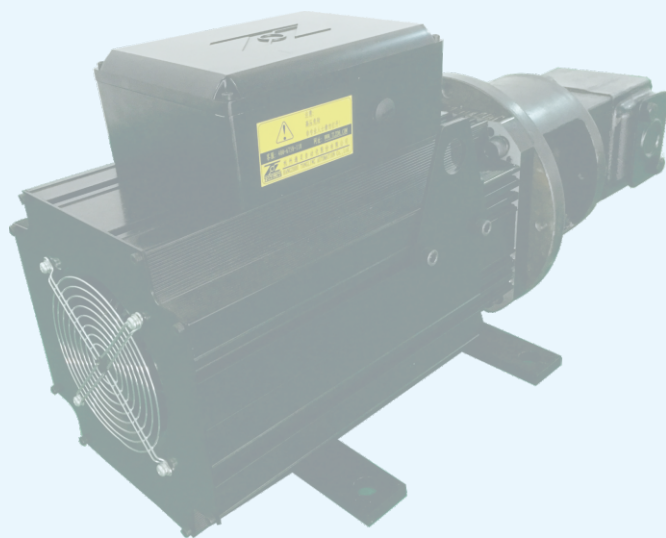


杭州威灵自动化科技有限公司

Hangzhou Weiling Automation Technology Co., Ltd.

电液伺服系统 转盘伺服系统 门机伺服系统



SERVO CONTROL SYSTEM



公司简介 Company profile

杭州威灵自动化科技有限公司作为工业自动化控制和工程实施领域应用的综合型企业，集研发、生产、销售于一体，致力于为客户提供精密、高效、节能、稳定的工业自动化控制解决方案和服务，帮助广大客户创造最大价值。

公司产品以伺服驱动器、伺服电机、运动控制器为核心，专注电液伺服控制、伺服运动控制、转盘控制、电动门控制、机电液一体化控制系统。公司将结合我国产业提升和节能减排的需要，以塑料机械、金属成型、数控机床、印刷包装、起重提升、传统重工、工业机器人等作为发展应用领域，以客户需求为导向，提供拥有最新科技的个性化解决方案。

"以人为本,科技立业", 公司拥有一支经验丰富、实力雄厚的高素质人才队伍。以“快速响应，积极主动，全面细致，用户满意”为不变的服务理念，制定了中、长期切实可行的发展策略。在产品研发上，公司不断引进国内外先进技术，并与国内外相关科研机构建立技术联盟。

As a comprehensive enterprise in the field of industrial automation control and engineering implementation, Hangzhou Weiling Automation Technology Co., Ltd. integrates R&D, production and sales. It is committed to providing customers with precise, efficient, energy-saving and stable industrial automation control solutions and services, and helping customers create maximum value.

The company's products focus on servo driver, servo motor and motion controller, focusing on electro-hydraulic servo control, servo motion control, turntable control, electric door control, electro-hydraulic integrated control system.

The company will combine the needs of industrial upgrading and energy saving and emission reduction in China, take plastic machinery, metal forming, CNC machine tools, printing and packaging, lifting, traditional heavy industry, industrial robots and other fields as development and application fields, and provide personalized solutions with the latest technology based on customer needs.

"People-oriented, science and technology start a business", the company has a team of highly qualified personnel with rich experience and strong strength. With the unchanged service concept of "quick response, positive initiative, comprehensive and meticulous, user satisfaction", a feasible medium and long-term development strategy has been formulated. In product research and development, the company has continuously introduced advanced technology at home and abroad, and established technical alliances with relevant research institutions at home and abroad.

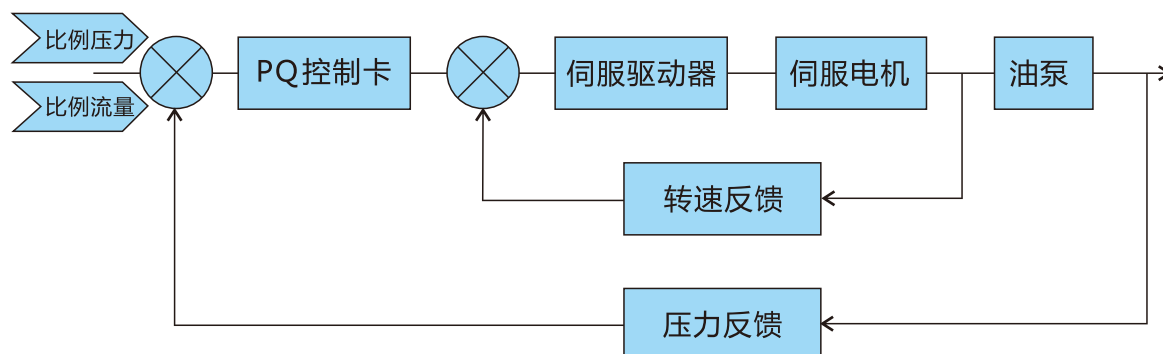
电液伺服系统—Electro-hydraulic Servo System

系统简介—System introduction

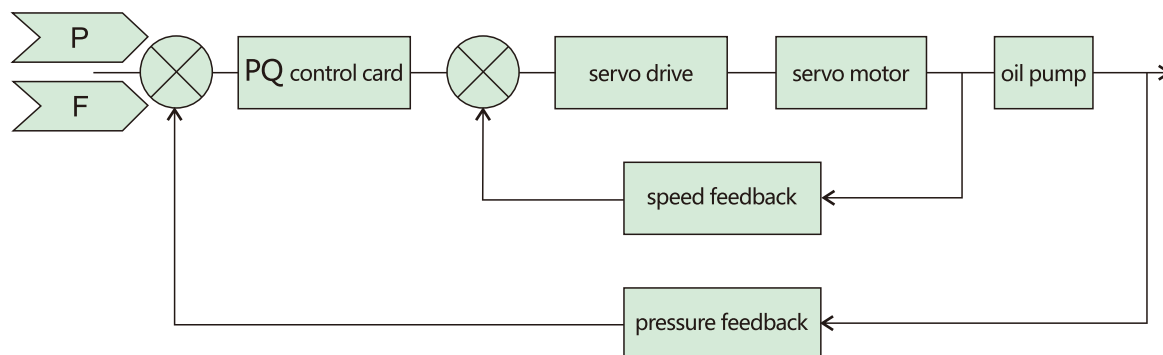
电液伺服系统是一种由电信号处理装置和液压动力机构组成，综合了电气和液压多方面的优点，具有控制精度高、响应速度快、能耗低、信号处理灵活、易于实现各种参数的闭环反馈等优点。因此，在负载质量大又要求响应速度快的场合最为适合，其应用已遍及国民经济的各个领域。

Electro-hydraulic servo system is composed of electrical signal processing device and hydraulic power mechanism. It combines the advantages of electrical and hydraulic systems. It has the advantages of high control accuracy, fast response speed, low energy consumption, flexible signal processing and easy to realize closed-loop feedback of various parameters. Therefore, it is most suitable when the load quality is large and the response speed is fast. Its application has spread to all areas of the national economy.

系统原理图



System schematic diagram



转盘伺服系统—Rotary Disc Servo System

伺服控制优势

- 1、始传统转盘由液压控制时代进入电气控制时代；
- 2、大幅提升转盘的控制可靠性和使用寿命；
- 3、提高转盘的速度和精度；
- 4、正、反向点动运行，方便调模、试模使用；
- 5、自定义多条S运动曲线，实现快速平衡定位；

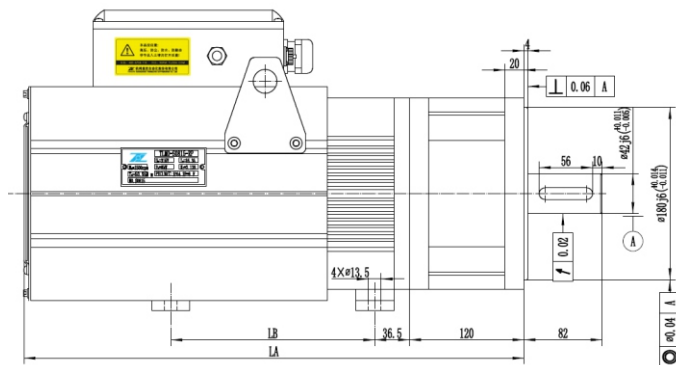
类型	驱动器型号	伺服电机型号	转盘直径（米）	转盘时间（秒）	匹配速比
减速机配置	TLDR-S055-R	180-18B18C2A-Z	0.8	1.5-3.5	25-40
	TLDR-S075-R	180-27B18C2A-Z	1.0	1.8-4.5	35-48
	TLDR-S110-R	180-35B18C2A-Z	1.2	2.5-5.0	40-60
	TLDR-S150-R	200-64B18C2A-F	1.5	3.0-5.5	45-64
	TLDR-S220-R	200-96B18C2A-F	1.8	3.0-5.5	45-64
	TLDR-S300-R	200-13B18C2A-F	2.0	3.0-5.5	45-64
	TLDR-S370-R	200-16B18C2A-F	2.5	3.0-5.5	45-64
直驱式配置	TLDR-S055-R	200-48B50B2A-FB	0.8	1.5-2.5	7-10
	TLDR-S075-R	200-64B50B2A-FB	1.0	1.5-2.5	7-10
	TLDR-S110-R	200-96B50B2A-FB	1.2	1.5-2.5	7-10
	TLDR-S150-R	200-13C50B2A-FB	1.3	2.0-3.5	8-12
	TLDR-S185-R	263-16C50B2A-FB	1.5	2.0-3.5	8-12
	TLDR-S220-R	263-21C50B2A-FB	1.8	2.0-3.5	8-12
	TLDR-S300-R	263-26C50B2A-FB	2.0	2.5-4.5	10-15

注：

1. 驱动器型号-R为转盘专用软件；
2. 伺服电机型号-Z为自冷，-F为风冷，-ZB为带抱闸自冷；
3. 转盘直径为匹配该伺服系统的经验值，实际以转动惯量为准；
4. 转盘时间为转180度所需时间；
5. 匹配速比为减速机 and 大小齿轮的总速比，直驱式配置中指大小齿轮比；
6. 自冷及风冷尺寸详见电机说明中，带抱闸详细资料需联系威灵公司。

外型尺寸

规格	LA (mm)	LB (mm)	止口 (mm)
200-48B50B2A-FB	490	204	180
200-64B50B2A-FB	525	204	180
200-96B50B2A-FB	607	276	180
200-13C50B2A-FB	680	349	180
263-16C50B2A-FB	622	242	250
263-21C50B2A-FB	677	297	250
263-26C50B2A-FB	777	250	250



电动门伺服系统—Electric Door Servo System

伺服控制优势

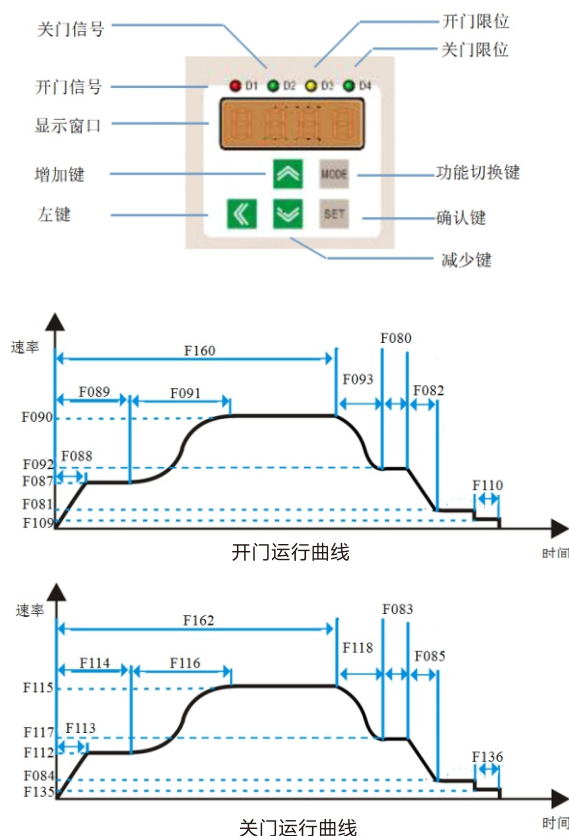
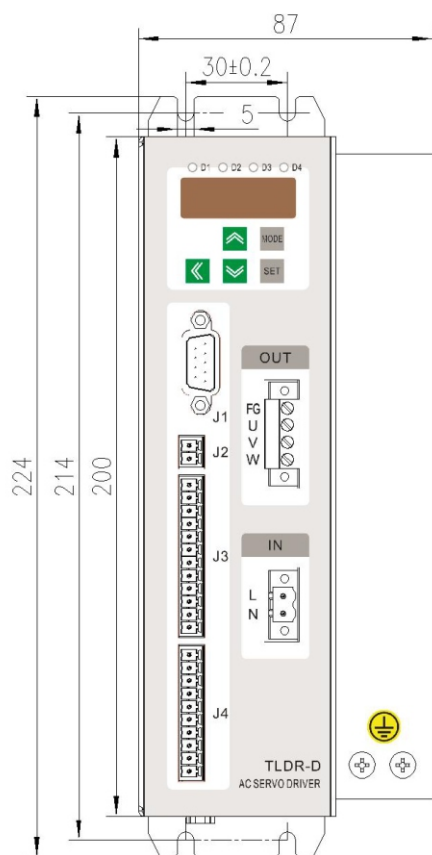
- 1、采用永磁同步控制方式，控制精确流畅；
- 2、高可靠霍尔编码器，实时监控电动门位置；
- 3、无需减速开关，采用S曲线或T型曲线控制；
- 4、堵转力矩和维持力矩可调，带防夹自动开门功能；
- 5、精确的门宽自学习，支持直接试运行；

Servo Control Advantage

1. Permanent magnet synchronous control is adopted to control accurately and smoothly.
2. High reliability Hall encoder, real-time monitoring of electric door position;
3. No deceleration switch is needed, and S-curve or T-curve control is adopted.
4. The blocking torque and maintenance torque can be adjusted, with the function of anti-clip automatic door opening.
5. Accurate door width self-learning, supporting direct trial operation;

注塑机机型	驱动器型号	伺服电机型号
<1500T	TLDR-D010	TLMO-130-58A50B2A-Z
>1500T	TLDR-D010	TLMO-130-10B50B2A-Z

外型尺寸



伺服驱动器 TLDR-S系列—Servo drive TLDR-S series



适用的功率范围从4kW到110kW，TLDR-S系列为各类型伺服电机的驱动提供了卓越的控制性能。为确保给使用TLDR-S的机器设备提供艺术级的控制，设计上TLDR-S集成了一系列的高级功能，例如“电气轴同步控制”、“位置控制”以及各种有着广泛应用的现场总线拓展接口。

TLDR-S内置灵活的可编程软件，为最先进的工业控制系统的预先设置或者客户化的应用方案提供了可行性。采用32位最先进的DSP（数字信号处理）芯片，大大加快了数据的采集与处理速度，更好完成对电机的精确控制。

4kW to 110kW, TLDR-S providing excellent control performance for all types of servo motor. It integrates a series of advanced features, for example: "Electrical axis synchronized control", "Position control" and A variety of commonly used bus expansion port.

TLDR-S built-in flexible programmable software as the Industrial control set in advance and customization application provide the feasibility. Using 32 bit DSP (digital signal processing) chip, greatly accelerate the speed of data acquisition and processing, better to complete the precise control of motor.

伺服电机—Servo motor



我司为工业装备自动化提供各类的伺服电机，先后研制了0.5—90Kw，500—3000r/min的正弦波永磁同步交流伺服电机，以及特殊规格伺服电机。TLMO-S系列注塑机、液压机专用伺服电机，它采用当今最高端的永磁稀土材料，体积紧凑可靠，缩小设计气隙，在同等功率状态下，注塑机能获得更大的驱动力。S系列伺服电机，目前已批量应用到高效、精密、节能的电液复合型注塑机、液压机上。S系列机型额定功率3Kw—90Kw，额定转矩18N.m—410N.m，额定转速500r/min—3000r/min。

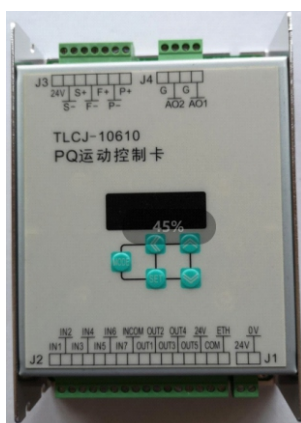
Our company provides various kinds of servo motors for industrial equipment automation. We have successively developed 0.5-90Kw, 500-3000r/min sinusoidal permanent magnet synchronous AC servo motors and special specifications of servo motors. TLMO-S series of injection moulding machines and servo motors for hydraulic presses are made of the highest permanent magnet rare earth materials, which are compact and reliable in size and reduce the design air gap. Under the same power condition, the injection moulding machine can obtain greater driving force. S series servo motors have been applied to high efficiency, precision and energy saving electro-hydraulic compound injection moulding machine and hydraulic press in batches. S series models rated power 3Kw-90Kw, rated torque 18N.m-410N.m, rated speed 500r/min-3000r/min.

油泵—Oil pump



- 集成多种油泵可供选择（齿轮泵、叶片泵）
- 抗污染性好、体积小、转速高、运行平稳、使用寿命长等特性；
- A variety of pump can be selected (screw pump, vane pump)
- good anti pollution、small size、high speed、smooth operation、long service life ；

PQ闭环控制卡、合流卡—PQ card and PQ Confluence card



检测控制器给定的比例压力、比例流量及压力传感器信号，经过应用PID运算，输出实时的伺服电机运行速度给伺服驱动器，以满足高速、精密、节能的控制要求。

针对多泵合流的大型机器，我司研发了PQ合流卡，成功应用到多泵合流的大型电液伺服机型中，实现各油泵间平稳切换和线性叠加。

合流卡具有2路独立的PID控制回路，每组控制回路可带1至3路辅控制输出，可通过修改参数设置控制模式（具有16种控制模式），一块PQ合流卡标准可接4套电液伺服系统，并能扩展到8个。

Receiving the P and F signal from the computer and the signal from pressure sensor, through the PID operation, Giving the real-time precise speed signal to the servo drive, realized the control of high speed and high precision and energy saving requirements.

For the large machine which needed several oil pumps and motors, our company developed a special card- PQ confluence card which has been successfully applied in large machine.

总线运动控制卡—Bus Motion Control Card



根据给定的压力，流量，反馈位置，进行PID运算，输出电压给2组伺服驱动器控制油泵运转。通过CAN通信接口采集两组位移尺的数据，根据两组位移尺的偏差量，实时控制伺服驱动对电机及油泵的转速，达到控制油缸位置平衡，实现滑块保持同步运行。

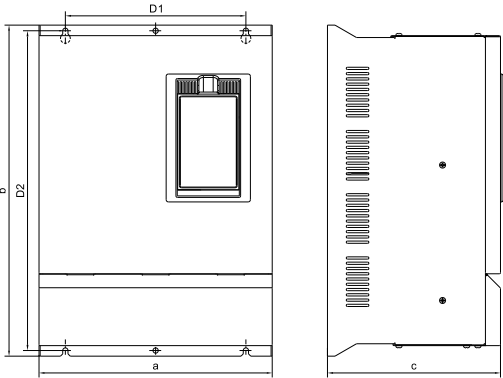
According to the given pressure, flow rate and feedback position, the PID operation is carried out, and the output voltage is given to two groups of servo drivers to control the operation of the oil pump. The data of two sets of displacement rulers are collected through CAN communication interface. According to the deviation of two sets of displacement rulers, the speed of motor and oil pump driven by servo is controlled in real time to achieve the position balance of cylinder and the synchronous operation of slider.

伺服驱动器参数表—Servo driver parameter table

型号	额定功率 (Kw)	额定电压 (V)	额定频率 (Hz)	额定电流 (A)	过载电流 (A) -60S	过载电流 (A) -1S	规格
TLDR-S040	4	380/415	50/60	10	15	20	1L
TLDR-S055	5.5	380/415	50/60	13	20	26	
TLDR-S075	7.5	380/415	50/60	17	26	34	
TLDR-S110	11	380/415	50/60	21	32	42	2L
TLDR-S110-H	11	380/415	50/60	24	36	48	3L
TLDR-S150	15	380/415	50/60	30	45	60	
TLDR-S185	18.5	380/415	50/60	36	54	72	
TLDR-S220-S	22	380/415	50/60	45	68	90	4L
TLDR-S220	22	380/415	50/60	50	75	100	
TLDR-S300	30	380/415	50/60	60	90	120	
TLDR-S370	37	380/415	50/60	75	113	150	4LH
TLDR-S450-S	45	380/415	50/60	90	135	180	
TLDR-S450	45	380/415	50/60	95	143	190	5L
TLDR-S550	55	380/415	50/60	110	165	220	
TLDR-S750-S	75	380/415	50/60	130	195	260	
TLDR-S750	75	380/415	50/60	150	225	300	6L
TLDR-S900	90	380/415	50/60	180	270	360	
TLDR-S1100	110	380/415	50/60	210	315	420	

外形尺寸图—Profile Dimension Diagram

规格	a (mm)	b (mm)	c (mm)	D1 (mm)	D2 (mm)	Φd (mm)	M (kg)
1L	150	330	200	100	318	M6	10
2L	210	330	190	140	315		12
3L	230	360	190	160	345		15
4L	310	440	230	240	425		21
4LH	350	440	230	280	425		24
5L	385	530	260	300	515		35
6L	405	670	300	320	655		41



伺服电机参数表—Servo motor parameter table

型号	额定转矩 Nm	额定转数 r/min	额定电流 A	额定功率 Kw	转矩常数 Nm/A	定额频率 Hz	线电阻 Ω	线电感 mH	额定电压 V	规格
180-18B18C2A	18	1800	6	3.4	3.00	120	2.04	14.80	367	180-1
180-27B18C2A	27	1800	9	5.1	3.00	120	1.05	8.62	350	180-2
180-35B18C2A	35	1800	11.5	6.6	3.04	120	0.74	6.62	357.5	180-3
180-21B18C2A	21	1800	7	4.0	3.00	120	2.04	14.80	372	180F-0
180-32B18C2A	32	1800	11	6.0	2.91	120	1.05	8.62	354	180F-1
180-43B18C2A	43	1800	14	8.1	3.07	120	0.74	6.62	362	180F-2
180-54B18C2A	54	1800	20	10.2	2.70	120	0.44	3.93	325	180F-3

注： (1) 最高转速一般比额定转速高25%，若使用驱动器弱磁控制功能，最高转速可高50%；
(2) 以上电机参数是 $\Delta T=65^{\circ}\text{C}$ ，S1模式时数据，若 $\Delta T=100^{\circ}\text{C}$ ，S2模式时则额定转矩、电流、功率提高 20%；

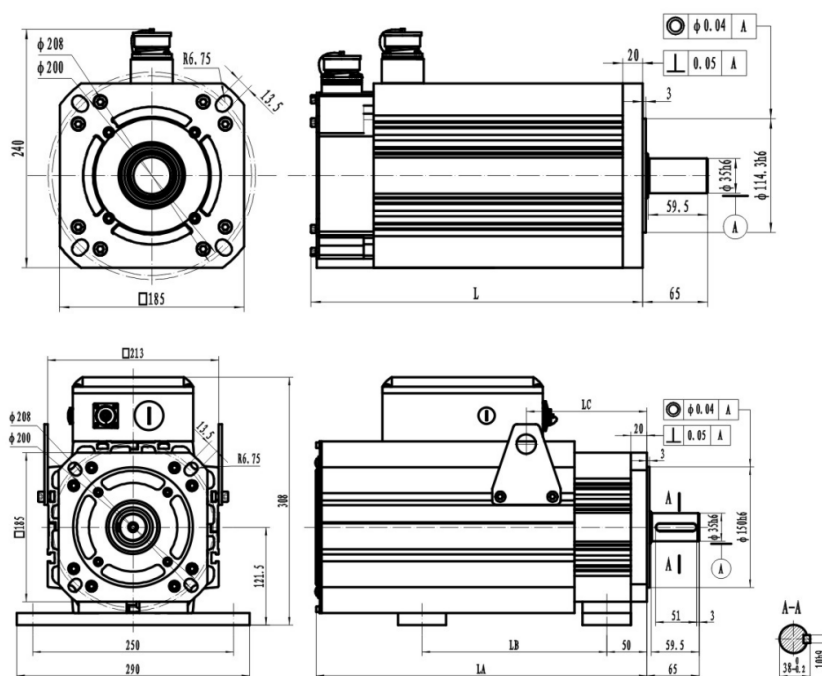
Note:(1) The maximum speed is generally 25% higher than the rated speed. If the magnetic weakening control function of the driver is used, the maximum speed can be 50%.

(2) The above motor parameters are $\Delta T=65^{\circ}\text{C}$, and the rated torque, current and power will be increased by 20% if $\Delta T=100^{\circ}\text{C}$ and S2 mode.

外形尺寸图-Profile Dimension Diagram

规格	L (mm)	M (kg)
180-1	268	25
180-2	303	27
180-3	338	32

规格	LA (mm)	LB (mm)	M (kg)
180F-0	335	140	26
180F-1	370	210	40
180F-2	405	210	45
180F-3	441	280	60



伺服电机参数表—Servo motor parameter table

型号	额定转矩 Nm	额定转速 r/min	额定电流 A	额定功率 Kw	转矩常数 Nm/A	额定频率 Hz	线电阻 Ω	线电感 mH	额定电压 V	规格
200-48B50B2A	52	500	6.5	2.7	8.00	33.3	6.66	82.10	306	200F-1
200-48B18C2A	52	1800	17.2	9.8	3.02	120	0.93	11.46	380	200F-1
200-64B50B2B	67	500	6.3	3.5	10.63	33.3	7.87	104.6	380	200F-2
200-64B18C2A	67	1800	23.5	12.6	2.85	120	0.56	7.64	360	200F-2
200-64B20C2A	67	2000	26	14.0	2.58	133.3	0.48	6.18	363	200F-2
200-80B18C2A	84	1800	30	15.8	2.80	120	0.43	6.01	362	200F-3
200-80B20C2A	84	2000	34	17.6	2.47	133.3	0.32	4.72	348	200F-3
200-96B50B2B	101	500	9	5.3	11.22	33.3	5.00	76.80	380	200F-4
200-96B15C2A	101	1500	29	15.9	3.48	100	0.46	7.32	361	200F-4
200-96B18C2A	101	1800	33.5	19.0	3.01	120	0.39	5.45	377	200F-4
200-96B20C2A	101	2000	39	21.2	2.59	133.3	0.28	4.12	358	200F-4
200-11C18C2A	118	1800	39	22.2	3.03	120	0.22	4.68	376	200F-5
200-13C50B2A	135	500	13	7.1	10.38	33.3	3.26	48.40	380	200F-6
200-13C15C2A	135	1500	39	21.2	3.46	100	0.34	5.52	360	200F-6
200-13C18C2A	135	1800	47	25.4	2.87	120	0.28	3.66	356	200F-6
200-13C20C2A	135	2000	59	28.3	2.29	133.3	0.14	2.45	321	200F-6

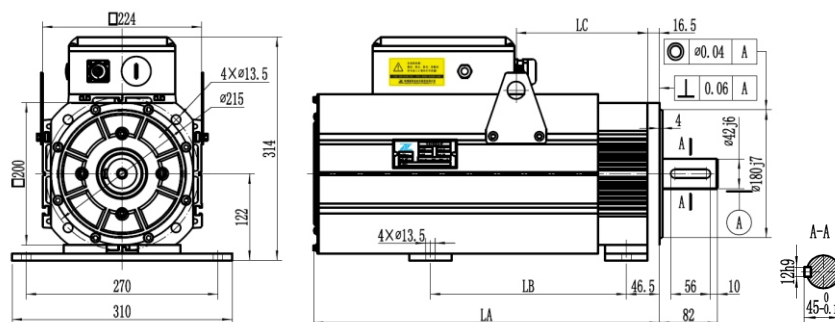
注：(1) 最高转速一般比额定转速高25%，若使用驱动器弱磁控制功能，最高转速可高50%；
(2) 以上电机参数是 $\Delta T=65^{\circ}\text{C}$ ，S1模式时数据，若 $\Delta T=100^{\circ}\text{C}$ ，S2模式时则额定转矩、电流、功率提高 20%；

Note: (1) The maximum speed is generally 25% higher than the rated speed. If the magnetic weakening control function of the driver is used, the maximum speed can be 50%.

(2) The above motor parameters are $\Delta T=65^{\circ}\text{C}$, and the rated torque, current and power will be increased by 20% if $\Delta T=100^{\circ}\text{C}$ and S2 mode.

外形尺寸图—Profile Dimension Diagram

规格	LA	LB	M
200F-1	370	204	46
200F-2	405	204	53
200F-3	441	276	60
200F-4	487	276	67
200F-5	523	349	74
200F-6	560	349	81



伺服电机参数表—Servo motor parameter table

型号	额定转矩 Nm	额定转速 r/min	额定电流 A	额定功率 Kw	转矩常数 Nm/A	额定频率 Hz	线电阻 Ω	线电感 mH	额定电压 V	规格
263-16C50B2A	160	500	18.3	8.4	8.74	33.3	1.38	31.00	323	263F-2
263-16C15C2A	160	1500	47	25.1	3.40	100	0.20	4.54	360	263F-2
263-16C18C2A	160	1800	54	30.2	2.96	120	0.13	3.28	360	263F-2
263-16C20C2A	160	2000	64	33.5	2.50	133.3	0.10	2.30	338	263F-2
263-21C50B2A	215	500	23.5	11.3	9.15	33.3	1.00	24.50	330	263F-3
263-21C16C2A	215	1600	66.5	36.0	3.23	106.7	0.13	3.20	362	263F-3
263-21C20C2A	215	2000	83	45.0	2.59	133.3	0.08	2.00	360	263F-3
263-26C50B2A	265	500	27	13.9	9.81	33.3	0.85	22.50	353	263F-4
263-26C17C2A	265	1700	85	47.2	3.23	113.3	0.10	2.47	380	263F-4
263-26C20C2A	265	2000	107	55.5	2.48	133.3	0.05	1.40	342	263F-4
263-31C16C2A	315	1600	108	52.8	2.92	106.7	0.06	1.57	324	263F-5
263-31C18C2A	315	1800	108	59.4	2.92	120	0.06	1.57	364	263F-5
263-31C20C2A	315	2000	163	66.0	1.93	133.3	0.03	0.70	270	263F-5
263-36C16C2A	360	1600	107	60.3	3.36	106.7	0.08	1.95	376	263F-6
263-36C20C2A	360	2000	157	75.4	2.29	133.3	0.03	0.85	312	263F-6
263-41C16C2A	410	1600	148	68.7	2.77	133.3	0.03	0.95	310	263F-7
263-41C20C2A	410	2000	160	85.9	2.56	133.3	0.03	0.97	370	263F-7

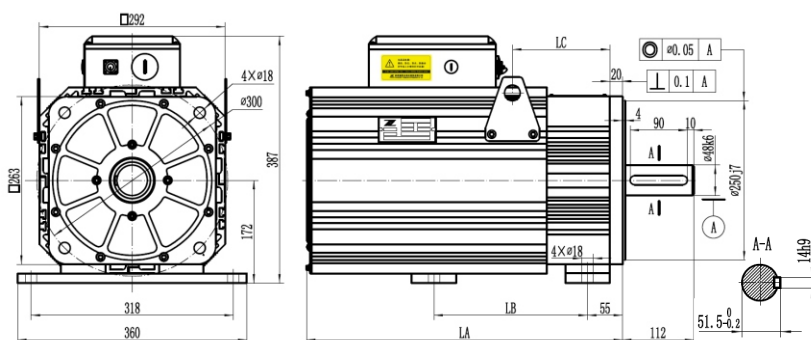
注：(1) 最高转速一般比额定转速高25%，若使用驱动器弱磁控制功能，最高转速可高50%；
(2) 以上电机参数是 $\Delta T=65^{\circ}\text{C}$ ，S1模式时数据，若 $\Delta T=100^{\circ}\text{C}$ ，S2模式时则额定转矩、电流、功率提高 20%；

Note: (1) The maximum speed is generally 25% higher than the rated speed. If the magnetic weakening control function of the driver is used, the maximum speed can be 50%.

(2) The above motor parameters are $\Delta T=65^{\circ}\text{C}$, and the rated torque, current and power will be increased by 20% if $\Delta T=100^{\circ}\text{C}$ and S2 mode.

外形尺寸图—Profile Dimension Diagram

规格	LA (mm)	LB (mm)	M (kg)
263F-2	489	242	101
263F-3	544	297	119
263F-4	644	352	138
263F-5	699	407	157
263F-6	754	462	176
263F-7	809	517	195



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