

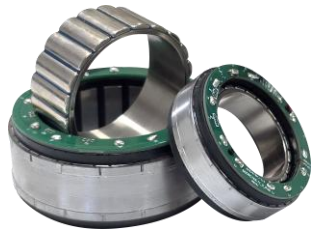
DINGS' Frameless Motor Series

Product Introduction



Solution Lineup

From standalone motors to encoder-integrated and linear module configurations — tailored to your application.



Frameless Motor

Direct Drive Solution

- Slim profile for design flexibility
- High torque drive
- Customizable design



Encoder-Integrated Frameless Motor

Precision Control Solution

- Encoder integration
- Position / speed feedback
- High repeatability



Linear Module Type

Rotary-to-Linear Solution

- Lead screw drive
- Compact module design
- Easy system integration

Frameless Motor-Based Robot Actuator Platform

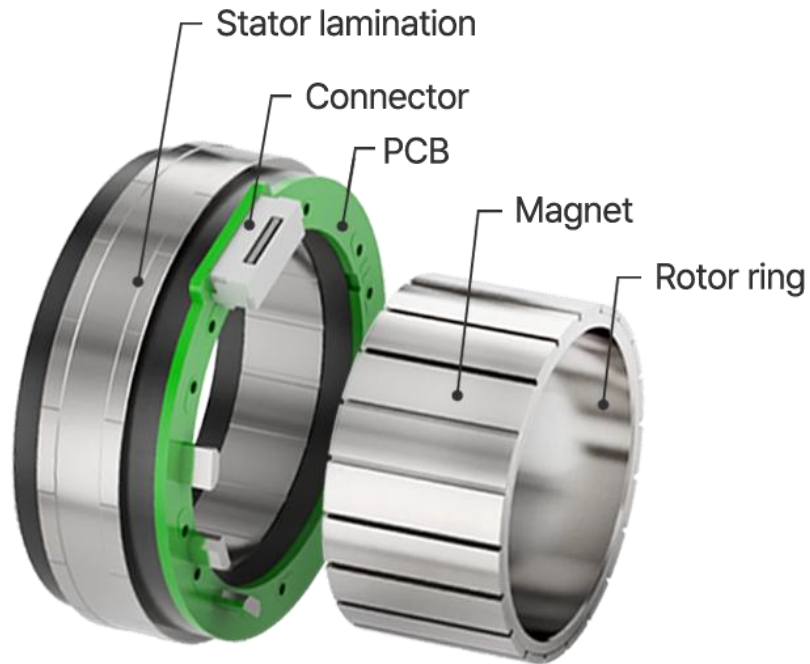


[Our roadmap]
Toward full module
integration



Frameless Motor

DINGS' frameless motors are based on a modular stator and rotor structure, enabling direct integration into customer systems for compact and flexible motion designs.



Modular Stator & Rotor Design

- Optimized for various built-in system designs
- Optional Hall sensor support for rotor position detection
- Integrated NTC / PCB / connector options for easy installation

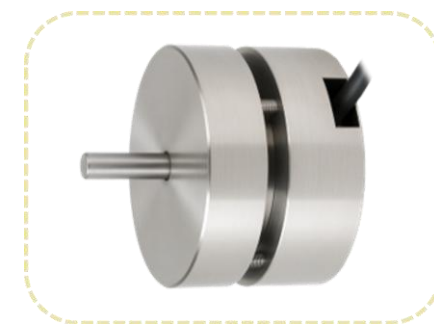
Optimized Slot-Pole Combination

- Reduced cogging torque
- Smooth and precise motion performance

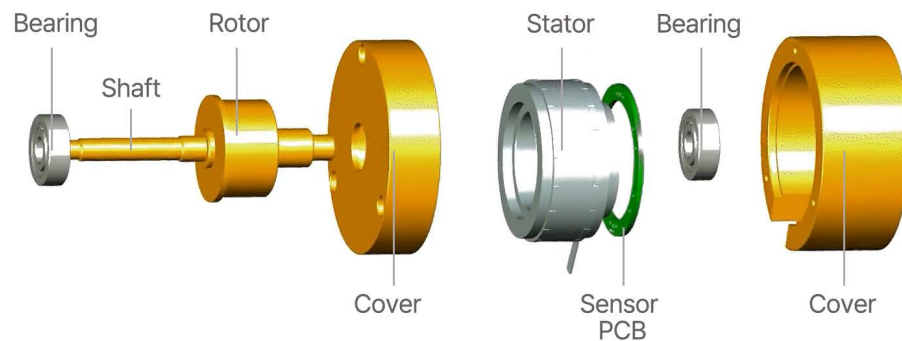
Large-Bore Hollow Structure

- Supports direct integration into various systems
- Supports flexible system design
 - cable/sensor routing and cooling integration

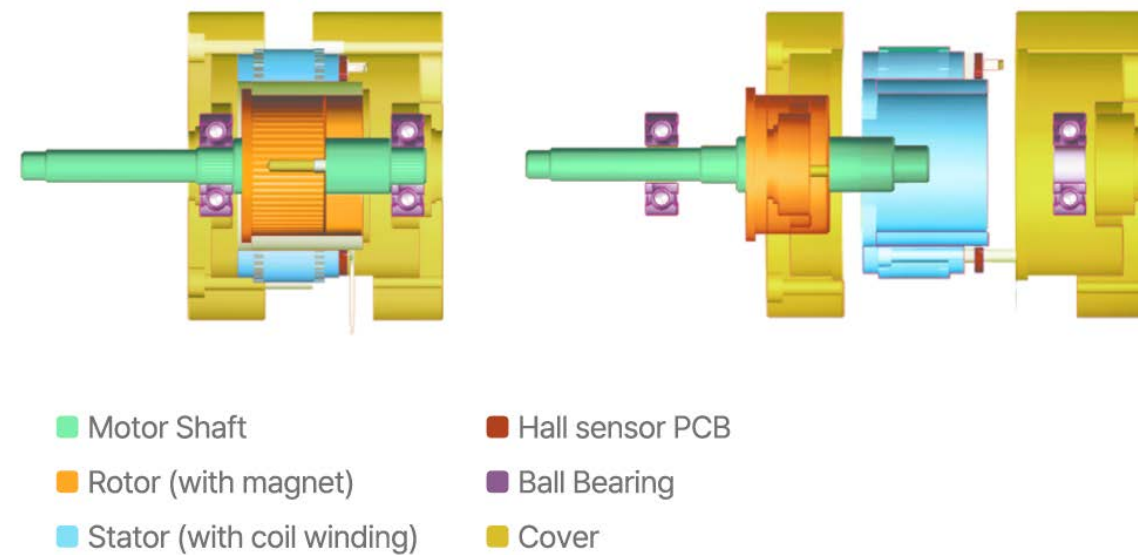
Frameless Motor - Internal Structure



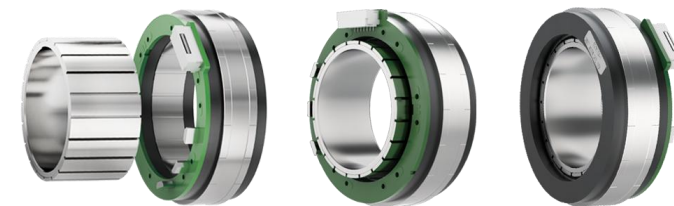
Exploded View



Cross-Section



Frameless Motor Features



Wide Product Lineup



Ø25 · Ø38 · Ø43 · Ø50
Ø60 · Ø70 · Ø85 · Ø115

Ultra-Slim Structure



Minimum thickness: 10 mm
Housing-free design

High Torque Density



Rated torque
0.1 ~ 12.7 N·m

High-Speed Rotation



Maximum speed
22,650 rpm

High Power Output



Maximum output
570 W

Low Cogging Design



Reduced vibration and noise

Modular Configuration



Rotary · linear modules
Compact precision systems

Customization



Modular motor · encoder ·
gearbox solutions

Various Sensor Options



Hall Sensor · NTC
Absolute Encoder Support

- Hollow-shaft absolute encoder support
- Custom housing available — design drawing required
- Custom gearbox available

Frameless Motor Lineup

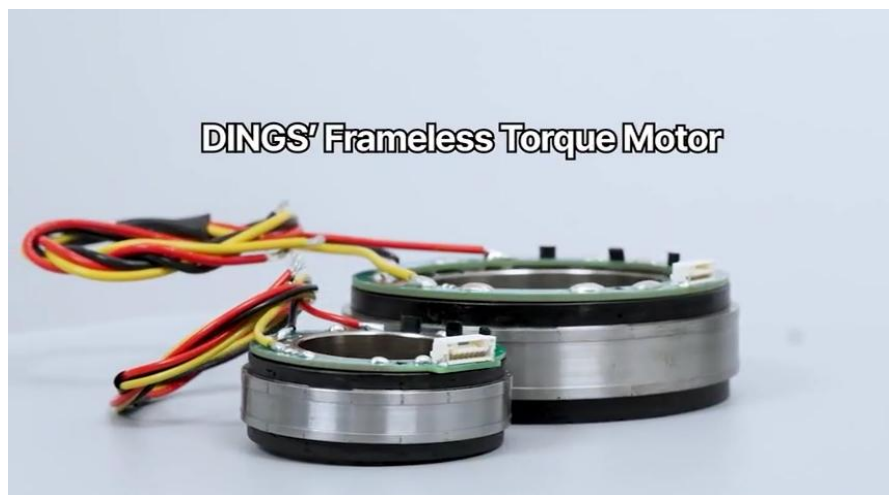
DINGS' offers a wide range of frameless motor solutions, from ultra-compact Ø25 mm to large Ø115 mm models.



		25mm	38mm	43mm	50mm	60mm	70mm	85mm	115mm
OD / ID	mm	25 / 11.6	38 / 18	43 / 25	50 / 30	60 / 36	69 / 42	85 / 52	115 / 74
Peak Torque	N·m	0.105	0.76	0.3	1.5	1.8	2.6	6	12.7
Rated Torque	N·m	0.032	0.23	0.1	0.51	0.6	1.3	2	3.9
Rated Power	W	70	245	31.5	219	205	456	827	570
Rotor Inertia	g·cm ²	1.47	20	20	135	122	455	1520	3930

Frameless Motor Solution Videos

Product Overview Video I



Product Overview Video II



Production Line Video



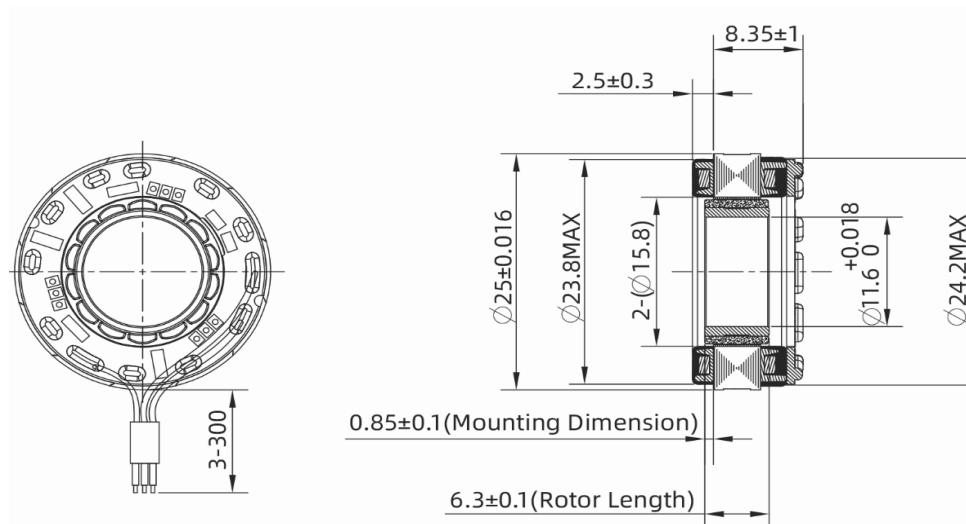
Product Demo Video



Product Overview

25mm Frameless Motor

25ZWC10X-1

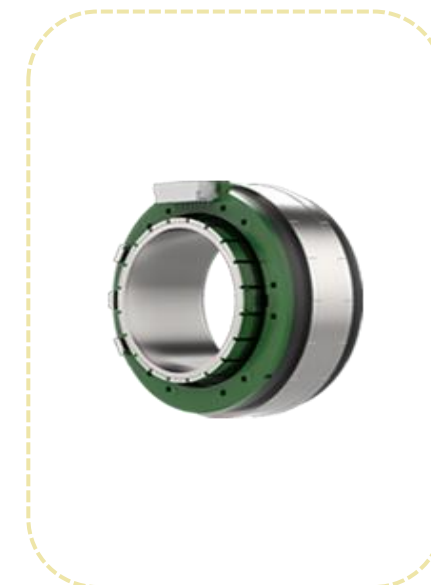
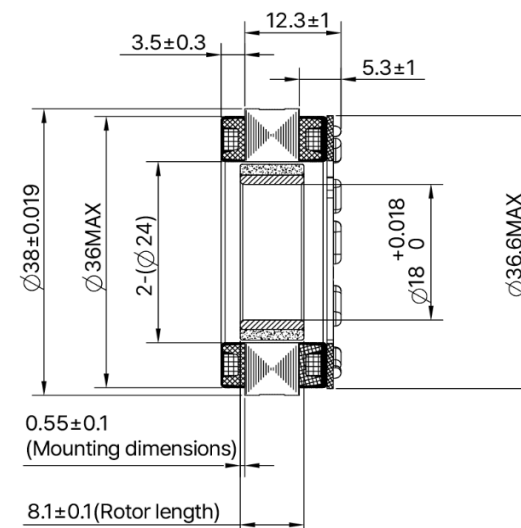
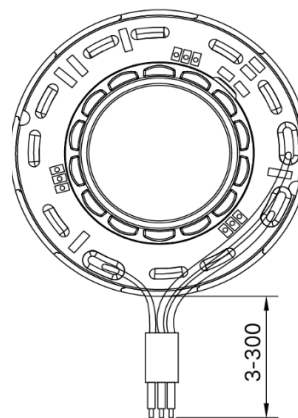


Mechanical		Electrical		Performance		Insulation & System	
Stator OD	25 (± 0.016) mm	Resistance	0.42 Ω	Rated power	70 W	Insulation class	F
Rotor ID	11.6 ($+0.018$) mm	Inductance	0.123 mH	Rated torque	0.032 N·m	Feedback	-
Slots	12	Rated voltage	24 VDC	Peak torque	0.105 N·m	Commutation angle	120°
Pole pairs	7	Rated current	3.8 A	Rated speed	22650 RPM	Insulation strength	600VAC / 1s / 3mA
Connection	Star connection	No-load current	0.65 A (REF)	No-load speed	26000 RPM	Insulation resistance	50 M Ω / 500VDC
Stator weight	22 g	Torque constant	0.009 N·m/A	Peak current	13 A	Duty type	S2
Rotor weight	3.2 g	Back-EMF constant	0.65 Vrms/Krpm				
Rotor inertia	1.47 g·cm ²						

Product Overview

38mm Frameless Motor

38ZWC15X-1



Mechanical	
Stator OD	38 (±0.019) mm
Rotor ID	18 (+0.018) mm
Slots	12
Pole pairs	7
Connection	Star connection
Stator weight	50 g
Rotor weight	10 g
Rotor inertia	10 g·cm ²

Electrical	
Resistance	0.8 Ω
Inductance	0.9 mH
Rated voltage	48 VDC
Rated current	2.75 A
No-load current	0.6 A (REF)
Torque constant	0.035 N·m/A
Back-EMF constant	2.6 Vrms/Krpm

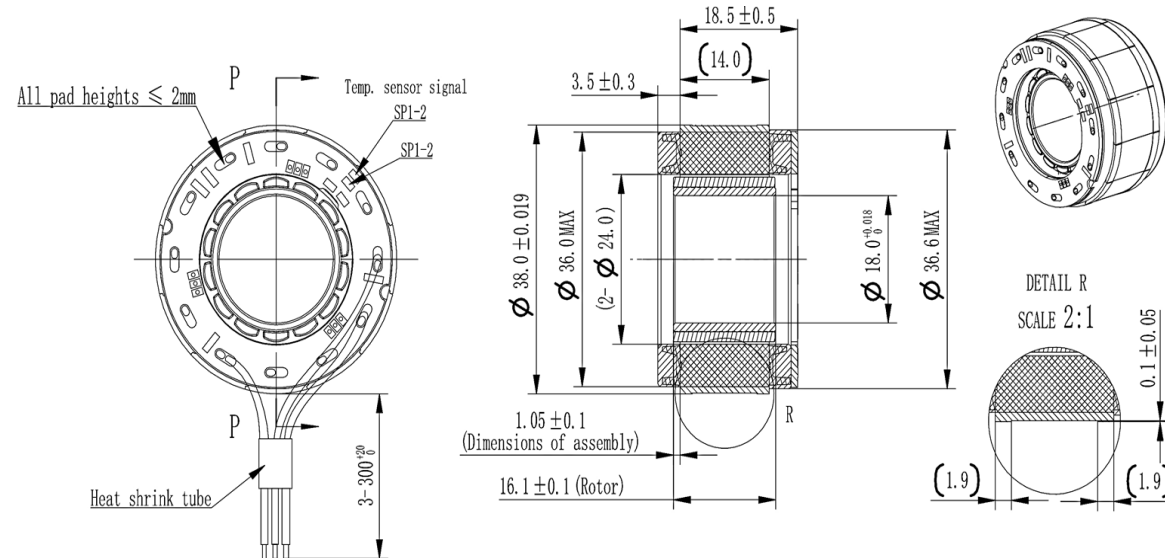
Performance	
Rated power	110 W
Rated torque	0.1 N·m
Peak torque	0.32 N·m
Rated speed	10470 RPM
No-load speed	13000 RPM
Peak current	11 A

Insulation & System	
Insulation class	F
Feedback	-
Commutation angle	120°
Insulation strength	1200VAC / 1s / 3mA
Insulation resistance	50 MΩ / 500VDC
Duty type	S2

Product Overview

38mm Frameless Motor

38ZWC22X-7

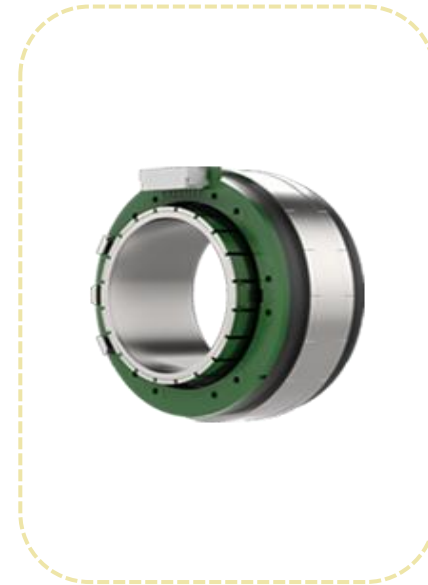
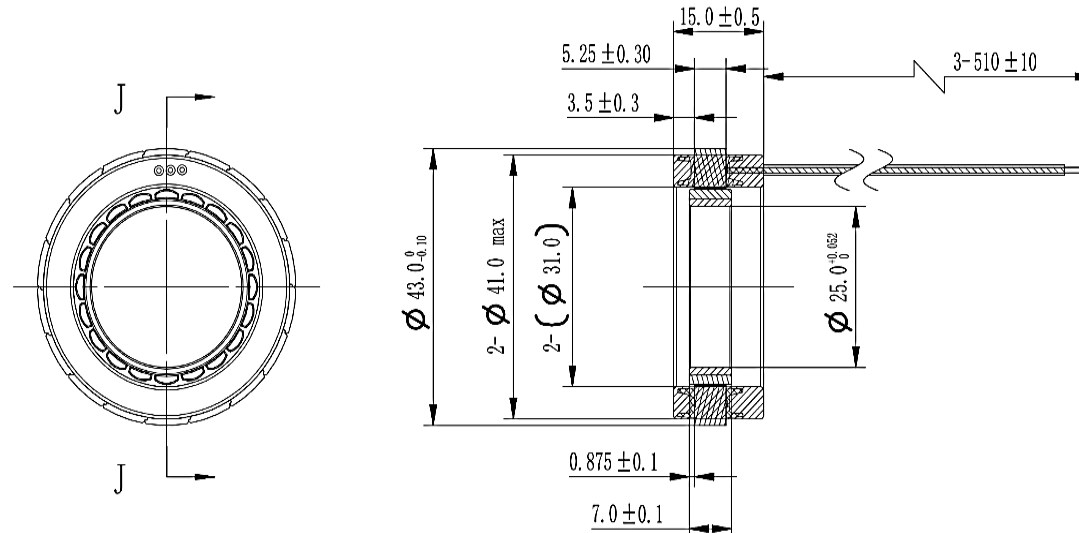


Mechanical		Electrical		Performance		Insulation & System	
Stator OD	38 (±0.019) mm	Resistance	0.14 Ω	Rated power	245 W	Insulation class	F
Rotor ID	18 (+0.018) mm	Inductance	0.185 mH	Rated torque	0.23 N·m	Feedback	-
Slots	12	Rated voltage	48 VDC	Peak torque	0.76 N·m	Commutation angle	120°
Pole pairs	7	Rated current	6.1 A	Rated speed	10190 RPM	Insulation strength	1200VAC / 1s / 3mA
Connection	Star connection	No-load current	0.6 A (REF)	No-load speed	13000 RPM	Insulation resistance	50 MΩ / 500VDC
Stator weight	87 g	Torque constant	0.039 N·m/A	Peak current	24.2 A	Duty type	S2
Rotor weight	20 g	Back-EMF constant	2.88 Vrms/Krpm				
Rotor inertia	20 g·cm ²						

Product Overview

43mm Frameless Motor

43ZWC15X-2

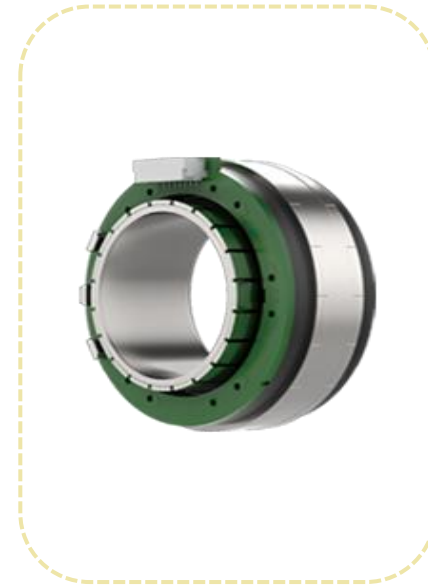
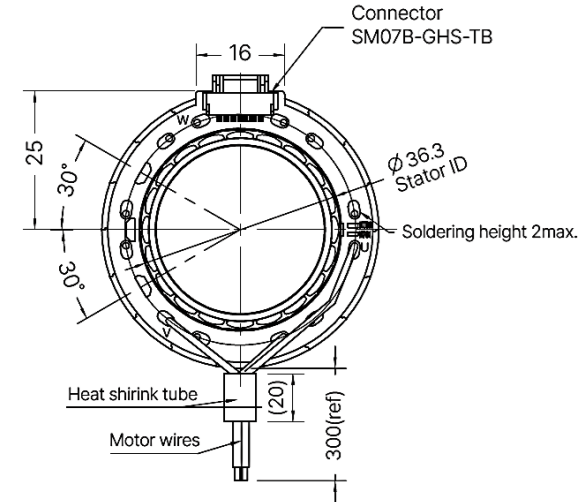
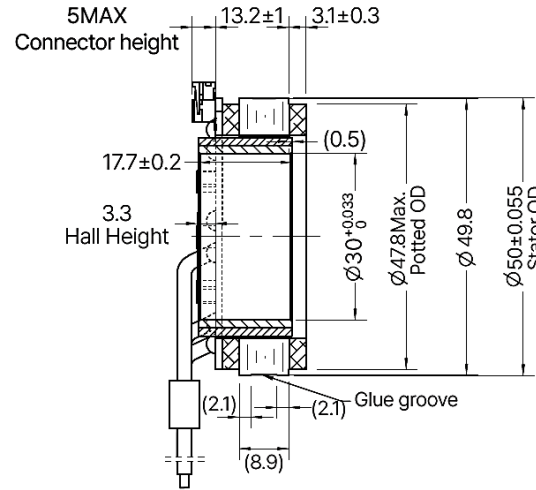


Mechanical		Electrical		Performance		Insulation & System	
Stator OD	43 (± 0.031) mm	Resistance	3.4 Ω	Rated power	31.5 W	Insulation class	F
Rotor ID	25 ($+0.052$) mm	Inductance	2.17 mH	Rated torque	0.1 N·m	Feedback	-
Slots	18	Rated voltage	48 VDC	Peak torque	0.3 N·m	Commutation angle	120°
Pole pairs	10	Rated current	1 A	Rated speed	3000 RPM	Insulation strength	1200VAC / 1s / 3mA
Connection	Star connection	No-load current	0.15 A (REF)	No-load speed	4200 RPM	Insulation resistance	50 M Ω / 500VDC
Stator weight	50 g	Torque constant	0.113 N·m/A	Peak current	3.3 A	Duty type	S2
Rotor weight	10 g	Back-EMF constant	8.4 Vrms/Krpm				
Rotor inertia	20 g·cm ²						

Product Overview

50mm Frameless Motor

50ZWC15X-1



Mechanical	
Stator OD	50 (±0.031) mm
Rotor ID	30 (+0.033) mm
Slots	18
Pole pairs	10
Connection	Star connection
Stator weight	77.5 g
Rotor weight	38 g
Rotor inertia	100 g·cm ²

Electrical	
Resistance	0.62 Ω
Inductance	0.44 mH
Rated voltage	48 VDC
Rated current	4.4 A
No-load current	0.4 A (REF)
Torque constant	0.074 N·m/A
Back-EMF constant	5.5 Vrms/Krpm

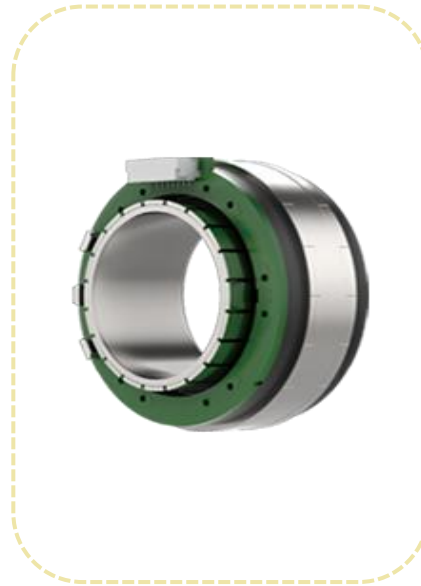
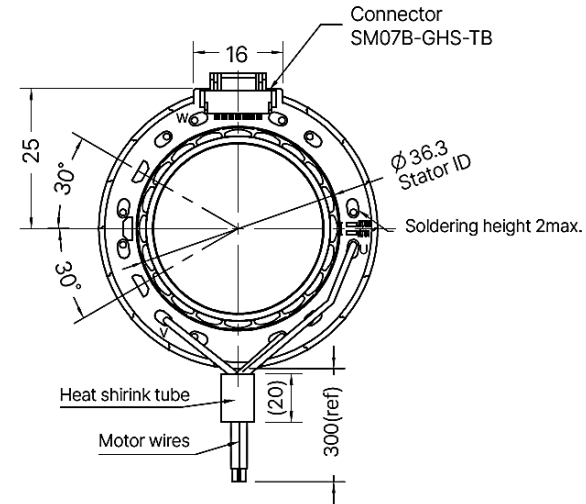
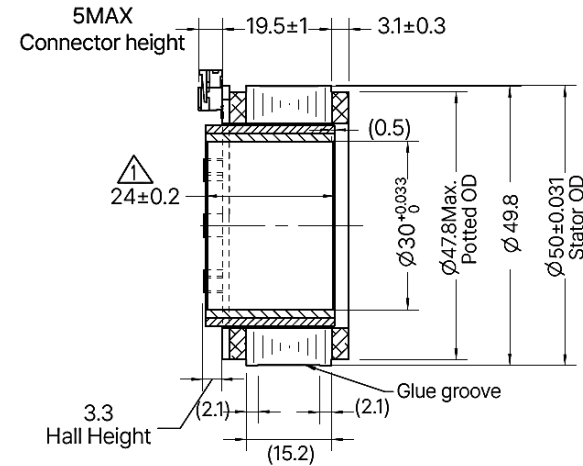
Performance	
Rated power	168 W
Rated torque	0.3 N·m
Peak torque	0.96 N·m
Rated speed	5350 RPM
No-load speed	6400 RPM
Peak current	10.7 A

Insulation & System	
Insulation class	F
Feedback	Hall sensor
Commutation angle	120°
Insulation strength	500VAC / 1mA / 1s
Insulation resistance	100 MΩ / 500VDC
Duty type	S2

Product Overview

50mm Frameless Motor

50ZWC25X-1

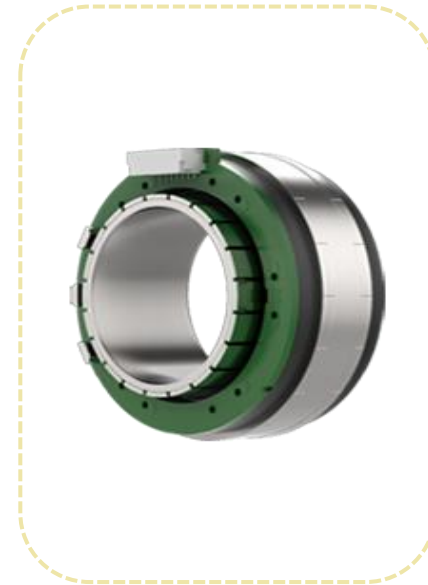
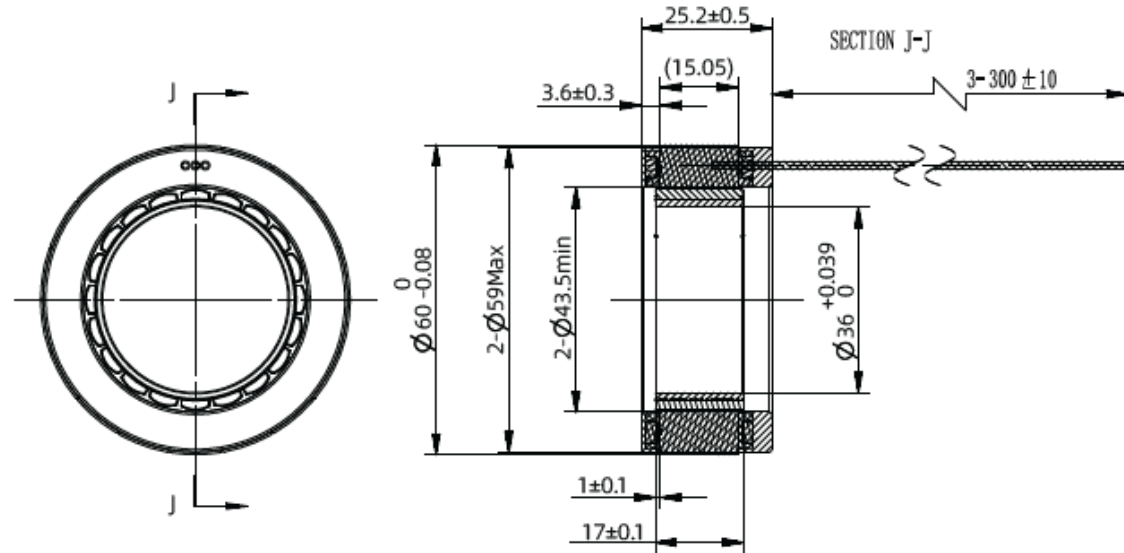


Mechanical		Electrical		Performance		Insulation & System	
Stator OD	50 (±0.031) mm	Resistance	0.6 Ω	Rated power	219 W	Insulation class	F
Rotor ID	30 (+0.033) mm	Inductance	0.45 mH	Rated torque	0.51 N·m	Feedback	Hall sensor
Slots	18	Rated voltage	48 VDC	Peak torque	1.5 N·m	Commutation angle	120°
Pole pairs	10	Rated current	5.65 A	Rated speed	4100 RPM	Insulation strength	500VAC / 1mA / 1s
Connection	Star connection	No-load current	1.1 A (REF)	No-load speed	5000 RPM	Insulation resistance	100 MΩ / 500VDC
Stator weight	124 g	Torque constant	0.092 N·m/A	Peak current	16.1 A	Duty type	S2
Rotor weight	50 g	Back-EMF constant	6.8 Vrms/Krpm				
Rotor inertia	135 g·cm²						

Product Overview

60mm Frameless Motor

60ZWC25X-1

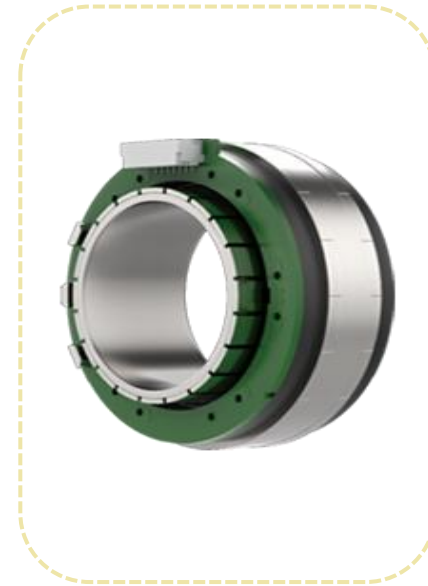
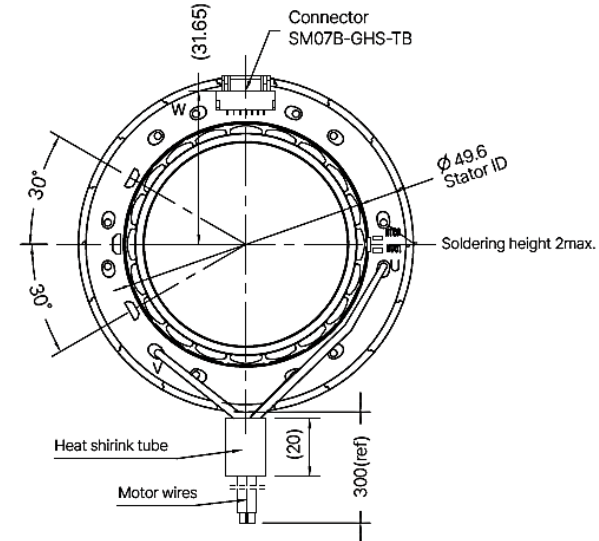
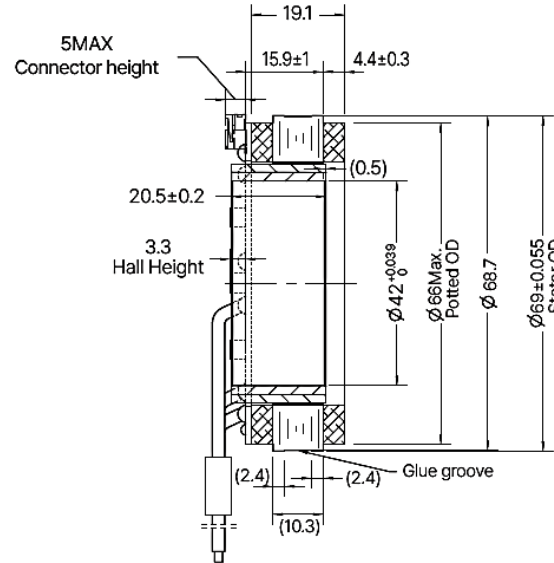


Mechanical		Electrical		Performance		Insulation & System	
Stator OD	60 (0 / -0.08) mm	Resistance	0.24 Ω	Rated power	205 W	Insulation class	F
Rotor ID	36 (+0.039) mm	Inductance	0.42 mH	Rated torque	0.6 N·m	Feedback	Hall sensor
Slots	18	Rated voltage	48 VDC	Peak torque	1.8 N·m	Commutation angle	120°
Pole pairs	10	Rated current	5.1 A	Rated speed	3250 RPM	Insulation strength	1200VAC / 3mA / 1s
Connection	Star connection	No-load current	1.1 A (REF)	No-load speed	4000 RPM	Insulation resistance	100 M Ω / 500VDC
Stator weight	167 g	Torque constant	0.12 N·m/A	Peak current	14.5 A	Duty type	S2
Rotor weight	48 g	Back-EMF constant	8.85 Vrms/Krpm				
Rotor inertia	122 g·cm ²						

Product Overview

70mm Frameless Motor

70ZWC20X-1



Mechanical	
Stator OD	69 (±0.037) mm
Rotor ID	42 (+0.039) mm
Slots	18
Pole pairs	10
Connection	Star connection
Stator weight	167.5 g
Rotor weight	72 g
Rotor inertia	358 g·cm ²

Electrical	
Resistance	0.32 Ω
Inductance	0.52 mH
Rated voltage	48 VDC
Rated current	5.4 A
No-load current	0.5 A (REF)
Torque constant	0.109 N·m/A
Back-EMF constant	8.1 Vrms/Krpm

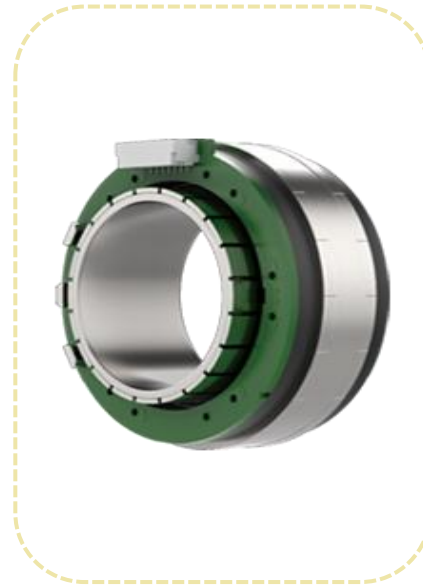
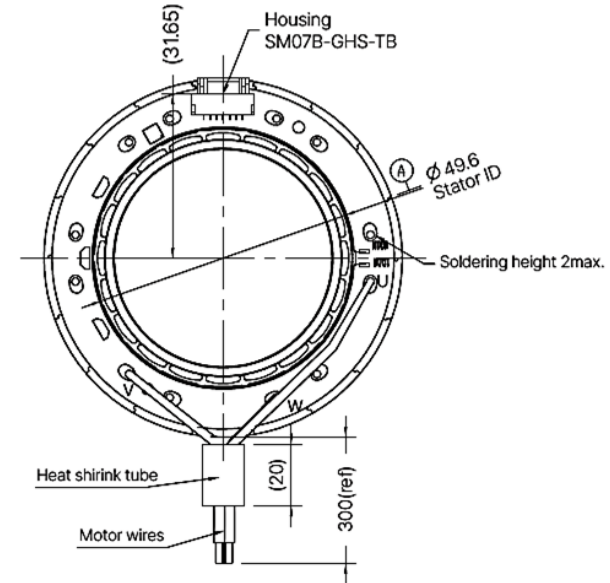
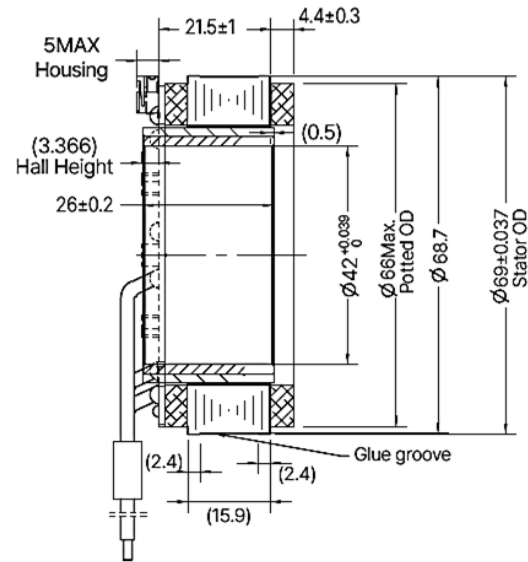
Performance	
Rated power	216 W
Rated torque	0.55 N·m
Peak torque	1.65 N·m
Rated speed	3750 RPM
No-load speed	4350 RPM
Peak current	14.2 A

Insulation & System	
Insulation class	F
Feedback	Hall sensor
Commutation angle	120°
Insulation strength	500VAC / 1mA / 1s
Insulation resistance	100 MΩ / 500VDC
Duty type	S2

Product Overview

70mm Frameless Motor

70ZWC25X-1



Mechanical	
Stator OD	69 (±0.037) mm
Rotor ID	42 (+0.039) mm
Slots	18
Pole pairs	10
Connection	Star connection
Stator weight	224 g
Rotor weight	90 g
Rotor inertia	455 g·cm ²

Electrical	
Resistance	0.22 Ω
Inductance	0.35 mH
Rated voltage	48 VDC
Rated current	11.4 A
No-load current	1.3 A (REF)
Torque constant	0.13 N·m/A
Back-EMF constant	9.6 Vrms/Krpm

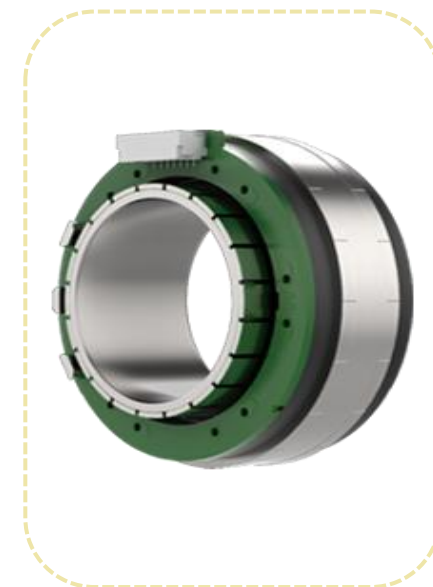
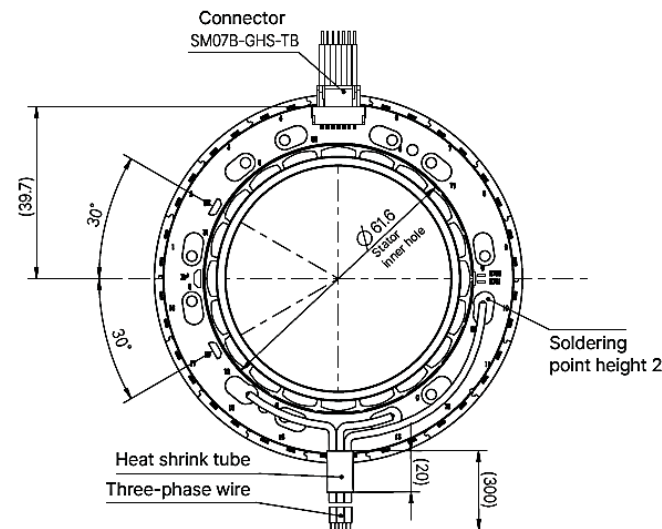
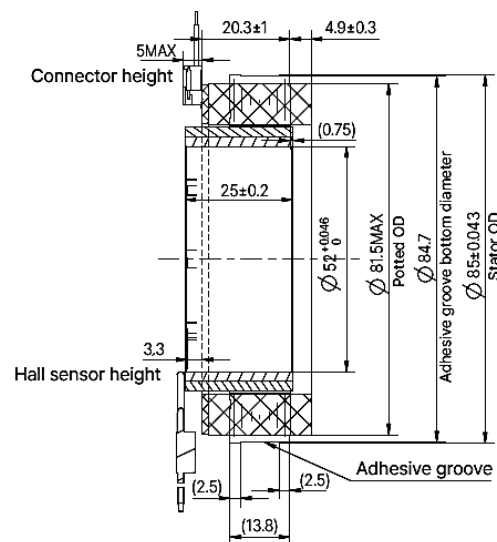
Performance	
Rated power	456 W
Rated torque	1.3 N·m
Peak torque	2.6 N·m
Rated speed	3350 RPM
No-load speed	4400 RPM
Peak current	21 A

Insulation & System	
Insulation class	F
Feedback	Hall sensor
Commutation angle	120°
Insulation strength	500VAC / 1mA / 1s
Insulation resistance	100 MΩ / 500VDC
Duty type	S2

Product Overview

85mm Frameless Motor

85ZWC25X-1



Mechanical	
Stator OD	85 (±0.043) mm
Rotor ID	52 (+0.046) mm
Slots	18
Pole pairs	10
Connection	Star connection
Stator weight	315 g
Rotor weight	135 g
Rotor inertia	1086 g·cm ²

Electrical	
Resistance	0.14 Ω
Inductance	0.34 mH
Rated voltage	48 VDC
Rated current	10.3 A
No-load current	0.6 A (REF)
Torque constant	0.16 N·m/A
Back-EMF constant	9.7 Vrms/Krpm

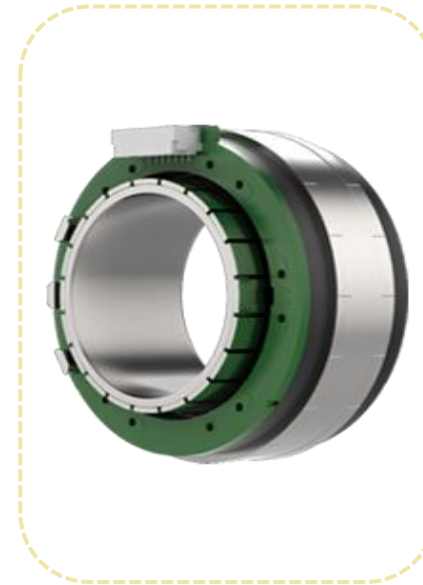
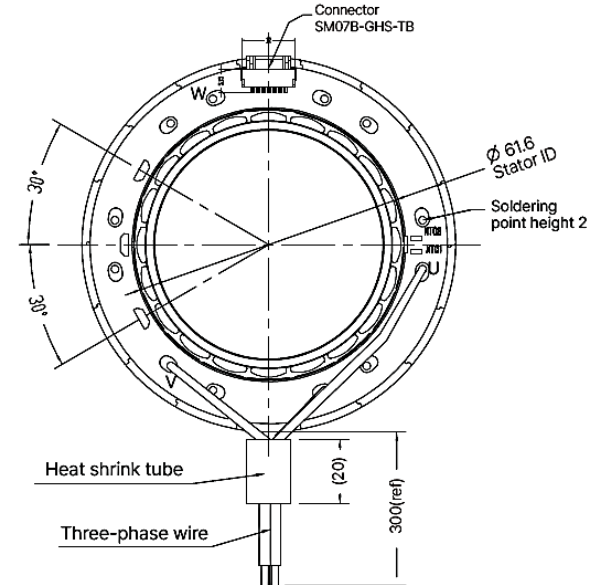
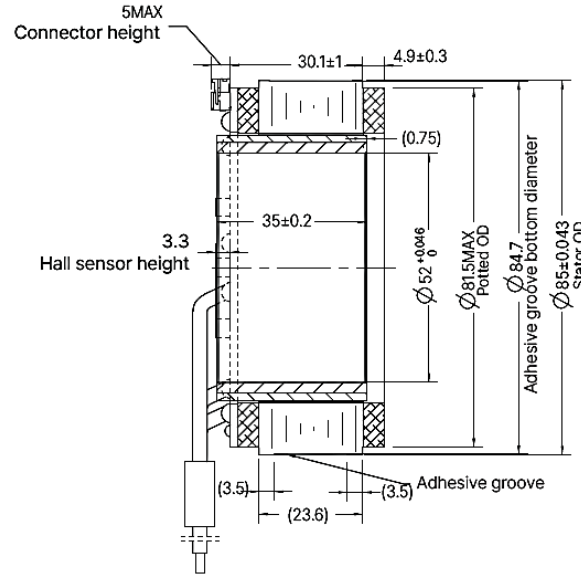
Performance	
Rated power	422 W
Rated torque	1.3 N·m
Peak torque	3.9 N·m
Rated speed	3100 RPM
No-load speed	3650 RPM
Peak current	27 A

Insulation & System	
Insulation class	F
Feedback	Hall sensor
Commutation angle	120°
Insulation strength	500VAC / 1mA / 1s
Insulation resistance	100 MΩ / 500VDC
Duty type	S2

Product Overview

85mm Frameless Motor

85ZWC35X-1



Mechanical	
Stator OD	85 (± 0.043) mm
Rotor ID	52 ($+0.046$) mm
Slots	18
Pole pairs	10
Connection	Star connection
Stator weight	460 g
Rotor weight	189 g
Rotor inertia	1520 g·cm ²

Electrical	
Resistance	0.06 Ω
Inductance	0.12 mH
Rated voltage	48 VDC
Rated current	20.6 A
No-load current	2.4 A (REF)
Torque constant	0.117 N·m/A
Back-EMF constant	8.66 Vrms/Krpm

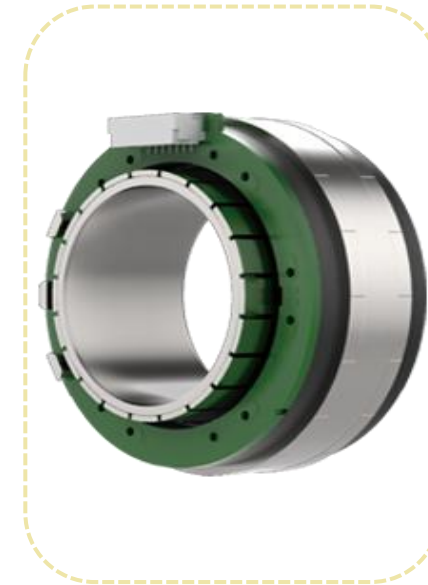
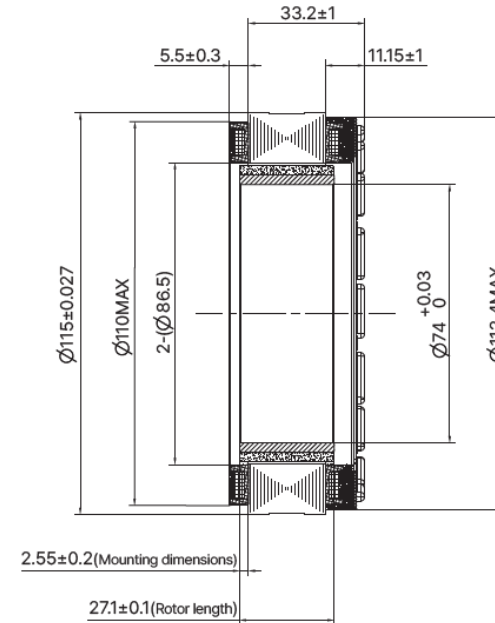
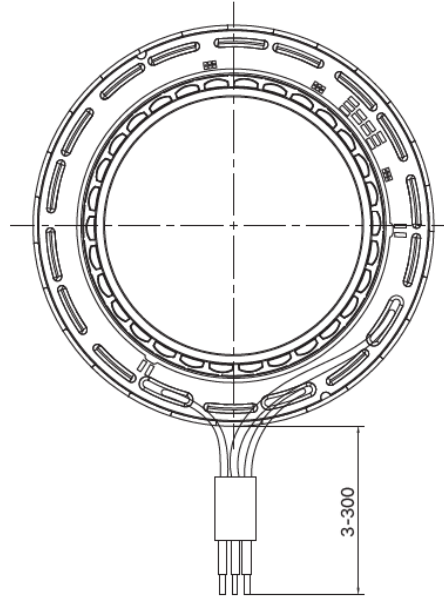
Performance	
Rated power	827 W
Rated torque	2 N·m
Peak torque	6 N·m
Rated speed	3950 RPM
No-load speed	4700 RPM
Peak current	62 A

Insulation & System	
Insulation class	F
Feedback	Hall sensor
Commutation angle	120°
Insulation strength	500VAC / 1mA / 1s
Insulation resistance	100 M Ω / 500VDC
Duty type	S2

Product Overview

115mm Frameless Motor

115ZWC37X-1



Mechanical		Electrical		Performance		Insulation & System	
Stator OD	115 (± 0.027) mm	Resistance	0.122 Ω	Rated power	570 W	Insulation class	F
Rotor ID	74 ($+0.03$) mm	Inductance	0.477 mH	Rated torque	3.9 N·m	Feedback	Hall sensor
Slots	27	Rated voltage	48 VDC	Peak torque	12.7 N·m	Commutation angle	120°
Pole pairs	15	Rated current	14.1 A	Rated speed	1400 RPM	Insulation strength	1200VAC / 1s / 3mA
Connection	Star connection	No-load current	1.8 A (REF)	No-load speed	1750 RPM	Insulation resistance	50 M Ω / 500VDC
Stator weight	815 g	Torque constant	0.281 N·m/A	Peak current	47 A	Duty type	S2
Rotor weight	245 g	Back-EMF constant	20.8 Vrms/Krpm				
Rotor inertia	3930 g·cm ²						

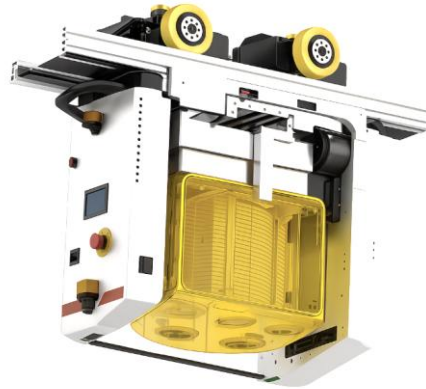
Frameless Motor Applications

Medical · Robotics · Precision Motion



Surgical robots · Robot hands
Gimbal systems
Wearable modules

Semiconductor Equipment



Wafer handling robots
Bonder systems
Pick & place equipment

Camera Module · OIS Inspection



Camera module systems
OIS inspection equipment

MLCC Manufacturing · Inspection



MLCC mounting equipment
MLCC inspection equipment

THANK YOU



www.dingsmotion.com

Jiangsu DINGS' Intelligent Control Technology