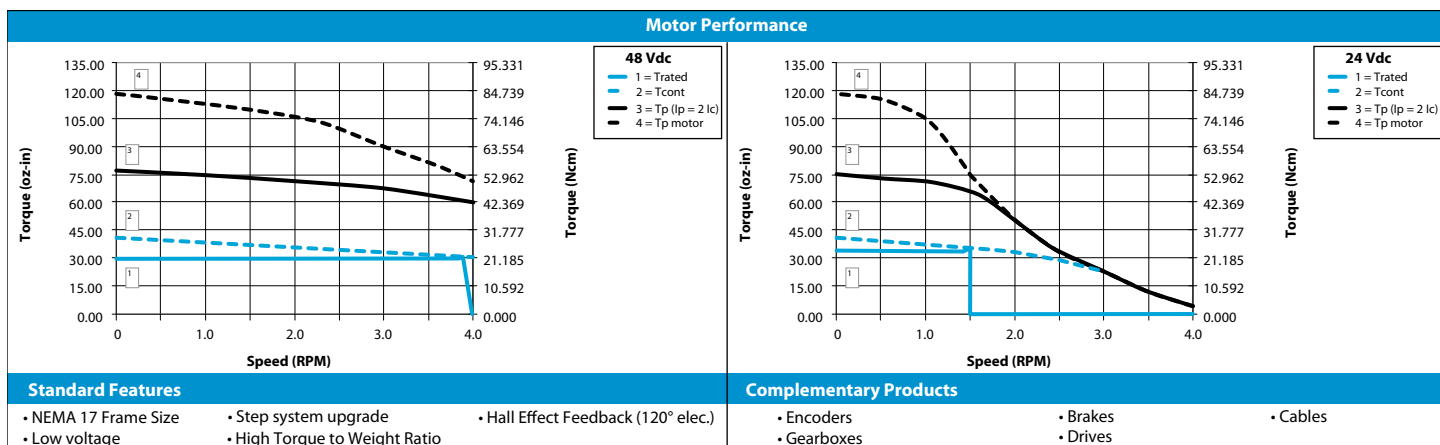
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A042 Series

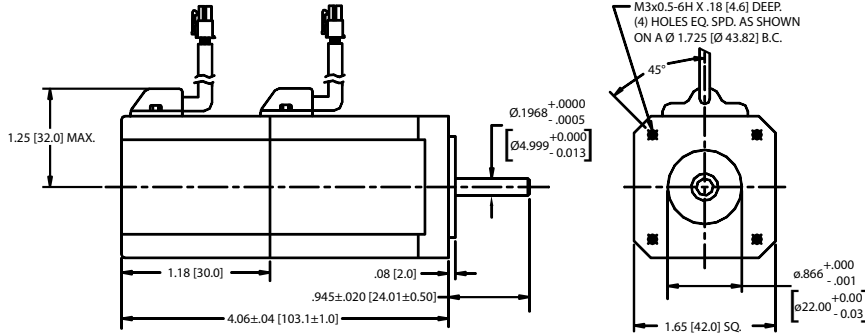
A0422052NC



		Part/Model Number
Specification	Units	A0422052NC
Supply Voltage	VDC	48
Continuous Stall Torque	oz-in	38
	Nm	0.2683
Speed @ Cont. Torque	RPM	4000
Current @ Cont. Torque	Amps (A)	5.12
Continuous Output Power	Watts (W)	112.35
Motor Constant	oz-in/sqrt W	7.62
	Nm/sqrt W	0.054
Torque Constant	oz-in/A	7.423
	Nm/A	0.052
Voltage Constant	V/krpm	5.49
	V/rad/s	0.052
Terminal Resistance	Ohms	0.95
Inductance	mH	0.72
Max. Speed	RPM	4500
Peak Current	Amps (A)	15.35
Peak Torque	oz-in	114
	Nm	0.8048
Coulomb Friction Torque	oz-in	2.55
	Nm	0.018
Viscous Damping Factor	oz-in/krpm	0.1940
	Nm s/rad	1.30E-5
Mechanical Time Constant	ms	1.80
Electrical Time Constant	ms	0.7579
Thermal Time Constant	min	13
Thermal Resistance	Celsius/W	2.47
Max. Winding Temperature	Celsius	125
Rotor Inertia	oz-in-sec ²	7.40E-4
	kg-m ²	5.23E-6
Weight (Mass)	oz	18.88
	g	535.2

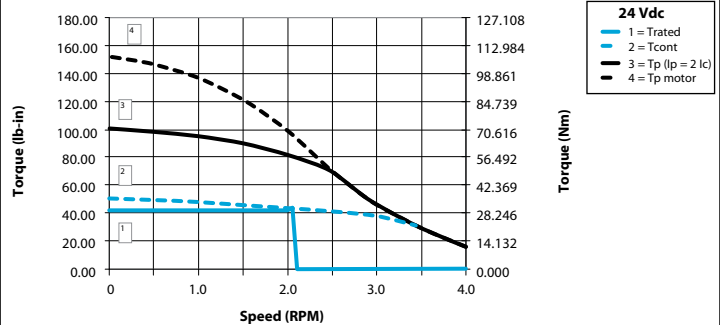
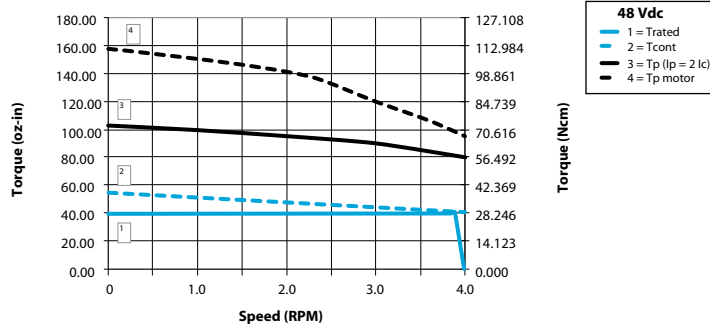


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		Part/Model Number	
Specification	Units	A0423053NC	
Supply Voltage	VDC	48	
Continuous Stall Torque	oz-in	50	
	Nm	0.353	
Speed @ Cont. Torque	RPM	4000	
Current @ Cont. Torque	Amps (A)	7.35	
Continuous Output Power	Watts (W)	147.83	
Motor Constant	oz-in/sqrt W	9.44	
	Nm/sqrt W	0.067	
Torque Constant	oz-in/A	6.801	
	Nm/A	0.048	
Voltage Constant	V/krpm	5.03	
	V/rad/s	0.048	
Terminal Resistance	Ohms	0.52	
Inductance	mH	0.38	
Max. Speed	RPM	4500	
Peak Current	Amps (A)	22.04	
Peak Torque	oz-in	150	
	Nm	1.059	
Coulomb Friction Torque	oz-in	3.5	
	Nm	0.0247	
Viscous Damping Factor	oz-in/krpm	0.2720	
	Nm s/rad	1.83E-5	
Electrical Time Constant	ms	0.7308	
Mechanical Time Constant	ms	1.91	
Thermal Time Constant	min	17	
Thermal Resistance	Celsius/W	2.19	
Max. Winding Temperature	Celsius	125	
Rotor Inertia	oz-in-sec ²	.0012	
	kg-m ²	8.47E-6	
Weight (Mass)	oz	24.64	
	g	698.5	

Motor Performance



- Standard Features**
- NEMA 17 Frame Size
 - Low voltage
 - Step system upgrade
 - High Torque to Weight Ratio
 - Hall Effect Feedback (120° elec.)

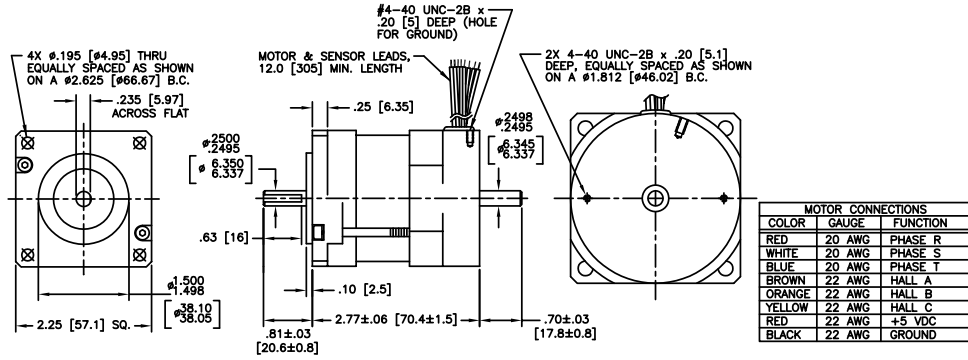
- Complementary Products**
- Encoders
 - Gearboxes
 - Brakes
 - Drives
 - Cables

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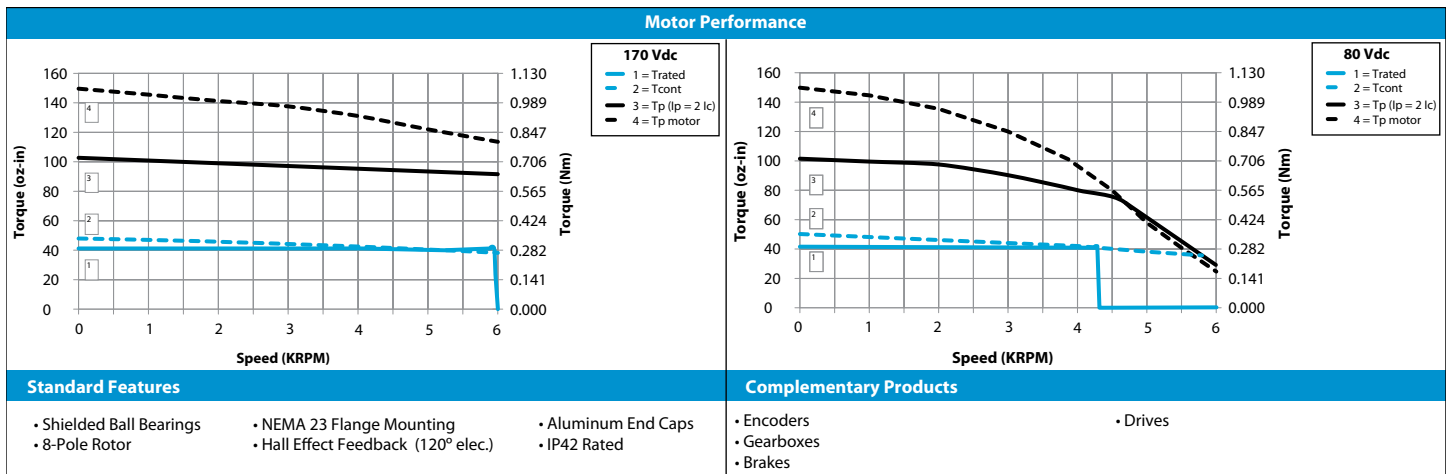
PITTMAN PRODUCTS
 343 Godshall Drive, Harleysville, PA 19438
 USA: +1 267 933 2105 - Europe: +33 240928751 - Asia: +86 21 5763 1258
www.pittman-motors.com

IB23000 Series

IB23000



		Part/Model Number
Specification	Units	IB23000
Supply Voltage	VDC	170
Continuous Stall Torque	oz-in Nm	55.92 0.3948
Speed @ Cont. Torque	RPM	6000
Current @ Cont. Torque	Amps (A)	3.29
Continuous Output Power	Watts (W)	203.7
Motor Constant	oz-in/sqrt W Nm/sqrt W	10.48 0.074
Torque Constant	oz-in/A Nm/A	15.143 0.107
Voltage Constant	V/krpm V/rad/s	11.20 0.107
Terminal Resistance	Ohms	2.09
Inductance	mH	1.60
Max. Speed	RPM	6000
Peak Current	Amps (A)	11.10
Peak Torque	oz-in Nm	168.17 1.1873
Coulomb Friction Torque	oz-in Nm	1.07 0.0076
Viscous Damping Factor	oz-in/krpm Nm s/rad	0.30000 2.01E-5
Electrical Time Constant	ms	0.77
Mechanical Time Constant	ms	2.45
Thermal Time Constant	min	20.00
Thermal Resistance	Celsius/W	1.53
Max. Winding Temperature	Celsius	125
Rotor Inertia	oz-in-sec ² kg-m ²	.0019 1.34E-5
Motor Weight	Lbs Kg	23.36 10.6

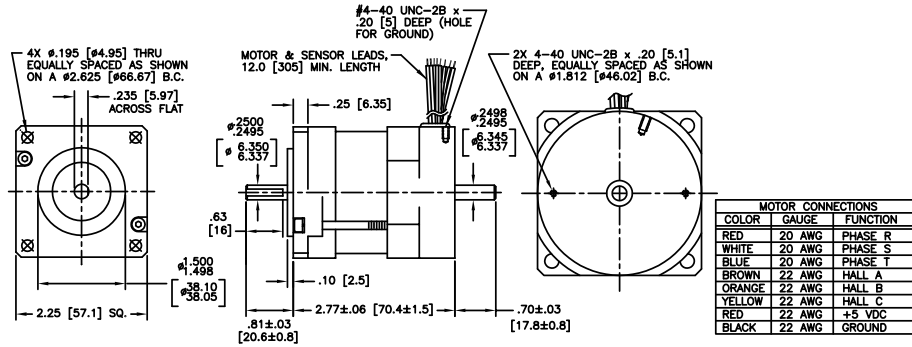


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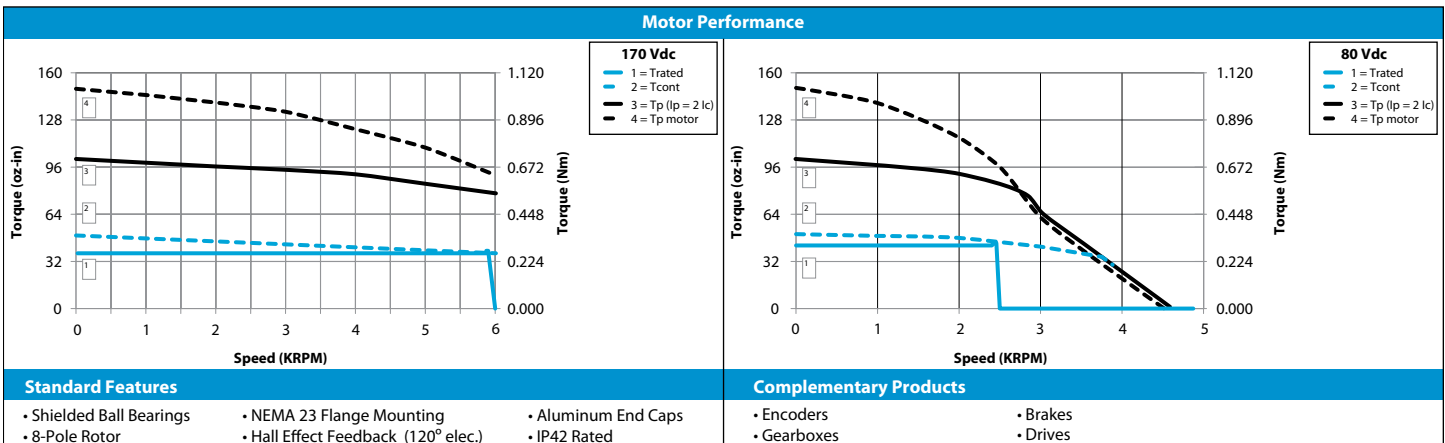
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IB23000 Series

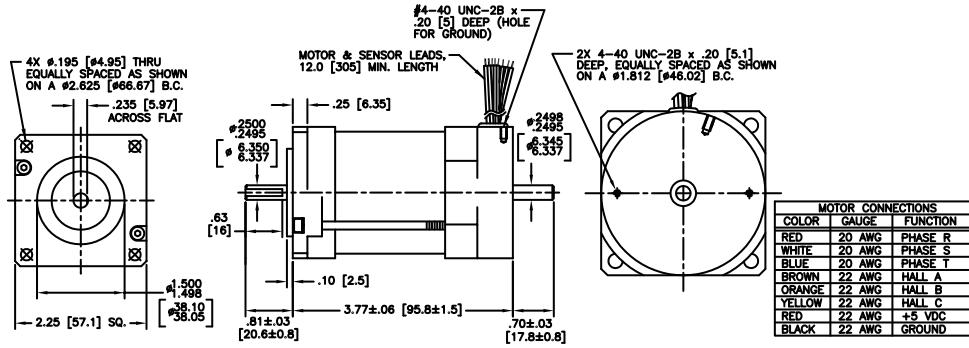
IB23003



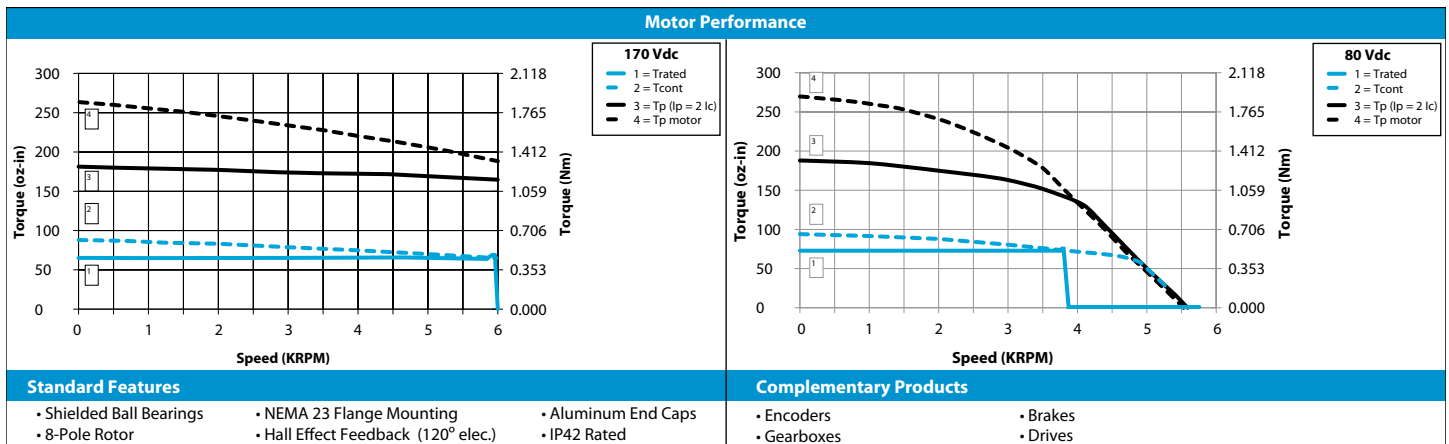
Specification	Units	Part/Model Number
		IB23003
Supply Voltage	VDC	170
Continuous Stall Torque	oz-in	54.69
	Nm	0.3861
Speed @ Cont. Torque	RPM	6000
Current @ Cont. Torque	Amps (A)	2.08
Continuous Output Power	Watts (W)	192.3
Motor Constant	oz-in/sqrt W	10.26
	Nm/sqrt W	0.072
Torque Constant	oz-in/A	22.715
	Nm/A	0.16
Voltage Constant	V/krpm	16.80
	V/rad/s	0.16
Terminal Resistance	Ohms	4.91
Inductance	mH	3.60
Max. Speed	RPM	6000
Peak Current	Amps (A)	7.23
Peak Torque	oz-in	164.32
	Nm	1.1601
Coulomb Friction Torque	oz-in	1.07
	Nm	0.0076
Viscous Damping Factor	oz-in/krpm	0.30000
	Nm s/rad	2.01E-5
Electrical Time Constant	ms	0.73
Mechanical Time Constant	ms	2.56
Thermal Time Constant	min	20.00
Thermal Resistance	Celsius/W	1.53
Max. Winding Temperature	Celsius	125
Rotor Inertia	oz-in-sec ²	.00190
	kg-m ²	1.34E-5
Motor Weight	Lbs	23.36
	Kg	10.6



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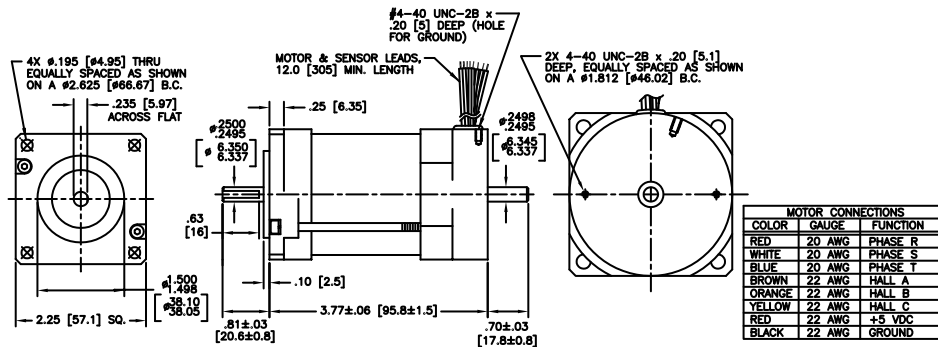


		Part/Model Number
Specification	Units	IB23001
Supply Voltage	VDC	170
Continuous Stall Torque	oz-in Nm	100.34 0.7084
Speed @ Cont. Torque	RPM	6000
Current @ Cont. Torque	Amps (A)	4.24
Continuous Output Power	Watts (W)	322.3
Motor Constant	oz-in/sqrt W Nm/sqrt W	17.59 0.124
Torque Constant	oz-in/A Nm/A	18.930 0.134
Voltage Constant	V/krpm V/rad/s	14.00 0.134
Terminal Resistance	Ohms	1.16
Inductance	mH	1.07
Max. Speed	RPM	6000
Peak Current	Amps (A)	15.93
Peak Torque	oz-in Nm	301.69 2.1299
Coulomb Friction Torque	oz-in Nm	1.84 0.013
Viscous Damping Factor	oz-in/krpm Nm s/rad	0.60000 4.03E-5
Electrical Time Constant	ms	0.92
Mechanical Time Constant	ms	1.69
Thermal Time Constant	min	15.00
Thermal Resistance	Celsius/W	1.34
Max. Winding Temperature	Celsius	125
Rotor Inertia	oz-in-sec ² kg-m ²	.00370 2.61E-5
Motor Weight	Lbs Kg	35.84 16.3

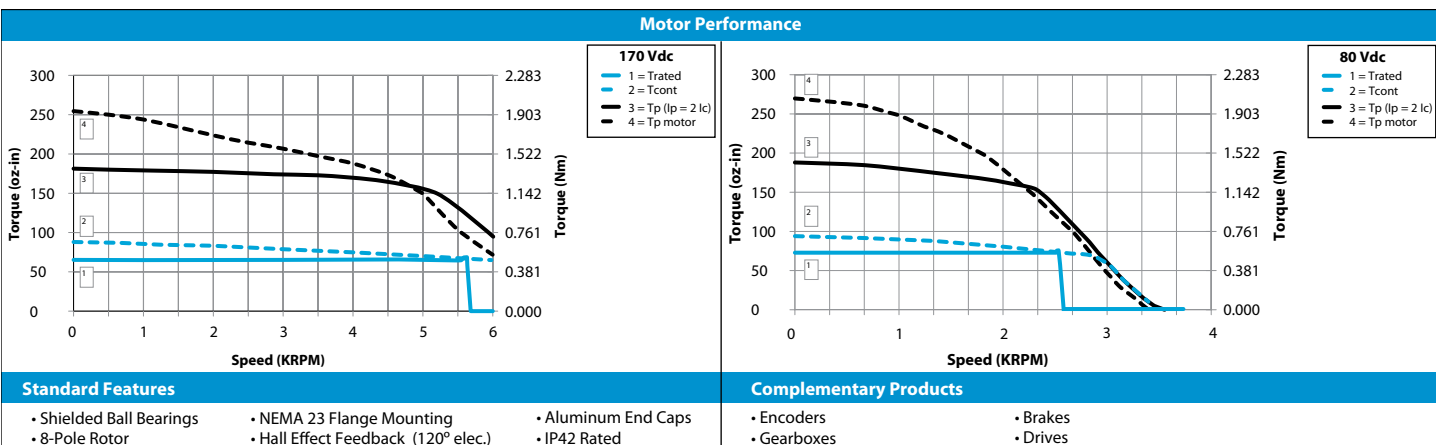


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IB23004

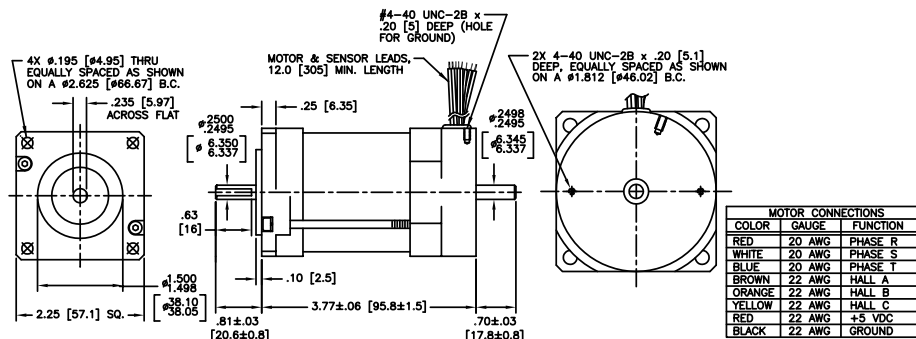


Specification	Units	Part/Model Number
		IB23004
Supply Voltage	VDC	170
Continuous Stall Torque	oz-in Nm	100.41 0.7089
Speed @ Cont. Torque	RPM	5900
Current @ Cont. Torque	Amps (A)	2.48
Continuous Output Power	Watts (W)	294.0
Motor Constant	oz-in/sqrt W Nm/sqrt W	17.60 0.124
Torque Constant	oz-in/A Nm/A	30.287 0.214
Voltage Constant	V/krpm V/rad/s	22.40 0.214
Terminal Resistance	Ohms	2.96
Inductance	mH	2.73
Peak Current	Amps (A)	9.95
Peak Torque	oz-in Nm	301.53 2.1288
Coulomb Friction Torque	oz-in Nm	1.84 0.013
Viscous Damping Factor	oz-in/krpm Nm s/rad	0.60000 4.03E-5
Electrical Time Constant	ms	0.92
Mechanical Time Constant	ms	1.69
Thermal Time Constant	min	15.00
Thermal Resistance	Celsius/W	1.34
Max. Winding Temperature	Celsius	125
Rotor Inertia	oz-in-sec ² kg-m ²	.00370 2.61E-5
Motor Weight	Lbs Kg	35.84 16.3

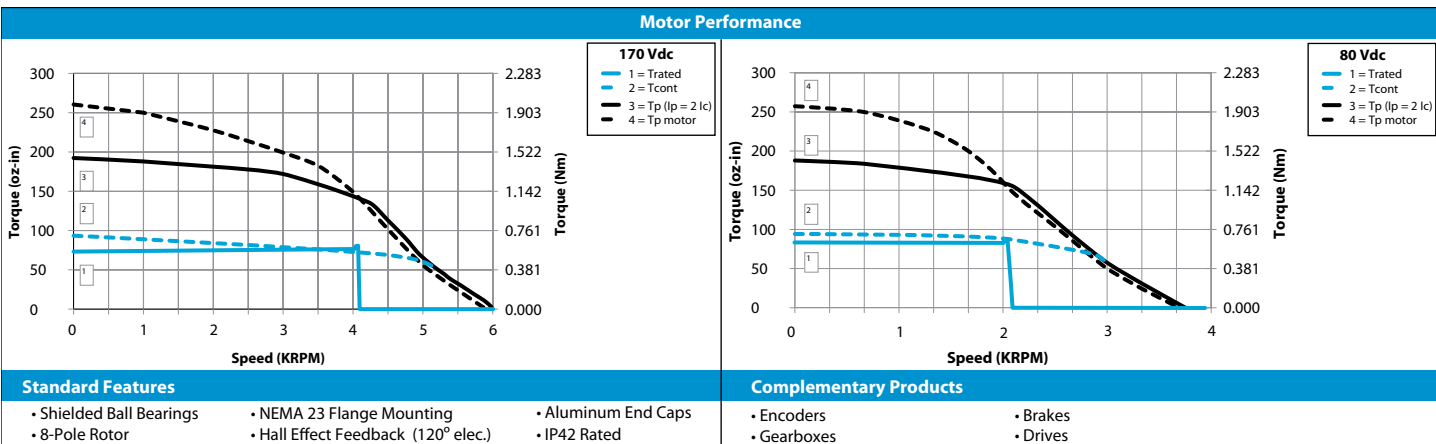


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IB23005

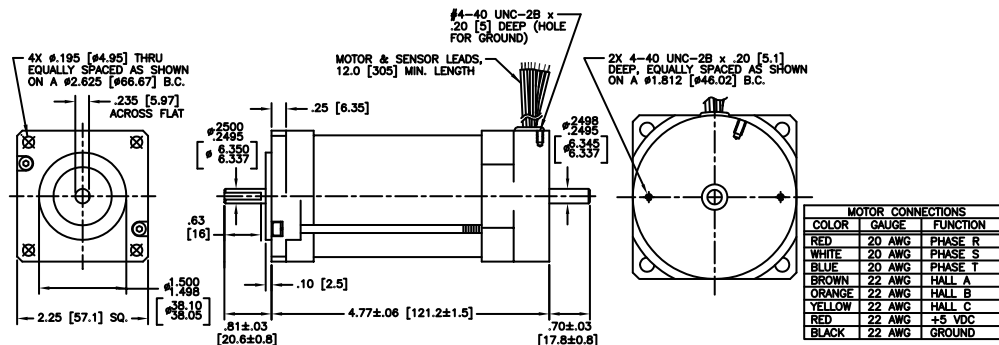


		Part/Model Number
Specification	Units	IB23005
Supply Voltage	VDC	170
Continuous Stall Torque	oz-in	100.32
	Nm	0.7083
Speed @ Cont. Torque	RPM	4500
Current @ Cont. Torque	Amps (A)	2.15
Continuous Output Power	Watts (W)	254
Motor Constant	oz-in/sqrt W	17.59
	Nm/sqrt W	0.124
Torque Constant	oz-in/A	37.859
	Nm/A	0.267
Voltage Constant	V/krpm	28.00
	V/rad/s	0.267
Terminal Resistance	Ohms	4.64
Inductance	mH	4.28
Max. Speed	RPM	6000
Peak Current	Amps (A)	7.95
Peak Torque	oz-in	300.97
	Nm	2.1248
Coulomb Friction Torque	oz-in	1.84
	Nm	0.013
Viscous Damping Factor	oz-in/krpm	0.60000
	Nm s/rad	4.03E-5
Electrical Time Constant	ms	0.92
Mechanical Time Constant	ms	1.69
Thermal Time Constant	min	15.00
Thermal Resistance	Celsius/W	1.34
Max. Winding Temperature	Celsius	125
Rotor Inertia	oz-in-sec ²	.00370
	kg-m ²	2.61E-5
Motor Weight	Lbs	35.84
	Kg	16.3

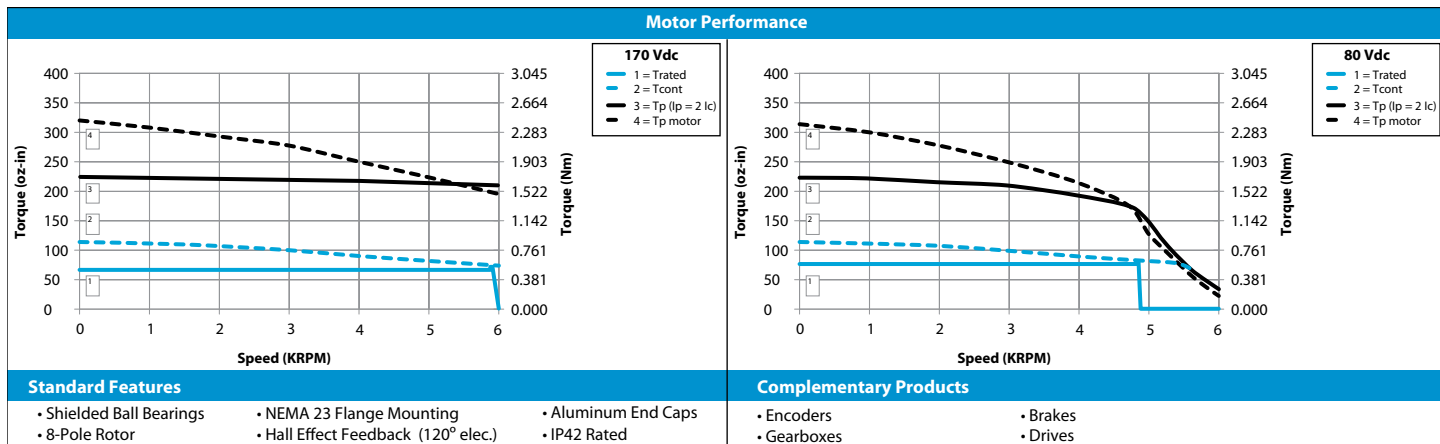


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IB23002



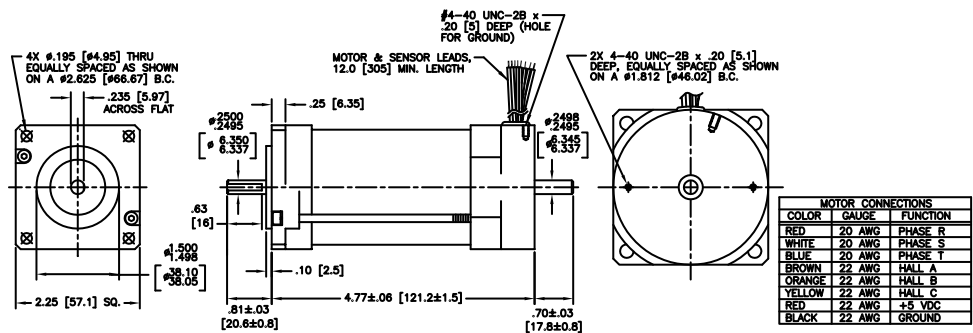
		Part/Model Number
Specification	Units	IB23002
Supply Voltage	VDC	170
Continuous Stall Torque	oz-in Nm	131.65 0.9294
Speed @ Cont. Torque	RPM	6000
Current @ Cont. Torque	Amps (A)	4.95
Continuous Output Power	Watts (W)	316
Motor Constant	oz-in/sqrt W Nm/sqrt W	22.27 0.157
Torque Constant	oz-in/A Nm/A	17.037 0.12
Voltage Constant	V/krpm V/rad/s	12.60 0.12
Terminal Resistance	Ohms	0.59
Inductance	mH	0.54
Max. Speed	RPM	6000
Peak Current	Amps (A)	23.23
Peak Torque	oz-in Nm	396.04 2.796
Coulomb Friction Torque	oz-in Nm	2.27 0.016
Viscous Damping Factor	oz-in/krpm Nm s/rad	1.20000 8.06E-5
Electrical Time Constant	ms	0.92
Mechanical Time Constant	ms	1.57
Thermal Time Constant	min	15.00
Thermal Resistance	Celsius/W	1.25
Max. Winding Temperature	Celsius	125
Rotor Inertia	oz-in-sec ² kg-m ²	.00550 3.88E-5
Motor Weight	Lbs Kg	48.32 21.9



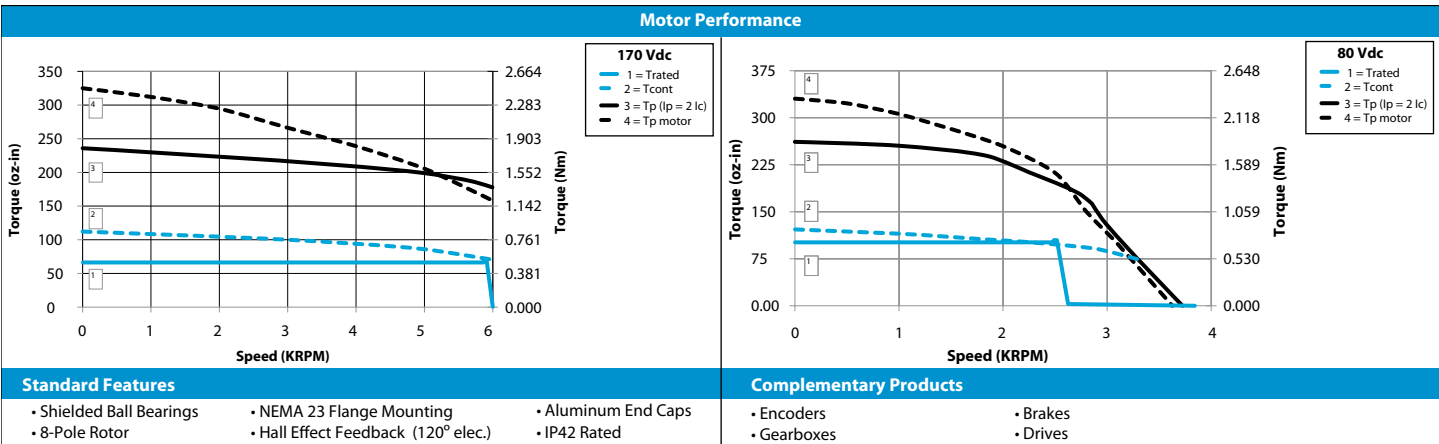
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IB23006

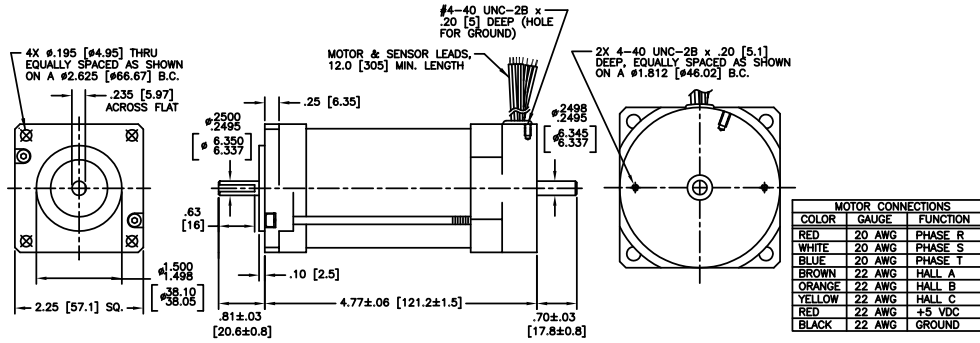


		Part/Model Number
Specification	Units	IB23006
Supply Voltage	VDC	170
Continuous Stall Torque	oz-in Nm	134.62 0.9504
Speed @ Cont. Torque	RPM	6000
Current @ Cont. Torque	Amps (A)	2.94
Continuous Output Power	Watts (W)	310.9
Motor Constant	oz-in/sqrt W Nm/sqrt W	22.76 0.161
Torque Constant	oz-in/A Nm/A	28.394 0.201
Voltage Constant	V/krpm V/rad/s	21.00 0.201
Terminal Resistance	Ohms	1.56
Inductance	mH	1.50
Max. Speed	RPM	6000
Peak Current	Amps (A)	14.24
Peak Torque	oz-in Nm	404.46 2.8555
Coulomb Friction Torque	oz-in Nm	2.27 0.016
Viscous Damping Factor	oz-in/krpm Nm s/rad	1.20000 8.06E-5
Electrical Time Constant	ms	0.96
Mechanical Time Constant	ms	1.50
Thermal Time Constant	min	15.00
Thermal Resistance	Celsius/W	1.25
Max. Winding Temperature	Celsius	125
Rotor Inertia	oz-in-sec ² kg-m ²	.00550 3.88E-5
Motor Weight	Lbs Kg	48.32 21.9

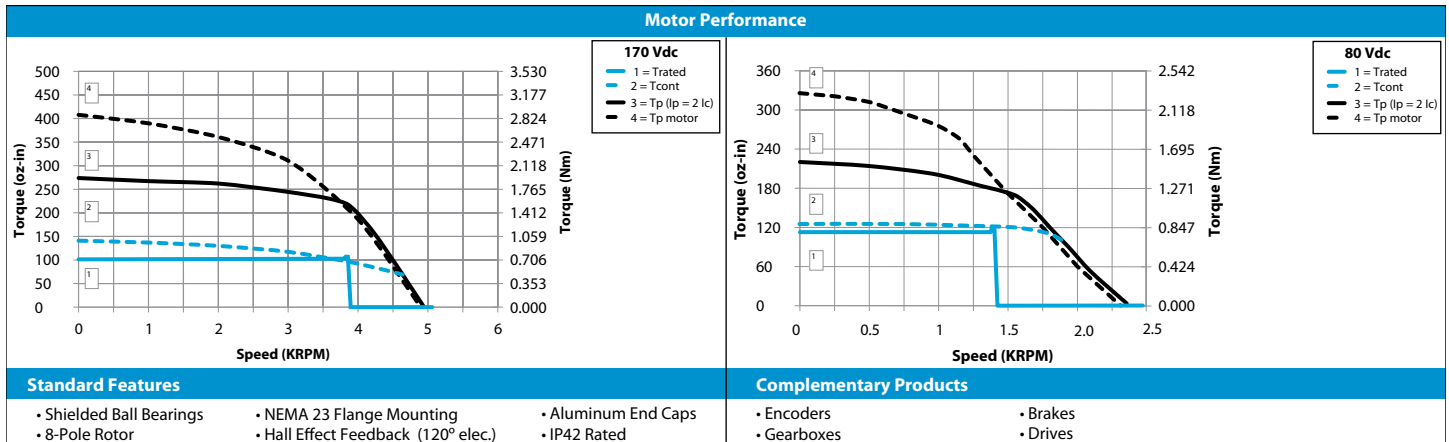


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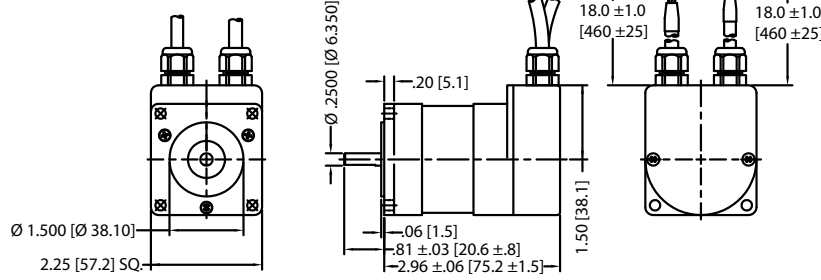


		Part/Model Number
Specification	Units	IB23007
Supply Voltage	VDC	170
Continuous Stall Torque	oz-in Nm	135.86 0.9592
Speed @ Cont. Torque	RPM	3900
Current @ Cont. Torque	Amps (A)	2.33
Continuous Output Power	Watts (W)	386
Motor Constant	oz-in/sqrt W Nm/sqrt W	22.97 0.162
Torque Constant	oz-in/A Nm/A	45.431 0.321
Voltage Constant	V/krpm V/rad/s	33.60 0.321
Terminal Resistance	Ohms	3.92
Inductance	mH	3.84
Max. Speed	RPM	6000
Peak Current	Amps (A)	8.96
Peak Torque	oz-in Nm	407.42 2.8764
Coulomb Friction Torque	oz-in Nm	2.27 0.016
Viscous Damping Factor	oz-in/krpm Nm s/rad	1.20000 8.06E-5
Electrical Time Constant	ms	0.98
Mechanical Time Constant	ms	1.48
Thermal Time Constant	min	15.00
Thermal Resistance	Celsius/W	1.25
Max. Winding Temperature	Celsius	125
Rotor Inertia	oz-in-sec ² kg-m ²	.00550 3.88E-5
Motor Weight	Lbs Kg	48.32 21.9

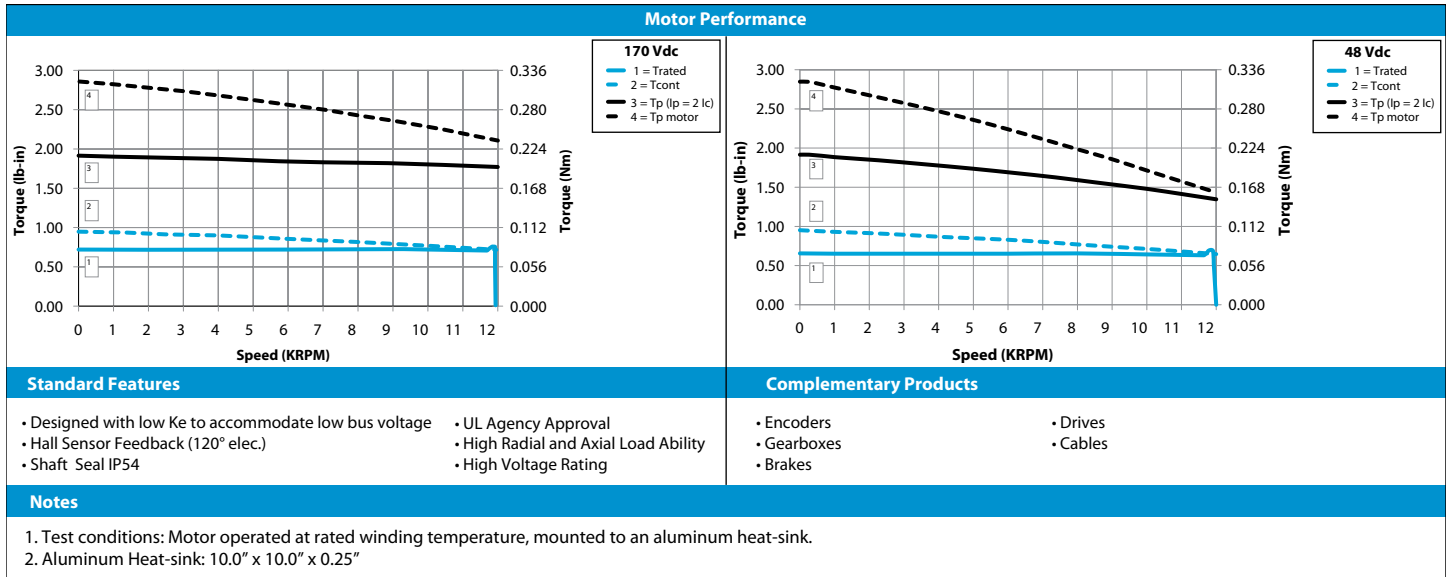


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I2351014NC

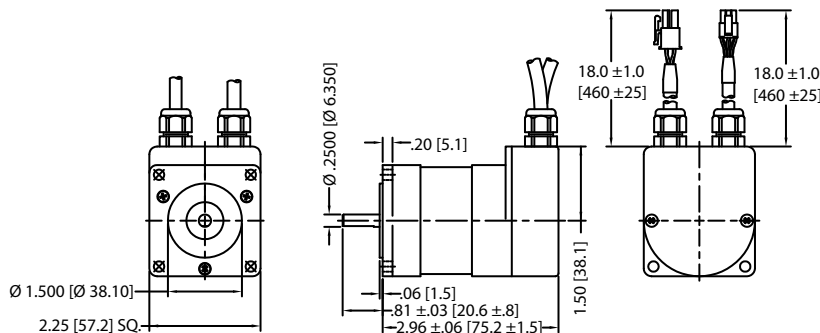


		Part/Model Number	
Specification	Units	I2351014NC	
Supply Voltage	VDC	170	
Continuous Stall Torque	lb-in	1.00	
	Nm	0.113	
Speed @ Cont. Torque	RPM	11900	
Current @ Cont. Torque	Amps (A)	9.07	
Continuous Output Power	Watts (W)	110	
Motor Constant	lb-in/sqrt W	.21	
	Nm/sqrt W	0.02	
Torque Constant	lb-in/A	0.122	
	Nm/A	0.014	
Voltage Constant	V/krpm	1.44	
	V/rad/s	0.014	
Terminal Resistance	Ohms	0.33	
Inductance	mH	0.38	
Max. Speed	RPM	12000	
Peak Current	Amps (A)	27.22	
Peak Torque	lb-in	3.01	
	Nm	0.34	
Thermal Time Constant	min	10.00	
Thermal Resistance	Celsius/W	2.68	
Max. Winding Temperature	Celsius	125	
Rotor Inertia	lb-in-sec ²	3.13E-5	
	kg-m ²	3.54E-6	
Weight	Lbs	1.20	
	Kg	0.5	



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I2351030NC



		Part/Model Number	
Specification	Units	I2351030NC	
Supply Voltage	VDC	170	
Continuous Stall Torque	lb-in	1.00	
	Nm	0.113	
Speed @ Cont. Torque	RPM	11900	
Current @ Cont. Torque	Amps (A)	4.36	
Continuous Output Power	Watts (W)	104	
Motor Constant	lb-in/sqrt W	.21	
	Nm/sqrt W	0.02	
Torque Constant	lb-in/A	0.254	
	Nm/A	0.029	
Voltage Constant	V/krpm	3.00	
	V/rad/s	0.029	
Terminal Resistance	Ohms	1.41	
Inductance	mH	1.64	
Max. Speed	RPM	12000	
Peak Current	Amps (A)	13.07	
Peak Torque	lb-in	3.01	
	Nm	0.34	
Thermal Time Constant	min	10.00	
Thermal Resistance	Celsius/W	2.87	
Max. Winding Temperature	Celsius	125	
Rotor Inertia	lb-in-sec ²	3.13E-5	
	kg-m ²	3.54E-6	
Weight	Lbs	1.20	
	Kg	0.5	

Motor Performance

170 Vdc

- 1 = Trated
- 2 = Tcont
- 3 = Tp (lp = 2 lc)
- 4 = Tp motor

48 Vdc

- 1 = Trated
- 2 = Tcont
- 3 = Tp (lp = 2 lc)
- 4 = Tp motor

Standard Features

- Designed with low Ke to accommodate low bus voltage
- Hall Sensor Feedback (120° elec.)
- Shaft Seal IP54
- UL Agency Approval
- High Radial and Axial Load Ability
- High Voltage Rating

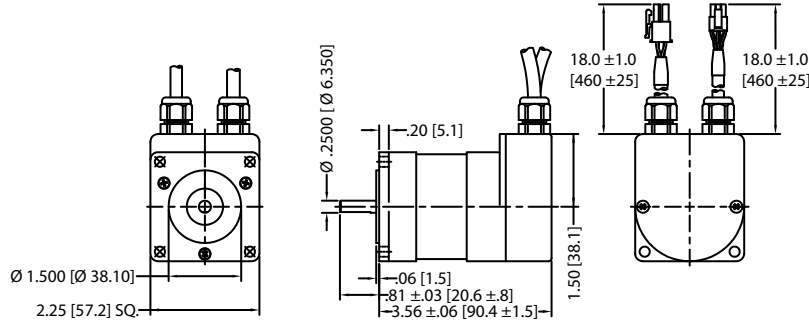
Complementary Products

- Encoders
- Gearboxes
- Brakes
- Drives
- Cables

Notes

1. Test conditions: Motor operated at rated winding temperature, mounted to an aluminum heat-sink.
2. Aluminum Heat-sink: 10.0" x 10.0" x 0.25"

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		Part/Model Number	
Specification	Units	I2352029NC	
Supply Voltage	VDC	170	
Continuous Stall Torque	lb-in	1.63	
	Nm	0.184	
Speed @ Cont. Torque	RPM	11900	
Current @ Cont. Torque	Amps (A)	7.91	
Continuous Output Power	Watts (W)	189	
Motor Constant	lb-in/sqrt W	.34	
	Nm/sqrt W	0.04	
Torque Constant	lb-in/A	.244	
	Nm/A	0.028	
Voltage Constant	V/krpm	2.88	
	V/rad/s	0.028	
Terminal Resistance	Ohms	.52	
Inductance	mH	.60	
Max. Speed	RPM	12000	
Peak Current	Amps (A)	23.74	
Peak Torque	lb-in	5.27	
	Nm	0.595	
Thermal Time Constant	min	10	
Thermal Resistance	Celsius/W	2.20	
Max. Winding Temperature	Celsius	125	
Rotor Inertia	lb-in-sec ²	6.25E-4	
	kg-m ²	7.06E-5	
Weight	Lbs	1.66	
	Kg	0.8	

Motor Performance

170 Vdc

- 1 = Trated
- 2 = Tcont
- 3 = Tp (Ip = 2 Ic)
- 4 = Tp motor

48 Vdc

- 1 = Trated
- 2 = Tcont
- 3 = Tp (Ip = 2 Ic)
- 4 = Tp motor

Standard Features

- Designed with low Ke to accommodate low bus voltage
- Hall Sensor Feedback (120° elec.)
- Shaft Seal IP54
- UL Agency Approval
- High Radial and Axial Load Ability
- High Voltage Rating

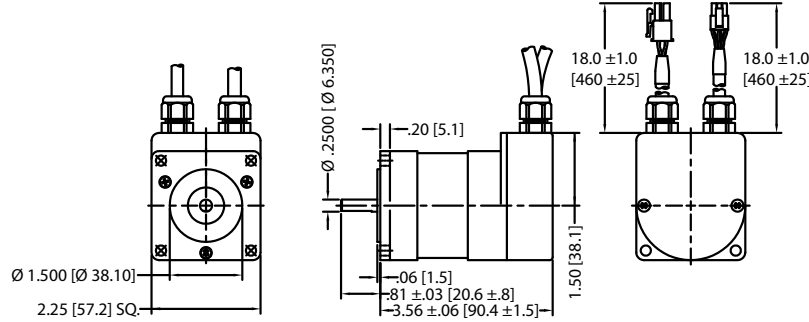
Complementary Products

- Encoders
- Gearboxes
- Brakes
- Drives
- Cables

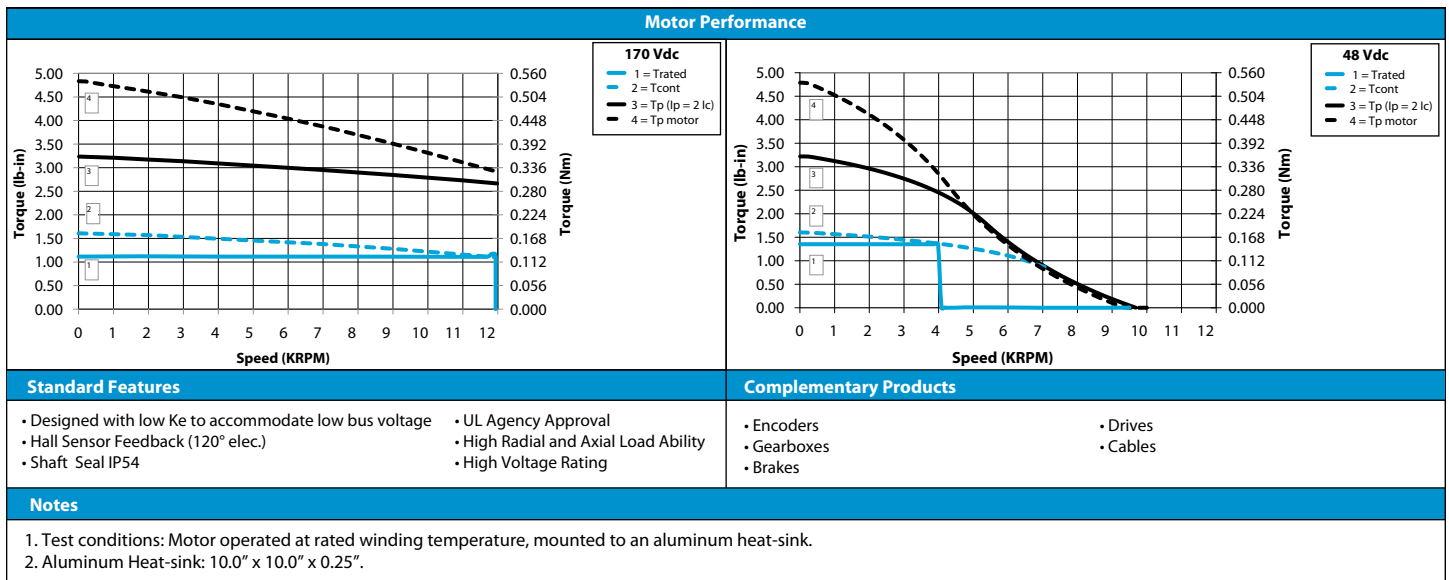
Notes

1. Test conditions: Motor operated at rated winding temperature, mounted to an aluminum heat-sink.
2. Aluminum Heat-sink: 10.0" x 10.0" x 0.25".

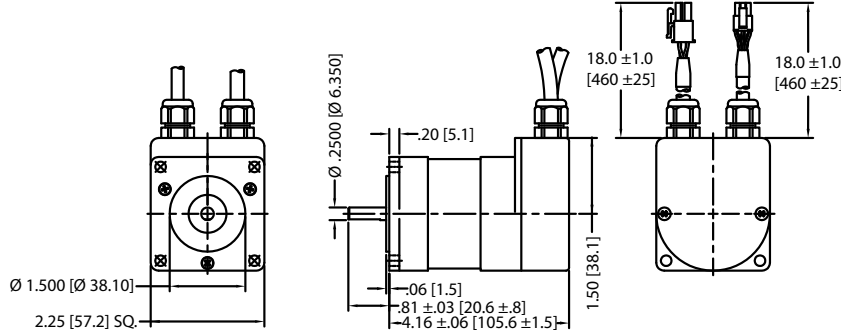
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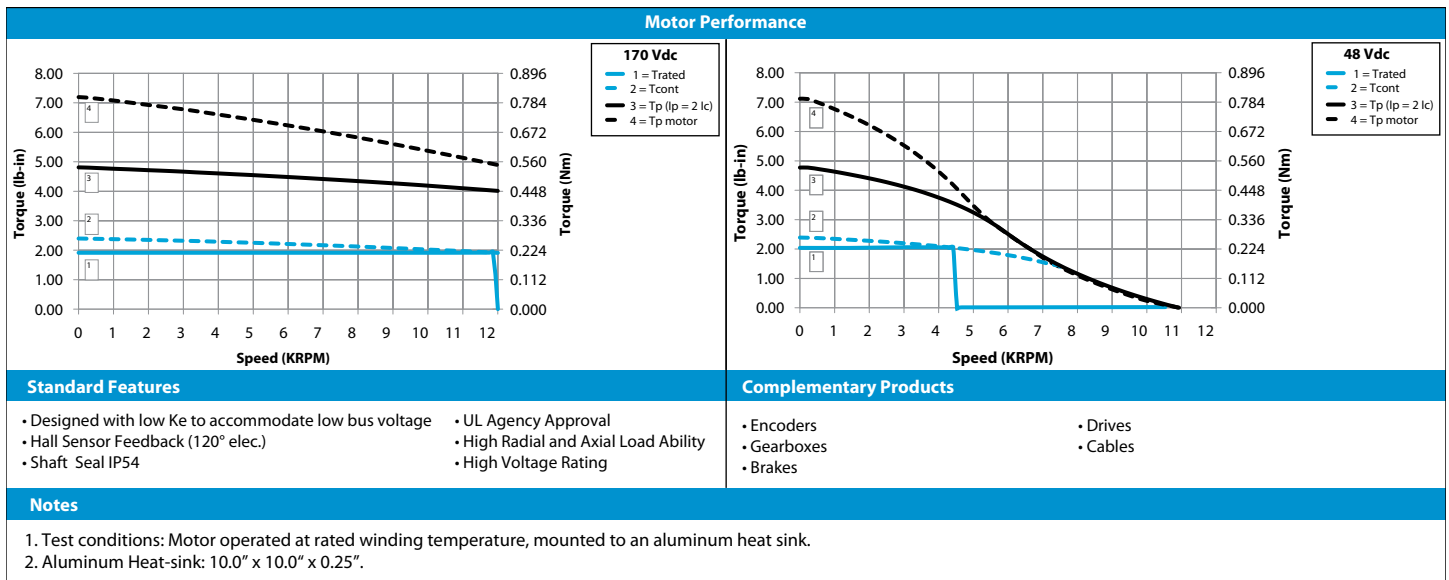
Specification	Units	Part/Model Number	
		I2352048NC	
Supply Voltage	VDC		170
Continuous Stall Torque	lb-in		1.63
	Nm		0.184
Speed @ Cont. Torque	RPM		11900
Current @ Cont. Torque	Amps (A)		4.75
Continuous Output Power	Watts (W)		179
Motor Constant	lb-in/sqrt W		.34
	Nm/sqrt W		0.04
Torque Constant	lb-in/A		.407
	Nm/A		0.046
Voltage Constant	V/krpm		4.80
	V/rad/s		0.046
Terminal Resistance	Ohms		1.44
Inductance	mH		1.66
Max. Speed	RPM		12000
Peak Current	Amps (A)		14.25
Peak Torque	lb-in		5.26
	Nm		0.594
Thermal Time Constant	min		10
Thermal Resistance	Celsius/W		2.35
Max. Winding Temperature	Celsius		125
Rotor Inertia	lb-in-sec ²		6.25E-5
	kg-m ²		7.06E-6
Weight	Lbs		1.66
	Kg		0.8



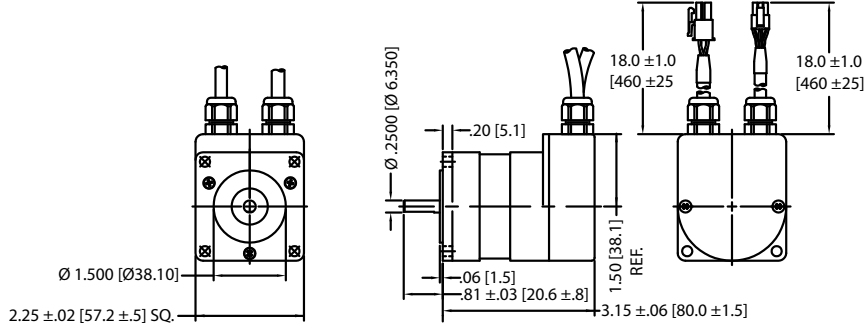
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		Part/Model Number	
Specification	Units	I2353043NC	
Supply Voltage	VDC	170	
Continuous Stall Torque	lb-in	2.42	
	Nm	0.273	
Speed @ Cont. Torque	RPM	11900	
Current @ Cont. Torque	Amps (A)	7.42	
Continuous Output Power	Watts (W)	287	
Motor Constant	lb-in/sqrt W	.49	
	Nm/sqrt W	0.06	
Torque Constant	lb-in/A	.366	
	Nm/A	0.041	
Voltage Constant	V/krpm	4.32	
	V/rad/s	0.041	
Terminal Resistance	Ohms	.56	
Inductance	mH	1.17	
Max. Speed	RPM	12000	
Peak Current	Amps (A)	22.26	
Peak Torque	lb-in	7.68	
	Nm	0.868	
Thermal Time Constant	min	15.00	
Thermal Resistance	Celsius/W	2.15	
Max. Winding Temperature	Celsius	125	
Rotor Inertia	lb-in-sec ²	8.13E-5	
	kg-m ²	9.19E-6	
Weight	Lbs	2.06	
	Kg	0.9	



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Specification	Units	Part/Model Number	
		I2381088NC	
Supply Voltage	VDC	170	
Continuous Stall Torque	lb-in	1.34	
	Nm	0.151	
Speed @ Cont. Torque	RPM	6000	
Current @ Cont. Torque	Amps (A)	2.07	
Continuous Output Power	Watts (W)	53	
Motor Constant	lb-in/sqrt W	.37	
	Nm/sqrt W	0.04	
Torque Constant	lb-in/A	.744	
	Nm/A	0.084	
Voltage Constant	V/krpm	8.80	
	V/rad/s	0.084	
Terminal Resistance	Ohms	4.10	
Inductance	mH	6.80	
Max. Speed	RPM	6000	
Peak Current	Amps (A)	6.20	
Peak Torque	lb-in	3.83	
	Nm	0.433	
Thermal Time Constant	min	10.00	
Thermal Resistance	Celsius/W	4.10	
Max. Winding Temperature	Celsius	125	
Rotor Inertia	lb-in-sec ²	6.25E-5	
	kg-m ²	7.06E-6	
Weight	Lbs	1.18	
	Kg	0.5	

Motor Performance

Standard Features

- Designed with low Ke to accommodate low bus voltage
- Hall Sensor Feedback (120° elec.)
- Shaft Seal IP54
- UL Agency Approval
- High Radial and Axial Load Ability
- High Voltage Rating

Complementary Products

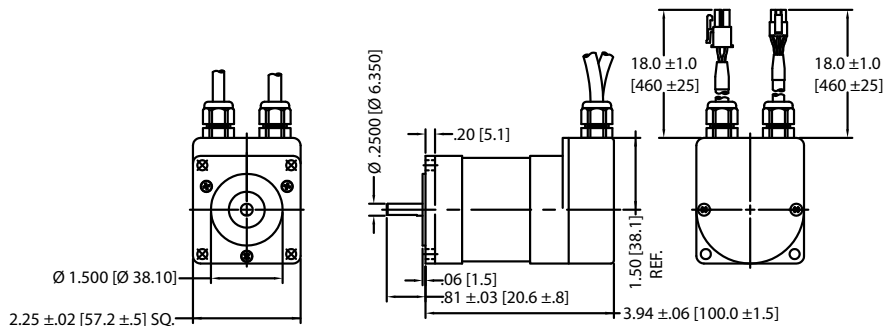
- Encoders
- Gearboxes
- Brakes
- Drives
- Cables

Notes

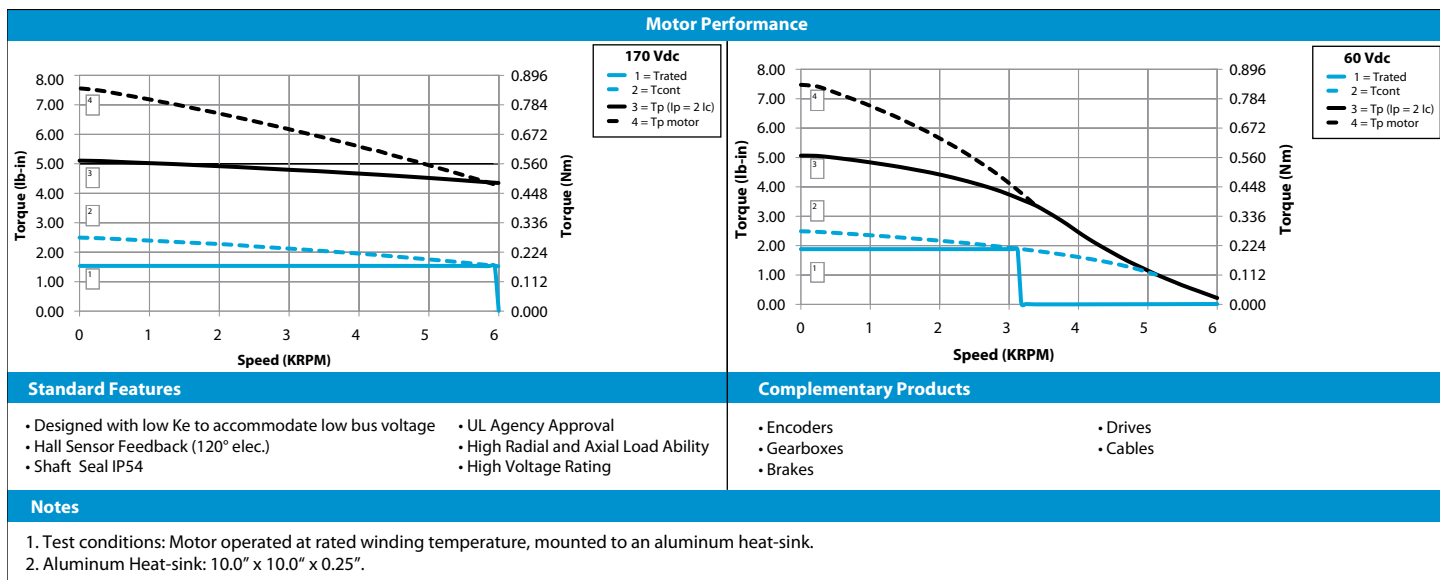
1. Test conditions: Motor operated at rated winding temperature, mounted to an aluminum heat-sink.
2. Aluminum Heat-sink: 10.0" x 10.0" x 0.25".

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I2382091NC



		Part/Model Number	
Specification	Units	I2382091NC	
Supply Voltage	VDC	170	
Continuous Stall Torque	lb-in	2.84	
	Nm	0.321	
Speed @ Cont. Torque	RPM	6000	
Current @ Cont. Torque	Amps (A)	3.98	
Continuous Output Power	Watts (W)	116	
Motor Constant	lb-in/sqrt W	.62	
	Nm/sqrt W	0.07	
Torque Constant	lb-in/A	.770	
	Nm/A	0.087	
Voltage Constant	V/krpm	9.10	
	V/rad/s	0.087	
Terminal Resistance	Ohms	1.55	
Inductance	mH	3.10	
Max. Speed	RPM	6000	
Peak Current	Amps (A)	11.93	
Peak Torque	lb-in	7.79	
	Nm	0.88	
Thermal Time Constant	min	10.00	
Thermal Resistance	Celsius/W	2.88	
Max. Winding Temperature	Celsius	125	
Rotor Inertia	lb-in-sec ²	1.06E-4	
	kg-m ²	1.20E-5	
Weight	Lbs	1.64	
	Kg	0.7	

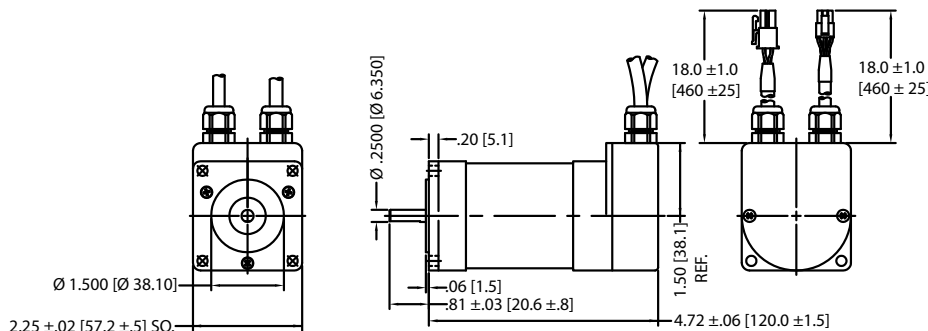


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Instrument Grade Brushless DC Servo Motors

I2383 Series

I2383092NC



		Part/Model Number	
Specification	Units	I2383092NC	
Supply Voltage	VDC	170	
Continuous Stall Torque	lb-in	3.57	
	Nm	0.403	
Speed @ Cont. Torque	RPM	6000	
Current @ Cont. Torque	Amps (A)	5.48	
Continuous Output Power	Watts (W)	176	
Motor Constant	lb-in/sqrt W	.73	
	Nm/sqrt W	0.08	
Torque Constant	lb-in/A	.778	
	Nm/A	0.088	
Voltage Constant	V/krpm	9.20	
	V/rad/s	0.088	
Terminal Resistance	Ohms	1.12	
Inductance	mH	2.30	
Max. Speed	RPM	6000	
Peak Current	Amps (A)	16.44	
Peak Torque	lb-in	10.93	
	Nm	1.235	
Thermal Time Constant	min	15.00	
Thermal Resistance	Celsius/W	2.14	
Max. Winding Temperature	Celsius	125	
Rotor Inertia	lb-in-sec ²	1.56E-4	
	kg-m ²	1.76E-5	
Weight	Lbs	2.24	
	Kg	1	

Motor Performance

170 Vdc

- 1 = Trated
- 2 = Tcont
- 3 = Tp (Ip = 2 Ic)
- 4 = Tp motor

60 Vdc

- 1 = Trated
- 2 = Tcont
- 3 = Tp (Ip = 2 Ic)
- 4 = Tp motor

Standard Features

Complementary Products

- Designed with low Ke to accommodate low bus voltage
- Hall Sensor Feedback (120° elec.)
- Shaft Seal IP54
- UL Agency Approval
- High Radial and Axial Load Ability
- High Voltage Rating

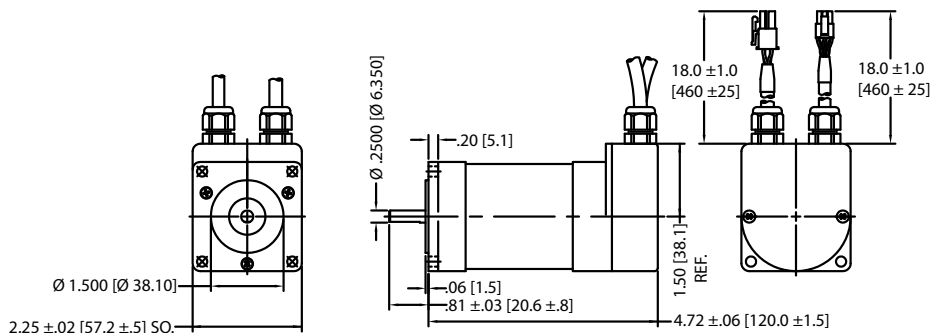
- Encoders
- Gearboxes
- Brakes
- Drives
- Cables

Notes

1. Test conditions: Motor operated at rated winding temperature, mounted to an aluminum heat-sink.
 2. Aluminum Heat-sink: 10.0" x 10.0" x 0.25".

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I2383214NC



Specification	Units	Part/Model Number
		I2383214NC
Supply Voltage	VDC	170
Continuous Stall Torque	lb-in Nm	3.44 0.389
Speed @ Cont. Torque	RPM	3800
Current @ Cont. Torque	Amps (A)	2.36
Continuous Output Power	Watts (W)	124
Motor Constant	lb-in/sqrt W Nm/sqrt W	.71 0.08
Torque Constant	lb-in/A Nm/A	1.809 0.204
Voltage Constant	V/krpm V/rad/s	21.40 0.204
Terminal Resistance	Ohms	6.42
Inductance	mH	12.52
Max. Speed	RPM	6000
Peak Torque	lb-in Nm	10.87 1.228
Peak Current	Amps (A)	7.07
Thermal Time Constant	min	15.00
Thermal Resistance	Celsius/W	2.01
Max. Winding Temperature	Celsius	125
Rotor Inertia	lb-in-sec ² kg-m ²	1.56E-4 1.76E-5
Weight	Lbs Kg	2.24 1

Motor Performance

170 Vdc

- 1 = Trated
- 2 = Tcont
- 3 = Tp (Ip = 2 Ic)
- 4 = Tp motor

60 Vdc

- 1 = Trated
- 2 = Tcont
- 3 = Tp (Ip = 2 Ic)
- 4 = Tp motor

Standard Features

- Designed with low Ke to accommodate low bus voltage
- Hall Sensor Feedback (120° elec.)
- Shaft Seal IP54
- UL Agency Approval
- High Radial and Axial Load Ability
- High Voltage Rating

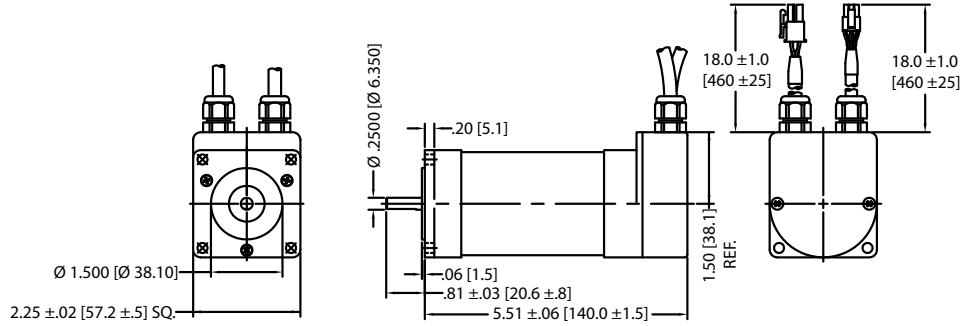
Complementary Products

- Encoders
- Gearboxes
- Brakes
- Drives
- Cables

Notes

1. Test conditions: Motor operated at rated winding temperature, mounted to an aluminum heat-sink.
2. Aluminum Heat-sink: 10.0" x 10.0" x 0.25".

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		Part/Model Number	
Specification	Units	I2384124NC	
Supply Voltage	VDC	170	
Continuous Stall Torque	lb-in	5.29	
	Nm	0.598	
Speed @ Cont. Torque	RPM	6000	
Current @ Cont. Torque	Amps (A)	5.77	
Continuous Output Power	Watts (W)	245	
Motor Constant	lb-in/sqrt W	.96	
	Nm/sqrt W	0.11	
Torque Constant	lb-in/A	1.048	
	Nm/A	0.118	
Voltage Constant	V/krpm	12.40	
	V/rad/s	0.118	
Terminal Resistance	Ohms	1.20	
Inductance	mH	3.30	
Max. Speed	RPM	6000	
Peak Current	Amps (A)	17.32	
Peak Torque	lb-in	15.57	
	Nm	1.759	
Thermal Time Constant	min	15.00	
Thermal Resistance	Celsius/W	1.80	
Max. Winding Temperature	Celsius	125	
Rotor Inertia	lb-in-sec ²	.00020	
	kg-m ²	2.26E-5	
Weight	Lbs	2.80	
	Kg	1.3	

Motor Performance

170 Vdc

- 1 = Trated
- 2 = Tcont
- 3 = Tp (Ip = 2 Ic)
- 4 = Tp motor

60 Vdc

- 1 = Trated
- 2 = Tcont
- 3 = Tp (Ip = 2 Ic)
- 4 = Tp motor

Standard Features

- Designed with low Ke to accommodate low bus voltage
- Hall Sensor Feedback (120° elec.)
- Shaft Seal IP54
- UL Agency Approval
- High Radial and Axial Load Ability
- High Voltage Rating

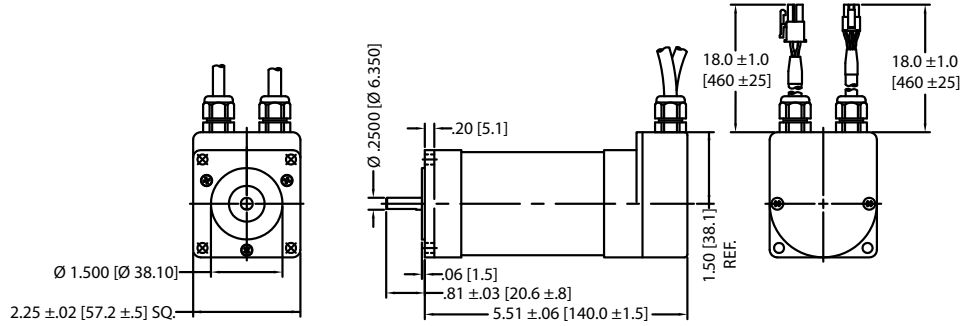
Complementary Products

- Encoders
- Gearboxes
- Brakes
- Drives
- Cables

Notes

1. Test conditions: Motor operated at rated winding temperature, mounted to an aluminum heat-sink.
2. Aluminum Heat-sink: 10.0" x 10.0" x 0.25".

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		Part/Model Number	
Specification	Units	I2384246NC	
Supply Voltage	VDC	170	
Continuous Stall Torque	lb-in	5.32	
	Nm	0.601	
Speed @ Cont. Torque	RPM	3200	
Current @ Cont. Torque	Amps (A)	2.93	
Continuous Output Power	Watts (W)	154	
Motor Constant	lb-in/sqrt W	.97	
	Nm/sqrt W	0.11	
Torque Constant	lb-in/A	2.080	
	Nm/A	0.235	
Voltage Constant	V/krpm	24.60	
	V/rad/s	0.235	
Terminal Resistance	Ohms	4.63	
Inductance	mH	12.85	
Max. Speed	RPM	6000	
Peak Current	Amps (A)	8.80	
Peak Torque	lb-in	15.47	
	Nm	1.748	
Thermal Time Constant	min	15.00	
Thermal Resistance	Celsius/W	1.84	
Max. Winding Temperature	Celsius	125	
Rotor Inertia	lb-in-sec ²	.00020	
	kg-m ²	2.26E-5	
Weight	Lbs	2.80	
	Kg	1.3	

Motor Performance

170 Vdc

- 1 = Trated
- 2 = Tcont
- 3 = Tp (Ip = 2 Ic)
- 4 = Tp motor

60 Vdc

- 1 = Trated
- 2 = Tcont
- 3 = Tp (Ip = 2 Ic)
- 4 = Tp motor

Standard Features

- Designed with low Ke to accommodate low bus voltage
- Hall Sensor Feedback (120° elec.)
- Shaft Seal IP54
- UL Agency Approval
- High Radial and Axial Load Ability
- High Voltage Rating

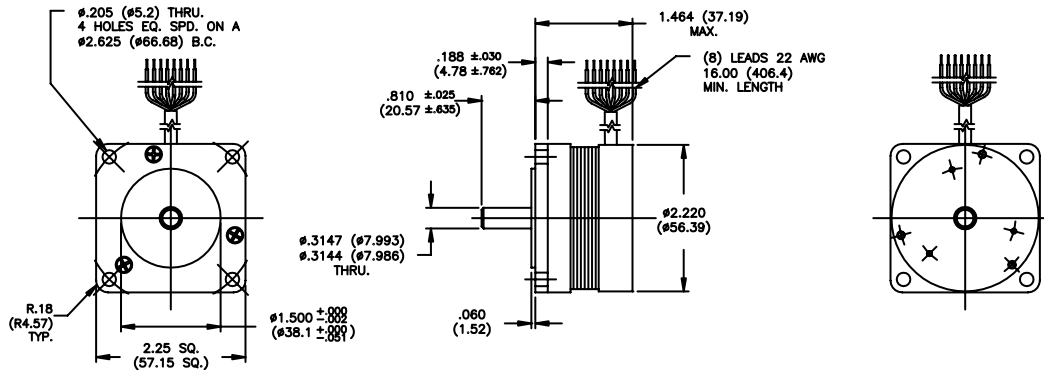
Complementary Products

- Encoders
- Gearboxes
- Brakes
- Drives
- Cables

Notes

1. Test conditions: Motor operated at rated winding temperature, mounted to an aluminum heat-sink.
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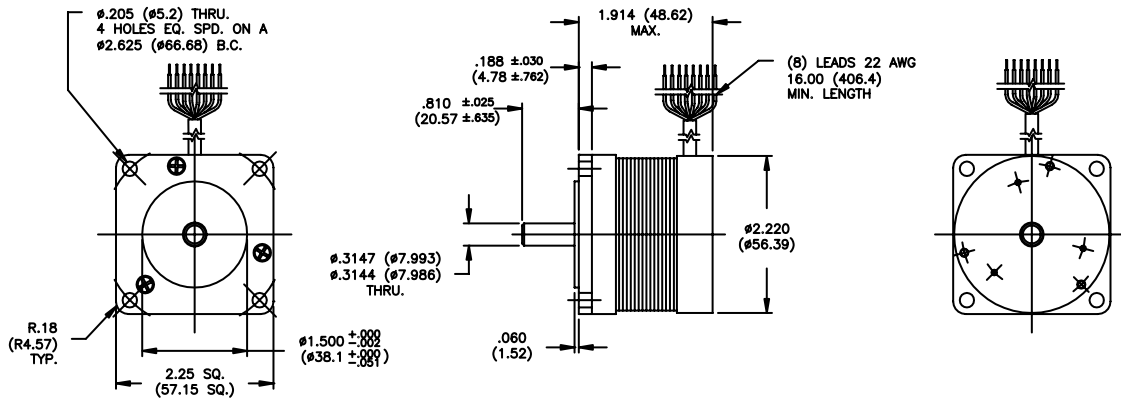
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Specification	Units	Part/Model Number							
		N2311 9.55 V	N2311 12.0 V	N2311 15.2 V	N2311 19.1 V	N2311 24.0 V	N2311 30.3 V	N2311 38.2 V	N2311 48.0 V
Supply Voltage	VDC	9.55	12.0	15.2	19.1	24.0	30.3	38.2	48.0
Continuous Torque	oz-in Nm	11 0.0777	11 0.0777	11 0.0777	11 0.0777	11 0.0777	11 0.0777	11 0.0777	11 0.0777
Speed @ Cont. Torque	RPM	6530	6500	6790	6920	6730	6940	7020	6790
Current @ Cont. Torque	Amps (A)	8.25	6.35	5.16	4.13	3.17	2.58	2.06	1.59
Continuous Output Power	Watts (W)	54	53	56	57	55	57	58	56
Motor Constant	oz-in/sqrt W Nm/sqrt W	3.6 0.025	3.8 0.027	3.8 0.027	3.9 0.028	4.0 0.028	4.0 0.028	4.0 0.028	4.1 0.029
Torque Constant	oz-in/A Nm/A	1.663 0.012	2.163 0.015	2.664 0.019	3.326 0.023	4.327 0.031	5.314 0.038	6.652 0.047	8.640 0.061
Voltage Constant	V/krpm V/rad/s	1.23 0.012	1.60 0.015	1.97 0.019	2.46 0.023	3.20 0.031	3.93 0.038	4.92 0.047	6.39 0.061
Terminal Resistance	Ohms	0.22	0.33	0.48	0.73	1.16	1.77	2.76	4.50
Inductance	mH	0.24	0.41	0.62	0.97	1.64	2.48	3.87	6.54
No-Load Current	Amps (A)	0.61	0.47	0.38	0.31	0.23	0.19	0.15	0.12
No-Load Speed	RPM	7660	7410	7610	7680	7430	7620	7680	7430
Peak Current	Amps (A)	44.0	36.9	31.7	36.3	20.7	17.1	13.8	10.7
Peak Torque	oz-in Nm	72.0 0.5083	78.7 0.5556	83.3 0.5881	86.5 0.6107	88.5 0.6248	90.0 0.6354	90.9 0.6418	91.2 0.6439
Coulomb Friction Torque	oz-in Nm	0.93 0.0066	0.93 0.0066	0.93 0.0066	0.93 0.0066	0.93 0.0066	0.93 0.0066	0.93 0.0066	0.93 0.0066
Viscous Damping Factor	oz-in/krpm Nm s/rad	0.012 8.06E-7	0.012 8.06E-7	0.012 8.06E-7	0.12 8.06E-6	0.012 8.06E-7	0.012 8.06E-7	0.012 8.06E-7	0.012 8.06E-7
Electrical Time Constant	ms	1.1	1.3	1.3	1.3	1.4	1.4	1.4	1.5
Mechanical Time Constant	ms	6.7	5.9	5.7	5.6	5.3	5.3	5.3	5.1
Thermal Time Constant	min	13	13	13	13	13	13	13	13
Thermal Resistance	Celsius/W	11.4	11.4	11.4	11.4	11.4	11.4	11.4	11.4
Max. Winding Temperature	Celsius	130	130	130	130	130	130	130	130
Rotor Inertia	oz-in-sec ² kg-m ²	.00060 4.24E-6	.00060 4.24E-6	.00060 4.24E-6	.00060 4.24E-6	.00060 4.24E-6	.00060 4.24E-6	.00060 4.24E-6	.00060 4.24E-6
Weight (Mass)	oz g	12.9 365.7	12.9 365.7	12.9 365.7	12.9 365.7	12.9 365.7	12.9 365.7	12.9 365.7	12.9 365.7

Performance (24 V Winding)	Standard Features	Connection Chart																		
	<ul style="list-style-type: none"> Shielded Ball Bearings 4-Pole Rotor Neodymium Magnets 3-Phase Stator Hall Sensors NEMA 23 Mounting 	<table border="1"> <thead> <tr> <th>Color/Pin</th> <th>Function</th> </tr> </thead> <tbody> <tr><td>Brown</td><td>Motor ΦA</td></tr> <tr><td>Red</td><td>Motor ΦB</td></tr> <tr><td>Orange</td><td>Motor ΦC</td></tr> <tr><td>Grey</td><td>Sensor 1</td></tr> <tr><td>Blue</td><td>Sensor 2</td></tr> <tr><td>White</td><td>Sensor 3</td></tr> <tr><td>Violet</td><td>Vcc</td></tr> <tr><td>Black</td><td>Ground</td></tr> </tbody> </table>	Color/Pin	Function	Brown	Motor ΦA	Red	Motor ΦB	Orange	Motor ΦC	Grey	Sensor 1	Blue	Sensor 2	White	Sensor 3	Violet	Vcc	Black	Ground
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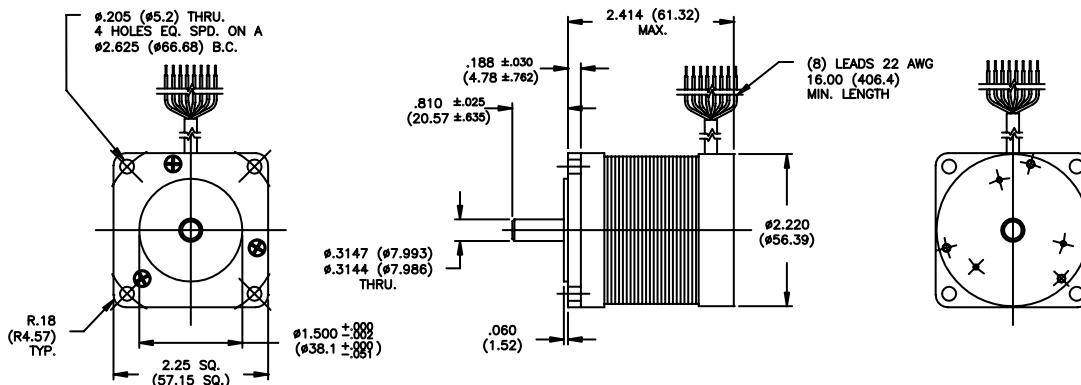
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Specification	Units	Part/Model Number							
		N2312 12.0 V	N2312 15.2 V	N2312 19.1 V	N2312 24.0 V	N2312 30.3 V	N2312 38.2 V	N2312 48.0 V	N2312 60.0 V
Supply Voltage	VDC	12.0	15.2	19.1	24.0	30.3	38.2	48.0	60.6
Continuous Torque	oz-in	20	20	20	20	20	20	20	20
	Nm	0.1412	0.1412	0.1412	0.1412	0.1412	0.1412	0.1412	0.1412
Speed @ Cont. Torque	RPM	5940	6160	6080	6260	6370	6200	6340	6260
Current @ Cont. Torque	Amps (A)	9.91	7.93	6.10	4.96	3.96	3.05	2.48	1.93
Continuous Output Power	Watts (W)	87	90	89	92	93	91	93	92
Motor Constant	oz-in/sqrt W	5.5	5.7	6.0	6.1	6.1	6.3	6.3	6.3
	Nm/sqrt W	0.039	0.04	0.042	0.043	0.043	0.044	0.044	0.044
Torque Constant	oz-in/A	2.420	3.015	3.935	4.841	6.044	7.856	9.668	12.385
	Nm/A	0.017	0.021	0.028	0.034	0.043	0.055	0.068	0.087
Voltage Constant	V/krpm	1.79	2.23	2.91	3.58	4.47	5.81	7.15	9.16
	V/rad/s	0.017	0.021	0.028	0.034	0.043	0.055	0.068	0.087
Terminal Resistance	Ohms	0.19	0.28	0.43	0.63	0.97	1.56	2.39	3.84
Inductance	mH	0.25	0.44	0.74	1.13	1.76	2.97	4.51	7.40
No-Load Current	Amps (A)	0.54	0.43	0.33	0.27	0.22	0.17	0.13	0.11
No-Load Speed	RPM	6650	6730	6530	6660	6730	6530	6670	6570
Peak Current	Amps (A)	61.8	54.5	44.9	37.9	31.2	24.5	20.1	15.8
Peak Torque	oz-in	148	163	175	182	188	191	193	194
	Nm	1.0449	1.1508	1.2355	1.2849	1.3273	1.3485	1.3626	1.3696
Coulomb Friction Torque	oz-in	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
	Nm	0.0078	0.0078	0.0078	0.0078	0.0078	0.0078	0.0078	0.0078
Viscous Damping Factor	oz-in/krpm	0.031	0.031	0.031	0.031	0.031	0.031	0.031	0.031
	Nm s/rad	2.08E-6	2.08E-6	2.08E-6	2.08E-6	2.08E-6	2.08E-6	2.08E-6	2.08E-6
Electrical Time Constant	ms	1.5	1.6	1.7	1.8	1.8	1.9	1.9	1.9
Mechanical Time Constant	ms	5.1	4.7	4.2	4.1	4.1	3.9	3.9	3.8
Thermal Time Constant	min	17	17	17	17	17	17	17	17
Thermal Resistance	Celsius/W	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9
Max. Winding Temperature	Celsius	130	130	130	130	130	130	130	130
Rotor Inertia	oz-in-sec ²	.0011	.0011	.0011	.0011	.0011	.0011	.0011	.0011
	kg-m ²	7.77E-6	7.77E-6	7.77E-6	7.77E-6	7.77E-6	7.77E-6	7.77E-6	7.77E-6
Weight (Mass)	oz	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0
	g	510.3	510.3	510.3	510.3	510.3	510.3	510.3	510.3

Performance (24 V Winding)	Standard Features	Connection Chart																		
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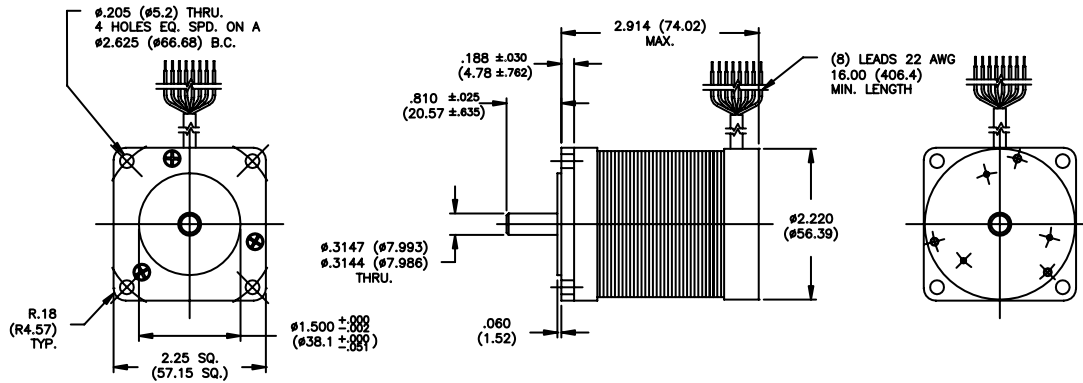
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Specification	Units	Part/Model Number							
		N2313 12.0 V	N2313 15.2 V	N2313 19.1 V	N2313 24.0 V	N2313 30.3 V	N2313 38.2 V	N2313 48.0 V	N2313 60.0 V
Supply Voltage	VDC	12.0	15.2	19.1	24.0	30.3	38.2	48.0	60.6
Continuous Torque	oz-in	31	31	31	31	31	31	31	31
	Nm	0.2189	0.2189	0.2189	0.2189	0.2189	0.2189	0.2189	0.2189
Speed @ Cont. Torque	RPM	6230	6350	6670	6810	6690	6890	6950	6770
Current @ Cont. Torque	Amps (A)	16.6	12.8	10.4	8.29	6.38	5.18	4.15	3.19
Continuous Output Power	Watts (W)	145	147	155	158	155	160	161	157
Motor Constant	oz-in/sqrt W	6.5	7.1	7.4	7.7	8.0	8.1	8.1	8.3
	Nm/sqrt W	0.046	0.05	0.052	0.054	0.056	0.057	0.057	0.059
Torque Constant	oz-in/A	2.272	2.948	3.624	4.530	5.895	7.247	9.059	11.790
	Nm/A	0.016	0.021	0.026	0.032	0.042	0.051	0.064	0.083
Voltage Constant	V/krpm	1.68	2.18	2.68	3.35	4.36	5.36	6.70	8.72
	V/rad/s	0.016	0.021	0.026	0.032	0.042	0.051	0.064	0.083
Terminal Resistance	Ohms	0.12	0.17	0.24	0.35	0.54	0.81	1.24	2.00
Inductance	mH	0.17	0.28	0.42	0.66	1.12	1.69	2.64	4.46
No-Load Current	Amps (A)	0.73	0.56	0.46	0.37	0.28	0.23	0.18	0.14
No-Load Speed	RPM	7110	6910	7080	7120	6920	7090	7130	6920
Peak Current	Amps (A)	97.9	89.1	80.5	69.4	56.5	47.4	38.7	30.
Peak Torque	oz-in	220	261	290	313	331	342	349	355
	Nm	1.5532	1.8427	2.0474	2.2098	2.3369	2.4145	2.4639	2.5063
Coulomb Friction Torque	oz-in	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
	Nm	0.0092	0.0092	0.0092	0.0092	0.0092	0.0092	0.0092	0.0092
Viscous Damping Factor	oz-in/krpm	0.052	0.052	0.052	0.052	0.052	0.052	0.052	0.052
	Nm s/rad	3.49E-6	3.49E-6	3.49E-6	3.49E-6	3.49E-6	3.49E-6	3.49E-6	3.49E-6
Electrical Time Constant	ms	1.3	1.6	1.8	1.9	2.1	2.1	2.1	2.2
Mechanical Time Constant	ms	5.4	4.5	4.1	3.8	3.5	3.5	3.4	3.2
Thermal Time Constant	min	21	21	21	21	21	21	21	21
Thermal Resistance	Celsius/W	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2
Max. Winding Temperature	Celsius	130	130	130	130	130	130	130	130
Rotor Inertia	oz-in-sec ²	.0016	.0016	.0016	.0016	.0016	.0016	.0016	.0016
	kg-m ²	1.13E-5	1.13E-5	1.13E-5	1.13E-5	1.13E-5	1.13E-5	1.13E-5	1.13E-5
Weight (Mass)	oz	23.7	23.7	23.7	23.7	23.7	23.7	23.7	23.7
	g	671.9	671.9	671.9	671.9	671.9	671.9	671.9	671.9

Performance (24 V Winding)	Standard Features	Connection Chart																		
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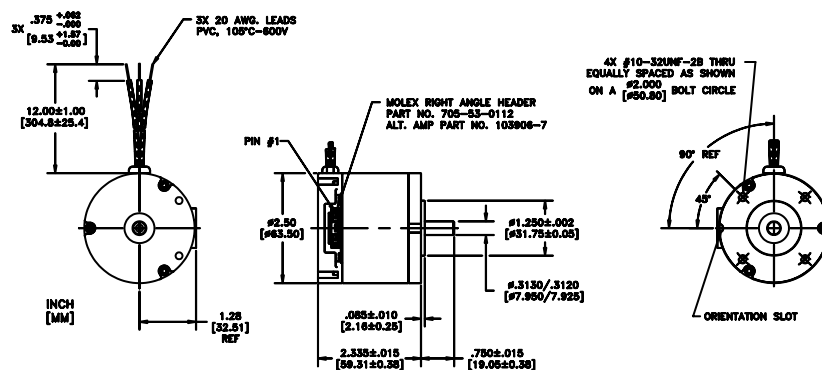
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Specification	Units	Part/Model Number							
		N2314 15.2 V	N2314 19.1 V	N2314 24.0 V	N2314 30.3 V	N2314 38.2 V	N2314 48.0 V	N2314 60.0 V	N2314 76.4 V
Supply Voltage	VDC	15.2	19.1	24.0	30.3	38.2	48.0	60.6	76.4
Continuous Torque	oz-in	40	40	40	40	40	40	40	40
	Nm	0.2824	0.2824	0.2824	0.2824	0.2824	0.2824	0.2824	0.2824
Speed @ Cont. Torque	RPM	6150	6170	6420	6560	6420	6580	6670	6480
Current @ Cont. Torque	Amps (A)	15.9	12.3	9.97	7.97	6.13	4.98	3.99	3.07
Continuous Output Power	Watts (W)	184	184	192	196	192	197	199	194
Motor Constant	oz-in/sqrt W	8.1	8.8	9.1	9.4	9.8	9.8	9.8	10.0
	Nm/sqrt W	0.057	0.062	0.064	0.066	0.069	0.069	0.069	0.071
Torque Constant	oz-in/A	3.015	3.935	4.841	6.044	7.856	9.668	12.088	15.712
	Nm/A	0.021	0.028	0.034	0.043	0.055	0.068	0.085	0.111
Voltage Constant	V/krpm	2.23	2.91	3.58	4.47	5.81	7.15	8.94	11.62
	V/rad/s	0.021	0.028	0.034	0.043	0.055	0.068	0.085	0.111
Terminal Resistance	Ohms	0.14	0.20	0.28	0.41	0.65	0.98	1.51	2.45
Inductance	mH	0.22	0.37	0.56	0.88	1.49	2.25	3.52	5.95
No-Load Current	Amps (A)	0.65	0.50	0.41	0.33	0.25	0.20	0.16	0.12
No-Load Speed	RPM	6740	6540	6680	6750	6550	6680	6750	6550
Peak Current	Amps (A)	109	96.6	85.7	73.3	59.0	49.1	40.1	31.2
Peak Torque	oz-in	326	378	412	441	462	473	482	488
	Nm	2.3016	2.6687	2.9087	3.1135	3.2617	3.3394	3.4029	3.4453
Coulomb Friction Torque	oz-in	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
	Nm	0.0106	0.0106	0.0106	0.0106	0.0106	0.0106	0.0106	0.0106
Viscous Damping Factor	oz-in/krpm	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072
	Nm s/rad	4.83E-6	4.83E-6	4.83E-6	4.83E-6	4.83E-6	4.83E-6	4.83E-6	4.83E-6
Electrical Time Constant	ms	1.6	1.9	2.0	2.1	2.3	2.3	2.3	2.4
Mechanical Time Constant	ms	4.6	3.9	3.6	3.4	3.2	3.2	3.1	3.0
Thermal Time Constant	min	25	25	25	25	25	25	25	25
Thermal Resistance	Celsius/W	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7
Max. Winding Temperature	Celsius	130	130	130	130	130	130	130	130
Rotor Inertia	oz-in-sec ²	2.1 -E3	2.1 -E3	2.1 -E3	2.1 -E3	2.1 -E3	2.1 -E3	2.1 -E3	2.1 -E3
	kg-m ²	1.48E-2	1.48E-2	1.48E-2	1.48E-2	1.48E-2	1.48E-2	1.48E-2	1.48E-2
Weight (Mass)	oz	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4
	g	833.5	833.5	833.5	833.5	833.5	833.5	833.5	833.5

Performance (24 V Winding)	Standard Features	Connection Chart																		
	<ul style="list-style-type: none"> Shielded Ball Bearings 4-Pole Rotor Neodymium Magnets 3-Phase Stator Hall Sensors NEMA 23 Mounting 	<table border="1"> <thead> <tr> <th>Color/Pin</th> <th>Function</th> </tr> </thead> <tbody> <tr> <td>Brown</td> <td>Motor ΦA</td> </tr> <tr> <td>Red</td> <td>Motor ΦB</td> </tr> <tr> <td>Orange</td> <td>Motor ΦC</td> </tr> <tr> <td>Grey</td> <td>Sensor 1</td> </tr> <tr> <td>Blue</td> <td>Sensor 2</td> </tr> <tr> <td>White</td> <td>Sensor 3</td> </tr> <tr> <td>Violet</td> <td>Vcc</td> </tr> <tr> <td>Black</td> <td>Ground</td> </tr> </tbody> </table>	Color/Pin	Function	Brown	Motor ΦA	Red	Motor ΦB	Orange	Motor ΦC	Grey	Sensor 1	Blue	Sensor 2	White	Sensor 3	Violet	Vcc	Black	Ground
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	Red	Motor ΦB																		
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	Complementary Products <ul style="list-style-type: none"> Encoders Gearboxes Brakes Drives 																			
	Notes <ol style="list-style-type: none"> All values specified at 25°C ambient temperature and without heat sink. Peak values are theoretical and supplied for reference only. 																			
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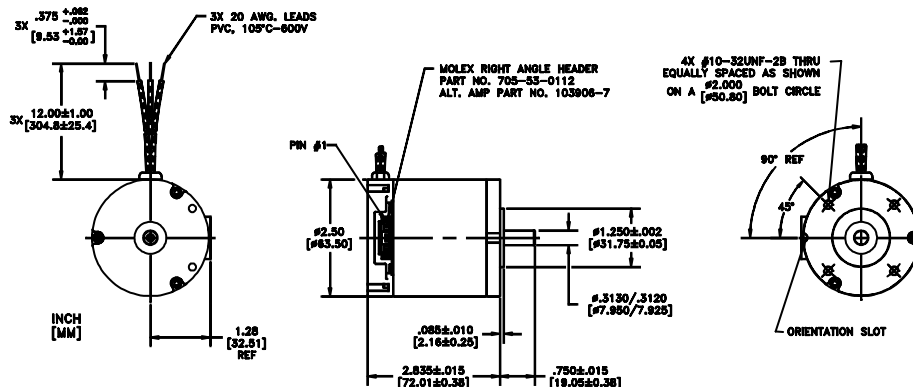
Specification	Units	Part/Model Number	
		119000	119001
Supply Voltage	VDC	24	24
Continuous Torque	oz-in Nm	14 0.0988	21 0.1483
Speed @ Cont. Torque	RPM	4928	4234
Current @ Cont. Torque	Amps (A)	3.7	4.6
Continuous Output Power	Watts (W)	51	66
Motor Constant	oz-in/sqrt W Nm/sqrt W	6.8 0.048	8.1 0.057
Torque Constant	oz-in/A Nm/A	5.463 0.039	6.017 0.042
Voltage Constant	V/krpm V/rad/s	4.04 0.039	4.45 0.042
Terminal Resistance	Ohms	0.648	0.557
Inductance	mH	0.543	0.493
No-Load Current	Amps (A)	1.14	1.07
No-Load Speed	RPM	5947	5389
Peak Current	Amps (A)	26	30
Peak Torque	oz-in Nm	142 1.0025	179 1.2637
Coulomb Friction Torque	oz-in Nm	1.25 0.0088	1.50 0.0106
Viscous Damping Factor	oz-in/krpm Nm s/rad	0.340 2.28E-5	0.310 2.08E-5
Electrical Time Constant	ms	0.838	0.886
Mechanical Time Constant	ms	5.236	4.129
Thermal Time Constant	min	12	20
Thermal Resistance	Celsius/W	1.26	1.22
Max. Winding Temperature	Celsius	105	105
Rotor Inertia	oz-in-sec ² kg-m ²	0.0017 1.20E-5	0.0019 1.34E-5
Weight (Mass)	oz g	18.4 521.6	20.0 567

Performance (119000)	Standard Features	Connection Chart																		
	<ul style="list-style-type: none"> Shielded Ball Bearings 8-Pole Rotor Neodymium Magnets 3-Phase Stator Hall Sensors Aluminum Housing 	<table border="1"> <thead> <tr> <th>Color/Pin</th> <th>Function</th> </tr> </thead> <tbody> <tr><td>Black / 1</td><td>Motor ΦC</td></tr> <tr><td>2</td><td>Vcc</td></tr> <tr><td>3</td><td>Sensor 3</td></tr> <tr><td>4</td><td>Sensor 2</td></tr> <tr><td>5</td><td>Sensor 1</td></tr> <tr><td>6</td><td>Ground</td></tr> <tr><td>Red / 7</td><td>Motor ΦA</td></tr> <tr><td>White / 8</td><td>Motor ΦB</td></tr> </tbody> </table>	Color/Pin	Function	Black / 1	Motor ΦC	2	Vcc	3	Sensor 3	4	Sensor 2	5	Sensor 1	6	Ground	Red / 7	Motor ΦA	White / 8	Motor ΦB
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	Notes <ol style="list-style-type: none"> All values specified at 25°C ambient temperature and without heat sink. Peak values are theoretical and supplied for reference only. Continuous Torque recorded at max. winding temperature at 25°C ambient, mounted to a 12.0"x12.0"x0.50" heat sink. 																			
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Instrument Grade Brushless DC Servo Motors

2.5" x 2.8" (64mm x 72mm) Series



Specification	Units	Part/Model Number	
		119002	119003
Supply Voltage	VDC	24	24
Continuous Torque	oz-in	27	34
	Nm	0.1906	0.24
Speed @ Cont. Torque	RPM	3286	4228
Current @ Cont. Torque	Amps (A)	4.5	6.8
Continuous Output Power	Watts (W)	66	106
Motor Constant	oz-in/sqrt W	9.3	10.1
	Nm/sqrt W	0.066	0.071
Torque Constant	oz-in/A	7.666	5.936
	Nm/A	0.054	0.042
Voltage Constant	V/krpm	5.67	4.39
	V/rad/s	0.054	0.042
Terminal Resistance	Ohms	0.678	0.348
Inductance	mH	0.635	0.315
No-Load Current	Amps (A)	0.93	1.08
No-Load Speed	RPM	4233	5468
Peak Current	Amps (A)	25	45
Peak Torque	oz-in	191	267
	Nm	1.3485	1.885
Coulomb Friction Torque	oz-in	1.7	1.9
	Nm	0.012	0.0134
Viscous Damping Factor	oz-in/krpm	0.39	0.44
	Nm s/rad	2.62E-5	2.95E-5
Electrical Time Constant	ms	0.937	0.904
Mechanical Time Constant	ms	4.08	3.78
Thermal Time Constant	min	20.7	21.3
Thermal Resistance	Celsius/W	1.19	1.15
Max. Winding Temperature	Celsius	105	105
Rotor Inertia	oz-in-sec ²	0.0025	0.0027
	kg-m ²	1.77E-5	1.91E-5
Weight (Mass)	oz	25.6	28
	g	725.7	793.8

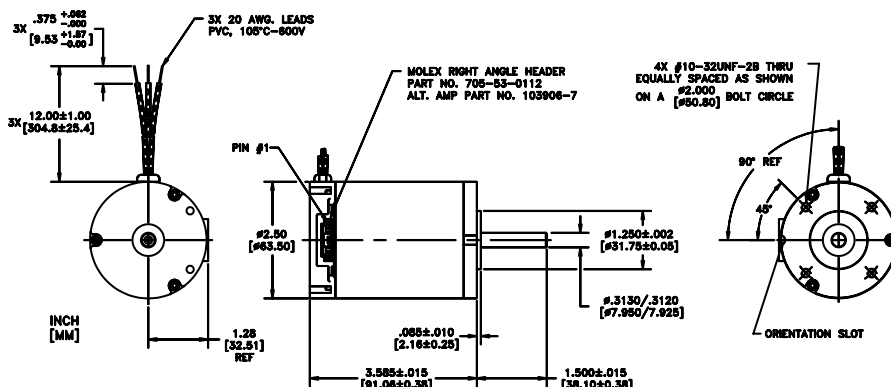
Performance (119003)	Standard Features	Connection Chart	
	<ul style="list-style-type: none"> Shielded Ball Bearings 8-Pole Rotor Neodymium Magnets 3-Phase Stator Hall Sensors Aluminum Housing 	Color/Pin	Function
	Complementary Products	2	Vcc
	<ul style="list-style-type: none"> Encoders Gearboxes Brakes Drives 	3	Sensor 3
	Notes	4	Sensor 2
		5	Sensor 1
		6	Ground
		Red / 7	Motor ΦA
		White / 8	Motor ΦB
		120° Electrical Spacing	

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Instrument Grade Brushless DC Servo Motors

2.5" x 3.6" (64mm x 91mm) Series

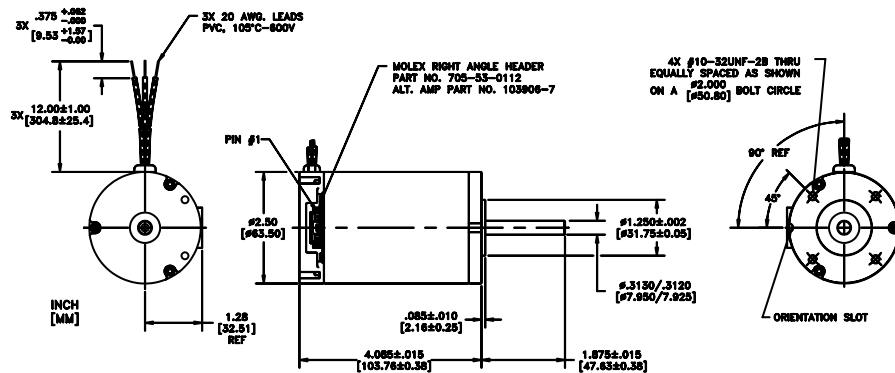


Specification	Units	Part/Model Number		
		119004	119005	119006
Supply Voltage	VDC	24	24	24
Continuous Torque	oz-in	41	48	55
	Nm	0.2895	0.3389	0.3883
Speed @ Cont. Torque	RPM	3455	3074	2645
Current @ Cont. Torque	Amps (A)	6.8	6.8	6.9
Continuous Output Power	Watts (W)	105	109	108
Motor Constant	oz-in/sqrt W	11.1	12.1	12.9
	Nm/sqrt W	0.078	0.085	0.091
Torque Constant	oz-in/A	7.004	8.072	9.073
	Nm/A	0.049	0.057	0.064
Voltage Constant	V/krpm	5.18	5.97	6.71
	V/rad/s	0.049	0.057	0.064
Terminal Resistance	Ohms	0.395	0.444	0.493
Inductance	mH	0.372	0.429	0.486
No-Load Current	Amps (A)	0.96	0.91	0.85
No-Load Speed	RPM	4636	4019	3575
Peak Current	Amps (A)	41	37	34
Peak Torque	oz-in	282	294	302
	Nm	1.9909	2.0756	2.1321
Coulomb Friction Torque	oz-in	12.00	2.15	2.20
	Nm	0.0847	0.0152	0.0155
Viscous Damping Factor	oz-in/krpm	0.49	0.535	0.585
	Nm s/rad	3.29E-5	3.59E-5	3.93E-5
Electrical Time Constant	ms	0.938	0.965	0.986
Mechanical Time Constant	ms	4.006	3.668	3.217
Thermal Time Constant	min	21.8	22.2	22.5
Thermal Resistance	Celsius/W	1.11	1.08	10.4
Max. Winding Temperature	Celsius	105	105	105
Rotor Inertia	oz-in-sec ²	0.0035	0.0038	0.0038
	kg-m ²	2.47E-5	2.68E-5	2.68E-5
Weight (Mass)	oz	34.4	36.0	36.8
	g	975.2	1020.6	1043.3

Performance (119006)	Standard Features	Connection Chart																		
	<ul style="list-style-type: none"> Shielded Ball Bearings 8-Pole Rotor Neodymium Magnets 3-Phase Stator Hall Sensors Aluminum Housing 	<table border="1"> <thead> <tr> <th>Color/Pin</th> <th>Function</th> </tr> </thead> <tbody> <tr> <td>Black / 1</td> <td>Motor ΦC</td> </tr> <tr> <td>2</td> <td>Vcc</td> </tr> <tr> <td>3</td> <td>Sensor 3</td> </tr> <tr> <td>4</td> <td>Sensor 2</td> </tr> <tr> <td>5</td> <td>Sensor 1</td> </tr> <tr> <td>6</td> <td>Ground</td> </tr> <tr> <td>Red / 7</td> <td>Motor ΦA</td> </tr> <tr> <td>White / 8</td> <td>Motor ΦB</td> </tr> </tbody> </table>	Color/Pin	Function	Black / 1	Motor ΦC	2	Vcc	3	Sensor 3	4	Sensor 2	5	Sensor 1	6	Ground	Red / 7	Motor ΦA	White / 8	Motor ΦB
	Color/Pin	Function																		
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	2	Vcc																		
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	Complementary Products <ul style="list-style-type: none"> Encoders Gearboxes Brakes Drives 																			
	Notes <ol style="list-style-type: none"> All values specified at 25°C ambient temperature and without heat sink. Peak values are theoretical and supplied for reference only. Continuous Torque recorded at max. winding temperature at 25°C ambient, mounted to a 12.0"x12.0"x0.50" heat sink. 																			
		120° Electrical Spacing																		

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Specification	Units	Part/Model Number	
		119007	119008
Supply Voltage	VDC	24	24
Continuous Torque	oz-in Nm	62 0.4377	69 0.4871
Speed @ Cont. Torque	RPM	2290	2002
Current @ Cont. Torque	Amps (A)	6.9	6.9
Continuous Output Power	Watts (W)	105	102
Motor Constant	oz-in/sqrt W Nm/sqrt W	13.8 0.097	14.7 0.104
Torque Constant	oz-in/A Nm/A	10.168 0.072	11.277 0.08
Voltage Constant	V/krpm V/rad/s	7.52 0.072	8.34 0.08
Terminal Resistance	Ohms	0.541	0.589
Inductance	mH	0.543	0.601
No-Load Current	Amps (A)	0.81	0.77
No-Load Speed	RPM	3191	2879
Peak Current	Amps (A)	30.5	28.5
Peak Torque	oz-in Nm	311 2.1957	319 2.2521
Coulomb Friction Torque	oz-in Nm	2.25 0.0159	2.30 0.0162
Viscous Damping Factor	oz-in/krpm Nm s/rad	0.63 4.23E-5	0.68 4.57E-5
Electrical Time Constant	ms	1.004	1.019
Mechanical Time Constant	ms	3.258	3.021
Thermal Time Constant	min	22.8	23.0
Thermal Resistance	Celsius/W	1.00	0.96
Max. Winding Temperature	Celsius	105	105
Rotor Inertia	oz-in-sec ² kg-m ²	0.0044 3.11E-5	0.0046 3.25E-5
Weight (Mass)	oz g	43.2 1224.7	44.5 1261.6

Performance (119008)	Standard Features	Connection Chart																		
	<ul style="list-style-type: none"> Shielded Ball Bearings 8-Pole Rotor Neodymium Magnets 3-Phase Stator Hall Sensors Aluminum Housing 	<table border="1"> <thead> <tr> <th>Color/Pin</th> <th>Function</th> </tr> </thead> <tbody> <tr><td>Black / 1</td><td>Motor ΦC</td></tr> <tr><td>2</td><td>Vcc</td></tr> <tr><td>3</td><td>Sensor 3</td></tr> <tr><td>4</td><td>Sensor 2</td></tr> <tr><td>5</td><td>Sensor 1</td></tr> <tr><td>6</td><td>Ground</td></tr> <tr><td>Red / 7</td><td>Motor ΦA</td></tr> <tr><td>White / 8</td><td>Motor ΦB</td></tr> </tbody> </table>	Color/Pin	Function	Black / 1	Motor ΦC	2	Vcc	3	Sensor 3	4	Sensor 2	5	Sensor 1	6	Ground	Red / 7	Motor ΦA	White / 8	Motor ΦB
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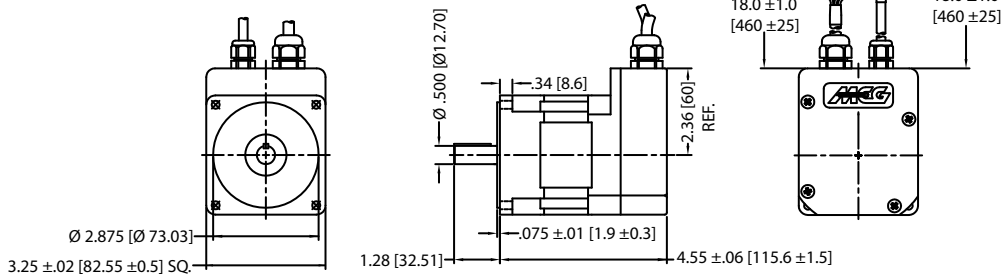
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Instrument Grade Brushless DC Servo Motors

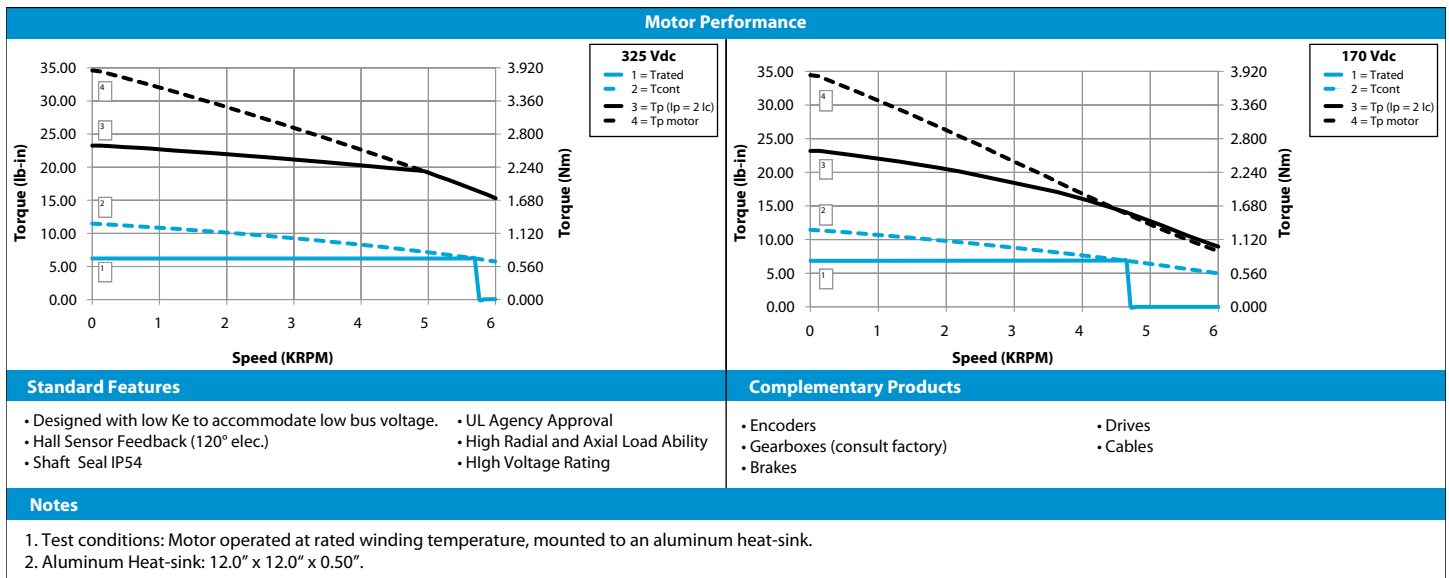
I3482 Series

I3482150NC

PITTMAN®



		Part/Model Number	
Specification	Units	I3482150NC	
Supply Voltage	VDC	325	
Continuous Stall Torque	lb-in	12.79	
	Nm	1.445	
Speed @ Cont. Torque	RPM	4700	
Current @ Cont. Torque	Amps (A)	10.61	
Continuous Output Power	Watts (W)	381	
Motor Constant	lb-in/sqrt W	1.91	
	Nm/sqrt W	0.22	
Torque Constant	lb-in/A	1.268	
	Nm/A	0.143	
Voltage Constant	V/krpm	15.00	
	V/rad/s	0.143	
Terminal Resistance	Ohms	.44	
Inductance	mH	1.89	
Max. Speed	RPM	6000	
Peak Current	Amps (A)	31.82	
Peak Torque	lb-in	34.44	
	Nm	3.891	
Thermal Time Constant	min	15.00	
Thermal Resistance	Celsius/W	1.44	
Max. Winding Temperature	Celsius	125	
Rotor Inertia	lb-in-sec ²	.0009	
	kg-m ²	1.02E-4	
Weight	Lbs	4.40	
	Kg	2	



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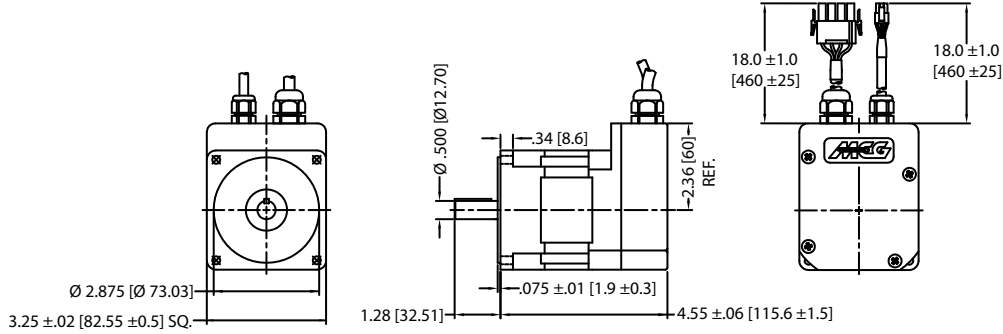
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Instrument Grade Brushless DC Servo Motors

I3482 Series

I3482282NC

PITTMAN®



		Part/Model Number	
Specification	Units	I3482282NC	
Supply Voltage	VDC	325	
Continuous Stall Torque	lb-in	12.49	
	Nm	1.411	
Speed @ Cont. Torque	RPM	2100	
Current @ Cont. Torque	Amps (A)	5.64	
Continuous Output Power	Watts (W)	224	
Motor Constant	lb-in/sqrt W	1.86	
	Nm/sqrt W	0.21	
Torque Constant	lb-in/A	2.383	
	Nm/A	0.269	
Voltage Constant	V/krpm	28.20	
	V/rad/s	0.269	
Terminal Resistance	Ohms	1.65	
Inductance	mH	6.71	
Max. Speed	RPM	6000	
Peak Current	Amps (A)	16.93	
Peak Torque	lb-in	34.23	
	Nm	3.867	
Thermal Time Constant	min	15.00	
Thermal Resistance	Celsius/W	1.35	
Max. Winding Temperature	Celsius	125	
Rotor Inertia	lb-in-sec ²	.0009	
	kg-m ²	1.02E-4	
Weight	Lbs	4.40	
	Kg	2	

Motor Performance

325 Vdc

- 1 = Trated
- 2 = Tcont
- 3 = Tp (Ip = 2 Ic)
- 4 = Tp motor

170 Vdc

- 1 = Trated
- 2 = Tcont
- 3 = Tp (Ip = 2 Ic)
- 4 = Tp motor

Standard Features

- Designed with low Ke to accommodate low bus voltage.
- Hall Sensor Feedback (120° elec.)
- Shaft Seal IP54
- UL Agency Approval
- High Radial and Axial Load Ability
- High Voltage Rating

Complementary Products

- Encoders
- Gearboxes (consult factory)
- Brakes
- Drives
- Cables

Notes

1. Test conditions: Motor operated at rated winding temperature, mounted to an aluminum heat-sink.
2. Aluminum Heat-sink: 12.0" x 12.0" x 0.50".

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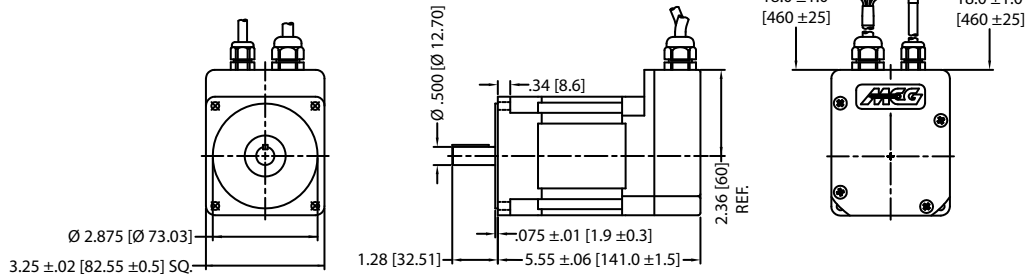
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 343 Godshall Drive, Harleysville, PA 19438
 USA: +1 267 933 2105 - Europe: +33 240928751 - Asia: +86 21 5763 1258
www.pittman-motors.com

Instrument Grade Brushless DC Servo Motors

I3484 Series

I3484147NC

PITTMAN®



		Part/Model Number
Specification	Units	I3484147NC
Supply Voltage	VDC	325
Continuous Stall Torque	lb-in	16.64
	Nm	1.88
Speed @ Cont. Torque	RPM	4600
Current @ Cont. Torque	Amps (A)	14.12
Continuous Output Power	Watts (W)	395
Motor Constant	lb-in/sqrt W	2.44
	Nm/sqrt W	0.28
Torque Constant	lb-in/A	1.242
	Nm/A	0.14
Voltage Constant	V/krpm	14.70
	V/rad/s	0.14
Terminal Resistance	Ohms	.26
Inductance	mH	1.05
Max. Speed	RPM	6000
Peak Current	Amps (A)	42.36
Peak Torque	lb-in	44.90
	Nm	5.073
Thermal Time Constant	min	15.00
Thermal Resistance	Celsius/W	1.39
Max. Winding Temperature	Celsius	125
Rotor Inertia	lb-in-sec ²	.0014
	kg-m ²	1.58E-4
Weight	Lbs	6.70
	Kg	3

Motor Performance

325 Vdc

- 1 = Trated
- 2 = Tcont
- 3 = Tp (lp=2 lc)
- 4 = Tp motor

170 Vdc

- 1 = Trated
- 2 = Tcont
- 3 = Tp (lp=2 lc)
- 4 = Tp motor

Standard Features

- Designed with low Ke to accommodate low bus voltage
- Hall Sensor Feedback (120° elec.)
- Shaft Seal IP54
- UL Agency Approval
- High Radial and Axial Load Ability
- High Voltage Rating

Complementary Products

- Encoders
- Gearboxes (consult factory)
- Brakes
- Drives
- Cables

Notes

1. Test conditions: Motor operated at rated winding temperature, mounted to an aluminum heat-sink.
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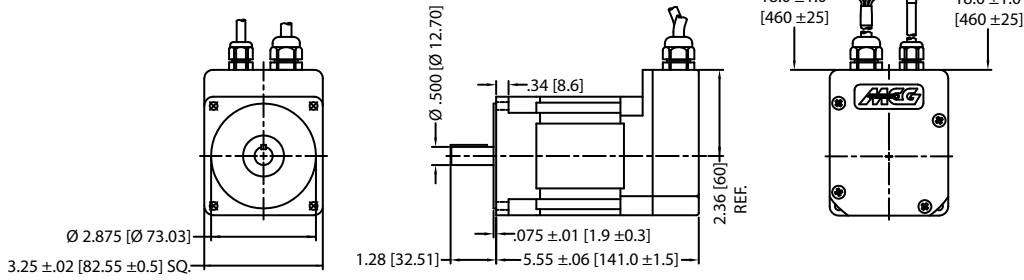
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Instrument Grade Brushless DC Servo Motors

I3484 Series

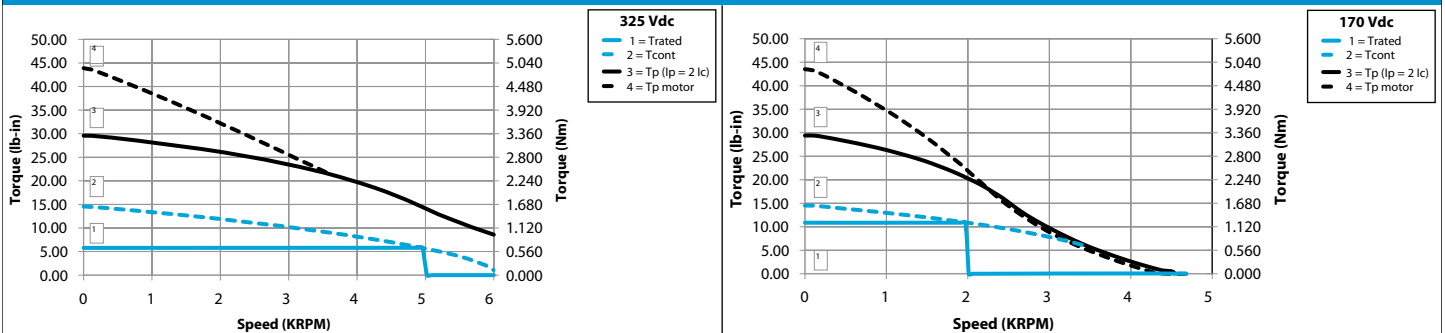
I3484357NC

PITTMAN®



		Part/Model Number
Specification	Units	I3484357NC
Supply Voltage	VDC	325
Continuous Stall Torque	lb-in	16.40
	Nm	1.853
Speed @ Cont. Torque	RPM	1900
Current @ Cont. Torque	Amps (A)	5.81
Continuous Output Power	Watts (W)	254
Motor Constant	lb-in/sqrt W	2.39
	Nm/sqrt W	0.27
Torque Constant	lb-in/A	3.017
	Nm/A	0.341
Voltage Constant	V/krpm	35.70
	V/rad/s	0.341
Terminal Resistance	Ohms	1.60
Inductance	mH	6.23
Max. Speed	RPM	6000
Peak Current	Amps (A)	17.43
Peak Torque	lb-in	44.56
	Nm	5.035
Thermal Time Constant	min	15.00
Thermal Resistance	Celsius/W	1.33
Max. Winding Temperature	Celsius	125
Rotor Inertia	lb-in-sec ²	.0014
	kg-m ²	1.58E-4
Weight	Lbs	6.70
	Kg	3

Motor Performance



Standard Features

- Designed with low Ke to accommodate low bus voltage
- Hall Sensor Feedback (120° elec.)
- Shaft Seal IP54
- UL Agency Approval
- High Radial and Axial Load Ability
- High Voltage Rating

Complementary Products

- Encoders
- Gearboxes (consult factory)
- Brakes
- Drives
- Cables

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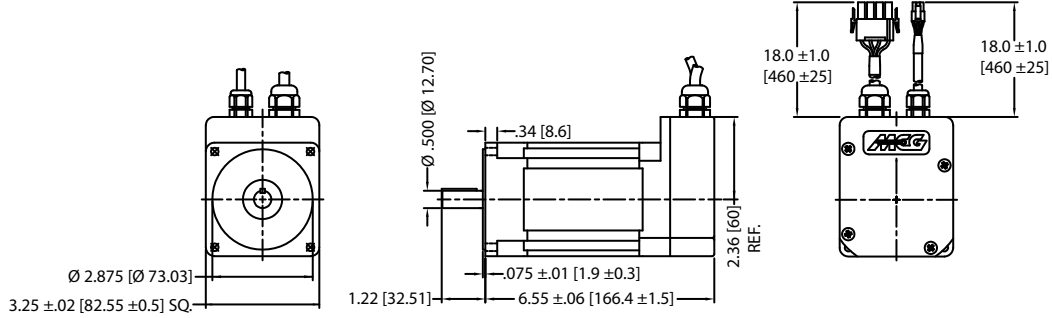
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B 40

AMETEK®
 PRECISION MOTION CONTROL



		Part/Model Number	
Specification	Units	I3486197NC	
Supply Voltage	VDC	325	
Continuous Stall Torque	lb-in	19.67	
	Nm	2.222	
Speed @ Cont. Torque	RPM	4600	
Current @ Cont. Torque	Amps (A)	14.28	
Continuous Output Power	Watts (W)	527	
Motor Constant	lb-in/sqrt W	2.81	
	Nm/sqrt W	0.32	
Torque Constant	lb-in/A	1.665	
	Nm/A	0.188	
Voltage Constant	V/krpm	19.70	
	V/rad/s	0.188	
Terminal Resistance	Ohms	.35	
Inductance	mH	1.38	
Max. Speed	RPM	6000	
Peak Current	Amps (A)	42.83	
Peak Torque	lb-in	60.71	
	Nm	6.859	
Thermal Time Constant	min	15.00	
Thermal Resistance	Celsius/W	1.02	
Max. Winding Temperature	Celsius	125	
Rotor Inertia	lb-in-sec ²	.0021	
	kg-m ²	2.37E-4	
Weight	Lbs	9.00	
	Kg	4.1	

Motor Performance

Standard Features

- Designed with low Ke to accommodate low bus voltage
- Hall Sensor Feedback (120° elec.)
- Shaft Seal IP54
- UL Agency Approval
- High Radial and Axial Load Ability
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Complementary Products

- Encoders
- Gearboxes (consult factory)
- Brakes
- Drives
- Cables

Notes

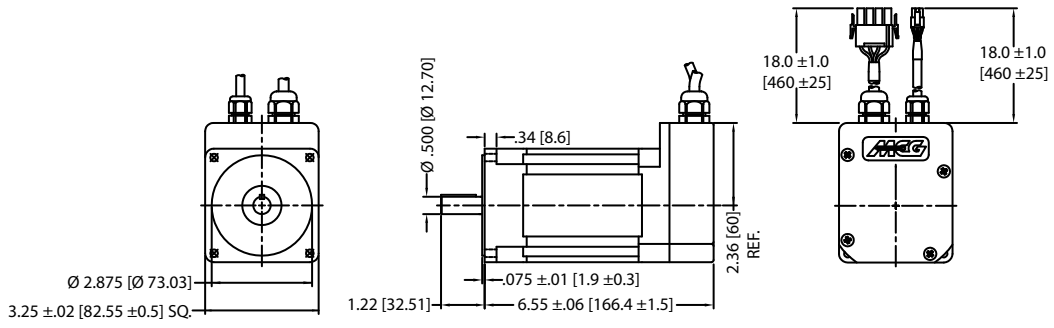
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Instrument Grade Brushless DC Servo Motors

I3486 Series

I3486463NC



Specification	Units	Part/Model Number
		I3486463NC
Supply Voltage	VDC	325
Continuous Stall Torque	lb-in Nm	19.13 2.161
Speed @ Cont. Torque	RPM	1400
Current @ Cont. Torque	Amps (A)	6.04
Continuous Output Power	Watts (W)	269
Motor Constant	lb-in/sqrt W Nm/sqrt W	2.73 0.31
Torque Constant	lb-in/A Nm/A	3.913 0.442
Voltage Constant	V/krpm V/rad/s	46.30 0.442
Terminal Resistance	Ohms	2.06
Inductance	mH	7.78
Max. Speed	RPM	6000
Peak Current	Amps (A)	18.11
Peak Torque	lb-in Nm	60.12 6.793
Thermal Time Constant	min	15.00
Thermal Resistance	Celsius/W	.94
Max. Winding Temperature	Celsius	125
Rotor Inertia	lb-in-sec ² kg-m ²	.0021 2.37E-4
Weight	Lbs Kg	9.00 4.1

Motor Performance

325 Vdc

- 1 = Trated
- 2 = Tcont
- 3 = Tp (Ip = 2 Ic)
- 4 = Tp motor

170 Vdc

- 1 = Trated
- 2 = Tcont
- 3 = Tp (Ip = 2 Ic)
- 4 = Tp motor

Standard Features

- Designed with low Ke to accommodate low bus voltage
- Hall Sensor Feedback (120° elec.)
- Shaft Seal IP54
- UL Agency Approval
- High Radial and Axial Load Ability
- High Voltage Rating

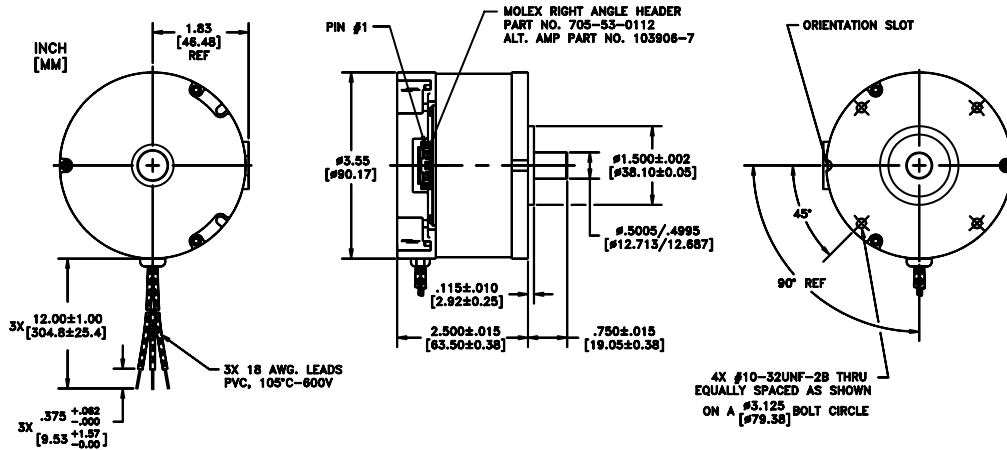
Complementary Products

- Encoders
- Gearboxes (consult factory)
- Brakes
- Drives
- Cables

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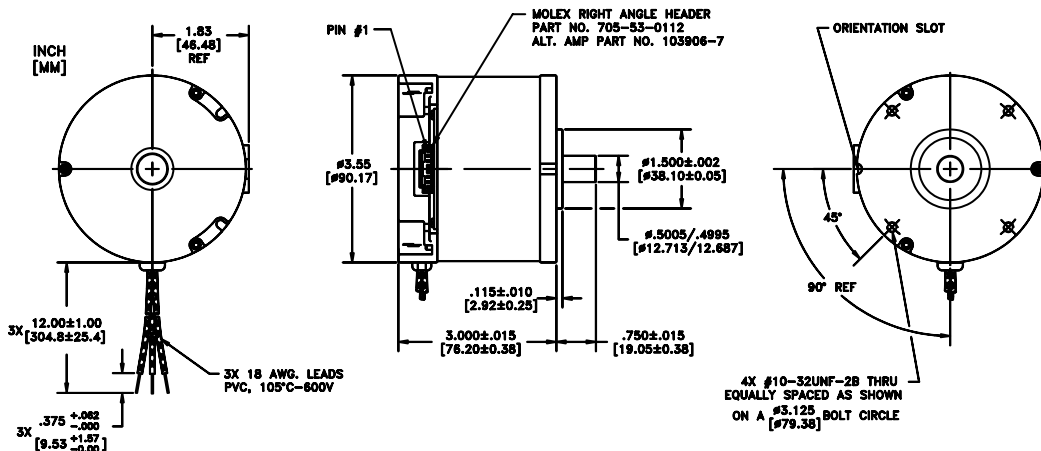
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Specification	Units	Part/Model Number	
		119050	119051
Supply Voltage	VDC	24	24
Continuous Torque	oz-in	22	36
	Nm	0.1553	0.2542
Speed @ Cont. Torque	RPM	3715	4342
Current @ Cont. Torque	Amps (A)	4.4	7.6
Continuous Output Power	Watts (W)	60	116
Motor Constant	oz-in/sqrt W	11.5	12.5
	Nm/sqrt W	0.081	0.088
Torque Constant	oz-in/A	7.518	6.166
	Nm/A	0.053	0.044
Voltage Constant	V/krpm	5.56	4.56
	V/rad/s	0.053	0.044
Terminal Resistance	Ohms	0.425	0.242
Inductance	mH	0.449	0.255
No-Load Current	Amps (A)	1.48	1.74
No-Load Speed	RPM	4319	5259
Peak Current	Amps (A)	38	61
Peak Torque	oz-in	284	375
	Nm	2.005	2.6475
Electrical Time Constant	ms	1.055	1.052
Mechanical Time Constant	ms	14.71	13.07
Thermal Resistance	Celsius/W	1.21	1.19
Max. Winding Temperature	Celsius	105	105
Rotor Inertia	oz-in-sec ²	0.0138	0.0145
	kg-m ²	9.74E-5	1.02E-4
Weight (Mass)	oz	33.6	36.0
	g	952.5	1020.6

Performance (119050)	Standard Features	Connection Chart																		
	<ul style="list-style-type: none"> Shielded Ball Bearings 8-Pole Rotor Neodymium Magnets 3-Phase Stator Hall Sensors Aluminum Housing 	<table border="1"> <thead> <tr> <th>Color/Pin</th> <th>Function</th> </tr> </thead> <tbody> <tr> <td>Black / 1</td> <td>Motor ΦC</td> </tr> <tr> <td>2</td> <td>Vcc</td> </tr> <tr> <td>3</td> <td>Sensor 3</td> </tr> <tr> <td>4</td> <td>Sensor 2</td> </tr> <tr> <td>5</td> <td>Sensor 1</td> </tr> <tr> <td>6</td> <td>Ground</td> </tr> <tr> <td>Red / 7</td> <td>Motor ΦA</td> </tr> <tr> <td>White / 8</td> <td>Motor ΦB</td> </tr> </tbody> </table>	Color/Pin	Function	Black / 1	Motor ΦC	2	Vcc	3	Sensor 3	4	Sensor 2	5	Sensor 1	6	Ground	Red / 7	Motor ΦA	White / 8	Motor ΦB
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		60° Electrical Spacing																		

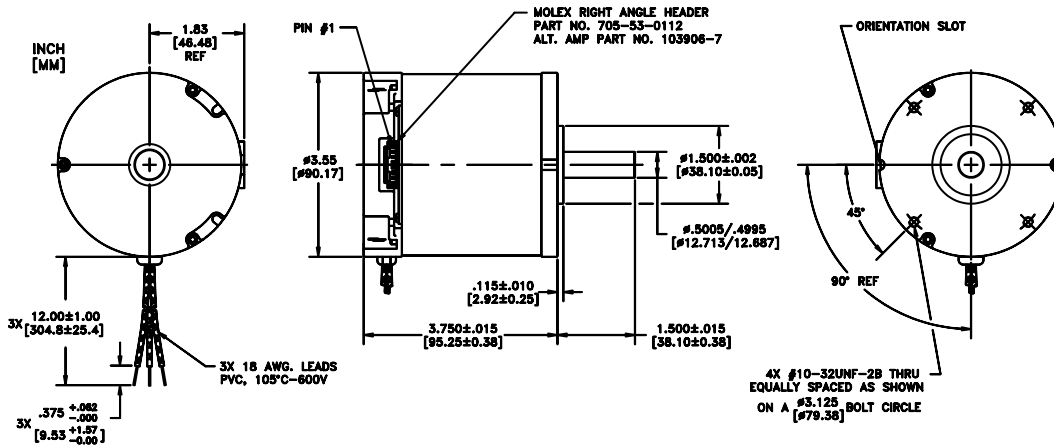
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Specification	Units	Part/Model Number	
		119052	119053
Supply Voltage	VDC	24	24
Continuous Torque	oz-in	49	63
	Nm	0.3459	0.4448
Speed @ Cont. Torque	RPM	3265	2641
Current @ Cont. Torque	Amps (A)	7.6	7.9
Continuous Output Power	Watts (W)	118	123
Motor Constant	oz-in/sqrt W	15	16.6
	Nm/sqrt W	0.106	0.117
Torque Constant	oz-in/A	7.977	9.451
	Nm/A	0.056	0.067
Voltage Constant	V/krpm	5.9	6.99
	V/rad/s	0.056	0.067
Terminal Resistance	Ohms	0.283	0.323
Inductance	mH	0.322	0.389
No-Load Current	Amps (A)	1.41	1.24
No-Load Speed	RPM	4067	3434
Peak Current	Amps (A)	54	48
Peak Torque	oz-in	428	453
	Nm	3.0217	3.1982
Electrical Time Constant	ms	1.14	1.205
Mechanical Time Constant	ms	12.01	10.29
Thermal Resistance	Celsius/W	1.17	1.15
Max. Winding Temperature	Celsius	105	105
Rotor Inertia	oz-in-sec ²	0.0191	0.0201
	kg-m ²	1.35E-4	1.42E-4
Weight (Mass)	oz	44.8	48.0
	g	1270.1	1360.8

Performance (119053)	Standard Features	Connection Chart																				
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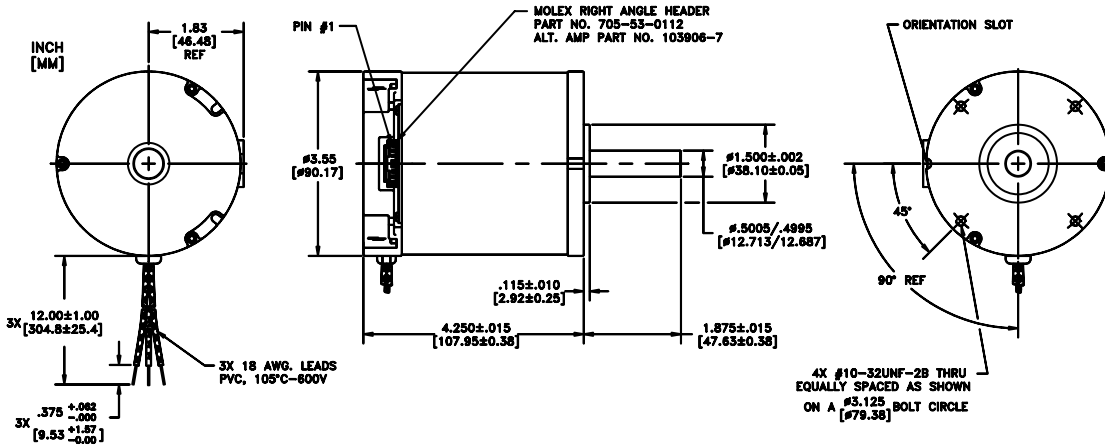
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Specification	Units	Part/Model Number		
		119054	119055	119056
Supply Voltage	VDC	24	24	24
Continuous Torque	oz-in	77	91	105
	Nm	0.5436	0.6425	0.7413
Speed @ Cont. Torque	RPM	2174	1864	1605
Current @ Cont. Torque	Amps (A)	7.8	8.1	8.3
Continuous Output Power	Watts (W)	124	126	125
Motor Constant	oz-in/sqrt W	19.0	20.1	21.4
	Nm/sqrt W	0.134	0.142	0.151
Torque Constant	oz-in/A	11.439	12.764	14.224
	Nm/A	0.081	0.09	0.1
Voltage Constant	V/krpm	8.46	9.44	10.52
	V/rad/s	0.081	0.09	0.1
Terminal Resistance	Ohms	0.363	0.404	0.444
Inductance	mH	0.457	0.524	0.591
No-Load Current	Amps (A)	1.07	0.99	0.92
No-Load Speed	RPM	2838	2543	2281
Peak Current	Amps (A)	44	40	37
Peak Torque	oz-in	496	505	518
	Nm	3.5018	3.5653	3.6571
Electrical Time Constant	ms	1.256	1.297	1.331
Mechanical Time Constant	ms	11.25	10.28	9.41
Thermal Resistance	Celsius/W	1.13	1.11	1.09
Max. Winding Temperature	Celsius	105	105	105
Rotor Inertia	oz-in-sec ²	0.0286	0.0293	0.0303
	kg-m ²	2.02E-4	2.07E-4	2.14E-4
Weight (Mass)	oz	60.0	64.0	67.2
	g	1701	1814.4	1905.1

Performance (119056)	Standard Features	Connection Chart																				
<p>Speed (rpm) vs Torque (oz-in) and Current (A) vs Torque (oz-in) graph. The speed curve shows a linear decrease from approximately 2300 rpm at 0 oz-in to 0 rpm at 500 oz-in. The current curve shows a linear increase from 0 A at 0 oz-in to approximately 40 A at 500 oz-in.</p>	<ul style="list-style-type: none"> Shielded Ball Bearings 8-Pole Rotor Neodymium Magnets 3-Phase Stator Hall Sensors Aluminum Housing 	<table border="1"> <thead> <tr> <th>Color/Pin</th> <th>Function</th> </tr> </thead> <tbody> <tr> <td>Black / 1</td> <td>Motor 0C</td> </tr> <tr> <td>2</td> <td>Vcc</td> </tr> <tr> <td>3</td> <td>Sensor 3</td> </tr> <tr> <td>4</td> <td>Sensor 2</td> </tr> <tr> <td>5</td> <td>Sensor 1</td> </tr> <tr> <td>6</td> <td>Ground</td> </tr> <tr> <td>Red / 7</td> <td>Motor 0A</td> </tr> <tr> <td>White / 8</td> <td>Motor 0B</td> </tr> <tr> <td colspan="2">60° Electrical Spacing</td> </tr> </tbody> </table>	Color/Pin	Function	Black / 1	Motor 0C	2	Vcc	3	Sensor 3	4	Sensor 2	5	Sensor 1	6	Ground	Red / 7	Motor 0A	White / 8	Motor 0B	60° Electrical Spacing	
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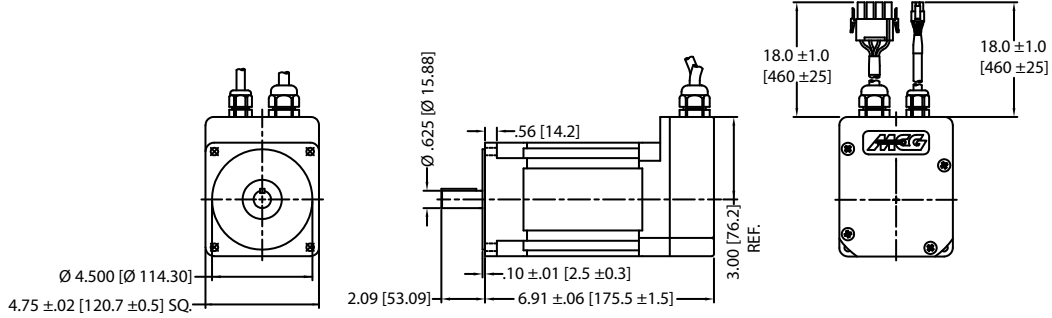
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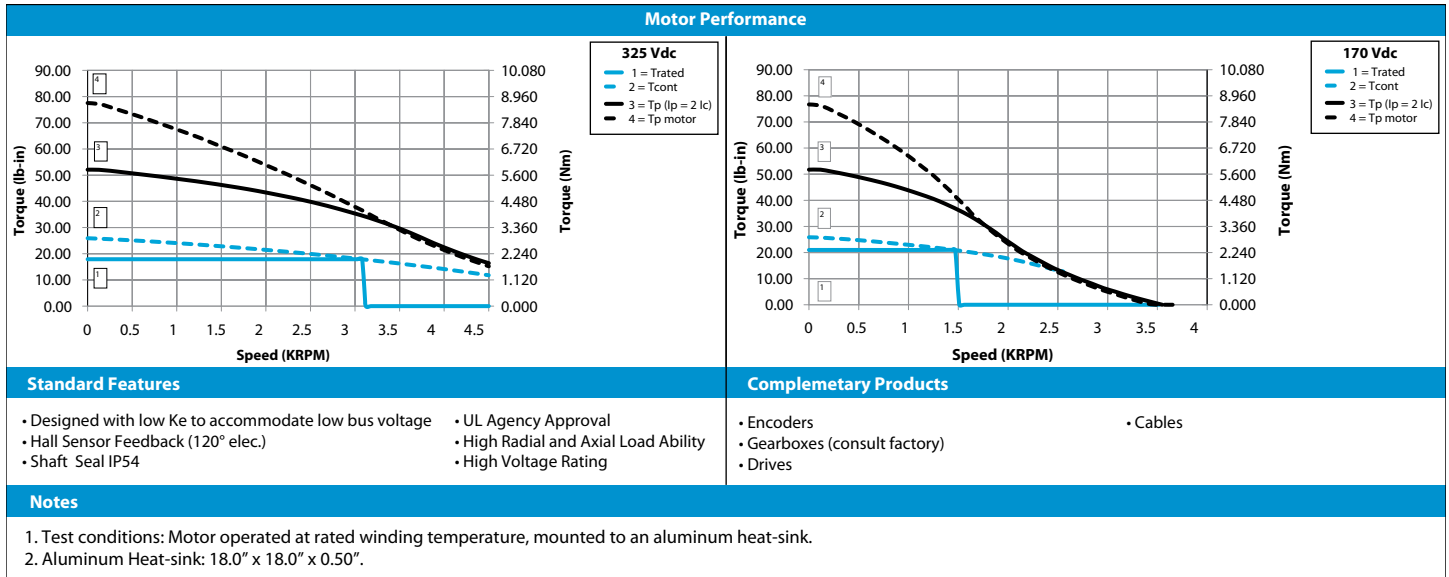
Specification	Units	Part/Model Number	
		119057	119058
Supply Voltage	VDC	24	24
Continuous Torque	oz-in	119	132
	Nm	0.8401	0.9319
Speed @ Cont. Torque	RPM	1377	1214
Current @ Cont. Torque	Amps (A)	8.3	8.4
Continuous Output Power	Watts (W)	121	119
Motor Constant	oz-in/sqrt W	23.1	24.1
	Nm/sqrt W	0.163	0.17
Torque Constant	oz-in/A	16.063	17.483
	Nm/A	0.113	0.123
Voltage Constant	V/krpm	11.88	12.93
	V/rad/s	0.113	0.123
Terminal Resistance	Ohms	0.485	0.525
Inductance	mH	0.658	0.726
No-Load Current	Amps (A)	0.85	0.80
No-Load Speed	RPM	2021	1856
Peak Current	Amps (A)	34	32
Peak Torque	oz-in	541	549
	Nm	3.8195	3.8759
Electrical Time Constant	ms	1.358	1.382
Mechanical Time Constant	ms	9.313	8.754
Thermal Resistance	Celsius/W	1.06	1.04
Max. Winding Temperature	Celsius	105	105
Rotor Inertia	oz-in-sec ²	0.035	0.036
	kg-m ²	2.47E-4	2.54E-4
Weight (Mass)	oz	75.2	77.6
	g	2131.9	2199.9

Performance (119058)	Standard Features	Connection Chart																		
<p>The graph shows Speed (rpm) on the left y-axis (0 to 2000) and Current (A) on the right y-axis (0 to 40). The x-axis is Torque (oz-in) from 0 to 600. A solid line represents Speed, which decreases from approximately 1800 rpm at 0 torque to 0 rpm at 500 oz-in. A dashed line represents Current, which increases from 0 A at 0 torque to approximately 35 A at 500 oz-in.</p>	<ul style="list-style-type: none"> Shielded Ball Bearings 8-Pole Rotor Neodymium Magnets 3-Phase Stator Hall Sensors Aluminum Housing 	<table border="1"> <thead> <tr> <th>Color/Pin</th> <th>Function</th> </tr> </thead> <tbody> <tr> <td>Black / 1</td> <td>Motor ΦC</td> </tr> <tr> <td>2</td> <td>Vcc</td> </tr> <tr> <td>3</td> <td>Sensor 3</td> </tr> <tr> <td>4</td> <td>Sensor 2</td> </tr> <tr> <td>5</td> <td>Sensor 1</td> </tr> <tr> <td>6</td> <td>Ground</td> </tr> <tr> <td>Red / 7</td> <td>Motor ΦA</td> </tr> <tr> <td>White / 8</td> <td>Motor ΦB</td> </tr> </tbody> </table>	Color/Pin	Function	Black / 1	Motor ΦC	2	Vcc	3	Sensor 3	4	Sensor 2	5	Sensor 1	6	Ground	Red / 7	Motor ΦA	White / 8	Motor ΦB
	Color/Pin	Function																		
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White / 8	Motor ΦB																			
	<p>Complementary Products</p> <ul style="list-style-type: none"> Encoders Gearboxes (consult factory) Brakes Drives 																			
	<p>Notes</p> <ol style="list-style-type: none"> All values specified at 25°C ambient temperature and without heat sink. Peak values are theoretical and supplied for reference only. Continuous Torque recorded at max. winding temperature at 25°C ambient, mounted to a 12.0"x12.0"x0.50" heat sink. 																			
		<p>60° Electrical Spacing</p>																		

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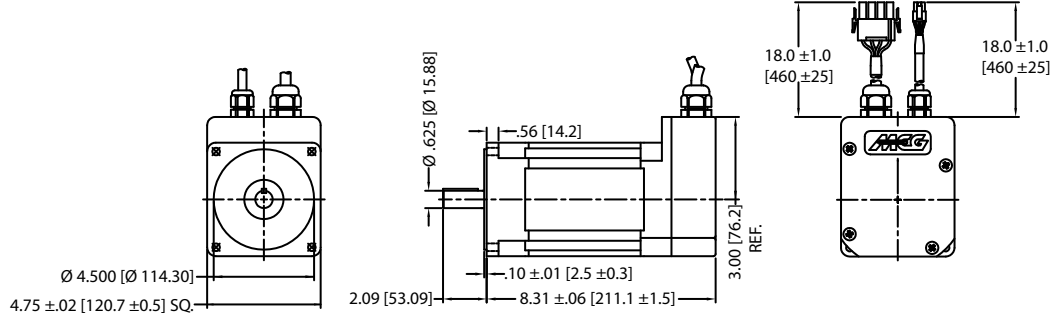


		Part/Model Number
Specification	Units	I4681159NC
Supply Voltage	VDC	325
Continuous Stall Torque	lb-in	27.01
	Nm	3.052
Speed @ Cont. Torque	RPM	5000
Current @ Cont. Torque	Amps (A)	23.17
Continuous Output Power	Watts (W)	960.5
Motor Constant	lb-in/sqrt W	3.39
	Nm/sqrt W	0.38
Torque Constant	lb-in/A	1.344
	Nm/A	0.152
Voltage Constant	V/krpm	15.90
	V/rad/s	0.152
Terminal Resistance	Ohms	.14
Inductance	mH	.72
Max. Speed	RPM	5000
Peak Current	Amps (A)	69.52
Peak Torque	lb-in	80.98
	Nm	9.15
Thermal Time Constant	min	15.00
Thermal Resistance	Celsius/W	.96
Max. Winding Temperature	Celsius	125
Rotor Inertia	lb-in-sec ²	.007
	kg-m ²	7.91E-4
Weight	Lbs	15.80
	Kg	7.2

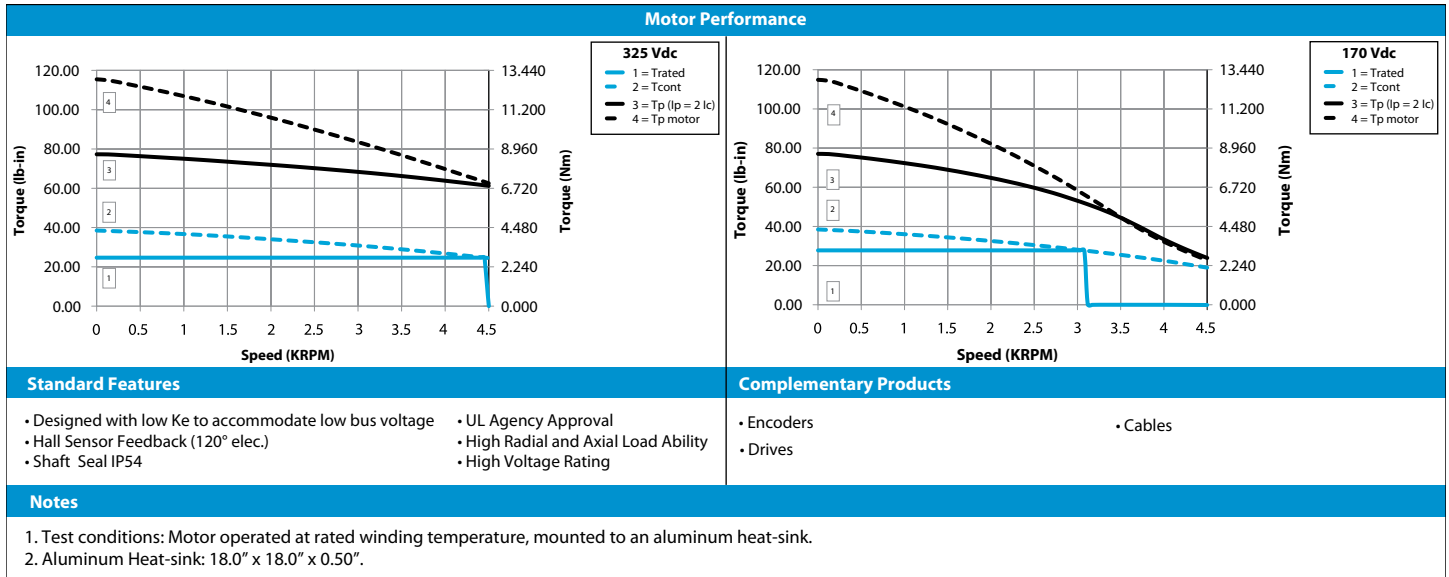


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I4682255NC



		Part/Model Number
Specification	Units	I4682255NC
Supply Voltage	VDC	325
Continuous Stall Torque	lb-in	34.59
	Nm	3.908
Speed @ Cont. Torque	RPM	5000
Current @ Cont. Torque	Amps (A)	20.56
Continuous Output Power	Watts (W)	618.8
Motor Constant	lb-in/sqrt W	4.71
	Nm/sqrt W	0.53
Torque Constant	lb-in/A	2.156
	Nm/A	0.244
Voltage Constant	V/krpm	25.50
	V/rad/s	0.244
Terminal Resistance	Ohms	.21
Inductance	mH	1.13
Max. Speed	RPM	5000
Peak Current	Amps (A)	61.67
Peak Torque	lb-in	115.43
	Nm	13.042
Thermal Time Constant	min	15.00
Thermal Resistance	Celsius/W	.81
Max. Winding Temperature	Celsius	125
Rotor Inertia	lb-in-sec ²	.011
	kg-m ²	1.24E-3
Weight	Lbs	21.18
	Kg	9.6



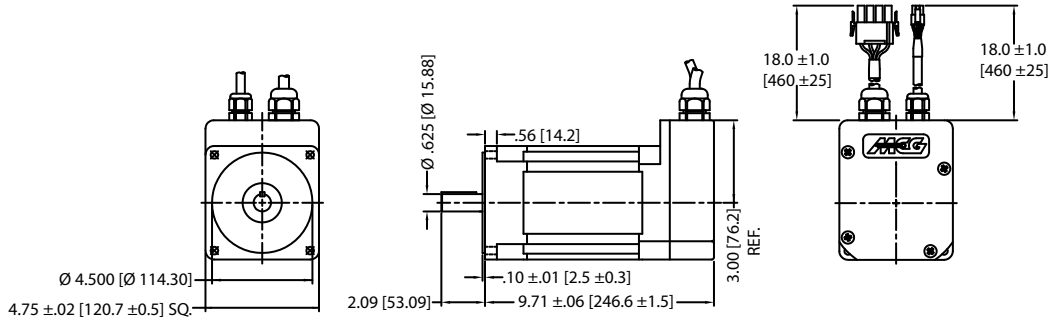
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Instrument Grade Brushless DC Servo Motors

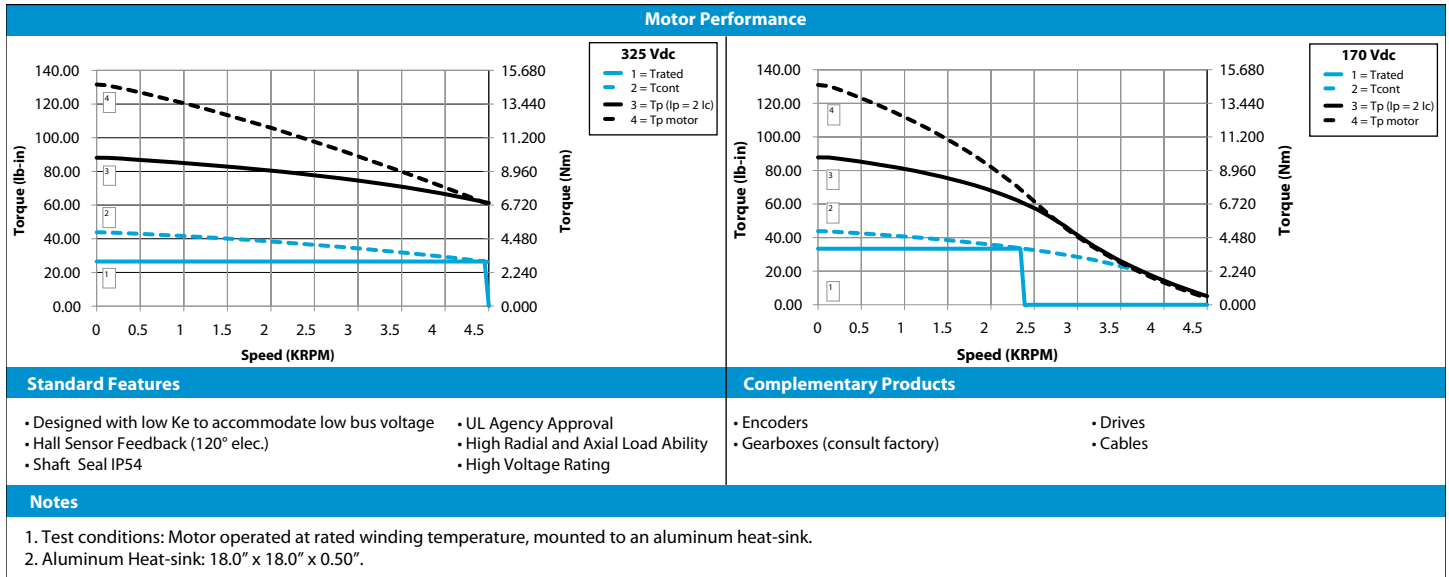
I4683 Series

I4683346NC

PITTMAN®



		Part/Model Number	
Specification	Units	I4683346NC	
Supply Voltage	VDC	325	
Continuous Stall Torque	lb-in	42.31	
	Nm	4.78	
Speed @ Cont. Torque	RPM	5000	
Current @ Cont. Torque	Amps (A)	17.28	
Continuous Output Power	Watts (W)	1075	
Motor Constant	lb-in/sqrt W	5.53	
	Nm/sqrt W	0.62	
Torque Constant	lb-in/A	2.924	
	Nm/A	0.33	
Voltage Constant	V/krpm	34.60	
	V/rad/s	0.33	
Terminal Resistance	Ohms	.28	
Inductance	mH	1.60	
Max. Speed	RPM	5000	
Peak Current	Amps (A)	51.83	
Peak Torque	lb-in	131.63	
	Nm	14.872	
Thermal Time Constant	min	15.00	
Thermal Resistance	Celsius/W	.86	
Max. Winding Temperature	Celsius	125	
Rotor Inertia	lb-in-sec ²	.015	
	kg-m ²	1.69E-3	
Weight	Lbs	27.86	
	Kg	12.6	



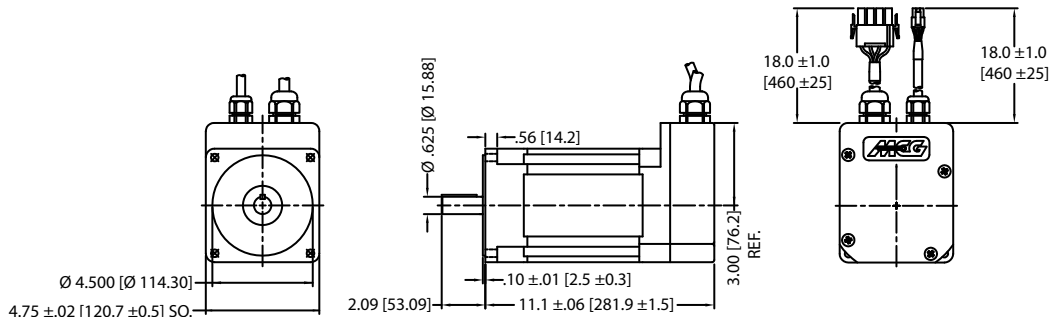
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www.pittman-motors.com

Instrument Grade Brushless DC Servo Motors

I4684 Series

I4684382NC



Specification	Units	Part/Model Number
		I4684382NC
Supply Voltage	VDC	325
Continuous Stall Torque	lb-in Nm	58.47 6.606
Speed @ Cont. Torque	RPM	4400
Current @ Cont. Torque	Amps (A)	20.64
Continuous Output Power	Watts (W)	1672
Motor Constant	lb-in/sqrt W Nm/sqrt W	5.56 0.63
Torque Constant	lb-in/A Nm/A	3.228 0.365
Voltage Constant	V/krpm V/rad/s	38.20 0.365
Terminal Resistance	Ohms	.34
Inductance	mH	2.46
Max. Speed	RPM	5000
Peak Current	Amps (A)	61.92
Peak Torque	lb-in Nm	172.96 19.542
Thermal Time Constant	min	15.00
Thermal Resistance	Celsius/W	.50
Max. Winding Temperature	Celsius	125
Rotor Inertia	lb-in-sec ² kg-m ²	.019 2.15E-3
Weight	Lbs Kg	33.20 15.1

Motor Performance

325 Vdc

- 1 = Trated
- 2 = Tcont
- 3 = Tp (Ip = 2 Ic)
- 4 = Tp motor

170 Vdc

- 1 = Trated
- 2 = Tcont
- 3 = Tp (Ip = 2 Ic)
- 4 = Tp motor

Standard Features

- Designed with low Ke to accommodate low bus voltage
- Hall Sensor Feedback (120° elec.)
- Shaft Seal IP54
- UL Agency Approval
- High Radial and Axial Load Ability
- High Voltage Rating

Complementary Products

- Encoders
- Drives
- Cables

Notes

1. Test conditions: Motor operated at rated winding temperature, mounted to an aluminum heat-sink.
2. Aluminum Heat-sink: 18.0" x 18.0" x 0.50".

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