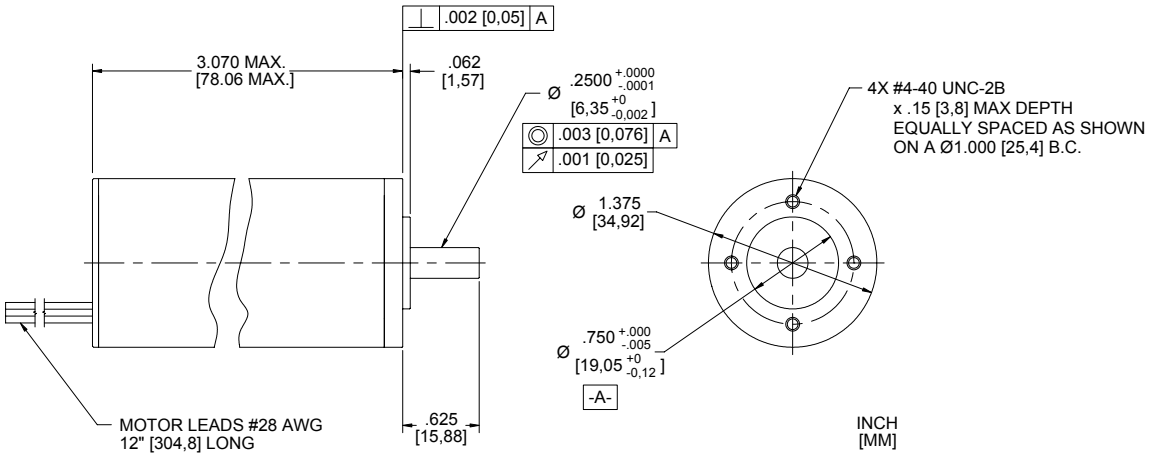
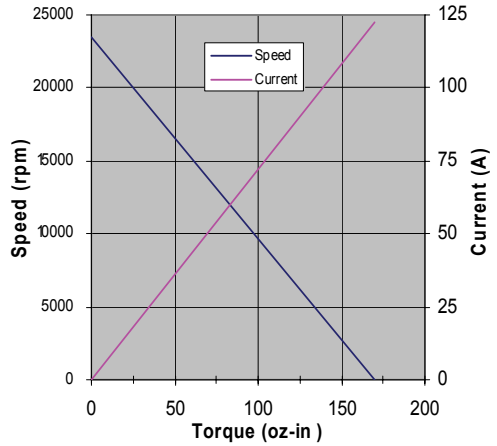
ϕ1.4” (ϕ35mm) SERIES SLOTLESS BLDC MOTOR



Motor Data	Symbol	Units	Part Number Designation	
			BI-14-075-1.02	BI-14-075-2.50
Supply Voltage (Reference)	V_s	V	24.0	24.0
Continuous Torque[3]	T_c	oz-in	11.9	14.8
		Ncm	0.084	0.105
Speed @ Cont. Torque	S_c	rpm	21780	7970
Current @ Cont. Torque	I_c	A	8.80	4.50
Continuous Output Power[3]	$P_{o,c}$	W	191	87
Motor Constant	K_M	oz-in/√W	3.13	3.51
		Ncm/√W	0.0221	0.0248
Torque Constant	K_T	oz-in/A	1.39	3.38
		Ncm/A	0.0098	0.0239
Voltage Constant	K_E	V/krpm	1.02	2.50
		V s/rad	0.0098	0.0239
Terminal Resistance	R_{mt}	Ω	0.20	0.93
Inductance	L	mH	0.03	0.11
No-Load Current	I_{nl}	A	0.20	0.15
No-Load Speed	S_{nl}	rpm	23420	9600
Peak Current (Stall)[2]	I_{pk}	A	122.3	25.7
Peak Torque (Stall)[2]	T_{pk}	oz-in	170.0	87.0
		Ncm	1.200	0.614
Electrical Time Constant	τ_e	ms	0.200	0.930
Mechanical Time Constant	τ_m	ms	0.689	0.542
Thermal Resistance[3]	R_{th}	°C/W	5.2	5.2
Max. Winding Temperature	θ_{max}	°C	105	105
Rotor Inertia	J_r	oz-in-sec^2	$4.7x10^{-5}$	$4.7x10^{-5}$
		kg m^2	$3.3x10^{-7}$	$3.3x10^{-7}$
Motor Weight (Mass)	w_M	oz	13.0	13.0
		g	369	369

Performance (BI-14-075-1.02)



Standard Features

- Shielded Ball Bearings
- 4-Pole Rotor
- Neodymium Magnets
- 3-Phase Stator
- Hall Sensors
- Stainless Construction

Complementary Products

- Planetary Gearbox
- 48134 Controller
- Optical Encoder
- 48140 Controller

Connection Chart	
Color/Pin	Function
Black	Motor ϕC
Violet	Vcc
Blue	Sensor 3
Green	Sensor 2
Yellow	Sensor 1
Orange	Ground
Red	Motor ϕA
White	Motor ϕB
120° Electrical Spacing	

Notes:

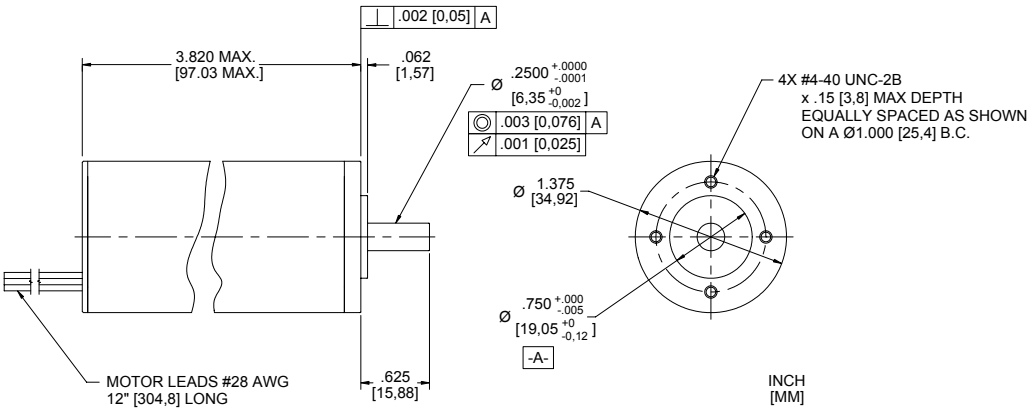
[1] All values specified at 25°C ambient temperature and without heat sink.

[2] Peak values are theoretical and supplied for reference only.

[3] Recorded at max. winding temperature at 25°C ambient, mounted to a 5”x5”x0.25” heatsink.

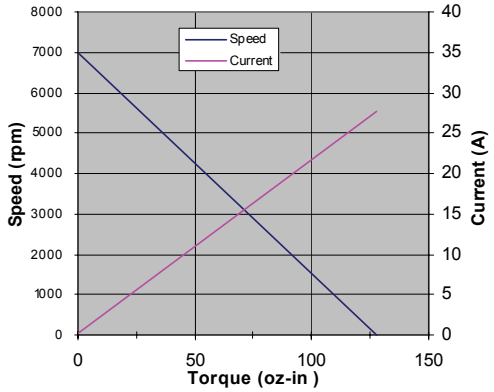
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www.ametektip.com

ϕ1.4” (ϕ35mm) SERIES SLOTLESS BLDC MOTOR



Motor Data	Symbol	Units	Part Number Designation	
			BI-14-150-1.66	BI-14-150-3.43
Supply Voltage (Reference)	V_s	V	24.0	24.0
Continuous Torque[3]	T_c	oz-in	23.7	21.8
		Ncm	0.167	0.154
Speed @ Cont. Torque	S_c	rpm	13390	5810
Current @ Cont. Torque	I_c	A	10.80	4.90
Continuous Output Power[3]	$P_{o,c}$	W	234	94
Motor Constant	K_M	oz-in/√W	5.44	5.00
		Ncm/√W	0.0384	0.0353
Torque Constant	K_T	oz-in/A	2.24	4.64
		Ncm/A	0.0158	0.0328
Voltage Constant	K_E	V/krpm	1.66	3.43
		V s/rad	0.0158	0.0328
Terminal Resistance	R_{mt}	Ω	0.17	0.86
Inductance	L	mH	0.03	0.10
No-Load Current	I_{nl}	A	0.20	0.20
No-Load Speed	S_{nl}	rpm	14475	7000
Peak Current (Stall)[2]	I_{pk}	A	140	28
Peak Torque (Stall)[2]	T_{pk}	oz-in	315.0	128.0
		Ncm	2.224	0.904
Electrical Time Constant	τ_e	ms	0.170	0.860
Mechanical Time Constant	τ_m	ms	0.451	0.532
Thermal Resistance[3]	R_{th}	°C/W	4.50	4.50
Max. Winding Temperature	θ_{max}	°C	105	105
Rotor Inertia	J_r	oz-in-sec^2	$9.4x10^{-5}$	$9.4x10^{-5}$
		kg m^2	$6.6x10^{-7}$	$6.6x10^{-7}$
Motor Weight (Mass)	w_M	oz	15	15
		g	425	425

Performance (BI-14-150-3.43)



Standard Features

- Shielded Ball Bearings
- 4-Pole Rotor
- Neodymium Magnets
- 3-Phase Stator
- Hall Sensors
- Stainless Construction

Complementary Products

- Planetary Gearbox
- 48134 Controller
- Optical Encoder
- 48140 Controller

Connection Chart

Color/Pin	Function
Black	Motor ϕC
Violet	Vcc
Blue	Sensor 3
Green	Sensor 2
Yellow	Sensor 1
Orange	Ground
Red	Motor ϕA
White	Motor ϕB
120° Electrical Spacing	

Notes:

[1] All values specified at 25°C ambient temperature and without heat sink.

[2] Peak values are theoretical and supplied for reference only.

[3] Recorded at max. winding temperature at 25°C ambient, mounted to a 5”x5”x0.25” heatsink.

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