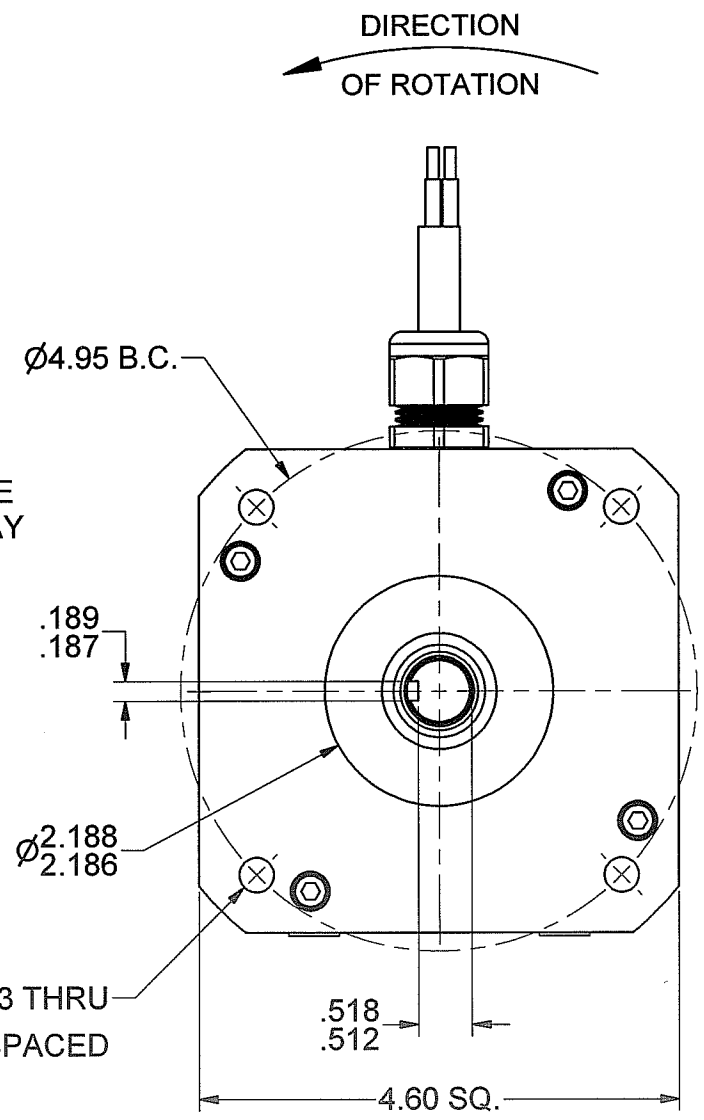
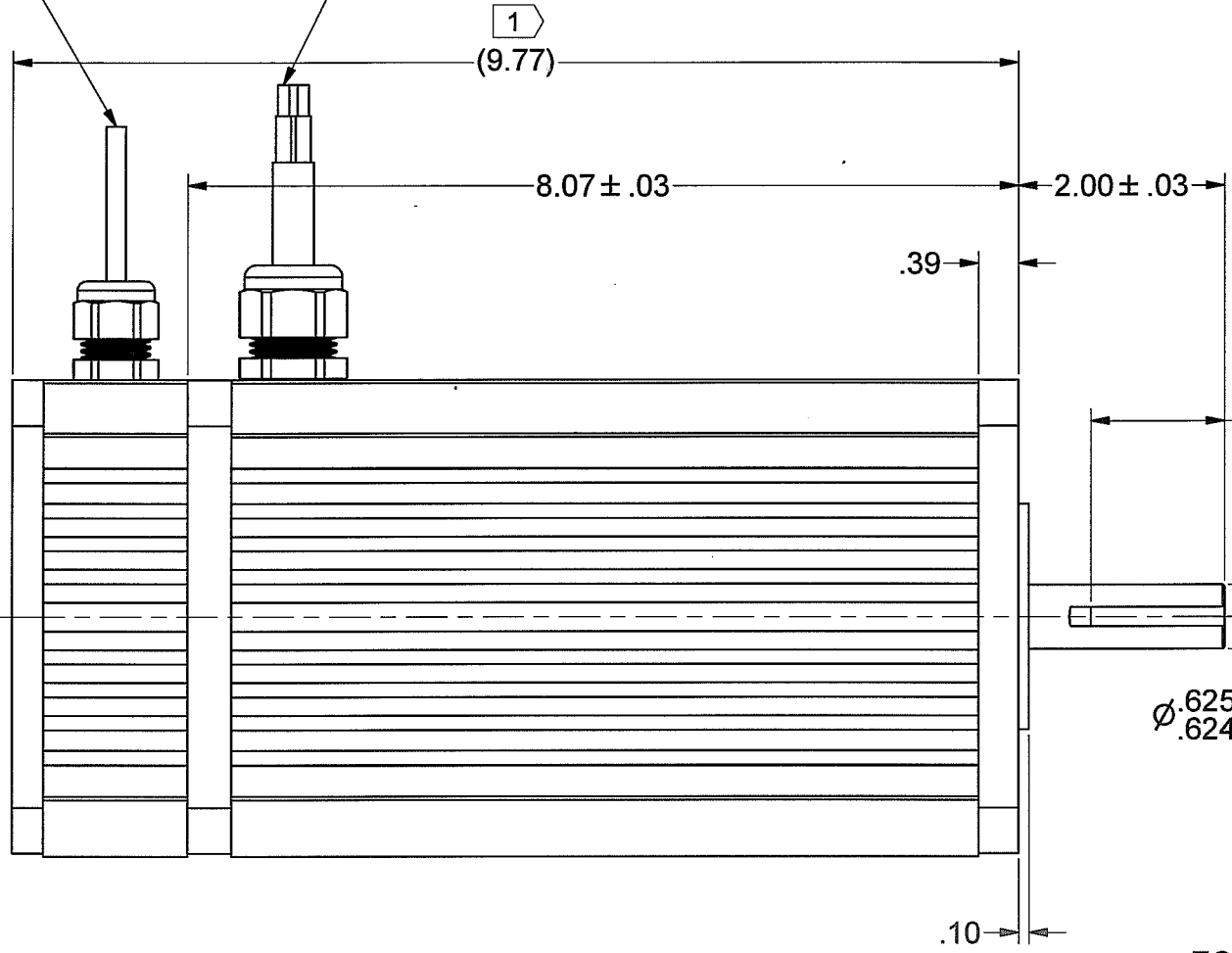
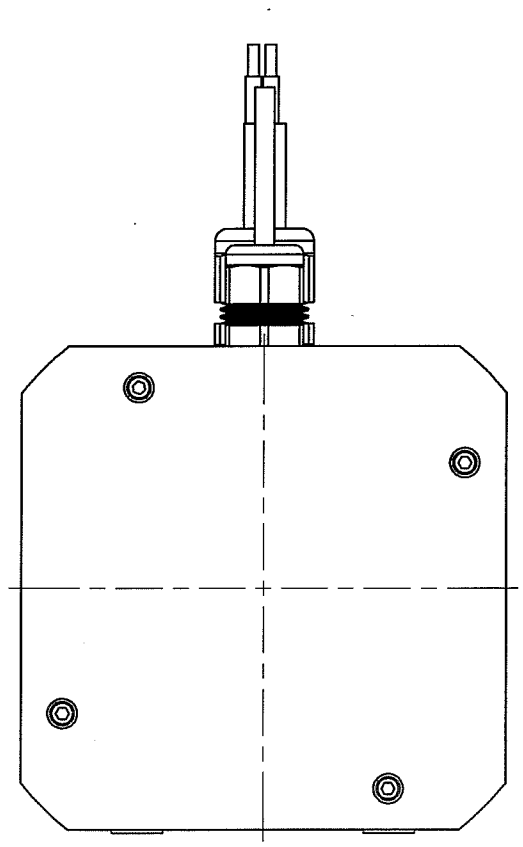


REV	DESCRIPTION	REVISION	DATE	BY	APPROVED
A	PROTOTYPE				

2) 2000 LINE INCREMENTAL / COMMUTATING ENCODER / 21"±1" LONG SHIELDED CABLE MEASURED FROM TOP OF STRAIN RELIEF (SEE CHART FOR FUNCTIONS AND COLORS)

3) MOTOR LEAD WIRES, 18"±1" LONG (TEFLON) MEASURED FROM TOP OF STRAIN RELIEF COVERED WITH CLEAR HEAT SHRINK (SEE CHART FOR FUNCTIONS AND COLORS)



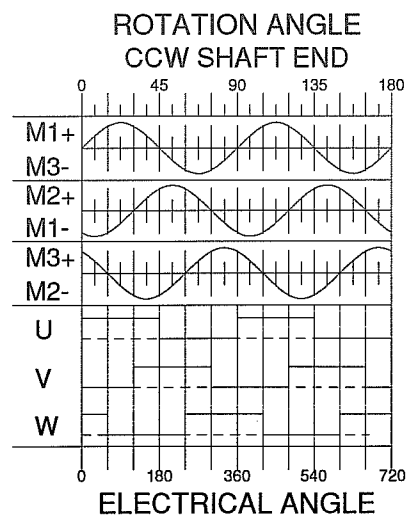
CONTROLLED  
OCT 15 2019  
DOCUMENT

**MOTOR SPECIFICATIONS:**

TORQUE CONSTANT (Kt) = 19.0 ± 10% OZ-IN/AMP  
VOLTAGE CONSTANT (Ke) = 14.0 ± 10% VOLTS/KRPM

**NOTES:**

1.) [X] IDENTIFIES INSPECTION DIMENSIONS.



ENCODER WIRING - 28 AWG	
COLOR CODE	FUNCTION
RED	Vcc Inc +5V
BLACK	GND Inc
BLUE	A
BLUE / BLACK	A'
GREEN	B
GREEN / BLACK	B'
VIOLET	Z
VIOLET / BLACK	Z'
BROWN	U
BROWN / BLACK	U'
GRAY	V
GRAY / BLACK	V'
WHITE	W
WHITE / BLACK	W'
DRAIN	BARE

MOTOR LEADS - 10 AWG	
M1	RED
M2	BLACK
M3	WHITE

TOLERANCES ON: ANGLES = ± 1/2° X.XX [X.X] = ± .01 [0.25] X.XXX [X.XX] = ± .005 [0.12]	THIRD ANGLE PROJECTION DO NOT SCALE DRAWING	THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF MAGMOTOR TECHNOLOGIES. ANY REPRODUCTION OR DISCLOSURE OF THE INFORMATION CONTAINED THEREIN IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION FROM MAGMOTOR TECHNOLOGIES IS PROHIBITED.	
	SIGNATURES DRAWN SLC CHECKED <i>SL</i> ENG APPR. MFG APPR. <i>BT</i>	DATE 9/20/2019 10/15/19 10/15/19	
MATERIAL SPEC FINISH NONE SPEC	Q.A. UNLESS OTHERWISE SPECIFIED REMOVE ALL BURRS & SHARP EDGES. COUNTERSINK TAPPED HOLES TO BODY SIZE. FILLETS: .03 MAX. / EXTERNAL CORNERS: .015 MAX.	SIZE D 730420101	REV A
SCALE: -		WEIGHT: -LB.	SHEET 1 OF 3



10 Coppage Drive  
Worcester, MA 01603  
10/29/2019

**MOTOR PERFORMANCE / SPECIFICATIONS**

**Attn.:**

Final Product No.: **BFA 42 5D 500 FE**

Customer:

RFQ 730420101

Phone/Fax:

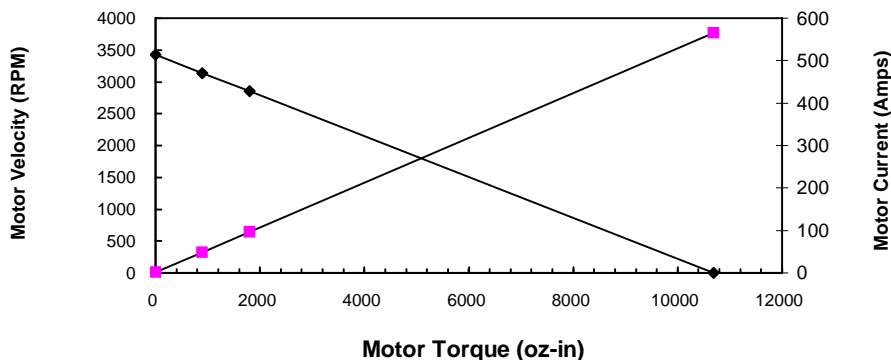
By: JC

Date: 10/15/2019

This is a calculation data sheet

SPECS	C/S	Frame	PM	- Winding -	Stack	Options	Gear Ratio
MODEL #	<b>BFA</b>	<b>42</b>		<b>5D</b>	<b>500</b>	<b>FE</b>	<b>1.0</b>
$V_{in} = *$	<b>48</b>	Vdc		Input Voltage		<b>eff = 0.9</b>	
$K_e = *$	<b>14.0</b>	V/krpm		Voltage Constant			
$K_t =$	18.9	oz-in/A		Torque Constant			
$R_t = *$	<b>0.085</b>	Ohms(@20°C)		Terminal Resistance+Amplifier			
$I_o = *$	<b>1.1</b>	Amps		No load current			
$I_{as} =$	564.7	Amps		Stall Current (reference only)			
$T_{gs} =$	10692	oz-in		Stall Torque (reference only @ $V_{in}$ )			
$I_1 =$	48.6	Amps		Current @ Torque-1			
$T_1 = *$	<b>900</b>	oz-in		<b>Torque-1</b>	810.0 oz-in	50.6 in-lb	
$T_2 = *$	<b>1800</b>	oz-in		<b>Torque-2</b>	1620.0 oz-in	101.3 in-lb	
$I_2 =$	96.2	Amps		Current @ Torque-2			
RPM $n_l =$	3429	RPM		No Load Velocity		3428.6 rpm	
RPM $r =$	3140	RPM		RPM @ T1		3140.0 rpm	
RPM $p =$	2851	RPM		RPM @ T2		2851.4 rpm	
$R_{ah} =$	0.11	Ohms(@105°C)		Term. Resistance Hot			
$T_{gsh} =$	8172	oz-in		Stall Torque Hot			
$I_{ash} =$	431.6	Amps		Stall Current Hot			
$R_{th} = *$	<b>0.24</b>	°C/W		Thermal Resistance			
$T_r =$	59	°C Without cooling air		Temperature Rise (above ambient)			
Nm/A=	0.13			Torque Constant			
Lb in/A=	1.18			Torque Constant			
Km=	64.9	Kt/r		Motor Constant			

**Torque Curve**



**Calculation data**

Voltage	Torque	RPM	Amp	Efficiency	Watts out
48	0	3429	1.1	0	0
48	900	3140	48.6	0.89538	2090.216
48	1800	2851	96.2	0.82238	3796.1977
48	10692	0	564.7	0	0