

# DB-4000 MATRIX SERIES SPECIFICATIONS

## MOTOR CHARACTERISTICS @ 25° C

Specification	Units	DB-4000 B-1ES	DB-4000 C-1ES	DB-4000 D-1ES	DB-4000 E-1ES
Peak Torque, $T_p$	oz-in	2000	3000	4000	5000
Motor Constant, $K_M$	oz-in / $\sqrt{W}$	67.2	91.0	111.5	129.7
Number of Poles		6	6	6	6
Number of Phases		3"Y"	3"Y"	3"Y"	3"Y"
Weight	oz (nom)	94.4	136	177.6	217.6
Motor Inertia, $J_M$	oz-in-s <sup>2</sup>	3.65E-02	5.50E-02	7.35E-02	9.20E-02
Friction Torque, $T_F$	oz-in	10	15	20	25
Electrical Time Constant, $T_E$	ms	3.27	3.92	4.44	4.76
Mechanical Time Constant, $T_M$	ms	1.15	0.94	0.84	0.77
*Temperature Rise, TPR'	°C / W	1.6	1.2	1.0	0.8
Sensors		No	No	No	No

## MOTOR WINDING CONSTANTS

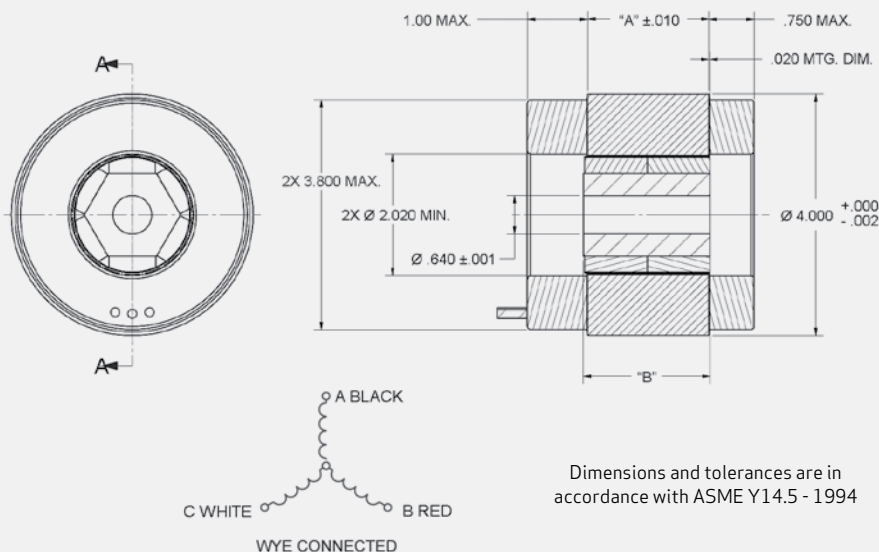
Specification	Units	DB-4000 B-1ES	DB-4000 C-1ES	DB-4000 D-1ES	DB-4000 E-1ES
**Torque Sensitivity, $K_T$	oz-in/amp $\pm$ 10%	66.5	99.7	132.9	166.1
Back EMF, $K_E$	V per rad/s $\pm$ 10%	0.469	0.704	0.938	1.173
Terminal Resistance, $R_M$	ohms $\pm$ 10%	0.98	1.20	1.42	1.64
Terminal Inductance, $L_M$	mH $\pm$ 30%	3.2	4.7	6.3	7.8
Voltage, Stalled at Peak Torque, $V_p$	volts	29.5	36.0	42.6	49.4
Amps at Peak Torque, $I_p$	amps	30.1	30.0	30.0	30.1

Integral Horsepower Design Maximums: 650 VDC, 12,000 RPM, 7%  $K_T$  roll off at  $I_p$

\*TPR as listed on the data sheets, is for an un-mounted condition unless otherwise noted. Mounted TPR values are often 50% or less than the un-mounted TPR. For air flow, the TPR may be less than 25% the un-mounted amount and for fluid cooling it may be 10% or less. Many factors affect the TPR value and its change relative to the mounting or external cooling applied. Consult the factory for an more accurate estimate of the motor's TPR.

\*\*Stack lengths from 0.25 to 8.00 inches (6.35 to 203.2 mm) with  $K_T$  to 47.6 N.m/amp. Consult factory for additional designs. Refer to our online documentation for product updates.

## MECHANICAL DIMENSIONS (INCHES)



## MOUNTING DIMENSIONS

Modular	"A" Inches	"B" Inches
DB-4000-B-1ES	2.000	2.095
DB-4000-C-1ES	3.000	3.136
DB-4000-D-1ES	4.000	4.180
DB-4000-E-1ES	5.000	5.222