

YZRD series

wound rotor double-speed three-phase asynchronous motor for lifting

Guangzhou Haoqing Mechanical and Electrical Equipment Co.,Ltd

Add.No.4 Jinhao Street,Haizhu District, Guangzhou China

Tel.: 0086-20-89660216

Fax.: 0086-20-89660219

P.C.: 510080

E-mail: mc@china-electricmotor.com

Website: <http://www.china-electricmotor.com>

YZRD 系列起重用绕线转子双速三相异步电动机 YZRD series wound rotor double-speed three-phase asynchronous motor for lifting

1、产品概述

1.1 YZRD 系列起重用绕线转子双速三相异步电动机，是为起重机的起升机构配套而开发的新型电动机。该电动机具有恒转矩调速特性，其高速极用于负载运行，低速极用于慢就位过程，具有起动平稳、变极切换电流小、机械冲击小、结构简单、使用方便等特点。该电动机的专利技术由于构思新颖、结构简单、实用性强，荣获第七届中国发明专利金奖。

1.2 YZRD 系列电动机，定子六根引出线；转子采用一套复合线圈线组，高速极设计可通过自身三个滑环外串阻抗；低速极转子绕组内部已接成回路，可自动呈现高阻抗，此时相当于鼠笼电机运行。由于在两种极数下转子都具有较高的阻抗，故既能保证较大的起动转矩和变极切换转矩，又能有效地限制起动电流和变极切换电流。

1.3 YZRD 系列电动机，其设计开发以 YZR 系列电动机结构为基础。外型尺寸及安装尺寸同相应机座号的 YZR 系列电动机。

2、使用条件

海拔不超过 1000m 能正常运行。F 级适用于环境空气温度在 -20℃ 到 40℃ 之间，H 级适用于环境空气温度在 -20℃ 到 60℃ 之间。相对湿度小于 90%。

3、基本形式

额定电压：380V

额定频率：50Hz

防护等级：IP44 或 IP54

绝缘等级：F 级或 H 级

冷却方式：风扇冷却 IC411 (H112-H280)、风机冷却 IC416 (H315-H355)

基准工作制：高速 S3-40%、低速为 S3-15% 或 S3-25%

安装方式：B3(160~355)、B5(160~250)、V1(160~250)

注：根据用户要求，可带超温保护开关、防潮加热带、电磁制动器及超速开关等，接受特殊协议订货。

4、冷却风机型式

额定电压：380V

基

频：50Hz

基准工作制：S1

风机有关技术参数见表 1

表 1 风机有关技术参数 (Table 1 Number of frame and centrifugal fan power)

机座号 Number of frame	315	355
离心风机功率、极数 power and pole of centrifugal fan motor	1.1kW 2 极	3kW 2 极

风机必须由独立电源供电。

1.General

1.1 YZRD series wound rotor double-speed three-phase asynchronous motor for lifting is a new type motor developed as a complete set of the lifting units of the crane. The high-speed electrode of the motor is used for running with load and the low speed electrode for the slow positioning process and it has the characteristics of stable starting, small switching current, small mechanical shock, simple structure and simple operation and so on.

1.2 The stator of this motor has 6 leadouts; the rotor adopts a set of compound coil line set and the design of the high-speed electrode can be carried out through three external slip rings; and the low-speed electrode rotor winding has been connected into a loop and the high impedance can automatically appear, at this time, it is equivalent that the squirrel cage motor runs. Since the rotors at both electrodes have high impedance, which can ensure a larger starting torque and the switching torque as well as effectively limit the starting current and the switching current.

1.3 The develop of YZRD series motor is based upon YZR series motor, and the outline dimension and installation dimensions of the motor is same to YZR series.

2. Operation condition

The motor can run normally when the elevation not more than 1000m. The environment temperature for class F is from -20 to 40 Celsius degree, for H class from -20 to 60 Celsius degree. Relative humidity less 90%.

3. Basic mode

- rated voltage : 380V rated frequency: 50HZ.
- protection grade : IP44 or IP54 insulation level: F or H
- cooling mode: IC411 (H112-H280) 、 IC416 (H315-H355).
- base operating duty : S3-40% for high speed , S3-15% or S3-25% for low speed
- install mode: B3、 B5、 V1

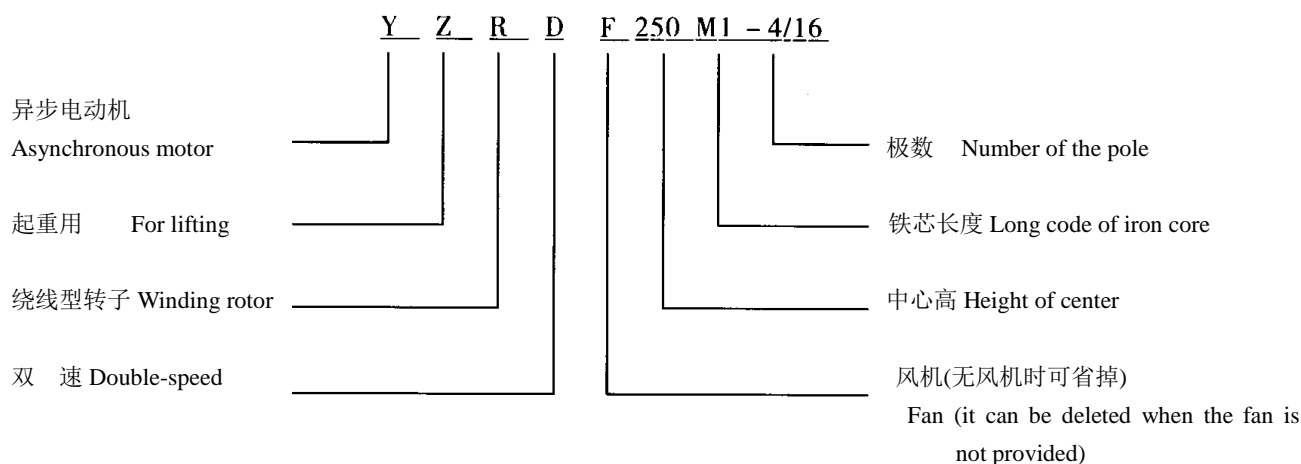
Note: The motor with over-temperature protection、anti-condensation heater、brake and over-speed protection switch can be made according to the requirements of the users, and acceptance of the special ordering.

4. Cooling fan

- rated voltage: 380V.
- rated frequency: 50Hz,
- base operating mode : S1
- The power of drive motor shown in table1 and table 1.

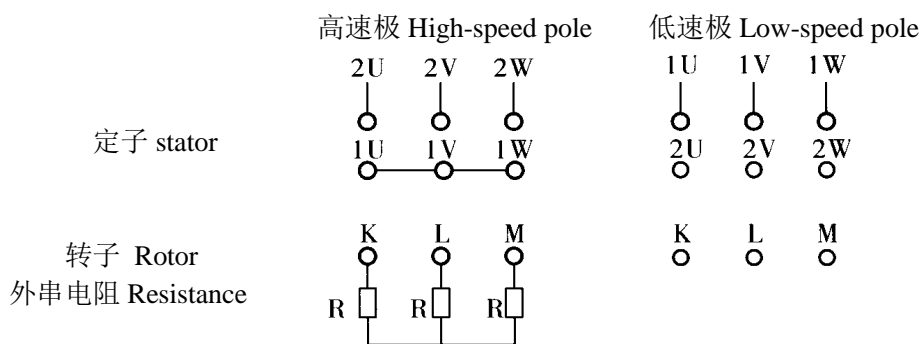
Fan must be powered independently!

5. 电动机型号意义 Significance of motor model:

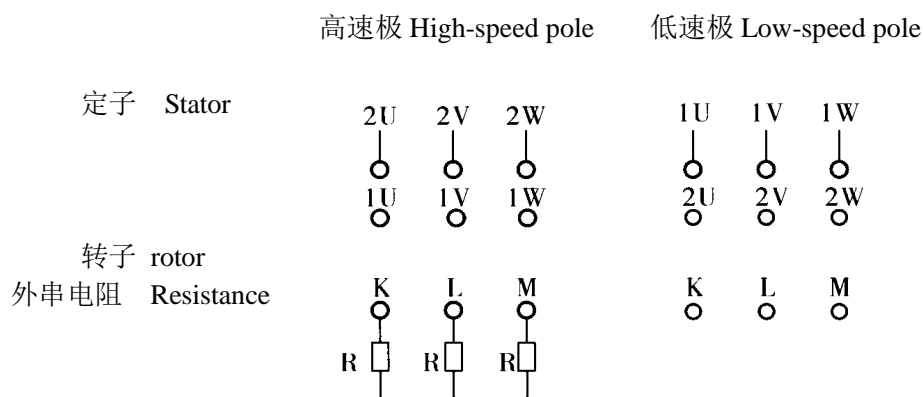


6 电动机接线图见下图 connection diagram of the motor is shown in the following figure.

定子一套绕组的电动机



定子两套绕组的电动机

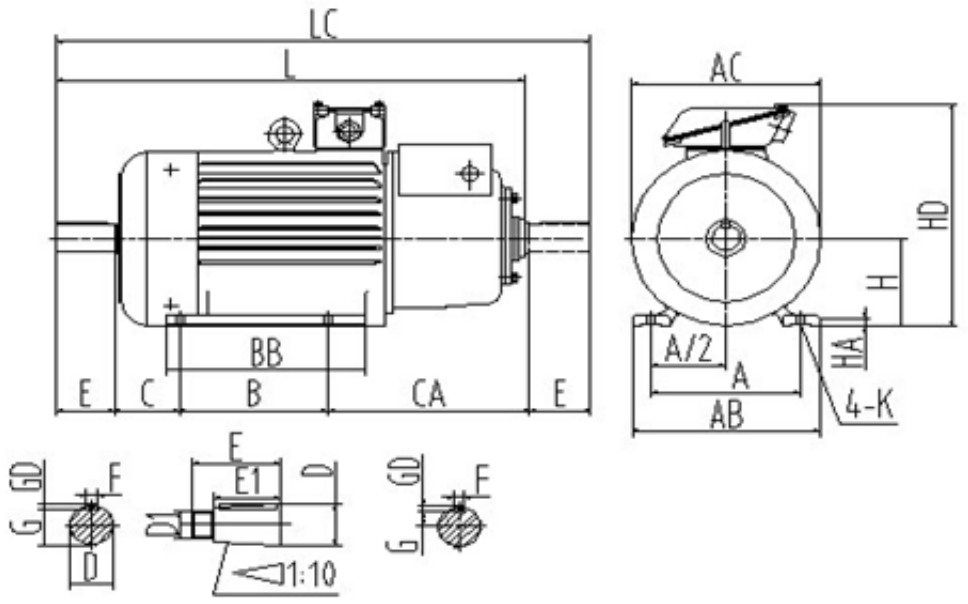


7.电机性能参数见表 2

7.the parameter of motor shown in table2

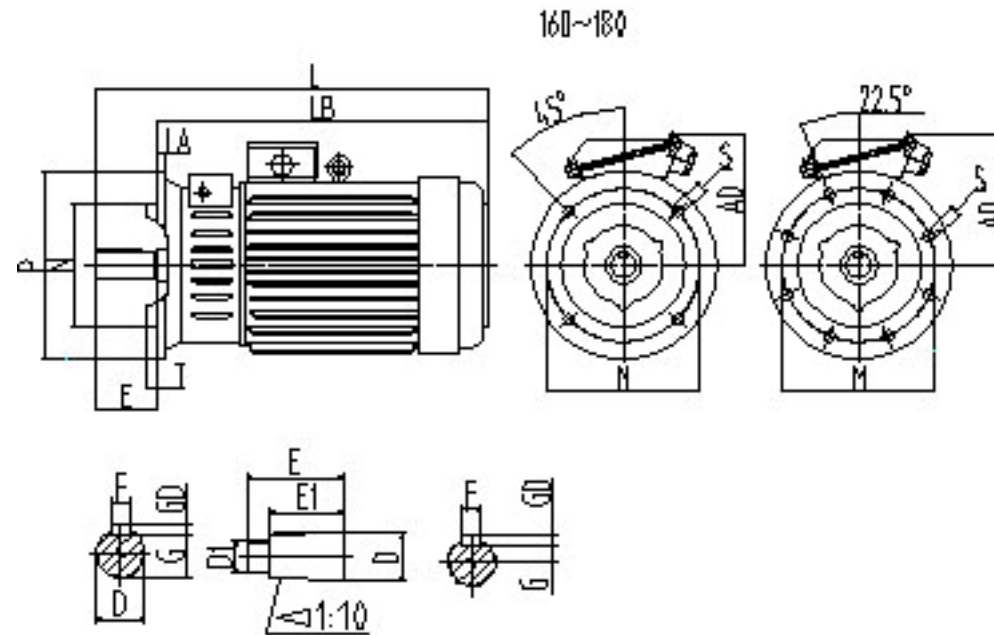
电动机型号 Model	极数 Pole	额定功率 rated power (kW)	额定频率 rated frequency (Hz)	额定电压 rated voltage (V)	额定电流 rated current (A)	转子开路电压 rotor open circuit voltage (V)	转子电流 rotor current (A)	额定转速 (r/min)	最大扭矩 max torque (N.m)	堵转电流 locked current (A)	堵转转矩 locked torque (N.m)	工作制 duty	定子绕组 stator winding
YZRD160M2-4 /16	4	5.5	50	380	12	136	28	1422	127	-	-	S3-40%	一套
	16	1.5	50	380	11	-	-	318	110	19	75	S3-25%	one set
YZRD160M2-6 /16	6	4.6	50	380	12	170	20	940	120	-	-	S3-40%	两套
	16	1.5	50	380	13	-	-	300	110	18	70	S3-15%	two sets
YZRDE160L-4 /10	4	7.5	50	380	22	184	26	1438	206	-	-	S3-40%	一套
	10	2.5	50	380	11.2	-	-	470	97	23	76	S3-25%	one set
YZRDE180L-4 /10	4	11	50	380	29.5	192	39	1458	299	-	-	S3-40%	一套
	10	4	50	380	16.7	-	-	482	218	40	139	S3-15%	one set
YZRD180L-4/ 16	4	4	50	380	22.2	184	42	1442	283	-	-	S3-40%	一套
	16	11	50	380	19.3	-	-	278	215	37	183	S3-25%	one set
YZRD200L1-4 /10	4	15	50	380	34	276	37	1458	402	-	-	S3-40%	一套
	10	5	50	380	19	-	-	512	206	46	157	S3-25%	one set
YZRD200L2-4 /10	4	18.5	50	380	42	284	43	1460	440	-	-	S3-40%	一套
	10	6	50	380	23	-	-	502	236	53	178	S3-25%	one set
YZRD200L-4/ 24	4	11	50	380	24	182	44	1423	188	-	-	S3-40%	两套
	24	1.8	50	380	18.9	-	-	200	182	30	120	S3-15%	two sets
YZRD200L-6/ 12	6	15	50	380	30	218	47	943	403	-	-	S3-40%	一套
	12	7.5	50	380	30	-	-	458	606	100	415	S3-25%	one set
YZRD200L-6/ 24	6	11	50	380	23	244	31	956	366	-	-	S3-40%	一套
	24	2.5	50	380	21	-	-	221	505	32	264	S3-25%	one set
YZRD200L-8/ 20	8	11	50	380	33	172	41	725	537	-	-	S3-40%	一套
	20	3.7	50	380	25	-	-	191	301	42	231	S3-25%	one set
YZRD225M1-4 /24	4	15	50	380	31	264	39	1435	350	-	-	S3-40%	两套
	24	2.5	50	380	33	-	-	202	363	47	250	S3-25%	two sets
YZRD225M-6/ 24	6	15	50	380	31	200	52	962	551	-	-	S3-40%	一套
	24	3.7	50	380	28	-	-	200	437	49	307	S3-15%	one set
YZRD225M-6/ 24	6	18.5	50	380	36	184	66	961	552	-	-	S3-40%	一套
	24	4.5	50	380	30	-	-	202	426	52	380	S3-25%	one set
YZRD225M1-8 /20	8	15	50	380	46	174	56	726	660	-	-	S3-40%	一套
	20	4.5	50	380	33	-	-	200	408	55	275	S3-25%	one set
YZRD250L-4/ 8	4	37	50	380	69	310	76	1451	730	-	-	S3-40%	两套
	8	18.5	50	380	48	-	-	664	730	190	690	S3-25%	two sets
YZRD250M2-4 /16	4	37	50	380	79	316	79	1446	733	-	-	S3-40%	一套
	16	9	50	380	41	-	-	274	709	89	627	S3-25%	one set
YZRD250M2-4 /24	4	30	50	380	58	320	65	1430	560	-	-	S3-40%	两套
	24	5	50	380	36	-	-	195	424	55	348	S3-25%	two sets
YZRD250M1-6 /24	6	22	50	380	42	206	69	960	694	-	-	S3-40%	一套
	24	5.5	50	380	34	-	-	196	498	60	370	S3-25%	one set
YZRD250M2-6 /24	6	30	50	380	57	248	63	957	842	-	-	S3-40%	一套
	24	7	50	380	45	-	-	215	642	90	548	S3-15%	one set
YZRD250M1-8 /20	8	22	50	380	53	246	56	731	920	-	-	S3-40%	一套
	20	6.3	50	380	38	-	-	25	554	65	455	S3-25%	one set

电动机型号 Model	极数 Pole	额定功率 rated power (kW)	额定频率 rated frequency (Hz)	额定电压 rated voltage (V)	额定电流 rated current (A)	转子开路电压 rotor open circuit voltage (V)	转子电流 rotor current (A)	额定转速 (r/min)	最大转矩 max torque (N.m)	堵转电流 locked current (A)	堵转转矩 locked torque (N.m)	工作制 duty	定子绕组 stator winding
YZRD250M2-8 /20	8	30	50	380	71	262	70	729	1291	-	-	S3-40%	两套
	20	9	50	380	56	-	-	239	797	113	635	S3-15%	two sets
YZRD250M1-8 /32	8	22	50	380	48.5	241	56	727	1070	-	-	S3-40%	一套
	32	5	50	380	49	-	-	168	620	74	445	S3-25%	one set
YZRD250M2-8 /32	8	30	50	380	67	348	55	725	1425	-	-	S3-40%	一套
	32	7.5	50	380	72	-	-	155	980	105	642	S3-25%	one set
YZRD280M-4/ 8	4	55	50	380	101	282	150	1449	1232	-	-	S3-40%	一套
	8	27	50	380	65	-	-	680	1106	294	1055	S3-40%	one set
YZRD280M-4/ 16	4	55	50	380	107	250	135	1467	1640	-	-	S3-25%	一套
	16	13	50	380	61	-	-	274	730	121	646	S3-15%	one set
YZRD280S-4/ 24	4	37	50	380	74	320	79	1431	610	-	-	S3-40%	两套
	24	6	50	380	37	-	-	193	537	68	486	S3-25%	two sets
YZRD280M-4/ 24	4	37	50	380	74	312	80	1453	989	-	-	S3-60%	两套
	24	5.6	50	380	40	-	-	195	538	62	389	S3-20%	two sets
YZRD280S-4/ 32	4	30	50	380	61	276	67	1450	635	-	-	S3-40%	两套
	32	3.5	50	380	44	-	-	158	570	67	441	S3-15%	two sets
YZRD280S-6/ 12	6	34	50	380	67	157	139	957	857	-	-	S3-40%	一套
	12	18	50	380	56	-	-	457	1400	228	730	S3-25%	one set
YZRD280S-6/ 12	6	38	50	380	73	155	164	957	1032	-	-	S3-40%	一套
	12	20	50	380	65	-	-	443	1557	258	1135	S3-25%	one set
YZRD280M-6/ 12	6	42	50	380	83	280	104	964	1519	-	-	S3-40%	一套
	12	26	50	380	82	-	-	444	1873	307	1448	S3-25%	one set
YZRD280S-6/ 24	6	37	50	380	72	248	95	961	1275	-	-	S3-40%	一套
	24	9	50	380	53	-	-	203	1024	104	670	S3-25%	one set
YZRD280M-6/ 24	6	45	50	380	88	288	103	958	1433	-	-	S3-40%	一套
	24	11	50	380	64	-	-	205	1018	129	886	S3-25%	one set
YZRD280M-8/ 32	8	37	50	380	87	336	70	714	1547	-	-	S3-40%	一套
	32	9	50	380	65	-	-	158	937	102	747	S3-25%	one set
YZRD280M2-6 /16	6	55	50	380	104	328	117	965	1524	-	-	S3-40%	两套
	16	13	50	380	54	-	-	328	915	153	817	S3-25%	two sets
YZRD315M-4 /24	4	90	50	380	182	320	185	1460	2004	-	-	S3-60%	两套
	24	13.5	50	380	135	-	-	210	1154	218	886	S3-25%	two sets
YZRD315M-4 /32	4	55	50	380	115	336	108	1456	1642	-	-	S3-40%	两套
	32	6.5	50	380	68	-	-	153	1042	108	858	S3-15%	two sets
YZRD315S-8/ 32	8	45	50	380	89	328	84	733	2191	-	-	S3-40%	一套
	32	11	50	380	81	-	-	166	1573	148	1325	S3-25%	one set
YZRD315M-8 /32	8	49	50	380	102	370	88	738	2540	-	-	S3-40%	一套
	32	13	50	380	101	-	-	143	1665	172	1788	S3-15%	one set
YZRD355L1 —6/24	6	110	50	380	200	294	250	980	2800	-	-	S3-40%	一套
	24	27	50	380	173	-	-	204	2275	318	2262	S3-15%	one set
YZRD3558— 8/32	8	75	50	380	145	330	124	733	2931	-	-	S3-40%	一套
	32	18.5	50	380	135	-	-	145	2070	202	1707	S3-25%	one set



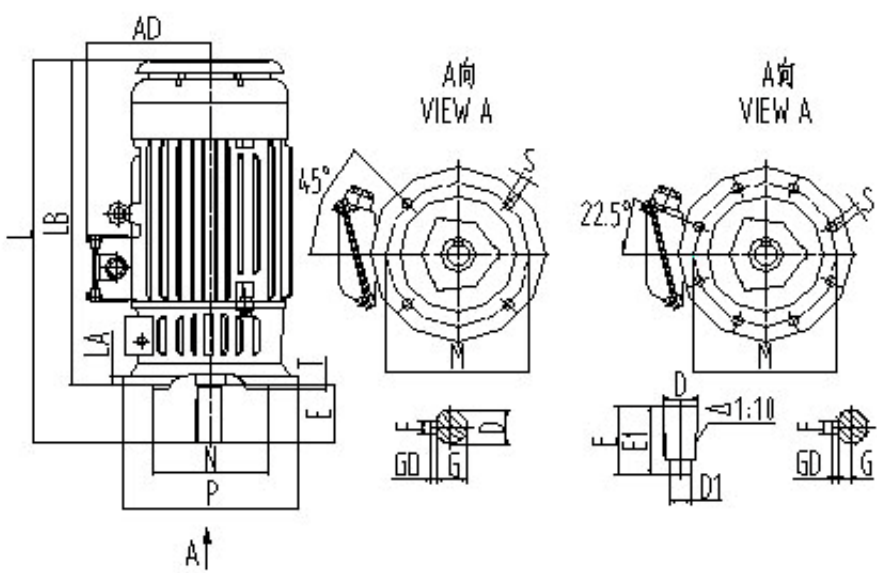
IM1001 IM1003 and IM1002 IM1004 Horizontal Foot-Mounted Motor Without Flange YZRD160~355

机座号 Frame	安装尺寸及公差 Mounting Dimension & Tolerance												外型尺寸 overall dimensions										
	H	A	A/2	B	C	CA	K		D	D ₁	E	E ₁	键 Key		键槽 Key		AC	AB	HD	BB	L	LC	HA
							hole	screw					F(h9)	GD	F(N9)	G							
160M	160	254	127	210	108	330	15	M12	48	M36×3	110	82	14	9	14	42.5	325	320	420	290	758	868	20
160L				254					335											800	912		
180L	180	279	139.5	279	121	360	19	M16	55	M42×3	140	105	16	10	16	21.4	405	405	510	380	870	980	22
200L	200	318	159	305	133	400			60											60	19.9	405	405
225M	225	356	178	311	149	450	24	M20	65	M48×3	140	105	18	11	18	25.4	480	515	605	410	1050	1190	28
250M	250	406	203	349	168	540			70											70	23.9	430	455
280S	280	457	228.5	368	190	540	24	M20	85	M56×4	170	130	20	12	20	31.7	535	575	665	530	1265	1438	32
280M				419					580											1315	1489		
315S	315	508	254	406	216	600	28	M24	95	M64×4	170	130	22	14	22	35.2	620	640	750	580	1390	1562	35
315M				457					630											1440	1613		
355M	355	610	305	560	254	630	28	M24	110	M80×4	210	165	25	14	25	41.9	710	740	840	730	1650	1864	38
355L				630					800											1720	1934		



IM3001 and IM3003 Horizontal With Flange-Mounted Motor Without Foot YZRD160~180

机座号 Frame	安装尺寸及公差 Mouting Dimension & Tolerance														L	LB	AD				
	Flange symbol	M	N	P	LA	T	S	螺栓 screw		D	D ₁	E	E ₁	键 Key				键槽 Key			
									Amount					F(h9)				GD	F(N9)	G	
160M	F300	300	250	350	18	5	19	M16	4	48		110		14	9	14	42.5	828	718	250	
160L										55								M36×3	82		872
180L										55	M36×3							82	19.9		915



IM3011 and IM3013 Vertical Flange-Mounted Motor Without Foot Shaft Extension Downward YZRD160~315

机座号 Frame	安装尺寸及公差 Mounting Dimension & Tolerance																	L	LB	AD
	Flange symbol	M	N	P	LA	T	S	螺栓 screw		D	D ₁	E	E ₁	键 Key		键槽 Key				
									Amount					F(h9)	GD	F(N9)	G			
160M	F300	300	250	350	18	5	19	M16	4	48	M36×3	110	82	14	9	14	42.5	828	718	250
160L										55								872	762	
180L										60								19.9	915	
200L	F400	400	350	450	20	5	19	M16	8	60	M42×3	140	105	16	10	16	21.4	1050	910	320
225M										65							23.9	1110	970	
250M	F500	500	450	550	22	6	24	M20	8	70	M48×3	170	130	18	11	18	25.4	1266	1126	355
280S										85							31.7	1370	1200	
280M										95							35.2	1420	1250	
315S	F600	600	550	660	25	6	24	M20	8	95	M64×3	170	130	22	14	22	35.2	1475	1305	435
315M																	1525	1355		



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