

Source Engineering Inc.



FRAMELESS SERVO MOTOR

Providing high-quality motor products for automated equipment manufacturers

INTRODUCTION TO FRAMELESS SERVO MOTOR



Lighter



Smaller



Offer Faster



Higher Efficiency

Frameless servomotors, as their name suggests, lack housings and other peripheral components. They consist of a rotor and stator assembly that can be directly integrated into mechanisms, allowing for flexible adaptation to various housings, bearings, and feedback devices. This facilitates high integration of terminal products and reduces their size.

Compared to traditional servomotors, which have fixed stators, rotors, housings, and feedback devices, frameless servomotors are lighter, smaller, offer faster motion response, and have higher efficiency.



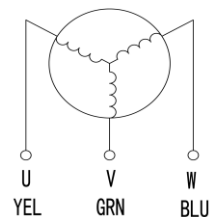
Features of the frameless servo motor

These Motors' series of frameless servomotors employ a multi-slot, multi-pole design to achieve high torque density and low cogging torque output, making the structure more compact and operation smoother. They also use vacuum potting technology with high thermal conductivity encapsulation resin, enhancing heat dissipation and reducing temperature rise.

26mm Frameless BLDC Motor - SYN Low Voltage Series



Winding Diagram



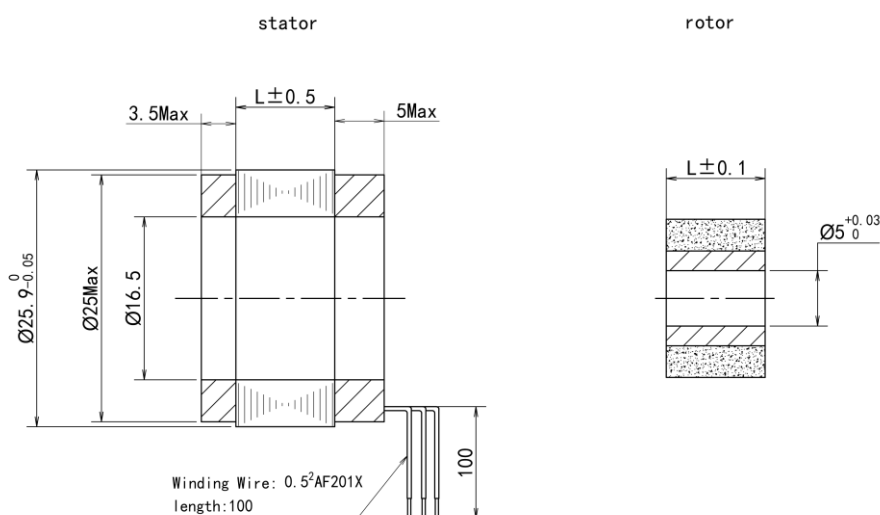
Electrical Specifications:

Options: Hall Sensor board and encoder available

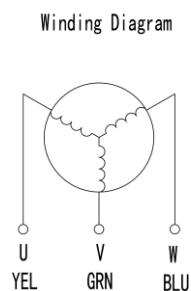
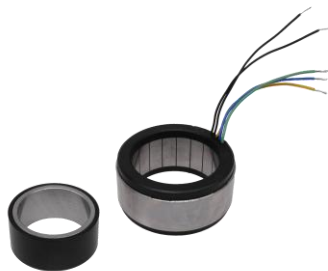
Motor Model	26SYN242040	26SYN244040
Number of Phase	3	
Number of Poles	10	
Rated Voltage(VDC)	24	
Rated Speed(Rpm)	4000	
Rated Torque(N.m)	0.05	0.1
Rated Power(W)	20	40
Rated Current(A)	1.3	2.5
Peak Current(A)	2.6	5
Peak Torque(N.M)	0.1	0.2
Rotor Inertia(kg.cm ²)	0.0017	0.0034
Torque Constant(N.m/A)	0.045	0.045
Torque Constant(V/krpm)	2.72	2.72
Line-Line Resistance(Ω)	1.2	0.75
Line-Line Inductance(mH)	0.8	0.4
L Stator/Rotor Length(L-mm)	10/10	20/20
Weight(kg)	0.025	0.045

*Note: We can manufacture products according to customer's requirements.

Dimensions (Unit: mm)



33mm Frameless BLDC Motor - SYN Low Voltage Series



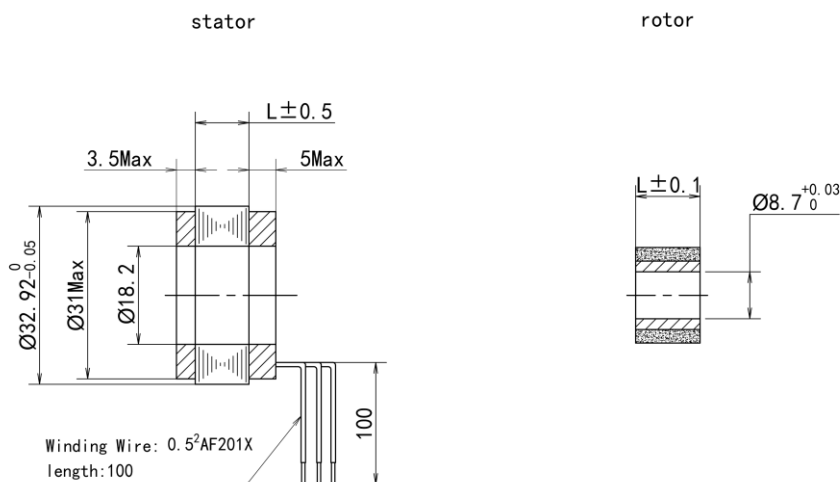
Electrical Specifications:

Options: Hall Sensor board and encoder available

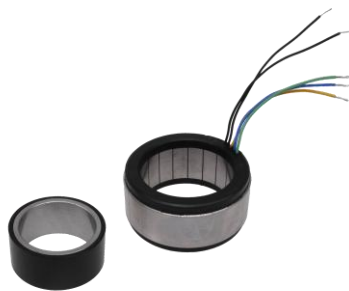
Motor Model	33SYN483030	33SYN486030
Number of Phase	3	
Number of Poles	10	
Rated Voltage(VDC)	48	
Rated Speed(Rpm)	4000	
Rated Torque(N.m)	0.09	0.18
Rated Power(W)	30	60
Rated Current(A)	0.9	1.8
Peak Current(A)	1.8	3.6
Peak Torque(N.M)	0.18	0.36
Rotor Inertia(kg.cm ²)	0.002	0.004
Torque Constant(N.m/A)	0.1	0.1
Torque Constant(V/krpm)	6.04	6.04
Line-Line Resistance(Ω)	0.6	0.3
Line-Line Inductance(mH)	0.7	0.4
L Stator/Rotor Length(L-mm)	10/10	20/20
Weight(kg)	0.06	0.09

*Note: We can manufacture products according to customer's requirements.

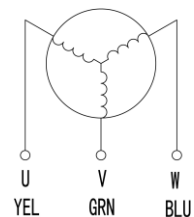
Dimensions (Unit: mm)



39mm Frameless BLDC Motor - SYT Low Voltage Series



Winding Diagram



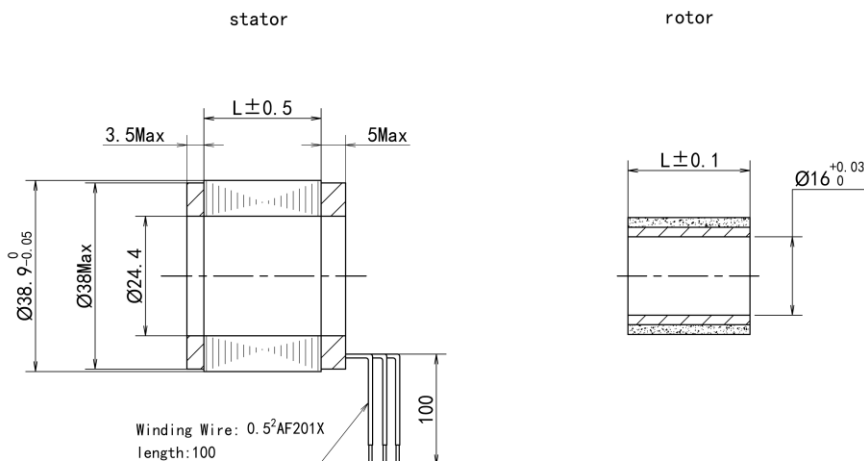
■ **Electrical Specifications:**

Options: Hall Sensor board and encoder available

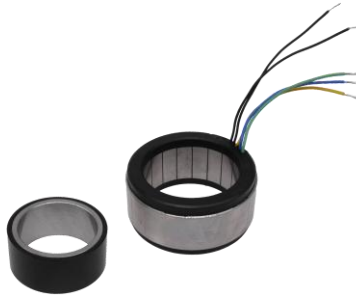
Motor Model	39SYT243030	39SYT486030	39SYT481230
Number of Phase	3		
Number of Poles	10		
Rated Voltage(VDC)	24	48	
Rated Speed(Rpm)	3000		
Rated Torque(N.m)	0.1	0.2	0.4
Rated Power(W)	30	60	120
Rated Current(A)	1.9	1.3	1.5
Peak Current(A)	3.8	2.6	3
Peak Torque(N.M)	0.2	0.24	0.32
Rotor Inertia(kg.cm ²)	0.009	0.018	0.036
Torque Constant(N.m/A)	0.053	0.1	0.11
Torque Constant(V/krpm)	3.2	6	6.6
Line-Line Resistance(Ω)	3.3	2.5	1.5
Line-Line Inductance(mH)	3.4	3.0	1.66
L Stator/Rotor Length(L-mm)	6/6.6	12/13	24/25
Weight(kg)	0.05	0.075	0.14

* **Note: We can manufacture products according to customer's requirements.**

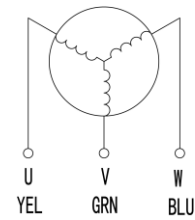
■ **Dimensions (Unit: mm)**



46mm Frameless BLDC Motor - SYT Low Voltage Series



Winding Diagram



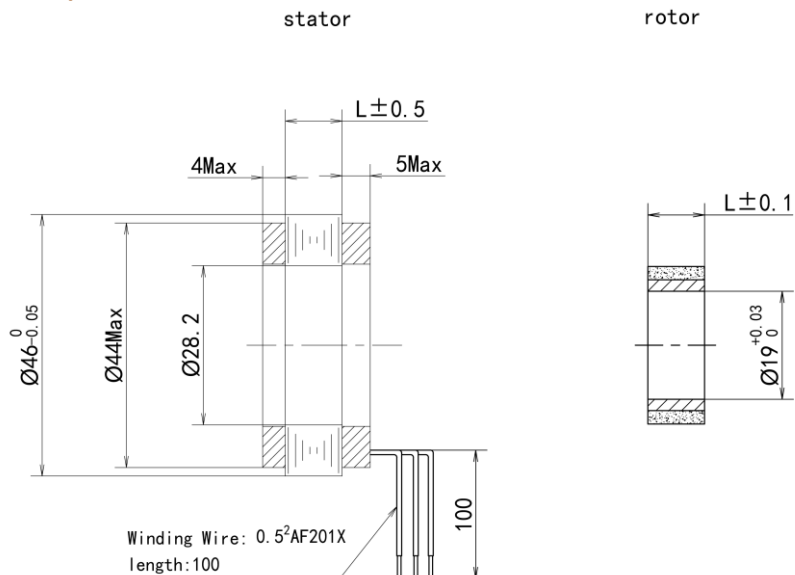
■ **Electrical Specifications:**

Options: Hall Sensor board and encoder available

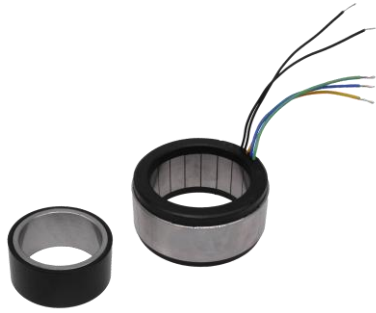
Motor Model	46SYT482530	46SYT484030	46SYT485030
Number of Phase	3		
Number of Poles	10		
Rated Voltage(VDC)	48		
Rated Speed(Rpm)	3000		
Rated Torque(N.m)	0.08	0.12	0.16
Rated Power(W)	25	40	50
Rated Current(A)	1	1.3	1.5
Peak Current(A)	2	2.6	3
Peak Torque(N.M)	0.16	0.24	0.32
Rotor Inertia(kg.cm ²)	0.01	0.012	0.015
Torque Constant(N.m/A)	0.102	0.13	0.113
Torque Constant(V/krpm)	6.91	8.48	7.98
Line-Line Resistance(Ω)	6.2	5.6	5.1
Line-Line Inductance(mH)	3.3	3.7	3.5
L Stator/Rotor Length(L-mm)	6/6	8/8	10/10
Weight(kg)	0.07	0.09	0.12

*Note: We can manufacture products according to customer's requirements.

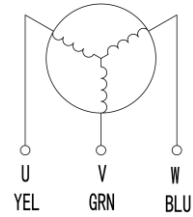
■ **Dimensions (Unit: mm)**



49mm Frameless BLDC Motor - SYT Low Voltage Series



Winding Diagram



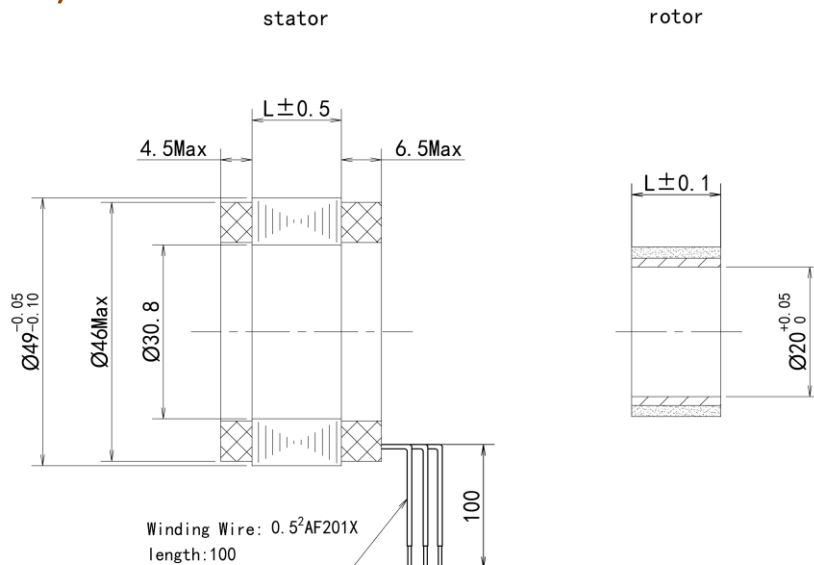
Electrical Specifications:

Options: Hall Sensor board and encoder available

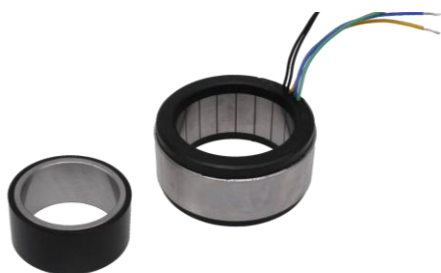
Motor Model	49SYT481030	49SYT481430	49SYT482630
Number of Phase	3		
Number of Poles	10		
Rated Voltage(VDC)	48		
Rated Speed(Rpm)	3000		
Rated Torque(N.m)	0.32	0.45	0.83
Rated Power(W)	100	141	260
Rated Current(A)	2.9	4.1	7.5
Peak Current(A)	5.8	8.2	15
Peak Torque(N.M)	0.64	0.9	1.66
Rotor Inertia(kg.cm ²)	0.05	0.06	0.09
Torque Constant(N.m/A)	0.1	0.1	0.1
Torque Constant(V/krpm)	8.5	8.4	8.2
Line-Line Resistance(Ω)	2.5	1.6	0.8
Line-Line Inductance(mH)	3.7	2.8	0.9
L Stator/Rotor Length(L-mm)	10/10	14/15	27/28
Weight(kg)	0.4	0.45	0.8

*Note: We can manufacture products according to customer's requirements.

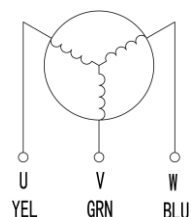
Dimensions (Unit: mm)



60mm BLDC Frameless Servo Motor - SYE Low Voltage Series



Winding Diagram



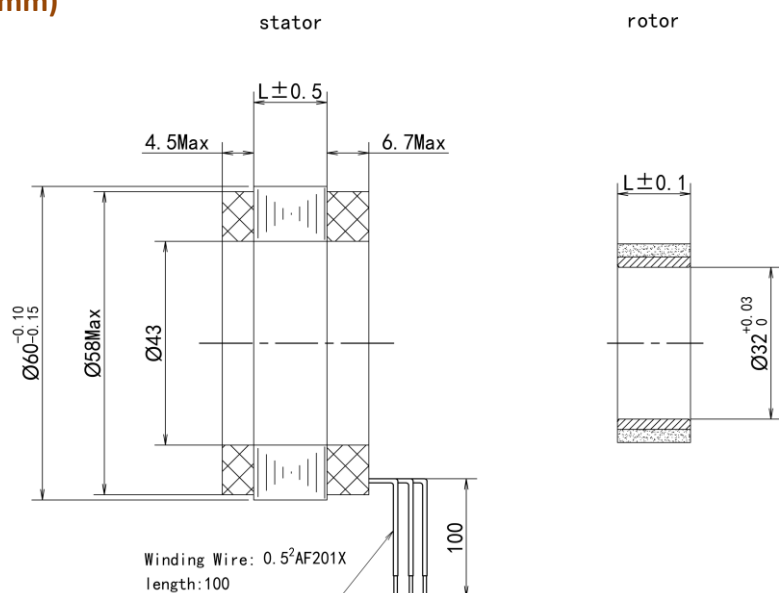
Electrical Specifications:

Options: Hall Sensor board and encoder available

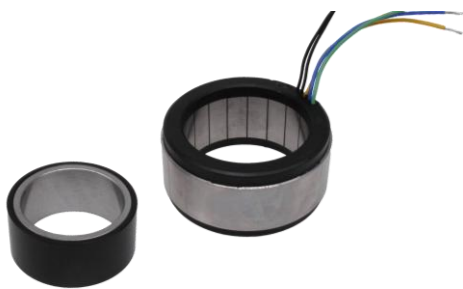
Motor Model	60SYE481530	60SYE482230	60SYE484530
Number of Phase	3		
Number of Poles	16		
Rated Voltage(VDC)	48		
Rated Speed(Rpm)	3000		
Rated Torque(N.m)	0.5	0.7	1.44
Rated Power(W)	157	220	452
Rated Current(A)	4.4	6.2	13
Peak Current(A)	8.8	12.4	26
Peak Torque(N.M)	1.0	1.4	2.88
Rotor Inertia(kg.cm ²)	0.17	0.19	0.24
Torque Constant(N.m/A)	0.1	0.1	0.1
Torque Constant(V/krpm)	8.1	8.1	7.9
Line-Line Resistance(Ω)	1.77	1.1	0.6
Line-Line Inductance(mH)	2.2	1.3	0.8
L Stator/Rotor Length(L-mm)	9/9	13/14	26/27
Weight(kg)	0.45	0.55	1.0

*Note: We can manufacture products according to customer's requirements.

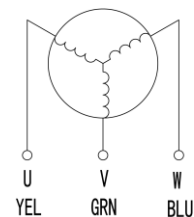
Dimensions (Unit: mm)



69mm Frameless Servo Motor - SYE Low Voltage Series



Winding Diagram



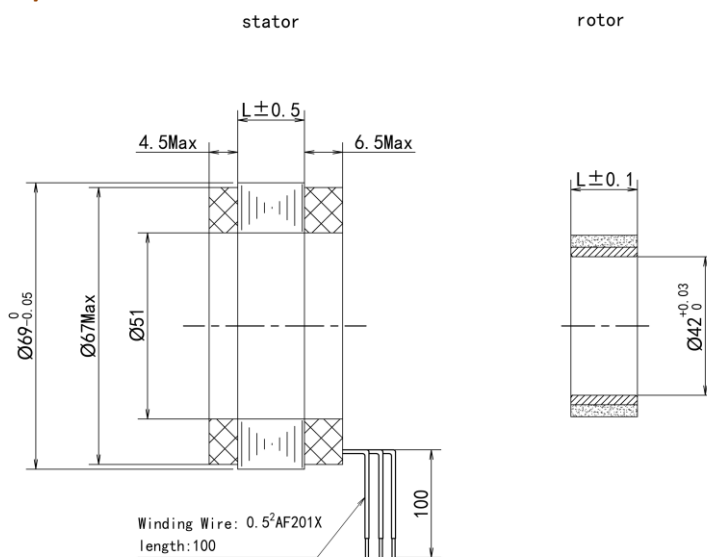
■ **Electrical Specifications:**

Options: Hall Sensor board and encoder available

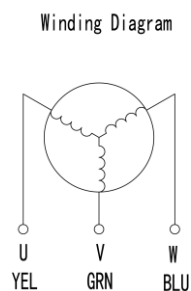
Motor Model	69SYE482030	69SYE484430
Number of Phase	3	
Number of Poles	16	
Rated Voltage(VDC)	48	
Rated Speed(Rpm)	3000	
Rated Torque(N.m)	0.64	1.4
Rated Power(W)	201	440
Rated Current(A)	6	13
Peak Current(A)	12	26
Peak Torque(N.M)	1.28	2.8
Rotor Inertia(kg.cm ²)	0.19	0.24
Torque Constant(N.m/A)	0.1	0.1
Torque Constant(V/krpm)	8.2	8.1
Line-Line Resistance(Ω)	1.5	0.9
Line-Line Inductance(mH)	1.1	0.7
L Stator/Rotor Length(L-mm)	12.5/12.5	22/23
Weight(kg)	0.6	0.9

*Note: We can manufacture products according to customer's requirements.

■ **Dimensions (Unit: mm)**



76mm Frameless Servo Motor - SYE Low Voltage Series



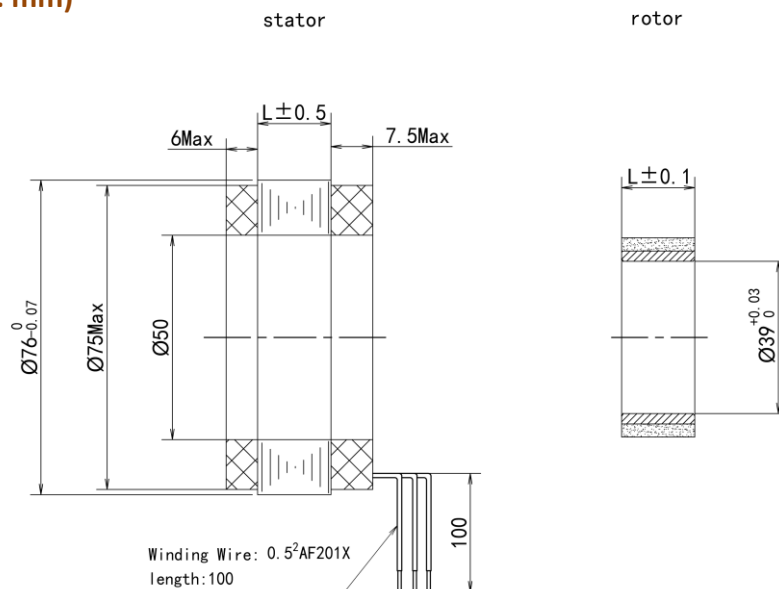
Electrical Specifications:

Options: Hall Sensor board and encoder available

Motor Model	76SYE483030	76SYE486730
Number of Phase	3	
Number of Poles	16	
Rated Voltage(VDC)	48	
Rated Speed(Rpm)	3000	
Rated Torque(N.m)	1.0	2.16
Rated Power(W)	314	678
Rated Current(A)	9	19
Peak Current(A)	18	38
Peak Torque(N.M)	2.0	4.32
Rotor Inertia(kg.cm ²)	0.38	0.65
Torque Constant(N.m/A)	0.1	0.1
Torque Constant(V/krpm)	9.5	9.1
Line-Line Resistance(Ω)	0.4	0.2
Line-Line Inductance(mH)	0.9	0.3
L Stator/Rotor Length(L-mm)	12/13	26/27
Weight(kg)	0.8	1.2

*Note: We can manufacture products according to customer's requirements.

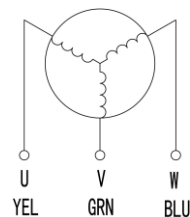
Dimensions (Unit: mm)



85mm Frameless Servo Motor - SFE Low Voltage Series



Winding Diagram



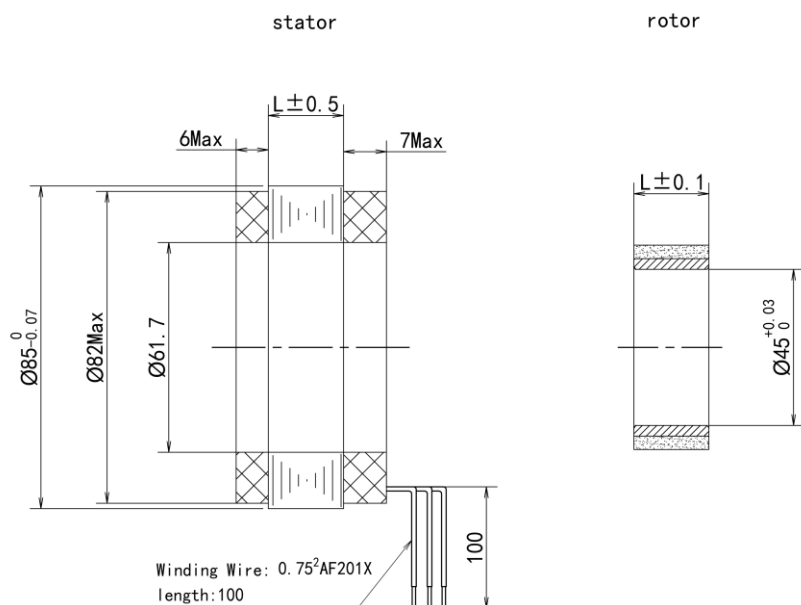
■ **Electrical Specifications:**

Options: Hall Sensor board and encoder available

Motor Model	85SFE484530	85SFE489130
Number of Phase	3	
Number of Poles	20	
Rated Voltage(VDC)	48	
Rated Speed(Rpm)	3000	
Rated Torque(N.m)	1.44	2.9
Rated Power(W)	452	910
Rated Current(A)	12.5	26
Peak Current(A)	37.5	78
Peak Torque(N.M)	4.32	8.7
Rotor Inertia(kg.cm ²)	0.2	0.5
Torque Constant(N.m/A)	0.11	0.11
Torque Constant(V/krpm)	8.5	8.5
Line-Line Resistance(Ω)	3	0.4
Line-Line Inductance(mH)	1.5	1
L Stator/Rotor Length(L-mm)	12/13	24/25
Weight(kg)	0.9	1.3

*Note: We can manufacture products according to customer's requirements

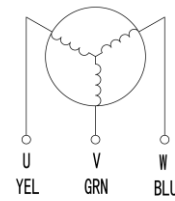
■ **Dimensions (Unit: mm)**



91mm Frameless Servo Motor -SSE Low Voltage Series



Winding Diagram



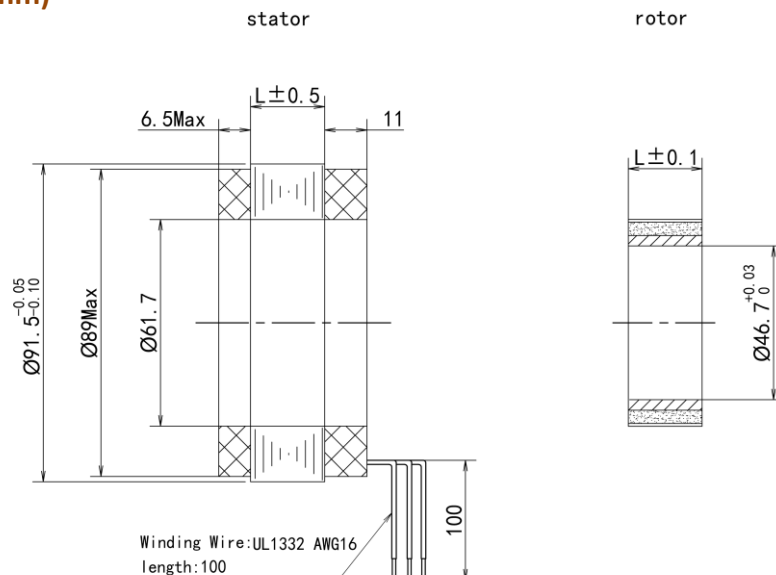
■ **Electrical Specifications:**

Options: Hall Sensor board and encoder available

Motor Model	91SSE486330S	91SSE481230S
Number of Phase	3	
Number of Poles	16	
Rated Voltage(VDC)	48	
Rated Speed(Rpm)	3000	
Rated Torque(N.m)	2	4
Rated Power(W)	630	1200
Rated Current(A)	17	34
Peak Current(A)	34	68
Peak Torque(N.M)	4	8
Rotor Inertia(kg.cm ²)	0.5	0.8
Torque Constant(N.m/A)	0.1	0.1
Torque Constant(V/krpm)	8.5	8.5
Line-Line Resistance(Ω)	0.14	0.04
Line-Line Inductance(mH)	0.45	0.2
L Stator/Rotor Length(L-mm)	15/15.5	30/32
Weight(kg)	0.95	1.5

*Note: We can manufacture products according to customer's requirements.

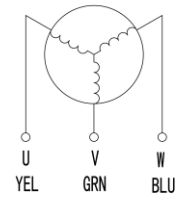
■ **Dimensions (Unit: mm)**



94mm Frameless Servo Motor - SSE Low Voltage Series



Winding Diagram



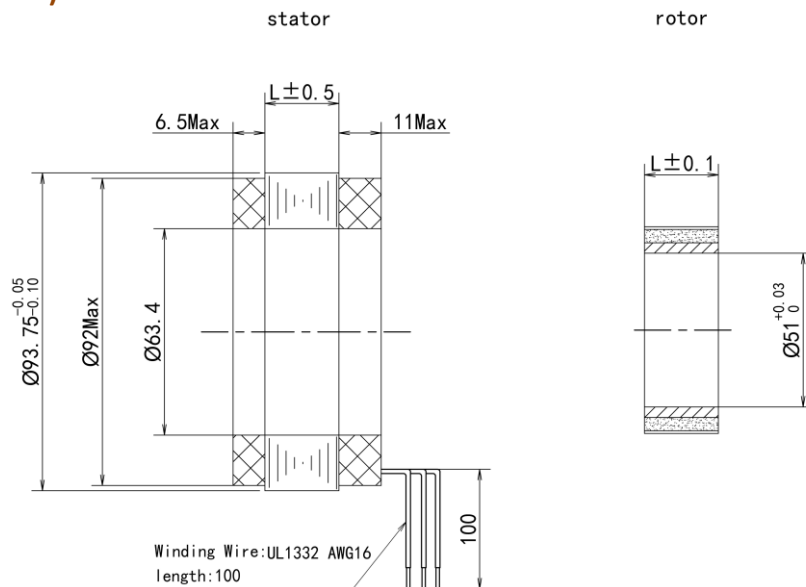
■ **Electrical Specifications:**

Options: Hall Sensor board and encoder available

Motor Model	94SSE486330S	94SSE481230S
Number of Phase	3	
Number of Poles	16	
Rated Voltage(VDC)	48	
Rated Speed(Rpm)	3000	
Rated Torque(N.m)	2	4
Rated Power(W)	630	1200
Rated Current(A)	17	34
Peak Current(A)	34	68
Peak Torque(N.M)	4	8
Rotor Inertia(kg.cm ²)	0.5	0.8
Torque Constant(N.m/A)	0.1	0.1
Torque Constant(V/krpm)	8.5	8.5
Line-Line Resistance(Ω)	0.14	0.04
Line-Line Inductance(mH)	0.45	0.2
L Stator/Rotor Length(L-mm)	12/13	23/24
Weight(kg)	0.8	1.3

*Note: We can manufacture products according to customer's requirements.

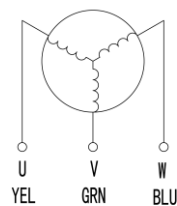
■ **Dimensions (Unit: mm)**



105mm Frameless Servo Motor - SFE Low Voltage Series



Winding Diagram



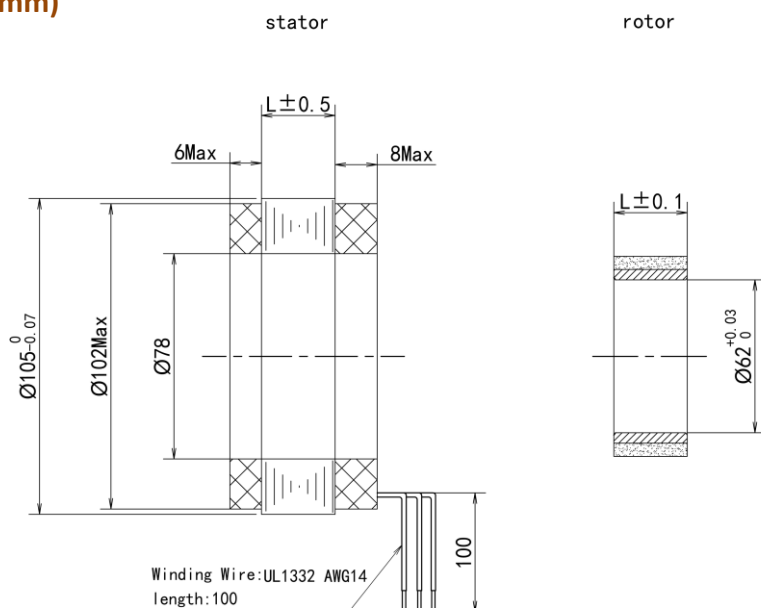
■ **Electrical Specifications:**

Options: Hall Sensor board and encoder available

Motor Model	105SFE488320	105SFE481220
Number of Phase	3	
Number of Poles	20	
Rated Voltage(VDC)	48	
Rated Speed(Rpm)	2000	
Rated Torque(N.m)	4	6
Rated Power(W)	837	1256
Rated Current(A)	23	35
Peak Current(A)	69	105
Peak Torque(N.M)	12	18
Rotor Inertia(kg.cm ²)	0.8	1.1
Torque Constant(N.m/A)	0.17	0.17
Torque Constant(V/krpm)	13	12
Line-Line Resistance(Ω)	0.35	0.2
Line-Line Inductance(mH)	0.15	0.08
L Stator/Rotor Length(L-mm)	16/17	22/23
Weight(kg)	1.1	1.5

*Note: We can manufacture products according to customer's requirements.

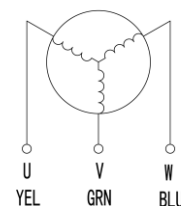
■ **Dimensions (Unit: mm)**



115mm Frameless Servo Motor - SSE Low Voltage Series



Winding Diagram



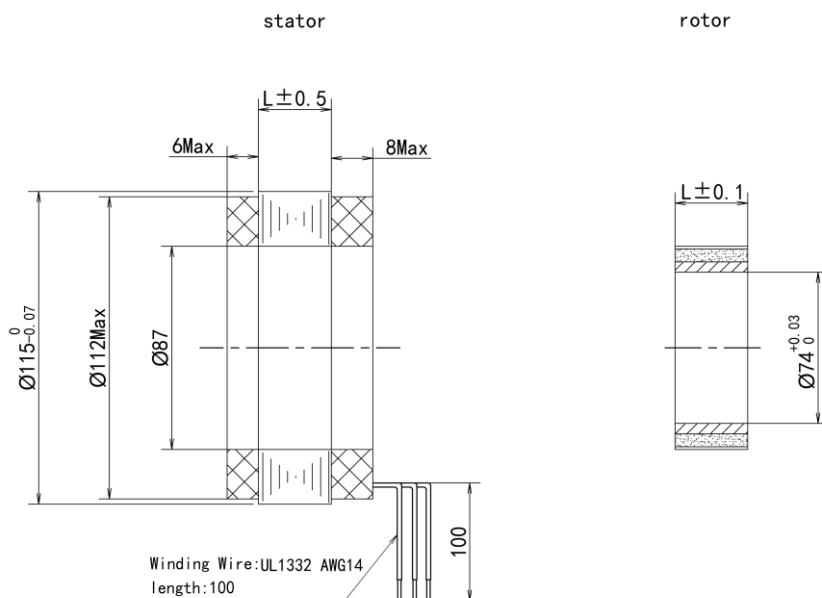
■ **Electrical Specifications:**

Options: Hall Sensor board and encoder available

Motor Model	115SSE488320	115SSE481320
Number of Phase	3	
Number of Poles	20	
Rated Voltage(VDC)	48	
Rated Speed(Rpm)	2000	
Rated Torque(N.m)	4	6.6
Rated Power(W)	837	1382
Rated Current(A)	23	39
Peak Current(A)	69	117
Peak Torque(N.M)	12	19.8
Rotor Inertia(kg.cm ²)	1.1	1.6
Torque Constant(N.m/A)	0.17	0.17
Torque Constant(V/krpm)	10.5	10
Line-Line Resistance(Ω)	0.09	0.04
Line-Line Inductance(mH)	0.4	0.02
L Stator/Rotor Length(L-mm)	13/14	22/23
Weight(kg)	1.0	1.6

*Note: We can manufacture products according to customer's requirements.

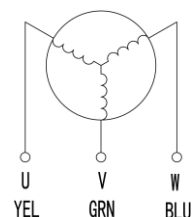
■ **Dimensions (Unit: mm)**



140mm Frameless Servo Motor - SSE Low Voltage Series



Winding Diagram



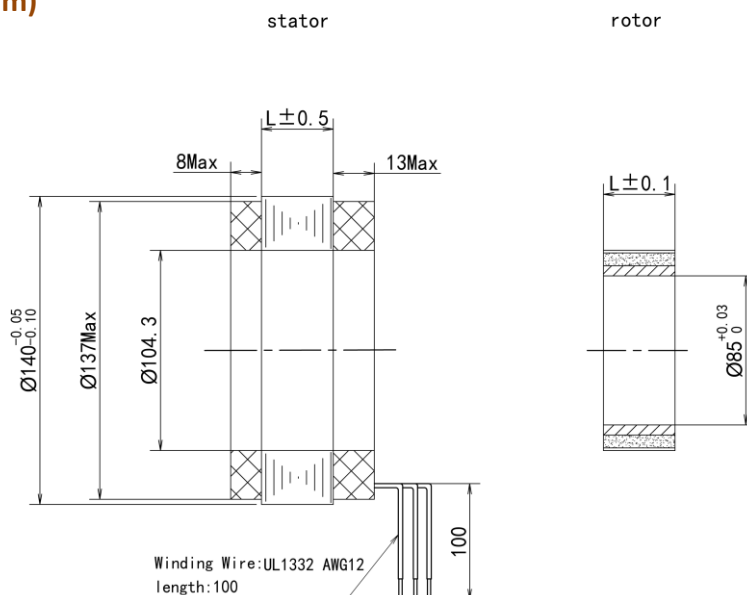
■ **Electrical Specifications:**

Options: Hall Sensor board and encoder available

Motor Model	140SSE489430S	140SSE482430S
Number of Phase	3	
Number of Poles	16	
Rated Voltage(VDC)	48	
Rated Speed(Rpm)	3000	
Rated Torque(N.m)	3.0	7.6
Rated Power(W)	942	2400
Rated Current(A)	27	66
Peak Current(A)	81	198
Peak Torque(N.M)	9.0	22.8
Rotor Inertia(kg.cm ²)	8.5	19
Torque Constant(N.m/A)	0.1	0.1
Torque Constant(V/krpm)	8.1	8.5
Line-Line Resistance(Ω)	0.012	0.007
Line-Line Inductance(mH)	0.03	0.025
L Stator/Rotor Length(L-mm)	20/21	50/51
Weight(kg)	1.9	2.9

*Note: We can manufacture products according to customer's requirements.

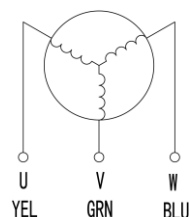
■ **Dimensions (Unit: mm)**



160mm Frameless Servo Motor -SSE Low Voltage Series



Winding Diagram



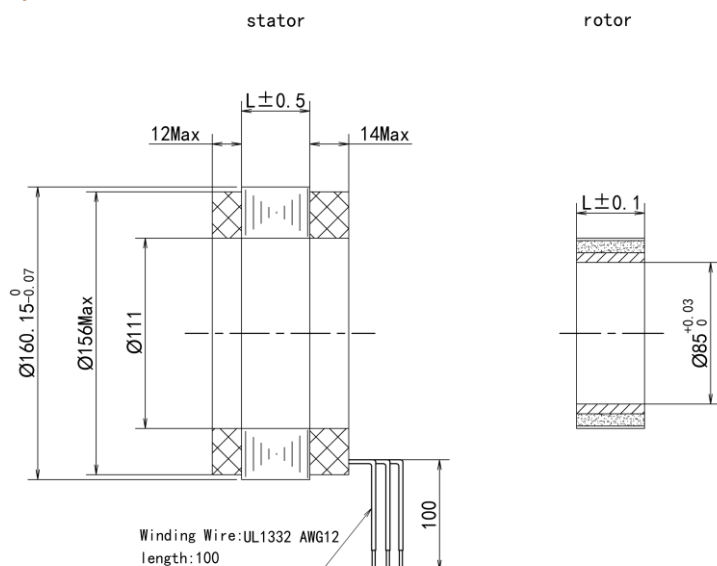
■ **Electrical Specifications:**

Options: Hall Sensor board and encoder available

Motor Model	160SSE482020S
Number of Phase	3
Number of Poles	16
Rated Voltage(VDC)	48
Rated Speed(Rpm)	2000
Rated Torque(N.m)	10.5
Rated Power(W)	2200
Rated Current(A)	57
Peak Current(A)	171
Peak Torque(N.M)	31.5
Rotor Inertia(kg.cm ²)	0.6
Torque Constant(N.m/A)	0.18
Torque Constant(V/krpm)	13.8
Line-Line Resistance(Ω)	0.019
Line-Line Inductance(mH)	0.17
L Stator/Rotor Length(L-mm)	34/35
Weight(kg)	1.6

*Note: We can manufacture products according to customer's requirements.

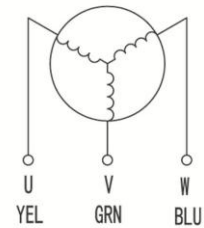
■ **Dimensions (Unit: mm)**



52mm Outer Rotor Frameless BLDC Motor – EY Series



Winding Diagram

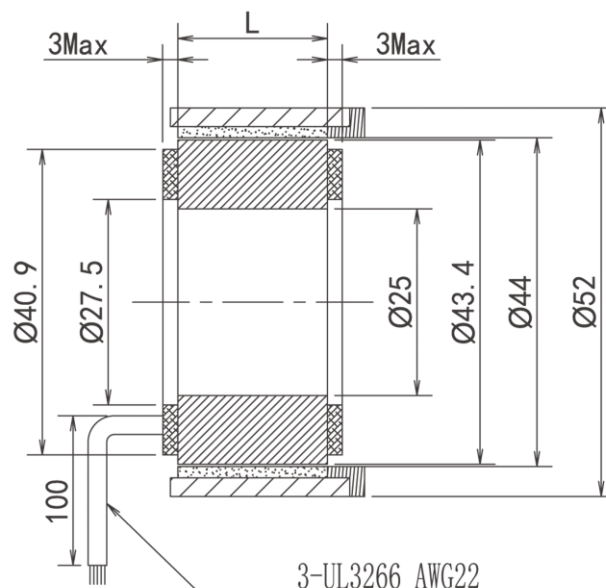


Electrical Specifications:

Motor Model	52EY481030	52EY482030	52EY483130
Number of Phase	3		
Number of Poles	28		
Rated Voltage(VDC)	48		
Rated Speed(Rpm)	3000		
Rated Torque(N.m)	0.33	0.66	0.99
Rated Power(W)	103	207	311
Rated Current(A)	3.0	6.0	9.0
Peak Current(A)	6.0	12	18
Peak Torque(N.M)	0.66	1.32	1.98
Rotor Inertia(kg.cm ²)	0.13	0.23	0.33
Torque Constant(N.m/A)	0.11	0.11	0.11
Torque Constant(V/krpm)	12	12	12
Line-Line Resistance(Ω)	1.0	0.8	0.6
Line-Line Inductance(mH)	1.3	0.9	0.4
Length(mm)	10	20	30
Weight(kg)	0.2	0.3	0.4

*Note: We can manufacture products according to customer's requirements.

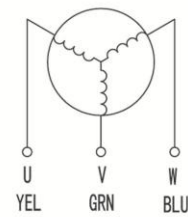
Dimensions (Unit: mm)



62mm Outer Rotor Frameless BLDC Motor – EY Series



Winding Diagram

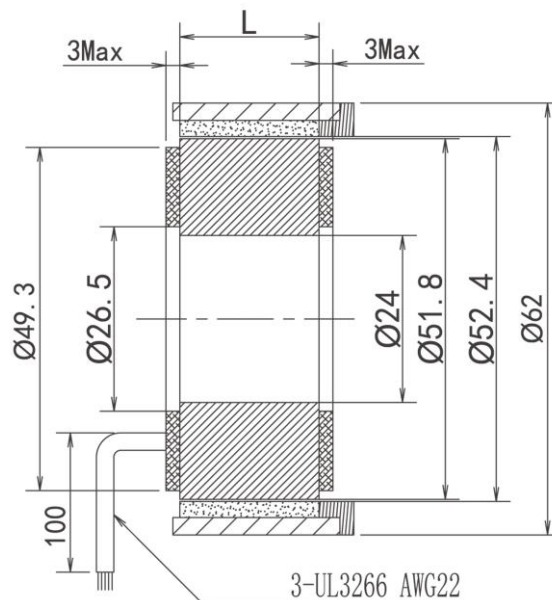


Electrical Specifications:

Motor Model	62EY481530	62EY483130	62EY483120
Number of Phase	3		
Number of Poles	28		
Rated Voltage(VDC)	48		
Rated Speed(Rpm)	3000	2000	
Rated Torque(N.m)	0.5	1.0	1.5
Rated Power(W)	157	314	314
Rated Current(A)	4.5	9.0	9.2
Peak Current(A)	9.0	18	18.4
Peak Torque(N.M)	1.0	2.0	3.0
Rotor Inertia(kg.cm ²)	0.23	0.43	0.53
Torque Constant(N.m/A)	0.11	0.11	0.16
Torque Constant(V/krpm)	10	10	20
Line-Line Resistance(Ω)	1.2	0.9	0.6
Line-Line Inductance(mH)	1.3	0.8	0.4
L Length(mm)	10	20	30
Weight(kg)	0.3	0.4	0.5

*Note: We can manufacture products according to customer's requirements.

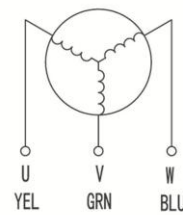
Dimensions (mm)



67mm Outer Rotor Frameless BLDC Motor – ESD Series



Winding Diagram

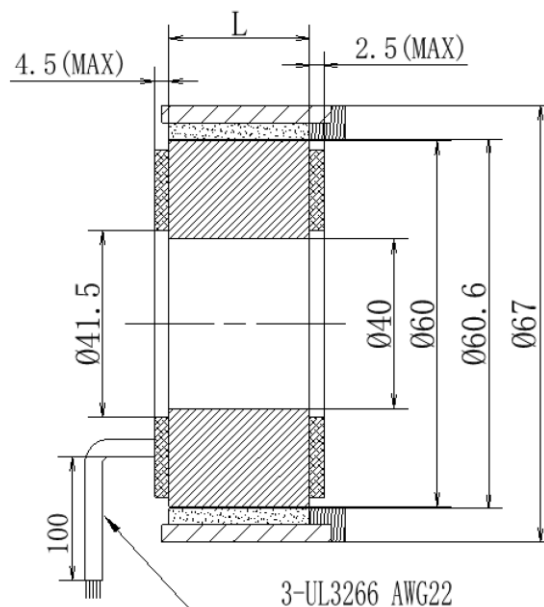


Electrical Specifications:

Motor Model	67ESD482020
Number of Phase	3
Number of Poles	42
Rated Voltage(VDC)	48
Rated Speed(Rpm)	2000
Rated Torque(N.m)	1
Rated Power(W)	202
Rated Current(A)	6
Peak Current(A)	12
Peak Torque(N.M)	2
Rotor Inertia(kg.cm ²)	0.3
Torque Constant(N.m/A)	0.16
Torque Constant(V/krpm)	11
Line-Line Resistance(Ω)	0.7
Line-Line Inductance(mH)	0.5
L Length(mm)	11.8
Weight(kg)	0.4

*Note: We can manufacture products according to customer's requirements.

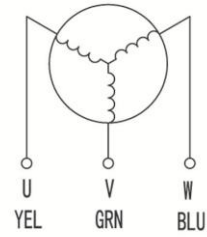
Dimensions (Unit: mm)



72mm Outer Rotor Frameless BLDC Motor – ESD Series



Winding Diagram

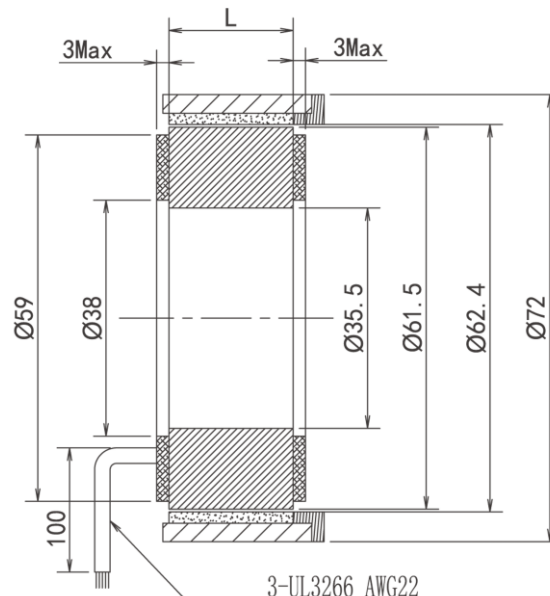


Electrical Specifications:

Motor Model	72ESD482020	72ESD484120
Number of Phase	3	
Number of Poles	28	
Rated Voltage(VDC)	48	
Rated Speed(Rpm)	2000	
Rated Torque(N.m)	1.0	2.0
Rated Power(W)	209	419
Rated Current(A)	6.0	12
Peak Current(A)	12	24
Peak Torque(N.M)	2.0	4.0
Rotor Inertia(kg.cm ²)	0.25	0.55
Torque Constant(N.m/A)	0.16	0.16
Torque Constant(V/krpm)	14	14
Line-Line Resistance(Ω)	1.2	0.5
Line-Line Inductance(mH)	1.2	0.4
L Length(mm)	10	20
Weight(kg)	0.4	0.6

*Note: We can manufacture products according to customer's requirements.

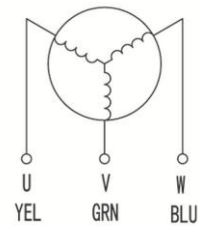
Dimensions (mm)



76mm Outer Rotor Frameless BLDC Motor – ESD Series



Winding Diagram

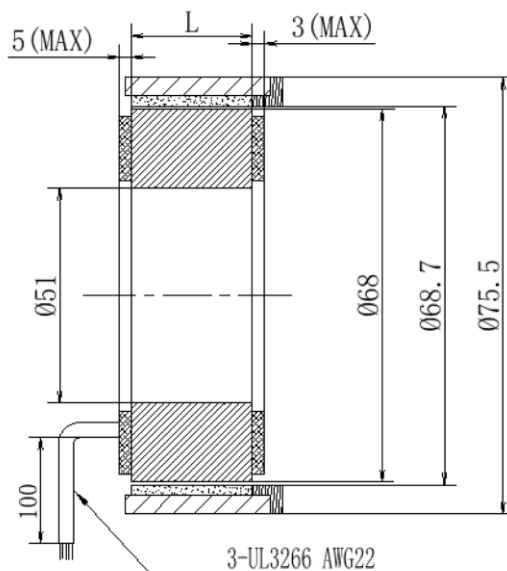


Electrical Specifications:

Motor Model	76ESD483520
Number of Phase	3
Number of Poles	42
Rated Voltage(VDC)	48
Rated Speed(Rpm)	2000
Rated Torque(N.m)	1.7
Rated Power(W)	356
Rated Current(A)	11
Peak Current(A)	22
Peak Torque(N.M)	3.4
Rotor Inertia(kg.cm ²)	0.5
Torque Constant(N.m/A)	0.14
Torque Constant(V/krpm)	11
Line-Line Resistance(Ω)	0.29
Line-Line Inductance(mH)	0.15
L Length(mm)	14.4
Weight(kg)	0.4

*Note: We can manufacture products according to customer's requirements.

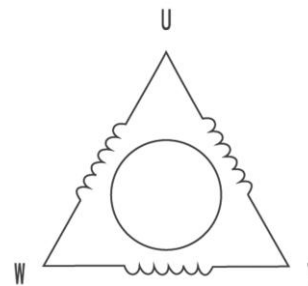
Dimensions (mm)



88mm Outer Rotor Frameless BLDC Motor – ESX Series



Winding Diagram

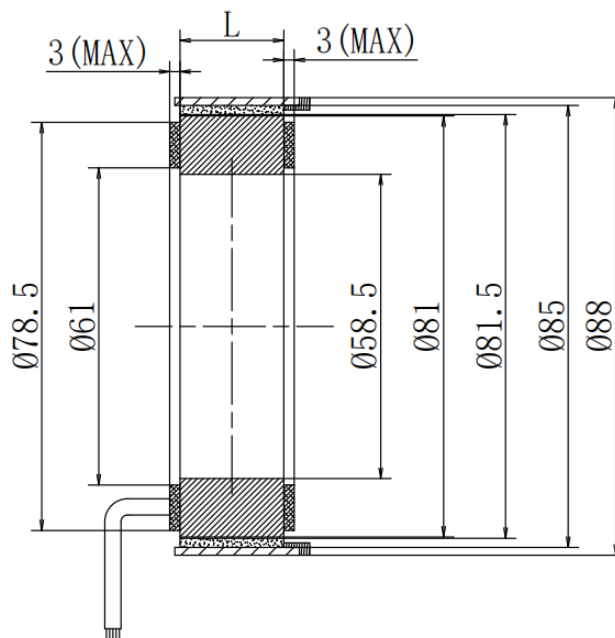


Electrical Specifications:

Motor Model	88ESX485030S
Number of Phase	3
Number of Poles	42
Rated Voltage(VDC)	48
Rated Speed(Rpm)	3000
Rated Torque(N.m)	1.7
Rated Power(W)	534
Rated Current(A)	15
Peak Current(A)	30
Peak Torque(N.M)	3.4
Rotor Inertia(kg.cm ²)	0.9
Torque Constant(N.m/A)	0.11
Torque Constant(V/krpm)	9
Line-Line Resistance(Ω)	0.14
Line-Line Inductance(mH)	0.1
L Length(mm)	15
Weight(kg)	0.4

*Note: We can manufacture products according to customer's requirements.

Dimensions (mm)





FRAMELESS SERVO MOTOR

Source Engineering Inc
Add: 3283-H, De La Cruz Blvd. Santa Clara, CA 95054
Attn: Sales - Rick Lopez
Tel: (408) 980-9822
Mobile: (408) 771-6418
rick@sei-automation.com

<https://www.sei-automation.com/>