



Z4 系列直流电动机

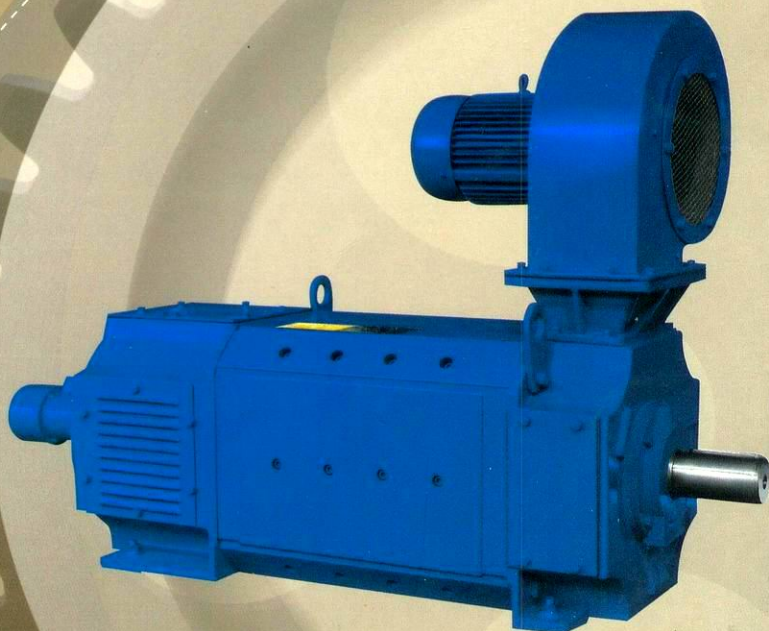
Z4 SERIES DC MACHINES

无锡新大力电机有限公司

WUXI NEW GREAT POWER ELECTRICAL MACHINE CO.,LTD

无锡市大力电机厂

WUXISHI DALI MOTOR WORKS



特点和用途

Z4 系列直流电机是我公司最新产品, 广泛用作各类机械的传动源, 诸如冶金工业轧机传动, 金属切削机床、造纸、印刷、纺织、印染、水泥、塑料挤出机械等等。

本系列电机的外形安装尺寸除了两底脚孔间轴向尺寸, 'B' 之外, 符合 IEC72 国际标准。

本系列电机的性能及技术要求可按照国际电工委员会标准: IEC34-1 或西德国家标准 DIN57530 的要求考核。

本系列电机采用多角形结构, 空间利用率高。定子磁轭为叠片式, 适用整流器供电, 能承受脉动电流与电流急剧变化(负载变化)之工况, 磁极安装有精确定位, 因而换向良好。

电机绝缘等级为 F 级, 采用可靠绝缘结构及浸渍工序, 保证绝缘性能稳定和良好散热。

本系列电机具有体积小、性能好、重量轻、输出功率大、效率高及可靠性高的特点, 可以与当今国际先进水平的电机较量。

电动机可用三相全控桥式整流电源以及不外接平波电抗器而长期工作。额定电压为 160V 的电机由单相桥式电源供电, 此时电枢回路须接入电抗器以抑制脉动电流。其电感值如表中所示。

Features and Uses

Series Z4 d-c machines are newly developed products of our works. The products are found wide use for prime mover in various, such as mill auxiliary in metallurgical industry, metal cutting machine-tool, paper making, print, textile, printing and dyeing, cement-making, plastic extruding machine, etc.

Outline and mounting dimensions of the motors comply with IEC72 Standard, except for the axial distance between the mounting holes (dimension B).

Performance and technical requirements of the motors can be checked in accordance with IEC34-1 Standard of the International Electrotechnical Commission, or DIN57530 Norm of the Deutsche Industries-Norm.

The motors are class F insulated, with reliable insulating construction and impregnating process, ensuring stable dielectric performance and excellent heat dissipation.

The motors possess the features of small size, good performance, light weight, large output, high efficiency and reliability, being able to match the current international advanced level.

The motors can be lastingly operated from fully controlled three-phase bridge without a smoothing reactor. Motors for 160V may be operated on single-phase bridge thyristor, in that case, a smoothing reactor, whose inductance is specified in the relevant technical data, should be inserted in the armature circuit to suppress ripple current.

电机性能

1. 技术数据表中的数据应按下列使用条件工作

- 海拔不超过 1000m;
- 周围空气温度不大于 40°C;
- 工作环境不应有酸性、碱性或其他对绝缘有腐蚀作用的气体;
- 电机为连续工作制 (S1);
- 电动机电枢回路和励磁回路可由静止整流电源供电, 也适应由直流发电机供电;

f. 本系列电机性能均符合国际 GB755《旋转电机基本技术要求》。

2. 电动机标准额定电压为 160V、440V。也可根据具体情况派生出 220V、400V 和 660V 或其他电压。

3. 电动机额定转速有 3000、1500、1000、750、600、500、400、300、200r/min 共九档。

减小电枢电压为恒转矩调速, 减小励磁电压为恒功率调速, 调速范围见技术数据表 (表 2)。不同调速范围时的负载倍数见附录 1。

在额定电压以下用调压调速时为恒转矩。其最低转速均规定为不低于 20r/min, 此时仍能维持额定转矩, 转速平稳。

4. 电动机的基本励磁方式为他励。标准励磁电压为 180V, 其他励磁电压亦可协商。

电动机允许强行励磁。强励电压不得超过 500V。电动机正常运行时励磁电流不得超过额定励磁电流。

为确保励磁系统绝缘的可靠性, 在断开励磁回路时, 需在励磁绕组两端并联一个释放电阻以防止自感电势。在标准励磁电压时其值约为七倍励磁绕组电阻 (冷态)。

励磁电压高于标准电压时, 并接释放电阻值可小于七倍, 反之大于七倍。

5. Z4-315、Z4-355、Z4-400、和 Z4-450 四个机座带有补偿绕组。在 Z4-250 和 Z4-280 两个机座中派生带有补偿绕组的电机也是可能的。

6. 电机提供有接地标注的接线柱。

7. 技术数据表内的功率值为额定功率, 额定电压和转速时的效率, 它包括励磁损耗, 不包括鼓风机损耗。

Electrical Performance

1. Data listed in the technical data sheet should be employed under the following conditions;

- Altitude above sea level maximal 1,000m;
- Cooling air temperature maximal 40°C;
- Ambient conditions for motors should be free from acidic, alkali fumes or other aggressive gases which corrode insulation.
- Duty: Continuous (S1);
- Armature and field circuits for motors may be either operated on static thyristor controlled supplies, or from d-c generator;

f. Performances of motors all comply with State Standard GB755. "Fundamental technical rules for electrical machines".

2. Standard rated voltage: 160V or 440V. Values for 220V, 400V, and 660V or other voltage may be derived on request.

3. Rated speed: 3000, 1500, 1000, 750, 600, 500, 400, 300 and 200 r/min, totally nine grades.

Decrease armature voltage to make speed regulating under constant torque, lowering down field voltage to make speed regulating at constant output. Speed regulating range: see technical data (Table 2). The given multiple of load to rated load of different speed range; see Appendix 1.

The torque can be remained constant by reducing speed via armature voltage weakening below rated value. It is stipulated that armature speed range can be down to the lowest 20 r/min at constant torque and stable running.

4. Separate excitation is the basic excitation type of the motors. Nominal field voltage: 180V. Other excitation voltages are also acceptable on request.

Forced excitation is allowed with the voltage of less than 500V. When a motor is normally running, its excitation current must not be higher than rated excitation current.

To assure the reliability of insulation of excitation system, the motor must be protected against self induced voltages by a release resistor connected in parallel with the excitation circuit of the motor is interrupted. At rated field voltage the value of shunt resistor is about seven times field winding resistance (cold state). While the field voltage is higher than nominal voltage, the value of shunt resistance may be lower than seven times field resistance, otherwise higher than seven times.

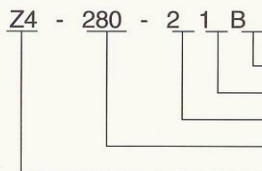
5. For frame size Z4-315, Z4-355, Z4-400 and Z4-450, compensating windings are provided. For frame size Z4-250 and Z4-280 the motors are feasible with a compensating winding too.

6. A marked earthing terminal is provided for motors.

7. The efficiencies listed in the data sheet are for rated output, voltage and speed, and include excitation loss, excluding that of separate ventilating fans.

型号说明 Type Designation

例子 Example



有补偿绕组 With compensating winding*
端盖代号 Code for endshield**
电枢铁心长度代号 Code for armature core length***
电机中心高 Center height (mm)
系列代号 Code for series****

注：* 字母 'B' 表示电机有补偿绕组，仅适用于 Z4-250 和 Z4-280 这二个机座号。

** 数字 1, 2 表示短、长端盖。

*** 就 Z4-112 机座而言，第一数字代表极数，第二数字为铁心长。

**** 字母 'Z' 意思是直流电机，数字 '4' 为第四次系列设计序号。

* The letter 'B' stands for motor with compensating winding, only applicable to Z4-250 and Z4-280.

** The digit 1,2 for shod, and long endshield.

*** As regards frame size-112, the first digit means NO. of poles, the second digit for core length.

**** The letter 'Z' for d-c machine, the digit '4' for ordinal number of the fourth series design. The digit 1,2 for short, and long endshield.

结构简介 Construction

1. 电机的防护及安装结构型式

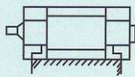
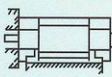
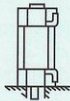
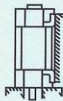
a. 整个系列防护型式均为 IP21S。

b. 安装方式符合国际 GB/T997 规定，本系列具有下列安装方式：

1. Protection, mounting and type of construction:

a. Type of protection of the whole series: IP21S

b. Mounting modes comply with the State Standard GB/T997 stipulated as follows:

安装型式 Mounting Type				
	IMB-3	IMB-35	IMV-1	IMV-15
使用范围 For Use in	Z4-100~Z4-450	Z4-100~Z4-315	Z4-100~Z4-225 (电机带有不作 安装用的底脚) The machine are always delivered with feet, even when they are flang-mounted)	Z4-100~Z4-315

2. 冷却方式

整个系列电机的冷却方式均为他冷，强迫通风，在径向配有骑式鼓风机，独立供电，并附空气过滤器。电机可制成 IC06、IC17、IC37 三种冷却方式。

- a. Z4-100—Z4-160，其鼓风机装于非传动侧。
- b. Z4-180—Z4-450，其鼓风机装于传动侧。
- c. 各机座号所需的冷却风量，风压及风机电动机功率(见表 1)

2.Methods of Cooling:

Modes of cooling for all the motors are separate cooling, force ventilated. Cooling by frame radially mounted, separately powered ventilating fan, and attached with an air filter. Modes of cooling for motors may be made into three types, namely IC06, IC17 and IC37.

- a. For Z4-100-Z4-160, the blower is mounted on the non-drive side.
- b. For Z4-180-Z4-450, the blower is mounted on the drive side.
- c. The required cooling air volume, air pressure and fan motor capacity are shown below: (Table 1)

表 1(Table 1)

机座号 Frame Size	风量 Air Volume	静压 Static Pressure	*电动机功率 *Motor Output
	m ³ /h	Pa	kw
Z4-100	160	200	0.04
Z4-112	220	300	0.06
Z4-132	360	450	0.18
Z4-160	790	600	0.37
Z4-180	1200	940	1.1
Z4-200	1600	800	1.1
Z4-225	2880	1400	3.0
Z4-250	3000	1400	3.0
Z4-280	4000	1600	4.0
Z4-315	4680	1600	5.5
Z4-355	5200	1600	5.5
Z4-400	7200	1800	5.5
Z4-450	9000	1800	7.5

* 风机电动机均为三相二极 380V

* All the ventilating fan motors are of three phase, twopole, 380V.

以下五种冷却方式也可接受定货，但先要咨询。

- a. 中心高 100 至 250 机座可制成 IC410 全封闭自冷式电机。
 - b. 中心高 160 至 250 机座可制成 IC05 鼓风机装在电机非传动侧的他冷式电机。
 - c. 中心高 100 至 200 机座可制成 IC01 电机轴上自带风扇的自冷式电机。
 - d. 中心高 160 至 355 机座可制成 IC666 电机带有独立空 / 空冷却器的全封闭冷却空气内循环的电机。
 - e. 中心高 160 至 450 机座可制成 IC86W 电机带有独立空 / 水冷却器的全封闭电机。
3. 出线盒的位置，从传动侧视之，在机座右侧。根据需要也可装于机座左侧或上方。
 4. 电机可配带测速发电机等附件于非传动端。
 5. 电机的传动方式为弹性联轴器联接。机组配合须小心对准。

对于有径向力的传动方式（皮带或齿轮传动），其允许承受的径向力不应大于下列曲线上的数值（见附录2）。电机造型紧凑、美观。出线盒宽敞，接线和维修方便。

备注：

技术数据表中的规格、功率和弱磁调速范围等仅供参考，为了不断采用新技术，表中的数据会有变动。

Motors with the following five methods of cooling can also be ordered, but prior consultations are needed.

- a. Frame size 100 up to 250 may be made into the totally enclosed, frame cooled motor (IC410).
 - b. Frame size 160 up to 250 may be made into the separately ventilated motor with blower mounted on its non-drive side (IC05).
 - c. Frame size 100 up to 200 may be made into the self cooled open motor with its own fan mounted on the shaft (IC01).
 - d. Frame size 160 up to 355 may be made into totally enclosed motor with internal cooling air circulation by independent air-air heat exchanger mounted on it (IC666).
 - e. Frame size 160 up to 450 may be made into totally enclosed motor with independent air-water heat exchanger mounted on it (IC86W).
3. Standard terminal box mounting is the right hand side seen from the drive end of the motor. As an alternative, mounting at the top or on the lefthand side is possible on request.
 4. Motors if needed, can be fitted with tachogenerator or other accessories at the non-drive end.
 5. Motors, when directly coupled, must use elastic or flexible couplings. The drive and driven units must be aligned with the utmost care.

Radial forces acting on the shaft-extensions (belt or pinion drive) must not exceed the values given in the diagrams in the following pages (see Appendix2).

Motors are of compact structure, elegant appearance, spacious terminal box, easy wiring, servicing and maintenance.

Remarks:

The ratings, output and speed range through field weakening etc. Listed below are merely for reference. For purposes of incessantly adopting up-to-date technology, the data listed in the following table are subject to relevant change.

产品样本函索即寄

Catalogues will be sent on application

订 货 说 明

1. 订货前, 请先查阅产品目录, 明确所需产品的型号规格等数据。如所需品种、规格与目录中有出入, 请即与我厂联系。如有特殊要求, 请事先提出具体而明确的要求, 与我厂有关部门协商, 经同意后签订合同或试制协议。

2. 订货时请注明电机型号、功率、电压、转速、工作制、结构类型、励磁方式、励磁电压、出轴数、出线盒位置、旋转方向以及所需附件、备品名称等。

3. 如使用环境特殊, 需要湿热带型, 原型号后面请注明“TH”。

主 要 产 品

Z4 系列直流电动机
ZBL4 系列全封闭直流电动机
ZKKL 系列带空 / 空冷却器直流电动机
ZKSL 系列带空 / 水冷却器直流电动机
ZYZL 系列制糖压榨机用直流电动机
ZSN4 系列水泥回转窑主传动用直流电动机
ZZJ-800 系列轧机辅传动直流电动机
Z2 系列直流电动机
Z2C 系列船用直流电动机
ZXQ 型蓄电池供电串励直流电动机
ZYSA 型永磁直流调速发电机
ZKK 系列电机扩大机
YTD 系列电梯用三相异步电动机
YTSP 系列变频调速三相异步电动机
YSG 系列辊道用变频调速三相异步电动机
KZ01 型可控硅直流调速装置
KM 型全数字直流调速装置

Notice on order

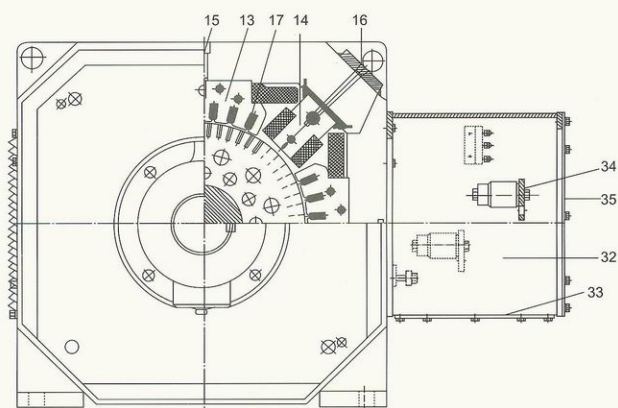
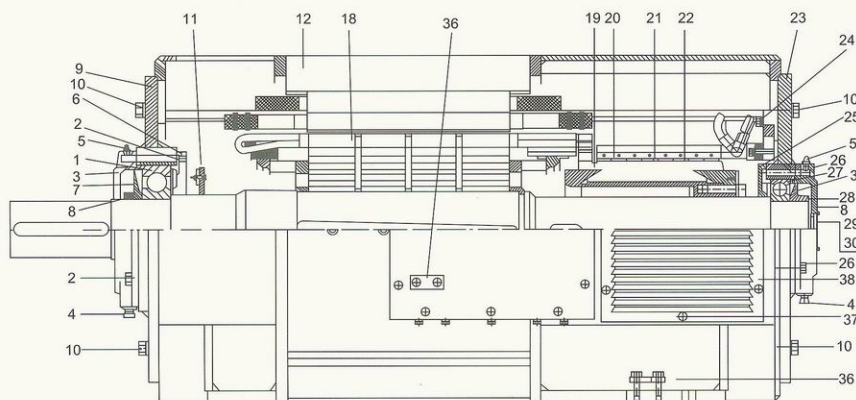
1. Please refer to our catalogue before ordering. If the types, ratings you need are not covered by our booklet please contact us. Should you have particular needs, please offer us specific proposal in advance. A contract or pilot production agreement may be made when the requirements are fixed by common consent.

2. Please write clearly the type, output, voltage, speed, duty, type of construction, excitation, field voltage, No. of shaft-end, location of terminal box, necessary accessories and spare parts etc.

3. If the humid-tropical type required, please mark "TH" behind the original type number.

Main products

Series Z4 DC Motors
Series ZBL4 Totally Enclosed DC Motors
Series ZKKL DC Motors With Air/Air Heat Exchanger
ZKSL DC Motors With Air/Water Heat Exchanger
Series ZYZL DC Motors For Sugar Cane Mills
Series ZSN4 DC Motors For Cement Rotating Kilns
Series ZZJ-800 DC Motors For Mill Auxiliary
Series Z2 DC Motors
Series Z2C Marine DC Machines
Type ZXQ DC Series Motors For Battery Operated Vehicles
Type ZYS-A Permanent Magnet DC Tacho Generators
Series ZKK Rotary Amplifiers
Series YTD Three-Phase Induction Motors For Elevators
Series YTSP Inverter-Fed Three-Phase Induction Motors
Series YSG Inverter-Fed Three-Phase Induction Motors For Roller Tables
Type KZ01 SCR DC Drive Cabinets
Type KM All-Digital DC Drive Cabinets



- | | |
|--------------------|--|
| 1. 传动侧球轴承 | 1. Ball bearing AS |
| 2. 传动侧轴承盖螺钉 | 2. Screw of bearing cover AS |
| 3. 传动侧外轴承盖 | 3. Bearing cover AS outer |
| 4. 传动侧和非传动侧轴承盖出油盖板 | 4. Oil-cap of ball bearing AS & NS |
| 5. 传动侧和非传动侧油嘴 | 5. Oil nipple AS & NS |
| 6. 传动侧内轴承盖 | 6. Bearing cover AS inner |
| 7. 传动侧轴套(甩油圈) | 7. Centrifugal disc AS |
| 8. 传动侧和非传动侧轴套的止动螺钉 | 8. Headless screw for centrifugal disc AS & NS |
| 9. 传动侧端盖 | 9. Endshield AS |
| 10. 传动侧和非传动侧端盖紧固螺钉 | 10. Fastening screw of endshield AS & NS |
| 11. 传动侧平衡盘 | 11. Balancing disc AS |
| 12. 机座 | 12. Frame |
| 13. 主极 | 13. Main pole |
| 14. 换向极 | 14. Compole |
| 15. 主极螺钉 | 15. Screw of main pole |
| 16. 换向极螺钉 | 16. Screw of compole |
| 17. 补偿绕组 | 17. Compensating winding |
| 18. 电枢 | 18. Armature |
| 19. 换向器 | 19. Commutator |
| 20. 刷架 | 20. Brush rocker |
| 21. 刷握 | 21. Brush holder |
| 22. 炭刷 | 22. Carbon brush |
| 23. 非传动侧端盖 | 23. Endshield NS |
| 24. 带垫圈的紧固螺钉 | 24. Fastening screw with washer |
| 25. 非传动侧内轴承盖 | 25. Bearing cover NS inner |
| 26. 非传动侧轴承盖螺钉 | 26. Screw of bearing cover NS |
| 27. 非传动侧外轴承盖 | 27. Bearing cover NS outer |
| 28. 非传动侧轴套(甩油圈) | 28. Centrifugal disc NS |
| 29. 轴端盖板 | 29. Endplate |
| 30. 轴端盖板螺钉 | 30. Screw of endplate |
| 31. 非传动侧球轴承 | 31. Ball bearing NS |
| 32. 接线盒 | 32. Terminal box |
| 33. 带密封圈出线盖板 | 33. Output plate with gasket-sealing |
| 34. 接线排 | 34. Terminal |
| 35. 接线盒盖板 | 35. Terminal box lid |
| 36. 接地螺栓 | 36. Grounding bolt |
| 37. 非传动侧百页窗螺钉 | 37. Screw of louver NS |
| 38. 非传动侧百页窗 | 38. Louver NS |

Notes:

* AS: Drive side

** NS: Non- drive side

直流电动机技术数据表 Technical Data of DC Motor

表2(Table 2)

型号 Type	额定 功率 Rated Output	额定转速 Rated Speed			磁场 转速 Speed with Field Weakened	电枢 电流 Arm. Curr.	励磁 功率 Field Power	电枢 回路 电阻 Arm. Circuit Resistance	电枢 回路 电感 Arm. Circuit Inductance	磁场 电感 Field Inductance	外触 电感 Smoothing Inductance	效率 Eff.	惯量矩 Moment of Inertia	重量 Wt.
	PN	160V	400V	440V	Nf	IN	Pf	R	LA	LF	LR	%	GD ²	kg
	KW	r/min			r/min	A	W	Ω(20℃)	mH	H	mH		kg · m ²	
Z4-100-1	2.2	1490			3000	17.9		1.19	11.2	22	15	67.8		
	1.5	955			2000	13.3		2.17	21.4	13	15	58.5		
	4		2630		4000	12		2.82	26	18		78.9		
	4			2960	4000	10.7	315					80.1	0.044	72
	2		1310		3000	6.6		9.12	86	18		68.4		
	2.2			1480	3000	6.5						70.6		
	1.4		860		2000	5.1		16.76	163	18		60.3		
	1.5			990	2000	4.77						63.2		
Z4-112/2-1	3	1540			3000	24		0.785	7.1	14	20	69.1		
	2.2	975			2000	19.6		1.498	14.1	13	20	62.1		
	5.5		2630		4000	16.4		1.933	17.9	17		79.9		
	5.5			2940	4000	14.7	320					81.1	0.072	100
	2.8		1340		3000	9.1		6	59	17		71.2		
	3			1500	3000	8.6						72.8		
	1.9		855		2000	6.9		11.67	110	13		61.1		
	2.2			965	2000	7.1						63.5		
Z4-112/2-2	4	1450			3000	31.3		0.567	6.2	14	12	72.6		
	3	1070			2000	24.8		0.934	10.3	14	10	66.8		
	7		2660		4000	20.4						82.4		
	7.5			2980	4000	19.7	350	1.305	14	19		83.5	0.088	107
	3.7		1320		3000	11.7		4.24	48.5	19		74.1		
	4			1500	3000	11.2						76		
	2.6		895		2000	9						65.1		
	3			1010	2000	9.1		7.62	83	14		67.3		
Z4-112/4-1	5.5	1520			3000	42.5		0.38	3.85	6.8	6.5	73		
	4	990			2000	33.7		0.741	7.7	6.7	4.5	64.9		
	10		2680		3500	29						82.7		
	11			2950	3500	28.8	500	0.89	9	6.8		83.3	0.128	106
	5		1340		1800	15.7		3.01	30.5	6.8		74.3		
	5.5			1480	1800	15.4						75.7		
	3.7		855		1100	13		5.78	60	6.7		65.2		
	4			980	1100	12.2						68.7		
Z4-112/4-2	5.5	1090			2000	43.5		0.411	5.1	7.8	6	69.5		
	13		2740		3600	37		0.574	6.4	5.8		84.4		
	15			3035	3600	38.6						85.4		
	6.7		1330		1800	20.6						76.8	0.156	114
	7.5			1480	1800	20.6	570	2.12	24.1	7.8		78.4		
	5		955		1200	16.1		3.46	40.5	5.8		71.1		
	5.5			1025	1200	15.7						71.9		

表2(续) Table 2(Continued)

型号 Type	额定 功率	额定转速		弱磁 转速	电枢 电流	励磁 功率	电枢 回路 电阻	电枢 回路 电感	磁场 电感	效率	惯量矩	重量
	Rated Output	Rated Speed		Speed with Field Weakened	Arm. Curr.	Field Power	Arm. Circuit Resistance	Arm. Circuit Inductance	Field Inductance	Eff.	Moment of Inertia	Wt.
	P _N	400V	440V	N _F	I _N	P _F	R	L _A	L _F	L _R	GD ²	
	KW	r/min		r/min	A	W	Ω(20°C)	mH	H	%	kg · m ²	kg
Z4-132-1	18.5	2610		4000	52.2		0.368	5.3	6.5	85		
	18.5		2850	4000	47.1					85.9		
	10	1330		2100	30.1	650	1.309	18.9	8.9	79.4	0.32	140
	11		1480	2200	29.6					80.9		
	7	865		1600	22.7		2.56	37.5	6.3	71.9		
	7.5		975	1600	21.4					74.5		
Z4-132-2	20	2800		3600	55.4		0.226	3.65	10	87.8		
	22		3090	3600	55.3					88.3		
	15	1360		2500	44.5	730	0.811	13.5	7.7	81.2	0.4	160
	15		1510	2500	39.5					83.4		
	10	905		1400	31.1		1.565	26	6	75.6		
	11		995	1400	30.5					77.7		
Z4-132-3	27	2720		3600	74.5		0.1905	3.4	21	88.2		
	30		3000	3600	75					88.6		
	18.5	1390		2100	53.2	800	0.531	9.8	6.6	83.6	0.48	180
	18.5		1540	2200	47.6					84.7		
	13.5	945		1600	40.5		0.976	19.4	6.5	79.4		
	15		1050	1600	40.5					80.5		
Z4-160-11	33	2710		3500	93.4		0.1835	3.15	10	87.4		
	37		3000	3500	93.4	820				88.5	0.64	220
	19.5	1350		3000	58.8		0.593	10.4	7.7	80.4		
Z4-160-22	22		1500	3000	58.8					82.6		
	40.5	2710		3500	113		0.1426	2.7	10	88.2		
Z4-160-21	45		3000	3500	113	920				89.1	0.76	242
	16.5	900		2000	50.5		0.862	17.7	6	77.9		
Z4-160-32	18.5		1000	2000	50.5					79.4		
	49.5	2710		3500	137		0.097	2.07	11	89.1		
Z4-160-31	55		3010	3500	137					90.2		
	27	1350		3000	77.8	1050	0.376	8.3	10	84.7	0.88	268
	30		1500	3000	77.8					85.7		
	19.5	900		2000	59.1		0.675	15.2	6.3	79.1		
	22		1000	2000	59.1					81.7		
	33	1350		3000	95.4		0.29	5.8	7.1	84.7		
Z4-180-11	37		1500	3000	95.4					86.5		
	16.5	670		1900	51.4	1200	0.947	17.6	5.6	75.5	1.52	326
	18.5		750	1900	51.4					78.1		
	13	540		1400	42.4		1.264	25	5.6	73		
	15		600	1400	42.4					74.1		

表2(续) Table 2(Continued)

型号 Type	额定 功率	额定转速		弱磁 转速	电枢 电流	励磁 功率	电枢 回路 电阻	电枢 回路 电感	磁场 电感	效率	惯量矩	重量
	Rated Output	Rated Speed		Speed with Field Weakened	Arm. Curr.	Field Power	Arm. Circuit Resistance	Arm. Circuit Inductance	Field Inductance	Eff.	Moment of Inertia	Wt.
	Pn	400V	440V	Nf	In	Pf	R	La	Lf	Lr	GD ²	
	KW	r/min		r/min	A	W	Ω(20℃)	mH	H	%	kg·m ²	kg
Z4-180-22	67	2710		3400	185		0.0555	1.16	6.9	89.5		
	75		3000							90.7		
Z4-180-21	40.5	1350		2800	115		0.2125	4.65	6.6	85.8		
	45		1500							87		
	27	900		2000	79	1400	0.419	9.3	7.3	82.2	1.72	350
	30		1000							83.7		
	19.5	670		1400	61		0.756	15.7	7.1	77.3		
	22		750							79.7		
	16.5	540		1600	52		1.003	21.9	5	73.8		
Z4-180-31	33	900		2000	97		0.332	7.7	6.6	82.8		
	37		1000			1500				83.6		
	19.5	540		1250	62		0.801	19	6.6	74.8	1.92	380
	22		600							76.6		
Z4-180-42	81	2710		3200	221		0.051	1.16	12	91		
	90		3000							91.3		
Z4-180-41	50	1350		3000	139	1700	0.1417	3.2	5.7	87.5	2.2	410
	55		1500							87.7		
	27	670		2000	80		0.459	10.4	6.3	80.4		
	30		750							81.1		
Z4-200-12	99	2710		3000	271		0.0373	0.83	7.62	90.2		
	110		3000							91.6		
Z4-200-11	40.5	900		2000	118		0.2653	8.4	7.01	83.4		
	45		1000			1400				85.5	3.68	485
	33	670		1600	99		0.369	10.6	7.77	80.2		
	37		750							82.9		
	19.5	450		1000	64		0.93	21.9	7.3	72.2		
	22		500							77.4		
Z4-200-21	67	1350		3000	188		0.0885	2.8	6.78	88.7		
	75		1500			1500				89.6	4.2	530
	27	540		1000	82		0.535	14	9.64	78.8		
Z4-200-32	119	2710		3200	322		0.0266	0.79	10.9	91.7		
	132		3000							92.4		
Z4-200-31	81	1350		2800	224		0.0771	2.6	5.61	88.7		
	90		1500							90		
	49.5	900		2000	141		0.1751	4.8	8.54	85.6		
	55		1000							87.1		
	40.5	670		1400	119	1750	0.283	8.5	8.35	82.5	4.8	580
	45		750							84.1		
	33	540		1200	101		0.42	12.2	8.42	79.6		
	37		600							82		
	27	450		750	84		0.598	17.1	8.4	77.5		
	30		500							79.5		

表2(续) Table 2(Continued)

型号 Type	额定 功率	额定转速		弱磁 转速	电枢 电流	励磁 功率	电枢 回路 电阻	电枢 回路 电感	磁场 电感	效率	惯量矩	重量
	Rated Output	Rated Speed		Speed with Field Weakened	Arm. Curr.	Field Power	Arm. Circuit Resistance	Arm. Circuit Inductance	Field Inductance	Eff.	Moment of Inertia	Wt.
	P _N	400V	440V	N _F	I _N	P _F	R	L _A	L _F	L _R	GD ²	
	KW	r/min		r/min	A	W	Ω(20℃)	mH	H	%	kg · m ²	kg
Z4-225-11	99	1360		3000	276		0.0664	2.1	4.45	87.9		
	110		1500							89.4		
	67	900		2000	193		0.1406	4.9	4.28	84.4		
	75		1000							86.5		
	49	680		1300	146	2300	0.2433	8.7	5.77	81.2	5	680
	55		750							84		
	40	540		1200	123		0.356	9.5	6.38	78.2		
	45		600							80.8		
	33	450		1000	103		0.476	15.2	6.10	76.5		
Z4-225-21	37		500							78.8		
	49	540		1000	148		0.2648	9.5	4.14	79.3		
	55		600			2470				82.4	5.6	740
	40	450		1000	125		0.397	13.7	5.41	76.6		
Z4-225-31	45		500							78.9		
	119	1360		2400	327		0.0454	1.5	5.33	89.3		
	132		1500							90.5		
	81	900		2000	227	2580	0.093	3.4	5.3	86.9	6.2	800
	90		1000							88		
	67	680		2250	197		0.167	5.1	5.44	82.5		
Z4-250-12	75		750							85.1		
	144	1360		2100	399		0.0444	1.3	4.29	88.8		
Z4-250-11	160		1500			2500				89.9	8.8	890
	99	900		2000	381		0.0911	2.4	4.55	86.2		
	110		1000							88.1		
Z4-250-21	167	1360		2200	459		0.0325	0.91	4.28	89.8		
	185		1500			2750				90.5	10	970
	81	680		2250	234		0.1306	3.9	5.41	83.2		
	90		750							85.2		
Z4-250-31	180	1360		2400	493		0.0281	0.87	5.32	90.4		
	200		1500							91.5		
	119	900		2000	334		0.0668	1.7	5.46	87.4		
	132		1000			2850				89.1	11.2	1070
	67	540		2000	204		0.202	4.0	4.0	80.8		
	75		600							84.6		
	49	450		1500	152		0.305	7.3	5.1	78.5		
	55		500							82.4		

表2(续) Table 2(Continued)

型号 Type	额定 功率 Rated Output	额定转速 Rated Speed		弱磁 转速 Speed with Field Weakened	电枢 电流 Arm. Curr.	励磁 功率 Field Power	电枢 回路 电阻 Arm. Circuit Resistance	电枢 回路 电感 Arm. Circuit Inductance	磁场 电感 Field Inductance	效率 Eff.	惯量矩 Moment of Inertia	重量 Wt.
	P _N	400V	440V	N _F	I _N	P _F	R	L _A	L _F	L _R	GD ²	
	KW	r/min		r/min	A	W	Ω(20℃)	mH	H	%	kg · m ²	kg
Z4-250-41	198	1360		2400	539		0.0237	0.93	6.19	91		
	220		1500							91.7		
Z4-250-42	144	900		2000	401		0.0485	1.9	4.53	88.0		
	160		1000							89.2		
Z4-250-41	99	680		1900	283	3000	0.0102	2.6	5.3	85.8	12.8	1180
	110		750							87.4		
	81	540		1600	236		0.141	4.7	6.36	83.4		
	90		600							85		
	67	450		1500	201		0.195	5.1	4.97	80		
	75		500							83.4		
Z4-280-11	226	1355		2000	614	3100	0.02134	0.69	4.58	90.9	16.4	1280
	250		1500							91.6		
Z4-280-22	253	1355		1800	684		0.01796	0.77	5.3	91.5		
	280		1500							92.1		
Z4-280-21	180	900		2000	498		0.0373	1.2	4.46	89.1	18.4	1400
	200		1000			3500				90.1		
	119	675		1600	333		0.0662	2.3	4.37	87.1		
	132		750							88.6		
	99	540		1500	281		0.093	3.1	4.57	84.7		
	110		600							86		
Z4-280-32	284	1360		1800	768		0.01493	0.59	6.94	91.7		
	315		1500							92.6		
Z4-280-31	198	900		2000	545		0.0314	1.1	5.54	89.7		
	220		1000							90.6		
Z4-280-32	144	675		1700	402	3600	0.0532	2	5.47	87.8	21.2	1550
	160		750							89.1		
	118	540		1000	339		0.0839	2.6	5.77	85.4		
Z4-280-31	132		600							86.8		
	80	450		1400	234		0.1377	5.3	9.03	84.1		
	90		500							85.4		
Z4-280-42	225	900		1800	616		0.02545	0.96	5.29	90.2		
	250		1000							91.1		
Z4-280-41	166	675		1900	464	4000	0.0457	1.7	5.19	88.1	24	1700
	185		750							89.4		
	98	450		1000	282		0.0993	3.7	6.86	85.1		
	110		500							86.9		

表2(续) Table 2(Continued)

型号 Type	额定 功率	额定转速		弱磁 转速	电枢 电流	励磁 功率	电枢 回路 电阻	电枢 回路 电感	磁场 电感	效率	惯量矩	重量
	Rated Output	Rated Speed		Speed with Field Weakened	Arm. Curr.	Field Power	Arm. Circuit Resistance	Arm. Circuit Inductance	Field Inductance	Eff.	Moment of Inertia	Wt.
	P _N	400V	440V	N _F	I _N	P _F	R	L _A	L _F	L _R	GD ²	
	KW	r/min		r/min	A	W	Ω(20°C)	mH	H	%	kg·m ²	kg
Z4-315-12	321	1360		1800	865		0.015	0.39	8.64	92.2		
	355		1500							92.8		
	253	900		1600	690		0.02355	0.46	5.06	90.4		
	280		1000							91.6		
	180	680		1900	500	3850	0.04371	0.83	4.97	88.4	21.2	1890
	200		750							89.4		
Z4-315-11	144	540		1900	409		0.06919	1.3	7.6	86.4		
	160		600							87.4		
	118	450		1600	344		0.1	2.3	9.43	84.4		
	132		500							86.3		
	98	360		1200	294		0.1415	2.9	9.96	81.7		
	110		400							84.3		
Z4-315-22	284	900		1600	772		0.02034	0.49	5.91	91		
	315		1000							91.5		
	225	680		1600	624		0.03392	0.74	18.8	88.7		
	250		750			4350				89.6	24	2080
Z4-315-21	166	540		1600	468		0.05382	1.2	25	87.2		
	185		600							88.5		
	143	450		1500	413		0.076	1.5	19	84.7		
	160		500							86		
Z4-315-32	320	900		1600	867		0.01658	0.39	23.1	91.0		
	355		1000							92.0		
	252	680		1600	698		0.03043	0.82	21.5	89.1		
	280		750			4650				89.8	27.2	2290
	180	540		1500	501		0.04536	0.95	31.6	88.2		
	200		600							89.4		
Z4-315-31	118	360		1200	344		0.01002	2.1	23.3	83.2		
	132		400							85.3		
Z4-315-42	361	900		1400	971		0.01302	0.33	29	92.1		
	400		1000							92.7		
	284	680		1600	778		0.02364	0.67	20.8	90		
	315		750							90.7		
	225	540		1600	626	5200	0.03554	0.87	21.9	88.3	30.8	2520
	250		600							89		
Z4-315-41	166	450		1500	468		0.055	1.4	37.4	87.3		
	185		500							88.3		
	143	360		1200	416		0.0803	1.8	22.2	84		
	160		400							85.3		

表2(续) Table 2(Continued)

型号 Type	额定 功率	额定转速		弱磁 转速	电枢 电流	励磁 功率	电枢 回路 电阻	电枢 回路 电感	磁场 电感	效率	惯量矩	重量
	Rated Output	Rated Speed		Speed with Field Weakened	Arm. Curr.	Field Power	Arm. Circuit Resistance	Arm. Circuit Inductance	Field Inductance	Eff.	Moment of Inertia	Wt.
	P _N	400V	440V	N _F	I _N	P _F	R	L _A	L _F	L _R	GD ²	
	KW	r/min		r/min	A	W	Ω(20°C)	mH	H	%	kg·m ²	kg
Z4-355-12	406	900								91.8		
	450		1000	1500	1094		0.01259	0.36	37.6	92.8		
	321	680		1500	877		0.02087	0.59	28.1	90.4		
	355		750							91.2		
Z4-355-11	253	540								89.2		
	280		600	1500	697	4700	0.02952	0.91	22	90.2	42	2890
	180	450								87.6		
	200		500	1500	506		0.0502	1.5	8.91	88.9		
	166	360								84.9		
	185		400	1200	478		0.066	1.8	22.4	85.9		
Z4-355-22	361	680								90.8		
	400		750	1600	978		0.01583	0.44	15.6	91.7		
	284	540								89.5		
	315		600	1500	783		0.02676	0.81	34.7	90.5		
	225	450				5600				88.4	46	3170
	250		500	1600	624		0.03462	1.0	20.5	89.5		
Z4-355-21	180	360								86.3		
	200		400	1200	511		0.05642	1.6	35.5	87.5		
Z4-355-32	406	680								91.3		
	450		750	1100	1098		0.01362	0.39	19	92.1		
	320	540								89.9		
	355		600	1600	877		0.02153	0.7	24.3	91		
	284	450				6000				88.3	52	3490
	315		500	1500	789		0.0293	0.91	18.5	89.5		
Z4-355-31	197	360								86.6		
	220		400	1200	559		0.04957	1.3	34.6	88.4		
Z4-355-42	361	540								90.5		
	400		600	1300	985		0.01836	0.64	29.6	91.2		
	320	450								88.9		
	355		500	1200	882	6500	0.02361	0.76	17.7	89.2	60	3840
	225	360								87.5		
	250		400	1200	627		0.0358	1.2	17.7	88.8		

表2(续) Table 2(Continued)

型号 Type	额定 功率	额定转速		弱磁 转速	电枢 电流	励磁 功率	电枢 回路 电阻	电枢 回路 电感	磁场 电感	效率	惯量矩	重量
	Rated Output	Rated Speed		Speed with Field Weakened	Arm. Curr.	Field Power	Arm. Circuit Resistance	Arm. Circuit Inductance	Field Inductance	Eff.	Moment of Inertia	Wt.
	P _N	400V	440V	N _F	I _N	P _F	R	L _A	L _F	L _R	GD ²	
	KW	r/min		r/min	A	W	Ω(20°C)	mH	H	%	kg · m ²	kg
Z4-400-22	435	680								90.8		
	480		750	1400	1175		0.0139	0.33	7.85	92		
Z4-400-21	235	360								84.8	74	4500
	260		400	1200	675	5700	0.0497	1	7.3	86.3		
	180	270								81.8		
	200		300	900	537		0.0804	1.6	7.44	83.1		
Z4-400-32	500	680								91.2		
	550		750	1400	1340		0.0112	0.3	9.57	92.5		
	400	540								89.9		
	440		600	1300	1083		0.0162	0.35	4.51	91.1		
	344	450								88.1	84	4900
	380		500	1300	952	6400	0.0248	0.58	6	89.5		
Z4-400-31	270	360								86		
	300		400	1200	768		0.03821	0.82	6.11	87.5		
	208	270								82.8		
	230		300	900	611		0.0659	1.5	5.89	84		
Z4-400-42	435	540								90.8		
	480		600	1300	1175		0.0134	0.32	5.54	92		
	390	450								88.6		
	430		500	1400	1070		0.0201	0.47	6.86	90		
Z4-400-41	316	360				7100				87.7	94	5300
	350		400	1200	880		0.0274	0.73	5.41	89		
	235	270								84		
	260		300	900	676		0.0508	1.2	5.38	85.4		
Z4-450-22	472	540								90.8		
	520		600	1200	1286		0.0133	0.29	10.2	92.1		
	408	450								90		
	450		500	1400	1114		0.0159	0.41	7.99	91.3		
	362	360				6500				88.1	138	5600
	400		400	1200	1010		0.0232	0.61	5.79	89.4		
Z4-450-21	253	270								85.8		
	280		300	900	720		0.0415	1	5.82	87.1		

表2(续) Table 2(Continued)

型号 Type	额定 功率	额定转速		弱磁 转速	电枢 电流	励磁 功率	电枢 回路 电阻	电枢 回路 电感	磁场 电感	效率	惯量矩	重量
	Rated Output	Rated Speed		Speed with Field Weakened	Arm. Curr.	Field Power	Arm. Circuit Resistance	Arm. Circuit Inductance	Field Inductance	Eff.	Moment of Inertia	Wt.
	P _N	400V	440V	n _F	I _N	P _F	R	L _A	L _F	η _r	GD ²	
	KW	r/min		r/min	A	W	Ω(20℃)	mH	H	%	kg·m ²	kg
Z4-450-32	500	540		1200	1358		0.0134	0.39	19.6	90.8		
	550		600							92		
	453	450		1300	1228		0.0145	0.32	7.36	90		
	500		500							91.4		
	408	360		1200	1130	7100	0.0205	0.53	7.17	88.5	156	6000
	450		400							89.7		
	309	270		900	875		0.0342	0.83	4.8	85.9		
	340		300							87.1		
Z4-450-31	200	180		600	595		0.0751	1.9	9.09	81.3		
	220		200							82.6		
Z4-450-42	545	540		1100	1492		0.0134	0.51	28.2	90.3		
	600		600							91.5		
	500	450		1100	1367		0.0145	0.43	18.6	90		
	550		500							91.4		
	453	360		1200	1254	7800	0.0178	0.42	5.85	88.9	174	6700
	500		400							90		
	345	270		900	972		0.0275	0.81	5.62	86.8		
	380		300							88.1		
Z4-450-41	235	180		600	698		0.0612	1.7	5.73	81.7		
	260		200							83		

说明 (附录 1)

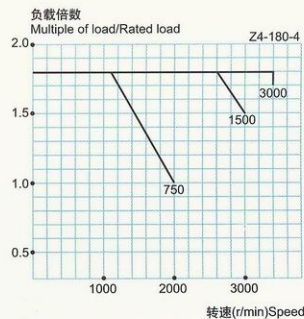
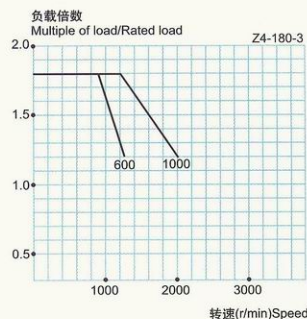
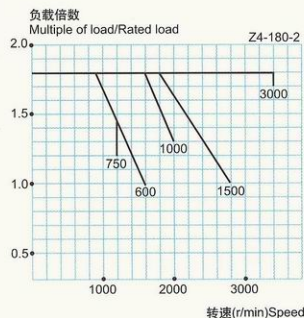
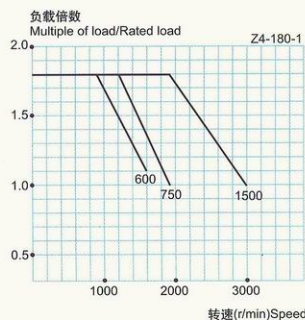
Description(Appendix1)

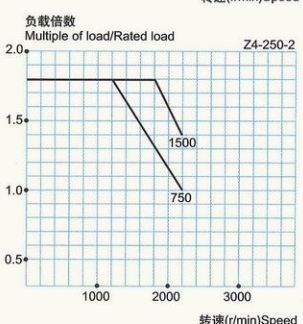
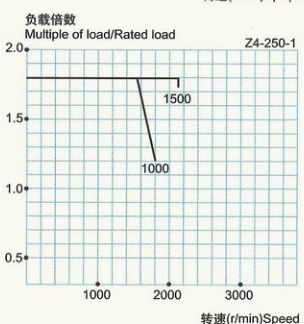
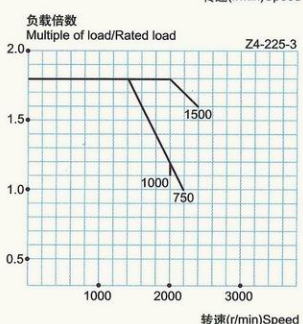
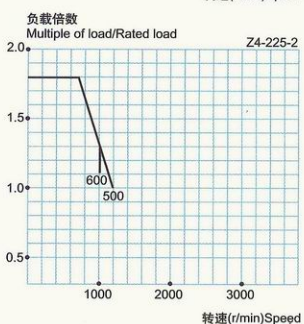
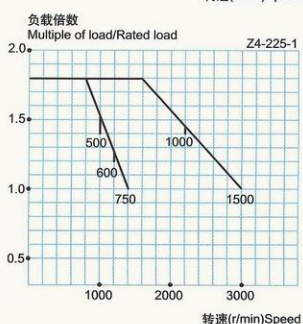
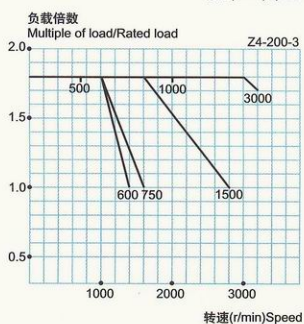
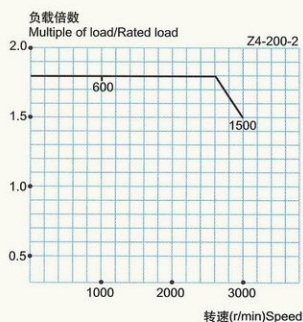
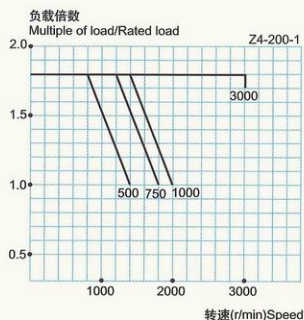
1. 负载倍数是指电枢电流的负载倍数 (电枢回路特征系数)。
2. 图表中曲线旁边的数字是电动机的额定转速。
3. Z4—160 机座及以下的弱磁调速负载倍数可向制造厂咨询。

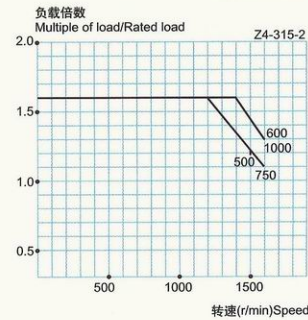
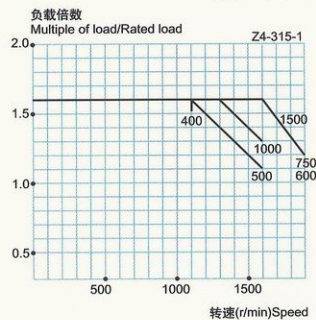
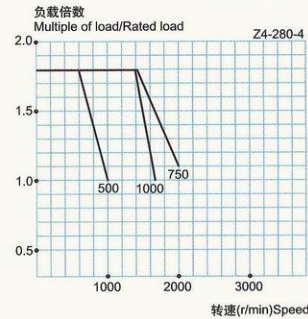
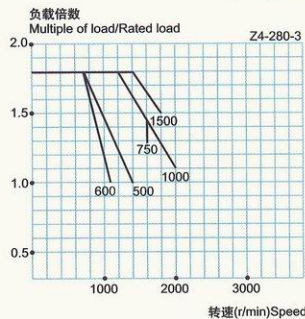
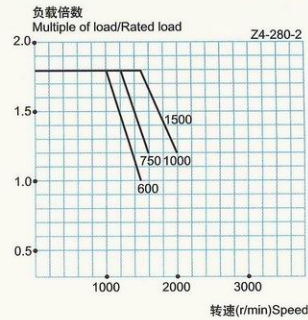
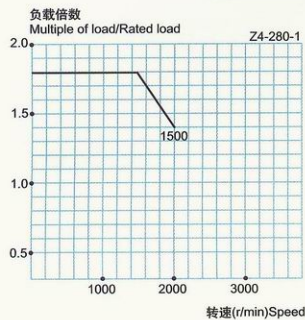
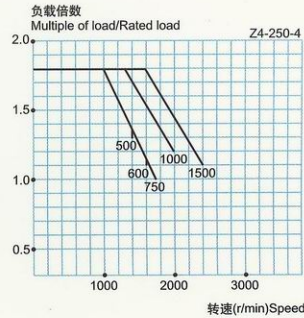
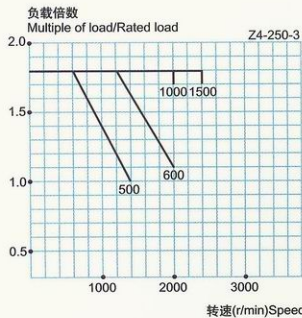
1. Multiple of load implies the multiple of armature current (armature circuit characteristic factor).
2. The figures beside the curves in the drawing are the rated speed of motors.
3. The multiple of load under speed regulation via field weakening for frame size Z4--160 and below may be consulted with the manufacturer.

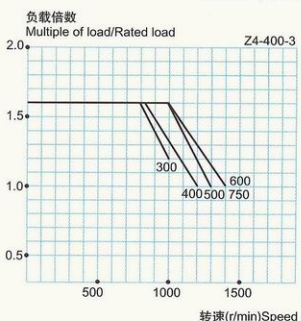
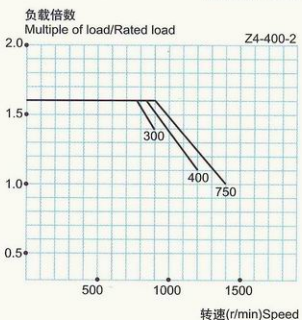
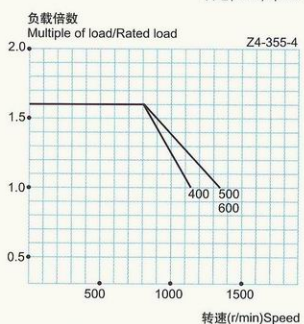
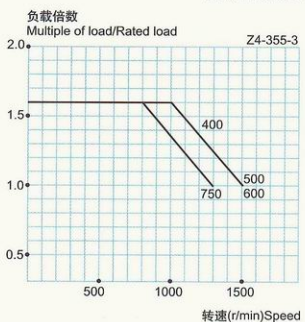
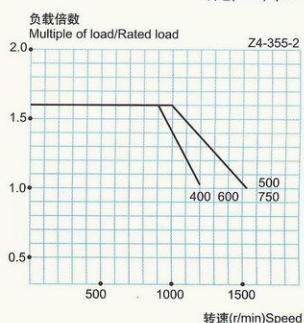
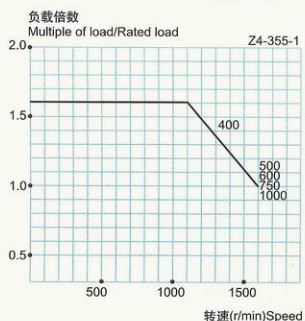
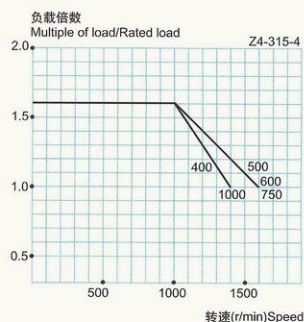
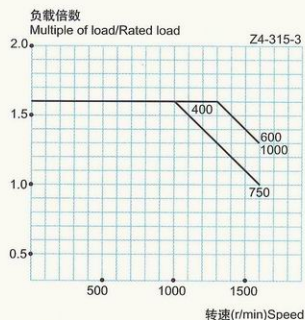
附录 1: 电枢回路特性系数

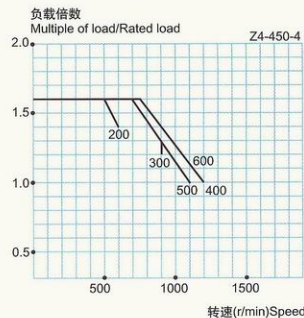
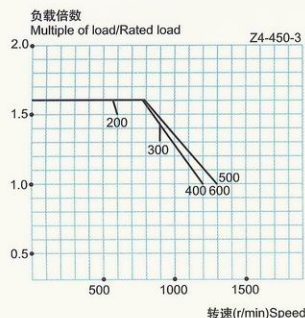
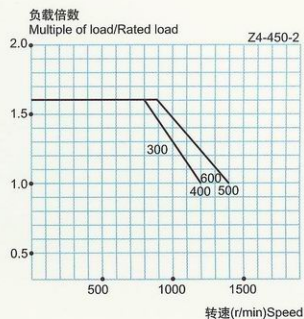
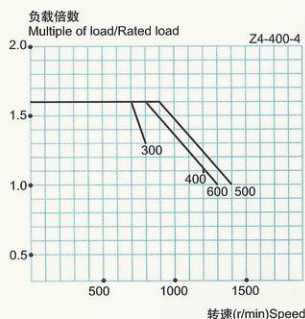
Appendix1: armature circuit characteristic factor











备注

Remarks

在启动他励电动机的时候，须在接通电枢回路之前接通磁场线圈至额定电压。停车时，先切断电枢回路，然后断开磁场电路，避免在启动和停车时因弱磁引起过速。

During starting a separately excited motor, it needs to turn on the field winding to its rated voltage before switching on the armature circuit. And for stopping, cut off the armature circuit first and then switch off the field circuit, avoiding excessive speed through field weakening when it is starting or stopping.

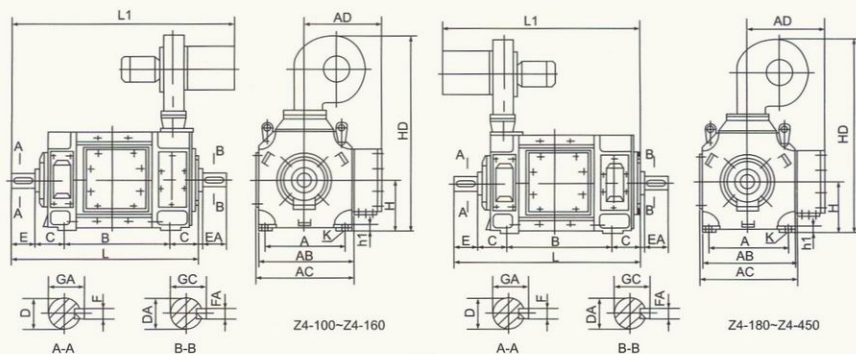


图1
Figure1

表3 卧式、机座带底脚

Table 3 Horizontal, foot-mounted

型号 Type	安装尺寸					Mounting Dimensions								外形尺寸				Outline Dimensions			
	A	B	C	D	E	F	GA	DA	EA	FA	GC	H	K	AB	AC	AD	HD	L	L1	h1	
Z4-100-1	160	318	63	24	50	8	27	24	50	8	27	100	12	197	234	179	398	500	580	10	
Z4-100-2		358																540	620		
Z4-112/2-1	190	337	70	28	60	8	31	28	60	8	31	112	12	221	255	202	452	544	612	10	
Z4-112/2-2		367																574	642		
Z4-112/2-3		407																614	682		
Z4-112/2-4		477																684	752		
Z4-112/4-1		347																573	642		
Z4-112/4-2		387																613	682		
Z4-112/4-3	190	437	70	32	80	10	35	32	80	10	35	112	12	221	255	202	452	663	732	10	
Z4-112/4-4		497																723	792		
Z4-132-1	216	355	89	38	80	10	41	38	80	10	41	132	12	260	295	240	527	619	814	12	
Z4-132-2		405																669	864		
Z4-132-3		465																729	924		
Z4-132-4		545																809	1004		
Z4-160-11	254	411	108	48	110	14	51.5	48	110	14	51.5	160	15	316	346	283	625	744	953	14	
Z4-160-12		476																809	986		
Z4-160-21		451																784	993		
Z4-160-22		516																849	1026		
Z4-160-31		501																834	1034		
Z4-160-32		566																899	1076		
Z4-160-41	279	561	121	55	110	16	59	55	110	16	59	180	15	356	390	305	731	894	1103	16	
Z4-160-42		626																959	1136		
Z4-160-51		631																964	1173		
Z4-160-52		696																1029	1206		
Z4-180-11		436																794	1022		
Z4-180-12		501																859	1087		
Z4-180-21	279	476	121	55	110	16	59	55	110	16	59	180	15	356	390	305	731	834	1062	16	
Z4-180-22		541																899	1127		
Z4-180-31		526																884	1112		
Z4-180-32		591																949	1177		
Z4-180-41		586																944	1172		
Z4-180-42		651																1009	1237		
Z4-180-51	279	656	121	55	110	16	59	55	110	16	59	180	15	356	390	305	731	1014	1242	16	
Z4-180-52		721																1079	1307		

表3(续) Table 3(Continued)

型号 Type	安装尺寸 Mounting Dimensions														外形尺寸 Outline Dimensions						
	A	B	C	D	E	F	GA	DA	EA	FA	GC	H	K	AB	AC	AD	HD	L	L1	h1	
Z4-200-11		566																977	1158		
Z4-200-12		614																1025	1206		
Z4-200-21		606																1017	1198		
Z4-200-22	318	654	133	65	140	18	69	65	140	18	69	200	19	396	430	355	779	1065	1246	18	
Z4-200-31		686																1097	1278		
Z4-200-32		734																			
Z4-200-41		756																			
Z4-200-42		804																1215	1396		
Z4-225-11		701																1140	1605		
Z4-225-12		761																1200	1665		
Z4-225-21	356	751	149	75	140	20	79.5	75	140	20	79.5	225	19	440	474	398	981	1190	1655	20	
Z4-225-22		811																1250	1715		
Z4-225-31		811																1250	1715		
Z4-225-32		871																1310	1775		
Z4-250-11		715																1225	1657		
Z4-250-12		775																1285	1717		
Z4-250-21		765																1275	1707		
Z4-250-22	406	825	168	85	170	22	90	75	140	20	79.5	250	24	490	524	432	1031	1335	1767	25	
Z4-250-31		825																1335	1767		
Z4-250-32		885																1395	1827		
Z4-250-41		895																1405	1837		
Z4-250-42		955																1465	1897		
Z4-280-11		762																1315	1748		
Z4-280-12		852																1405	1838		
Z4-280-21		822																1375	1808		
Z4-280-22		912																1465	1898		
Z4-280-31	457	892	190	95	170	25	100	85	170	22	90	280	24	550	584	462	1130	1445	1878	25	
Z4-280-32		982																1535	1968		
Z4-280-41		972																1525	1958		
Z4-280-42		1062																1615	2048		
Z4-280-51		1062																1615	2048		
Z4-280-52		1152																1705	2138		
Z4-315-091		817																1462	1827		
Z4-315-092		907																1552	1917		
Z4-315-11		887																1532	1897		
Z4-315-12		977																1622	1987		
Z4-315-21	508	967	216	100	210	28	106	95	170	25	100	315	28	620	654	497	1221	1612	1977	30	
Z4-315-22		1057																1702	2067		
Z4-315-31		1057																1702	2067		
Z4-315-32		1147																1792	2157		
Z4-315-41		1157																1802	2167		
Z4-315-42		1247																1892	2257		

表3(完) Table 3(End)

型号 Type	安装尺寸 Mounting Dimensions														外形尺寸 Outline Dimensions						
	A	B	C	D	E	F	GA	DA	EA	FA	GC	H	K	AB	AC	AD	HD	L	L1	h1	
Z4-355-081		818																1539	1860		
Z4-355-082		908																1629	1950		
Z4-355-091		888																1609	1930		
Z4-355-092		978																1699	2020		
Z4-355-11		968																1689	2010		
Z4-355-12		1058																1779	2100		
Z4-355-21	610	1058	254	110	210	28	116	110	210	28	116	355	28	700	734	701	1301	1779	2100	30	
Z4-355-22		1148																1869	2190		
Z4-355-31		1158																1879	2200		
Z4-355-32		1248																1969	2290		
Z4-355-41		1268																1989	2310		
Z4-355-42		1358																2079	2400		
Z4-400-11		959																1732	1817		
Z4-400-12		1079																1852	1937		
Z4-400-21		1039																1812	1897		
Z4-400-22	686	1159	280	120	210	32	127	120	210	32	127	400	35	790	830	750	1620	1932	2017	35	
Z4-400-31		1129																1902	1987		
Z4-400-32		1249																2022	2107		
Z4-400-41		1229																2002	2087		
Z4-400-42		1349																2122	2207		
Z4-450-11		1061																1944	2050		
Z4-450-12		1181																2064	2070		
z4-450-21		1151		140	250	36	148											2034	2140		
Z4-450-22		1271																2154	2260		
Z4-450-31	800	1251	315					140	250	36	148	450	35	890	924	800	1720	2134	2240	40	
Z4-450-32		1371																2254	2360		
Z4-450-41		1361																2294	2350		
Z4-450-42		1481																2414	2470		
Z4-450-51		1481		160	300	40	169											2414	2470		
Z4-450-52		1601																2534	2590		

所有型号均可带我厂出品的 ZYS-A 型直流测速发电机，此时电机长度尺寸 L 要增 300mm

All type can be provided with Type ZYS-A d-c tachogenerator made by our factory. In that case, the dimension L of the motor length will increase by 300mm.



Table 2 Horizontal, flanged foot-mounted

型号 Type	安装尺寸 Mounting Dimensions														外形尺寸 Outline Dimensions										
	A	B	C	D	E	F	GA	DA	EA	FA	GC	H	K	M	N	S	Holes T	P	AB	AC	AD	HD	L	L1	
Z4-100-1	160	318	63	24	50	8	27	24	50	8	27	100	12	215	180	15	4	4	250	197	234	179	398	500	580
Z4-100-2		358																						540	620
Z4-112/2-1		337																						544	612
Z4-112/2-2	190	367	70	28	60	8	31	28	60	8	31	112	12	215	180	15	4	4	250	221	255	202	452	574	642
Z4-112/2-3		407																						614	682
Z4-112/2-4		477																						684	752
Z4-112/4-1	190	347	70	32	80	10	35	32	80	10	35	112	12	215	180	15	4	4	250	221	255	202	452	573	642
Z4-112/4-2		387																						613	682
Z4-112/4-3		437																						663	732
Z4-112/4-4	216	497	89	38	80	10	41	38	80	10	41	132	12	265	230	15	4	4	300	260	295	240	527	723	792
Z4-132-1		355																						619	814
Z4-132-2		405																						669	864
Z4-132-3	216	465	89	38	80	10	41	38	80	10	41	132	12	265	230	15	4	4	300	260	295	240	527	729	924
Z4-132-4		545																						809	1004
Z4-160-11		411																						744	953
Z4-160-12	254	476	108	48	110	14	51.5	48	110	14	51.5	160	15	300	250	19	4	5	350	316	346	283	625	809	986
Z4-160-21		451																						784	993
Z4-160-22		516																						849	1026
Z4-160-31	254	501	108	48	110	14	51.5	48	110	14	51.5	160	15	300	250	19	4	5	350	316	346	283	625	834	1043
Z4-160-32		566																						899	1076
Z4-160-41		561																						894	1103
Z4-160-42	279	626	121	55	110	16	59	55	110	16	59	180	15	350	300	19	4	5	400	356	390	305	731	959	1136
Z4-160-51		631																						964	1173
Z4-160-52		696																						1029	1206
Z4-180-11	279	436	121	55	110	16	59	55	110	16	59	180	15	350	300	19	4	5	400	356	390	305	731	794	1022
Z4-180-12		501																						859	1087
Z4-180-21		476																						834	1062
Z4-180-22	279	541	121	55	110	16	59	55	110	16	59	180	15	350	300	19	4	5	400	356	390	305	731	899	1127
Z4-180-31		526																						884	1112
Z4-180-32		591																						949	1177
Z4-180-41	279	586	121	55	110	16	59	55	110	16	59	180	15	350	300	19	4	5	400	356	390	305	731	944	1172
Z4-180-42		651																						1009	1237
Z4-180-51		656																						1014	1242
Z4-180-52	279	721	121	55	110	16	59	55	110	16	59	180	15	350	300	19	4	5	400	356	390	305	731	1079	1307
Z4-180-53		721																						1079	1307
Z4-180-54		721																						1079	1307

表3(完) Table 3(End)

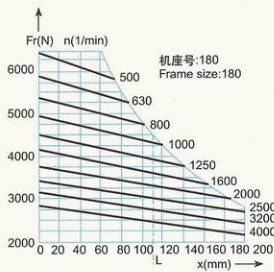
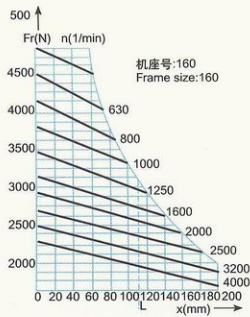
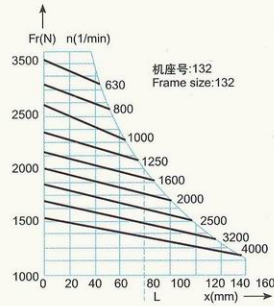
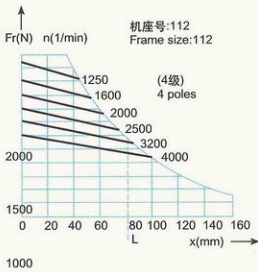
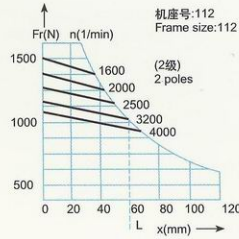
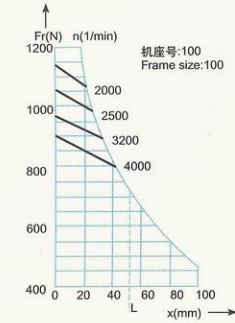
型号 Type	安装尺寸 Mounting Dimensions																外形尺寸 Outline Dimensions									
	A	B	C	D	E	F	GA	DA	EA	FA	GC	H	K	M	N	S	Holes	T	P	AB	AC	AD	HD	L	L1	
Z4-200-11		566																						977	1158	
Z4-200-12		614																						1025	1206	
Z4-200-21		606																						1017	1198	
Z4-200-22		654																						1065	1246	
Z4-200-31	318	686																						1097	1278	
Z4-200-32		734	133	65	140	18	69	65	140	18	69	200	19	400	350	19	8	5	450	396	430	355	779	1145	1326	
Z4-200-41		756																						1167	1348	
Z4-200-42		804																						1215	1396	
Z4-225-11		701																						1140	1605	
Z4-225-12		761																						1200	1665	
Z4-225-21	356	751																						1190	1655	
Z4-225-22		811	149	75	140	20	79.5	75	140	20	79.5	225	19	500	450	19	8	5	550	440	474	398	981	1250	1715	
Z4-225-31		811																						1250	1715	
Z4-225-32		871																						1310	1775	
Z4-250-11		715																						1225	1657	
Z4-250-12		775																						1285	1717	
Z4-250-21		765																						1275	1707	
Z4-250-22	406	825																						1335	1767	
Z4-250-31		825	168	85	170	22	90	75	140	20	79.5	250	24	600	550	24	8	6	660	490	524	432	1031	1335	1767	
Z4-250-32		885																						1395	1827	
Z4-250-41		895																						1405	1837	
Z4-250-42		955																						1465	1897	
Z4-280-11		762																						1315	1748	
Z4-280-12		852																						1405	1838	
Z4-280-21		822																						1375	1808	
Z4-280-22		912																						1465	1898	
Z4-280-31	457	892																						1445	1878	
Z4-280-32		982	190	95	170	25	100	85	170	22	90	280	24	600	550	24	8	6	660	550	584	462	1130	1535	1968	
Z4-280-41		972																						1525	1958	
Z4-280-42		1062																						1615	2048	
Z4-280-51		1062																						1615	2048	
Z4-280-52		1152																						1705	2138	
Z4-315-11		887																						1532	1897	
Z4-315-12		977																						1622	1987	
Z4-315-21		967																						1612	1977	
Z4-315-22		1057																						1702	2067	
Z4-315-31	508	1057																						1702	2067	
Z4-315-32		1147	216	100	210	28	106	95	170	25	100	315	28	740	680	24	8	6	800	620	654	497	1221	1792	2157	
Z4-315-41		1157																						1802	2167	
Z4-315-42		1247																						1892	2257	

所有型号均可带我厂出品的 ZYS-A 型直流测速发电机, 此时电机长度尺寸 L 要增 300mm

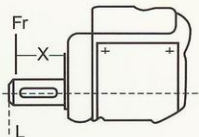
All type can be provided with Type ZYS-A d-c tachogenerator made by our factory. In that case, the dimension L of the motor length will increase by 300mm.

附录 2

Appendix 2



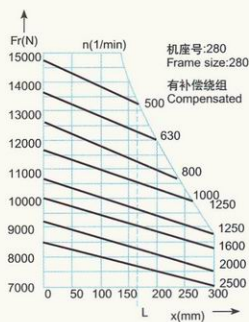
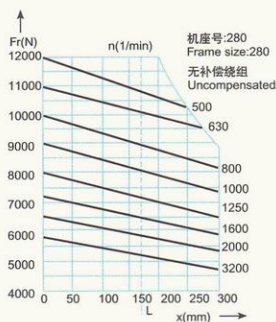
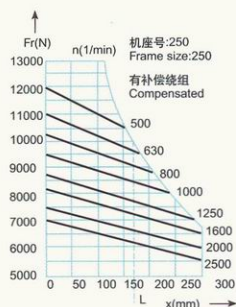
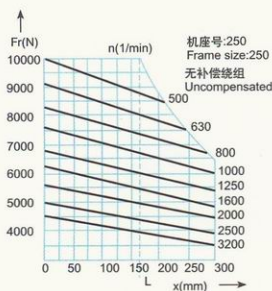
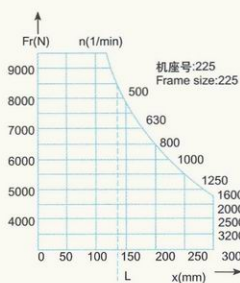
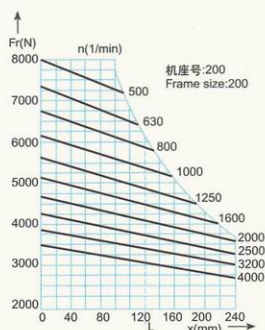
电机传动端能承受的径向力
Addition radial forces sustainable by
the drive of the motors



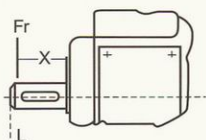
正常轴伸
Normal shaft end

附录 2 续

Appendix 2(Continued)



正常轴伸
Normal shaft end



需要时提供机座号 315-450 的数值
电机传动端能承受的径向力
Addition radial forces sustainable by
the drive of the motors

说明 (附录 3)

Description(Appendix3)

本附录列出了部分 Z4 系列直流电动机和 Z4 直流发电机特殊规格, 仅供设计选型时参考。

Listed in Appendix 3 are the special specification of some Z4 DC motors and generators, just for reference in type selection.

附录 3A: 直流电动机技术数据表

Appendix3A: Technical data of DC generator

型号 Type	额定 功率	额定 电压	额定 转速	弱磁 转速	电枢 电流	励磁 功率	电枢 回路 电阻	电枢 回路 电感	磁场 电感	效率	惯量矩
	Rated Output	Rated Voltage	Rated Speed	Speed with Field Weakened	Arm. Curr.	Field Power	Arm. Circuit Resistance	Arm. Circuit Inductance	Field Inductance	Eff.	Moment of Inertia
	P _N KW	U _N V	n _N r/min	n _F r/min	I _N A	P _F W	R Ω(20℃)	L _A mH	L _F H	η _L %	GD ² kg·m ²
Z4-250-21 B	40	400	500	1500	100	2750	0.65	7.7	5.23	79.6	5.6
Z4-250-41 B	25	400	330	2000	36	3000	1.155	19.8	20.5	76.3	7.0
	45	220	400	2000	205	3000	0.1896	2	7.28	77.3	7.0
Z4-280-31B	65	400	400	2000	163	3600	0.3883	4.3	17	76.8	12.8
	78	340	470	2330	230	3600	0.1811	2.1	7.57	80.9	12.8
	90	460	500	1800	196	3600	0.2659	3.9	5.75	81.5	12.8
	100	400	570	2000	250	3600	0.1627	1.8	9.14	82.9	12.8
Z4-280-21	75	400	500	1500	188	3600	0.2127	6.5	5.66	83.5	18.4
Z4-280-32	185	550	1450		336	3600	0.0647	2.5	21.4	92.5	21.2
Z4-315-31	100	400	330	2000	250	4650	0.2092	3.9	7.53	80.8	27.2
Z4-315-41	165	460	400	1800	359	5200	0.1156	3.2	7.81	82.5	30.8
Z4-355-11	132	400	330	2000	330	4700	0.1485	2.5	26.1	81.3	42
Z4-355-12	460	700	1450		657	4700	0.174	0.34	8.41	93.7	42
Z4-355-41	105	400	230	1300	263	6500	0.1779	3.5	14.5	81.2	60
	153	340	385	1280	450	6500	0.0464	0.98	27	88.3	60
Z4-400-42	690	460	750	1500	1500	7100	0.0114	0.34	31.1	93	94
Z4-450-51	800	660	500	1200	1212	9600	0.0240	0.73	5.3	91.7	196

附录 3B: 直流发电机技术数据表

Appendix3B: Technical data of DC motor

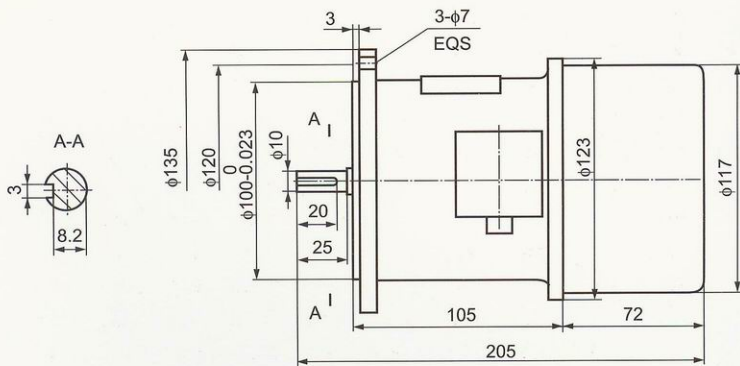
型号 Type	额定 功率	额定 电压	额定 转速	弱磁 转速	电枢 电流	励磁 功率	电枢 回路 电阻	电枢 回路 电感	磁场 电感	效率	惯量矩
	Rated Output	Rated Voltage	Rated Speed	Speed with Field Weakened	Arm. Curr.	Field Power	Arm. Circuit Resistance	Arm. Circuit Inductance	Field Inductance	Eff.	Moment of Inertia
	P _N	U _N	n _N	n _F	I _N	P _F	R	L _A	L _F	L _R	GD ²
	KW	V	r/min	r/min	A	W	Ω(20℃)	mH	H	%	kg · m ²
Z4-250-41 B	65	400	500	2000	200	3000	0.2115	2.8	7.02	80.7	7.02
Z4-280-21 B	100	400	600	3000	306	3500	0.1156	1.1	5.15	83.7	11.2
Z4-280-41 B	110	440	500	2000	295	4000	0.0124	1.6	3.88	83.8	14.4
Z4-315-092	375	500	1750	1900	800	3700	0.0149	0.31	21.2	93.2	18.4
Z4-315-12	444	460	1770	1800	1023	3850	0.0099	0.17	10.6	93.7	21.2
Z4-315-21	150	500	500	1700	343	4350	0.0983	1.7	20.6	87	24
Z4-315-22	230	220	705	1700	1177	4350	0.0105	0.21	1.91	88.3	24
Z4-355-082	500	460	1470	1500	1157	4200	0.0101	0.17	8.56	93.2	37
Z4-355-32	520	520	850	900	1057	6000	0.0159	0.36	7.37	92.4	52
	500	660	1000	1500	810	6000	0.0217	0.49	5.6	92.9	52
Z4-355-42	567	520	825	900	1165	6500	0.0146	0.37	8.37	92.7	60
Z4-400-12	600	500	1150	1600	1281	5200	0.0098	0.17	16.1	93.1	66
Z4-400-22	400	520	660	1300	845	6000	0.0295	0.63	7.1	91.4	74
Z4-400-32	618	550	850	900	1200	6400	0.0128	0.33	18.2	93	84
	400	520	500	1200	540	7100	0.026	0.77	10.4	92	94
Z4-400-42	500	660	600	1200	824	7100	0.0344	0.89	7.73	91.1	94
	700	520	800	900	1445	7100	0.0115	0.29	14.8	92.4	94
Z4-450-12	600	660	750	1000	980	5100	0.020	0.55	9.44	92.5	122
Z4-450-21	326	660	500	1500	545	6500	0.0517	1.1	14.9	91.2	138
	400	520	400	900	860	6500	0.038	0.98	15	90	138
Z4-450-22	500	520	500	1000	1000	6500	0.023	0.64	11.7	91.2	138
	600	520	600	1200	1250	6500	0.016	0.42	12	92.7	138
	700	600	750	1000	1240	6500	0.0133	0.38	8.75	93	138
	480	520	400	900	1030	7500	0.0305	0.77	10.6	90.1	156
Z4-450-32	600	520	500	1000	1255	7500	0.0177	0.55	5.19	92	156
	700	520	600	1000	1460	7500	0.0134	0.33	8.22	92.3	156
	570	520	400	900	1220	7800	0.022	0.51	4.5	90.1	174
	Z4 450-42	700	520	500	1000	1450	7800	0.0142	0.44	7.6	92
	750	660	600	900	1215	7800	0.0181	0.58	9.37	92.5	174
Z4-450-51	800	660	500	1000	1310	8600	0.0202	0.66	6.99	92	196

ZYS 系列直流永磁式测速发电机

技术数据表

Technical data

电机 型号 Motor Type	额定 功率 Rated Work Power W	额定 电压 Rated Voltage V	额定 电流 Rated Current mA	最大线性 工作转速 Max r/min	波纹 系数 Ku %	线性 误差 $\pm \delta \times$ %	输出电压 不对称度 Kb %	输出 斜率 V/K r/min
ZYS-1A	4.4	55	80	0~2000	1.5	1.5	1.5	
ZYS-3A	22	110	200	0~2000	1.5	1.5	1.5	
ZYS-6A	22	110	200	0~3000	1.5	1.5	1.5	
ZYS-100A	8	100	80	0~1000	1.5	1.5	1.5	
ZYS-120B	10.8		90	2500	1	1	1	120
ZYS-20B	3.6		180	5000	1	1	1	20
ZYS-60B	12		200	5000	1	1	1	60



ZYS 电机外形尺寸安装图

无锡新大力电机有限公司

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无锡市大力电机厂

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