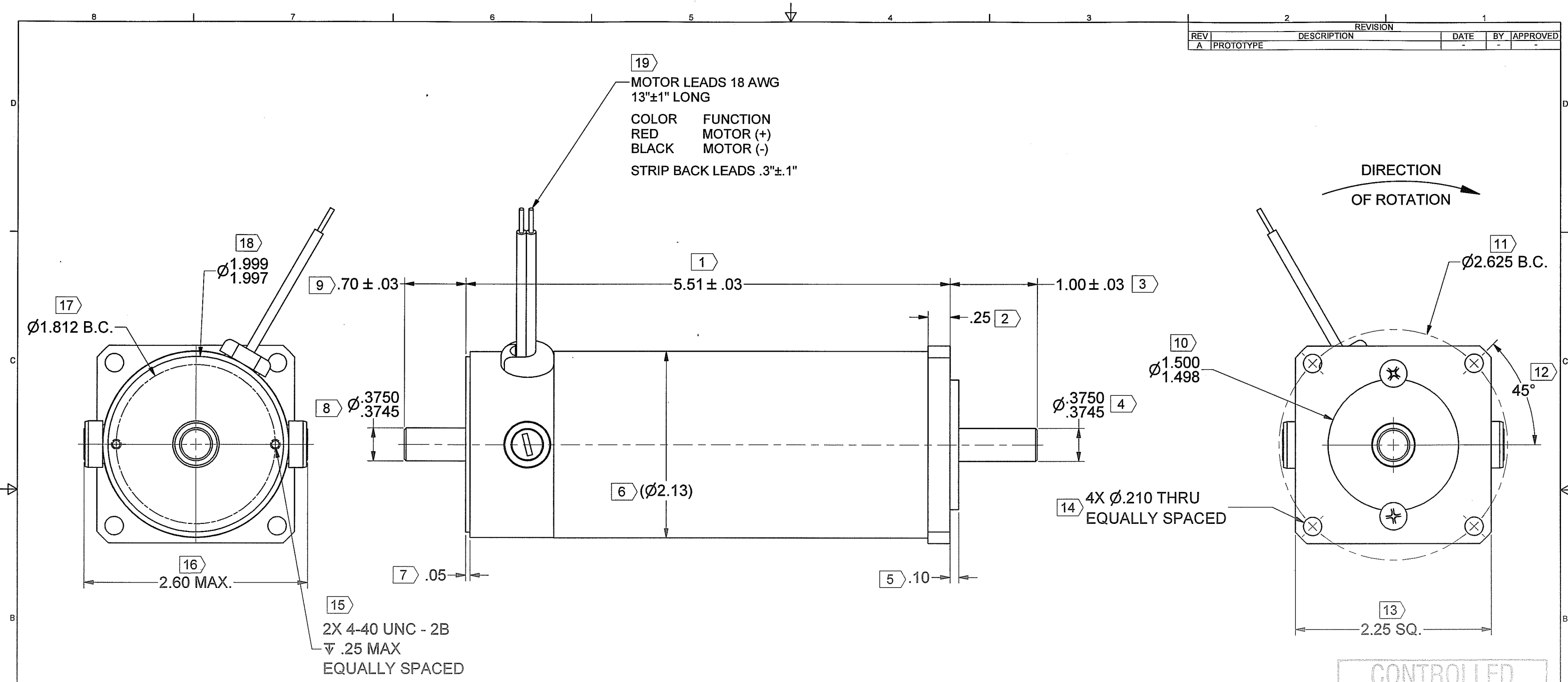


| REV | DESCRIPTION | DATE | BY | APPROVED |
|-----|-------------|------|----|----------|
| A | PROTOTYPE | - | - | - |



MOTOR SPECIFICATIONS:

TORQUE CONSTANT (Kt) = 55.4 ± 10% OZ-IN/AMP
VOLTAGE CONSTANT (Ke) = 41.0 ± 10% VOLTS/KRPM

NOTES:

- 1.) MOTOR ROTATION IS CLOCKWISE WHEN VIEWED FROM OUTPUT SHAFT WITH POSITIVE VOLTAGE APPLIED TO RED LEAD.
- 2.) SCREW PENETRATION NOT TO EXCEED SPECIFIED THREAD DEPTH.
- 3.) (X) IDENTIFIES INSPECTION DIMENSIONS.

CONTROLLED
JUL 5 2022
DOCUMENT

| | | | | |
|--|--|---|---------------|-----------------------------|
| 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™ |
| | | SIGNATURES | DATE | |
| TOLERANCES ON: ANGLES = ± 1/2° X.XX [X.X] = ± .01 [0.25] X.XXX [X.XX] = ± .005 [0.12] | 125 ✓ | DRAWN CGW | 6/22/2022 | MOTOR ASSEMBLY, C21-K-300FX |
| MATERIAL | | CHECKED | | |
| SPEC | | ENG APPR. <i>meu</i> | 7/5/22 | |
| FINISH | | MFG APPR. <i>BT</i> | 7/5/22 | |
| NONE | | Q.A. | | |
| SPEC | | UNLESS OTHERWISE SPECIFIED REMOVE ALL BURRS & SHARP EDGES. COUNTERSINK TAPPED HOLES TO BODY SIZE. FILLETS: .03 MAX. / EXTERNAL CORNERS: .015 MAX. | | |
| | | SIZE | NUMBER | REV |
| | | D | 500210363 | A |
| | | SCALE: - | WEIGHT: - LB. | SHEET 1 OF 3 |



10 Coppage Drive
Worcester, MA 01603
8/17/2022

MOTOR PERFORMANCE / SPECIFICATIONS

Attn.:

Final Product No.: **C21-K-300FX**

Customer:

RFQ 500210363

Phone/Fax:

By: MM

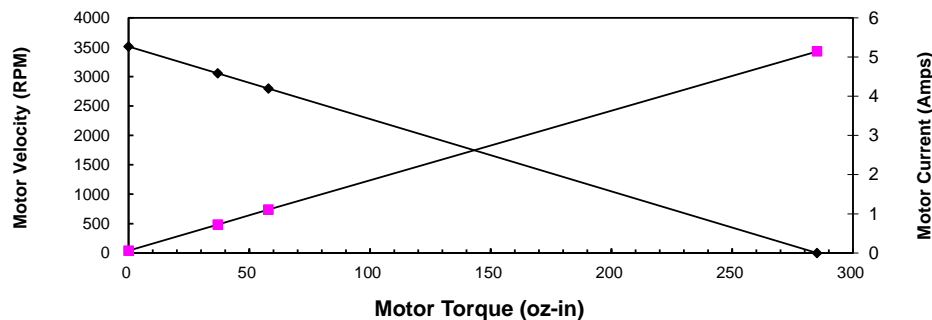
Date: 8/17/2022

This is a calculation data sheet

| SPECS | C/S | Frame | PM | - | Winding | - | Stack | Options | Gear Ratio |
|---------|----------|-----------|----|---|----------|---|------------|-----------|------------|
| MODEL # | C | 21 | | | K | | 300 | FX | |

| | | | | | | | | | |
|-----------|---------------------------|---------------------|--|--|--|--|---------------------------------------|-----------|-----------|
| V in =* | 144 Vdc | | | | | | Input Voltage | | Eff = 0.9 |
| Ke =* | 41.00 V/krpm | | | | | | Voltage Constant | | |
| Kt = | 55.4 oz-in/A | | | | | | Torque Constant | | |
| Rt =* | 28.00 Ohms(@20° C) | | | | | | Terminal Resistance+Amplifier | | |
| Io =* | 0.06 Amps | | | | | | No load current | | |
| I as = | 5.1 Amps | | | | | | Stall Current (reference only) | | |
| T gs = | 285 oz-in | | | | | | Stall Torque (reference only @ V in) | | |
| I 1 = | 0.7 Amps | | | | | | Current @ Torque-1 | | |
| I 2 = | 1.1 Amps | | | | | | Current @ Torque-2 | | |
| T 1 =* | 37 oz-in | | | | | | Torque-1 | 0.0 oz-in | 0.0 in-lb |
| T 2 =* | 58 oz-in | | | | | | Torque-2 | 0.0 oz-in | 0.0 in-lb |
| RPM nl = | 3512 RPM | | | | | | No Load Velocity | #DIV/0! | rpm |
| RPM r = | 3056 RPM | | | | | | RPM @ T1 | #DIV/0! | rpm |
| RPM p = | 2798 RPM | | | | | | RPM @ T2 | #DIV/0! | rpm |
| R ah = | 36.63 Ohms(@105° C) | | | | | | Term. Resistance Hot | | |
| T gsh = | 218 oz-in | | | | | | Stall Torque Hot | | |
| I ash = | 3.9 Amps | | | | | | Stall Current Hot | | |
| R th =* | 3.8 °C/W | | | | | | Thermal Resistance | | |
| Tr = | 80 °C | Without cooling air | | | | | Temperature Rise @ T1 (above ambient) | | |
| Tr = | 149 °C | Without cooling air | | | | | Temperature Rise @ T2 (above ambient) | | |
| Nm/A = | 0.39 | | | | | | Torque Constant | | |
| Lb in/A = | 3.46 | | | | | | Torque Constant | | |
| Km = | 10.5 | Kt/r | | | | | Motor Constant | | |

Torque Curve



Calculation data

| Voltage | Torque | RPM | Amp | Efficiency | Watts out |
|---------|--------|------|-----|-------------|-----------|
| 144 | 0 | 3512 | 0.1 | | 0 |
| 144 | 37 | 3056 | 0.7 | 0.798691779 | 83.646461 |
| 144 | 58 | 2798 | 1.1 | 0.753615673 | 120.02575 |
| 144 | 285 | 0 | 5.1 | | 0 |