

WSR Series

Super Premium Efficiency
Synchronous Reluctance Motors

IE4

WSR Series

Super Premium Efficiency Synchronous Reluctance Motors



General Information:

Wonder WSR Series are easy to service and cost-efficient with low rotor power losses and improved bearing life. While having good efficiency at nominal load, its partial load efficiency is better than traditional induction motors, which is important in variable speed applications when full output is not required.

Compared with traditional induction motors, Wonder SynRM is complimented by series of advantages. Since there's no windings on the rotor, WSR motors are able to run without rotor copper loss and rotor heating, which improves operational efficiency and security. Besides, without damping on the rotor, the motor can respond quickly.

In comparison to PM motors, WSR Series feature lower cost, because no permanent magnet materials are adopted. And they are suitable for extreme environment, since there's no need to worry about the situation that permanent magnet may vanish at high temperature.

With general frame size, Wonder WSR Series can serve as ideal replacement of traditional motors when the efficiency can comply with IE4 or even better.

The motors of which the output is 11kW and below adopt integrated design and are suitable for water pumps, fluid transmission machines, etc.

Electrical Features:

- Super premium efficiency (IE4)
- Simple structure, low maintenance cost
- Low bearing & winding temperature, better reliability
- Without magnet, easier to maintain
- Same frame & power spec. as IEC motor, convenient for energy efficiency upgrade

Technical Specifications:

- Frame Size: 80-225mm
- Voltage: 400V
- Output Power: 0.55-45kW
- Max. Torque: 110% rated torque
- Speed: 3000, 1500r/m
- Poles: 4
- Frequency: 50Hz at 1500r/m, 100Hz at 3000r/m
- Protection Class: IP55 or above
- Insulation Class: F or above
- Operation ambient temperature: -20°C~40°C
- Operation altitude ≤1000m
- Cooling Method: IC411/IC416

Technical Specifications

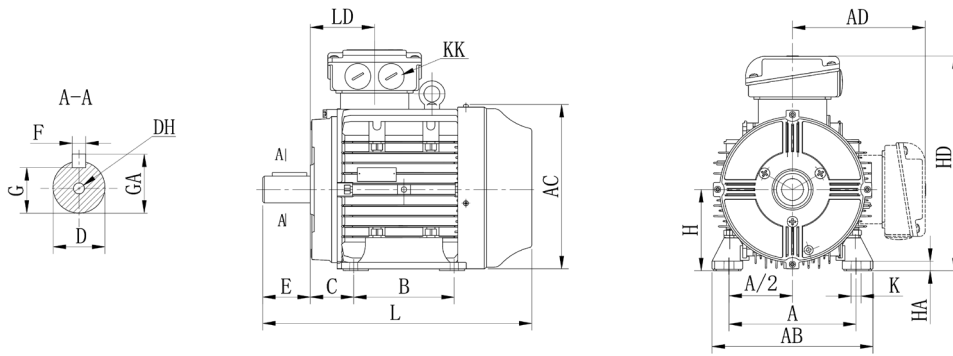
Output Power		Frame Size	Rated Speed r/m	Rated Current I _N (A)	Efficiency η%	Power Factor Cosφ	Rated Torque M _N (Nm)	Rated Voltage V	Sound LP dB(A)	Moment of Inertia J(kgm ²)	Weight kg
kW	HP										
0.75	1	80M1	3000	2.1	85.0	0.67	2.4	360	70	0.0013	10
1.1	1.5	80M2	3000	3.0	86.5	0.68	3.5	360	70	0.0019	12
1.5	2	90S	3000	4.1	87.6	0.63	4.8	380	70	0.0017	15
2.2	3	90L	3000	5.6	88.9	0.71	7.0	360	70	0.0023	18
3	4	100L	3000	7.6	89.8	0.70	9.5	360	71	0.0048	24
4	5.5	112M	3000	9.4	90.6	0.76	12.7	355	71	0.004	35
5.5	7.5	132S1	3000	12.5	91.4	0.76	17.5	365	71	0.019	43
7.5	10	132S2	3000	16.7	92.1	0.76	23.9	370	71	0.026	56
11	15	160M1	3000	23.7	92.9	0.77	35.0	375	71	0.03	73
15	20	160M2	3000	32.0	93.5	0.79	47.7	365	71	0.056	82
18.5	25	160L	3000	38.8	93.8	0.79	58.9	370	72	0.085	102
22	30	180M	3000	50.7	94.1	0.75	70.0	355	72	0.12	157
30	40	200L1	3000	63.5	94.6	0.79	95.5	365	72	0.22	222
37	50	200L2	3000	77.8	94.8	0.80	117.8	360	72	0.34	257
45	60	225M	3000	97.0	95.1	0.78	143.2	360	72	0.5	396
0.55	0.75	80M1	1500	1.6	84.5	0.67	3.5	350	60	0.0013	11
0.75	1	80M2	1500	2.1	85.7	0.68	4.8	355	60	0.0019	13
1.1	1.5	90S	1500	3.0	87.2	0.67	7.0	360	60	0.002	15
1.5	2	90L	1500	4.0	88.2	0.67	9.5	365	60	0.0025	18
2.2	3	100L1	1500	5.7	89.5	0.68	14.0	365	60	0.0017	25
3	4	100L2	1500	7.8	90.4	0.69	19.1	355	60	0.0048	30
4	5.5	112M	1500	9.6	91.2	0.73	25.5	360	61	0.0056	37
5.5	7.5	132S	1500	13.5	92.0	0.73	35.0	350	61	0.019	45
7.5	10	132M	1500	17.6	92.7	0.75	47.7	355	61	0.0197	60
11	15	160M	1500	24.2	93.5	0.77	70.0	365	61	0.0425	81
15	20	160L	1500	33.0	94.0	0.78	95.5	355	61	0.079	107
18.5	25	180M	1500	42.0	94.4	0.77	117.8	350	62	0.12	151
22	30	180L	1500	48.5	94.6	0.76	140.1	365	62	0.17	175
30	40	200L	1500	65.4	95.1	0.76	191.0	365	62	0.316	239
37	50	225S	1500	80.9	95.3	0.77	235.5	360	62	0.481	348
45	60	225M	1500	99.3	95.6	0.76	286.5	360	62	0.711	396

Bearings

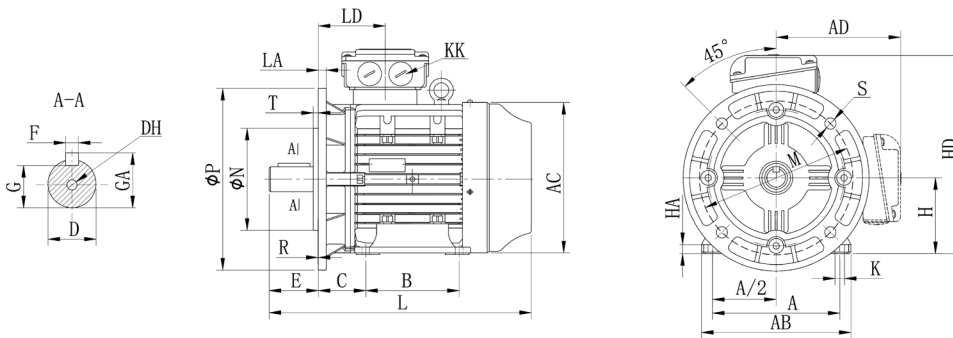
Frame Size	Speed	Bearing	
		Driving End	No-driving End
80	1500/3000	6204-2Z/C3	6203-2Z/C3
90	1500/3000	6205-2Z/C3	6204-2Z/C3
100	1500/3000	6306-2Z/C3	6205-2Z/C3
112	1500/3000	6306-2Z/C3	6205-2Z/C3
132	1500/3000	6208-2Z/C3	6206-2Z/C3
160	1500/3000	6209-2Z/C3	6209-2Z/C3
180	3000	6211/C3	
180	1500	6311/C3	6211/C3
200	3000	6212/C3	
200	1500	6312/C3	6212/C3
225	3000	6312/C4	
225	1500	6313/C4	6312/C4

B3, B35, B5 Mounting and Overall Dimensions (Aluminum)

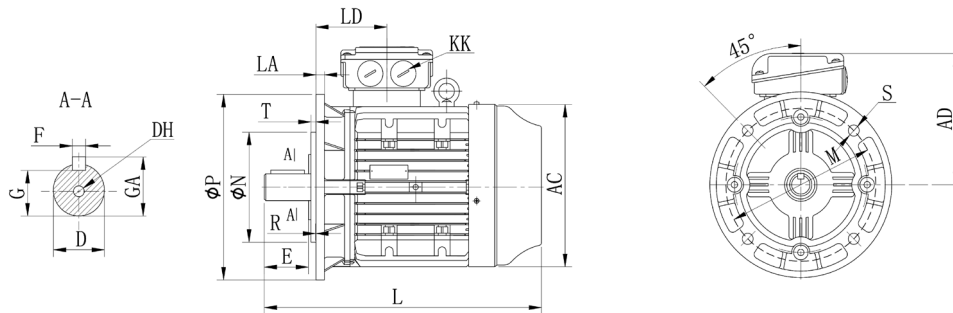
B3



B35

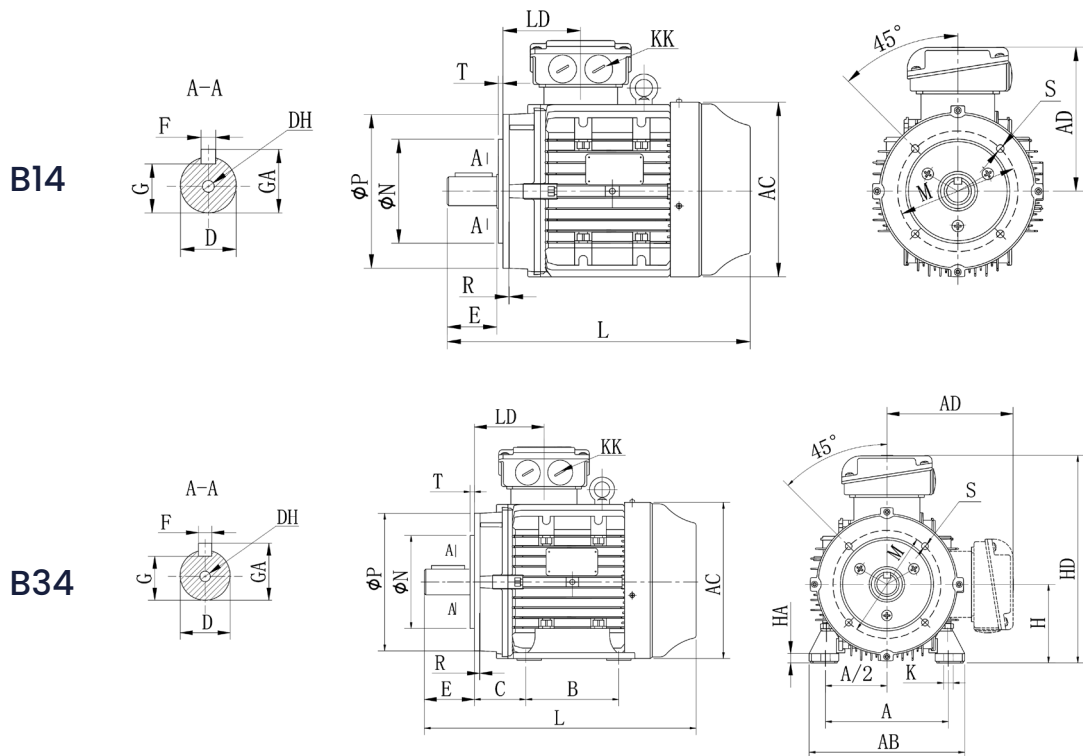


B5



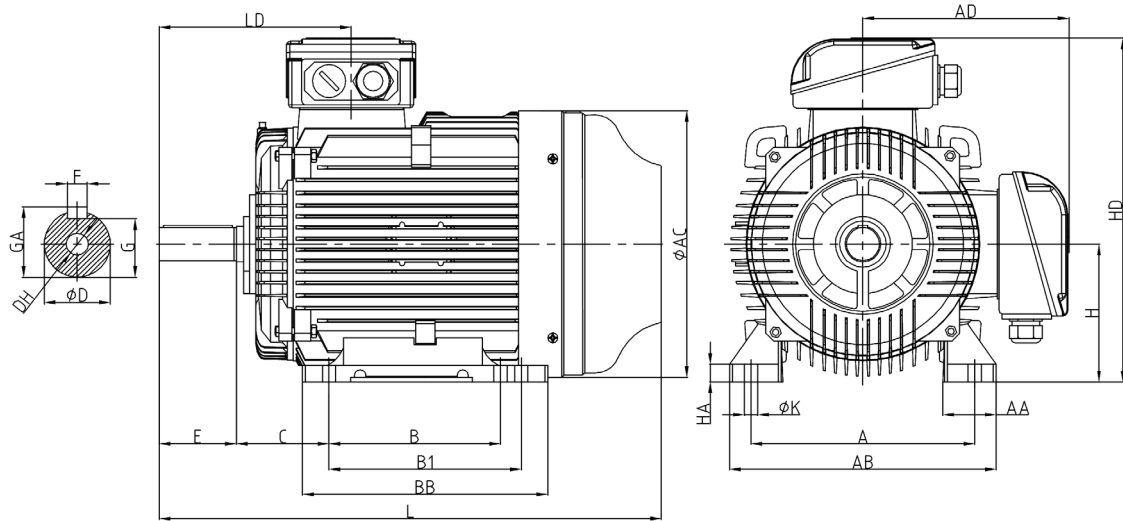
Frame Size	Mounting and Overall Dimensions (mm)																										
	A	A/2	B	C	D	DH	E	F	G	H	K	KK	M	N	P	R	S	T	AB	AC	AD	HD	GA	LA	LD	HA	L
80M2-2	125	62.5	100	50	19	M6×16	40	6	15.5	80	4-Φ10	M20×1.5	165	130	200	0±1.5	4-Φ12	3.5	154	157	124	204	21.5	9.5	75	10	295
80M2-4	125	62.5	100	50	19	M6×16	40	6	15.5	80	4-Φ10	M20×1.5	165	130	200	0±1.5	4-Φ12	3.5	154	157	124	204	21.5	9.5	75	10	330
90S	140	70	100	56	24	M8×20	50	8	20.0	90	4-Φ10	M25×1.5	165	130	200	0±1.5	4-Φ12	3.5	180	175	143	233	27	10	87	10	324
90L	140	70	125	56	24	M8×20	50	8	20.0	90	4-Φ10	M25×1.5	165	130	200	0±1.5	4-Φ12	3.5	180	175	143	233	27	10	87	12	349
100L1-4 100L2-6	160	80	140	63	28	M10×22	60	8	24.0	100	4-Φ12	M25×1.5	215	180	250	0±2	4-Φ14.5	4.0	200	199	159	259	31	12	78	12	373
100L2-4	160	80	140	63	28	M10×22	60	8	24.0	100	4-Φ12	M25×1.5	215	180	250	0±2	4-Φ14.5	4.0	200	199	159	259	31	12	78	12	418
112M	190	95	140	70	28	M10×22	60	8	24.0	112	4-Φ12	M25×1.5	215	180	250	0±2	4-Φ14.5	4.0	230	222	169	281	31	12	85	12	380
132S	216	108	140	89	38	M12×28	80	10	33.0	132	4-Φ12	M32×1.5	265	230	300	0±2	4-Φ14.5	4.0	264	260	193	325	41	14	129	15	475
132M	216	108	178	89	38	M12×28	80	10	33.0	132	4-Φ12	M32×1.5	265	230	300	0±2	4-Φ14.5	4.0	264	260	193	325	41	14	129	15	513
160M	254	127	210	108	42	M16×36	110	12	37.0	160	4-Φ14.5	M40×1.5	300	250	350	0±3	4-Φ18.5	5.0	314	314	237	397	45	15	154	22	612
160L	254	127	254	108	42	M16×36	110	12	37.0	160	4-Φ14.5	M40×1.5	300	250	350	0±3	4-Φ18.5	5.0	314	314	237	397	45	15	154	22	656
180M	279	139.5	241	121	48	M16×36	110	14	42.5	180	4-Φ14.5	M40×1.5	300	250	350	0±3	4-Φ18.5	5.0	317	355	255	435	51.5	15	159	25	685
180L	279	139.5	279	121	48	M16×36	110	14	42.5	180	4-Φ14.5	M40×1.5	300	250	350	0±3	4-Φ18.5	5.0	347	355	255	435	51.5	15	159	25	723

B14, B34 Mounting and Overall Dimensions (Aluminum)



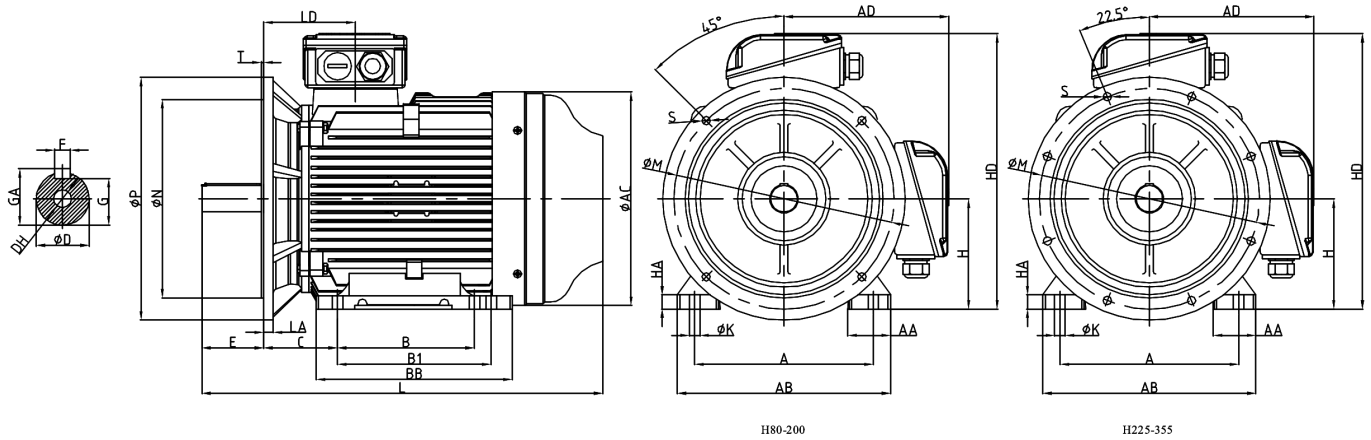
Frame Size	Mounting and Overall Dimensions (mm)																									
	A	A/2	B	C	D	DH	E	F	G	H	K	KK	M	N	P	R	S	T	AB	AC	AD	HD	GA	LD	HA	L
80M2-2	125	62.5	100	50	19	M6×16	40	6	15.5	80	4-Φ10	M20×1.5	100	80	120	0±1.5	4-M6	3	154	157	124	204	21.5	75	10	295
80M2-4	125	62.5	100	50	19	M6×16	40	6	15.5	80	4-Φ10	M20×1.5	100	80	120	0±1.5	4-M6	3	154	157	124	204	21.5	75	10	330
90S	140	70	100	56	24	M8×20	50	8	20	90	4-Φ10	M25×1.5	115	95	140	0±1.5	4-M8	3	180	175	143	233	27	87	10	324
90L	140	70	125	56	24	M8×20	50	8	20	90	4-Φ10	M25×1.5	115	95	140	0±1.5	4-M8	3	180	175	143	233	27	87	10	349
100L1-4 100L2-6	160	80	140	63	28	M10×22	60	8	24	100	4-Φ12	M25×1.5	130	110	160	0±2	4-M8	3.5	200	199	159	259	31	78	12	373
100L2-4	160	80	140	63	28	M10×22	60	8	24	100	4-Φ12	M25×1.5	130	110	160	0±2	4-M8	3.5	200	199	159	259	31	78	12	418
112M	190	95	140	70	28	M10×22	60	8	24	112	4-Φ12	M25×1.5	130	110	160	0±2	4-M8	3.5	200	222	169	281	31	85	12	380
132S	216	108	140	89	38	M12×28	80	10	33	132	4-Φ12	M32×1.5	165	130	200	0±2	4-M10	3.5	264	260	193	325	41	129	15	475
132M	216	108	178	89	38	M12×28	80	10	33	132	4-Φ12	M32×1.5	165	130	200	0±2	4-M10	3.5	264	260	193	325	41	129	15	513

B3 Mounting and Overall Dimensions (Cast Iron)



Frame Size	Poles	Mounting and Overall Dimensions (mm)																				
		A	B	B1	C	D	E	F	G	H	K	DH	GA	AA	AB	AC	AD	HA	HD	BB	LD	L
80	2.4.6	125	100	/	50	19	40	6	15.5	80	10	M6×16	21.5	34	160	175	145	10	225	135	120	306
90S	2.4.6	140	100	/	56	24	50	8	20	90	10	M8×20	27	36	174	195	155	12	250	130	137	316
90L	2.4.6	140	125	/	56	24	50	8	20	90	10	M8×20	27	36	174	195	155	12	250	155	137	341
100L	2.4.6	160	140	/	63	28	60	8	24	100	12	M10×25	31	40	200	218	190	14	270	179	143	385
112M	2.4.6	190	140	/	70	28	60	8	24	112	12	M10×25	31	45	235	243	190	15	303	180	165	386
132S	2.4.6	216	140	/	89	38	80	10	33	132	12	M12×30	41	55	270	278	220	18	341	182	194	458
132M	2.4.6	216	178	/	89	38	80	10	33	132	12	M12×30	41	55	270	278	220	18	341	220	194	496
160M	2~8	254	210	/	108	42	110	12	37	160	15	M16×36	45	64	315	314	241	20	401	260	256	610
160L	2~8	254	254	/	108	42	110	12	37	160	15	M16×36	45	64	315	314	241	20	401	304	256	654
180M	2.4	279	241	/	121	48	110	14	42.5	180	15	M16×36	51.5	68	351	355	262	22	442	311	271	684
180L	4.6.8	279	279	/	121	48	110	14	42.5	180	15	M16×36	51.5	68	351	355	262	22	442	349	271	722
200L	2~8	318	305	/	133	55	110	16	49	200	19	M20×42	59	70	388	397	344	25	544	369	296	774
225S	4.8	356	286	/	149	60	140	18	53	225	19	M20×42	64	79	430	445	368	29	593	361	329	822
225M	2	356	311	/	149	55	110	16	49	225	19	M20×42	59	79	430	445	368	29	593	386	299	816
	4~8	356	311	/	149	60	140	18	53	225	19	M20×42	64	79	430	445	368	29	593	386	329	847

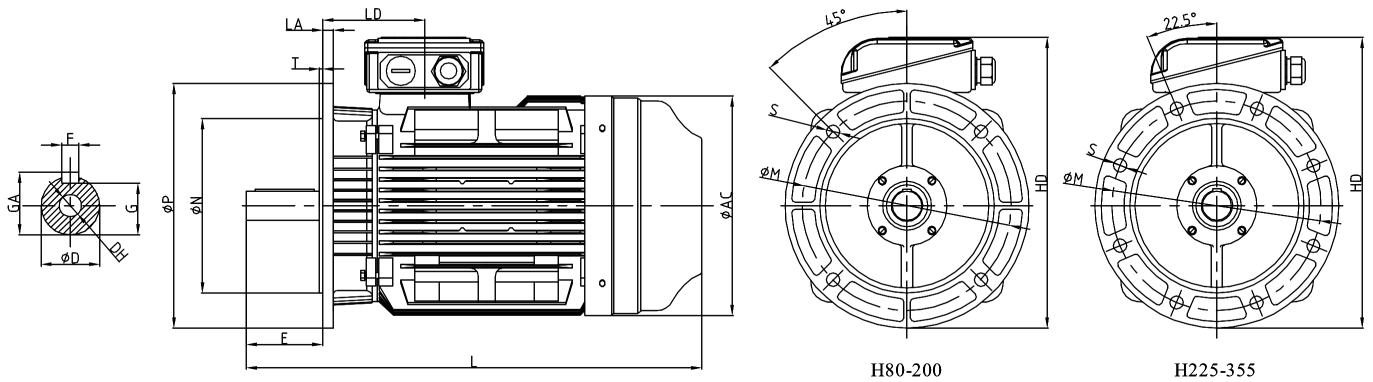
B35 Mounting and Overall Dimensions (Cast Iron)



Frame Size	Poles	Mounting and Overall Dimensions (mm)																									
		A	B	B1	C	D	E	F	G	H	K	M	N	P	S	T	DH	GA	AA	AB	AC	HA	HD	BB	LD	LA	L
80	2.4.6	125	100	/	50	19	40	6	15.5	80	10	165	130	200	4-Φ12	3.5	M6×16	21.5	34	160	175	10	225	135	80	12	306
90S	2.4.6	140	100	/	56	24	50	8	20	90	10	165	130	200	4-Φ12	3.5	M8×20	27	36	174	195	12	250	130	87	10	316
90L	2.4.6	140	125	/	56	24	50	8	20	90	10	165	130	200	4-Φ12	3.5	M8×20	27	36	174	195	12	250	155	87	10	341
100L	2.4.6	160	140	/	63	28	60	8	24	100	12	215	180	250	4-Φ15	4	M10×25	31	40	200	218	14	270	179	83	14	385
112M	2.4.6	190	140	/	70	28	60	8	24	112	12	215	180	250	4-Φ15	4	M10×25	31	45	235	243	15	303	180	105	14	386
132S	2.4.6	216	140	/	89	38	80	10	33	132	12	265	230	300	4-Φ15	4	M12×30	41	55	270	278	18	341	182	114	14	458
132M	2.4.6	216	178	/	89	38	80	10	33	132	12	265	230	300	4-Φ15	4	M12×30	41	55	270	278	18	341	220	114	14	496
160M	2~8	254	210	/	108	42	110	12	37	160	15	300	250	350	4-Φ19	5	M16×36	45	64	315	314	20	401	260	256	15	610
160L	2~8	254	254	/	108	42	110	12	37	160	15	300	250	350	4-Φ19	5	M16×36	45	64	315	314	20	401	304	256	15	654
180M	2.4	279	241	/	121	48	110	14	42.5	180	15	300	250	350	4-Φ19	5	M16×36	51.5	68	351	355	22	442	311	271	15	684
180L	4.6.8	279	279	/	121	48	110	14	42.5	180	15	300	250	350	4-Φ19	5	M16×36	51.5	68	351	355	22	442	349	271	15	722
200L	2~8	318	305	/	133	55	110	16	49	200	19	350	300	400	4-Φ19	5	M20×42	59	70	388	397	25	544	369	296	17	774
225S	4.8	356	286	/	149	60	140	18	53	225	19	400	350	450	8-Φ19	5	M20×42	64	79	430	445	29	593	361	329	20	822
225M	2	356	311	/	149	55	110	16	49	225	19	400	350	450	8-Φ19	5	M20×42	59	79	430	445	29	593	386	299	20	816
	4~8	356	311	/	149	60	140	18	53	225	19	400	350	450	8-Φ19	5	M20×42	64	79	430	445	29	593	386	329	20	847

R=0 distance from flange to shaft shoulder

B5 Mounting and Overall Dimensions (Cast Iron)



Frame Size	Poles	Mounting and Overall Dimensions (mm)															
		D	E	F	G	M	N	P	S	T	DH	GA	AC	HD	LA	LD	L
80	2.4.6	19	40	6	15.5	165	130	200	4-Φ12	3.5	M6×16	21.5	175	245	12	80	306
90S	2.4.6	24	50	8	20	165	130	200	4-Φ12	3.5	M8×20	27	195	260	10	87	316
90L	2.4.6	24	50	8	20	165	130	200	4-Φ12	3.5	M8×20	27	195	260	10	87	341
100L	2.4.6	28	60	8	24	215	180	250	4-Φ15	4	M10×25	31	218	295	14	83	385
112M	2.4.6	28	60	8	24	215	180	250	4-Φ15	4	M10×25	31	243	316	14	105	386
132S	2.4.6	38	80	10	33	265	230	300	4-Φ15	4	M12×30	41	278	359	14	114	458
132M	2.4.6	38	80	10	33	265	230	300	4-Φ15	4	M12×30	41	278	359	14	114	496
160M	2~8	42	110	12	37	300	250	350	4-Φ19	5	M16×36	45	314	416	15	146	610
160L	2~8	42	110	12	37	300	250	350	4-Φ19	5	M16×36	45	314	416	15	146	654
180M	2.4	48	110	14	42.5	300	250	350	4-Φ19	5	M16×36	51.5	355	437	15	161	684
180L	4.6.8	48	110	14	42.5	300	250	350	4-Φ19	5	M16×36	51.5	355	437	15	161	722
200L	2~8	55	110	16	49	350	300	400	4-Φ19	5	M20×42	59	397	544	17	186	774
225S	4.8	60	140	18	53	400	350	450	8-Φ19	5	M20×42	64	445	593	20	189	822
225M	2	55	110	16	49	400	350	450	8-Φ19	5	M20×42	59	445	593	20	189	816
	4~8	60	140	18	53	400	350	450	8-Φ19	5	M20×42	64	445	593	20	189	847

R=0 distance from flange to shaft shoulder



Fuzhou Wonder Electric Co., Ltd.

Add: No. 120, Changyang Road, Fuzhou Development Zone, Fujian, China

Website: www.wonderfz.com

Email: wonder@wonderfz.com

Tel: +86-591-83998899

Fax: +86-591-83998666

Wonder Electric Co., Ltd.

Add: No. 239, Xingda Road, Fuan Electrical Machinery and Appliances Zone, Fujian, China

Website: www.wonder-cn.com

Email: wonder@dayu-casting.com

Tel: +86-593-6379666 6379988

Fax: +86-593-6379999

Wonder Electric Motor (M) Sdn. Bhd.

Add: No.11, Jalan Meranti Jaya 16, Taman Meranti Jaya Industrial Park, 47120 Puchong, Selangor, Malaysia

Email: sales@wonderelectric.com.my

Tel: +603-8063-9399

Fax: +603-8060-8399

Wonder Electric Motor (S) Pte. Ltd.

Add: No. 111, Neythal Road, Singapore, 628598

Email: wondersg@singnet.com.sg

Tel: +65-6265-8698

Fax: +65-6265-6589