

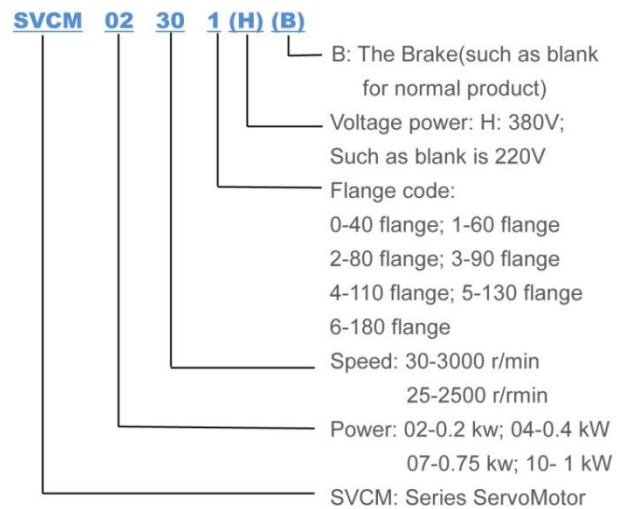


The **SVCM** series AC ServoMotor is features mute design, small size and rich models. The power range 0.2 ~ 7.5 kW. It works perfectly with the SVC series servo drive.

**Overview**

Frame size, mm	40 ~ 180	130 ~ 180
Power Voltage, V	220	380
Rated output power, kW	0,05 ~ 7.5	1.0 ~ 7.5
Rated torque, N.m	0.159 ~ 48	4.0 ~ 48
Rated current, A	0.61 ~ 32	2.6 ~ 20
Rated speed, rpm	1000 ~ 3000	
Type of inertia	Medium(standard) / low / high	
Feedback device( Encoder)	Incremental 2500 PPR (standard / 17-bit incremental / Absolute	
Brake	Optional	
Protection class	IP65	

**SVCM ServoMotor Named Principle**

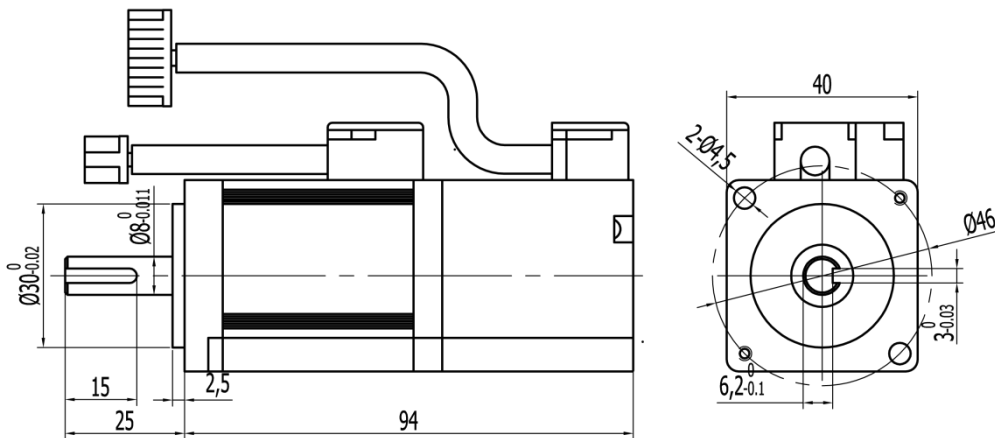


**Specification ServoMotor 220V, 40mm**

Model	SVCM00530-0	SVCM0130-0
Rated power (W)	50	100
Rated torque (N·m)	0.159	0.3
Rated speed (rpm)	3000	3000
Rated current (A)	0.61	0.9
Rated line Voltage (V)	220	
Max. Peak torque (H·m)	0.557	1.1
Voltageconstant (V/1000r/min)	29.5	30
Torque coefficient (N.m/A)	0.285	0.33
Rotor inertia ( kg.m2)	0.414×10 <sup>-5</sup>	0.665×10 <sup>-5</sup>
Line - Line Resistance (Ω)	20.7	32
Line - Line Inductance (mH)	29.5	36.5
Electrical time constant (ms)	1.42	1.1
Weight, kg	0.3	0.5
Encoder	Standart	incremental encoder 2500 PPR
	Optional	17-bit incremental / Absolute
Insulation Class	Class F (155℃)	
Protection Class	IP65, shaft sealling IP54	

Environment conditions	Temperature	-20°C ~ +50°C
	Humidity	Below 90% RH (no dewing)
	Environment	far away from corrosive substance,combustible gas,oil drop,ash.
	Installation altitude	Max. 4000 m
Above 1000 m, 1.5% power decreasing per 100 m		

### Dimension ServoMotor 220V, 40mm



Model	SVCM00530-0	SVCM0130-0
ServoMotor without brake, L	116	141

### Connector of ServoMotor wire

#### Connector of Power wire

Signal	U	V	W	PE
PIN	1	2	3	4

#### Connctor of Encoder wire

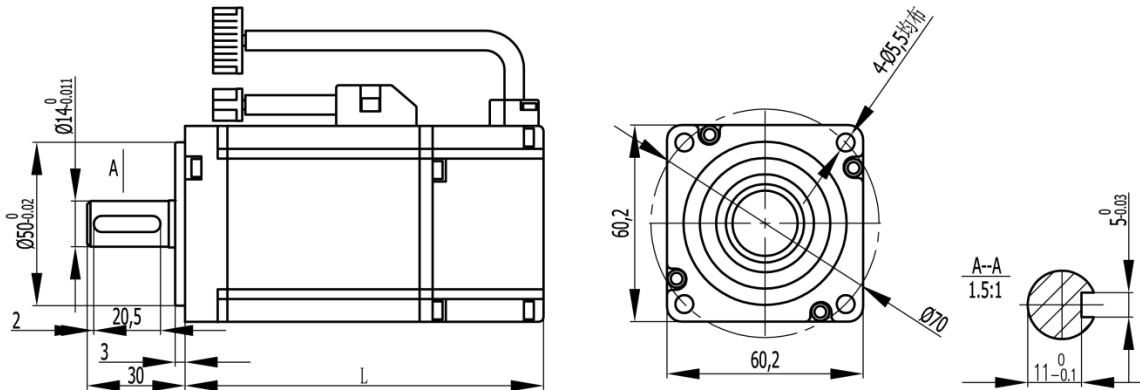
Signal	5V	0V	B+	Z-	U+	Z+	U-	A+	V+	W+	V-	A-	B-	W-	PE
PIN	2	3	4	5	6	7	8	9	10	11	12	13	14	15	1

**Specification ServoMotor 220V, 60mm**

Model	SVCM0230-1	SVCM0430-1	SVCM0630-1
Rated output power, W	200	400	600
Rated torque, N·m	0.637	1.27	1.91
Rated speed, rpm	3000	3000	3000
Rated current, A	1.2	2.8	3.5
Power line Voltage, V	220	220	220
Max. Peak torque, N·m	1.91	3.9	5.73
Voltage constant, V/1000r/min	30.9	29.6	34
Torque coefficient, N·m/A	0.53	0.45	0.55
Rotor inertia, kg·m <sup>2</sup>	0.175×10 <sup>-4</sup>	0.29×10 <sup>-4</sup>	0.39×10 <sup>-4</sup>
Line-line Resistance, Ω	6.18	2.35	1.93
Line-line Inductance, mH	29.3	14.5	10.7
Electrical time constant, ms	4.74	6.17	5.5
Weight, kg	1.16	1.63	2.07
Encoder	Incremental 2500 PPR		
Insulation class	Class F (155°C)		

<b>Protection Class</b>	IP65, shaft sealing IP54	
<b>Environment Conditions</b>	Temperature	-20°C ~ +50°C
	Humidity	Below 90% RH ( No dewing)
	Environment	Far away active gas, combustible gas, oil drop, ash.
	Installation altitude	Max. 4000 m Up to 1000: rated power / Above 1000m: 1.5% power/ Decreasing per 100m

**Dimension ServoMotor 220V, 60mm**



Model	SVCM0230-1	SVCM0430-1	SVCM0630-1
ServoMotor without brake, L	116	141	169

ServoMotor wight brake, L	164	189	217
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**Connector of ServoMotor wire**

Connector of Power wire

Signal	U	V	W	PE
PIN	1	2	3	4

Connctor of Encoder wire

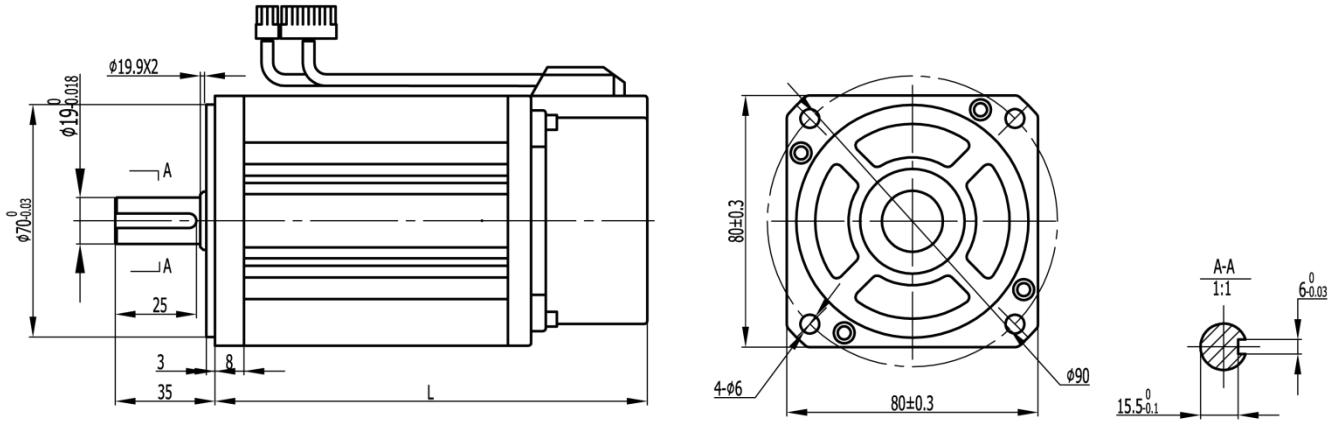
Signal	5V	0V	B+	Z-	U+	Z+	U-	A+	V+	W+	V-	A-	B-	W-	PE
PIN	2	3	4	5	6	7	8	9	10	11	12	13	14	15	1

**Specification ServoMotor 220V, 80mm**


- Power Voltage is 220V, Frame size 80mm;
- Range of output power 0.4 ~ 1.0 kW;
- Range of rated current 2,0 ~ 4,4 A;
- Range of rated torque 1.27 ~ 4,0 N.m;
- Incremental 2500 PPR.
- Protection class IP65;

Model	SVCM0430-2	SVCM0730-2	SVCM0720-2	SVCM1025-2
Rated output power, W	400	750	730	1000
Rated torque, N.m	1.27	2.39	3.5	4.0
Rated speed, rpm	3000	3000	2000	2500
Rated current, A	2.0	3.0	3.0	4.4
Power line Voltage, V	220			
Max. Peak torque, N.m	3.8	7.1	10.5	12
Voltageconstant, V/1000r/min	40	48	71	56
Torque coefficient, N.m/A	0.64	0.8	1.17	0.9
Rotor inertia, kg.m <sup>2</sup>	1.05×10 <sup>-4</sup>	1.82×10 <sup>-4</sup>	2.63×10 <sup>-4</sup>	2.97×10 <sup>-4</sup>
Line-line Resistance, Ω	4.44	2.88	3.65	1.83
Line-line Inductance, mH	7.93	6.4	8.8	4.72
Electrical time constant, ms	1.66	2.22	2.4	2.58
Weight, kg	1.78	2.9	3.9	4.1
Encoder	Incremental 2500 PPR			
Insulation class	Class F (155℃)			
Protection class	IP65, shaft sealing IP54			
Environment Conditions	Temperature	-20℃ ~ +50℃		
	Humidity	Below 90% RH ( No dewing)		
	Environment	Far away active gas, combustible gas, oil drop, ash.		
	Installation altitude	Max. 4000 m Up to 1000: rated power / Above 1000m: 1.5% power/ Decreasing per 100m		

Dimension ServoMotor 220V, 80mm



Model	SVCM0430-2	SVCM0730-2	SVCM0720-2	SVCM1025-2
ServoMotor without brake, L	124	151	179	191
ServoMotor with electromagnetic brake, L	164	191	219	231
ServoMotor with PM brake, L	178	205	233	245

Connector of ServoMotor wire

Connector of Power wire

Signal	U	V	W	PE
PIN	1	2	3	4

Connctor of Encoder wire

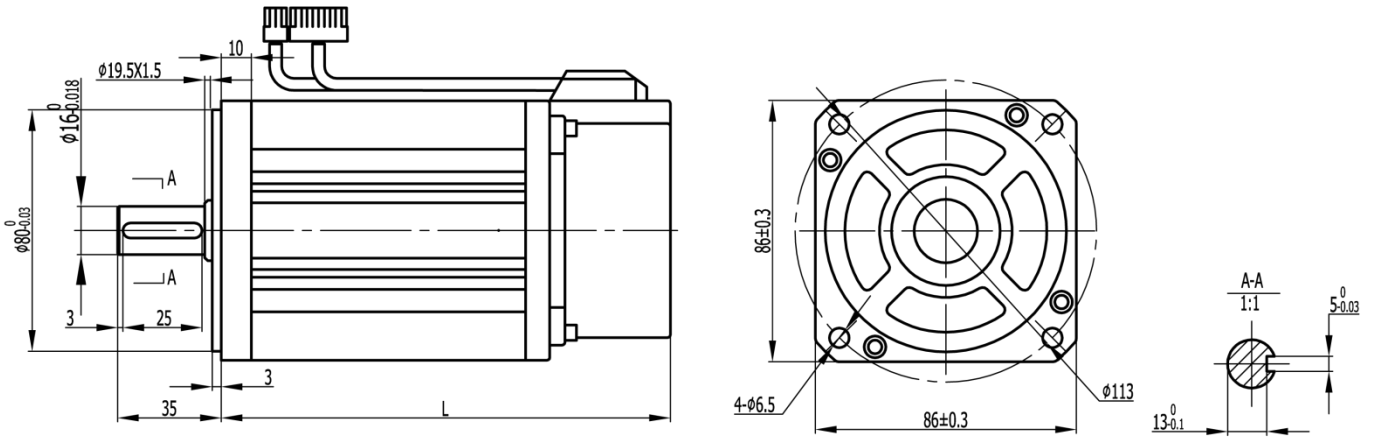
Signal	5V	0V	B+	Z-	U+	Z+	U-	A+	V+	W+	V-	A-	B-	W-	PE
PIN	2	3	4	5	6	7	8	9	10	11	12	13	14	15	1

**Specification ServoMotor 220V, 90mm**


- Power Voltage is 220V, Frame size 90mm;
- Range of output power 0.75 ~ 1.0 kW;
- Range of rated current 3.0~4.0 A;
- Range of rated torque 2.4 ~ 4.0 N.m;
- Incremental 2500 PPR.
- Protection class IP65;

Model	SVCM0730-3	SVCM0720-3	SVCM1025-3
Rated output power, W	750	750	1000
Rated torque, N.m	2.4	3.5	4.0
Rated speed, rpm	3000	2000	2500
Rated current, A	3.0	3.0	4.0
Power line Voltage, V	220		
Max. Peak torque, N.m	7.1	10.5	12
Voltage constant, V/1000r/min	51	67	60
Torque coefficient, N.m/A	0.8	1.2	1
Rotor inertia, kg.m <sup>2</sup>	2.45x10 <sup>-4</sup>	3.4x10 <sup>-4</sup>	3.7x10 <sup>-4</sup>
Line-line Resistance, Ω	3.2	4.06	2.69
Line-line Inductance, mH	7.0	9.7	6.2
Electrical time constant, ms	2.2	2.39	2.3
Weight, kg	3.1	3.9	4.2
Encoder	Incremental 2500 PPR		
Insulation class	Class F (155°C)		
Protection class	IP65, shaft sealing IP54		
Environment Conditions	Temperature	-20°C ~ +50°C	
	Humidity	Below 90% RH ( No dewing)	
	Environment	Far away active gas, combustible gas, oil drop, ash. пыли	
	Installation altitude	Max. 4000 m	
Up to 1000: rated power / Above 1000m: 1.5% power/ Decreasing per 100m			

Dimension ServoMotor 220V, 90mm



Model	SVCM0730-3	SVCM0720-3	SVCM1025-3
ServoMotor without brake, L	150	172	182
ServoMotor with electromagnetic brake, L	198	220	230
ServoMotor with PM brake, L	201	229	239

Connector of ServoMotor wire

Connector of Power wire

Signal	U	V	W	PE
PIN	1	2	3	4

Connctor of Encoder wire

Signal	5V	0V	B+	Z-	U+	Z+	U-	A+	V+	W+	V-	A-	B-	W-	PE
PIN	2	3	4	5	6	7	8	9	10	11	12	13	14	15	1

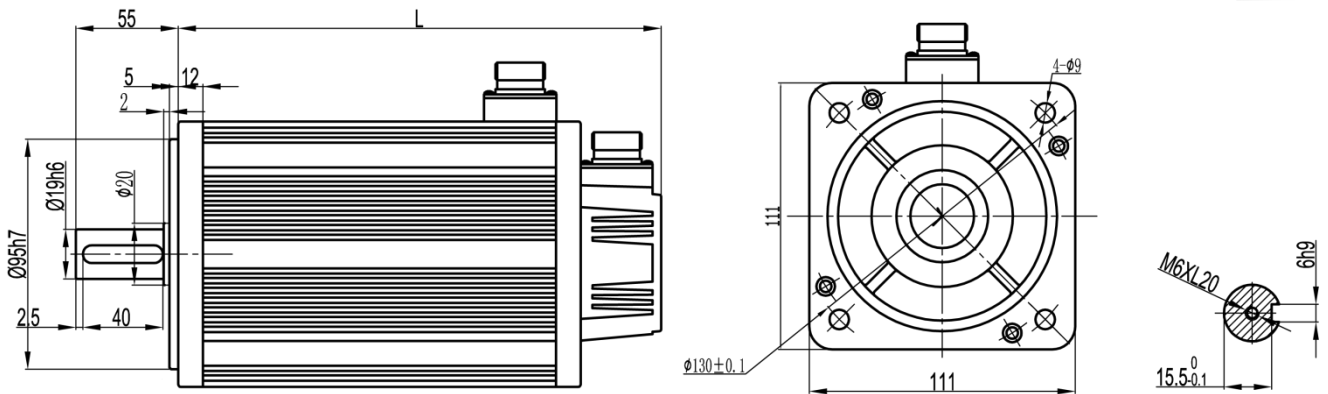


**Specification ServoMotor 220V, 110mm**


- Power Voltage is 220V, Frame size 110mm;
- Range of output power 0.6 ~ 1.8 kW;
- Range of rated current 2,5~5,0 A;
- Range of rated torque 2.0 ~ 6,0 N.m;
- Incremental 2500 PPR.
- Protection class IP65;

Model	SVCM0630-4	SVCM0820-4	SVCM1230-4	SVCM1530-4	SVCM1220-4	SVCM1830-4
Rated output power, W	600	800	1200	1500	1200	1800
Rated torque, N-m	2.0	4.0	4.0	5.0	6.0	6.0
Rated speed, rpm	3000	2000	3000	3000	2000	3000
Rated current, A	2.5	3.5	5.0	6.0	4.5	5.0
Power line Voltage, V	220					
Max. Peak torque, N.m	6.0	12.0	12.0	15.0	12.0	18.0
Voltage constant, V/1000r/min	56	79	54	62	83	60
Torque coefficient, N.m/A	0.8	1.14	0.8	0.83	1.3	1
Rotor inertia, kg.m <sup>2</sup>	0.31×10 <sup>-3</sup>	0.54×10 <sup>-3</sup>	0.54×10 <sup>-3</sup>	0.63×10 <sup>-3</sup>	0.76×10 <sup>-3</sup>	0.76×10 <sup>-3</sup>
Line-line Resistance, Ω	3.6	2.41	1.09	1.03	1.46	0.81
Line-line Inductance, mH	8.32	7.3	3.3	3.43	4.7	2.59
Electrical time constant, ms	2.3	3.0	3.0	3.33	3.2	3.2
Weight, kg	4.5	6.0	6.0	6.8	7.9	7.9
Encoder	Incremental 2500 PPR					
Insulation class	Class F (155℃)					
Protection class	IP65, shaft sealing IP54					
Environment Conditions	Temperature	-20℃ ~ +50℃				
	Humidity	Below 90% RH ( No dewing)				
	Environment	Far away active gas, combustible gas, oil drop, ash. пыли				
	Installation altitude	Max. 4000 m				
Up to 1000: rated power / Above 1000m: 1.5% power/ Decreasing per 100m						

**Dimension ServoMotor 220V, 110mm**



Frame sizee	110 series			
Rated torque (N·m)	2	4	5	6
ServoMotor without brake, L	159	189	204	219
ServoMotor with electromagnetic brake, L	233	263	278	293
ServoMotor with PM brake, L	215	245	260	275

**Connector of ServoMotor wire**

**Connector of Power wire**

Signal	U	V	W	PE
PIN	2	3	4	1

**Connector of Encoder wire**

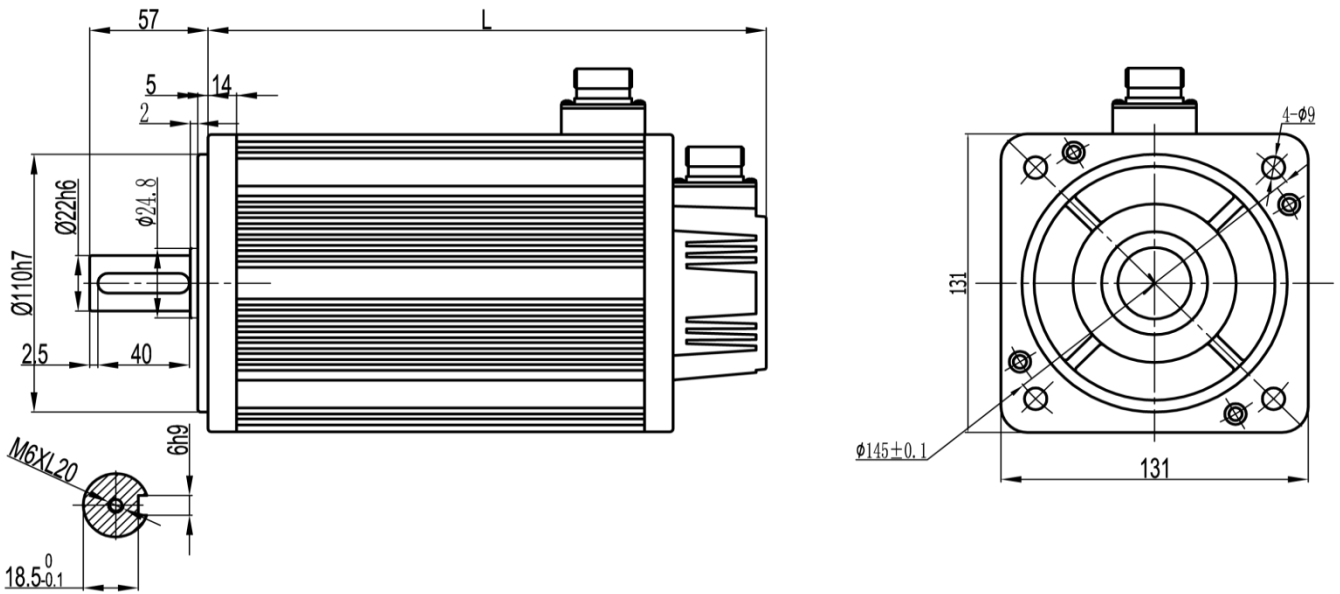
Signal	5V	GND	A+	B+	Z+	A-	B-	Z-							PE
PIN	2	3	4	5	6	7	8	9	10	11	12	13	14	15	1

**Specification ServoMotor 220V, 130mm**


- Power Voltage is 220V, Frame size 130mm;
- Range of output power 1.0 ~ 3.8 kW;
- Range of rated current 4,0~13,5 A;
- Range of rated torque 4.0 ~ 15,0 N.m;
- Incremental 2500 PPR.
- Protection class IP65;

Model	SVCM1025- 5	SVCM1325- 5	SVCM1525- 5	SVCM2025- 5	SVCM1010- 5	SVCM1515- 5	SVCM2625- 5	SVCM2315- 5	SVCM3825- 5
Rated output power, W	1000	1300	1500	2000	1000	1500	2600	2300	3800
Rated torque, N.m	4	5	6	7.7	10	10	10	15	15
Rated speed, rpm	2500	2500	2500	2500	1000	1500	2500	1500	2500
Rated current, A	4.0	5.0	6.0	7.5	4.5	6	10	9.5	13.5
Power line Voltage, V	220								
Max. Peak torque, N.m	12	15	18	22	20	25	25	30	30
Voltageconstant, V/1000r/min	72	68	65	68	140	103	70	114	67
Torque coefficient, N.m/A	1.0	1.0	1.0	1.03	2.2	1.67	1	1.58	1.11
Rotor inertia, kg.m <sup>2</sup>	0.85×10 <sup>-3</sup>	1.06×10 <sup>-3</sup>	1.26×10 <sup>-3</sup>	1.53×10 <sup>-3</sup>	1.94×10 <sup>-3</sup>	1.94×10 <sup>-3</sup>	1.94×10 <sup>-3</sup>	2.77×10 <sup>-3</sup>	2.77×10 <sup>-3</sup>
Line-line Resistance, Ω	2.76	1.84	1.21	1.01	2.7	1.5	0.73	1.1	0.49
Line-line Inductance, mH	6.42	4.9	3.87	2.94	8.8	4.37	2.45	4.45	1.68
Electrical time constant, ms	2.32	2.66	3.26	3.8	3.26	2.91	3.36	4.05	3.43
Weight, kg	6.2	6.6	7.4	8.3	10.2	10.2	9.8	12.6	11.7
Encoder	Incremental 2500 PPR								
Insulation class	Class F (155℃)								
Protection class	IP65, shaft sealing IP54								
Environment Conditions	Temperature	-20℃ ~ +50℃							
	Humidity	Below 90% RH ( No dewing)							
	Environment	Far away active gas, combustible gas, oil drop, ash. пыли							
	Installation altitude	Max. 4000 m							
		Up to 1000: rated power / Above 1000m: 1.5% power/ Decreasing per 100m							

Dimension ServoMotor 220V, 130mm



Frame size, mm	130 series								
	Rated torque (N·m)				10			15	
ServoMotor without brake, L	4	5	6	7.7	1000rpm	1500rpm	2500rpm	1500rpm	2500rpm
ServoMotor with electromagnetic brake, L	166	171	179	192	213	209	241	231	
ServoMotor with PM brake, L	223	228	236	249	294	290	322	312	
Rated torque (N·m)	236	241	249	262	283	279	311	301	

Connector of ServoMotor wire

Connector of Power wire

Signal	U	V	W	PE
PIN	2	3	4	1

Connector of Encoder wire

Signal	5V	GND	A+	B+	Z+	A-	B-	Z-							PE
PIN	2	3	4	5	6	7	8	9	10	11	12	13	14	15	1

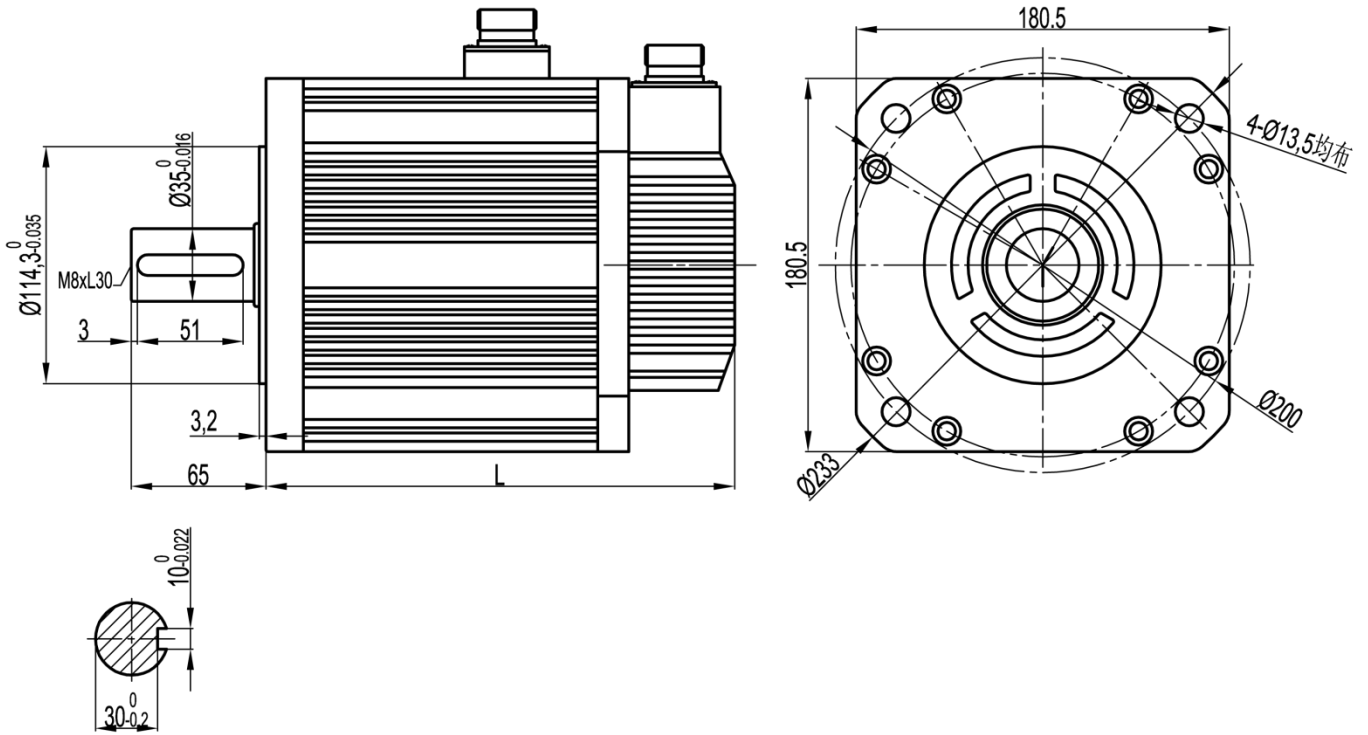
Specification ServoMotor 220V, 180mm



- Power Voltage is 220V, Frame size 180mm;
- Range of output power 2.7 ~ 7.5 kW;
- Range of rated current 10,5~32,0 A;
- Range of rated torque 17.2 ~ 48,0 N.m;
- Incremental 2500 PPR.
- Protection class IP65;

Model	SVCM2715-6	SVCM3015-6	SVCM4520-6	SVCM2910-6	SVCM4315-6	SVCM3710-6	SVCM5515-6	SVCM7515-6
Rated output power, W	2700	3000	4500	2900	4300	3700	5500	7500
Rated torque, N·m	17.2	19	21.5	27.0	27	35	35	48.0
Rated speed, rpm	1500	1500	2000	1000	1500	1000	1500	1500
Rated current, A	10.5	12.0	16.0	12.0	16.0	16.0	19.0	32.0
Power line Voltage, V	220							
Max. Peak torque, N.m	43	47	53	67	67	70	70	96
Voltage constant, V/1000r/min	112	97	84	138	103	134	113	94
Torque coefficient, N.m/A	1.6	1.6	1.3	2.25	1.69	2.20	1.84	1.50
Rotor inertia, kg.m <sup>2</sup>	3.4×10 <sup>-3</sup>	3.8×10 <sup>-3</sup>	4.7×10 <sup>-3</sup>	6.1×10 <sup>-3</sup>	6.1×10 <sup>-3</sup>	8.6×10 <sup>-3</sup>	8.6×10 <sup>-3</sup>	9.1×10 <sup>-3</sup>
Line-line Resistance, Ω	0.7	0.4	0.24	0.48	0.28	0.31	0.21	0.104
Line-line Inductance, mH	3.5	2.42	1.45	3.26	1.74	3.28	1.57	0.77
Electrical time constant, ms	5	6	6	6.79	6.2	10.58	7.47	7.4
Weight, kg	19.5	20.5	22.2	25.5	25.5	30.5	30.5	40
Encoder	Incremental 2500 PPR							
Insulation class	Class F (155℃)							
Protection class	IP65, shaft sealing IP54							
Environment Conditions	Temperature	-20℃ ~ +50℃						
	Humidity	Below 90% RH ( No dewing)						
	Environment	Far away active gas, combustible gas, oil drop, ash. пыли						
	Installation altitude	Max. 4000 m Up to 1000: rated power / Above 1000m: 1.5% power/ Decreasing per 100m						

Dimension ServoMotor 220V, 180mm



Frame size, mm	180 series					
	Rated torque (N·m)	17.2	19	21.5	27	35
ServoMotor without brake, L	226	232	243	262	292	346
ServoMotor with electromagnetic brake, L	298	304	315	334	364	418
ServoMotor with PM brake, L	308	314	325	344	382	436

Connector of ServoMotor wire

Connector of Power wire

Signal	U	V	W	PE
PIN	2	3	4	1

Connector of Encoder wire

Signal	5V	GND	A+	B+	Z+	A-	B-	Z-							PE
PIN	2	3	4	5	6	7	8	9	10	11	12	13	14	15	1

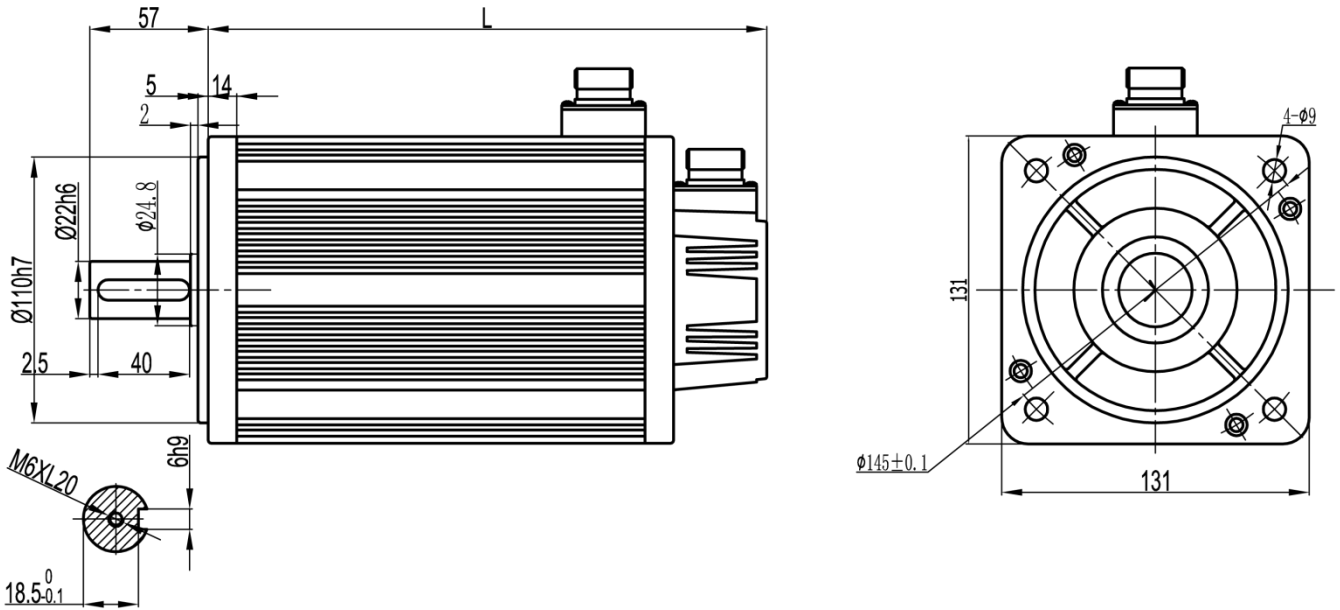
Specification ServoMotor 380V, 130mm



- Power Voltage is 380V, Frame size 130mm;
- Range of output power 1.0 ~ 3.8 kW;
- Range of rated current 2,6~7,4 A;
- Range of rated torque 4.0 ~ 15,0 N.m;
- Incremental 2500 PPR.
- Protection class IP65;

Model	SVCM1025H- 5	SVCM1325H- 5	SVCM1525H- 5	SVCM2025H- 5	SVCM1010H- 5	SVCM1515H- 5	SVCM2625H- 5	SVCM2315H- 5	SVCM3825H- 5
Rated output power, W	1000	1300	1500	2000	1000	1500	2600	2300	3800
Rated torque, N.m	4	5	6	7.7	10	10	10	15	15
Rated speed, rpm	2500	2500	2500	2500	1000	1500	2500	1500	2500
Rated current, A	2.6	3.0	3.7	7.5	2.5	3.5	5.9	5	7.4
Power line Voltage, V	380								
Max. Peak torque, N.m	12	15	18	22	20	25	25	30	30
Voltage constant, V/1000r/min	113	114	110	111	243	177	115	188	125
Torque coefficient, N.m/A	1.54	1.67	1.62	1.64	4	2.85	1.69	3	2.03
Rotor inertia, kg.m <sup>2</sup>	0.85×10 <sup>-3</sup>	1.06×10 <sup>-3</sup>	1.26×10 <sup>-3</sup>	1.53×10 <sup>-3</sup>	1.94×10 <sup>-3</sup>	1.94×10 <sup>-3</sup>	1.94×10 <sup>-3</sup>	2.77×10 <sup>-3</sup>	2.77×10 <sup>-3</sup>
Line-line Resistance, Ω	6.27	5.1	3.4	2.49	8.17	4.37	1.986	3.27	1.41
Line-line Inductance, mH	15.53	12.31	9.23	7.08	26.7	13.12	6.2	12.36	5.5
Electrical time constant, ms	2.48	2.41	2.7	2.84	3.27	3	3.12	3.78	3.9
Weight, kg	6.2	6.6	7.4	8.3	10.2	10.2	9.8	12.6	11.7
Encoder	Incremental 2500 PPR								
Insulation class	Class F (155°C)								
Protection class	IP65, shaft sealing IP54								
Environment Conditions	Temperature	-20°C ~ +50°C							
	Humidity	Below 90% RH ( No dewing)							
	Environment	Far away active gas, combustible gas, oil drop, ash. пыли							
	Installation altitude	Max. 4000 m Up to 1000: rated power / Above 1000m: 1.5% power/ Decreasing per 100m							

Dimension ServoMotor 380V, 130mm



Frame size, mm	130 series								
	Rated torque (N·m)				10		15		
ServoMotor without brake, L	4	5	6	7.7	1000rpm	1500rpm	2500rpm	1500rpm	2500rpm
ServoMotor with electromagnetic brake, L	166	171	179	192	213	209	241	231	
ServoMotor with PM brake, L	223	228	236	249	294	290	322	312	
Rated torque (N·m)	236	241	249	262	283	279	311	301	

Connector of ServoMotor wire

Connector of Power wire

Signal	U	V	W	PE
PIN	2	3	4	1

Connector of Encoder wire

Signal	5V	GND	A+	B+	Z+	A-	B-	Z-							PE
PIN	2	3	4	5	6	7	8	9	10	11	12	13	14	15	1

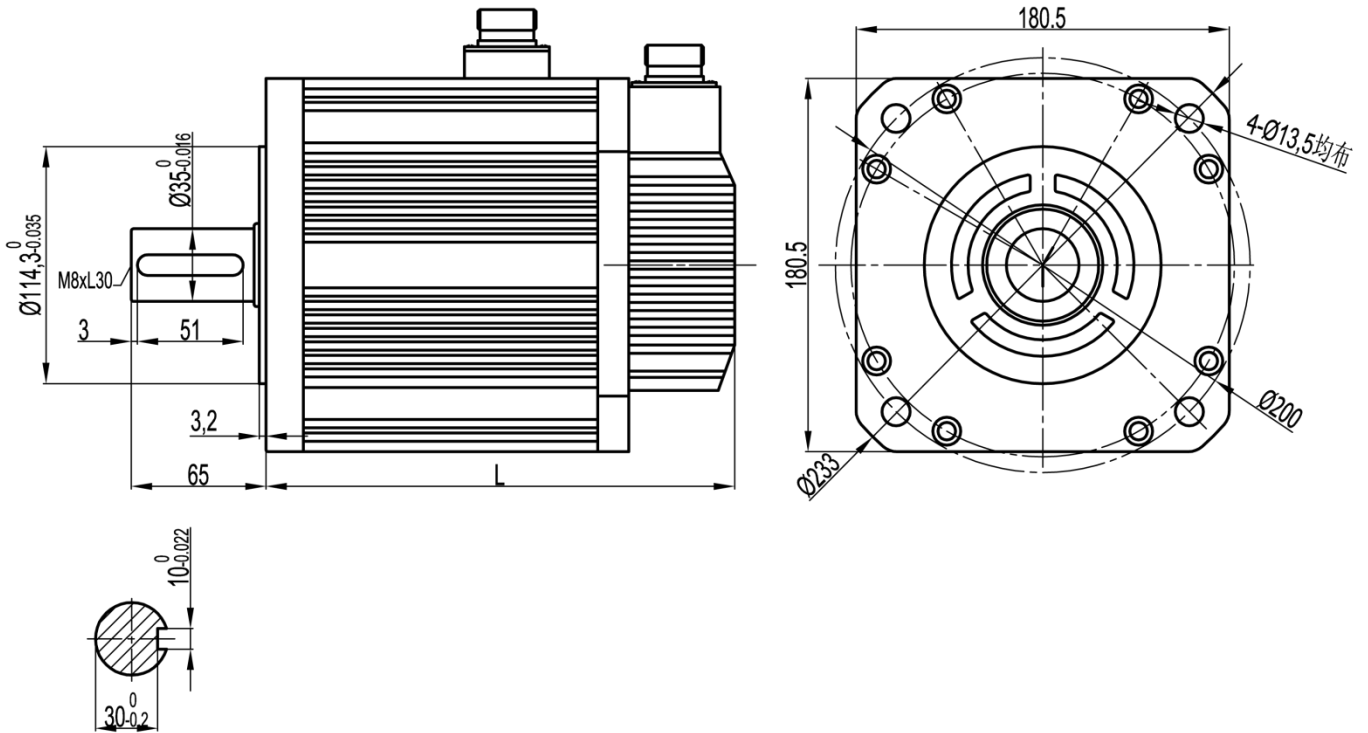


**Specification ServoMotor 380V, 180mm**


- Power Voltage is 380V, Frame size 180mm;
- Range of output power 2.7 ~ 7.5 kW;
- Range of rated current 6,5~20,0 A;
- Range of rated torque 17.2 ~ 48,0 N.m;
- Incremental 2500 PPR.
- Protection class IP65;

Model	SVCM2715H-6	SVCM3015H-6	SVCM4520H-6	SVCM2910H-6	SVCM4315H-6	SVCM3710H-6	SVCM5515H-6	SVCM7515H-6
Rated output power, W	2700	3000	4500	2900	4300	3700	5500	7500
Rated torque, N·m	17.2	19	21.5	27.0	27.0	35.0	35.0	48.0
Rated speed, rpm	1500	1500	2000	1000	1500	1000	1500	1500
Rated current, A	6.5	7.5	9.5	7.5	10.0	10.0	12.0	20.0
Power line Voltage, V	380							
Max. Peak torque, N·m	43	47	53	67	67	70	70	96
Voltage constant, V/1000r/min	167	170	140	224	172	223	181	156
Torque coefficient, N·m/A	2.65	2.50	2.26	3.60	2.70	3.50	2.90	2.40
Rotor inertia, kg·m <sup>2</sup>	3.4×10 <sup>-3</sup>	3.8×10 <sup>-3</sup>	4.7×10 <sup>-3</sup>	6.1×10 <sup>-3</sup>	6.1×10 <sup>-3</sup>	8.6×10 <sup>-3</sup>	8.6×10 <sup>-3</sup>	9.1×10 <sup>-3</sup>
Line-line Resistance, Ω	1.47	1.23	0.71	1.37	0.796	0.93	0.62	0.273
Line-line Inductance, mH	7.8	7.3	4	8.6	4.83	9.1	4	2.14
Electrical time constant, ms	5.3	5.93	5.6	6.27	6	9.78	6.45	7.8
Weight, kg	19.5	20.5	22.2	25.5	25.5	30.5	30.5	40
Encoder	Incremental 2500 PPR							
Insulation class	Class F (155°C)							
Protection class	IP65, shaft sealing IP54							
Environment Conditions	Temperature	-20°C ~ +50°C						
	Humidity	Below 90% RH ( No dewing)						
	Environment	Far away active gas, combustible gas, oil drop, ash. пыли						
	Installation altitude	Max. 4000 m Up to 1000: rated power / Above 1000m: 1.5% power/ Decreasing per 100m						

Dimension ServoMotor 380V, 180mm



Frame size, mm	180 series					
	Rated torque (N·m)	17.2	19	21.5	27	35
ServoMotor without brake, L	226	232	243	262	292	346
ServoMotor with electromagnetic brake, L	298	304	315	334	364	418
ServoMotor with PM brake, L	308	314	325	344	382	436

Connector of ServoMotor wire

Connector of Power wire

Signal	U	V	W	PE
PIN	2	3	4	1

Connector of Encoder wire

Signal	5V	GND	A+	B+	Z+	A-	B-	Z-							PE
PIN	2	3	4	5	6	7	8	9	10	11	12	13	14	15	1