marathon®

marathon® Motors

MARATHON MT SERIES

CAST ALUMINIUM SINGLE & THREE PHASE GENERAL PURPOSE MOTORS
SIZES 56 - 112, 0.06 - 3.7KW

REGAL®

MT CAST ALUMINIUM GENERAL PURPOSE MOTORS SIZES 56 TO 112, 0.06 TO 3.7 KW, SINGLE & THREE PHASE

INTRODUCTION

Regal Australia's MT series are an ideal general purpose motor range in permanent split capacitor (MTS), cap start-cap run (MTC), three phase (MTT), and three phase brake (MTTB/MTTBHR) configurations.

Motor design
The motors are low weight cast aluminium and boast options which are unequalled by any other range of small frame electric motor on the market today.

Multi-mount feature
The standard MT motor is supplied with the terminal box top mounted, and has detachable feet. The unique multi-mount design allows the motor feet to be removed and the motor mounted from any of the eight mounting pads. This feature means that for axial flow fans there is no need for a motor mount in the fan case, which enables quicker assembly times, lower cost, and less restrictions to air flow. Alternatively, the MTS & MTT series both allow the feet to be relocated to either side, for a wall mounted motor or side mounted terminal box.

STANDARDS AND SPECIFICATIONS

The main dimensions and rated outputs of the MT series generally conform to Australian Standard AS/NZS1359 (CENELEC kW-frame size allocation table) and International Standards IEC 60034 and IEC 60072.

OPERATING PARAMETERS

Standard MT series motors are designed with the following parameters:

- Continuous duty (S1)
- Single phase: 220-240 Volt 50Hz power supply
  Three phase: 380-415 Volt 50Hz power supply
- Ambient temperatures up to 40°C
- Installation at altitudes up to 1000 metres

Performance data is based on these parameters and may need adjustment for different conditions.

F class insulation, B class temperature rise
MT motors have F class insulation and B class temperature rise, ensuring cool running of the motor.

Degree of protection
Level of enclosure protection for the MT series is IP55 (increased IP ratings available). Shafts are fitted with an oil seal as standard.

Air movement application
Low weight design and the standard drilled and tapped hole in the shaft makes the MT series ideally suited for all air movement applications.

Brake motors
MTTB brake motors are fail to safe design, as the brake will engage when power is interrupted. They are fitted with a Lenze DC brake and half wave rectifier mounted in the terminal box enabling direct connection of the brake to the AC supply, and come standard with a manual hand release. They are available in all mounting arrangements.

Gearbox fitment
The MT series small frame and unpainted design makes it ideal for fitting to smaller aluminium gearboxes.

Finish
Standard surface finish is unpainted clean sandblasted aluminium. Paint coatings in any colour are available on request.

Bearings
Bearings fitted are deep groove ball type and are the same size both ends.

Top mounted terminal box
The standard position of the terminal box is on top of the motor, allowing for ease of connection to supply. The terminal box is separate from the body of the motor allowing it to be rotated for additional convenience when connecting to supply.

PRODUCT CODE SPECIFICATION

When placing an order the motor product code should be specified. The product code of the motor is composed in accordance with the following example:

M	2	4	0 0 1 5 0	3	M T S	1
1	2	3	4-8	9	10 - 12	13 - 15

Position 1
M = metric frame size

Position 2
Phase
2 = PSC or
Cap start-cap run
3 = Three phase

Position 3
Number of poles
2 = 2 poles
4 = 4 poles

Positions 4 to 8
Rated power output
(kW x 100)

Position 9
Mounting arrangements
1 = V1 **3** = B3
4 = B3/B5 **5** = B5
6 = B3/B14A **7** = B14A
0 = B0 multi-mount

Positions 10 to 12
Series
MTS = MT PSC series
MTC = MT CS/CR series
MTT = Three phase

Positions 13 to 15
Variation suffix
Blank = no thermal overload
1 = in winding auto reset thermal overload
2 = manual reset current overload
3 = auto reset current overload
B = Three phase brake motor
BHR = Three phase brake motor with hand release (standard)

PERFORMANCE DATA

MTS SERIES, SINGLE PHASE PSC CONNECTION, 220-240V 50HZ
IP55, F CLASS INSULATION , B CLASS TEMPERATURE RISE

			230V 50Hz							220V 50Hz	240V 50Hz		
kW	Motor frame	Speed [r/min]	Efficiency	Power factor	Current		Torque			Current	Current	Weight of foot mount motor [kg]	Capacitor
			Full load [%]	Full load	Full load I_N [A]	Locked rotor I_L/I_N	Full load T_N [Nm]	Locked rotor T_L/T_N	Break down T_B/T_N	Full load I_N [A]	Full load I_N [A]		Run Cap. [µF/volts]
3000 R/MIN = 2 POLES													
0.09	56A -9	2760	54	0.92	0.79	3.8	0.3	0.65	1.6	0.83	0.76	2.9	4/450
0.12	56B -9	2770	58	0.92	0.98	4.1	0.4	0.65	1.6	1.00	0.94	3.2	6/450
0.18	63A -11	2780	62	0.95	1.33	3.8	0.6	0.60	1.7	1.40	1.30	4.0	10/450
0.25	63B -11	2780	65	0.95	1.76	4.0	0.9	0.60	1.7	1.80	1.70	4.5	12/450
0.37	71A -14	2800	67	0.95	2.5	4.0	1.3	0.60	1.7	2.6	2.4	5.1	16/450
0.55	71B -14	2810	70	0.98	3.5	4.3	1.9	0.55	1.7	3.6	3.3	7.2	24/450
0.75	80A -19	2810	72	0.98	4.6	4.3	2.5	0.35	1.7	4.8	4.4	9.6	25/450
1.1	80B -19	2820	75	0.98	6.5	4.3	3.7	0.33	1.7	6.8	6.2	11.0	35/450
1.5	90S -24	2820	76	0.98	8.8	4.6	5.1	0.30	1.8	8.8	8.1	14.0	45/450
2.2	90L -24	2820	77	0.98	12.7	4.7	7.5	0.30	1.8	13.3	12.2	16.5	60/450
1500 R/MIN = 4 POLES													
0.06	56A -9	1360	48	0.92	0.59	4.2	0.4	0.75	1.6	0.62	0.57	3.5	4/450
0.09	56B -9	1370	51	0.92	0.83	3.6	0.6	0.75	1.6	0.87	0.80	3.8	6/450
0.12	63A -11	1380	55	0.92	1.03	3.4	0.8	0.65	1.6	1.10	0.99	4.0	10/450
0.18	63B -11	1390	57	0.92	1.49	3.7	1.2	0.65	1.5	1.60	1.40	4.6	10/450
0.25	71A -14	1400	61	0.94	1.90	4.2	1.7	0.50	1.5	2.0	1.80	5.7	14/450
0.37	71B -14	1400	62	0.94	2.8	3.6	2.5	0.50	1.5	2.6	2.4	6.7	16/450
0.55	80A -19	1400	64	0.95	3.9	3.8	3.8	0.35	1.7	4.1	3.8	8.2	20/450
0.75	80B -19	1410	68	0.95	5.1	4.0	5.1	0.33	1.7	5.3	4.8	9.0	25/450
1.1	90S -24	1410	71	0.98	6.9	4.4	7.5	0.33	1.8	7.2	6.6	14.5	40/450
1.5	90L -24	1420	73	0.98	9.1	4.4	10.1	0.30	1.8	9.5	8.7	16.2	45/450

This data is provided for guidance only, guaranteed only when confirmed by Regal Australia.
MTS motors up to 0.75kW are normally supplied as MTS1 series (fitted with in-winding auto reset thermal overload).

PERFORMANCE DATA

MTC SERIES, SINGLE PHASE CS/CR CONNECTION, 220-240V 50HZ
IP55, F CLASS INSULATION, B CLASS TEMPERATURE RISE

				230V 50Hz								220V 50Hz	240V 50Hz			
kW	Motor frame		Speed [r/min]	Efficiency	Power factor	Current		Torque				Current	Current	Weight of foot mount motor [kg]	Capacitor	
				Full load [%]	Full load	Full load I_N [A]	Locked rotor I_L/I_N	Full load T_N [Nm]	Locked rotor T_L/T_N	Break down T_B/T_N		Full load I_N [A]	Full load I_N [A]		Run Cap. [µF/ volts]	Start Cap. [µF/vol
3000 R/MIN = 2 POLES																
0.37	71A	-14	2780	70	0.95	2.4	6.2	1.3	2.5	1.7		2.5	2.3	5.3	12/450	75/250
0.55	71B	-14	2790	73	0.95	3.5	5.8	1.9	2.5	1.7		3.6	3.3	7.4	16/450	100/250
0.75	80A	-19	2800	74	0.97	4.5	6.6	2.6	2.5	1.7		4.7	4.4	9.5	20/450	100/250
1.1	80B	-19	2810	76	0.97	6.5	6.2	3.7	2.5	1.7		6.7	6.2	11.2	30/450	150/250
1.5	90S	-24	2810	78	0.97	8.6	6.4	5.1	2.5	1.8		9.0	8.3	14.0	40/450	200/300
2.2	90L	-24	2810	79	0.97	12.5	6.0	7.5	2.2	1.8		13.1	12.0	17.0	50/450	250/300
3	100L	-28	2830	80	0.98	16.6	5.7	10.1	2.2	2.0		17.4	15.9	25	60/450	350/300
1500 R/MIN = 4 POLES																
0.18	63A	-11	1320	55	0.99	1.42	4.7	1.3	2.5	1.5		1.48	1.41	4.9	12/450	40/450
0.25	71A	-14	1380	61	0.92	1.94	5.2	1.7	2.5	1.6		2.0	1.90	5.9	14/450	50/250
0.37	71B	-14	1380	63	0.92	2.8	5.4	2.6	2.5	1.5		2.9	2.7	6.9	16/450	75/250
0.55	80A	-19	1400	67	0.94	3.8	5.3	3.8	2.5	1.7		4.0	3.6	9.6	20/450	100/250
0.75	80B	-19	1410	73	0.94	4.8	6.3	5.1	2.5	1.7		4.9	4.5	10.8	25/450	120/250
1.1	90S	-24	1410	75	0.95	6.8	5.9	7.5	2.2	1.8		7.1	6.5	13.5	35/450	150/250
1.5	90L	-24	1420	76	0.95	9.0	6.1	10.1	2.2	1.8		9.4	8.7	16.5	40/450	200/300
2.2	100LA	-28	1430	78	0.97	12.6	6.0	14.7	2.2	1.8		13.2	12.1	24	50/450	350/300
3	100LB	-28	1440	79	0.97	17.0	5.6	19.9	2.2	1.8		17.8	16.3	30	60/450	500/300
3.7	112M	-28	1440	80	0.97	20.7	5.8	24.5	2.0	2.0		21.6	19.8	36	60/450	500/300

MTTB BRAKE SERIES, THREE PHASE CONNECTION, 380-415V 50HZ
IP55, F CLASS INSULATION, B CLASS TEMPERATURE RISE

				400V 50Hz								380V 50Hz	415V 50Hz		
kW	Motor frame		Speed [r/min]	Efficiency	Power factor	Current		Torque				Current	Current	Weight of foot mount motor [kg]	Brake torque [Nm]
				Full load [%]	Full load	Full load I_N [A]	Locked rotor I_L/I_N	Full load T_N [Nm]	Locked rotor T_L/T_N	Break down T_B/T_N		Full load I_N [A]	Full load I_N [A]		
1500 R/MIN = 4 POLES															
0.18	63B	-11	1350	59	0.65	0.68	6	1.3	2.2	2.4		0.71	0.65	4.3	4
0.37	71B	-14	1370	65	0.74	1.11	6	2.6	2.2	2.4		1.17	1.07	6.2	4
0.55	80A	-19	1370	67	0.75	1.58	6	3.8	2.2	2.4		1.66	1.52	9.0	8
0.72	80B	- 19	1380	72	0.78	1.93	6	5.2	2.2	2.4		2.03	1.86	10.0	8
1000 R/MIN = 6 POLES															
0.06	56A	-9	1360	48	0.92	0.59	4.2	0.4	0.75	1.6		0.62	0.57	3.5	4/450

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This data also applies to MTTBHR (hand release) brake motors.

PERFORMANCE DATA

MTT SERIES, THREE PHASE CONNECTION, 380-415V 50HZ
IP55, F CLASS INSULATION, B CLASS TEMPERATURE RISE

			400V 50Hz							380V 50Hz	415V 50Hz	
kW	Motor frame	Speed [r/min]	Efficiency	Power factor	Current		Torque			Current	Current	Weight of foot mount motor [kg]
			Full load [%]	Full load	Full load I_N [A]	Locked rotor I_L/I_N	Full load T_N [Nm]	Locked rotor T_L/T_N	Break down T_B/T_N	Full load I_N [A]	Full load I_N [A]	
3000 R/MIN = 2 POLES												
0.09	56A	-9	2670	57	0.65	0.35	6	0.3	2.2	2.4	0.37	0.34	2.8
0.12	56B	-9	2730	62	0.69	0.40	6	0.4	2.2	2.4	0.43	0.39	3.2
0.18	63A	-11	2710	63	0.75	0.55	6	0.6	2.2	2.4	0.58	0.53	4.0
0.25	63B	-11	2710	65	0.78	0.71	6	0.9	2.2	2.4	0.75	0.69	4.4
0.37	71A	-14	2730	70	0.79	0.97	6	1.3	2.2	2.4	1.02	0.93	5.6
0.55	71B	-14	2760	71	0.79	1.42	6	1.9	2.2	2.4	1.49	1.36	6.1
0.72	80A	-19	2770	73	0.84	1.77	6	2.6	2.2	2.4	1.86	1.70	9.1
1500 R/MIN = 4 POLES												
0.06	56A	-9	1320	49	0.59	0.30	6	0.4	2.3	2.4	0.32	0.29	3.0
0.09	56B	-9	1320	50	0.61	0.43	6	0.7	2.3	2.4	0.45	0.41	3.3
0.12	63A	-11	1350	57	0.64	0.47	6	0.9	2.2	2.4	0.50	0.46	3.9
0.18	63B	-11	1350	59	0.65	0.68	6	1.3	2.2	2.4	0.71	0.65	4.3
0.25	71A	-14	1350	60	0.72	0.84	6	1.8	2.2	2.4	0.88	0.81	5.4
0.37	71B	-14	1370	65	0.74	1.11	6	2.6	2.2	2.4	1.17	1.07	6.2
0.55	80A	-19	1370	67	0.75	1.58	6	3.8	2.2	2.4	1.66	1.52	9.0
0.72	80B	-19	1380	72	0.78	1.93	6	5.2	2.2	2.4	2.03	1.86	10.0

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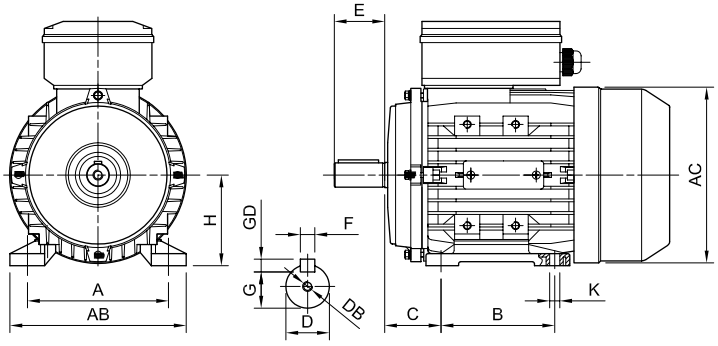
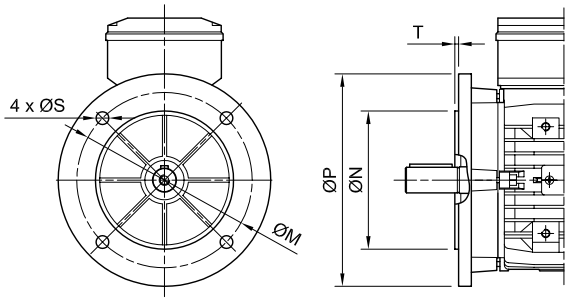
DIMENSIONAL DRAWINGS

MTS available in frame sizes 56A to 90L
MTC available in frame sizes 63A to 112M
MTT available in frame sizes 56A to 80B
MTTBH available in frame sizes 63B to 80B
* MTS terminal box shown.

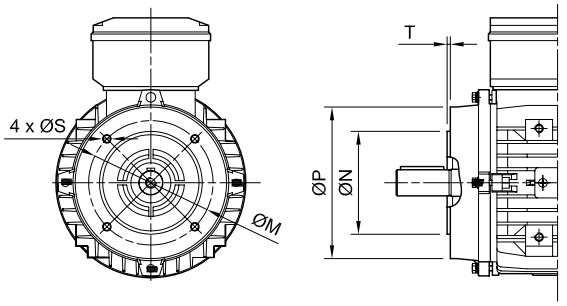
Foot mount B3 (IM1001)*



Flange mount B5 (IM3001)*



Face mount B14 (IM3601)*



DIMENSIONAL DRAWINGS

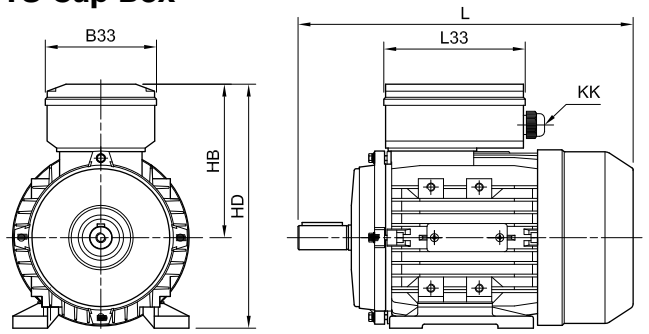
Variances between ranges

Motor frame		Foot					Flange / Face
		B33	HD	KK	L33	L	HB
MTS							
56	**-9**	85	156	-	107	192	100
63	**-11**	95	180	M20	118	212	117
71	**-14**	95	194	M20	118	240	123
80	**-19**	112	222	M20	141	290	142
90S	**-24**	112	240	M20	141	310	150
90L	**-24**	112	240	M20	141	335	150
MTC							
63	**-11**	144	174	M16	104	212	111
71	**-14**	144	188	M20	104	255	117
80	**-19**	176	222	M20	150	290	142
90S	**-24**	176	238	M20	150	335	148
90L	**-24**	176	238	M20	150	365	148
100L	**-28**	176	262	M20	150	427	162
112M	**-28**	193	286	M25	150	453	174
MTT							
56	**-9**	88	156	M16	88	192	100
63	**-11**	94	173	M16	94	212	110
71	**-14**	94	188	M20	94	240	117
80	**-19**	105	217	M20	105	290	137
MTTB							
63	**-11**	94	173	M16	94	252	110
71	**-14**	94	188	M20	94	297	117
80	**-19**	105	217	M20	105	332	137

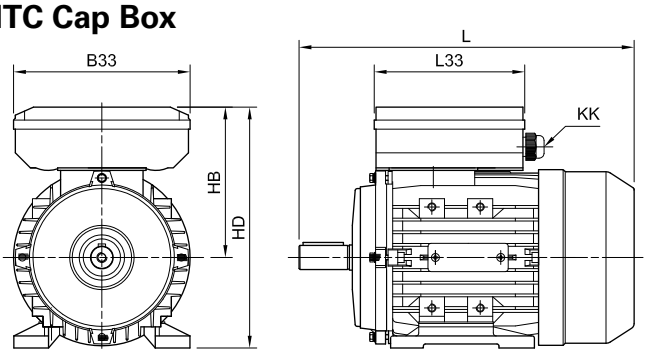
Face mount B14A (IM3601)

Motor frame		ØM	ØN	ØP	S	T
56	**- 9**	65	50	80	M5	2.5
63	**- 11**	75	60	90	M5	2.5
71	**- 14**	85	70	105	M6	2.5
80	**- 19**	100	80	120	M6	3.0
90S	**- 24**	115	95	140	M8	3.0
90L	**- 24**	115	95	140	M8	3.0
100L	**- 28**	130	110	160	M8	3.5
112M	**- 28**	130	110	160	M8	3.5

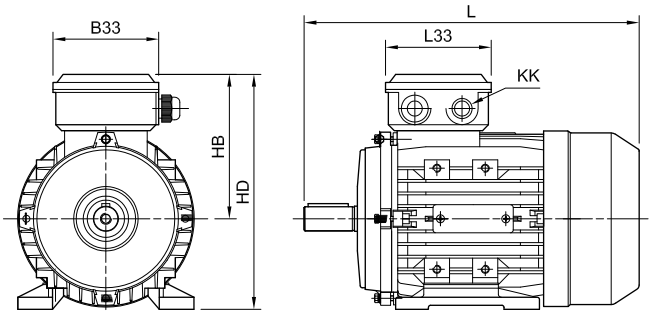
MTS Cap Box



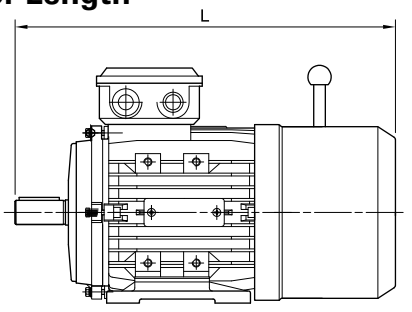
MTC Cap Box



MTT Terminal Box



MTTB Brake Motor Length



Foot mount B3 (IM1001)

Motor frame		A	AB	AC	B	C	D	DB	E	F	GD	G	H	K
56	**- 9**	90	110	120	71	36	9	M3	20	3	3	7.2	56	5.8X8.8
63	**- 11**	100	120	130	80	40	11	M4	23	4	4	8.5	63	7X10
71	**- 14**	112	132	145	90	45	14	M5	30	5	5	11	71	7X10
80	**- 19**	125	160	165	100	50	19	M6	40	6	6	15.5	80	10X13
90S	**- 24**	140	175	185	100	56	24	M8	50	8	7	20	90	10X13
90L	**- 24**	140	175	185	125	56	24	M8	50	8	7	20	90	10X13
100L	**- 28**	160	196	205	140	63	28	M10	60	8	7	24	100	12X16
112M	**- 28**	190	220	230	140	70	28	M10	60	8	7	24	112	12X16

Flange mount B5 (IM3001)

Motor frame		ØM	ØN	ØP	ØS	T
56	**- 9**	100	80	120	7	3.0
63	**- 11**	115	95	140	10	3.0
71	**- 14**	130	110	160	10	3.5
80	**- 19**	165	130	200	12	3.5
90S	**- 24**	165	130	200	12	3.5
90L	**- 24**	165	130	200	12	3.5
100L	**- 28**	215	180	250	15	4.0
112M	**- 28**	215	180	250	15	4.0

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