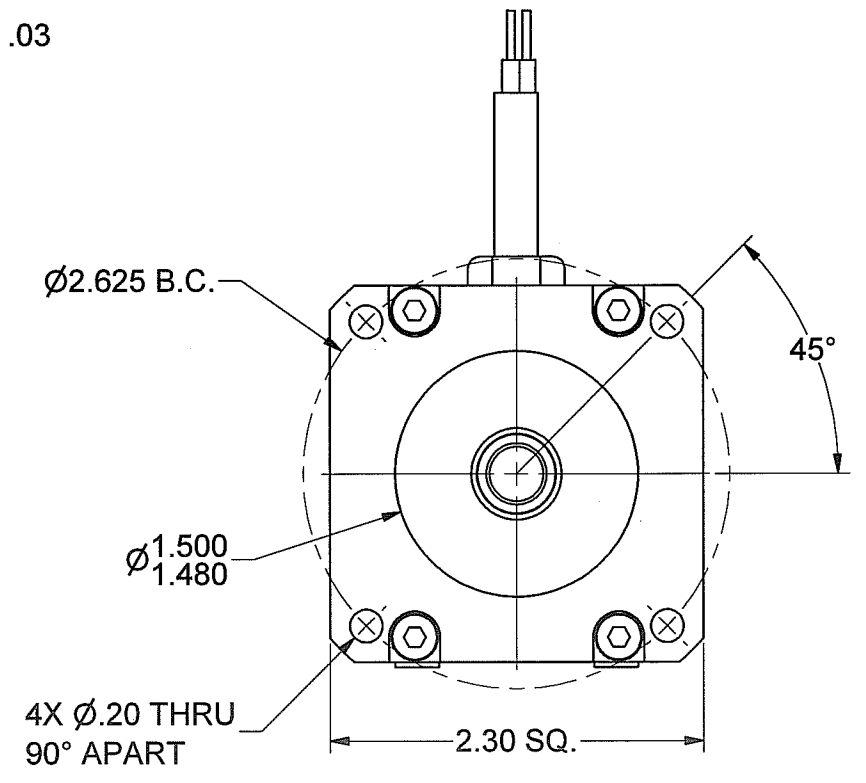
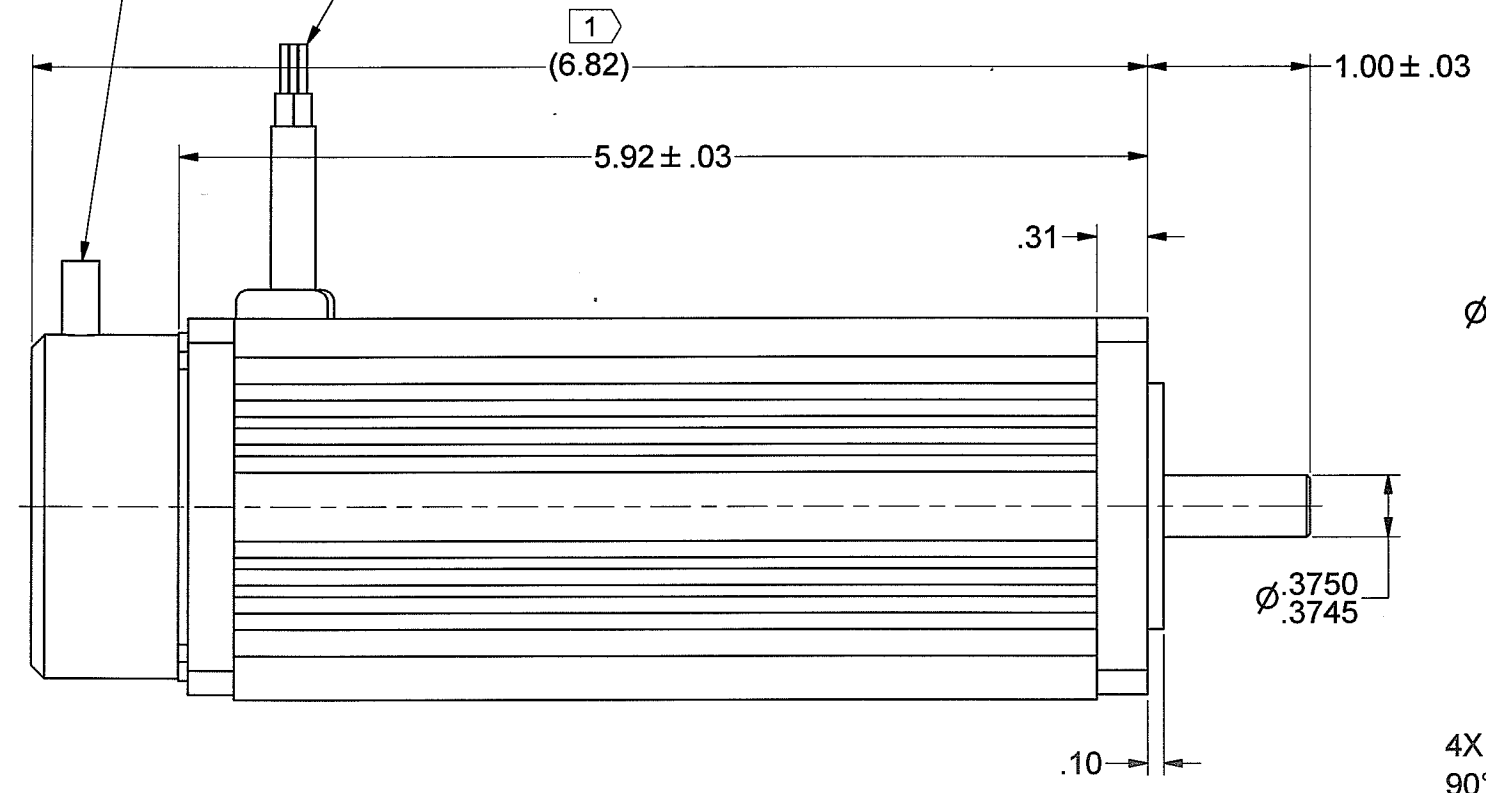
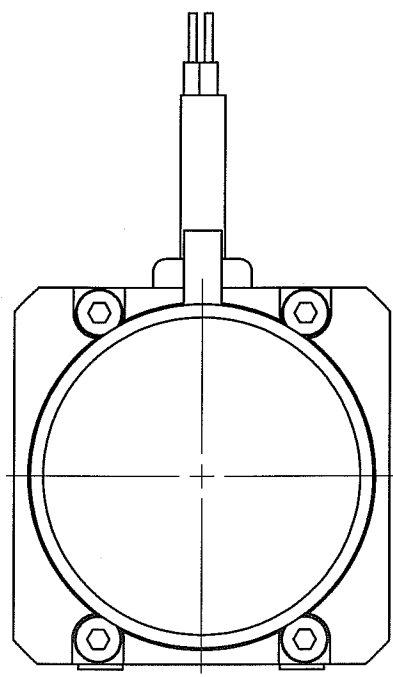


| REV | DESCRIPTION | REVISION | DATE | BY | APPROVED |
|-----|-------------|----------|------|----|----------|
| A | PROTOTYPE | | | | |

2) 1000 LINE INCREMENTAL / COMMUTATING ENCODER
24"±1" LONG SHIELDED CABLE
(SEE CHART FOR FUNCTIONS AND COLORS)

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

DIRECTION OF ROTATION



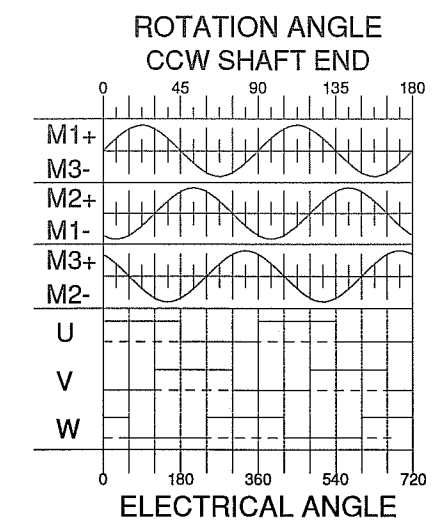
MOTOR SPECIFICATIONS:

TORQUE CONSTANT (Kt) = 20.6 ± 10% OZ-IN/AMP - SPECIAL
VOLTAGE CONSTANT (Ke) = 15.2 ± 10% VOLTS/KRPM - SPECIAL

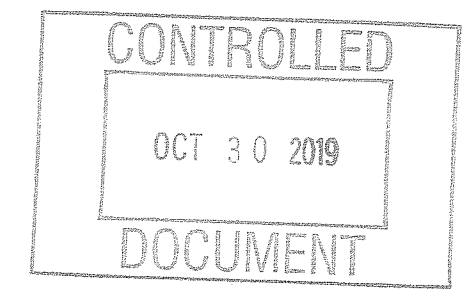
NOTES:

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' |



| MOTOR LEADS - 18 AWG | |
|----------------------|-------|
| M1 | RED |
| M2 | BLACK |
| M3 | WHITE |



| | | | | | | | |
|--|--|---|--|---|--|--------------------------------|--|
| UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES & (mm) | | 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. | | MAGMOTOR™ | |
| TOLERANCES ON: ANGLES = ± 1/2° X.XX [X.X] = ± .01 [0.25] X.XXX [X.XX] = ± .005 [0.12] | | SIGNATURES | | DATE | | TITLE | |
| MATERIAL | | DRAWN SLC | | 10/17/2019 | | FINAL ASSEMBLY, BFA23-2F-400FE | |
| SPEC | | CHECKED <i>SL</i> | | 10/30/19 | | REV A | |
| FINISH | | ENG APPR. | | MFG APPR. <i>ST</i> | | SIZE NUMBER | |
| NONE | | Q.A. | | 10/30/19 | | D 730240060 | |
| SPEC | | UNLESS OTHERWISE SPECIFIED REMOVE ALL BURRS & SHARP EDGES. COUNTERSINK TAPPED HOLES TO BODY SIZE. FILLETS: .03 MAX. / EXTERNAL CORNERS: .015 MAX. | | SCALE: - | | WEIGHT: - LB. | |
| | | | | | | SHEET 1 OF 3 | |



10 Coppage Drive
Worcester, MA 01603
11/5/2019

MOTOR PERFORMANCE / SPECIFICATIONS

Attn.:

Final Product No.: **BFA 23 2F 400 FE**

Customer:

RFQ 730240060

Phone/Fax:

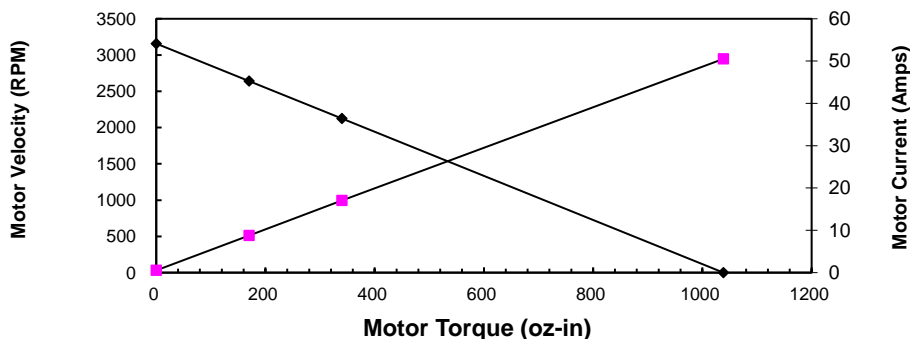
By: JC

Date: 10/10/2019

This is a calculation data sheet

| SPECS | C/S | Frame | PM | - Winding - | Stack | Options | Gear Ratio |
|----------------|-------------|---------------|----------------------------|-------------|------------|-----------|---|
| MODEL # | BFA | 23 | | 2F | 400 | FE | 1 |
| V in =* | 48 | Vdc | | | | | eff = 0.9 |
| Ke =* | 15.2 | V/krpm | | | | | |
| Kt = | 20.6 | oz-in/A | | | | | |
| Rt =* | 0.95 | Ohms(@20° C) | | | | | |
| Io=* | 0.53 | Amps | | | | | |
| I as = | 50.5 | Amps | | | | | |
| T gs = | 1039 | oz-in | | | | | |
| I l = | 8.8 | Amps | | | | | |
| T 1 =* | 170 | oz-in | | | | | |
| T 2 =* | 340 | oz-in | | | | | |
| I 2 = | 17.1 | Amps | | | | | |
| RPM nl = | 3158 | RPM | | | | | 3157.9 rpm |
| RPM r = | 2641 | RPM | | | | | 2641.0 rpm |
| RPM p= | 2124 | RPM | | | | | 2124.2 rpm |
| R ah = | 1.24 | Ohms(@105° C) | | | | | |
| T gsh = | 794 | oz-in | | | | | |
| I ash = | 38.6 | Amps | | | | | |
| R th =* | 1.1 | °C/W | | | | | |
| Tr = | 99 | °C | Without cooling air | | | | Temperature Rise (above ambient) |
| Nm/A= | 0.15 | | | | | | Torque Constant |
| Lb in/A= | 1.28 | | | | | | Torque Constant |
| Km= | 21.1 | Kt//r | | | | | Motor Constant |

Torque Curve



Calculation data

| Voltage | Torque | RPM | Amp | Efficiency | Watts out |
|-----------|------------|-------------|------------|----------------|------------------|
| 48 | 0 | 3158 | 0.5 | 0 | 0 |
| 48 | 170 | 2641 | 8.8 | 0.78619 | 332.08168 |
| 48 | 340 | 2124 | 17.1 | 0.65196 | 534.18161 |
| 48 | 1039 | 0 | 50.5 | 0 | 0 |