

**DINGS**  
Precision Motion Specialist

UK & Ireland Official Distributor



# SLOTLESS BLDC MOTOR PRODUCT CATALOGUE



Jiangsu DINGS' Intelligent Control Technology Co., Ltd.

DINGS' Slotless Brushless DC Motors can avoid the pulsation of air gap magnetic induction caused by uneven magnetic resistance in the teeth.

It can eliminate the pulse loss in the armature core and the surface loss on the main pole surface.

Slotless Brushless DC Motor has high durability, low electrical noise and high efficiency. Maximum efficiency of motor reaches 91% and this motor is suitable for the servo system which needs quick movement and high power.



# SLOTLESS BLDC MOTOR

# CONTENTS

SLOTLESS BLDC motor outline

Part number construction

10 mm

16 mm

22 mm

28 mm

30 mm

36 mm

42 mm

Precision planetary gearbox option



Φ10mm Series



■ **10mm Slotless BLDC motor**

1 Pole pairs  
12 VDC  
Max. 5W  
Max. 30000RPM Rated speed  
Incremental encoder option  
Planetary gearbox option

Φ16mm Series



■ **16mm Slotless BLDC motor**

40mm Motor length  
1 Pole pairs  
18 ~ 48 VDC  
Max. 39W  
Max. 50000RPM Rated speed  
Max. 58000RPM No load speed  
Hall sensor  
Incremental encoder option  
Planetary gearbox option

Φ22mm Series



■ **22mm Slotless BLDC motor**

48mm Motor length  
1, 2 Pole pairs  
18 ~ 48 VDC  
Max. 100W  
Max. 49600RPM Rated speed  
Max. 55000RPM No load speed  
Hall sensor  
Incremental encoder option  
Planetary gearbox option

Φ28mm Series



■ **28mm Slotless BLDC motor**

52mm Motor length  
1, 2 Pole pairs  
12 ~ 48 VDC  
Max. 37W  
Max. 8430RPM Rated speed  
Max. 9680RPM No load speed  
Hall sensor  
Incremental encoder option  
Planetary gearbox option

## Slotless BLDC Motor

Φ30mm Series



### 30mm Slotless BLDC motor

- 65mm Motor length
- 2 Pole pairs
- 24 VDC
- Max. 65W
- Max. 6900RPM Rated speed
- Max. 9200RPM No load speed
- Hall sensor
- Incremental encoder option
- Planetary gearbox option

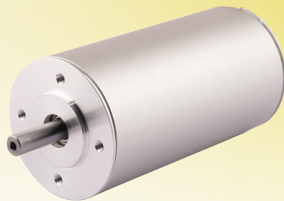
Φ36mm Series



### 36mm Slotless BLDC motor

- 60mm Motor length
- 1, 2 Pole pairs
- 18 ~ 48 VDC
- Max. 85W
- Max. 11700RPM Rated speed
- Max. 13000RPM No load speed
- Hall sensor
- Incremental encoder option
- Planetary gearbox option

Φ42mm Series



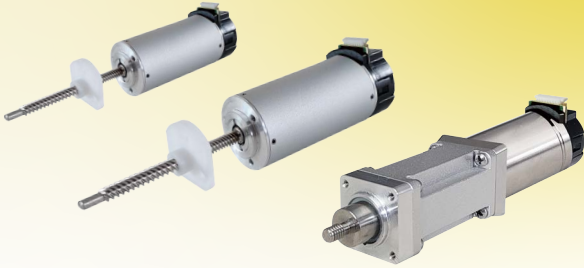
### 42mm Slotless BLDC motor

- 80mm Motor length
- 1, 2 Pole pairs
- 18 ~ 48 VDC
- Max. 160W
- Max. 12200RPM Rated speed
- Max. 13800RPM No load speed
- Hall sensor
- Incremental encoder option
- Planetary gearbox option



## Slotless BLDC Motor

Φ22/28/36 Slotless BLDC 리니어 액츄에이터



### 22/28/36mm Slotless BLDC linear actuator

32 ~ 52mm Motor length - External / Captive type  
Lead screw integrated External / Captive linear actuator  
1 Pole pairs  
24 VDC  
Max. 5000RPM Rated speed (Φ22 - captive type)  
Max. 7000RPM Rated speed (Φ22 - external type)  
Max. 8430RPM Rated speed (Φ28 - external type)  
Max. 9340RPM Rated speed (Φ36 - external type)  
Hall sensor / Incremental encoder option

Φ22/28/36 중공축 Slotless BLDC



### 22/28/36mm Hollow shaft Slotless BLDC

48 ~ 52mm Motor length  
1 Pole pairs  
24 VDC  
Max. 7000RPM Rated speed (Φ22)  
Max. 8430RPM Rated speed (Φ28)  
Max. 9340RPM Rated speed (Φ36)  
Hall sensor

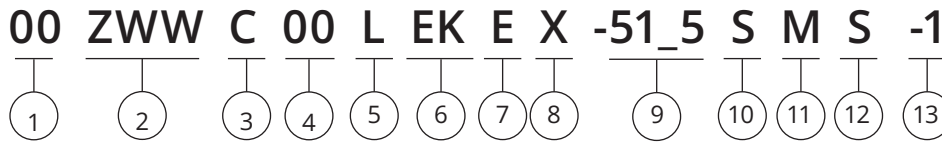
정밀 유성 감속기



### Precision planetary gearbox

8 / 10 / 16 / 22 / 28 / 30 / 36 / 42mm Gearbox options  
Max. 90% Efficiency  
Min. Continuous torque 0.01N·m  
Max. Continuous torque 25N·m  
Min. Gear Ratio 3.947:1  
Max. Gear Ratio 1526:1  
0.4° ~ 2.2° Backlash

## Part Number Construction



① Motor Size

Motor Size(mm)	10	16	22	28	30	36	42
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② Product Name

ZWW = Slotless Brushless DC Motor

③ Motor Shape

C = Circular Type

S = Square Type

④ Motor Length

Unit : mm

when the length involves decimal points, use "\_" instead

⑤ Motor Casing

L = Aluminum

T = Stainless steel / Iron

X = Inorganic Shell

⑥ Option

EKX = Encoder (X = Encoder Resolution)

B = Brake

GX= Gearbox (X = Gear Ratio)

Note: When Options are not single,

please use in alphabetical order for example, "BEG"

⑦ Structure

E = External type

N = Non-Captive type

C = Electric Cylinder (Captive) type

K = Kaptive type

⑧ Lead Screw Code

Please refer to lead screw code selection table

⑨ Screw Length / Stroke

Kaptive = stroke distance

Non-captive = total length of screw

External = screw extension length from the mounting flange

⑩ Screw Surface Treatment

T = Teflon coating

S = Standard (No teflon coating)

⑪ End Machining

M = Metric

U = UNC

S = Smooth

C = Customize

N = None

⑫ Nut style

S = Standard Flange Nut

A = Anti-Backlash Nut

C = Customized Nut

⑬ Customer Sequence Number

Example

Part Number 16ZWWC38EK-001

Description Motor diameter 16mm  
Slotless BLDC circular type  
Body length 38mm  
Encoder  
Customizaion No.001

## 10mm Slotless BLDC

DINGS' Slotless Brushless DC Motor, 10ZWWC25 can avoid the pulsation of air gap magnetic induction caused by uneven magnetic resistance in the teeth.

It can eliminate the pulse loss in the armature core and the surface loss on the main pole surface.

10ZWWC25 Slotless Brushless DC Motor has high durability, low electrical noise and high efficiency.

Maximum efficiency of motor reaches 86% and this motor is suitable for the servo system which needs quick movement and high power.

10ZWWC25 Rated Power is 65W and Rated Torque is 90mN.m

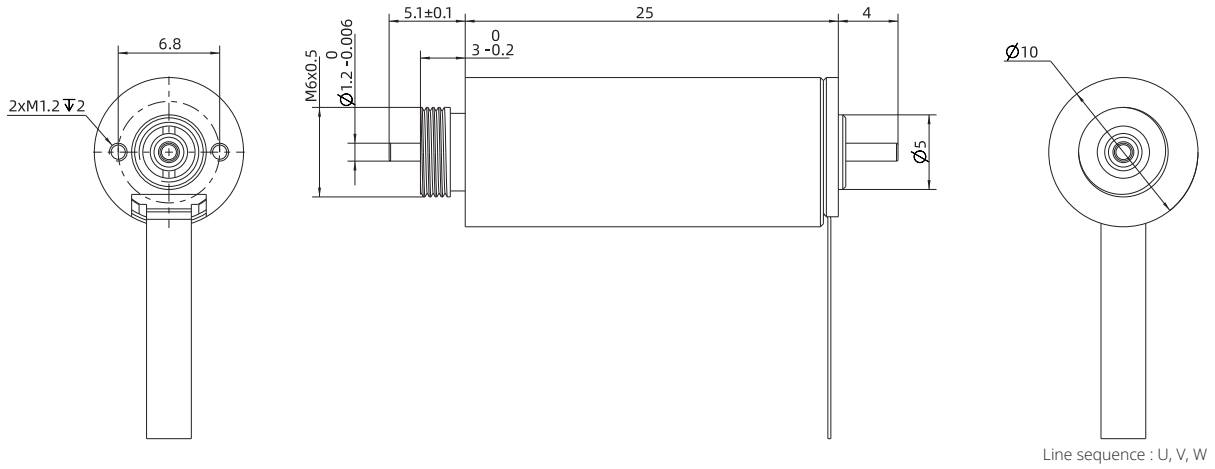
### Motor Characteristics

Motor part number		10ZWWC25
Pole pair	-	2
Phase resistance	$\Omega$	0.5
Winding connection method	-	Star shape
Insulation class	-	B
Duty type	-	S1
Commutation angle	-	120°
Insulation strength (Withstand voltage)	-	500VAC/1KHz/1mA/1s
Insulation resistance	-	100 M $\Omega$ /500VDC
Weight	g	230
Rated voltage	V	24
Rated power	W	65
Rated torque	mN·m	90
Rated speed	RPM	6900
Rated current	A	3.85
No load speed	RPM	9200
No load current	A	0.3
Motor efficiency	%	86
Noise (Ambient noise 20db, test distance 1m)	dB	<50
Torque constant	mN·m/A	23.28
Back-EMF constant - peak value	V/Krpm	3.46
Back-EMF constant - effective value	V/Krpm	2.45
Peak torque	mN·m	1122.08
Peak current	A	48
Inertia moment	g·cm <sup>2</sup>	28
Mechanical time constant	ms	2.56
End bell	-	Stainless steel
Bearing	-	Deep Groove Ball bearing
Magnet	-	Sinter NdFeB
Rotation shaft	-	Carbon steel

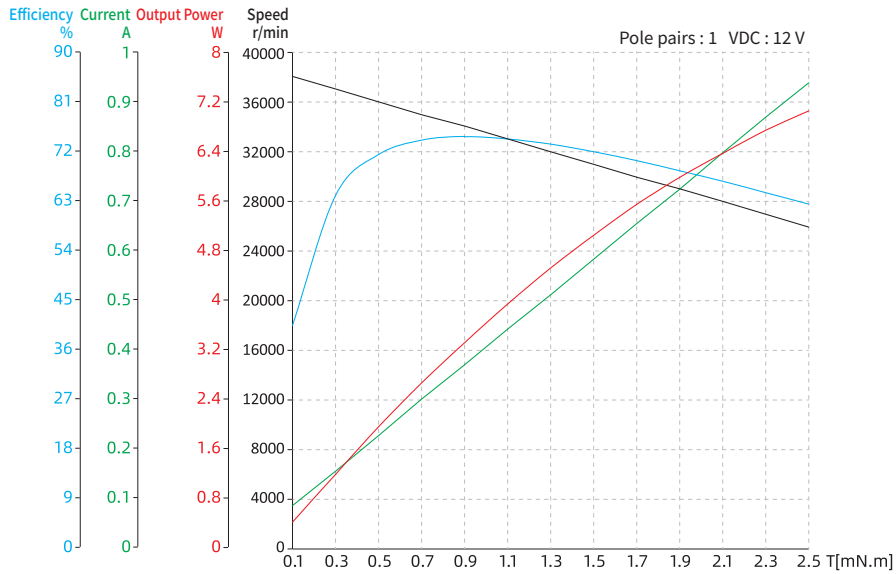


# 10mm Slotless BLDC

## Dimensional Drawings



## Torque Performance Curves



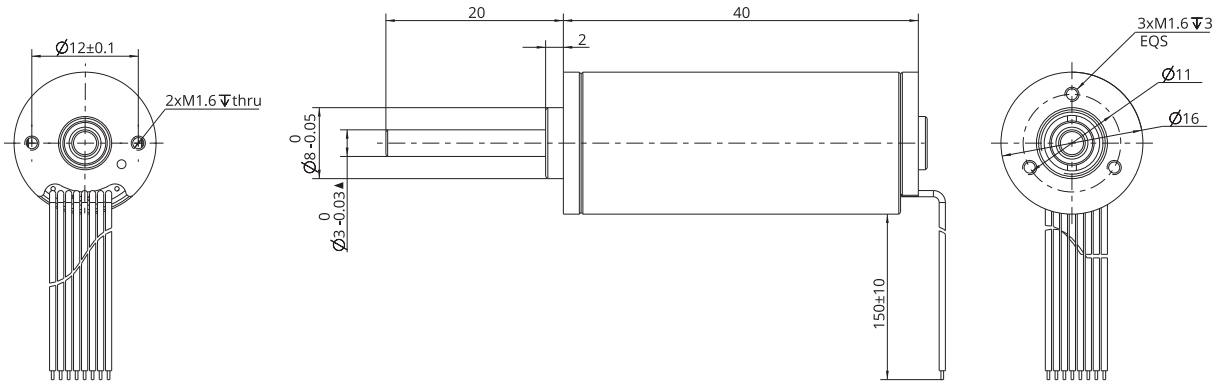
# 16mm Slotless BLDC

## Motor Characteristics

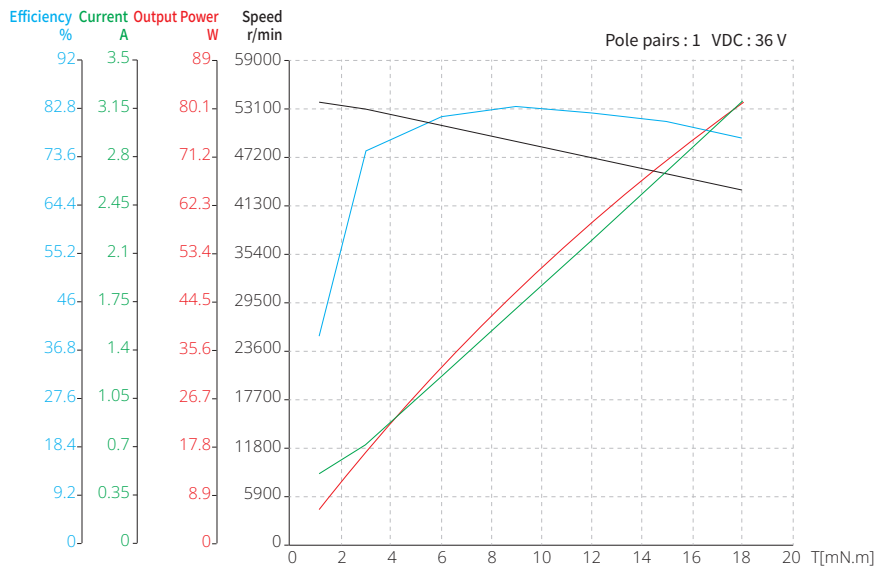
Motor part number		16ZWWC40			
Pole pair	-	1	1	1	1
Phase resistance	Ω	0.63	1.31	1.85	3.15
Phase inductance	mH	0.033	0.045	0.096	0.2
Winding connection method	-	Star shape	Star shape	Star shape	Star shape
Insulation class	-	B	B	B	B
Duty type	-	S2	S2	S2	S2
Feedback method	-	Hall sensors	Hall sensors	Hall sensors	Hall sensors
Commutation angle	-	120°	120°	120°	120°
Insulation strength (Withstand voltage)	-	500VAC/1KHz/ 1mA/1s	500VAC/1KHz/ 1mA/1s	500VAC/1KHz/ 1mA/1s	500VAC/1KHz/ 1mA/1s
Insulation resistance	-	100 MΩ/500VDC	100 MΩ/500VDC	100 MΩ/500VDC	100 MΩ/500VDC
Weight	g	47	47	47	47
Rated voltage	V	18	24	36	48
Rated power	W	33	39	39	39
Rated torque	mN·m	7.4	7.4	7.5	7.4
Rated speed	RPM	44000	51300	50000	50000
Rated current	A	2.19	1.96	1.32	0.95
No load speed	RPM	50000	58000	56000	56000
No load current	A	0.31	0.22	0.15	0.12
Motor efficiency	%	85	84	82.4	84.92
Noise (Ambient noise 20db, test distance 1m)	dB	<50	<50	<50	<50
Case - Environmental thermal resistance (no load)	K/W	1.22	1.33	1.47	1.07
Motor thermal time constant (no load)	S	420	450	480	390
Ambient temperature	°C	22.3	22.3	22.3	22.3
Max. winding temperature (no load)	°C	63	75	80	63.8
Torque constant	mN·m/A	3.38	3.78	5.66	7.75
Back-EMF constant - peak value	V/Krpm	0.50	0.56	0.84	1.15
Back-EMF constant - effective value	V/Krpm	0.35	0.40	0.59	0.81
Peak torque	mN·m	96.65	69.21	110.19	118.13
Peak current	A	29	18	19	15
Inertia moment	g·cm <sup>2</sup>	0.583	0.583	0.583	0.583
Mechanical time constant	ms	3.21	5.35	3.36	3.06
End bell	-	Stainless steel	Stainless steel	Stainless steel	Stainless steel
Bearing	-	Deep Groove Ball bearing	Deep Groove Ball bearing	Deep Groove Ball bearing	Deep Groove Ball bearing
Magnet	-	Sinter NdFeB	Sinter NdFeB	Sinter NdFeB	Sinter NdFeB
Rotation shaft	-	Carbon steel	Carbon steel	Carbon steel	Carbon steel

# 16mm Slotless BLDC

## Dimensional Drawings



## Torque Performance Curves



Note : All drawings are 1st Angle Projection - ISO Compliant (3D models available)

# 22mm Slotless BLDC

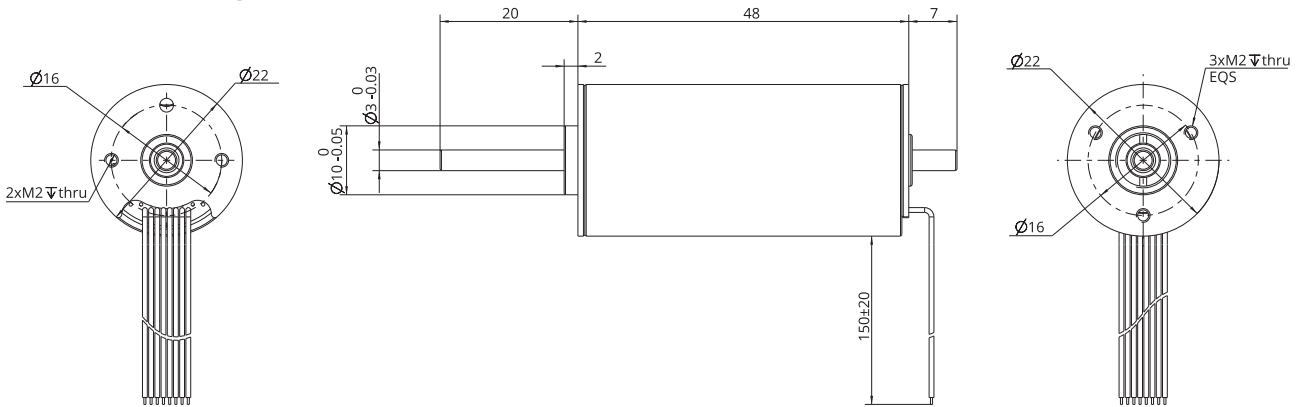
## Motor Characteristics

Motor part number		22ZWWC48				
Pole pair	-	1	1	1	1	2
Phase resistance	Ω	0.26	0.3	0.57	1	0.94
Phase inductance	mH	0.018	0.027	0.06	0.11	0.057
Winding connection method	-	Star shape	Star shape	Star shape	Star shape	Star shape
Insulation class	-	B	B	B	B	B
Duty type	-	S2	S2	S2	S2	S1
Feedback method	-	Hall sensors	Hall sensors	Hall sensors	Hall sensors	Hall sensors
Commutation angle	-	120°	120°	120°	120°	120°
Insulation strength (Withstand voltage)	-	500VAC/1KHz/ 1mA/1s	500VAC/1KHz/ 1mA/1s	500VAC/1KHz/ 1mA/1s	500VAC/1KHz/ 1mA/1s	500VAC/1KHz/ 1mA/1s
Insulation resistance	-	100 MΩ/500VDC	100 MΩ/500VDC	100 MΩ/500VDC	100 MΩ/500VDC	100 MΩ/500VDC
Weight	g	110	110	110	110	110
Rated voltage	V	18	24	36	48	24
Rated power	W	83	100	100	100	53
Rated torque	mN·m	20	20	20	20	25
Rated speed	RPM	40000	49000	47400	49600	20100
Rated current	A	7.95	4.68	3.12	2.29	3.00
No load speed	RPM	50000	55000	53000	54000	25700
No load current	A	0.3	0.4	0.32	0.14	0.18
Motor efficiency	%	87	89	89	91	81
Noise (Ambient noise 20db, test distance 1m)	dB	<50	<50	<50	<50	<50
Case - Environmental thermal resistance (no load)	K/W	0.38	0.58	0.51	0.42	1.12
Motor thermal time constant (no load)	S	840	600	900	1200	620
Ambient temperature	°C	21.4	22	24.7	21.1	23.3
Max. winding temperature (no load)	°C	52.7	80	75.5	70.5	82
Torque constant	mN·m/A	2.52	4.27	6.41	8.74	8.33
Back-EMF constant - peak value	V/Krpm	0.37	0.63	0.95	1.29	1.23
Back-EMF constant - effective value	V/Krpm	0.26	0.45	0.67	0.91	0.87
Peak torque	mN·m	116.11	341.76	404.72	419.33	212.77
Peak current	A	46	80	63	48	26
Inertia moment	g·cm <sup>2</sup>	1.15	1.15	1.15	1.15	1.15
Mechanical time constant	ms	4.72	1.89	1.60	1.51	1.56
End bell	-	Stainless steel	Stainless steel	Stainless steel	Stainless steel	Stainless steel
Bearing	-	Deep Groove Ball bearing	Deep Groove Ball bearing	Deep Groove Ball bearing	Deep Groove Ball bearing	Deep Groove Ball bearing
Magnet	-	Sinter NdFeB	Sinter NdFeB	Sinter NdFeB	Sinter NdFeB	Sinter NdFeB
Rotation shaft	-	Carbon steel	Carbon steel	Carbon steel	Carbon steel	Carbon steel

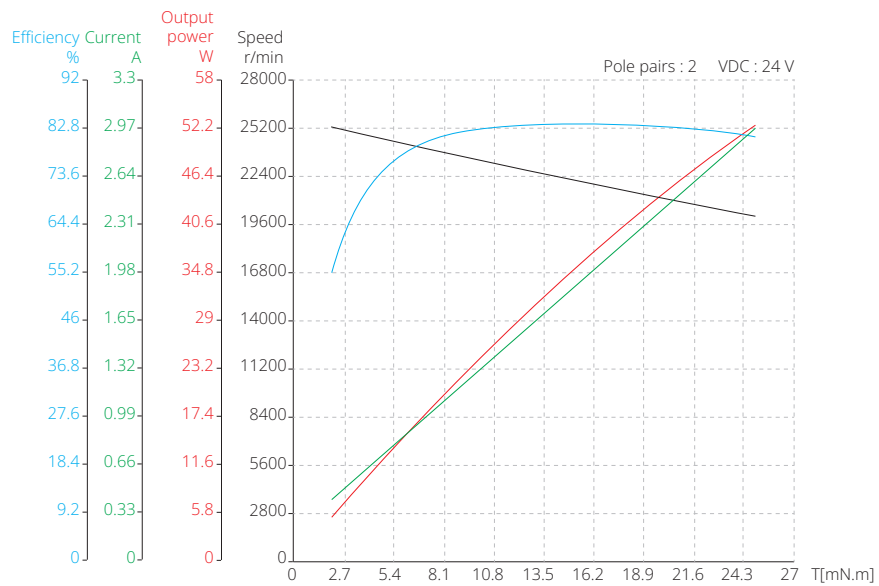
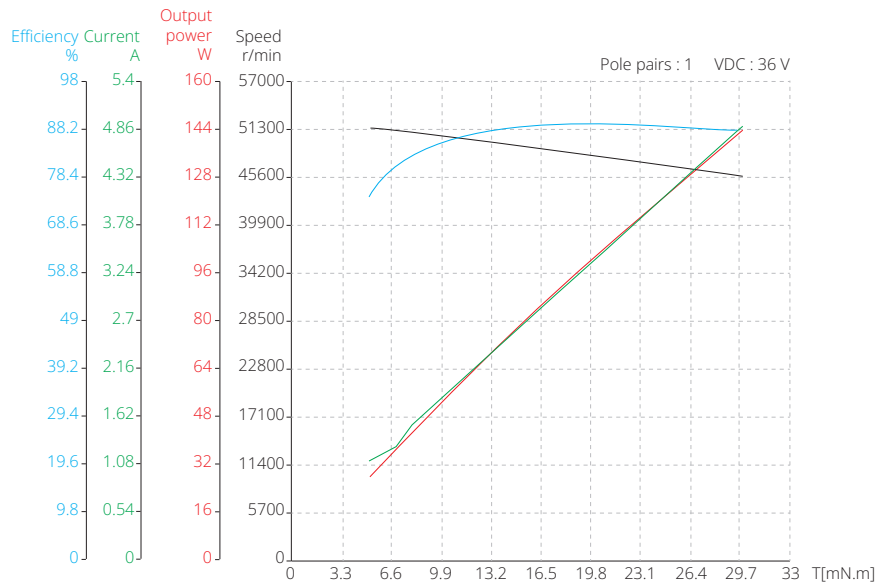
For stroke customization, please contact DINGS' or local representative.

# 22mm Slotless BLDC

## Dimensional Drawings



## Torque Performance Curves



Note : All drawings are 1st Angle Projection - ISO Compliant (3D models available)

# 28mm Slotless BLDC

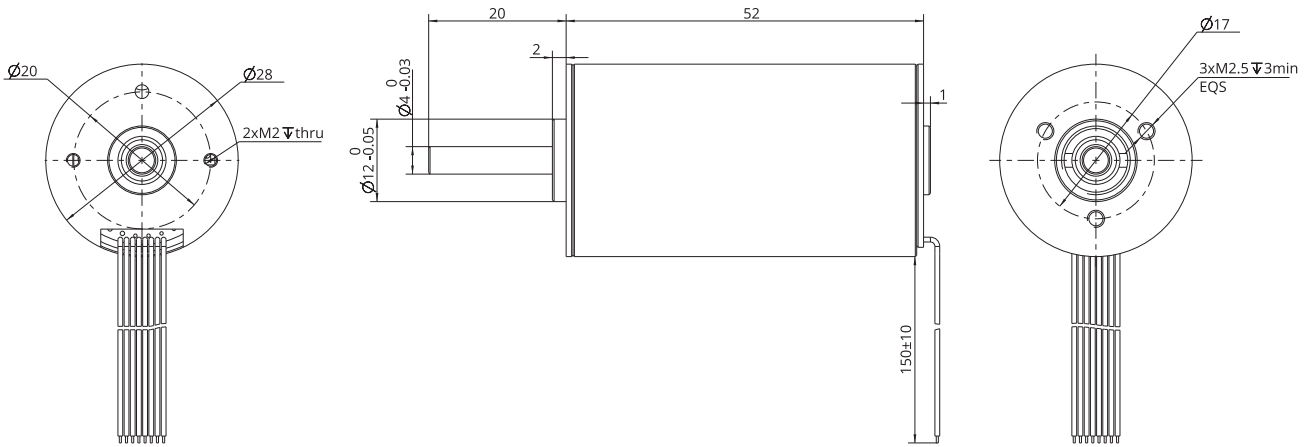
## Motor Characteristics

Motor part number		28ZWWC52				
Pole pair	-	1	1	1	1	2
Phase resistance	Ω	0.52	1.7	4.3	6.6	1.6
Phase inductance	mH	0.0495	0.178	0.42	0.77	0.13
Winding connection method	-	Star shape	Star shape	Star shape	Star shape	Star shape
Insulation class	-	B	B	B	B	B
Duty type	-	S2	S2	S2	S2	S1
Feedback method	-	Hall sensors	Hall sensors	Hall sensors	Hall sensors	Hall sensors
Commutation angle	-	120°	120°	120°	120°	120°
Insulation strength (Withstand voltage)	-	500VAC/1KHz/ 1mA/1s	500VAC/1KHz/ 1mA/1s	500VAC/1KHz/ 1mA/1s	500VAC/1KHz/ 1mA/1s	500VAC/1KHz/ 1mA/1s
Insulation resistance	-	100 MΩ/500VDC	100 MΩ/500VDC	100 MΩ/500VDC	100 MΩ/500VDC	100 MΩ/500VDC
Weight	g	170	170	170	170	170
Rated voltage	V	12	24	36	48	24
Rated power	W	30	34	35	35	37
Rated torque	mN·m	32	32	32	34	50
Rated speed	RPM	6970	8430	8370	8340	7000
Rated current	A	3.13	1.69	1.17	0.86	2.00
No load speed	RPM	9270	9680	9500	9400	8500
No load current	A	0.2	0.11	0.084	0.061	0.12
Motor efficiency	%	80	84	83	85	81.5
Noise (Ambient noise 20db, test distance 1m)	dB	<50	<50	<50	<50	<50
Case - Environmental thermal resistance (no load)	K/W	0.67	0.69	0.73	0.64	0.70
Motor thermal time constant (no load)	S	1200	1200	1080	1100	880
Ambient temperature	°C	23	24	27	25	21.2
Max. winding temperature (no load)	°C	43.2	47.3	52.5	47.4	46.7
Torque constant	mN·m/A	10.24	18.97	27.32	39.63	25
Back-EMF constant - peak value	V/Krpm	1.52	2.81	4.04	5.87	3.70
Back-EMF constant - effective value	V/Krpm	1.07	1.99	2.86	4.15	2.62
Peak torque	mN·m	236.31	267.87	228.72	288.25	375
Peak current	A	23	14	8	7	15
Inertia moment	g·cm <sup>2</sup>	10.2	10.2	10.2	10.20	10.2
Mechanical time constant	ms	5.06	4.82	5.88	4.29	2.61
End bell	-	Stainless steel	Stainless steel	Stainless steel	Stainless steel	Stainless steel
Bearing	-	Deep Groove Ball bearing	Deep Groove Ball bearing	Deep Groove Ball bearing	Deep Groove Ball bearing	Deep Groove Ball bearing
Magnet	-	Sinter NdFeB	Sinter NdFeB	Sinter NdFeB	Sinter NdFeB	Sinter NdFeB
Rotation shaft	-	Carbon steel	Carbon steel	Carbon steel	Carbon steel	Carbon steel

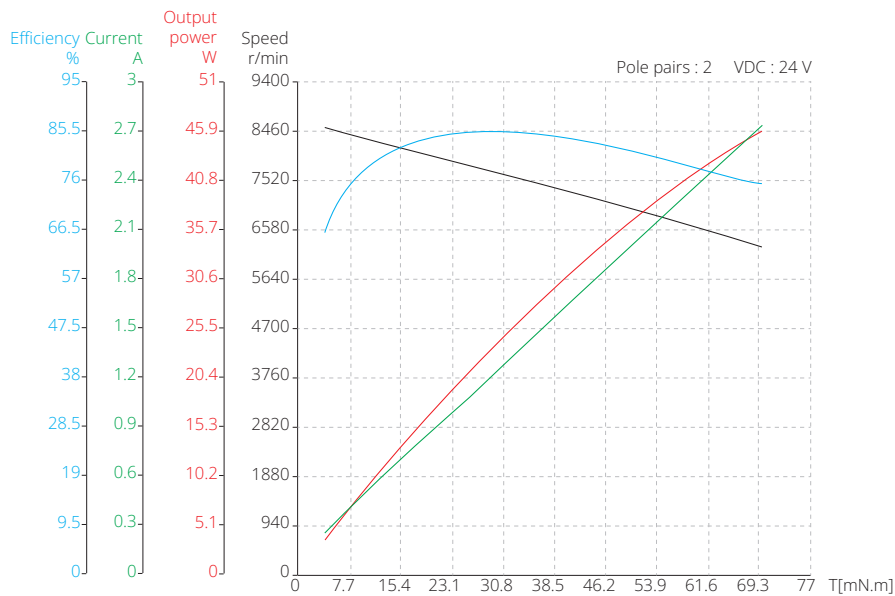
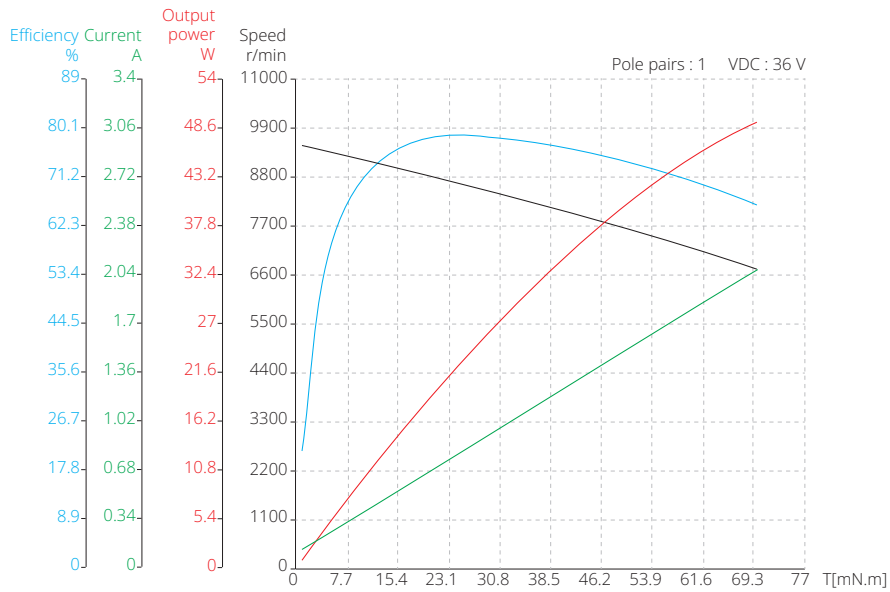


# 28mm Slotless BLDC

## Dimensional Drawings



## Torque Performance Curves



Note : All drawings are 1st Angle Projection - ISO Compliant (3D models available)

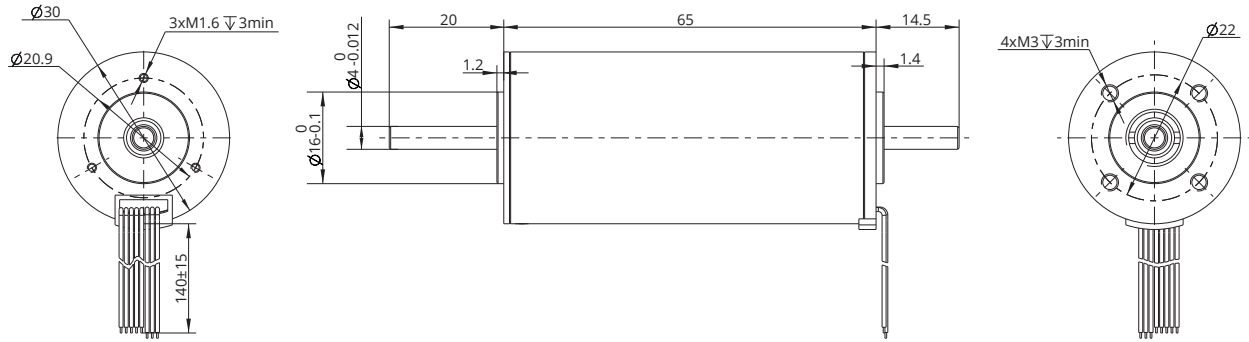
## 30mm Slotless BLDC

### Motor Characteristics

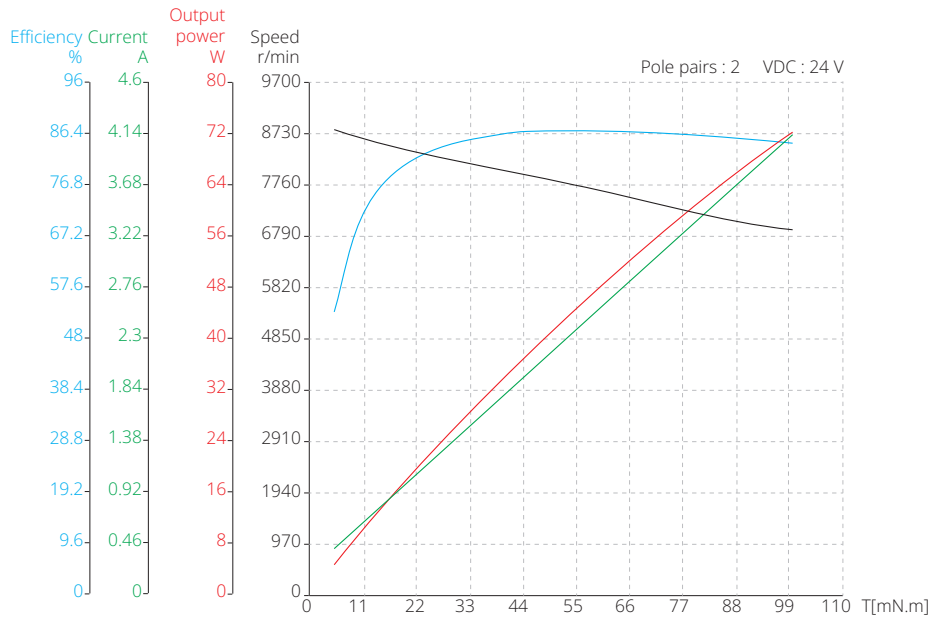
Motor part number		30ZWWC65
Pole pair	-	2
Phase resistance	$\Omega$	0.5
Phase inductance	mH	0.05
Winding connection method	-	Star shape
Insulation class	-	B
Duty type	-	S1
Feedback method	-	Hall sensors
Commutation angle	-	120°
Insulation strength (Withstand voltage)	-	500VAC/1KHz/1mA/1s
Insulation resistance	-	100 M $\Omega$ /500VDC
Weight	g	230
Rated voltage	V	24
Rated power	W	65
Rated torque	mN·m	90
Rated speed	RPM	6900
Rated current	A	3.85
No load speed	RPM	9200
No load current	A	0.3
Motor efficiency	%	86
Noise (Ambient noise 20db, test distance 1m)	dB	<50
Case - Environmental thermal resistance (no load)	K/W	0.31
Motor thermal time constant (no load)	S	1200
Ambient temperature	°C	23
Max. winding temperature (no load)	°C	43.2
Torque constant	mN·m/A	23.38
Back-EMF constant - peak value	V/Krpm	3.46
Back-EMF constant - effective value	V/Krpm	2.45
Peak torque	mN·m	1122.08
Peak current	A	48
Inertia moment	g·cm <sup>2</sup>	28
Mechanical time constant	ms	2.56
End bell	-	Stainless steel
Bearing	-	Deep Groove Ball bearing
Magnet	-	Sinter NdFeB
Rotation shaft	-	Carbon steel

# 30mm Slotless BLDC

## Dimensional Drawings



## Torque Performance Curves



Note : All drawings are 1st Angle Projection - ISO Compliant (3D models available)

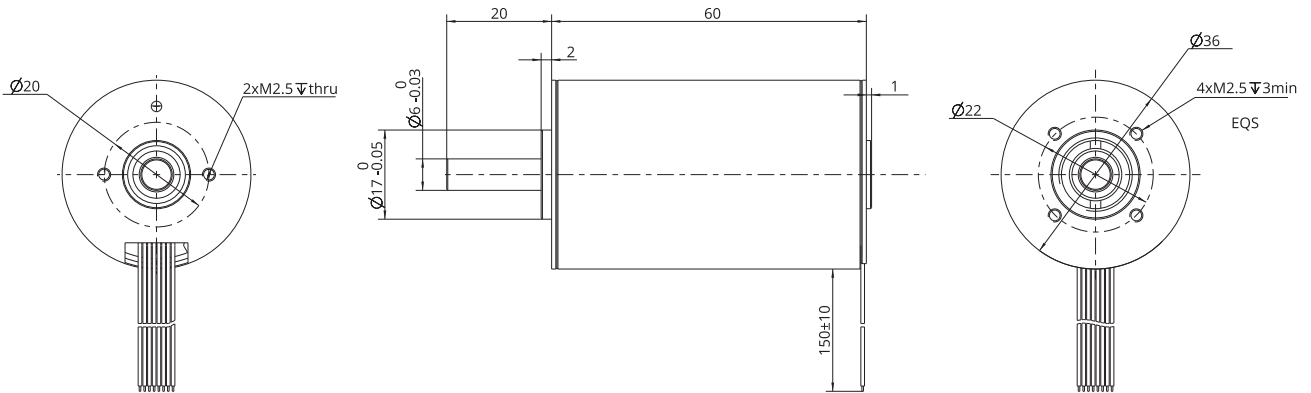
# 36mm Slotless BLDC

## Motor Characteristics

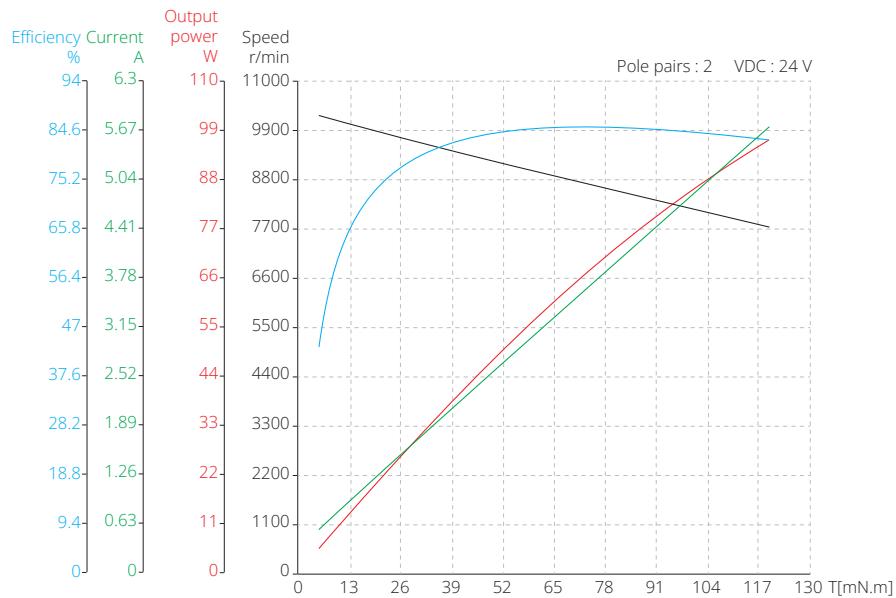
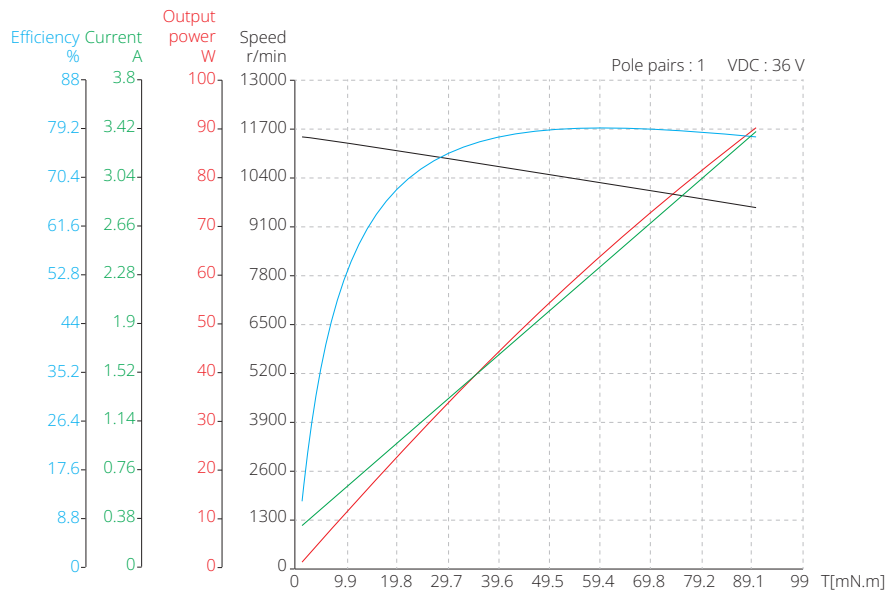
Motor part number		36ZWWC60				
Pole pair	-	1	1	1	1	2
Phase resistance	Ω	0.6	0.68	1.45	2.1	0.41
Phase inductance	mH	0.08	0.1	0.19	0.27	0.042
Winding connection method	-	Star shape	Star shape	Star shape	Star shape	Star shape
Insulation class	-	B	B	B	B	B
Duty type	-	S2	S2	S2	S2	S1
Feedback method	-	Hall sensors	Hall sensors	Hall sensors	Hall sensors	Hall sensors
Commutation angle	-	120°	120°	120°	120°	120°
Insulation strength (Withstand voltage)	-	500VAC/1KHz/ 1mA/1s	500VAC/1KHz/ 1mA/1s	500VAC/1KHz/ 1mA/1s	500VAC/1KHz/ 1mA/1s	500VAC/1KHz/ 1mA/1s
Insulation resistance	-	100 MΩ/500VDC	100 MΩ/500VDC	100 MΩ/500VDC	100 MΩ/500VDC	100 MΩ/500VDC
Weight	g	270	270	270	270	270
Rated voltage	V	18	24	36	48	24
Rated power	W	68	69	74	85	85
Rated torque	mN·m	70	70	70	70	100
Rated speed	RPM	7340	9345	10000	11700	8100
Rated current	A	4.97	3.78	2.59	2.21	4.80
No load speed	RPM	10000	11000	11500	13000	10300
No load current	A	0.37	0.37	0.22	0.2	0.36
Motor efficiency	%	76	76	79.5	80	84.4
Noise (Ambient noise 20db, test distance 1m)	dB	<50	<50	<50	<50	<50
Case - Environmental thermal resistance (no load)	K/W	0.42	0.43	0.44	0.36	0.58
Motor thermal time constant (no load)	S	1350	1350	2700	1080	1330
Ambient temperature	°C	21.1	23.1	20.1	20.4	19.5
Max. winding temperature (no load)	°C	49.4	52.9	52.8	50.8	69.3
Torque constant	mN·m/A	14.08	18.50	27.07	31.62	20.83
Back-EMF constant - peak value	V/Krpm	2.09	2.74	4.01	4.68	3.08
Back-EMF constant - effective value	V/Krpm	1.47	1.94	2.83	3.31	2.18
Peak torque	mN·m	422.47	653.09	672.16	722.82	1219.51
Peak current	A	30	35	25	23	59
Inertia moment	g·cm <sup>2</sup>	39	39	39	39	39
Mechanical time constant	ms	11.80	7.75	7.72	8.19	3.68
End bell	-	Stainless steel	Stainless steel	Stainless steel	Stainless steel	Stainless steel
Bearing	-	Deep Groove Ball bearing	Deep Groove Ball bearing	Deep Groove Ball bearing	Deep Groove Ball bearing	Deep Groove Ball bearing
Magnet	-	Sinter NdFeB	Sinter NdFeB	Sinter NdFeB	Sinter NdFeB	Sinter NdFeB
Rotation shaft	-	Carbon steel	Carbon steel	Carbon steel	Carbon steel	Carbon steel

# 36mm Slotless BLDC

## Dimensional Drawings



## Torque Performance Curves



Note : All drawings are 1st Angle Projection - ISO Compliant (3D models available)

# 42mm Slotless BLDC

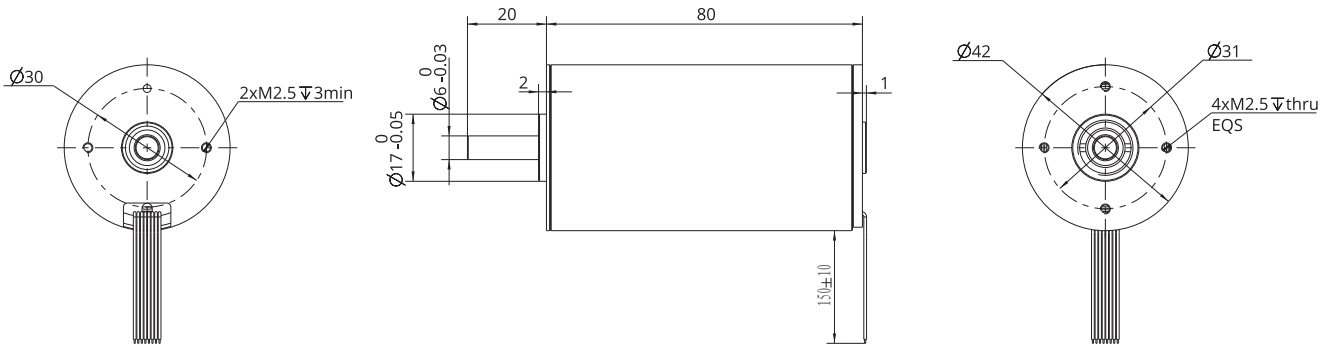
## Motor Characteristics

Motor part number		42ZWWC80				
Pole pair	-	1	1	1	1	2
Phase resistance	Ω	0.4	0.45	0.6	0.95	0.22
Phase inductance	mH	0.085	0.14	0.14	0.23	0.035
Winding connection method	-	Star shape	Star shape	Star shape	Star shape	Star shape
Insulation class	-	B	B	B	B	B
Duty type	-	S2	S2	S2	S2	S1
Feedback method	-	Hall sensors	Hall sensors	Hall sensors	Hall sensors	Hall sensors
Commutation angle	-	120°	120°	120°	120°	120°
Insulation strength (Withstand voltage)	-	500VAC/1KHz/ 1mA/1s	500VAC/1KHz/ 1mA/1s	500VAC/1KHz/ 1mA/1s	500VAC/1KHz/ 1mA/1s	500VAC/1KHz/ 1mA/1s
Insulation resistance	-	100 MΩ/500VDC	100 MΩ/500VDC	100 MΩ/500VDC	100 MΩ/500VDC	100 MΩ/500VDC
Weight	g	500	500	500	500	500
Rated voltage	V	18	24	36	48	24
Rated power	W	66	80	100	160	102
Rated torque	mN·m	90	90	90	120	180
Rated speed	RPM	6678	8346	11619	12200	5400
Rated current	A	4.89	4.17	3.47	4.17	5.70
No load speed	RPM	9000	11000	13000	13800	6800
No load current	A	0.6	0.69	0.6	0.58	0.42
Motor efficiency	%	75	80	80	80	87.9
Noise (Ambient noise 20db, test distance 1m)	dB	<50	<50	<50	<50	<50
Case - Environmental thermal resistance (no load)	K/W	0.43	0.50	0.67	0.26	0.41
Motor thermal time constant (no load)	S	900	1620	2040	2040	1340
Ambient temperature	°C	23.1	23.5	23	23	22.6
Max. winding temperature (no load)	°C	51.5	63.7	90	90	72.1
Torque constant	mN·m/A	18.41	21.60	25.92	28.80	31.58
Back-EMF constant - peak value	V/Krpm	2.73	3.20	3.84	4.26	4.68
Back-EMF constant - effective value	V/Krpm	1.93	2.26	2.71	3.02	3.31
Peak torque	mN·m	828.41	1152.00	1555.20	1455.16	3444.98
Peak current	A	45	53	60	51	109
Inertia moment	g·cm <sup>2</sup>	96.3	96.3	96.3	96.3	96.3
Mechanical time constant	ms	11.37	9.29	8.60	11.03	2.12
End bell	-	Stainless steel	Stainless steel	Stainless steel	Stainless steel	Stainless steel
Bearing	-	Deep Groove Ball bearing	Deep Groove Ball bearing	Deep Groove Ball bearing	Deep Groove Ball bearing	Deep Groove Ball bearing
Magnet	-	Sinter NdFeB	Sinter NdFeB	Sinter NdFeB	Sinter NdFeB	Sinter NdFeB
Rotation shaft	-	Carbon steel	Carbon steel	Carbon steel	Carbon steel	Carbon steel

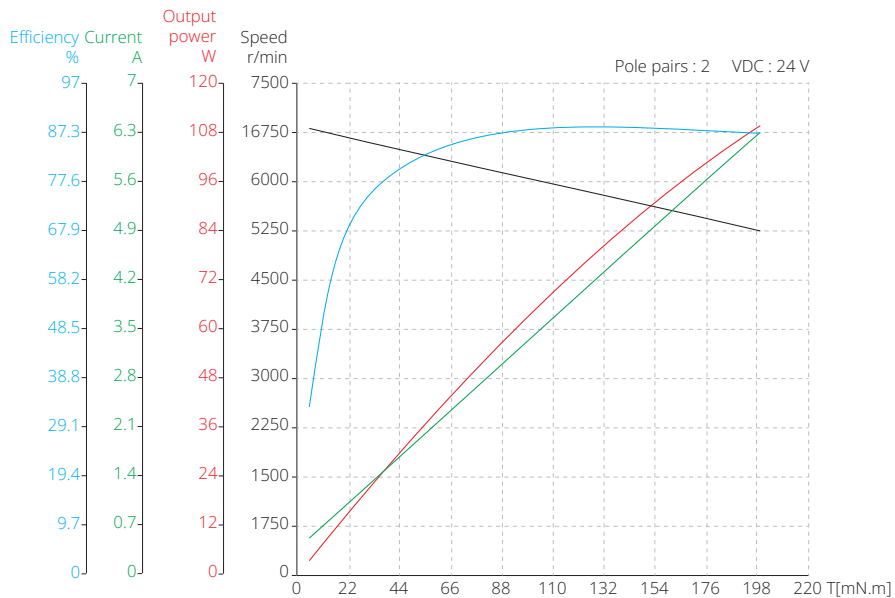
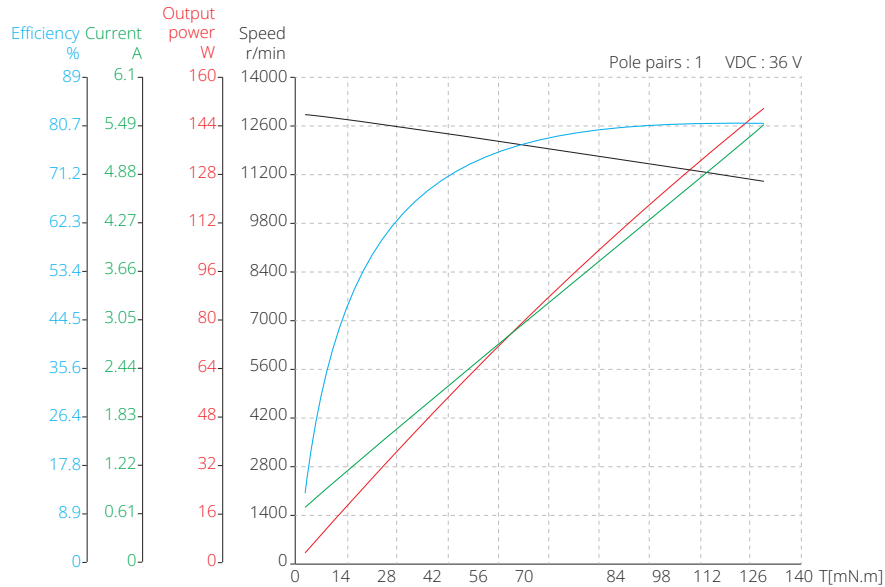


# 42mm Slotless BLDC

## Dimensional Drawings



## Torque Performance Curves

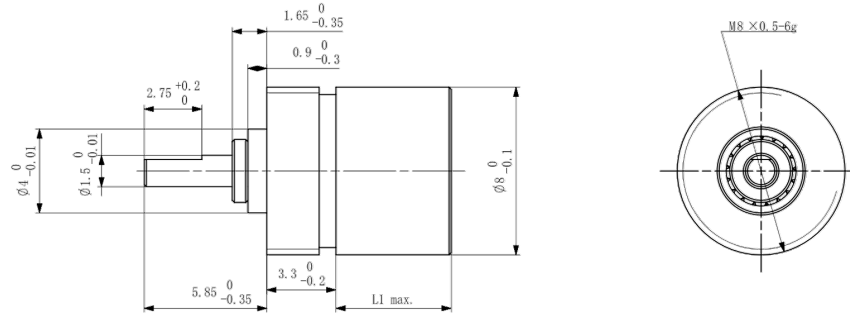


Note : All drawings are 1st Angle Projection - ISO Compliant (3D models available)

# Precision planetary gearbox

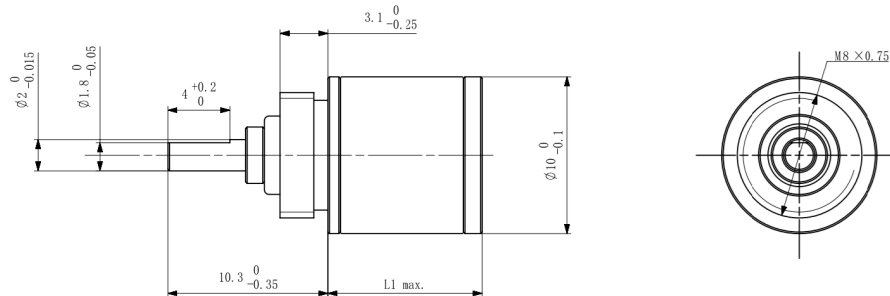
## Precision planetary gearbox

### ● 8PGX



Stage	-	Stage 1	Stage 2
Reduction ratio	X : 1	4	16
Max. continuous torque	N·m	0.01	0.02
Max. continuous output power	W	0.84	0.52
Max. continuous speed transfer	rpm	12000	12000
Max. axial load (Dynamic)	N	5	5
Max. radial load (5mm from flange)	N	5	6
Max. efficiency	%	90	81
Max. backlash	°	1.8	2.0
Gearbox length L	mm	5.5	8.1
Weight	g	2.6	3.2

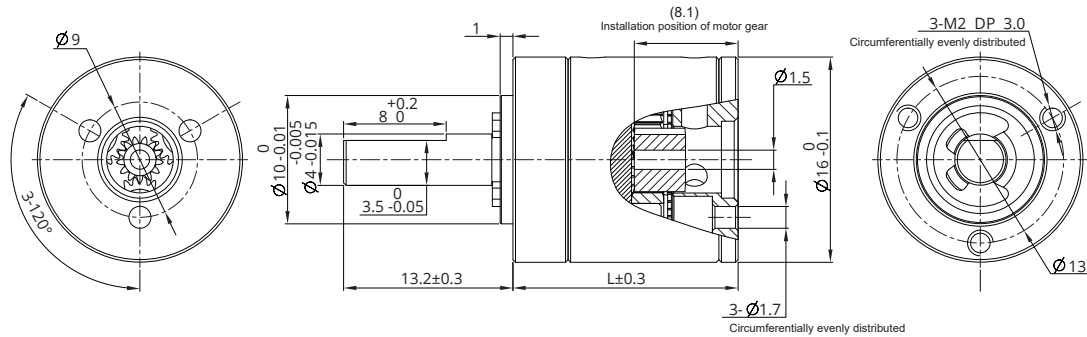
### ● 10PGX



Stage	-	Stage 1	Stage 2	Stage 3	Stage 4
Reduction ratio	X : 1	4.25	18	76.8	326
Max. continuous torque	N·m	0.01	0.03	0.10	0.15
Max. continuous output power	W	1.6	1.2	1.0	0.4
Max. continuous speed transfer	rpm	12000	12000	12000	12000
Max. axial load (Dynamic)	N	5	5	5	5
Max. radial load (5mm from flange)	N	5	10	15	20
Max. efficiency	%	90	81	73	65
Max. backlash	°	1.5	1.8	2.0	2.2
Gearbox length L	mm	10.1	13.6	17.1	20.6
Weight	g	6.7	7.2	7.7	8.2

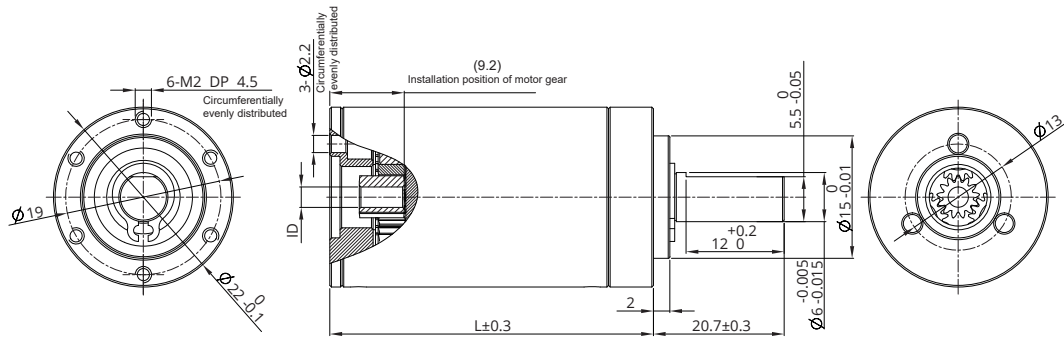
# Precision planetary gearbox

● 16PGX



Stage	-	Stage 1	Stage 2	Stage 3	Stage 4
Reduction ratio	X : 1	3.947, 5.307	16, 21, 28	62, 83, 111, 150	243, 326, 439, 590, 794
Max. continuous torque	N·m	0.2	0.25	0.35	0.45
Max. continuous output power	W	6.5	3.2	1.6	0.6
Max. continuous speed transfer	rpm	12000	14000	16000	16000
Max. axial load (Dynamic)	N	20	20	20	20
Max. radial load (5mm from flange)	N	30	45	70	70
Max. efficiency	%	90	80	75	65
Max. backlash	°	1.0	1.2	1.3	1.4
Gearbox length L	mm	18.7	25.5	30.2	35
Weight	g	25	31	37	42

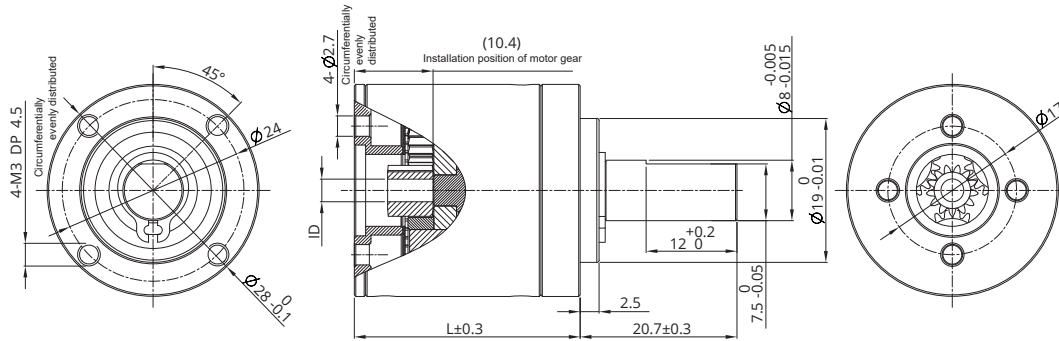
● 22PGX



Stage	-	Stage 1	Stage 2	Stage 3	Stage 4
Reduction ratio	X : 1	3.9, 5.3, 6.6	16, 21, 26, 28, 35, 44	62, 83, 103, 111, 138, 150, 172, 186, 231	243, 326, 406, 439, 546, 590, 679, 734, 794, 913, 987, 1135, 1227, 1526
Max. continuous torque	N·m	0.50	0.70	1.20	1.50
Max. continuous output power	W	24	12	6.0	1.6
Max. continuous speed transfer	rpm	8000	10000	12000	12000
Max. axial load (Dynamic)	N	40	40	40	40
Max. radial load (5mm from flange)	N	65	100	120	120
Max. efficiency	%	90	81	74	66
Max. backlash	°	0.85	1.05	1.2	1.35
Gearbox length L	mm	22.3	33	39.6	46.3
Weight	g	59	83	97	112

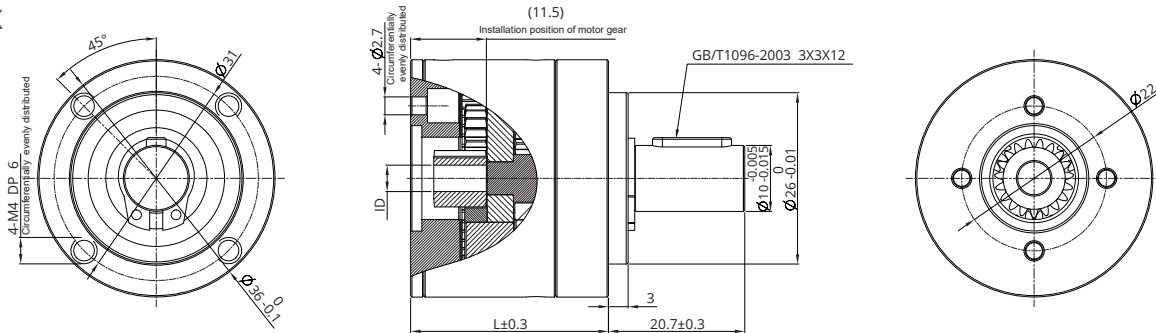
# Precision planetary gearbox

● 28PGX



Stage	-	Stage 1	Stage 2	Stage 3	Stage 4
Reduction ratio	X : 1	3.9, 5.3, 6.6	16, 21, 26, 28, 35	62, 83, 103, 111, 138, 150, 172, 186, 231	243, 326, 406, 439, 546, 590, 679, 734, 794, 913, 987, 1135, 1227, 1526
Max. continuous torque	N·m	1.25	2.90	5.0	5.0
Max. continuous output power	W	100	50	25	22
Max. continuous speed transfer	rpm	6000	7000	8000	8000
Max. axial load (Dynamic)	N	110	110	110	110
Max. radial load (5mm from flange)	N	160	180	180	180
Max. efficiency	%	90	81	74	65
Max. backlash	°	0.55	0.7	0.9	1.0
Gearbox length L	mm	24.2	36.9	43.5	50.2
Weight	g	103	150	174	198

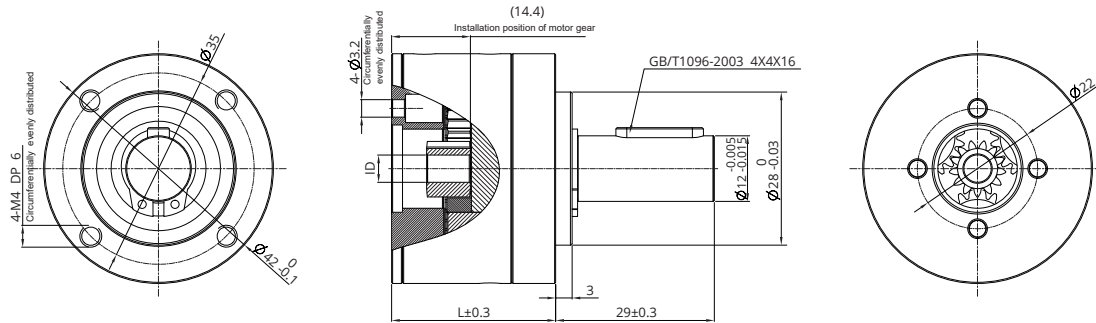
● 36PGX



Stage	-	Stage 1	Stage 2	Stage 3	Stage 4
Reduction ratio	X : 1	3.9, 5.3	16, 21, 26, 28, 35	62, 83, 103, 111, 138, 150, 172, 186, 231	243, 326, 406, 439, 546, 590, 679, 734, 794, 913, 987, 1135, 1227, 1526
Max. continuous torque	N·m	2.30	5.40	9.30	9.30
Max. continuous output power	W	185	90	45	40
Max. continuous speed transfer	rpm	5000	6000	7000	7000
Max. axial load (Dynamic)	N	240	240	240	240
Max. radial load (5mm from flange)	N	200	250	250	250
Max. efficiency	%	90	80	75	65
Max. backlash	°	0.5	0.6	0.7	0.8
Gearbox length L	mm	30	44.7	51.3	58
Weight	g	156	238	277	315

# Precision planetary gearbox

● 42PGX



Stage	-	Stage 1	Stage 2	Stage 3	Stage 4
Reduction ratio	X : 1	3.9, 5.3	16, 21 , 26, 28, 35	62, 83, 103, 111, 138 , 150, 172, 186, 231	243, 326, 406, 439, 546, 590, 679, 734 , 794, 913, 987, 1135, 1227, 1526
Max. continuous torque	N·m	3.0	7.5	15	15
Max. continuous output power	W	580	240	100	20
Max. continuous speed transfer	rpm	6000	6000	6000	6000
Max. axial load (Dynamic)	N	200	200	200	200
Max. radial load (5mm from flange)	N	350	525	750	750
Max. efficiency	%	90	81	72	64
Max. backlash	°	0.3	0.4	0.5	0.6
Gearbox length L	mm	36.1	54.9	63.6	72.4
Weight	g	252	405	476	544

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