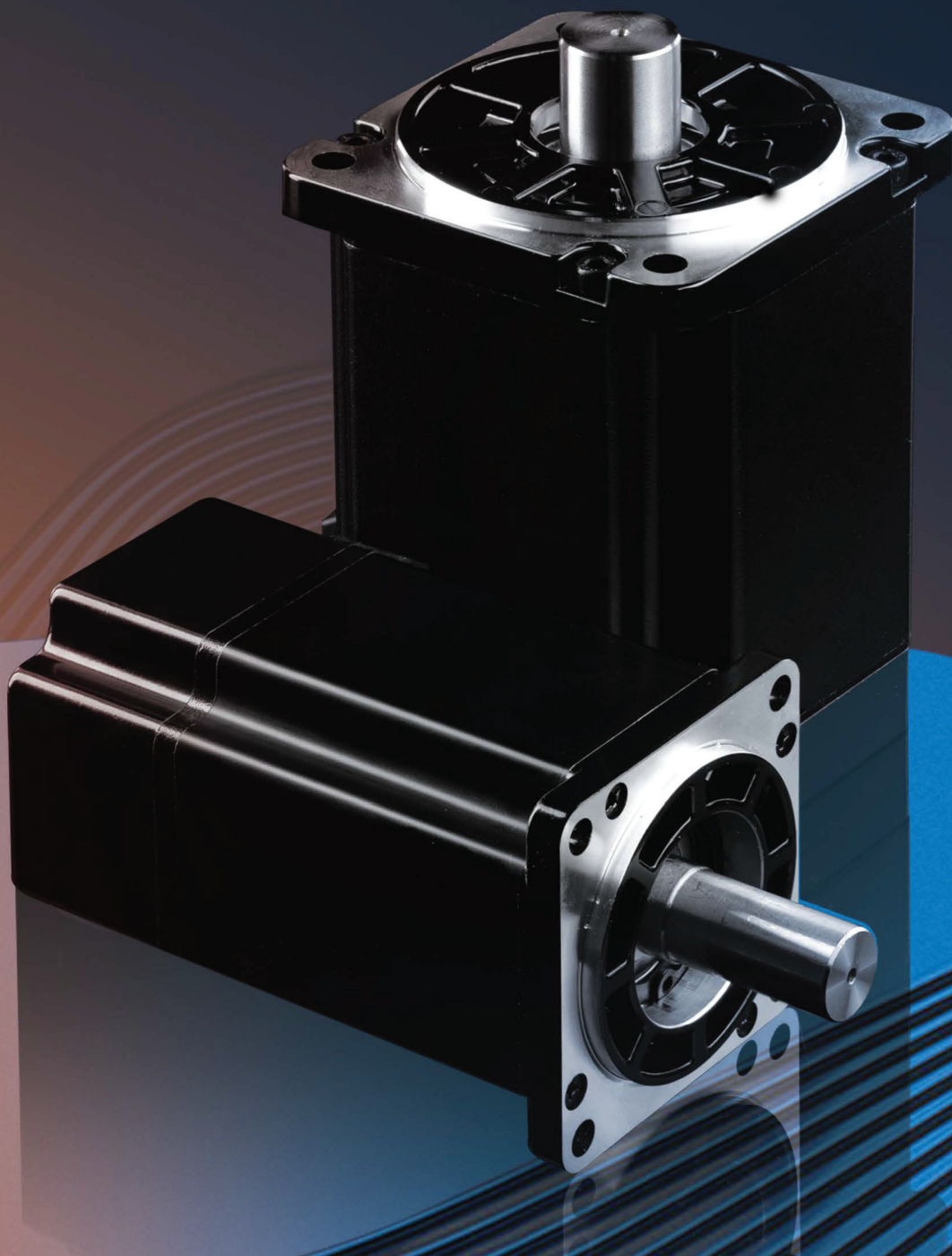




# Low Voltage BLDC Catalog 2023

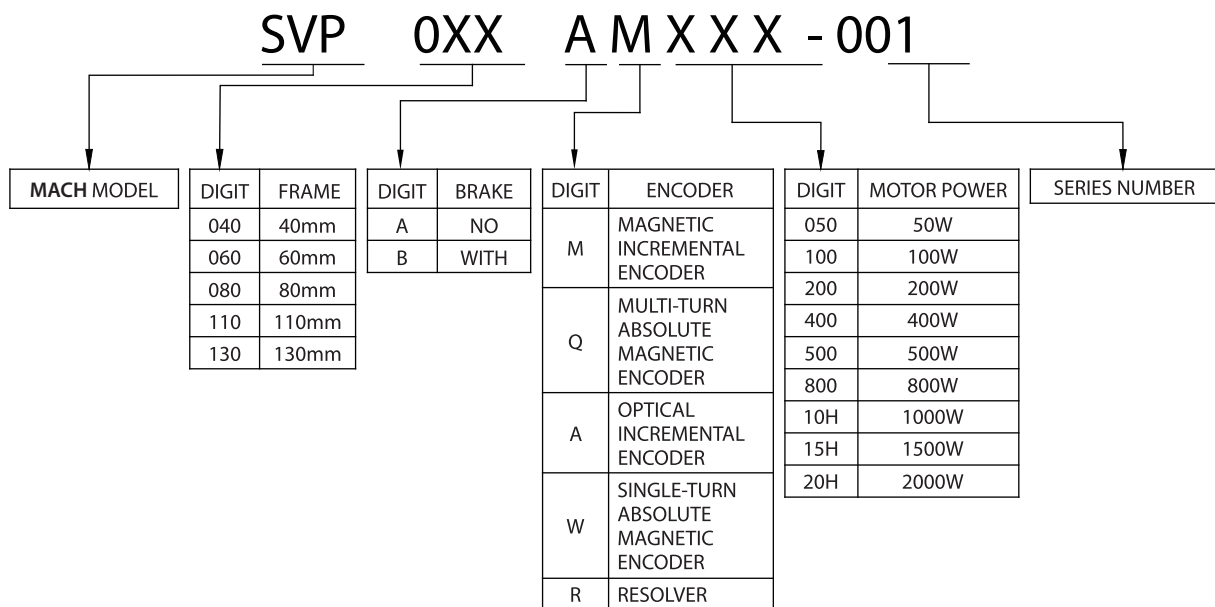


## Product Introduction

SVP is a new series of Low Voltage Servo Motors from Mach Motion Products. SVP motors were developed as a result of years of research using specialized electromagnetic design software. SVP motors feature compact size, higher efficiency, lower cogging, and better performance dynamics.

SVP motors can integrate electromagnetic brakes, magnetic incremental and absolute encoders with various communication protocols. SVP motors can be used in a variety of robotic applications and battery powered systems.

### ● Model Numbering System



## SVP040

### BLDC SERVO MOTOR

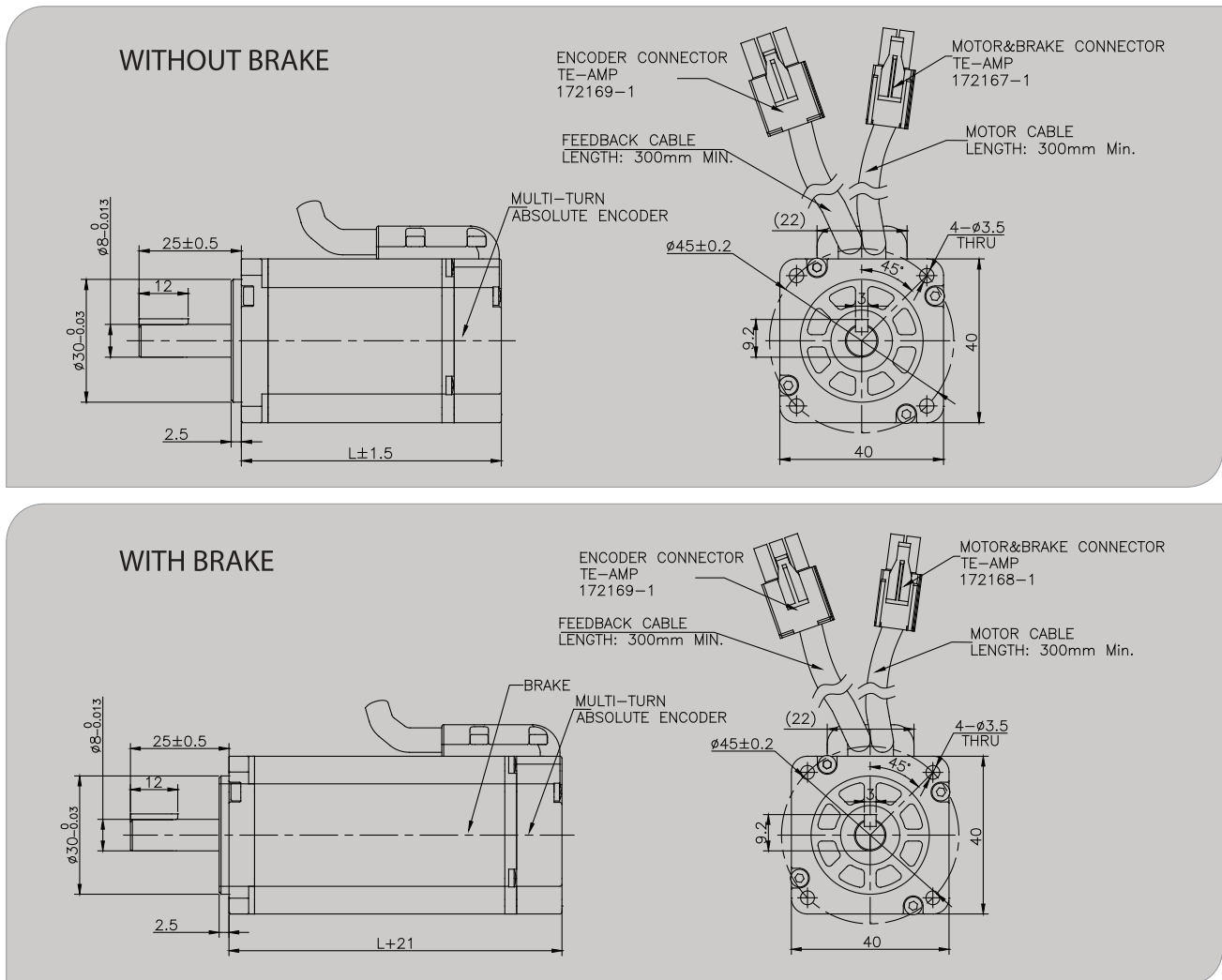


#### ● Specifications

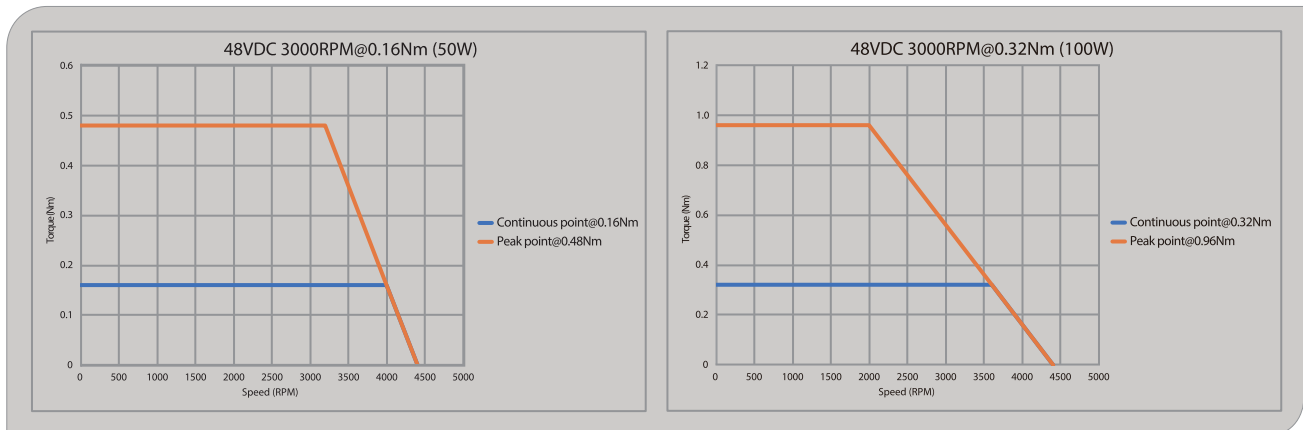
		Unit	SVP040A(B)Q050-001	SVP040A(B)Q100-001
Voltage		VDC	48	48
Rated Power	Pw	W	50	100
Rated Speed	Nn	RPM	3000	3000
Rated Torque	Tn	Nm	0.16	0.32
Rated Current	Im	A	1.5	2.8
Peak Torque	Tm	Nm	0.48	0.96
Peak Current	Im	A	4.5	8.40
Resistance L-L	RI	ohms	3.11	1.48
Inductance L-L	HI	mH	4.01	1.85
Voltage Constant	Ke	Vrms/Krpm	7.19	7.33
Torque Constant	Kt	Nm/Arms	0.113	0.115
Rotor Inertia	Jm	Kg.mm ^2	1.77	3.39
Poles			10	10
IP Class			54	54
Feedback Device (Multi-turn Absolute Encoder)		Bit	17	17
Brake Torque		Nm	0.32	0.32
Length		mm	49.5	63.5
			70.5 (with brake)	84.5 (with brake)
Weight		Kg	0.4	0.6
			0.6 (with brake)	0.8 (with brake)

## SVP040 BLDC SERVO MOTOR

### ● Mechanical Drawing



### ● Specifications





## SVP060

### BLDC SERVO MOTOR



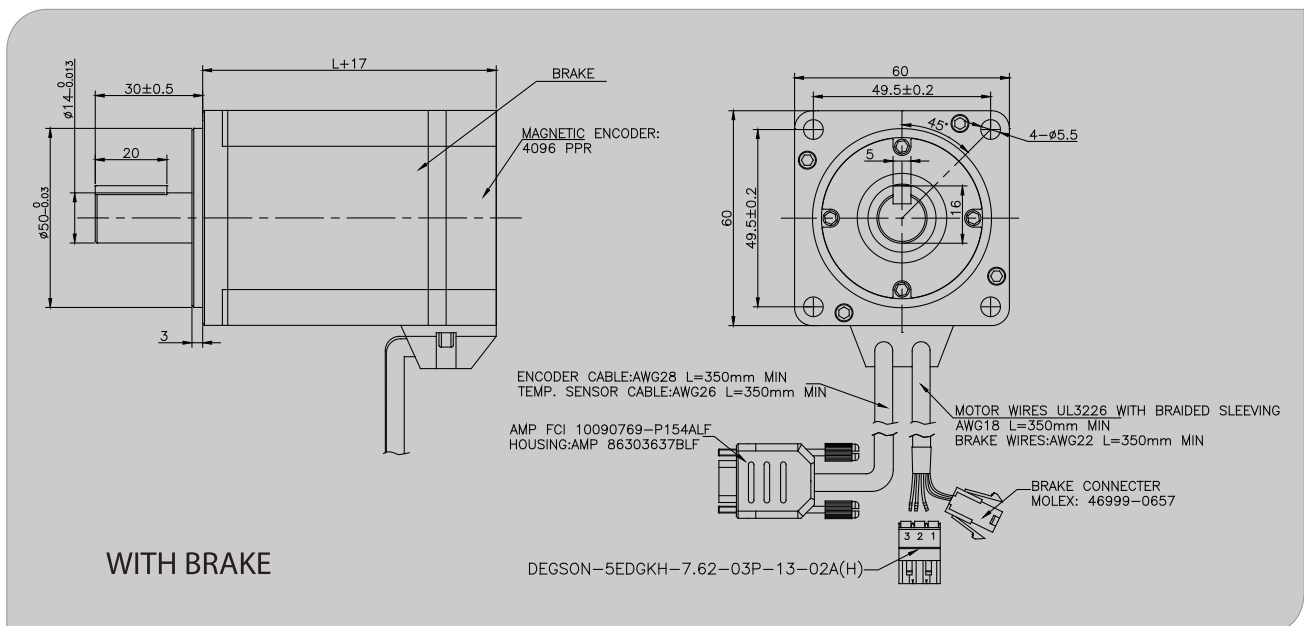
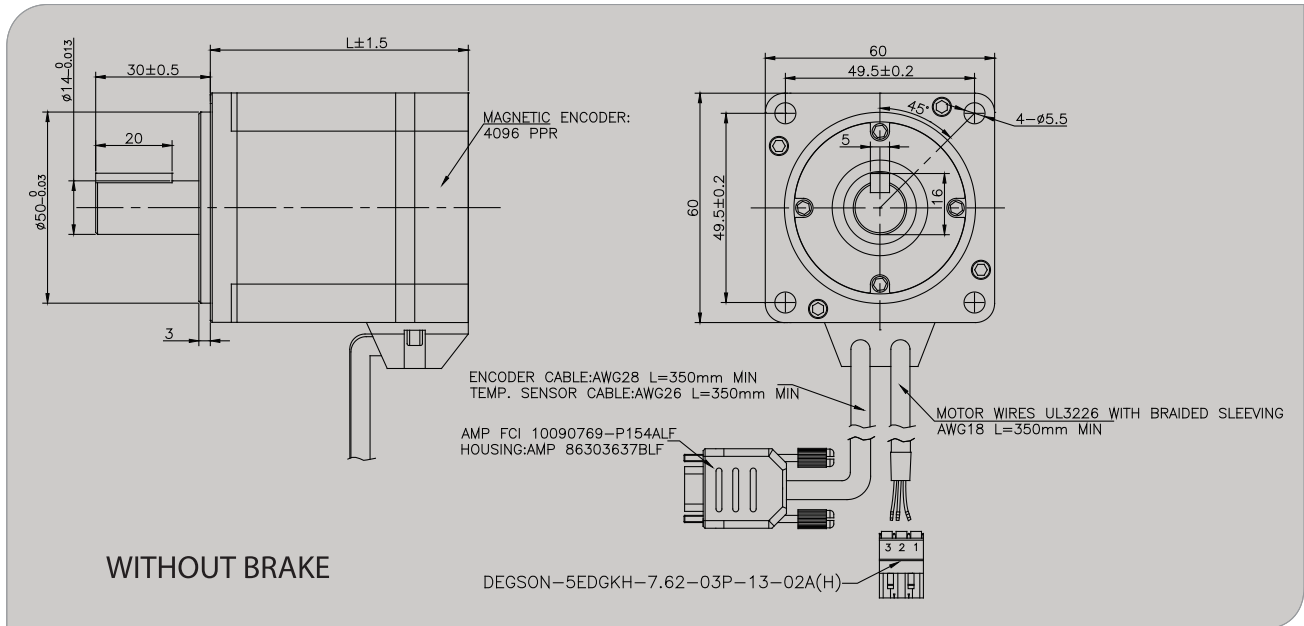
#### ● Specifications

	Unit	SVP060A(B)M200-001	SVP060A(B)M200-002	SVP060A(B)M400-001	SVP060A(B)M400-002
<b>Voltage</b>	VDC	24	48	24	48
<b>Rated Power</b> <b>Pw</b>	W	200	200	400	400
<b>Rated Speed</b> <b>Nn</b>	RPM	3000	3000	3000	3000
<b>Rated Torque</b> <b>Tn</b>	Nm	0.64	0.64	1.27	1.27
<b>Rated Current</b> <b>In</b>	A	11	6.5	22	12
<b>Peak Torque</b> <b>Tm</b>	Nm	1.92	1.92	3.81	3.81
<b>Peak Current</b> <b>Im</b>	A	32.4	19.5	66	36
<b>Resistance L-L</b> <b>RI</b>	ohms	0.156	0.297	0.05	0.14
<b>Inductance L-L</b> <b>HI</b>	mH	0.33	0.78	0.16	0.45
<b>Voltage Constant</b> <b>Ke</b>	Vrms/Krpm	3.8	5.9	3.8	6.4
<b>Torque Constant</b> <b>Kt</b>	Nm/Arms	0.06	0.09	0.06	0.11
<b>Rotor Inertia</b> <b>Jm</b>	Kg.mm ^2	11.9	11.9	21.8	21.8
<b>Poles</b>		10	10	10	10
<b>IP Class</b>		54	54	54	54
<b>Feedback Device (Magnetic Encoder)</b>	PPR	4096	4096	4096	4096
<b>Brake Torque</b>	Nm	1.3	1.3	1.3	1.3
<b>Length</b>	mm	64.5	64.5	84.5	84.5
		81.5 (with brake)	81.5 (with brake)	101.5 (with brake)	101.5 (with brake)
<b>Weight</b> <b>Wm</b>	Kg	0.7	0.8	1.0	1.0
		0.96 (with brake)	0.96 (with brake)	1.30 (with brake)	1.30 (with brake)

# SVP060

## BLDC SERVO MOTOR

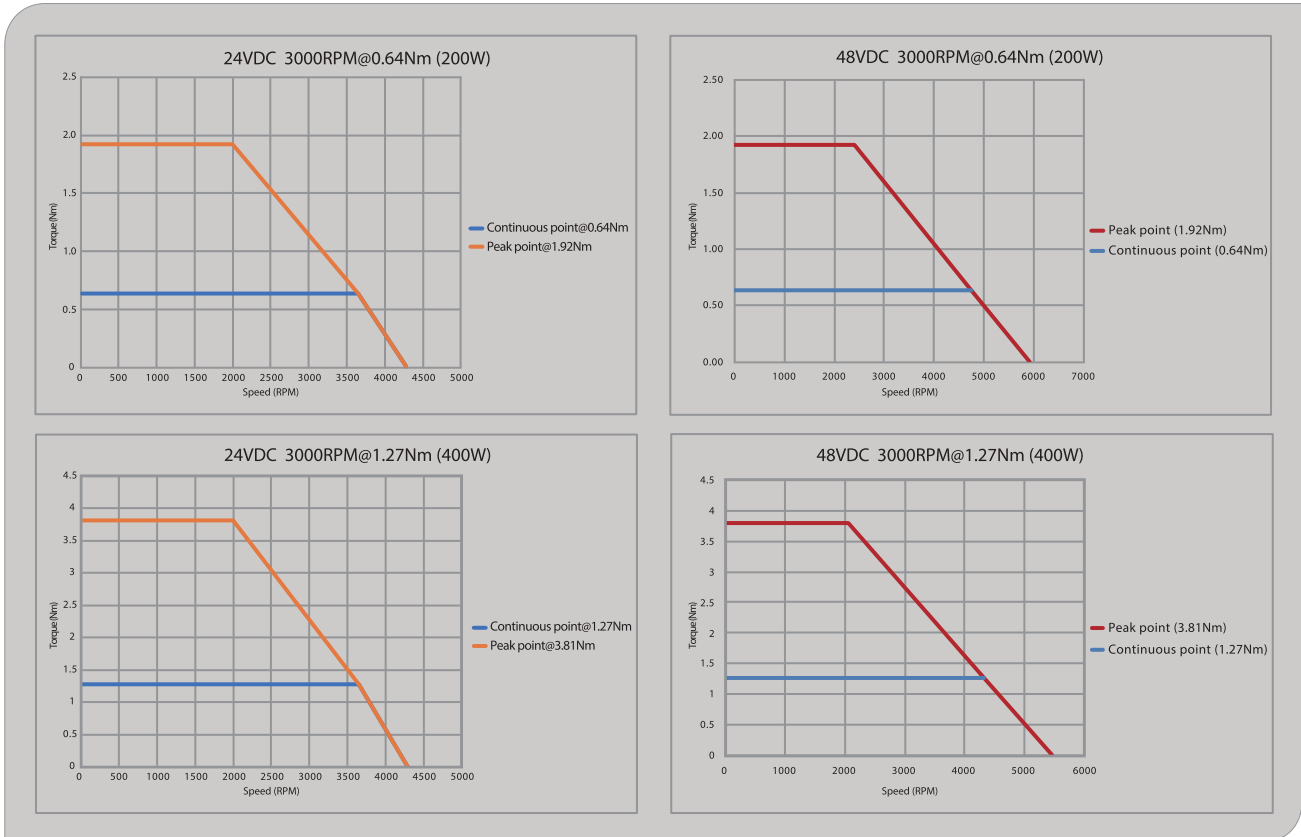
### ● Mechanical Drawing



## SVP060

### BLDC SERVO MOTOR

#### ● Specifications



## SVP080

### BLDC SERVO MOTOR

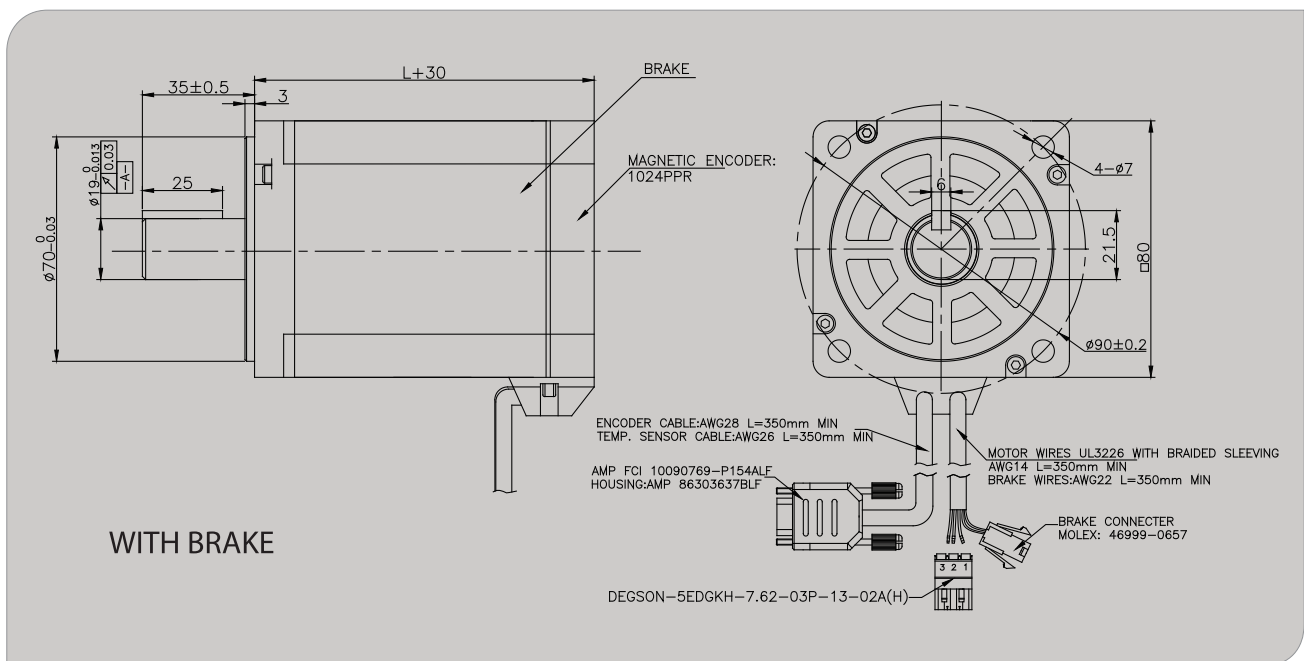
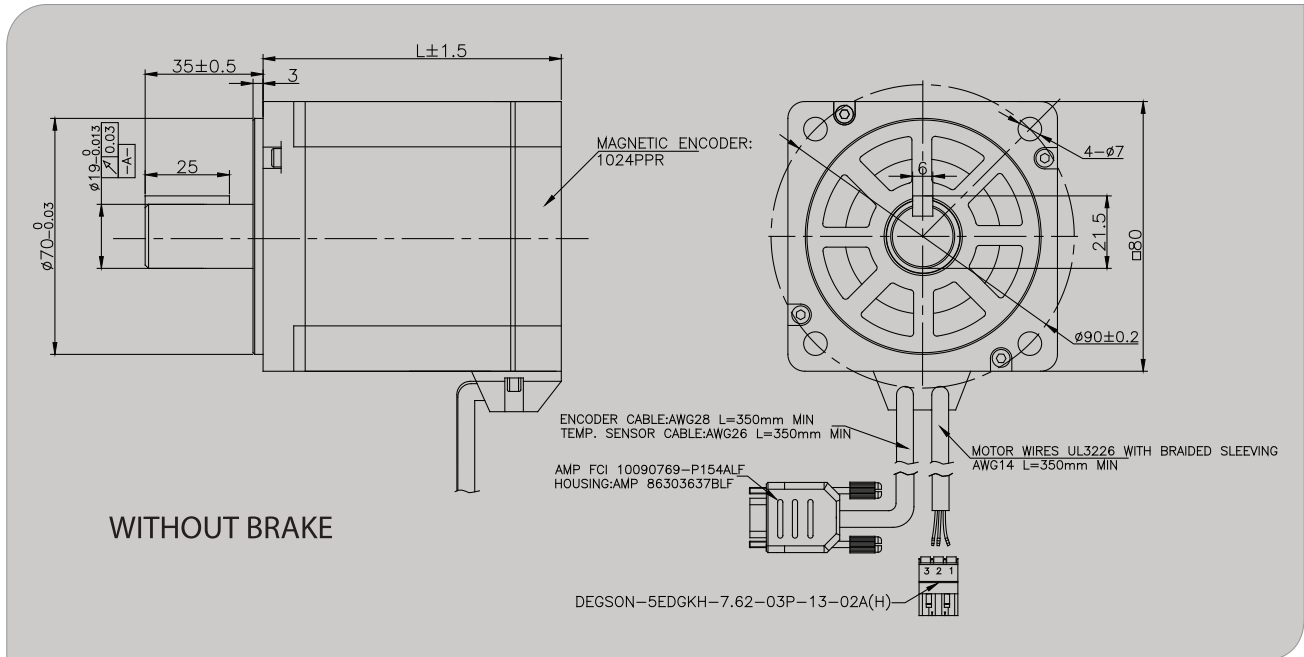


#### ● Specifications

	Unit	SVP080A(B)M500-001	SVP080A(B)M500-002	SVP080A(B)M800-001	SVP080A(B)M800-002
<b>Voltage</b>	VDC	24	48	24	48
<b>Rated Power</b> <b>Pw</b>	W	500	500	800	800
<b>Rated Speed</b> <b>Nn</b>	RPM	3000	3000	3000	3000
<b>Rated Torque</b> <b>Tm</b>	Nm	1.53	1.53	2.55	2.55
<b>Rated Current</b> <b>In</b>	A	24	14.6	40	22.6
<b>Peak Torque</b> <b>Tm</b>	Nm	4.6	4.6	7.6	7.6
<b>Peak Current</b> <b>Im</b>	A	72	46	120	67
<b>Resistance L-L</b> <b>RI</b>	ohms	0.04	0.095	0.023	0.058
<b>Inductance L-L</b> <b>HI</b>	mH	0.15	0.34	0.087	0.23
<b>Voltage Constant</b> <b>Ke</b>	Vrms/Krpm	4.1	6.33	4.1	6.75
<b>Torque Constant</b> <b>Kt</b>	Nm/Arms	0.068	0.105	0.068	0.112
<b>Rotor Inertia</b> <b>Jm</b>	Kg.mm ^2	61.5	61.5	95.6	95.6
<b>Poles</b>		10	10	10	10
<b>IP Class</b>		54	54	54	54
<b>Feedback Device (Magnetic Encoder)</b>	PPR	4096	4096	4096	4096
<b>Brake Torque</b>	Nm	4.0	4.0	4.0	4.0
<b>Length</b>	mm	75	75	92	92
		105 (with brake)	105 (with brake)	122 (with brake)	122 (with brake)
<b>Weight</b> <b>Wm</b>	Kg	1.5	1.5	1.9	1.9
		2.1 (with brake)	2.1 (with brake)	2.5 (with brake)	2.5 (with brake)

## SVP080 BLDC SERVO MOTOR

### ● Mechanical Drawing

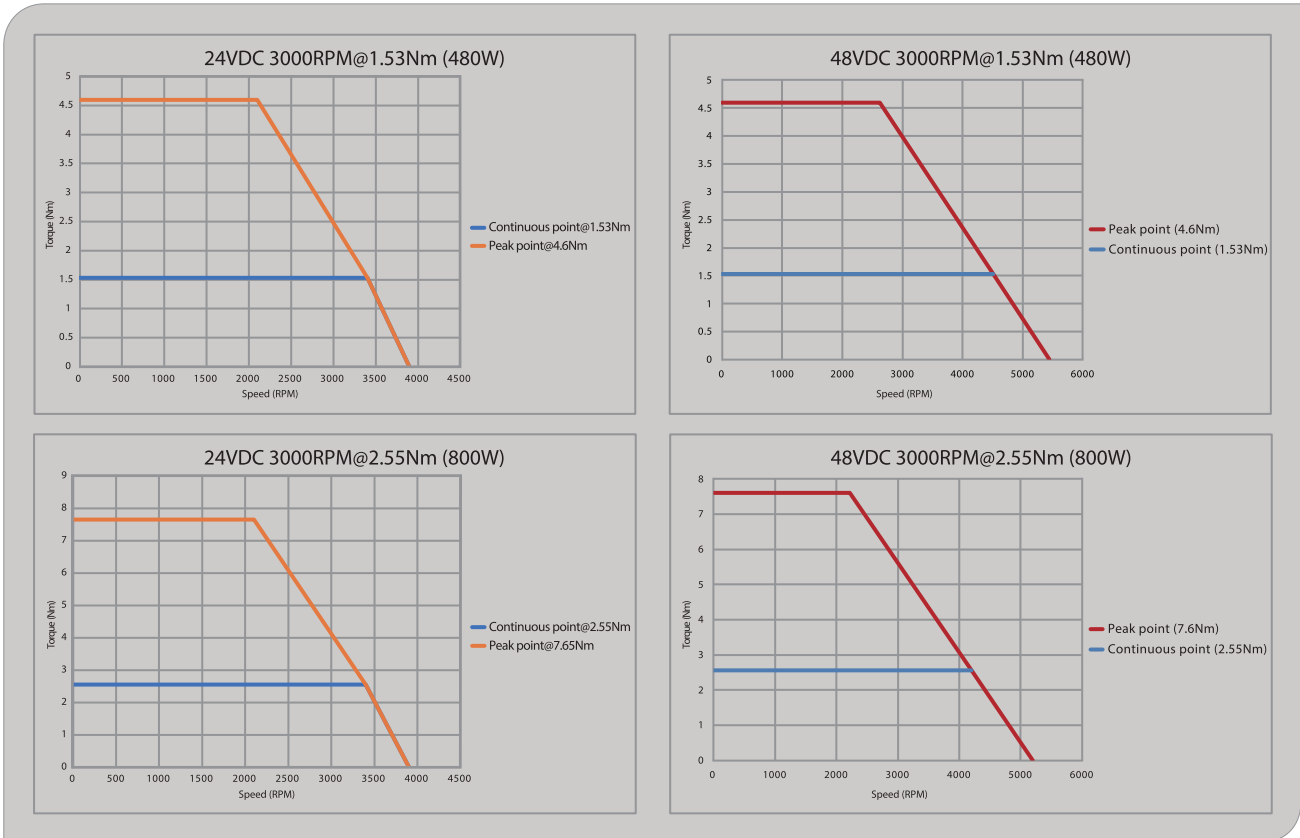




## SVP080

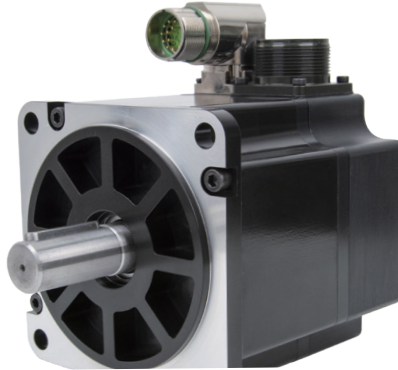
### BLDC SERVO MOTOR

#### ● Specifications



## SVP110

### BLDC SERVO MOTOR



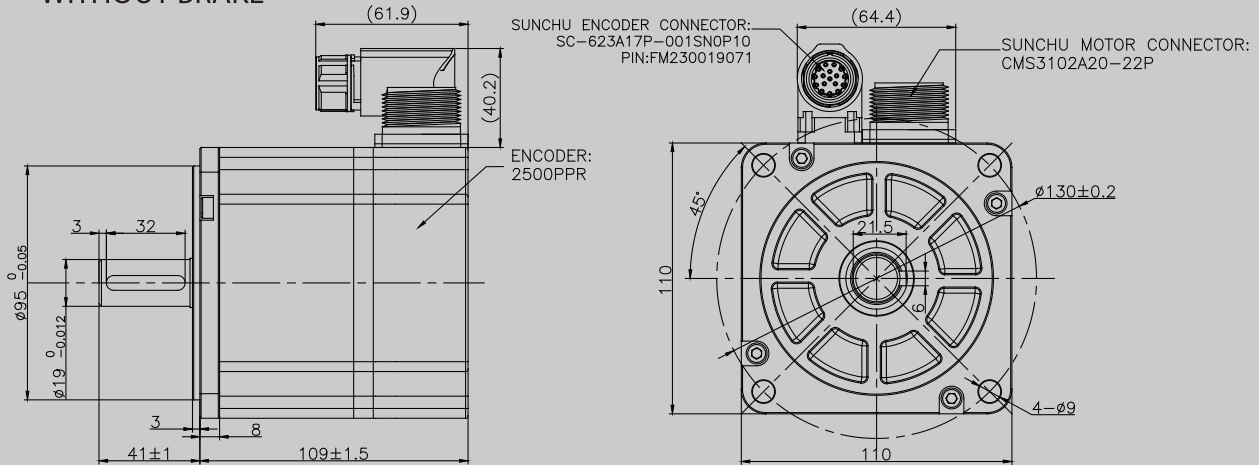
#### ● Specifications

		Unit	SVP110A(B)A13H-001
Voltage		VDC	48
Rated Power	Pw	W	1320
Rated Speed	Nn	RPM	3000
Rated Torque	Tn	Nm	4.2
Rated Current	In	A	31
Peak Torque	Tm	Nm	12.6
Peak Current	Im	A	103
Resistance L-L	RI	ohms	0.0345
Inductance L-L	HI	mH	0.177
Voltage Constant	Ke	Vrms/Krpm	8.62
Torque Constant	Kt	Nm/Arms	0.135
Poles			10
Feedback Device (Optical Encoder)		PPR	Optical Encoder
Brake Torque		Nm	12.0
Length		mm	109
			133.5 (with brake)
Weight	Wm	Kg	3.65
			4.3 (with brake)

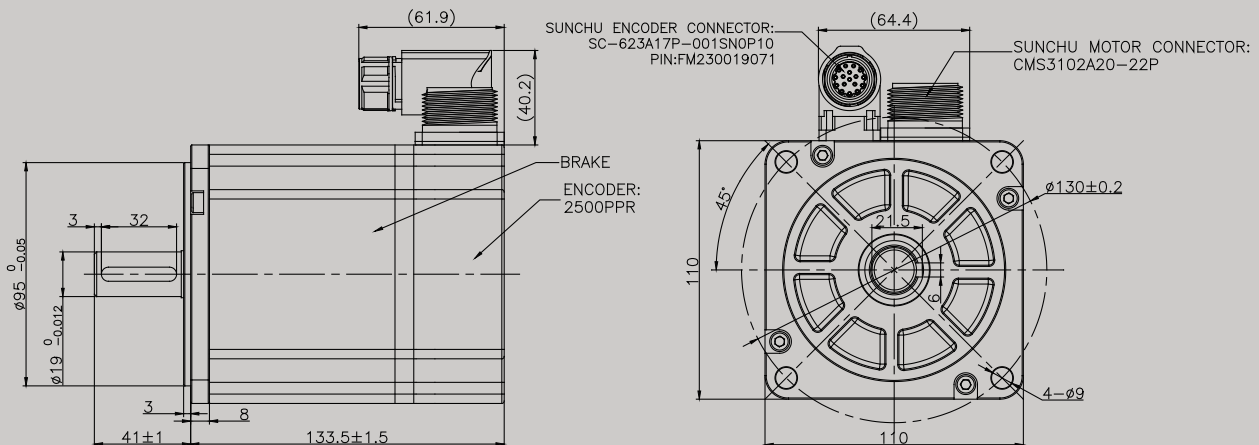
## SVP110 BLDC SERVO MOTOR

### ● Mechanical

#### WITHOUT BRAKE



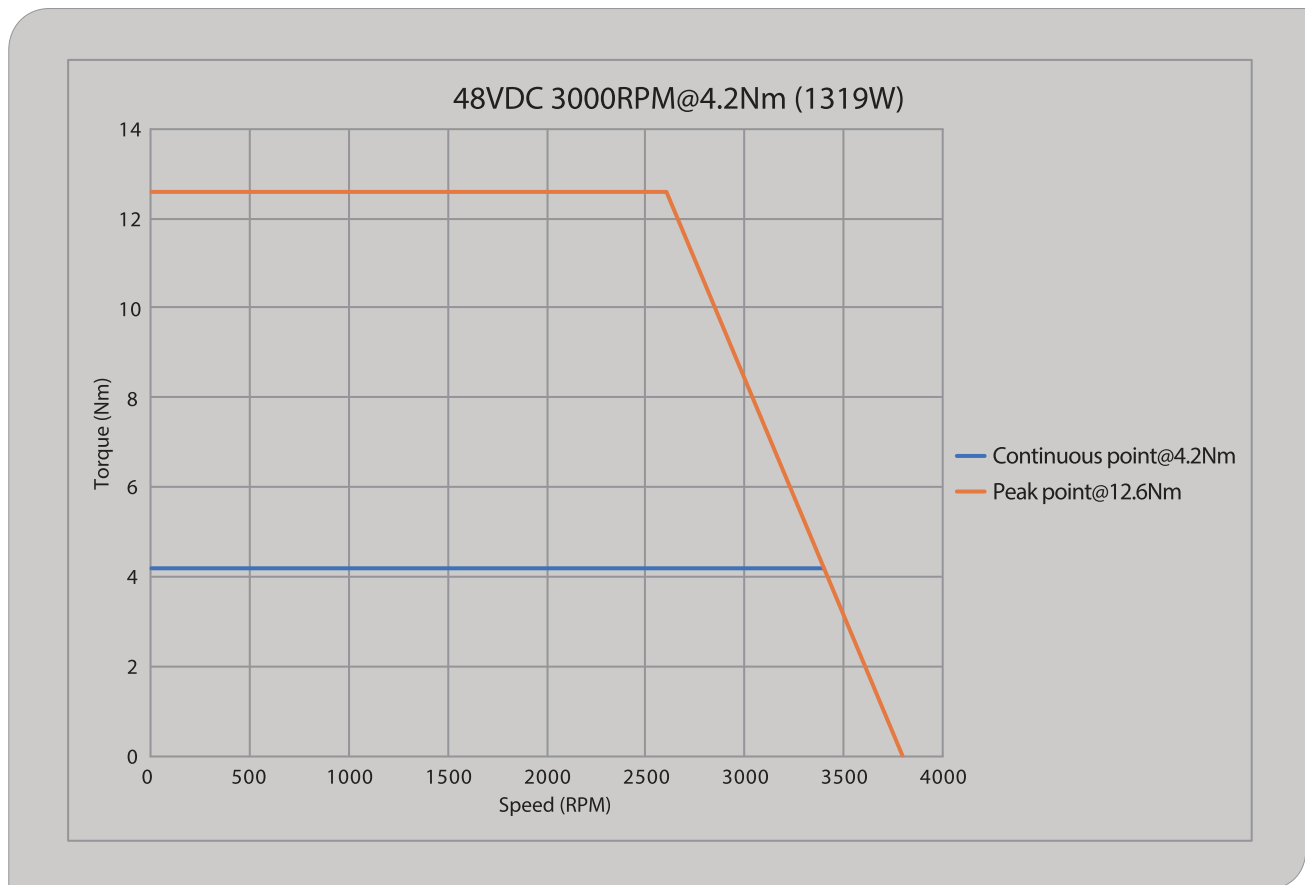
#### WITH BRAKE



## SVP110

### BLDC SERVO MOTOR

#### ● Specifications



## SVP130

### BLDC SERVO MOTOR



#### ● Specifications

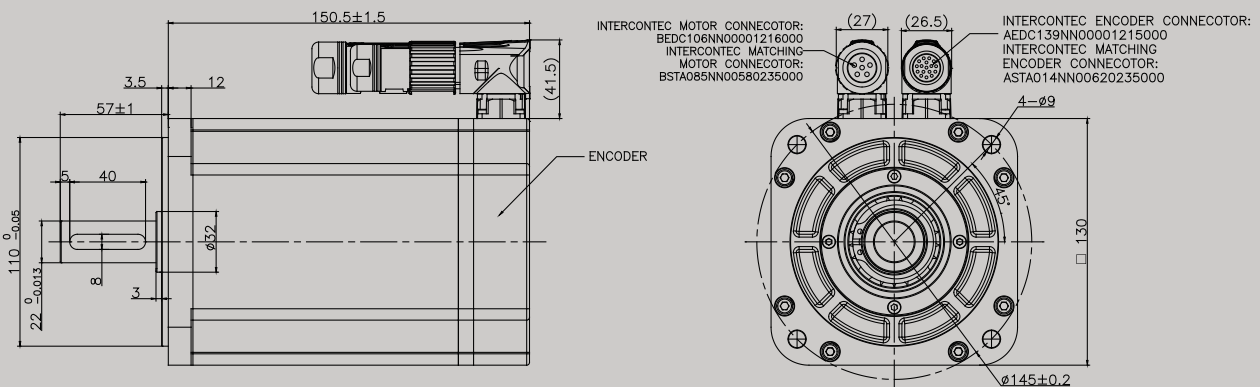
		Unit	SVP130A(B)R30H-001
Voltage		VDC	380
Rated Power	Pw	W	3000
Rated Speed	Nn	RPM	2000
Rated Torque	Tn	Nm	14.33
Rated Current	In	A	8.5
Peak Torque	Tm	Nm	43
Peak Current	Im	A	32
Resistance L-L	RI	ohms	0.74
Inductance L-L	HI	mH	8.56
Voltage Constant	Ke	Vrms/Krpm	112.8
Torque Constant	Kt	Nm/Arms	1.68
Poles			10
Feedback Device			Rotary Encoder
Brake Torque		Nm	15.0
Length		mm	150.5
			190.5 (with brake)
Weight	Wm	Kg	8.8
			9.5 (with brake)



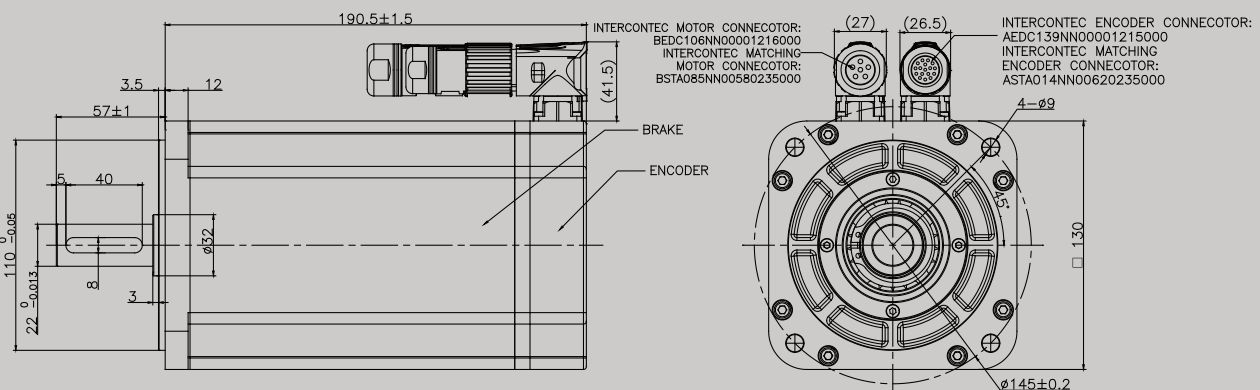
## SVP130 BLDC SERVO MOTOR

### ● Mechanical Drawing

#### WITHOUT BRAKE



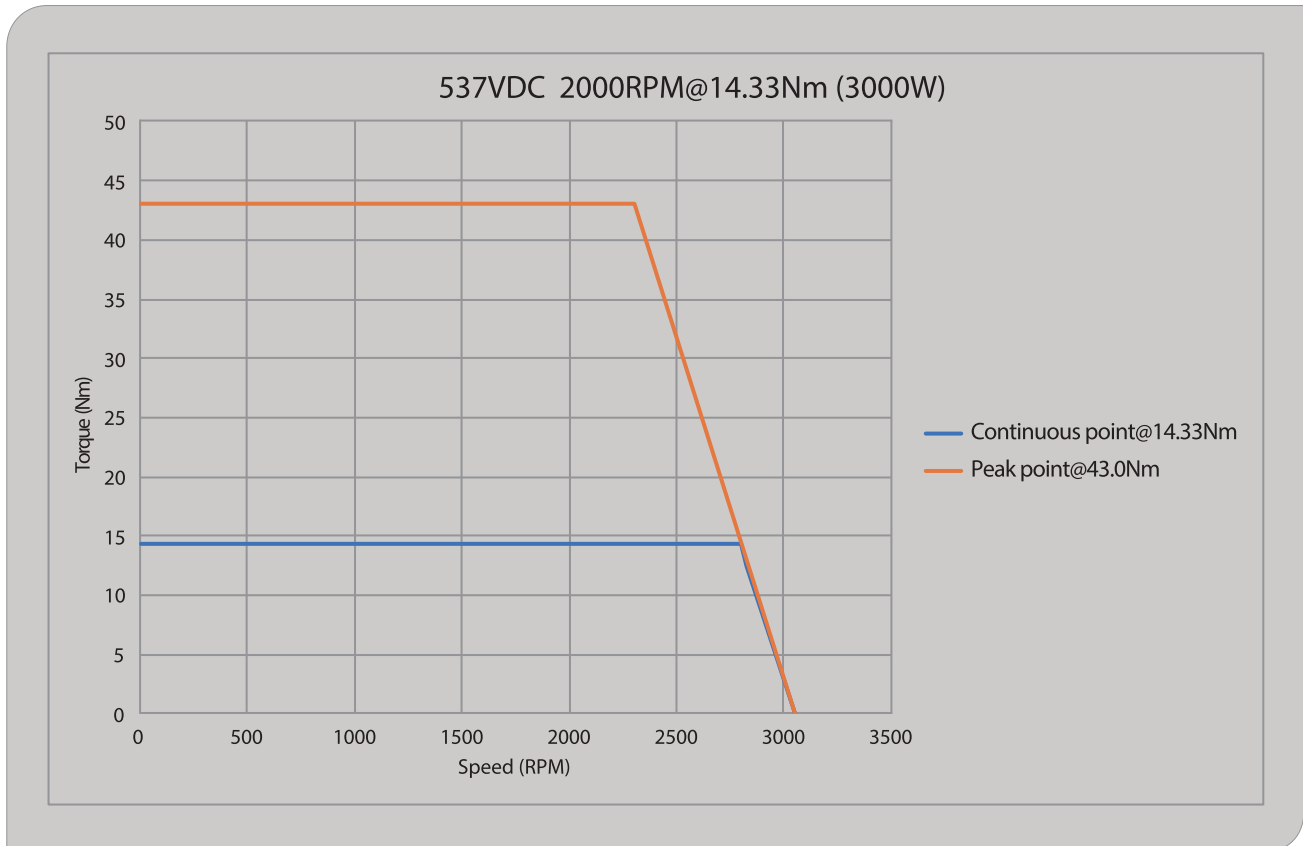
#### WITH BRAKE



## **SVP130**

### **BLDC SERVO MOTOR**

#### ● *Specifications*



# 80 Frame Servo Reducer for Mobile Robot

## ● General Information

- All-in-one compact design
- High efficiency, low noise, reliable gearbox
- Brake available
- Drive solution for mobile robot (AGV/Forklift)



## ● Specifications

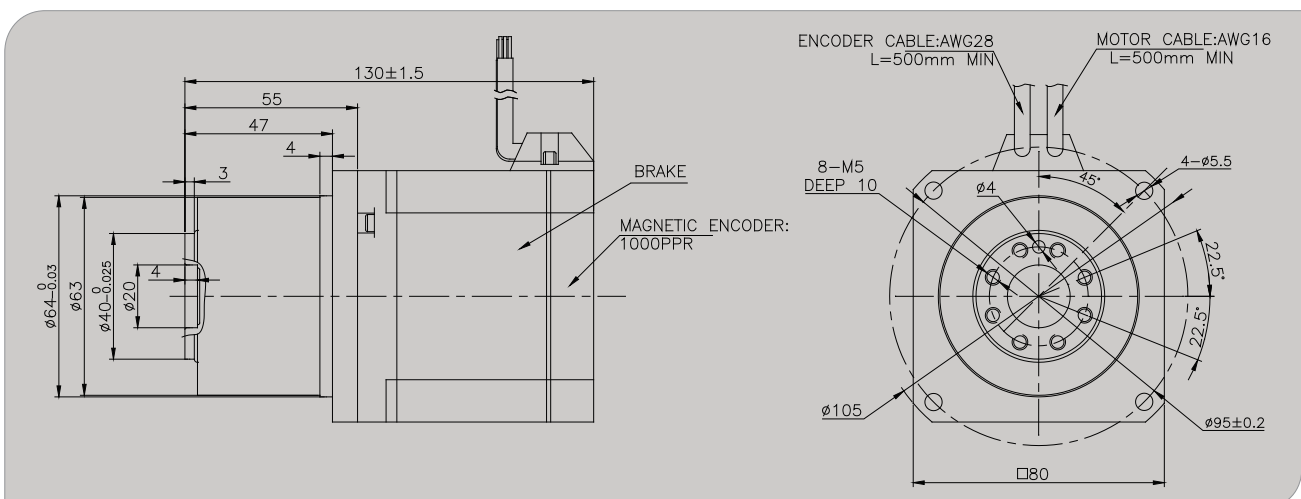
Model	Voltage (V)	Rated Power (W)	No Load	Rated Torque (Nm)	Rated Load		Resistance(L-L) (Ω)
			Speed(rpm)		Speed(rpm)	Current(A)	
SV080AS100-PLF016	48	400	234	18	187.5	10	0.14
	Inductance(L-L) (mH)		Ke (Vrms/krpm)	Kt (Nm/A)	Encoder Res. (PPR)		No. of Poles
	0.55		7.87	0.124	1000*		10

\* 2500 lines Max.

Gearbox Specification							
Gear ratio	Continuous Torque (Nm)	Peak Torque (Nm)	Efficiency	Radial Load (Max.)	Axial Load (Max.)	Backlash (arcmin)	Operating Temperature
16 : 1	18	50	0.90	580	650	≤5	-10 ~ +40 °C

Brake Specification				
Voltage (V)	Power (W)	Static Torque (Nm)	Resistance (Ω)	Release Voltage (V)
24	13.5	4.0 Min.	42.7	>1.2

## ● Mechanical Drawing



## Torque Conversions

*To convert from A to B, multiply using formula in below table.*

A \ B	oz-in	lb-in	lb-ft	g-cm	Kg-cm	Kg-m	N-cm	N-m
oz-in	1	$6.25 \times 10^{-2}$	$5.208 \times 10^{-3}$	72.007	$7.2 \times 10^{-2}$	$7.2 \times 10^{-4}$	0.7061	$7.061 \times 10^{-3}$
lb-in	16	1	$8.333 \times 10^{-2}$	1152	1.152	$1.152 \times 10^{-2}$	11.2	0.112
lb-ft	192	12	1	13820	13.825	0.138	135.5	1.355
gm-cm	$1.388 \times 10^{-2}$	$8.679 \times 10^{-4}$	$7.233 \times 10^{-5}$	1	$10^{-3}$	$10^{-5}$	$9.806 \times 10^{-3}$	$9.806 \times 10^{-5}$
Kg-cm	13.877	0.8679	$7.233 \times 10^{-2}$	1000	1	$10^{-2}$	9.806	$9.806 \times 10^{-2}$
Kg-m	$1.388 \times 10^3$	86.796	7.233	$10^5$	100	1	$9.806 \times 10^2$	9.806
N-cm	1.41612	$8.85 \times 10^{-2}$	$7.37 \times 10^{-3}$	$1.019 \times 10^2$	0.10197	$1.01 \times 10^{-3}$	1	$10^{-2}$
N-m	141.612	8.85	0.737	$1.019 \times 10^4$	10.197	0.101	100	1

*Please note:*

*Specifications and dimensions in catalog represent the status of engineering at time of printing. Any modifications or engineering improvements may take place without prior notice.*

