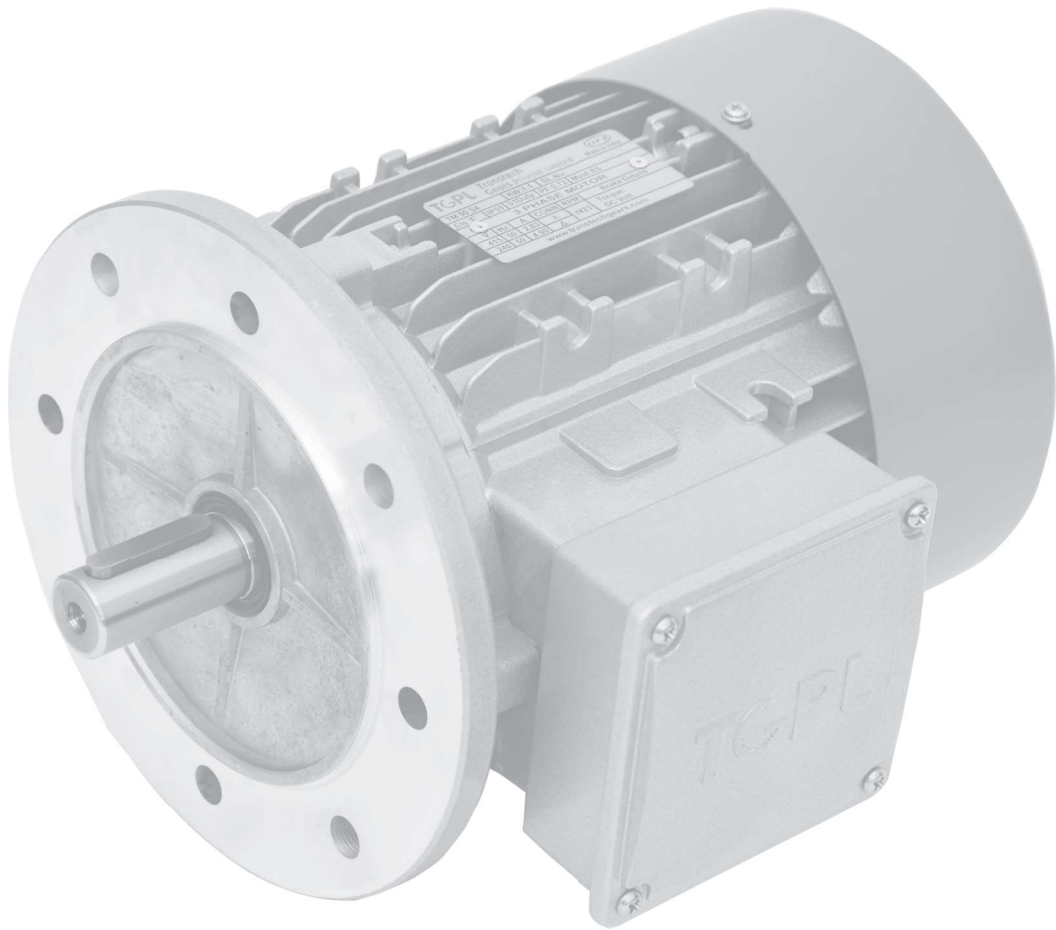


TM SERIES



4.ELECTRIC MOTORS.

4.1 INTRODUCTION

Transtech Gears manufactures three phase asynchronous motors from 63 frame size to 112 frame in 4 pole and conform to efficiency class **IE2**

4.2 ELECTRICAL TOLERANCE

Values for	Tolerance
Efficiency η – machines up to and include 50 kW	-0.15 (1 – η)
Power-factor, $\cos\phi$, for induction motors	$-(1 - \cos\phi)/6$ Minimum absolute value 0.02 Maximum absolute value 0.07
Slip of induction motors (at full load and at working temperature) $P_N < 1$ kW $P_N \geq 1$ kW	$\pm 30\%$ of the slip $\pm 20\%$ of the slip
Locked rotor current of cage induction motors	+20% of the current
Locked rotor torque of cage induction motors	-15% and +25% of the torque
Breakdown torque of induction motors	-10%
Moment of inertia	$\pm 10\%$ of the value

4.3 MECHANICAL TOLERANCE

Component	Code	Dimensions	Tolerance
Shaft End	D - DA	$\varnothing 11$ to 28	j6
Key	F - FA		h9
Flange	N	$\varnothing < 250$	j6
		$\varnothing \geq 250$	h6

4.4 VOLTAGE & FREQUENCY

The motors are suitable for 415 Voltage $\pm 10\%$, Frequency 50Hz $\pm 5\%$ with 3 phase in Star connection.

The motors are suitable for 240 Voltage $\pm 10\%$, Frequency 50Hz $\pm 5\%$ with 3 phase in delta connection.

4.5 INSULATION

The motor insulating materials (Enameled wire, Surface insulation treatments & impregnation type) are provided with class F & temperature rise limited to class B.

4.6 TYPE OF DUTY

S1 Duty (Continuous Duty) – The motor operated under rated condition continuously.

4.7 AMBIENT TEMPERATURE

All motors in our standard design are suitable for an ambient temperature from -15°C to $+50^{\circ}\text{C}$ and altitude above sea level $\leq 1000\text{m}$. Motors can be used at ambient temperatures from 50°C to 60°C as long as the derating factors listed as below table are applied:

Ambient temperature ($^{\circ}\text{C}$)	50 $^{\circ}$	55 $^{\circ}$	60 $^{\circ}$
% of rated power	100%	95%	90%















4.8 BEARINGS

All motors are fitted with life lubricated radial ball bearings and the types of bearings in use are listed in the below table.

FRAME SIZE	DRIVE END	NON-DRIVE END (FAN SIDE)
63	6201-2Z/C3	6201-2Z/C3
71	6202-2Z/C3	6202-2Z/C3
80	6204-2Z/C3	6204-2Z/C3
90	6205-2Z/C3	6205-2Z/C3
100	6206-2Z/C3	6206-2Z/C3
112	6207-2Z/C3	6207-2Z/C3

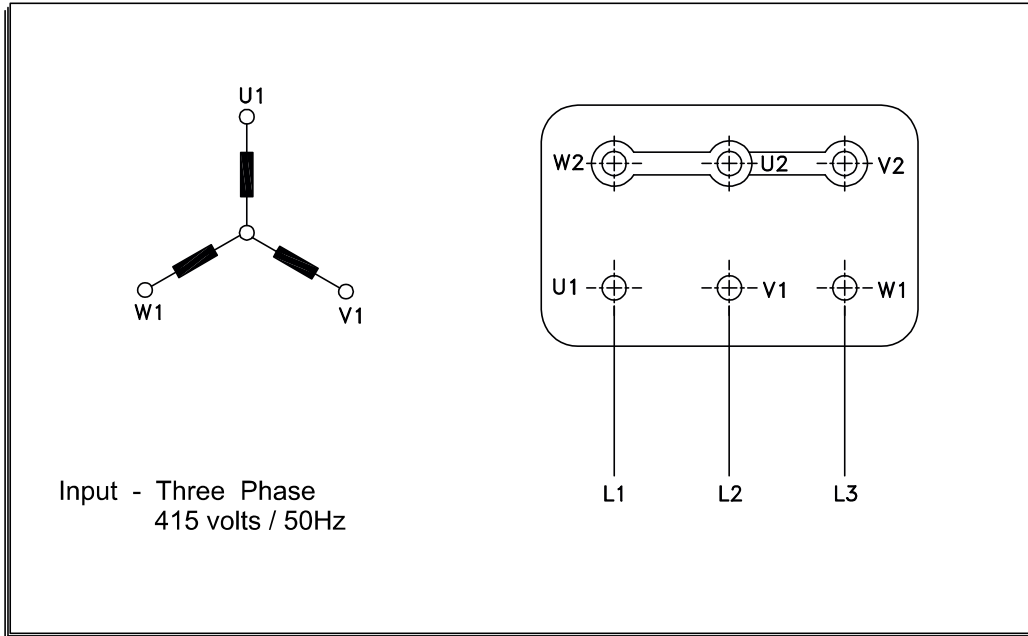
4.9 PROTECTION CLASS

Motors are designed with standard IP55 protection class. For outdoor installation, motors has to be protected from direct sunlight and if mounted vertically with shaft downwards, The rain canopy must be provided.

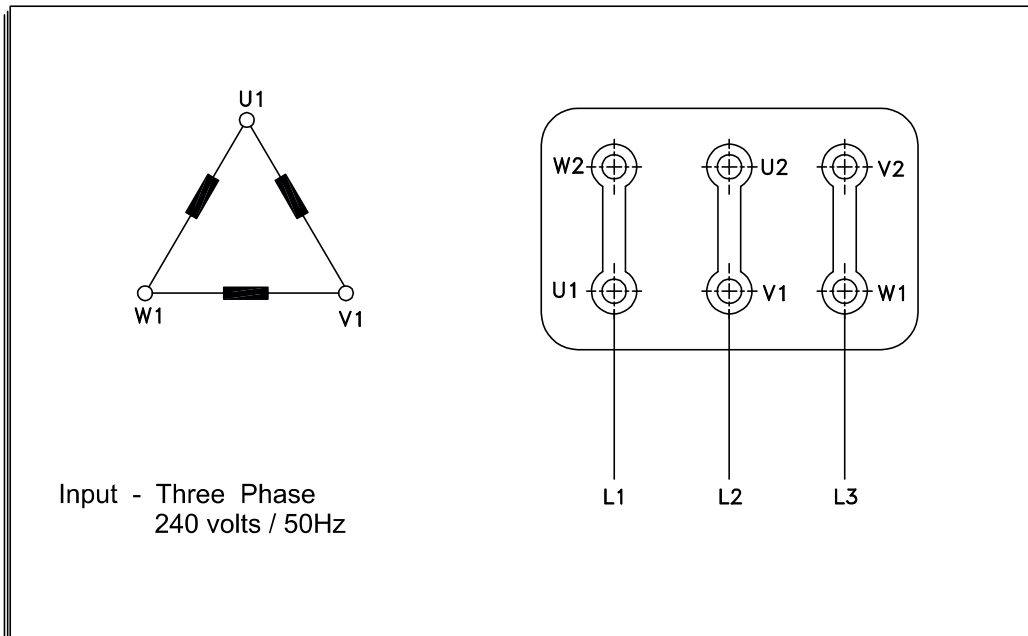
IP		5	5
0		No special protection	
1	Ø 50 mm 	Protection against solid foreign bodies having ≥ 50 mm \varnothing	
2	Ø 12 mm 	Protection against solid foreign bodies having ≥ 12.5 mm \varnothing	
3	Ø2.5 mm 	Protection against solid foreign bodies having ≥ 2.5 mm \varnothing	
4	Ø1 mm 	Protection against solid foreign bodies having ≥ 1 mm \varnothing	
5		Protected against dust	
6		Dust-tight	
0		No special protection	
1		Protected against vertical water drips	
2	15° 	Dripping water (15° tilted)	
3	50° 	Protected against spraying water	
4		Protected against splashing water	
5		Protected against jetting water	
6		Protected against powerful jetting water	
7	0.15m 	Protected against temporary immersion	
8		Protected against continuous immersion	

4.10 CONNECTION DIAGRAMS

STAR CONNECTION



DELTA CONNECTION

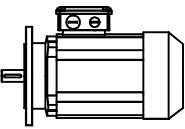
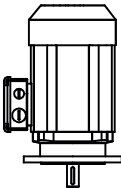
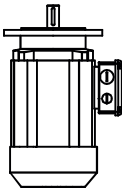
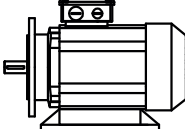
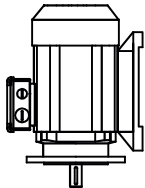
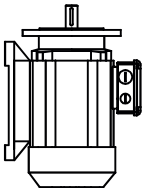
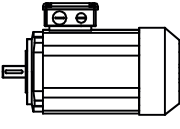
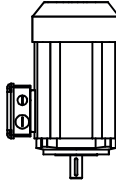
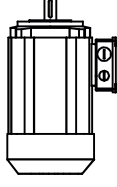
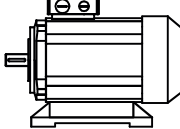
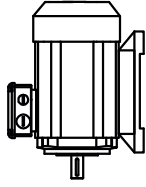
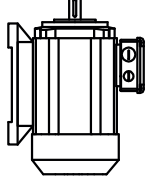
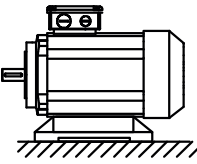
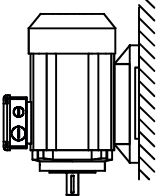
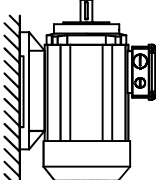
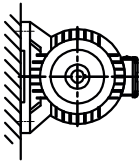
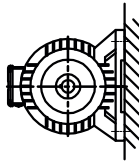
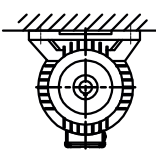


4.11 BRAKE DETAILS

The brake motors are fitted with DC type fail safe brake with a brake power supply of 240V ± 10% or 415V ± 10%.

PRINCIPLE OF OPERATION : When electric current is given to the brake coil the armature plate is attracted to the stator against the spring force, thus releasing the rotor. When current is cut off, strong compression springs push the armature plate back to its original position, which clamps the friction plate providing the braking torque.

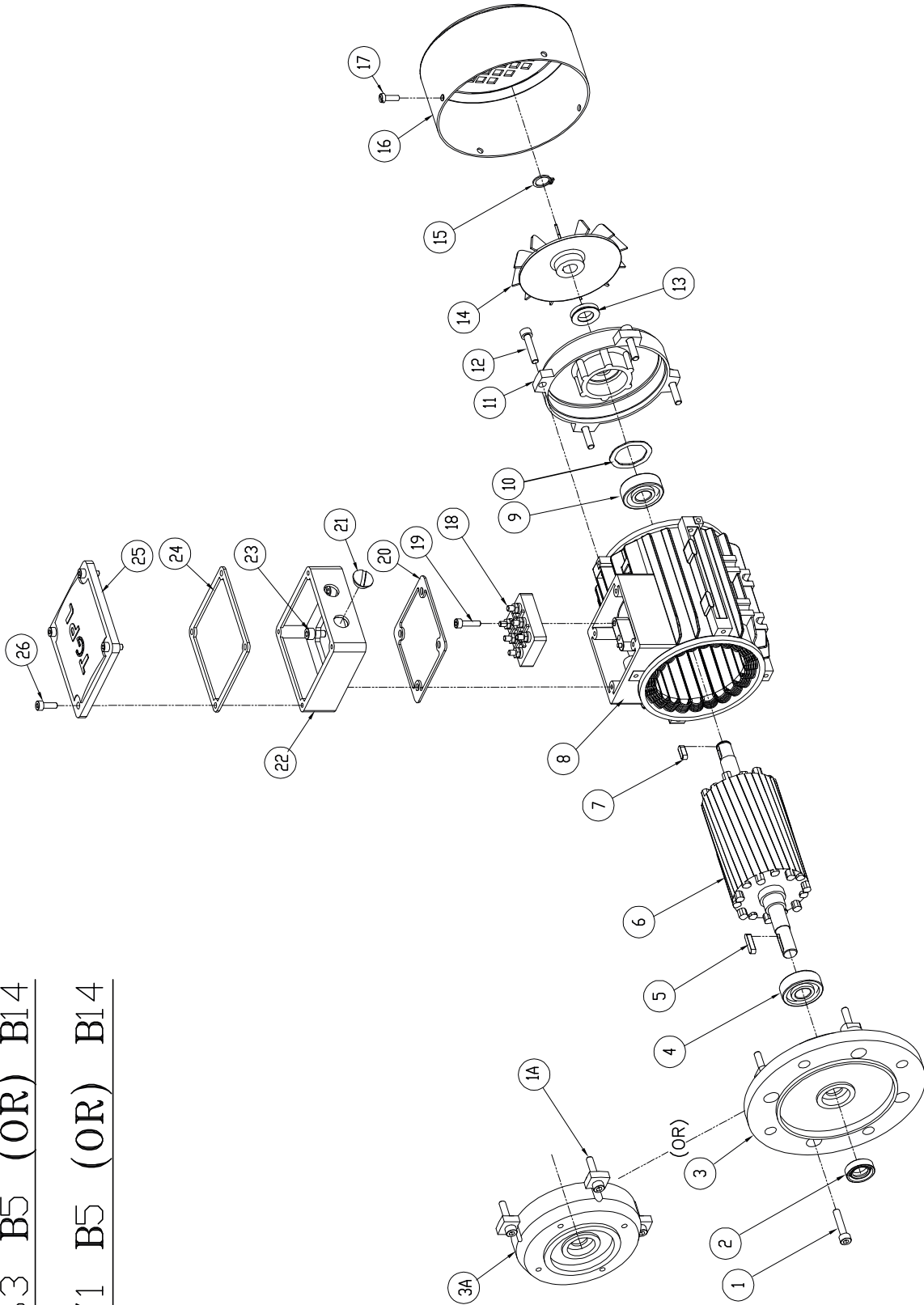
4.12 MOUNTING POSITIONS

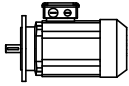
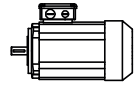
FLANGE MOUNT			FLANGE AND FOOT MOUNT		
					
IM - B5	IM - V1	IM - V3	IM - B3 / B5	IM - V5 / V1	IM - V6 / V3
SHORT (FACE) MOUNT			SHORT (FACE) AND FOOT MOUNT		
					
IM - B14	IM - V18	IM - V19	IM - B3 / B14	IM - V5 / V18	IM - V6 / V19
FOOT MOUNT					
					
IM - B3	IM - V5	IM - V6	IM - B6	IM - B7	IM - B8

4.13 TM SERIES EXPLODED VIEW

TM63 B5 (OR) B14

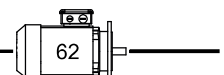
TM71 B5 (OR) B14



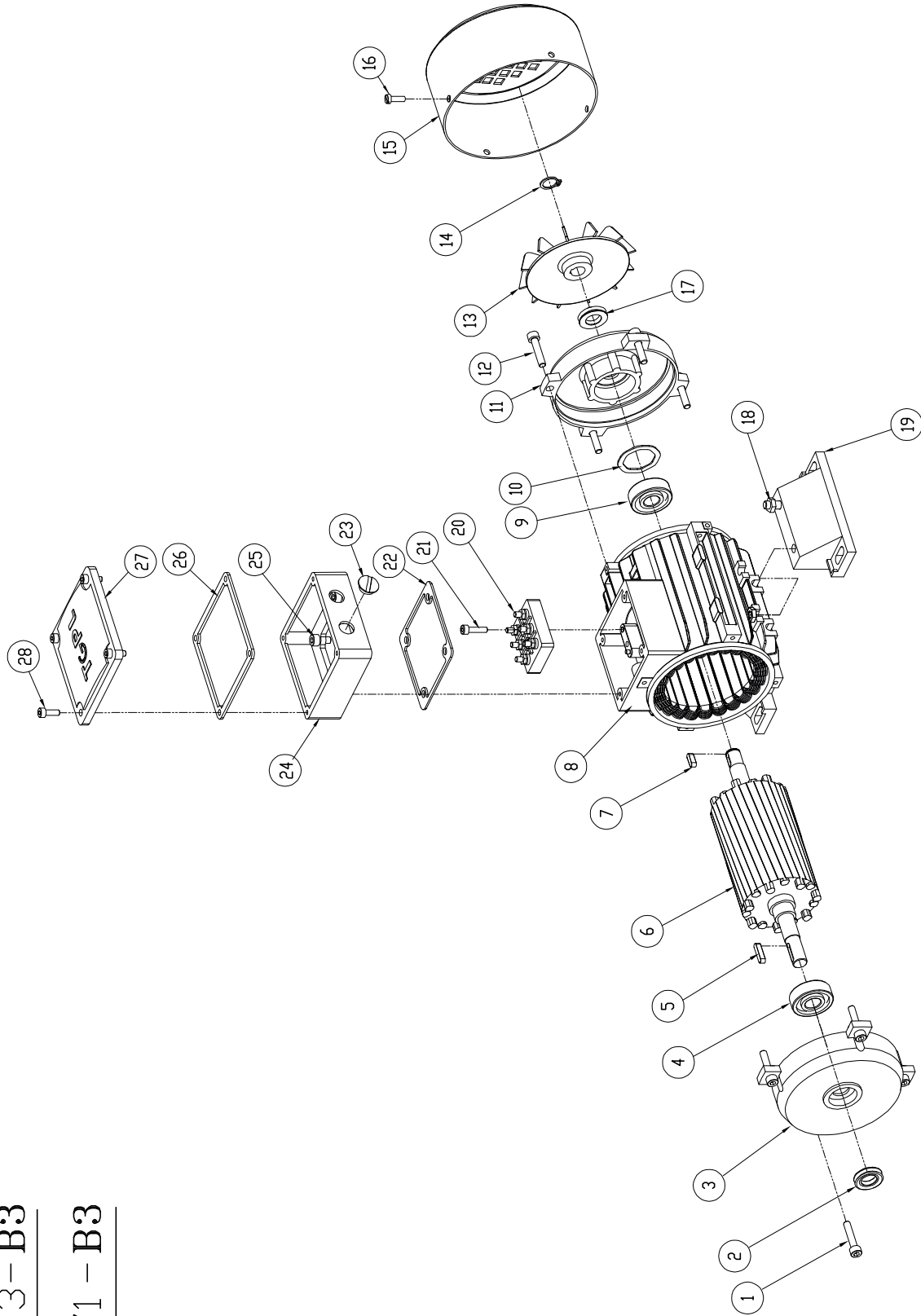
**B5****B14**

PARTS LIST FOR MOTORS - 0.25 HP & 0.5 HP (B5 & B14)

PART NO.	PART DESCRIPTION	QTY	0.25 HP	0.5 HP
1	BOLT FOR CONNECTING B5 FLANGE	4	M5x20	M5x20
1A	BOLT FOR CONNECTING B14 FLANGE	4	BOLT	BOLT
2	OIL SEAL	1	22x12x5	25x15x5
3	B5 FLANGE	1	63 B5 FLANGE	71 B5 FLANGE
3A	B14 FLANGE	1	63 B14 FLANGE	71 B14 FLANGE
4	BEARING	1	6201-2Z C3	6202-2Z C3
5	KEY	1	4x4x18	5x5x25
6	ROTOR WITH SHAFT	1	63 ROTOR WITH SHAFT	71 ROTOR WITH SHAFT
7	KEY	1	4x4x16	5x5x17
8	ALUMINIUM BODY WITH STATOR	1	63 ALUMINUM BODY WITH STATOR	71 ALUMINUM BODY WITH STATOR
9	BEARING	1	6201-2Z C3	6202-2Z C3
10	WAVE WASHER	1	6201	6202
11	B3 END COVER	1	63 B3 END COVER	71 B3 END COVER
12	BOLT FOR CONNECTING B3 END COVER	4	M5x20	M5x20
13	V-SEAL	1	16x12x5	18x15x5
14	FAN	1	63FAN	71FAN
15	CIRCLIP	1	11x1	14x1
16	FAN COVER	1	120x60	138x70
17	SCREW FOR FAN COVER FITTING	4	M4x6	M4x6
18	TERMINAL BLOCK	1	27x43, CENTRE DISTANCE 15.5 to 16mm	27x43, CENTRE DISTANCE 15.5 to 16mm
19	SCREW FOR TERMINAL BLOCK FIT.	1	M4x16	M4x16
20	RUBBER GASKET BOTTOM	1	63 RUBBER GASKET BOTTOM	71 RUBBER GASKET BOTTOM
21	DUMMY CAP	1	63 DUMMY CAP	71 DUMMY CAP
22	TERMINAL BOX	1	63 TERMINAL BOX	71 TERMINAL BOX
23	SCREW FOR TERMINAL BOX FITTING	4	M4x8	M4x8
24	RUBBER GASKET TOP	1	63 RUBBER GASKET TOP	71 RUBBER GASKET TOP
25	TERMINAL BOX COVER	1	63 TERMINAL BOX COVER	71 TERMINAL BOX COVER
26	SCREW FOR TERMINAL BOX COVER FITTING	4	M4x8	M4x8

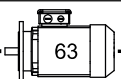
**62**

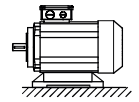
EXPLODED VIEW



TM63 - B3

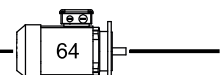
TM71 - B3





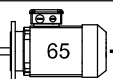
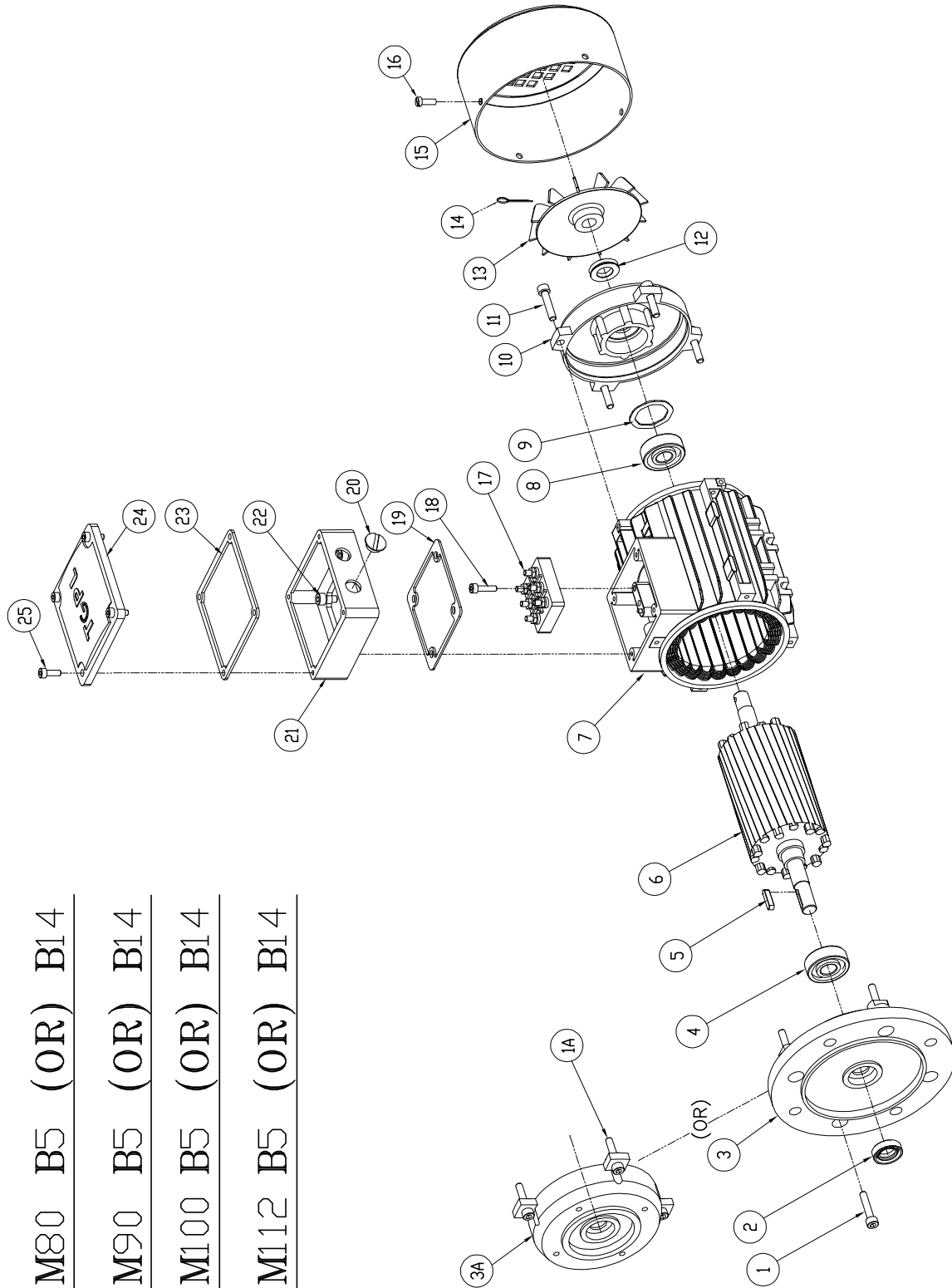
PARTS LIST FOR MOTORS - 0.25 HP & 0.5 HP (B3)

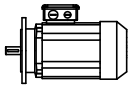
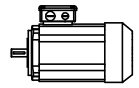
PART NO.	PART DESCRIPTION	QTY	0.25 HP	0.5 HP
1	BOLT FOR CONNECTING B3 COVER	4	M5x20	M5x20
2	V-SEAL	1	16x12x5	18x15x5
3	B3 FRONT COVER	1	63 B3 FRONT COVER	71 B3 FRONT COVER
4	BEARING	1	6201-2Z C3	6202-2Z C3
5	KEY	1	4x4x18	5x5x25
6	ROTOR WITH SHAFT	1	63 ROTOR WITH SHAFT	71 ROTOR WITH SHAFT
7	KEY	1	4x4x16	5x5x17
8	ALUMINUM BODY WITH STATOR	1	63 ALUMINIUM BODY WITH STATOR	71 ALUMINUM BODY WITH STATOR
9	BEARING	1	6201-2Z C3	6202-2Z C3
10	WAVE WASHER	1	6201	6202
11	B3 END COVER	1	63 B3 END COVER	71 B3 END COVER
12	BOLT FOR CONNECTING B3 END COVER	4	M5x20	M5x20
13	FAN	1	63FAN	71FAN
14	CIRCLIP	1	11x1	14x1
15	FAN COVER	1	120x60	138x70
16	SCREW FOR FAN COVER FITTING	4	M4x6	M4x6
17	V-SEAL	1	16x12x5	18x15x5
18	BOLT & NUT FOR FOOT PLATE FITTING	1	BOLT	BOLT
19	FOOT PLATE	1	63 FOOT PLATE	71 FOOT PLATE
20	TERMINAL BLOCK	1	27x43, CENTRE DISTANCE 15.5 to 16mm	27x43, CENTRE DISTANCE 15.5 to 16mm
21	SCREW FOR TERMINAL BLOCK FITTING	1	M4x16	M4x16
22	RUBBER GASKET BOTTOM	1	63 RUBBER GASKET BOTTOM	71 RUBBER GASKET BOTTOM
23	DUMMY CAP	1	63 DUMMY CAP	71 DUMMY CAP
24	TERMINAL BOX	1	63 TERMINAL BOX	71 TERMINAL BOX
25	SCREW FOR TERMINAL BOX FITTING	4	M4x8	M4x8
26	RUBBER GASKET TOP	1	63 RUBBER GASKET TOP	71 RUBBER GASKET TOP
27	TERMINAL BOX COVER	1	63 TERMINAL BOX COVER	71 TERMINAL BOX COVER
28	SCREW FOR TERMINAL BOX COVER FITTING	4	M4x8	M4x8



EXPLODED VIEW

TM80 B5 (OR) B14
TM90 B5 (OR) B14
TM100 B5 (OR) B14
TM112 B5 (OR) B14

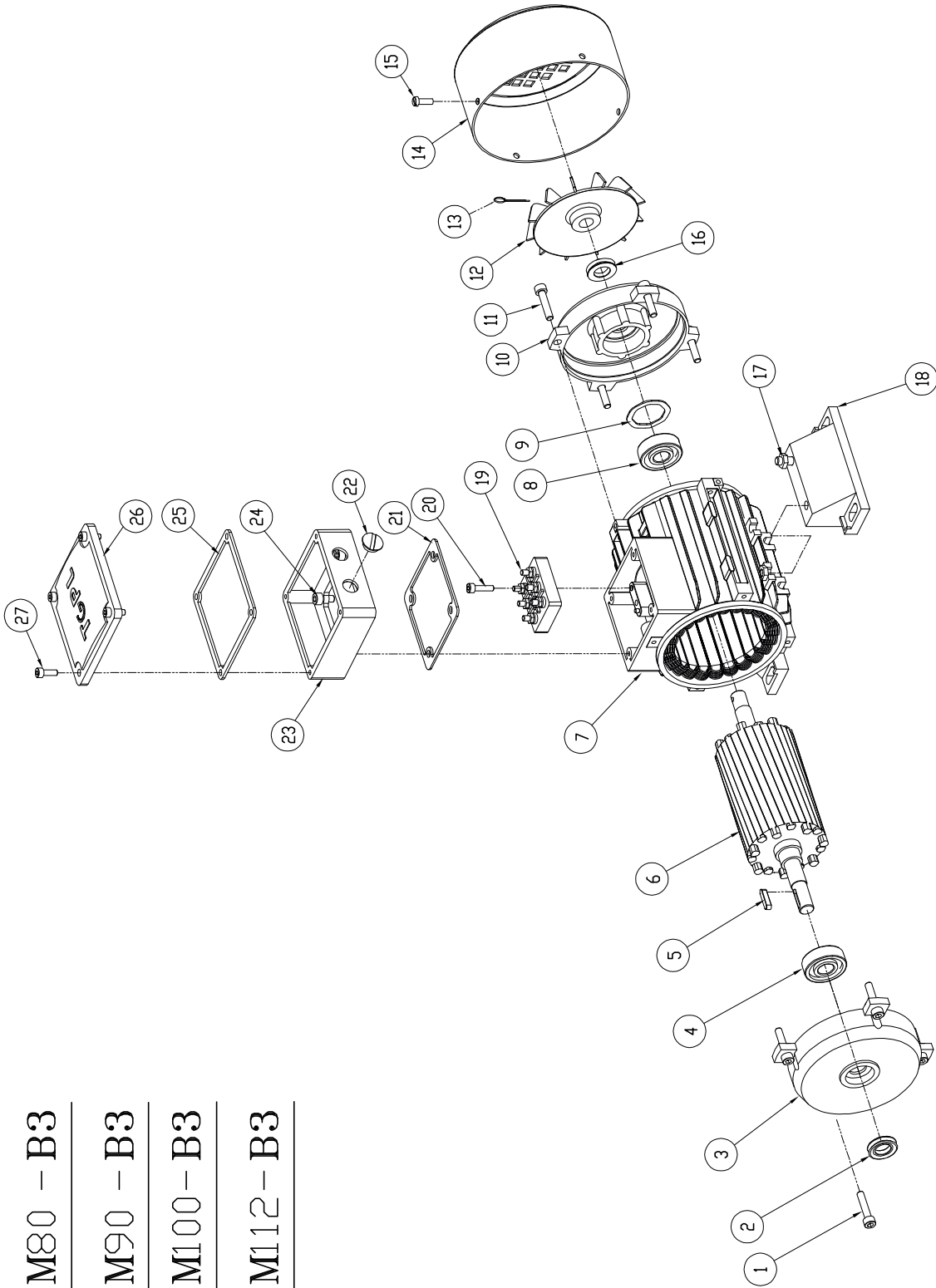


**B5****B14**

PARTS LIST FOR MOTORS - 0.75HP, 1HP, 1.5HP, 2HP, 3HP & 5HP (B5 & B14)

PART NO.	PART DESCRIPTION	QTY	0.75HP & 1HP	1.5HP	2HP	3HP	5HP
1	BOLT FOR CON. B5 FLANGE	4	M5x20	M6x25	M6x25	M6x30	M8x30
1A	BOLT FOR CON. B14 FLANGE	4	BOLT	BOLT	BOLT	BOLT	BOLT
2	OIL SEAL	1	30x20x6	35x25x6	35x25x6	50x30x7	50x35x7
3	B5 FLANGE	1	80 B5 FLANGE	90S B5 FLANGE	90L B5 FLANGE	100 B5 FLANGE	112 B5 FLANGE
3A	B14 FLANGE	1	80 B14 FLANGE	90S B14 FLANGE	90L B14 FLANGE	100 B14 FLANGE	112 B14 FLANGE
4	BEARING	1	6204-2Z C3	6205-2Z C3	6205-2Z C3	6206-2Z C3	6207-2Z C3
5	KEY	1	6x6x35	8x7x40	8x7x40	8x7x50	8x7x50
6	ROTOR WITH SHAFT	1	80 ROTOR WITH SHAFT	90S ROTOR WITH SHAFT	90L ROTOR WITH SHAFT	100 ROTOR WITH SHAFT	112 ROTOR WITH SHAFT
7	ALUMINIUM BODY WITH STATOR	1	80 ALUMINIUM BODY WITH STATOR	90S ALUMINIUM BODY WITH STATOR	90L ALUMINIUM BODY WITH STATOR	100 ALUMINIUM BODY WITH STATOR	112 ALUMINIUM BODY WITH STATOR
8	BEARING	1	6204-2Z C3	6205-2Z C3	6205-2Z C3	6206-2Z C3	6207-2Z C3
9	WAVE WASHER	1	6204	6205	6205	6206	6207
10	B3 END COVER	1	80 B3 END COVER	90S B3 END COVER	90L B3 END COVER	100 B3 END COVER	112 B3 END COVER
11	BOLT FOR CON. B3 END COVER	4	M5x20	M6x25	M6x25	M6x30	M8x30
12	V-SEAL	1	27x20x7	30x25x7	30x25x7	34x30x7	45x35x9
13	FAN	1	80 FAN	90S FAN	90L FAN	100 FAN	112 FAN
14	COTTER PIN	1	80 COTTER PIN	90S COTTER PIN	90L COTTER PIN	100 COTTER PIN	112 COTTER PIN
15	FAN COVER	1	157x72	175x82	175x82	195x91	215x95
16	SCREW FOR FAN COVER FITTING	4	M4x6	M4x6	M4x6	M4x6	M4x6
17	TERMINAL BLOCK	1	39x55, CENTRE DISTANCE 19mm	39x55, CENTRE DISTANCE 19mm	39x55, CENTRE DISTANCE 19mm	39x55, CENTRE DISTANCE 19mm	39x55, CENTRE DISTANCE 19mm
18	SCREW FOR TERMINAL BLOCK FIT.	2	M5x16	M5x16	M5x16	M5x16	M5x16
19	RUBBER GASKET BOTTOM	1	80 RUBBER GASKET BOTTOM	90S RUBBER GASKET BOTTOM	90L RUBBER GASKET BOTTOM	100 RUBBER GASKET BOTTOM	112 RUBBER GASKET BOTTOM
20	DUMMY CAP	1	80 DUMMY CAP	90S DUMMY CAP	90L DUMMY CAP	100 DUMMY CAP	112 DUMMY CAP
21	TERMINAL BOX	1	80 TERMINAL BOX	90S TERMINAL BOX	90L TERMINAL BOX	100 TERMINAL BOX	112 TERMINAL BOX
22	SCREW FOR TERMINAL BOX FIT.	4	M5x12	M5x12	M5x12	M5x12	M5x12
23	RUBBER GASKET TOP	1	80 RUBBER GASKET TOP	90S RUBBER GASKET TOP	90L RUBBER GASKET TOP	100 RUBBER GASKET TOP	112 RUBBER GASKET TOP
24	TERMINAL BOX COVER	1	80 TERMINAL BOX COVER	90S TERMINAL BOX COVER	90L TERMINAL BOX COVER	100 TERMINAL BOX COVER	112 TERMINAL BOX COVER
25	SCREW FOR TERMINAL BOX COVER FITTING	4	M5x8	M5x8	M5x8	M5x8	M5x8

EXPLODED VIEW

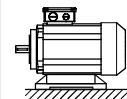


TM80 - B3

TM90 - B3

TM100 - B3

TM112 - B3



PARTS LIST FOR MOTORS - 0.75HP, 1HP, 1.5HP, 2HP, 3HP & 5HP (B3)

PART NO.	PART DESCRIPTION	QTY	0.75HP & 1HP	1.5HP	2HP	3HP	5HP
1	BOLT FOR CON. B3 COVER	4	M5x20	M6x25	M6x25	M6x30	M8x30
2	V-SEAL	1	27x20x7	30x25x7	30x25x7	34x30x7	45x35x9
3	B3 FRONT COVER	1	80 B3 FRONT COVER	90S B3 FRONT COVER	90L B3 FRONT COVER	100 B3 FRONT COVER	112 B3 FRONT COVER
4	BEARING	1	6204-2Z C3	6205-2Z C3	6205-2Z C3	6206-2Z C3	6207-2Z C3
5	KEY	1	6x6x35	8x7x40	8x7x40	8x7x50	8x7x50
6	ROTOR WITH SHAFT	1	80 ROTOR WITH SHAFT	90S ROTOR WITH SHAFT	90L ROTOR WITH SHAFT	100 ROTOR WITH SHAFT	112 ROTOR WITH SHAFT
7	ALUMINIUM BODY WITH STATOR	1	80 ALUMINIUM BODY WITH STATOR	90S ALUMINIUM BODY WITH STATOR	90L ALUMINIUM BODY WITH STATOR	100 ALUMINIUM BODY WITH STATOR	112 ALUMINIUM BODY WITH STATOR
8	BEARING	1	6204-2Z C3	6205-2Z C3	6205-2Z C3	6206-2Z C3	6207-2Z C3
9	WAVE WASHER	1	6204	6205	6205	6206	6207
10	B3 END COVER	1	80 B3 END COVER	90S B3 END COVER	90L B3 END COVER	100 B3 END COVER	112 B3 END COVER
11	BOLT FOR CON. B3 END COVER	4	M5x20	M6x25	M6x25	M6x30	M8x30
12	FAN	1	80 FAN	90S FAN	90L FAN	100 FAN	112 FAN
13	COTTER PIN	1	80 COTTER PIN	90S COTTER PIN	90L COTTER PIN	100 COTTER PIN	112 COTTER PIN
14	FAN COVER	1	157x72	175x82	175x82	195x91	215x95
15	SCREW FOR FAN COVER FITTING	4	M4x6	M4x6	M4x6	M4x6	M4x6
16	V-SEAL	1	27x20x7	30x25x7	30x25x7	34x30x7	45x35x9
17	BOLT & NUT FOR FOOT PLATE FIT.	4	BOLT	BOLT	BOLT	BOLT	BOLT
18	FOOT PLATE	2	80 FOOT PLATE	90S FOOT PLATE	90L FOOT PLATE	100 FOOT PLATE	112 FOOT PLATE
19	TERMINAL BLOCK	1	39x55, CENTRE DISTANCE 19mm	39x55, CENTRE DISTANCE 19mm	39x55, CENTRE DISTANCE 19mm	39x55, CENTRE DISTANCE 19mm	39x55, CENTRE DISTANCE 19mm
20	SCREW FOR TERMINAL BLOCK FIT.	2	M5x16	M5x16	M5x16	M5x16	M5x16
21	RUBBER GASKET BOTTOM	1	80 RUBBER GASKET BOTTOM	90S RUBBER GASKET BOTTOM	90L RUBBER GASKET BOTTOM	100 RUBBER GASKET BOTTOM	112 RUBBER GASKET BOTTOM
22	DUMMY CAP	1	80 DUMMY CAP	90S DUMMY CAP	90L DUMMY CAP	100 DUMMY CAP	112 DUMMY CAP
23	TERMINAL BOX	1	80 TERMINAL BOX	90S TERMINAL BOX	90L TERMINAL BOX	100 TERMINAL BOX	112 TERMINAL BOX
24	SCREW FOR TERMINAL BOX FIT.	4	M5x12	M5x12	M5x12	M5x12	M5x12
25	RUBBER GASKET TOP	1	80 RUBBER GASKET TOP	90S RUBBER GASKET TOP	90L RUBBER GASKET TOP	100 RUBBER GASKET TOP	112 RUBBER GASKET TOP
26	TERMINAL BOX COVER	1	80 TERMINAL BOX COVER	90S TERMINAL BOX COVER	90L TERMINAL BOX COVER	100 TERMINAL BOX COVER	112 TERMINAL BOX COVER
27	SCREW FOR TERMINAL BOX COVER FITTING	4	M5x8	M5x8	M5x8	M5x8	M5x8