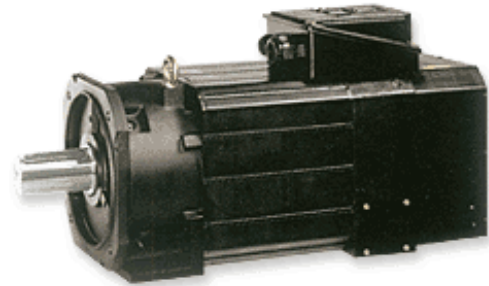




**SF-80**



**SF-180**

### Features of FUKUTA servomotors

**\* High dynamical response :**

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

**\* Operational gradually :**

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

**\* Excellent relation between maximum and rated torque :**

The FUKUTA servomotor enables a high relation between current peak and rated current so to enable high rates of maximum torque. Furthermore, the servomotors present an extremely favorable relation between torque and volume / weight which permits compact applications and best use of the 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, they do not need any position detector, because the direction of magnetic flux is determined by the current. The use of encoder on the motor axis enables controlling of the speed and is a valid answer where accuracy, repeatability, and positioning control are required. The structure therefore is extremely simple, sturdy & reliable and does not require any maintenance, since there are no collectors, carbon-brushes or magnets.

### FUKUTA servomotors and Output / Rated Speed Table

Frame	Output		Rated speed
	KW	HP	RPM
80MA	0.75	1	2000
80MB	1.1	1.5	2000
90MA	1.5	2	2000
90MB	2.2	3	2000
90L	3.7	5	2000
100LA	3.7	5	2000

100LB	5.5	7.5	2000
112L	7.5	10	2000
112XA	11	15	2000
112XB	15	20	2000
132MA	15	20	2000
132MB	18.5	25	2000
132L	22	30	2000
160S	30	40	2000
160M	37	50	2000
160L	45	60	2000
160X	55	75	2000
180S	75	100	1500
180M	90	120	1500
180L	110	150	1500

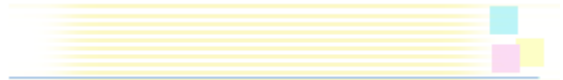
- \* Class H insulation is provided as a standard as well as encoder, 1024 ppr, and thermal protector.
- \* Motor type of F#80 ~ F# 90 is vertical.
- \* Motor type of F#100 ~ F#132 is both vertical and horizontal.
- \* There are low inertia types for 3.7Kw and 1.5Kw on request.
- \* All the motors are built in IP54 protection and balancing according to ISO2373 grade R.

### Typical application fields

The wide range of servomotors combined with the respective drivers satisfies the most different and multiple application purposes, so to enable optimum motordrives 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.

#### Some applications fields as an example:

- \* Iron & steel processing machines
- \* Plastic extruder machines
- \* Paper making and processing machines
- \* Printing machines
- \* CNCcontrolled machines tools
- \* Textile machines
- \* Bag & can making machines
- \* General industrial machinery
- \* Slitting & rewinding machines
- \* Plastic / Rubber injection machines
- \* Conugated card board & box processing machines
- \* Packing machines
- \* Food & beverage processing machines
- \* Dyeing & stamping machines
- \* Automotive industry

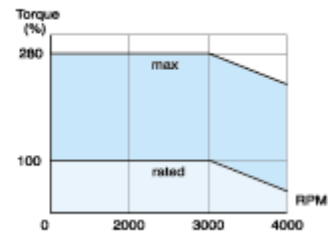
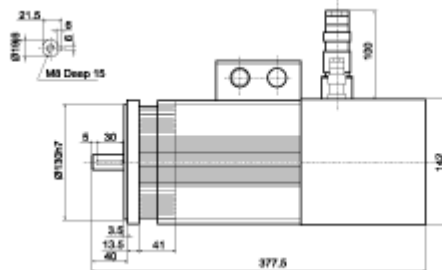
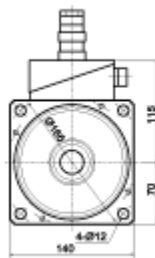


| [SF-80](#) | [SF-90](#) | [SF-100](#) | [SF-112](#) | [SF-132](#) | [SF-160](#) | [SF-180](#) |

## SF-80



輸出 Output(kw)	0.75	1.1
框號 Frame No.	80MA	80MB
極數 Poles	4	
轉動慣量 Rotor Inertia I (kgm <sup>2</sup> )	0.0017	0.0021
重量 Weight (kg)	13.0	14.4
編碼器 Encoder	1024PPR 5Vdc 2CH+Z	
風扇 Elec. Fan	A2S130型(Type)1a 230V 50/60Hz 45/39W	
軸承 Bearings	LS-6206C3	OS-6205C3
<b>一般條件 General Data</b>		
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	
周圍 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 RPM	最大轉矩 Max. Torque kg.m	額定轉矩 Rated Torque kg.m	額定輸出 Rated Output kw	額定電流 Rated Current				額定頻率 Rated Frequency Hz
					190v	220v	330v	380v	
80MA	2000	1.05	0.38	0.75	3.6	3.1	2.1	1.8	66.7
	3000	1.05	0.38	1.1	5.3	4.6	3.0	2.6	100
	4000	0.98	0.35	1.4	6.5	5.6	3.7	3.2	133.3
80MB	2000	1.51	0.54	1.1	5.1	4.4	2.9	2.5	66.7
	3000	1.49	0.54	1.6	7.1	6.2	4.1	3.6	100
	4000	1.47	0.52	2.1	9.0	7.8	5.2	4.5	133.3

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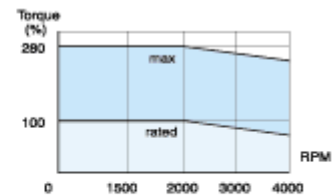
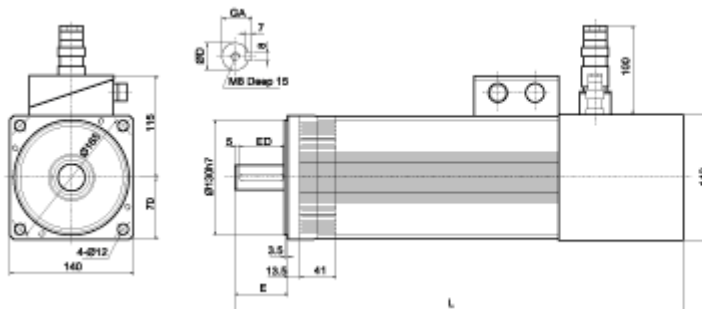
# Servo Motor Series

| [SF-80](#) | [SF-90](#) | [SF-100](#) | [SF-112](#) | [SF-132](#) | [SF-160](#) | [SF-180](#) |

## SF-90



輸出 Output(kw)	1.5	2.2	3.7
框號 Frame No.	90MA	90MB	90L
極數 Poles	4		
轉動慣量 Rotor Inertia I (kgm <sup>2</sup> )	0.0026	0.0032	0.0048
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)1a 230V 50/60Hz 45/39W		
軸承 Bearings	LS-6206C3	OS-6205C3	
<b>一般條件 General Data</b>			
安裝方式 Mounting	IM 3001 (B5)		
保護方式 Protection	IP54		
轉子平衡 Rotor Balancing	R級(G02373) 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		
周圍 Ambient Temp.	-15°C - 40°C		
高度 Altitude	海拔1000米 1000m ASL		



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

框號 Fr. No.	額定轉速	最大轉矩	額定轉矩	額定輸出	額定電流				額定頻率
	Rated Speed RPM	Max. Torque kg.m	Rated Torque kg.m	Rated Output kw	190v	220v	330v	380v	Rated Frequency Hz
90MA	1500	2.08	0.75	1.1	4.9	4.2	2.8	2.4	50
	2000	2.08	0.75	1.5	6.9	6.0	4.0	3.4	66.7
	3000	1.86	0.66	2.0	8.8	7.6	5.1	4.4	100
	4000	1.74	0.62	2.5	10.6	9.2	6.1	5.3	133.3
90MB	1500	3.06	1.09	1.6	7.0	6.0	4.0	3.5	50
	2000	3.06	1.09	2.2	10.0	8.6	5.8	5.0	66.7
	3000	2.80	1.00	3.0	13.1	11.3	7.6	6.5	100
	4000	2.65	0.95	3.8	16.0	13.8	9.2	8.0	133.3
90L	1500	5.17	1.85	2.7	11.4	9.8	6.6	5.7	50
	2000	5.17	1.85	3.7	16.2	14.0	9.4	8.1	66.7
	3000	4.75	1.69	5.1	21.5	18.5	12.4	10.7	100
	4000	4.49	1.60	6.4	25.9	22.4	15.0	12.9	133.3

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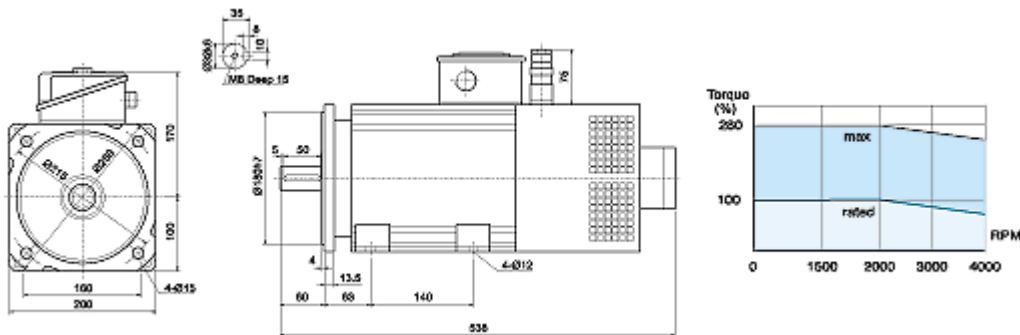
# Servo Motor Serie

| [SF-80](#) | [SF-90](#) | SF-100 | [SF-112](#) | [SF-132](#) | [SF-160](#) | [SF-180](#) |

## SF-100



輸出 Output(kw)	3.7	5.5
框號 Frame No.	100LA	100LB
極數 Poles	4	
轉動慣量 Rotor Inertia I (kgm <sup>2</sup> )	0.0049	0.006
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
<b>一般條件 General Data</b>		
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	
周邊 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	kw	190v	220v	330v	380v	Hz
100LA	1500	5.0	1.7	2.8	12.4	10.7	7.1	6.2	50
	2000	5.0	1.7	3.7	17.0	14.7	9.8	8.5	66.7
	3000	4.7	1.6	5.2	23.0	19.8	13.3	11.5	100
	4000	4.6	1.5	6.3	26.8	23.1	15.5	13.3	133.3
100LB	1500	7.3	2.6	4.0	16.9	14.6	9.7	8.4	50
	2000	7.3	2.6	5.5	24.1	20.8	13.9	12.0	66.7
	3000	6.7	2.4	7.4	31.2	26.9	18.0	15.5	100
	4000	6.1	2.2	9.0	36.5	31.5	21.1	18.2	133.3

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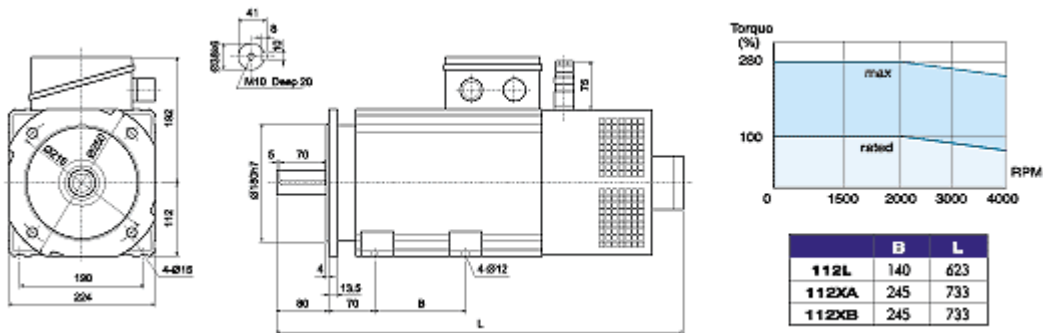
# Servo Motor Series

| [SF-80](#) | [SF-90](#) | [SF-100](#) | [SF-112](#) | [SF-132](#) | [SF-160](#) | [SF-180](#) |

## SF-112



輸出 Output(kw)	7.5	11.0	15
框號 Frame No.	112L	112XA	112XB
極數 Poles	4		
轉動慣量 Rotor Inertia I (kgm <sup>2</sup> )	0.013	0.018	0.024
重量 Weight (kg)	45.0	55.0	72.0
編碼器 Encoder	1024PPR 5Vdc 2CH+Z		
風扇 Elec. Fan	R2E180型(Type) Ia 230V 50/60Hz 82/100W		
軸承 Bearings	LS-6308C3	OS-6306C3	
<b>一般條件 General Data</b>			
安裝方式 Mounting	IM 2001 (B3 B5)		
保護方式 Protection	IP54		
轉子平衡 Rotor Balancing	R級(G2373) 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		
周圍 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 RPM	最大轉矩 Max. Torque kg.m	額定轉矩 Rated Torque kg.m	額定輸出 Rated Output kw	額定電流 Rated Current				額定頻率 Rated Frequency Hz
					190v	220v	330v	380v	
112L	1500	10	3.5	5.5	22.1	19.1	12.7	11.0	50
	2000	10	3.5	7.5	31.3	27.0	18.1	15.6	66.7
	3000	8.9	3.2	10.0	40.1	34.7	23.2	20.0	100
	4000	8.1	2.9	12.0	46.3	40.0	26.7	23.1	133.3
112XA	1500	14.8	5.3	8.2	32.3	27.9	18.7	16.1	50
	2000	14.8	5.3	11.0	45.1	39.0	26.0	22.5	66.7
	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	20.4	7.2	11.2	43.4	37.5	25.1	21.7	50
	2000	20.4	7.2	15.0	60.5	52.3	34.9	30.2	66.7
	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

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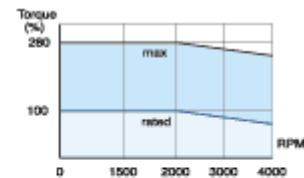
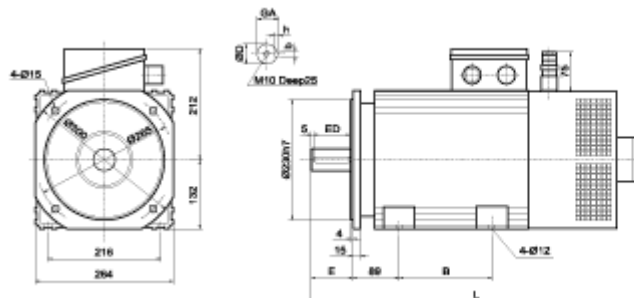
# Servo Motor<sup>S</sup> Seri

| [SF-80](#) | [SF-90](#) | [SF-100](#) | [SF-112](#) | [SF-132](#) | [SF-160](#) | [SF-180](#) |

## SF-132



輸出 Output(kw)	15	18.5	22	30
框號 Frame No.	132MA	132MB	132L	132LA
極數 Poles	4			
轉動慣量 Rotor Inertia I (kgm <sup>2</sup> )	0.035	0.043	0.052	0.063
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	
<b>一般條件 General Data</b>				
安裝方式 Mounting	IM 2001 (B3 B5)			
保護方式 Protection	IP54			
轉子平衡 Rotor Balancing	R級(D502373) 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			
周遭 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

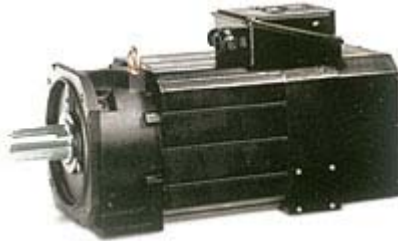
框號 Fr. No.	額定轉速 Rated Speed	最大轉矩 Max. Torque	額定轉矩 Rated Torque	額定輸出 Rated Output	額定電流 Rated Current				額定頻率 Rated Frequency
	RPM	kg.m	kg.m	kw	190v	220v	330v	380v	Hz
132MA	1500	20.4	7.2	11.2	43.1	37.2	24.9	21.5	50
	2000	20.4	7.2	15.0	60.0	51.8	34.6	29.9	66.7
	3000	18.9	6.5	20.0	76.9	66.4	44.4	38.4	100
	4000	17.6	6.2	25.0	92.5	79.8	53.4	46.1	133.3
132MB	1500	25.7	9.1	13.8	52.4	45.2	30.2	26.1	50
	2000	25.7	9.1	18.5	73.0	63.0	42.1	36.4	66.7
	3000	23.9	8.5	25.9	98.3	84.9	56.7	49.0	100
	4000	23.0	8.2	33.3	121.5	104.9	70.1	60.6	133.3
132L	1500	30.6	10.9	16.5	62.4	53.9	36.0	31.1	50
	2000	30.6	10.9	22.0	86.5	74.7	49.9	43.1	66.7
	3000	28.5	10.2	31.1	117.6	101.5	67.9	58.6	100
	4000	25.7	9.1	37.4	136.0	117.4	78.5	67.8	133.3
132LA	1500	40.0	14.2	22	84.6	73.1	48.9	42.2	50
	2000	40.0	14.2	30	120.0	103.6	69.3	59.8	66.7
	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



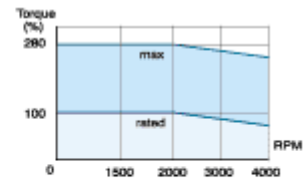
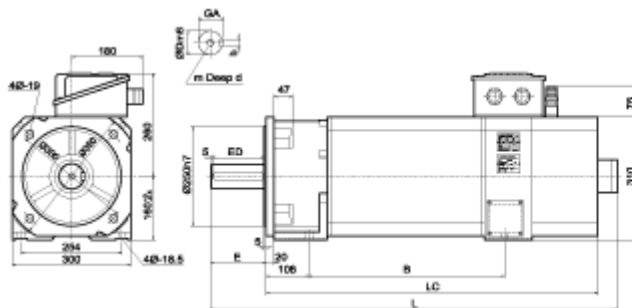
# Servo Motor Serie

| [SF-80](#) | [SF-90](#) | [SF-100](#) | [SF-112](#) | [SF-132](#) | [SF-160](#) | [SF-180](#) |

## SF-160



輸出 Output(kw)	30	37	45	55
框號 Frame No.	160S	160M	160L	160X
極數 Poles	4			
轉動慣量 Rotor Inertia I (kgm <sup>2</sup> )	0.082	0.116	0.138	0.171
重量 Weight (kg)	220	250	280	330
編碼器 Encoder	1024PPR 5Vdc 2CH+Z			
風扇 Elec. Fan	R2E250型(Type) Iø 230V 50/60Hz 155/215W			
軸承 Bearings	LS-6313C3		OS-6312C3	
<b>一般條件 General Data</b>				
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			
周圍 Ambient Temp.	-15°C ~ 40°C			
高度 Altitude	海拔1000米 1000m ASL			



	B	D	E	ED	b	h	m	x	d	GA	L	LC
<b>160S</b>	315	55	110	100	16x10	M12x05	59	818	659			
<b>160M</b>	365	60	140	130	18x11	M16x00	64	898	709			
<b>160L</b>	415	60	140	130	18x11	M16x00	64	948	759			
<b>160X</b>	495	60	140	130	18x11	M16x00	64	1028	839			

框號 Fr. No.	額定轉速 Rated Speed RPM	最大轉矩 Max. Torque kg.m	額定轉矩 Rated Torque kg.m	額定輸出 Rated Output kw	額定電流 Rated Current 190v 220v 330v 380v				額定頻率 Rated Frequency Hz
160S	1500	41.8	14.8	22	87.4	75.5	50.5	43.6	50
	2000	41.8	14.8	30	119.2	102.9	68.8	59.4	66.7
	3000	38.3	13.0	40	152.8	132.0	88.2	76.2	100
	4000	35.6	12.2	50	191.0	165.0	110.3	95.2	133.3
160M	1500	51.4	18.2	28	108.8	94.0	62.8	54.3	50
	2000	51.4	18.2	37	143.8	124.2	83.0	71.7	66.7
	3000	47.7	16.9	52	194.3	167.8	112.2	96.9	100
	4000	43.3	15.3	63	235.4	203.3	135.9	117.4	133.3
160L	1500	62.7	22.2	34	132.1	114.1	76.3	65.9	50
	2000	62.7	22.2	45	174.9	151.1	101.0	87.2	66.7
	3000	55.0	19.5	60	224.2	193.7	129.5	111.8	100
	4000	51.6	18.3	75	280.3	242.1	161.8	139.8	133.3
160X	1500	77.4	27.4	40	156.0	134.7	90.1	77.8	50
	2000	77.4	27.4	55	214.5	185.3	123.8	107.0	66.7
	3000	68.8	24.3	75	281.3	242.9	162.4	140.2	100
	4000	61.9	21.9	90	337.5	291.5	194.9	168.3	133.3



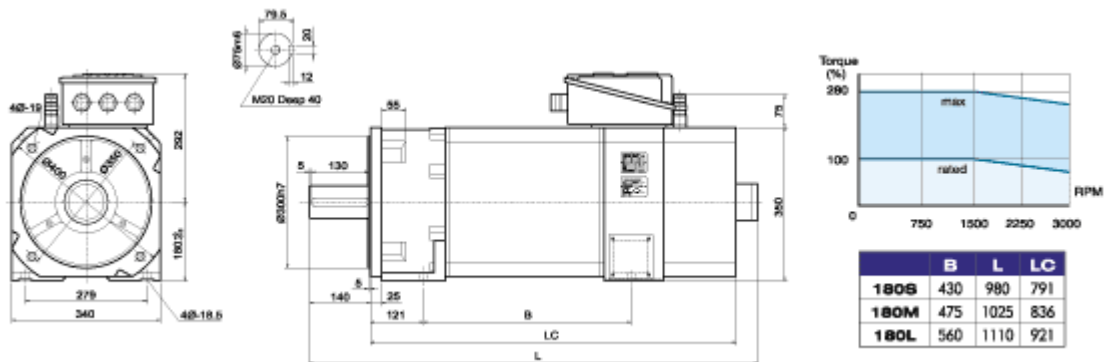
# Servo Motor Series

| [SF-80](#) | [SF-90](#) | [SF-100](#) | [SF-112](#) | [SF-132](#) | [SF-160](#) | [SF-180](#) |

## SF-180



輸出 Output(kw)	75	90	110
框號 Frame No.	180S	180M	180L
極數 Poles	6		
轉動慣量 Rotor Inertia I (kgm <sup>2</sup> )	0.309	0.445	0.622
重量 Weight (kg)	360	400	475
編碼器 Encoder	1024PPR 5Vdc 2CH+Z		
風扇 Elec. Fan	R2E225型(Type)1ø 230V 50/60Hz 155/215W		
軸承 Bearings	LS:NUP316 OS:6314C3		
<b>一般條件 General Data</b>			
安裝方式 Mounting	IM 2001 (B3 B5)		
保護方式 Protection	IP54		
轉子平衡 Rotor Balancing	R級(S02373) 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		
週溫 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	kw	330v 380v	Hz
180S	1000	137.6	48.7	50	113 98	50
	1500	137.6	48.7	75	169 146	75
	2000	129.1	45.7	94	203 176	100
	3000	113.3	40.1	124	268 232	150
180M	1000	165.3	58.5	60	134 116	50
	1500	165.3	58.5	90	200 173	75
	2000	155.1	54.9	113	241 209	100
	3000	136.2	48.2	149	317 275	150
180L	1000	202.0	71.5	73	164 142	50
	1500	202.0	71.5	110	245 212	75
	2000	189.6	67.1	138	295 256	100
	3000	166.4	58.9	181	389 337	150