Hongtai
motor technology...

...the driving force
around the word

Dedicated and professional–Exploration and innovation

订货须知：

1、订货时应注明电动机型号、工作制、负载持续率、功率、额定电压、同步转速和绝缘等级。
例：YZR160M2-6 S3-40% 7.5KW 380V 1000r/minF级。
2、需要双轴伸时，必须在订货时标明，否则只供给单轴电动机。
3、本样本的技术数据仅供参考，容有变动。

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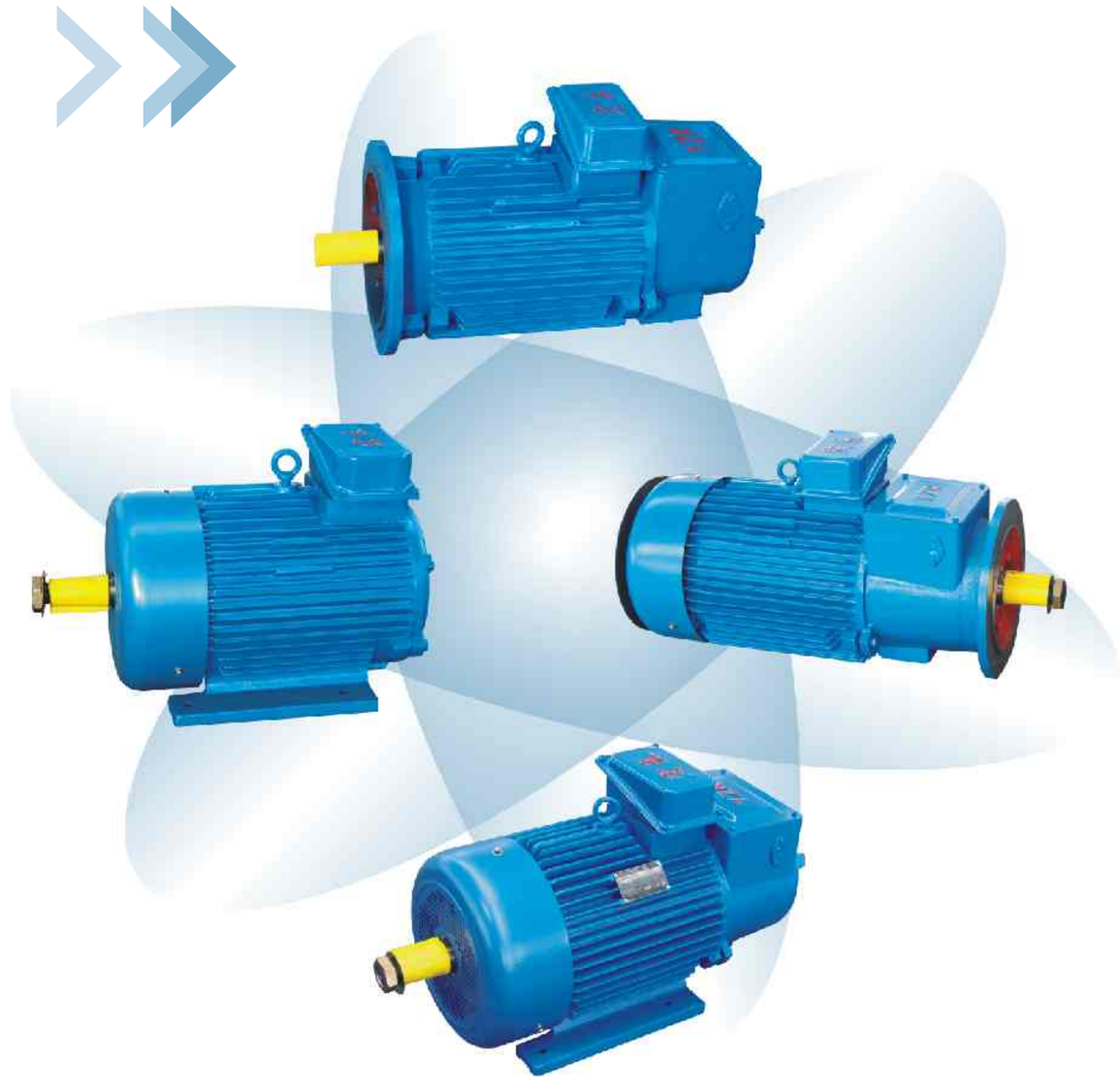
YZR & YZ Series 3-Phase Asynchronous Motors for Crane and Metallurgy Purposes



WUXI HONGTAI ELECTRICAL MACHINERY LIMITED LIBILITY COMPANY

Dedicated and professional-50 years of manufacturing experience in motor industry

HONGTAI

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HONGTAI

COMPANY INTRODUCE

Wuxi Hongtai Hoisting Electrical Machine Co., Ltd (former Wuxi Hongda Hoisting Electrical Machine Plant), established in 1958 and ownership–transformed in 1998, began specially producing electric motors for crane and metallurgical purposes earlier in China. As a member of China Heavy Machinery Industry Association and member of Shanghai Electric Machine Association, the company has been awarded Ministerial Level Advanced Enterprise of Ministry of Water Resources, Wuxi Famous Brand Product, Wuxi Famous Trademark, AAA Enterprise and Contract Compliance & Full Credit Enterprise etc. The company has the right of self–operation export and import, and is strong in technical research and development. Wuxi Hongtai Electrical Machine Technology Research & Development Center, which is a city–level R & D Center, is the one who formulated national standards such as GB/T21972.1–2008 YZP Lifting & Metallurgical Inverter Motors, GB/T21974–2008 for YZRW Eddy Current Brake Motor and GB/T 21975–2008 Test Methods of Lifting & Metallurgical Inverter Motors.

We mainly produce YZR, YZ, YZRE, YZE and JZR2 series motors for crane and metallurgical purposes, YZP, YZB, YZPE and YZBE series motors and frequency conversion and speed governing and electromagnetic brake motors for crane and metallurgical purposes, YZTD、YZW、YZRDW、YTP、YDEJ and YZZ motors specially for construction machinery, YG and YGP series motors and frequency conversion and speed governing motors for rollers, YP, YP2, YPE and YP2E series frequency conversion and speed governing and electromagnetic brake motors, YZRW and WZ series eddy current brake motors and eddy current brake, YR、JR wound–rotor motors for mining. We are also specialized in the manufacture of ZDY series taper–rotor motors, YZU series vibration source motors, YTS series dewatering machine motors, Y series 3–phase asynchronous motors and KZ, F1, F2, D1, D2, Z4 direct current motors, totally 35 series and 450 kinds, with annual motor production capacity being 1.08 million kilowatts

We moved to the new factory area in 2006, and have invested as much as 120 000 000 yuan for technological transformation. The old and new factory areas occupy a floor area of 65 366 square meters, and a building area of 48 586 square meters. We work with great care to produce quality products, and provide excellent hundred percent service. We enjoy a good reputation and have a certain market share in industries such as port, lifting, metallurgy and construction etc in China, and our products have partially been exported to USA, Japan, Russia, Korea and Southeast Asia etc.

Wuxi Hongtai will provide you all with advanced technology, strict management, quality products and perfect service.

JW31-400T double column presses

CNC boring and milling machine

Combined vacuum (pressure) dipping drying machine

CNC lathe

Metal processing equipment

YYQ1600 hard dynamic balancing machine

NC flat head milling and center hole machine

MT-D (I) motor factory-integrated test equipment

Motor type test platform (ABB2300KW inverter, inverter)

Assembly painting line

4M vertical lathe

1 Product Description

1.1 YZR and YZ series are of the latest design, featuring large overload capacity and high mechanical strength, and especially suitable for driving various types of metallurgical machines and cranes and/or other similar equipments. YZR series is wound-rotor motor and YZ series is cage motor.

1.2 The motors can run normally under following ambient conditions:

(1) Temperature of cooling medium not exceeding 60℃ (for motors for metallurgical purpose) or 40℃ (for motors for crane purpose)

(2) Elevation not exceeding 1000m

(3) Constant/frequent and noticeable mechanical vibration and shock

1.3 The motors can work normally under following loading conditions:

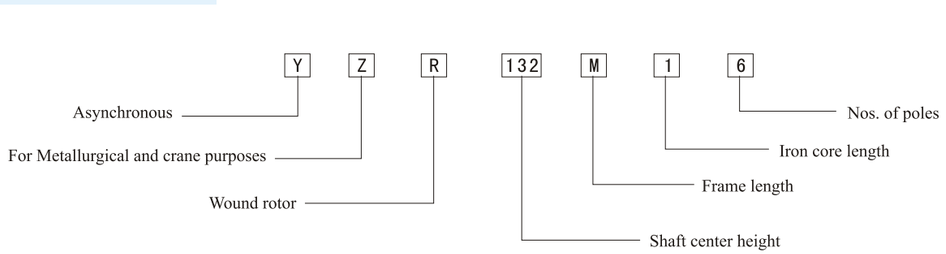
(1) Starting and reversing frequently

(2) Frequent electric or mechanical braking

1.4 Rated frequency of the motors is 50Hz, and rated voltage is 380V

1.5 Connection: the stator winding is connected in Y for 132kW and below, and G for the rest

1.6 Type Designation



1.7 Output power & speed

The range of rated output and synchronous speed for the basic duty type (S_3 40%) are shown in table1. (cage motor manufacturing, specifications in thick-line block) Table (2)

Table (2)

Rated power (kw)	≤5.5	> 5.5~11	> 11
Max. torque / rated torque	2.3	2.5	2.8

1.8 For the YZR series motors, when working with basic duty type, the guaranteed values of the ratio of the maximum torque to the rated torque under rated voltage are given in Table 2.

Table (1)

Frame \ Synchronous speed		1000	750	600
112M		1.5		
132	M1	2.2		
	M2	3.7		
160	M1	5.5		
	M2	7.5		
	L	11	7.5	
180L		15	11	
200L		22	15	
225M		30	22	
250	M1	37	30	
	M2	45	37	
280	S	55	45	37
	M	75	55	45
315	S	90	75	55
	M	110	90	75
355	M		110	90
	L1		132	110
	L2		160	132
400	L1		200	160
	L2		250	200

1.9 For YZ series motors, when working with basic duty type, the guaranteed values of the ratio of the maximum torque and the locked rotor torque to the rated torque under rated voltage are given in table 3.

Table (3)

Rated power (kw)	Max. Torque/rated torque	Locked rotor torque / rated torque
≤5.5	2.0	2.0
>5.5 ~ 11	2.3	2.3
>11	2.5	2.5

2 Motor works and technical parameter

2.1 For the motors, rated voltage is 380V and rated frequency is 50Hz.

2.2 The motors are suitable for intermittent periodic loading. Depending on different loadings, there are following duty types:

2.2.1 Intermittent periodic duty type (S3) It is a sequence of identical duty cycles, each including a period of operation at constant load and a rest and de-energized period (see Fig. 1).

In this duty type, the starting current of each cycle does not significantly affect the temperature rise of motor: every 10 minutes taken as one cycle, i.e., starting 6 times per hour.

2.2.2 Intermittent periodic duty type with starting (S4)

A sequence of identical duty cycles, each including a significant period of starting, a period of operation of constant load and a rest and de-energized period (see Fig. 2). Starting times per hour are 150, 300 and 600.

2.2.3 Intermittent periodic duty type with electric braking (S5) It is a sequence of identical duty cycles, each consisting of a period of starting, a period of operation at constant load, a quick electric braking period and a rest and de-energized period (see Fig. 3).

2.3 When selecting the motors, different kinds of starting and braking states need to be reduced, as per the equivalent heating, into the equivalent starting times, which is then used to determine the rating of motor. Typical reduction example is shown in Table 4.

Reduction method:

Inching (the final speed being not exceeding 25% of rated speed) four times is equivalent to starting once. Electrical braking (being braked to 1/3 rated speed) once is equivalent to 0.8 times a start.

2.4 The basic duty type for the motors is S3-40%. See Table 5 for technical data for each duty type. Information on nameplate of motor is generally provided as per basic duty type, and customized information is also possible. It is necessary to consult the manufacturer if the motors need to run in duty types other than S2～S5.

Table (4)

Starting/braking state					
Duty type	Starts per hour	Inches per hour	Brakes per hour	Brake-and-reversing times per hour	Heating equivalent starts per hour
S3	6	0	0	0	6
S3	4	8	0	0	
S3	2	8	2	0	
S4	150	0	0	0	150
S4	100	200	0	0	
S5	80	0	80	0	
S5	65	130	65	0	
S5	30	160	30	30	
S4	300	0	0	0	300
S4	200	400	0	0	
S5	160	0	160	0	
S5	130	260	130	0	
S5	60	320	60	60	
S4	600	0	0	0	600
S4	400	800	0	0	
S5	320	0	320	0	
S5	260	520	260	0	
S5	120	640	120	120	

Intermittent periodic duty type S3

N Operation period under rated conditions
R Rest and de-energized period
Qmax-Max. temp. reached in duty cycle
Load duration rate

$$CDF = \frac{N}{N+R} \times 100\%$$

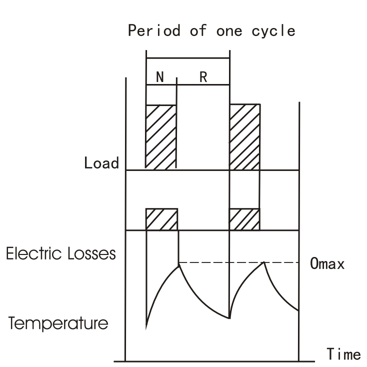


Figure 1

Intermittent periodic duty type with starting S4

D Starting period
R Rest and de-energized period
N Operation period under rated conditions
Qmax Max. temp. reached in duty cycle
Load duration rate

$$CDF = \frac{D+N}{D+N+R} \times 100\%$$

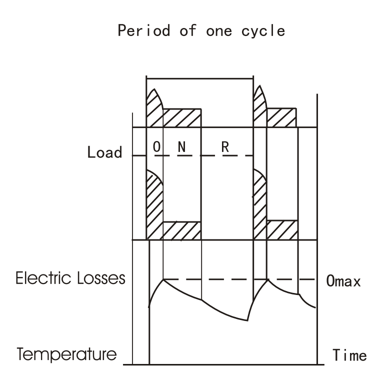


Figure 2

Intermittent periodic duty type with electric braking S5

D Starting period
N Operation period under rated conditions
F electric braking period
R Rest and de-energized period
Qmax Max. temp. reached in duty cycle
Load duration rate

$$CDF = \frac{D+N+F}{D+N+F+R} \times 100\%$$

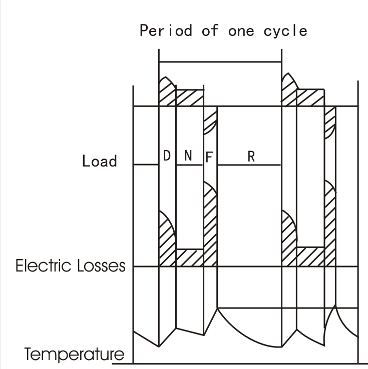


Figure 3

Motor works and technical parameter Table (5-1)

Working methods	S2						S3																						
							6次/时 6 starts/hour																						
FC	30 minutes			60 minutes						25%			40%									60%			100%				
Project / Frame size	Rated output KW	Rated urrent A	Speed r/min	Rated output KW	Rated urrent A	Speed r/min	Rated output KW	Rated urrent A	Speed r/min	Rated output KW	Rated urrent A	Speed r/min	Rated output KW	Rated urrent A	Speed r/min	Pullout torquc / ratcd torquc	Starting torquc / ratcd torquc	Starting current / ratcd torquc	EIT %	Power factor CosΦ	Rated output KW	Rated urrent A	Speed r/min	Rated output KW	Rated urrent A	Speed r/min	Inertia movement Jm Kgm²	Weight (Kg)
1000r/min																													
YZ 112M	1.8	4.9	892	1.5	4.25	920	2.2	6.5	810	1.8	4.9	892	1.5	4.25	920	2.7	2.44	4.47	69.5	0.765	1.1	2.7	946	0.8	3.5	980	0.02	58
132M1	2.5	6.5	920	2.2	5.9	935	3.0	7.5	804	2.5	6.5	920	2.2	5.9	935	2.9	3.1	5.16	74	0.745	1.8	5.3	950	1.5	4.9	960	0.053	80
132M2	4.0	9.2	915	3.7	8.8	912	5	11.6	890	4	9.2	915	3.7	8.8	912	2.8	3.0	5.54	79	0.79	3.0	7.5	940	2.8	7.2	945	0.058	91.5
160M1	6.3	14.1	922	5.5	12.5	933	7.5	16.8	903	6.3	14.1	922	5.5	12.5	933	2.7	2.5	4.9	80.6	0.83	5.0	11.5	940	4.0	10	953	0.105	118.5
160M2	8.5	18	943	7.5	15.9	948	11	25.4	926	8.5	18	943	7.5	15.9	948	2.9	2.4	5.52	83	0.84	6.3	14.2	956	5.5	13	961	0.133	131.5
160L	15	32	920	11	24.6	953	15	32	920	13	28.7	936	11	24.6	953	2.9	2.7	6.17	84	0.85	9	20.6	964	7.5	18.8	972	0.178	152
750r/min																													
YZ 160L	9	21.1	694	7.5	18	705	11	27.4	675	9	21.1	694	7.5	18	705	2.7	2.5	5.1	82	0.74	6	15.6	717	5	14.2	724	0.178	152
180L	13	30	675	11	25.8	694	15	35.3	654	13	30	675	11	25.8	694	2.5	2.6	4.9	80.9	0.811	9	21.5	710	7.5	19.2	718	0.33	205
200L	18.5	40	697	15	33.1	710	22	47.5	686	18.5	40	697	15	33.1	710	2.8	2.7	6.1	85	0.8	13	28.1	714	11	26	720	0.58	276
225M	26	53.5	701	22	45.8	712	33	69	687	26	53.5	701	22	45.8	712	2.9	2.9	6.2	84	0.83	18.5	40	718	17	37.5	720	0.75	347
250M1	35	74	681	30	63.3	694	42	89	663	35	74	681	30	63.3	694	2.54	2.7	5.47	85	0.84	26	56	702	22	45	717	1.33	462

Motor works and technical parameter Table (5-2-1)

Working methods	S2															S3															
																6次/时 6starts/hour															
FC	30minutes				60minutes				15%				25%				40%									60%				100%			
Project / Frame size	Rated output KW	I1 Rated current A	I2 Rated rotor current A	n speed r/min	Rated output KW	I1 Rated current A	I2 Rated rotor current A	n speed r/min	Rated output KW	I1 Rated current A	I2 Rated rotor current A	n speed r/min	Rated output KW	I1 Rated current A	I2 Rated rotor current A	n speed r/min	Rated output KW	I1 Rated current A	I2 Rated rotor current A	Pullout torque /rated torque	No-load current A	n speed r/min	Err %	Prower factor (cosΦ)	Rated output KW	I1 Rated current A	I2 Rated rotor current A	n speed r/min	Rated output KW	I1 Rated current A	I2 Rated rotor current A	n speed r/min
1000r/min																1000r/min															
YZR 112M	1.8	5.3	13.4	815	1.5	4.63	12.5	866	2.2	6.6	18.4	725	1.8	5.3	13.4	815	1.5	4.6	12.5	2.3	3.37	866	62.9	0.79	1.1	3.8	7.3	912	0.8	3.5	5.16	940
132M1	2.5	6.5	12.9	892	2.2	6.05	12.6	908	3.0	8	16.1	855	2.5	6.5	12.9	892	2.2	6.1	12.6	2.9	4.04	908	73	0.76	1.8	5.4	9	924	1.5	5	7.3	940
132M2	4.0	9.7	14.2	900	3.7	9.2	14.5	908	5	12.3	18.2	875	4	9.7	14.2	900	3.7	9.2	14.5	2.5	5.58	908	77	0.8	3.0	7.9	10.2	937	2.5	7.2	8.4	950
160M1	6.3	16.4	29.4	921	5.5	15	25.7	930	7.5	18.5	35.4	910	6.3	16.4	29.4	921	5.5	15	25.7	2.6	7.95	930	75.7	0.74	5.0	14	22.9	935	4	12.5	18.2	944
160M2	8.5	19.6	29.8	930	7.5	18	26.5	940	11	24.6	39.6	908	8.5	19.6	29.8	930	7.5	18	26.5	2.8	11.2	940	79.4	0.8	6.3	16	21.7	949	5.5	15	18.8	956
160L	13	28.6	31.6	942	11	24.5	27.6	957	15	34.7	39	920	13	28.6	31.6	942	11	24.9	27.6	2.5	13	945	82	0.82	9	21	22.3	952	7.5	18.8	18.5	970
180L	17	36.7	49.8	955	15	33.8	46.5	962	20	42.6	58.7	946	17	36.7	49.8	955	15	33.8	46.5	3.2	18.8	962	83	0.81	13	29.7	37.3	968	11	25.5	31.4	975
200L	26	56.1	82.4	956	22	49.1	69.9	964	33	62	68	942	26	56.1	82.4	956	22	49.5	69.9	2.88	26.6	964	86	0.803	19	44.5	60.5	969	17	40.5	52.6	973
225M	34	70	85	957	30	62	74.4	962	40	80	101	947	34	70	85	957	30	62	74.4	3.1	29.9	962	88.3	0.83	26	55	64.5	968	22	50	54.2	975
250M1	42	80	103	960	37	70.5	91.5	965	50	99	123	950	42	80	103	960	37	70.5	91.5	3.1	26.5	960	89.2	0.9	32	61	79	970	28	55	69	975
250M2	52	97	110	958	45	84.5	95	965	63	121	134	947	52	97	110	958	45	84.5	95	3.1	28.2	965	90.6	0.89	39	73	83	969	33	64	71	974
280S	63	118	142	966	55	101.5	129.8	969	75	144	169.5	960	63	118	142	966	55	101.5	119.8	3.0	34	969	89	0.9	48	88	107.1	972	40	76	88.9	976
280M	85	157	140	966	75	139	124	970	100	185	166	960	85	157	140	966	75	138	122.6	3.1	50	969	91	0.906	63	118	104	975	50	96.3	82	980
750r/min																750r/min															
YZR 160L	9	22.4	28.1	694	7.5	19.1	23	705	11	27.5	35.3	676	9	22.4	28.1	694	7.5	19.1	23	2.7	12.7	705	83	0.73	6	16.4	18.2	717	5	14	15	724
180L	13	29.1	47.8	700	11	27	44	700	15	34	56	690	13	29.1	47.8	700	11	27	44	2.7	14.8	700	81	0.77	9	21.9	32.1	720	7.5	19.6	26.6	726
200L	18.5	40	67.2	701	15	33.5	53.5	712	22	48	81	690	18.5	40	67.2	701	15	33.5	53.5	2.9	17.7	712	85	0.79	13	30	46.1	718	11	27	38.7	723
225M	26	55	71.2	708	22	46.9	59.1	715	33	70	92	696	26	55	71.2	708	22	46.9	59.1	2.9	24.2	715	87.4	0.82	18.5	41	49.5	721	17	38	45	723
250M1	35	64	80	715	30	63.4	67.7	720	42	75	97.5	710	35	64	80	715	30	63.4	68.8	2.8	31.4	720	87	0.80	26	52	59.1	725	22	46	49.7	729
250M2	42	86	79	716	37	78	70	720	52	103	98	706	42	86	79	716	37	78	70	2.8	36.9	720	85	0.80	32	68	60	725	27	60	51	729
280S	52	108	106	712	45	93.5	94	723	60	120	126	713	51	106	108	718	45	93.5	94	3.1	48.5	723	89	0.81	38	82	80	728	34	75	70.5	729
280M	63	126	110	722	55	110.5	92.5	725	75	150	132	715	63	126	110	722	55	110.5	92.5	2.8	52.3	725	89.5	0.84	48	103	82.8	730	40	93	68.7	732
315S	85	148	180	724	75	134	159	727	100	172	213	719	85	148	180	724	75	134	159	2.9	62	727	89.5	0.87	63	116	132	731	55	104	115	734
315M	100	190	183	715	90	172	160.9	720	125	250	232	717	100	190	183.5	715	90	172	160.9	3.1	57.7	720	90.2	0.88	75	140	136	725	63	124	113.8	728
600r/min																600r/min															
YZR 280S	42	92	177.1	571	37	84.8	153.2	560	55	112	235.2	564	42	92	177.1	571	37	84.8	153.2	2.8	44.2	572	87	0.76	32	77	133.4	578	27	69	111.8	582
280M	55	127	207	556	45	103.8	165	560	63	146	241	548	55	127	207	556	45	103.8	165	3.2	63.6	560	85.6	0.78	37	90	136	569	33	89.6	118	587
315S	63	132	161.9	580	55	118.3	138.7	580	75	154	194	574	63	132.5	161.9	580	55	118.3	138.7	3.1	62.5	580	89.3	0.79	48	106.6	122	585	40	95.2	101	588
315M	85	179	171	576	75	160	149.3	579	100	210	203	570	85	179	171	576	75	160	149.3	3.1	85.3	579	89.7	0.79	63	140	124.8	584	50	125	98.5	587
355M	110	218	207	581	90	180	166.6	585	132	266	252	576	110	218	207	581	90	180	166.6	3.1	83	589	92.1	0.825	75	154	140	588	63	136	117	589
355L1	132	257	213	576	110	217	172	582	160	314	261	571	132	257	213	578	110	217	172	2.9	90	582	92.2	0.84	90	181	143	585	75	157	119	588
355L2	150	275	194	588	132	262	167.5	588	185	353	241	585	150	293	194	588	132	262	167.5	3.3	126	588	92.4	0.815	110	226	141.8	591	90	191	115.6	592
400L1	190	390	290	585	160	339	250	588	236	472	370	582	190	390	300	585	160	339	250	3.0	182	588	91	0.79	135	300	210	590	110	263	174	592
400L2	240	490	302	585	200	427	258	588	270	540	340	582	240	490	308	586	200	423	258	2.85	213	589	92	0.77	177	372	224	591	145	332	183	592

Motor works and technical parameter Table (5-2-2)

Working methods	S_4 — S_5												S_4 — S_5												Open circuit voltage (v)	Inertial movement Jm ($kg-m^2$)	weight (kg)
	150starts/hour												300starts/hour								600starts/hour						
FC	25%				40%				60%			40%	40%				60%				60%						
Project / Frame size	Rated output KW	I1 Rated current A	I2 Rated rotor current A	n speed r/min	Rated output KW	I1 Rated current A	I2 Rated rotor current A	n speed r/min	Rated output KW	I1 Rated current A	I2 Rated rotor current A	n speed r/min	Rated output KW	I1 Rated current A	I2 Rated rotor current A	n speed r/min	Rated output KW	I1 Rated current A	I2 Rated rotor current A	n speed r/min	Rated output KW	I1 Rated current A	I2 Rated rotor current A	n speed r/min			
1000 r/min													1000 r/min														
YZR 112M	1.6	4.75	11.3	845	1.3	4.2	8.85	890	1.0	3.75	6.57	920	1.2	4.0	8.0	900	0.9	3.7	5.87	930	0.7	3.4	4.46	946	100	0.03	73.5
132M1	2.2	6	11.2	908	2	5.7	10	913	1.7	5.3	8.4	931	1.8	5.4	8.95	926	1.6	5.1	7.87	936	1.35	4.9	6.8	945	132	0.06	96.5
132M2	3.7	9.7	13.1	915	3.5	9.2	11.2	925	2.8	8.5	9.65	940	3.3	9.4	11.9	925	2.8	8.5	9.65	940	2.3	6	7.5	950	185	0.07	107.5
160M1	5.8	15.5	27.3	927	5	14.1	23.4	935	4.8	13.8	22.7	937	4.8	14.1	23.4	935	4.5	13.8	22.4	937	3.8	12.2	17.5	946	138	0.12	153.5
160M2	7.5	18	27.6	940	7	17.1	25.6	945	6.0	15.6	21.8	954	6.0	15.6	21.8	954	5.5	14.8	19.8	959	4.0	13	14.2	970	185	0.15	159.5
160L	11	28.3	27.8	950	10	23	25	957	8	19.5	19.8	969	8.0	19.5	19.8	969	7.5	18.7	18.5	971	5.6	16.7	14.2	978	250	0.2	174
180L	15	33	43.7	960	13	29.5	37.7	965	12	28	34.6	969	12	28	34.6	969	11	26.6	31.7	972	9	23.6	22.9	978	218	0.39	230
200L	21	47	55.4	965	18.5	42.5	48.5	970	17	40.5	53.8	973	17	40.5	52.5	973	15	37	40	975	11	31.5	28.5	981	200	0.67	390
225M	28	58	70	965	25	53	62.2	969	22	50	54.5	973	22	50	54.5	973	20	46	49.4	977	15	39	36.8	982	250	0.84	398
250M1	33	63	82.6	970	30	58	74.9	973	28	54	69.8	975	26	52	64.6	977	25	50	62.1	978	17.5	39	43.2	984	250	1.52	512
250M2	42	78	90.5	967	37	70	79.3	971	33	63	70.5	975	31	60	66.1	976	30	58	63.9	977	24	49	50.9	981	290	1.78	559
280S	52	95	116	970	45	83	100	974	42	80	93.6	975	40	76	89	977	37	71	82.2	978	30	64	66.5	980	280	2.35	746.5
280M	70	130	115	972	62	114	102	975	55	90	104	975	52	98	85.5	979	47	92	77	981	37	78	61	982	370	2.86	840
750r/min													750r/min														
YZR 160L	7.5	19	22.8	712	7	18.1	21.2	716	5.8	16.4	17.3	724	6.0	16.7	18	722	5.5	15.5	14.9	727	3.8	13.7	11.2	732	205	0.2	172
180L	11	25.4	40.6	711	10	23.5	36.6	717	8	20.5	28.8	728	8.0	20.5	28.8	728	7.5	19.7	26.9	729	5.8	17.8	20.6	736	172	0.38	230
200L	15	34	54.1	713	13	30	46.6	718	12	28.5	43	720	12	28.2	43	720	11	27	39.1	724	8.0	23	28.1	731	178	0.67	317
225M	21	45	56.8	718	18.5	41	49.7	721	17	38	45.6	724	17	38	45.6	724	15	35.1	40	727	11	31	29.1	733	232	0.84	390
250M1	29	61.5	68.5	700	25	54	58.7	705	22	49	51.9	712	22	49	51.9	712	20	46	46.2	716	15	39	34.2	725	272	1.52	515
250M2	33	70	62.5	725	30	64	56.6	727	28	61	52.8	728	26	58	48.9	730	25	57	47	731	18.5	45	34.4	736	335	1.78	563
280S	42	91	85.5	719	37	83	75.6	722	33	76.2	67	726	31	74	63	728	30	72	61.5	732	24	64	49.1	733	305	2.35	745
280M	52	104	90.2	727	45	93	77.7	730	42	89	72.4	732	42	89	72.4	732	37	83	63.5	735	30	73	51.4	737	360	2.86	847.5
315S	64	118	132.7	731	60	110.5	124.2	733	56	106	115.8	733	52	100	107	735	48	94	98.8	736	35	80	71.7	740	302	7.22	1050
315M	75	142	136	725	72	136	130.7	725	65	126	117.6	727	60	120	108	729	55	116	99	729	41	100	73.7	732	372	8.68	1170
600r/min													600r/min														
YZR 280S	33	78.7	141.8	578	30	74	125	579	28	71	116	580	26	68	108	582	25	66	103	583	17	56	69.8	588	150	2.35	766
280M	42	98.7	154	575	37	90	136	570	33	84	118	573	31	82	110	574	28	78.5	98	577	22	72.5	75	582	172	2.86	840
315S	50	110	128.4	583	45	100	115.3	585	42	96	107.4	586	40	94	102.2	587	37	90	94.5	587	30	84	76.3	589	242	7.22	1026
315M	65	144	129	584	60	136	119	585	55	130	109	586	50	126	98.7	587	48	124	94.7	588	37	114	73	589	325	8.68	1156
355M	80	160.5	149.7	587	72	156	134.5	588	65	140	121	589	60	130	112	590	55	124	102.4	590	41	104	76.19	591	330	14.32	1520
355L1	100	185	159	586	90	170	142	588	80	155	126.5	589	75	150	119	590	70	145	111	591	50	120	78.4	594	388	17.08	1764
355L2	120	250	149.8	588	110	230	137.5	589	95	210	122.7	591	90	205	116.2	591	80	190	130.2	592	60	165	77.1	594	475	19.18	1810
400L1	145	314	223	588	132	290	199	589	120	278	180	590	110	260	168	591	96	247	148	592	75	220	114	594	395	20.81	2400
400L2	185	396	238	590	165	365	262	589	150	342	195	592	140	324	180	592	120	298	155	592	95	265	122	594	460	24.52	2950

3 Motor structure

3.1 Insulation class

Motors have two insulation classes, namely, F class and H class. F class is suitable where cooling medium temperature does not exceed 40℃, while H class is suitable where cooling medium temperature does not exceed 60℃. Motors with either insulation class have identical electric behavior as the motors with the other one do.

3.2 Degree of protection

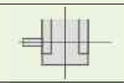
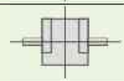
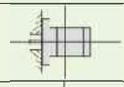
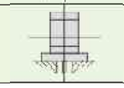
The degree of protection is IP44 for general-purpose motors and IP54 for metallurgical-purpose motors.

3.3 Cooling method

For frame size 112～132, natural cooling, (IC0041), for frame size 160～355, built-in fan cooling (ICO141)
For frame size 400, external-fan cooling with internal circulating ventilation, (IC0151)

3.4 For construction and mounting arrangements, see Table 6

Table (6)

Mounting arrangement	Designation	Availability (Framesize)	Remarks
	IM 1001	112–160	Cylindrical shaft
	IM 1003	180–400	Tapered shaft
	IM 1002	112–160	Cylindrical shaft
	IM 1004	180–400	Tapered shaft
	IM 3001	112–160	Cylindrical shaft
	IM3003	180	Tapered shaft
	IM 3011	112–160	Cylindrical shaft
	IM 3013	180–315	Tapered shaft

3.5 Shaft extension is available upon user's sizes or requirements.

3.6 Type of drive: Motors are designed for coupling or spur gear drive. When spur gear drive is used, the pitch diameter of the pinion should not be less than twice of that of the shaft extension

3.7 The Junction box for the stator is fitted on the top of the frame, and it is possible to make connection on either side of the frame. For the rotor, it is possible to make connection on either side of the cover.

3.8 Brush type is J201, and its specification is given in Table 7

Table (7)

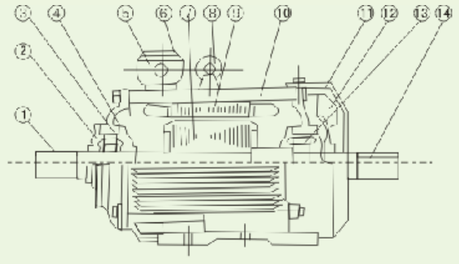
Frame size	Brush dimensions(mm)	Outer dia.of slip rings (mm)	Frame size	Brush dimensions(mm)	Outer dia.of slip rings (mm)
112	20×8×32	100	250	40×12.5×50	160
132	20×8×32	100	280	40×20×60	200
160	25×10×40	112	315	40×20×60	225
180	25×10×40	125	355	50×20×60	250
200	32×12.5×50	140	400	2(40×20×60)	250
225	32×12.5×50	140			

3.9 For bearing type see Table 8

Table (8)

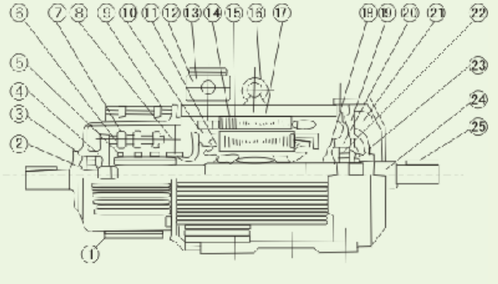
Mounting arrangement Frame size	IM1		IM3	
	Drive end	Non–Drive end	Drive end	Non–Drive end
112	308Z	308Z	308Z	308Z
132	309Z	309Z	309Z	309Z
160	311Z	311Z	311Z	311Z
180	313Z	313Z	313Z	313Z
200	32315	315Z	32315	46315
225	32315	315Z	32315	46315
250	32316	316	32316	46316
280	32320	320	32320	46320
315	32322	322	32322	46322
355	32326	326		
400	42330	42330		

3.10 For names of parts of motor, see Fig. 4



Construction of motor type YZ

1. Key
2. External bearing cover
3. Endshield
4. Internal bearing cover
5. Terminal box
6. Terminal box cover
7. Rotor
8. Slinger ring
9. Stator
10. Frame
11. Cowl
12. Fan
13. Bearing
14. Shaft



Construction of motor type YZR280–400

1. Cover of dust clean–up
2. External bearing cover
3. Front Endshield
4. Internal bearing cover
5. Slip rings
6. Brush stud
7. Brush holder
8. Dust separator
9. Observation cover
10. Rotor spider
11. Rotor pressing ring
12. Terminal box
13. Terminal box cover
14. Stator
15. Rotor
16. Slinger ring
17. Frame
18. Internal bearing cover
19. ENDSHIELD
20. Cowl
21. Fan
22. Bearing
23. External bearing cover
24. Shaft
25. Key

4 Mounting & overall dimensions

Table 9 YZR series lMl mounting & overall dimensions

4.1 See Table 9 for overall & mounting dimensions of YZR IMl 112-400
4.2 See Table 10 for overall & mounting dimensions of YZ lMl 112-250
4.3 See Table 11 for overall & mounting dimensions of YZR lM3 mounting mode
4.4 See Table 12 for overall & mounting dimensions of YZ IM3 mounting mode

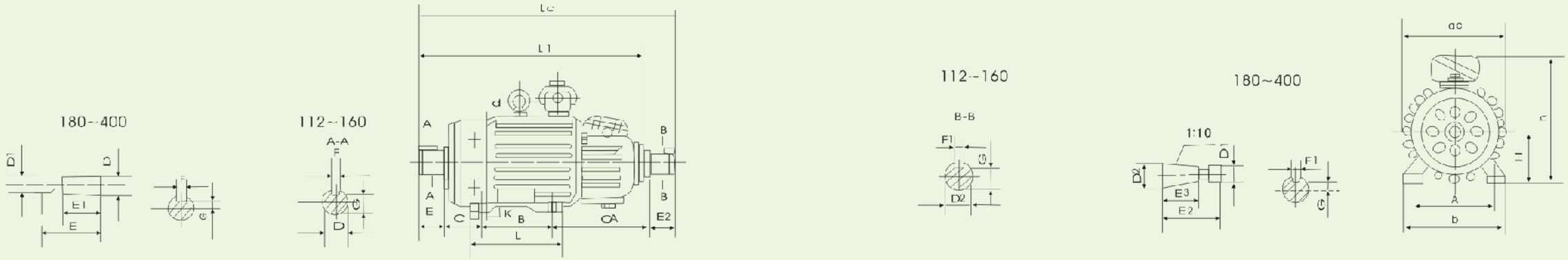
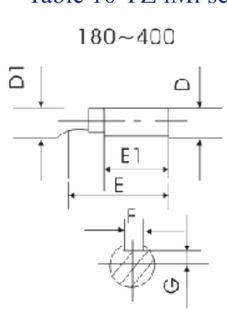


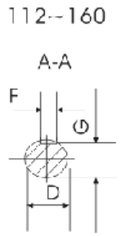
Table (9)

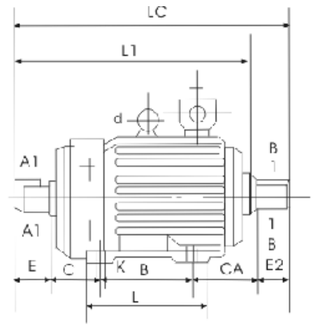
Project	Mounting dimensions							Overall dimensions(not more than)						Shaft extension dimensions									
Frame size \ FC	H	A	B	C	CA	K	d	ac	b	h	l	l1	lc	D	D1	D2	E	E1	E2	E3	F	F1	G
112M	112 $^{0}_{-0.5}$	190	140	70 ± 2.0	300	12	M10	245	250	330	235	590	670	32K6 $^{(+0.018)}_{(+0.002)}$		32K6	80 ± 0.37		80 ± 0.37		10N9 $^{0}_{-0.036}$	10N9 $^{0}_{-0.036}$	27 $^{0}_{-0.2}$
132M	132 $^{0}_{-0.5}$	216	178	89 ± 2.0	300	12	M10	285	275	360	260	645	727	38K6 $^{(+0.018)}_{(+0.002)}$		38K6	80 ± 0.37		80 ± 0.37		10N9 $^{0}_{-0.036}$	10N9 $^{0}_{-0.036}$	33 $^{0}_{-0.2}$
160M	160 $^{0}_{-0.5}$	254	210	108 ± 3.0	330	15	M12	325	320	420	290	758	868	48K6 $^{(+0.018)}_{(+0.002)}$		48K6	110 ± 0.44		110 ± 0.44		14N9 $^{0}_{-0.043}$	14N9 $^{0}_{-0.043}$	42.5 $^{0}_{-0.2}$
160L	160 $^{0}_{-0.5}$	254	254	108 ± 3.0	330	15	M12	325	320	420	335	800	912	48K6 $^{(+0.018)}_{(+0.002)}$		48K6	110 ± 0.44		110 ± 0.44		14N9 $^{0}_{-0.043}$	14N9 $^{0}_{-0.043}$	42.5 $^{0}_{-0.2}$
180L	180 $^{0}_{-0.5}$	279	279	121 ± 3.0	360	15	M12	360	360	460	380	870	980	55*	M36 × 3	55*	110 ± 0.44	82	110 ± 0.44	82	14N9 $^{0}_{-0.043}$	14N9 $^{0}_{-0.043}$	19.9 $^{0}_{-0.2}$
200L	200 $^{0}_{-0.5}$	318	305	133 ± 3.0	400	19	M16	405	405	510	400	975	1118	60*	M42 × 3	60*	140 ± 0.5	105	140 ± 0.5	105	16N9 $^{0}_{-0.043}$	16N9 $^{0}_{-0.043}$	21.4 $^{0}_{-0.2}$
225M	225 $^{0}_{-0.5}$	356	311	149 ± 4.0	450	19	M16	430	455	545	410	1050	1190	65*	M42 × 3	65*	140 ± 0.5	105	140 ± 0.5	105	16N9 $^{0}_{-0.043}$	16N9 $^{0}_{-0.043}$	23.9 $^{0}_{-0.2}$
250M	250 $^{0}_{-0.5}$	406	349	168 ± 4.0	540	24	M20	480	515	605	510	1195	1337	70*	M48 × 3	70*	140 ± 0.5	105	140 ± 0.5	105	18N9 $^{0}_{-0.043}$	18N9 $^{0}_{-0.043}$	25.4 $^{0}_{-0.2}$
280S	280 $^{0}_{-0.8}$	457	368	190 ± 4.0	540	24	M20	535	575	665	530	1265	1438	85*	M56 × 4	85*	170 ± 0.5	130	170 ± 0.5	130	20N9 $^{0}_{-0.052}$	20N9 $^{0}_{-0.052}$	31.7 $^{0}_{-0.2}$
280M	280 $^{0}_{-0.8}$	457	419	190 ± 4.0	540	24	M20	535	575	665	580	1315	1489	85*	M56 × 4	85*	170 ± 0.5	130	170 ± 0.5	130	20N9 $^{0}_{-0.052}$	20N9 $^{0}_{-0.052}$	31.7 $^{0}_{-0.2}$
315S	315 $^{0}_{-1.0}$	508	406	216 ± 4.0	600	28	M24	620	640	750	580	1390	1562	95*	M64 × 4	95*	170 ± 0.5	130	170 ± 0.5	130	22N9 $^{0}_{-0.052}$	22N9 $^{0}_{-0.052}$	35.2 $^{0}_{-0.2}$
315M	315 $^{0}_{-1.0}$	508	457	216 ± 4.0	600	28	M24	620	640	750	630	1440	1613	95*	M64 × 4	95*	170 ± 0.5	130	170 ± 0.5	130	22N9 $^{0}_{-0.052}$	22N9 $^{0}_{-0.052}$	35.2 $^{0}_{-0.2}$
355M	355 $^{0}_{-1.0}$	610	560	254 ± 4.0	630	28	M24	710	740	840	730	1650	1864	110*	M80 × 4	110*	210 ± 0.58	165	210 ± 0.58	165	25N9 $^{0}_{-0.052}$	25N9 $^{0}_{-0.052}$	41.9 $^{0}_{-0.2}$
355L	355 $^{0}_{-1.0}$	610	630	254 ± 4.0	630	28	M24	710	740	840	800	1720	1934	110*	M80 × 4	110*	210 ± 0.58	165	210 ± 0.58	165	25N9 $^{0}_{-0.052}$	25N9 $^{0}_{-0.052}$	41.9 $^{0}_{-0.2}$
400L	400 $^{0}_{-1.0}$	686	710	280 ± 4.0	630	35	M30	840	855	950	910	1865	2120	130	M100 × 4	130*	250 ± 0.58	200	250 ± 0.58	200	28N9 $^{0}_{-0.052}$	28N9 $^{0}_{-0.052}$	50 $^{0}_{-0.2}$

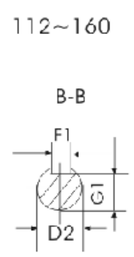
4 Mounting & overall dimensions

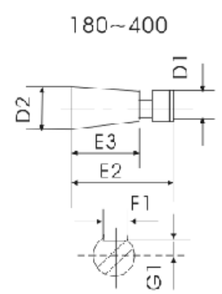
Table 10 YZ lMl series mounting & overall dimensions











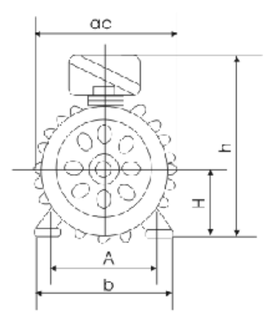
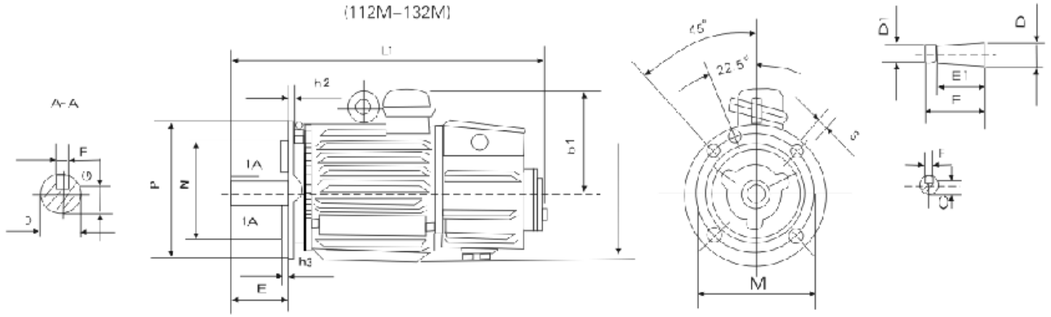
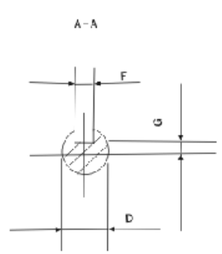


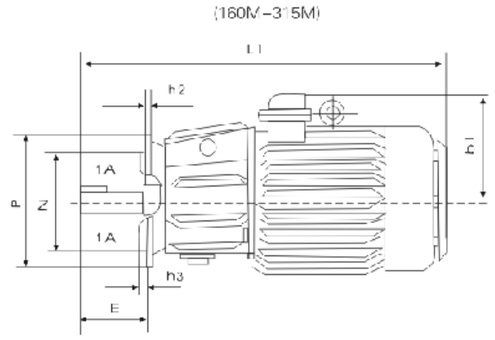
Table (10)

Project	Mounting dimensions							Overall dimensions(not more than)						Shaft extension dimensions									
Frame size \ FC	H	A	B	C	CA	K	d	ac	b	h	l	l1	lc	D	D1	D2	E	E1	E2	E3	F	F1	G	G1
112M	112–0.5	190	140	70±2.0	135	12	M10	245	250	330	235	420	505	32K6 $^{(+0.018)}_{(+0.002)}$		32K6 $^{(+0.018)}_{(+0.002)}$	80±0.37		80±0.37		10N9 $^{0}_{-0.036}$	10N9 $^{0}_{-0.036}$	27 $^{0}_{-0.2}$	27 $^{0}_{-0.2}$
132M	132–0.5	216	178	89±2.0	150	12	M10	285	275	360	260	495	577	38K6 $^{(+0.018)}_{(+0.002)}$		38K6 $^{(+0.018)}_{(+0.002)}$	80±0.37		80±0.37		10N9 $^{0}_{-0.036}$	10N9 $^{0}_{-0.036}$	33 $^{0}_{-0.2}$	33 $^{0}_{-0.2}$
160M	160–0.5	254	210	108±3.0	180	15	M12	325	320	420	290	608	718	48K6 $^{(+0.018)}_{(+0.002)}$		48K6 $^{(+0.018)}_{(+0.002)}$	110±0.44		110±0.44		14N9 $^{0}_{-0.043}$	14N9 $^{0}_{-0.043}$	42.5 $^{0}_{-0.2}$	42.5 $^{0}_{-0.2}$
160L	160–0.5	254	254	108±3.0	180	15	M12	325	320	420	335	650	762	48K6 $^{(+0.018)}_{(+0.002)}$		48K6 $^{(+0.018)}_{(+0.002)}$	110±0.44		110±0.44		14N9 $^{0}_{-0.043}$	14N9 $^{0}_{-0.043}$	42.5 $^{0}_{-0.2}$	42.5 $^{0}_{-0.2}$
180L	180–0.5	279	279	121±3.0	180	15	M12	360	360	460	380	685	800	55*	M36×3	55*	110±0.44	82	110±0.44	82	14N9 $^{0}_{-0.043}$	14N9 $^{0}_{-0.043}$	19.9 $^{0}_{-0.2}$	19.9 $^{0}_{-0.2}$
200L	200–0.5	318	305	133±3.0	210	19	M16	405	405	510	400	780	928	60*	M42×3	60*	140±0.5	105	140±0.5	105	16N9 $^{0}_{-0.043}$	16N9 $^{0}_{-0.043}$	21.4 $^{0}_{-0.2}$	21.4 $^{0}_{-0.2}$
225M	225–0.5	356	311	149±4.0	258	19	M16	430	455	545	410	850	998	65*	M42×3	65*	140±0.5	105	140±0.5	105	16N9 $^{0}_{-0.043}$	16N9 $^{0}_{-0.043}$	23.9 $^{0}_{-0.2}$	23.9 $^{0}_{-0.2}$
250M	250–0.5	406	349	168±4.0	295	24	M20	480	515	605	510	935	1092	70*	M48×3	70*	140±0.5	105	140±0.5	105	18N9 $^{0}_{-0.043}$	18N9 $^{0}_{-0.043}$	25.4 $^{0}_{-0.2}$	25.4 $^{0}_{-0.2}$

Table 11 YZR IM3001, IM3003 and IM3013 dimension table







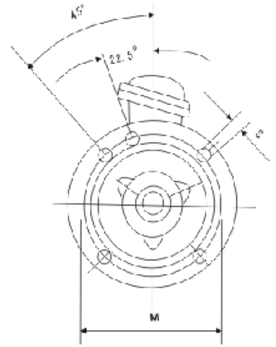
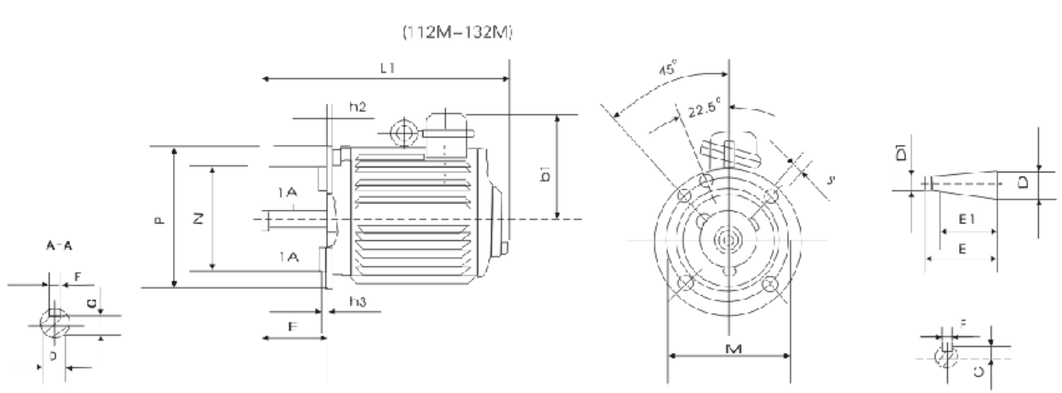


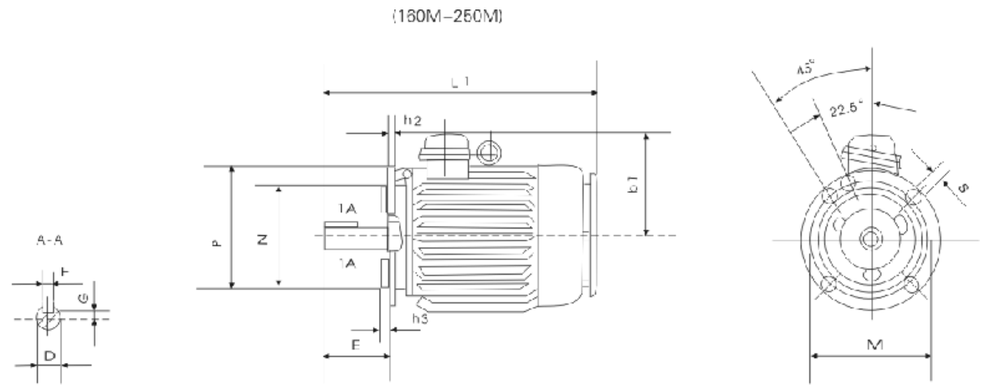
Table (11)

Project	安装尺寸 Mounting dimensions									Overall dimensions (not more than)		Bearing extension dimensions					
Frame size \ FC	Dimension symbols to mounting flanges	M	N	P	h2	h3	S	Dia of bolts	The number of holm the flange	l1	B1	D	D1	E	E1	F	G
112M	F215	215	180j6 $^{(+0.014)}_{(-0.011)}$	250	14	4	15	M12	4	595	220	32K6 $^{(+0.018)}_{(+0.002)}$		80±0.37		10N9 $^{(0)}_{(-0.036)}$	27 $^{0}_{-0.2}$
132M	F265	265	230j6 $^{(+0.016)}_{(-0.013)}$	300	14	4	15	M12	4	645	230	38K6 $^{(+0.018)}_{(+0.002)}$		80±0.37			33 $^{0}_{-0.2}$
160M L	F300	300	250j6 $^{(+0.016)}_{(-0.013)}$	350	18	5	19	M16	4	828/872	250	48K6 $^{(+0.018)}_{(+0.002)}$		110±0.44		14N9 $^{(0)}_{(-0.043)}$	42.5 $^{0}_{-0.2}$
180L	F300	300	250j6 $^{(+0.016)}_{(-0.013)}$	350	18	5	19	M16	4	915	280	55*	M36×3	110±0.44	82	14N9 $^{(0)}_{(-0.043)}$	19.9 $^{0}_{-0.2}$
200L	F400	400	350j6(±0.018)	450	20	5	19	M16	8	1050	320	60*	M42×3	140±0.5	105	16N9 $^{(0)}_{(-0.043)}$	21.4 $^{0}_{-0.2}$
225M	F400	400	350j6(±0.018)	450	20	5	19	M16	8	1110	320	65*	M42×3	140±0.5	105	16N9 $^{(0)}_{(-0.043)}$	23.9 $^{0}_{-0.2}$
250M	F500	500	450j6(±0.020)	550	22	5	19	M16	8	1266	320	70*	M48×3	140±0.5	105	18N9 $^{(0)}_{(-0.043)}$	25.4 $^{0}_{-0.2}$
280S M	F500	500	450j6(±0.020)	550	22	5	19	M16	8	1370/1420	385	85*	M56×4	170±0.5	130	20N9 $^{(0)}_{(-0.052)}$	31.7 $^{0}_{-0.2}$
315S M	F600	600	550j6(±0.022)	660	25	6	24	M20	8	1475/1525	435	95*	M64×4	170±0.5	130	22N9 $^{(0)}_{(-0.052)}$	35.2 $^{0}_{-0.2}$

4 Mounting & overall dimensions

Table12 YZ IM3001, IM3003 and Im3011, IM3013dimension table





Project	Mounting dimensions									Overall dimensions(not more than)		Bearing extension dimensions					
FC / Frame size	Dimension symbols to mounting flanges	M	N	P	h2	h3	S	Dia of bolts	The number of holm the flange	l1	b1	D	D1	E	E1	F	G
112M	F215	215	180j6 (+0.014) (−0.011)	250	14	4	15	M12	4	430	220	32K6 (+0.018) (+0.002)		80		10N9 (0) (−0.036)	27 0 −0.2
132M	F265	265	230j6 (+0.014) (−0.011)	300	14	4	15	M12	4	495	230	38K6 (+0.018) (+0.002)		80		10N9 (0) (−0.036)	33 0 −0.2
160ML	F300	300	250j6 (+0.014) (−0.011)	350	18	5	19	M16	4	700 /743	250	48K6 (+0.018) (+0.002)		110		14N9 (0) (−0.043)	42.5 0 −0.2
180L	F300	300	250j6 (+0.014) (−0.011)	350	18	5	19	M16	4	735	280	55*	M36×3	110	82	14N9 (0) (−0.043)	19.9 0 −0.2
200L	F400	400	350j6 (+0.018) (−0.018)	450	20	5	19	M16	8	855	310	60*	M42×3	140	105	16N9 (0) (−0.043)	21.4 0 −0.2
225M	F400	400	350j6 (+0.018) (−0.018)	450	20	5	19	M16	8	915	320	65*	M42×3	140	105	16N9 (0) (−0.043)	23.9 0 −0.2
250M	F500	500	450j6 (+0.020) (−0.020)	550	22	5	19	M16	8	1005	355	70*	M48×3	140	105	18N9 (0) (−0.043)	25.4 0 −0.2