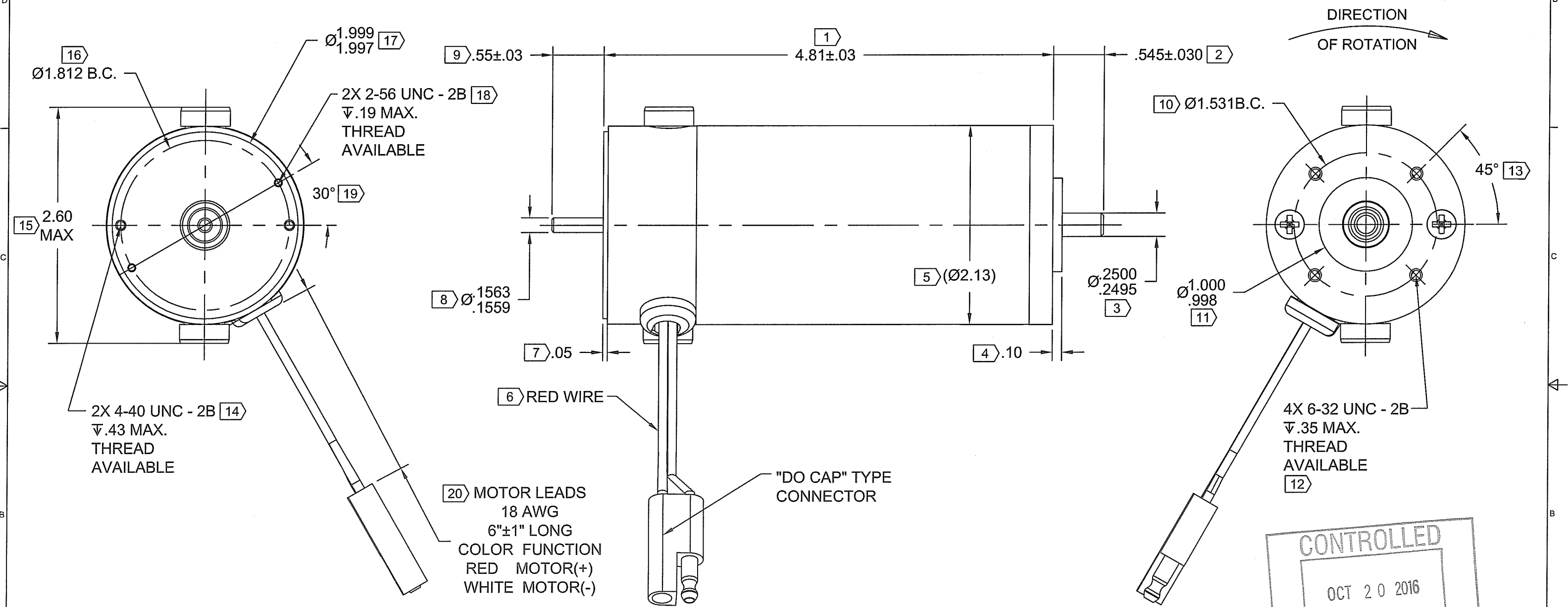


REV	DESCRIPTION	DATE	BY	APPROVED
A	PROTOTYPE	-	-	-
B	SHAFT WAS 1.00 LG., REMOVED FLAT	8/15/03	RAL	-
C	ADDED SHT 1, ROTATED 2-56 60° CW	3/23/04	RAL	-
D	ADDED CONNECTOR	2/18/06	MO	-
E	WHITE MOTOR LEAD WIRE WAS WHITE, BUT DRAWING CALLED OUT BLACK	11/16/07	SLC	-



CONTROLLED  
OCT 20 2016  
DOCUMENT

**MOTOR SPECIFICATIONS:**

TORQUE CONSTANT (Kt) =  $5.3 \pm 10\%$  OZ-IN/AMP  
 VOLTAGE CONSTANT (Ke) =  $4.0 \pm 10\%$  VOLTS/KRPM

**NOTES:**

- MOTOR ROTATION IS CLOCKWISE WHEN VIEWED FROM OUTPUT SHAFT WITH POSITIVE VOLTAGE APPLIED TO RED LEAD.
- (X) IDENTIFIES INSPECTION DIMENSIONS.

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° XX.X [X.X] = ± .01 [0.25] XXX.X [X.XX] = ± .005 [0.12]	125 ✓	DRAWN R. LANDRY	6/9/2013	MOTOR ASSEMBLY, C21-B-230X
MATERIAL	CHECKED		10/22/16	
SPEC -	ENG APPR.			
FINISH	MFG APPR.		10/22/16	SIZE NUMBER
SPEC -	Q.A.			D 500210264
UNLESS OTHERWISE SPECIFIED REMOVE ALL BURRS & SHARP EDGES. COUNTERSINK TAPPED HOLES TO BODY SIZE. FILLETS: .03 MAX / EXTERNAL CORNERS: .015 MAX.		SCALE: NONE		WEIGHT: -
		SHEET 1 OF 3		REV E



10 Coppage Drive  
Worcester, MA 01603  
10/20/2016

**MOTOR PERFORMANCE / SPECIFICATIONS**

**Attn.:**

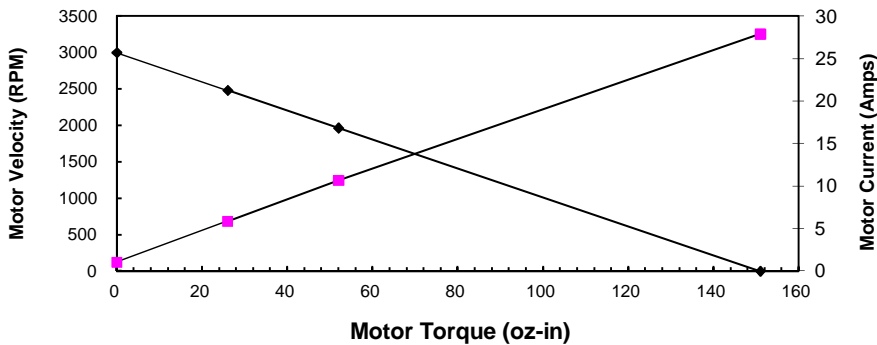
Final Product No.: **C21 B 230X**  
RFQ **500210264**  
By: **JC**

Customer:  
Phone/Fax:  
Date:

This is a calculation data sheet

SPECS	C/S	Frame	PM	- Winding	- Stack	Options	Gear Ratio
MODEL #	<b>C/S</b>	<b>21</b>		<b>B</b>	<b>230</b>	<b>X</b>	<b>1.0</b>
$V_{in} = *$	<b>12</b>	Vdc			Input Voltage		<b>eff = 0.9</b>
$K_e = *$	<b>4.0</b>	V/krpm			Voltage Constant		
$K_t =$	5.4	oz-in/A			Torque Constant		
$R_t = *$	<b>0.43</b>	Ohms (@20°C)			Terminal Resistance+Amplifier		
$I_o = *$	<b>1.08</b>	Amps			No load current		
$I_{as} =$	27.9	Amps			Stall Current (reference only)		
$T_{gs} =$	151	oz-in			Stall Torque (reference only @ $V_{in}$ )		
$I_1 =$	<b>5.9</b>	Amps			<b>Current @ Torque-1</b>		
$T_1 = *$	<b>26</b>	oz-in			Torque-1	23.4 oz-in	1.5 in-lb
$T_2 = *$	<b>52</b>	oz-in			Torque-2	46.8 oz-in	2.9 in-lb
$I_2 =$	<b>10.7</b>	Amps			<b>Current @ Torque-2</b>		
RPM $n_l =$	3000	RPM			No Load Velocity		3000.0 rpm
<b>RPM <math>r =</math></b>	<b>2483</b>	<b>RPM</b>			<b>RPM @ T1</b>		<b>2483.3 rpm</b>
RPM $p =$	1967	RPM			RPM @ T2		1966.7 rpm
$R_{ah} =$	0.56	Ohms (@105°C)			Term. Resistance Hot		
$T_{gsh} =$	115	oz-in			Stall Torque Hot		
$I_{ash} =$	21.3	Amps			Stall Current Hot		
$R_{th} = *$	<b>4.4</b>	°C/W			Thermal Resistance		
$T_r =$	<b>101</b>	°C	Without cooling air		<b>Temperature Rise (above ambient)</b>		
$N_m/A =$	0.04				Torque Constant		
$L_b \text{ in}/A =$	0.34				Torque Constant		
$K_m =$	8.2	Kt/r			Motor Constant		

**Torque Curve**



**Calculation data**

Voltage	Torque	RPM	Amp	Efficiency	Watts out
12	0	3000	1.1	0	0
<b>12</b>	<b>26</b>	<b>2483</b>	<b>5.9</b>	<b>0.6761</b>	<b>47.756268</b>
12	52	1967	10.7	0.58951	75.640457
12	151	0	27.9	0	0