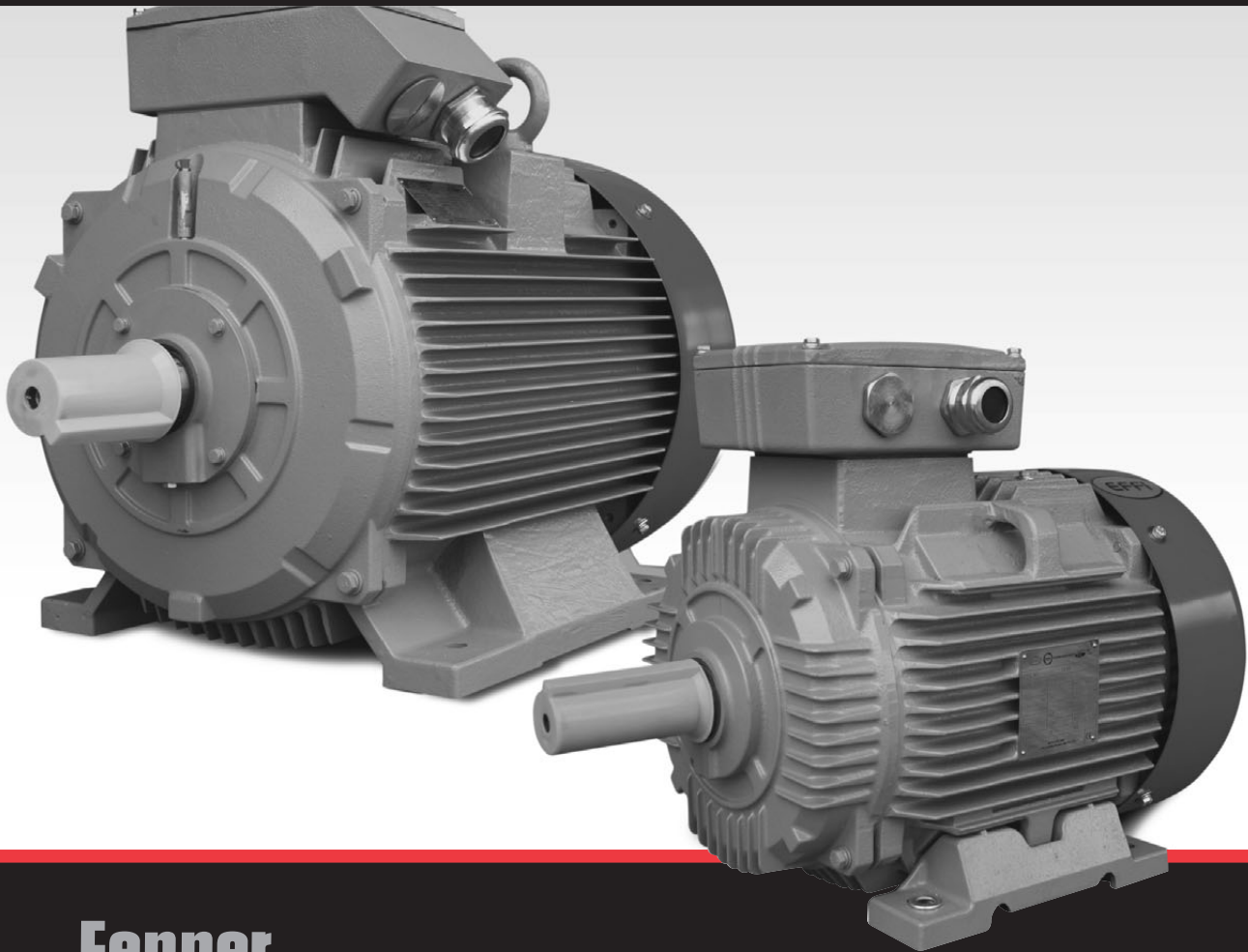




DRIVES



Fenner
MOTOLINE

ENERGY EFFICIENT MOTORS (EFF1)

Technical Guide

BMG DRIVES - HUBS

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A DIVISION OF THE BEARING MAN GROUP

SANS ISO 9001:2008

PREMIUM EFFICIENCY PERFORMANCE DATA*

* IN ACCORDANCE WITH IEC

PERFORMANCE DATA 1500RPM - 4 POLE

MOTOR TYPE	RATED POWER		CURRENT	RATED SPEED	POWER FACTOR	EFF. η	LOCKED CURRENT	LOCKED TORQUE	MAXIMUM TORQUE	MOMENTS OF INERTIA	WEIGHT
	kW	HP	400V A	min ⁻¹	cos ϕ	%	RATED CURRENT	RATED TORQUE	RATED TORQUE	J kgm ²	kg
WE80M2-4	0.75	1.0	1.80	1410	0.73	82.3	6.5	2.3	2.3	0.00165	82.3
WE90S-4	1.1	1.5	2.46	1420	0.77	83.8	6.0	2.3	2.5	0.00232	83.8
WE90L-4	1.5	2.0	3.3	1420	0.77	85.0	6.0	2.3	2.5	0.00312	85.0
WE100L1-4	2.2	3.0	4.59	1440	0.80	86.4	7.0	2.3	2.5	0.00779	86.4
WE100L2-4	3.0	4.0	6.04	1460	0.82	87.4	7.0	2.3	2.5	0.00865	87.4
WE112M-4	4.0	5.5	7.87	1445	0.83	88.3	7.0	2.2	2.5	0.0185	88.3
WE132S-4	5.5	7.5	10.85	1455	0.82	89.2	7.0	2.3	2.5	0.03301	89.2
WE132M-4	7.5	10	14.65	1460	0.82	90.1	7.0	2.3	2.5	0.04121	90.1
WE160M-4	11	15	20.53	1460	0.85	91.0	7.0	2.2	2.5	0.1052	91.0
WE160L-4	15	20	27.84	1460	0.86	91.8	7.5	2.2	2.5	0.1123	91.8
WE180M-4	18.5	25	33.68	1470	0.86	92.2	7.5	2.2	2.5	0.1659	92.2
WE180L-4	22	30	39.87	1470	0.86	92.6	7.5	2.2	2.5	0.1865	92.6
WE200L-4	30	40	52.2	1470	0.89	93.2	7.2	2.2	2.5	0.302	93.2
WE225S/N-4	37	50	65.58	1480	0.87	93.6	7.2	2.2	2.5	0.538	93.6
WE225S/M-4	45	60	79.26	1480	0.87	94.2	7.2	2.2	2.5	0.635	94.2
WE250S/M-4	55	75	94.7	1480	0.89	94.2	7.2	2.2	2.5	0.785	94.2
WE250S/M-4	75	100	131.39	1485	0.87	94.7	7.2	2.2	2.5	1.552	94.7
WE280M-4	90	125	157.18	1485	0.87	95.0	7.2	2.2	2.5	1.865	95.0
WE280S/M-4	110	150	199	1485	0.88	95.4	6.9	2.1	2.2	3.480	95.4

PERFORMANCE DATA 3000RPM - 2 POLE

MOTOR TYPE	RATED POWER		CURRENT	RATED SPEED	POWER FACTOR	EFF. η	LOCKED CURRENT	LOCKED TORQUE	MAXIMUM TORQUE	MOMENTS OF INERTIA	WEIGHT
	kW	HP	400V A	min ⁻¹	cos ϕ	%	RATED CURRENT	RATED TORQUE	RATED TORQUE	J kgm ²	kg
WE80M1-2	0.75	1.0	1.64	2845	0.82	80.5	7.0	2.2	2.3	0.0011	17
WE80M2-2	1.1	1.5	2.28	2845	0.84	82.8	7.4	2.2	2.3	0.0013	18
WE90S-2	1.5	2.0	2.92	2855	0.88	84.1	7.0	2.2	2.3	0.00185	23
WE90L-2	2.2	3.0	4.16	2860	0.89	85.6	7.0	2.2	2.3	0.00215	26
WE100L-2	3.0	4.0	5.67	2870	0.88	86.7	7.5	2.2	2.5	0.00425	34
WE112M-2	4.0	5.5	7.32	2875	0.90	87.6	7.5	2.2	2.5	0.0065	41
WE132S1-2	5.5	7.5	9.96	2925	0.90	88.6	7.5	2.2	2.5	0.01456	60
WE132S2-2	7.5	10	13.44	2925	0.90	89.5	7.5	2.2	2.5	0.01565	63
WE160M1-2	11	15	19.47	2935	0.90	90.6	7.5	2.2	2.5	0.0549	109
WE160M2-2	15	20	26.35	2935	0.90	91.3	7.5	2.2	2.5	0.0635	119
WE160L-2	18.5	25	32.1	2940	0.91	91.8	7.5	2.2	2.5	0.0725	136
WE180M-2	22	30	38.1	2950	0.91	92.2	7.5	2.0	2.2	0.1025	172
WE200L1-2	30	40	51.8	2950	0.91	92.9	7.5	2.0	2.3	0.173	223
WE200L2-2	37	50	63.5	2950	0.91	93.3	7.5	2.0	2.3	0.195	242
WE225S/M-2	45	60	76	2965	0.91	93.7	7.5	2.0	2.3	0.325	302
WE250S/M-2	55	75	93.84	2970	0.90	94.0	7.5	2.0	2.3	0.395	382
WE250S/M-2	75	100	125.75	2975	0.91	94.6	7.5	2.0	2.3	0.683	515
WE280S/M-2	90	125	150.27	2980	0.91	95.0	7.5	2.0	2.3	0.765	545
WE280S/M-2	110	150	193	2975	0.91	95.0	7.1	1.8	2.2	1.558	930

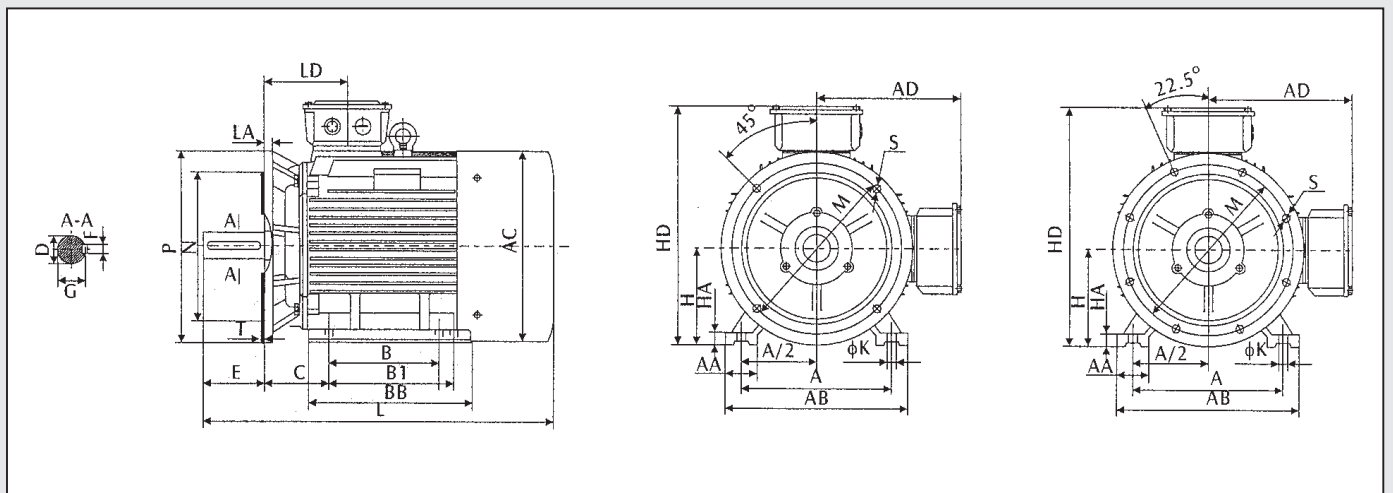
(NOTE): * ●: Australia LEVEL 1B high efficiency standard.
 ○: European EFF1 high efficiency standard.

DIMENSIONS - CAST IRON ELECTRIC MOTORS

B35

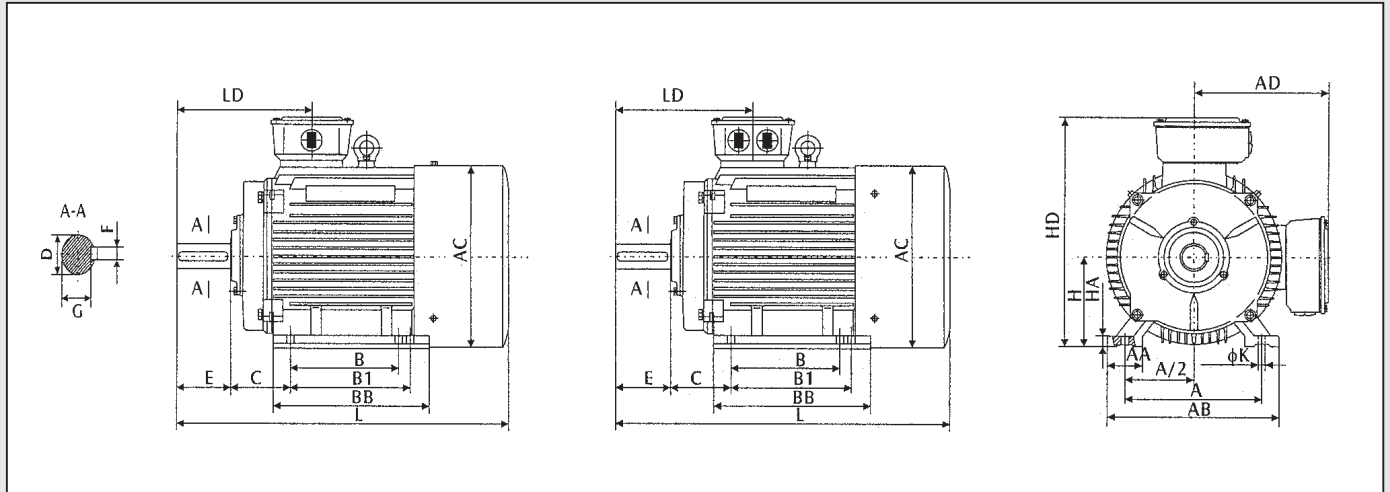
FRAME SIZE	POLES	MOUNTING DIMENSIONS (mm)														OVERALL DIMENSIONS (mm)											
		A	B	B1	C	D	E	F	G	H	K	M	N	P	R	S	T	AA	AB	AC	AD	BB	HA	HD	LA	LD	L
80	2~6	125	100	/	50	19	40	6	15.5	80	10	165	130	200	0	4 - Φ 12	4	35	160	160	145	130	12	225	12	75	280
90S	2~6	140	100	/	56	24	50	8	20	90	10	165	130	200	0	4 - Φ 12	4	36	180	175	155	140	12	245	12	75	315
90L	2~6	140	125	/	56	24	50	8	20	90	10	165	130	200	0	4 - Φ 12	4	36	180	175	155	165	12	245	12	75	340
100L	2~6	160	140	/	63	28	60	8	24	100	12	215	180	250	0	4 - Φ 15	4	40	200	220	190	175	14	295	13	83	435
112M	2~6	190	140	/	70	28	60	8	24	112	12	215	180	250	0	4 - Φ 15	4	45	230	220	190	180	15	305	14	87	450
132S	2~6	216	140	/	89	38	80	10	33	132	12	265	230	300	0	4 - Φ 15	4	55	265	260	220	190	18	355	14	102	465
132M	2~6	216	178	/	89	38	80	10	33	132	12	265	230	300	0	4 - Φ 15	4	55	265	260	220	230	18	355	14	102	505
160M	2~8	254	210	/	108	42	110	12	37	160	15	300	250	350	0	4 - Φ 19	5	65	315	315	265	260	20	425	15	146	608
160L	2~8	254	254	/	108	42	110	12	37	160	15	300	250	350	0	4 - Φ 19	5	65	315	315	265	305	20	425	15	146	652
180M	2	279	241	/	121	48	110	14	42.5	180	15	300	250	350	0	4 - Φ 19	5	70	350	360	280	315	22	460	15	161	690
180L	4~8	279	279	/	121	48	110	14	42.5	180	15	300	250	350	0	4 - Φ 19	5	70	350	360	280	350	22	460	15	161	730
200L	2~8	318	305	/	133	55	110	16	49	200	19	350	300	400	0	4 - Φ 19	5	70	390	400	310	370	25	510	17	186	760
225S	4~8	356	286	/	149	60	140	18	53	225	19	400	350	450	0	8 - Φ 19	5	75	435	450	335	370	28	555	20	189	810
225M	2	356	311	/	149	55	110	16	49	225	19	400	350	450	0	8 - Φ 19	5	75	435	450	335	395	28	555	20	189	805
	4~8	356	311	/	149	60	140	18	53	225	19	400	350	450	0	8 - Φ 19	5	75	435	450	335	395	28	555	20	189	835
250M	2	406	349	/	168	60	140	18	53	250	24	500	450	550	0	8 - Φ 19	5	80	485	490	375	445	30	625	22	207	910
	4~8	406	349	/	168	65	140	18	58	250	24	500	450	550	0	8 - Φ 19	5	80	485	490	375	445	30	625	22	207	910
280S	2	457	368	/	190	65	140	18	58	280	24	500	450	550	0	8 - Φ 19	5	85	545	550	405	490	35	685	22	215	985
	4~8	457	368	/	190	75	140	20	67.5	280	24	500	450	550	0	8 - Φ 19	5	85	545	550	405	490	35	685	22	215	1005
280M	2	457	419	/	190	65	140	18	58	280	24	500	450	550	0	8 - Φ 19	5	85	545	550	405	540	35	685	22	215	1030
	4~8	457	419	/	190	75	140	20	67.5	280	24	500	450	550	0	8 - Φ 19	5	85	545	550	405	540	35	685	22	215	1060
315S	2	508	406	/	216	65	140	18	58	315	28	600	550	660	0	8 - Φ 24	6	120	630	625	530	570	45	845	22	257	1180
	4~8	508	406	/	216	80	170	22	71	315	28	600	550	660	0	8 - Φ 24	6	120	630	625	530	570	45	845	22	257	1210
315M,L	2	508	457	508	216	65	140	18	58	315	28	600	550	660	0	8 - Φ 24	6	120	630	625	530	680	45	845	22	257	1290
	4~8	508	457	508	216	80	170	22	71	315	28	600	550	660	0	8 - Φ 24	6	120	630	625	530	680	45	845	22	257	1320
355M	2	610	500	560	254	75	140	20	67.5	355	28	740	680	800	0	8 - Φ 24	6	120	730	710	615	750	52	970	25	284	1526
	4~8	610	500	560	254	95	170	25	86	355	28	740	680	800	0	8 - Φ 24	6	120	730	710	615	750	52	970	25	284	1556
355L	2	610	560	630	254	75	140	20	67.5	355	28	740	680	800	0	8 - Φ 24	6	120	730	710	615	750	52	970	25	284	1526
	4~8	610	560	630	254	95	170	25	86	355	28	740	680	800	0	8 - Φ 24	6	120	730	710	615	750	52	970	25	284	1556

R-0 DISTANCE FROM FLANGE TO SHAFT SHOULDER



DIMENSIONS - CAST IRON INDUCTION MOTORS

B3 : MOUNTING AND OVERALL DIMENSIONS



B3

FRAME SIZE	POLES	MOUNTING DIMENSIONS (mm)										OVERALL DIMENSIONS (mm)								
		A	B	B1	C	D	E	F	G	H	K	AA	AB	AC	AD	HA	HD	BB	LD	L
80	2.4.6	125	100	/	50	19	40	6	15.5	80	10	35	160	160	145	12	225	130	75	280
90S	2.4.6	140	100	/	56	24	50	8	20	90	10	36	180	180	155	12	245	140	75	315
90L	2.4.6	140	125	/	56	24	50	8	20	90	10	36	180	180	155	12	245	165	75	340
100L	2.4.6	160	140	/	63	28	60	8	24	100	12	40	200	220	190	14	295	175	83	435
112M	2.4.6	190	140	/	70	28	60	8	24	112	12	45	230	220	190	15	305	180	87	450
132S	2.4.6	216	140	/	89	38	80	10	33	132	12	55	265	260	220	18	355	190	102	465
132M	2.4.6	216	178	/	89	38	80	10	33	132	12	55	265	260	220	18	355	230	102	505
160M	2~8	254	210	/	108	42	110	12	37	160	15	65	315	315	265	20	425	260	146	608
160L	2~8	254	254	/	108	42	110	12	37	160	15	65	315	315	265	20	425	305	146	652
180M	2.4	279	241	/	121	48	110	14	42.5	180	15	70	350	360	280	22	460	315	161	690
180L	4.6.8	279	279	/	121	48	110	14	42.5	180	15	70	350	360	280	22	460	350	161	730
200L	2~8	318	305	/	133	55	110	16	49	200	19	70	390	400	310	25	510	370	186	760
225S	4.8	356	286	/	149	60	140	18	53	225	19	75	435	450	335	28	555	370	189	810
225M	2	356	311	/	149	55	110	16	49	225	19	75	435	450	335	28	555	395	189	805
	4~8	356	311	/	149	60	140	18	53	225	19	75	435	450	335	28	555	395	189	835
250M	2	406	349	/	168	60	140	18	53	250	24	80	485	485	375	30	625	445	207	910
	4~8	406	349	/	168	65	140	18	58	250	24	80	485	485	375	30	625	445	207	910
280S	2	457	368	/	190	65	140	18	58	280	24	85	545	550	405	35	685	490	215	985
	4~8	457	368	/	190	75	140	20	67.5	280	24	85	545	550	405	35	685	490	215	1005
280M	2	457	419	/	190	65	140	18	58	280	24	85	545	550	405	35	685	540	215	1030
	4~8	457	419	/	190	75	140	20	67.5	280	24	85	545	550	405	35	685	540	215	1060
315S	2	508	406	/	216	65	140	18	58	315	28	120	630	625	530	45	845	570	257	1180
	4~8	508	406	/	216	80	170	22	71	315	28	120	630	625	530	45	845	570	257	1210
315M,L	2	508	457	508	216	65	140	18	58	315	28	120	630	625	530	45	845	680	257	1290
	4~8	508	457	508	216	80	170	22	71	315	28	120	630	625	530	45	845	680	257	1320
355M	2	610	500	560	254	75	140	20	67.5	355	28	120	730	710	615	52	970	750	284	1526
	4~8	610	500	560	254	95	170	25	86	355	28	120	730	710	615	52	970	750	284	1556
355L	2	610	560	630	254	75	140	20	67.5	355	28	120	730	710	615	52	970	750	284	1526
	4~8	610	560	630	254	95	170	25	86	355	28	120	730	710	615	52	970	750	284	1556

BOX

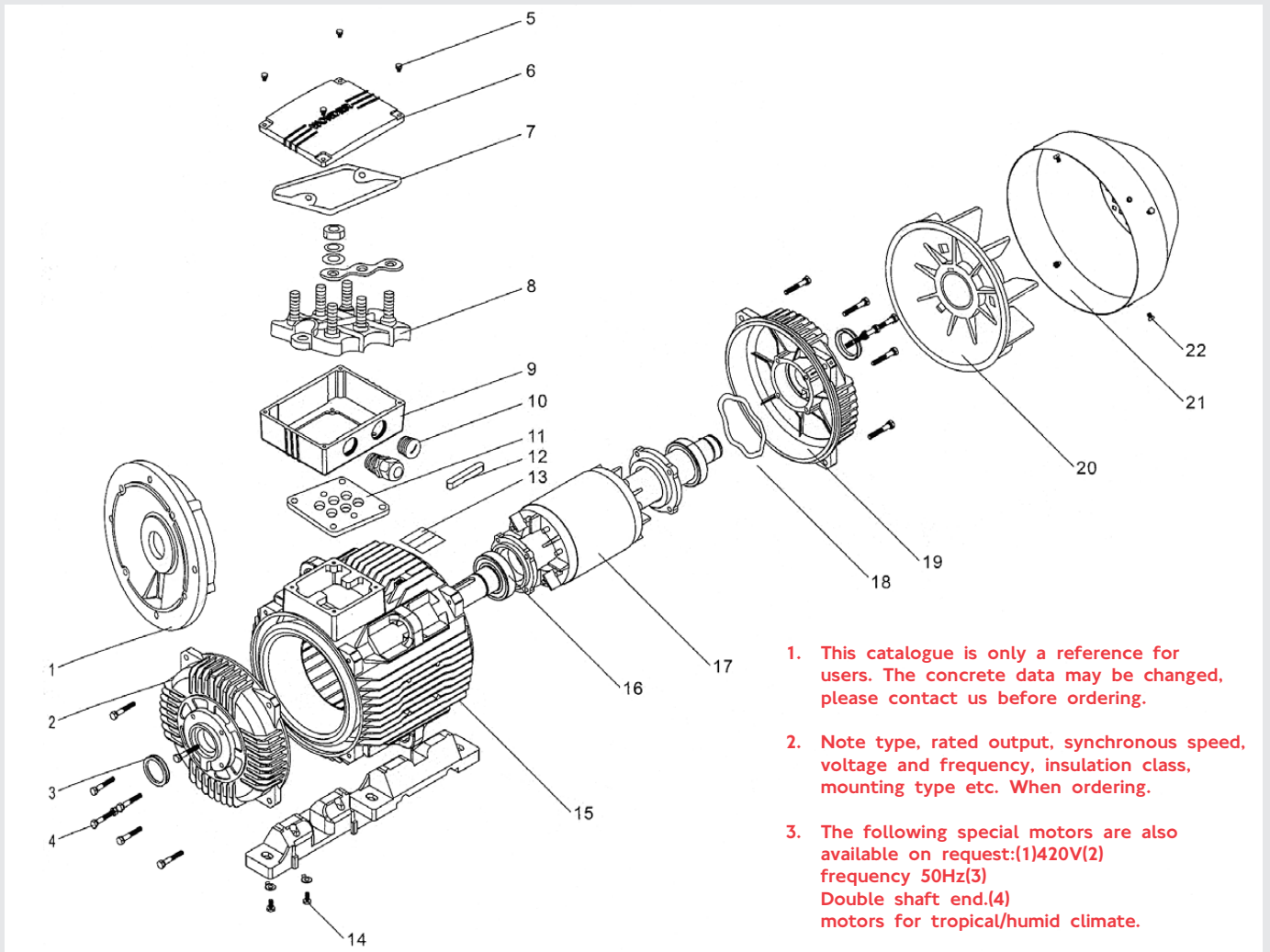
FRAME SIZE	DIA. OF THE THREAD	OVERALL DIMENSIONS (mm)
80	1-M24x1.5	95x95x50
90-100	1-M24x1.5	102x102x50
112-132	1-M30x2	108x123x75
160-180	2-M36x2	150x160x105
200-225	2-M48x2	188x208x105
250-280	2-M64x2	216x251x120
315	2-M64x2	300x358x198
355	2-M72x2	350x415x200

BEARINGS

FRAME SIZE	DRIVING END		NON-DRIVING END	
	2 (POLE)	4.6.8 (POLE)	2 (POLE)	4.6.8 (POLE)
80	6205 2Z/C3	6205 2Z/C3	6205 2Z/C3	6205 2Z/C3
90	6206 2Z/C3	6206 2Z/C3	6206 2Z/C3	6206 2Z/C3
100	6206 2Z/C3	6206 2Z/C3	6206 2Z/C3	6206 2Z/C3
112	6207 2Z/C3	6207 2Z/C3	6207 2Z/C3	6207 2Z/C3
132	6208 2Z/C3	6208 2Z/C3	6208 2Z/C3	6208 2Z/C3
160	6209 2Z/C3	6209 2Z/C3	6209 2Z/C3	6209 2Z/C3
180	6201/C3	6311/C3	6211/C3	6211/C3
200	6212/C3	6312/C3	6212/C3	6212/C3
225	6312/C3	6313/C3	6312/C3	6312/C3
250	6313/C3	6314/C3	6313/C3	6313/C3
280	6314/C3	6317/C3	6314/C3	6314/C3
315	6317/C3	N319	6317C3/7317B(V1)	6319C3/7319B(V1)
355	6319/C3	2322	6319C3/7319B(V1)	6322/7322B(V1)

ELECTRICAL FORMULAE

- active kW = $\frac{kVA \times PF}{1000}$ or $\frac{\text{line amps} \times \text{line volts} \times 1.732 \times PF}{1000}$
 - rated kW = $\frac{kVA \times PF \times \text{eff}}{1000}$ or $\frac{\text{line amps} \times \text{line volts} \times 1.732 \times PF \times \text{eff}}{1000}$ or HP x 0.746
 - rated Hp = $\frac{\text{active kW} \times \text{eff}}{0.746}$ or $\frac{\text{line amps} \times \text{line volts} \times 1.732 \times pf \times \text{eff}}{746}$
 - apparent kVA = $\frac{\text{rated kW}}{\text{eff} \times PF}$ or $\frac{HP \times 0.746}{\text{eff} \times PF}$ or $\frac{\text{line amps} \times \text{line volts} \times 1.732}{1000}$
 - line amps = $\frac{\text{rated kW} \times 1000}{\text{line volts} \times 1.732 \times PF \times \text{eff}}$ or $\frac{\text{rated HP} \times 746}{\text{line volts} \times 1.732 \times PF \times \text{eff}}$
 - rated torque (Nm) = $\frac{9.55 \times \text{rated kW} \times 1000}{\text{rated speed of motor (r/min)}}$
 - rated kW = $\frac{\text{rated torque (Nm)} \times \text{rated speed of motor (r/min)}}{9.55 \times 1000}$
 - rated slip % = $\frac{\text{synchronous speed} - \text{rated speed}}{\text{synchronous speed}} \times 100$
 - starting time (s) = $\frac{\text{total inertia kg m}^2 \text{ (WR}^2\text{)} \times \text{working speed (r/min)}}{9.55 \times \text{mean acceleration torque (Nm)}}$
 - synch. speed (r/min) = $\frac{\text{frequency (Hz)} \times 60}{\text{number of pairs of poles}}$
- PF : Power Factor
 eff : Efficiency
 rated kW : mechanical power delivered by motor shaft
 active kW : input power



1. This catalogue is only a reference for users. The concrete data may be changed, please contact us before ordering.
2. Note type, rated output, synchronous speed, voltage and frequency, insulation class, mounting type etc. When ordering.
3. The following special motors are also available on request:(1)420V(2) frequency 50Hz(3) Double shaft end.(4) motors for tropical/humid climate.

- | | | |
|--|--|---------------------------------|
| 1. Flange B5 | 11. Terminal seal | 21. Fan cover |
| 2. Flange shield B3 | 12. Screws for fixing terminal box cover | 22. Screws for fixing fan cover |
| 3. Oilseal | 13. Name plate | |
| 4. Screws for fixing terminal box cover | 14. Key | |
| 5. Screws for fixing terminal box cover | 15. Terminal board with components | |
| 6. Terminal box cover IP55 | 16. Bearings | |
| 7. Terminal seal | 17. Rotor with shaft | |
| 8. Terminal board complete with components | 18. Spring washer | |
| 9. Terminal box base IP55 | 19. Back shield | |
| 10. Cable gland | 20. Cooling fan | |

24 HR TOLL-FREE EMERGENCY
BRANCH HELPLINE:

0800 022 224

WEBSITE:

www.bmgworld.net



BEARING MAN GROUP