



## Racing Electric & Instrument Corporation

### 1. Company Introduction:

- **RACING (REI) Inc.**

is a private company in Taiwan, founded in 1989, specialized in design, development, and manufacturing of customized Torque motor, DC brush/brushless motor, Motor Driver series, Controller.

- **Racing** is an aerospace subsystem/module systems house. The R&D team has 20+years of Gyroscope, EM actuator product solutions experiences from CSIST (A defense research & development technology institute in Taiwan).

- **Racing** is the approved sole source for providing national defense system electric Motor/Controller/ Generator /Actuator. In Taiwan for our major customers (Parker/ Eaton/ Woodward/ DSO; Taiwan DOD/ MRT system)

## **2. Products**

Providing Actuator & Seeker for Aircraft, Missile & MRT  
subsystems module

- Torque motor (OD.  $\psi$ 1 in.~15in.)
- Brush DC motor (100HP max.)
- Brushless DC motor (3HP max.)
- Conduct plastic film potentiometer
- Brushless generator (35,000RPM)
- Relay
- Numeric Control Actuator for UAV
- Driver for BLDM

## **3. Quality System**

- ISO 9001 Approved effective since July 1999.
- Completed AS 9100 Final Audit on 26 Feb. 2009; AS 9100:200+ AS9100B certificate (No. CERT-0033229) received on April 28, 2009.
- Sampling components: MIL-STD-105E, MIL-STD- 461, MIL-STD – 810.

- All process control cope with technical documentation  
(SOP, SAP, SIP etc.) Qualified for approval to AIDC S-200  
Quality System in 2001(Aerospace Industrial Development  
Corporation)
- Certified by WMPC, that certifications of design,  
assemblies and testing procedures, comply with WMPC  
quality system on BLDC Motor.

- **Company Address:**

2<sup>ND</sup> FL, NO. 27-2, CHILIN RD. CHUNG-LI INDUSTRIAL PARK, CHUNG-LI CITY,  
TAOYUAN, TAIWAN.

TEL: +886-3-462-9511; FAX: +886-3-462-9509

- **Contact:**

Dr. Larry Chang

Executive VP

Racing Electric & Instrument Corporation

2F, 27-2 Chilin Road Chung Li Industrial Park, Taoyuan, Taiwan 32062

Tel:+886-3-462-9511~2 Fax:+886-3-462-9509

M:+ 886-921 842 368 (Taiwan) M: 0921 842 368

e-mail:larry@racing.com.tw

# Brushed DC Torque Motor Selection Guide

## A. FRAMLESS TYPE

Model number	OD mm	ID mm	Length mm	Peak torque Oz-in	Voltage V	Current Amp	Kt Ozin/A	Ke V/Rad /Sec	Resistance $\Omega$	Inductance mH
RTM-3812	38.1	15.88	12.95	20	28.6	2.86	7.0	0.049	10.0	2.0
RTM-4909	49.97	18.03	9.5	18	28	0.875	20.57	0.143	32.4	6.43
RTM-4913	49.97	18.03	13.0	35	28	2.6	13.2	0.092	10.7	2.21
RTM-4921	49.97	15.85	22.6	63.1	20.0	3.25	19.43	0.138	6.15	1.2
RTM-4925	49.97	15.85	31.62	157	28.2	12.3	12.8	0.090	2.29	0.64
RTM-6021	60.32	31.75	21.69	90	24.1	4.4	20.5	0.145	5.5	1.2
RTM-6026	60.32	31.75	26.67	120	29.6	5.92	20.2	0.142	5.0	2.55
RTM-6026E	60.32	31.75	26.67	147	29.6	4.85	30.2	0.210	6.1	2.52
RTM-7613	76.20	44.45	13.34	60	24	2.6	24.7	0.171	9.23	2.7
RTM-7616E	76.20	44.45	15.89	98	28	2.8	35.2	0.248	10.0	3.2
<b>RTM-8028</b>	<b>80.00</b>	<b>44.50</b>	<b>25.6</b>	<b>167.2</b>	<b>24</b>	<b>3.67</b>	<b>46</b>	<b>0.323</b>	<b>6.93</b>	<b>3.3</b>
RTM-9026	90.00	31.75	25.8	321	29.6	5.03	63.8	0.451	5.88	4.1
RTM-9443	94.74	41.65	39.37	575	29.3	7.32	78.6	0.555	4.0	6.4
<b>RTM-8039</b>	<b>80.78</b>	<b>19.00</b>	<b>33.83</b>	<b>576</b>	<b>26</b>	<b>10</b>	<b>57.6</b>	<b>0.407</b>	<b>2.6</b>	<b>2.7</b>
RTM-8531	85.00	38.00	31.66	1.91	28	4.24	0.451	0.612	6.6	14
RTM-9426	94.74	41.65	26.67	1.8	28	4.42	0.411	0.557	6.33	16
RTM-11417	114.30	67.92	17.45	2.4	31.2	6.0	0.4	0.54	5.2	3.0
RTM-13017	130.18	88.9	16.5	300	25.8	3.35	89.7	66.3	7.7	2.9
RTM-363125	388.0	254.00	125.0	300	168	9.17	32.7	44.32	18	110

## B. HOUSED TYPE

Model number	OD mm	Shaft mm	Length mm	Peak torque Oz-in	Voltage V	Current Amp	Kt Ozin/A	Ke V/RAD /SEC	Resistance $\Omega$	Inductance mH
RTMP-2632	32.00	3.0	9.5	31.7	22.7	3.34	9.5	0.067	6.80	1.7
RTMP-4921	53.34	8.0	30.35	56	20	3.25	16.9	0.12	6.15	1.2
RDM-4243	42.4	7.15	43.0	95.0	40	7.0	16.34	0.115	6.0	1.75

Model number	OD mm	Shaft mm	Length mm	Operatin Torque Kg.cm	Operatin Speed RPM	Voltage V	Current Amp	Efficien cy	Remark	Remark
RDM-087246	87.0	12.7	246.0	55	10000	28	140	≥ 80%	EMI Filter	Intermitte nce
RDM-092243	92.0	10.0	243	50	8000	56	90	≥ 80%	EMI Filter	Intermitte nce
RDM-099245	99.0	10.0	245	65	12000	56	200	≥ 75%	EMI Filter	Intermitte nce
RDM-471440	471.0	42.0	440.0	1210	2100	114	300	≥ 80%		

## **Brushless DC Torque Motor Selection Guide**

### **A. FRAMLESS TYPE**

Motor to be supplied as two separate components: rotor assembly and stator assembly.

Model number	OD mm	ID mm	Length mm	Peak torque Oz-in	Voltage V	Current Amp	Kt Ozin./A	Ke V/KRPM	Resistance Ω	Inductance mH
RBTM-2120	21.0	5.0	20.0	9.6	24	2.66	3.6	2.66	9.0	5.7
RBTM-3572	35.79	10.0	72.0	171	24	12.63	13.54	10.0	1.9	2.2
RBTM-3725	37.8	6.50	25.5	30.3	24	4.24	7.21	5.33	5.7	1.7
RBTM-4244	42.3	12.0	43.75	71.5	60	10	7.15	5.29	0.9	1.6
RBTM-4935	50.0	10.00	30.0	149.0	24	20.57	7.286	5.387	1.16	0.8
RBTM-6066	60.35	12.72	66.04	436	24	20.0	21.80	16.13	0.61	0.46
RBTM-7623	72.0	14.0	45.0	197.6	24	10	19.76	14.6	0.45	0.63
RBTM-8176	81.28	19.05	100	208	36	10	20.8	15.4	0.146	0.36
RBTM-8536	85.09	44.00	26.32	621	60	7.96	78.0	57.6	7.53	11
RBTM-11448	114.6	78.1	68.3	1060	36	20.0	53.02	39.21	0.285	1.33

### **B. HOUSED TYPE**

Model number	OD	Shaft	Length	Peak torque	Voltage	Current	Kt	Ke	Resistance	Inductance
--------------	----	-------	--------	-------------	---------	---------	----	----	------------	------------

	mm	mm	mm	Oz-in	V	Amp	Ozin/A	V/KRPM	$\Omega$	mH
RBM-2565	25	5.0	65.0	50.0	48	7.12	7.0	5.175	6.7	2.8
RBM-2862	28	5.0	62.0	37.5	24	12.5	3.00	2.21	0.7	0.8
RBM-3170	31.0	7.15	70.0	70	56	8.6	8.23	6.08	6.5	2.9
RBM-4485	44.4	9.0	85.1	180	28	31.4	5.8	4.28	0.9	1.1
RBM-056160	55.2	7.0	160	4.5	12000	28	4.5	$\geq 75\%$		
RBM-067160	67	8.0	160	90	3000	24	12	$\geq 75\%$		
RBM-090150	90	8.0	150	165	1650	24	15	$\geq 75\%$		
RBM-130323	142	24	323	11328	3000	168	117	$\geq 80\%$		
RBM-180414	190	32	414	21440	3000	168	163	$\geq 80\%$		
RBM-138152	138	8.0	152	43.0	2100	24	40	$\geq 75\%$		

## Other products

### AC Synchronous Generator

Model number	OD mm	Shaft ODmm	Length mm	Rating	Rating	Output Voltage	Frequency	Excite Current	Exciter Resistance
RSG-073189	73	10.0	161	1.5 KVA at 20000rpm	1.7KVAat 23200rpm	23VAC	800 Hz	4.0Amp	6 $\Omega$

### Limit Angle Torque Motor

Model number	OD mm	Shaft ODmm	Length mm	Peak torque Oz-in	Voltage V	Current Amp	Kt Ozin/A	Ke V/Krpm	Resistance $\Omega$
RLTM-2725	27	14.7	25.0	31	12	2.49	12.49	9.23	9.64
RLDM-5657	56	4.0	57	16.0	12	0.8	20.0	14.78	15.0

### Resolver-Pancake type

Model number	OD mm	Length mm	Speed	Fuction	Primary Winding	Input-VRMS	Freq.	Accuracy
RP-6512	65	12.0	16	RX	R	26	400	30 “
RP-12619	126	19	1	RX	R	26	400	6 ‘

## Potentiometer (conductive plastic film)

Model number	Dimension mm	Power Rating	R $\Omega$	Indep. Linearity	Output Smoothness	Stroke Electric Travel	Stroke Mechanical Travel	Life cycle
RP-1320	OD13*L20	0.5 W	10 K	0.5%	0.25%	130deg.	132 deg.	500M
RP-2221	OD22*L21	0.5 W	10 K	0.5%	0.25%	340 deg.	360 deg.	500M
RP-3346	W33*L46*H12	0.5 W	5000	0.5%	0.25%	45 deg.	70 deg.	500M
RP-4060	W40*L60*H12	0.5 W	5000	0.5%	0.25%	70deg.	76 deg.	500M
RP-67100	W67*L100*H12	0.5 W	5000	0.5%	0.25%	90deg.	95 deg.	500M

## Rotary Actuator

**Dimention:RA-105-104mm\*70mm\*23mm**

**Dimention:RA-115-114mm\*70mm\*23mm**

**Dimention:RA-140-137mm\*120mm\*58mm**

Model number	Stroke Electric Travel	Stroke Mechanical Travel	Peak Torque In-lb	No load Speed Deg/sec	Voltage V	Current Amp At 25in-lb	Position Feedback Scale mv/deg	Backlash Deg.
RA-105	45 deg.	50 deg.	50	225	18~32	1.0	220	0.5
RA-115	45 deg.	50 deg.	90	100	18~32	1.0	220	0.5
RA-140	5*360deg	free	20	1200	18~32	2.0	220	0.5