

FUKUTA®

極速傳動 · 無遠弗屆

SERVO MOTOR

感應伺服馬達



理念

創新：

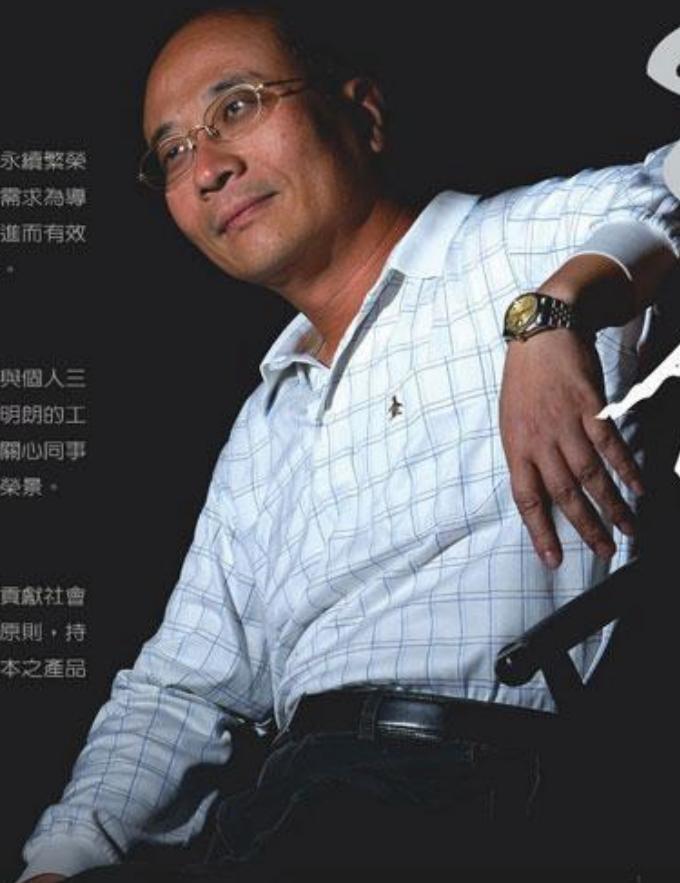
積極創新，追求顧客滿意及公司永續繁榮。
時時刻刻，力求創新，以顧客需求為導向，提供顧客滿意之產品與服務進而有效地創造利潤，促使公司永續繁榮。

熱忱：

熱忱互助，共同達成顧客、公司與個人三贏之目標。尊重人性，塑造和諧明朗的工作環境；熱忱互助，關懷顧客，關心同事，共創顧客、公司、個人三贏之榮景。

誠信：

誠信踏實，以優良的產品與服務貢獻社會。因應社會需求本乎誠信踏實之原則，持續致力於提供更好品質，更低成本之產品與服務，以貢獻社會。



Innovation is to create aggressively, pursue customers' satisfaction and maintain the company's ever-lasting prosperity. We strive for creativity and innovation at all time. Based on the concept of customer-oriented, we provide satisfying products and service to our customers so that we can make profits efficiently and maintain the company's substantial prosperity.

Sincerity is to help each other enthusiastically and achieve the win-win goals of customers, company, and individuals. We respect humanity and make a harmonious work

environment. Helping each other enthusiastically means to care about our customers and colleagues so that we can have prosperous future of customers, company, and individuals.

Credibility is to offer the society excellent products and service. In order to meet the demands of society, we continue to make efforts based on the honest principle to provide services and products of best quality and less cost so as to make contributions to the society.

富田經營團隊決策人

張金鋒

Gordon Chang



公司沿革與專利認證

- 中華人民共和國實用新型專利 ZL 97 2 26013. 7 專利權 組合式馬達外殼【1999年2月】
- 台灣新式樣第 063157 號專利權 第三十四類動力機械 馬達框架（一）【1999年4月】
- 台灣新式樣第 063210 號專利權 第三十四類動力機械 馬達框架（二）【1999年4月】
- 德國 Motorgehause unter der nummer 4 98 12 301.4 【1999年7月】
- 台灣新型第 147591 號專利權 組合式馬達框架【1999年10月】
- 2001年1月榮獲優良設計標誌。 2001年1月榮獲台灣精品獎。
- 2002年1月榮獲台灣精品獎。
- 2003年1月榮獲台灣精品獎。
- 2004年應同服馬達Frame225榮獲第十三屆台灣精品標誌。
- 2005年成立上海鑫永電機科技有限公司
(上海市奉賢區柘林鎮)，朝向跨國整合經營模式
- 2006年全系列通過中華人民共和國CCC強制性產品認證 2006年榮獲經濟部技術處2006年度產業創新成果表揚
- 2007年與日本美國客戶分別簽訂風力發電機轉子馬達（全電式）技術合作案

申請日期	類別	案件名稱	證書號
2002.11.26	台灣新型	馬達之散熱結構	M241873
2003.04.03	台灣新型	馬達定子固定結構改良	M241867
2004.01.20	台灣新型	水車馬達出力軸改良	M250452
2005.07.27	台灣新型	發電機結構改良	M280595
2006.01.18	台灣新型	利用風力發電之設備	M294573
2006.06.28	美國發明	人體檢測系統	7146855
2006.10.27	台灣新型	發電穩壓系統	
2006.12.05	台灣新型	發電機風扇改良	

Obtain the patent in the worldwide.

- China patent No. ZL 97 2 26013.7 in February of 1999
- Taiwan patent No. 063157 in April of 1999
No.063210 in April of 1999
No.147591 in October of 1999
- Germany patent Motorgehause unter der Number 4 98 12 301.4 in July of 1999
- Awarded the symbol of excellence  and employ the "IT'S VERY WELL MADE IN TAIWAN" Awarded the Excellence Design Winner.

創意領先 · 品質立見

富田電機自創立以來，以嚴謹的公司組織為後盾，致力於研發的工作，產品推陳出新，並堅持走自創品牌FUKUTA路線來貫徹「為傳統動力添新價值觀」的理想。更獲得了ISO 9001, CE等國際認証，肯定了我們多年來對產品研究的努力。唯有如此才能以創新的產品與技術滿足客戶多樣需求，提供迅速確實的服務，以高品質及準確交貨期給予顧客充份信賴及安全感，是富田電機不變的執著。

Forwarding Innovation Makes External Prior Quality

Since establishment, FUKUTA ELEC. & MACH. is based on a strict company organization. We make efforts on innovation to produce the latest products. Furthermore we keep working on FUKUTA, the brand established by ourselves, to achieve the goal of "Adding new value attitude on traditional working procedure". The international certifications such as ISO 9001, CE, CSA consent our effort on innovating products for several years. That also allows us to satisfy customers' demands by the latest product and technique and to offer the correct and immediate services. The external insistence of FUKUTA ELEC. & MACH. is to give customers the complete trust and assurance by high quality and punctual delivery.



Creativity &
Enthusiasm
Honesty



ISO9001 國際品保認證

FUKUTA

The Operation Concepts of
FUKUTA ELEC. & MACH. CO., LTD.

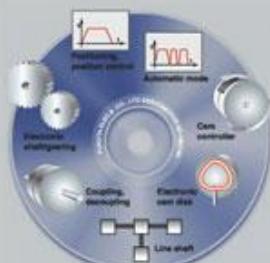
傳
動

應用例：

鋼鐵加工機械
分條 / 複捲機械
塑膠押出機
塑膠射出成型機
造紙及紙類加工機械
瓦楞紙機械
印刷機械
包裝機械
工作母機主軸
食品機械
紡織機械
染整機械
製袋機械
製罐機械
汽車工業
一般產業機械

Some applied fields

Iron & Steel Processing Machines
Slitting & Rewinding Machines
Plastic Extrusion Machines
Plastic / Rubber Injection Machines
Paper Making And Processing Machines
Corrugated Card Board & Box Processing Machines
Printing Machines
Packing Machines
CNC-Controlled Machine Tools
Food & Beverage Processing Machines
Textile Machines
Dying & Stamping Machines
Bag & Can Making Machines
Automotive Industry
General Industrial Machinery



驅動力傳動結構



DIVERSIFIED ECONOMY

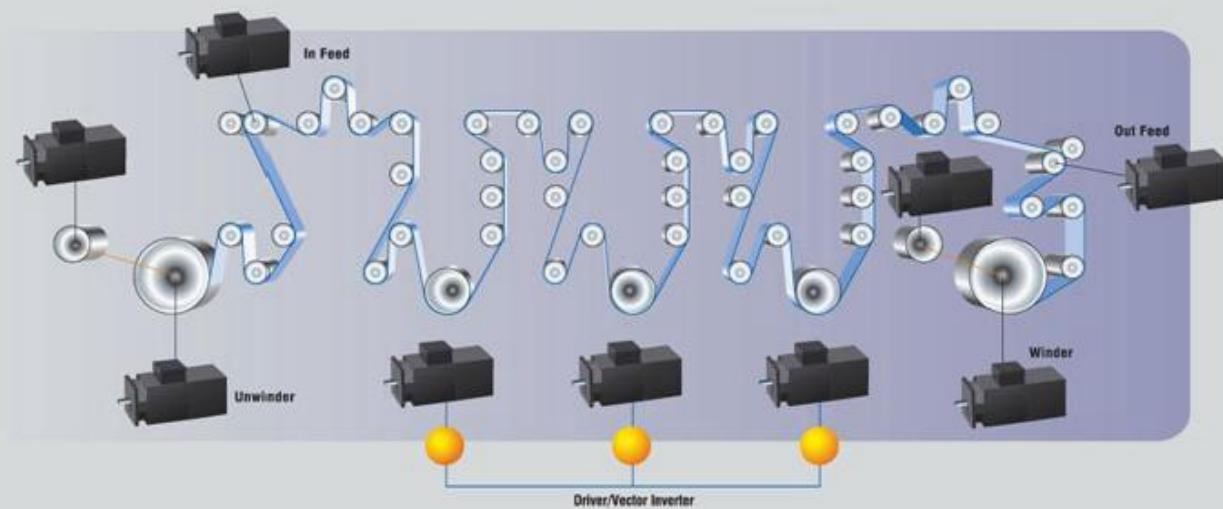


產品應用

應用範圍寬廣之伺服馬達，再搭配相關驅動器，可滿足非常特殊且多用途的需求，此對產業機械產品提供最佳的馬達驅動。富田伺服馬達使用於需要有非常可靠，無需保養、高精確定位，高特性行為及速度之應用產業場合。

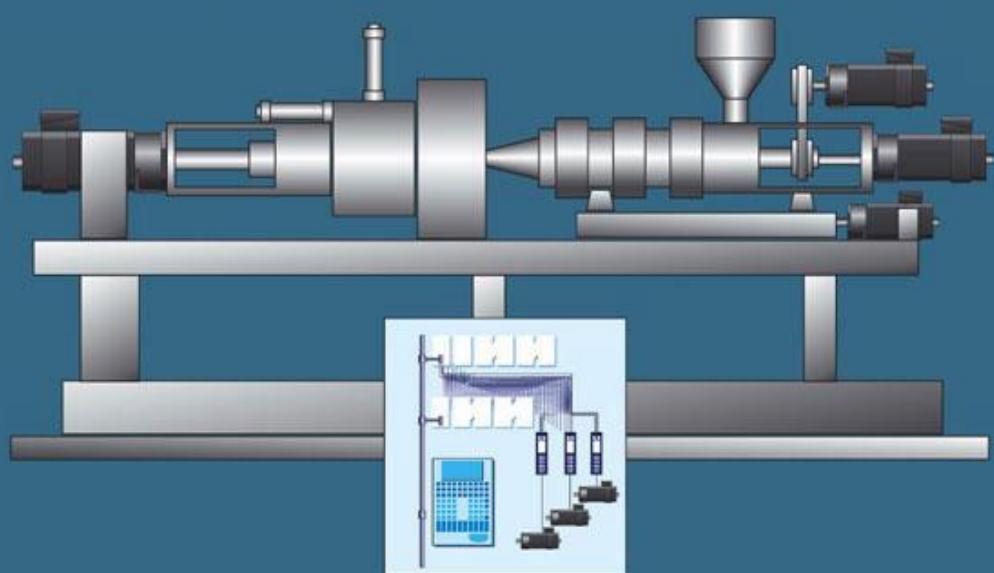
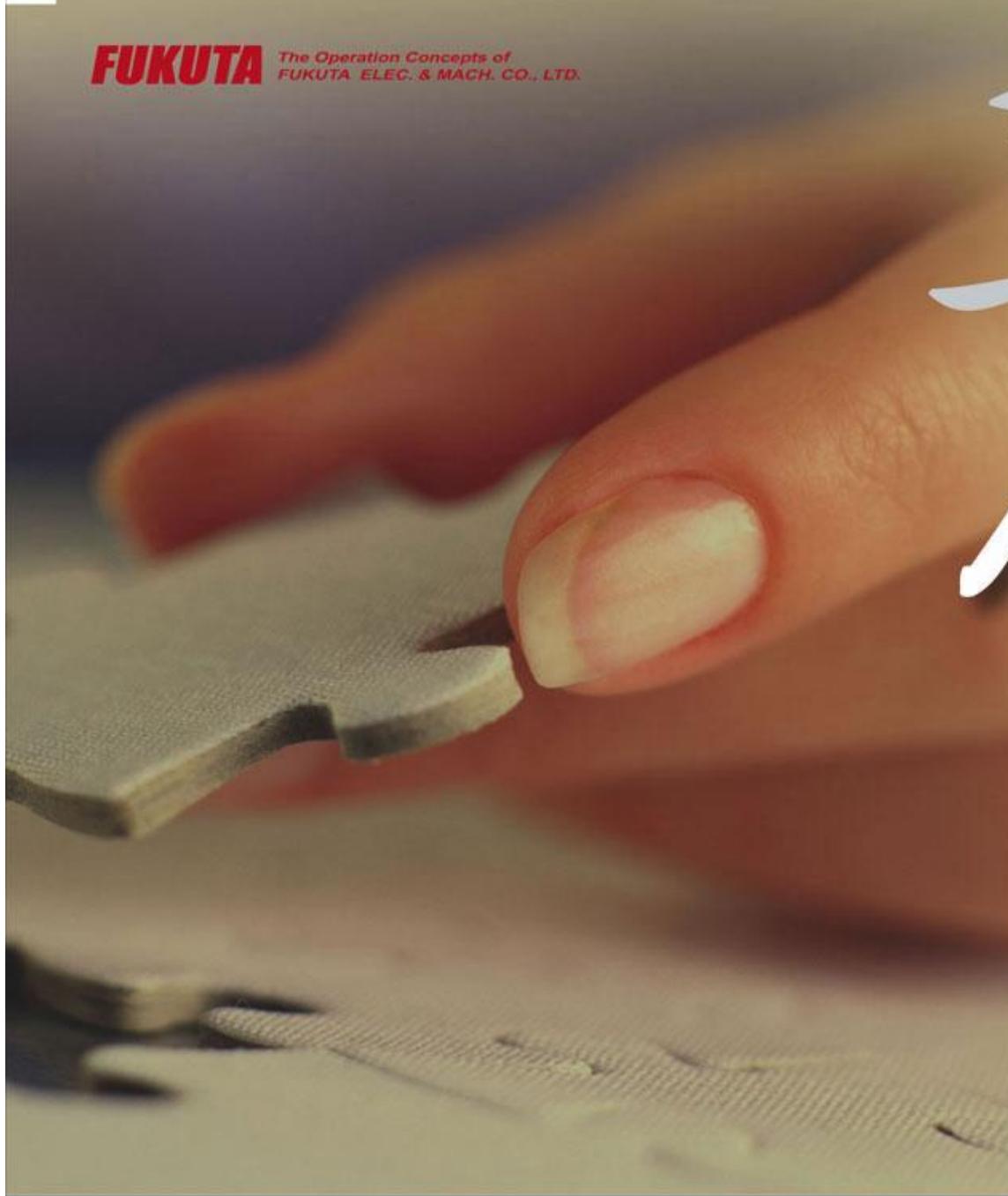
Typical application fields

The wide range of servomotors combined with the respective drives satisfies special and multiple application purposes, and offers optimum motor drives for industrial machinery and robots. The FUKUTA servomotors are addressed to applications where absolute reliability, absence of any maintenance, positioning accuracy, high performances and velocity are required.



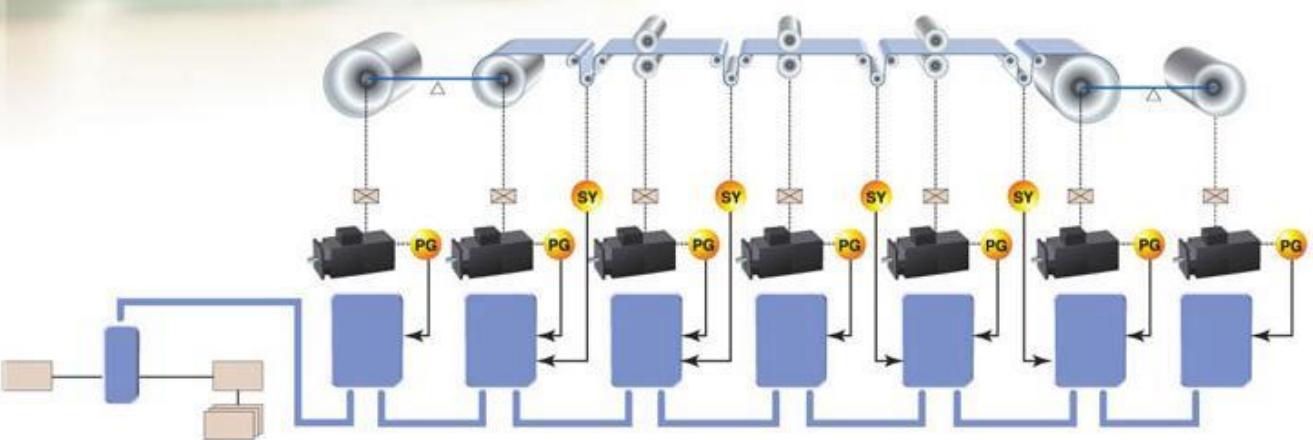
FUKUTA The Operation Concepts of
FUKUTA ELEC. & MACH. CO., LTD.

契合





APPLIED PRODUCTION



持性

伺服器馬達的特徵：

高動態響應：

不使用永久磁鐵結構，且由於轉矩及慣量之密切配合之下，又有著低的二次轉子阻抗下，使在所有的速度範圍內有著高的加減速動態特性。

穩定之運轉特性：

因轉矩是由感應式電流產生，具有完美磁性分布之高密度磁通所生，故藉由保持整個速域非常低之轉矩漣波而可得到全然穩定之旋轉運動及伺服器動作。

最大與額定轉矩之良好關係：

葦田感應型伺服馬達有良好之電流峰值及額定電流關係，而產生高比例之最大轉矩，甚至在轉矩與體積重量關係密切，而允許有緊密的運用和最好的空間運用率。

堅固簡單不需保養：

因沒有永久磁鐵，故它沒有減磁，即因震動或撞動（特別適用於移動機器）造成破損之危險，它不須偵測磁極位置，因磁通方向是由電壓來決定，在馬達軸心裝上編碼器，回授可精確控制速度位置，因它沒有集電器、碳刷或磁鐵，故它是非常堅固簡單且可靠的。

框架：已先進之規範及技術製成，由於有非常密實支大小尺寸及輕重量而有非常突出之機械精度及強度，馬達尺寸到132為止是鋁擠型或鑄鋁，外型方正，並提供內部通風道以確保高散熱及降低共振。

保護：採IP54；可依要求提供更高等級之保護。

定子：具低功率損失之特殊鐵心疊，特殊之幾何結構確保在運轉時有優良之特性及安靜的運轉。

繞組：縮短節距之雙層繞組，決定了它在FEM曲線上之優勢，因其在諧波頻率及其他之阻尼作用上做了一些限制，系統用H級絕緣且結構上承受來自於變頻器作用在伺服馬達產生之熱量，電動應力及電流衝擊，這些材料選擇及安裝方式或許使用在具有高濕度、高溫度之熱帶地區；另對於高腐蝕性環境之特殊處理也可以提供。

轉子：為鋁壓鑄設計、轉子中量以減輕已使慣量到更低，具有傾斜的鋁籠及適當之槽型以保有良好的特性（甚至在低速時）及免除了在表層之溫度及脈動轉矩。

平衡：依 I S O 2 3 7 3 R 級，連同鍵一起做動力平衡，已完全免除振動（甚至在高速）。對於特殊用途可依需求做 S 級平衡校正。

軸承：此球型軸承適合於高速，且以特殊用油脂潤滑，以保證在高速及高溫下之運作。

熱保護：藉由 3 個雙金屬片熱開關，提供熱保護，其為串接方式並且附於繞組上。接點在正常下為合的，當繞組溫度到達對絕緣有危險時予以打開。

通風：採輔助風扇通風，其風量穩定而為馬達轉速無關，此保證了在任何操作條件下良好冷卻，如此，低額定及低峰值電流，之伺服馬達可以被運用，甚至在非常低的速度下也可有大的定轉矩區，而不必降低責任周期因素。

編碼器：標準結構具有一空心軸，並且以鋁外殼包覆，以確保適當之結構保護，電力之連接是使用 10-PIN 銘之連接頭。

High dynamical response

The induction-type servomotor doesn't use permanent magnets. The high relation between torque and inertia-together with a low secondary impedance of the rotor enables high dynamical performances with considerable acceleration and deceleration available over all speed ranges.

Stable operation performance

The variation of speed is obtained through absolute stable rotary motion and servo-action by reducing the torque ripple over entire speed range. Since the torque is generated by a high-density flux with perfect magnetic distribution drove from the induced sinusoidal current.

Excellent relation between maximum and rated torque

The FUKUTA servomotor enables a high relation between peak current and rated current so as to enable high rates of maximum torque. Furthermore, the servomotor presents an extremely perfect relation between torque and volume/weight which permits compact applications and best use of available space.

Sturdy & simple construction not requiring maintenance

Since the FUKUTA servomotors do not have permanent magnets, there's no risk of demagnetization, of breakage due to fragility from vibrations or impacts, especially for the servomotors used on moving machines. Moreover, the position of magnet poles are unnecessary to be detected for driven because the direction of magnetic flux is determined by the voltage. The use of encoder set on the motor shaft feedback for controlling of the speed and position with accuracy. The structure, therefore, is extremely simple, sturdy & reliable and does not require any maintenance, since there are no collectors, brushes or magnets.

Housing

The housing is built according to advanced criteria and technology. Further to the compact size and small weight, these servomotors offer an outstanding mechanical accuracy and sturdiness. The housings are made of extrusion and die-cast aluminum for motor-frame sizes up to 132. The body is a square shape. It is provided with internal ventilation channels in order to ensure a high thermal dissipation and to reduce vibration.



Bearings

The ball-type bearings are suitable for high speed and lubricated with special greases that offer best response to high speed and temperature.

Thermal protections

The servomotors are provided with a thermal protection by means of 3 metallic double-slices thermal switches, which are connected in series and incorporated in the windings. The contact is normally closed (NC), and it opens when the temperature of the windings reaches a temperature which is dangerous for the insulating system.

Protection

All the servomotors are built in IP54 protection. Superior grades can be supplied on request.

Stator

It consists of special laminations with low power loss having a special geometry in order to provide good performances and silent run during operation.

Winding

With double layer of shortened pitch, it determines advantages in the F. E. M. curve due to the effect of elimination of some of the harmonic frequencies and damping of others. The structure of FUKUTA servomotors adopts H class insulation and supports the thermal, electrodynamical stress and inrush current that is supplied by inverter. The choice of these materials and the method of soak permit using of the servomotors in tropical climate with considerable thermal amplitudes at high humidity degrees. Special treatment for very corrosive ambiance can be supplied on request.

Construction form

The servomotors are built according to construction feature shown in chart in conformity with IEC 34-7 and CEI 2-14 n. 724 publications.

Rotor

The rotor is of die-cast aluminum design and has been lightened so to reduce the rotor inertia to a minimum. The rotor consists of a cage with inclination, number of slots and a suitable shape to enable perfect operation also at very low speed and to reduce temperature on surface layer and furthermore avoid cogging torque.

Balancing

Balancing is carried out dynamically with an integer key according to ISO 2373 grade R to suppress vibration also at high speed. On request, for special applications balancing according to grade S can be carried out.

Ventilation

Ventilation is obtained by an auxiliary electric fan which generates a constant air-flow and independent of the speed of the servomotors. This ensures an excellent cooling in any operating condition. In this way, low rate & low peak-current servomotors can be chose. Even at low speed, it still can offer a wide constant-torque range without reducing the duty cycle.

Encoder

The standard configuration provides a hollow shaft and is housed in an appropriate aluminum case to ensure strong mechanical protection. As to the electrical connection, a 10-PIN connector is used.

訂 貨 指 南

ORDERING INFORMATION

- F#80~F#90 馬達樣式為立式
- F#100~F#180 馬達樣式為立臥兩用型
- F#225 馬達樣式為臥式
- 3.7Kw 及 15Kw 另有低慣量機型

- Motor Type of F#80~F#90 is Flanged.
- Motor type of F#100~F#180 is both Flanged and Footed.
- Motor type of F#225 is Footed.
- There are low inertia types for 3.7Kw and 15Kw on request.

產 品 系 列

Series

SF: 伺服馬達系列 SERVO MOTOR SERIES

標準額定轉速

Rated Speed

F#80~F#160: 2000 rpm F#180~F#225: 1500 rpm

標準額定輸出

Rated Output

0.75kw(1Hp)~3000Kw(400Hp)

標準額定電壓

Rated Voltage

F#80~F#160: 190/330V F#180: 380/660V F#225: 380/660V

標準編碼器輸出

Encoder Pulses

1024 PPR 5Vdc 2CH+Z

其

他

Other

特殊規格需求請另註或洽本公司專業人員

The above mentioned specifications is our standard.

For any special request please contact with us.

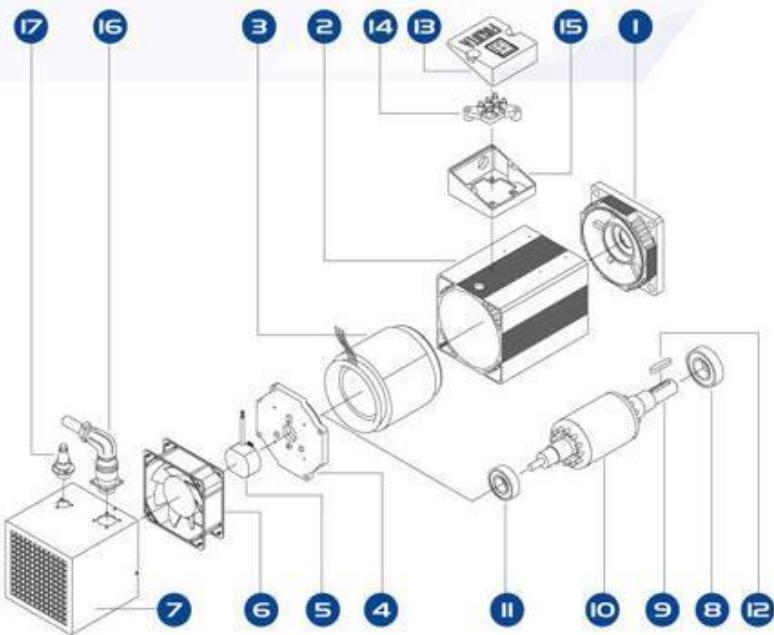
★標準規格為H級絕緣，含編碼器(1024ppr)及熱保護開關

Class H insulation is provided as a standard as well as encoder, 1024ppr, and thermal protector.

分解系統圖

SYSTEM DRAWING

I . 凸 托 架	Flange
2 . 框 架	Frame
3 . 定 子	Stator
4 . F 托 架	Bracket
5 . 編 碼 器	Encoder
6 . 風 扇	Fan
7 . 風 蓋	Fan Cover
8 . 輸 承	Bearing
9 . 輸 心	Shaft
10 . 輸 子	Rotor
II . 輸 承	Bearing
12 . 鍵	Key
III . 上 T 箱	Upper T-Box
14 . A C 板	Terminal Board
15 . 下 T 箱	Under T-Box
16 . 連 接 頭	Connector (Encoder)
17 . 連 接 頭	Connector (Fan)



Model: SF-80~90

分解系統圖

SYSTEM DRAWING

I . 凸 托 架	Flange
II . 框 架	Frame
III . 定 子	Stator
IV . F 托 架	Bracket
V . 編 碼 器	Encoder
VI . 風 扇	Fan
VII . 風 蓋	Fan Cover
VIII . 軸 承	Bearing
IX . 軸 心	Shaft
X . 轉 子	Rotor
XI . 軸 承	Bearing
XII . 鍵	Key
XIII . 上 T 箱	Upper T-Box
XIV . A C 板	Terminal Board
XV . 下 T 箱	Under T-Box
XVI . 連 接 頭	Connector (Encoder)
XVII . 風 蓋 後 蓋	Fan Cover
XVIII . 風 扇 接 線 箱	Aux. Box (Fan)

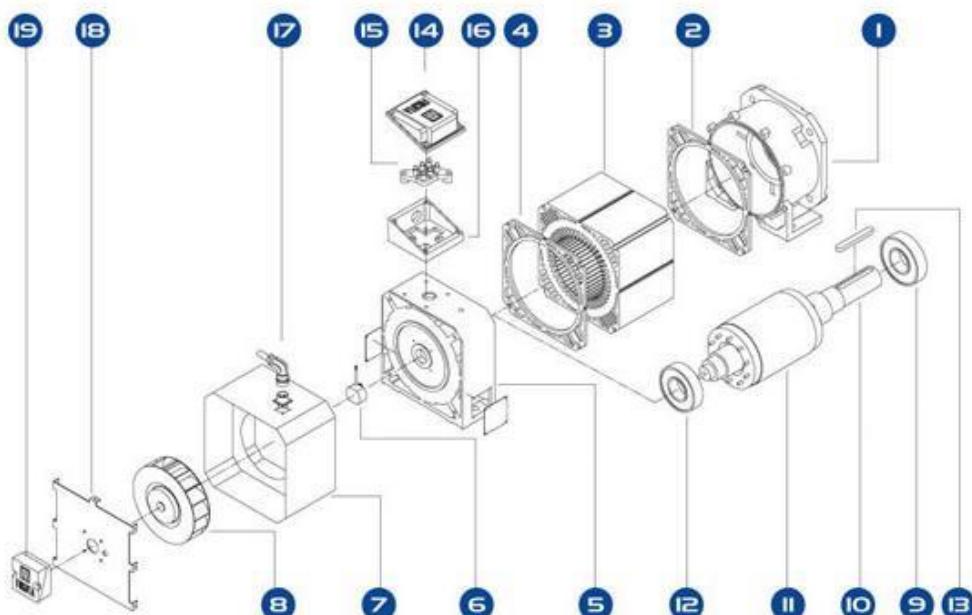
Model: SF-100~132

分解系統圖

SYSTEM DRAWING

I . 凸 托 架	Flange
II . 框 架	Frame
III . 定 子	Stator
IV . F 托 架	Bracket
V . 編 碼 器	Encoder
VI . 編 碼 器 蓋	Encoder Cover
VII . 風 扇	Fan
VIII . 風 蓋	Fan Cover
IX . 軸 承	Bearing
X . 軸 心	Shaft
XI . 轉 子	Rotor
XII . 軸 承	Bearing
XIII . 鍵	Key
XIV . 上 T 箱	Upper T-Box
XV . A C 板	Terminal Board
XVI . 下 T 箱	Under T-Box
XVII . 連 接 頭	Connector (Encoder)
XVIII . 風 蓋 後 蓋	Fan Cover
XIX . 風 扇 接 線 箱	Aux. Box (Fan)

Model: SF-160~180



Model: SF-80

FUKUTA SERVO MOTOR

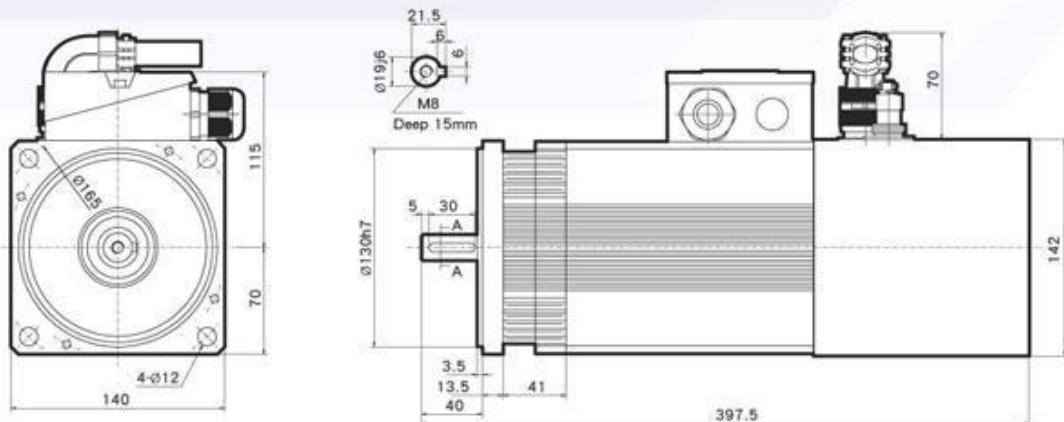


產品規格 Standard

輸出 Output (kw)	0.75	1.1
框號 Frame No.	80LA	80LB
效率 Efficiency(%)	82.3%	83.3%
功因 Power Factor	0.824	0.856
R1 (Ω) @ 25°C	6.627	4.474
極數 Poles	4	4
轉動慣量 Rotor Inertial (kg·m²)	0.0020	0.0025
激磁電流 Magnetizing Current (A)	1.9	2.3
最高轉速 Max. Speed (rpm)	8000	8000
重量 Weight (kg)	13.0	14.4
編碼器 Encoder	1024PPR 5Vdc 2CH+Z	
風扇 Elec.Fan	A2S130型(type)1Ø 230V 50/60Hz 45/39W	
軸承 Bearings	LS:6206C3	OS:6205C3

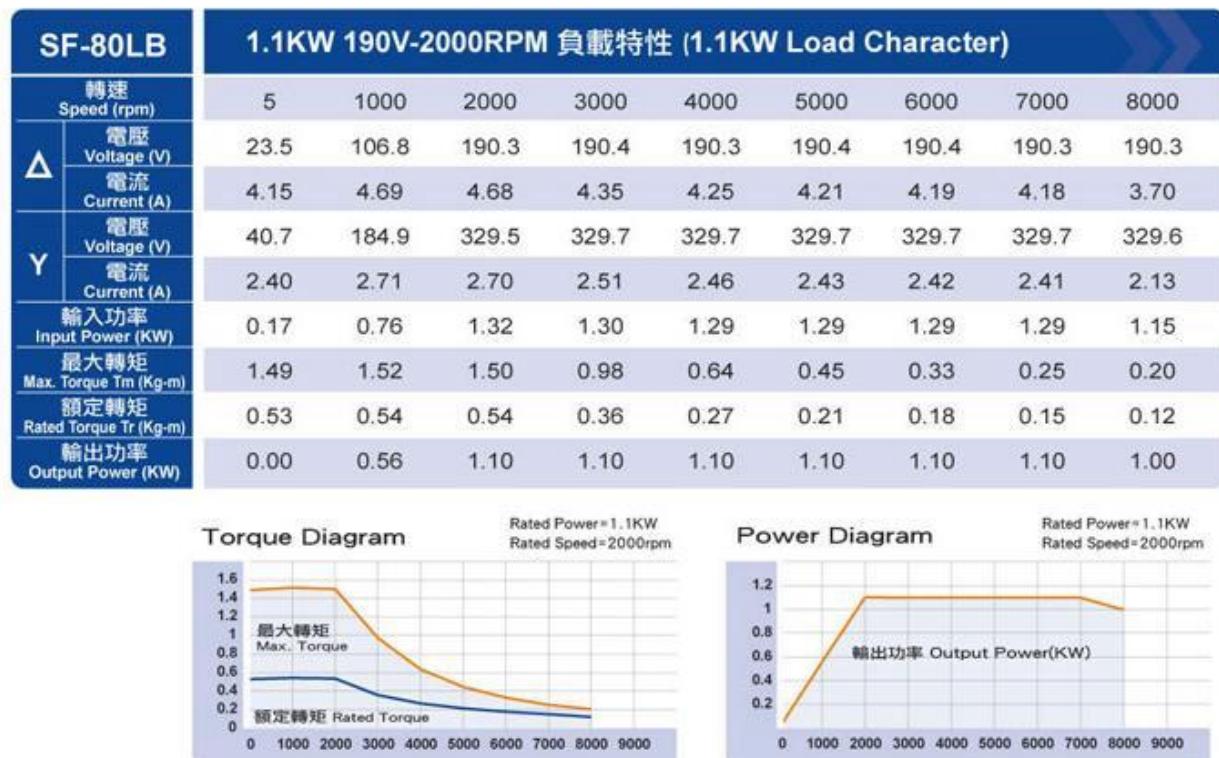
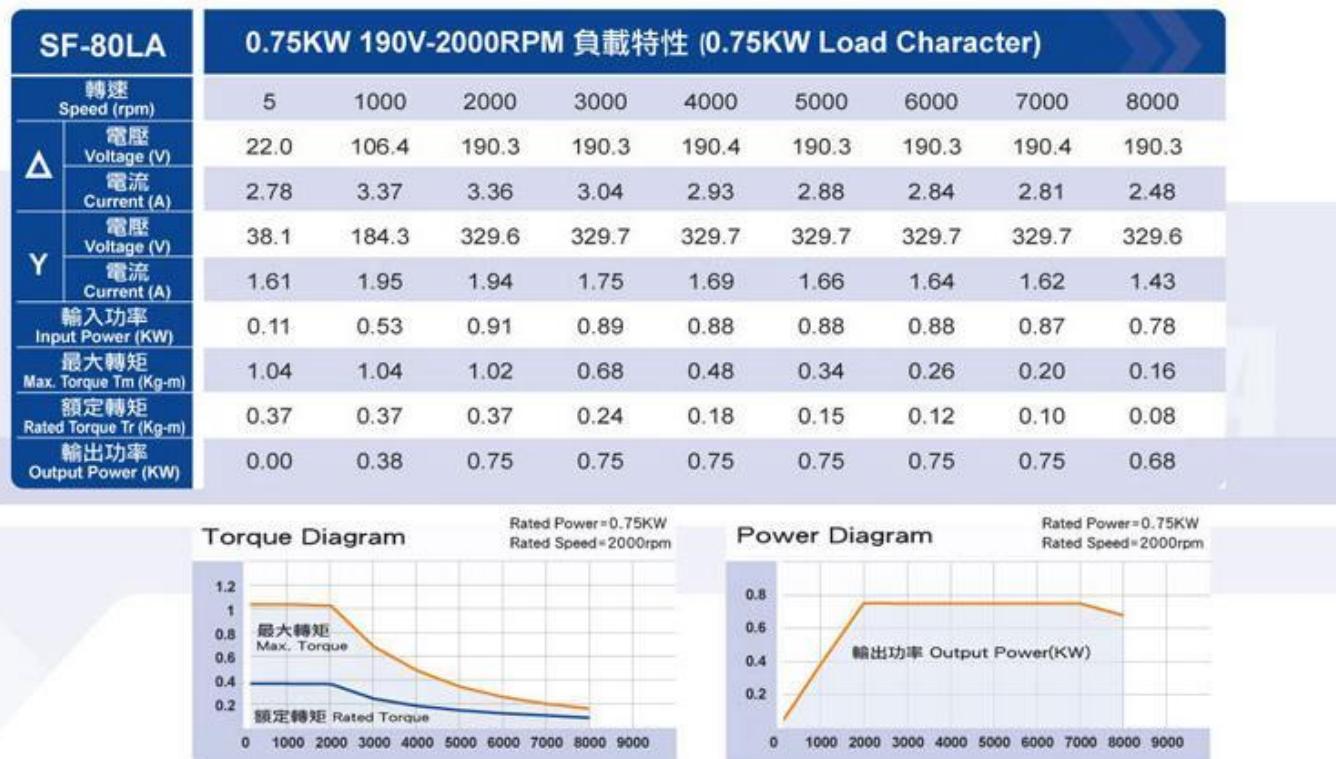
一般條件 General Data

安裝方式 Mounting	IM 3001(B5)
保護方式 Protection	IP54
轉子平衡 Rotor Balancing	R級 (ISO2373) R Degree
絕緣等級 Insulation	H級 Class H
冷卻系統 Cooling Sys.	強制通風 Forced Air Cooled
熱保護 Thermal Protection	熱保護器 (常閉) Thermal Protector (NC)
噪音 Noise	80dBA
周溫 Ambient Temp.	-15°C~40°C
高度 Altitude	海拔1000米 1000m ASL



框號 Fr. No.	額定轉速 Rated Speed	最大轉矩 Max. Torque	額定轉矩 Rated Torque	額定輸出 Rated Output	額定電流 Rated Current				額定頻率 Rated Frequency
					190V	220V	330V	380V	
80LA	2000	1.04	0.37	0.75	3.4	3.0	1.9	1.7	69.5
	3000	1.01	0.36	1.1	4.9	4.3	2.9	2.5	102.7
	4000	0.97	0.35	1.4	6.6	5.6	3.8	3.2	135.6
80LB	2000	1.52	0.54	1.1	4.7	4.2	2.7	2.4	70.0
	3000	1.47	0.52	1.6	7.1	6.0	4.1	3.4	102.9
	4000	1.45	0.52	2.1	8.7	7.8	5.0	4.5	136.6

► FUKUTA 伺服馬達技術資料 Servo Motor Technical Datasheet



Model: SF-90

FUKUTA SERVO MOTOR



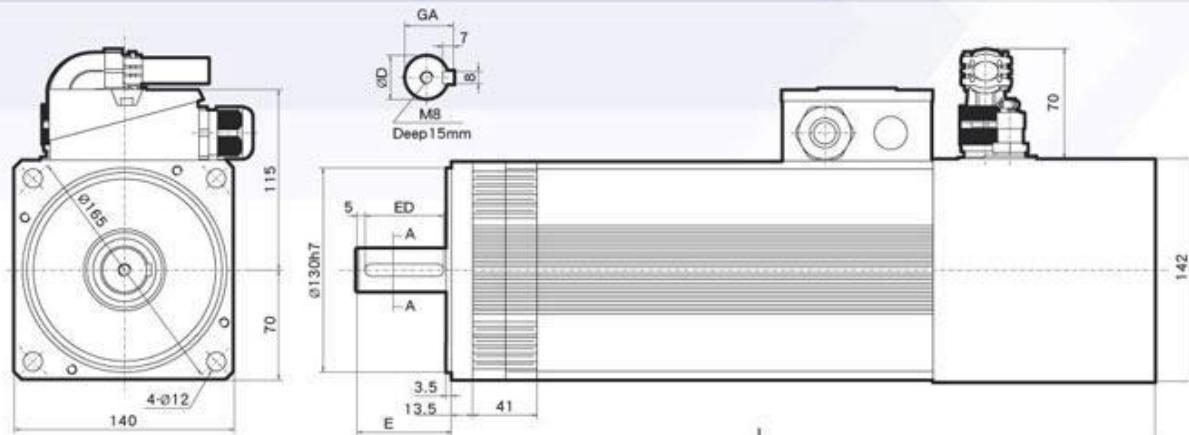
◆ 產品規格 Standard

輸出	Output (kw)	1.5	2.2	3.7
框號	Frame No.	90MA	90MB	90L
效率	Efficiency(%)	83.8%	83.7%	84.3%
功率因數	Power Factor	0.854	0.88	0.894
R1(Ω)@25°C		3.216	2.265	1.311
極數	Poles	4	4	4
轉動慣量	Rotor Inertial (kg·m²)	0.0030	0.0038	0.0059
激磁電流	Magnetizing Current (A)	3.1	3.9	5.9
最高轉速	Max. Speed (rpm)	8000	8000	8000
重量	Weight (kg)	16.4	18.9	26.0
編碼器	Encoder	1024PPR 5Vdc 2CH+Z		
風扇	Elec Fan	A2S130型(type)1ø 230V 50/60Hz 45/39W		
軸承	Bearings	LS:6206C3	OS:6205C3	

◆ 一般條件 General Data

安裝方式	Mounting	IM 3001(B5)
保護方式	Protection	IP54
轉子平衡	Rotor Balancing	R級 (ISO2373) R Degree
絕緣等級	Insulation	H級 Class H
冷卻系統	Cooling Sys.	強制通風 Forced Air Cooled
熱保護	Thermal Protection	熱保護器 (常閉) Thermal Protector (NC)
噪音	Noise	80dBa
周溫	Ambient Temp.	-15°C~40°C
高度	Altitude	海拔1000米 1000m ASL

	E	ED	D	GA	L
90MA	50	40	24	27	407.5
90MB	50	40	24	27	432.5
90L	60	50	28	31	507.5



框號 Fr. No.	額定轉速 Rated Speed		最大轉矩 Max. Torque		額定轉矩 Rated Torque		額定輸出 Rated Output		額定電流 Rated Current		額定頻率 Rated Frequency	
	RPM	kg-m	kg-m	kw	190V	220V	330V	380V	Hz			
90MA	1500	2.01	0.72	1.1	4.4	4.2	2.6	2.4	52.6			
	2000	2.06	0.74	1.5	6.4	5.6	3.7	3.2	69.9			
	3000	1.83	0.65	2.0	8.5	7.4	4.9	4.9	102.9			
	4000	1.72	0.61	2.5	10.4	9.2	6.0	5.3	136.2			
	1500	2.92	1.04	1.6	7.1	6.2	4.1	3.6	52.9			
90MB	2000	3.02	1.08	2.2	9.1	8.0	5.2	4.6	70.4			
	3000	2.74	0.98	3.0	12.2	11.3	7.0	6.5	103.3			
	4000	2.88	1.03	4.2	16.5	14.3	9.5	8.2	137.1			
	1500	4.92	1.76	2.7	11.9	10.4	6.9	6.9	52.9			
90L	2000	5.06	1.81	3.7	14.9	13.5	8.6	7.8	70.6			
	3000	4.65	1.66	5.1	20.4	18.5	11.8	10.7	103.3			
	4000	4.38	1.56	6.4	25.5	21.9	14.7	12.6	136.4			

◆ FUKUTA 同服馬達技術資料 Servo Motor Technical Datasheet

SF-90MA	
轉速 Speed (rpm)	
△ 電壓 Voltage (V)	23.1 106.5 190.3 190.3 190.3 190.3 190.3 190.3 190.3
Y 電流 Current (A)	5.67 6.37 6.36 5.90 5.78 5.73 5.70 5.70 5.04
△ 電壓 Voltage (V)	41.3 184.9 329.9 330.0 330.0 330.0 330.0 330.0 330.0
Y 電流 Current (A)	3.34 3.73 3.73 3.46 3.38 3.35 3.34 3.34 3.35
輸入功率 Input Power (KW)	0.22 1.03 1.79 1.76 1.75 1.75 1.75 1.75 1.56
最大轉矩 Max. Torque Tm (Kg-m)	2.06 2.06 2.05 1.33 0.87 0.61 0.45 0.34 0.28
額定轉矩 Rated Torque Tr (Kg-m)	0.74 0.74 0.73 0.49 0.37 0.29 0.24 0.21 0.17
輸出功率 Output Power (KW)	0.00 0.76 1.50 1.50 1.50 1.50 1.50 1.50 1.36

1.5KW 190V-2000RPM 負載特性 (1.5KW Load Character)



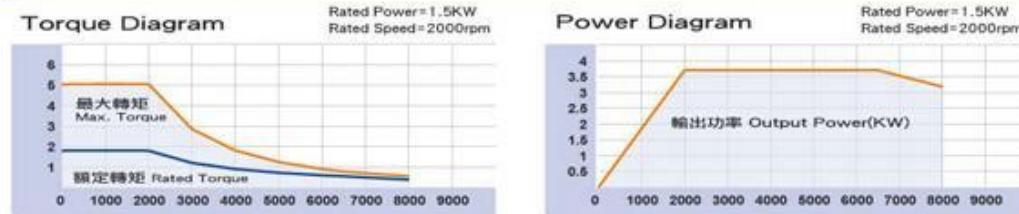
SF-90MB	
轉速 Speed (rpm)	
△ 電壓 Voltage (V)	25.9 107.3 190.3 190.3 190.3 190.3 190.3 190.3 190.3
Y 電流 Current (A)	8.64 9.07 9.07 8.60 8.52 8.52 8.56 8.66 7.68
△ 電壓 Voltage (V)	44.9 185.9 329.5 329.7 329.7 329.7 329.7 329.7 329.7
Y 電流 Current (A)	4.99 5.24 5.23 4.96 4.92 4.92 4.94 5.00 4.43
輸入功率 Input Power (KW)	0.38 1.51 2.63 2.60 2.60 2.60 2.60 2.61 2.33
最大轉矩 Max. Torque Tm (Kg-m)	3.00 3.02 3.00 1.75 1.12 0.77 0.57 0.43 0.34
額定轉矩 Rated Torque Tr (Kg-m)	1.07 1.08 1.07 0.71 0.54 0.43 0.36 0.31 0.24
輸出功率 Output Power (KW)	0.00 1.11 2.20 2.20 2.20 2.20 2.20 2.20 2.00

2.2KW 190V-2000RPM 負載特性 (2.2KW Load Character)



SF-90L	
轉速 Speed (rpm)	
△ 電壓 Voltage (V)	25.9 107.2 190.3 190.3 190.3 190.3 190.3 190.3 190.3
Y 電流 Current (A)	14.58 14.91 14.90 14.29 14.24 14.31 14.48 14.61 12.11
△ 電壓 Voltage (V)	44.9 185.7 329.6 329.7 329.7 329.7 329.7 329.7 329.6
Y 電流 Current (A)	8.42 8.61 8.60 8.25 8.22 8.26 8.36 7.42 6.99
輸入功率 Input Power (KW)	0.64 2.51 4.39 4.35 4.35 4.36 4.38 4.39 3.67
最大轉矩 Max. Torque Tm (Kg-m)	5.04 5.06 5.05 2.86 1.81 1.24 0.90 0.78 0.55
額定轉矩 Rated Torque Tr (Kg-m)	1.80 1.81 1.80 1.20 0.90 0.72 0.60 0.55 0.39
輸出功率 Output Power (KW)	0.00 1.86 3.70 3.70 3.70 3.70 3.70 3.70 3.18

3.7KW 190V-2000RPM 負載特性 (3.7KW Load Character)



Model: SF-100

FUKUTA SERVO MOTOR

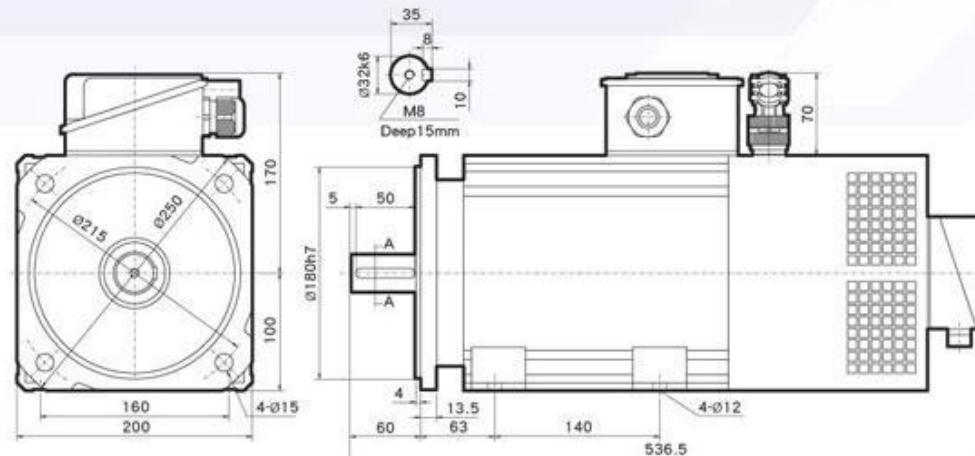


產品規格 Standard

輸出 Output (kw)	3.8	5.5
框號 Frame No.	100LA	100LB
效率 Efficiency(%)	86.7%	86.4%
功因 Power Factor	0.864	0.888
R1(Ω)@25°C	0.985	0.709
極數 Poles	4	4
轉動慣量 Rotor Inertial (kg·m²)	0.0061	0.0076
激磁電流 Magnetizing Current (A)	7.0	8.5
最高轉速 Max. Speed (rpm)	8000	8000
重量 Weight (kg)	29.5	33.0
編碼器 Encoder	1024PPR 5Vdc 2CH+Z	
風扇 Elec.Fan	R2E180型(type)1Ø 230V 50/60Hz 82/100W	
軸承 Bearings	LS:6307C3	OS:6305C3

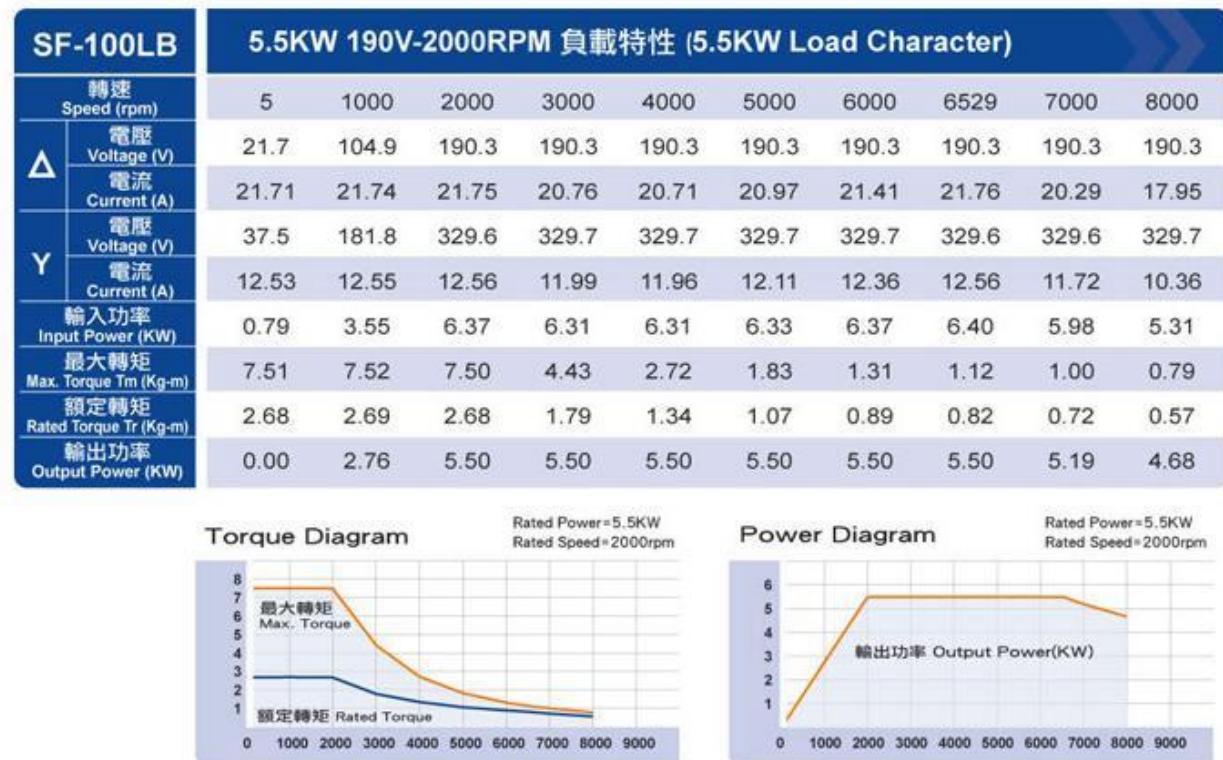
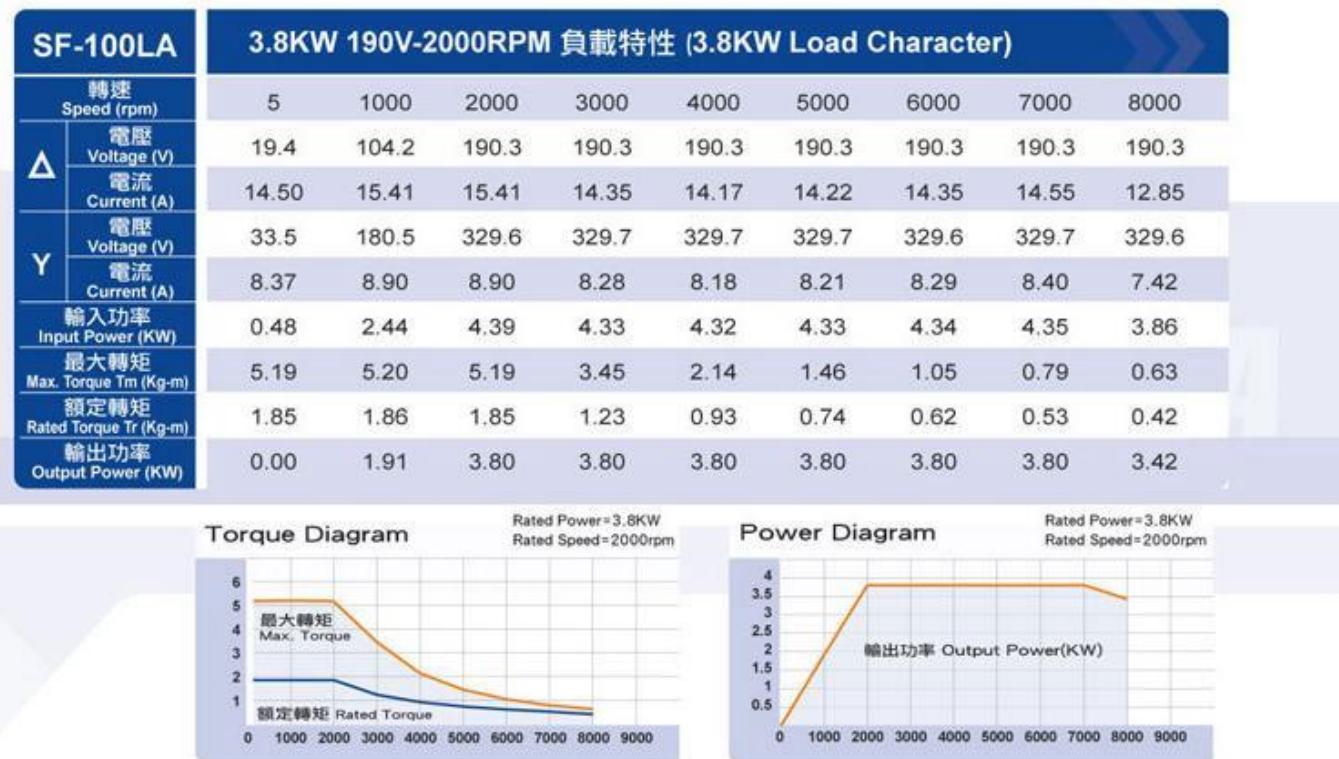
一般條件 General Data

安裝方式 Mounting	IM 3001(B3, B5)
保護方式 Protection	IP54
轉子平衡 Rotor Balancing	R級 (ISO2373) R Degree
絕緣等級 Insulation	H級 Class H
冷卻系統 Cooling Sys.	強制通風 Forced Air Cooled
熱保護 Thermal Protection	熱保護器 (常閉) Thermal Protector (NC)
噪音 Noise	80dBA
周溫 Ambient Temp.	-15°C~40°C
高度 Altitude	海拔1000米 1000m ASL



框號 Fr. No.	額定轉速 Rated Speed		額定轉矩 Rated Torque		額定輸出 Rated Output		額定電流 Rated Current		額定頻率 Rated Frequency	
	RPM	kg-m	kg-m	kw	190V	220V	330V	380V	Hz	
100LA	1500	5.1	1.82	2.8	11.5	9.9	6.6	5.7	52.9	
	2000	5.2	1.86	3.8	15.4	13.1	8.9	7.6	69.5	
	3000	4.74	1.69	5.2	23.0	17.8	13.3	10.3	102.6	
	4000	4.6	1.6	6.3	24.5	23.1	14.1	13.3	135.8	
100LB	1500	7.29	2.6	4.0	16.1	14.6	9.3	8.4	53.1	
	2000	7.52	2.69	5.5	21.8	18.6	12.6	10.7	69.9	
	3000	6.74	2.41	7.4	31.2	25.0	18.0	14.4	101.8	
	4000	6.15	2.2	9.0	33.7	31.5	19.4	18.2	136.2	

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Model: SF-112

FUKUTA SERVO MOTOR

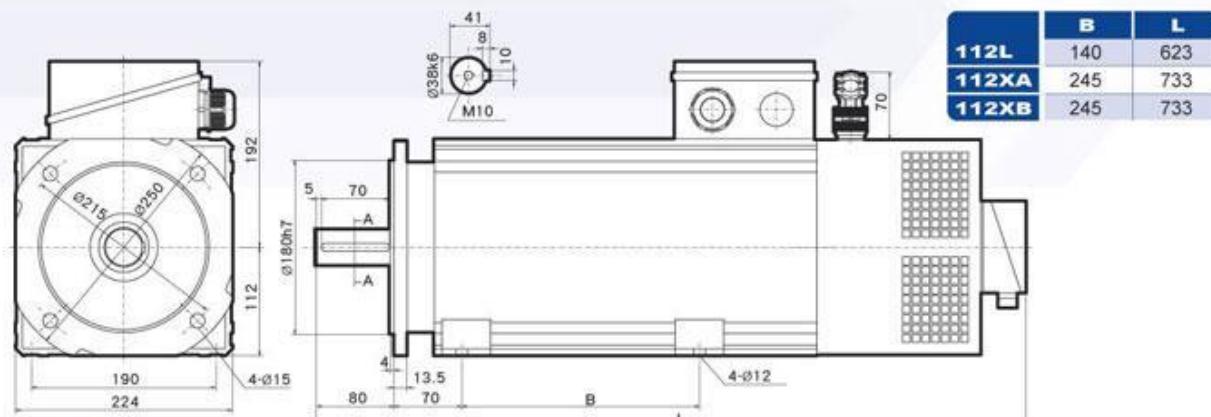


◆ 產品規格 Standard

輸出	Output (kw)	7.5	11	15
框號	Frame No.	112L	112XA	112XB
效率	Efficiency(%)	90.0%	90.5%	90.5%
功率因數	Power Factor	0.903	0.895	0.906
R1(Ω)@ 25°C		0.383	0.233	0.174
極數	Poles	4	4	4
轉動慣量	Rotor Inertial (kg·m²)	0.0153	0.0212	0.0282
激磁電流	Magnetizing Current (A)	10.2	15.4	19.0
最高轉速	Max. Speed (rpm)	7000	7000	7000
重量	Weight (kg)	45.0	65.0	72.0
編碼器	Encoder	1024PPR 5Vdc 2CH+Z		
風扇	Elec Fan	R2E180型(type)1ø 230V 50/60Hz 82/100W		
軸承	Bearings	LS:6308C3	OS:6306C3	

◆ 一般條件 General Data

安裝方式	Mounting	IM 3001(B5)
保護方式	Protection	IP54
轉子平衡	Rotor Balancing	R級 (ISO2373) R Degree
絕緣等級	Insulation	H級 Class H
冷卻系統	Cooling Sys.	強制通風 Forced Air Cooled
熱保護	Thermal Protection	熱保護器 (常閉) Thermal Protector (NC)
噪音	Noise	80dBA
周溫	Ambient Temp.	-15°C~40°C
高度	Altitude	海拔1000米 1000m ASL

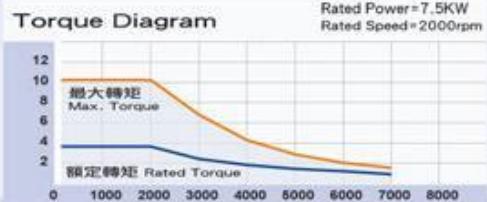


框號 Fr. No.	額定轉速 Rated Speed		最大轉矩 Max. Torque		額定轉矩 Rated Torque		額定輸出 Rated Output		額定電流 Rated Current		額定頻率 Rated Frequency	
	RPM	kg-m	kg-m	kg-m	kW	190V	220V	330V	380V	Hz		
112L	1500	10.02	3.58	5.5	22.6	19.6	13	11.3	52.1			
	2000	10.25	3.66	7.5	28	25.2	16.2	14.6	68.9			
	3000	9.11	3.25	10.0	38.0	33.0	22.0	19.1	102.2			
	4000	8.2	2.93	12.0	45.1	39.1	26.0	22.6	135.5			
112XA	1500	14.8	5.3	8.2	32.3	27.9	18.7	16.1	50			
	2000	15.02	5.37	11.0	41.2	39.0	23.8	22.5	68.9			
	3000	13.3	4.7	14.8	58.3	50.4	33.7	29.1	100			
	4000	10.8	3.8	16.5	62.5	54.0	36.1	31.2	133.3			
112XB	1500	20.37	7.27	11.2	43.6	37.9	25.2	21.9	52.5			
	2000	20.48	7.31	15.0	55.5	49.6	32	28.7	69			
	3000	18.1	6.5	20.0	77.6	67.0	44.8	38.7	100			
	4000	17.1	6.1	25.0	93.2	80.5	53.8	46.5	133.3			

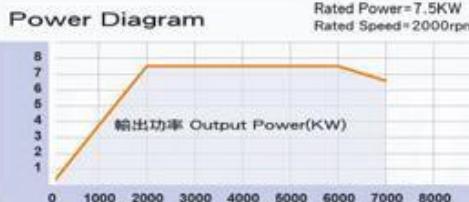
◆ FUKUTA 伺服馬達技術資料 Servo Motor Technical Datasheet

SF-112L		7.5KW 190V-2000RPM 負載特性 (7.5KW Load Character)							
△	轉速 Speed (rpm)	5	1000	2000	3000	4000	5000	6000	7000
△	電壓 Voltage (V)	14.6	102.1	190.3	190.3	190.3	190.3	190.3	190.3
△	電流 Current (A)	27.26	28.00	28.03	26.83	26.75	26.96	27.31	23.62
Y	電壓 Voltage (V)	25.3	176.8	329.6	329.7	329.7	329.7	329.7	329.7
Y	電流 Current (A)	15.74	16.17	16.18	15.49	15.44	15.57	15.77	13.64
Y	輸入功率 Input Power (KW)	0.68	4.50	8.34	8.28	8.28	8.29	8.31	7.20
Y	最大轉矩 Max. Torque Tm (Kg-m)	10.23	10.25	10.23	6.82	4.30	2.87	2.05	1.55
Y	額定轉矩 Rated Torque Tr (Kg-m)	3.65	3.66	3.65	2.44	1.83	1.46	1.22	0.92
Y	輸出功率 Output Power (KW)	0.00	3.76	7.50	7.50	7.50	7.50	7.50	6.58

Torque Diagram

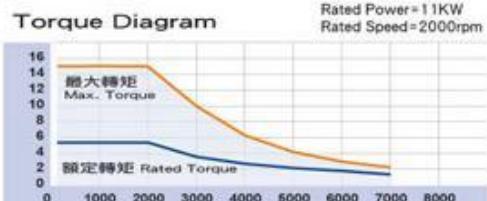


Power Diagram



SF-112XA		11KW 190V-2000RPM 負載特性 (11KW Load Character)							
△	轉速 Speed (rpm)	5	1000	2000	3000	4000	5000	6000	7000
△	電壓 Voltage (V)	13.7	101.6	190.3	190.3	190.3	190.3	190.3	190.3
△	電流 Current (A)	39.98	41.13	41.18	39.27	39.14	39.48	40.03	34.60
Y	電壓 Voltage (V)	23.7	175.9	329.7	329.7	329.7	329.7	329.7	329.7
Y	電流 Current (A)	23.08	23.75	23.77	22.67	22.60	22.79	23.11	19.98
Y	輸入功率 Input Power (KW)	0.93	6.53	12.15	12.07	12.07	12.08	12.11	10.49
Y	最大轉矩 Max. Torque Tm (Kg-m)	15.01	15.02	15.01	10.00	6.29	4.18	2.97	2.24
Y	額定轉矩 Rated Torque Tr (Kg-m)	5.36	5.37	5.36	3.57	2.68	2.14	1.79	1.34
Y	輸出功率 Output Power (KW)	0.00	5.51	11.00	11.00	11.00	11.00	11.00	9.64

Torque Diagram

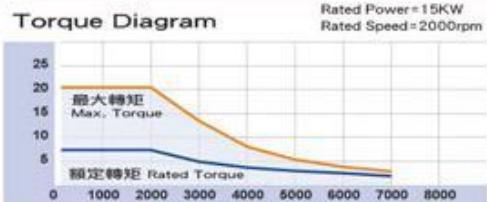


Power Diagram



SF-112XB		15KW 190V-2000RPM 負載特性 (15KW Load Character)							
△	轉速 Speed (rpm)	5	1000	2000	3000	4000	5000	6000	7000
△	電壓 Voltage (V)	14.4	101.8	190.3	190.3	190.3	190.3	190.3	190.3
△	電流 Current (A)	55.31	55.42	55.49	53.66	53.69	54.34	55.35	47.85
Y	電壓 Voltage (V)	24.9	176.3	329.7	329.7	329.7	329.7	329.7	329.6
Y	電流 Current (A)	31.93	31.99	32.04	30.98	31.00	31.38	31.96	27.63
Y	輸入功率 Input Power (KW)	1.35	8.92	16.58	16.50	16.50	16.54	16.59	14.38
Y	最大轉矩 Max. Torque Tm (Kg-m)	20.45	20.47	20.46	13.42	8.00	5.30	3.76	2.84
Y	額定轉矩 Rated Torque Tr (Kg-m)	7.30	7.31	7.31	4.87	3.65	2.92	2.44	1.83
Y	輸出功率 Output Power (KW)	0.00	7.50	15.00	15.00	15.00	15.00	15.00	13.16

Torque Diagram



Power Diagram



Model: SF-132

FUKUTA SERVO MOTOR



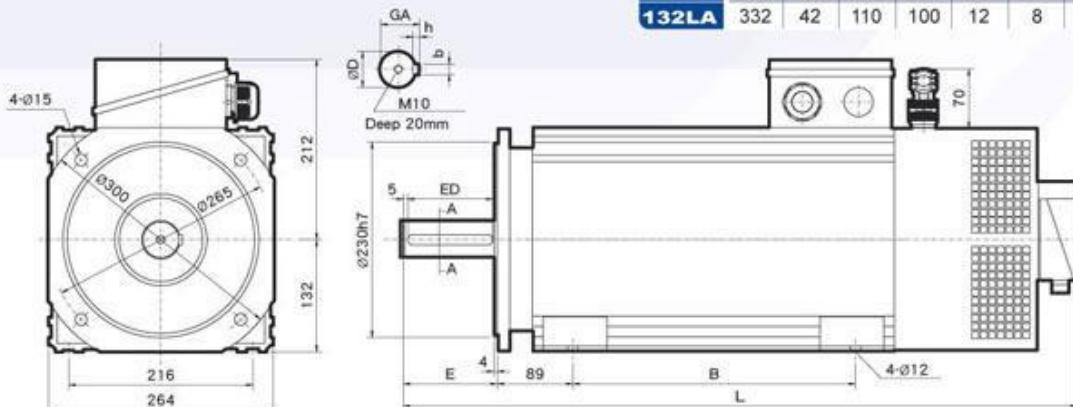
產品規格 Standard

輸出	Output (kw)	15	18.5	22	30
框號	Frame No.	132MA	132MB	132L	132LA
效率	Efficiency(%)	90.2%	91.5%	92.1%	91.5%
功因	Power Factor	0.924	0.91	0.90	0.915
R1(Ω)@25°C		0.215	0.139	0.106	0.086
極數	Poles	4	4	4	4
轉動慣量	Rotor Inertial (kg·m²)	0.0404	0.0498	0.0608	0.0735
激磁電流	Magnetizing Current (A)	15.7	22.2	29	33.8
最高轉速	Max. Speed (rpm)	6000	6000	6000	6000
重量	Weight (kg)	77.5	87.0	107.0	123
編碼器	Encoder	1024PPR	5Vdc	2CH+Z	
風扇	Elec Fan	R2E225型(type)1ø	230V	50/60Hz	105/145W
軸承	Bearings	LS:6309C3	OS:6308C3		

一般條件 General Data

安裝方式	Mounting	IM 3001(B5)
保護方式	Protection	IP54
轉子平衡	Rotor Balancing	R級 (ISO2373) R Degree
絕緣等級	Insulation	H級 Class H
冷卻系統	Cooling Sys.	強制通風 Forced Air Cooled
熱保護	Thermal Protection	熱保護器 (常閉) Thermal Protector (NC)
噪音	Noise	80dB(A)
周溫	Ambient Temp.	-15°C~40°C
高度	Altitude	海拔1000米 1000m ASL

	B	D	E	ED	b	h	GA	L
132MA	178	38	80	70	10	8	41	633
132MB	178	42	110	100	12	8	45	663
132L	332	42	110	100	12	8	45	793
132LA	332	42	110	100	12	8	45	793



框號 Fr. No.	額定轉速 Rated Speed	最大轉矩 Max. Torque	額定轉矩 Rated Torque	額定輸出 Rated Output	額定電流 Rated Current			額定頻率 Rated Frequency	
					190V	220V	330V	380V	Hz
132MA	RPM	kg·m	kg·m	kw	42.0	36.3	24.3	21.0	51.8
	1500	20.0	7.14	11	42.0	36.3	24.3	21.0	51.8
	2000	20.48	7.31	15.0	54.6	48.3	31.5	27.9	68.6
	3000	18.21	6.5	20.0	76.9	63.4	44.4	36.6	101.7
132MB	4000	17.6	6.2	25.0	92.5	79.8	53.4	46.1	133.3
	1500	25.13	8.97	13.8	52.9	45.2	30.5	26.1	51.6
	2000	25.25	9.02	18.5	67.4	60.0	38.9	34.6	68.3
	3000	23.66	8.45	26	98.3	82.1	56.7	47.4	101.7
132L	4000	23.0	8.2	33.3	121.5	104.9	70.1	60.6	133.3
	1500	30.3	10.72	16.5	63.2	54.6	36.5	31.5	51.5
	2000	30.03	10.72	22.0	80.6	71.1	46.5	41.1	68.2
	3000	28.2	10.07	31.0	117.6	99.1	67.9	57.2	101.5
132LA	4000	25.7	9.1	37.4	136.0	117.4	78.5	67.8	133.3
	1500	40.0	14.2	22	84.6	73.1	48.9	42.2	50
	2000	40.94	14.62	30	108.7	103.6	62.8	59.8	68.4
	3000	37.8	13.0	40	153.8	132.9	88.8	76.7	100
	4000	35.2	12.4	50	184.9	159.7	106.8	92.2	133.3

► FUKUTA 伺服馬達技術資料 Servo Motor Technical Datasheet

SF-132MA		15KW 190V-2000RPM 負載特性 (15KW Load Character)							
	轉速 Speed (rpm)	5	1000	2000	3000	4000	4560	5000	6000
△	電壓 Voltage (V)	14.8	102.2	190.3	190.3	190.3	190.3	190.3	190.3
	電流 Current (A)	54.56	54.57	54.61	53.55	54.03	54.61	49.43	41.63
Y	電壓 Voltage (V)	25.7	177.0	329.7	329.7	329.7	329.6	329.6	329.7
	電流 Current (A)	31.50	31.50	31.53	30.92	31.19	31.53	28.54	24.04
	輸入功率 Input Power (kW)	1.39	8.98	16.63	16.57	16.60	16.63	15.06	12.70
	最大轉矩 Max. Torque Tm (kg-m)	20.46	20.48	20.46	11.68	7.00	5.50	4.68	3.37
	額定轉矩 Rated Torque Tr (kg-m)	7.31	7.31	7.31	4.87	3.65	3.21	2.67	1.90
	輸出功率 Output Power (kW)	0.00	7.51	15.00	15.00	15.00	15.00	13.70	11.70

Torque Diagram

Rated Power = 15kW
Rated Speed = 2000rpm

Power Diagram

Rated Power = 15kW
Rated Speed = 2000rpm

SF-132MB		18.5KW 190V-2000RPM 負載特性 (18.5KW Load Character)							
	轉速 Speed (rpm)	5	1000	2000	3000	4000	5000	6529	6000
△	電壓 Voltage (V)	12.4	100.9	190.3	190.3	190.3	190.3	190.3	190.3
	電流 Current (A)	67.27	67.29	67.36	64.96	65.13	66.01	21.76	67.31
Y	電壓 Voltage (V)	21.4	174.7	329.6	329.7	329.7	329.7	329.6	329.7
	電流 Current (A)	38.84	38.85	38.89	37.51	37.61	38.11	12.56	38.86
	輸入功率 Input Power (kW)	1.42	10.77	20.21	20.12	20.12	20.16	6.40	20.21
	最大轉矩 Max. Torque Tm (kg-m)	25.25	25.25	25.24	16.43	9.78	6.47	1.12	4.59
	額定轉矩 Rated Torque Tr (kg-m)	9.02	9.02	9.01	6.01	4.51	3.61	0.82	3.00
	輸出功率 Output Power (kW)	0.00	9.26	18.50	18.50	18.50	18.50	5.50	18.50

Torque Diagram

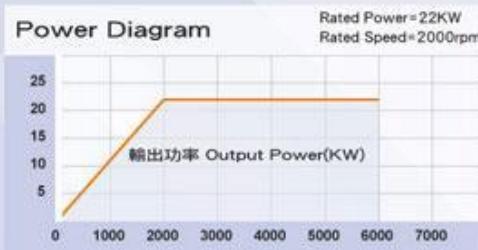
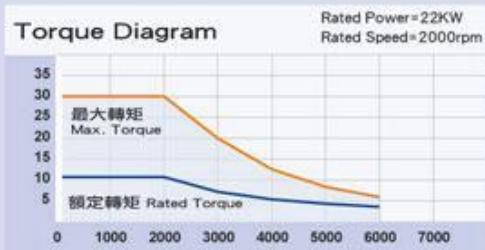
Rated Power = 18.5kW
Rated Speed = 2000rpm

Power Diagram

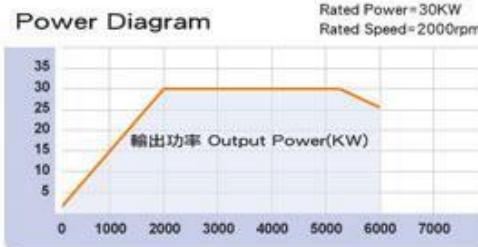
Rated Power = 18.5kW
Rated Speed = 2000rpm

FUKUTA 伺服馬達技術資料 Servo Motor Technical Datasheet

SF-132L		22KW 190V-2000RPM 負載特性 (22KW Load Character)						
	轉速 Speed (rpm)	5	1000	2000	3000	4000	5000	6000
△	電壓 Voltage (V)	11.0	100.3	190.3	190.3	190.3	190.3	190.3
	電流 Current (A)	78.46	80.45	80.54	76.64	76.58	77.34	78.51
Y	電壓 Voltage (V)	19.0	173.8	329.6	329.7	329.7	329.7	329.7
	電流 Current (A)	45.30	46.45	46.50	44.25	44.22	44.65	45.33
	輸入功率 Input Power (KW)	1.47	12.67	23.90	23.76	23.75	23.78	23.82
	最大轉矩 Max. Torque Tm (Kg-m)	30.02	30.03	30.01	20.01	12.59	8.33	5.91
	額定轉矩 Rated Torque Tr (Kg-m)	10.72	10.72	10.72	7.15	5.36	4.29	3.57
	輸出功率 Output Power (KW)	0.00	11.01	22.00	22.00	22.00	22.00	22.00

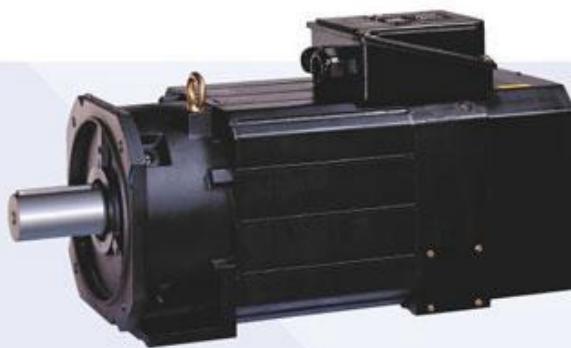


SF-132LA		30KW 190V-2000RPM 負載特性 (30KW Load Character)						
	轉速 Speed (rpm)	0	1000	2000	3000	4000	5000	5262
△	電壓 Voltage (V)	12.4	100.9	190.3	190.3	190.3	190.3	190.3
	電流 Current (A)	108.63	108.56	108.67	105.44	106.08	107.99	108.68
Y	電壓 Voltage (V)	21.5	174.8	329.6	329.7	329.7	329.7	329.6
	電流 Current (A)	62.72	62.68	62.74	60.88	61.24	62.35	62.75
	輸入功率 Input Power (KW)	2.30	17.47	32.77	32.64	32.66	32.74	32.77
	最大轉矩 Max. Torque Tm (Kg-m)	40.94	40.94	40.92	25.05	14.85	9.80	8.89
	額定轉矩 Rated Torque Tr (Kg-m)	14.62	14.62	14.61	9.74	7.31	5.85	5.56
	輸出功率 Output Power (KW)	0.00	15.00	30.00	30.00	30.00	30.00	25.55



Model: SF-160

FUKUTA SERVO MOTOR



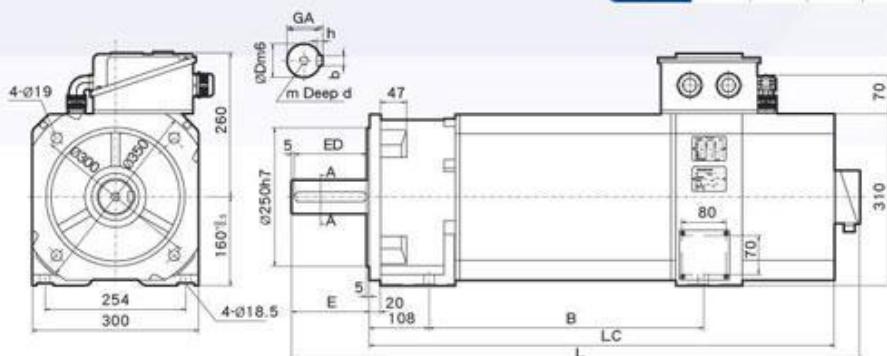
產品規格 Standard

輸出	Output (kw)	30	37	45	55
框號	Frame No.	160S	160M	160L	160X
效率	Efficiency(%)	90.2%	91.5%	92.1%	91.5%
功因	Power Factor	0.947	0.950	0.951	0.954
R1(Ω)@25°C		0.045	0.034	0.027	0.020
極數	Poles	4	4	4	4
轉動慣量	Rotor Inertial (kgm²)	0.1675	0.2054	0.2427	0.3023
激磁電流	Magnetizing Current (A)	51.4	61.1	75.2	94.5
最高轉速	Max. Speed (rpm)	4500	4500	4500	4500
重量	Weight (kg)	220	250	280	330
編碼器	Encoder	1024PPR 5Vdc 2CH+Z			
風扇	Elec Fan	R2E250型(type)1φ 230V 50/60Hz 155/215W			
軸承	Bearings	LS:6313C3	OS:6312C3		

一般條件 General Data

安裝方式	Mounting	IM 2001(B3 B5)
保護方式	Protection	IP54
轉子平衡	Rotor Balancing	R級 (ISO2373) R Degree
絕緣系統	Insulation	H級 Class H
冷卻系統	Cooling Sys.	強制通風 Forced Air Cooled
熱保護	Thermal Protection	熱保護器 (常閉) Thermal Protector (NC)
噪音	Noise	80dBa
周溫	Ambient Temp.	-15°C~40°C
高度	Altitude	海拔1000米 1000m ASL

	B	D	E	ED	bxh	mxd	GA	L	LC
160S	315	55	110	100	16x10	M12x25	59	818	659
160M	365	60	140	130	18x11	M16x30	64	898	709
160L	415	60	140	130	18x11	M16x30	64	948	759
160X	495	60	140	130	18x11	M16x30	64	1028	839



框號 Fr. No.	額定轉速 Rated Speed	最大轉矩 Max. Torque	額定轉矩 Rated Torque	額定輸出 Rated Output	額定電流 Rated Current			額定頻率 Rated Frequency
					190V	220V	330V	
160S	RPM	kg-m	kg-m	kw	190V	220V	330V	Hz
	1500	40.08	14.31	22	87.4	74.2	50.5	42.8
	2000	41.03	14.63	30	114.3	102.7	65.9	59.3
	3000	38.3	13.0	40	152.8	132.0	88.2	76.2
160M	4000	35.6	12.2	50	191.0	165.0	110.3	95.2
	1500	50.91	18.18	28	108.8	92.4	62.8	53.3
	2000	50.47	18.07	37	139.5	122.0	80.6	70.4
	3000	47.7	16.9	52	194.3	167.8	112.2	96.9
160L	4000	43.3	15.3	63	235.4	203.3	135.9	117.4
	1500	61.92	22.12	34	131.9	114.1	76.1	65.9
	2000	61.41	21.93	45	170.2	151.1	98.3	87.2
	3000	55.0	19.5	60	224.2	193.7	129.5	111.8
160X	4000	51.6	18.3	75	280.3	242.1	161.8	139.8
	1500	72.89	26.03	40	152.9	134.7	88.2	77.8
	2000	75.27	26.88	55	209.5	179.9	121	103.9
	3000	68.8	24.3	75	281.3	242.9	162.4	140.2
	4000	61.9	21.9	90	337.5	291.5	194.9	168.3

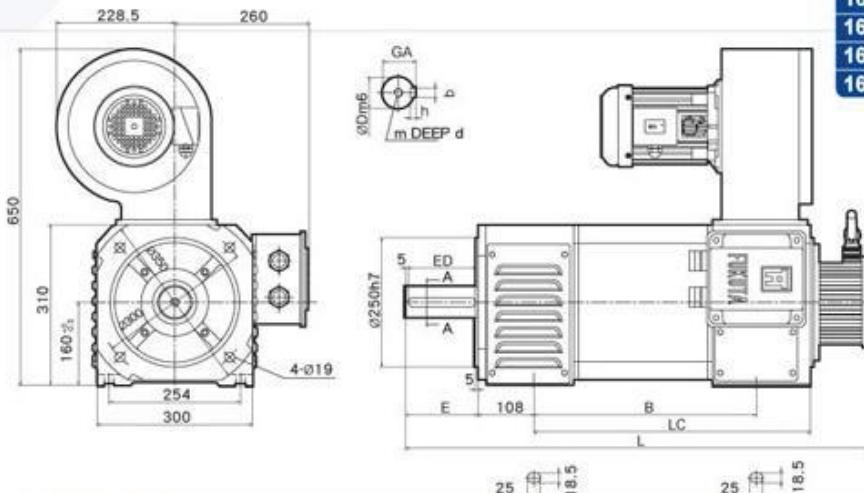
Model: SA-160

FUKUTA SERVO MOTOR



◆ 產品規格 Standard

輸出	Output (kw)	30	37	45	55
框號	Frame No.	160S	160M	160L	160X
效率	Efficiency(%)	90.2%	91.5%	92.1%	91.5%
功率因數	Power Factor	0.947	0.950	0.951	0.954
R1(Ω)@25°C		0.045	0.034	0.027	0.020
極數	Poles	4	4	4	4
轉動慣量	Rotor Inertial (kgm ²)	0.1675	0.2054	0.2427	0.3023
激磁電流	Magnetizing Current (A)	51.4	61.1	75.2	94.5
最高轉速	Max. Speed (rpm)	4500	4500	4500	4500
重量	Weight (kg)	240	270	300	350
編碼器	Encoder	1024PPR 5Vdc 2CH+Z			
風扇	Elec Fan	3ø 220/380V 50/60Hz	3.5/2.1A		
軸承	Bearings	LS-6313C3	OS-6312C3		



◆ 一般條件 General Data

安裝方式	Mounting	IM 2001(B3 B5)
保護方式	Protection	IP23
轉子平衡	Rotor Balancing	R級 (ISO2373) R Degree
絕緣系統	Insulation	H級 Class H
冷卻系統	Cooling Sys.	強制通風 Forced Air Cooled
熱保護	Thermal Protection	熱保護器 Thermal Protector (NC)
噪音	Noise	80dBA
周溫	Ambient Temp.	-15°C~40°C
高度	Altitude	海拔1000米 1000m ASL

	B	D	E	ED	b <h></h>	mxd	GA	L	LC
160S	380	55	110	100	16x11	M12x25	59	814.5	485
160M	430	60	140	130	18x11	M16x30	64	894.5	535
160L	480	60	140	130	18x11	M16x30	64	944.5	585
160X	560	60	140	130	18x11	M16x30	64	1024.5	665

框號 Fr. No.	額定轉速 Rated Speed	最大轉矩 Max. Torque	額定轉矩 Rated Torque	額定輸出 Rated Output	額定電流 Rated Current			額定頻率 Rated Frequency	
					190V	220V	330V	380V	
160S	RPM	kg-m	kg-m	kw	190V	220V	330V	380V	Hz
	1500	40.08	14.31	22	87.4	74.2	50.5	42.8	50.9
	2000	41.03	14.63	30	114.3	102.7	65.9	59.3	67.5
	3000	38.3	13.0	40	152.8	132.0	55.2	76.2	100
160M	4000	35.6	12.2	50	191.0	165.0	110.3	95.2	133.3
	1500	50.91	18.18	28	108.8	92.4	62.8	53.3	51.0
	2000	50.47	18.07	37	139.5	122.0	80.6	70.4	67.5
	3000	47.7	16.9	52	194.3	167.8	112.2	96.9	100
160L	4000	43.3	15.3	63	235.4	203.3	135.9	117.4	133.3
	1500	61.92	22.12	34	131.9	114.1	76.1	65.9	50.9
	2000	61.41	21.93	45	170.2	151.1	98.3	87.2	67.5
	3000	55.0	19.5	60	224.2	193.7	129.5	111.8	100
160X	4000	51.6	18.3	75	280.3	242.1	161.8	139.8	133.3
	1500	72.89	26.03	40	152.9	134.7	88.2	77.8	50.9
	2000	75.27	26.88	55	209.5	179.9	121	103.9	67.5
	3000	98.8	24.3	75	218.3	242.9	162.4	140.2	100
	4000	61.9	21.9	90	337.5	291.5	194.9	168.3	133.3

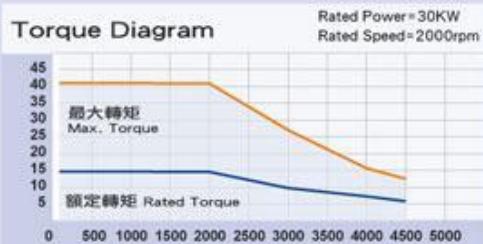
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SF/SA-160S

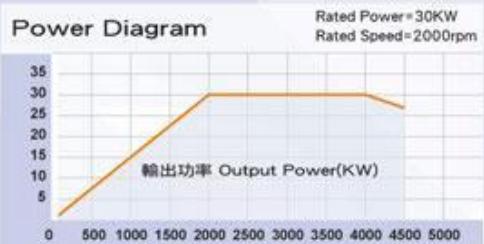
30KW 190V-2000RPM 負載特性 (30KW Load Character)

	5	1000	2000	3000	4000	4500
△ 電壓 Voltage (V)	6.0	98.1	190.3	190.3	190.3	190.3
	103.29	114.09	114.06	103.57	103.39	92.23
Y 電壓 Voltage (V)	10.5	169.8	329.6	329.7	329.7	329.6
	59.63	65.73	65.86	59.79	59.69	53.24
輸入功率 Input Power (KW)	1.07	16.43	31.66	31.42	31.40	27.98
最大轉矩 Max. Torque Tm (Kg-m)	41.03	41.03	40.91	27.10	15.67	12.53
額定轉矩 Rated Torque Tr (Kg-m)	14.65	14.65	14.61	9.74	7.31	5.81
輸出功率 Output Power (KW)	0.00	15.04	29.99	30.00	30.00	26.84

Torque Diagram



Power Diagram

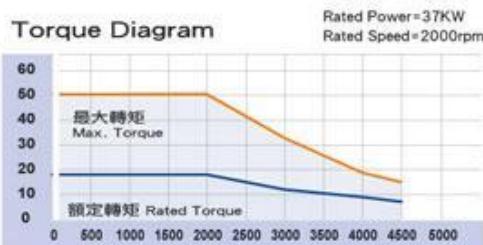


SF/SA-160M

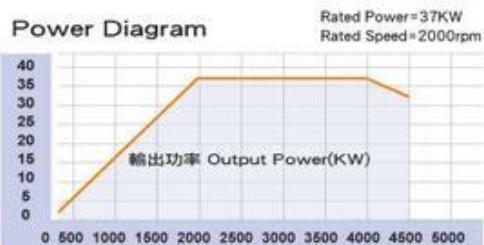
37KW 190V-2000RPM 負載特性 (37KW Load Character)

	5	1000	2000	3000	4000	4500
△ 電壓 Voltage (V)	5.8	97.9	190.3	190.3	190.3	190.3
	128.1	139.27	139.52	128.41	128.22	114.39
Y 電壓 Voltage (V)	0.10.1	169.6	329.6	329.7	329.7	329.7
	73.96	80.48	80.55	74.14	74.03	66.04
輸入功率 Input Power (KW)	1.27	20.12	38.94	38.70	38.67	34.47
最大轉矩 Max. Torque Tm (Kg-m)	50.47	50.46	50.46	32.73	18.87	15.08
額定轉矩 Rated Torque Tr (Kg-m)	18.03	18.02	18.02	12.02	9.01	7.17
輸出功率 Output Power (KW)	0.00	18.50	36.99	37.00	37.00	33.10

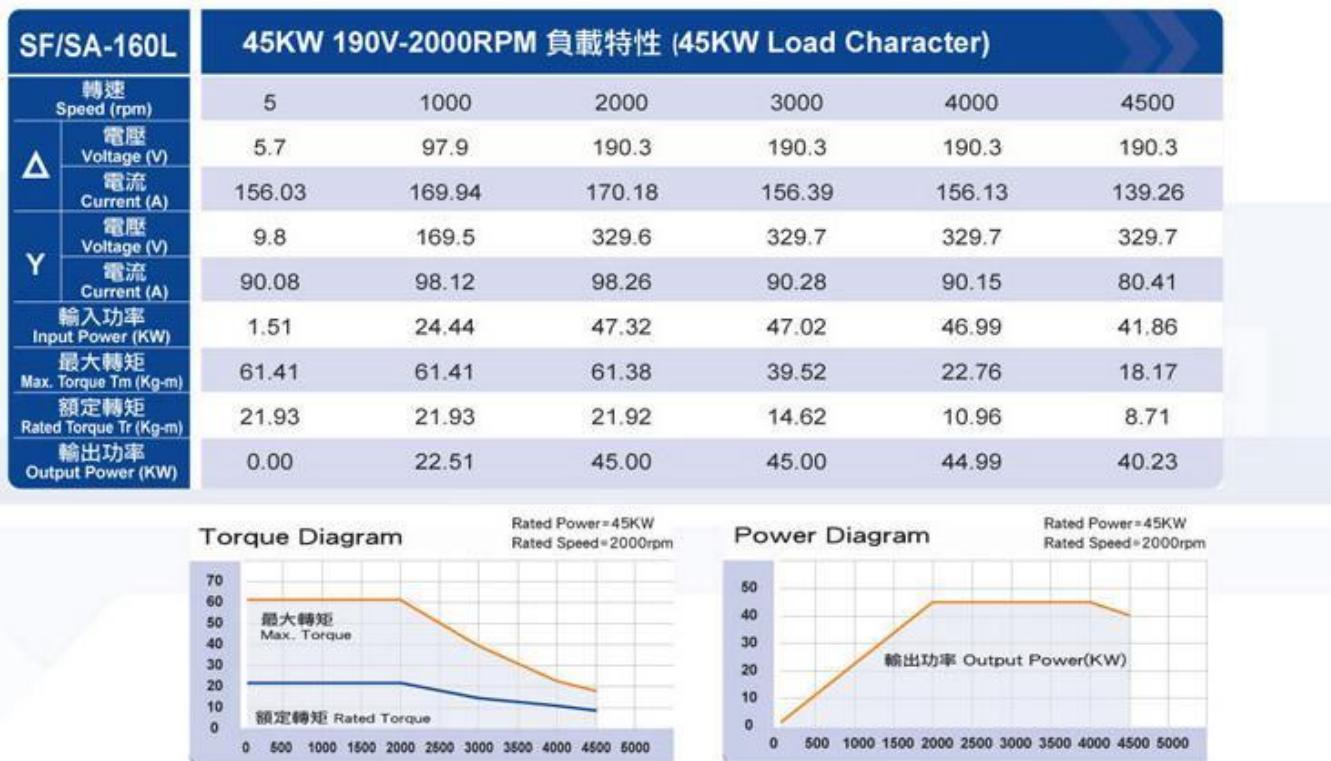
Torque Diagram



Power Diagram

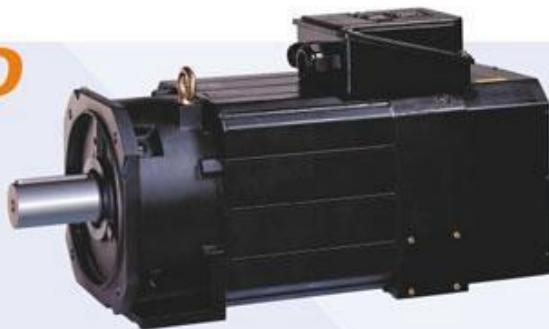


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Model: SF-180

FUKUTA SERVO MOTOR

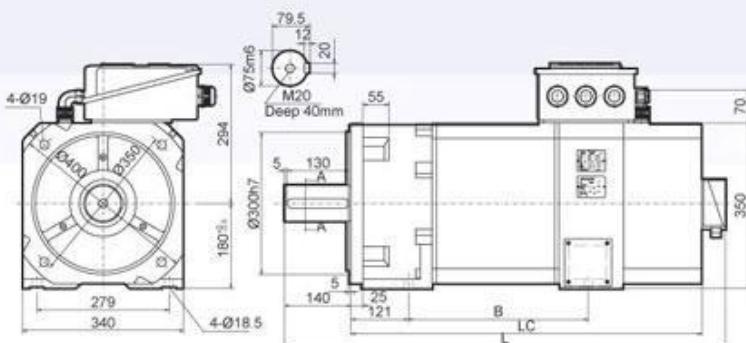


► 產品規格 Standard

輸出	Output (kw)	55	75	90	110	132
框號	Frame No.	180P	180S	180M	180L	180X
效率	Efficiency(%)	92.8%	92.7%	92.6%	93.0%	93.0%
功率因數	Power Factor	0.826	0.826	0.806	0.81	0.81
R1(Ω)@25°C		0.084	0.065	0.052	0.036	0.036
極數	Poles	6	6	6	6	6
轉動慣量	Rotor Inertial (kgm ²)	0.5463	0.6466	0.7369	0.9075	1.0479
激磁電流	Magnetizing Current (A)	45.8	61.8	80.8	98.2	98.2
最高轉速	Max. Speed (rpm)	4500	4500	4500	4500	4500
重量	Weight (kg)	315	360	400	475	530
編碼器	Encoder	1024PPR 5Vdc 2CH+Z				
風扇	Elec.Fan	R2E250型(type)1a 230V 50/60Hz 155/215W				
軸承	Bearings	LS:6316C3 OS:6314C3				

► 一般條件 General Data

安裝方式	Mounting	IM 2001(B3 B5)
保護方式	Protection	IP54
轉子平衡	Rotor Balancing	R級 (ISO2373) R Degree
絕緣系統	Insulation	H級 Class H
冷卻系統	Cooling Sys.	強制通風 Forced Air Cooled
熱保護	Thermal Protection	熱保護器 (常閉) Thermal Protector (NC)
噪音	Noise	80dBA
周溫	Ambient Temp.	-15°C~40°C
高度	Altitude	海拔1000米 1000m ASL



	B	L	LC
180P	380	930	741
180S	430	980	791
180M	475	1025	836
180L	560	1110	921
180X	630	1180	991

框號 Fr. No.	額定轉速 Rated Speed	最大轉矩 Max. Torque	額定轉矩 Rated Torque	額定輸出 Rated Output	額定電流 Rated Current	額定頻率 Rated Frequency
180P	RPM	kg.m	kg.m	kw	330V 380V	Hz
	1000	90.25	36.1	37	87 75.4	51.1
	1500	87.41	35.8	55	127.6 109.1	76.0
	2000	83.75	33.5	69	148 128	100
	3000	73.25	29.3	90	194 168	150
180S	1000	121.75	48.7	50	116.6 101.4	51.2
	1500	114.85	48.76	75	174.7 149.0	76.1
	2000	114.25	45.9	94	203 189.8	100
	3000	100.25	40.1	124	268 232	150
	1000	145.08	58.5	60	146.7 129.2	51
180M	1500	134.86	58.52	90	206.3 183.3	76.1
	2000	136.15	55.1	113	241 209	100
	3000	119.54	48.2	149	317 275	150
	1000	177.32	71.5	73	164 142	50
	1500	174.88	71.47	110	253.8 221.8	76.0
180L	2000	166.41	67.1	138	295 256	100
	3000	146.07	58.9	181	389 337	150
	1000	212.54	85.7	90	200 175	50
	1500	212.8	85.8	132	299 252	76.3
	2000	199.4	80.4	165	349 302	100
180X	3000	175.1	70.6	217	460 400	150

Model: SA-180

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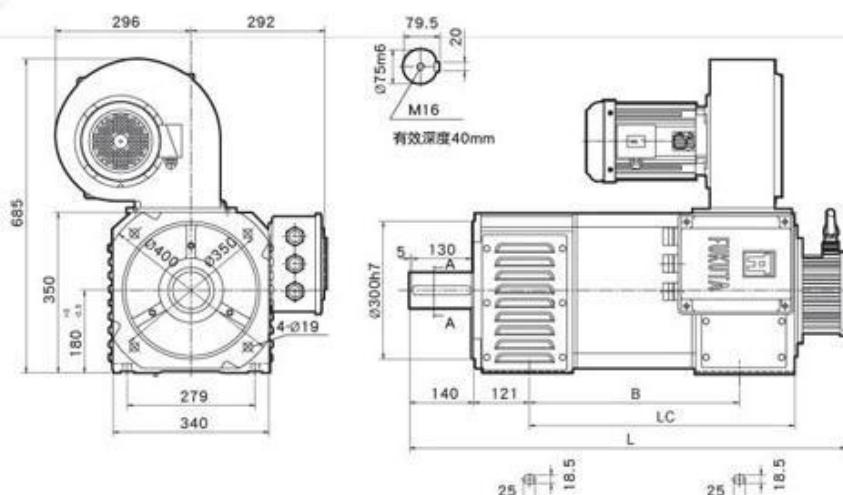


◆ 產品規格 Standard

輸出	Output (kw)	75	100	120	150	175
框號	Frame No.	180P	180S	180M	180L	180X
效率	Efficiency(%)	92.8%	92.7%	92.6%	93.0%	93.0%
功因	Power Factor	0.826	0.826	0.806	0.81	0.81
R1(Ω)@25°C		0.084	0.065	0.052	0.036	0.036
極數	Poles	6	6	6	6	6
轉動慣量	Rotor Inertial (kgm²)	0.5463	0.6466	0.7369	0.9075	1.0479
激磁電流	Magnetizing Current (A)	45.8	61.8	80.8	98.2	98.2
最高轉速	Max. Speed (rpm)	4500	4500	4500	4500	4500
重量	Weight (kg)	345	390	430	505	560
編碼器	Encoder	1024PPR 5Vdc 2CH+Z				
風扇	Elec Fan	3ø 220/380V	50/60Hz	5.6/3.2A		
軸承	Bearings	LS:6316C3		OS:6314C3		

◆ 一般條件 General Data

安裝方式	Mounting	IM 2001(B3 B5)
保護方式	Protection	IP23
轉子平衡	Rotor Balancing	R級 (ISO2373) R Degree
絕緣系統	Insulation	H級 Class H
冷卻系統	Cooling Sys	強制通風 Forced Air Cooled
熱保護	Thermal Protection	熱保護器 Thermal Protector (NC)
噪音	Noise	80dBA
周溫	Ambient Temp.	-15°C -40°C
高度	Altitude	海拔1000米 1000m ASL



框號 Fr. No.	額定轉速 Rated Speed	最大轉矩 Max. Torque	額定轉矩 Rated Torque	額定輸出 Rated Output	額定電流 Rated Current		額定頻率 Rated Frequency
					330V	380V	
180P	RPM	kg.m	kg.m	kW	330V	380V	Hz
	1000	90.25	36.1	37	87	75.4	51.1
	1500	87.41	35.8	55	127.6	109.1	76.0
	2000	83.75	33.5	69	148	128	100
	3000	73.25	29.3	90	194	168	150
180S	1000	121.75	48.7	50	116.6	101.4	51.2
	1500	114.85	48.76	75	174.7	149.0	76.1
	2000	114.25	45.9	94	203	189.8	100
	3000	100.25	40.1	124	268	232	150
	1000	145.08	58.5	60	146.7	129.2	51
180M	1500	134.86	58.52	90	206.3	183.3	76.1
	2000	136.15	55.1	113	241	209	100
	3000	119.54	48.2	149	317	275	150
	1000	177.32	71.5	73	164	142	50
	1500	174.88	71.47	110	253.8	221.8	76.0
180L	2000	166.41	67.1	138	295	256	100
	3000	146.07	58.9	181	389	337	150
	1000	212.54	85.7	90	200	175	50
	1500	212.8	85.8	132	299	252	76.3
	2000	199.4	80.4	165	349	302	100
180X	3000	175.1	70.6	217	460	400	150

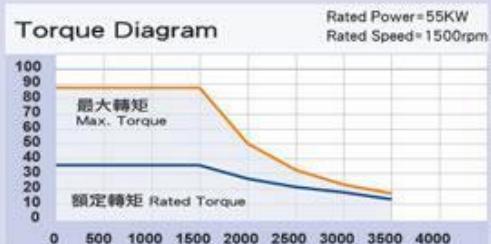
FUKUTA 伺服馬達技術資料 Servo Motor Technical Datasheet

SF/SA-180P

55KW 380V-1500RPM 負載特性 (55KW Load Character)

轉速 Speed (rpm)	5	1000	1500	2000	2500	3000	3500
電壓 Voltage (V)	12.3	257.0	380.0	380.0	380.0	380.0	380.0
電流 Current (A)	105.32	108.79	108.94	104.25	104.22	106.09	91.43
輸入功率 Input Power (KW)	2.18	40.14	59.24	59.06	59.04	59.11	50.89
最大轉矩 Max. Torque Tm (Kg-m)	87.41	87.41	87.41	50.38	32.69	22.89	17.00
額定轉矩 Rated Torque Tr (Kg-m)	35.80	35.79	35.71	26.79	21.43	17.86	13.24
輸出功率 Output Power (KW)	0.01	36.73	54.98	54.99	54.99	55.00	47.55

Torque Diagram



Rated Power=55KW
Rated Speed=1500rpm

Power Diagram



Rated Power=55KW
Rated Speed=1500rpm

SF/SA-180S

75KW 380V-1500RPM 負載特性 (75KW Load Character)

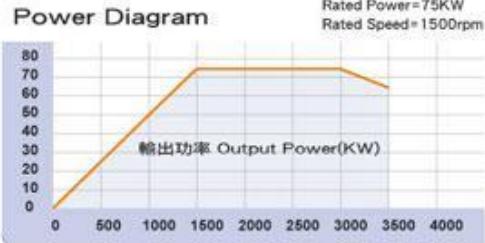
轉速 Speed (rpm)	5	1000	1500	2000	2500	3000	3500
電壓 Voltage (V)	13.0	257.2	380.0	380.0	380.0	380.0	380.0
電流 Current (A)	144.14	148.50	148.86	141.44	141.96	145.11	125.09
輸入功率 Input Power (KW)	3.13	54.80	80.92	80.60	80.61	80.71	69.50
最大轉矩 Max. Torque Tm (Kg-m)	114.85	114.85	114.85	66.21	42.97	30.08	22.36
額定轉矩 Rated Torque Tr (Kg-m)	48.76	48.76	48.72	36.53	29.23	24.36	18.06
輸出功率 Output Power (KW)	0.01	50.04	75.00	74.98	74.99	74.99	64.87

Torque Diagram



Rated Power=75KW
Rated Speed=1500rpm

Power Diagram



Rated Power=75KW
Rated Speed=1500rpm

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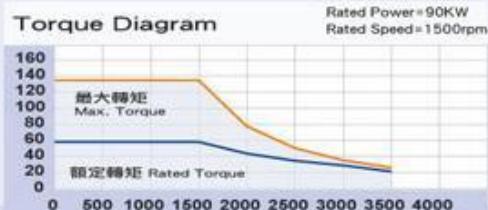
伺服馬達技術資料 Servo Motor Technical Datasheet

SF/SA-180M

90KW 380V-1500RPM 負載特性 (90KW Load Character)

	5	1000	1500	2000	2500	3000	3500
轉速 Speed (rpm)	5	1000	1500	2000	2500	3000	3500
電壓 Voltage (V)	13.0	257.2	380.0	380.0	380.0	380.0	380.0
電流 Current (A)	176.08	182.80	183.15	172.43	172.98	177.22	152.75
輸入功率 Input Power (KW)	3.83	65.84	97.12	96.76	96.75	96.89	83.41
最大轉矩 Max. Torque Tm (Kg-m)	134.86	134.86	134.86	77.63	50.33	35.21	26.16
額定轉矩 Rated Torque Tr (Kg-m)	58.52	58.52	58.44	43.85	35.08	29.23	21.67
輸出功率 Output Power (KW)	0.01	60.05	89.96	90.00	90.00	89.99	77.83

Torque Diagram

Rated Power = 90KW
Rated Speed = 1500rpm

Power Diagram

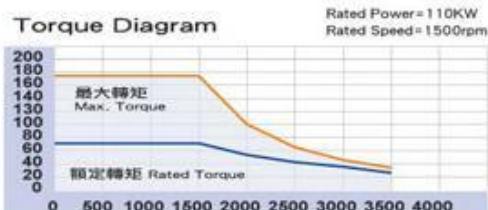
Rated Power = 90KW
Rated Speed = 1500rpm

SF/SA-180L

110KW 380V-1500RPM 負載特性 (110KW Load Character)

	5	1000	1500	2000	2500	3000	3500
轉速 Speed (rpm)	5	1000	1500	2000	2500	3000	3500
電壓 Voltage (V)	11.3	256.8	380.0	380.0	380.0	380.0	380.0
電流 Current (A)	209.37	221.11	221.73	206.69	206.92	210.85	181.69
輸入功率 Input Power (KW)	3.94	79.83	118.19	117.68	117.64	117.75	101.37
最大轉矩 Max. Torque Tm (Kg-m)	174.88	174.88	174.88	100.44	65.04	45.47	33.75
額定轉矩 Rated Torque Tr (Kg-m)	71.47	71.47	71.44	53.58	42.87	35.72	26.46
輸出功率 Output Power (KW)	0.00	73.35	109.97	109.98	109.98	109.98	95.03

Torque Diagram

Rated Power = 110KW
Rated Speed = 1500rpm

Power Diagram

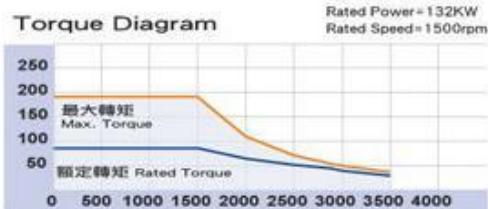
Rated Power = 110KW
Rated Speed = 1500rpm

SF/SA-180X

132KW 380V-1500RPM 負載特性 (132KW Load Character)

	5	1000	1500	2000	2500	2884	3000	3500
轉速 Speed (rpm)	5	1000	1500	2000	2500	2884	3000	3500
電壓 Voltage (V)	12.9	257.1	380.0	380.0	380.0	380.0	380.0	380.0
電流 Current (A)	253.75	254.58	255.27	247.14	249.78	255.37	232.69	200.50
輸入功率 Input Power (KW)	5.45	96.05	141.97	141.65	141.71	141.91	130.35	112.22
最大轉矩 Max. Torque Tm (Kg-m)	191.29	191.29	191.29	109.93	71.18	53.75	49.95	37.08
額定轉矩 Rated Torque Tr (Kg-m)	85.75	85.76	85.72	64.31	51.44	44.60	39.50	29.26
輸出功率 Output Power (KW)	0.02	88.01	131.96	131.99	131.99	131.99	121.62	105.11

Torque Diagram

Rated Power = 132KW
Rated Speed = 1500rpm

Power Diagram

Rated Power = 132KW
Rated Speed = 1500rpm

Model: SA-225

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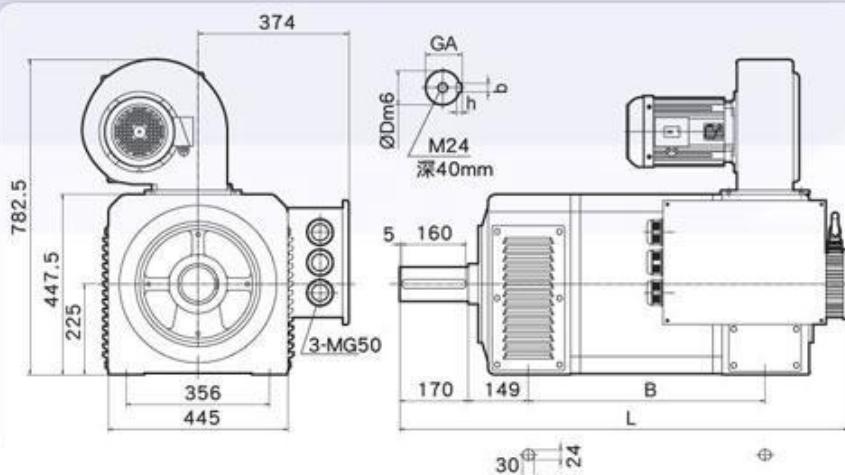


■ 產品規格 Standard

輸出	Output (kw)	150	185	220	300
框號	Frame No.	225S	225M	225L	225X
效率	Efficiency(%)	94.1%	94.3%	94.7%	94.3%
功因	Power Factor	0.876	0.873	0.850	0.878
R1(Ω)@25°C		0.0326	0.0245	0.0168	0.0148
極數	Poles	6	6	6	6
轉動慣量	Rotational Inertia (kgm²)	1.7946	2.1492	2.6569	3.1608
激磁電流	Magnetizing Current (A)	92.5	116.5	165.8	174.5
最高轉速	Max. Speed (rpm)	3000	3000	3000	3000
重量	Weight (kg)	710	800	925	1050
編碼器	Encoder	1024PPR 5Vdc 2CH+Z			
風扇	Elec. Fan	3φ 220/380V 50/60Hz 8/4.6A			
軸承	Bearings	LS-6320C3	OS-6316C3		

■ 一般條件 General Data

安裝方式	Mounting	IM 1001(B3)
保護方式	Protection	IP23
轉子平衡	Rotor Balancing	R級 (ISO2373) R Degree
絕緣系統	Insulation	H級 Class H
冷卻系統	Cooling Sys.	強制通風 Forced Air Cooled
熱保護	Thermal Protection	熱保護器 (常閉) Thermal Protector (NC)
噪音	Noise	80dBA
周溫	Ambient Temp.	-15°C ~ 40°C
高度	Altitude	海拔1000米 1000m ASL

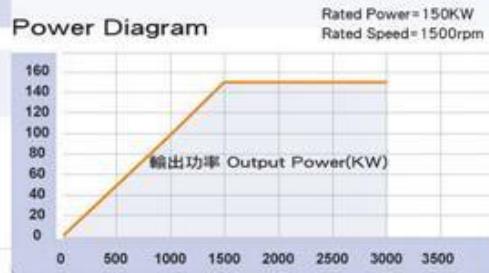
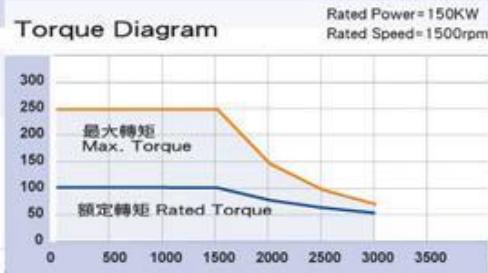


	B	D	b×h	GA	L
225S	587	85	22x14	90	1112
225M	657	85	22x14	90	1182
225L	757	95	25x14	100	1282
225X	857	95	25x14	100	1382

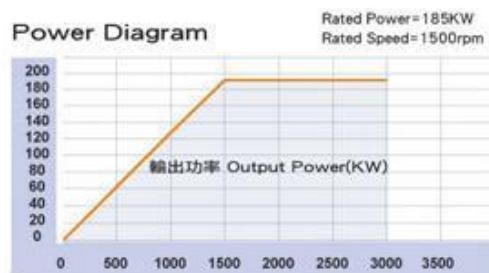
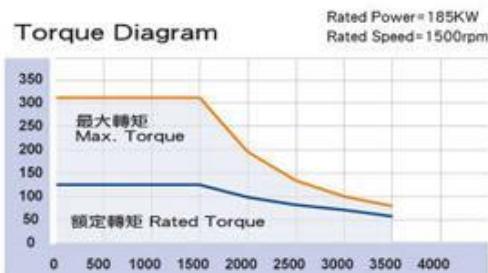
框號 Fr. No.	額定轉速 Rated Speed	最大轉矩 Max. Torque	額定轉矩 Rated Torque	額定輸出 Rated Output	額定電流 Rated Current	額定頻率 Rated Frequency
225S	RPM	kg-m	kg-m	kw	A/380V	Hz
	500	243.5	97.4	50	97.2	25
	1000	243.5	97.4	100	185.3	50
	1500	248.93	97.44	150	276.0	75.8
	2000	225.3	90.1	185	340.3	100
225M	500	324.8	120.0	67	128.8	25
	1000	324.8	120.0	133	246.9	50
	1500	309.37	120.19	185	341.0	75.8
	2000	304.5	112.0	230	433.0	100
225L	500	406.3	142.0	84	160.6	25
	1000	406.3	142.0	167	313.3	50
	1500	413.94	142.88	220	415.0	75.7
	2000	365.5	127.0	260	496.0	100
225X	500	487.3	194.9	100	191.2	25
	1000	487.3	194.9	200	366.9	50
	1500	487.3	194.9	300	543.7	75
	2000	456.8	182.7	375	672.3	100

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SA-225S	150KW 380V-1500RPM 負載特性 (150KW Load Character)						
轉速 Speed (rpm)	5	500	1000	1500	2000	2500	3000
電壓 Voltage (V)	11.5	133.7	256.8	380.0	380.0	380.0	380.0
電流 Current (A)	275.07	275.95	276.04	276.15	268.07	269.83	275.13
輸入功率 Input Power (kW)	5.37	56.50	107.85	159.26	158.91	158.97	159.15
最大轉矩 Max. Torque Tm (kg-m)	248.93	248.93	248.93	248.93	143.73	93.39	65.46
額定轉矩 Rated Torque Tr (kg-m)	97.44	97.44	97.44	97.39	73.06	58.46	48.72
輸出功率 Output Power (kW)	0.0	50.0	100.0	149.9	150.0	150.0	150.0

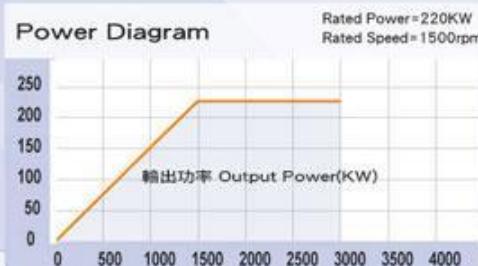


SA-225M	185KW 380V-1500RPM 負載特性 (185KW Load Character)						
轉速 Speed (rpm)	5	500	1000	1500	2000	2500	3000
電壓 Voltage (V)	10.8	133.3	256.6	380.0	380.0	380.0	380.0
電流 Current (A)	338.61	341.02	341.13	341.27	330.11	332.24	338.61
輸入功率 Input Power (kW)	6.22	69.33	132.66	196.06	195.60	195.67	195.86
最大轉矩 Max. Torque Tm (kg-m)	309.37	309.37	309.37	309.37	178.27	115.69	81.05
額定轉矩 Rated Torque Tr (kg-m)	120.19	120.18	120.18	120.11	90.10	72.10	60.08
輸出功率 Output Power (kW)	0.0	61.7	123.3	184.9	184.9	185.0	185.0



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SA-225L	220KW 380V-1500RPM 負載特性 (220KW Load Character)						
轉速 Speed (rpm)	5	500	1000	1500	2000	2500	3000
電壓 Voltage (V)	8.9	132.2	256.1	380.0	380.0	380.0	380.0
電流 Current (A)	394.82	414.60	414.76	415.20	390.89	390.68	394.93
輸入功率 Input Power (KW)	5.95	81.42	156.73	232.32	231.50	231.39	231.50
最大轉矩 Max. Torque Tm (Kg-m)	413.94	413.94	413.94	413.94	238.11	154.35	108.06
額定轉矩 Rated Torque Tr (Kg-m)	142.88	142.88	142.88	142.88	107.16	85.73	71.45
輸出功率 Output Power (KW)	0.0	73.3	146.6	219.9	219.9	220.0	220.0



SA-225X	300KW 380V-1500RPM 負載特性 (300KW Load Character)						
轉速 Speed (rpm)	5	500	1000	1500	2000	2500	2802
電壓 Voltage (V)	10.9	133.3	256.7	380.0	380.0	380.0	380.0
電流 Current (A)	550.19	549.70	549.86	550.05	536.25	542.52	550.32
輸入功率 Input Power (KW)	10.13	112.37	215.06	317.86	317.28	317.43	317.65
最大轉矩 Max. Torque Tm (Kg-m)	468.00	468.00	468.00	468.00	269.02	174.30	139.40
額定轉矩 Rated Torque Tr (Kg-m)	194.94	194.93	194.93	194.82	146.14	116.92	104.31
輸出功率 Output Power (KW)	0.0	100.0	200.0	299.9	300.0	300.0	276.2



Model: SB-225

FUKUTA SERVO MOTOR

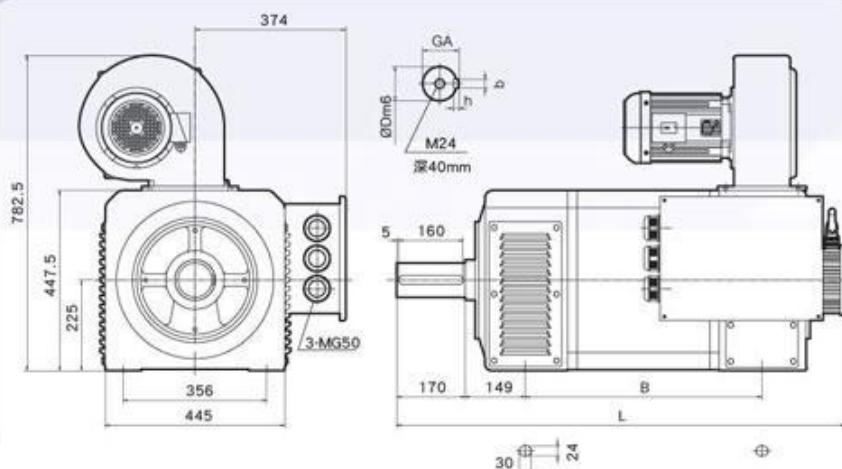


產品規格 Standard

輸出	Output (kw)	150	185	220	300
框號	Frame No.	225S	225M	225L	225X
效率	Efficiency(%)	95.3%	95.5%	95.9%	95.8%
功因	Power Factor	0.844	0.833	0.867	0.840
R1(Ω)@25°C		0.033	0.024	0.019	0.0130
極數	Poles	4	4	4	4
轉動慣量	Rotational Inertia (kgm²)	0.0030	0.0038	0.0059	0.0059
激磁電流	Magnetizing Current (A)	107.7	140.4	133.2	209.3
最高轉速	Max. Speed (rpm)	3000	3000	3000	3000
重量	Weight (kg)	705	795	915	1040
編碼器	Encoder	1024PPR 5Vdc 2CH+Z			
風扇	Elec. Fan	3φ 220/380V 50/60Hz 8/4.6A			
軸承	Bearings	LS:6320C3	OS:6316C3		

一般條件 General Data

安裝方式	Mounting	IM 1001(B3)
保護方式	Protection	IP23
轉子平衡	Rotor Balancing	R級 (ISO2373) R Degree
絕緣系統	Insulation	H級 Class H
冷卻系統	Cooling Sys.	強制通風 Forced Air Cooled
熱保護	Thermal Protection	熱保護器 (常閉) Thermal Protector (NC)
噪音	Noise	80dBA
周溫	Ambient Temp.	-15°C ~ 40°C
高度	Altitude	海拔1000米 1000m ASL



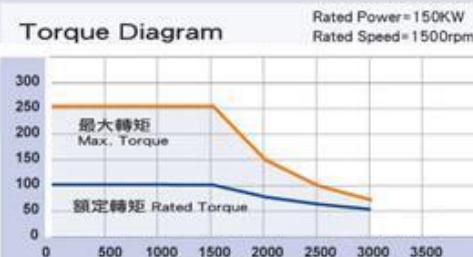
	B	D	b×h	GA	L
225S	587	85	22x14	90	1112
225M	657	85	22x14	90	1182
225L	757	95	25x14	100	1282
225X	857	95	25x14	100	1382

框號 Fr. No.	額定轉速 Rated Speed	最大轉矩 Max. Torque	額定轉矩 Rated Torque	額定輸出 Rated Output	額定電流 Rated Current	額定頻率 Rated Frequency
225S	RPM	kg-m	kg-m	kw	A/380V	Hz
	500	223.95	97.55	50	98.7	17.3
	1000	243.06	97.54	100	188.5	34.0
	1500	258.18	97.44	150	283.6	50.6
	2000	251.20	90.18	185	341.6	67.3
225M	500	278.00	130.72	67	130.9	17.4
	1000	304.06	129.77	133	250.5	34.0
	1500	321.93	120.20	185	353.3	50.6
	2000	307.53	112.08	230	424.1	67.3
225L	500	349.57	163.75	84	162.4	17.4
	1000	370.17	162.78	167	308.6	34.0
	1500	374.28	142.91	220	402.1	50.6
	2000	402.04	134.00	275	524.3	67.2
225X	500	430.05	195.00	100	193.4	17.3
	1000	466.78	195.06	200	376.6	34
	1500	489.76	194.90	300	566.5	50.6
	2000	502.37	182.71	375	718.8	67.3

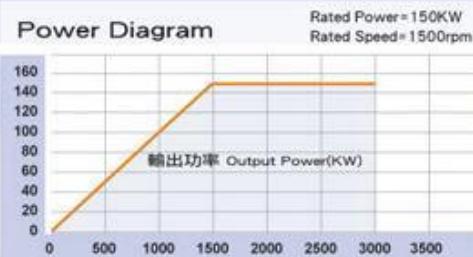
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SB-225S	150KW 380V-1500RPM 負載特性 (150KW Load Character)						
轉速 Speed (rpm)	5	500	1000	1500	2000	2500	3000
電壓 Voltage (V)	12.0	134.1	257.0	380.0	380.0	380.0	380.0
電流 Current (A)	270.02	283.39	283.48	283.56	258.55	262.58	270.05
輸入功率 Input Power (KW)	5.51	56.22	106.81	157.44	156.67	156.76	157.04
最大轉矩 Max. Torque Tm (Kg-m)	258.18	258.18	258.18	258.18	148.87	96.57	67.61
額定轉矩 Rated Torque Tr (Kg-m)	97.44	97.44	97.44	97.44	73.06	58.45	48.71
輸出功率 Output Power (KW)	0.01	50.00	100.00	149.99	149.95	149.97	149.98

Torque Diagram



Power Diagram

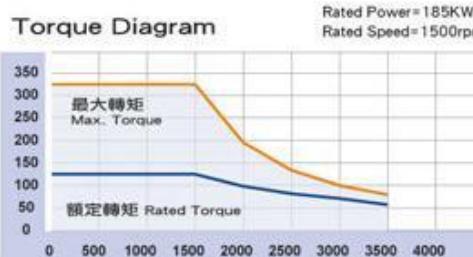


SB-225M

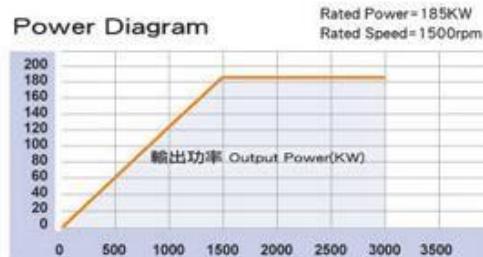
185KW 380V-1500RPM 負載特性 (185KW Load Character)

	5	500	1000	1500	2000	2500	3000
轉速 Speed (rpm)	5	500	1000	1500	2000	2500	3000
電壓 Voltage (V)	11.1	133.5	256.8	380.0	380.0	380.0	380.0
電流 Current (A)	331.84	353.15	353.26	353.19	318.21	322.95	331.99
輸入功率 Input Power (KW)	6.21	68.84	131.26	193.60	192.76	192.80	193.11
最大轉矩 Max. Torque Tm (Kg-m)	321.93	321.93	321.93	321.93	185.14	119.91	83.86
額定轉矩 Rated Torque Tr (Kg-m)	120.20	120.20	120.20	120.13	90.13	72.09	60.09
輸出功率 Output Power (KW)	0.01	61.68	123.35	184.93	185.00	184.97	185.00

Torque Diagram



Power Diagram



◆ FUKUTA 伺服馬達技術資料 Servo Motor Technical Datasheet

SB-225L	220KW 380V-1500RPM 負載特性 (220KW Load Character)						
轉速 Speed (rpm)	5	500	1000	1500	2000	2500	3000
電壓 Voltage (V)	10.7	133.2	256.6	380.0	380.0	380.0	380.0
電流 Current (A)	396.94	401.86	401.99	402.09	378.23	384.86	397.01
輸入功率 Input Power (kW)	7.14	81.05	155.25	229.48	228.83	229.01	229.37
最大轉矩 Max. Torque Tm (kg·m)	374.28	374.28	374.28	374.28	214.70	138.85	96.99
額定轉矩 Rated Torque Tr (kg·m)	142.91	142.91	142.91	142.91	107.16	85.75	71.45
輸出功率 Output Power (kW)	0.02	73.33	146.66	219.99	219.94	219.99	219.98

Torque Diagram

Rated Power=220kW
Rated Speed=1500rpm

Power Diagram

Rated Power=220kW
Rated Speed=1500rpm

SB-225X	300KW 380V-1500RPM 負載特性 (300KW Load Character)						
轉速 Speed (rpm)	5	500	1000	1500	2000	2500	3000
電壓 Voltage (V)	10.8	133.2	256.6	380.0	380.0	380.0	380.0
電流 Current (A)	547.65	566.24	566.41	566.29	517.12	527.90	547.77
輸入功率 Input Power (kW)	9.89	110.89	212.08	313.15	312.04	312.25	312.90
最大轉矩 Max. Torque Tm (kg·m)	489.76	489.76	489.76	489.76	280.59	181.26	126.52
額定轉矩 Rated Torque Tr (kg·m)	194.90	194.90	194.91	194.81	146.13	116.90	97.42
輸出功率 Output Power (kW)	0.03	100.01	200.02	299.88	299.93	299.93	299.94

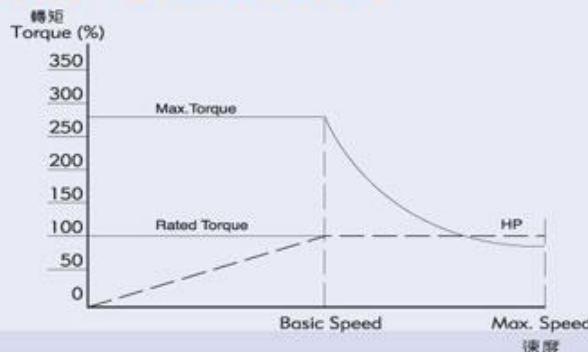
Torque Diagram

Rated Power=300kW
Rated Speed=1500rpm

Power Diagram

Rated Power=300kW
Rated Speed=1500rpm

Torque-Speed HP-Speed curve



轉矩-速度，馬力-速度曲線

$$P_{out} = T \times N$$

P_{out} = 輸出功率 Output Power

T = 輸出轉矩 Output Torque

N = 同步轉速 Synchronous Speed

P = 馬達極數 Poles

f = 頻率 Frequency

$$N = \frac{120 \times f}{P}$$

振動以mm/s表示，半鍵下實施

The vibration is expressed in mm/s, and shall be measured with a half-sized key.

轉子平衡 Rotor Balancing

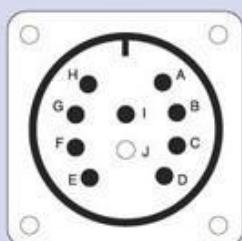
最大振動速度

品質等級	速度	$H \leq 132$	$132 < H \leq 180$
Quality Grade	Speed, RPM	mm/s	mm/s
IEC 34-14	$>600 \leq 1800$	1.12	1.8
	$>1800 \leq 3600$	1.8	2.8
ISO2373			
N(Normal)	$>600 \leq 3600$	1.8	2.8
R(Reduced)	$>600 \leq 1800$	0.71	1.12
	$>1800 \leq 3600$	1.12	1.8
S(Special)	$>600 \leq 1800$	0.45	0.70
	$>1800 \leq 3600$	0.71	1.12

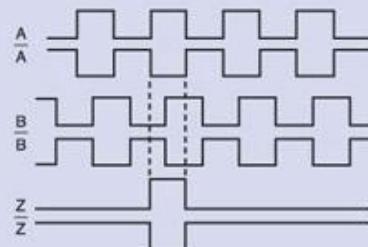
單位轉換 Unit Conversions

單位	Units	國際系統 MKSA (SI System International)	美國系統 AGMA (US System)
長度	Length	$1m=3.28ft$ $1mm=0.0394in$	$1ft=0.305m$ $1in=25.4mm$
質量	Mass	$1kg=2.205lb$	$1lb=0.454kg$
轉矩	Torque	$1Nm=0.738lb\cdot ft$	$1lb\cdot ft=1.356N\cdot m$
力	Force	$1N=0.225lb$	$1lb=4.448N$
慣量	Moment Inertia	$1kg\cdot m^2=23.73lb\cdot ft^2$	$1lb\cdot ft^2=0.0421kg\cdot m^2$
功率	Power	$1kw=1.34HP$	$1HP=0.746kw$
壓力	Pressure	$1kPa=0.145psi$	$1psi=6.89kPA$
磁通量	Magnetic Flux	$1T=1Wb/m^2=6.4524line/in^2$	$1line/in^2=1.55-5Wb / m^2$
磁通損	Magnetic Losses	$1w/kg=0.454w/lb$	$1W/lb=2.204W / kg$

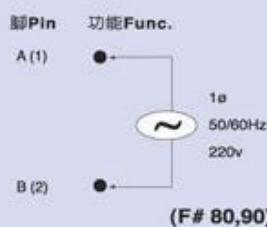
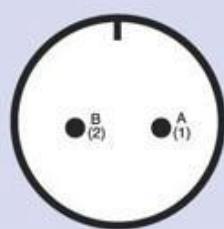
編碼器接頭 Encoder Connector



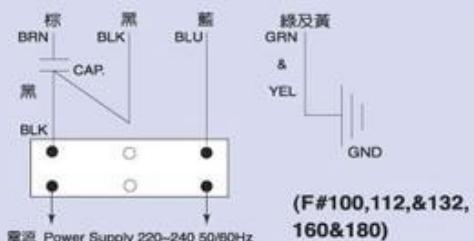
腳Pin	功能Func.
A	A
B	B
C	Z
D	A
E	B
F	Z
G	遮蔽 地線
H	電源 Power
I	COM Common
J	---



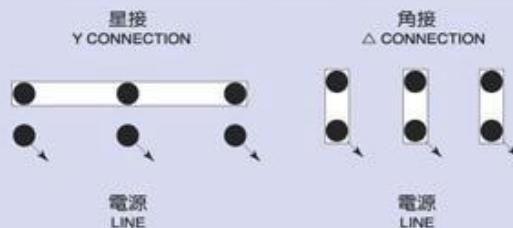
風扇接頭 Fan Connector



風扇端子台 Fan Terminal Board



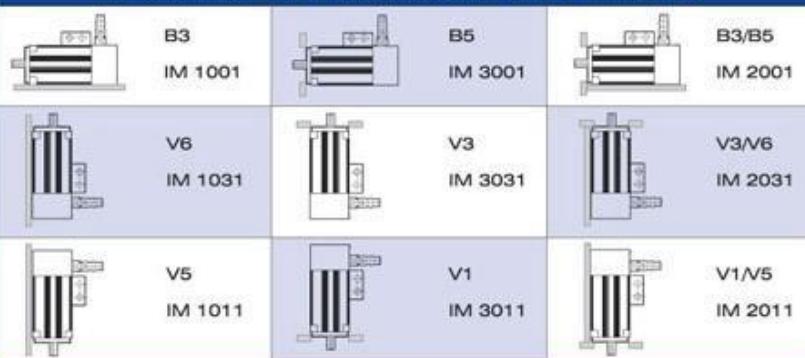
主電源端子台 Terminal Board for Main Power



熱保護器 Thermal Protector



安裝及位置 MOUNTINGS AND POSITIONS



Optionals

On request, the following accessories can be mounted on the servomotors.

- Thermistors
- Special shaft (dimensions, without key, etc.)
- IP55 protection (with maximum speed limit for packing ring)
- Flange with extra precision machining for direct coupling
- Different position of the terminal box and connectors (according to the motor mechanical structure)

附件：

下列之附件可依要求裝於伺服馬達上：

- 热敏電阻
- 特殊軸(如尺寸、不需鍵...等)
- IP55保護(依安裝之封環，要對速度作限制)
- 對直接耦合狀況，可對凸緣作特殊精密加工
- 接線箱及連接頭置於不同位置(依馬達機械結構)

關係企業

金富田科技股份有限公司

上海鑫永電機科技有限公司

上海市奉賢區柘林鎮馳華路159號

No. 159, Chi-Hua Rd., Zhe-Lin Zhen,

Feng-Xian Qu, Shanghai City, China 201417

Tel: +86-21-57458885(ex)

Fax: +86-21-5745897

寰宇精密股份有限公司(工業)

台中縣神岡鄉大圳路55之2號

Tel: +886-4-25631250(ex)

Fax: +886-4-25631375



台灣富田電機 · 地理座標位置圖

FUKUTA ELEC. & MACH. CO., LTD.

台灣台中縣神岡鄉豐洲路301巷2之1號

NO.2-1, Lane 301, Feng Chou Rd.,

Shen Kang Hsiang, Taichung

Hsien, Taiwan.

早稻田幼稚園(教育事業群)



奇龍工業股份有限公司
CHILO INDUSTRIES CO., LTD.

429 台中縣神岡鄉厚生路148號

Tel: +886-4-25613939 代表號

Fax: +886-4-25623476

統一編號 : 23807034

E-mail: chelong.ind@msa.hinet.net



FUKUTA®

富田電機股份有限公司
FUKUTA ELEC. & MACH. CO., LTD.

金富田科技股份有限公司
TOMITA TECHNOLOGY CORP.

上海鑫永電機科技有限公司
FUKUTA (SHANGHAI) ELEC.

台灣
Taiwan
429台灣台中縣神岡鄉豐洲路301巷2之1號
No.2-1, Lane 301, Feng Chou Road, Shen Kang Hsiang,
Taichung Hsien, Taiwan, 429

Tel: +886-4-2528 8833 Fax: +886-4-2528 3979
E-mail:fukuta@fukuta-motor.com.tw

上海
Shanghai
上海鑫永電機科技有限公司
上海市奉賢區柘林鎮馳華路159號
No. 159, Chi-Hua Rd., Zhe-Lin Zhen, Feng-Xian Qu,
Shanghai City, China 201417
Tel: +86-21-57458885(ex) Fax: +86-21-5745897

日本
Japan
〒621-0846 京都府龜岡市南つじヶ丘大葉台2-40-5
2-40-5, Ohbadai, Minami-tsutsujigaoka, Kameoka,
Kyoto, Japan 〒621-0846
Tel/Fax: +81-771-22-6060

