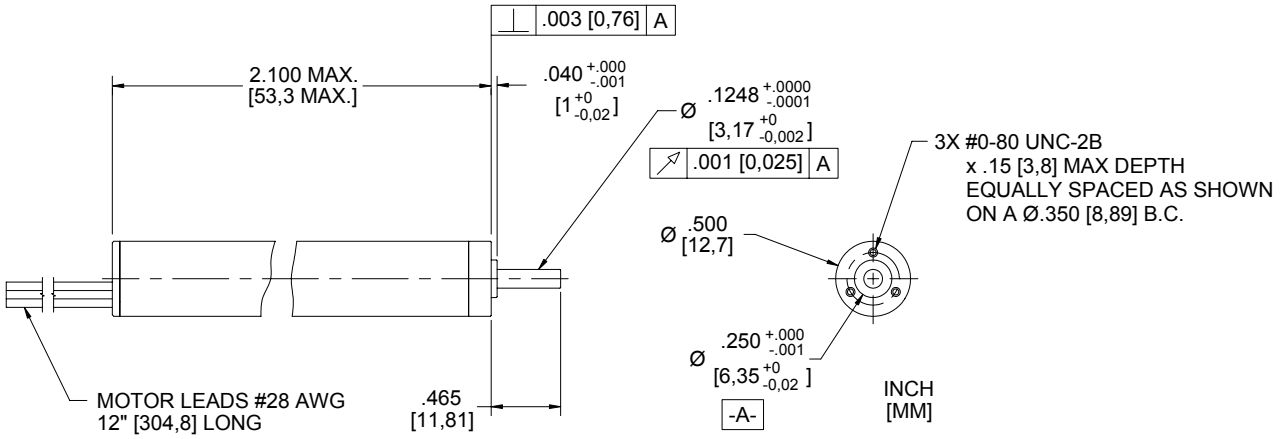
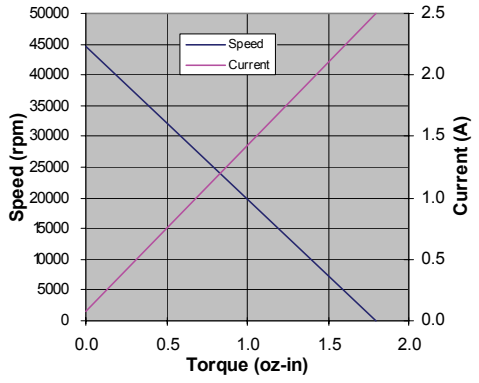
ϕ0.5” (ϕ12.7mm) SERIES SLOTLESS BLDC MOTOR



Motor Data	Symbol	Units	Part Number Designation	
			BI-05-075-0.54	BI-05-075-1.08
Supply Voltage (Reference)	V_s	V	24	24
Continuous Torque[3]	T_c	oz-in	0.5	0.6
		Ncm	0.353	0.424
Speed @ Cont. Torque	S_c	rpm	32950	10220
Current @ Cont. Torque	I_c	A	0.70	0.50
Continuous Output Power[3]	$P_{o,c}$	W	12	5
Motor Constant	K_M	oz-in/√W	0.24	0.27
		Ncm/√W	0.17	0.19
Torque Constant	K_T	oz-in/A	0.73	1.46
		Ncm/A	0.52	1.03
Voltage Constant	K_E	V/krpm	0.54	1.08
		V s/rad	0.0052	0.0103
Terminal Resistance	R_{mt}	Ω	9.33	29.2
Inductance	L	mH	0.18	0.70
No-Load Current	I_{nl}	A	0.08	0.03
No-Load Speed	S_{nl}	rpm	44525	22220
Peak Current (Stall)[2]	I_{pk}	A	2.5	0.8
Peak Torque (Stall)[2]	T_{pk}	oz-in	1.8	1.2
		Ncm	1.3	0.8
Electrical Time Constant	τ_e	ms	0.019	0.024
Mechanical Time Constant	τ_m	ms	6.1	4.8
Thermal Resistance[3]	R_{th}	°C/W	18	18
Max. Winding Temperature	θ_{max}	°C	105	105
Rotor Inertia	J_r	oz-in-sec^2	$2.5x10^{-6}$	$2.5x10^{-6}$
		kg m^2	$1.7x10^{-8}$	$1.7x10^{-8}$
Motor Weight (Mass)	w_M	oz	1.1	1.1
		g	31	31

Performance (BI-05-075-0.54)



Standard Features

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

Complementary Products

- 48134 Controller
- 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:

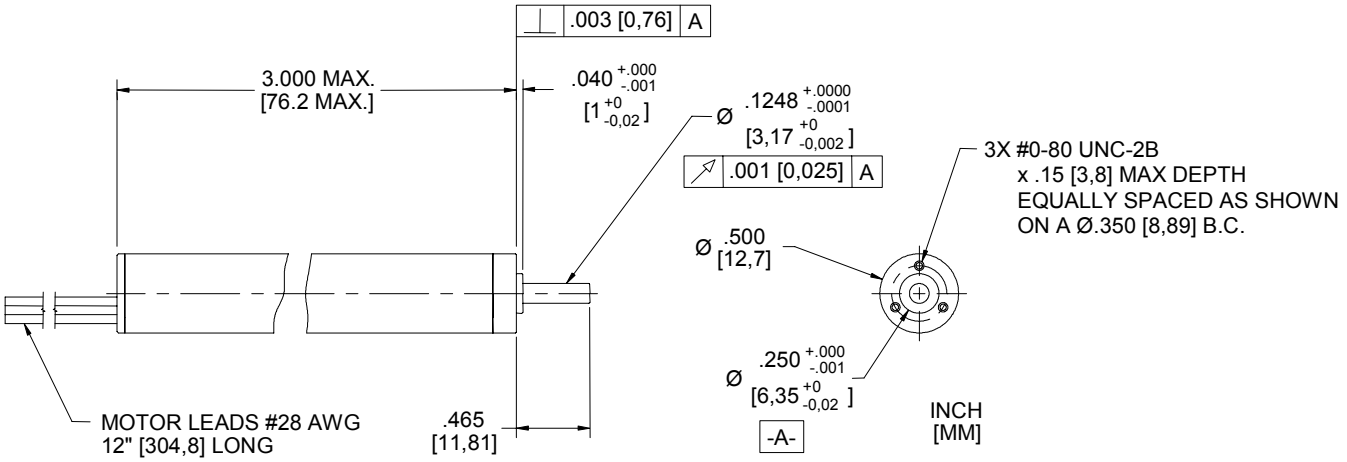
[1] All values specified at 25°C ambient temperature and without heat sink.

[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.

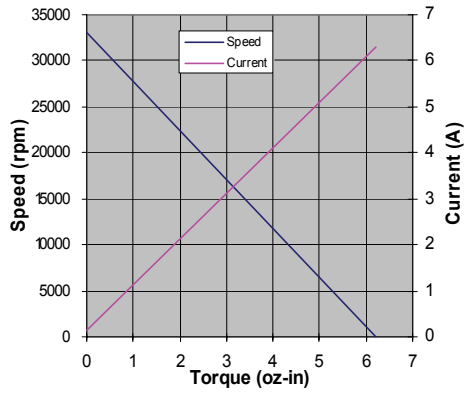
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www.ametektip.com

ϕ0.5” (ϕ12.7mm) SERIES SLOTLESS BLDC MOTOR



Motor Data	Symbol	Units	Part Number Designation	
			BI-05-150-0.73	BI-05-150-1.08
Supply Voltage (Reference)	V_s	V	24.0	24.0
Continuous Torque[3]	T_c	oz-in	1.1	0.9
		Nm	0.008	0.006
Speed @ Cont. Torque	S_c	rpm	28375	13780
Current @ Cont. Torque	I_c	A	1.30	0.70
Continuous Output Power[3]	$P_{o,c}$	W	23	9
Motor Constant	K_M	oz-in/√W	0.57	0.38
		Nm/√W	0.0040	0.0027
Torque Constant	K_T	oz-in/A	0.98	1.46
		Nm/A	0.0069	0.0103
Voltage Constant	K_E	V/krpm	0.73	1.08
		V s/rad	0.0069	0.0103
Terminal Resistance	R_{mt}	Ω	2.95	14.80
Inductance	L	mH	0.09	0.0
No-Load Current	I_{nl}	A	0.14	0.05
No-Load Speed	S_{nl}	rpm	33000	22200
Peak Current (Stall)[2]	I_{pk}	A	6.3	1.6
Peak Torque (Stall)[2]	T_{pk}	oz-in	6.2	2.3
		Nm	0.044	0.016
Electrical Time Constant	τ_e	ms	0.031	0.001
Mechanical Time Constant	τ_m	ms	2.1	4.9
Thermal Resistance[3]	R_{th}	°C/W	16.00	16.00
Max. Winding Temperature	θ_{max}	°C	105	105
Rotor Inertia	J_r	oz-in-sec^2	$4.9x10^{-6}$	$4.9x10^{-6}$
		kg m^2	$3.5x10^{-8}$	$3.5x10^{-8}$
Motor Weight (Mass)	w_M	oz	1.3	1.3
		g	35	35

Performance (BI-05-150-0.73)



Standard Features

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

Complementary Products

- 48134 Controller
- 48140 Controller

Connection Chart

Color/Pin	Function
Black	Motor ϕC
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120° Electrical Spacing	

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