CUBEMARS

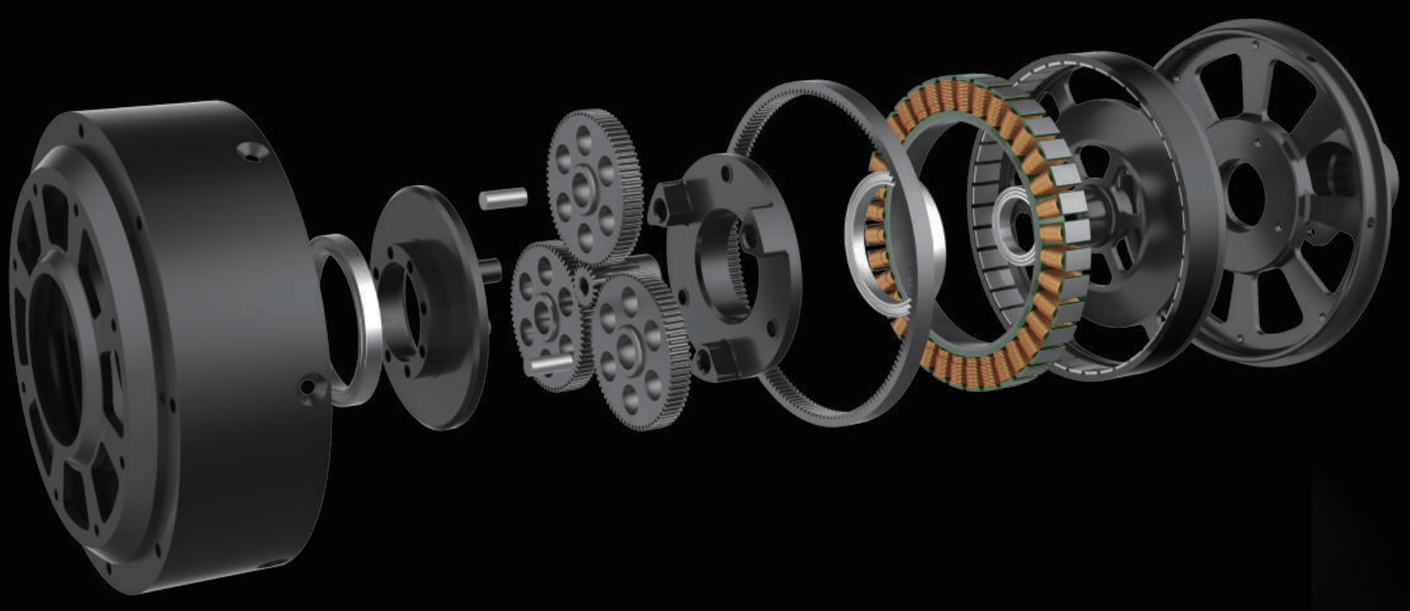
ROBOTIC MOTOR SOLUTION

PRODUCT CATALOG

AGV EXOSKELETON ROBOT ARM LEGGED ROBOT

CUBEMARS

MOTIVATE ADVANCED ROBOTIC SYSTEM

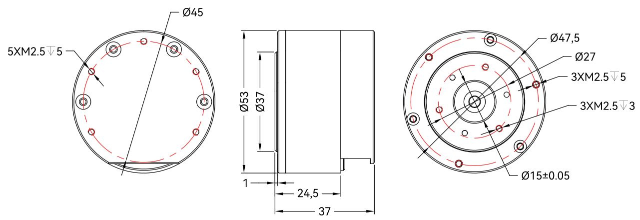


CONTENT

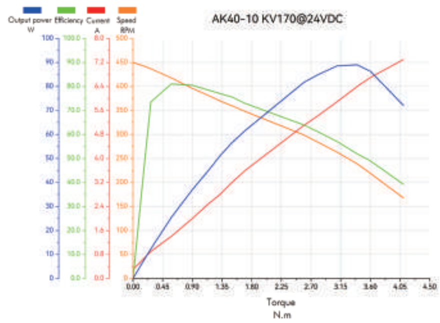
AK Series Robotic Actuation Module

AK40-10 KV170, Φ53*37mm

PRODUCT DRAWING



ANALYTICAL GRAPH OF MOTOR OPERATION



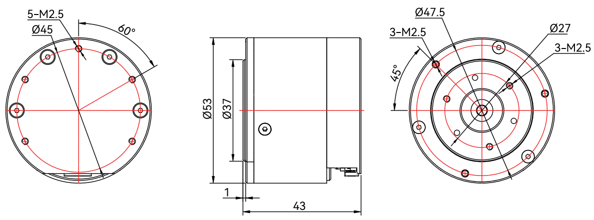
BASIC SPECIFICATIONS

Application	Legged Robot, Exoskeleton, AGV
Driving Way	FOC
Operation Ambient Temperature	-20℃~50℃
Winding Type	Delta
Insulation Level	C
Insulation High-Voltage	500V 5mA/2s
Insulation Resistance	500V 10mΩ
Number of Slots	24
Pole Pairs	14
Reduction Ratio	10:1
Back Drive (Nm)	/
Backlash (arcmin)	18
Temperature Sensor	NTC MF51B 103F3950
Noise dB (65CM away the motor)	50
Basic Dynamic Load Rating Cr (N)	2810
Basic Static Load Rating Cor (N)	2760
Rated Voltage (V)	24
Rated Torque (Nm)	1.3
Rated Speed (RPM)	370
Rated Current (ADC)	2.7
Weight (g)	200

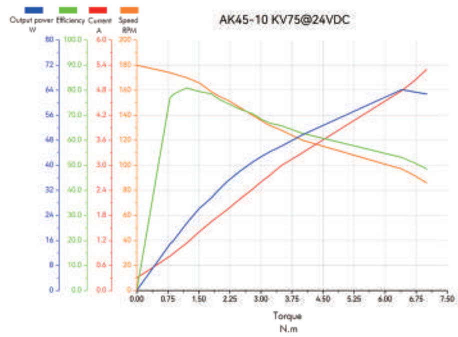
Peak Torque (Nm)	4.1
Peak Current (ADC)	7.3
No-Load Speed (RPM)	435
KV (RPM/V)	170
KT (Nm/A)	0.056
KE (V/kRPM)	5.88
Phase to Phase Resistance (mΩ)	978
Phase to Phase Inductance (μH)	465
Rotor Inertia (gcm²)	540
Motor Constant (Nm/√W)	0.0568
Mechanical Time Constant (ms)	2.2
Maximum Torque Density (Nm/kg)	20.5
CAN Connector	A1257WR-S-4P
UART Connector	A1257WR-S-3P
Power Connector	XT30PW-M
Inner Loop Encoder Type	Magnetic
Inner Ring Encoder Resolution	14bit
Outer Ring Encoder Type	/
Outer Ring Encoder Resolution	/
Number of Encoder	1

AK45-10 KV75, Φ53*43mm

PRODUCT DRAWING



ANALYTICAL GRAPH OF MOTOR OPERATION



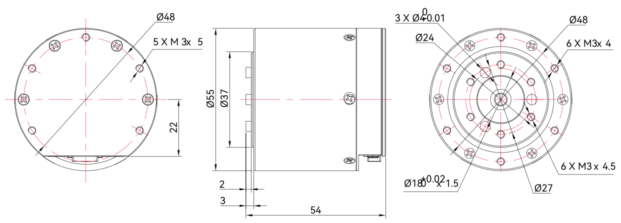
BASIC SPECIFICATIONS

Application	Legged Robot, Exoskeleton, AGV
Driving Way	FOC
Operation Ambient Temperature	-20℃~50℃
Winding Type	Delta
Insulation Level	C
Insulation High-Voltage	500V 5mA/2s
Insulation Resistance	500V10mΩ
Number of Slots	24
Pole Pairs	14
Reduction Ratio	10:1
Back Drive (Nm)	/
Backlash (arcmin)	18
Temperature Sensor	NTC MF51B 103F3950
Noise dB (65CM away the motor)	60
Basic Dynamic Load Rating Cr (N)	2810
Basic Static Load Rating Cor (N)	2760
Rated Voltage (V)	24
Rated Torque (Nm)	2.5
Rated Speed (RPM)	150
Rated Current (ADC)	2.1
Weight (g)	260

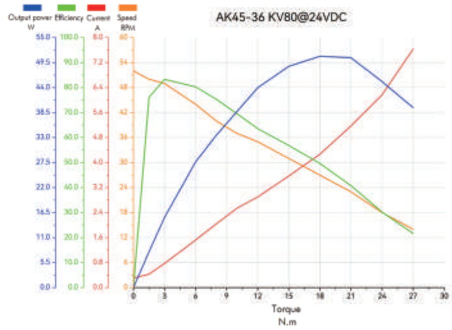
Peak Torque (Nm)	7
Peak Current (ADC)	5
No-Load Speed (RPM)	180
KV (RPM/V)	75
KT (Nm/A)	0.127
KE (V/kRPM)	13.33
Phase to Phase Resistance (mΩ)	2200
Phase to Phase Inductance (μH)	1330
Rotor Inertia (gcm^2)	89
Motor Constant (Nm/√W)	0.0858
Mechanical Time Constant (ms)	0.6
Maximum Torque Density (Nm/kg)	26.9
CAN Connector	A1257WR-S-3P
UART Connector	A1257WR-S-3P
Power Connector	XT30PW-M
Inner Loop Encoder Type	Magnetic
Inner Ring Encoder Resolution	14bit
Outer Ring Encoder Type	/
Outer Ring Encoder Resolution	/
Number of Encoder	1

AK45-36 KV80, Φ55*54mm

PRODUCT DRAWING



ANALYTICAL GRAPH OF MOTOR OPERATION



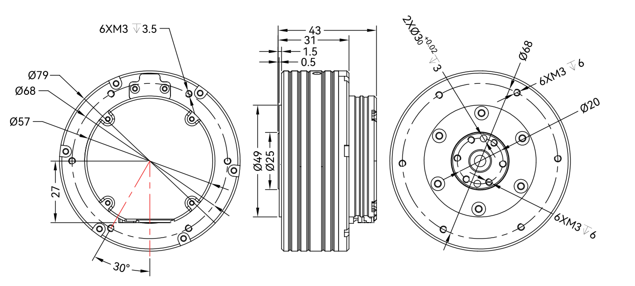
BASIC SPECIFICATIONS

Application	Legged Robot, Exoskeleton, AGV
Driving Way	FOC
Operation Ambient Temperature	-20℃~50℃
Winding Type	Star
Insulation Level	F
Insulation High-Voltage	500V 5mA/2s
Insulation Resistance	500V10MΩ
Number of Slots	24
Pole Pairs	14
Reduction Ratio	36:1
Back Drive (Nm)	0.8
Backlash (arcmin)	12
Temperature Sensor	NTC MF51B 103F3950
Noise dB (65CM Away the Motor)	65
Basic Dynamic Load Rating Cr (N)	2810
Basic Static Load Rating Cor (N)	2760
Rated Voltage (V)	24
Rated Torque (Nm)	8
Rated Speed (RPM)	40
Rated Current (ADC)	2
Weight (g)	340

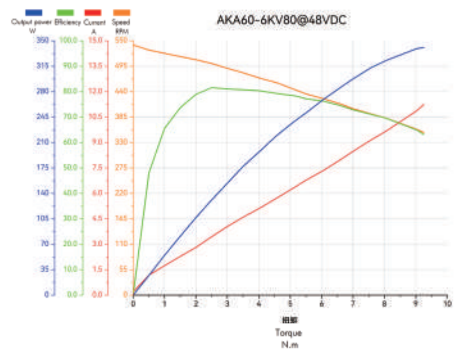
Peak Torque (Nm)	24
Peak Current (ADC)	6.5
No-Load Speed (RPM)	52
KV (RPM/V)	80
KT (Nm/A)	0.11
KE (V/kRPM)	12.5
Coil Resistance (Ω)	1.8
Inductance (mH)	1.1
Rotor Inertia (gcm²)	32
Motor Constant (Nm/√W)	0.15
Mechanical Time Constant (ms)	0.83
Maximum Torque Density (Nm/kg)	70.5
CAN Connector	A1257WR-S-3P
UART Connector	A1257WR-S-3P
Power Connector	XT30PW-M
Inner Loop Encoder Type	Magnetic
Inner Ring Encoder Resolution	14bit
Outer Ring Encoder Type	/
Outer Ring Encoder Resolution	/
Number of Encoder	1

AK60-6 V3.0 KV80, Φ79*43mm

PRODUCT DRAWING



ANALYTICAL GRAPH OF MOTOR OPERATION



SPECIFICATIONS

Application	Foot Robots, Exoskeleton Robots, AGV
Driving Way	FOC
Operation Ambient Temperature	-20℃~50℃
Winding Type	Star
Insulation Class	C
Insulation High-Voltage	500V 5mA/2s
Insulation Resistance	500V10MΩ
Phase	3
Pole Pairs	14
Reduction Ratio	6:1
Back Drive (Nm)	0.2
Backlash (°)	0.55
Temperature Sensor	NTC MF51B 103F3950
Noise dB 65CM Away the Motor (Environment 45dB@1200 RPM)	55
Basic Load Rating (dyn. C_r) N	3150
Basic Load Ratings (stat. C_{0r}) N	4500

ELECTRIC PARAMETERS

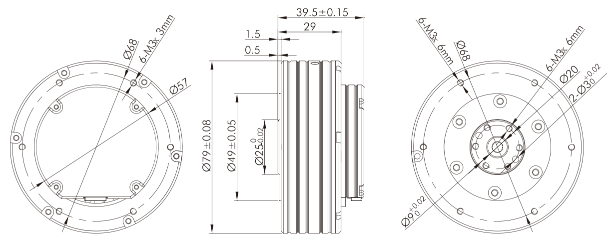
Rated Voltage (V)	24/48
Rated Torque (Nm)	3
Rated Speed (RPM)	233/490
Rated Current (ADC)	3.8
Peak Torque (Nm)	9
Peak Current (ADC)	0.3/11.2
Kv (RPM/V)	80
Kt (Nm/A)	0.135
Ke (V/kRPM)	12.5
Phase to Phase Resistance (mΩ)	595
Phase to Phase Inductance (μH)	676
Inertia (gcm²)	243.5
Km (Nm/√W)	0.15
Mechanical Time Constant (ms)	0.81
Electrical Time Constant (ms)	0.69
Weight (g)	380
Maximum Torque Weight Ratio (Nm/kg)	23.68

CONNECTOR (WITH DRIVER)

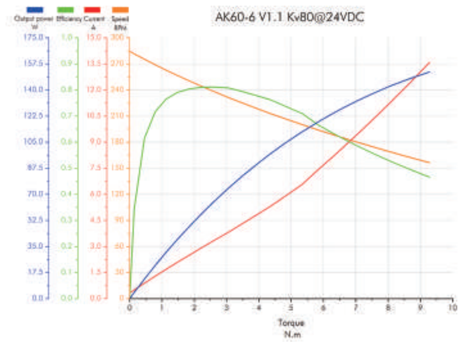
POWER+CAN Connector	XT30PW(2+2)-M
UART Connector	A1257WR-S-3P
Inner Loop Encoder Type	Magnetic Encode
Inner Ring Encoder Resolution	14bit
Outer Ring Encoder Type	-
Outer Ring Encoder Resolution	-
Number of Encoder	1

AK60-6 V1.1 KV80, Φ79*39.5mm

PRODUCT DRAWING



ANALYTICAL GRAPH OF MOTOR OPERATION



SPECIFICATIONS

Application	Legged Robot, Exoskeleton, AGV
Driving Way	FOC
Operation Ambient Temperature	-20℃~50℃
Winding Type	Star
Insulation Class	C
Insulation High-Voltage	500V 5mA/2s
Insulation Resistance	500V10MΩ
Phase	3

Pole Pairs	14
Reduction Ratio	6:1
Back Drive (Nm)	0.2
Backlash (°)	0.55
Temperature Sensor	NTC MF51B 103F3950
Noise dB 65CM Away the Motor (Environment 45dB@1200 RPM)	55
Basic Load Rating (dyn. C_r) N	3150
Basic Load Ratings (stat. C_{0r}) N	4500

ELECTRIC PARAMETERS

Rated Voltage (V)	24
Rated Torque (Nm)	3
Rated Speed (RPM)	233
Rated Current (ADC)	3.8
Peak Torque (Nm)	9
Peak Current (ADC)	13.1
Kv (RPM/V)	80
Kt (Nm/A)	0.135

Ke (V/kRPM)	12.8
Phase to Phase Resistance (mΩ)	605
Phase to Phase Inductance (μH)	415
Inertia (gcm²)	243.5
Km (Nm/√W)	0.17
Mechanical Time Constant (ms)	0.81
Electrical Time Constant (ms)	0.69
Weight (g)	368
Maximum Torque Weight Ratio (Nm/kg)	24.46

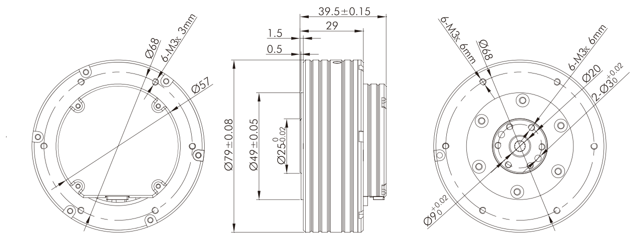
CONNECTOR (WITH DRIVER)

CAN Connector	A1257WR-S-4P
UART Connector	A1257WR-S-3P
Power Connector	XT30PW-M
Inner Loop Encoder Type	Magnetic Encoder

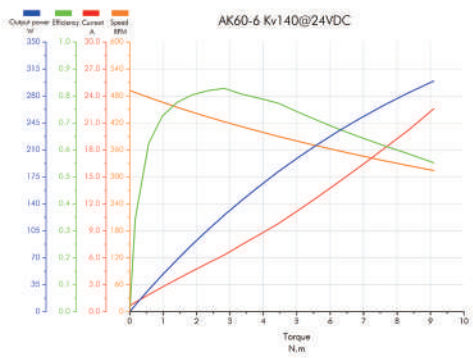
Inner Ring Encoder Resolution	14bit
Outer Ring Encoder Type	-
Outer Ring Encoder Resolution	-
Number of Encoder	1

AK60-6 V1.1 KV140, Φ79*39.5mm

PRODUCT DRAWING



ANALYTICAL GRAPH OF MOTOR OPERATION



SPECIFICATIONS

Application	Legged Robot, Exoskeleton, AGV
Driving Way	FOC
Operation Ambient Temperature	-20℃~50℃
Winding Type	Delta
Insulation Class	C
Insulation High-Voltage	500V 5mA/2s
Insulation Resistance	500V10MΩ
Phase	3
Pole Pairs	14
Reduction Ratio	6:1
Back Drive (Nm)	0.2
Backlash (°)	0.55
Temperature Sensor	NTC MF51B 103F3950
Noise dB 65CM Away the Motor (Environment 45dB@1200 RPM)	60
Basic Load Rating (dyn. C_r) N	3150
Basic Load Ratings (stat. C_{0r}) N	4500

ELECTRIC PARAMETERS

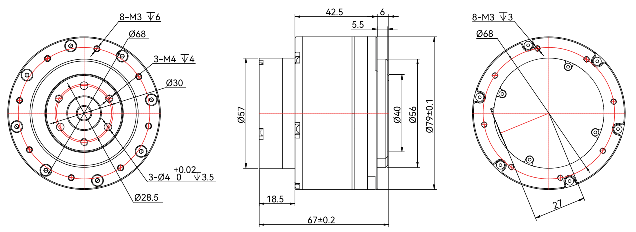
Rated Voltage (V)	24
Rated Torque (Nm)	3
Rated Speed (RPM)	420
Rated Current (ADC)	6.5
Peak Torque (Nm)	9
Peak Current (ADC)	22.7
Kv (RPM/V)	140
Kt (Nm/A)	0.078
Ke (V/kRPM)	7.5
Phase to Phase Resistance (mΩ)	202
Phase to Phase Inductance (μH)	138
Inertia (gcm²)	243.5
Km (Nm/√W)	0.17
Mechanical Time Constant (ms)	0.81
Electrical Time Constant (ms)	0.68
Weight (g)	368
Maximum Torque Weight Ratio (Nm/kg)	24.46

CONNECTOR (WITH DRIVER)

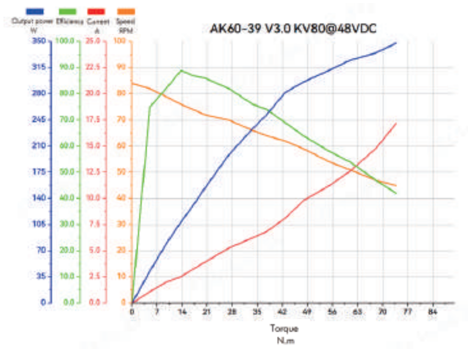
CAN Connector	A1257WR-S-4P
UART Connector	A1257WR-S-3P
Power Connector	XT30PW-M
Inner Loop Encoder Type	Magnetic Encoder
Inner Ring Encoder Resolution	14bit
Outer Ring Encoder Type	-
Outer Ring Encoder Resolution	-
Number of Encoder	1

AK60-39 V3.0 KV80, Φ79*48.5mm

PRODUCT DRAWING



ANALYTICAL GRAPH OF MOTOR OPERATION

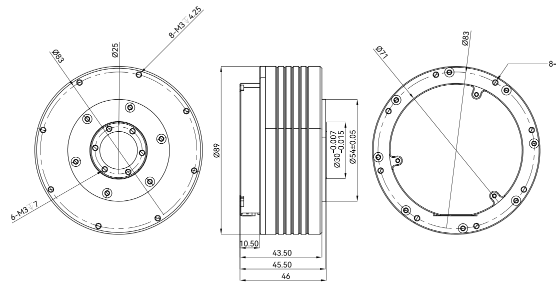


BASIC SPECIFICATIONS

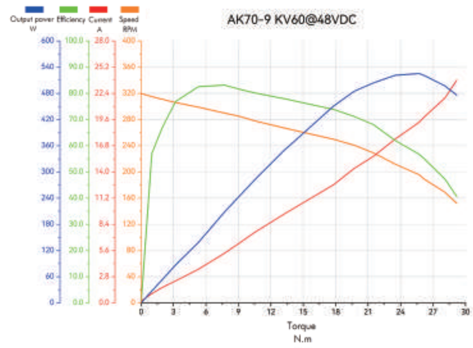
Application	Legged Robot, Exoskeleton, AGV	Peak Torque (Nm)	72
Driving Way	FOC	Peak Current (ADC)	17
Operation Ambient Temperature	-20℃~50℃	No-Load Speed (RPM)	98
Winding Type	Star	KV (RPM/V)	80
Insulation Level	C	KT (Nm/A)	0.12
Insulation High-Voltage	AC 500V5mA/2s	KE (V/kRPM)	12.5
Insulation Resistance	DC 500V 10mΩ	Phase to Phase Resistance (mΩ)	600
Number of Slots	24	Phase to Phase Inductance (μH)	670
Pole Pairs	14	Rotor Inertia (gcm^2)	305
Reduction Ratio	39:1	Motor Constant (Nm/√W)	0.15
Back Drive (Nm)	1.4	Mechanical Time Constant (ms)	2.39
Backlash (arcmin)	15	Maximum Torque Density (Nm/kg)	96
Temperature Sensor	NTC MF51B 103F3950	CAN Connector	A1257WR-S-3P
Noise dB Away the Motor	65cm	UART Connector	XT30PW-M
Basic Dynamic Load Rating Cr (N)	2000	Inner Loop Encoder Type	Magnetic MT6835
Basic Static Load Rating Cor (N)	2520	Inner Ring Encoder Resolution	21bit
Rated Voltage (V)	48	Outer Ring Encoder type	Magnetic MT6835
Rated Torque (Nm)	24	Outer Ring Encoder Resolution	21bit
Rated Speed (RPM)	70	Number of Encoder	2
Rated Current (ADC)	4.5	Weight (g)	750

AK70-9 KV60, Φ89*46mm

PRODUCT DRAWING



ANALYTICAL GRAPH OF MOTOR OPERATION



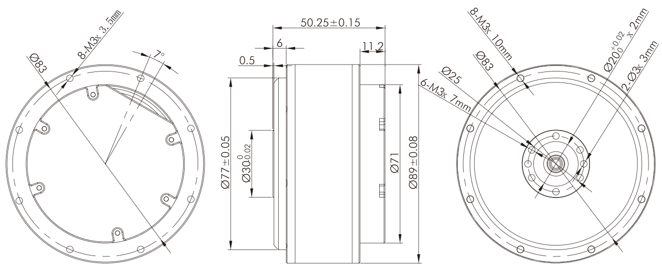
BASIC SPECIFICATIONS

Application	Legged Robot, Exoskeleton, AGV
Driving Way	FOC
Operation Ambient Temperature	-20℃~50℃
Winding Type	Delta
Insulation Level	C
Insulation High-voltage	1000V 5mA/2s
Insulation Resistance	1000V10MΩ
Number of Slots	36
Pole Pairs	21
Reduction Ratio	9:1
Back Drive (Nm)	0.8
Backlash (arcmin)	18
Temperature Sensor	NTC MF51B 103F3950
Noise dB (65CM Away the Motor)	50
Basic Dynamic Load Rating Cr (N)	1890
Basic Static Load Rating Cor(N)	2140
Rated Voltage (V)	48
Rated Torque (Nm)	8.5
Rated Speed (RPM)	260
Rated Current (ADC)	6.25
Weight (g)	540

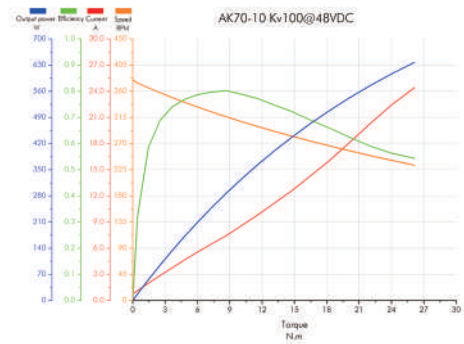
Peak Torque (Nm)	29.2
Peak Current (ADC)	23.8
No-Load Speed (RPM)	320
KV (RPM/V)	60
KT (Nm/A)	0.159
KE (V/kRPM)	16.7
Phase to Phase Resistance (mΩ)	475
Phase to PPhase Inductance (μH)	408
Rotor Inertia (gcm²)	450
Motor Constant (Nm/√W)	0.23
Mechanical Time Constant (ms)	1.7
Maximum Torque Density (Nm/kg)	54
CAN Connector	A1257WR-S-4P
UART Connector	A1257WR-S-3P
Power Connector	XT30PW-M
Inner Loop Encoder Type	Magnetic
Inner Ring Encoder Resolution	14bit
Outer Ring Encoder Type	Magnetic
Outer Ring Encoder Resolution	15bit
Number of Encoder	2

AK70-10 KV100, Φ89*50.25mm

PRODUCT DRAWING



ANALYTICAL GRAPH OF MOTOR OPERATION



SPECIFICATIONS

Application	Legged Robot, Exoskeleton, AGV
Driving Way	FOC
Operation Ambient Temperature	-20℃~50℃
Winding Type	Delta
Insulation Class	H
Insulation High-Voltage	1000V 5mA/2s
Insulation Resistance	1000V10MΩ
Phase	3

Pole Pairs	21
Reduction Ratio	10:1
Back Drive (Nm)	0.48
Backlash (°)	0.12
Temperature Sensor	NTC MF51B 103F3950
Noise dB 65CM Away the Motor (Environment 45dB@1200 RPM)	58
Basic Load Rating (dyn. C) N	2000
Basic Load Ratings (stat. C_0) N	2520

ELECTRIC PARAMETERS

Rated Voltage (V)	24/48
Rated Torque (Nm)	8.3
Rated Speed (RPM)	148/310
Rated Current (ADC)	7.2
Peak Torque (Nm)	24.8
Peak Current (ADC)	23.2
Kv (RPM/V)	100
Kt (Nm/A)	0.123

Ke (V/kRPM)	11.2
Phase to Phase Resistance (mΩ)	272
Phase to Phase Inductance (μH)	113
Inertia (gcm²)	414
Km (Nm/√W)	0.24
Mechanical Time Constant (ms)	0.74
Electrical Time Constant (ms)	0.42
Weight (g)	521
Maximum Torque Weight Ratio (Nm/kg)	47.6

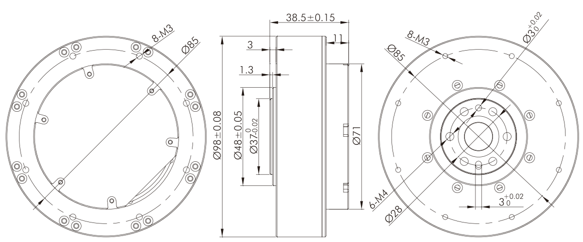
CONNECTOR（WITH DRIVER)

CAN Connector	A1257WR-S-4P
UART Connector	A1257WR-S-3P
Power Connector	XT30PW-M
Inner Loop Encoder Type	Magnetic Encoder

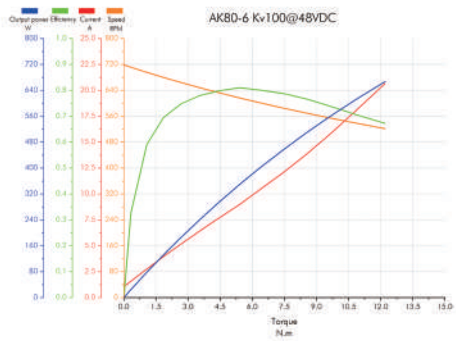
Inner Ring Encoder Resolution	14bit
Outer Ring Encoder Type	-
Outer Eing Encoder Resolution	-
Number of Encoder	1

AK80-6 KV100, Φ98*38.5mm

PRODUCT DRAWING



ANALYTICAL GRAPH OF MOTOR OPERATION



SPECIFICATIONS

Application	Legged Robot, Exoskeleton, AGV
Driving Way	FOC
Operation Ambient Temperature	-20℃~50℃
Winding Type	Delta
Insulation Class	H
Insulation High-Voltage	1000V 5mA/2s
Insulation Resistance	1000V10MΩ
Phase	3
Pole Pairs	21
Reduction Ratio	6:1
Back Drive (Nm)	0.36
Backlash (°)	0.22
Temperature Sensor	None
Noise dB 65CM Away the Motor (Environment 45dB@1200 RPM)	55
Basic Load Rating (dyn. C_r) N	2760
Basic Load Ratings (stat. C_{0r}) N	2810

ELECTRIC PARAMETERS

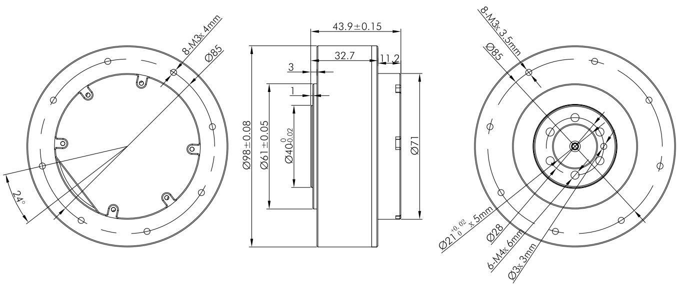
Rated Voltage (V)	48
Rated Torque (Nm)	6
Rated Speed (RPM)	603
Rated Current (ADC)	9.7
Peak Torque (Nm)	12
Peak Current (ADC)	20
Kv (RPM/V)	100
Kt (Nm/A)	0.105
Ke (V/kRPM)	10.5
Phase to Phase Resistance (mΩ)	170
Phase to Phase Inductance (μH)	57
Inertia (gcm²)	607
Km (Nm/√W)	0.25
Mechanical Time Constant (ms)	0.94
Electrical Time Constant (ms)	0.34
Weight (g)	485
Maximum Torque Weight Ratio (Nm/kg)	24

CONNECTOR (WITH DRIVER)

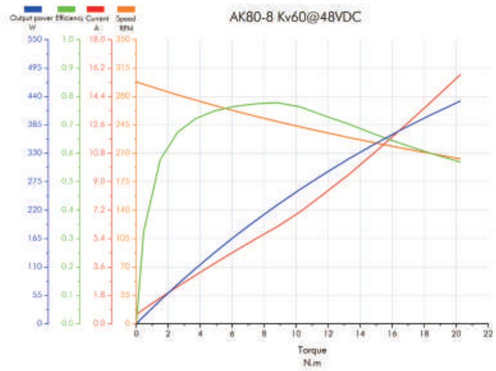
CAN Connector	A1257WR-S-4P
UART Connector	A1257WR-S-3P
Power Connector	XT30PW-M
Inner Loop Encoder Type	Magnetic Encoder
Inner Ring Encoder Resolution	14bit
Outer Ring Encoder Type	-
Outer Ring Encoder Resolution	-
Number of Encoder	1

AK80-8 KV60, Φ98*43.9mm

PRODUCT DRAWING



ANALYTICAL GRAPH OF MOTOR OPERATION



SPECIFICATIONS

Application	Legged Robot, Exoskeleton, AGV
Driving Way	FOC
Operation Ambient Temperature	-20℃~50℃
Winding Type	Star
Insulation Class	C
Insulation High-Voltage	1000V 5mA/2s
Insulation Resistance	1000V10MΩ
Phase	3
Pole Pairs	21
Reduction Ratio	8:1
Back Drive (Nm)	0.75
Backlash (°)	0.38
Temperature Sensor	NTC MF51B 103F3950
Noise dB 65CM Away the Motor (Environment 45dB@1200 RPM)	50
Basic Load Rating (dyn. C) N	2000
Basic Load Ratings (stat. C_0) N	2520

ELECTRIC PARAMETERS

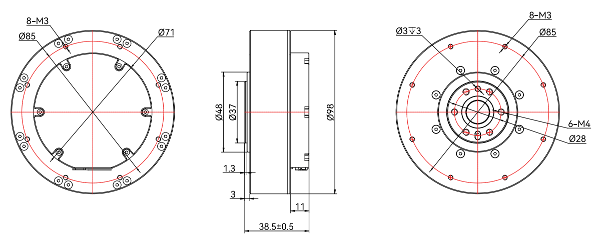
Rated Voltage (V)	48
Rated Torque (Nm)	10
Rated Speed (RPM)	243
Rated Current (ADC)	6.9
Peak Torque (Nm)	25
Peak Current (ADC)	21
Kv (RPM/V)	60
Kt (Nm/A)	0.199
Ke (V/kRPM)	19.8
Phase to Phase Resistance (mΩ)	430
Phase to Phase Inductance (μH)	214
Inertia (gcm²)	608.6
Km (Nm/√W)	0.30
Mechanical Time Constant (ms)	0.66
Electrical Time Constant (ms)	0.5
Weight (g)	570
Maximum Torque Weight Ratio (Nm/kg)	35

CONNECTOR (WITH DRIVER)

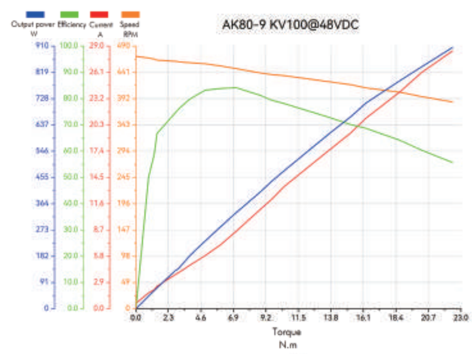
CAN Connector	A1257WR-S-4P
UART Connector	A1257WR-S-3P
Power Connector	XT30PW-M
Inner Loop Encoder Type	Magnetic Encoder
Inner Ring Encoder Resolution	14bit
Outer Ring Encoder Type	Magnetic Encoder
Outer Ring Encoder Resolution	15bit
Number of Encoder	2

AK80-9 V3.0 KV100, Φ98*38.5mm

PRODUCT DRAWING



ANALYTICAL GRAPH OF MOTOR OPERATION

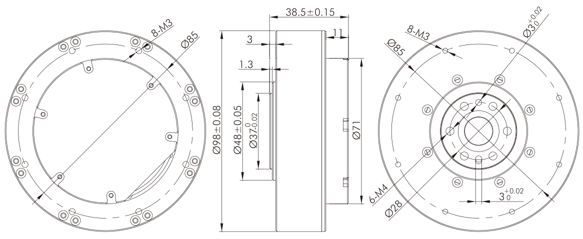


BASIC SPECIFICATIONS

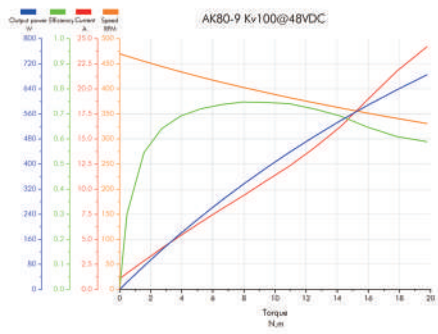
Application	Legged Robot, Exoskeleton, AGV	Peak Torque (Nm)	22
Driving Way	FOC	Peak Current (ADC)	28
Operation Ambient Temperature	-20℃~50℃	No-Load Speed (RPM)	570
Winding Type	Delta	KV (RPM/V)	100
Insulation Level	C	KT (Nm/A)	0.095
Insulation High-Voltage	1000V 5mA/2s	KE (V/kRPM)	10
Insulation Resistance	1000V10MΩ	Phase to Phase Resistance (mΩ)	160
Number of Slots	36	Phase to Phase Inductance (μH)	116
Pole Pairs	21	Rotor Inertia (gcm^2)	579
Reduction Ratio	9:1	Motor Constant (Nm/√W)	0.2387
Back Drive (Nm)	0.51	Mechanical Time Constant (ms)	0.725
Backlash (arcmin)	15	Maximum Torque Density (Nm/kg)	44.9
Temperature Sensor	NTC MF51B 103F3950	CAN Connector	/
Noise dB (65CM away the motor)	60	UART Connector	A1257WR-S-3P
Basic Dynamic Load Rating Cr(N)	2760	Power Connector	XT30PW-M
Basic Static Load Rating Cor (N)	2810	Inner Loop Encoder Type	Magnetic
Rated Voltage (V)	48	Inner Ring Encoder Resolution	16bit
Rated Torque (Nm)	9	Outer Ring Encoder Type	/
Rated Speed (RPM)	390	Outer Ring Encoder Resolution	/
Rated Current (ADC)	12	Number of Encoder	1
Weight (g)	490		

AK80-9 KV100, Φ98*38.5mm

PRODUCT DRAWING



ANALYTICAL GRAPH OF MOTOR OPERATION



SPECIFICATIONS

Application	Legged Robot, Exoskeleton, AGV
Driving Way	FOC
Operation Ambient Temperature	-20℃~50℃
Winding Type	Delta
Insulation Class	H
Insulation High-Voltage	1000V 5mA/2s
Insulation Resistance	1000V10MΩ
Phase	3
Pole pairs	21
Reduction Ratio	9:1
Back Drive (Nm)	0.51
Backlash (°)	0.19
Temperature Sensor	None
Noise dB 65CM Away the Motor (Environment 45dB@1200 RPM)	55
Basic Load Rating (dyn. C_r) N	2760
Basic Load Ratings (stat. C_{0r}) N	2810

ELECTRIC PARAMETERS

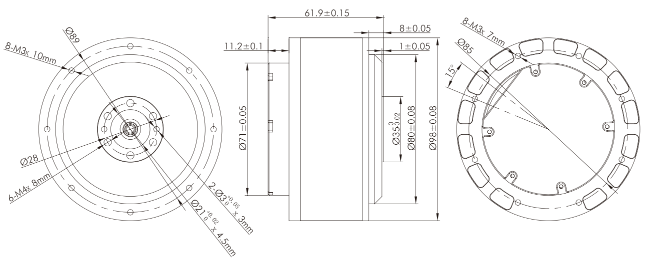
Rated Voltage (V)	48
Rated Torque (Nm)	9
Rated Speed (RPM)	390
Rated Current (ADC)	10.3
Peak Torque (Nm)	18
Peak Current (ADC)	22.3
Kv (RPM/V)	100
Kt (Nm/A)	0.105
Ke (V/kRPM)	10.5
Phase to Phase Resistance (mΩ)	170
Phase to Phase Inductance (μH)	57
Inertia (gcm^2)	607
Km (Nm/√W)	0.25
Mechanical Time Constant (ms)	0.94
Electrical Time Constant (ms)	0.34
Weight (g)	485
Maximum Torque Weight Ratio (Nm/kg)	37

CONNECTOR（WITH DRIVER)

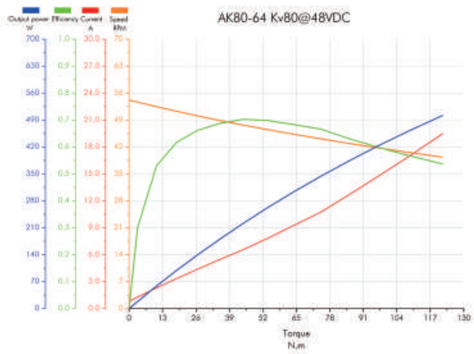
CAN Connector	A1257WR-S-4P
UART Connector	A1257WR-S-3P
Power Connector	XT30PW-M
Inner Loop Encoder Type	Magnetic Encoder
Inner Ring Encoder Resolution	14bit
Outer Ring Encoder Type	-
Outer Ring Encoder Resolution	-
Number of Encoder	1

AK80-64 KV80, Φ98*61.9mm

PRODUCT DRAWING



ANALYTICAL GRAPH OF MOTOR OPERATION



SPECIFICATIONS

Application	Legged Robot, Exoskeleton, AGV
Driving Way	FOC
Operation Ambient Temperature	-20℃~50℃
Winding Type	Delta
Insulation Class	H
Insulation High-Voltage	1000V 5mA/2s
Insulation Resistance	1000V10MΩ
Phase	3

Pole Pairs	21
Reduction Ratio	64:1
Back Drive (Nm)	4.7
Backlash (°)	0.18
Temperature Sensor	NTC MF51B 103F3950
Noise dB 65CM Away the Motor (Environment 45dB@1200 RPM)	60
Basic Load Rating (dyn. C) N	2000
Basic Load Ratings (stat. C_0) N	2520

ELECTRIC PARAMETERS

Rated Voltage (V)	24/48
Rated Torque (Nm)	48
Rated Speed (RPM)	23/48
Rated Current (ADC)	7
Peak Torque (Nm)	120
Peak Current (ADC)	19
Kv (RPM/V)	80
Kt (Nm/A)	0.136

Ke (V/kRPM)	13.7
Phase to Phase Resistance (mΩ)	220
Phase to Phase Inductance (μH)	133.5
Inertia (gcm²)	564.5
Km (Nm/√W)	0.29
Mechanical Time Constant (ms)	0.67
Electrical Time Constant (ms)	0.61
Weight (g)	850
Maximum Torque Weight Ratio (Nm/kg)	141.2

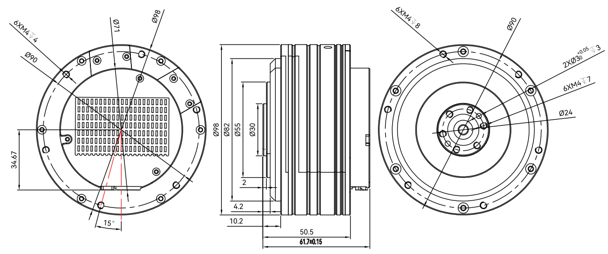
CONNECTOR（WITH DRIVER)

CAN Connector	A1257WR-S-4P
UART Connector	A1257WR-S-3P
Power Connector	XT30PW-M
Inner Loop Encoder Type	Magnetic Encoder

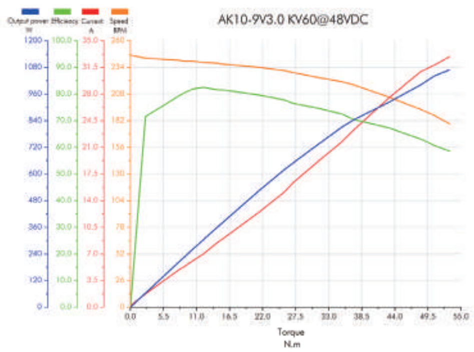
Inner Ring Encoder Resolution	14bit
Outer Ring Encoder Type	-
Outer Ring Encoder Resolution	-
Number of Encoder	1

AK10-9 V3.0 KV60, Φ98*61.7mm

PRODUCT DRAWING



ANALYTICAL GRAPH OF MOTOR OPERATION



SPECIFICATIONS

Application	Foot Robots, Exoskeleton Robots, AGV
Driving Way	FOC
Operation Ambient Temperature	-20℃~50℃
Winding Type	Delta
Insulation Class	C
Insulation High-Voltage	1000V 5mA/2s
Insulation Resistance	1000V 10MΩ
Phase	3

Pole Pairs	21
Reduction Ratio	9:1
Back Drive (Nm)	0.8
Backlash (°)	0.33
Temperature Sensor	NTC MF51B 103F3950
Noise dB 65CM Away the Motor (Environment 45dB@1200 RPM)	70
Basic Load Rating (dyn. C) N	2000
Basic Load Ratings (stat. C_0) N	2520

ELECTRIC PARAMETERS

Rated Voltage (V)	48
Rated Torque (Nm)	18
Rated Speed (RPM)	235
Rated Current (ADC)	10.7
Peak Torque (Nm)	53
Peak Current (ADC)	31.9
Kv (RPM/V)	60
Kt (Nm/A)	0.16

Ke (V/kRPM)	16.7
Phase to Phase Resistance (mΩ)	248
Phase to Phase Inductance (μH)	213
Inertia (gcm²)	1002
Km (Nm/√W)	0.32
Mechanical Time Constant (ms)	0.5
Electrical Time Constant (ms)	0.93
Weight (g)	940
Maximum Torque Weight Ratio (Nm/kg)	86

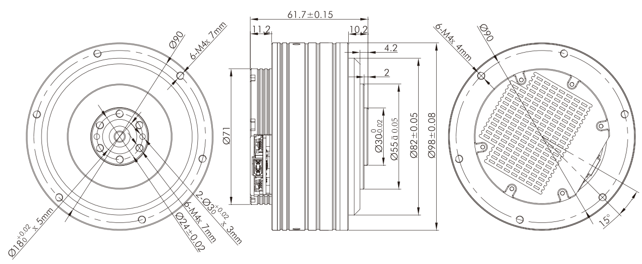
CONNECTOR（WITH DRIVER)

POWER+CAN Connector	XT30PW(2+2)-M
UART Connector	A1257WR-S-3P
Inner Loop Encoder Type	Magnetic Encode

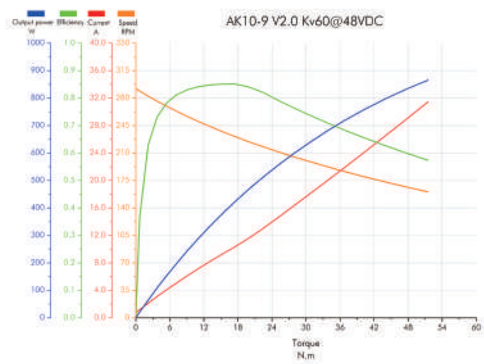
Inner Ring Encoder Resolution	21bit
Outer Ring Encoder Type	Magnetic Encode
Outer Ring Encoder Resolution	15bit
Number of Encoder	2

AK10-9 V2.0 KV60, Φ98*61.7mm

PRODUCT DRAWING



ANALYTICAL GRAPH OF MOTOR OPERATION



SPECIFICATIONS

Application	Legged Robot, Exoskeleton, AGV
Driving Way	FOC
Operation Ambient Temperature	-20℃~50℃
Winding Type	Star
Insulation Class	C
Insulation High-Voltage	1000V 5mA/2s
Insulation Resistance	1000V10MΩ
Phase	3

Pole Pairs	21
Reduction Ratio	9:1
Back Drive (Nm)	0.8
Backlash (°)	0.33
Temperature Sensor	NTC MF51B 103F3950
Noise dB 65CM Away the Motor (Environment 45dB@1200 RPM)	65
Basic Load Rating (dyn. C) N	2000
Basic Load Ratings (stat. C_0) N	2520

ELECTRIC PARAMETERS

Rated Voltage (V)	24/48
Rated Torque (Nm)	18
Rated Speed (RPM)	109/228
Rated Current (ADC)	10.6
Peak Torque (Nm)	48
Peak Current (ADC)	29.8
Kv (RPM/V)	60
Kt (Nm/A)	0.198

Ke (V/kRPM)	17.2
Phase to Phase Resistance (mΩ)	195
Phase to Phase Inductance (μH)	181
Inertia (gcm²)	1002
Km (Nm/√W)	0.45
Mechanical Time Constant (ms)	0.50
Electrical Time Constant (ms)	0.93
Weight (g)	960
Maximum Torque Weight Ratio (Nm/kg)	50

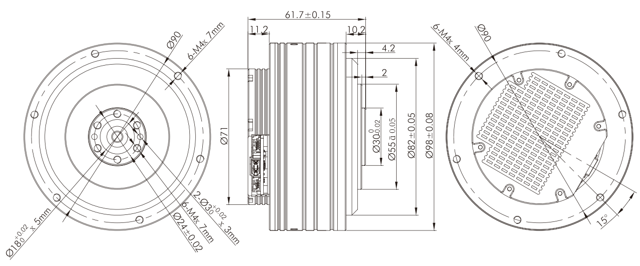
CONNECTOR（WITH DRIVER)

CAN Connector	A1257WR-S-4P
UART Connector	A1257WR-S-3P
Power Connector	XT30PW-M
Inner Loop Encoder Type	Magnetic Encoder

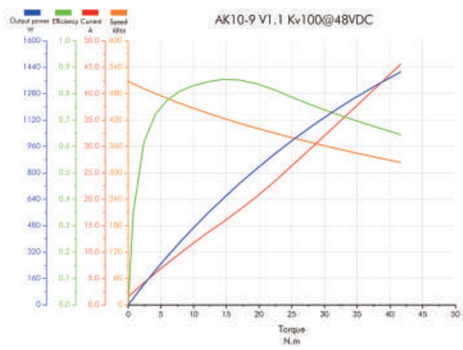
Inner Ring Encoder Resolution	14bit
Outer Ring Encoder Type	Magnetic Encoder
Outer Ring Encoder Resolution	15bit
Number of Encoder	2

AK10-9 V2.0 KV100, Φ98*61.7mm

PRODUCT DRAWING



ANALYTICAL GRAPH OF MOTOR OPERATION



SPECIFICATIONS

Application	Legged Robot, Exoskeleton, AGV
Driving Way	FOC
Operation Ambient Temperature	-20℃~50℃
Winding Type	Delta
Insulation Class	C
Insulation High-Voltage	1000V 5mA/2s
Insulation Resistance	1000V10MΩ
Phase	3

Pole Pairs	21
Reduction Ratio	9:1
Back Drive (Nm)	0.8
Backlash (°)	0.33
Temperature Sensor	NTC MF51B 103F3950
Noise dB 65CM Away the Motor (Environment 45dB@1200 RPM)	70
Basic Load Rating (dyn. C) N	2000
Basic Load Ratings (stat. C_0) N	2520

ELECTRIC PARAMETERS

Rated Voltage (V)	24/48
Rated Torque (Nm)	15
Rated Speed (RPM)	205/421
Rated Current (ADC)	16.2
Peak Torque (Nm)	38
Peak Current (ADC)	41.2
Kv (RPM/V)	100
Kt (Nm/A)	0.114

Ke (V/kRPM)	9.9
Phase to Phase Resistance (mΩ)	65.5
Phase to Phase Inductance (μH)	60
Inertia (gcm²)	1002
Km (Nm/√W)	0.45
Mechanical Time Constant (ms)	0.51
Electrical Time Constant (ms)	0.92
Weight (g)	960
Maximum Torque Weight Ratio (Nm/kg)	39.6

CONNECTOR (WITH DRIVER)

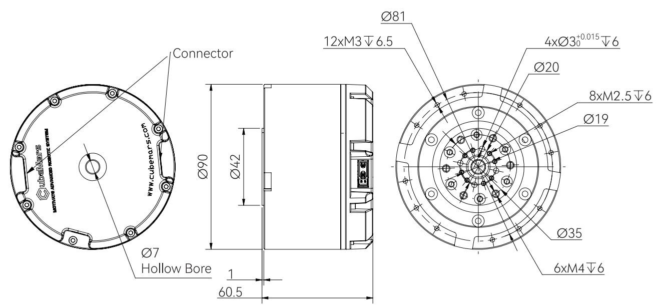
CAN Connector	A1257WR-S-4P
UART Connector	A1257WR-S-3P
Power Connector	XT30PW-M
Inner Loop Encoder Type	Magnetic Encoder

Inner Ring Encoder Resolution	14bit
Outer Ring Encoder Type	Magnetic Encoder
Outer Ring Encoder Resolution	15bit
Number of Encoder	2

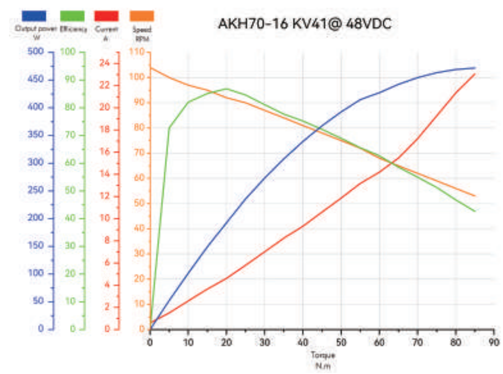
AKH Series Hollow Shaft Modules

AKH70-16 KV41, Φ90*60.5mm

PRODUCT DRAWING



ANALYTICAL GRAPH OF MOTOR OPERATION



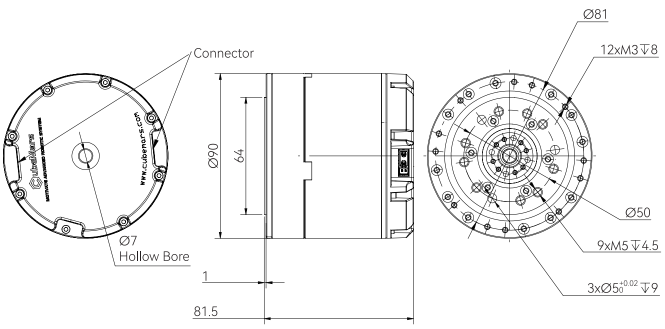
BASIC SPECIFICATIONS

Application	Legged Robot, Exoskeleton, AGV
Driving Way	FOC
Operation Ambient Temperature	-20℃~50℃
Winding Type	Delta
Insulation Level	F
Insulation High-Voltage	500V 5mA/2s
Insulation Resistance	500V 10mΩ
Number of Slots	36
Pole Pairs	21
Reduction Ratio	16:1
Back Drive (Nm)	0.78
Backlash (arcmin)	12
Temperature Sensor	NTC MF51B 103F3950
Noise dB (65CM away the motor)	65
Basic Dynamic Load Rating Cr (N)	6350
Basic Static Load Rating Cor (N)	5550
Rated Voltage (V)	48
Rated Torque (Nm)	26
Rated Speed (RPM)	90
Rated Current (ADC)	6.5
Weight (g)	879

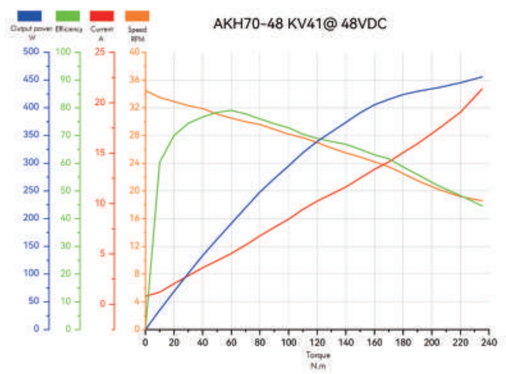
Peak Torque (Nm)	85
Peak Current (ADC)	23
No-Load Speed (RPM)	105
KV (RPM/V)	41
KT (Nm/A)	0.23
KE (V/kRPM)	2.4
Phase to Phase Resistance (mΩ)	0.56
Phase to Phase Inductance (μH)	0.6
Rotor Inertia (gcm²)	1170
Motor Constant (Nm/√W)	0.31
Mechanical Time Constant (ms)	2.28
Maximum Torque Density (Nm/kg)	88.74
CAN Connector	XT30PW (2+2)-M
UART Connector	A1257WR-S-3P
Power Connector	XT30PW (2+2)-M
Inner Loop Encoder Type	Magnetic
Inner Ring Encoder Resolution	21bit
Outer Ring Encoder Type	Magnetic
Outer Ring Encoder Resolution	21bit
Number of Encoder	2

AKH70-48 KV41, Φ90*81.5mm

PRODUCT DRAWING



ANALYTICAL GRAPH OF MOTOR OPERATION



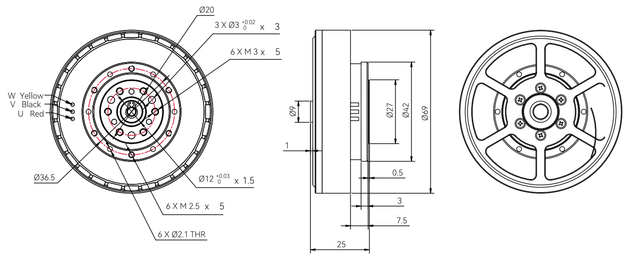
BASIC SPECIFICATIONS

Application	Legged Robot, Exoskeleton, AGV
Driving Way	FOC
Operation Ambient Temperature	-20℃~50℃
Winding Type	Delta
Insulation Level	F
Insulation High-Voltage	500V 5mA/2s
Insulation Resistance	500V 10mΩ
Number of Slots	36
Pole Pairs	21
Reduction Ratio	48:1
Back Drive (Nm)	2.22
Backlash (arcmin)	12
Temperature Sensor	NTC MF51B 103F3950
Noise dB (65CM away the motor)	65
Basic Dynamic Load Rating Cr (N)	5680
Basic Static Load Rating Cor (N)	8680
Rated Voltage (V)	48
Rated Torque (Nm)	74
Rated Speed (RPM)	28
Rated Current (ADC)	6
Weight (g)	1396
Peak Torque (Nm)	222
Peak Current (ADC)	21
No-Load Speed (RPM)	35
KV (RPM/V)	41
KT (Nm/A)	0.23
KE (V/kRPM)	2.4
Phase to Phase Resistance (mΩ)	0.56
Phase to Phase Inductance (μH)	0.6
Rotor Inertia (gcm²)	1170
Motor Constant (Nm/√W)	0.31
Mechanical Time Constant (ms)	2.28
Maximum Torque Density (Nm/kg)	159
CAN Connector	XT30PW(2+2)-M
UART Connector	A1257WR-S-3P
Power Connector	XT30PW(2+2)-M
Inner Loop Encoder Type	Magnetic
Inner Ring Encoder Resolution	21bit
Outer Ring Encoder Type	Magnetic
Outer Ring Encoder Resolution	21bit
Number of Encoder	2

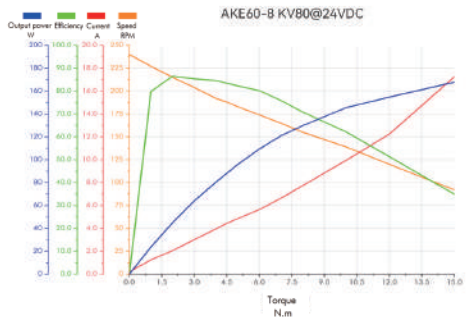
AKE Series Quasi Direct Drive Motors

AKE60-8 KV80, Φ69*25mm

PRODUCT DRAWING



ANALYTICAL GRAPH OF MOTOR OPERATION

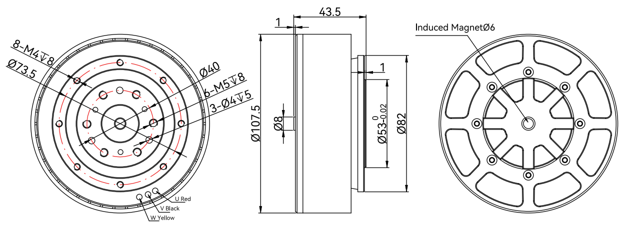


SPECIFICATIONS

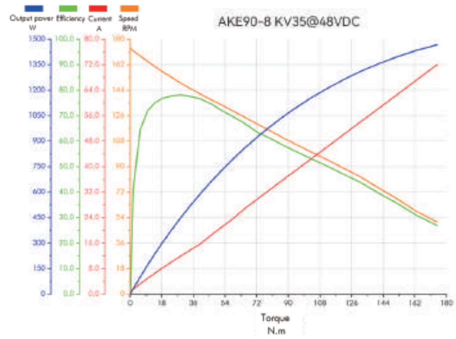
Application	Cobot Arm	Peak Torque (Nm)	12.5
Driving Way	FOC	Peak Current (ADC)	12
Operation Ambient Temperature (℃)	-20~50	Kv (RPM/V)	80
Winding Type	star	Kt (Nm/A)	0.13
Insulation Class	F	Ke (V/kRPM)	12.5
Insulation High-Voltage (V)	500	Phase to Phase Resistance (mΩ)	577
Insulation Resistance (MΩ)	10	Phase to Phase Inductance (μH)	704
Pole Pairs	14	Inertia (gcm²)	32
Arcmin	9	Km (Nm/√W)	0.15
Rated Voltage (V)	24	Mechanical Time Constant (ms)	1.2
No-Load Speed (RPM)	240	Electrical Time Constant (ms)	1.7
Rated Torque (Nm)	5	Weight (g)	260
Rated Speed (RPM)	180	Maximum Torque Weight Ratio (Nm/kg)	46
Rated Current (ADC)	4.8	Reduction Ratio	8:1

AKE90-8 KV35, Φ107.5*43.5mm

PRODUCT DRAWING



ANALYTICAL GRAPH OF MOTOR OPERATION

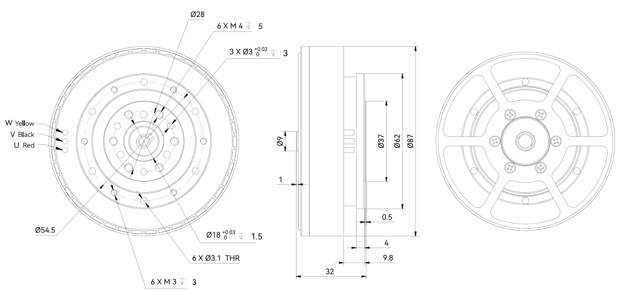


SPECIFICATIONS

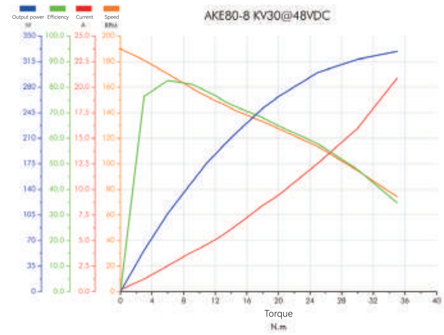
Application	Cobot Arm	Peak Torque (Nm)	170
Driving Way	FOC	Peak Current (ADC)	72
Operation Ambient Temperature (℃)	-20~50	Kv (RPM/V)	35
Winding Type	delta	Kt (Nm/A)	0.272
Insulation Class	H	Ke (V/kRPM)	0.0285
Insulation High-Voltage (V)	1000	Phase to Phase Resistance (mΩ)	164
Insulation Resistance (MΩ)	10	Phase to Phase Inductance (μH)	235
Pole Pairs	21	Inertia (gcm²)	3377.08
Arcmin	9	Km (Nm/√W)	0.67372
Rated Voltage (V)	48	Mechanical Time Constant (ms)	2.18
No-Load Speed (RPM)	210	Electrical Time Constant (ms)	1.4329
Rated Torque (Nm)	55	Weight (g)	1400
Rated Speed (RPM)	120	Maximum Torque Weight Ratio (Nm/kg)	121.4
Rated Current (ADC)	21	Reduction Ratio	8:1

AKE80-8 KV30, Φ87*32mm

PRODUCT DRAWING



ANALYTICAL GRAPH OF MOTOR OPERATION



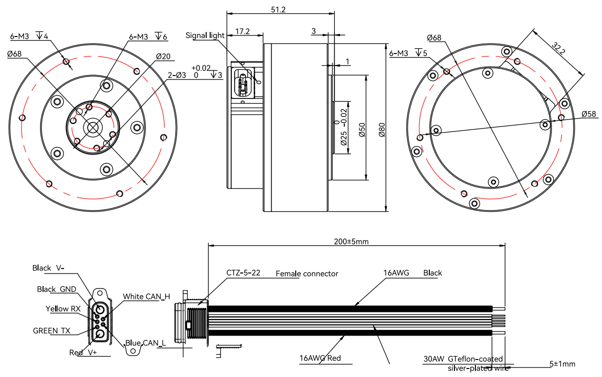
SPECIFICATIONS

Application	Cobot Arm	Peak Torque (Nm)	30
Driving Way	FOC	Peak Current (ADC)	12
Operation Ambient Temperature (℃)	-20~50	Kv (RPM/V)	30
Winding Type	star	Kt (Nm/A)	0.32
Insulation Class	F	Ke (V/kRPM)	33
Insulation High-Voltage (V)	500	Phase to Phase Resistance (mΩ)	870
Insulation Resistance (MΩ)	10	Phase to Phase Inductance (μH)	990
Pole Pairs	21	Inertia (gcm²)	143
Arcmin	9	Km (Nm/√W)	0.34
Rated Voltage (V)	48	Mechanical Time Constant (ms)	2.3
No-Load Speed (RPM)	195	Electrical Time Constant (ms)	1.13
Rated Torque (Nm)	12	Weight (g)	570
Rated Speed (RPM)	150	Maximum Torque Weight Ratio (Nm/kg)	52
Rated Current (ADC)	4.8	Reduction Ratio	8:1

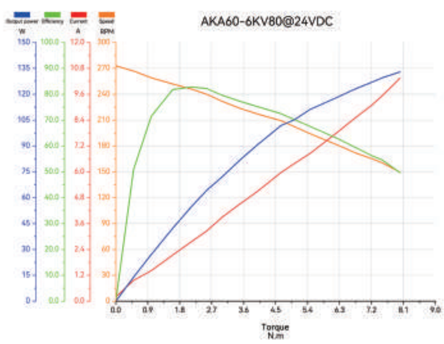
AKA Series Robotic Actuation Module

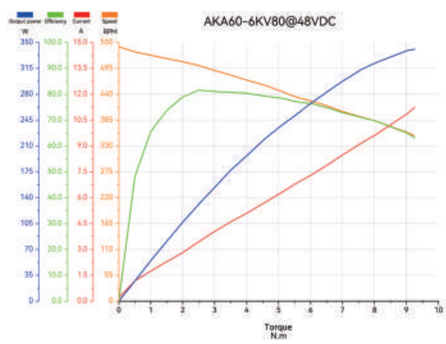
AKA60-6 KV80, Φ80*51.2mm

PRODUCT DRAWING



ANALYTICAL GRAPH OF MOTOR OPERATION



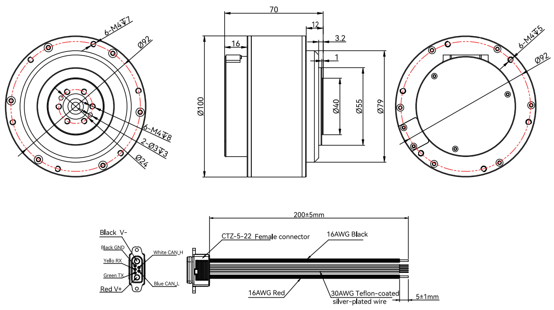


SPECIFICATIONS

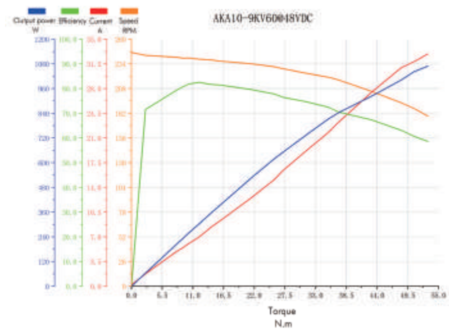
Application	AGV, Wheeled Robot	Rated Current (ADC)	11.2
Driving Way	FOC	Peak Torque (Nm)	9
Operation Ambient Temperature (℃)	-20~50	Peak Current (ADC)	11.2
Winding Type	star	Kv (RPM/V)	80
Insulation Class	H	Kt (Nm/A)	0.11937
Insulation High-Voltage (V)	500	Ke (V/kRPM)	0.0125
Insulation Resistance (MΩ)	10	Phase to Phase Resistance (mΩ)	595
Pole Pairs	14	Phase to Phase Inductance (μH)	675
Arcmin	9	Inertia (gcm²)	331.91
Rated Voltage (V)	24/48	Km (Nm/√W)	0.1541
No-Load Speed (RPM)	320/640	Mechanical Time Constant (ms)	2.5
Rated Torque (Nm)	3	Electrical Time Constant (ms)	1.13
Rated Speed (RPM)	200/400	Weight (g)	460

AKA10-9 KV60, Φ100*70mm

PRODUCT DRAWING



ANALYTICAL GRAPH OF MOTOR OPERATION



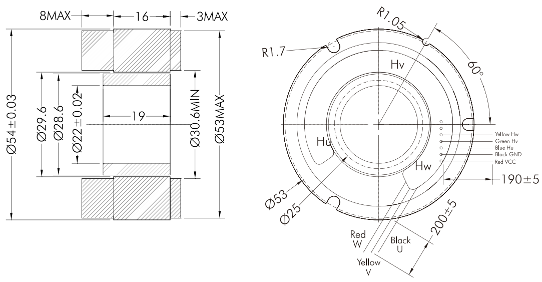
SPECIFICATIONS

Application	AGV, Wheeled Robot	Rated Current (ADC)	10.6
Driving Way	FOC	Peak Torque (Nm)	53
Operation Ambient Temperature (℃)	-20~50	Peak Current (ADC)	32
Winding Type	star	Kv (RPM/V)	60
Insulation Class	C	Kt (Nm/A)	0.16
Insulation High-Voltage (V)	1000	Ke (V/kRPM)	0.0167
Insulation Resistance (MΩ)	10	Phase to Phase Resistance (mΩ)	248
Pole Pairs	21	Phase to Phase Inductance (μH)	235
Arcmin	9	Inertia (gcm²)	1002
Rated Voltage (V)	48	Km (Nm/√W)	0.32
No-Load Speed (RPM)	320	Mechanical Time Constant (ms)	1.90
Rated Torque (Nm)	18	Electrical Time Constant (ms)	0.94
Rated Speed (RPM)	109	Weight (g)	1060

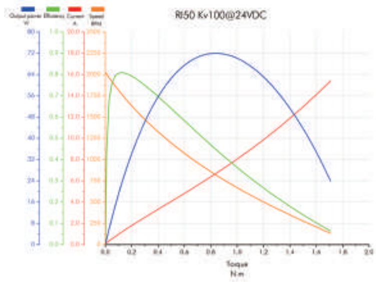
RI Series Frameless Inrunner Torque Motor

RI50 KV100, Φ54*27mm

PRODUCT DRAWING



ANALYTICAL GRAPH OF MOTOR OPERATION



SPECIFICATIONS

Application	Cobot Arm/Exoskeleton
Driving Way	FOC
Operation Ambient Temperature	-20℃~50℃
Winding Type	star
Insulation Class	C
Insulation High-Voltage	500V 5mA/2s
Insulation Resistance	500V10MΩ
Phase	3
Pole Pairs	7

ELECTRIC PARAMETERS

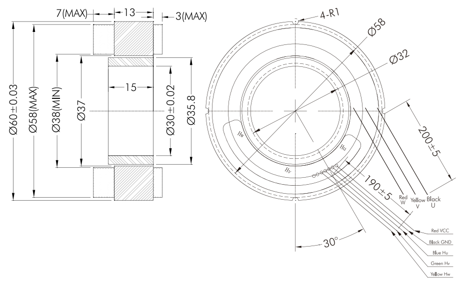
Rated Voltage (V)	24/36/48
No-Load speed (RPM)	2004/3006/4008
Rated Torque (Nm)	0.58
Rated Speed (RPM)	1090/1860/2600
Rated Current (ADC)	4.8
Peak Torque (Nm)	1.67
Peak Current (ADC)	14.8
Kv (RPM/V)	100
Kt (Nm/A)	0.120
Ke (V/kRPM)	11.41
Phase to Phase Resistance (mΩ)	1420
Phase to Phase Inductance (μH)	1500
Inertia (gcm^2)	22.8
Km (Nm/√W)	0.1007
Mechanical Time Constant (ms)	0.22
Electrical Time Constant (ms)	1.06
Weight (g)	180.8
Maximum Torque Weight Ratio (Nm/kg)	9.24

CONNECTOR

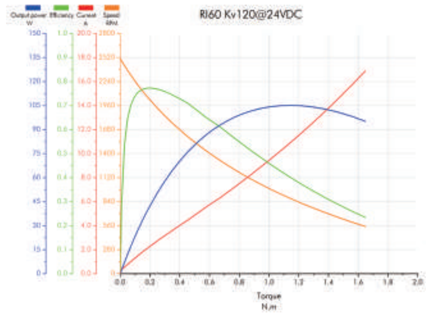
U	Black+18#Silicone Wire
V	Yellow+18#Silicone Wire
W	Red+18#Silicone Wire
Hu	Blue+30#Silicone Wire
Hv	Green+30#Silicone Wire
Hw	Yellow+30#Silicone Wire
VCC GND	Red+30#Silicone Wire Black+30#Silicone Wire
Correspondence	Hu-U Hv-V Hw-W

RI60 KV120, Φ60*23mm

PRODUCT DRAWING



ANALYTICAL GRAPH OF MOTOR OPERATION



SPECIFICATIONS

Application	Cobot Arm/Exoskeleton	Insulation Class	C
Driving Way	FOC	Insulation High-Voltage	500V 5mA/2s
Operation Ambient Temperature	-20℃~50℃	Insulation Resistance	500V10MΩ
Winding Type	Delta	Phase	3
		Pole Pairs	14

ELECTRIC PARAMETERS

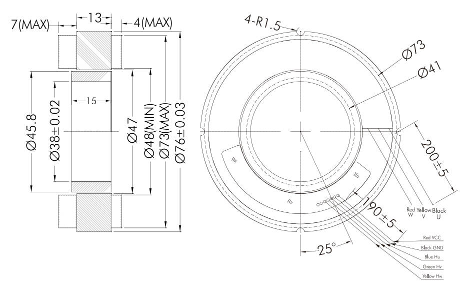
Rated Voltage (V)	24/36/48	Ke (V/kRPM)	9.03
No-Load Speed (RPM)	2532/3798/5064	Phase to Phase Resistance (mΩ)	900
Rated Torque (Nm)	0.57	Phase to Phase Inductance (μH)	877.5
Rated Speed (RPM)	1440/2320/3190	Inertia (gcm²)	33.05
Rated Current (ADC)	5.6	Km (Nm/√W)	0.1054
Peak Torque (Nm)	1.63	Mechanical Time Constant (ms)	0.30
Peak Current (ADC)	16.8	Electrical Time Constant (ms)	0.98
Kv (RPM/V)	120	Weight (g)	155.9
Kt (Nm/A)	0.100	Maximum Torque Weight Ratio (Nm/kg)	10.46

CONNECTOR

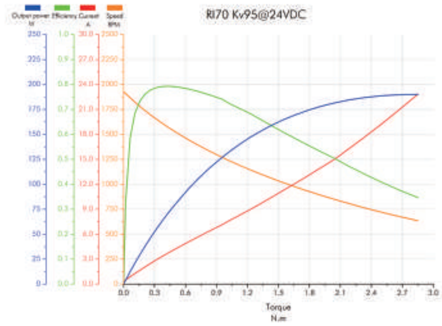
U	Black+18#Silicone Wire	Hv	Green+30#Silicone Wire
V	Yellow+18#Silicone Wire	Hw	Yellow+30#Silicone Wire
W	Red+18#Silicone Wire	VCC GND	Red+30#Silicone Wire Black+30#Silicone Wire
Hu	Blue+30#Silicone Wire	Correspondence	Hu-U Hv-V Hw-W

RI70 KV95, Φ76*24mm

PRODUCT DRAWING



ANALYTICAL GRAPH OF MOTOR OPERATION



SPECIFICATIONS

Application	Cobot Arm/Exoskeleton	Insulation Class	C
Driving Way	FOC	Insulation High-Voltage	1000V 5mA/2s
Operation Ambient Temperature	-20℃~50℃	Insulation Resistance	1000V10MΩ
Winding Type	Delta	Phase	3
		Pole Pairs	14

ELECTRIC PARAMETERS

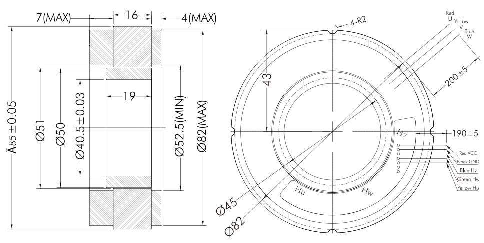
Rated Voltage (V)	24/36/48	Ke (V/kRPM)	11.69
No-Load Speed (RPM)	1956/2934/3912	Phase to Phase Resistance (mΩ)	418
Rated Torque (Nm)	0.94	Phase to Phase Inductance (μH)	622.7
Rated Speed (RPM)	1270/1990/2710	Inertia (gcm^2)	92.15
Rated Current (ADC)	7.1	Km (Nm/√W)	0.2011
Peak Torque (Nm)	2.68	Mechanical Time Constant (ms)	0.23
Peak Current (ADC)	21	Electrical Time Constant (ms)	1.49
Kv (RPM/V)	95	Weight (g)	270.4
Kt (Nm/A)	0.130	Maximum Torque Weight Ratio (Nm/kg)	9.91

CONNECTOR

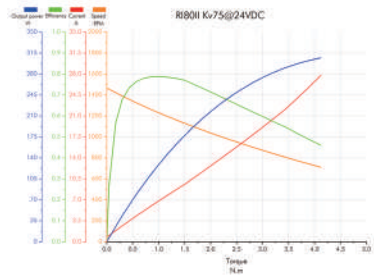
U	Black+16#Silicone Wire	Hv	Green+30#Silicone Wire
V	Yellow+16#Silicone Wire	Hw	Yellow+30#Silicone Wire
W	Red+16#Silicone Wire	VCC GND	Red+30#Silicone Wire Black+30#Silicone Wire
Hu	Blue+30#Silicone Wire	Correspondence	Hu-U Hv-V Hw-W
		CCW Correspondence	eg: Hu-U Hv-V Hw-W

RI80 V2.0 KV75, Φ85*27mm

PRODUCT DRAWING



ANALYTICAL GRAPH OF MOTOR OPERATION



SPECIFICATIONS

Application	Cobot Arm/Exoskeleton
Driving Way	FOC
Operation Ambient Temperature	-20℃~50℃
Winding Type	Delta
Insulation Class	C
Insulation High-Voltage	1000V 5mA/2s
Insulation Resistance	1000V10MΩ
Phase	3
Pole Pairs	8

ELECTRIC PARAMETERS

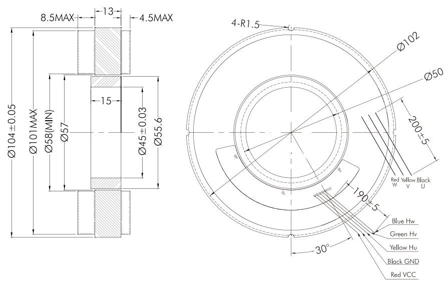
Rated Voltage (V)	24/36/48
No-Load Speed (RPM)	1480/2220/2960
Rated Torque (Nm)	1.45
Rated Speed (RPM)	1135/1785/2430
Rated Current (ADC)	9.4
Peak Torque (Nm)	4.1
Peak Current (ADC)	27.6
Kv (RPM/V)	75
Kt (Nm/A)	0.155
Ke (V/kRPM)	15.5
Phase to Phase Resistance (mΩ)	330
Phase to Phase Inductance (μH)	510
Inertia (gcm²)	212.49
Km (Nm/√W)	0.2698
Mechanical Time Constant (ms)	0.29
Electrical Time Constant (ms)	1.55
Weight (g)	411
Maximum Torque Weight Ratio (Nm/kg)	9.3

CONNECTOR

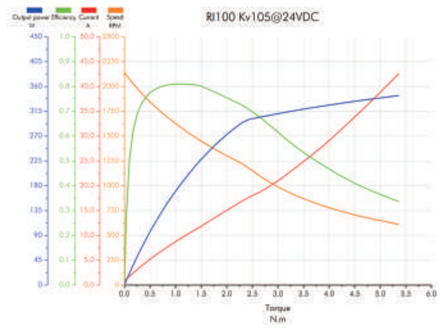
U	Red+16#Silicone Wire
V	Yellow+16#Silicone Wire
W	Blue+16#Silicone Wire
Hu	Yellow+30#Silicone Wire
Hv	Blue+30#Silicone Wire
Hw	Green+30#Silicone Wire
VCC GND	Red+30#Silicone Wire Black+30#Silicone Wire
Correspondence	Hu-U Hv-V Hw-W

RI100 KV105, Φ104*26mm

PRODUCT DRAWING



ANALYTICAL GRAPH OF MOTOR OPERATION



SPECIFICATIONS

Application	Cobot Arm/Exoskeleton
Driving Way	FOC
Operation Ambient Temperature	-20℃~50℃
Winding Type	Delta
Insulation Class	C
Insulation High-Voltage	1000V 5mA/2s
Insulation Resistance	1000V10MΩ
Phase	3
Pole Pairs	14

ELECTRIC PARAMETERS

Rated Voltage (V)	24/36/48
No-Load Speed (RPM)	2184/3276/4368
Rated Torque (Nm)	1.76
Rated Speed (RPM)	1370/2100/2825
Rated Current (ADC)	13.6
Peak Torque (Nm)	4.95
Peak Current (ADC)	38.6
Kv (RPM/V)	105
Kt (Nm/A)	0.129
Ke (V/kRPM)	10.47
Phase to Phase Resistance (mΩ)	126
Phase to Phase Inductance (μH)	366.7
Inertia (gcm²)	215.5
Km (Nm/√W)	0.3634
Mechanical Time Constant (ms)	0.16
Electrical Time Constant (ms)	2.91
Weight (g)	500
Maximum Torque Weight Ratio (Nm/kg)	9.9

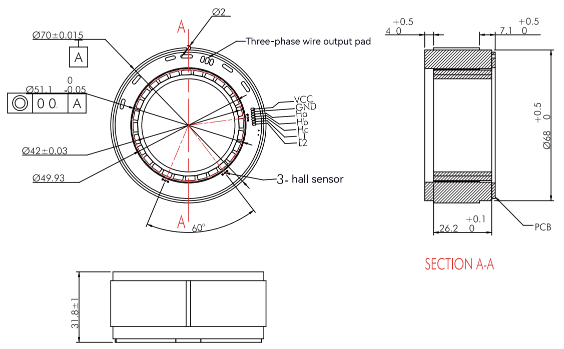
CONNECTOR

U	Black+16#Silicone Wire
V	Yellow+16#Silicone Wire
W	Red+16#Silicone Wire
Hu	Yellow+30#Silicone Wire
Hv	Green+30#Silicone Wire
Hw	Blue+30#Silicone Wire
VCC GND	Red+30#Silicone Wire Black+30#Silicone Wire
Correspondence	Hu-U Hv-V Hw-W

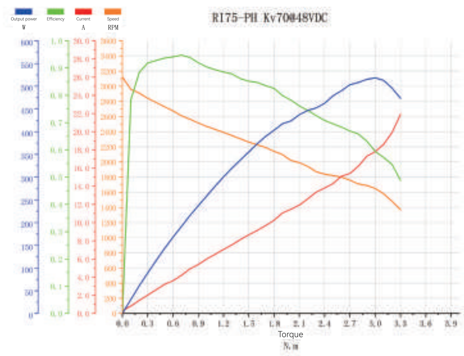
RI-PH Series Frameless Inrunner Torque Motor

RI75-PH KV70, Φ70*31.8mm

PRODUCT DRAWING



ANALYTICAL GRAPH OF MOTOR OPERATION



CHARACTERISTICS OVERVIEW

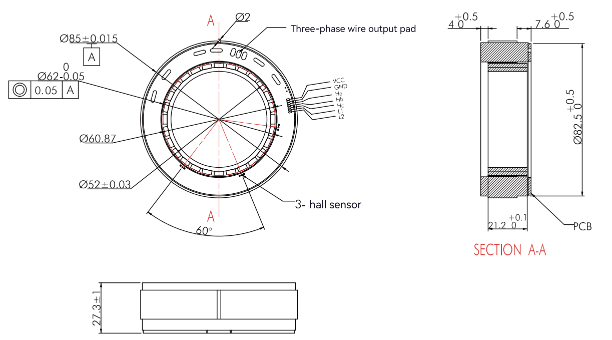
Hall Distribution Angle	120 Electrical Degrees
Dielectric Strength	1000VAC/1S
Insulation Resistance	100MΩ, 500VDC
Operating Environment	-20℃~+85℃
Insulation Class	Class H

ELECTRIC PARAMETERS

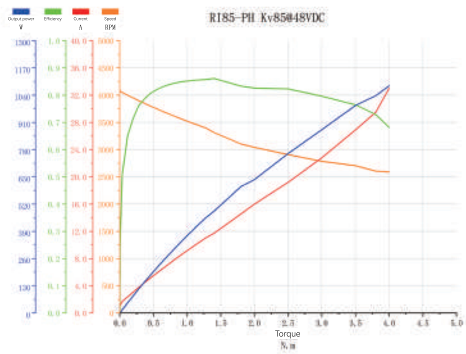
Motor Weight (g)	348
Voltage (V)	48
Continuous Torque (N·m)	1.2
Peak Torque (N·m)	3.8
Max Speed at Continuous Torque (RPM)	2365
Continuous Current (A)	7.28
Peak Current (A)	24.2 (Ref)
Torque Constant (N·m/A)	0.143
Back EMF Constant (V/RPM)	0.015
Speed Constant (RPM/V)	70
Motor Constant (N·m/√w)	0.203
Inertia (g·cm²)	416
Number of Pole Pairs	14
Phase Resistance (mΩ)	495
Phase Inductance (μH)	673
Maximum Torque-to-Weight Ratio (N·m/kg)	11.8
Electrical Time Constant (ms)	0.0013
Electromechanical Time Constant (ms)	0.001

RI85-PH KV85, Φ85*27.3mm

PRODUCT DRAWING



ANALYTICAL GRAPH OF MOTOR OPERATION



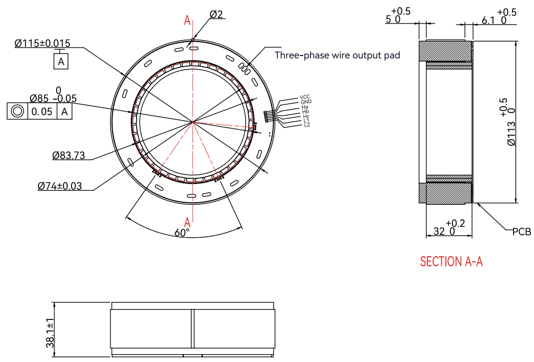
CHARACTERISTICS OVERVIEW

Hall Distribution Angle	120 Electrical Degrees
Dielectric Strength	1000VAC/1S
Insulation Resistance	100MΩ, 500VDC
Operating Environment	-20℃~+85℃
Insulation Class	Class H

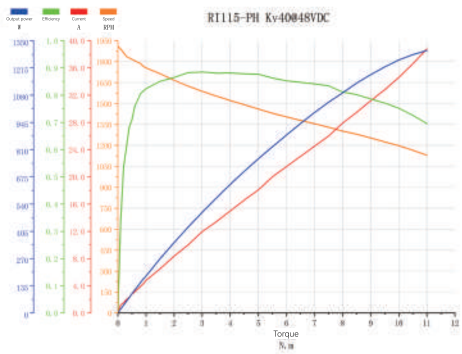
ELECTRIC PARAMETERS

Motor Weight (g)	411
Voltage (V)	48
Continuous Torque (N·m)	2
Peak Torque (N·m)	5
Max Speed at Continuous Torque (RPM)	3042
Continuous Current (A)	16
Peak Current (A)	44 (Ref)
Torque Constant (N·m/A)	0.13
Back EMF Constant (V/RPM)	0.011
Speed Constant (RPM/V)	85
Motor Constant (N·m/√w)	0.299
Inertia (g·cm²)	652
Number of Pole Pairs	14
Phase Resistance (mΩ)	138.5
Phase Inductance (μH)	239.4
Maximum Torque-to-Weight Ratio (N·m/kg)	11.6
Electrical Time Constant (ms)	0.0017
Electromechanical Time Constant (ms)	0.0007

PRODUCT DRAWING



ANALYTICAL GRAPH OF MOTOR OPERATION



CHARACTERISTICS OVERVIEW

Hall Distribution Angle	120 Electrical Degrees
Dielectric Strength	1000VAC/1S
Insulation Resistance	100MΩ, 500VDC
Operating Environment	-20℃~+85℃
Insulation Class	Class H

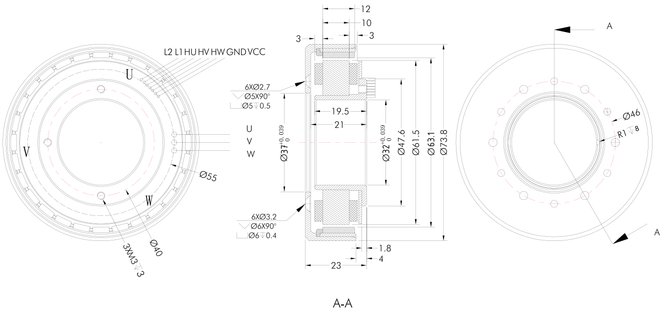
ELECTRIC PARAMETERS

Motor Weight (g)	1108
Voltage (V)	48
Continuous Torque (N·m)	5.5
Peak Torque (N·m)	16
Max Speed at Continuous Torque (RPM)	1430
Continuous Current (A)	17.8
Peak Current (A)	52 (Ref)
Torque Constant (N·m/A)	0.29
Back EMF Constant (V/RPM)	0.025
Speed Constant (RPM/V)	40
Motor Constant (N·m/√w)	0.66
Inertia (g·cm²)	3461
Number of Pole Pairs	20
Phase Resistance (mΩ)	134
Phase Inductance (μH)	245
Maximum Torque-to-Weight Ratio (N·m/kg)	15
Electrical Time Constant (ms)	0.0018
Electromechanical Time Constant (ms)	0.0008

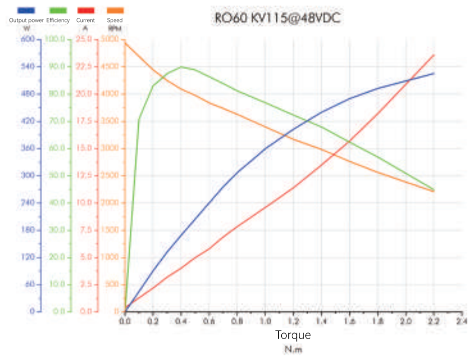
RO Series Frameless Outrunner Torque Motor

RO60 KV115, Φ73.8*23mm

PRODUCT DRAWING



ANALYTICAL GRAPH OF MOTOR OPERATION



SPECIFICATIONS

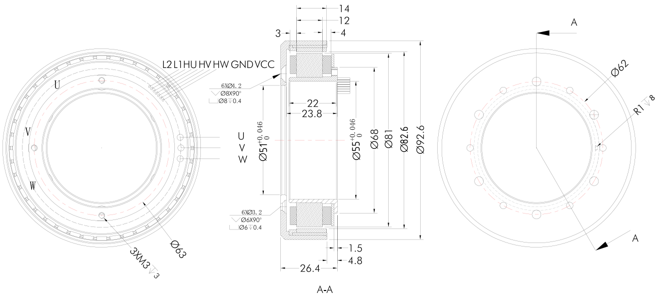
Application	Cobot Arm, Exoskeleton
Driving Way	FOC
Operation Ambient Temperature	-20℃~50℃
Winding Type	star
Insulation Class	F
Insulation High-Voltage	500V 5mA/2s
Insulation Resistance	500V10MΩ
Phase	3
Pole Pairs	14

ELECTRIC PARAMETERS

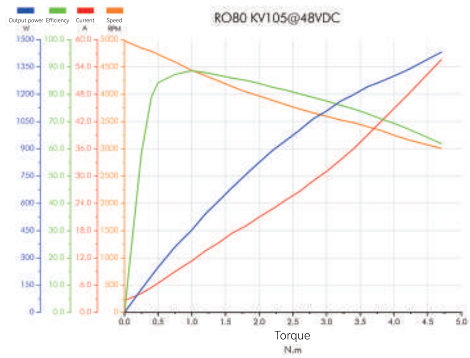
Rated Voltage (V)	48
No-Load Speed (RPM)	5230
Rated Torque (Nm)	0.8
Rated Speed (RPM)	4200
Rated Current (ADC)	8.5
Peak Torque (Nm)	2.4
Peak Current (ADC)	40
Kv (RPM/V)	115
Kt (Nm/A)	0.094
Ke (V/kRPM)	8.28
Phase to Phase Resistance (mΩ)	300
Phase to Phase Inductance (μH)	395
Inertia (gcm²)	841
Km (Nm/√W)	0.17
Mechanical Time Constant (ms)	2.86
Electrical Time Constant (ms)	1.32
Weight (g)	248
Maximum Torque Weight Ratio (Nm/kg)	10

RO80 KV105, Φ92.6*26.4mm

PRODUCT DRAWING



ANALYTICAL GRAPH OF MOTOR OPERATION



SPECIFICATIONS

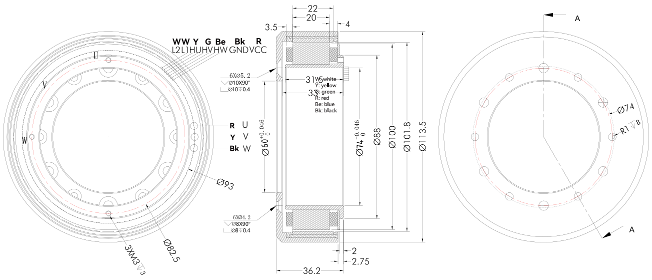
Application	Cobot Arm, Exoskeleton
Driving Way	FOC
Operation Ambient Temperature	-20℃~50℃
Winding Type	Delta
Insulation Class	F
Insulation High-Voltage	500V 5mA/2s
Insulation Resistance	500V10MΩ
Phase	3
Pole Pairs	21

ELECTRIC PARAMETERS

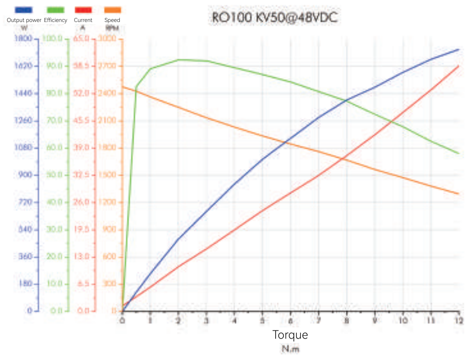
Rated Voltage (V)	48
No-load speed (RPM)	4800
Rated Torque (Nm)	1.3
Rated Speed (RPM)	4000
Rated Current (ADC)	15
Peak Torque (Nm)	4.5
Peak Current (ADC)	55
Kv (RPM/V)	105
Kt (Nm/A)	0.087
Ke (V/kRPM)	9.07
Phase to Phase Resistance (mΩ)	120
Phase to Phase Inductance (μH)	103
Inertia (gcm²)	1859
Km (Nm/√W)	0.251147367
Mechanical Time Constant (ms)	2.95
Electrical Time Constant (ms)	0.86
Weight (g)	345
Maximum Torque Weight Ratio (Nm/kg)	13

RO100 KV50, Φ113.5*36.2mm

PRODUCT DRAWING



ANALYTICAL GRAPH OF MOTOR OPERATION



SPECIFICATIONS

Application	Cobot Arm, Exoskeleton
Driving Way	FOC
Operation Ambient Temperature	-20℃~50℃
Winding Type	star
Insulation Class	F
Insulation High-Voltage	500V 5mA/2s
Insulation Resistance	500V10MΩ
Phase	3
Pole Pairs	21

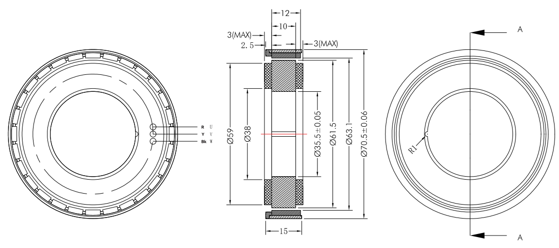
ELECTRIC PARAMETERS

Rated Voltage (V)	48
No-Load Speed (RPM)	2450
Rated Torque (Nm)	4
Rated Speed (RPM)	2000
Rated Current (ADC)	20
Peak Torque (Nm)	12
Peak Current (ADC)	62
Kv (RPM/V)	50
Kt (Nm/A)	0.200
Ke (V/kRPM)	18.67
Phase to Phase Resistance (mΩ)	143
Phase to Phase Inductance (μH)	137
Inertia (gcm²)	4845
Km (Nm/√W)	0.528885885
Mechanical Time Constant (ms)	1.73
Electrical Time Constant (ms)	0.96
Weight (g)	685
Maximum Torque Weight Ratio (Nm/kg)	17

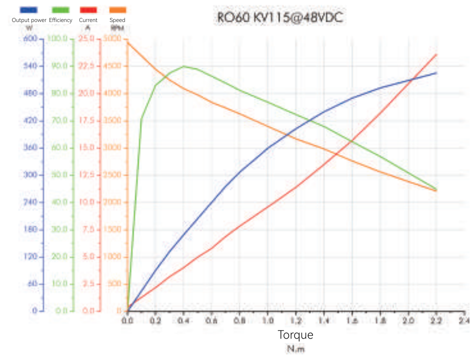
RO LITE Series Frameless Outrunner Torque Motor

RO60 LITE KV115, Φ70.5*15mm

PRODUCT DRAWING



ANALYTICAL GRAPH OF MOTOR OPERATION



SPECIFICATIONS

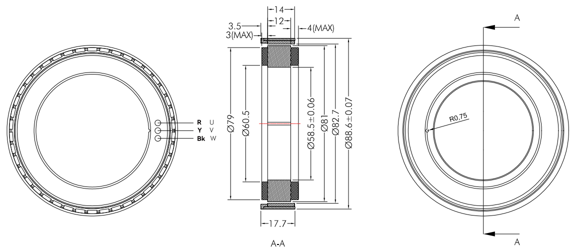
Application	Cobot Arm, Exoskeleton
Driving Way	FOC
Operation Ambient Temperature (℃)	-20~50
Winding Type	Star
Insulation Class	F
Insulation High-Voltage (V)	500
Insulation Resistance (mΩ)	10
Cogging Torque (mN.m)	15
Pole Pairs	14
Rotor Weight (g)	70
Lead-Out	Three-Phase Motor Lead-Out Enameled Wire Straight Out 100±5mm Tinned 5±2mm

ELECTRIC PARAMETERS

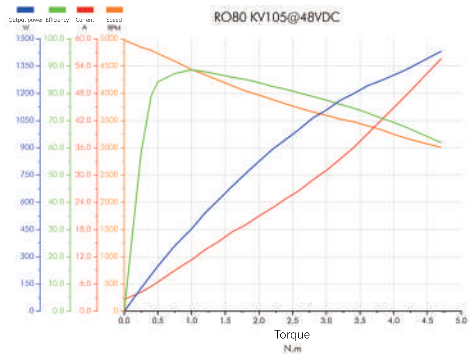
Rated Voltage (V)	48
No-Load Speed (RPM)	5520
Rated Torque (Nm)	0.8
Rated Speed (RPM)	4200
Rated Current (ADC)	8.5
Peak Torque (Nm)	2.4
Peak Current (ADC)	40
Kv (RPM/V)	115
Kt (Nm/A)	0.094
Stator Weight (g)	125
Ke (V/kRPM)	8.28
Phase to Phase Resistance (mΩ)	300
Phase to Phase Inductance (μH)	395
Inertia (gcm²)	800
Km (Nm/√W)	0.17
Mechanical Time Constant (ms)	2.86
Electrical Time Constant (ms)	1.32
Weight (g)	195

RO80 LITE KV105, Φ88.6*17.7mm

PRODUCT DRAWING



ANALYTICAL GRAPH OF MOTOR OPERATION



SPECIFICATIONS

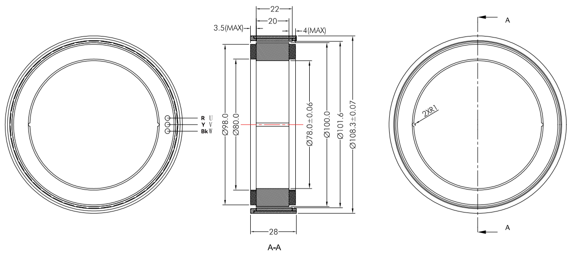
Application	Cobot Arm, Exoskeleton
Driving Way	FOC
Operation Ambient Temperature (℃)	-20~50
Winding Type	delta
Insulation Class	F
Insulation High-Voltage (V)	500
Insulation Resistance (mΩ)	10
Cogging Torque (mN.m)	24
Pole Pairs	21
Rotor Weight (g)	85
Lead-Out	Three-Phase Motor Lead-Out Enameled Wire Straight Out 100±5mm Tinned 5±2mm

ELECTRIC PARAMETERS

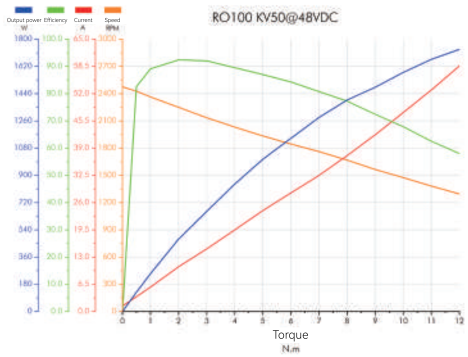
Rated Voltage (V)	48
No-Load Speed (RPM)	5040
Rated Torque (Nm)	1.3
Rated Speed (RPM)	3600
Rated Current (ADC)	15
Peak Torque (Nm)	4
Peak Current (ADC)	50
Kv (RPM/V)	105
Kt (Nm/A)	0.087
Stator Weight (g)	180
Ke (V/kRPM)	9.07
Phase to Phase Resistance (mΩ)	120
Phase to Phase Inductance (μH)	103
Inertia (gcm²)	1600
Km (Nm/√W)	0.25
Mechanical Time Constant (ms)	2.95
Electrical Time Constant (ms)	0.86
Weight (g)	265

RO100 LITE KV55, Φ108.3*28mm

PRODUCT DRAWING



ANALYTICAL GRAPH OF MOTOR OPERATION



SPECIFICATIONS

Application	Cobot Arm
Driving Way	FOC
Operation Ambient Temperature (℃)	-20~50
Winding Type	star
Insulation Class	F
Insulation High-Voltage (V)	500
Insulation Resistance (mΩ)	10
Cogging Torque (mN.m)	55
Pole Pairs	21
Rotor Weight (g)	190
Lead-Out	Three-Phase Motor Lead-Out Enameled Wire Straight Out 100±5mm Tinned 5±2mm

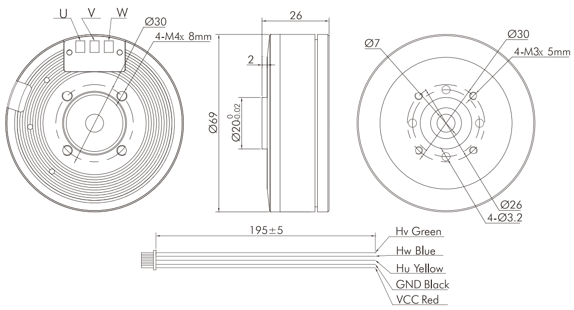
ELECTRIC PARAMETERS

Rated Voltage (V)	48
No-Load Speed (RPM)	2550
Rated Torque (Nm)	4
Rated Speed (RPM)	2000
Rated Current (ADC)	20
Peak Torque (Nm)	12
Peak Current (ADC)	62
Kv (RPM/V)	53
Kt (Nm/A)	0.2
Stator Weight (g)	335
Ke (V/kRPM)	18.67
Phase to Phase Resistance (mΩ)	143
Phase to Phase Inductance (μH)	137
Inertia (gcm^2)	5290
Km (Nm/√W)	0.53
Mechanical Time Constant (ms)	1.73
Electrical Time Constant (ms)	0.96
Weight (g)	525

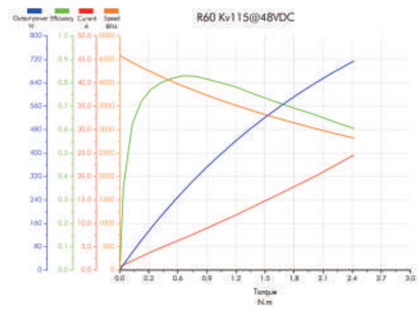
R Series Outrunner Torque Motor

R60 KV115, Φ69*26mm

PRODUCT DRAWING



ANALYTICAL GRAPH OF MOTOR OPERATION



SPECIFICATIONS

Application	Exoskeleton
Driving Way	FOC
Operation Ambient Temperature	-20℃~50℃
Winding Type	star
Insulation Class	H
Insulation High-Voltage	500V 5mA/2s
Insulation Resistance	500V10MΩ
Phase	3
Pole Pairs	14

CONNECTOR

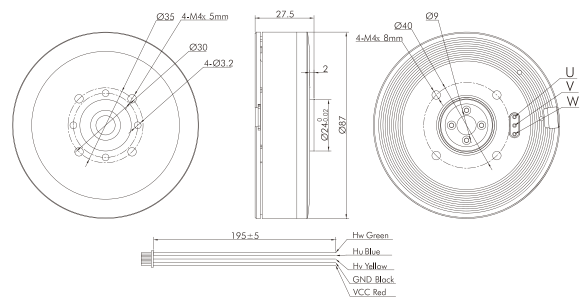
Motor Phase U V W	Reference Engineering Drawing
Hall sensor port VCC, GND, Hu, Hv, Hw	Reference Engineering Drawing
Correspondence	Hu-U Hv-V Hw-W

ELECTRIC PARAMETERS

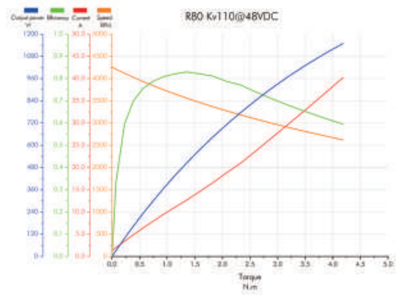
Rated Voltage (V)	48	Ke (V/kRPM)	9.82
No-Load Speed (RPM)	4656	Phase to Phase Resistance (mΩ)	235
Rated Torque (Nm)	0.75	Phase to Phase Inductance (μH)	183
Rated Speed (RPM)	3845	Inertia (gcm²)	363.74
Rated Current (ADC)	7.6	Km (Nm/√W)	0.2022
Peak Torque (Nm)	2.3	Mechanical Time Constant (ms)	0.89
Peak Current (ADC)	23.2	Electrical Time Constant (ms)	0.78
Kv (RPM/V)	97	Weight (g)	248
Kt (Nm/A)	0.098	Maximum Torque Weight Ratio (Nm/kg)	9.3

R80 KV110, Φ87*27.5mm

PRODUCT DRAWING



ANALYTICAL GRAPH OF MOTOR OPERATION



SPECIFICATIONS

Application	Exoskeleton
Driving Way	FOC
Operation Ambient Temperature	-20℃~50℃
Winding Type	delta
Insulation Class	H
Insulation High-Voltage	1000V 5mA/2s
Insulation Resistance	1000V10MΩ
Phase	3
Pole Pairs	21

CONNECTOR

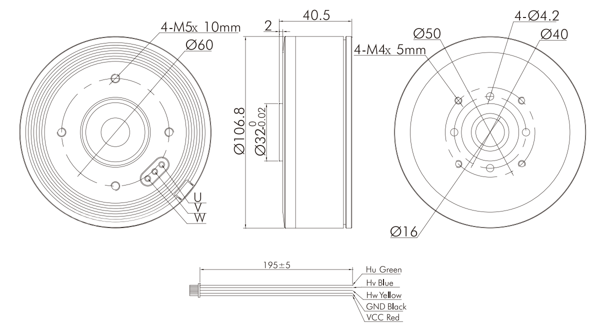
Motor Phase U V W	Reference Engineering Drawing
Hall sensor port VCC, GND, Hu, Hv, Hw	Reference Engineering Drawing
Correspondence	Hu-U Hv-V Hw-W

ELECTRIC PARAMETERS

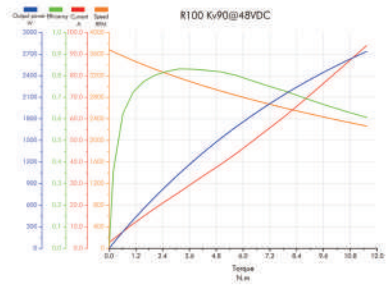
Rated Voltage (V)	48	Ke (V/kRPM)	10.58
No-Load Speed (RPM)	4320	Phase to Phase Resistance (mΩ)	125
Rated Torque (Nm)	1.3	Phase to Phase Inductance (μH)	87
Rated Speed (RPM)	3580	Inertia (gcm²)	759.98
Rated Current (ADC)	12.3	Km (Nm/√W)	0.3026
Peak Torque (Nm)	4	Mechanical Time Constant (ms)	0.83
Peak Current (ADC)	38.6	Electrical Time Constant (ms)	0.70
Kv (RPM/V)	90	Weight (g)	354
Kt (Nm/A)	0.107	Maximum Torque Weight Ratio (Nm/kg)	11.3

R100 KV90, Φ106.8*40.5mm

PRODUCT DRAWING



ANALYTICAL GRAPH OF MOTOR OPERATION



SPECIFICATIONS

Application	Exoskeleton
Driving Way	FOC
Operation Ambient Temperature	-20℃~50℃
Winding Type	delta
Insulation Class	H
Insulation High-Voltage	1000V 5mA/2s
Insulation Resistance	1000V10MΩ
Phase	3
Pole Pairs	21

CONNECTOR

Motor Phase U V W	Reference Engineering Drawing
Hall sensor port VCC, GND, Hu, Hv, Hw	Reference Engineering Drawing
Correspondence	Hu-U Hv-V Hw-W

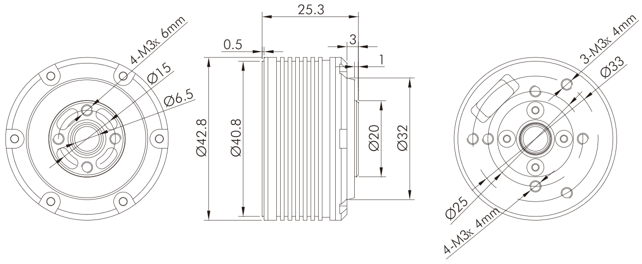
ELECTRIC PARAMETERS

Rated Voltage (V)	48	Ke (V/kRPM)	12.21
No-Load Speed (RPM)	3740	Phase to Phase Resistance (mΩ)	51
Rated Torque (Nm)	3.7	Phase to Phase Inductance (μH)	33
Rated Speed (RPM)	3080	Inertia (gcm²)	2505.4
Rated Current (ADC)	30.1	Km (Nm/√W)	0.5447
Peak Torque (Nm)	11	Mechanical Time Constant (ms)	0.84
Peak Current (ADC)	90.5	Electrical Time Constant (ms)	0.65
Kv (RPM/V)	78	Weight (g)	731
Kt (Nm/A)	0.123	Maximum Torque Weight Ratio (Nm/kg)	16.4

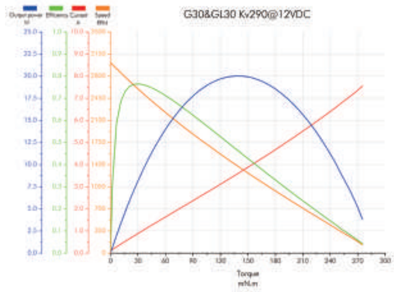
G Series Inrunner Gimbal Motor

G30 KV290, Φ42.8*25.3mm

PRODUCT DRAWING



ANALYTICAL GRAPH OF MOTOR OPERATION



SPECIFICATIONS

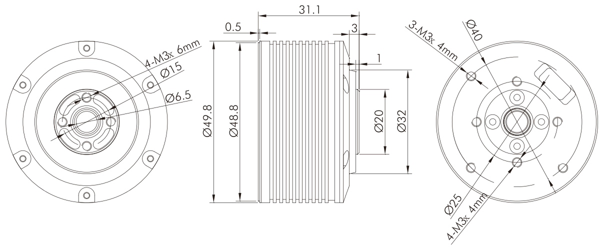
Application	Gimbal, Radar
Driving Way	FOC
Operation Ambient Temperature	-20℃~50℃
Winding Type	star
Insulation Vlass	H
Insulation High-Voltage	500V 5mA/2s
Insulation Resistance	500V10MΩ
Phase	3
Pole Pairs	7

ELECTRIC PARAMETERS

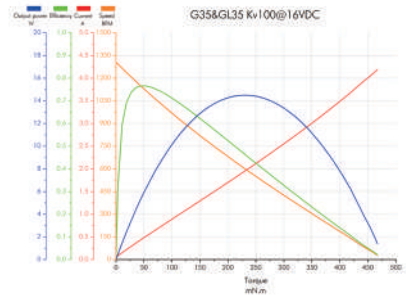
Rated Voltage (V)	12
No-Load Speed (RPM)	3060
Rated Torque (Nm)	0.08
Rated Speed (RPM)	1990
Rated Current (ADC)	2.13
Peak Torque (Nm)	0.28
Peak Current (ADC)	7.4
Kv (RPM/V)	255
Kt (Nm/A)	0.038
Ke (V/kRPM)	3.73
Phase to Phase Resistance (mΩ)	1530
Phase to Phase Inductance (μH)	330
Inertia (gcm²)	24.2
Km (Nm/√W)	0.0307
Mechanical Time Constant (ms)	2.56
Electrical Time Constant (ms)	0.22
Weight (g)	41
Maximum Torque Weight Ratio (Nm/kg)	6.83

G35 KV100, Φ49.8*31.1mm

PRODUCT DRAWING



ANALYTICAL GRAPH OF MOTOR OPERATION



SPECIFICATIONS

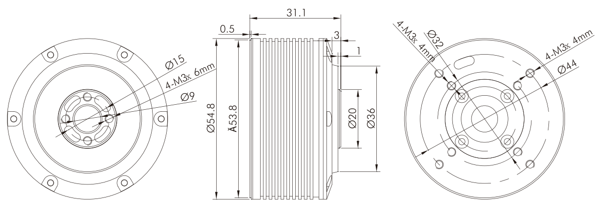
Application	Gimbal, Radar
Driving Way	FOC
Operation Ambient Temperature	-20℃~50℃
Winding Type	star
Insulation Class	H
Insulation High-Voltage	500V 5mA/2s
Insulation Resistance	500V10MΩ
Phase	3
Pole Pairs	7

ELECTRIC PARAMETERS

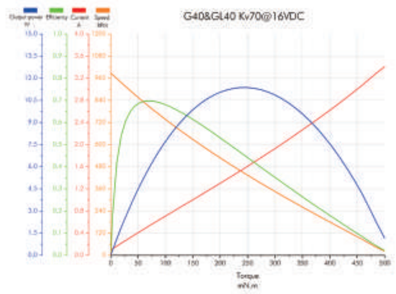
Rated Voltage (V)	16
No-Load Speed (RPM)	1320
Rated Torque (Nm)	0.15
Rated Speed (RPM)	815
Rated Current (ADC)	1.3
Peak Torque (Nm)	0.46
Peak Current (ADC)	4
Kv (RPM/V)	82.5
Kt (Nm/A)	0.115
Ke (V/kRPM)	11.54
Phase to Phase Resistance (mΩ)	3600
Phase to Phase Inductance (μH)	2100
Inertia (gcm^2)	61
Km (Nm/√W)	0.0606
Mechanical Time Constant (ms)	1.66
Electrical Time Constant (ms)	0.58
Weight (g)	90
Maximum Torque Weight Ratio (Nm/kg)	5.11

G40 KV70, Φ54.8*31.1mm

PRODUCT DRAWING



ANALYTICAL GRAPH OF MOTOR OPERATION



SPECIFICATIONS

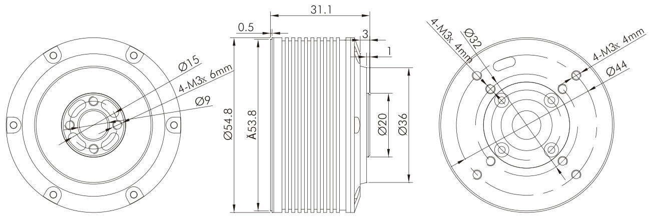
Application	Gimbal, Radar
Driving Way	FOC
Operation Ambient Temperature	-20℃~50℃
Winding Type	star
Insulation Class	H
Insulation High-Voltage	500V 5mA/2s
Insulation Resistance	500V10MΩ
Phase	3
Pole Pairs	14

ELECTRIC PARAMETERS

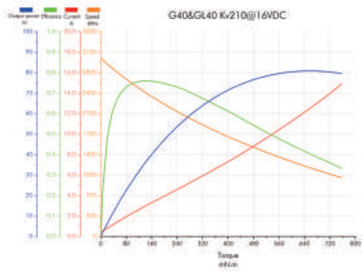
Rated Voltage (V)	16
No-Load Speed (RPM)	1015
Rated Torque (Nm)	0.25
Rated Speed (RPM)	430
Rated Current (ADC)	1.62
Peak Torque (Nm)	0.5
Peak Current (ADC)	3.3
Kv (RPM/V)	70
Kt (Nm/A)	0.150
Ke (V/kRPM)	15.00
Phase to Phase Resistance (mΩ)	4500
Phase to Phase Inductance (μH)	1800
Inertia (gcm^2)	74
Km (Nm/√W)	0.0707
Mechanical Time Constant (ms)	1.48
Electrical Time Constant (ms)	0.40
Weight (g)	107
Maximum Torque Weight Ratio (Nm/kg)	4.67

G40 KV210, Φ54.8*31.1mm

PRODUCT DRAWING



ANALYTICAL GRAPH OF MOTOR OPERATION



SPECIFICATIONS

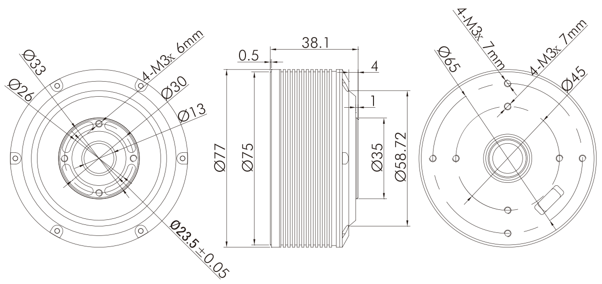
Application	Gimbal, Radar
Driving Way	FOC
Operation Ambient Temperature	-20℃~50℃
Winding Type	star
Insulation Class	H
Insulation High-Voltage	500V 5mA/2s
Insulation Resistance	500V10MΩ
Phase	3
Pole Pairs	14

ELECTRIC PARAMETERS

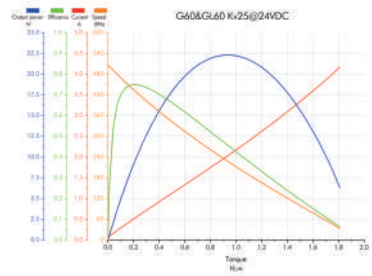
Rated Voltage (V)	16
No-Load Speed (rpm)	3120
Rated Torque (Nm)	0.25
Rated Speed (rpm)	2100
Rated Current (ADC)	4.9
Peak Torque (Nm)	0.75
Peak Current (ADC)	14.9
Kv (RPM/V)	210
Kt (Nm/A)	0.050
Ke (V/kRPM)	4.88
Phase to Phase Resistance (mΩ)	500
Phase to Phase Inductance (μH)	180
Inertia (gcm²)	74
Km (Nm/√W)	0.0707
Mechanical Time Constant (ms)	1.48
Electrical Time Constant (ms)	0.36
Weight (g)	107
Maximum Torque Weight Ratio (Nm/kg)	7.01

G60 KV25, Φ77*38.1mm

PRODUCT DRAWING



ANALYTICAL GRAPH OF MOTOR OPERATION



SPECIFICATIONS

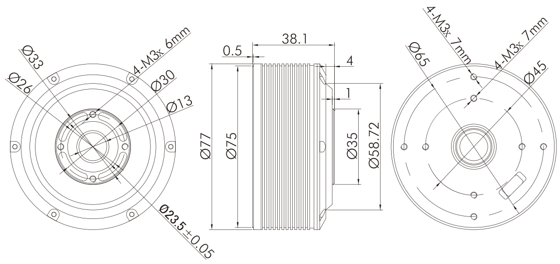
Application	Gimbal, Radar
Driving Way	FOC
Operation Ambient Temperature	-20℃~50℃
Winding Type	star
Insulation Class	H
Insulation High-Voltage	500V 5mA/2s
Insulation Resistance	500V10MΩ
Phase	3
Pole Pairs	14

ELECTRIC PARAMETERS

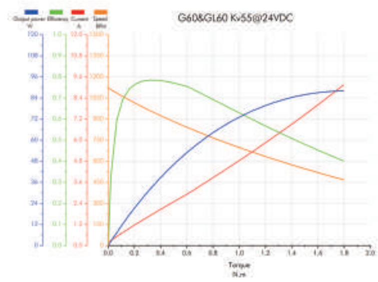
Rated Voltage (V)	24
No-Load Speed (RPM)	516
Rated Torque (Nm)	0.6
Rated Speed (RPM)	310
Rated Current (ADC)	1.35
Peak Torque (Nm)	1.75
Peak Current (ADC)	4
Kv (RPM/V)	25
Kt (Nm/A)	0.450
Ke (V/kRPM)	44.30
Phase to Phase Resistance (mΩ)	5500
Phase to Phase Inductance (μH)	2720
Inertia (gcm²)	355
Km (Nm/√W)	0.1919
Mechanical Time Constant (ms)	0.96
Electrical Time Constant (ms)	0.49
Weight (g)	230
Maximum Torque Weight Ratio (Nm/kg)	7.61

G60 KV55, Φ77*38.1mm

PRODUCT DRAWING



ANALYTICAL GRAPH OF MOTOR OPERATION



SPECIFICATIONS

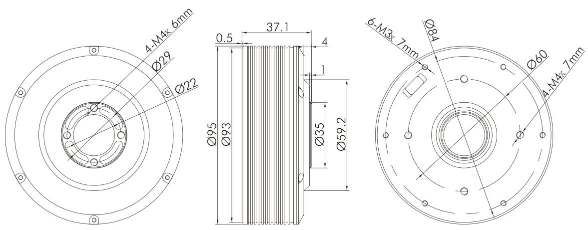
Application	Gimbal, Radar
Driving Way	FOC
Operation Ambient Temperature	-20℃~50℃
Winding Type	star
Insulation Class	H
Insulation High-Voltage	500V 5mA/2s
Insulation Resistance	500V10MΩ
Phase	3
Pole Pairs	14

ELECTRIC PARAMETERS

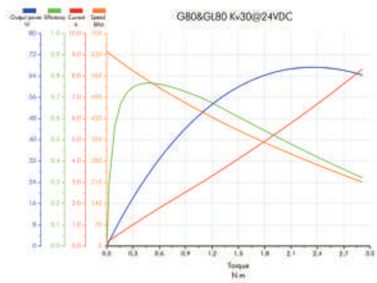
Rated Voltage (V)	24
No-Load Speed (RPM)	1140
Rated Torque (Nm)	0.6
Rated Speed (rpm)	840
Rated Current (ADC)	2.93
Peak Torque (Nm)	1.75
Peak Current (ADC)	8.9
Kv (RPM/V)	55
Kt (Nm/A)	0.205
Ke (V/kRPM)	20.05
Phase to Phase Resistance (mΩ)	1200
Phase to Phase Inductance (μH)	900
Inertia (gcm²)	355
Km (Nm/√W)	0.1871
Mechanical Time Constant (ms)	1.01
Electrical Time Constant (ms)	0.75
Weight (g)	226
Maximum Torque Weight Ratio (Nm/kg)	7.74

G80 KV30, Φ95*37.1mm

PRODUCT DRAWING



ANALYTICAL GRAPH OF MOTOR OPERATION



SPECIFICATIONS

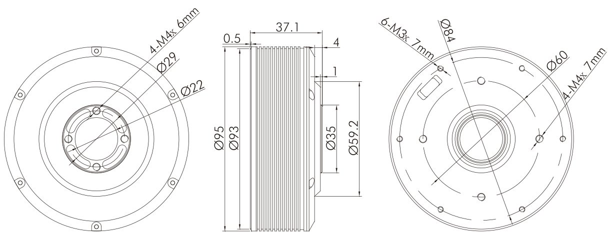
Application	Gimbal, Radar
Driving Way	FOC
Operation Ambient Temperature	-20℃~50℃
Winding Type	star
Insulation Class	H
Insulation High-Voltage	1000V 5mA/2s
Insulation Resistance	1000V10MΩ
Phase	3
Pole Pairs	21

ELECTRIC PARAMETERS

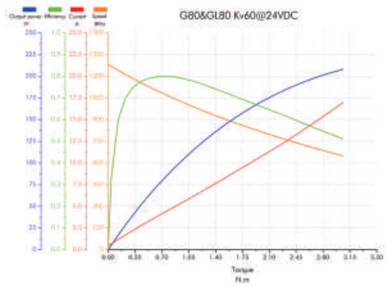
Rated Voltage (V)	24
No-Load Speed (RPM)	1300
Rated Torque (Nm)	1
Rated Speed (RPM)	1010
Rated Current (ADC)	5.6
Peak Torque (Nm)	2.9
Peak Current (ADC)	16.3
Kv (RPM/V)	60
Kt (Nm/A)	0.178
Ke (V/kRPM)	17.47
Phase to Phase Resistance (mΩ)	450
Phase to Phase Inductance (μH)	270
Inertia (gcm^2)	650
Km (Nm/√W)	0.2653
Mechanical Time Constant (ms)	0.92
Electrical Time Constant (ms)	0.60
Weight (g)	315
Maximum Torque Weight Ratio (Nm/kg)	9.21

G80 KV60, Φ95*37.1mm

PRODUCT DRAWING



ANALYTICAL GRAPH OF MOTOR OPERATION



SPECIFICATIONS

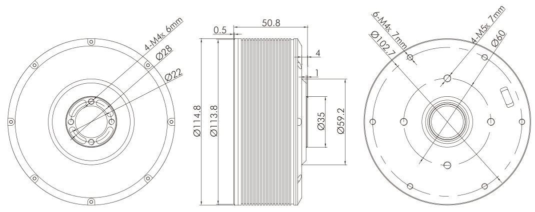
Application	Gimbal, Radar
Driving Way	FOC
Operation Ambient Temperature	-20℃~50℃
Winding Type	star
Insulation Class	H
Insulation High-Voltage	1000V 5mA/2s
Insulation Resistance	1000V10MΩ
Phase	3
Pole Pairs	21

ELECTRIC PARAMETERS

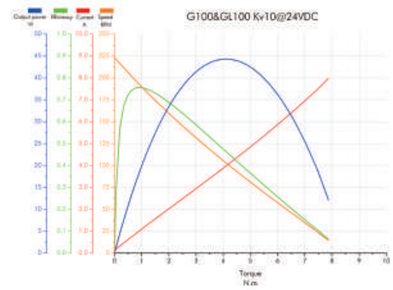
Rated Voltage (V)	24
No-Load Speed (rpm)	650
Rated Torque (Nm)	1
Rated Speed (RPM)	450
Rated Current (ADC)	2.8
Peak Torque (Nm)	2.9
Peak Current (ADC)	8.2
Kv (RPM/V)	30
Kt (Nm/A)	0.356
Ke (V/kRPM)	35.27
Phase to Phase Resistance (mΩ)	1800
Phase to Phase Inductance (μH)	1100
Inertia (gcm^2)	650
Km (Nm/√W)	0.2653
Mechanical Time Constant (ms)	0.92
Electrical Time Constant (ms)	0.61
Weight (g)	315
Maximum Torque Weight Ratio (Nm/kg)	9.21

G100 KV10, Φ114.8*50.8mm

PRODUCT DRAWING



ANALYTICAL GRAPH OF MOTOR OPERATION



SPECIFICATIONS

Application	Gimbal, Radar
Driving Way	FOC
Operation Ambient Temperature	-20℃~50℃
Winding Type	star
Insulation Class	H
Insulation High-Voltage	1000V 5mA/2s
Insulation Resistance	1000V10MΩ
Phase	3
Pole Pairs	20

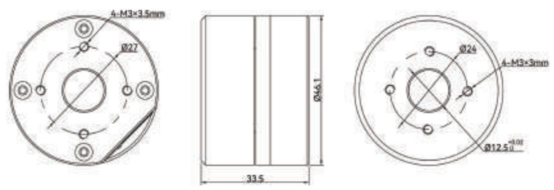
ELECTRIC PARAMETERS

Rated Voltage (V)	24
No-Load Speed (RPM)	223
Rated Torque (Nm)	3
Rated Speed (RPM)	130
Rated Current (ADC)	2.9
Peak Torque (Nm)	7.7
Peak Current (ADC)	7.8
Kv (RPM/V)	10
Kt (Nm/A)	1.030
Ke (V/kRPM)	102.4
Phase to Phase Resistance (mΩ)	2650
Phase to Phase Inductance (μH)	2350
Inertia (gcm²)	2310
Km (Nm/√W)	0.6327
Mechanical Time Constant (ms)	0.58
Electrical Time Constant (ms)	0.89
Weight (g)	698
Maximum Torque Weight Ratio (Nm/kg)	11.03

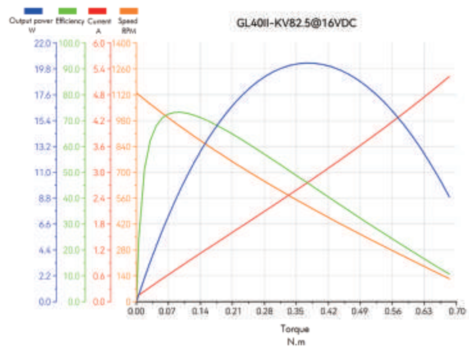
GL Series Outrunner Gimbal Motor

GL40II KV82.5, Φ46.1*33.5mm

PRODUCT DRAWING



ANALYTICAL GRAPH OF MOTOR OPERATION



SPECIFICATIONS

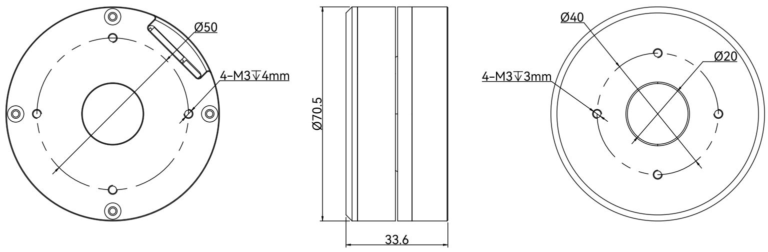
Application	Gimbal, Radar
Driving Way	FOC
Operation Ambient Temperature	-20℃~50℃
Winding Type	star
Insulation Class	H
Insulation High-Voltage	500V 5mA/2s
Insulation Resistance	500V10MΩ
Phase	3
Pole Pairs	14

ELECTRIC PARAMETERS

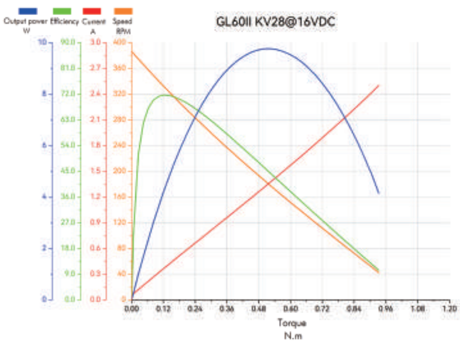
Rated Voltage (V)	16
No-Load Speed (RPM)	1388
Rated Torque (Nm)	0.25
Rated Speed (RPM)	697
Rated Current (ADC)	1.88
Peak Torque (Nm)	0.68
Peak Current (ADC)	5.22
Kv (RPM/V)	82.5
Kt (Nm/A)	0.11
Ke (V/kRPM)	0.0115
Phase to Phase Resistance (mΩ)	3000
Phase to Phase Inductance (μH)	1320
Inertia (gcm^2)	0.794578
Km (Nm/√W)	0.06392
Mechanical Time Constant (ms)	2.045
Electrical Time Constant (ms)	0.44
Weight (g)	112
Maximum Torque Weight Ratio (Nm/kg)	60.71

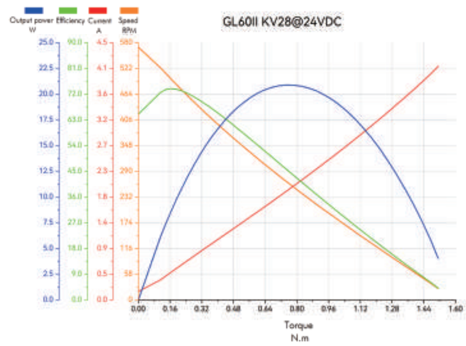
GL60II KV28, Φ70.5*33.6mm

PRODUCT DRAWING



ANALYTICAL GRAPH OF MOTOR OPERATION





BASIC SPECIFICATIONS

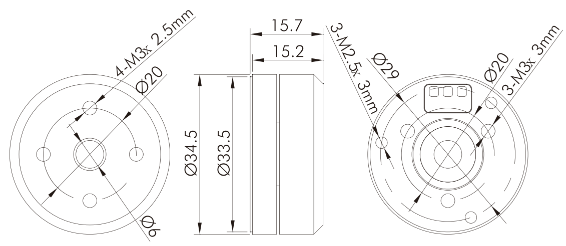
Application	Gimbal, Radar	Bearings	Imported 6705 ZZ
Motor Model	GL60II	Copper Wire	Level E 150℃
Motor Dimensions (mm)	φ70.5*33.6	Wiring Method	/
Stator Technology	Rust-Proof, 180℃ Coating	Enamelled Wires Temperature Resistance Grade	Level H 180℃
Configuration	24N28P	Coil Withstand Voltage	500V 5mA/2s
Bore Size (mm)	φ20	Rotor Inertia (g.cm²)	4.01086
Torque Constant (Nm/A)	0.34	Waterproof And Dustproof Class	/

PERFORMANCE SPECIFICATIONS

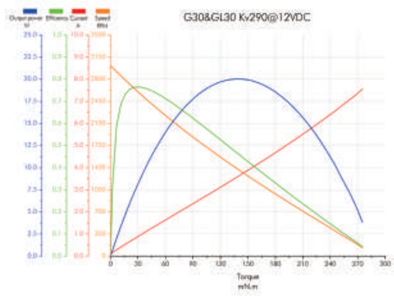
KV	KV28	KV	KV28
Rated Current (A)	1.56	Rated Current (A)	1.54
Rated Torque (Nm)	0.6	Rated Torque (Nm)	0.6
Peak Current (A)	2.75	Peak Current (A)	4.09
Peak Torque (Nm)	1	Peak Torque (Nm)	1.5
Winding Resistance (Ω)	5.8	Winding Resistance (Ω)	5.8
Working Voltage (V)	16	Rated Voltage (V)	24
Rated Speed (RPM)	153	Rated Speed (RPM)	319
Line Inductance (mH)	6	Line Inductance (mH)	6
Package Dimensions (mm)	160*122*42	Package Dimensions (mm)	160*122*42
Weight (g)	276	Weight (g)	276

GL30 KV290, Φ34.5*15.7mm

PRODUCT DRAWING



ANALYTICAL GRAPH OF MOTOR OPERATION



SPECIFICATIONS

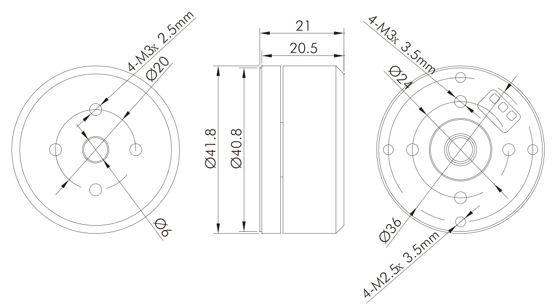
Application	
Driving Way	FOC
Operation Ambient Temperature	-20℃~50℃
Winding Type	star
Insulation Class	H
Insulation High-Voltage	500V 5mA/2s
Insulation Resistance	500V10MΩ
Phase	3
Pole Pairs	7

ELECTRIC PARAMETERS

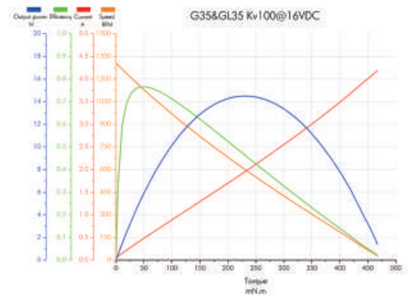
Rated Voltage (V)	12
No-Load Speed (RPM)	3060
Rated Torque (Nm)	0.08
Rated Speed (RPM)	1990
Rated Current (ADC)	2.13
Peak Torque (Nm)	0.28
Peak Current (ADC)	7.4
Kv (RPM/V)	290
Kt (Nm/A)	0.038
Ke (V/kRPM)	3.73
Phase to Phase Resistance (mΩ)	1530
Phase to Phase Inductance (μH)	330
Inertia (gcm^2)	24.2
Km (Nm/√W)	0.0307
Mechanical Time Constant (ms)	2.56
Electrical Time Constant (ms)	0.22
Weight (g)	41
Maximum Torque Weight Ratio (Nm/kg)	6.83

GL35 KV100, Φ41.8*21mm

PRODUCT DRAWING



ANALYTICAL GRAPH OF MOTOR OPERATION



SPECIFICATIONS

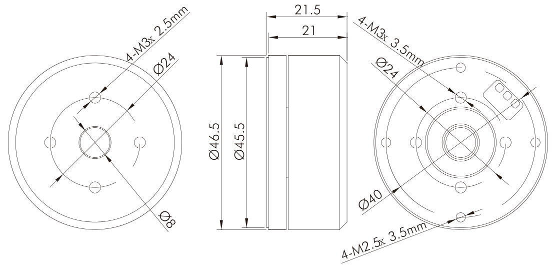
Application	Gimbal, Radar
Driving Way	FOC
Operation Ambient Temperature	-20℃~50℃
Winding Type	star
Insulation Class	H
Insulation High-Voltage	500V 5mA/2s
Insulation Resistance	500V10MΩ
Phase	3
Pole Pairs	7

ELECTRIC PARAMETERS

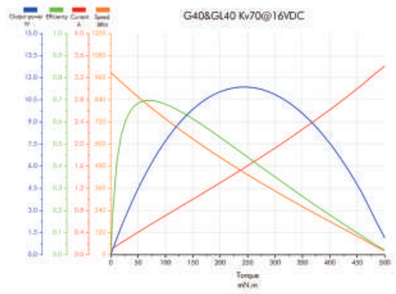
Rated Voltage (V)	16
No-Load Speed (RPM)	1320
Rated Torque (Nm)	0.15
Rated Speed (RPM)	815
Rated Current (ADC)	1.3
Peak Torque (Nm)	0.46
Peak Current (ADC)	4
Kv (RPM/V)	100
Kt (Nm/A)	0.115
Ke (V/kRPM)	11.54
Phase to Phase Resistance (mΩ)	3600
Phase to Phase Inductance (μH)	2100
Inertia (gcm²)	61
Km (Nm/√W)	0.0606
Mechanical Time Constant (ms)	1.66
Electrical Time Constant (ms)	0.58
Weight (g)	90
Maximum Torque Weight Ratio (Nm/kg)	5.11

GL40 KV70, Φ46.5*21.5mm

PRODUCT DRAWING



ANALYTICAL GRAPH OF MOTOR OPERATION



SPECIFICATIONS

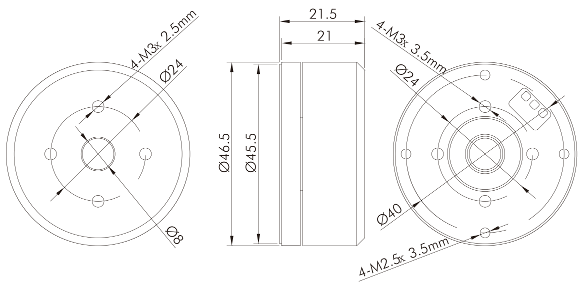
Application	Gimbal, Radar
Driving Way	FOC
Operation Ambient Temperature	-20℃~50℃
Winding Type	star
Insulation Class	H
Insulation High-Voltage	500V 5mA/2s
Insulation Resistance	500V10MΩ
Phase	3
Pole Pairs	14

ELECTRIC PARAMETERS

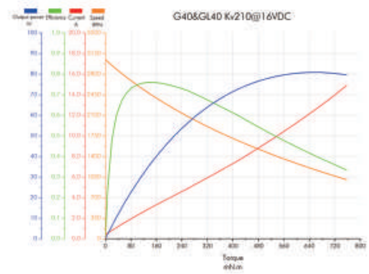
Rated Voltage (V)	16
No-Load Speed (RPM)	1015
Rated Torque (Nm)	0.25
Rated Speed (RPM)	430
Rated Current (ADC)	1.62
Peak Torque (Nm)	0.5
Peak Current (ADC)	3.3
Kv (RPM/V)	70
Kt (Nm/A)	0.150
Ke (V/kRPM)	15.00
Phase to Phase Resistance (mΩ)	4500
Phase to Phase Inductance (μH)	1800
Inertia (gcm²)	74
Km (Nm/√W)	0.0707
Mechanical Time Constant (ms)	1.48
Electrical Time Constant (ms)	0.40
Weight (g)	107
Maximum Torque Weight Ratio (Nm/kg)	4.67

GL40 KV210, Φ46.5*21.5mm

PRODUCT DRAWING



ANALYTICAL GRAPH OF MOTOR OPERATION



SPECIFICATIONS

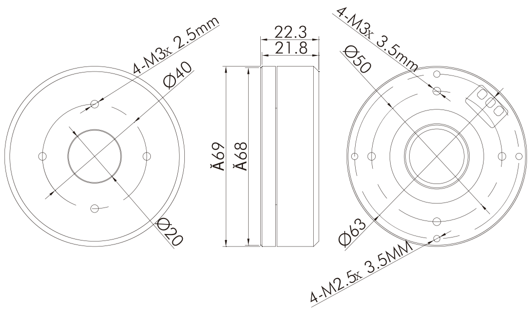
Application	Gimbal, Radar
Driving Way	FOC
Operation Ambient Temperature	-20℃~50℃
Winding Type	star
Insulation Class	H
Insulation High-Voltage	500V 5mA/2s
Insulation Resistance	500V10MΩ
Phase	3
Pole Pairs	14

ELECTRIC PARAMETERS

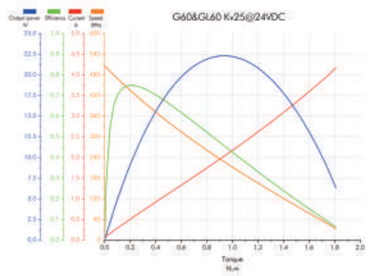
Rated Voltage (V)	16
No-Load Speed (RPM)	3120
Rated Torque (Nm)	0.25
Rated Speed (RPM)	2100
Rated Current (ADC)	4.9
Peak Torque (Nm)	0.75
Peak Current (ADC)	14.9
Kv (RPM/V)	210
Kt (Nm/A)	0.050
Ke (V/kRPM)	4.88
Phase to Phase Resistance (mΩ)	500
Phase to Phase Inductance (μH)	180
Inertia (gcm²)	74
Km (Nm/√W)	0.0707
Mechanical Time Constant (ms)	1.48
Electrical Time Constant (ms)	0.36
Weight (g)	107
Maximum Torque Weight Ratio (Nm/kg)	7.01

GL60 KV25, Φ69*22.3mm

PRODUCT DRAWING



ANALYTICAL GRAPH OF MOTOR OPERATION



SPECIFICATIONS

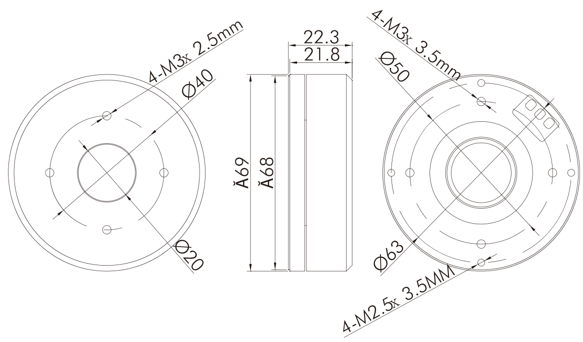
Application	Gimbal, Radar
Driving Way	FOC
Operation Ambient Temperature	-20℃~50℃
Winding Type	star
Insulation Class	H
Insulation High-Voltage	500V 5mA/2s
Insulation Resistance	500V10MΩ
Phase	3
Pole Pairs	14

ELECTRIC PARAMETERS

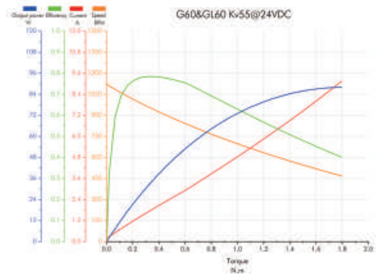
Rated Voltage (V)	24
No-Load Speed (RPM)	516
Rated Torque (Nm)	0.6
Rated Speed (RPM)	310
Rated Current (ADC)	1.35
Peak Torque (Nm)	1.75
Peak Current (ADC)	4
Kv (RPM/V)	25
Kt (Nm/A)	0.450
Ke (V/kRPM)	44.30
Phase to Phase Resistance (mΩ)	5500
Phase to Phase Inductance (μH)	2720
Inertia (gcm^2)	355
Km (Nm/√W)	0.1919
Mechanical Time Constant (ms)	0.96
Electrical Time Constant (ms)	0.49
Weight (g)	230
Maximum Torque Weight Ratio (Nm/kg)	7.61

GL60 KV55, Φ69*22.3mm

PRODUCT DRAWING



ANALYTICAL GRAPH OF MOTOR OPERATION



SPECIFICATIONS

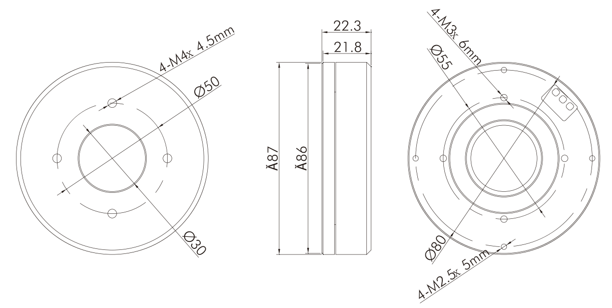
Application	Gimbal, Radar
Driving Way	FOC
Operation Ambient Temperature	-20℃~50℃
Winding Type	star
Insulation Class	H
Insulation High-Voltage	500V 5mA/2s
Insulation Resistance	500V10MΩ
Phase	3
Pole Pairs	14

ELECTRIC PARAMETERS

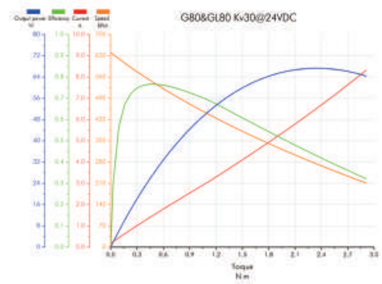
Rated Voltage (V)	24
No-Load Speed (RPM)	1140
Rated Torque (Nm)	0.6
Rated Speed (RPM)	840
Rated Current (ADC)	2.93
Peak Torque (Nm)	1.75
Peak Current (ADC)	8.9
Kv (RPM/V)	55
Kt (Nm/A)	0.205
Ke (V/kRPM)	20.05
Phase to Phase Resistance (mΩ)	1200
Phase to Phase Inductance (μH)	900
Inertia (gcm²)	355
Km (Nm/√W)	0.1871
Mechanical Time Constant (ms)	1.01
Electrical Time Constant (ms)	0.75
Weight (g)	226
Maximum Torque Weight Ratio (Nm/kg)	7.74

GL80 KV30, Φ87*22.3mm

PRODUCT DRAWING



ANALYTICAL GRAPH OF MOTOR OPERATION



SPECIFICATIONS

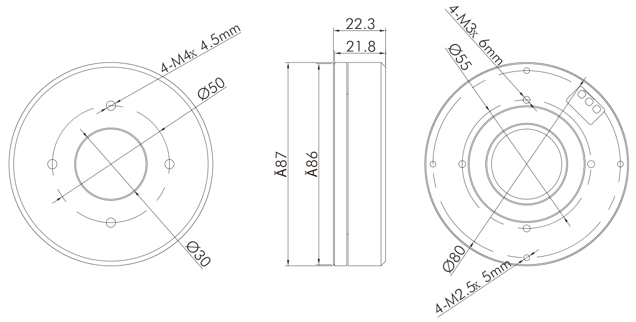
Application	Gimbal, Radar
Driving Way	FOC
Operation Ambient Temperature	-20℃~50℃
Winding Type	star
Insulation Class	H
Insulation High-Voltage	1000V 5mA/2s
Insulation Resistance	1000V10MΩ
Phase	3
Pole Pairs	21

ELECTRIC PARAMETERS

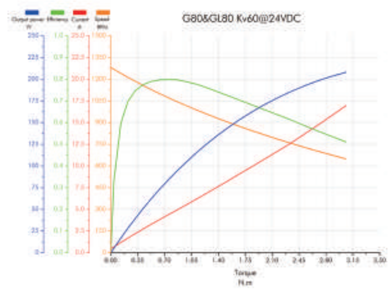
Rated Voltage (V)	24
No-Load Speed (RPM)	650
Rated Torque (Nm)	1
Rated Speed (RPM)	450
Rated Current (ADC)	2.8
Peak Torque (Nm)	2.9
Peak Current (ADC)	8.2
Kv (RPM/V)	30
Kt (Nm/A)	0.356
Ke (V/kRPM)	35.27
Phase to Phase Resistance (mΩ)	1800
Phase to Phase Inductance (μH)	1100
Inertia (gcm²)	650
Km (Nm/√W)	0.2653
Mechanical Time Constant (ms)	0.92
Electrical Time Constant (ms)	0.61
Weight (g)	315
Maximum Torque Weight Ratio (Nm/kg)	9.21

GL80 KV60, Φ87*22.3mm

PRODUCT DRAWING



ANALYTICAL GRAPH OF MOTOR OPERATION



SPECIFICATIONS

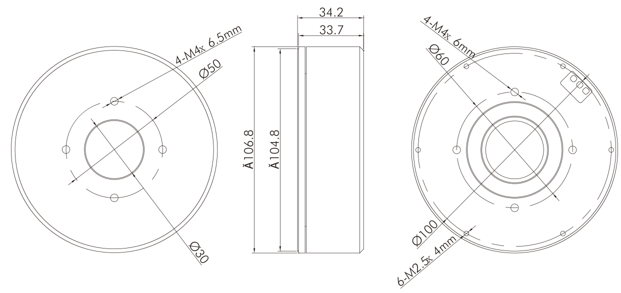
Application	Gimbal, Radar
Driving Way	FOC
Operation Ambient Temperature	-20℃~50℃
Winding Type	star
Insulation Class	H
Insulation High-Voltage	1000V 5mA/2s
Insulation Resistance	1000V10MΩ
Phase	3
Pole Pairs	21

ELECTRIC PARAMETERS

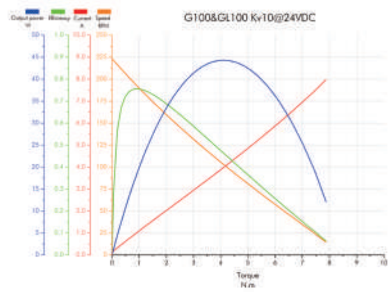
Rated Voltage (V)	24
No-Load Speed (RPM)	1300
Rated Torque (Nm)	1
Rated Speed (RPM)	1010
Rated Current (ADC)	5.6
Peak Torque (Nm)	2.9
Peak Current (ADC)	16.3
Kv (RPM/V)	60
Kt (Nm/A)	0.178
Ke (V/kRPM)	17.47
Phase to Phase Resistance (mΩ)	450
Phase to Phase Inductance (μH)	270
Inertia (gcm²)	650
Km (Nm/√W)	0.2653
Mechanical Time Constant (ms)	0.92
Electrical Time Constant (ms)	0.60
Weight (g)	315
Maximum Torque Weight Ratio (Nm/kg)	9.21

GL100 KV10, Φ106.8*34.2mm

PRODUCT DRAWING



ANALYTICAL GRAPH OF MOTOR OPERATION



SPECIFICATIONS

Application	Gimbal, Radar
Driving Way	FOC
Operation Ambient Temperature	-20℃~50℃
Winding Type	star
Insulation Class	H
Insulation High-Voltage	1000V 5mA/2s
Insulation Resistance	1000V10MΩ
Phase	3
Pole Pairs	20

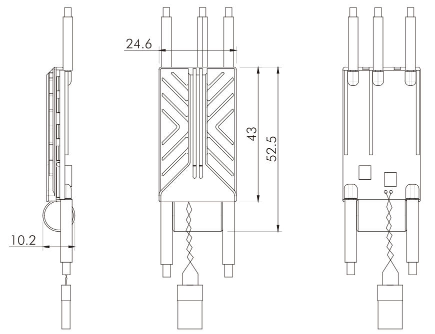
ELECTRIC PARAMETERS

Rated Voltage (V)	24
No-Load Speed (RPM)	223
Rated Torque (Nm)	3
Rated Speed (RPM)	130
Rated Current (ADC)	2.9
Peak Torque (Nm)	7.7
Peak Current (ADC)	7.8
Kv (RPM/V)	10
Kt (Nm/A)	1.030
Ke (V/krpm)	102.4
Phase to Phase Resistance (mΩ)	2650
Phase to Phase Inductance (μH)	2350
Inertia (gcm^2)	2310
Km (Nm/√W)	0.6327
Mechanical Time Constant (ms)	0.58
Electrical Time Constant (ms)	0.89
Weight (g)	698
Maximum Torque Weight Ratio (Nm/kg)	11.03

Underwater Thruster

W30 KV320, Φ100*108mm

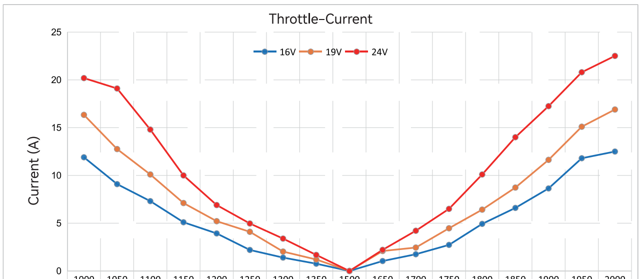
PRODUCT DRAWING



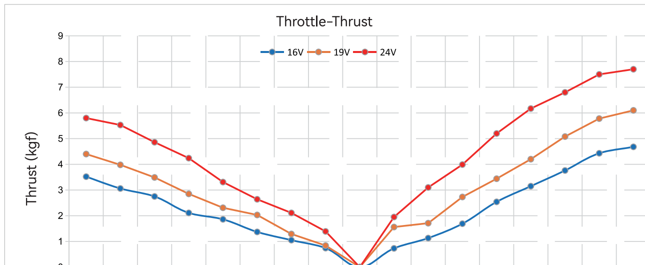
SPECIFICATIONS

Voltage	4-6S
Continuous Current	45A
Instant Current	50A (10s)
Standby Loss	≤50mA
Throttle Flash Frenquency	400Hz
Motor Wires	Black 16AWG 100mm*3p
Power Wires	Red/Black 14AWG 200mm
Signal Wires	PVC JR 3p
Throttle Range	1000-2000us
Weight	32.5g

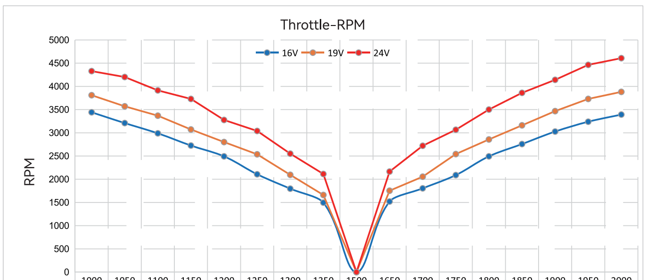
PERFORMANCE CURVES



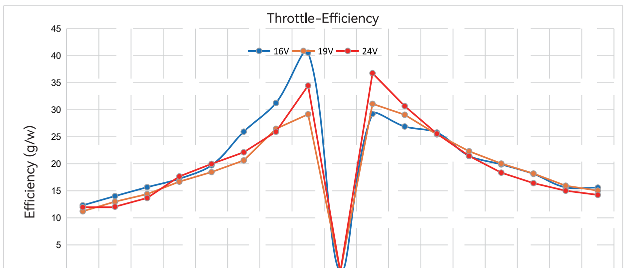
	1000	1050	1100	1150	1200	1250	1300	1350	1500	1650	1700	1750	1800	1850	1900	1950	2000
16V	11.9	9.09	7.31	5.1	3.93	2.2	1.4	0.76	0	1.04	1.75	2.73	4.93	6.6	8.64	11.8	12.5
19V	16.34	12.76	10.1	7.11	5.21	4.1	2.03	1.2	0	2.09	2.45	4.47	6.42	8.73	11.63	15.1	16.9
24V	20.19	19.1	14.8	10	6.9	4.97	3.39	1.68	0	2.21	4.21	6.5	10.1	14	17.25	20.8	22.51



	1000	1050	1100	1150	1200	1250	1300	1350	1500	1650	1700	1750	1800	1850	1900	1950	2000
16V	3.52	3.06	2.75	2.11	1.86	1.37	1.05	0.74	0	0.73	1.13	1.69	2.54	3.15	3.76	4.43	4.68
19V	4.4	3.98	3.49	2.85	2.31	2.03	1.29	0.84	0	1.56	1.71	2.73	3.44	4.2	5.08	5.78	6.1
24V	5.8	5.53	4.86	4.24	3.31	2.64	2.11	1.39	0	1.95	3.1	3.99	5.2	6.17	6.8	7.5	7.7



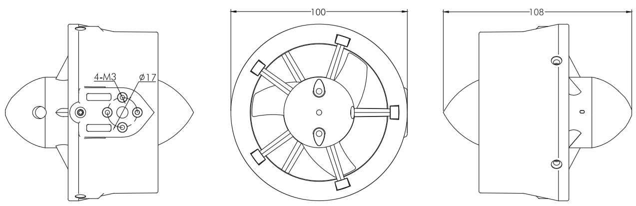
	1000	1050	1100	1150	1200	1250	1300	1350	1500	1650	1700	1750	1800	1850	1900	1950	2000
16V	3442	3210	2989	2726	2493	2107	1797	1496	0	1520	1804	2089	2493	2758	3027	3239	3393
19V	3810	3571	3369	3072	2801	2537	2095	1661	0	1753	2055	2542	2857	3161	3467	3730	3882
24V	4329	4202	3914	3730	3277	3040	2551	2113	0	2165	2721	3066	3501	3861	4141	4464	4608



	1000	1050	1100	1150	1200	1250	1300	1350	1500	1650	1700	1750	1800	1850	1900	1950	2000
16V	12	14	16	17	20	26	31	41	0	29	27	26	21	20	18	16	16
19V	11	13	14	17	18	21	26	29	0	31	29	25	22	20	18	16	15
24V	12	12	14	18	20	22	26	34	0	37	31	26	21	18	16	15	14

W30 KV320, Φ100*108mm

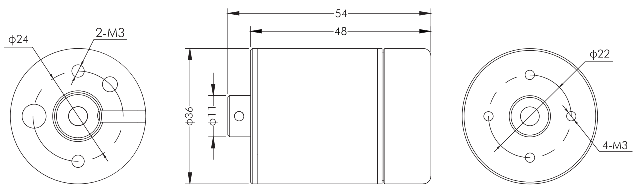
PRODUCT DRAWING



SPECIFICATIONS

Type	W30
Dimension	ϕ100*108mm
Forward Thrust	6.7kgf-7.7kgf
Backward Thrust	5.0kgf-5.8kgf
Rate Power	480W
Rated Current	22A
Weight In Air	420g
Weight In Water	200g
Max. Depth	200m
Wire Configuration x Length	18AWG*1000mm
Motor	W30 KV320
Battery (LiPo) Recommend	6S (4.2V)
ESC	W30 ESC-8S-45A
Propeller	W30 Purple PC Propeller
Package Weight	710g

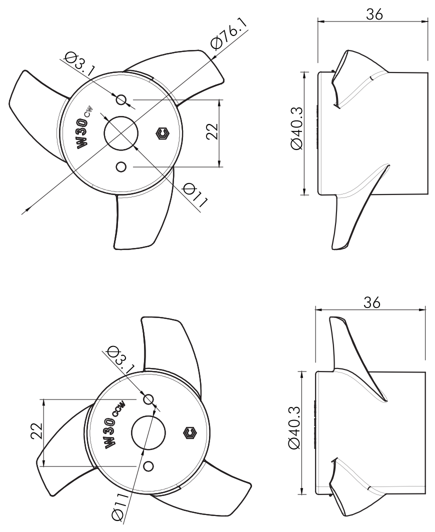
PRODUCT DRAWING



SPECIFICATIONS

W30 Purple PC Propeller	W30 KV320
Rated Current	22A
No-Load Current@10V	0.5A
No-Load RPM@10V	3200rpm
Inductance	125uH
Max. Current	30A/180s
Max. Power	720W/180s
Internal Resistance	220mΩ
Rated Power	480W
Weight	270g
Winding Wire Temperature-Resistant	C级 220℃
Wire Configuration x Length	18AWG*1000mm
Max. Depth	200m
Slot/Pole	12N14P
Winding Hi-pot	500V/5s
Package Weight	580g

PRODUCT DRAWING

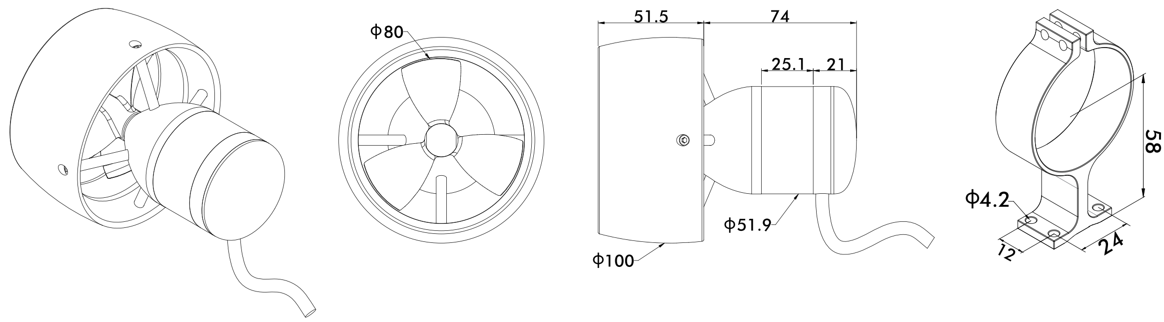


SPECIFICATIONS

Dimension	ϕ76.1*36mm
Pitch	3.6 inch
Weight	12g

SW7

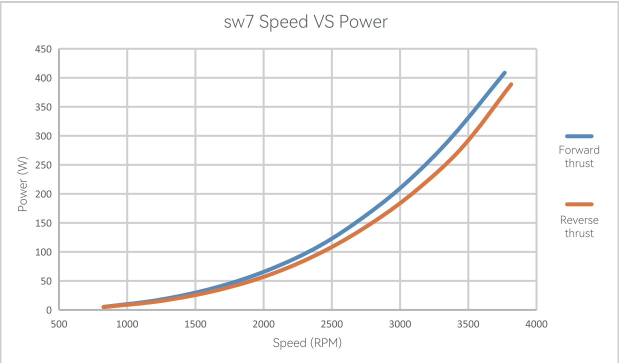
PRODUCT DRAWING

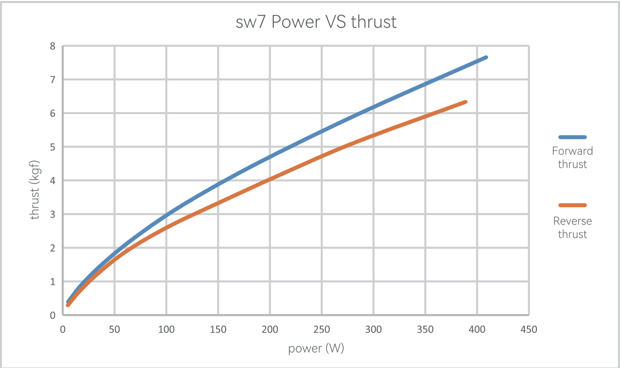


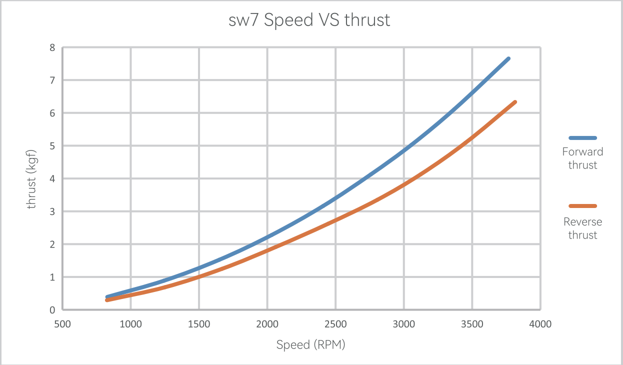
SPECIFICATIONS

Application	Unmanned Surface Vehicle, Electric Surfboard Handheld Ehruster,Etc
Rated Power	360W
Rated Voltage	36V
Maximum Mooring Thrust	≥7kgf
Applicable Water Depth	0~30M
Material of The Nozzle	POM
Material of The Shell	Aluminum Alloy
Material of The Propeller	Aluminum Alloy
Propeller Specifications	ϕ80mm
Main Shaft Sealing Method	Low-Resistance Dynamic Seal
Main Body Structure	Two-Stage Sealing Chamber
Cable Specifications	TPU (Matte) ϕ6.5mm-3*18AWG-1.5m
Driver	External
Weight	700g (In Air)/395g (underwater)
Environmental Conditions	0~50℃ (Storage)/0~40℃ (Operation)
Usage Tips	Rinse With Clean Water Promptly After Use

PERFORMANCE CURVES

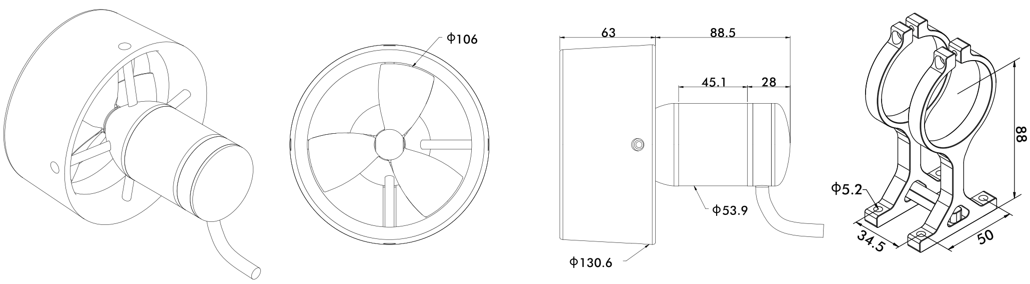






SW12

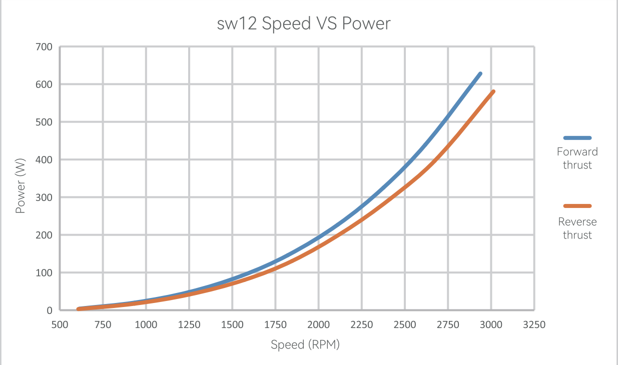
PRODUCT DRAWING

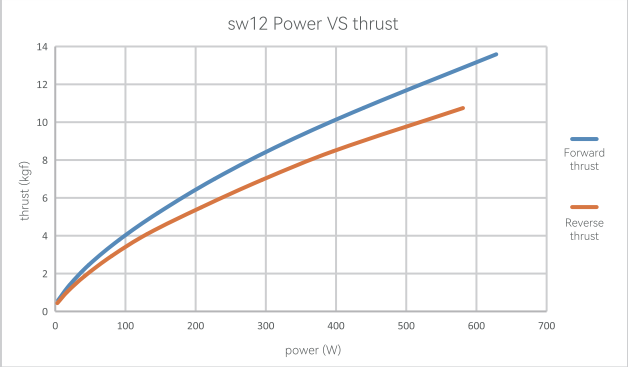


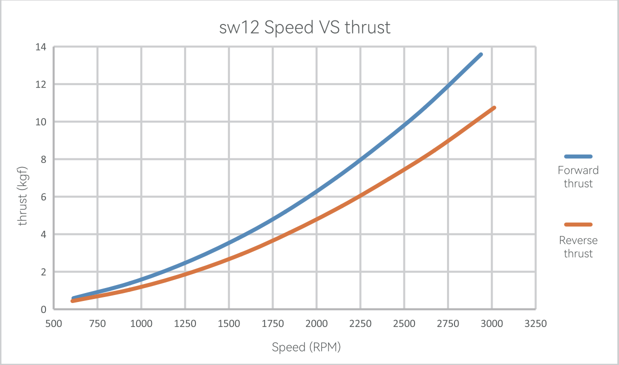
SPECIFICATIONS

Application	Unmanned Surface Vehicle, Electric Surfboard Handheld Ehruster,Etc
Rated Power	520W
Rated Voltage	48V
Maximum Mooring Thrust	≥12kgf
Applicable Water Depth	0~30M
Material of The Nozzle	POM
Material of The Shell	Aluminum Alloy
Material of The Propeller	Aluminum Alloy
Propeller Specifications	ϕ106mm
Main Shaft Sealing Method	Low-Resistance Dynamic Seal
Main Body Structure	Two-Stage Sealing Chamber
Cable Specifications	TPU (Glossy) ϕ8mm-3*16AWG-1.5m
Driver	External
Weight	1180g (In Air)/640g (Underwater)
Environmental Conditions	0~50℃ (Storage)/0~40℃ (Operation)
Usage Tips	Rinse With Clean Water Promptly After Use

PERFORMANCE CURVES

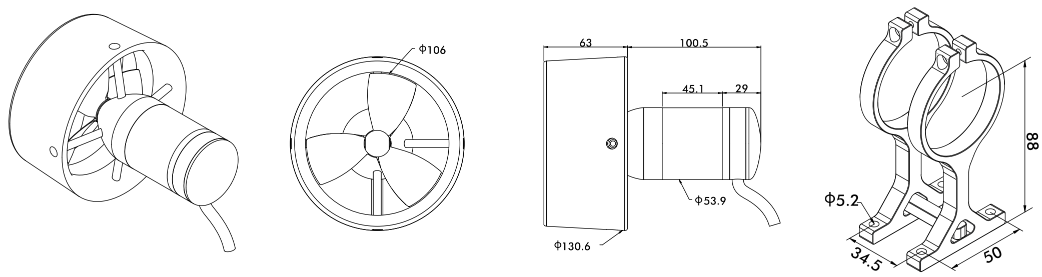






SW17

PRODUCT DRAWING

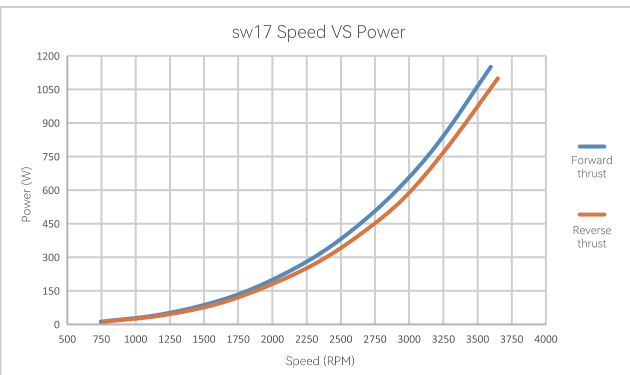


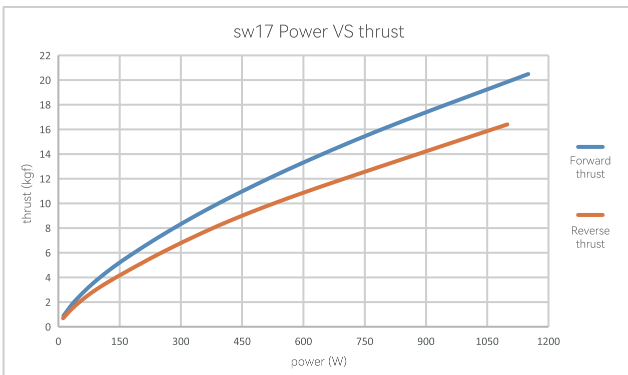
SPECIFICATIONS

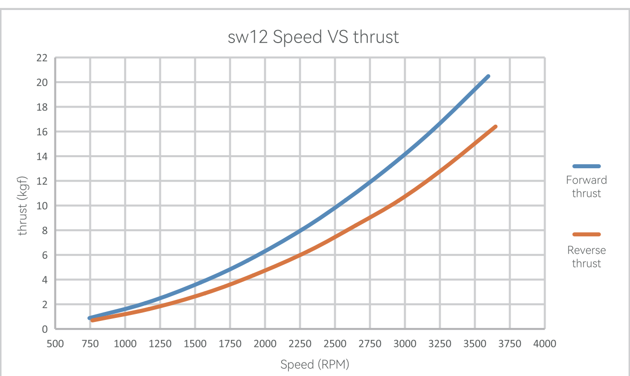
Application	Unmanned Surface Vehicle, Electric Surfboard Handheld Thruster, Etc
Rated Power	870W
Rated Voltage	48V
Maximum Mooring Thrust	≥17kgf
Applicable Water Depth	0~30M
Material of The Nozzle	POM
Material of The Shell	Aluminum Alloy
Material of The Propeller	Aluminum Alloy

Propeller Specifications	ϕ106mm
Main Shaft Sealing Method	Low-Resistance Dynamic Seal
Main Body Structure	Two-Stage Sealing Chamber
Cable Specifications	TPU (Glossy) ϕ8.5mm-3*14AWG-1.5m
Driver	External
Weight	1350g (In Air)/775g (Underwater)
Environmental Conditions	0~50℃ (Storage)/0~40℃ (Operation)
Usage Tips	Rinse With Clean Water Promptly After Use

PERFORMANCE CURVES

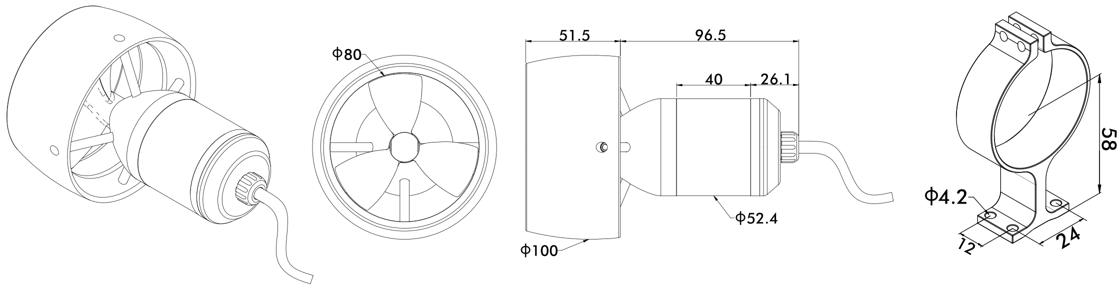






DW10

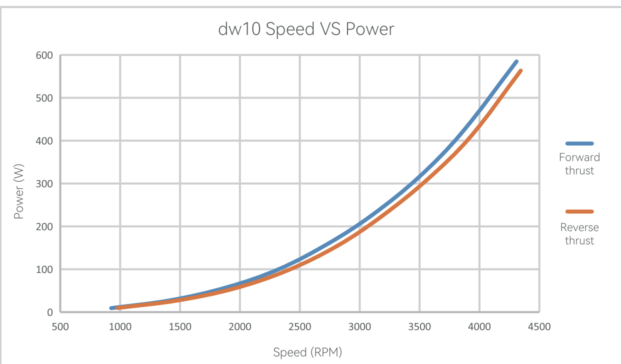
PRODUCT DRAWING

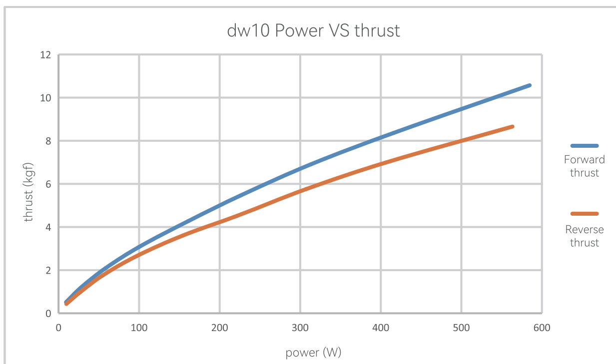


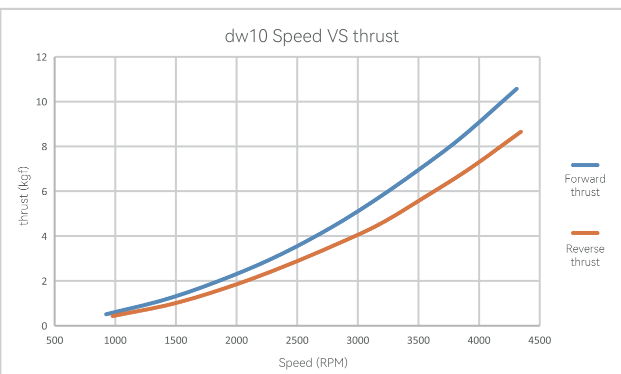
SPECIFICATIONS

Application	Unmanned Surface Vehicle Electric Surfboard, ROV, Etc
Rated Power	540W
Rated Voltage	36V
Maximum Mooring Thrust	≥10kgf
Applicable Water Depth	0~350M
Material of The Nozzle	POM
Material of The Shell	Aluminum Alloy
Material of The Propeller	Aluminum Alloy
Propeller Specifications	ϕ80mm
Main Shaft Sealing Method	Low-Resistance Dynamic Seal
Main Body Structure	Two-Stage Sealing Chamber
Cable Specifications	TPU (Glossy) ϕ8mm-3*16AWG-1.5m
Driver	External
Weight	845g (In Air)/480g (Underwater)
Environmental Conditions	0~50℃ (Storage)/0~40℃ (Operation)
Usage Tips	Rinse With Clean Water Promptly After Use

PERFORMANCE CURVES

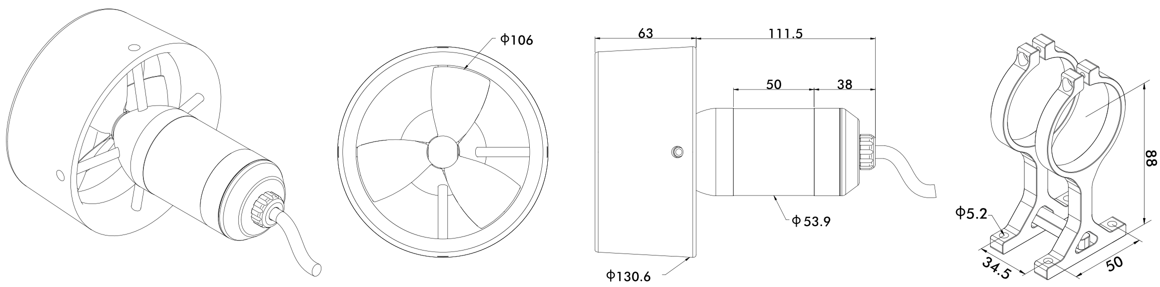






DW15

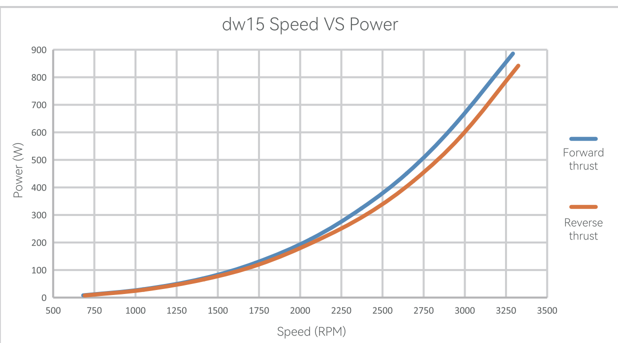
PRODUCT DRAWING

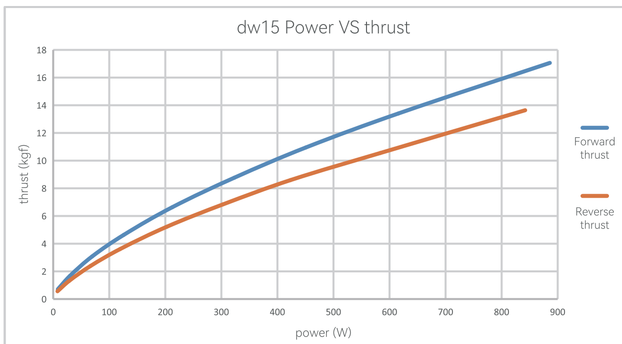


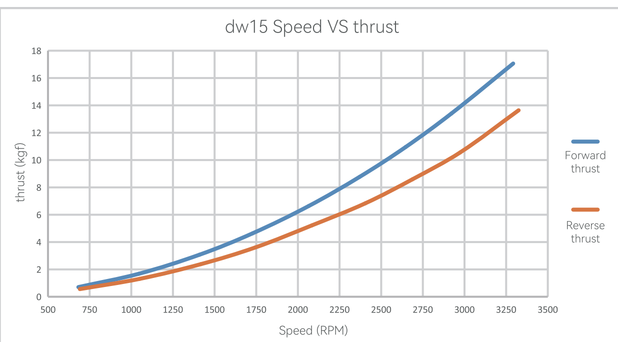
SPECIFICATIONS

Application	Unmanned Surface Vehicle Electric Surfboard, ROV, Etc
Rated Power	750W
Rated Voltage	48V
Maximum Mooring Thrust	≥15kgf
Applicable Water Depth	0~350M
Material of The Nozzle	POM
Material of The Shell	Aluminum Alloy
Material of The Propeller	Aluminum Alloy
Propeller Specifications	ϕ106mm
Main Shaft Sealing Method	Low-Resistance Dynamic Seal
Main Body Structure	Two-Stage Sealing Chamber
Cable Specifications	TPU (Glossy) ϕ8mm-3*16AWG-1.5m
Driver	External
Weight	1260g (In Air)/735g (Underwater)
Environmental Conditions	0~50°C (Storage)/0~40°C (Operation)
Usage Tips	Rinse With Clean Water Promptly After Use

PERFORMANCE CURVES

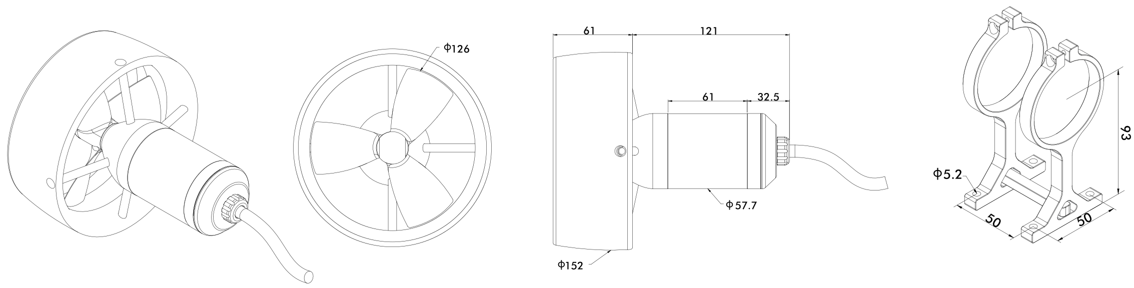






DW20

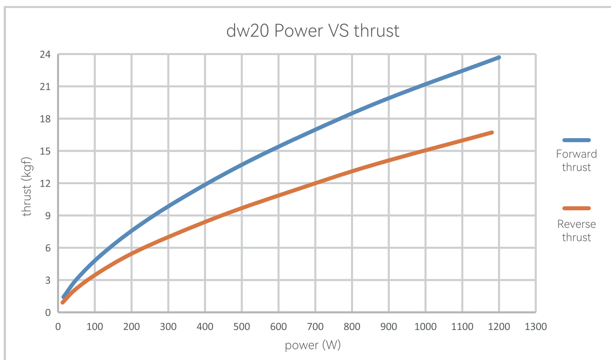
PRODUCT DRAWING

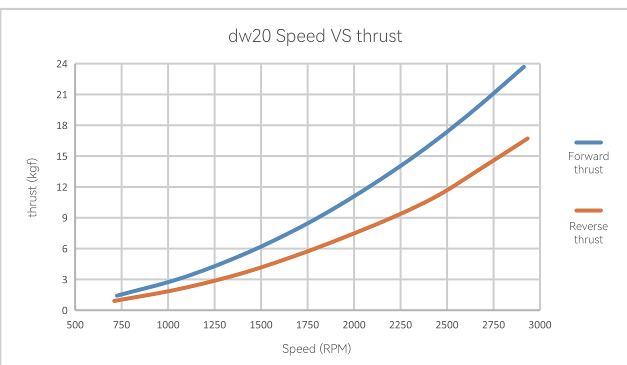


SPECIFICATIONS

Application	Unmanned Surface Vehicle Electric Surfboard, ROV, Etc
Rated Power	910W
Rated Voltage	48V
Maximum Mooring Thrust	≥20kgf
Applicable Water Depth	0~350M
Material of The Nozzle	POM
Material of The Shell	Aluminum Alloy
Material of The Propeller	Aluminum Alloy
Propeller Specifications	ϕ126mm
Main Shaft Sealing Method	Low-Resistance Dynamic Seal
Main Body Structure	Two-Stage Sealing Chamber
Cable Specifications	TPU (Matte) ϕ9mm-3*13AWG-1.5m
Driver	External
Weight	1630g (In Air)/950g (Underwater)
Environmental Conditions	0~50℃ (Storage)/0~40℃ (Operation)
Usage Tips	Rinse With Clean Water Promptly After Use

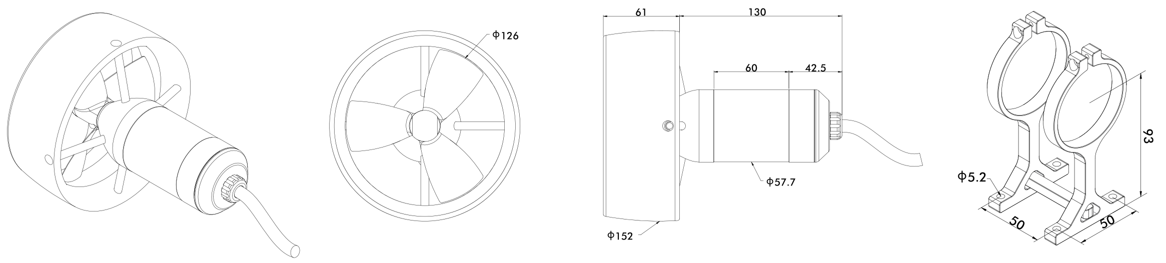
PERFORMANCE CURVES





DW25

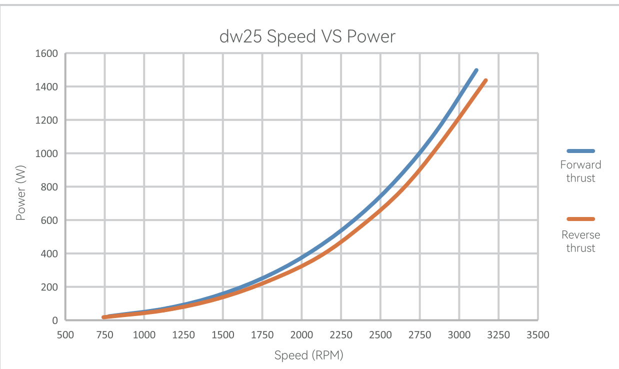
PRODUCT DRAWING

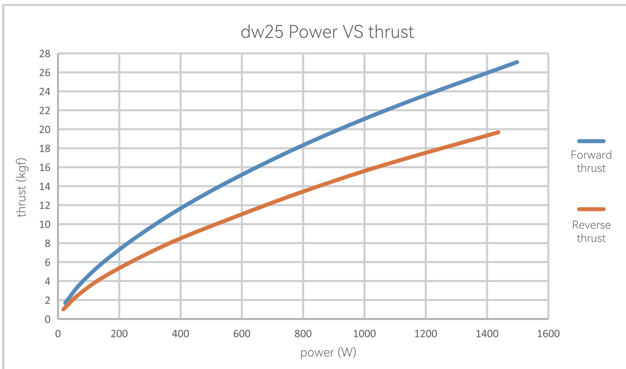


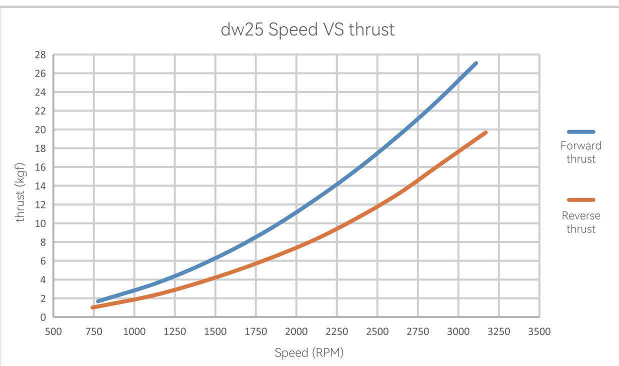
SPECIFICATIONS

Application	Unmanned Surface Vehicle Electric Surfboard, ROV, Etc
Rated Power	1315W
Rated Voltage	48V
Maximum Mooring Thrust	≥25kgf
Applicable Water Depth	0~350M
Material of The Nozzle	POM
Material of The Shell	Aluminum Alloy
Material of The Propeller	Aluminum Alloy
Propeller Specifications	ϕ126mm
Main Shaft Sealing Method	Low-Resistance Dynamic Seal
Main Body Structure	Two-Stage Sealing Chamber
Cable Specifications	TPU (Matte) ϕ9.5mm-3*12AWG-1.5m
Driver	External
Weight	1790g (In Air)/995g (Underwater)
Environmental Conditions	0~50℃ (Storage)/0~40℃ (Operation)
Usage Tips	Rinse With Clean Water Promptly After Use

PERFORMANCE CURVES



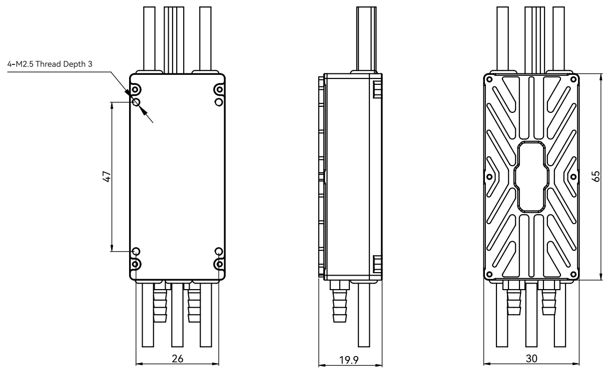




TW系列水下电调

TW40A 12S

PRODUCT DRAWING



BASIC SPECIFICATIONS

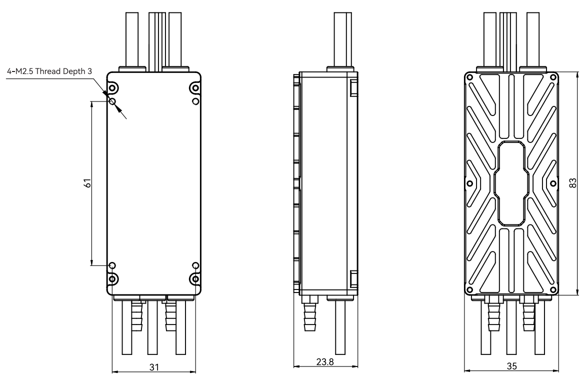
Applicable Models	SW7/SW12/DW10/DW15
Size	78*30*19.9mm
Single Unit Weight	90.33g
Package Dimensions (Includes Dual ESCs)	140*137*77mm
Wiring Harness Description	Power Cable (Input): Red (Positive) Black (Negative) Three-Phase Cable (Output): 3×Black Signal Cable×1 Serial Cable×1

PERFORMANCE SPECIFICATIONS

Input (V)	6~12S
Throttle Range (With Throttle Midpoint At 1500 µs)	1000~2000us
Bidirectional Motor Rotation	1000~1500us Forward/ 1500~2000us Reverse
Communication Mode	Serial

TW80A 12S

PRODUCT DRAWING



BASIC SPECIFICATIONS

Applicable Models	SW17/DW20/DW25
Size	83*35*22.8mm
Single Unit Weight	149.33g
Package Dimensions (Includes Dual ESCs)	140*137*77mm
Wiring Harness Description	Power Cable (Input): Red (Positive) Black (Negative) Three-Phase Cable (Output): 3×Black Signal Cable×1 Serial Cable×1

PERFORMANCE SPECIFICATIONS

Input (V)	6~12S
Throttle Range (With Throttle Midpoint at 1500 µs)	1000~2000us
Bidirectional Motor Rotation	1000~1500us Forward/ 1500~2000us Reverse
Communication Mode	Serial

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Official Website

Official Account