

微特电机

產品樣本



機械電子工業部第二十一研究所

NO. 21 RESEARCH INSTITUTE UNDER THE MINISTRY OF MACHINERY AND ELECTRONIC INDUSTRY

開發一流產品 廣交四海朋友

機械電子工業部第二十一研究所系部屬綜合類研究機構，創建於1962年，是一所軍民結合，機電技術相互滲透的新技術、高技術研究所。本所主要從事微特電機及其應用技術研究和新產品開發作為基礎，以微電子應用技術研究為重點，針對武器裝備自動化、工業自動化、辦公自動化和家電自動化等領域，開發研製各類機電一體化設備和自動化系統。

本所現有職工850人，科研人員400多人，其中高級工程師90名，工程師200余名。全所共有八個研究室和一個試制工廠，以及三個分所和一個中外合資公司，形成了從材料、工藝、設備、測試、試制加工到產品設計、新品開發、理論研究、情報分析、標準制定和質量認定等全面綜合研究開發能力。

本所地處上海市漕河澗高新技術開發區，占地四萬余平方米，另外還有老所區（上海市龍華東路647號）占地一萬余平方米，擁有先進加工設備和儀器儀表1500多台套。

本所以雄厚的技術實力，廣泛的專業基礎，可靠的質量保證體系開發先進技術產品。建所30年來，圍繞國防建設和國民經濟的需要，承接各類開發研究課題1100多項，取得鑒定科研成果360余項，獲國家、部、市重大科技成果獎150余項。科研成果已廣泛用於我國航空、航天、造船、兵器、電子、石油化工、輕工、機械、城建等各個領域，取得了明顯的經濟和社會效益，享有很高的信譽。

本所是微特電機及組件行業協會理事長、微特電機情報網總長，中國電工技術學會微特電機專業委員會主任單位，亦是全國微電機標準化委員會主要負責單位之一。機電部微特電機質量監督檢測中心亦設在本所。

本所所長：袁海林，經營處處長：張錦文。

The No.21 Research Institute under the Ministry of Machinery—Electronics Industry

The No.21 Research Institute under the Ministry of Machinery—Electronics Industry is a comprehensive research institute. With new and high electromechanical technology, it offers military and civil products. Centring efforts on application research technology, laying emphasis on microelectronic application technology, it is mainly engaged in the development of electromechanical equipment and system. This institute serves the automation of weapon appointments office and household appliances. It has a total of 850 people. There are 400 technicians.

Among those are 90 senior engineers and 200 engineers. It has 8 research departments and a trial factory. It has comprehensive research and development capabilities ranging from materials, technique, equipment, test, and trial processing to product design, new product development, theory study, information analysis, standard establishment, and quality identification.

This institute has two locations. The old one covers 10 thousand square metres, the new one 40 thousand. The location is at Cao Ho Jing Electronic Development Zone. It possesses 1500 sets of advanced processing equipment, instruments and meters.

With strong technical force, versatile specialities, and reliable quality guarantee systems, it is developing new products. It is 30 years since the founding of this institute. In order to meet the demands of national economy and defence construction, it has taken 1100 research projects, including all kinds of special subjects, obtained 360 achievements in scientific research, and awarded 150 important prizes at all levels. All these achievements have been widely used in aerospace, shipbuilding, electronics, petrochemical, machinery, weapon and light industries. It has gained great economic and social results, and a high reputation. Since the reform and opening up of the economy and system, it has made contact and cooperation with the friends at home and abroad.

This institute is the director of Small & Special Motor and Assembly Council, the chief of small & Special Motor Information Network, the director unit of Small & Special Motor Speciality of China Electric Engineering Technical Academy. It is one of the main responsible units in Small & Special Motor Standard Committee. The Supervising Quality and Testing Centre is also here.

慶祝建所三十周年！

向广大客户致敬感谢！

所長 袁海林

一九九二·十

机电部二十一所为您设计、试制和批量生产——

正余弦、线性旋转变压器

双通道旋变发送机和变压器

交流、直流测速发电机

LY 系列直流力矩电动机

L-CZ 系列力矩测速机机组

CZC 系列转矩测量仪

DU-8K1 型电脑照排机

全浮空 STD 总线工业控制微机系统……

控制式和力矩式自整角机

交流和直流电动机

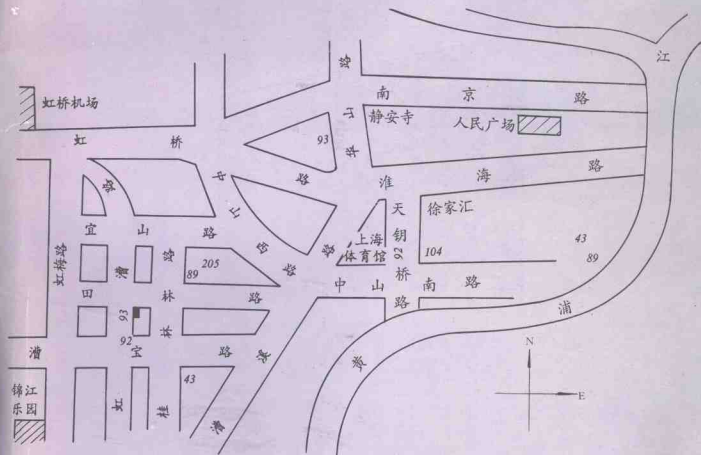
直线测速发电机

TYG 型、TNZ 型同步电机

DW 系列无刷直流电动机

PBW 系列数控平面绘图机

STD-GKD 型抗干扰微机电源



注: ■ 為機電部第二十一研究所 來所公交線路有:

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93路公交通車停在我所門口,即虹漕路站(上海電視一廠)

先進的測試設備 高品質的保證



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伺服電動機 SERVO MOTORS

■ 概述

伺服電動機系轉子的機械運動受輸入電信號控制作快速反應的電動機。按使用的電源可分為直流伺服電動機和交流伺服電動機兩類。伺服電動機主要用于自動控制系統中作執行元件。

■ 分類 僅根據本所產品列舉

代 號	名 稱	特 點
SL	鼠籠轉子兩相伺服電動機	轉子為鼠籠結構，具有體積小，工作可靠等優點
SL-J	齒輪減速交流伺服電動機	帶有齒輪減速器，可直接與負載連接
SL-D	帶定位裝置交流伺服電動機	帶有定位裝置，僅能單方向旋轉
SY	永磁式直流伺服電動機	用直流電信號控制，定子為永磁體結構
SY-J	齒輪減速永磁式直流伺服電動機	帶有齒輪減速器，可直接與負載連接
SYK	空心杯電樞永磁式直流伺服電動機	電樞繞組繞成空心杯結構，轉動慣量低，反應快速
SZX	永磁式直線伺服電動機	作直線運動的控制電機，可動部分為動圈，亦稱音圈電機
SN	印制線組直流通服電動機	轉子為印制線組結構，電機外形呈扁平圓盤形

SL系列鼠籠轉子兩相伺服電動機 SL Series Squirrel Cage Two-phase Servo Motors

電原理圖 Schematic Diagram



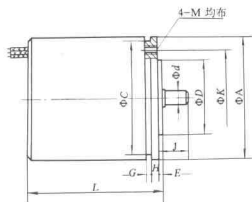


■ 技術數據 Specifications

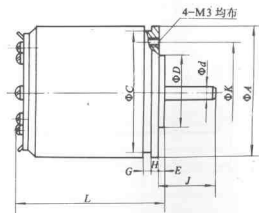
型 號 Type	電 壓 激磁/控制 Voltage Exciting /Control	頻 率 Frequency	堵轉電流 激磁/控制 Locked-rotor Current Exciting /Control	堵轉輸入功率 激磁/控制 Locked-rotor Input power Exciting /control	輸 出 功 率 Output Power	堵 轉 轉 矩 Locked- rotor Torque	空載轉速 No-load Speed	極 數 Number of Pole	機電時 間常數 Electro- mechani- cal Time Constant
	V	Hz	mA	W	W	N·m	r/min	2P	ms
20SL003	36/36	400	115/115	2.7/2.7	0.5	166.6×10^{-5}	9000	4	—
20SL004	36/36	400	110/110	2.8/2.8	0.32	156.8×10^{-5}	6000	6	—
20SL005	26/26	400	143/143	3.3/3.3	0.23	147×10^{-5}	6000	6	—
24SL001	36/36	400	180/180	4/4	1	313.6×10^{-5}	9000	4	—
24SL002	36/36	400	167/167	3.6/3.6	0.7	323.4×10^{-5}	6000	6	—
28SL003	115/115	400	80/80	5.7/5.7	2	576×10^{-5}	9000	4	20
28SL004	115/115	400	66/66	4.7/4.7	0.6	490×10^{-5}	6000	6	10
28SL005	115/36	400	90/300	6/6	1.1	576×10^{-5}	6000	6	10
36SL004	36/36	400	415/415	8/8	1.4	1176×10^{-5}	4800	8	—
36SL005	115/115	400	200/200	7.7/7.7	2.8	842.8×10^{-5}	9000	4	36
36SL006	115/36	400	130/415	7/8	1.7	1176×10^{-5}	4800	8	17
36SL010	115/36/18	400	170/550	9/9	1.8	1176×10^{-5}	4800	8	<20
45SL001	115/36	400	290/930	18/18	4	1770×10^{-5}	9000	4	—
45SL002	115/36	400	255/800	12/12.75	2.5	2352×10^{-5}	4800	8	16
55SL001	115/115	400	600/600	36/36	13	3920×10^{-5}	9000	4	—
55SL002	36/36	400	1700/1700	38/38	15	4410×10^{-5}	9000	4	20
55SL003	115/115	400	610/610	20/20	7.7	4557×10^{-5}	4800	8	15
55SL004	36/36	400	220/220	32/32	7.4	4312×10^{-5}	4800	8	15
55SL005	115/115	400	—	—	6	1960×10^{-5}	5000	8	—
55SL006	110/110	50	350/350	28/28	7	0.06	2400	2	—
70SL002	115/115	400	1100/1100	55/55	20	6377×10^{-5}	9000	4	—
70SL003	115/115	400	1200/1200	55/55	15	11760×10^{-5}	4800	8	15
90SL001	115/115	400	1100/1100	70/70	25	7848×10^{-5}	9000	4	—
90SL002	115/115	400	1650/1650	68/68	21	0.137	4800	8	—



■ 外形及安裝尺寸 Outlines And Mounting Dimensions



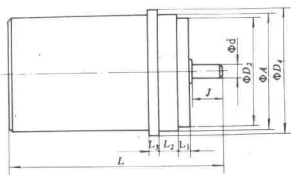
20, 28機座



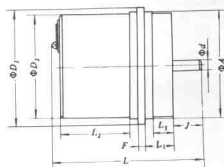
36, 45機座

mm

尺寸 公差	A	D	d	E	G	H	C	K	M	J	L (參考值)
機座號	—	—	—	±0.1	±0.1	+0.2	-0.1	±0.1	—	—	—
20	20 ⁺⁰ _{-0.084}	13 ⁺⁰ _{-0.012}	2.5 ⁺⁰ _{-0.006}	1.2	1.2	1.2	18	—	—	10	25
24	24 ⁺⁰ _{-0.084}	18 ⁺⁰ _{-0.012}	3 ⁺⁰ _{-0.006}	1.5	1.5	1.5	22	—	—	12	31
28	28 ⁺⁰ _{-0.084}	18 ⁺⁰ _{-0.012}	3 ⁺⁰ _{-0.006}	1.5	1.5	1.5	26	22	2.5	12	33
36	36 ⁺⁰ _{-0.1}	22 ⁺⁰ _{-0.014}	4 ⁺⁰ _{-0.008}	1.5	2	2.5	34	27	2.5	14	42.50
45	45 ⁺⁰ _{-0.1}	25 ⁺⁰ _{-0.014}	4 ⁺⁰ _{-0.008}	1.5	2	2.5	41	33	3	14	57.5



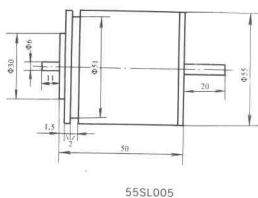
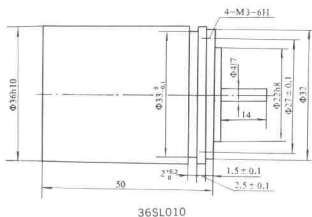
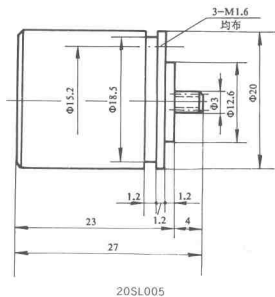
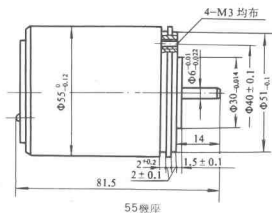
55機座



70, 90機座

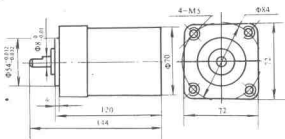
mm

尺寸 公差	A	D ₁	D ₁	D ₂	d	F	L ₁	L ₂	L ₃	J	L (參考值)
機座號	—	—	—	—	—	-0.05	—	—	—	—	—
55	55	60	—	54	6	—	8	5	4	16	102
70	70	76	76 ⁺⁰ _{-0.12}	69 ⁺⁰ _{-0.12}	6 ^{+0.01} _{-0.022}	6	19	64	13.5	20	115
90	90	98	98 ⁺⁰ _{-0.14}	89 ⁺⁰ _{-0.14}	8 ^{+0.013} _{-0.027}	6	24	59	17	24	128



SL-J型齒輪減速交流伺服電動機 SL-J Gear Reducing AC Servomotors

■ 外形及安裝尺寸 Outlines And Mounting Dimensions



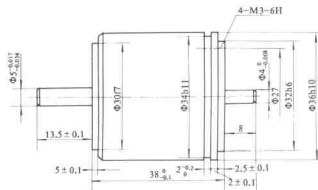


■ 技術數據 Specifications

型號 Type	電壓 激磁/控制 Voltage Exciting /Control V	頻率 Frequency Hz	堵轉電流 源磁/控制 Locked- rotor Current Exciting /Control mA	輸出功率 Output Power W	堵轉轉矩 Locked- rotor Torque N.m	空載轉速 No-load Speed r/min	機電時間常數 Electromechanical Time Constant ms
70SL004-J ₁	36/36	50	1000	4	0.68	192±15	40
70SL004-J ₂	36/36	50	1100	4	0.49	137±15	40
70SL005-J ₁	36/36	50	—	2.7	—	192	—
70SL005-J ₂	36/36	50	—	2.7	—	137	—

SL-D型帶定位裝置的交流伺服電動機 SL-D AC Servomotor With a Positioner

■ 外形及安裝尺寸 Outlines And Mounting Dimensions



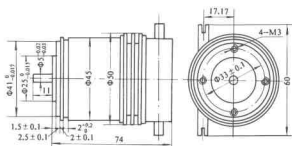
36SL011

■ 技術數據 Specifications

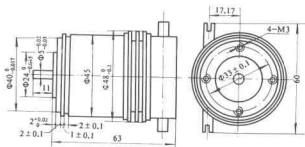
型號 Type	電壓 激磁/控制 Voltage Exciting /Control V	頻率 Frequency Hz	堵轉電流 源磁/控制 Locked- rotor Current Exciting /Control mA	堵轉輸入控制 源磁/控制 Locked- rotor Input Power Exciting /Control W	輸出功率 Output Power W	堵轉轉矩 Locked-rotor Torque N.m	空載轉速 No-load Speed r/min	極數 Number of Pole
36SL011-D ₁ (36SL011)	115/115	400	—	—	1.2	980×10^{-5}	4800	8
45SL007-D ₁ (45SL007)	115/115	400	290/290	≤18/18	6	$\geq 1864 \times 10^{-5}$	10500	4
45SL008-D ₂ (45SL008)	115/115	400	0.35/0.35	≤25/25	≥2.5	$\geq 1570 \times 10^{-5}$	≥4800	8



■ 外形及安裝尺寸 Outlines And Mounting Dimensions



45SL007



45SL008

SY系列永磁式直流伺服電動機 SY Series Permanent Magnet DC Servomotors

■ 電原理圖 Schematic Diagram



技術數據 Specification

型號 Type	額定電壓 Rated Voltage V	額定電流 Rated Current A	額定功率 Rated Power W	額定轉速 Rated Speed r/min	額定轉矩 Rated Torque N.m
20SY004	27	0.12	1	4000	—
20SY007	27	0.25	1.6	4000	3.92×10^{-3}
24SY001	27	0.33	4.7	7100	—
28SY003	27	0.5	8	6000	—
28SY006	12	0.4	—	4000—5000	3.92×10^{-3}
36SY001	24	0.64	8	9000—11000	—
36SY002	24	0.64	8	9000—11000	—
36SY003	28	0.95	—	5500 ± 10%	21.56×10^{-3}



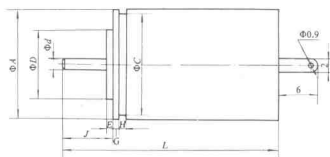
續表

型 號 Type	額定電壓 Rated Voltage V	額定電流 Rated Current A	額定功率 Rated Power W	額定轉速 Rated Speed r/min	額定轉矩 Rated Torque N.m
40SY001	12	0.3	1.6	4000—4500	39.2×10^{-5}
40SY002	12	0.3	—	4000	—
40SY003	28	2.6	—	6400	5292×10^{-5}
40SY004	24	2.5	—	6400	34.30×10^{-5}
45SY002	36	1.4	19	3000	—
45SY004	27	1.8	30	9000	—
45SY003	27	1.6	24	6000	39.20×10^{-5}
40SY005	27	1.2	20	3000	6800×10^{-5}
56SY002	6	8.5	—	5000	39.2×10^{-3}
82SY001	65	12	短時585 (輸出)	4000	1.37
110SY002	18	—	50 (輸出)	1500	—
110SY003	24	0.25 *	—	750 *	0.29 N.m/A**

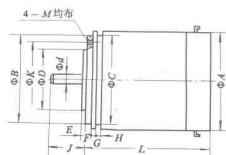
注: *—空載電流, 空載轉速

**—力矩常數

■ 外形及安裝尺寸 Outlines And Mounting Dimensions



20, 24機座



28, 45機座

mm

尺寸 公差	A	B	C	D	d	E	F	G	H	K	M	J	L
機座號	—	—	—0.1	—	—	±0.1	±0.1	±0.1	+0.2	±0.1	—	—	—
20SY004	$29 \begin{smallmatrix} 0 \\ -0.084 \end{smallmatrix}$	—	18	$13 \begin{smallmatrix} 0 \\ -0.012 \end{smallmatrix}$	$2.5 \begin{smallmatrix} 0 \\ -0.006 \end{smallmatrix}$	1.2	—	1.2	1.2	—	—	10	50.8
24SY001	$24 \begin{smallmatrix} 0 \\ -0.084 \end{smallmatrix}$	—	22	$18 \begin{smallmatrix} 0 \\ -0.012 \end{smallmatrix}$	$3 \begin{smallmatrix} 0 \\ -0.006 \end{smallmatrix}$	1.5	—	1.5	1.5	—	—	12	51.5
28SY003	$28 \begin{smallmatrix} 0 \\ -0.084 \end{smallmatrix}$	$26 \begin{smallmatrix} 0 \\ -0.014 \end{smallmatrix}$	26	$18 \begin{smallmatrix} 0 \\ -0.012 \end{smallmatrix}$	$3 \begin{smallmatrix} 0 \\ -0.006 \end{smallmatrix}$	1.5	1.5	1.5	1.5	22	2.5	12	49
45	$45 \begin{smallmatrix} 0 \\ -0.1 \end{smallmatrix}$	$41 \begin{smallmatrix} 0 \\ -0.017 \end{smallmatrix}$	41 42	$25 \begin{smallmatrix} 0 \\ -0.014 \end{smallmatrix}$	$4 \begin{smallmatrix} 0 \\ -0.008 \end{smallmatrix}$	1.5	2.5	2	2	33	3	14	69.7 71.2