

TECO Single Phase Motors

MONARCH ALLOY MOTORS

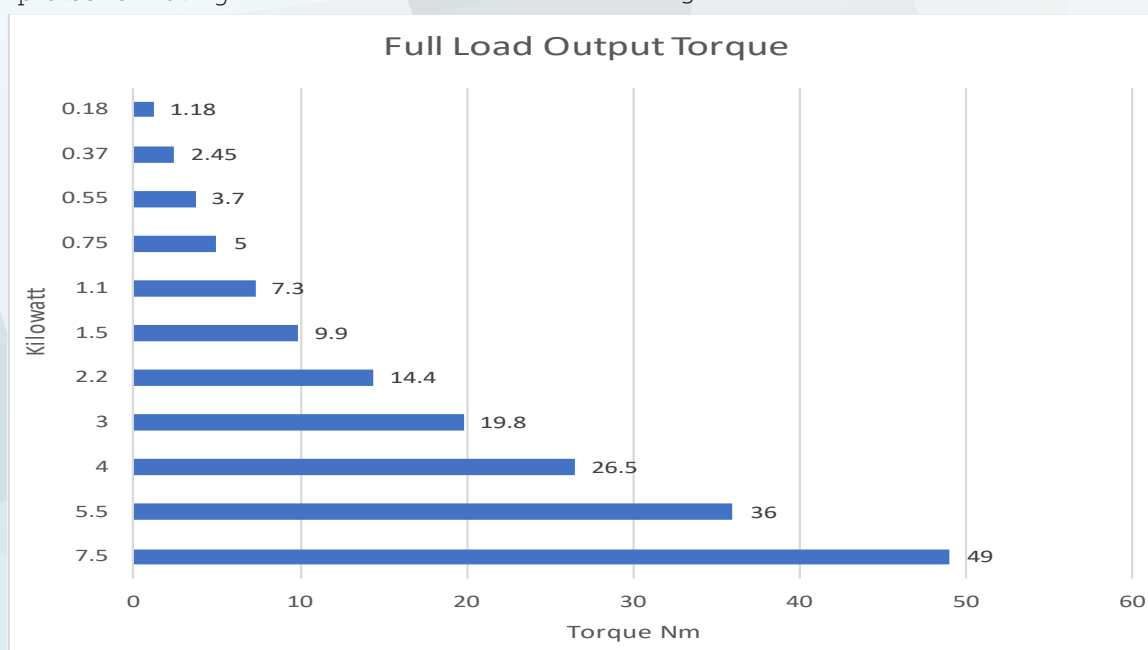
TECO Single Phase Induction Motors from HMA Flow & Industrial are designed, manufactured, and tested to comply with international and Australian standards. TECO single phase motors are of a proven design, with optimised performance and robust construction providing increased reliability, efficiency of operation, and longer life. The rolled steel body range is available from 0.18 kW to 0.75 kW in 240 V. The cast iron range is available from 0.75 Kw to 7.5 Kw in 240/480V

FEATURES

- Metric frame motors to AS1359, 0.18 kW to 1.1 kW
- Totally Enclosed Fan Cooled (IC411)
- 240V Single Phase 50 Hz includes manual overload protection
- Highest-quality insulation system utilising Class H and F materials
- Low temperature rise for substantial thermal reserve
- Continuous rated duty type S1
- Capacitor start/run for good starting torque
- Rolled steel shell frame with cast iron end shields 0.18 - 0.75Kw
- Cast iron construction 1.1 - 7.5Kw
- Steel terminal box
- Capacitor and fan cover
- IP44 protection rating



Mountings available are foot, foot and flange and flange



TECO Single Phase Motors

Classification

TECO Single Phase Motors are classified in accordance with the method of starting and are usually referred to by descriptive names of these methods as listed below:

CSIR Motor = Capacitor Start – Induction Run
CSR Motor = Capacitor Start – Capacitor Run

Selection of Motors

Selection of the appropriate Motor is based upon the starting and running torque requirements of the load, the duty cycle, and the limitations on starting running current from the power supply. To minimise the cost, the application engineer selects the required power rating and performance of the motor that provides the basic torque requirements. TECO has the flexibility and capability to manufacture single phase motors for various applications.

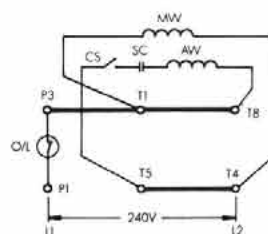
Starting and Running Characteristics

CSIR Motors

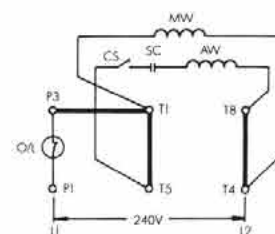
CSIR Motors with high starting torque and medium starting current are suitable for heavier duty applications and the power supply with higher voltage variation.

Connection Diagrams

C.C.W. Rotation



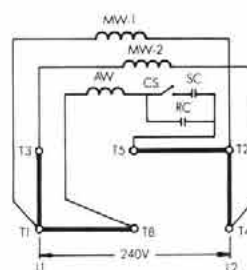
C.W. Rotation



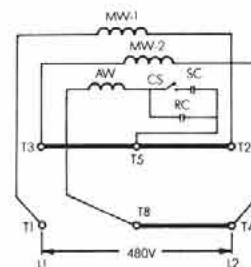
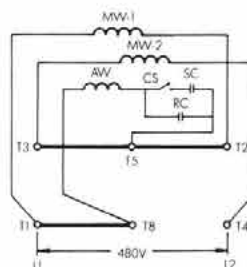
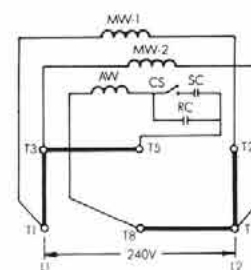
CSR Motors

CSR Motors combine the high starting torque and good running performance and have advantage over CSIR Motors. The cost of the motors is related to the performance, so the CSR Motor is usually used only for the application of integral rating with heavier starting torque requirements.

C.C.W. Rotation



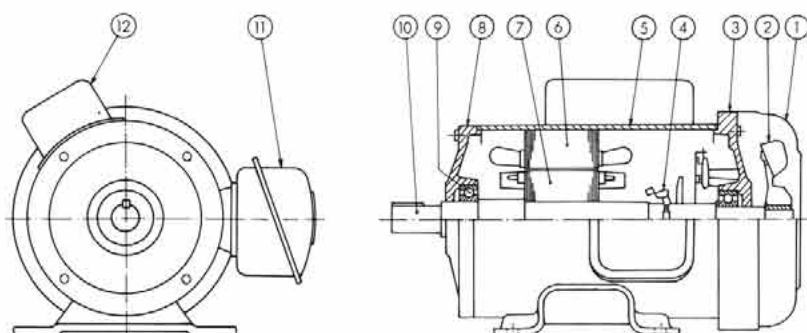
C.W. Rotation



Note: CSIR and CSR Motors are stocked by TECO Australia.
Single voltage motors are normally fitted with thermal protectors.

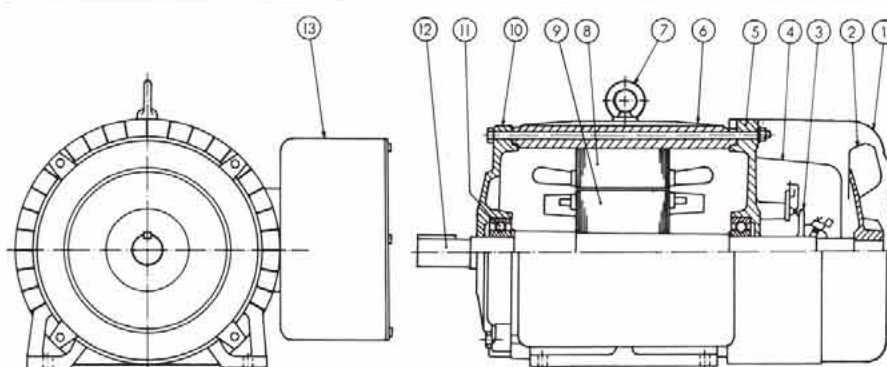
TECO Single Phase Motors

Schematic Drawings



Frame 71 – 80

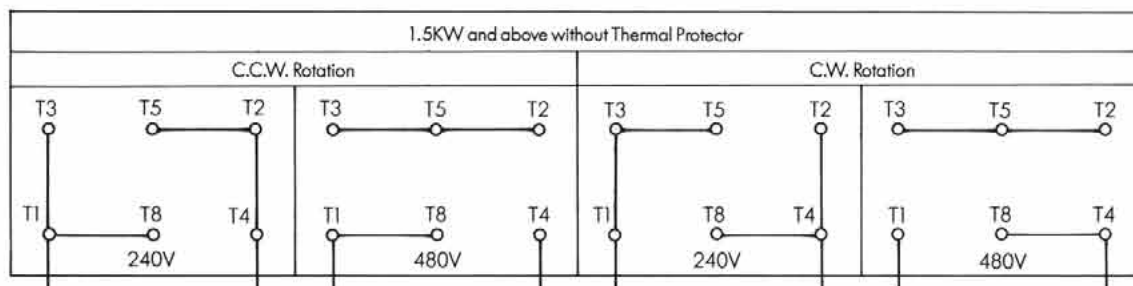
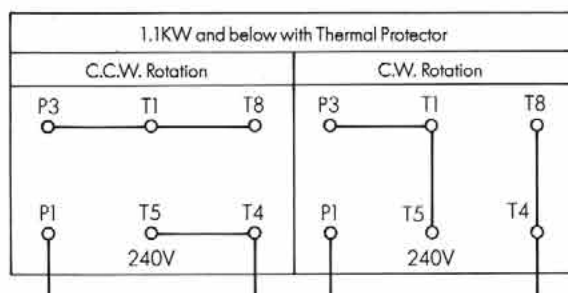
- 1 Fan Cover
- 2 Fan
- 3 End shield N-End
- 4 Centrifugal Switch
- 5 Stator Frame
- 6 Stator
- 7 Rotor
- 8 End shield D-End
- 9 Bearing
- 10 Shaft
- 11 Terminal Box
- 12 Capacitor Box



Frame 90 – 132

- 1 Fan Cover
- 2 Fan
- 3 Centrifugal Switch
- 4 Centr. Switch Cover
- 5 Endshield N-End
- 6 Stator Frame
- 7 Eye Bolt (100-132)
- 8 Stator
- 9 Rotor
- 10 Endshield N-End
- 11 Bearing
- 12 Shaft
- 13 Terminal Box

Terminal Connection



To change rotation, connect links as in diagrams above

TECO Single Phase Motors

Performance Data

Rated output kW	Frame size	Speed RPM	Efficiency %	Power factor cosφ	Current				Torque			Capacitor			
					Full load I_N A		Starting $\frac{I_{st}}{I_N}$		Full load T_N Nm	Starting $\frac{T_{st}}{T_N}$	Break down $\frac{T_b}{T_N}$	Start		Run	
					240V	480V	240V	480V				μF	Vac	μF	Vac
2 Pole															
0.25	A71	2880	65.9	0.80	1.96	—	5.1	—	0.78	2.6	2.8	40	250	4	440
0.37	A71	2870	72.4	0.81	2.66	—	4.9	—	1.27	2.3	2.3	50	250	5	440
0.55	B71	2865	73	0.86	3.74	—	5.9	—	1.86	2.7	2.4	80	250	8	440
0.75	80	2900	74	0.87	4.84	—	7	—	2.45	3.2	2.8	100	250	10	440
1.1	80	2880	75.5	0.94	6.6	—	6.5	—	3.6	2.4	2.5	125	250	15	440
1.5	90S	2910	77.5	0.89	9	4.5	7	7	4.9	2.3	2.6	125	250	15	440
2.2	90L	2895	77.9	0.92	13.1	6.6	6.7	6.7	7.3	2.1	2.5	150	250	20	440
3	100L	2875	75.6	0.92	18	9	5.9	5.9	10	2.5	2.3	250	250	30	440
4	112M	2900	74.6	0.93	25	12.5	5.5	5.5	13.1	1.6	2.2	300	250	30	440
5.5	132S	2930	79.2	0.96	30	15	8	8	18	2.8	2.6	560	330	60	440
7.5	132S	2930	81.2	0.99	40	20	6.8	6.8	24.5	2.4	2.3	720	330	100	440
4 Pole															
0.18	A71	1430	63.5	0.72	1.7	—	4.7	—	1.18	2.7	2.4	40	250	4	440
0.25	A71	1420	64.3	0.75	2.12	—	4.7	—	1.66	2.3	2.3	40	250	4	440
0.37	B71	1415	68.7	0.78	2.9	—	5.2	—	2.45	2.2	2.3	70	250	6	440
0.55	80	1425	70.1	0.77	4.3	—	5.1	—	3.7	2.6	1.8	80	250	8	440
0.75	80	1425	72.1	0.86	5	—	5.8	—	5	2.5	2.2	100	250	12	440
1.1	90S	1445	69.6	0.76	8.8	—	5.1	—	7.3	2.2	2.2	125	250	15	440
1.5	90L	1450	72.8	0.82	10.4	5.2	5.8	5.8	9.9	2.4	2.2	150	250	15	440
2.2	100L	1455	76.4	0.92	13.3	6.7	5.7	5.7	14.4	1.8	2.2	200	250	25	440
3	100L	1445	76.7	0.93	17.5	8.8	6	6	19.8	2.1	2.2	250	250	30	440
4	112M	1440	79	0.87	25	12.5	5.4	5.4	26.5	1.9	2.1	300	250	30	440
5.5	132S	1465	80.5	0.88	33	16.5	5.9	5.9	36	2.5	2.2	560	330	60	440
7.5	132M	1455	80.5	0.92	42	21	5.3	5.3	49	2.1	1.8	720	330	100	440
2 Pole															
0.75	B56	2910	69.5	0.79	5.8	—	6.3	—	2.45	2.9	2.8	100	250	—	—
4 Pole															
0.25	B56	1460	60.4	0.54	3.2	—	4.8	—	1.66	3.9	3.3	50	250	—	—
0.37	B56	1450	59.4	0.60	4.5	—	5	—	2.45	3.9	3.1	70	250	—	—
0.55	B56	1440	64.8	0.70	5.4	—	4.4	—	3.7	3.2	2.3	80	250	—	—
0.75	B56	1450	69.9	0.77	6	—	5.2	—	5	2.7	2.5	100	250	10	440

1kW = 1.34HP

1HP = 0.746kW

1Nm = 0.102kgmf

$\frac{I_{st}}{I_N}$ = Starting Current/Nominal F.L. Current

$\frac{T_{st}}{T_N}$ = Starting Torque/Nominal F.L. Torque

$\frac{T_b}{T_N}$ = Break down Torque/Nominal F.L. Torque

Efficiency and Power Factor:

Tolerances according to IEC 34-1 and AS 1359.60

Efficiency — 15 (1-n)% when $P_2 \leq 50$ kW

Power factor cosφ — $\frac{1-\cos\phi}{6}$ Min. 0.02
Max. 0.07

Torque T_N = $\frac{9550 \times \text{kW}}{\text{RPM}}$ Nm

Note: Data subject to change without notice

TECO Single Phase Motors

Foot Mounted Motors IM 1001

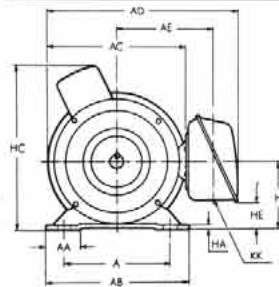


Figure 1

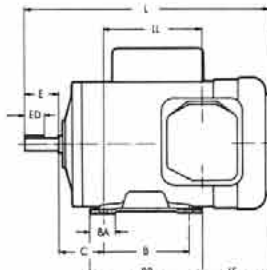


Figure 2

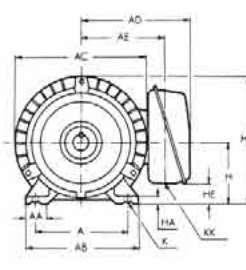


Figure 3

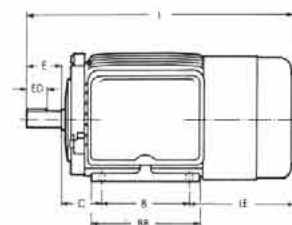
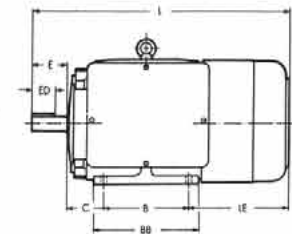
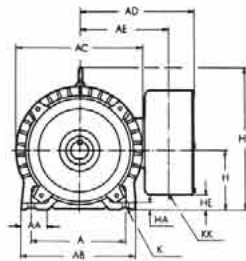
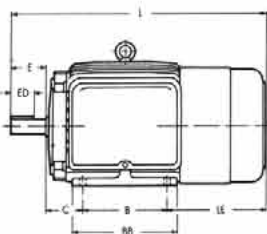
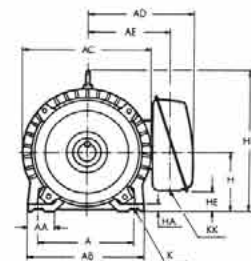


Figure 4



SERIES	FRAME	kW		FIG.	A	AA	AB	AC	AD	AE	B	BA	BB	C	H	HA	HC	HD	HE	K	KK
		2P	4P																		
BEGY	A71	0.25	0.18	1	112	40	150	144	114	86	90	30	120	45	71	3.2	177		31	10	22
		0.37	0.25														182				
	B71	0.55	0.37	1	112	40	150	144	114	86	90	30	120	45	71	3.2	182		31	10	22
		0.75	0.55														187				
BECY	80	0.75	0.55	1	125	40	165	163	122	94	100	30	130	50	80	3.2	205		40	10	22
		1.1	0.75														211				
	90S	1.5	1.1	2	140	35.5	170	200	170	128	100		130	56	90	10	190		17	10	22
	90L	2.2	1.5								125		150								
	100L	3.0	2.2	3	160	45	195	219	180	138	140		175	63	100	12.5		243	27	12	22
		3.0	3.0																		
	112M	4.0	4.0	3	190	45	224	238	236	147	140		175	70	112	14		265	39	12	22
		5.5	5.5																		
	132S	5.5	5.5	4	216	45	250	273	294	192	140		175	89	132	16		310	54	12	22
	132M	7.5	7.5										212								

SERIES	FRAME	kW		FIG.	L	LE	LL	Z	SHAFT END						BEARING		APPR. KG	
		2P	4P						D	E	ED	F	G	GA	D-END	ND-END	2P	4P
BEGY	A71	0.25	0.18	1	269	104	104	20	14	30	14	5	11	16	6202 ZZ	6202 ZZ	7.5	7.5
		0.37	0.25														8.3	8.5
	B71	0.55	0.37	1	287	122	122	20	14	30	14	5	11	16	6202 ZZ	6202 ZZ	9.7	10
		0.75	0.55														13.5	12
BECY	80	0.75	0.55	1	307	117	123	20	19	40	25	6	15.5	21.5	6204 ZZ	6202 ZZ	14	14
		1.1	0.75														15.5	
	90S	1.5	1.1	2	367	161			24	50	32	8	20	27	6205 ZZ	6205 ZZ	24.5	23
	90L	2.2	1.5		392												31	26.8
	100L	3.0	2.2	3	431	168			28	60	40	8	24	31	6206 ZZ	6305 ZZ	35	36
		3.0	3.0														39	
	112M	4.0	4.0	3	449	179			28	60	40	8	24	31	6306 ZZ	6306 ZZ	43.2	47.4
		5.5	5.5														77	75
	132S	5.5	5.5	4	508	199			38	80	56	10	33	41	6308 ZZ	6306 ZZ	80	
	132M	7.5	7.5		546													81

Dimensions in mm. Design, data and dimensions are subject to modification without notice.

TECO Single Phase Motors

Flange Mounted Motors IM 3001

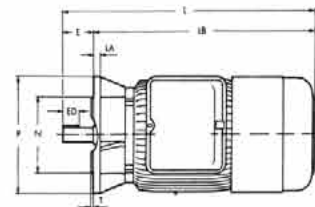
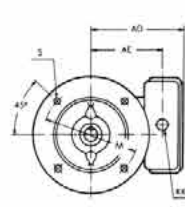
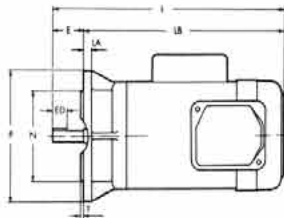
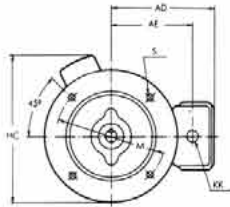
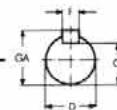
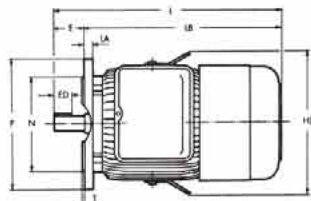
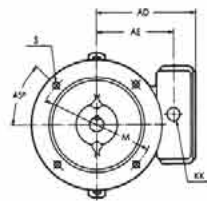


Figure 1

Figure 2

Figure 3



Tolerances:

D = <28-6, 38k6

F = h9

H = +0 -0.5

N = js6

SERIES	FRAME	kW		FIG.	AD	AE	HB	HC	KK	L	LA	LB	M	N	P	S	T
		2P	4P														
BETY	A7I	0.25	0.18	1	114	86		180	22	294	10	271	115	95	140	10	3
			0.25					186		301			130	110	160		3.5
		0.37						191									
	B7I	0.55	0.37	1	114	86		191	22	319	10	289	130	110	160	10	3.5
		0.75	0.55					196									
	80	0.75	0.55	1	122	94		225	22	325	12	315	165	130	200	12	3.5
		1.1						231		335							
BEDY	90S	1.5	1.1	2	170	128			22	406	12	356	165	130	200	12	3.5
	90L	2.2	1.5							431		381					
	100L	3.0	2.2	3	180	138	280		22	431	16	371	215	180	250	15	4
			3.0														
	112M	4.0	4.0	3	236	147	300		22	489	16	429	215	180	250	15	4
	132S	5.5	5.5	3	294	192	336		22	508	20	428	265	230	300	15	4
		7.5															
	132M		7.5							546		466					

SERIES	FRAME	kW		FIG.	SHAFT END						BEARING	
		2P	4P		D	E	ED	F	G	GA	D-END	ND-END
BETY	A7I	0.25	0.18	1	11	23	10	4	8.5	12.5	6202 ZZ	6202 ZZ
			0.25		14	30	14	5	11	16		
		0.37										
	B7I	0.55	0.37	1	14	30	14	5	11	16	6202 ZZ	6202 ZZ
		0.75	0.55									
	80	0.75	0.55	1	19	40	25	6	15.5	21.5	6204 ZZ	6202 ZZ
		1.1										
BEDY	90S	1.5	1.1	2	24	50	32	8	20	27	6205 ZZ	6205 ZZ
	90L	2.2	1.5									
	100L	3.0	2.2	3	28	60	40	8	24	31	6206 ZZ	6305 ZZ
			3.0									
	112M	4.0	4.0	3	28	60	40	8	24	31	6306 ZZ	6306 ZZ
	132S	5.5	5.5	3	38	80	56	10	33	41	6308 ZZ	6306 ZZ
		7.5										
	132M		7.5									

Dimensions in mm. Design, data and dimensions are subject to modification without notice.

TECO Single Phase Motors

Foot and Flange Mounted Motors IM 2001

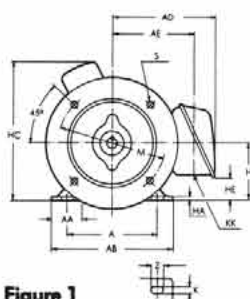


Figure 1

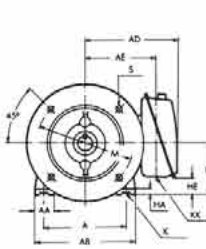
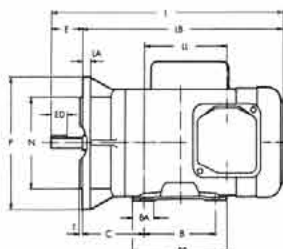


Figure 2

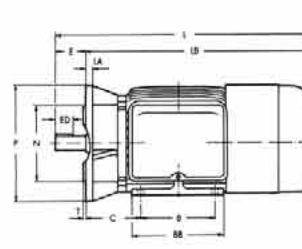
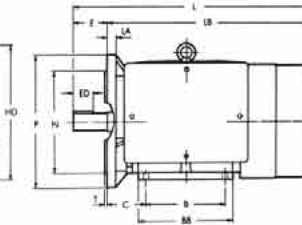
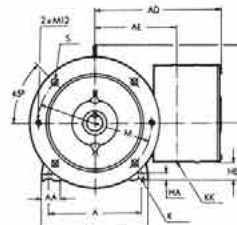
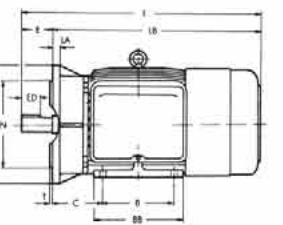
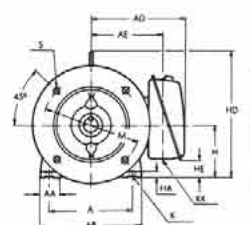


Figure 3



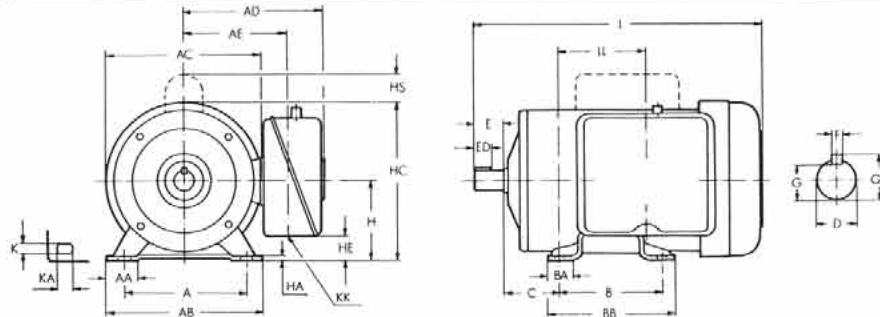
SERIES	FRAME	kW		FIG.	A	AA	AB	AD	AE	B	BA	BB	C	H	HA	HC	HD	HE	K	KK	L	LA	LB
		2P	4P																				
BEGY	A71	0.25	0.18	1	112	40	150	114	86	90	30	120	77	71	3.2	177		31	10	22	301	10	271
		0.25														182							
		0.37														182							
	B71		0.37		112	40	150	114	86	90	30	120	77	71	3.2	187		31	10	22	319	10	289
		0.55														187							
	80		0.75	0.55	1	125	40	165	122	94	100	30	130	77.5	80	3.2	205		40	10	22	335	
		0.75		355													12					315	
		1.1																					
BECY	90S	1.5	1.1	2	140	35.5	170	170	128	100	130	95	90	10				17	10	22	406	12	356
	90L	2.2	1.5																		431		381
	100L	3.0	2.2	3	160	45	195	180	138	140		175	103	100	12.5		243	27	12	22	471	16	411
			3.0																				
	112M	4.0	4.0	3	190	45	224	236	147	140		175	110	112	14		265	39	12	22	489	16	429
	132S	5.5	5.5	4	216	45	250	294	192	140		175	139	132	16		310	54	12	22	558	20	478
7.5																					596		516
132M		7.5								178		212											

SERIES	FRAME	kW		FIG.	LL	M	N	P	S	T	Z	SHAFT END						BEARING	
		2P	4P									D	E	ED	F	G	GA	D-END	ND-END
BEGY	A71	0.25	0.18	1	104	130	110	160	10	3.5	20	14	30	14	5	11	16	6202 ZZ	6202 ZZ
		0.37																	
		0.55	0.37																
	B71	0.75	0.55	1	122	130	110	160	10	3.5	20	14	30	14	5	11	16	6202 ZZ	6202 ZZ
		0.75	0.55																
	80	1.1			143	165	130	200	12	3.5	20	19	40	25	6	15.5	21.5	6204 ZZ	6202 ZZ
BECY	90S	1.5	1.1	2		165	130	200	12	3.5		24	50	32	8	20	27	6205 ZZ	6205 ZZ
	90L	2.2	1.5																
	100L	3.0	2.2	3		215	180	250	15	4		28	60	40	8	24	31	6206 ZZ	6305 ZZ
		3.0	2.2																
	112M	4.0	4.0	3		215	180	250	15	4		28	60	40	8	24	31	6306 ZZ	6306 ZZ
	132S	5.5	5.5																
	132M	7.5		4		265	230	300	15	4		38	80	56	10	33	41	6308 ZZ	6306 ZZ
		7.5																	

Dimensions in mm. Design, data and dimensions are subject to modification without notice.

TECO Single Phase Motors

B56 Series



FRAME	kW		A	AA	AB	AC	AD	AE	B	BA	BB	C	H	HA	HC	HE	HS	K	KA
	2P	4P																	
B56		0.25	124	39	162	185	245	110	76	37	127	70	88.9	4	181	24	-	8.7	17.5
		0.37																	
		0.75	124	39	162	185	245	110	76	37	127	70	88.9	4	181	24	-	8.7	17.5
		0.55															42.4		

FRAME	kW		KK	L	LL	SHAFT END						BEARING		APPR. KG
	2P	4P				D	E	ED	F	G	GA	D-END	ND-END	
B56		0.25	22	320	10g	5/8"	47.6	35.8	3/16"	13	17.8	6205 ZZ	6203 ZZ	13.2
		0.37												14.5
		0.75	22	337	10g	5/8"	47.6	35.8	3/16"	13	17.8	6205 ZZ	6203 ZZ	15.9
		0.55												17.3

Spare Parts List

TYPE	kW - P	CENTRIFUGAL SWITCH	CAPACITOR		THERMAL OVERLOAD	BEARINGS	
			START	RUN		D-END	ND-END
BEGYBS	0.18kW - 4P	TS1RA4517	40uf 250V AC	4uf 440V AC	MRA 68164	6202 ZZ	6202 ZZ
	0.25kW - 2P	TS1RA2517	40uf 250V AC	4uf 440V AC	MRA 68163	6202 ZZ	6202 ZZ
	0.25kW - 4P	TS1RA4517	40uf 250V AC	4uf 440V AC	MRA 68163	6202 ZZ	6202 ZZ
	0.37kW - 2P	TS1RA2517	50uf 250V AC	5uf 440V AC	MRA 68225	6202 ZZ	6202 ZZ
	0.37kW - 4P	TS1RA4517	70uf 250V AC	6uf 440V AC	MRA 68225	6202 ZZ	6202 ZZ
	0.55kW - 2P	TS1RA2517	80uf 250V AC	8uf 440V AC	MRA 68223	6202 ZZ	6202 ZZ
	0.55kW - 4P	TS1RA4517	80uf 250V AC	8uf 440V AC	MRA 68223	6204 ZZ	6202 ZZ
	0.75kW - 2P	TS1RA2517	100uf 250V AC	10uf 440V AC	MRA 68363	6204 ZZ	6202 ZZ
	0.75kW - 4P	TS1RA4517	100uf 250V AC	12uf 440V AC	MRA 68363	6204 ZZ	6202 ZZ
	1.1kW - 2P	TS1RA2517	125uf 250V AC	15uf 440V AC	MRA 68364	6204 ZZ	6202 ZZ
BECYBS	1.1kW - 4P	TS2RB4524	125uf 250V AC	15uf 440V AC	MEJ 20RB	6205 ZZ	6205 ZZ
	1.5kW - 2P	TS2RB2524	150uf 250V AC	15uf 440V AC	MEJ 22AB	6205 ZZ	6205 ZZ
	1.5kW - 4P	TS2RB4524	150uf 250V AC	15uf 440V AC	MEJ 22AB	6205 ZZ	6205 ZZ
	2.2kW - 2P	TS2RB2524	150uf 250V AC	20uf 440V AC	-	6205 ZZ	6205 ZZ
	2.2kW - 4P	TS2RB4524	200uf 250V AC	25uf 440V AC	-	6206 ZZ	6305 ZZ
	3kW - 2P	TS2RB2524	250uf 250V AC	15uf 440V ACx2	-	6206 ZZ	6305 ZZ
	3kW - 4P	TS2RB4524	250uf 250V AC	15uf 440V ACx2	-	6206 ZZ	6305 ZZ
	4kW - 2P	TS2RB2524	150uf 250V ACx2	15uf 440V ACx2	-	6306 ZZ	6306 ZZ
	4kW - 4P	TS2RB4524	150uf 250V ACx2	15uf 440V ACx2	-	6206 ZZ	6306 ZZ
	5.5kW - 4P	TS3RB4524	145-174uf 330V ACx4	15uf 440V ACx4	-	6308 ZZ	6306 ZZ
	7.5kW - 4P	TS3RB4524	189-226uf 330V ACx4	25uf 440V ACx4	-	6308 ZZ	6306 ZZ
	5.5kW - 2P	TS3RB2524	560uf 330V AC	60uf 440V AC	-	6308 ZZ	6306 ZZ
	7.5kW - 2P	TS3RB2524	720uf 330V AC	100uf 110V AC	-	6308 ZZ	6306 ZZ
BEGCFB	0.25kW - 4P	TS1RA4520	50uf 250V AC	-	MEP 40LD	6205 ZZ	6203 ZZ
	0.37kW - 4P	TS1RA4520	70uf 250V AC	-	MEP 40LD	6205 ZZ	6203 ZZ
	0.55kW - 4P	TS1RA4520	80uf 250V AC	-	MEJ 28DB	6205 ZZ	6203 ZZ
	0.75kW - 2P	TS1RA2520	100uf 250V AC	-	MEJ 28DB	6205 ZZ	6203 ZZ
BEGSFB	0.75kW - 4P	TS1RA4520	100uf 250V AC	10uf 440V AC	MEJ 28DB	6250 ZZ	6203 ZZ

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