FUKUTA®

Servo Motor

INNOVATION / ENTHUSIASM / CREDIBILITY

SF/SA/SB/SL Series 感應伺服馬達

www.fukuta-motor.com.tw

FUKUTA®

Global Market 全球市場


早稻田幼稚園(教育事業部)
沖縄部
加拿大 Canada
美國 America
加州 California
台北 Taipei
FUKUTA®
台中 Taichung
台南 Tainan

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

伺服馬達的特徵

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，具有完美磁性分佈之高密度磁通所產生，故藉由保持整個速域非常低之轉矩漣波而可得到自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

富田感應型伺服馬達有良好之電流轉值及額定電流關係，而產生高比例之最大轉矩，甚至在轉矩與轉動慣量關係密切，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，即因震動或衝動(特別適用於移動機器)造成破損之危險，它不須調刷磁極位置，因磁通方向是由電壓來決定，在馬達軸心裝上編碼器，因此可精確控制速度位置，因它沒有帶電刷，碳刷或磁鐵，故它是非常穩固簡單且可靠的。

框架

以先進之規範及技術製成，由於有非常密實之大小尺寸及輕重量而有非常突出之機械特性及硬度，馬達尺寸到132為止是鋁擠型或鑄鋁，外形方正，並提供內部通風道以確保高散熱及降低共振。

保護

採IP54可依要求提供更高之保護等級。

定子

具低功率損失之特殊鐵心疊片，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

優越絕緣之雙層繞組，決定了它在FEM範疇上之優勢，因其在諧波頻率及其他的相關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器馬達產生之熱量、電動應力及電流衝擊，這些材料選擇及處理方式而允許使用具有高密度、高溫度之熱帶地區，另對於高腐蝕性環境之特殊處理也可提供。

轉子

為鋁壓鑄設計，轉子重量已減輕以使慣量減至最低，具有鋁製的鋁籠及適當之槽型以保有良好的特性(甚至在低速時)及免除了在跳槽之振動及齒動轉矩。

平衡

依ISO 2373 R級，連同鍵一起作動力平衡，已完全免除振動(甚至在高速)，對於特殊用途可依需求作S級平衡校正。

軸承

此深溝軸承適合於高速，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

有由3個雙金屬片熱開關，提供熱保護，其繞串連方式嵌置於線組上，接點在正常下為閉合的，當線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，其風量穩定而與馬達轉速無關，此保證了在任何操作條件下良好冷卻，如此，在低額定及低線電流之伺服馬達可以被使用，甚至在非常低的速度下也可有大的定轉矩率，而不必降低負荷任運轉因素。

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腳之連接器。

High Dynamical Response

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

Stable Operation Performance

The rotation 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 Ratedtorque

The FUKUTA servomotor enables a high relation between peak and rated current, so produces high rates of maximum toque. 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 sets 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 lighter weight, these servomotors offer an outstanding mechanical accuracy and sturdiness. The housings are made of extrusion and die-cast aluminium 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.

Protection

All the servomotors are built in IP23 / IP54 protection. Superior grades can be supplied on request.

Stator

It consists of special laminations with low powerloss having a special geometry in order to provide good performances and attention 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 and damping of others. The structure of FUKUTA servomotors adopts H class insulation and supports the thermal, electrodynamical stress and insulating 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 aluminium 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.

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 1 metallic double-slices thermal switch, 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.

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 aluminium case to ensure strong mechanical protection. As to the electrical connection, a 10-PIN connector is used.

經營理念/公司沿革

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

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，營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

誠信篤實，以優良的產品與服務貢獻社會。因應社會需求本乎誠信篤實之原則，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.

1988年 4月公司成立。
1990年 投資成立矽鋼片沖壓廠，朝向垂直整合經營模式。
1993年 全國第一家投入研發「變頻專用馬達」。
1996年 通過ISO-9002國際品質驗證。
1997年 全國第一家投入研發「交流感應伺服馬達」。
1998年 (1).取得經濟部工業局主導性新產品「交流感應伺服馬達」之補助案。
(2).全系列產品通過CE MARK歐洲安規認證。
2000年 (1).「交流感應伺服馬達」榮獲第九屆台灣精品標誌及優良設計標誌。
(2).投資成立高精密數值控制成形機製造廠(富宇精密股份有限公司)，
朝向水平整合經營模式。
2001年 (1).「變頻專用馬達」榮獲第十屆台灣精品標誌。
(2).「100HP及150HP感應伺服馬達」獲得經濟部技術處SBIR計畫補助。
(3).全系列產品通過CSA加拿大及美國安規認證。
2002年 (1).「薄片式伺服馬達」榮獲第十一屆台灣精品標誌。
(2).榮獲台中縣第一屆金手獎表揚。
(3).通過ISO-9001國際品質認證。
2003年 (1).「高速鋼索吊車專用馬達」獲得經濟部工業局CITD計畫補助。
(2).AEEH/AEMH/AAEH/AAMH系列通過中華民國高效率感應馬達認證。
(3).「高速鋼索吊車專用馬達」榮獲第十二屆台灣精品標誌。
2004年 (1).「250HP及400HP感應伺服馬達」獲得經濟部技術處SBIR計畫補助。
(2).「感應伺服馬達Frame 225」榮獲第十三屆台灣精品標誌。
2005年 (1).與日本、美國客戶分別簽訂「風力發電機、輪轂馬達(全電式)」技術合作案。
(2).投資成立上海富永電機科技有限公司(上海市嘉定區南翔鎮)，朝向跨國整合經營模式。
2006年 (1).全系列通過中華人民共和國CCC強制性產品認證。
(2).榮獲經濟部技術處SBIR計畫2004年度績優執行廠商表揚。
(3).與國立勤益科技大學電機系合辦產學研發碩士專班。
(4).榮獲經濟部技術處2006年度產業創新成果表揚。
(5).投資成立金富田科技股份有限公司，朝向環保及能源領域整合經營模式。
(6).投入高速主軸伺服馬達整合與製造。
2007年 與美商Tesla Motors汽車公司簽約，正式量產電動車專用馬達。
2008年 取得經濟部工業局主導性新產品「Slim型直驅風力發電機」之補助案。
2009年 (1).金富田科技股份有限公司購置台中縣豐洲科技園區土地，預計建置電動車動力馬達專業製造廠。
(2).金富田科技股份有限公司參與裕隆公司主導電動車(Luxgen)開發科專計畫。
2010年 (1).投資成立矽鋼片沖壓廠，朝向垂直整合經營模式。
(2).推動電動車充換電動力系統研發聯盟計畫。
2011年 (1).協助美國電動大廠新車型Model S核心產品測試量產，預計2012年Q2正式上市。
(2).興建EV公司電動車、電動船、電動飛機馬達專用製造廠，預計2013年Q4正式投入生產。
(3).榮獲經濟部技術處「第一屆國家產業創新獎」。
2012年 (1).參與台中地方產業創新研發推動計畫。
(2).永磁同步伺服開發。
2013年 (1).永磁同步伺服量產。
以馬達轉子榮獲國家發明創作獎之創作金牌獎。
榮獲美國電動車大廠全球最佳供應商獎。
榮獲經濟部第一屆卓越中堅企業入圍廠商。
2014年 榮獲經濟部第二屆卓越中堅企業及重點輔導對象。
參與經濟部工業局主導性新產品電動清潔車計畫開發計畫。
取得德國TÜV SÜD EC高速馬達產品認證。
2015年 擔任經濟部工業局電動車主題式研發專案電動大客車共用動力計畫主導廠商。
榮獲經濟部第24屆國家磐石獎。
榮獲經濟部中小企業處第18屆小巨人獎。
2016年 購置新竹科學園區-銅鑼園區，預計108年興建完成。
2017年 取得全球汽車產業TS-16949品質管理系統認證。

Catalogue Contents

SF Series (IP54)

SA Series (IP23)

SB Series (Low Inertia) (IP54)

SL Series (Low Inertia) (IP23)

>> 若須更詳細資料請洽各行銷人員

SF·SC·SA·SB·SL

Series

FUKUTA SERVO MOTOR

MODEL

SF-80

FUKUTA SERVO MOTOR

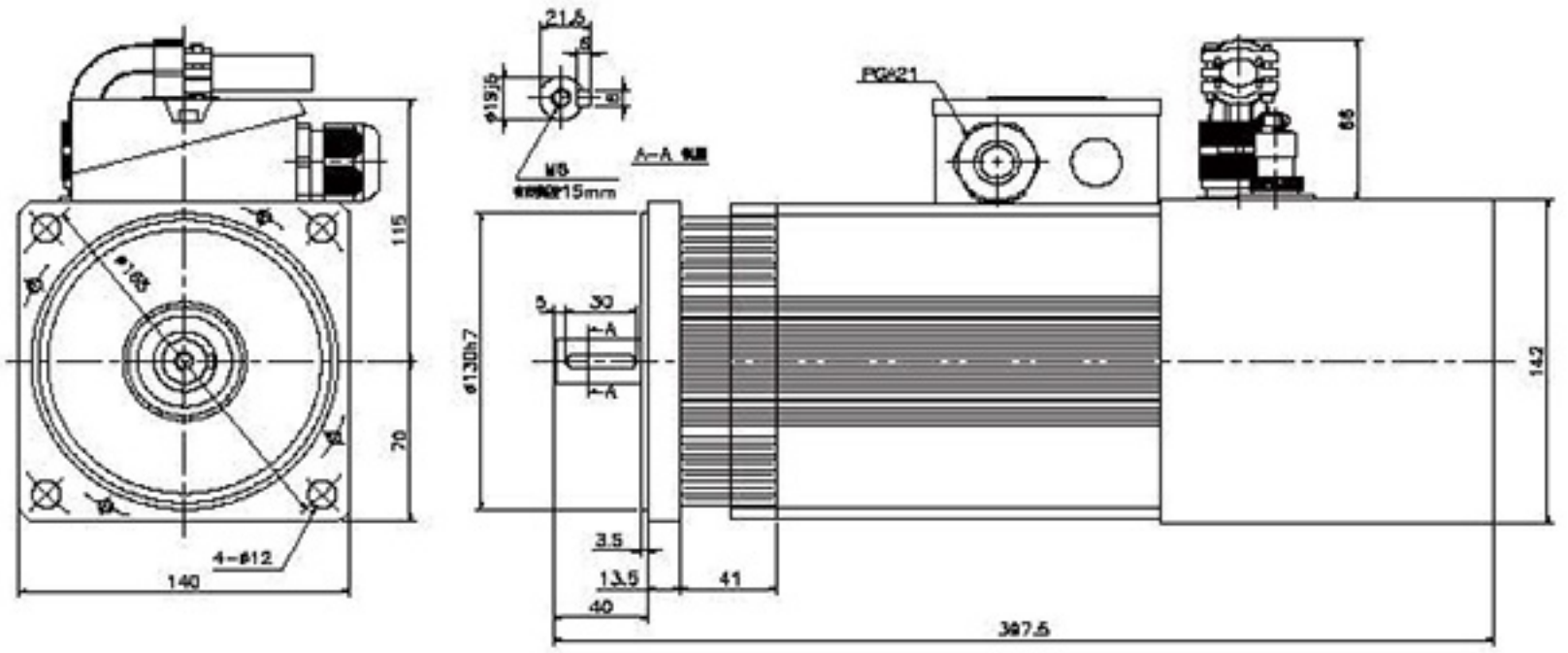
產品規格 Standard

輸　出 Output(kw)	0.75	1.1
機　號 Frame No.	80LA	80LB
效　率 Efficiency(%)	82.3%	83.3%
功　因 Power Factor	0.824	0.856
R1(Ω) @25°C	6.548	4.500
極　數 Poles	4	4
轉動慣量 Rotor Inertial(kg-㎡)	0.0020	0.0025
激磁電流 Magnetizing Current(A)	2.0	2.4
額定轉速 Rated Speed (rpm)	2000	2000
最高轉速 Max. Speed (rpm)	8000	8000
重　量 Weight(kg)	13.0	14.4
編碼器 Encoder	1024PPR RS422 (Line-drive)/Push-Pull	
風　扇 Elec.Fan	1ø 230 V 50/60 Hz 45/39W	
軸　承 Bearings	LS6206C3	OS6205C3

※編碼器之選用依需求為主

一般條件 General Data

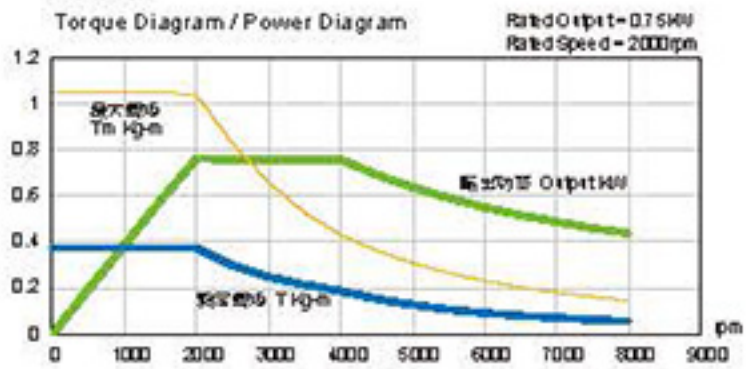
安裝方式 Mounting	IM 3001(B5)
保護方式 Protection	IP54
轉子平衡 Rotor Balancing	R級 (ISO2373)R Degree
絕緣等級 Insulation	H級 Class H
冷卻系統 Cooling Sys.	強制通風 Forced Air Cooled
熱保護 Thermal Protection	熱保護器 (常閉) Thermal Protector(NC)
噪音 Noise	80dBA
周溫 Ambient Temp.	-15°C~40°C
高度 Altitude	海拔1000米 1000m ASL
溫度感測器 Temperature sensor	KTY-84



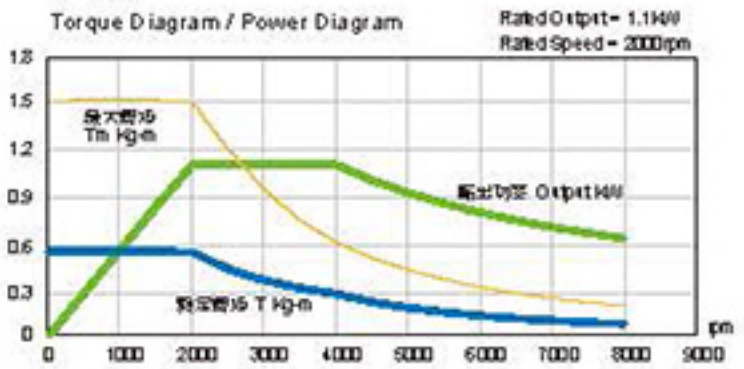
FUKUTA 伺服馬達規格之選用

Fr. No.	Rated Output	Rated Speed	Max. Torque	Rated Torque	Rated Current				Rated Frequency
	kw	RPM	kg-m	kg-m	190V	220V	330V	380V	Hz
SF-80LA	0.75	2000	1.04	0.37	3.4	3.0	1.9	1.7	69.5
	1.1	3000	1.01	0.36	4.9	4.3	2.9	2.5	102.7
	1.4	4000	0.97	0.35	6.6	5.1	3.8	3.0	136.0
SF-80LB	1.1	2000	1.52	0.54	4.7	4.2	2.7	2.4	70.0
	1.6	3000	1.47	0.52	7.1	6.0	4.1	3.4	102.9
	2.1	4000	1.45	0.52	8.8	7.8	5.1	4.5	136.6

SF-80LA



SF-80LB



FUKUTA®

INNOVATION / ENTHUSIASM / CREDIBILITY

MODEL

SF-90

FUKUTA SERVO MOTOR

產品規格 Standard

輸　出 Output(kw)	1.5	2.2	3.7
機　號 Frame No.	90MA	90MB	90L
效　率 Efficiency(%)	83.8%	83.7%	84.3%
功　因 Power Factor	0.854	0.88	0.894
R1(Ω) @25°C	3.257	2.258	1.321
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)	3.2	3.9	6.1
額定轉速 Rated Speed (rpm)	2000	2000	2000
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 RS422(Line-drive)/Push-Pull		
風　扇 Elec.Fan	1ø 230V 50/60Hz 45/39W		
軸　承 Bearings	LS6206C3	OS6205C3	

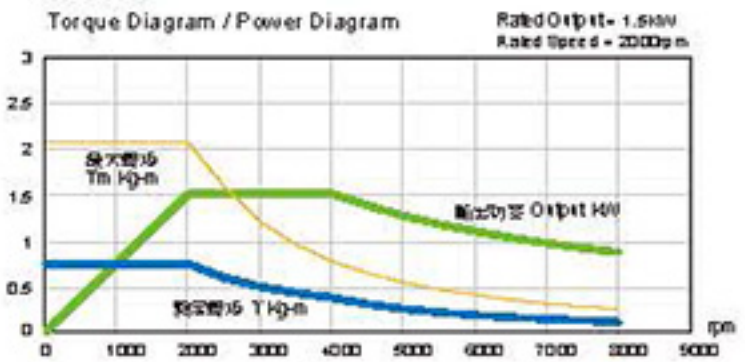
※編碼器之選用依需求為主

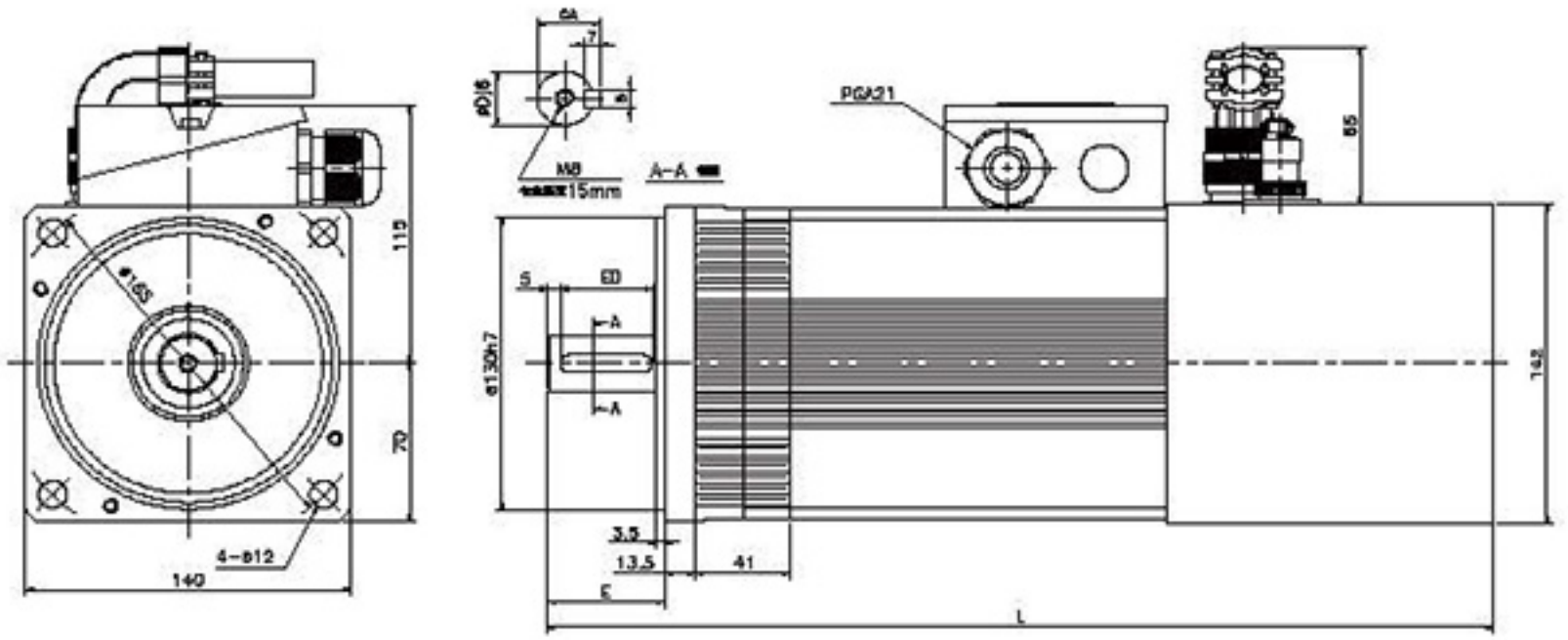
一般條件 General Data

安裝方式 Mounting	IM3001(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
溫度感測器 Temperature sensor	KTY-84

SF-90MA

Torque Diagram / Power Diagram



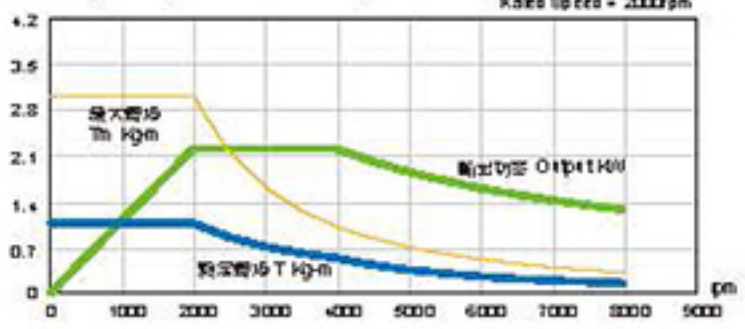


	E	ED	D	GA	L
90MA	50	40	24	27	408
90MB	50	40	24	27	433
90L	60	50	28	31	508

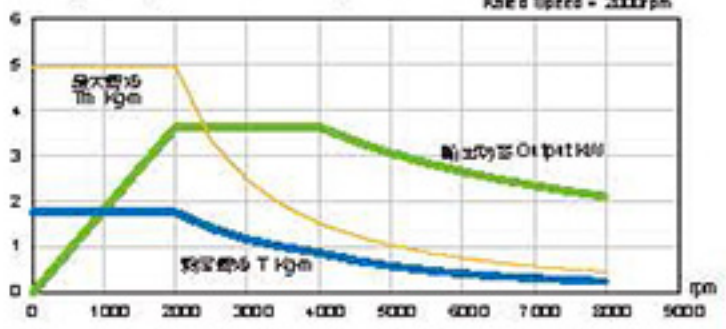
FUKUTA 伺服馬達規格之選用

機號 Fr. No.	額定輸出 Rated Output	額定轉速 Rated Speed	最大轉矩 Max. Torque	額定轉矩 Rated Torque	額定電流 Rated Current			額定頻率 Rated Frequency
	kw	RPM	kg-m	kg-m	190V	220V	330V	380V	Hz
SF-90MA	1.1	1500	2.01	0.72	5.1	4.4	3.0	2.6	52.6
	1.5	2000	2.06	0.74	6.4	5.6	3.7	3.2	69.9
	2	3000	1.83	0.65	8.5	7.4	4.9	4.3	102.9
	2.5	4000	1.72	0.61	10.4	9.2	6.0	5.3	136.2
SF-90MB	1.6	1500	2.92	1.04	7.1	6.3	4.1	3.6	53.0
	2.2	2000	3.02	1.08	9.1	8.0	5.2	4.6	70.5
	3	3000	2.88	1.03	12.3	11.3	7.1	6.5	103.3
	4.2	4000	2.77	1.02	16.5	14.3	9.5	8.2	137.1
SF-90L	2.7	1500	4.92	1.76	11.9	10.3	6.9	5.9	52.8
	3.7	2000	5.06	1.81	14.9	13.5	8.6	7.8	70.6
	5.1	3000	4.65	1.66	20.4	18.5	11.8	10.7	103.3
	6.4	4000	4.38	1.56	25.5	21.9	14.7	12.6	136.4

SF-90MB
Torque Diagram / Power Diagram



SF-90L
Torque Diagram / Power Diagram



FUKUTA®

INNOVATION / ENTHUSIASM / CREDIBILITY

MODEL

SF-100

FUKUTA SERVO MOTOR

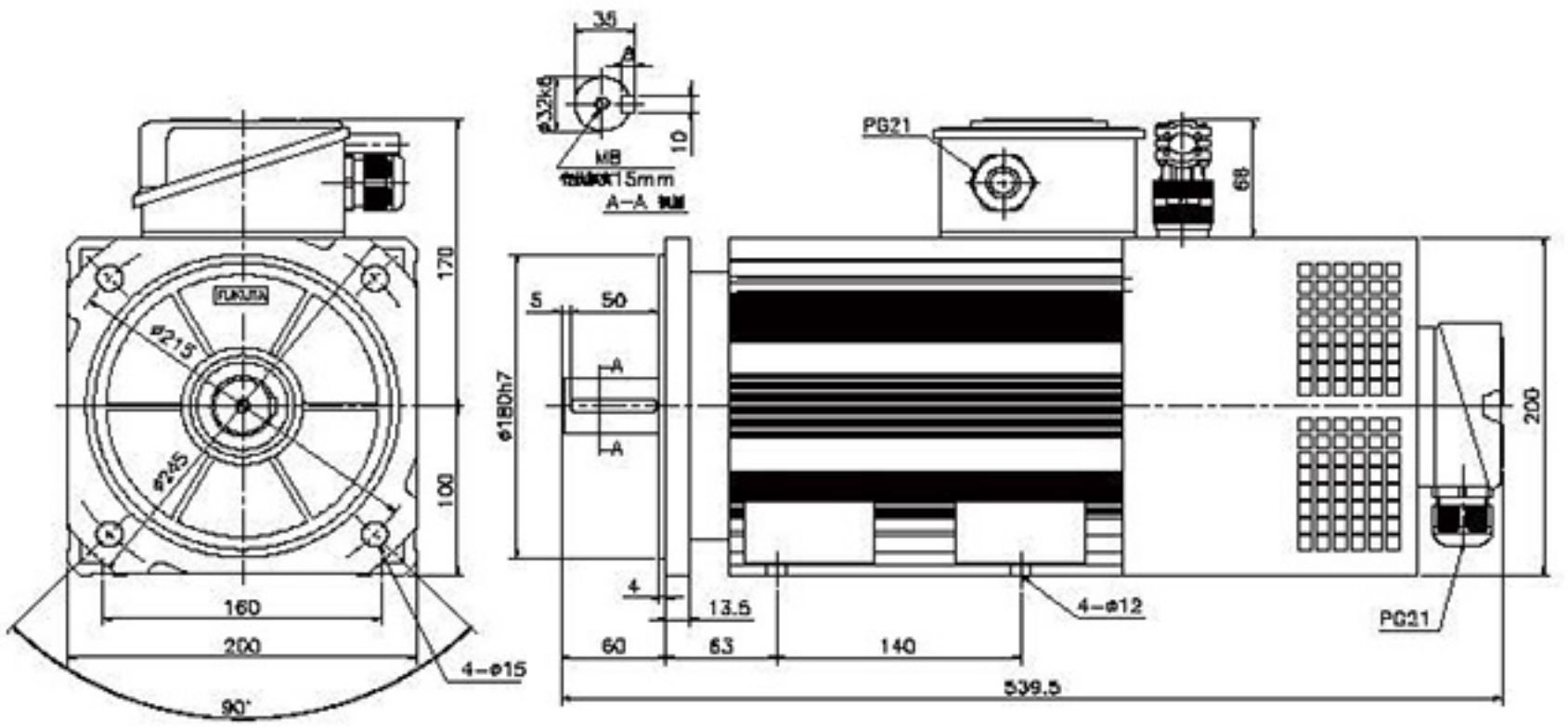
產品規格 Standard

輸　出 Output(kw)	3.8	5.5
機　號 Frame No.	100LA	100LB
效　率 Efficiency(%)	86.7%	86.4%
功　因 Power Factor	0.864	0.888
R1(Ω) @25°C	0.983	0.659
極　數 Poles	4	4
轉動慣量 Rotor Inertia(kg-㎡)	0.0061	0.0076
激磁電流 Magnetizing Current(A)	6.5	8.8
額定轉速 Rated Speed (rpm)	2000	2000
最高轉速 Max. Speed (rpm)	8000	8000
重　量 Weight(kg)	29.5	33
編 碼 器 Encoder	1024PPR RS422(Line-drive) /Push-Pull	
風　扇 Blo.Fan	1ø 230V 50/60Hz 82/100W	
軸　承 Bearings	LS:6307C3	OS:6305C3

※編碼器之選用依需求為主

一般條件 General Data

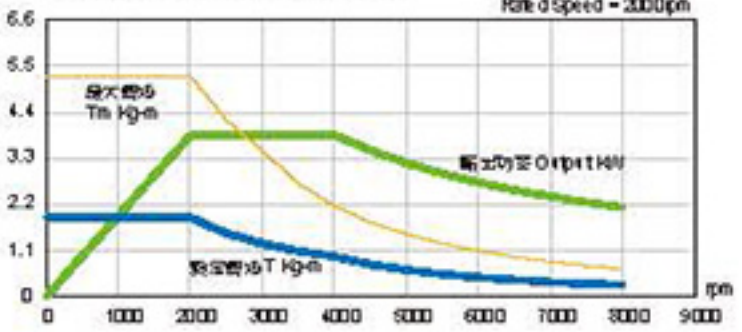
安裝方式 Mounting	IM 2001(B3/B5)
保護方式 Protection	IP54
轉子平衡 Rotor Balancing	R級 (ISO2373) R Degree
絕緣等級 Insulation	H級 Class H
冷卻系統 Cooling Sys.	強制通風 Forced Air Cooled
熱保護 Thermal Protection	熱保護器 (常閉) Thermal Protector(NC)
噪音 Noise	80dBA
周溫 Ambient Temp.	-15°C~40°C
高度 Altitude	海拔1000米 1000m ASL
溫度感測器 Temperature sensor	KTY-84



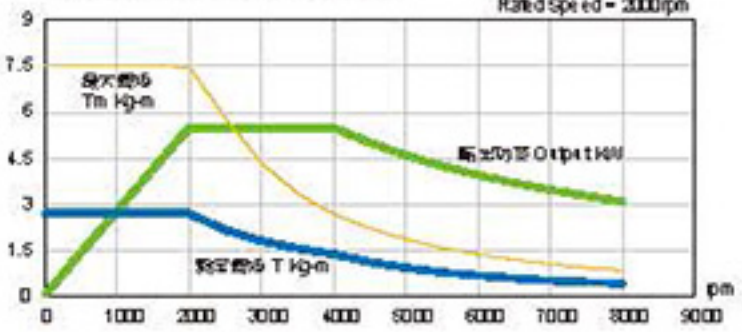
FUKUTA 伺服馬達規格之選用

機號	額定輸出	額定轉速	最大轉矩	額定轉矩	額定電流				額定頻率
Fr. No.	Rated Output	Rated Speed	Max. Torque	Rated Torque	Rated Current				Rated Frequency
	kw	RPM	kg-m	kg-m	190V	220V	330V	380V	Hz
SF-100LA	2.8	1500	5.1	1.82	11.5	9.9	6.6	5.7	52.9
	3.8	2000	5.2	1.86	15.4	13.2	8.9	7.6	69.4
	5.2	3000	4.74	1.69	23.0	17.8	13.3	10.3	102.6
	6.4	4000	4.6	1.60	24.5	21.9	14.1	12.6	136.6
SF-100LB	4.0	1500	7.29	2.60	16.1	14.6	9.3	8.4	53.1
	5.5	2000	7.52	2.69	21.8	18.6	12.6	10.7	69.7
	7.1	3000	6.74	2.41	31.2	25.0	18.0	14.4	101.8
	9.0	4000	6.15	2.2	33.7	31.5	19.4	18.2	136.2

SF-100LA
Torque Diagram / Power Diagram
Rated Output = 3.8kW
Rated Speed = 2000rpm



SF-100LB
Torque Diagram / Power Diagram
Rated Output = 5.5kW
Rated Speed = 2000rpm



FUKUTA®

INNOVATION / ENTHUSIASM / CREDIBILITY

MODEL

SF-112

FUKUTA SERVO MOTOR

產品規格 Standard

輸　出 Output(kw)	7.5	11	15
機　號 Frame No.	112L	112XA	112XB
效　率 Efficiency(%)	90.0%	90.5%	90.5%
功　因 Power Factor	0.903	0.895	0.906
R1(Ω) @25°C	0.368	0.233	0.174
極　數 Poles	4	4	4
轉動慣量 Rotor Inertial(kg-㎡)	0.0153	0.0212	0.0282
激磁電流 Magnetizing Current(A)	11.4	16.3	19.9
額定轉速 Rated Speed (rpm)	2000	2000	2000
最高轉速 Max. Speed (rpm)	7000	7000	7000
重　量 Weight(kg)	45.0	65	72.0
編碼器 Encoder	1024PPR RS422(Line-drive) /Push-Pull		
風　扇 Blo.Fan	1ø 230V 50/60Hz 82/100W		
軸　承 Bearings	LS:6308C3	OS:6306C3	

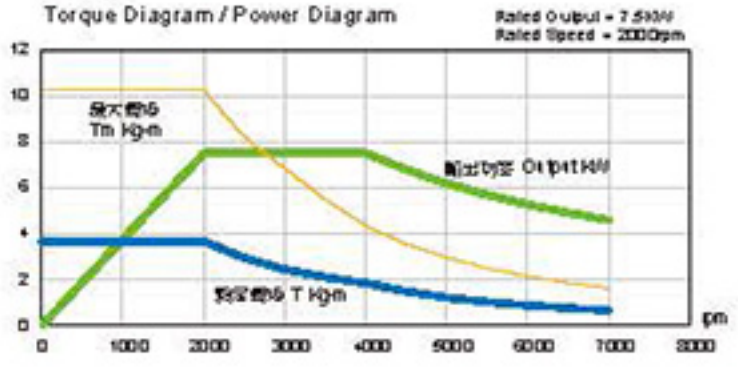
※編碼器之選用依需求為主

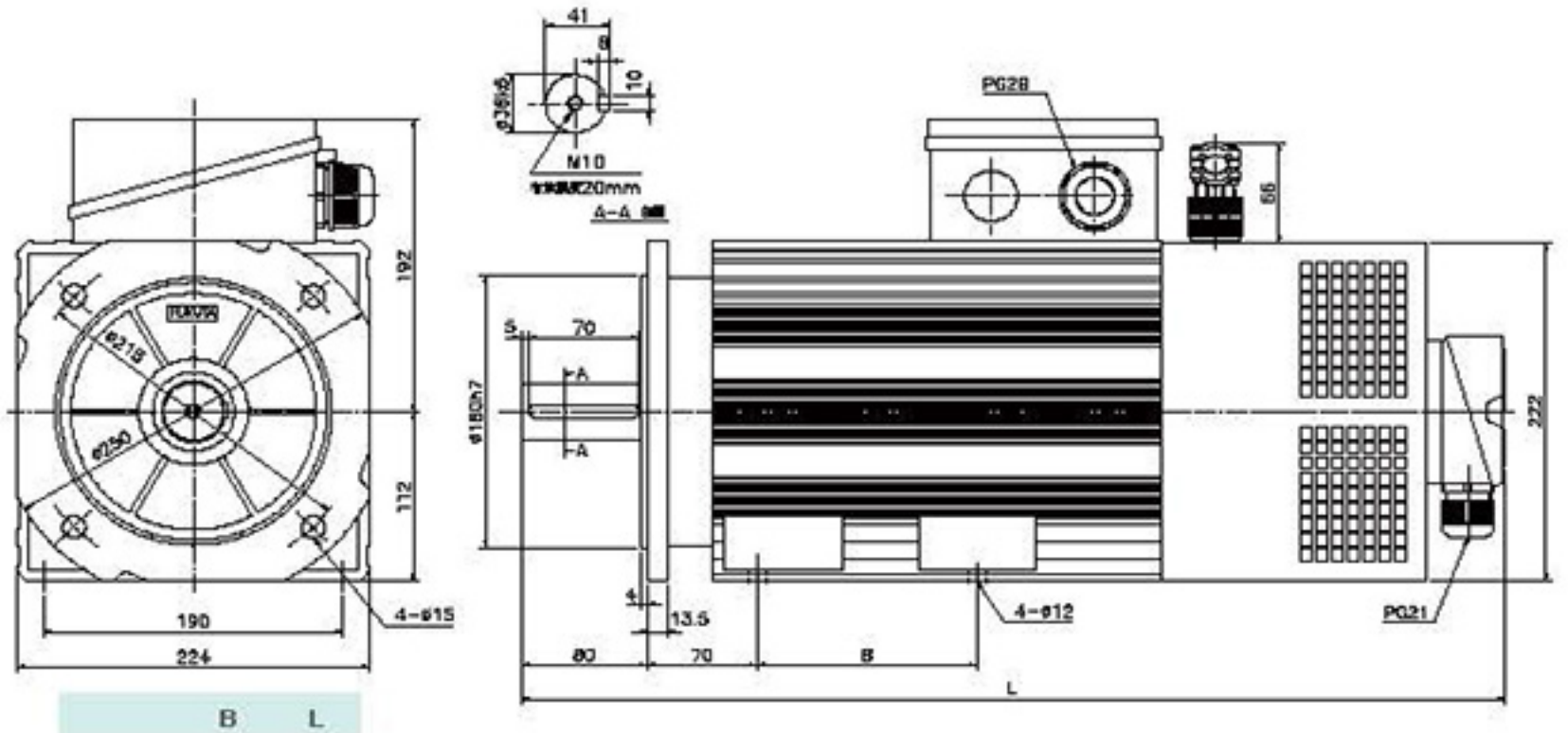
一般條件 General Data

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
溫度感測器 Temperature sensor	KTY-84

SF-112L

Torque Diagram / Power Diagram



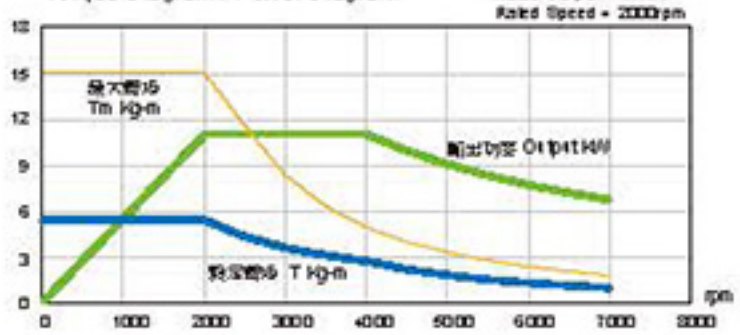


	B	L
112L	140	625
112XA	165	655
112XB	245	735

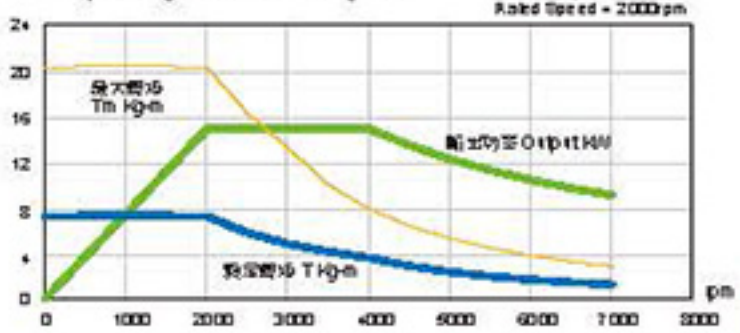
FUKUTA 伺服馬達規格之選用

機號 Fr. No.	額定輸出 Rated Output	額定轉速 Rated Speed	最大轉矩 Max. Torque	額定轉矩 Rated Torque	額定電流 Rated Current				額定頻率 Rated Frequency
	kw	RPM	kg-m	kg-m	190V	220V	330V	380V	Hz
SF-112L	5.5	1500	10.02	3.58	22.6	19.6	13.0	11.3	52.1
	7.5	2000	10.25	3.66	28.0	25.2	16.2	14.6	69.0
	10.0	3000	9.11	3.25	38.0	33.0	22.0	19.1	102.1
	12.0	4000	8.2	2.93	45.1	39.1	26.0	22.6	135.5
SF-112XA	8.2	1500	14.8	5.3	32.3	27.9	18.7	16.1	52.0
	11.0	2000	15.02	5.37	41.2	39.0	23.8	22.5	69.0
	15.0	3000	13.3	4.7	57.9	50.4	33.4	29.1	102.0
	16.5	4000	10.8	3.8	62.5	54.0	36.1	32.1	133.3
SF-112XB	11.0	1500	20.37	7.27	43.6	37.9	25.2	21.9	52.4
	15.0	2000	20.48	7.31	55.5	48.5	32.0	28.0	69.0
	20.0	3000	18.1	6.5	77.6	67.0	44.8	38.7	102.2
	25.0	4000	17.1	6.1	93.2	80.5	53.8	46.5	133.3

SF-112XA
Torque Diagram / Power Diagram



SF-112XB
Torque Diagram / Power Diagram



MODEL

SF-132

FUKUTA SERVO MOTOR

產品規格 Standard

輸　出 Output(kw)	15	18.5	22	30
機　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	0.221	0.146	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)	14.3	20.7	28.1	31.2
額定轉速 Rated Speed (rpm)	2000	2000	2000	2000
最高轉速 Max. Speed (rpm)	6000	6000	6000	6000
重　量 Weight(kg)	77.5	87.0	107.0	123.0
編碼器 Encoder	1024PPR RS422(Line-drive)/Push-Pull			
風　扇 Elec.Fan	1ø 230V 50/60Hz 105/145W			
軸　承 Bearings	LS6309C3　　OS6308C3			

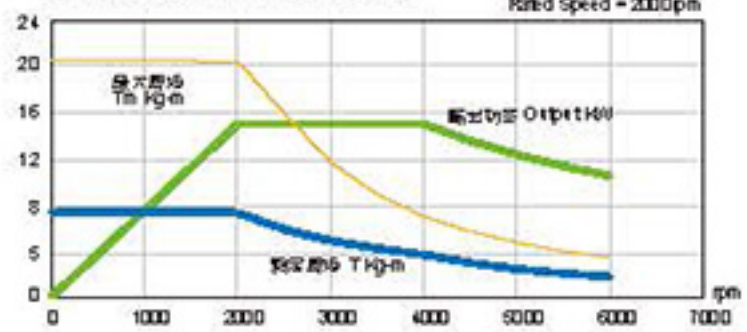
※編碼器之選用依需求為主

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
溫度感測器 Temperature sensor	KTY-84

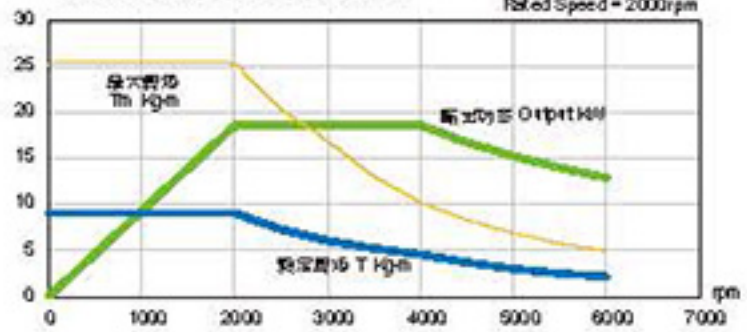
SF-132MA

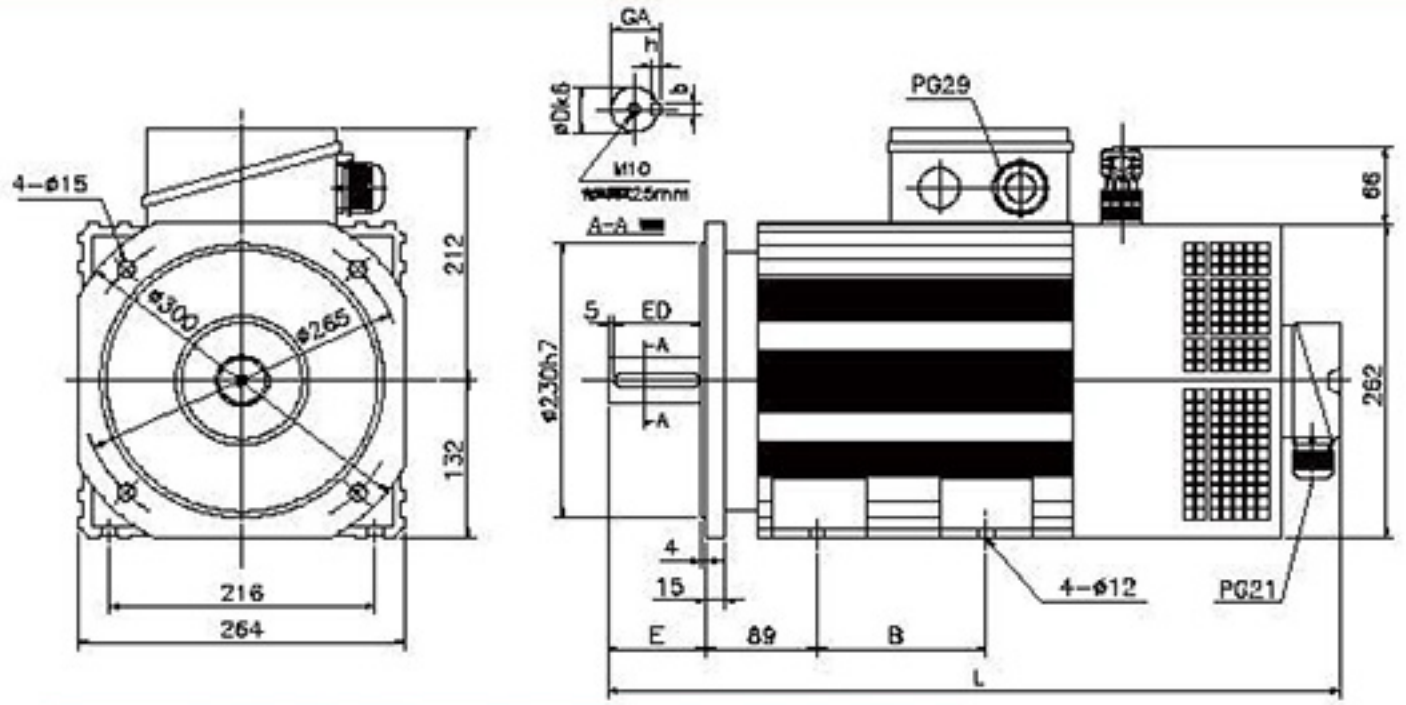
Torque Diagram / Power Diagram



SF-132MB

Torque Diagram / Power Diagram



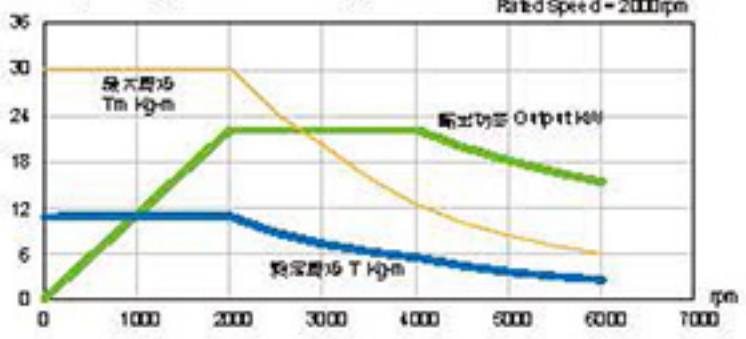


	B	D	E	ED	b	h	GA	L
132MA	138	38	80	70	10	8	41	595
132MB	178	42	110	100	12	8	45	665
132L	287	42	110	100	12	8	45	750
132LA	332	42	110	100	12	8	45	795

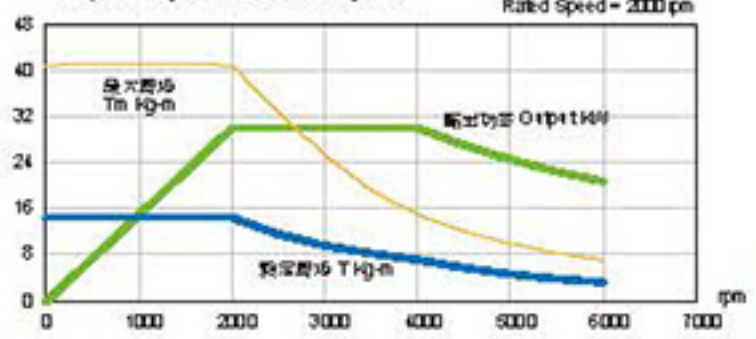
FUKUTA 伺服馬達規格之選用

機號 Fr. No.	額定輸出 Rated Output	額定轉速 Rated Speed	最大轉矩 Max. Torque	額定轉矩 Rated Torque	額定電流 Rated Current				額定頻率 Rated Frequency
	kw	RPM	kg-m	kg-m	190V	220V	330V	380V	Hz
SF-132MA	11.0	1500	20	7.14	42.0	36.3	24.3	21.0	51.7
	15.0	2000	20.48	7.31	54.6	48.3	31.5	27.9	68.7
	20.0	3000	18.21	6.5	76.9	63.5	44.4	36.6	101.7
	25.0	4000	17.6	6.2	92.5	79.8	53.4	46.1	133.3
SF-132MB	13.8	1500	25.13	8.97	52.9	45.2	30.5	26.1	51.6
	18.5	2000	25.25	9.02	67.4	60.0	38.9	34.6	68.4
	26.0	3000	23.66	8.45	98.3	85.1	56.7	47.4	101.7
	33.3	4000	23	8.2	121.5	104.9	70.1	60.6	133.3
SF-132L	16.5	1500	30.3	10.72	63.2	54.6	36.5	31.5	51.5
	22.0	2000	30.03	10.72	80.6	71.1	46.5	41.1	68.2
	31.0	3000	28.2	10.07	117.6	99.1	67.9	57.2	101.5
	37.4	4000	25.7	9.1	136.0	117.4	78.5	67.8	133.3
SF-132LA	22.0	1500	40	14.2	84.6	73.1	48.9	42.2	51.7
	30.0	2000	40.94	14.62	108.7	103.6	62.8	59.8	68.5
	40.0	3000	37.8	13	153.8	132.9	88.8	76.7	101.2
	50.0	4000	35.2	12.4	184.9	159.7	106.8	92.2	133.3

SF-132L
Torque Diagram / Power Diagram
Rated Output = 22 KW
Rated Speed = 2000 rpm



SF-132LA
Torque Diagram / Power Diagram
Rated Output = 30 KW
Rated Speed = 2000 rpm



FUKUTA®

INNOVATION / ENTHUSIASM / CREDIBILITY

MODEL

SF-160

FUKUTA SERVO MOTOR

產品規格 Standard

輸　出 Output(kw)	30	37	45	55
機　號 Frame No.	160S	160M	160L	160X
效　率 Efficiency(%)	94.6%	95.1%	95.1%	95.2%
功　因 Power Factor	0.827	0.854	0.844	0.839
R1(Ω) @25℃	0.045	0.033	0.027	0.020
極　數 Poles	4	4	4	4
轉動慣量 Rotor Inertial(kg-m²)	0.1675	0.2054	0.2427	0.3023
激磁電流 Magnetizing Current(A)	46.9	59.2	75.2	78.4
額定轉速 Rated Speed (rpm)	2000	2000	2000	2000
最高轉速 Max. Speed (rpm)	4500	4500	4500	4500
重　量 Weight(kg)	220.0	250.0	280.0	330.0
編碼器 Encoder	1024PPR RS422(Line-drive)/Push-Pull			
風　扇 Elec.Fan	1ø 230V 50/60Hz 155/215W			

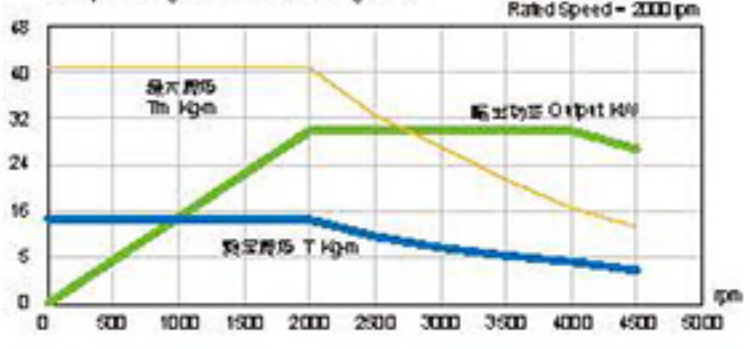
軸　承 Bearings	160S	160M	160L	160X
LS	6313	6313	6314	6315
OS	6313	6313	6313	6314

一般條件 General Data

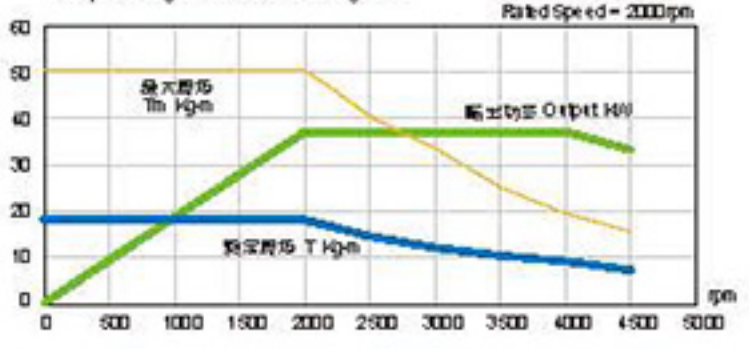
安裝方式 Mounting	IM 2001(B3/B5)
保護方式 Protection	IP54
轉子平衡 Rotor Balancing	R級 (ISO2373)R Degree
絕緣等級 Insulation	H級 Class H
冷卻系統 Cooling Sys.	強制通風 Forced Air Cooled
熱保護 Thermal Protection	熱保護器 (常閉) Thermal Protector (NC)
噪音 Noise	80dBA
周溫 Ambient Temp.	-15℃~40℃
高度 Altitude	海拔1000米 1000m ASL
溫度感測器 Temperature sensor	KTY-84

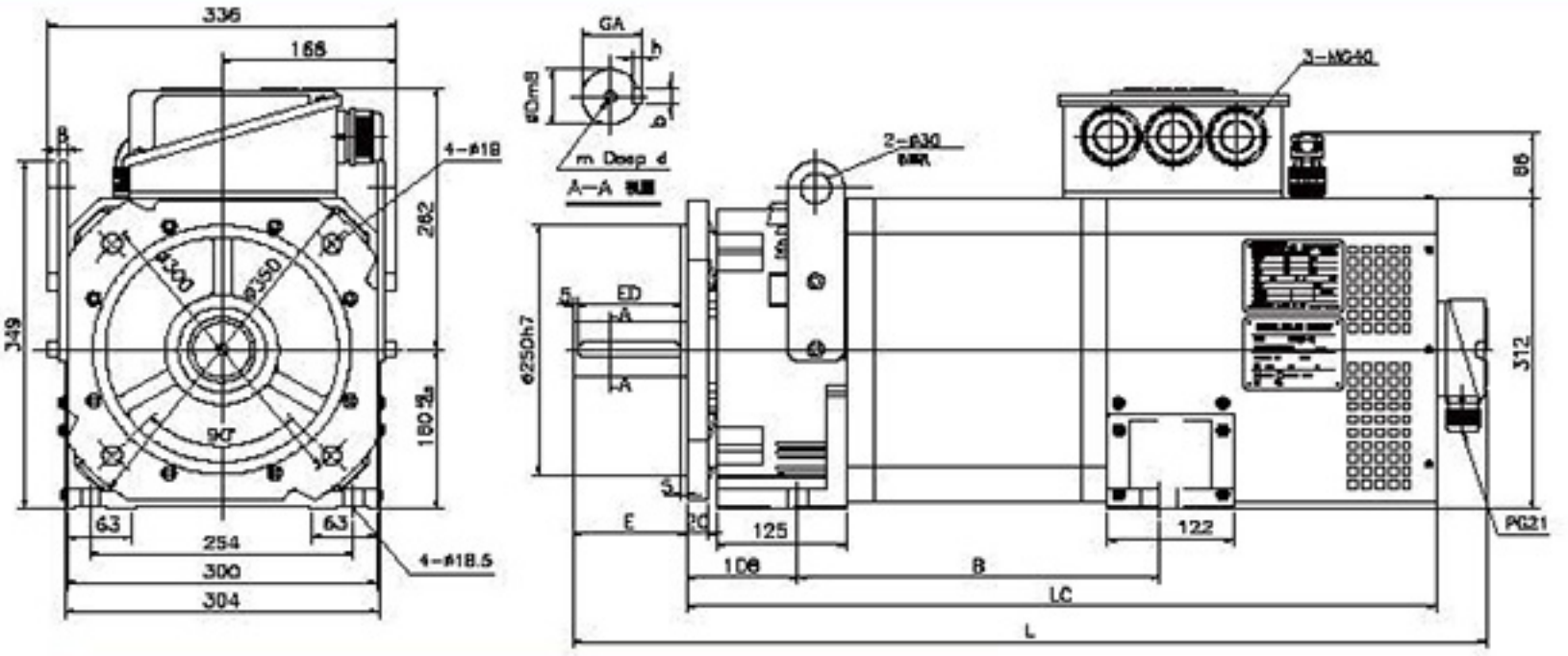
※編碼器之選用依需求為主

SF-160S
Torque Diagram / Power Diagram



SF-160M
Torque Diagram / Power Diagram

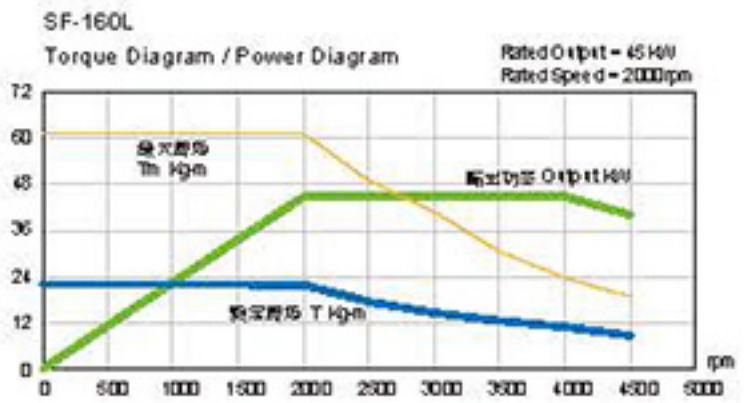


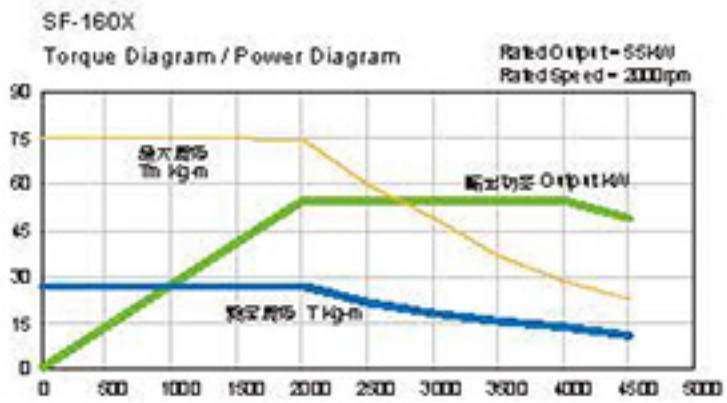


	B	D	E	ED	bxh	mxd	GA	L	LC
160S	349	55	110	100	16x10	M12x35	59	884	725
160M	399	60	140	130	18x11	M16x40	64	964	775
160L	449	60	140	130	18x11	M16x40	64	1014	825
160X	529	60	140	130	18x11	M16x40	64	1094	905

FUKUTA 伺服馬達規格之選用

機號 Fr. No.	額定輸出 Rated Output	額定轉速 Rated Speed	最大轉矩 Max. Torque	額定轉矩 Rated Torque	額定電流 Rated Current				額定頻率 Rated Frequency
	kw	RPM	kg-m	kg-m	190V	220V	330V	380V	Hz
SF-160S	22	1500	40.08	14.31	87.4	74.1	50.5	42.8	50.9
	30	2000	41.03	14.63	116.6	100.8	67.3	58.2	67.6
	40	3000	38.3	13.0	152.8	132.0	88.2	76.2	100.8
	50	4000	35.6	12.2	191.0	162.7	110.3	93.9	134.1
SF-160M	28	1500	50.91	18.18	104.5	90.1	60.3	52.0	50.8
	37	2000	50.47	18.07	138.3	120.1	79.9	69.4	67.6
	52	3000	47.7	16.9	194.3	167.8	112.2	96.9	100.7
	63	4000	43.3	15.3	235.4	203.3	135.9	117.4	133.3
SF-160L	37	1500	61.2	22.16	125.5	108.4	72.1	62.6	50.9
	45	2000	61.41	21.93	170.3	148.5	98.3	85.7	67.5
	60	3000	55	19.5	224.2	193.9	129.5	112.0	100.7
	75	4000	51.6	18.3	280.3	242.1	161.8	139.8	133.3
SF-160X	45	1500	72.89	29.23	169.1	146.0	97.0	84.2	50.8
	55	2000	75.27	26.88	206.4	178.4	119.2	103.0	67.5
	75	3000	68.8	24.3	281.3	242.9	162.4	140.2	100.6
	90	4000	61.9	21.9	337.5	291.5	194.9	168.3	133.3





FUKUTA®

INNOVATION / ENTHUSIASM / CREDIBILITY

MODEL

SF-180

FUKUTA SERVO MOTOR

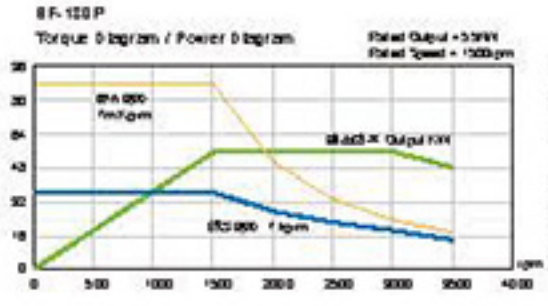
產品規格 Standard

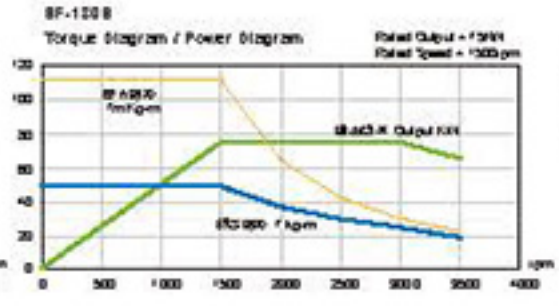
輸　出 Output(kw)	55	75	90	110	132
機　號 Frame No.	180P	180S	180M	180L	180X
效　率 Efficiency(%)	92.8%	92.7%	93.8%	93.0%	92.8%
功　因 Power Factor	0.831	0.825	0.828	0.808	0.822
R1(Ω) @25°C	0.084	0.065	0.053	0.038	0.035
極　數 Poles	6	6	6	6	6
轉動慣量 Rotor Inertial(kg-m²)	0.5463	0.6466	0.7369	0.9075	1.0479
激磁電流 Magnetizing Current(A)	44.7	62.1	71.6	99.3	107.5
額定轉速 Rated Speed (rpm)	1500	1500	1500	1500	1500
最高轉速 Max. Speed (rpm)	3500	3500	3500	3500	3500
重　量 Weight(kg)	315.0	360.0	400.0	478.0	530.0
編 碼 器 Encoder	1024PPR RS422(Line-drive)/Push-Pull				
風　扇 Elec.Fan	1ø 230V 50/60Hz 155/215W				
軸　承 Bearings	LS:6316 C3　　OS:6315 C3				

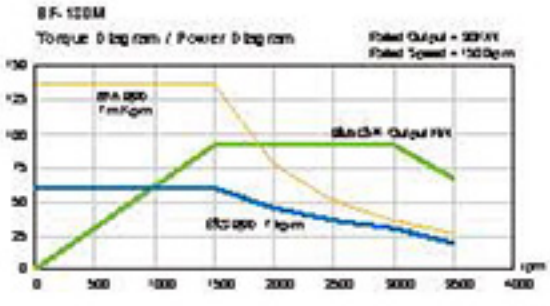
※編碼器之選用依需求為主

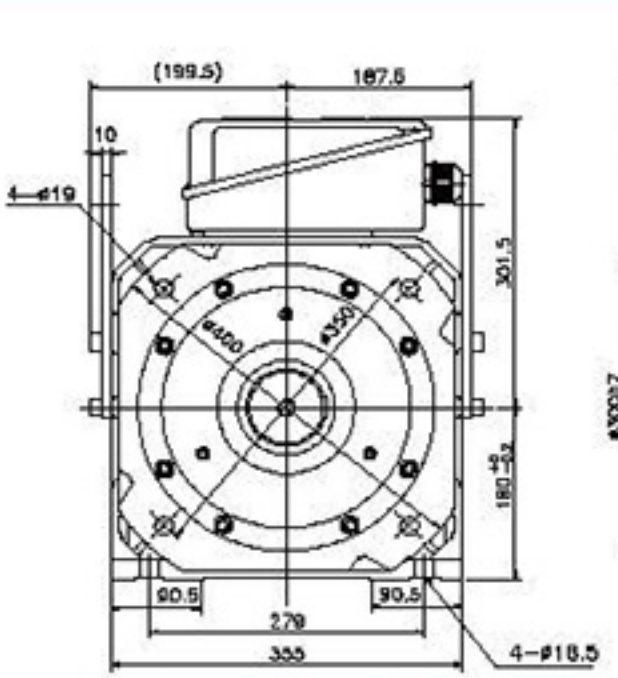
一般條件 General Data

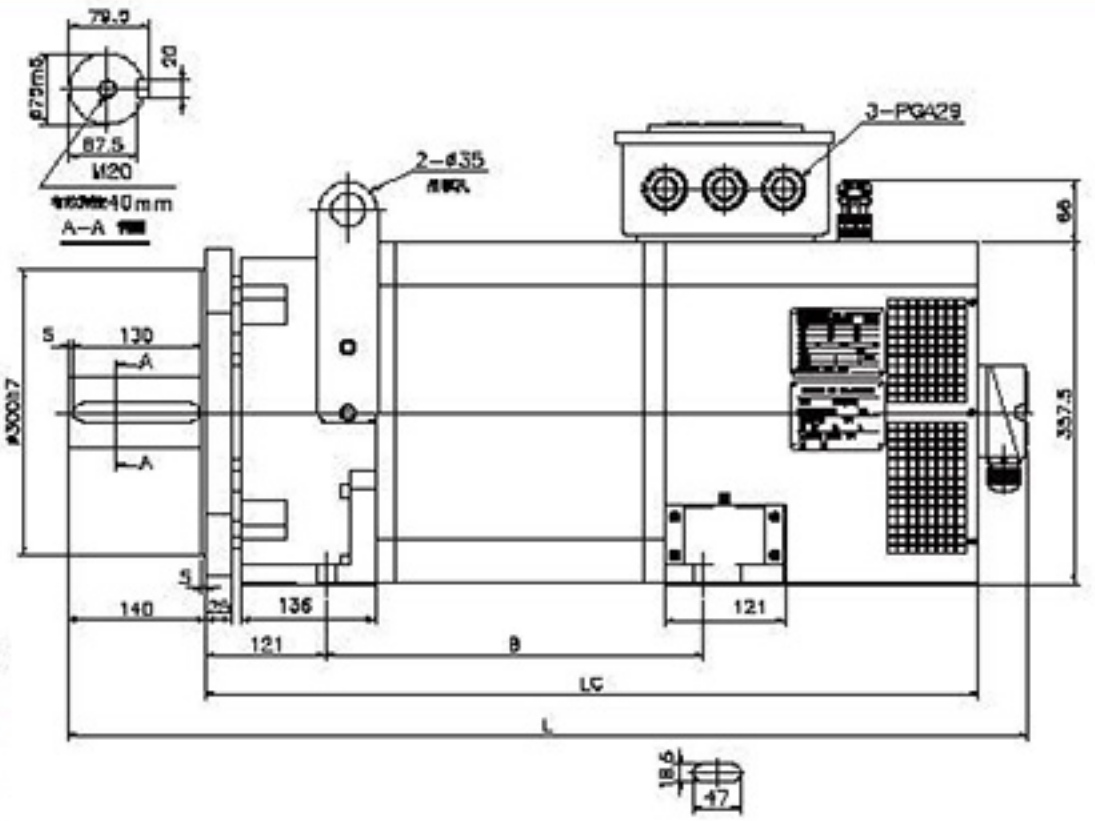
安裝方式 Mounting	IM 2001(B3/B5)
保護方式 Protection	IP54
轉子平衡 Rotor Balancing	R級 (ISO2373)R Degree
絕緣等級 Insulation	H級 Class H
冷卻系統 Cooling Sys.	強制通風 Forced Air Cooled
熱保護 Thermal Protection	熱保護器 (常閉) Thermal Protector (NC)
噪音 Noise	80dBA
周溫 Ambient Temp.	-15°C~40°C
高度 Altitude	海拔1000米 1000m ASL
溫度感測器 Temperature sensor	KTY-84







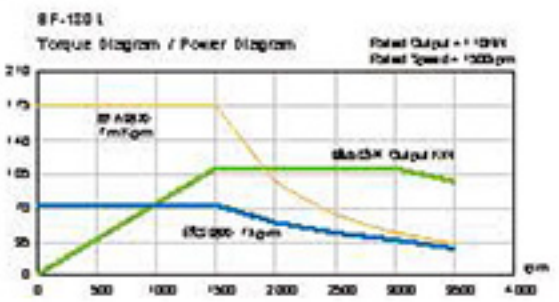


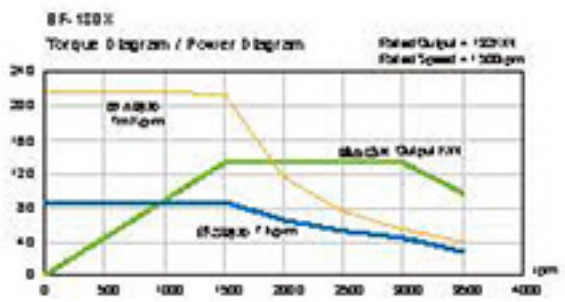


	B	LC	L
180P	380	780	969
180S	430	830	1019
180M	475	875	1064
180L	560	960	1149
180X	630	1030	1219

FUKUTA 伺服馬達規格之選用

機號 Fr. No.	額定輸出 Rated Output	額定轉速 Rated Speed	最大轉矩 Max. Torque	額定轉矩 Rated Torque	額定電流 Rated Current		額定頻率 Rated Frequen
	kw	RPM	kg-m	kg-m	330V	380V	Hz
SF-180P	37	1000	90.25	36.1	84.7	73.5	51.3
	55	1500	87.41	35.8	124.8	107.8	76.2
	69	2000	83.75	33.5	154.4	133.5	101.2
	90	3000	73.25	29.3	200.3	172.5	151.2
SF-180S	50	1000	121.75	48.7	115.6	99.7	51.2
	75	1500	114.85	48.76	168.7	146.1	76.3
	94	2000	114.25	45.9	206.1	182.2	101.0
	124	3000	100.25	40.1	269.3	232.9	151.1
SF-180M	60	1000	145.08	58.5	139.7	120.6	51.2
	90	1500	134.86	58.52	206.8	175.9	76.2
	113	2000	136.15	55.1	250.4	215.9	101.3
	149	3000	119.54	48.2	326.8	282.8	151.3
SF-180L	73	1000	177.32	71.5	168.8	146.0	51.2
	110	1500	174.88	71.47	248.2	212.8	76.2
	138	2000	166.41	67.1	300.1	261.1	101.4
	181	3000	146.07	58.9	389.2	342.0	151.2
SF-180X	90	1000	212.54	85.7	202.0	176.3	51.4
	132	1500	212.8	85.8	297.4	254.4	76.4
	165	2000	199.4	80.4	363.1	314.0	101.4
	217	3000	175.1	70.6	483.5	425.0	151.1





MODEL

SA-132

FUKUTA SERVO MOTOR

產品規格 Standard

輸　出 Output(kw)	11.0	13.8	16.5	22.0
框　號 Frame No.	132S	132M	132L	132X
效　率 Efficiency(%)	91.0%	90.6%	92.0%	92.0%
功　因 Power Factor	0.886	0.91	0.894	0.90
R1(Ω) @25℃	0.349	0.3	0.189	0.14
極　數 Poles	4	4	4	4
轉動慣量 Rotor Inertial(kg-m²)	0.0448	0.0598	0.0685	0.0898
激磁電流 Magnetizing Current(A)	13.6	16.4	19.0	23.6
額定轉速 Rated Speed (rpm)	1500	1500	1500	1500
最高轉速 Max. Speed (rpm)	6000	6000	6000	6000
重　量 Weight(kg)	112.0	126.7	136.6	156.1
編 碼 器 Encoder	1024PPR RS422/Push-Pull			
風　扇 Elec.Fan	3ø 220/380V 50/60Hz 3.5/2.1A			
軸　承 Bearings	LS:6310C3　　OS:6309C3			

※編碼器之選用依需求為主

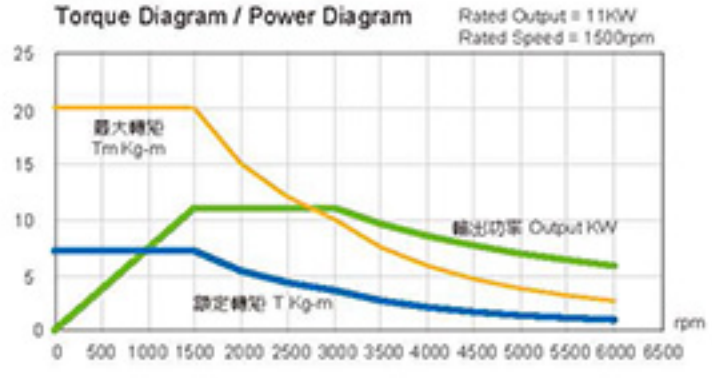
一般條件 General Data

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
絕緣等級 Insulation	H級 Class H
冷卻系統 Cooling Sys.	強制通風 Forced Air Cooling
熱保護 Thermal Protection	熱保護器 (常閉) Thermal Protector (NC)
噪音 Noise	80dBA
周溫 Ambient Temp.	-15℃~40℃
高度 Altitude	海拔1000米 1000m ASL
溫度感測器 Temperature sensor	KTY-84

SA-132S

Torque Diagram / Power Diagram

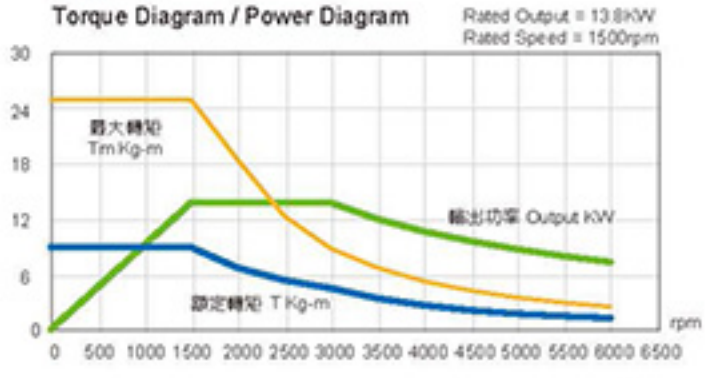
Rated Output = 11KW
Rated Speed = 1500rpm

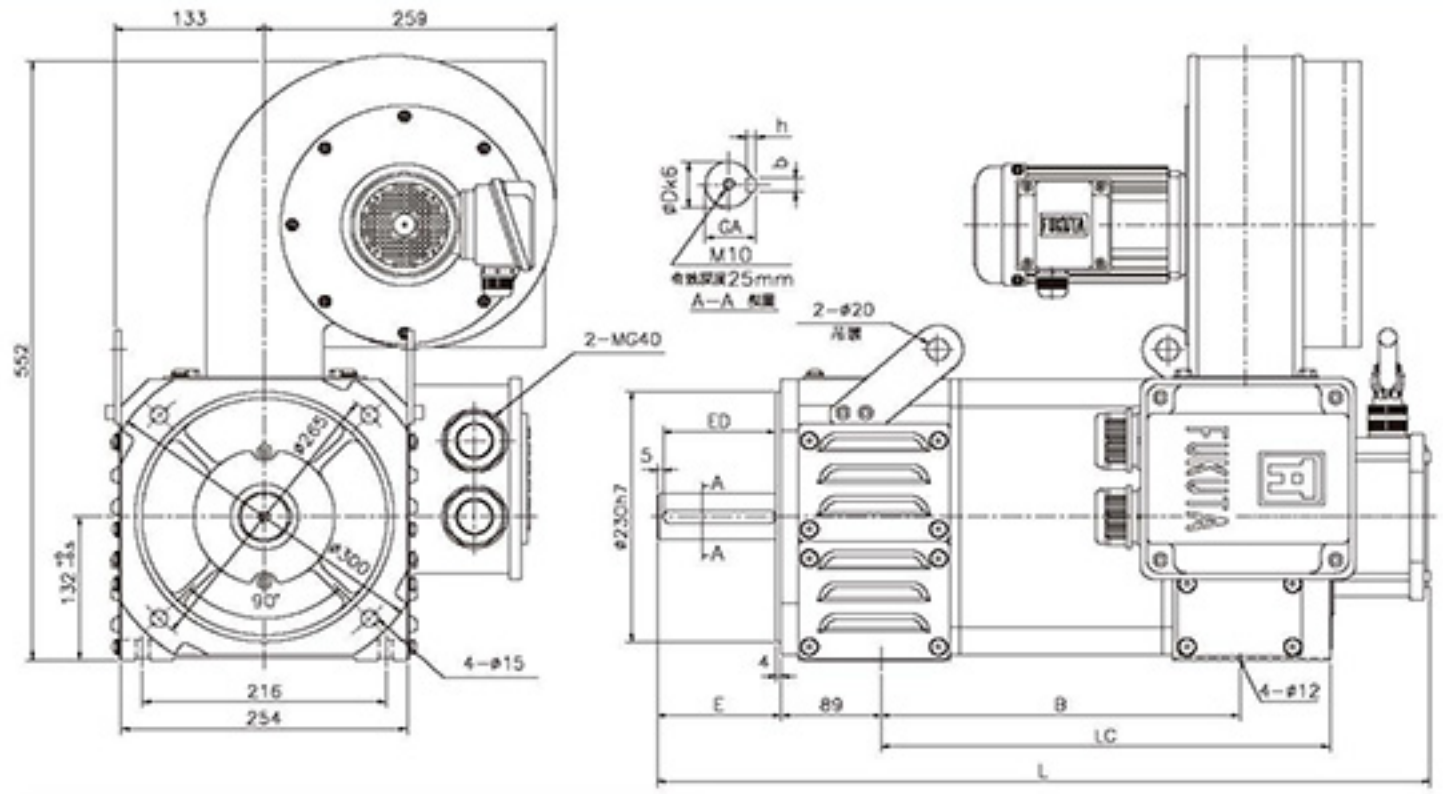


SA-132M

Torque Diagram / Power Diagram

Rated Output = 13.8KW
Rated Speed = 1500rpm



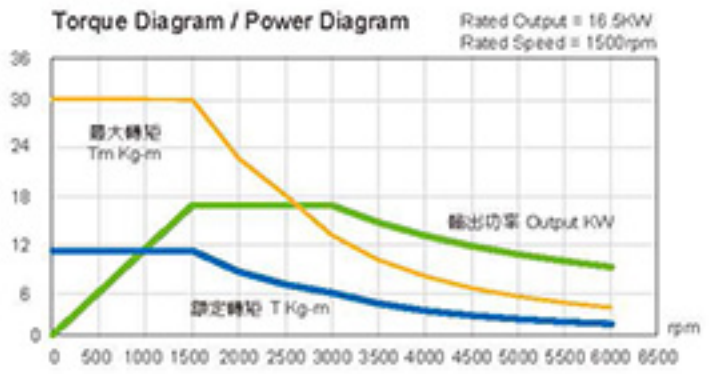


	B	D	E	ED	bxh	GA	LC	L
132S	319	38	80	70	8x10	41	658	399
132M	359	42	110	100	8x12	45	728	439
132L	429	42	110	100	8x12	45	798	509
132X	499	42	110	100	8x12	45	868	579

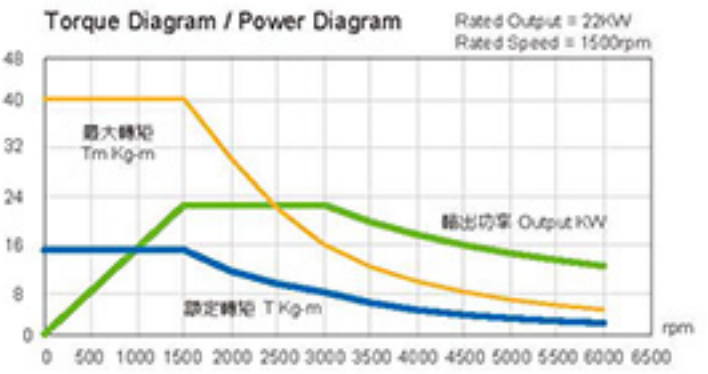
FUKUTA® 伺服馬達規格之選用

框號 Fr. No.	額定輸出 Rated Output	額定轉速 Rated Speed	最大轉矩 Max. Torque	額定轉矩 Rated Torque	額定電流 Rated Current				額定頻率 Rated Frequency
	kw	RPM	kg-m	kg-m	190V	220V	330V	380V	Hz
SA-132S	3.7	500	20.19	7.21	15.2	13.1	8.8	7.6	18.0
	7.5	1000	20.46	7.31	28.6	24.8	16.5	14.3	34.7
	11	1500	20.01	7.15	41.2	36.4	23.8	20.6	51.3
	15	2000	20.46	7.31	55.3	47.8	31.9	27.6	68.1
SA-132M	4.6	500	25.10	8.97	18.9	16.3	10.9	9.4	18.1
	9.2	1000	25.10	8.97	34.9	30.1	20.1	17.4	34.8
	13.8	1500	25.10	8.97	51.0	44.0	29.4	25.4	51.6
	18.5	2000	25.24	9.01	67.8	58.8	39.1	34.0	68.1
SA-132L	5.5	500	30.01	10.72	22.0	18.9	12.7	10.9	17.9
	11	1000	30.01	10.72	41.3	35.8	23.9	20.7	34.6
	16.5	1500	30.01	10.72	60.8	52.8	35.1	30.5	51.3
	22	2000	30.01	10.72	81.4	71.1	47.0	41.1	67.9
SA-132X	7.5	500	40.93	14.62	29.9	25.8	17.2	14.9	18.0
	15	1000	40.93	14.62	52.6	48.4	32.5	28.0	34.7
	22	1500	40.02	14.29	80.2	67.9	46.3	40.2	51.3
	30	2000	40.93	14.62	110.5	94.1	63.8	54.3	68.0

SA-132L
Torque Diagram / Power Diagram



SA-132X
Torque Diagram / Power Diagram



FUKUTA®

INNOVATION / ENTHUSIASM / CREDIBILITY

MODEL

SA-160

FUKUTA SERVO MOTOR

產品規格 Standard

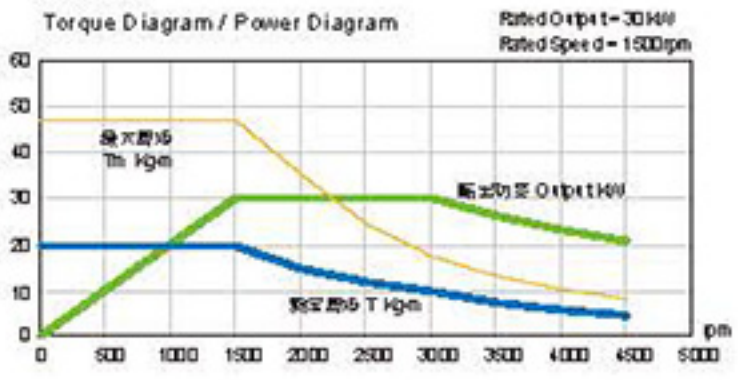
輸　出 Output(kw)	30	37	45	55
機　號 Frame No.	160S	160M	160L	160X
效　率 Efficiency(%)	92.8%	93.2%	93.4%	93.9%
功　因 Power Factor	0.843	0.85	0.878	0.845
R1(Ω) @25°C	0.07	0.053	0.043	0.029
極　數 Poles	4	4	4	4
轉動慣量 Rotor Inertial(kg-m²)	0.1675	0.2054	0.2427	0.3023
激磁電流 Magnetizing Current(A)	50.2	53.4	59.5	89.3
額定轉速 Rated Speed (rpm)	1500	1500	1500	1500
最高轉速 Max. Speed (rpm)	4500	4500	4500	4500
重　量 Weight(kg)	240.0	270.0	300.0	350.0
編碼器 Encoder	1024PPR RS422(Line-drive) /Push-Pull			
風　扇 Blo.Fan	3ø 220/380 V 50/60 Hz 3.5/2.1 A			
軸　承 Bearings	LS:6313C3　　OS:6312C3			

※編碼器之選用依需求為主

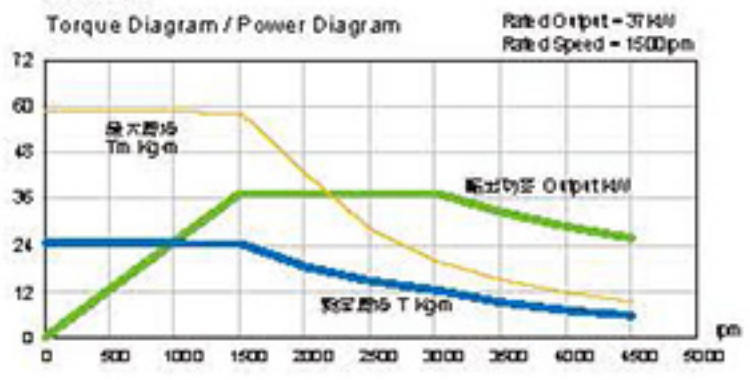
一般條件 General Data

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
溫度感測器 Temperature sensor	KTY-84

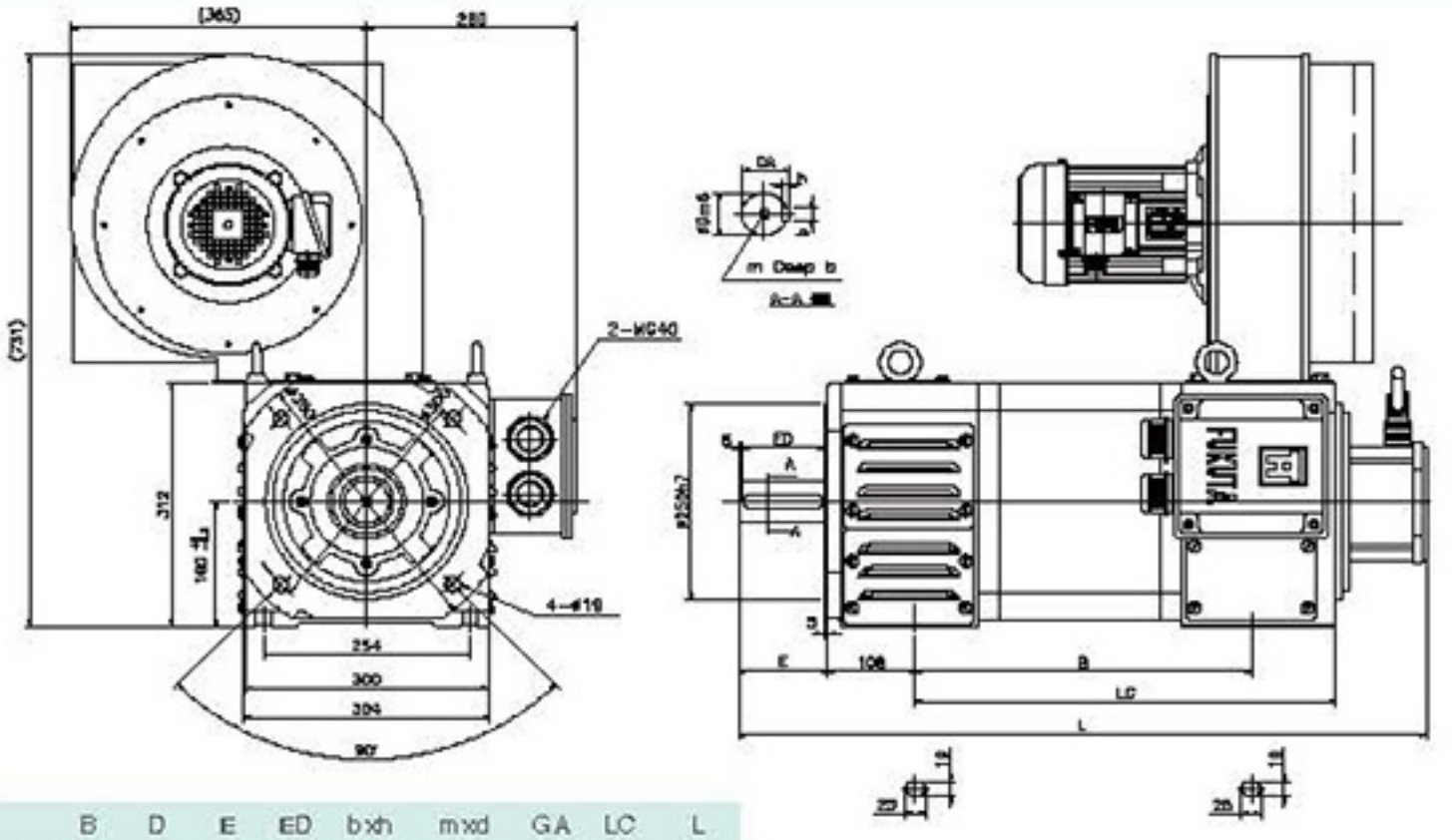
SA-160S
Torque Diagram / Power Diagram



SA-160M
Torque Diagram / Power Diagram



◎歡迎洽商標準產品以外，專用產業特性之開發和客製

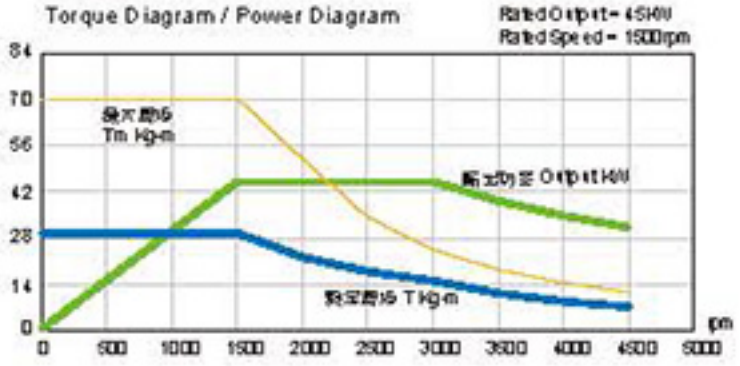


	B	D	E	ED	bxh	mxd	GA	LC	L
160S	414	55	110	100	16x10	M12x35	59	519	849
160M	464	60	140	130	18x11	M16x40	64	569	929
160L	514	60	140	130	18x11	M16x40	64	619	979
160X	594	60	140	130	18x11	M16x40	64	699	1059

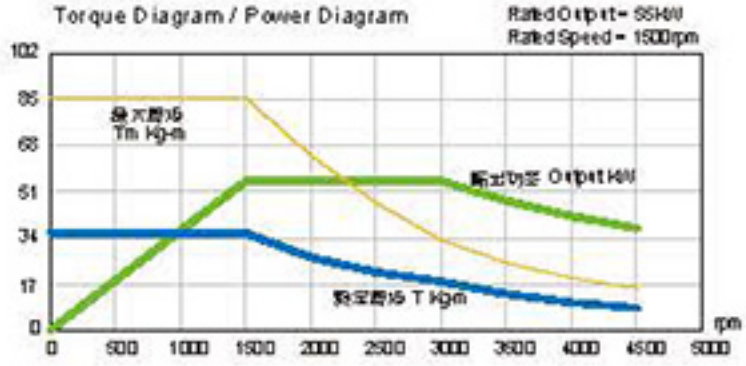
FUKUTA 伺服馬達規格之選用

機號 Fr. No.	額定輸出 Rated Output	額定轉速 Rated Speed	最大轉矩 Max. Torque	額定轉矩 Rated Torque	額定電流 Rated Current				額定頻率 Rated Frequency
	kw	RPM	kg-m	kg-m	190V	220V	330V	380V	Hz
SA-160S	9	500	42.07	17.53	38.3	33.2	22.1	19.2	17.6
	18.5	1000	43.32	18.05	72.4	63.7	41.8	36.8	34.3
	30	1500	46.82	19.51	116.9	103.9	67.5	59.5	51.0
	37	2000	43.42	18.09	138.1	122.0	79.8	70.4	67.7
SA-160M	11	500	51.46	21.44	45.5	38.2	26.3	22.0	17.6
	22	1000	51.46	21.44	85.7	72.6	49.5	41.9	34.3
	37	1500	57.77	24.07	139.4	118.9	80.5	68.6	51.0
	45	2000	52.70	21.96	164.7	141.4	95.1	81.7	67.7
SA-160L	15	500	70.27	29.28	64.7	55.6	37.4	32.1	17.6
	30	1000	70.27	29.28	113.2	96.7	65.2	55.9	34.4
	45	1500	70.22	29.28	167.0	144.4	96.4	83.4	51.1
	55	2000	64.54	26.89	197.9	173.7	114.2	100.3	67.7
SA-160X	18.5	500	86.66	36.11	78.5	66.3	45.3	38.3	17.6
	37	1000	86.66	36.11	144.9	129.1	83.7	74.5	34.3
	55	1500	85.87	35.78	211.0	188.3	121.8	108.7	50.9
	65	2000	76.05	31.69	236.8	203.0	136.7	117.2	67.6

SA-160L
Torque Diagram / Power Diagram
Rated Output= 45KW
Rated Speed= 1500rpm



SA-160X
Torque Diagram / Power Diagram
Rated Output= 65KW
Rated Speed= 1500rpm



FUKUTA®

INNOVATION / ENTHUSIASM / CREDIBILITY

MODEL

SA-180

FUKUTA SERVO MOTOR

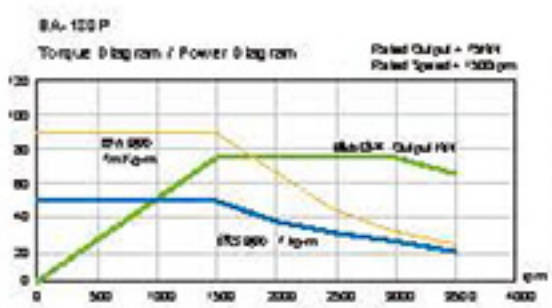
產品規格 Standard

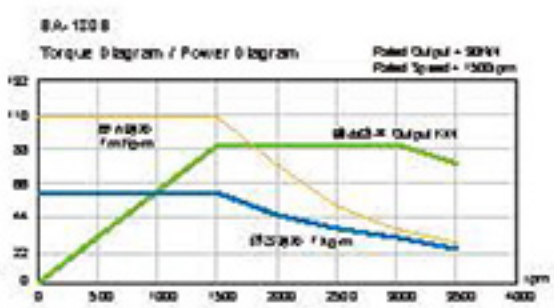
輸　出 Output(kw)	75	90	100	132	150
機　號 Frame No.	180P	180S	180M	180L	180X
效　率 Efficiency(%)	92.3%	92.3%	92.6%	92.8%	92.8%
功　因 Power Factor	0.84	0.838	0.817	0.824	0.826
R1(Ω) @25°C	0.076	0.063	0.049	0.035	0.03
極　數 Poles	6	6	6	6	6
轉動慣量 Rotor Inertial(kg-㎡)	0.5463	0.6466	0.7369	0.9075	1.0479
激磁電流 Magnetizing Current(A)	55.9	65.5	84.4	107	117.9
額定轉速 Rated Speed (rpm)	1500	1500	1500	1500	1500
最高轉速 Max. Speed (rpm)	3500	3500	3500	3500	3500
重　量 Weight(kg)	345.0	390.0	430.0	505.0	560.0
編碼器 Encoder	1024PPR RS422(Line-drive)/Push-Pull				
風　扇 Elec.Fan	3ø 220/380V 50/60Hz 5.6/3.2A				
軸　承 Bearings	LS:6316C3　　OS:6315C3				

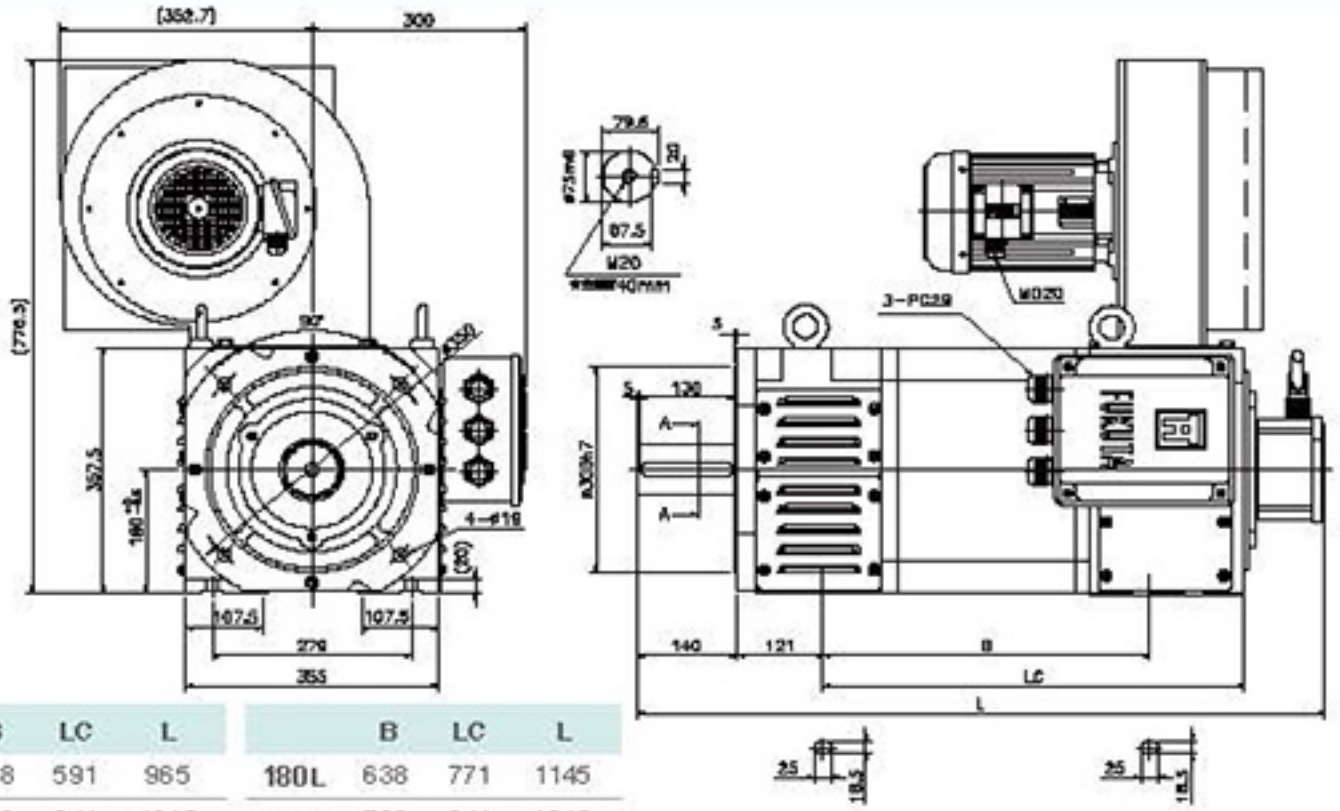
※編碼器之選用依需求為主

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
溫度感測器 Temperature sensor	KTY-84





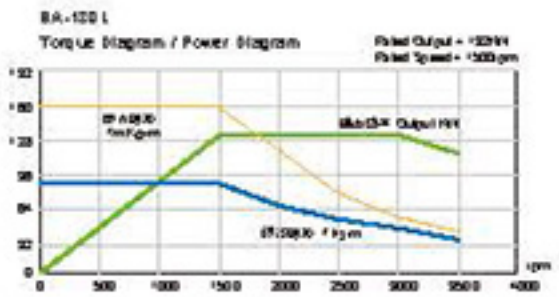


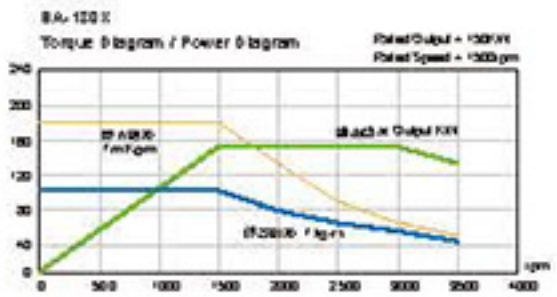
	B	LC	L
180P	458	591	965
180S	508	641	1015
180M	553	686	1060

	B	LC	L
180L	638	771	1145
180X	708	841	1215

FUKUTA 伺服馬達規格之選用

機號 Fr. No.	額定輸出 Rated Output	額定轉速 Rated Speed	最大轉矩 Max. Torque	額定轉矩 Rated Torque	額定電流 Rated Current		額定頻率 Rated Frequency
	kw	RPM	kg-m	kg-m	330V	380V	Hz
SA-180P	25	500	90.42	48.88	65.1	56.0	26.3
	50	1000	90.35	48.84	119.0	103.8	51.4
	75	1500	90.17	48.74	171.0	151.5	76.4
	90	2000	81.16	43.9	205.5	180.1	101.3
SA-180S	30	500	108.33	58.56	74.6	64.5	26.3
	60	1000	108.15	58.46	141.0	122.9	51.4
	90	1500	108.24	58.51	208.6	178.0	76.4
	113	2000	101.94	55.1	254.9	219.5	101.4
SA-180M	37	500	133.66	72.25	89.8	78.4	26.4
	70	1000	126.36	68.3	162.5	138.8	51.3
	100	1500	120.25	65	227.1	197.3	76.3
	130	2000	117.23	63.37	283.1	248.9	101.3
SA-180L	45	500	162.63	87.91	111.8	96.9	26.4
	85	1000	153.40	82.92	210.6	178.0	51.2
	132	1500	158.73	85.8	309.6	276.0	76.3
	160	2000	144.36	78.03	358.4	310.7	101.4
SA-180X	50	500	180.63	97.64	123.7	107.3	26.3
	100	1000	180.49	97.56	231.1	201.7	51.4
	150	1500	180.28	97.45	346.4	303.0	76.3
	187	2000	168.72	91.2	420.8	360.1	101.4





FUKUTA®

INNOVATION / ENTHUSIASM / CREDIBILITY

MODEL

SA-225

FUKUTA SERVO MOTOR

產品規格 Standard

輸　出 Output(kw)	115	150	168	200
機　號 Frame No.	225S	225M	225L	225X
效　率 Efficiency(%)	92.4%	92.4%	93.0%	93.1%
功　因 Power Factor	0.845	0.860	0.876	0.876
R1(Ω) @25°C	0.0624	0.0480	0.0386	0.0313
極　數 Poles	6	6	6	6
轉動慣量 Rotor Inertial(kg-㎡)	1.7946	2.1492	2.6569	3.1608
激磁電流 Magnetizing Current(A)	89.6	102.6	103.3	119.1
額定轉速 Rated Speed (rpm)	1000	1000	1000	1000
最高轉速 Max. Speed (rpm)	3000	3000	3000	3000
重　量 Weight(kg)	710.0	800.0	870.0	1050.0
編 碼 器 Encoder	1024PPR RS422(Line-drive) /Push-Pull			
風　扇 Blo.Fan	3ø 220/380 V 50/60 Hz 8/4.6 A			
軸　承 Bearings	LS:6320C3　　OS:6316C3			

※編碼器之選用依需求為主

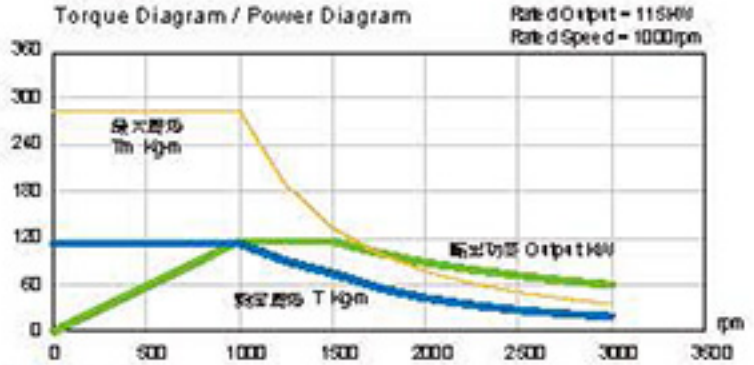
一般條件 General Data

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
溫度感測器 Temperature sensor	KTY-84

SA-225S

Torque Diagram / Power Diagram

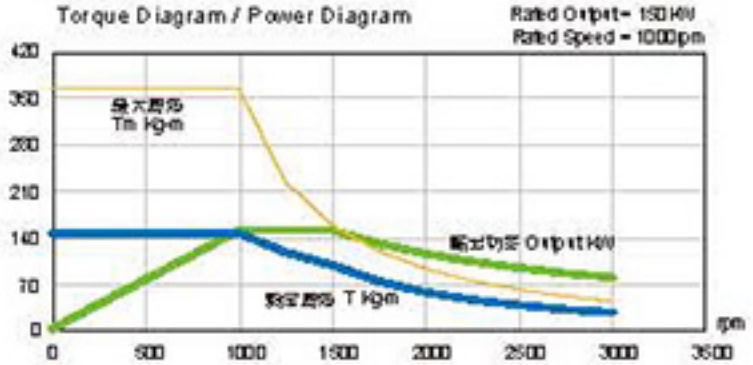
Rated Output = 115KW
Rated Speed = 1000rpm



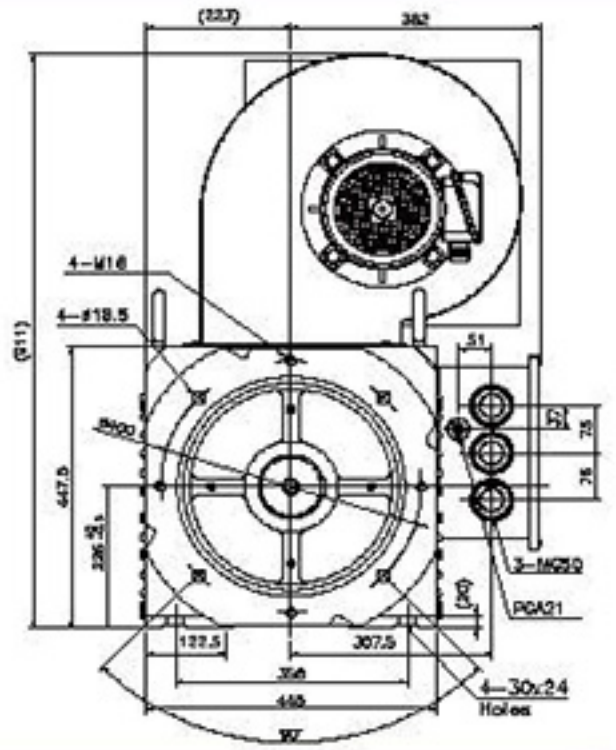
SA-225M

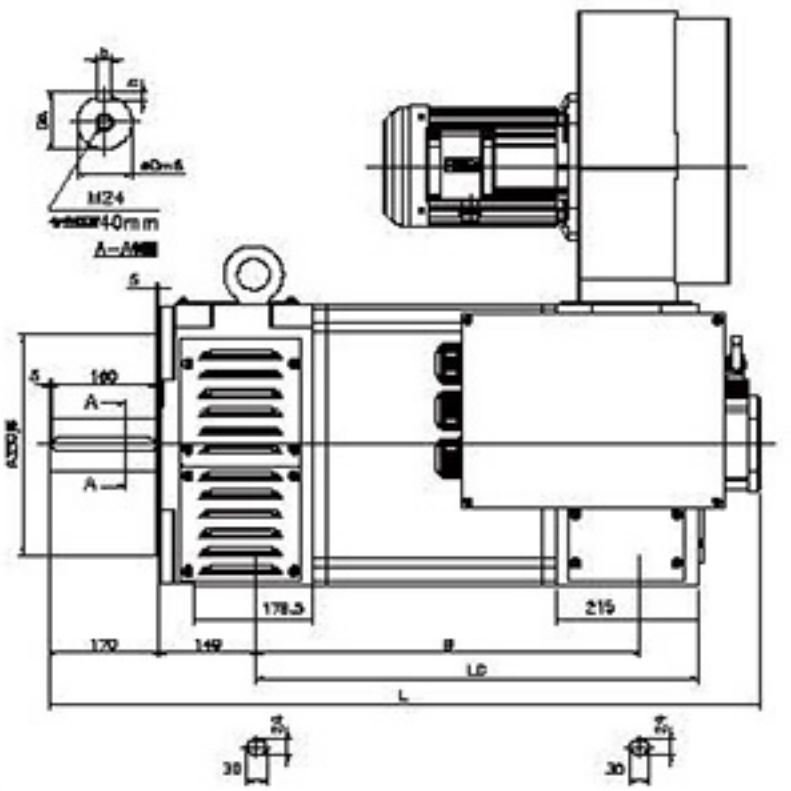
Torque Diagram / Power Diagram

Rated Output = 150KW
Rated Speed = 1000rpm



◎歡迎洽商標準產品以外，專用產業特性之開發和客製



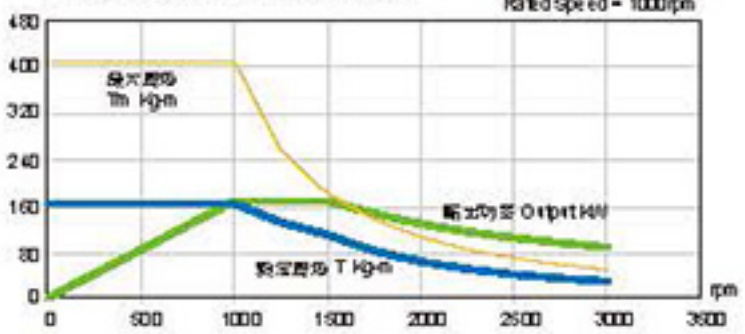


	B	D	bxh	GA	LC	L
225S	587	85	22x14	90	676	1090
225M	657	85	22x14	90	746	1160
225L	757	95	25x14	100	846	1260
225X	857	95	25x14	100	946	1360

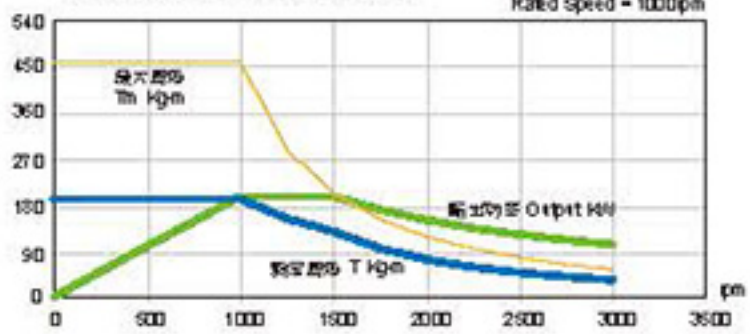
FUKUTA 伺服馬達規格之選用

機號 Fr. No.	額定輸出 Rated Output	額定轉速 Rated Speed	最大轉矩 Max. Torque	額定轉矩 Rated Torque	額定電流 Rated Current	額定頻率 Rated Frequency
	kw	RPM	kg-m	kg-m	380V	Hz
SA-225S	55	500	267.9	107.14	109.0	25.8
	115	1000	280.2	112.06	224.0	50.8
	168	1500	272.5	109.0	330.0	75.8
	220	2000	268.0	107.2	407.0	100.9
SA-225M	75	500	365.5	146.2	149.0	25.9
	150	1000	365.5	146.2	287.0	50.9
	220	1500	357.3	142.9	414.0	75.9
	300	2000	365.5	146.2	555.0	100.9
SA-225L	84	500	409.25	163.7	163.4	25.8
	168	1000	409.25	163.7	313.0	50.8
	250	1500	406	162.4	464.0	75.8
	330	2000	402	160.8	644.0	100.7
SA-225X	100	500	467.28	194.7	191.2	25.8
	200	1000	467.28	194.7	377.6	50.9
	300	1500	467.28	194.7	541.5	75.8
	375	2000	438.48	182.7	672.3	101.0

SA-225L
Torque Diagram / Power Diagram
Rated Output= 168KW
Rated Speed= 1000rpm



SA-225X
Torque Diagram / Power Diagram
Rated Output= 200KW
Rated Speed= 1000rpm



FUKUTA®

INNOVATION / ENTHUSIASM / CREDIBILITY

MODEL

SA-280

FUKUTA SERVO MOTOR

產品規格 Standard

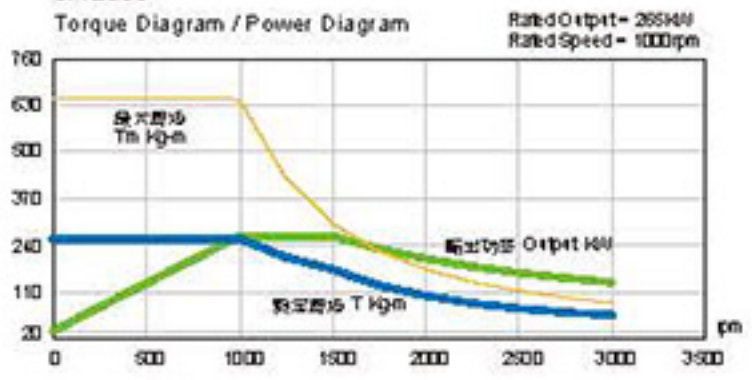
輸　出 Output(kw)	265	305	360	390
機　號 Frame No.	280S	280M	280L	280X
效　率 Efficiency(%)	92.9	95.5	96.0	96.1
功　因 Power Factor	0.855	0.853	0.854	0.869
R1(Ω) @25℃	0.019	0.017	0.012	0.011
極　數 Poles	6	6	6	6
轉動慣量 Rotor Inertial(kg·m²)	5.2910	6.2986	7.4323	8.1881
激磁電流 Magnetizing Current(A)	106.0	198.4	252.9	246.2
額定轉速 Rated Speed (rpm)	1000	1000	1000	1000
最高轉速 Max. Speed (rpm)	3000	3000	3000	3000
重　量 Weight(kg)	1100.0	1300.0	1450.0	1600.0
編碼器 Encoder	1024PPR RS422 (Line-drive)/Push-Pull			
風　扇 Elec.Fan	3ø 220/380V 50/60Hz 8/4.6A			
軸　承 Bearings	LS6322C3　　OS6322C3			

※編碼器之選用依需求為主

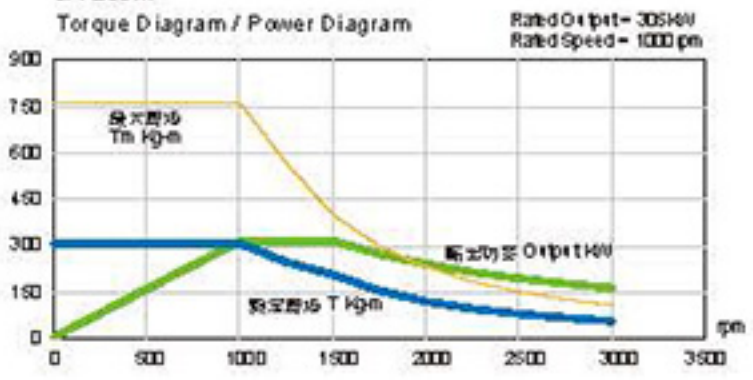
一般條件 General Data

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℃~40℃
高度 Altitude	海拔1000米 1000m ASL
溫度感測器 Temperature sensor	KTY-84

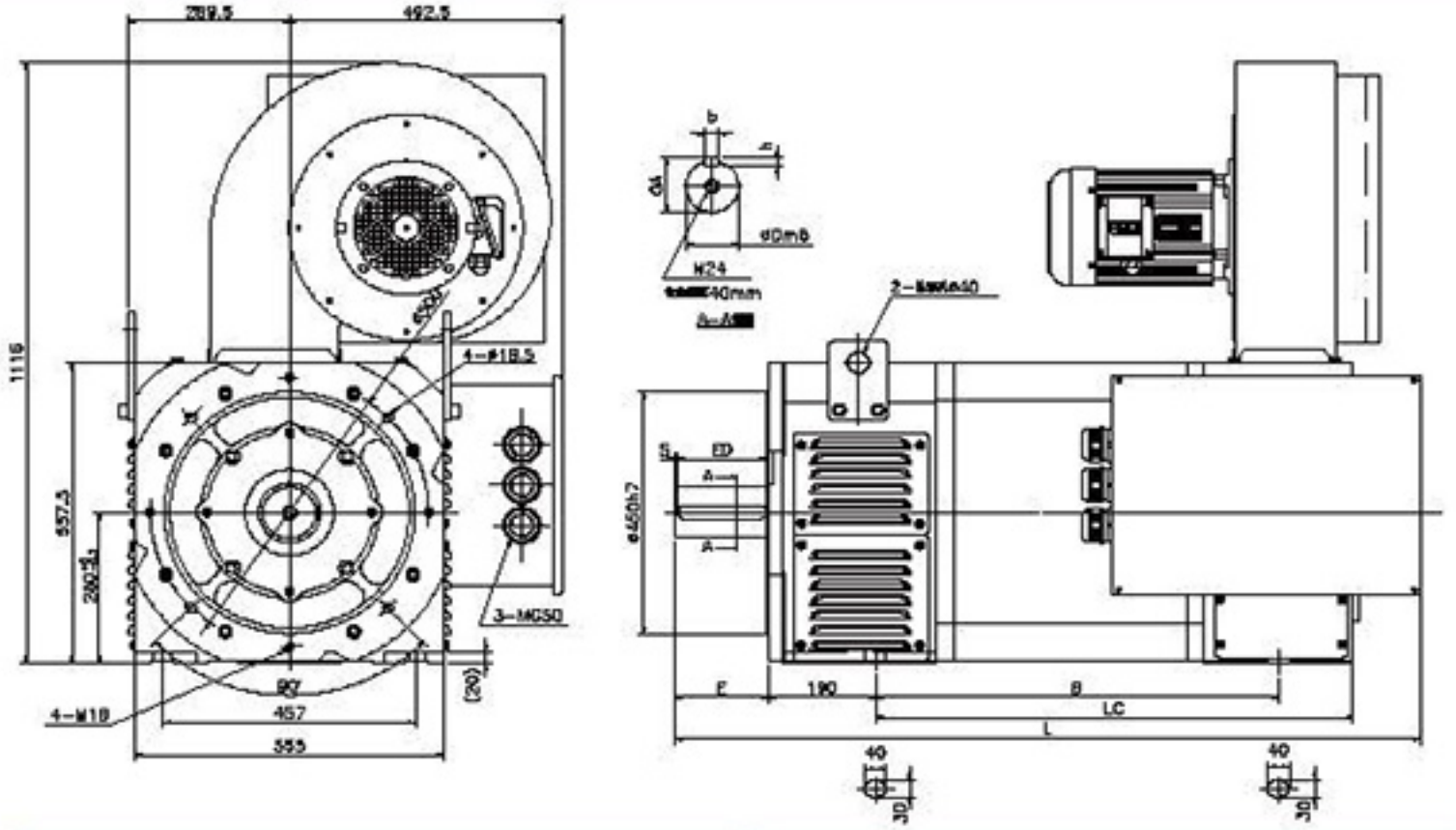
SA-280S
Torque Diagram / Power Diagram



SA-280M
Torque Diagram / Power Diagram



◎歡迎洽商標準產品以外，專用產業特性之開發和客製



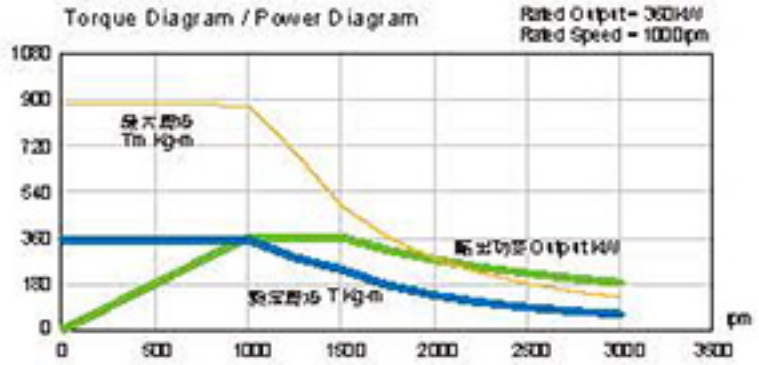
	B	D	E	ED	bxh	GA	LC	L
280S	723	95	170	160	25x14	100	858	1340
280M	803	95	170	160	25x14	100	938	1420
280L	893	100	210	200	28x16	106	1028	1550
280X	953	100	210	200	28x16	106	1088	1610

FUKUTA 伺服馬達規格之選用

機號 Fr. No.	額定輸出 Rated Output	額定轉速 Rated Speed	最大轉矩 Max. Torque	額定轉矩 Rated Torque	額定電流 Rated Current	額定頻率 Rated Frequency
	kw	RPM	kg-m	kg-m	380V	Hz
SA-280S	132	500	643.18	257.27	247.4	25.5
	265	1000	645.63	258.25	475.6	50.5
	400	1500	649.65	259.86	718.8	75.5
	520	2000	633.43	253.37	899.5	100.5
SA-280M	150	500	730.88	292.35	287.0	25.5
	305	1000	743.00	297.2	568.9	50.6
	450	1500	730.85	292.34	833.1	75.6
	600	2000	730.85	292.34	1097.5	100.6
SA-280L	168	500	818.63	327.45	321.8	25.5
	360	1000	877.08	350.83	667.5	50.5
	510	1500	812.10	331.33	957.7	75.5
	650	2000	791.73	316.69	1155.7	100.5
SA-280X	190	500	925.75	370.3	339.6	25.5
	390	1000	950.83	380.33	709.8	50.5
	560	1500	909.53	363.81	1058.3	75.5
	750	2000	913.58	365.43	1339.7	100.5

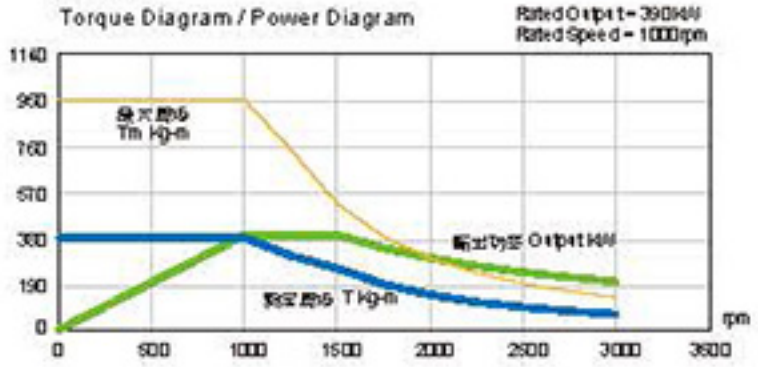
SA-280L

Torque Diagram / Power Diagram



SA-280X

Torque Diagram / Power Diagram



MODEL

SA-355

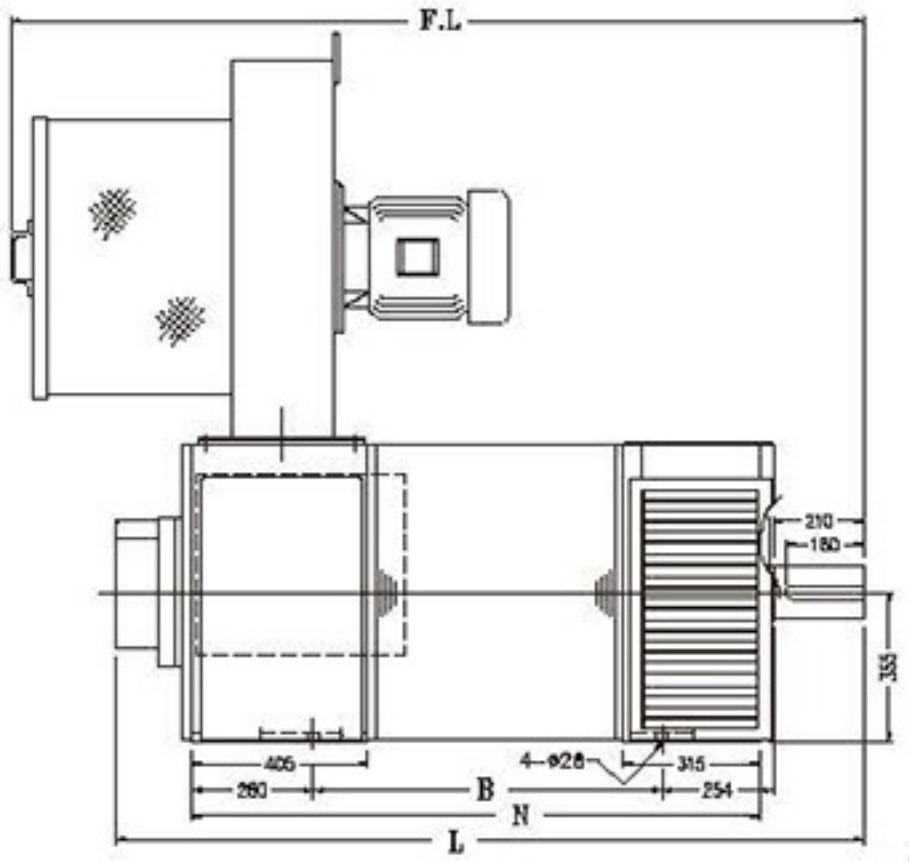
FUKUTA SERVO MOTOR

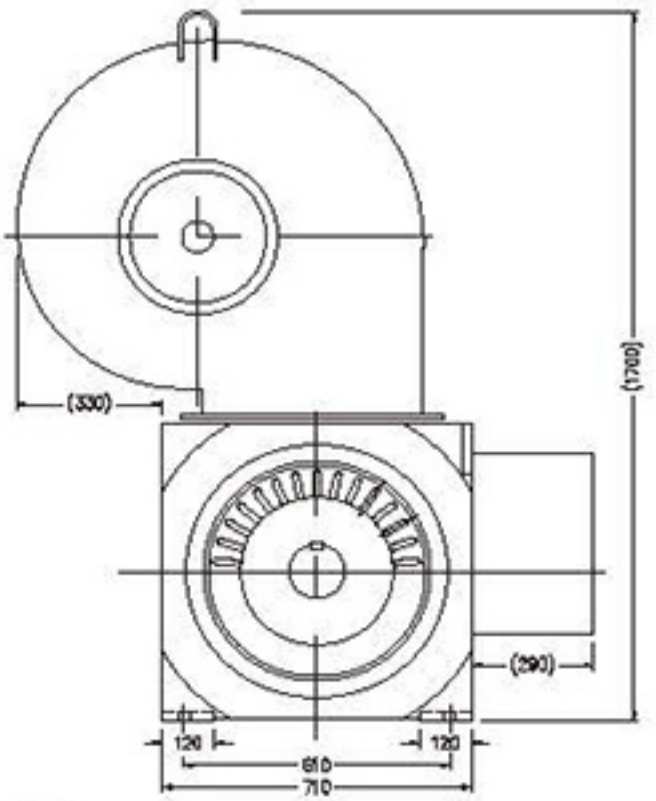
產品規格 Standard

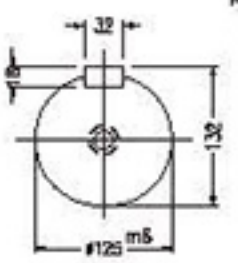
輸　出 Output(kw)	500	585	650
機　號 Frame No.	355S	355M	355L
效　率 Efficiency(%)	94.5	95.0	95.5
功　因 Power Factor	0.85	0.85	0.85
R1(Ω) @25℃	0.0063	0.0048	0.0032
極　數 Poles	6	6	6
轉動慣量 Rotor Inertial(kg-m²)	20.3	23.7	27.8
激磁電流 Magnetizing Current(A)	288	372	492
額定轉速 Rated Speed (rpm)	1000	1000	1000
最高轉速 Max. Speed (rpm)	3000	3000	3000
重　量 Weight(kg)	2640	3000	3310
風　扇 Elec.Fan	3ø220/380V	50/60HZ	25.9/15A
軸　承 Bearings	LS:6326 C3	OS:6326 C3	

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
絕緣等級 Insulation	F級 Class F
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	90dBA
周溫 Ambient Temp.	40℃
高度 Altude	海拔1000米







	B	N	L	F.L
355S	750	1254	1670	1960
355M	850	1354	1770	2060
355L	970	1474	1890	2180

FUKUTA 伺服馬達規格之選用

機號 Fr. No.	額定輸出 Rated Output	額定轉速 Rated Speed	最大轉矩 Max. Torque	額定轉矩 Rated Torque	額定電流 Rated Current	額定頻率 Rated Frequency
	kw	RPM	kg-m	kg-m	380V	HZ
SA-355S	265	500	774.3	516.2	504	25
	500	1000	730.5	487	951	50
	720	1500	701.3	467.5	1355	75
	830	1800	673.7	449.1	1562	90
SA-355M	300	500	876.0	584	570	25
	585	1000	854.7	569.8	1112	50
	830	1500	808.4	538.9	1562	75
	950	1800	771.2	514.1	1778	90
SA-355L	350	500	1022.7	681.8	666	25
	650	1000	949.5	633	1236	50
	950	1500	925.2	616.8	1778	75
	1100	1800	892.8	595.2	2058	90

FUKUTA®

INNOVATION / ENTHUSIASM / CREDIBILITY

MODEL

SB-180

FUKUTA SERVO MOTOR

IP54 低慣量

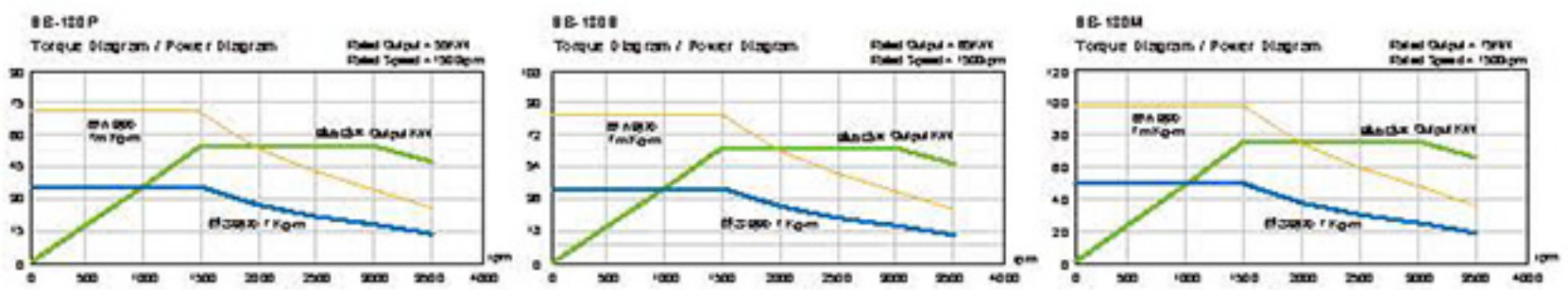
產品規格 Standard

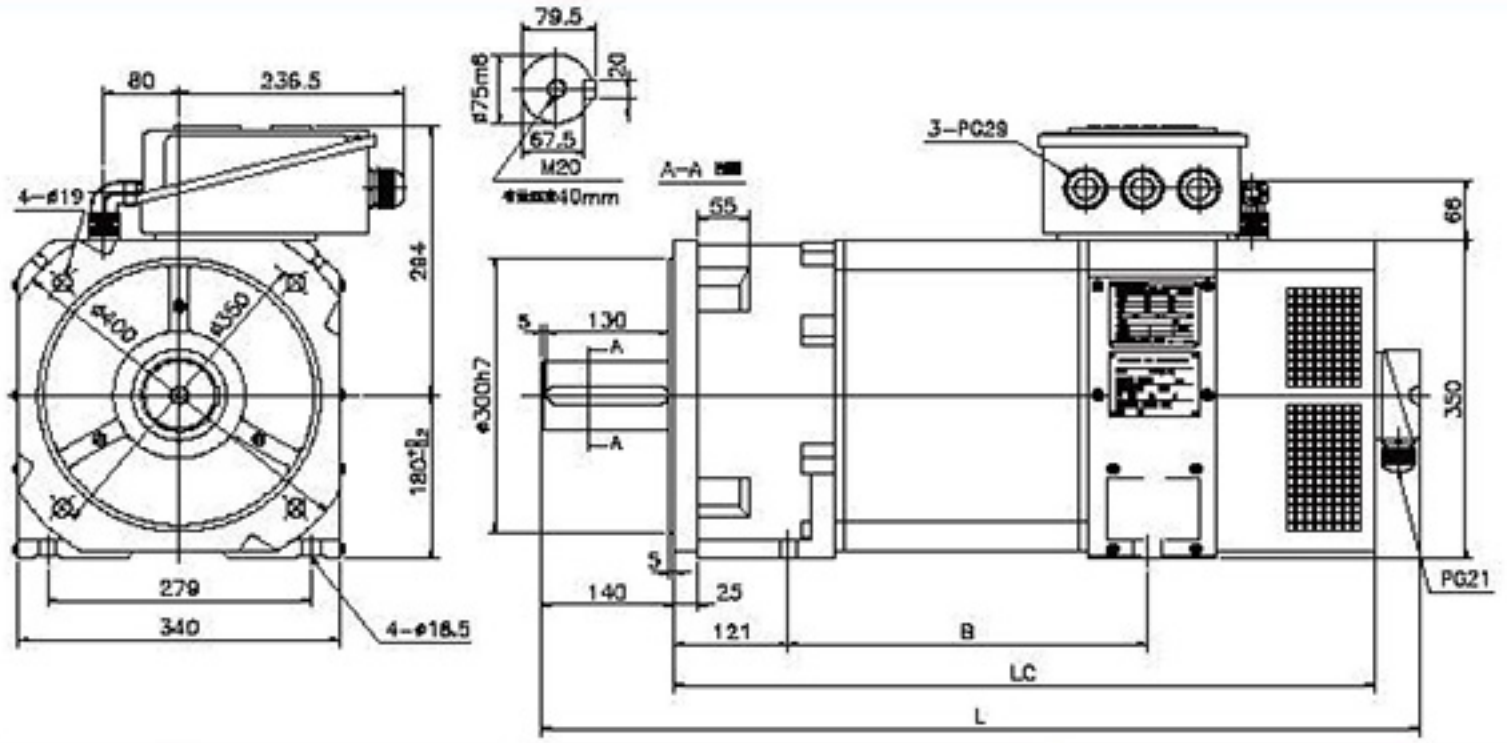
輸　出 Output(kw)	55	65	75	90	110
機　號 Frame No.	180P	180S	180M	180L	180X
效　率 Efficiency(%)	94.8%	94.8%	95.0%	95.3%	95.3%
功　因 Power Factor	0.863	0.878	0.887	0.904	0.895
R1(Ω) @25℃	0.116	0.097	0.079	0.061	0.048
極　數 Poles	4	4	4	4	4
轉動慣量 Rotor Inertial(kg-㎡)	0.4006	0.4807	0.5528	0.6889	0.801
激磁電流 Magnetizing Current(A)	36.6	44.5	47.6	49.3	64.5
額定轉速 Rated Speed (rpm)	1500	1500	1500	1500	1500
最高轉速 Max. Speed (rpm)	3500	3500	3500	3500	3500
重　量 Weight(kg)	328.0	370.0	408.0	480.0	544.0
編 碼 器 Encoder	1024PPR RS422 (Line-drive)/Push-Pull				
風　扇 Elec.Fan	1ø 220/380V 50/60Hz 5.6/3.2A				
軸　承 Bearings	LS6316C3　　OS6315C3				

※編碼器之選用依需求為主

一般條件 General Data

安裝方式 Mounting	IM 2001(B3/B5)
保護方式 Protection	IP54 低慣量
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℃~40℃
高度 Altitude	海拔1000米 1000m ASL
溫度感測器 Temperature sensor	KTY-84





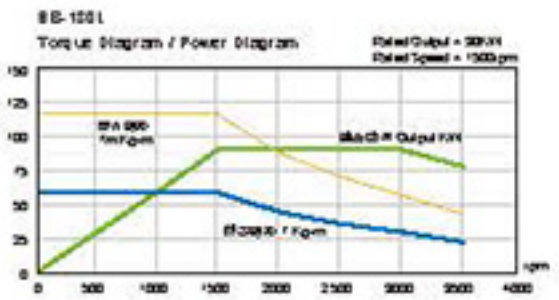
	B	LC	L
180P	380	741	930
180S	430	791	980

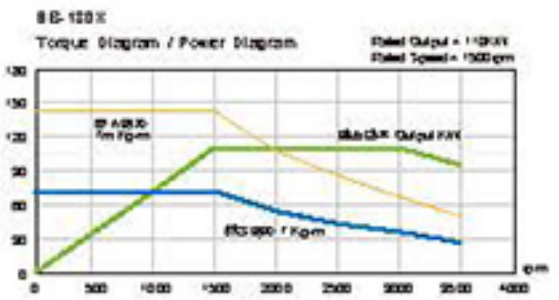
	B	LC	L
180M	475	836	1025
180L	560	921	1110

	B	LC	L
180X	630	991	1180

FUKUTA 伺服馬達規格之選用

機號 Fr. No.	額定輸出 Rated Output	額定轉速 Rated Speed	最大轉矩 Max. Torque	額定轉矩 Rated Torque	額定電流 Rated Current		額定頻率 Rated Frequency
	kw	RPM	kg-m	kg-m	330V	380V	Hz
SB-180P	37	1000	72.12	36.06	80.2	69.7	34.0
	55	1500	71.47	35.73	114.9	99.8	50.7
	75	2000	73.08	36.54	150.6	130.8	67.4
	100	3000	64.96	32.48	196.5	170.6	100.8
SB-180S	45	1000	87.7	43.85	97.6	84.8	34.0
	65	1500	84.45	42.22	136.7	118.7	50.7
	88	2000	85.76	42.88	180.7	156.9	67.4
	114	3000	74.06	37.03	225.5	195.8	100.8
SB-180M	55	1000	107.18	53.59	120.7	104.8	34.0
	75	1500	97.44	48.72	155.6	135.1	50.7
	100	2000	97.44	48.72	203.2	176.5	67.5
	132	3000	85.74	42.87	259.6	225.4	100.7
SB-180L	60	1000	116.94	58.47	126.2	109.6	34.0
	90	1500	116.94	58.47	182.9	158.8	50.7
	122	2000	118.88	59.44	244.9	212.7	67.4
	160	3000	103.94	51.97	313.9	272.6	100.7
SB-180X	75	1000	146.16	73.08	161.7	140.4	34.0
	110	1500	142.92	71.46	225.4	195.7	50.7
	145	2000	141.3	70.65	287.2	249.4	67.4
	190	3000	123.42	61.71	372.1	323.1	100.7





FUKUTA®

INNOVATION / ENTHUSIASM / CREDIBILITY

MODEL

SL-180

FUKUTA SERVO MOTOR

IP23 低慣量

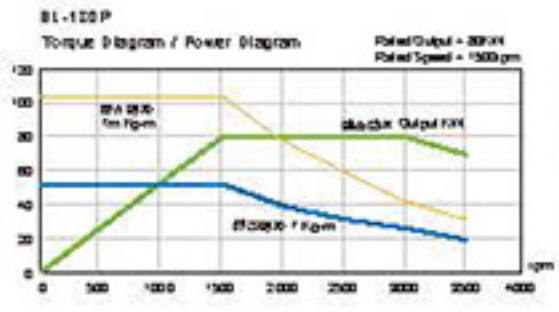
產品規格 Standard

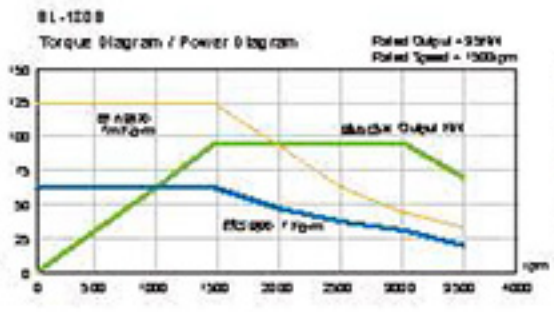
輸　出 Output(kw)	80	95	105	130	150
機　號 Frame No.	180P	180S	180M	180L	180X
效　率 Efficiency(%)	93.8%	93.7%	94.1%	94.4%	94.6%
功　因 Power Factor	0.889	0.899	0.900	0.890	0.895
R1(Ω) @25°C	0.105	0.092	0.075	0.053	0.044
極　數 Poles	4	4	4	4	4
轉動慣量 Rotor Inertial(kg-m²)	0.4006	0.4807	0.5528	0.6889	0.8010
激磁電流 Magnetizing Current(A)	46.0	48.3	53.4	72.7	79.6
額定轉速 Rated Speed	1500	1500	1500	1500	1500
最高轉速 Max. Speed (rpm)	3500	3500	3500	3500	3500
重　量 Weight(kg)	328.0	370.0	408.0	480.0	544.0
編 碼 器 Encoder	1024PPR RS422(Line-drive) /Push-Pull				
風　扇 Elec.Fan	3ø 220/380V 50/60Hz 5.6/3.2A				
軸　承 Bearings	LS:6316 C3　OS:6315 C3				

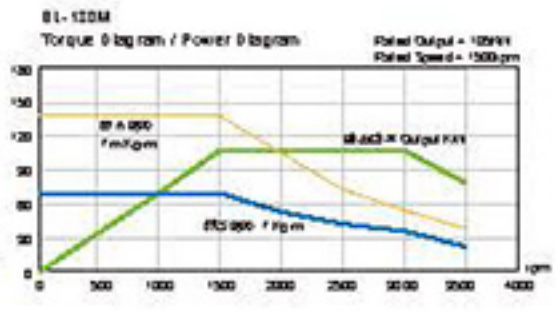
※編碼器之選用依需求為主

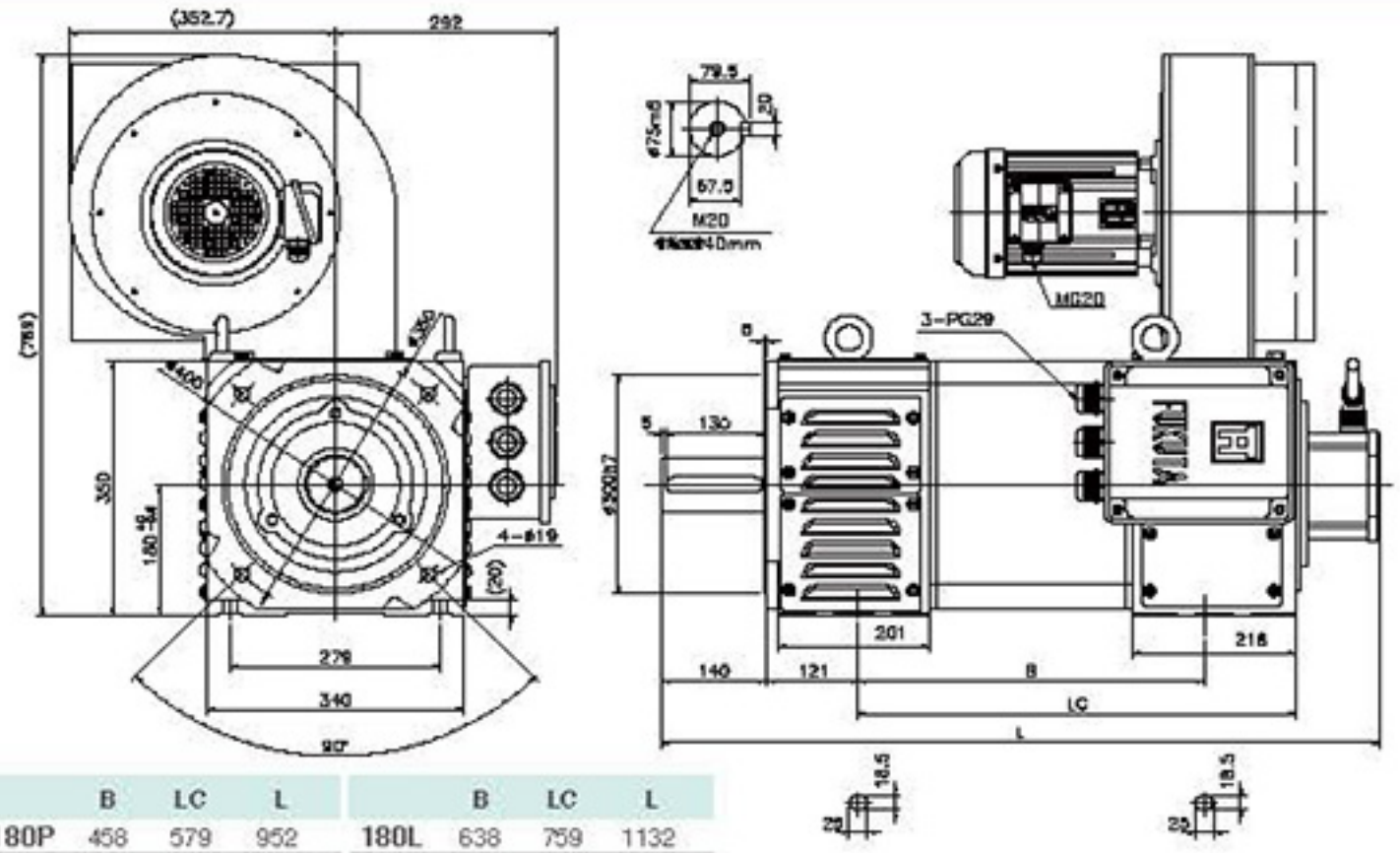
一般條件 General Data

安裝方式 Mounting	IM 2001(B3,B5)
保護方式 Protection	IP23 低慣量
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
溫度感測器 Temperature sensor	KTY-84





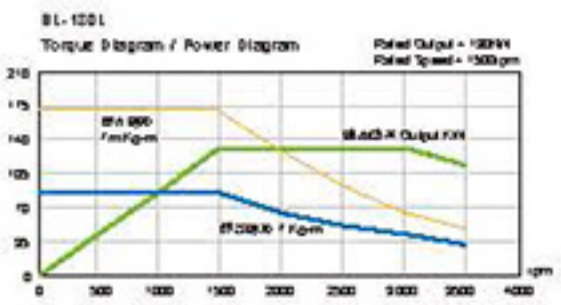


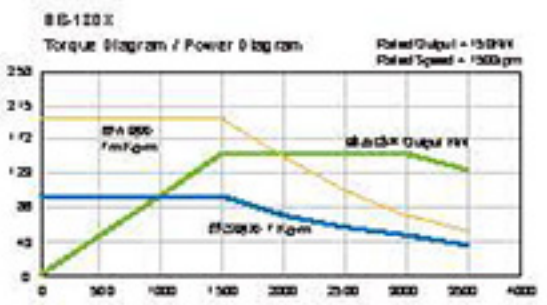


	B	LC	L		B	LC	L
180P	458	579	952	180L	638	759	1132
180S	508	629	1002	180X	708	829	1202
180M	563	674	1047				

FUKUTA 伺服馬達規格之選用

機號 Fr. No.	額定輸出 Rated Output	額定轉速 Rated Speed	最大轉矩 Max. Torque	額定轉矩 Rated Torque	額定電流 Rated Current		額定頻率 Rated Frequency
	kw	RPM	kg-m	kg-m	330V	380V	Hz
SL-180P	30	500	116.94	58.47	68.4	59.4	17.6
	60	1000	116.94	58.47	135.9	118.0	34.2
	80	1500	103.94	51.97	177.3	154.0	50.9
	110	2000	107.18	53.59	237.6	206.3	67.6
SL-180S	37	500	144.22	72.11	82.4	71.6	17.6
	70	1000	136.42	68.21	154.1	133.8	34.0
	95	1500	123.44	61.72	197.4	171.4	50.7
	125	2000	121.8	60.9	256.1	222.4	67.4
SL-180M	40	500	155.92	77.96	89.5	77.7	17.5
	80	1000	155.92	77.96	175.0	152.0	34.0
	105	1500	136.42	68.21	216.9	188.4	50.7
	145	2000	141.3	70.65	295.0	256.2	67.5
SL-180L	50	500	194.88	97.44	110.2	95.7	17.5
	100	1000	194.88	97.44	214.4	186.2	34.0
	130	1500	168.9	84.45	270.5	234.9	50.7
	180	2000	175.4	87.7	363.0	315.2	67.4
SL-180X	55	500	214.38	107.19	119.8	104.0	17.5
	110	1000	214.38	107.19	233.6	202.9	34.2
	150	1500	194.88	97.44	309.9	269.1	50.7
	200	2000	194.88	97.44	399.5	346.9	67.4





FUKUTA®

INNOVATION / ENTHUSIASM / CREDIBILITY

MODEL

SL-225

FUKUTA SERVO MOTOR

IP23 低慣量

產品規格 Standard

輸　出 Output(kw)	100	133	167	200
機　號 Frame No.	225S	225M	225L	225X
效　率 Efficiency(%)	93.6%	93.7%	93.9%	94.3%
功　因 Power Factor	0.844	0.833	0.867	0.840
R1(Ω) @25℃	0.074	0.053	0.04	0.029
極　數 Poles	4	4	4	4
轉動慣量 Rotor Inertia(kg-m²)	1.2806	1.5522	1.9403	2.3284
激磁電流 Magnetizing Current(A)	65	83	91	128
額定轉速 Rated Speed	1000	1000	1000	1000
最高轉速 Max. Speed (rpm)	3000	3000	3000	3000
重　量 Weight(kg)	705.0	795.0	915.0	1040.0
編 碼 器 Encoder	1024PPR RS422(Line-drive)/Push-Pull			
風　扇 Elec.Fan	3ø 220/380V 50/60Hz 8/4.6A			
軸　承 Bearings	LS:6320C3　OS:6316C3			

※編碼器之選用依需求為主

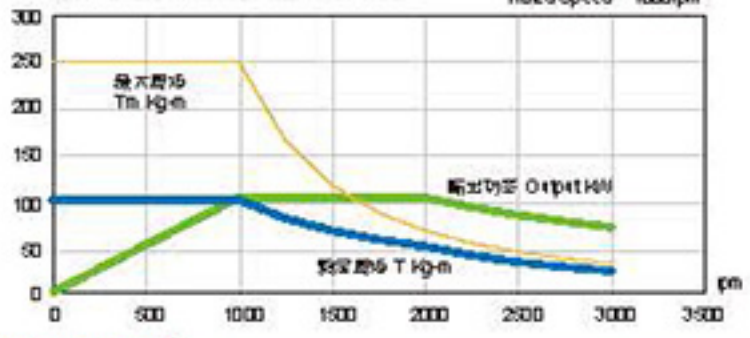
一般條件 General Data

安裝方式 Mounting	IM 2001(B3/B5)
保護方式 Protection	IP23 低慣量
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
溫度感測器 Temperature sensor	KTY-84

SL-225S

Torque Diagram / Power Diagram

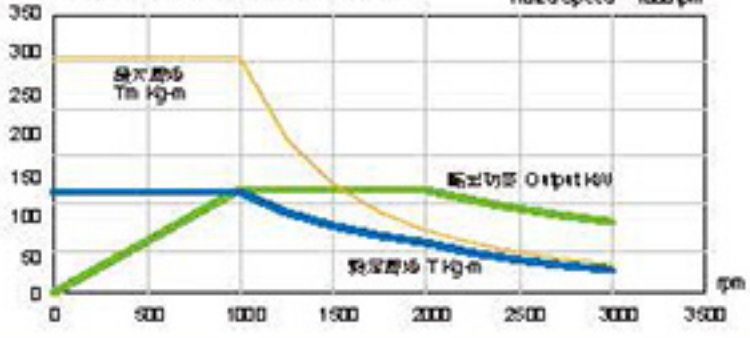
Rated Output= 100KW
Rated Speed= 1000rpm

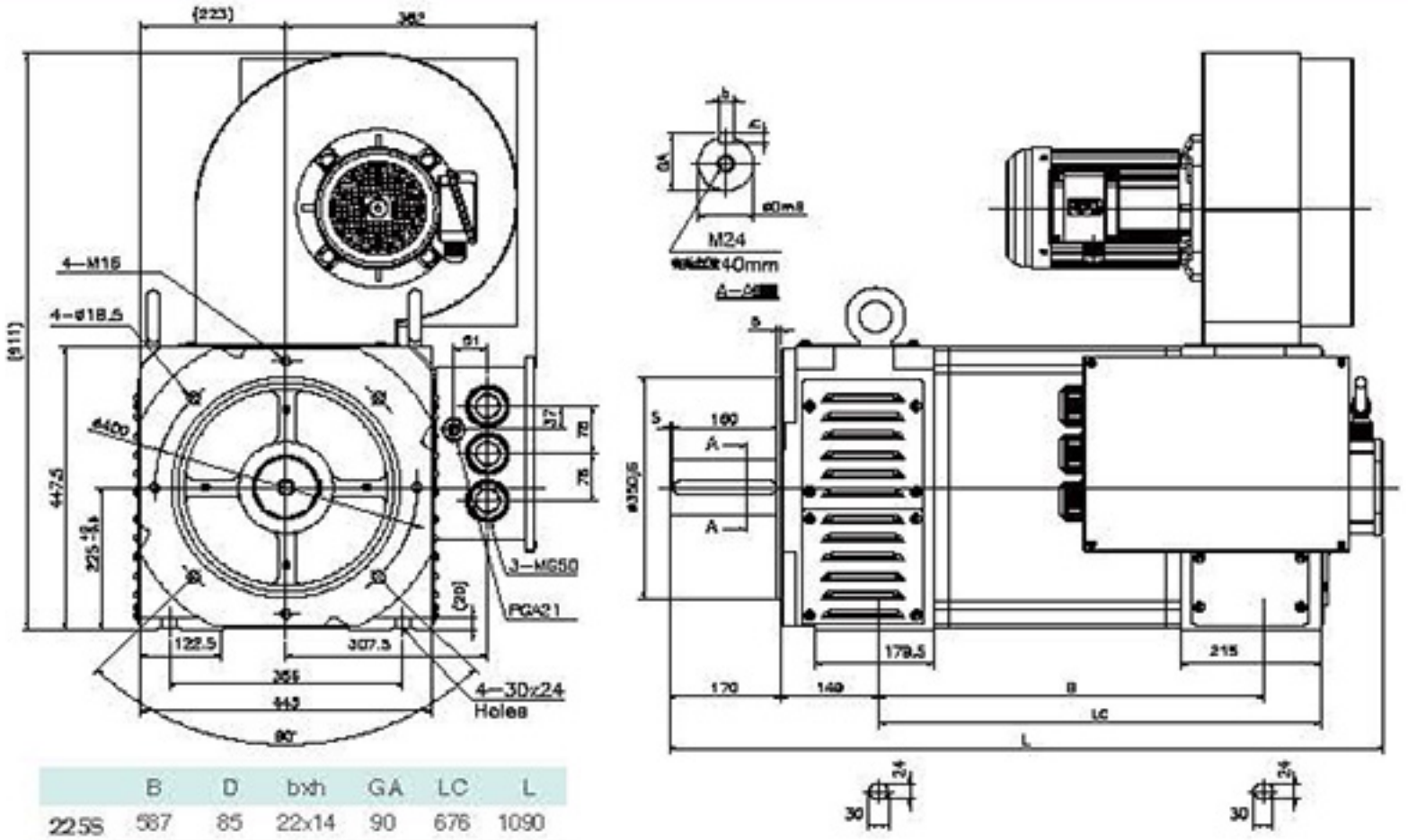


SL-225M

Torque Diagram / Power Diagram

Rated Output= 133KW
Rated Speed= 1000 rpm





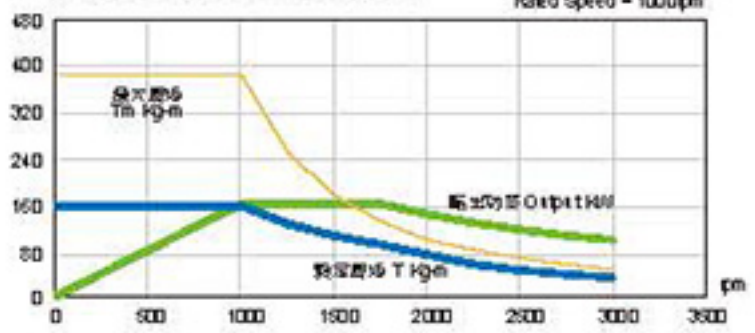
	B	D	bxh	GA	LC	L
225S	587	85	22x14	90	676	1090
225M	657	85	22x14	90	746	1160
225L	757	95	25x14	100	846	1260
225X	857	95	25x14	100	946	1360

FUKUTA 伺服馬達規格之選用

機號 Fr. No.	額定輸出 Rated Output	額定轉速 Rated Speed	最大轉矩 Max. Torque	額定轉矩 Rated Torque	額定電流 Rated Current	額定頻率 Rated Frequency
	kw	RPM	kg-m	kg-m	380V	Hz
SL-225S	50	500	223.95	97.55	98.7	17.3
	100	1000	243.06	97.54	188.5	34.5
	150	1500	258.18	97.44	273	50.6
	185	2000	251.20	90.18	341.6	67.3
SL-225M	67	500	278.00	130.72	130.9	17.4
	133	1000	304.06	129.77	242	34
	185	1500	321.93	120.20	353.3	50.6
	230	2000	307.53	112.08	424.1	67.3
SL-225L	84	500	349.57	163.75	162.4	17.4
	167	1000	370.17	162.78	308.6	34.3
	220	1500	374.28	142.91	402.1	50.6
	275	2000	402.04	134.00	524.3	67.2
SL-225X	100	500	430.05	195.00	193.4	17.3
	200	1000	466.78	195.06	376.6	34.6
	300	1500	489.76	194.90	566.5	50.6
	375	2000	502.37	182.71	718.8	67.3

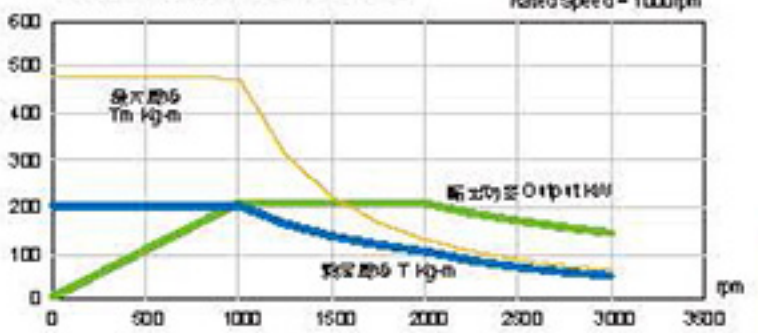
SL-225L

Torque Diagram / Power Diagram



SL-225X

Torque Diagram / Power Diagram



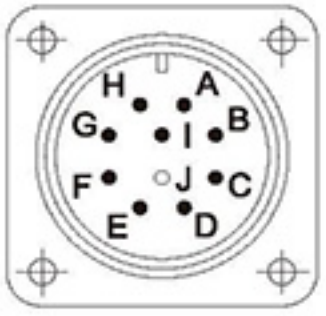
安裝及位置 Mountings and Positions

B3
IM 1001

B5
IM 3001

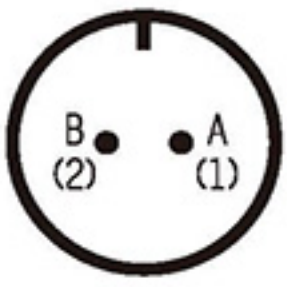
B3/B5
IM 2001

編碼器接頭 Encoder Connector



腳 Pin	功能 Func.	
A	A	
B	B	
C	$\overline{Z}$	
D	A	
E	$\overline{B}$	
F	$\overline{Z}$	
G	遮蔽	Shield
H	電源	Power
I	COM	Common
J	—	

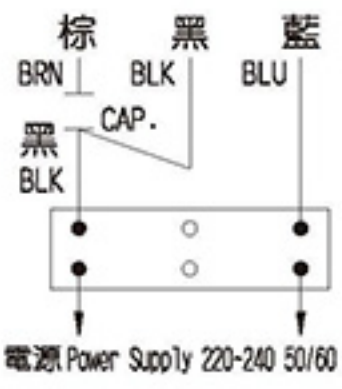
風扇接頭 Fan Connector

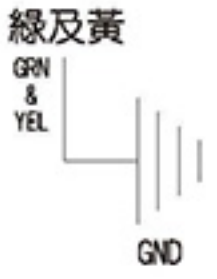


腳 Pin	功能 Func.
A(1)	1ø 50/60 Hz 220V
B(2)	

(SF-80, 90)

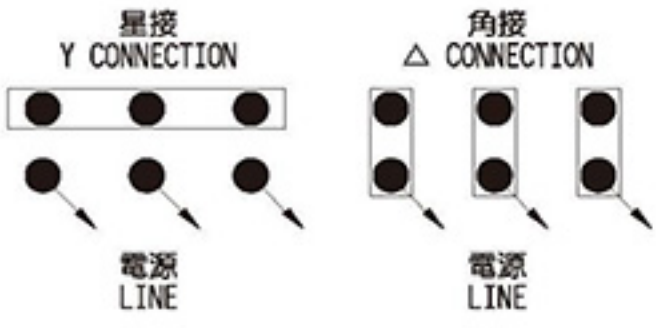
風扇端子台 Fan Terminal Board



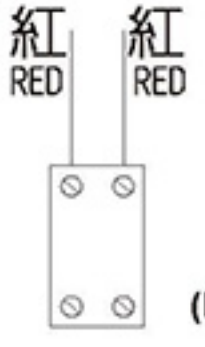


(SF-100, 112, 132, 160&180)

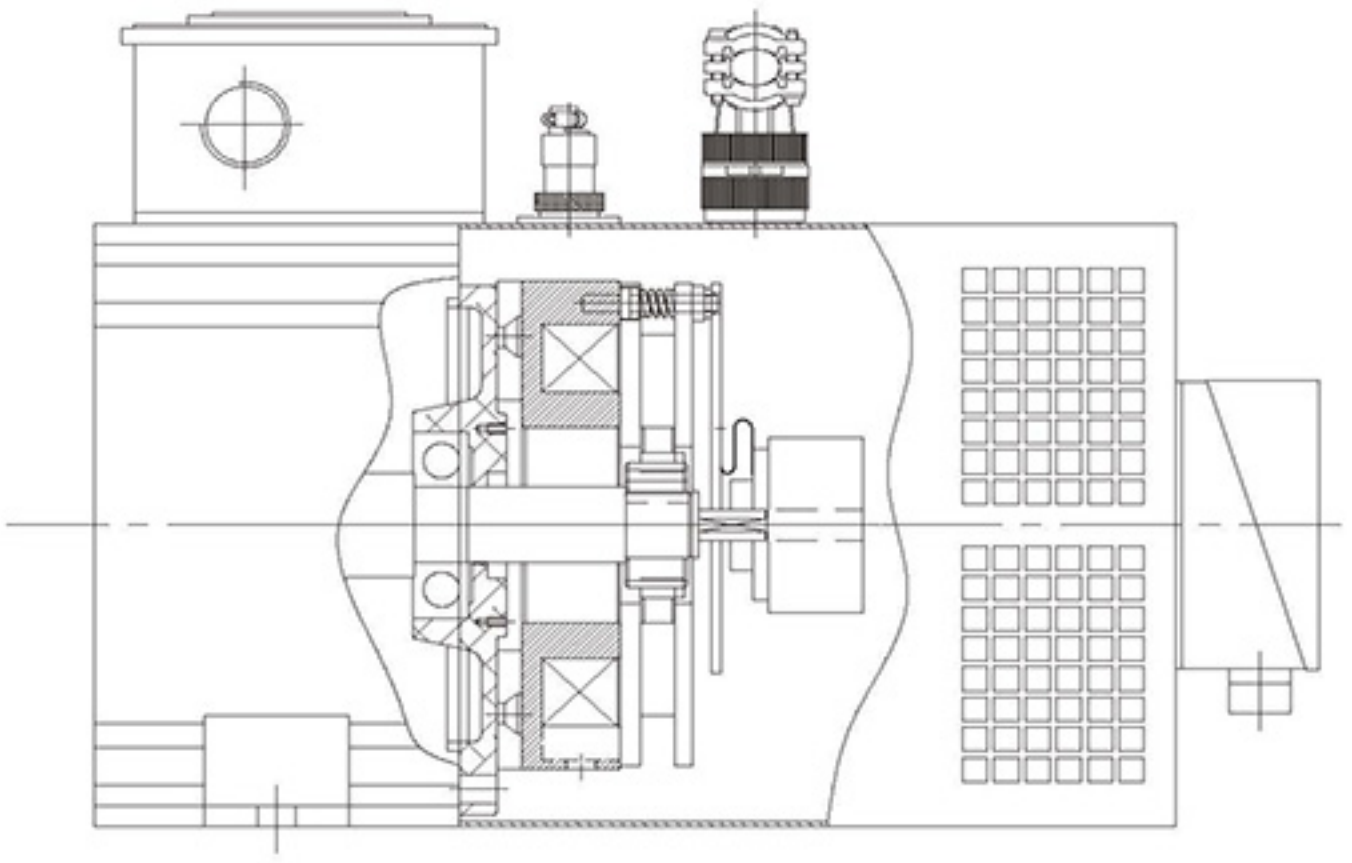
主電源端子台 Terminal Board for Main Power (Include SA series #132~280 Blower Terminal Board)



熱保護器 Thermal Protector



(Inside T-Box)



選用配件 Optional Accessory
伺服用煞車規格 Servo Brake fo SF Series

Frame 框號	80	90	100	112	132	160
Brake Torque 煞車扭力 (KG-M)	1.5	2.0	2.5	5.0	11.5	22.3
Max Speed 最高轉速 (RPM)	5000	5000	5000	5000	3000	3000
Power Supply 電壓 (VDC)	90V	90V	90V	90V	90V(24V)	90V(24V)
Brake Inertia 剎車轉動慣量 (KG-M^2)	0.001	0.0015	0.003	0.006	0.045	0.065
Input Power 功率 (W)	33	40	45	50	62	76
Weight 重量 (KG)	2.5	2.7	3.8	6.2	12	18

Top
Transmission

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FUKUTA ELEC.& MACH. CO.,LTD

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