MOONS'
moving in better ways

Micro Motion Systems

with ironless winding

2024–2025

CONTENTS

Company Profile

MOONS' is one of the largest integrated manufacturers of motion control products within China, using internationally proven scientific management tools along with the pursuit for professional applied technologies.

MOONS' continuously develops products that conserve energy, are more convenient and efficient in utilization and application, bringing assurance to the customers and creating values for them.

Technical support phone : +86(0)512 80601118
Technical support email : scbu.support@moons.com.cn

- MOONS' was established in February 1994.
- Headquartered in Shanghai, China.
- Overseas companies located in North America, Europe, East Asia and Southeast Asia.

MOONS'
moving in better ways

Product Feature

MOONS' EC (Slotless Brushless DC) and DC (Coreless Brushed DC) line of motor use independent patented ironless winding that provide both high speed and torque while keeping audible noise to a minimum. The higher power density comes from the compact structure while the cogging free design ensures a smooth performance through the full range of the motors speed and maintains high efficiency.

- Ironless Winding
- Small Size
- High Torque
- High Speed
- Low Noise
- No Cogging

One-stop shop for micro motion control

Motor

Coreless motor Slotless motor

Gearbox

Planetary gearbox Spur gearbox

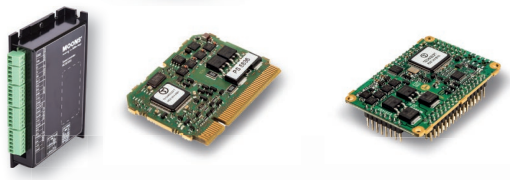
Sensor

Magnetic encoder Optical encoder

Control System

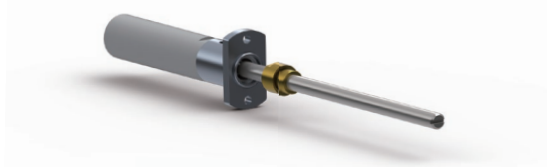
Micro Drive

Servo Drive (With embedded motion controller function)



Screw drive

Lead screw Ball screw



Product Code

EC U 13 038 H 24

Motor Commutation
- **EC** Slotless Brushless DC Motor
- **DC** Coreless Brushed DC Motor

Motor Series
- **U** Universal Platform
- **H** High Speed Platform
- **T** High Torque Platform

Motor Diameter
- **13** Diameter (mm)

Motor Length
- **038** Length (mm)

Feedback Method (EC)
- **H** With Hall Sensors
- **N** Sensorless
- **D** Integrated Electronics

Brush Material (DC)
- **P** Precious Metal Brushes
- **G** Graphite Brushes

Rated Voltage
- **03** Rated Voltage(3v = 03, 24v = 24)

PG 13 C - 0016

Gearbox type
- **PG** Planetary gearbox
- **RG** Spur gearbox

Gearbox diameter
- **13** Diameter (mm)

Gearbox diameter
- **C** Ordinary Platform
- **M** High performance Platform
- **MP** High power Platform
- **MN** Low noise Platform

Ratio
- **0016** Ratio (16:1)

R 13 - 256

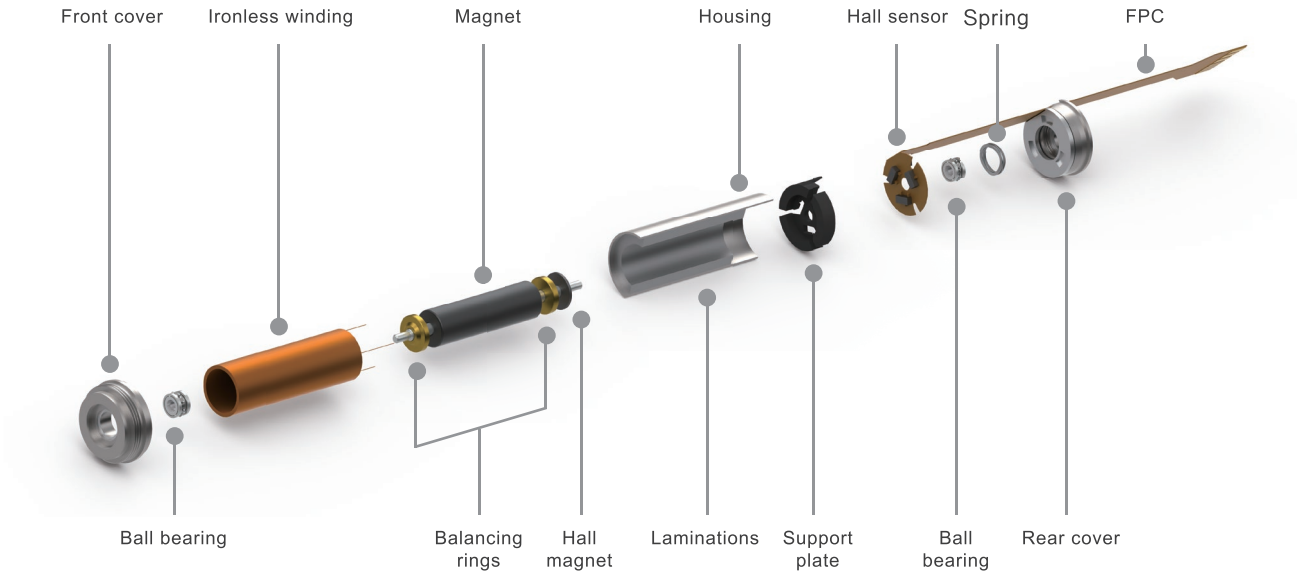
Encoder series

Encoder diameter
- **13** Diameter (mm)

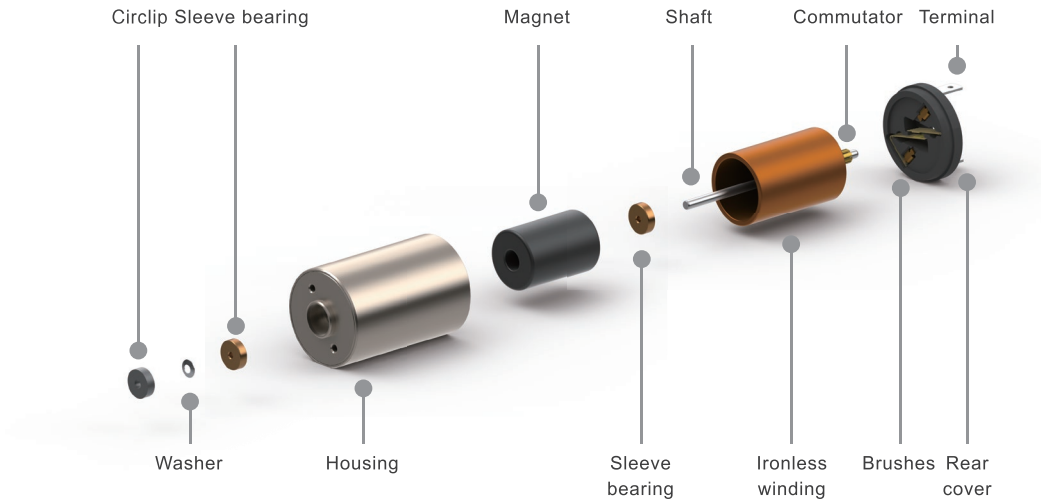
Revolution
- **256** Counts per turn(CPT)

Structrue

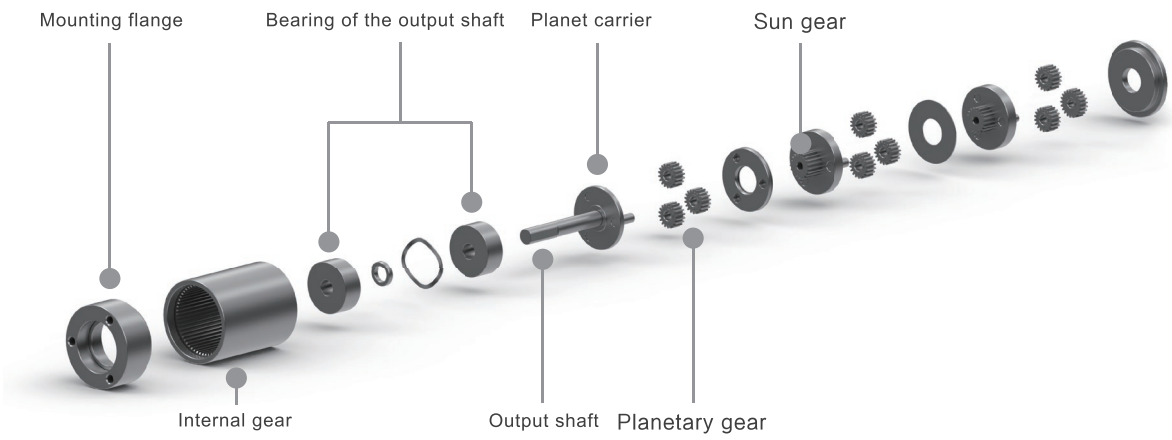
EC Series Motor Structure



DC Series Motor Structure



Gearbox Structure



Selection Guide

● Standard ○ On request

					Type												
					Autoclavable	Precious metal brushes	Graphite brushes	Sleeve bearing	Ball bearing	With hall sensor	Sensorless	Integrated electronics	PG08C 16:1-1024:1	PG10C 4:1-1024:1	PG10M 4:1-16:1	PG13C 4:1-425:1
Slotless Motor	ECU13026	5W	2.5mNm	26000rpm					●	●	○					○
	ECU13038	10W	5.5mNm	25000rpm					●	●	○					○
	ECU16024	3.2W	3.5mNm	15000rpm					●	●	○	●				
	ECU16036	14W	10mNm	15000rpm					●	●	○					
	ECU16052	21W	16mNm	16000rpm					●	●	○					
	ECU19058	42W	30mNm	15000rpm					●	●	○					
	ECU22032	15W	11mNm	18000rpm					●	●	○					
	ECU22048	48W	28mNm	20000rpm					●	●	○					
	ECU26056	50W	59mNm	10000rpm					●	●	○					
	ECU30042	32W	38mNm	10000rpm					●	●	○					
	ECU30064	73W	75mNm	10000rpm					●	●	○					
	ECH06024	2W	0.4mNm	63000rpm					●	○	●					
	ECH08023	4.2W	1.3mNm	44000rpm					●	●	○					
	ECH10032	10.5W	2.2mNm	50000rpm					●	●	○				●	
	ECH13048	53W	8.1mNm	66000rpm					●	●	○					
	ECH16056	75W	15mNm	45000rpm		●			●	●	○					
	ECH19058	115W	20mNm	56000rpm		○			●	●	○					
	ECH22045	80W	18mNm	40000rpm		○			●	●	○					
	ECH22060	120W	34mNm	42000rpm		○			●	●	○					
	ECT22035	23W	20mNm	12000rpm					●	●	○					
	ECT22064	64W	60mNm	10000rpm					●	●	○					
	ECT30090	220W	220mNm	10000rpm					●	●	○					
Coreless Motor	DCU08017	0.3W	0.6mNm	16000rpm		●		●					●			
	DCU10017	0.4W	0.8mNm	14000rpm		●		●						●		
	DCU10025	1.1W	1.7mNm	13000rpm		●		●						●		
	DCU13020	1.7W	1.8mNm	13000rpm		●		●	●							●
	DCU13028	2.8W	3.5mNm	12000rpm		●		●	●							●
	DCU16025	2W	2.2mNm	13000rpm		○	●	●								
	DCU17025	3.5W	3.9mNm	11000rpm		○	●	●	●							
	DCU17035	7.5W	7.7mNm	11000rpm		○	●	●	●							
	DCU24032	9.5W	11.9mNm	10000rpm			●		●							

Max. continuous torque (mNm)

0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1 2 3 4 5

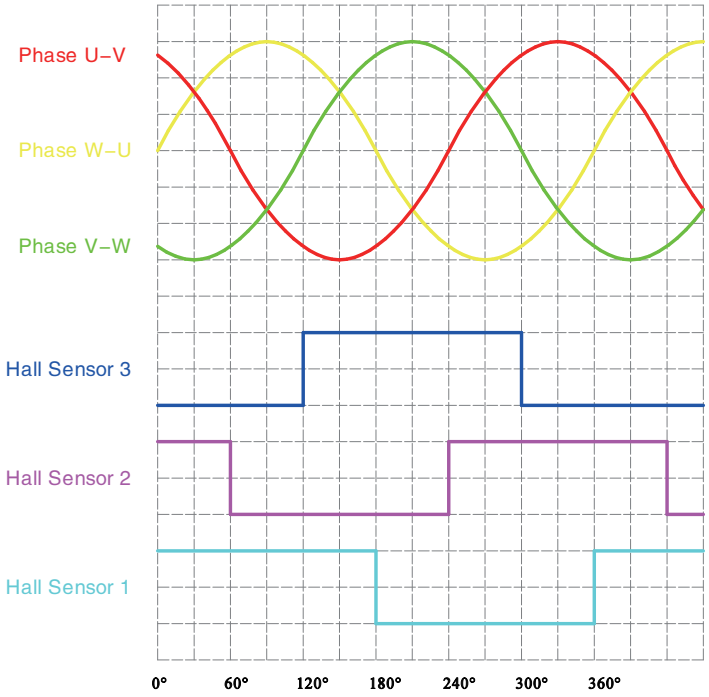
Gearbox
Encoder
Controller
PG13M 3.8:1-664:1
PG16C 4:1-850:1
PG16M 3.9:1-1526:1
PG16MN 3.9:1-1526:1
PG16MP 16:1-1526:1
PG19M 3.9:1-1526:1
PG22C 4:1-509:1
PG22M 3.9:1-1526:1
PG26M 3.9:1-231:1
PG32A 5.2:1-253:1
PG32M 3.9:1-231:1
RS08 12CPT
RS10 12CPT
MS10 24CPT
RS13 16CPT
R13 256CPT
MH13 1024CPT
R16 512CPT
K16 200CPT
M16 1024CPT
MC16 8192CPT
MA16 4096CPT
N18 1000CPT
MH22 1024CPT
P22 65536 turns 131072CPT
M24 1024CPT
MCSE5005 5A
iPOS 3602 2/3.2A
iPOS 3604 4/10A
iPOS 4803 3/14A
iPOS 4808 8/20A
6
7
8
9
10
20
30
40
50
60
70
80
90
100
200
300
400
500
600
700
800
900

7 DAYS

More than 400 standard SKUs
can be sampled in 7 working days

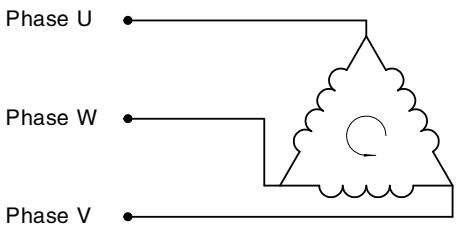
Timing Relationship

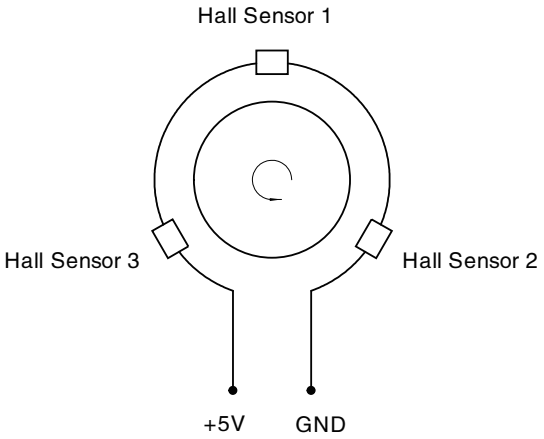
Timing relationship between the motor phase and hall sensor



CCW rotation from output shaft end

Wiring diagram of motor winding and hall sensor





Slotless BLDC Motor

ECU13026
ECU13038
ECU16024
NEW ECU16024D Integrated Electronics
ECU16036
ECU16052
NEW ECU19058
ECU22032
ECU22048
NEW ECU26056
ECU30042
ECU30064

NEW ECH06024 High speed
NEW ECH08023 High speed
NEW ECH10032 High speed
NEW ECH13048 High speed
ECH16056 High speed
NEW ECH19058 High speed
ECH22045 High speed
ECH22060 High speed

NEW ECT22035 High Torque
NEW ECT22064 High Torque
NEW ECT30090 High Torque

ECU13026 Ø13mm 5/7.5W

Motor Data		Part Numbers				
		ECU13026H06	ECU13026H09	ECU13026H12	ECU13026H18	ECU13026H24
Nominal voltage	V	6	9	12	18	24
No load speed	rpm	24900	27600	24600	25100	26100
No load current	mA	130	115	76	54	49
Nominal speed	rpm	17000	20100	16900	17200	18600
Max. continuous torque	mNm	2.58	2.81	2.69	2.62	2.53
Max. continuous current	A	1.27	1.02	0.65	0.44	0.34
Stall torque	mNm	8.9	11.8	9.7	9.6	9.9
Stall current	A	3.92	3.78	2.09	1.41	1.14
Max. efficiency	%	65	69	66	66	67
Resistance (phase-phase)	Ohm	1.53	2.38	5.3	12.8	21.0
Inductance (phase-phase)	mH	0.019	0.036	0.081	0.174	0.285
Torque constant	mNm / A	2.27	3.13	4.66	6.85	8.64
Speed constant	rpm / V	4200	3055	2050	1395	1105
Speed/torque gradient	rpm / mNm	2826	2326	2332	2608	2685
Mechanical time constant	ms	5.74	4.73	4.73	5.30	5.46
Rotor inertia	gcm^2	0.194	0.194	0.194	0.194	0.194

Standard model

Specification		
Bearing		Ball Bearing
Max. speed	rpm	40000
Axial play	mm	0...0.05
Radial play		Preloaded
Max. axial load (dynamic)	N	1
Max. force for press fits (static)	N	10
Max. radial load (5mm from flange)	N	4
Ambient temperature	°C	-40...+100
Max. winding temperature	°C	155
Thermal resistance		
Housing - Ambient	°C / W	32.0
Winding - Housing	°C / W	3.69
Thermal time constant		
Motor	s	250
Winding	s	0.58
Number of pole pairs		1
Number of phases		3
Weight	g	19

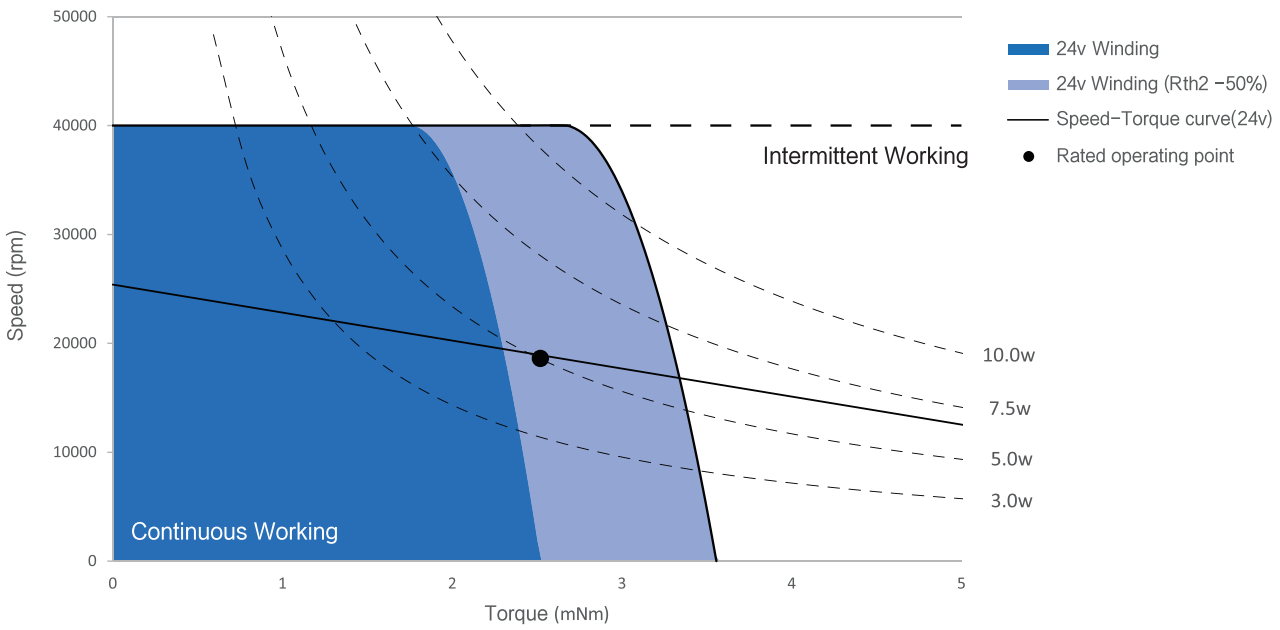
Combination

Gearbox
PG13M
Ø13mm 0.4Nm 3.8:1-664:1
Page 83

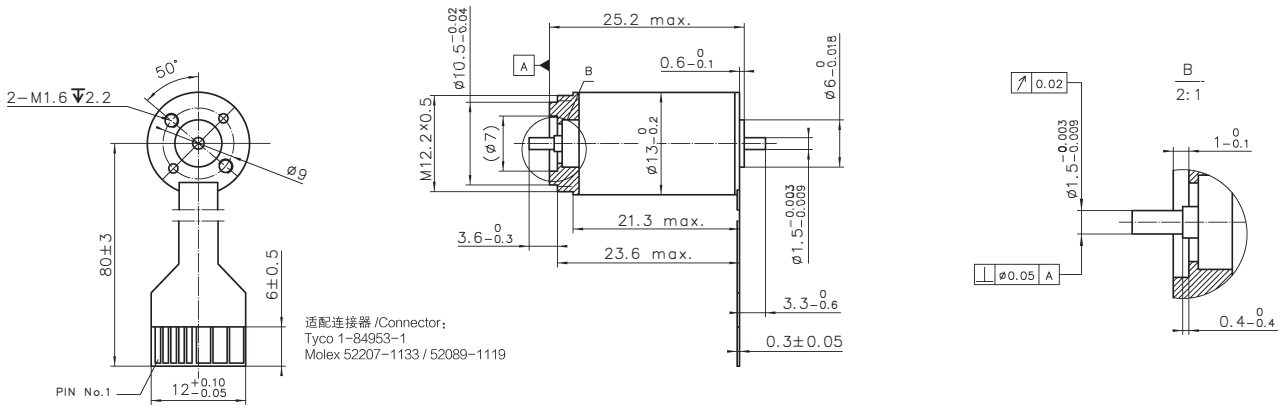
Encoder
MH13
Ø13mm 1024 Lines 3 Channels
Page 100

Option
FPC / Cable
With hall sensor / Sensorless
Digital Hall / Linear Hall

Operating Range



Dimension



Connection of Motor

PIN No.	信号/Signal
1	4.5~24VDC
2	Hall 3
3	Hall 1
4	Hall 2
5	GND
6	W
7	V
8	U

ECU13026Hxx-S001

ECU13038 Ø13mm 10/15W

Motor Data		Part Numbers					
		ECU13038H06	ECU13038H09	ECU13038H12	ECU13038H18	ECU13038H24	ECU13038H36
Nominal voltage	V	6	9	12	18	24	36
No load speed	rpm	23700	23400	23000	23400	24500	25600
No load current	mA	115	185	140	90	90	84
Nominal speed	rpm	17900	18000	17400	19000	18600	20200
Max. continuous torque	mNm	5.05	5.56	5.51	5.57	5.13	5.55
Max. continuous current	A	2.33	1.70	1.23	0.91	0.63	0.49
Stall torque	mNm	22.1	27.1	26.2	29.9	25.8	33.6
Stall current	A	9.23	7.38	5.19	4.23	2.73	2.46
Max. efficiency	%	71	73	73	74	74	74
Resistance (phase-phase)	Ohm	0.65	1.22	2.31	4.26	8.80	14.6
Inductance (phase-phase)	mH	0.008	0.020	0.037	0.097	0.130	0.267
Torque constant	mNm / A	2.39	3.67	5.04	7.07	9.45	13.64
Speed constant	rpm / V	3990	2600	1895	1350	1010	700
Speed/torque gradient	rpm / mNm	1084	864	869	813	940	750
Mechanical time constant	ms	3.69	2.94	2.96	2.77	3.20	2.55
Rotor inertia	gcm^2	0.325	0.325	0.325	0.325	0.325	0.325

Standard model

Specification

Bearing		Ball Bearing
Max. speed	rpm	40000
Axial play	mm	0...0.05
Radial play		Preloaded
Max. axial load (dynamic)	N	1
Max. force for press fits (static)	N	10
Max. radial load (5mm from flange)	N	4
Ambient temperature	°C	-40...+100
Max. winding temperature	°C	155
Thermal resistance		
Housing - Ambient	°C / W	23.0
Winding - Housing	°C / W	1.89
Thermal time constant		
Motor	s	350
Winding	s	0.48
Number of pole pairs		1
Number of phases		3
Weight	g	29

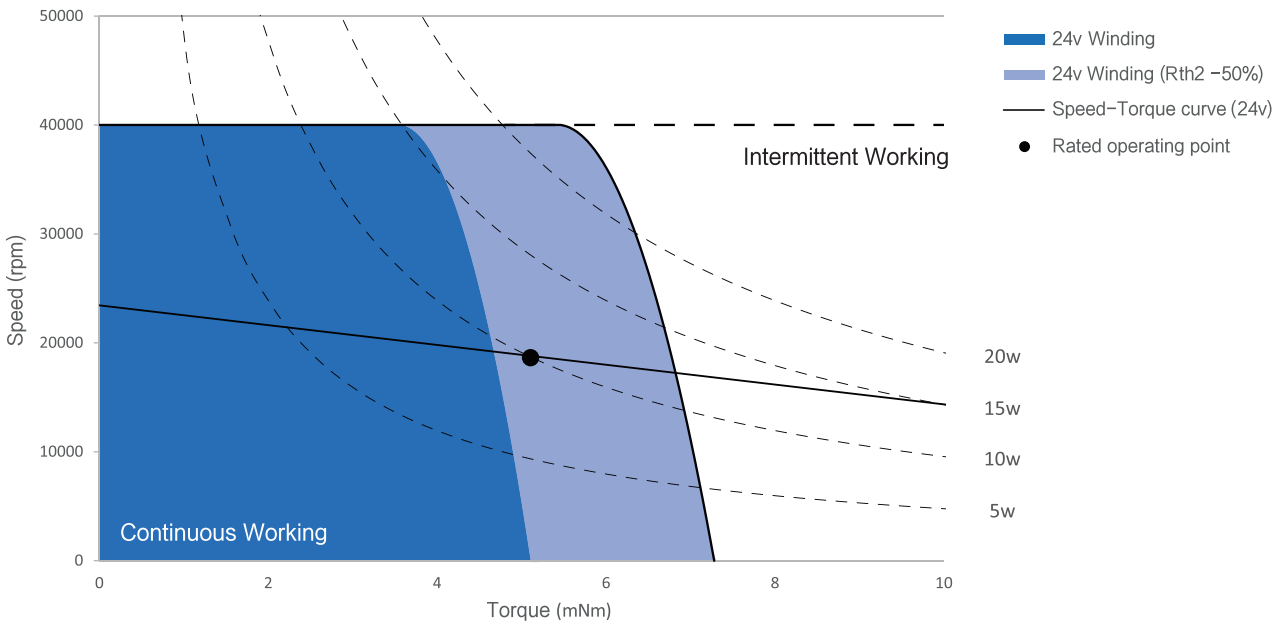
Combination

Gearbox
PG13M
Ø13mm 0.4Nm 3.8:1-664:1
Page 83

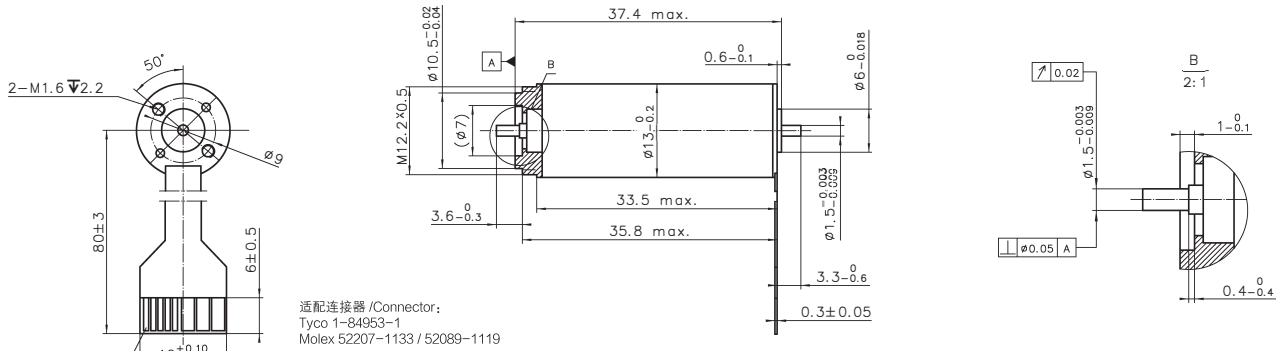
Encoder
MH13
Ø13mm 1024 Lines 3 Channels
Page 100

Option
FPC / Cable
With hall sensor / Sensorless
Digital Hall / Linear Hall

Operating Range



Dimension



Connection of Motor

PIN No.	信号/Signal
1	4.5~24VDC
2	Hall 3
3	Hall 1
4	Hall 2
5	GND
6	W
7	V
8	U

ECU13038Hxx-S001

ECU16024 Ø16mm 3.2/8.5W

Motor Data		Part Numbers					
		ECU16024H04	ECU16024H06	ECU16024H09	ECU16024H12	ECU16024H18	ECU16024H24
Nominal voltage	V	4.5	6	9	12	18	24
No load speed	rpm	15600	15700	15000	15200	15500	15000
No load current	mA	150	69	49	45	26	22
Nominal speed	rpm	9900	9900	8700	9300	9000	8800
Max. continuous torque	mNm	3.5	3.7	3.5	3.5	3.2	3.2
Max. continuous current	A	1.43	1.09	0.65	0.50	0.31	0.23
Stall torque	mNm	9.5	10.0	8.4	8.9	7.6	7.7
Stall current	A	3.48	2.73	1.45	1.16	0.68	0.50
Max. efficiency	%	63	69	68	66	65	62
Resistance (phase-phase)	Ohm	1.29	2.20	6.21	10.4	26.5	48.1
Inductance (phase-phase)	mH	0.029	0.072	0.175	0.315	0.684	1.220
Torque constant	mNm / A	2.74	3.66	5.77	7.64	11.18	15.30
Speed constant	rpm / V	3480	2610	1665	1250	855	625
Speed/torque gradient	rpm / mNm	1643	1567	1781	1626	2026	1961
Mechanical time constant	ms	5.17	4.93	5.63	5.32	6.37	6.16
Rotor inertia	gcm^2	0.3	0.3	0.3	0.3	0.3	0.3

Standard model

Specification

Bearing		Ball Bearing
Max. speed	rpm	30000
Axial play	mm	0...0.14
Radial play		Preloaded
Max. axial load (dynamic)	N	1
Max. force for press fits (static)	N	18
Max. radial load (5mm from flange)	N	6
Ambient temperature	°C	-40...+100
Max. winding temperature	°C	155
Thermal resistance		
Housing - Ambient	°C / W	30.7
Winding - Housing	°C / W	2.57
Thermal time constant		
Motor	s	390
Winding	s	0.75
Number of pole pairs		1
Number of phases		3
Weight	g	30

Combination

Gearbox

PG16M
Ø16mm 0.65Nm 3.9:1-406:1
Page 85
PG16MN
Ø16mm 0.45Nm 3.9:1-406:1
Page 86
PG16MP
Ø16mm 0.9Nm 16:1-1526:1
Page 87

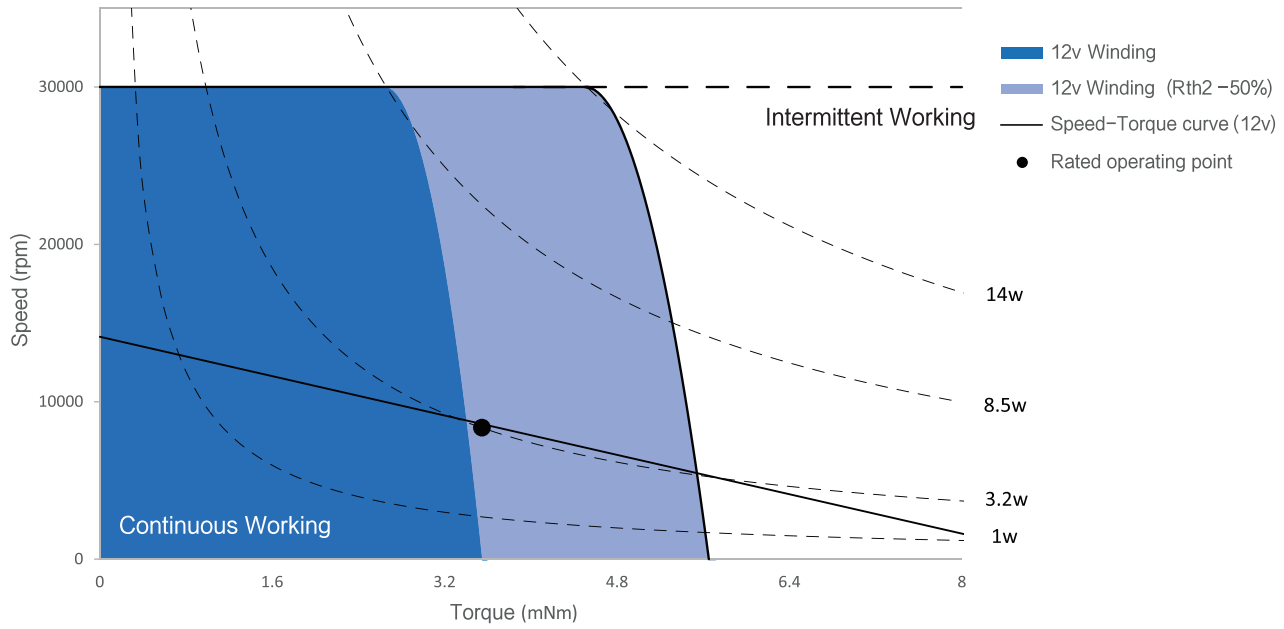
Encoder

M16
Ø16mm 1024 Lines 3 Channels
Page 103
MA16
Ø16mm 4096 Lines Single turn
Page 104
MC16
Ø16mm 8192 Lines 3 Channels
Page 105

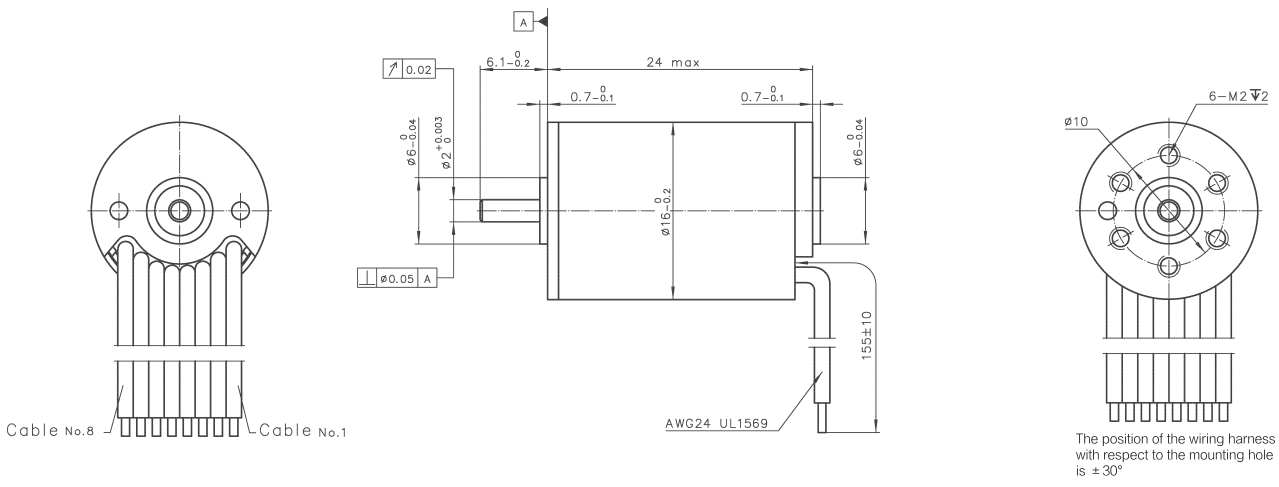
Option

With hall sensor / Sensorless
Digital Hall / Linear Hall
Integrated Electronics

Operating Range



Dimension



Connection of Motor

Cable No.	信号/Signal	颜色/Color
1	U	棕/brown
2	V	红/red
3	W	橙/orange
4	V_{Hall} 3～24 VDC	黄/yellow
5	GND	绿/green
6	Hall 1	蓝/blue
7	Hall 2	紫/voilet
8	Hall 3	灰/grey

ECU16024Hxx-S101

ECU16024D Ø16mm 3.2/8.5W Integrated Electronics

Motor Data		Part Numbers
		ECU16024D12
Nominal voltage	V	12
No load speed	rpm	15250
No load current	mA	45
Nominal speed	rpm	9320
Max. continuous torque	mNm	3.5
Max. continuous current	A	0.50
Stall torque	mNm	8.9
Stall current	A	1.16
Max. efficiency	%	66
Torque constant	mNm / A	7.64
Speed constant	rpm / V	1250
Speed/torque gradient	rpm / mNm	1694
Mechanical time constant	ms	5.32
Rotor inertia	gcm^2	0.3

Standard model

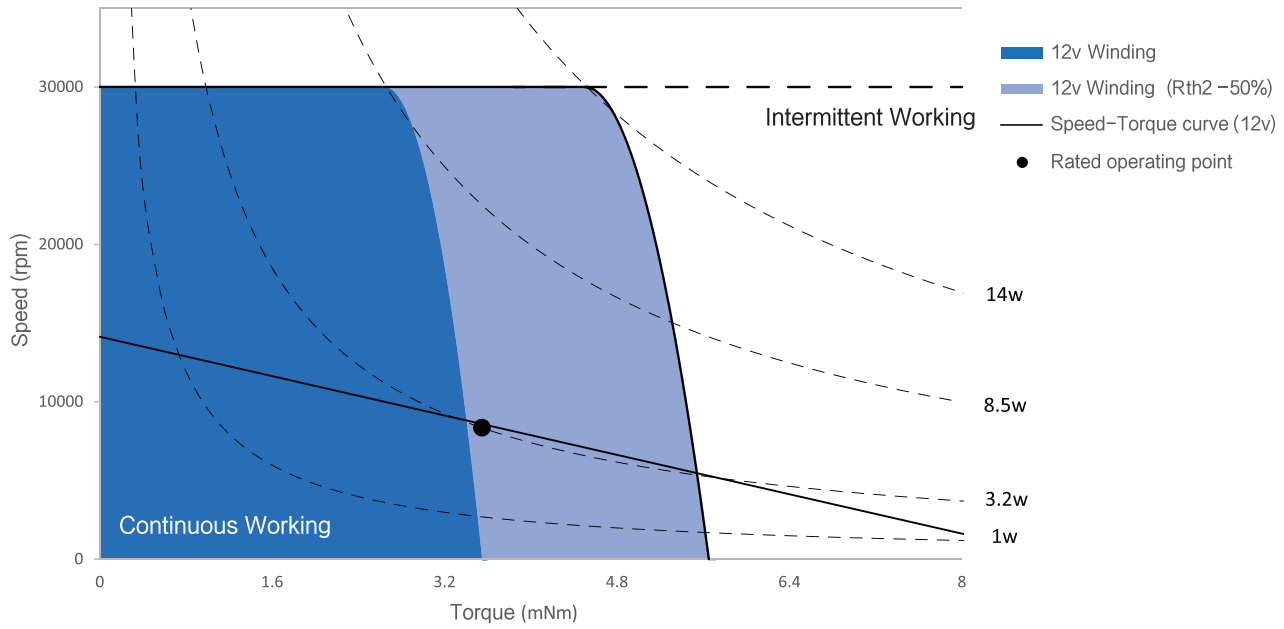
Specification		
Bearing		Ball Bearing
Max. speed	rpm	30000
Axial play	mm	0...0.14
Radial play		Preloaded
Max. axial load (dynamic)	N	1
Max. force for press fits (static)	N	18
Max. radial load (5mm from flange)	N	6
Ambient temperature	°C	−40...+100
Max. winding temperature	°C	155
Thermal resistance		
Housing − Ambient	°C / W	30.7
Winding − Housing	°C / W	2.57
Thermal time constant		
Motor	s	390
Winding	s	0.75
Number of pole pairs		1
Number of phases		3
Weight	g	35

Combination

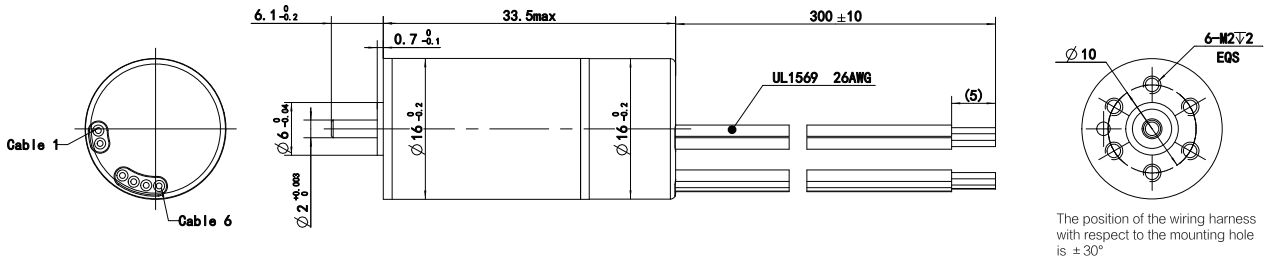
Gearbox
PG16M
Ø16mm 0.65Nm 3.9:1−406:1
Page 85

Protection function
Lock rotation protection speed rpm <70
Direction of rotation CCW
Low voltage monitoring VDC <6

Operating Range



Dimension



Connection of Motor

Cable No.	信号/Signal	颜色/Color
1	+Vcc	红/red
2	GND	黑/black
3	Speed set value input	蓝/blue
4	Monitor n	黄/yellow
5	Sense of direction	灰/grey
6	Brake	橙/orang

ECU16024Dxx-S001

ECU16036 Ø16mm 14/23W

Motor Data		Part Numbers			
		ECU16036H12	ECU16036H18	ECU16036H24	ECU16036H36
Nominal voltage	V	12	18	24	36
No load speed	rpm	14800	17100	15000	17200
No load current	mA	140	160	115	100
Nominal speed	rpm	11800	13800	11900	14000
Max. continuous torque	mNm	10.2	9.7	9.9	9.4
Max. continuous current	A	1.49	1.11	0.76	0.57
Stall torque	mNm	56.0	61.5	57.8	63.5
Stall current	A	7.27	6.02	3.75	3.16
Max. efficiency	%	81	81	80	80
Resistance (phase-phase)	Ohm	1.65	2.99	6.40	11.4
Inductance (phase-phase)	mH	0.102	0.180	0.409	0.707
Torque constant	mNm / A	7.70	10.21	15.40	20.10
Speed constant	rpm / V	1240	935	620	475
Speed/torque gradient	rpm / mNm	266	274	258	269
Mechanical time constant	ms	1.67	1.72	1.62	1.69
Rotor inertia	gcm^2	0.6	0.6	0.6	0.6

Standard model

Specification

Bearing		Ball Bearing
Max. speed	rpm	30000
Axial play	mm	0...0.14
Radial play		Preloaded
Max. axial load (dynamic)	N	1
Max. force for press fits (static)	N	18
Max. radial load (5mm from flange)	N	6
Ambient temperature	°C	-40...+100
Max. winding temperature	°C	155
Thermal resistance		
Housing - Ambient	°C / W	20.5
Winding - Housing	°C / W	3.30
Thermal time constant		
Motor	s	525
Winding	s	0.72
Number of pole pairs		1
Number of phases		3
Weight	g	44

Combination

Gearbox

PG16M
Ø16mm 0.65Nm 3.9:1-406:1
Page 85
PG16MN
Ø16mm 0.45Nm 3.9:1-406:1
Page 86
PG16MP
Ø16mm 0.9Nm 16:1-1526:1
Page 87

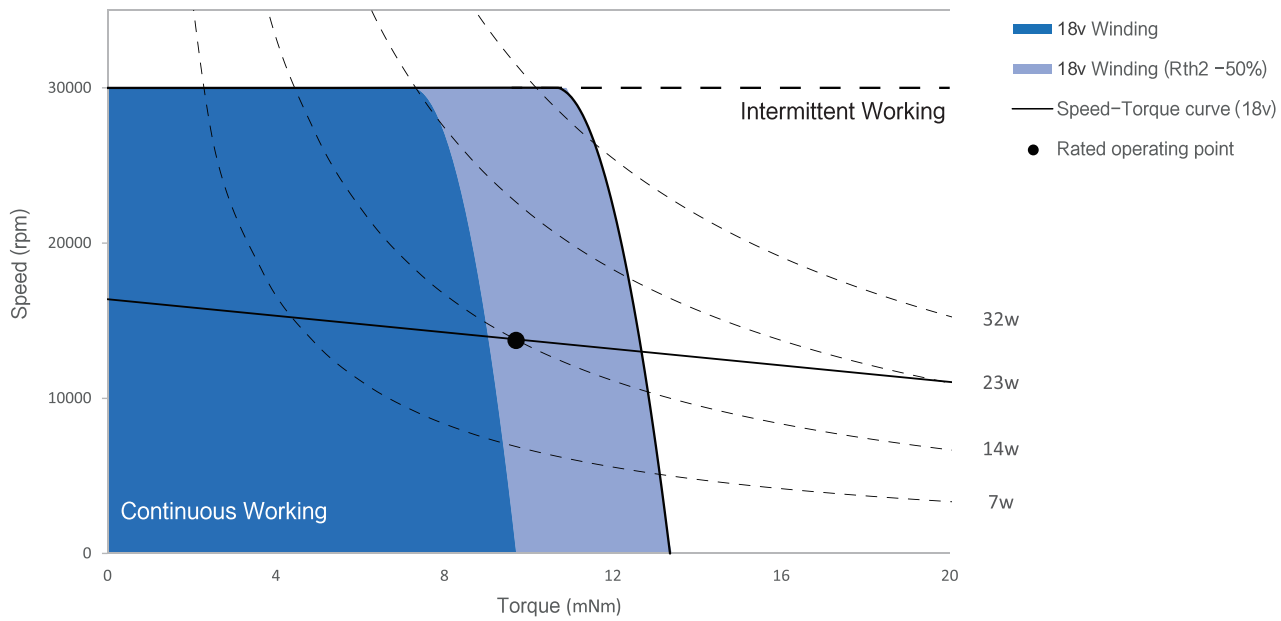
Encoder

M16
Ø16mm 1024 Lines 3 Channels
Page 103
MA16
Ø16mm 4096 Lines Single turn
Page 104
MC16
Ø16mm 8192 Lines 3 Channels
Page 105

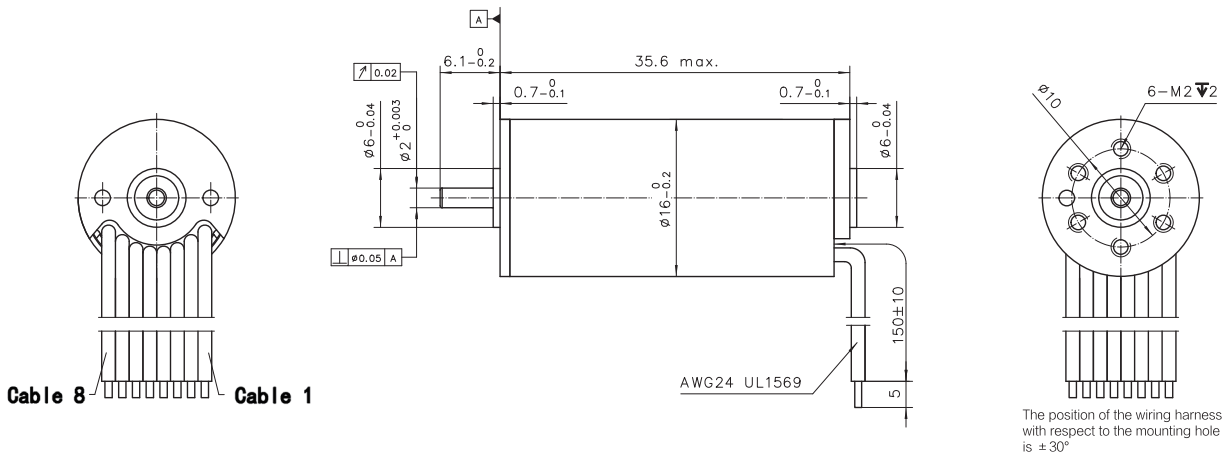
Option

With hall sensor / Sensorless
Digital Hall / Linear Hall

Operating Range



Dimension



Connection of Motor

Cable No.	信号/Signal	颜色/Color
1	U	棕/brown
2	V	红/red
3	W	橙/orange
4	V_{Hall} 3~24 VDC	黄/yellow
5	GND	绿/green
6	Hall 1	蓝/blue
7	Hall 2	紫/voilet
8	Hall 3	灰/grey

ECU16036Hxx-S101

ECU16052 Ø16mm 21/36W

Motor Data		Part Numbers			
		ECU16052H12	ECU16052H24	ECU16052H36	ECU16052H48
Nominal voltage	V	12	24	36	48
No load speed	rpm	15900	15900	16000	16500
No load current	mA	216	150	87	97
Nominal speed	rpm	13700	13800	13800	14500
Max. continuous torque	mNm	16.2	15.5	16.2	15.0
Max. continuous current	A	2.42	1.19	0.82	0.62
Stall torque	mNm	114.7	112.0	118.0	118.4
Stall current	A	15.58	7.60	5.34	4.14
Max. efficiency	%	85	82	85	81
Resistance (phase-phase)	Ohm	0.77	3.16	6.74	11.59
Inductance (phase-phase)	mH	0.062	0.253	0.587	0.965
Torque constant	mNm / A	7.36	14.85	22.1	28.59
Speed constant	rpm / V	1290	640	432	334
Speed/torque gradient	rpm / mNm	136	137	132	135
Mechanical time constant	ms	1.21	1.22	1.18	1.21
Rotor inertia	gcm^2	0.85	0.85	0.85	0.85

Standard model

Specification

Bearing		Ball Bearing
Max. speed	rpm	30000
Axial play	mm	0...0.14
Radial play		Preloaded
Max. axial load (dynamic)	N	2
Max. force for press fits (static)	N	22
Max. radial load (5mm from flange)	N	9.5
Ambient temperature	°C	-40...+100
Max. winding temperature	°C	155
Thermal resistance		
Housing - Ambient	°C / W	17.6
Winding - Housing	°C / W	1.8
Thermal time constant		
Motor	s	600
Winding	s	3.12
Number of pole pairs		1
Number of phases		3
Weight	g	65

Combination

Gearbox

PG16M
Ø16mm 0.65Nm 3.9:1-406:1
Page 85
PG16MN
Ø16mm 0.45Nm 3.9:1-406:1
Page 86
PG16MP
Ø16mm 0.9Nm 16:1-1526:1
Page 87

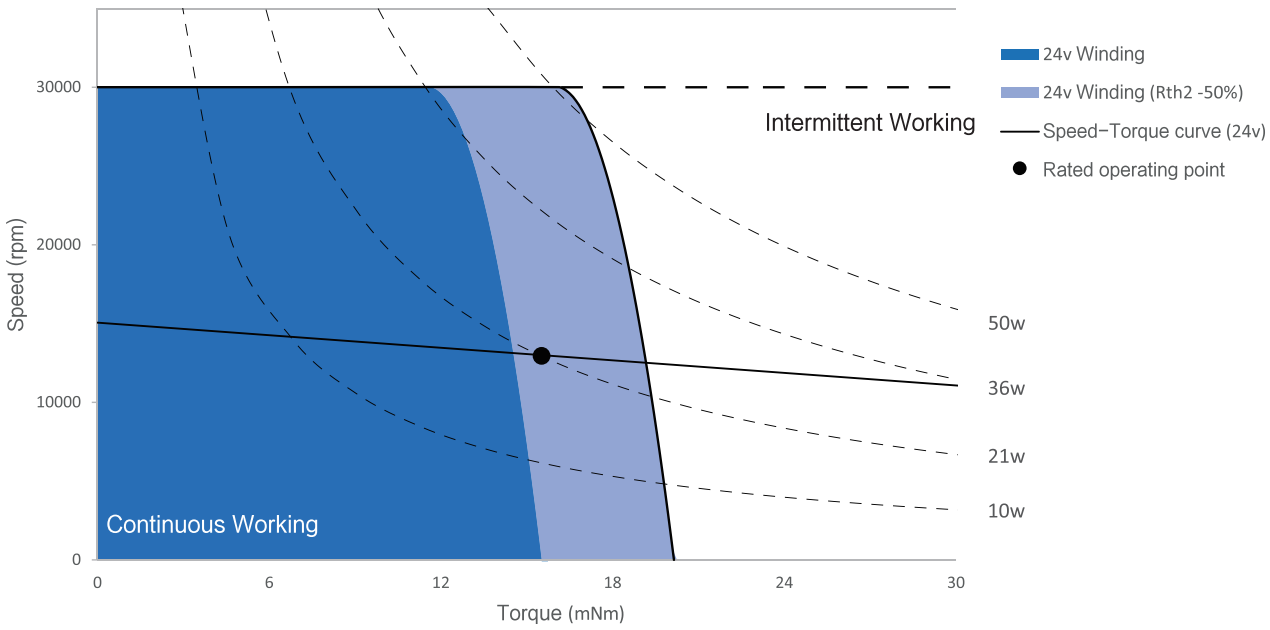
Encoder

M16
Ø16mm 1024 Lines 3 Channels
Page 103
MA16
Ø16mm 4096 Lines Single turn
Page 104
MC16
Ø16mm 8192 Lines 3 Channels
Page 105

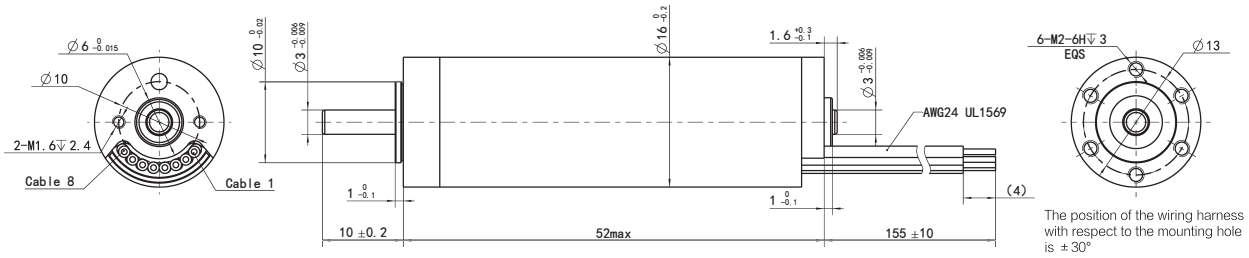
Option

With hall sensor / Sensorless
Digital Hall / Linear Hall

Operating Range



Dimension



Connection of Motor

Cable No.	信号/Signal	颜色/Color
1	U	棕/brown
2	V	红/red
3	W	橙/orange
4	V_{Hall} 3~24 VDC	黄/yellow
5	GND	绿/green
6	Hall 1	蓝/blue
7	Hall 2	紫/voilet
8	Hall 3	灰/grey

ECU16052Hxx-S001

ECU19058 Ø19mm 42/70W

Motor Data		Part Numbers			
		ECU19058H12	ECU19058H24	ECU19058H36	ECU19058H48
Nominal voltage	V	12	24	36	48
No load speed	rpm	15000	15000	15000	15000
No load current	mA	260	254	196	156
Nominal speed	rpm	13200	13300	13300	13300
Max. continuous torque	mNm	29.3	29.2	29.2	27.7
Max. continuous current	A	4.04	2.13	1.44	1.05
Stall torque	mNm	258.0	289.2	298.4	281.2
Stall current	A	33.33	18.60	12.72	9.07
Max. efficiency	%	85	86	86	85
Resistance (phase-phase)	Ohm	0.36	1.29	2.83	5.29
Inductance (phase-phase)	mH	0.040	0.156	0.355	0.614
Torque constant	mNm / A	7.74	15.55	23.46	31.00
Speed constant	rpm / V	1234	610	400	305
Speed/torque gradient	rpm / mNm	57	51	49	53
Mechanical time constant	ms	1.54	1.37	1.32	1.41
Rotor inertia	gcm^2	1.88	1.88	1.88	1.88

Standard model

Specification		
Bearing		Ball Bearing
Max. speed	rpm	30000
Axial play	mm	0...0.24
Radial play		Preloaded
Max. axial load (dynamic)	N	2
Max. force for press fits (static)	N	22
Max. radial load (5mm from flange)	N	9.5
Ambient temperature	°C	-40...+100
Max. winding temperature	°C	155
Thermal resistance		
Housing - Ambient	°C / W	14
Winding - Housing	°C / W	0.9
Thermal time constant		
Motor	s	500
Winding	s	2.91
Number of pole pairs		1
Number of phases		3
Weight	g	102

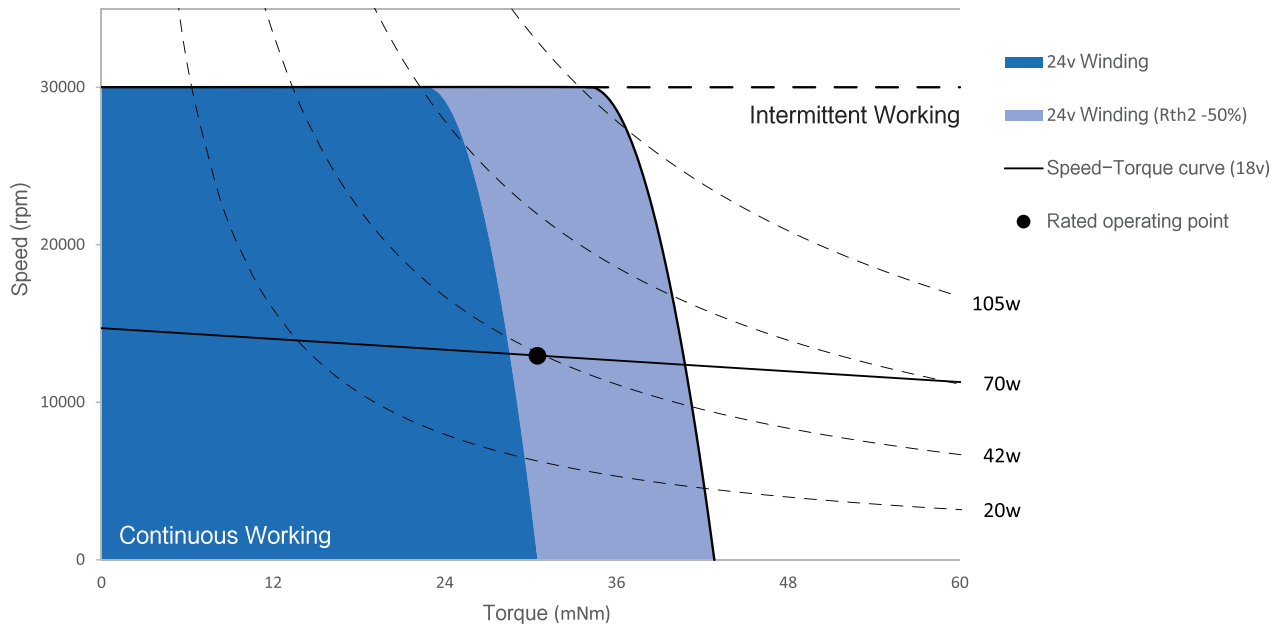
Combination

Gearbox
PG19M
Ø19mm 1Nm 3.9:1-406:1
Page 88

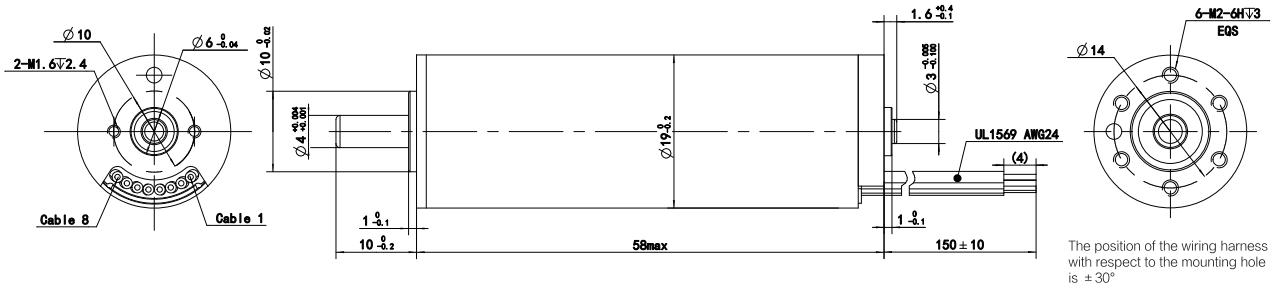
Encoder
M16
Ø16mm 1024 Lines 3 Channels
Page 103
MA16
Ø16mm 4096 Lines Single turn
Page 104
MC16
Ø16mm 8192 Lines 3 Channels
Page 105

Option
With hall sensor / Sensorless
Digital Hall / Linear Hall

Operating Range



Dimension



Connection of Motor

Cable No.	信号/Signal	颜色/Color
1	U	棕/brown
2	V	红/red
3	W	橙/orange
4	V_{Hall} 3~24 VDC	黄/yellow
5	GND	绿/green
6	Hall 1	蓝/blue
7	Hall 2	紫/voilet
8	Hall 3	灰/grey

ECU19058Hxx-S001

ECU22032 Ø22mm 15/24W

Motor Data		Part Numbers	
		ECU22032H18	ECU22032H24
Nominal voltage	V	18	24
No load speed	rpm	18300	18000
No load current	mA	135	120
Nominal speed	rpm	14700	14600
Max. continuous torque	mNm	10.9	10.9
Max. continuous current	A	1.28	0.98
Stall torque	mNm	55.5	57.9
Stall current	A	5.81	4.55
Max. efficiency	%	74	74
Resistance (phase-phase)	Ohm	3.10	5.27
Inductance (phase-phase)	mH	0.170	0.300
Torque constant	mNm / A	9.55	12.73
Speed constant	rpm / V	1000	750
Speed/torque gradient	rpm / mNm	325	310
Mechanical time constant	ms	6.12	5.85
Rotor inertia	gcm^2	1.80	1.80

Standard model

Specification

Bearing		Ball Bearing
Max. speed	rpm	30000
Axial play	mm	0...0.14
Radial play		Preloaded
Max. axial load (dynamic)	N	3.5
Max. force for press fits (static)	N	53
Max. radial load (5mm from flange)	N	15
Ambient temperature	°C	-40...+100
Max. winding temperature	°C	155
Thermal resistance		
Housing - Ambient	°C / W	16
Winding - Housing	°C / W	1.25
Thermal time constant		
Motor	s	667
Winding	s	1.49
Number of pole pairs		1
Number of phases		3
Weight	g	71

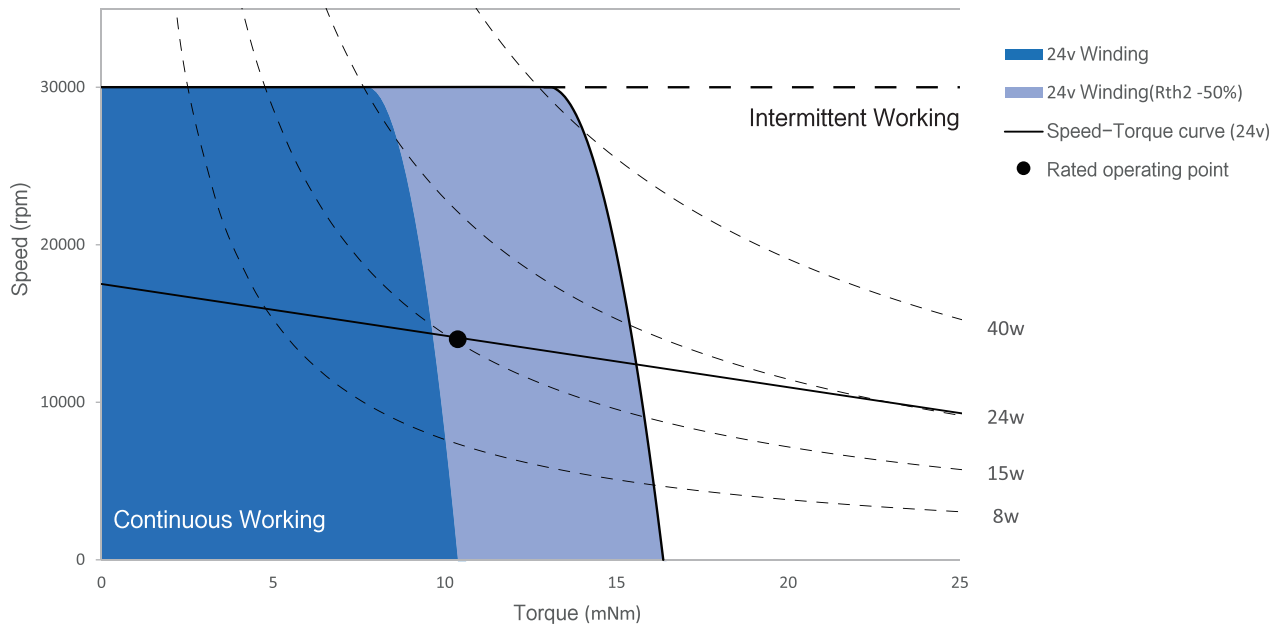
Combination

Gearbox
PG22M
Ø22mm 2Nm 3.9:1-546:1
Page 90

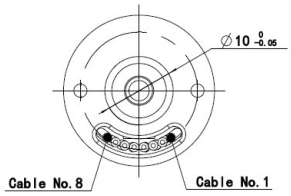
Encoder
M16
Ø16mm 1024 Lines 3 Channels
Page 103
MA16
Ø16mm 4096 Lines Single turn
Page 104
MC16
Ø16mm 8192 Lines 3 Channels
Page 105
N18
Ø18mm 1000 Lines 3 Channels
Page 107
P22
Ø22mm 65536 Turns 131072 Lines
Page 108

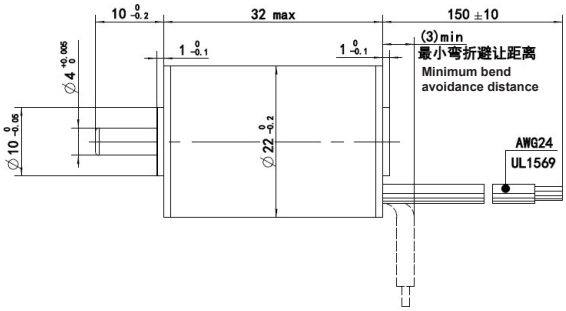
Option
With hall sensor / Sensorless
Digital Hall / Linear Hall

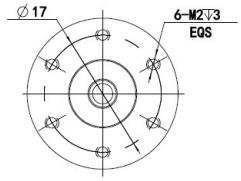
Operating Range



Dimension







The position of the wiring harness with respect to the mounting hole is ±30°

Connection of Motor

Cable No.	信号/Signal	颜色/Color
1	U	棕/brown
2	V	红/red
3	W	橙/orange
4	V_{Hall} 3~24 VDC	黄/yellow
5	GND	绿/green
6	Hall 1	蓝/blue
7	Hall 2	紫/voilet
8	Hall 3	灰/grey

ECU22032Hxx-S001

ECU22048 Ø22mm 48/64W

Motor Data		Part Numbers			
		ECU22048H18	ECU22048H24	ECU22048H36	ECU22048H48
Nominal voltage	V	18	24	36	48
No load speed	rpm	19500	19200	19400	19900
No load current	mA	380	326	295	253
Nominal speed	rpm	17000	16400	16600	17100
Max. continuous torque	mNm	27.8	27.3	26.4	25.9
Max. continuous current	A	3.48	2.53	1.73	1.34
Stall torque	mNm	322.8	316.6	328.9	341.0
Stall current	A	36.00	25.53	17.91	14.29
Max. efficiency	%	86	86	86	85
Resistance (phase-phase)	Ohm	0.50	0.94	2.01	3.36
Inductance (phase-phase)	mH	0.052	0.104	0.230	0.391
Torque constant	mNm / A	8.97	12.40	18.36	23.87
Speed constant	rpm / V	1065	770	520	400
Speed/torque gradient	rpm / mNm	59	58	57	56
Mechanical time constant	ms	2.40	2.36	2.30	2.28
Rotor inertia	gcm^2	3.86	3.86	3.86	3.86

Standard model

Specification

Bearing		Ball Bearing
Max. speed	rpm	30000
Axial play	mm	0...0.14
Radial play		Preloaded
Max. axial load (dynamic)	N	3.5
Max. force for press fits (static)	N	60
Max. radial load (5mm from flange)	N	15
Ambient temperature	°C	-40...+100
Max. winding temperature	°C	155
Thermal resistance		
Housing - Ambient	°C / W	13.5
Winding - Housing	°C / W	1
Thermal time constant		
Motor	s	510
Winding	s	1.59
Number of pole pairs		1
Number of phases		3
Weight	g	110

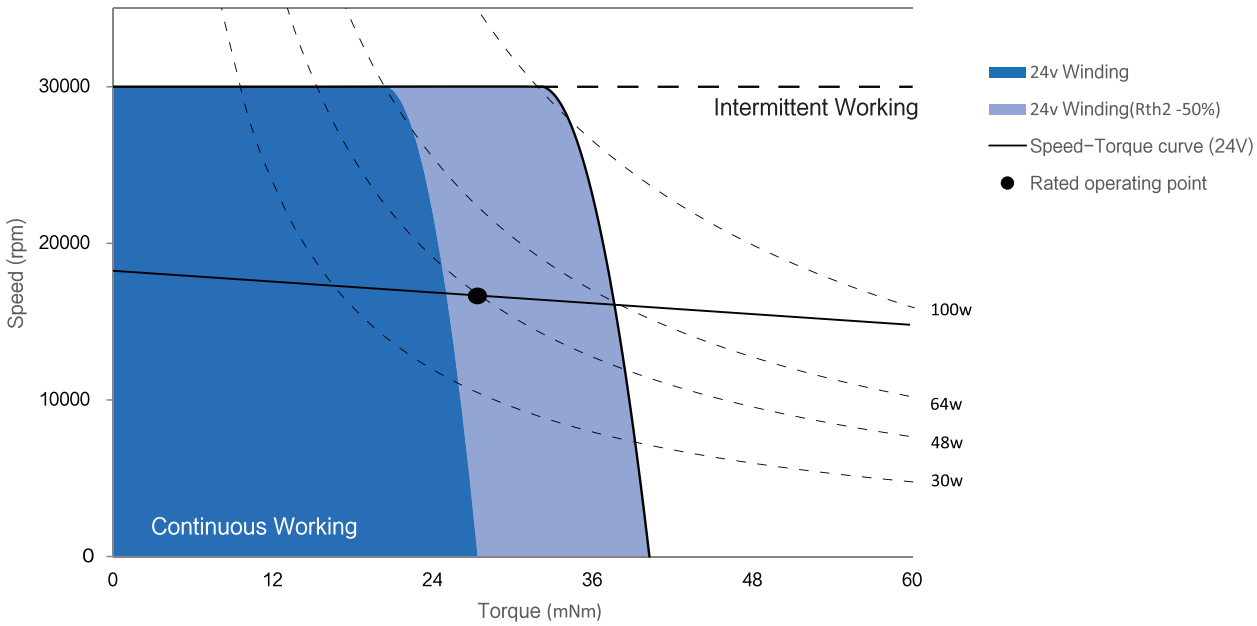
Combination

Gearbox
PG22M
Ø22mm 2Nm 3.9:1-546:1
Page 90

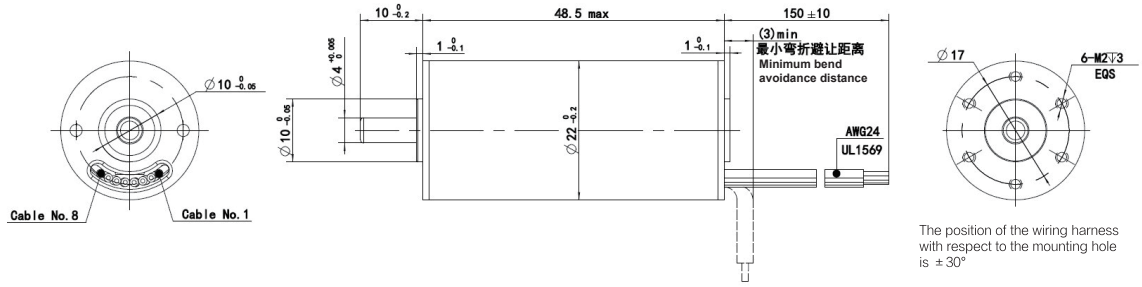
Encoder
M16
Ø16mm 1024 Lines 3 Channels
Page 103
MA16
Ø16mm 4096 Lines Single turn
Page 104
MC16
Ø16mm 8192 Lines 3 Channels
Page 105
N18
Ø18mm 1000 Lines 3 Channels
Page 107
P22
Ø22mm 65536 Turns 131072 Lines
Page 108

Option
With hall sensor / Sensorless
Digital Hall / Linear Hall

Operating Range



Dimension



Connection of Motor

Cable No.	信号/Signal	颜色/Color
1	U	棕/brown
2	V	红/red
3	W	橙/orange
4	V_{Hall} 3~24 VDC	黄/yellow
5	GND	绿/green
6	Hall 1	蓝/blue
7	Hall 2	紫/voilet
8	Hall 3	灰/grey

ECU22048Hxx-S101

ECU26056 Ø26mm 55/90W

Motor Data		Part Numbers			
		ECU26056H12	ECU26056H24	ECU26056H36	ECU26056H48
Nominal voltage	V	12	24	36	48
No load speed	rpm	10100	10300	10300	10400
No load current	mA	329	315	258	207
Nominal speed	rpm	9100	9200	9400	9500
Max. continuous torque	mNm	59.7	58.4	57.8	57.1
Max. continuous current	A	5.54	2.87	1.95	1.48
Stall torque	mNm	598	638	662	668
Stall current	A	52.2	27.9	19.5	14.9
Max. efficiency	%	86	88	88	88
Resistance (phase-phase)	Ohm	0.23	0.86	1.85	3.22
Inductance (phase-phase)	mH	0.041	0.163	0.362	0.638
Torque constant	mNm / A	11.46	22.85	34.04	44.83
Speed constant	rpm / V	835	420	280	210
Speed/torque gradient	rpm / mNm	17	16	15	15
Mechanical time constant	ms	1.58	1.48	1.44	1.44
Rotor inertia	gcm^2	2.57	2.57	2.57	2.57

Standard model

Specification		
Bearing		Ball Bearing
Max. speed	rpm	20000
Axial play	mm	0...0.14
Radial play		Preloaded
Max. axial load (dynamic)	N	3.5
Max. force for press fits (static)	N	60
Max. radial load (5mm from flange)	N	15
Ambient temperature	°C	-40...+100
Max. winding temperature	°C	155
Thermal resistance		
Housing - Ambient	°C / W	13.02
Winding - Housing	°C / W	0.72
Thermal time constant		
Motor	s	300
Winding	s	2.46
Number of pole pairs		1
Number of phases		3
Weight	g	102

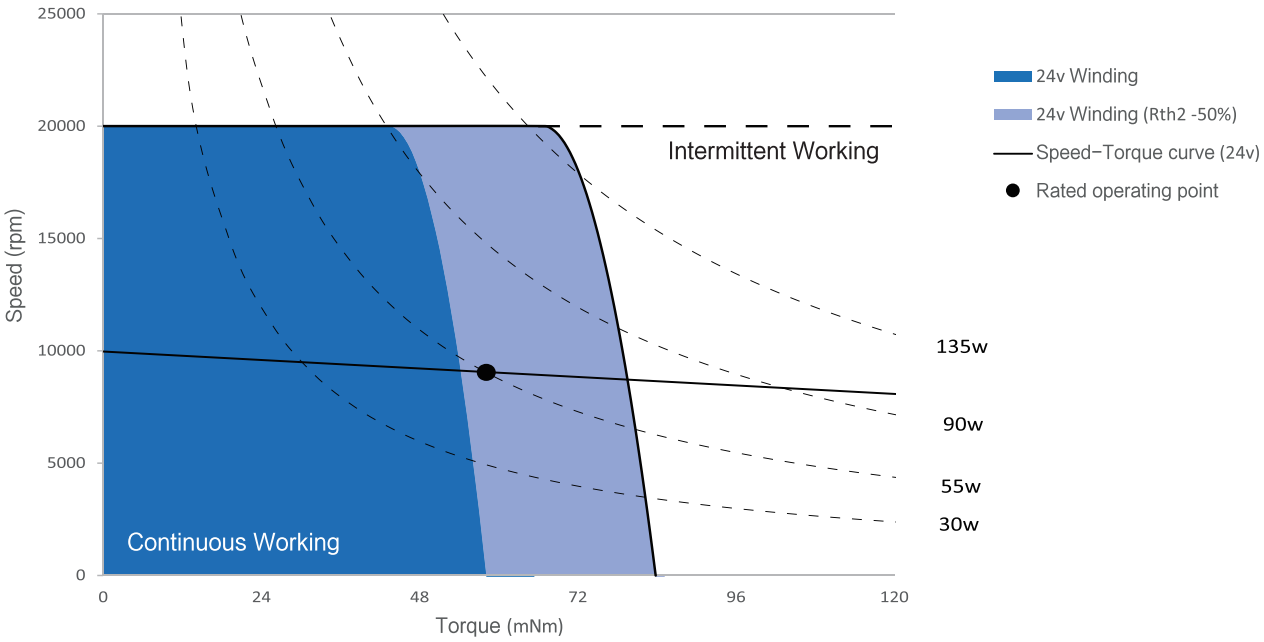
Combination

Gearbox
PG26M
Ø26mm 4.5Nm 3.9:1-231:1
Page 91

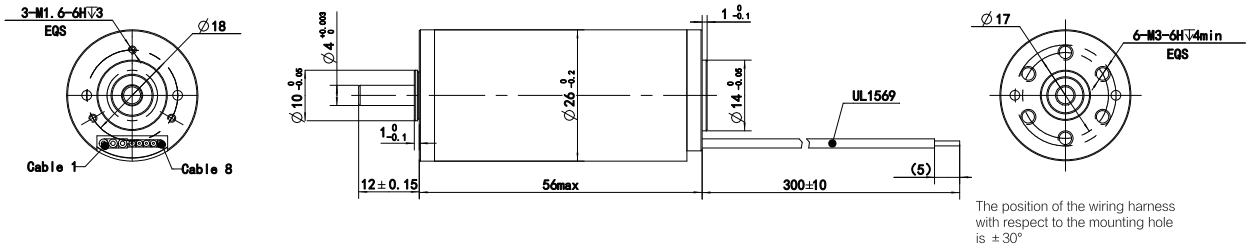
Encoder
M24
Ø16mm 1024 Lines 3 Channels
Page 109
P22
Ø22mm 65536 Turns 131072 Lines
Page 108

Option
With hall sensor / Sensorless
Digital Hall / Linear Hall

Operating Range



Dimension



Connection of Motor

Cable No.	信号/Signal	颜色/Color	线规/Wire gage
1	U	红/red	AWG 20
2	V	黑/black	
3	W	白/white	
4	V_{hall} 3~24 VDC	橙/orange	AWG 26
5	GND	蓝/blue	
6	Hall 1	黄/yellow	
7	Hall 2	棕/brown	
8	Hall 3	灰/grey	

ECU26056Hxx-S001

ECU30042 Ø30mm 32/42W

Motor Data		Part Numbers	
		ECU30042H12	ECU30042H24
Nominal voltage	V	12	24
No load speed	rpm	10600	10800
No load current	mA	380	230
Nominal speed	rpm	8720	8900
Max. continuous torque	mNm	35.5	37.6
Max. continuous current	A	3.69	1.98
Stall torque	mNm	247.9	285.4
Stall current	A	23.1	13.3
Max. efficiency	%	79	80
Resistance (phase-phase)	Ohm	0.52	1.80
Inductance (phase-phase)	mH	0.063	0.215
Torque constant	mNm / A	10.73	21.46
Speed constant	rpm / V	890	445
Speed/torque gradient	rpm / mNm	43	37
Mechanical time constant	ms	4.65	4.03
Rotor inertia	gcm^2	10.3	10.3

Standard model

Specification		
Bearing		Ball Bearing
Max. speed	rpm	15000
Axial play	mm	0...0.14
Radial play		Preloaded
Max. axial load (dynamic)	N	5
Max. force for press fits (static)	N	98
Max. radial load (5mm from flange)	N	25
Ambient temperature	°C	-40...+100
Max. winding temperature	°C	155
Thermal resistance		
Housing - Ambient	°C / W	11.4
Winding - Housing	°C / W	1.0
Thermal time constant		
Motor	s	1140
Winding	s	3.8
Number of pole pairs		1
Number of phases		3
Weight	g	176

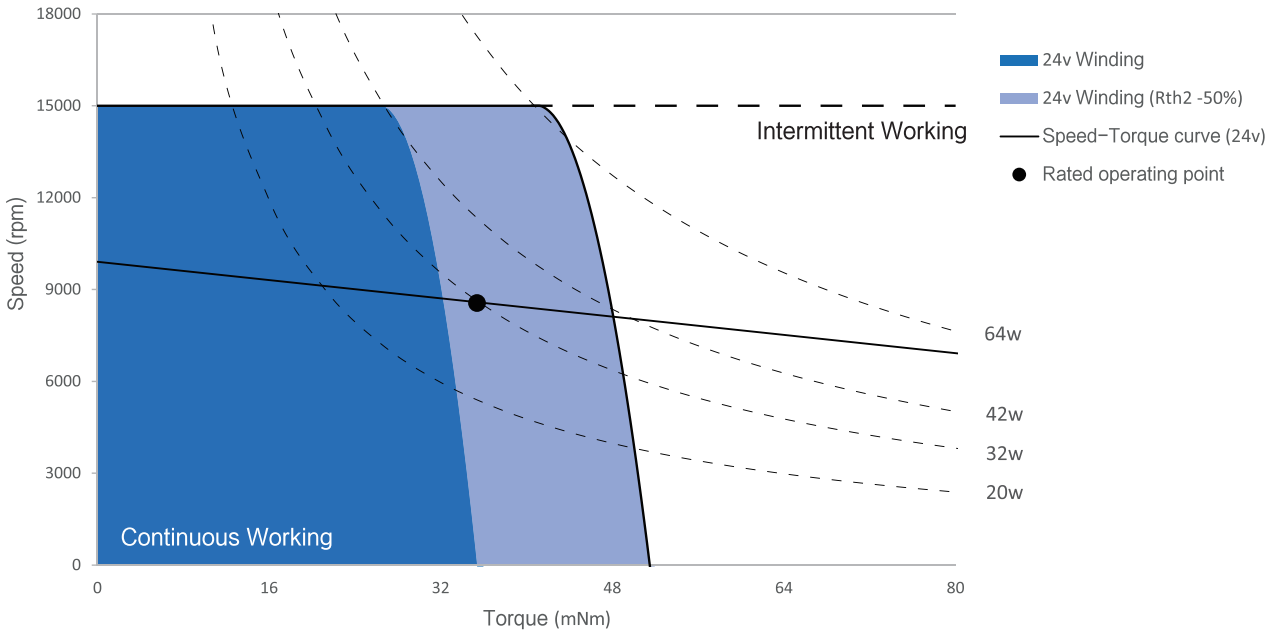
Combination

Gearbox
PG32A
Ø32mm 7Nm 5:1-253:1
Page 92
PG32M
Ø32mm 8Nm 5:1-253:1
Page 93

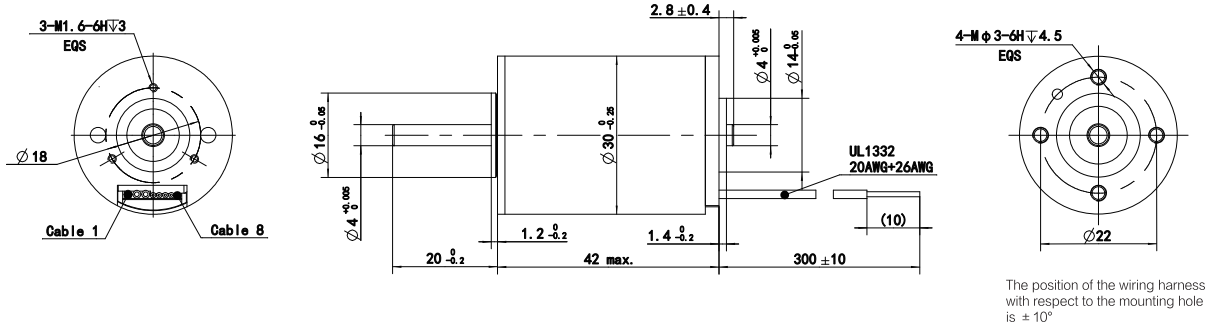
Encoder
M24
Ø24mm 1024 Lines 3 Channels
Page 109
P22
Ø22mm 65536 Turns 131072 Lines
Page 108

Option
With hall sensor / Sensorless

Operating Range



Dimension



The position of the wiring harness with respect to the mounting hole is ±10°

Connection of Motor

Cable No.	信号/Signal	颜色/Color
1	U	红/red
2	V	黑/black
3	W	白/white
4	V_{Hall} 3~24 VDC	绿/green
5	GND	蓝/blue
6	Hall 1	黄/yellow
7	Hall 2	棕/brown
8	Hall 3	灰/grey

ECU30042Hxx-S001

ECU30064 Ø30mm 73/90W

Motor Data		Part Numbers		
		ECU30064H24	ECU30064H36	ECU30064H48
Nominal voltage	V	24	36	48
No load speed	rpm	10000	10000	10000
No load current	mA	520	425	335
Nominal speed	rpm	9190	9260	9260
Max. continuous torque	mNm	75.7	75.3	75.3
Max. continuous current	A	3.84	2.61	1.98
Stall torque	mNm	994	1044	1063
Stall current	A	43.6	30.4	23.2
Max. efficiency	%	86	86	86
Resistance (phase-phase)	Ohm	0.55	1.19	2.07
Inductance (phase-phase)	mH	0.104	0.232	0.413
Torque constant	mNm / A	22.81	34.40	45.82
Speed constant	rpm / V	410	270	200
Speed/torque gradient	rpm / mNm	10	10	9
Mechanical time constant	ms	2.05	1.95	1.91
Rotor inertia	gcm^2	19.4	19.4	19.4

Standard model

Specification

Bearing		Ball Bearing
Max. speed	rpm	15000
Axial play	mm	0...0.14
Radial play		Preloaded
Max. axial load (dynamic)	N	5
Max. force for press fits (static)	N	98
Max. radial load (5mm from flange)	N	25
Ambient temperature	°C	-40...+100
Max. winding temperature	°C	155
Thermal resistance		
Housing - Ambient	°C / W	9.6
Winding - Housing	°C / W	0.98
Thermal time constant		
Motor	s	1094
Winding	s	6.8
Number of pole pairs		1
Number of phases		3
Weight	g	274

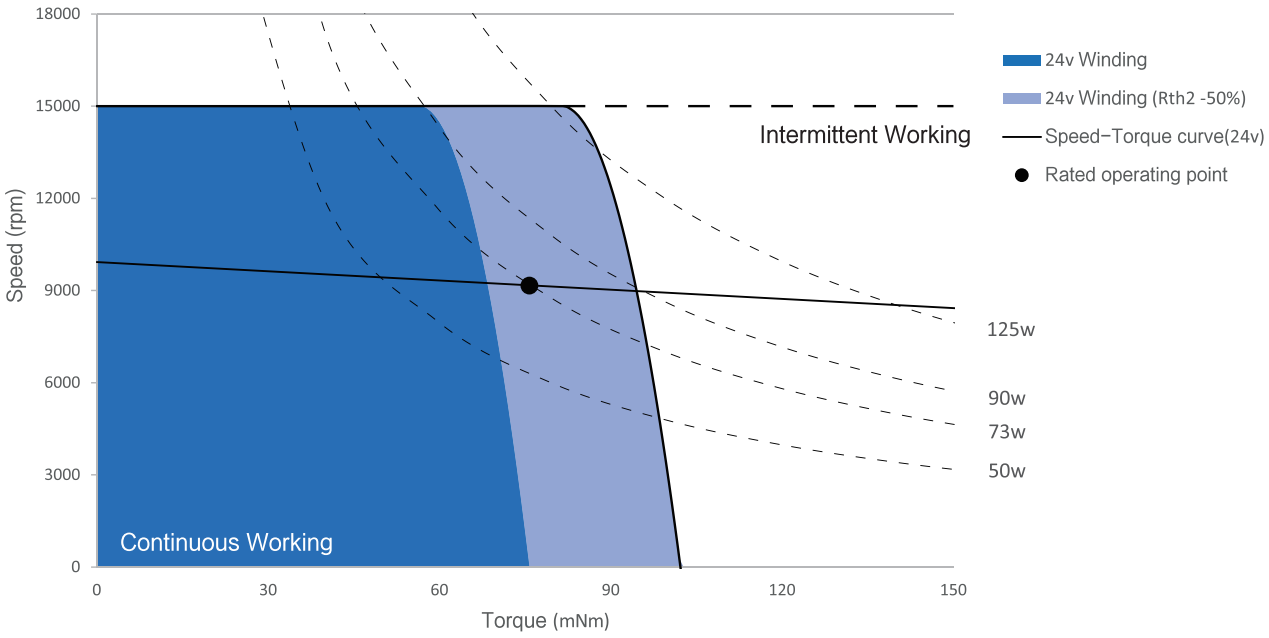
Combination

Gearbox
PG32A
Ø32mm 7Nm 5:1-253:1
Page 92
PG32M
Ø32mm 8Nm 5:1-253:1
Page 93

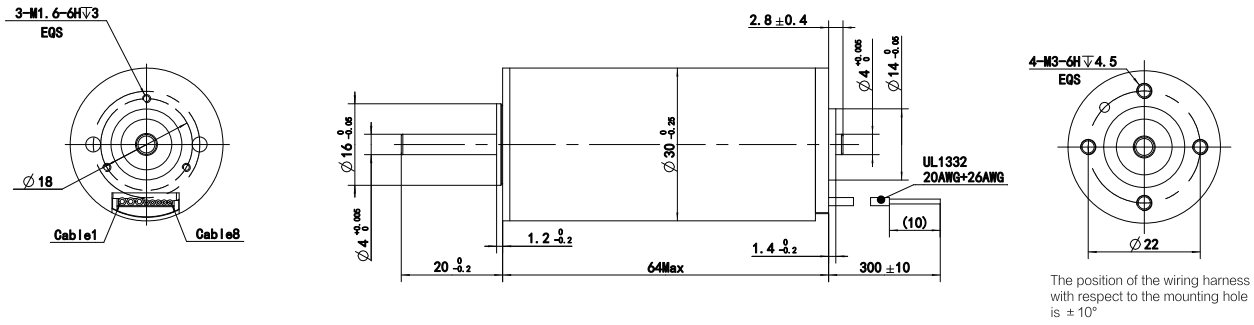
Encoder
M24
Ø24mm 1024 Lines 3 Channels
Page 109
P22
Ø22mm 65536 Turns 131072 Lines
Page 108

Option
With hall sensor / Sensorless

Operating Range



Dimension



Connection of Motor

Cable No.	信号/Signal	颜色/Color
1	U	红/red
2	V	黑/black
3	W	白/white
4	V_{Hall} 3~24 VDC	绿/green
5	GND	蓝/blue
6	Hall 1	黄/yellow
7	Hall 2	棕/brown
8	Hall 3	灰/grey

ECU30064Hxx-S001

ECH06024 Ø6mm 2/3.2W

Motor Data		Part Numbers
		ECH06024N12
Nominal voltage	V	12
No load speed	rpm	63000
No load current	mA	70
Nominal speed	rpm	50000
Max. continuous torque	mNm	0.40
Max. continuous current	A	0.30
Stall torque	mNm	2.00
Stall current	A	1.09
Max. efficiency	%	68
Resistance (phase-phase)	Ohm	11.00
Inductance (phase-phase)	mH	0.008
Torque constant	mNm / A	1.84
Speed constant	rpm / V	5200
Speed/torque gradient	rpm / mNm	31145
Mechanical time constant	ms	2.23
Rotor inertia	gcm^2	0.01

Standard model

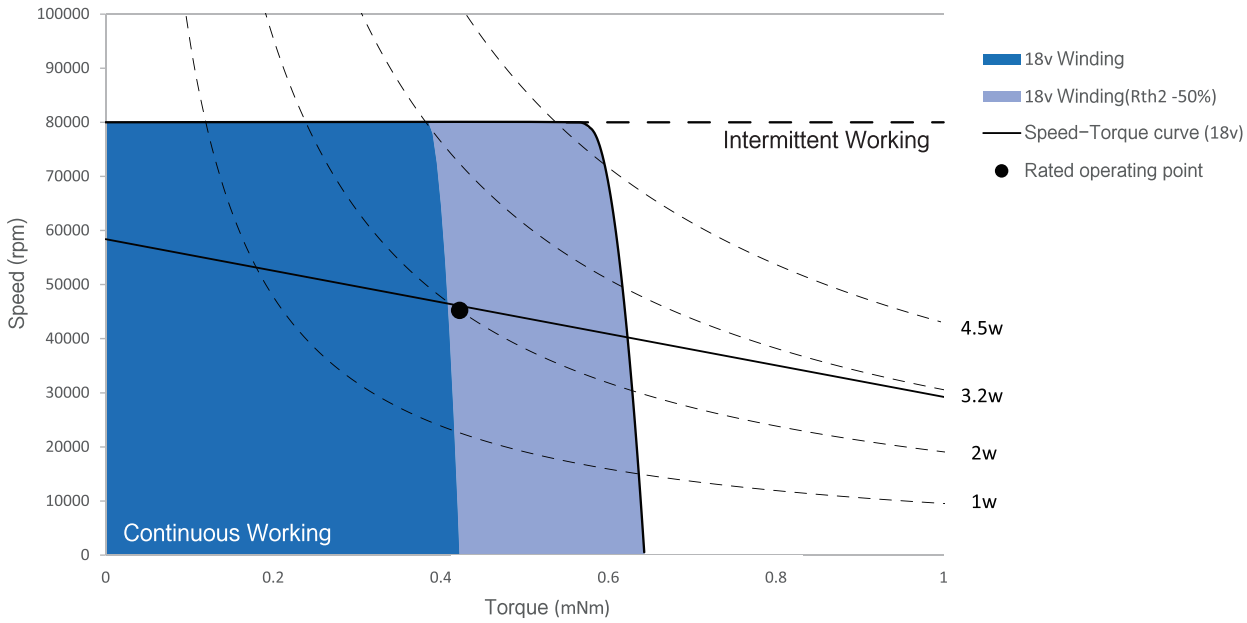
Specification		
Bearing		Ball Bearing
Max. speed	rpm	80000
Axial play	mm	0...0.29
Radial play		Preloaded
Max. axial load (dynamic)	N	1.5
Max. force for press fits (static)	N	60
Max. radial load (5mm from flange)	N	10
Ambient temperature	°C	-40...+100
Max. winding temperature	°C	155
Thermal resistance		
Housing - Ambient	°C / W	9.0
Winding - Housing	°C / W	1.75
Thermal time constant		
Motor	s	588
Winding	s	1.10
Number of pole pairs		1
Number of phases		3
Weight	g	73

Combination

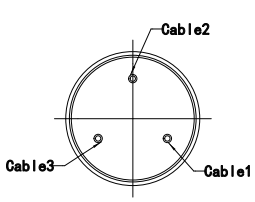
Gearbox
Encoder
Please contact local sales.

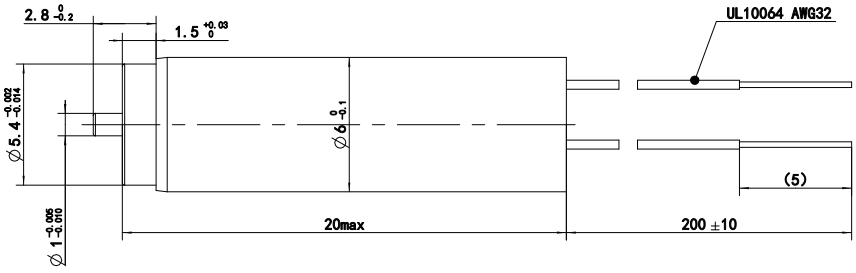
Option
With hall sensor / Sensorless

Operating Range



Dimension





Connection of Motor

Cable No.	信号/Signal	颜色/Color
1	U	红/red
2	V	黑/black
3	W	白/white

ECH06024Nxx-S001

ECH08023 Ø8mm 4.2/7.4W

*Preliminary Version

Motor Data		Part Numbers		
		ECH08023H06	ECH08023H12	ECH08023H24
Nominal voltage	V	6	12	24
No load speed	rpm	33900	43700	44400
No load current	mA	147	105	59
Nominal speed	rpm	28900	35100	35700
Max. continuous torque	mNm	1.42	1.30	1.30
Max. continuous current	A	0.98	0.59	0.30
Stall torque	mNm	5.00	5.80	5.80
Stall current	A	2.94	2.11	1.11
Max. efficiency	%	64	62	63
Resistance (phase-phase)	Ohm	2.04	5.69	21.6
Inductance (phase-phase)	mH	0.023	0.062	0.420
Torque constant	mNm / A	1.71	2.76	5.20
Speed constant	rpm / V	5580	3460	1830
Speed/torque gradient	rpm / mNm	6644	7138	7621
Mechanical time constant	ms	1.54	1.64	1.76
Rotor inertia	gcm^2	0.02	0.02	0.02

Standard model

Specification

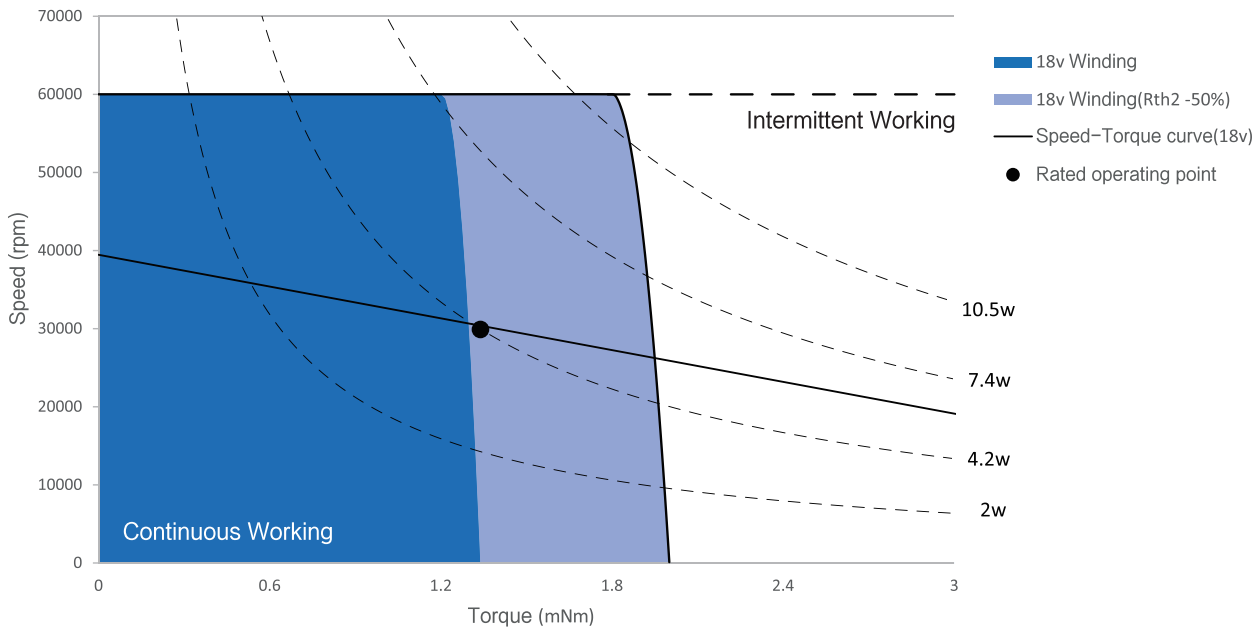
Bearing		Ball Bearing
Max. speed	rpm	60000
Axial play	mm	0...0.14
Radial play		Preloaded
Max. axial load (dynamic)	N	0.2
Max. force for press fits (static)	N	10
Max. radial load (5mm from flange)	N	2
Ambient temperature	°C	-40...+100
Max. winding temperature	°C	155
Thermal resistance		
Housing - Ambient	°C / W	41
Winding - Housing	°C / W	4
Thermal time constant		
Motor	s	210
Winding	s	1
Number of pole pairs		1
Number of phases		3
Weight	g	10.7

Combination

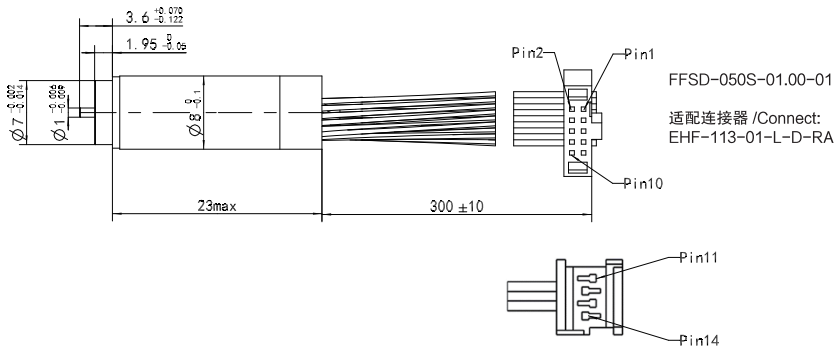
Gearbox
Encoder
Please contact local sales.

Option
With hall sensor / Sensorless

Operating Range



Dimension



Connection

Pin No.	信号/Signal	线型/Wire
Pin1	/	/
Pin2	VCC 4.5V-5.5V	AWG30 UL2678
Pin3	GND	AWG30 UL2678
Pin4	MODE	AWG30 UL2678
Pin5	Hall 1	AWG30 UL2678
Pin6	/	/
Pin7	Hall 2	AWG30 UL2678
Pin8	/	/
Pin9	Hall 3	AWG30 UL2678
Pin10	/	/
Pin11	U	AWG28 UL2651
Pin12	V	AWG28 UL2651
Pin13	W	AWG28 UL2651
Pin14	/	/

ECH08023Hxx-S001

ECH10032 Ø10mm 10.5/13.5W

Motor Data		Part Numbers				
		ECH10032H06	ECH10032H09	ECH10032H12	ECH10032H18	ECH10032H24
Nominal voltage	V	6	9	12	18	24
No load speed	rpm	48200	50400	49600	50500	51800
No load current	mA	282	226	203	183	125
Nominal speed	rpm	40000	43000	42800	44300	45600
Max. continuous torque	mNm	1.90	2.20	2.10	2.20	2.20
Max. continuous current	A	2.00	1.53	1.15	0.83	0.64
Stall torque	mNm	11.9	15.5	15.8	18.3	18.8
Stall current	A	10.7	9.38	7.02	5.47	4.36
Max. efficiency	%	77	80	80	79	79
Resistance (phase-phase)	Ohm	0.56	0.96	1.71	3.29	5.50
Inductance (phase-phase)	mH	0.011	0.023	0.044	0.095	0.100
Torque constant	mNm / A	1.11	1.65	2.25	3.35	4.32
Speed constant	rpm / V	8580	5785	4235	2850	2210
Speed/torque gradient	rpm / mNm	4315	3366	3213	2800	2813
Mechanical time constant	ms	3.64	2.82	2.68	2.35	2.36
Rotor inertia	gcm^2	0.08	0.08	0.08	0.08	0.08

Standard model

Specification

Bearing		Ball Bearing
Max. speed	rpm	65000
Axial play	mm	0...0.14
Radial play		Preloaded
Max. axial load (dynamic)	N	0.16
Max. force for press fits (static)	N	12
Max. radial load (5mm from flange)	N	2
Ambient temperature	°C	-40...+100
Max. winding temperature	°C	155
Thermal resistance		
Housing - Ambient	°C / W	34
Winding - Housing	°C / W	5
Thermal time constant		
Motor	s	220
Winding	s	1.85
Number of pole pairs		1
Number of phases		3
Weight	g	18.2

Combination

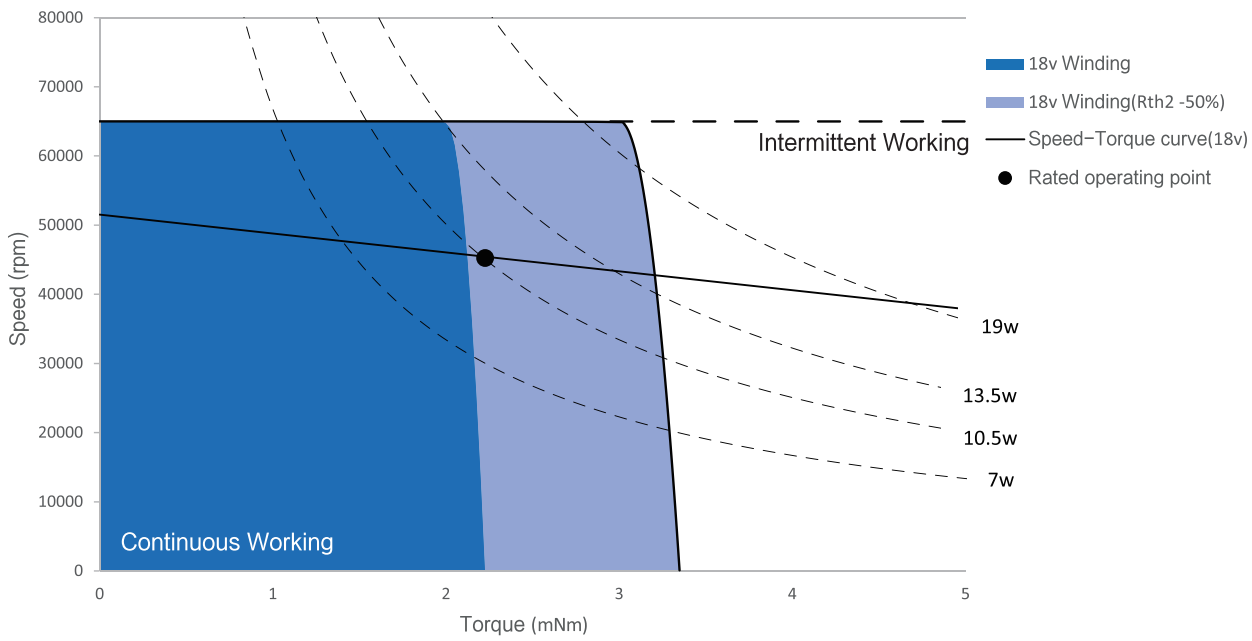
Gearbox
PG10M
Ø10mm 0.18Nm 3.8:1-62:1
Page 81

Encoder
MS10
Ø10mm 1024 Lines 3 Channels

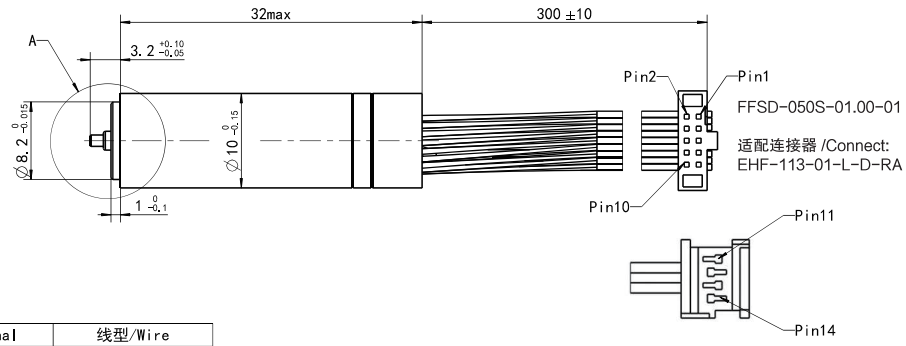
Page 97

Option
With hall sensor / Sensorless

Operating Range

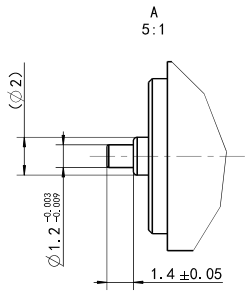


Dimension



Connection

Pin No.	信号/Signal	线型/Wire
Pin1	/	/
Pin2	VCC 4.5V-5.5V	AWG30 UL2678
Pin3	GND	AWG30 UL2678
Pin4	MODE	AWG30 UL2678
Pin5	Hall 1	AWG30 UL2678
Pin6	/	/
Pin7	Hall 2	AWG30 UL2678
Pin8	/	/
Pin9	Hall 3	AWG30 UL2678
Pin10	/	/
Pin11	U	AWG28 UL2651
Pin12	V	AWG28 UL2651
Pin13	W	AWG28 UL2651
Pin14	/	/



ECH10032Hxx-S001

ECH13048 Ø13mm 53/70W

Motor Data		Part Numbers			
		ECH13048H18	ECH13048H24	ECH13048H36	ECH13048H48
Nominal voltage	V	18	24	36	48
No load speed	rpm	66700	66700	68400	68900
No load current	mA	460	530	560	600
Nominal speed	rpm	62600	63000	65200	66200
Max. continuous torque	mNm	8.4	8.1	7.3	6.0
Max. continuous current	A	3.75	2.91	2.01	1.50
Stall torque	mNm	138.9	148.8	158.6	155.9
Stall current	A	54.5	43.6	31.4	23.2
Max. efficiency	%	92	92	91	89
Resistance (phase-phase)	Ohm	0.33	0.55	1.15	2.07
Inductance (phase-phase)	mH	0.020	0.035	0.077	0.133
Torque constant	mNm / A	2.55	3.41	5.04	6.72
Speed constant	rpm / V	3750	2800	1890	1400
Speed/torque gradient	rpm / mNm	486	452	430	437
Mechanical time constant	ms	1.56	1.45	1.38	1.41
Rotor inertia	gcm^2	0.31	0.31	0.31	0.31

Standard model

Specification

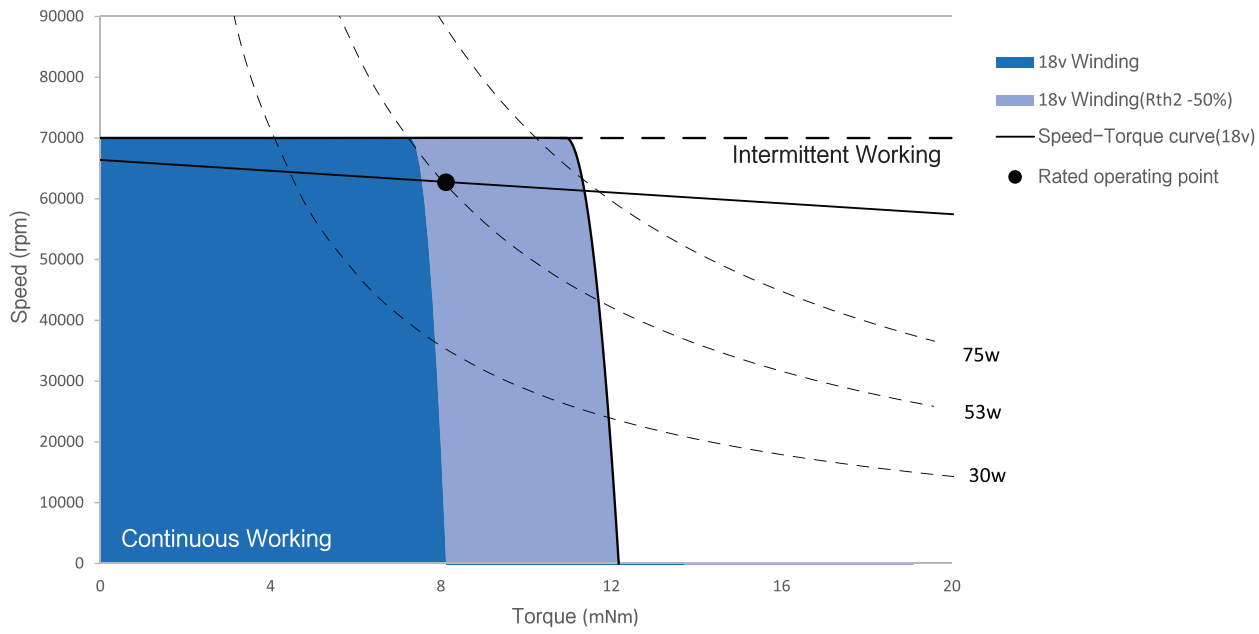
Bearing		Ball Bearing
Max. speed	rpm	70000
Axial play	mm	0...0.29
Radial play		Preloaded
Max. axial load (dynamic)	N	1.5
Max. force for press fits (static)	N	50
Max. radial load (5mm from flange)	N	6
Ambient temperature	°C	-40...+100
Max. winding temperature	°C	155
Thermal resistance		
Housing - Ambient	°C / W	18.3
Winding - Housing	°C / W	1.75
Thermal time constant		
Motor	s	524
Winding	s	2.06
Number of pole pairs		1
Number of phases		3
Weight	g	40.3

Combination

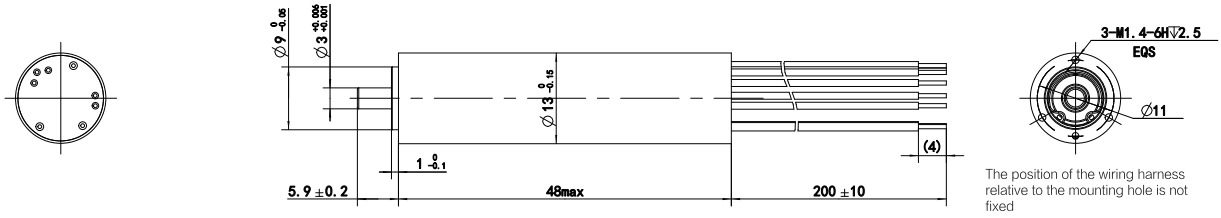
Gearbox
Encoder
Please contact local sales.

Option
With hall sensor / Sensorless

Operating Range



Dimension



Connection of Motor

Cable No.	信号/Signal	颜色/Color	线规
1	U	红/red	26AWG
2	V	黑/black	
3	W	白/white	
4	V_{Hall} 3~24 VDC	橙/orange	28AWG
5	GND	蓝/blue	
6	Hall 1	黄/yellow	
7	Hall 2	棕/brown	
8	Hall 3	灰/grey	

ECH13048Hxx-S001

ECH16056 Ø16mm 75/90W

Motor Data		Part Numbers			
		ECH16056H18	ECH16056H24	ECH16056H36	ECH16056H48
Nominal voltage	V	18	24	36	48
No load speed	rpm	44700	45400	47800	46000
No load current	mA	540	610	520	490
Nominal speed	rpm	43000	43200	45700	44000
Max. continuous torque	mNm	15.2	14.6	14.3	12.5
Max. continuous current	A	4.41	3.47	2.47	1.74
Stall torque	mNm	270.7	292.0	318.8	288.3
Stall current	A	69.2	57.1	43.4	28.7
Max. efficiency	%	89	85	88	82
Resistance (phase-phase)	Ohm	0.26	0.42	0.83	1.67
Inductance (phase-phase)	mH	0.025	0.041	0.087	0.161
Torque constant	mNm / A	3.91	5.11	7.35	10.03
Speed constant	rpm / V	2445	1865	1300	950
Speed/torque gradient	rpm / mNm	163	153	147	158
Mechanical time constant	ms	1.17	1.11	1.06	1.15
Rotor inertia	gcm^2	0.71	0.71	0.71	0.71

Standard model

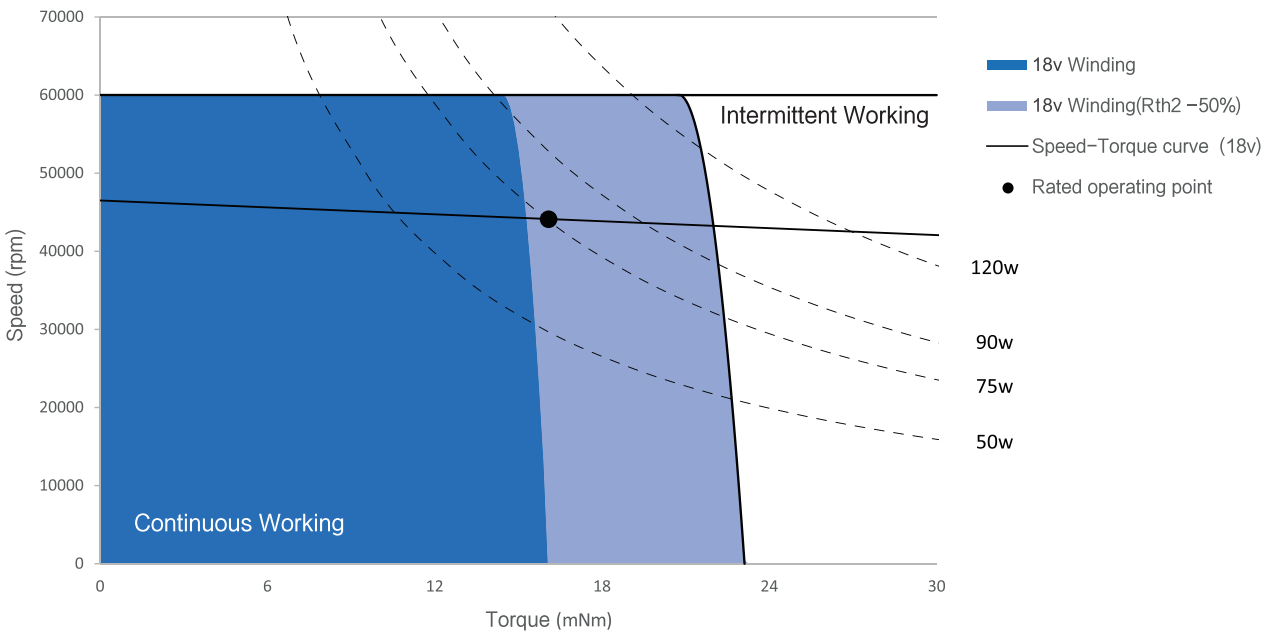
Specification		
Bearing		Ball Bearing
Max. speed	rpm	60000
Axial play	mm	0...0.29
Radial play		Preloaded
Max. axial load (dynamic)	N	2
Max. force for press fits (static)	N	22
Max. radial load (5mm from flange)	N	9.5
Ambient temperature	°C	-40...+100
Max. winding temperature	°C	155
Thermal resistance		
Housing - Ambient	°C / W	16.6
Winding - Housing	°C / W	0.73
Thermal time constant		
Motor	s	638
Winding	s	1.83
Number of pole pairs		1
Number of phases		3
Weight	g	67.5

Combination

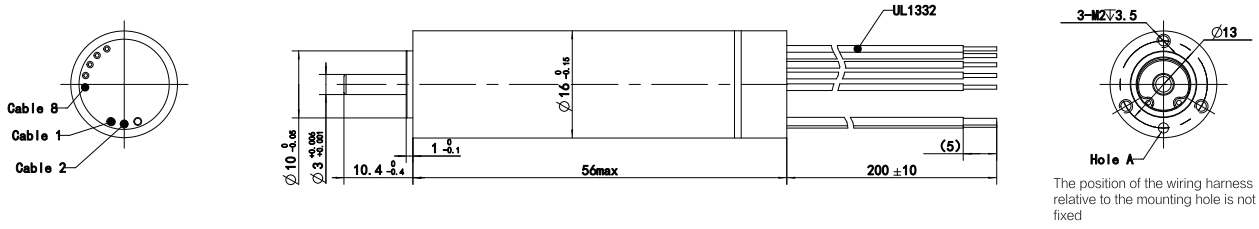
Gearbox
Encoder
Please contact local sales.

Option
With hall sensor / Sensorless
Autoclavable

Operating Range



Dimension



The position of the wiring harness relative to the mounting hole is not fixed

Connection of Motor

Cable No.	信号/Signal	颜色/Color	线规/Wire gage	最小允许折弯半径（mm）/Min Allowable Bending Rading
1	U	红/red	AWG 22	14.6
2	V	黑/black		
3	W	白/white		
4	V_{hall} 3~24 VDC	橙/orange	AWG 26	11.8
5	GND	蓝/blue		
6	Hall 1	黄/yellow		
7	Hall 2	棕/brown		
8	Hall 3	灰/grey		

ECH16056Hxx-S001

ECH19058 Ø19mm 115/125W

Motor Data		Part Numbers			
		ECH19058H18	ECH19058H24	ECH19058H36	ECH19058H48
Nominal voltage	V	18	24	36	48
No load speed	rpm	56000	54000	53500	56000
No load current	mA	860	900	870	850
Nominal speed	rpm	53900	52000	51700	54400
Max. continuous torque	mNm	20.1	20.6	21.7	19.3
Max. continuous current	A	7.73	5.92	4.11	3.20
Stall torque	mNm	542.6	582.0	654.8	681.9
Stall current	A	181.8	142.0	102.9	83.2
Max. efficiency	%	93	93	93	92
Resistance (phase-phase)	Ohm	0.099	0.169	0.35	0.577
Inductance (phase-phase)	mH	0.015	0.028	0.065	0.107
Torque constant	mNm / A	2.98	4.10	6.37	8.20
Speed constant	rpm / V	3200	2330	1500	1165
Speed/torque gradient	rpm / mNm	106	96	82	82
Mechanical time constant	ms	1.83	1.66	1.42	1.42
Rotor inertia	gcm^2	1.65	1.65	1.65	1.65

Standard model

Specification

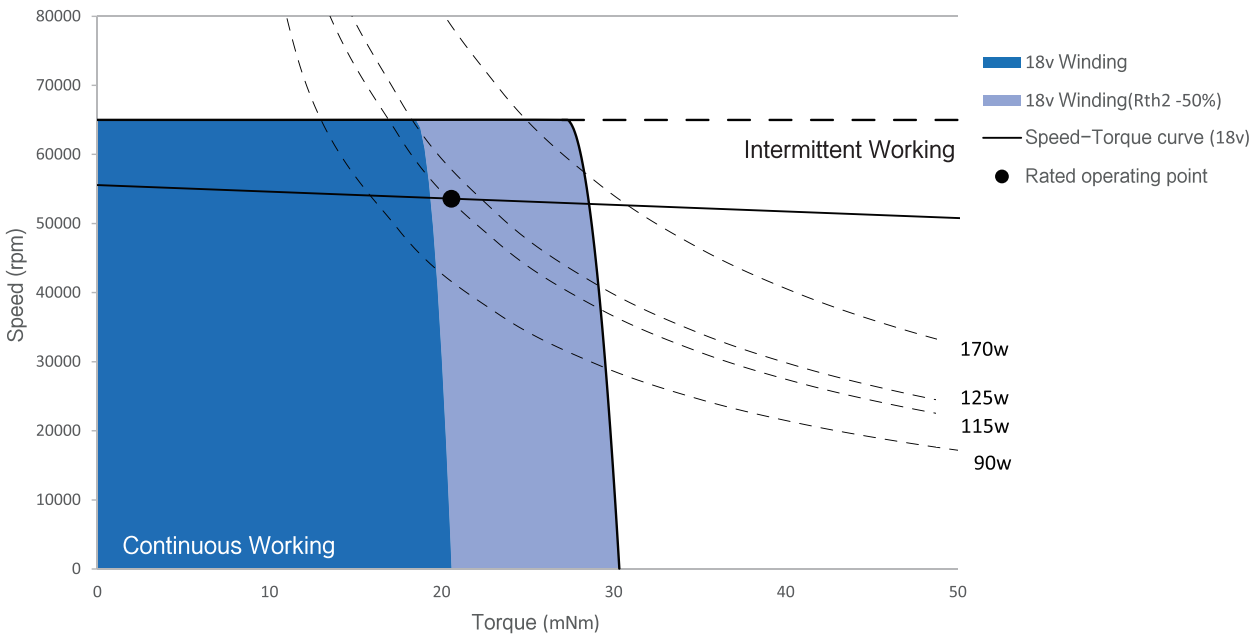
Bearing		Ball Bearing
Max. speed	rpm	65000
Axial play	mm	0...0.24
Radial play		Preloaded
Max. axial load (dynamic)	N	4
Max. force for press fits (static)	N	110
Max. radial load (5mm from flange)	N	16
Ambient temperature	°C	-40...+100
Max. winding temperature	°C	155
Thermal resistance		
Housing - Ambient	°C / W	15
Winding - Housing	°C / W	0.6
Thermal time constant		
Motor	s	450
Winding	s	1.83
Number of pole pairs		1
Number of phases		3
Weight	g	98

Combination

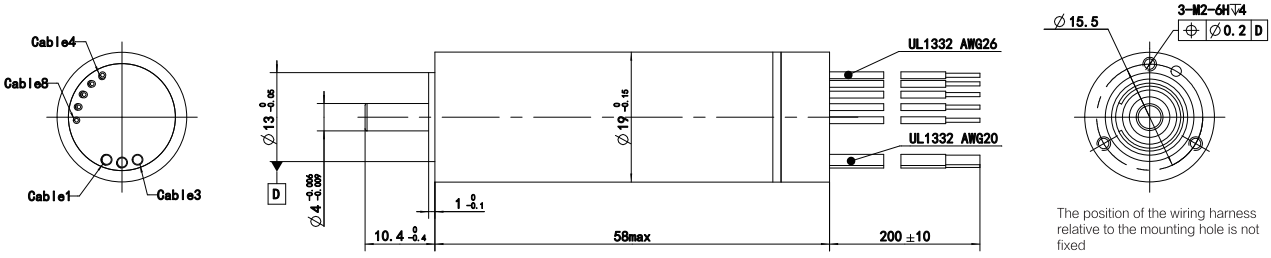
Gearbox
Encoder
Please contact local sales.

Option
With hall sensor / Sensorless

Operating Range



Dimension



Connection of Motor

Cable No.	信号/Signal	颜色/Color
1	U	红/red
2	V	黑/black
3	W	白/white
4	V_{Hall} 3~24 VDC	橙/orange
5	GND	蓝/blue
6	Hall 1	黄/yellow
7	Hall 2	棕/brown
8	Hall 3	灰/grey

ECH19058Hxx-S001

ECH22045 Ø22mm 80/100W

Motor Data		Part Numbers			
		ECH22045H18	ECH22045H24	ECH22045H36	ECH22045H48
Nominal voltage	V	18	24	36	48
No load speed	rpm	38100	42300	38200	39500
No load current	mA	740	830	625	550
Nominal speed	rpm	36100	40500	36600	38000
Max. continuous torque	mNm	16.8	17.5	16.7	16.1
Max. continuous current	A	4.45	4.01	2.46	1.90
Stall torque	mNm	313.6	411.8	385.0	403.6
Stall current	A	69.23	75.00	42.35	33.80
Max. efficiency	%	90	91	90	89
Resistance (phase-phase)	Ohm	0.26	0.32	0.85	1.42
Inductance (phase-phase)	mH	0.024	0.035	0.097	0.164
Torque constant	mNm / A	4.53	5.49	9.09	11.94
Speed constant	rpm / V	2106	1740	1050	800
Speed/torque gradient	rpm / mNm	121	101	98	95
Mechanical time constant	ms	2.79	2.34	2.26	2.19
Rotor inertia	gcm^2	1.88	1.88	1.88	1.88

Standard model

Specification

Bearing		Ball Bearing
Max. speed	rpm	50000
Axial play	mm	0...0.33
Radial play		Preloaded
Max. axial load (dynamic)	N	4
Max. force for press fits (static)	N	110
Max. radial load (5mm from flange)	N	16
Ambient temperature	°C	-40...+100
Max. winding temperature	°C	155
Thermal resistance		
Housing - Ambient	°C / W	15.0
Winding - Housing	°C / W	2.0
Thermal time constant		
Motor	s	450
Winding	s	6.01
Number of pole pairs		1
Number of phases		3
Weight	g	98

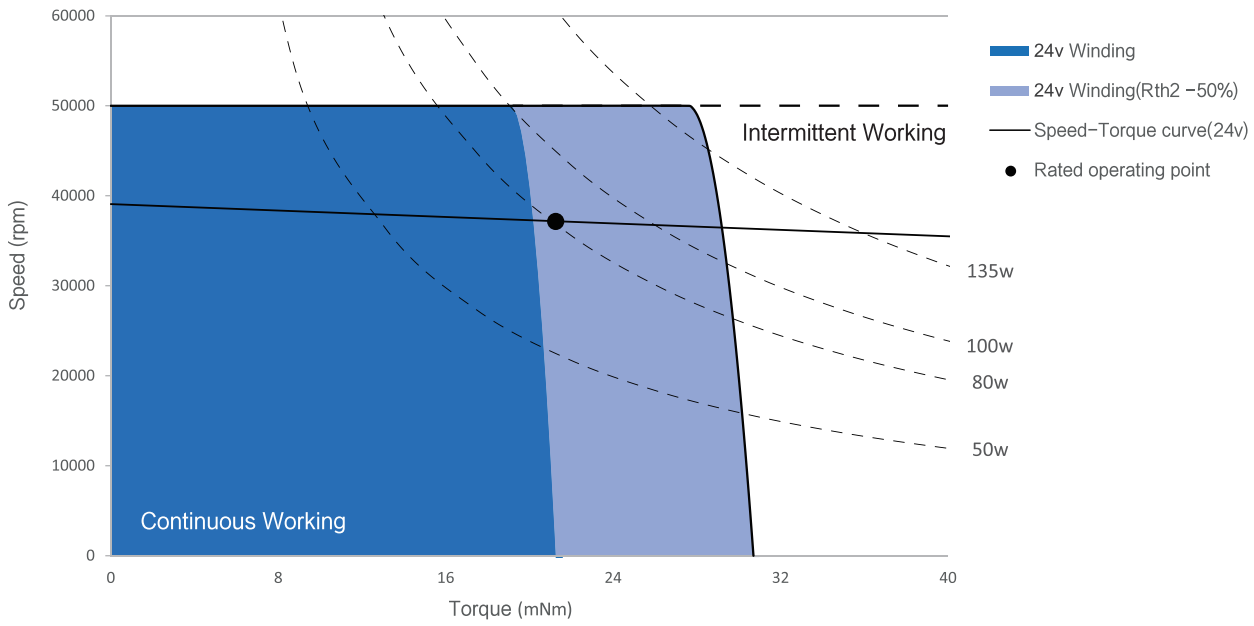
Combination

Gearbox
Please contact local sales.

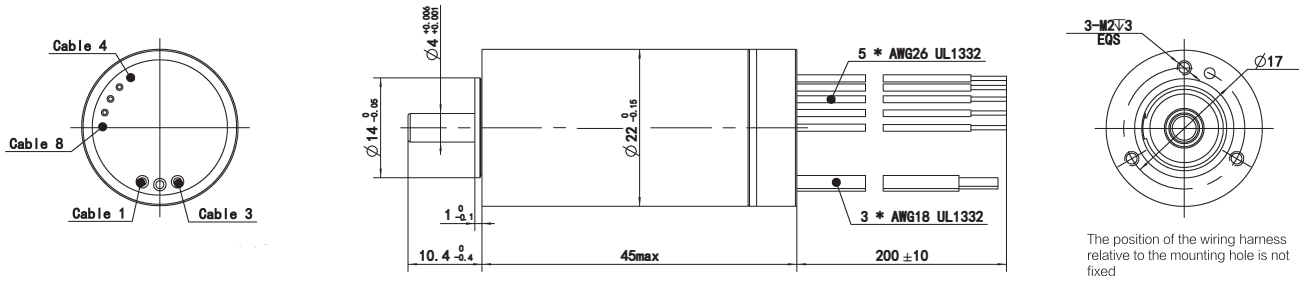
Encoder
MH22
Ø22mm 1024 Lines 3 Channels
Page 106

Option
With hall sensor / Sensorless

Operating Range



Dimension



Connection of Motor

Cable No.	信号/Signal	颜色/Color	最小允许折弯半径(mm)/Min Allowable Bending Radius
1	U	红/red	18.2
2	V	黑/black	
3	W	白/white	
4	V_{Hall} 3~24 VDC	橙/orange	11.8
5	GND	蓝/blue	
6	Hall 1	黄/yellow	
7	Hall 2	棕/brown	
8	Hall 3	灰/grey	

ECH22045Hxx-S001

ECH22060 Ø22mm 120/150W

Motor Data		Part Numbers		
		ECH22060H24	ECH22060H36	ECH22060H48
Nominal voltage	V	24	36	48
No load speed	rpm	40000	42000	42500
No load current	mA	1000	1100	1120
Nominal speed	rpm	38900	40000	40800
Max. continuous torque	mNm	34.2	34.4	31.9
Max. continuous current	A	7.04	5.24	4.06
Stall torque	mNm	1022.7	1245.6	1305.4
Stall current	A	180.45	150.00	120.30
Max. efficiency	%	93	93	93
Resistance (phase-phase)	Ohm	0.13	0.24	0.40
Inductance (phase-phase)	mH	0.019	0.040	0.069
Torque constant	mNm / A	5.67	8.30	10.85
Speed constant	rpm / V	1685	1150	880
Speed/torque gradient	rpm / mNm	40	33	32
Mechanical time constant	ms	1.34	1.12	1.09
Rotor inertia	gcm^2	3.23	3.23	3.23

Standard model

Specification

Bearing		Ball Bearing
Max. speed	rpm	50000
Axial play	mm	0...0.24
Radial play		Preloaded
Max. axial load (dynamic)	N	4
Max. force for press fits (static)	N	110
Max. radial load (5mm from flange)	N	16
Ambient temperature	°C	-40...+100
Max. winding temperature	°C	155
Thermal resistance		
Housing - Ambient	°C / W	12.7
Winding - Housing	°C / W	0.60
Thermal time constant		
Motor	s	400
Winding	s	1.56
Number of pole pairs		1
Number of phases		3
Weight	g	140

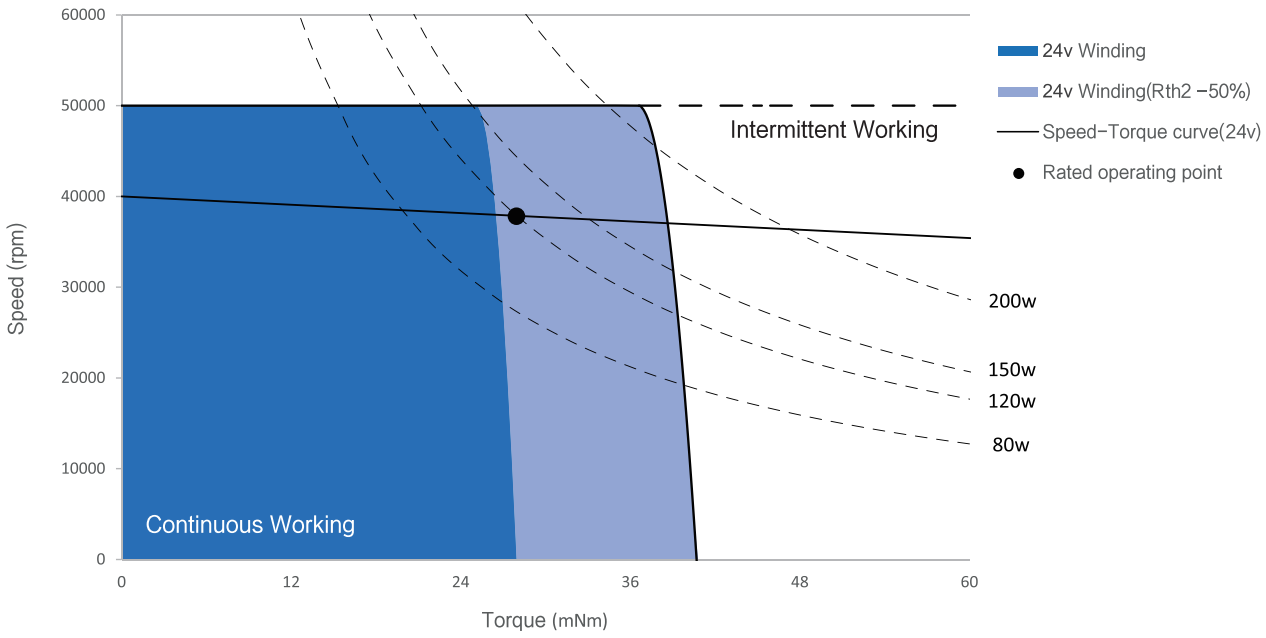
Combination

Gearbox
Please contact local sales.

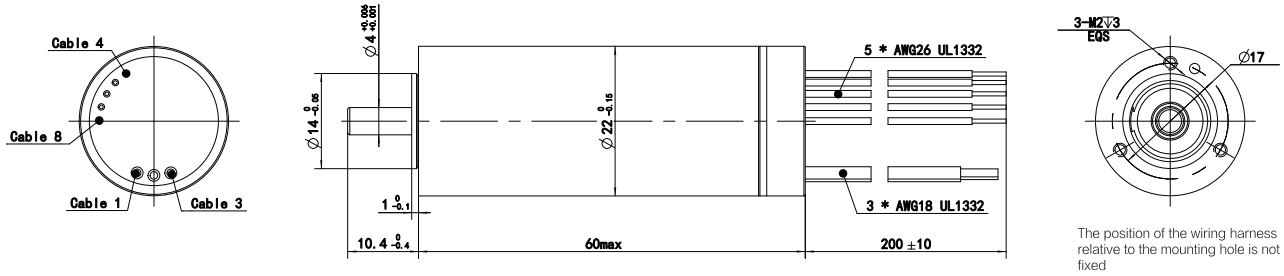
Encoder
MH22
Ø22mm 1024 Lines 3 Channels
Page 106

Option
With hall sensor / Sensorless

Operating Range



Dimension



Connection of Motor

Cable No.	信号/Signal	颜色/Color	最小允许折弯半径(mm)/Min Allowable Bending Radius
1	U	红/red	18.2
2	V	黑/black	
3	W	白/white	
4	V_{Hall} 3～24 VDC	橙/orange	11.8
5	GND	蓝/blue	
6	Hall 1	黄/yellow	
7	Hall 2	棕/brown	
8	Hall 3	灰/grey	

ECH22060Hxx-S001

ECT22035 Ø22mm 23/32W

Motor Data		Part Numbers
		ECT22035H24
Nominal voltage	V	24
No load speed	rpm	12900
No load current	mA	175
Nominal speed	rpm	11000
Max. continuous torque	mNm	19.2
Max. continuous current	A	1.23
Stall torque	mNm	150
Stall current	A	8.28
Max. efficiency	%	82
Resistance (phase-phase)	Ohm	2.9
Inductance (phase-phase)	mH	170
Torque constant	mNm / A	18.19
Speed constant	rpm / V	525
Speed/torque gradient	rpm / mNm	84
Mechanical time constant	ms	3.49
Rotor inertia	gcm^2	3.98

Standard model

Specification		
Bearing		Ball Bearing
Max. speed	rpm	20000
Axial play	mm	0...0.14
Radial play		Preloaded
Max. axial load (dynamic)	N	4
Max. force for press fits (static)	N	110
Max. radial load (5mm from flange)	N	22
Ambient temperature	°C	-40...+100
Max. winding temperature	°C	155
Thermal resistance		
Housing - Ambient	°C / W	16.8
Winding - Housing	°C / W	2.50
Thermal time constant		
Motor	s	600
Winding	s	6.74
Number of pole pairs		2
Number of phases		3
Weight	g	73

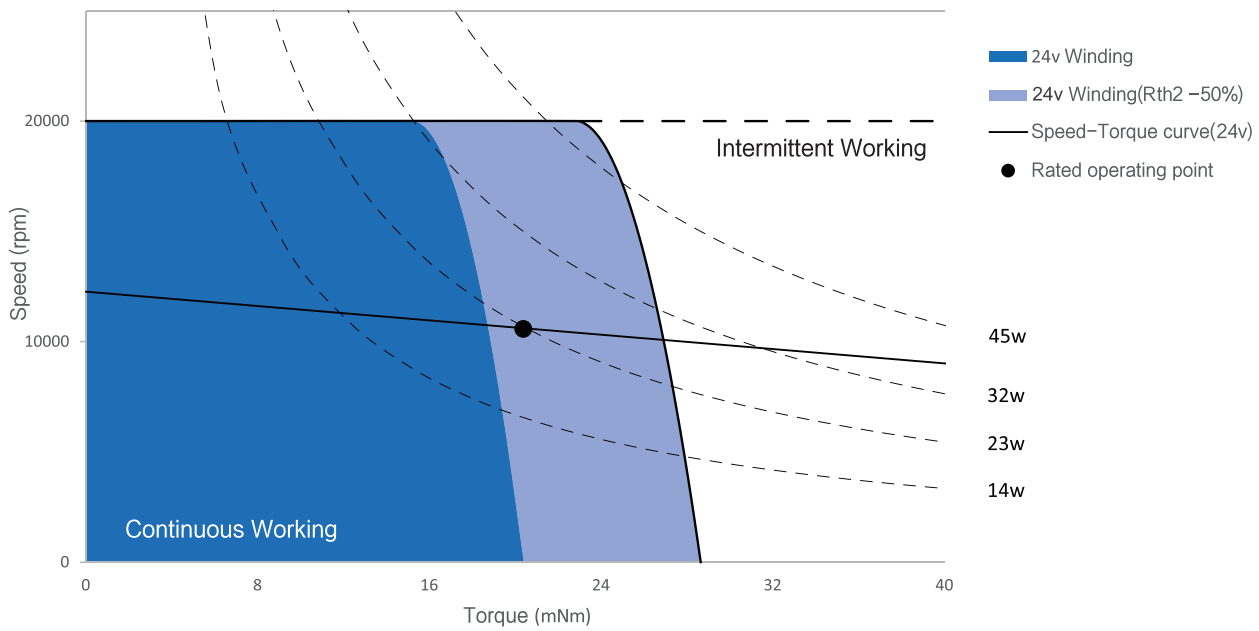
Combination

Gearbox
PG22M
Ø22mm 2Nm 3.9:1-546:1
Page 90

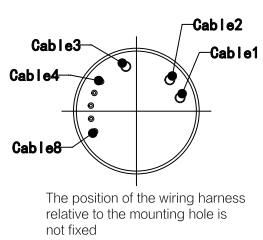
Encoder
MH22
Ø22mm 1024 Lines 3 Channels
Page 106

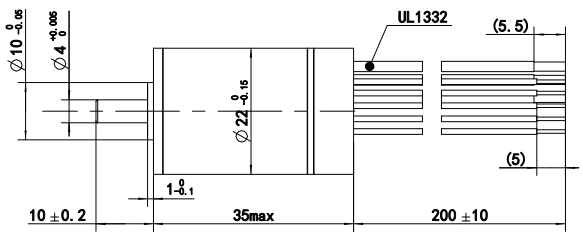
Option
With hall sensor / Sensorless

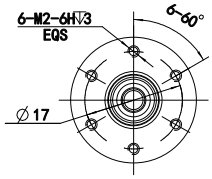
Operating Range



Dimension







Connection of Motor

Cable No.	信号/Signal	颜色/Color	线规/wire gage
1	U	红/Red	18AWG
2	V	黑/Black	
3	W	白/White	
4	VCC 4.5~5.5Vdc	橙/Orange	26AWG
5	GND	蓝/Blue	
6	H1	黄/Yellow	
7	H2	棕/Brown	
8	H3	灰/Gray	

ECT22035Hxx-S001

ECT22064 Ø22mm 64/90W

Motor Data		Part Numbers			
		ECT22064H12	ECT22064H24	ECT22064H36	ECT22064H48
Nominal voltage	V	12	24	36	48
No load speed	rpm	10400	10600	10580	11000
No load current	mA	409	401	322	297
Nominal speed	rpm	9600	9800	9800	10300
Max. continuous torque	mNm	60.7	59.7	54.9	56.4
Max. continuous current	A	6.00	3.15	2.03	1.65
Stall torque	mNm	700.0	771.7	714.4	813.2
Stall current	A	64.52	35.56	22.22	19.50
Max. efficiency	%	89	89	88	88
Resistance (phase-phase)	Ohm	0.186	0.675	1.620	2.462
Inductance (phase-phase)	mH	0.015	0.060	0.136	0.220
Torque constant	mNm / A	10.85	21.70	32.15	41.70
Speed constant	rpm / V	880	440	297	229
Speed/torque gradient	rpm / mNm	15	14	15	14
Mechanical time constant	ms	1.66	1.51	1.65	1.49
Rotor inertia	gcm^2	10.50	10.50	10.50	10.50

Standard model

Specification		
Bearing		Ball Bearing
Max. speed	rpm	20000
Axial play	mm	0...0.14
Radial play		Preloaded
Max. axial load (dynamic)	N	4
Max. force for press fits (static)	N	110
Max. radial load (5mm from flange)	N	29
Ambient temperature	°C	-40...+100
Max. winding temperature	°C	155
Thermal resistance		
Housing - Ambient	°C / W	11.9
Winding - Housing	°C / W	1.19
Thermal time constant		
Motor	s	615
Winding	s	7
Number of pole pairs		2
Number of phases		3
Weight	g	140

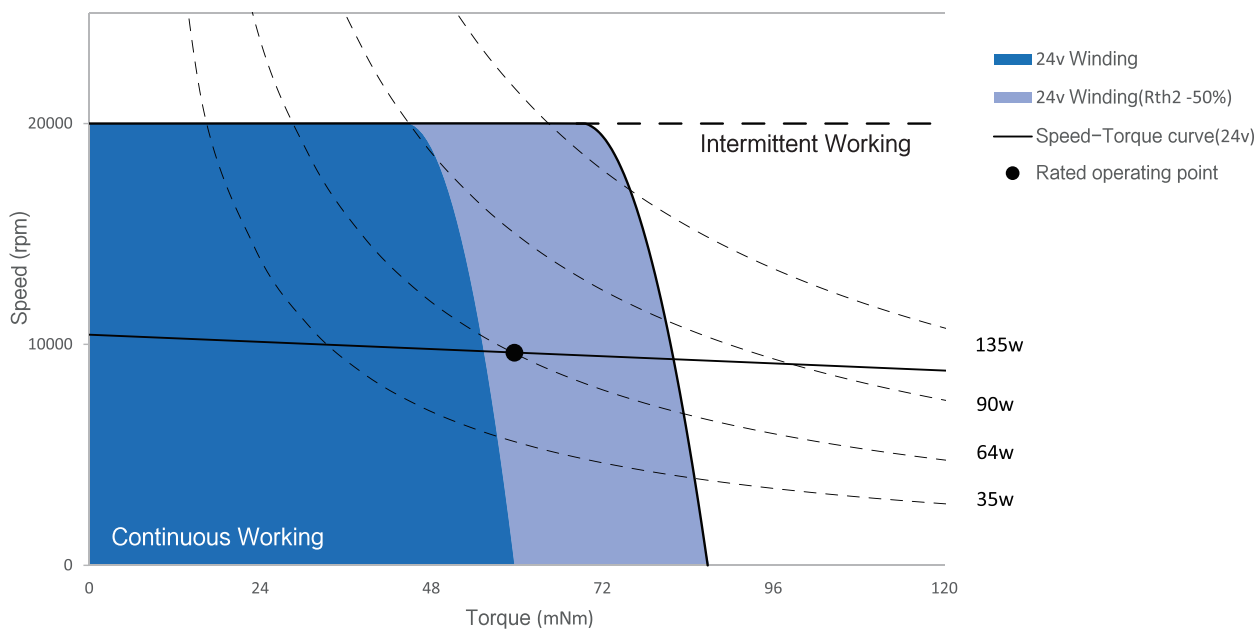
Combination

Gearbox
PG22M
Ø22mm 2Nm 3.9:1-546:1
Page 90

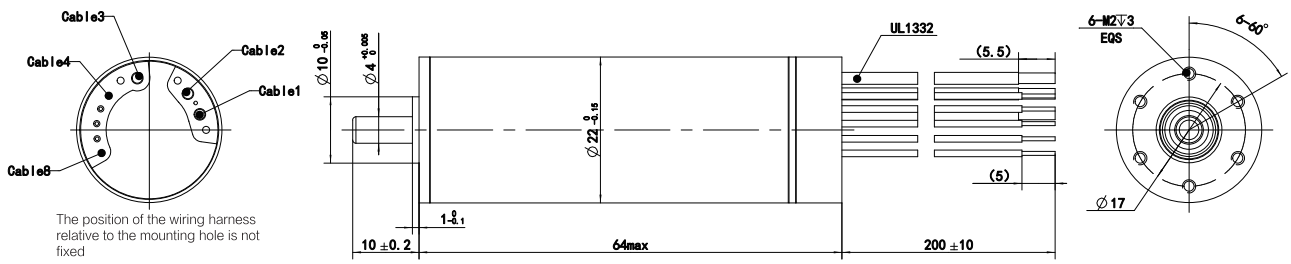
Encoder
MH22
Ø22mm 1024 Lines 3 Channels
Page 106

Option
With hall sensor / Sensorless

Operating Range



Dimension



Connection of Motor

Cable No.	信号/Signal	颜色/Color	线规/wire gage
1	U	红/Red	18AWG
2	V	黑/Black	
3	W	白/White	
4	VCC 4.5~5.5Vdc	橙/Orange	26AWG
5	GND	蓝/Blue	
6	Hall 1	黄/Yellow	
7	Hall 2	棕/Brown	
8	Hall 3	灰/Gray	

ECT22064Hxx-S001

ECT30090 Ø30mm 220/340W

Motor Data		Part Numbers
		ECT30090H24
Nominal voltage	V	24
No load speed	rpm	10300
No load current	mA	990
Nominal speed	rpm	10000
Max. continuous torque	mNm	224.4
Max. continuous current	A	11.43
Stall torque	mNm	5093
Stall current	A	236.9
Max. efficiency	%	91
Resistance (phase-phase)	Ohm	0.101
Inductance (phase-phase)	mH	0.014
Torque constant	mNm / A	21.50
Speed constant	rpm / V	444
Speed/torque gradient	rpm / mNm	2.1
Mechanical time constant	ms	1.32
Rotor inertia	gcm^2	45.00

Standard model

Specification

Bearing		Ball Bearing
Max. speed	rpm	20000
Axial play	mm	0...0.14
Radial play		Preloaded
Max. axial load (dynamic)	N	5.5
Max. force for press fits (static)	N	73
Max. radial load (5mm from flange)	N	25
Ambient temperature	°C	-40...+100
Max. winding temperature	°C	155
Thermal resistance		
Housing - Ambient	°C / W	5.9
Winding - Housing	°C / W	0.70
Thermal time constant		
Motor	s	1659
Winding	s	3
Number of pole pairs		2
Number of phases		3
Weight	g	396

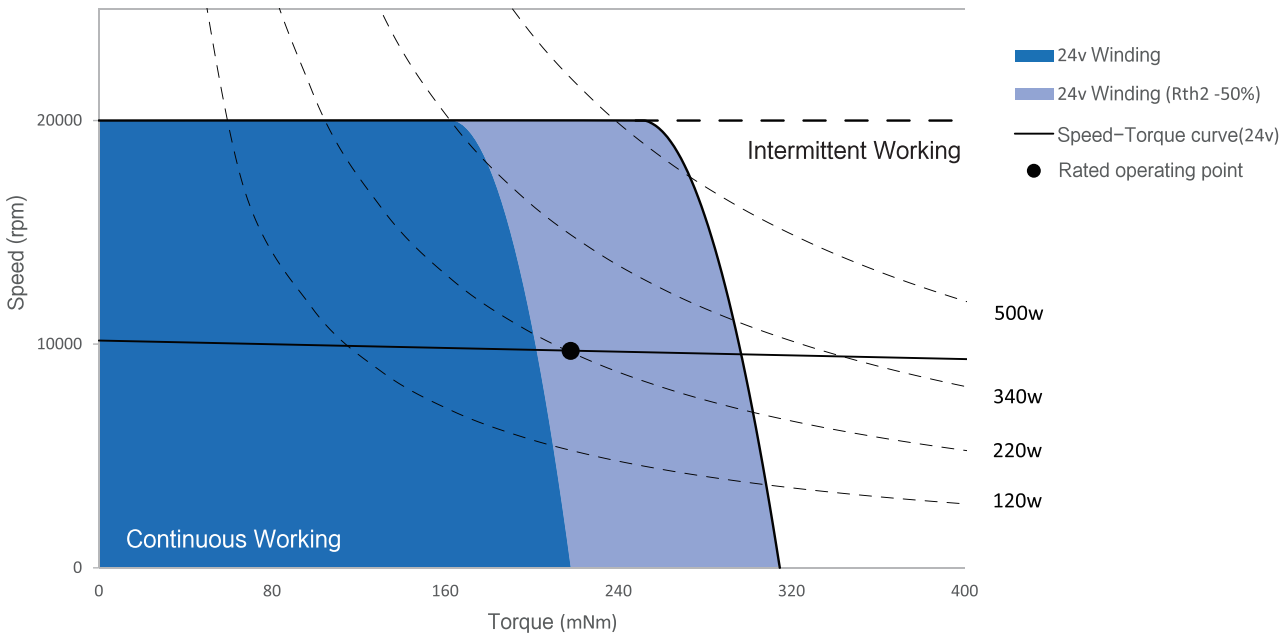
Combination

Gearbox
PG32M
Ø32mm 8Nm 3.9:1-406:1
Page 90

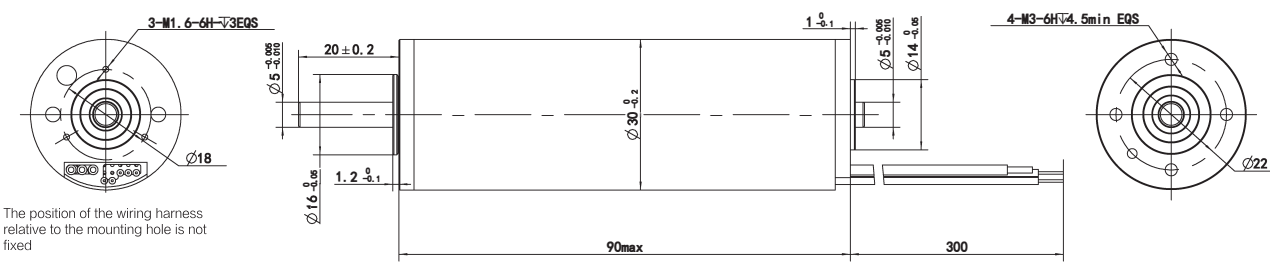
Encoder
Please contact local sales.

Option
With hall sensor / Sensorless

Operating Range



Dimension



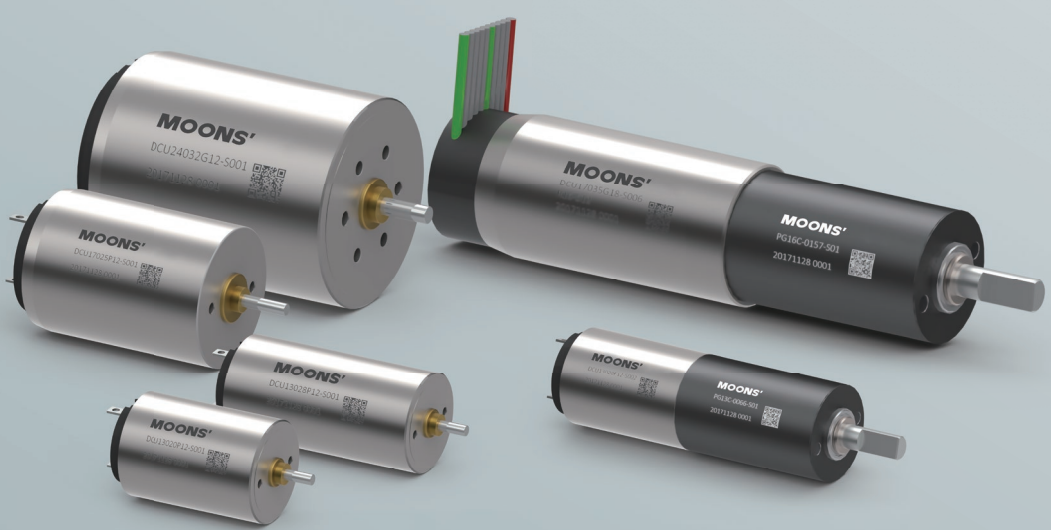
Cable No.	信号/Signal	颜色/Color	线规/wire gage
1	U	红/Red	18AWG
2	V	黑/Black	
3	W	白/White	
4	Vhall 4.5-5.5V	橙/Orange	26AWG
5	GND	蓝/Blue	
6	H1	黄/Yellow	
7	H2	棕/Brown	26AWG
8	H3	灰/Gray	26AWG

ECT30090Hxx-S001

Note

Coreless Brushed DC Motor

DCU08017
DCU10017
DCU10025
DCU13020
DCU13028
DCU16025
DCU17025
DCU17035
DCU24032



DCU08017 Ø8mm Precious Metal Brushes 0.3/1W

Motor Data		Part Numbers	
		DCU08017P06	DCU08017P12
Nominal voltage	V	6	12
No load speed	rpm	13500	16000
No load current	mA	14	6
Nominal speed	rpm	3360	5460
Max. continuous torque	mNm	0.60	0.60
Max. continuous current	A	0.164	0.093
Stall torque	mNm	0.85	0.95
Stall current	A	0.21	0.14
Max. efficiency	%	55	63
Terminal Resistance	Ohm	28.0	87.0
Terminal Inductance	mH	0.206	0.606
Torque constant	mNm / A	3.96	6.87
Speed constant	rpm / V	2410	1390
Speed/torque gradient	rpm / mNm	17030	17603
Mechanical time constant	ms	6.60	6.82
Rotor inertia	gcm^2	0.037	0.037

Standard model

Specification		
Bearing		sleeve bearing
Max. speed	rpm	18000
Axial play	mm	≤0.3
Number of commutator segments		5
Ambient temperature	°C	-20...+65
Max. winding temperature	°C	100
Thermal resistance		
Housing − Ambient	°C / W	52.8
Winding − Housing	°C / W	26.4
Thermal time constant		
Motor	s	21
Winding	s	2.37
Number of pole pairs		1
Weight	g	4.5

Combination

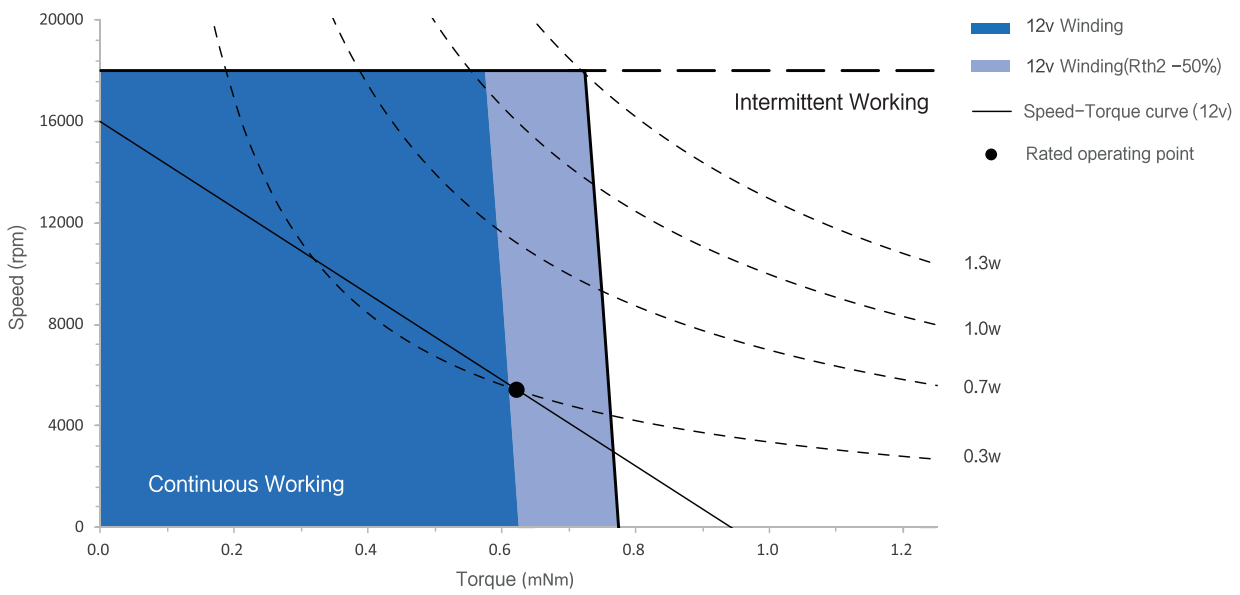
Gearbox

PG08C
Ø8mm 0.1 Nm 16:1-1024:1
Page 79

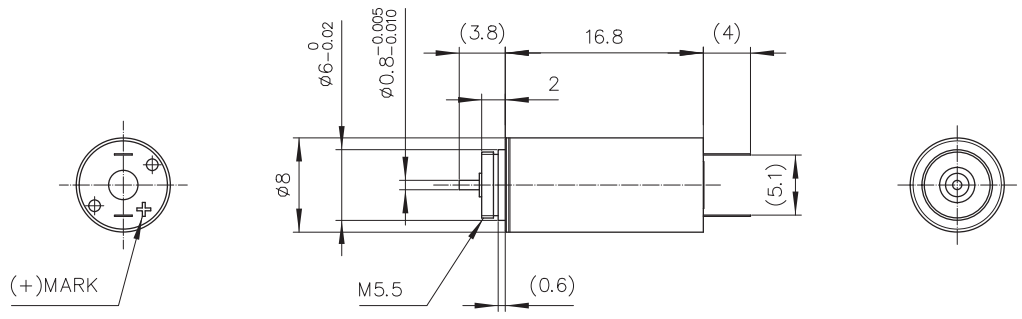
Encoder

RS08
Ø8mm 12Lines 2 Channels
Page 95

Operating Range



Dimension



DCU08017Pxx−S001

DCU10017 Ø10mm Precious Metal Brushes 0.4/1.1W

Motor Data		Part Numbers	
		DCU10017P03	DCU10017P06
Nominal voltage	V	3	6
No load speed	rpm	13300	13800
No load current	mA	18.6	11.2
Nominal speed	rpm	4990	5010
Max. continuous torque	mNm	0.80	0.71
Max. continuous current	A	0.403	0.197
Stall torque	mNm	1.33	1.21
Stall current	A	0.63	0.30
Max. efficiency	%	69	65
Terminal Resistance	Ohm	4.7	19.8
Terminal Inductance	mH	0.042	0.197
Torque constant	mNm / A	2.09	4.00
Speed constant	rpm / V	4570	2390
Speed/torque gradient	rpm / mNm	10345	11844
Mechanical time constant	ms	7.37	7.57
Rotor inertia	gcm^2	0.068	0.061

Standard model

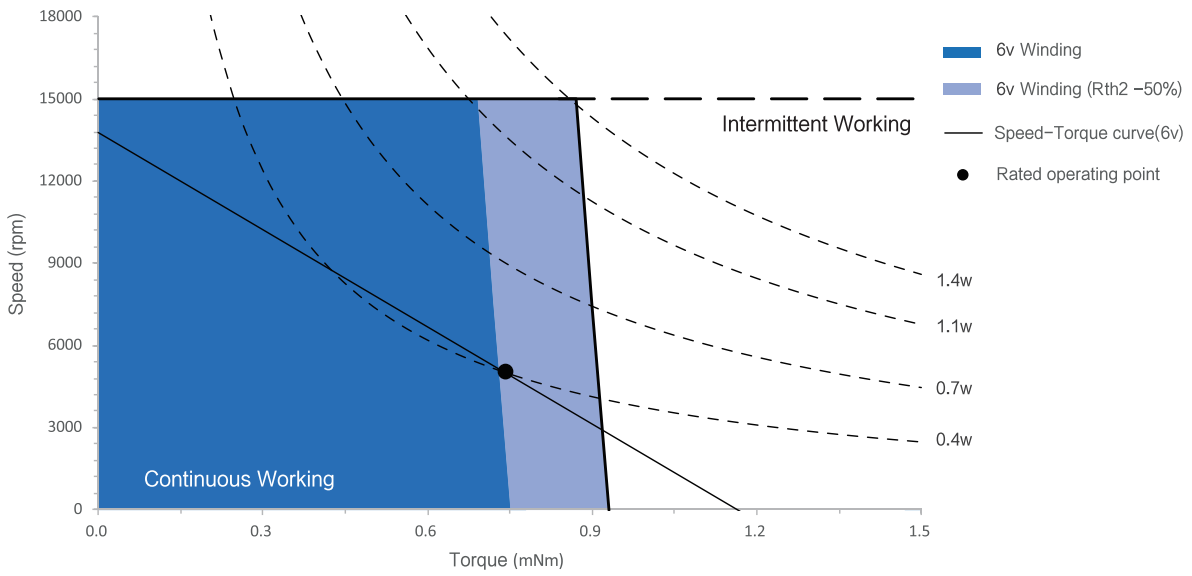
Specification		
Bearing		sleeve bearing
Max. speed	rpm	15000
Axial play	mm	≤0.3
Number of commutator segments		5
Ambient temperature	°C	-20...+65
Max. winding temperature	°C	100
Thermal resistance		
Housing − Ambient	°C / W	54.5
Winding − Housing	°C / W	23.4
Thermal time constant		
Motor	s	108
Winding	s	2.53
Number of pole pairs		1
Weight	g	7.4

Combination

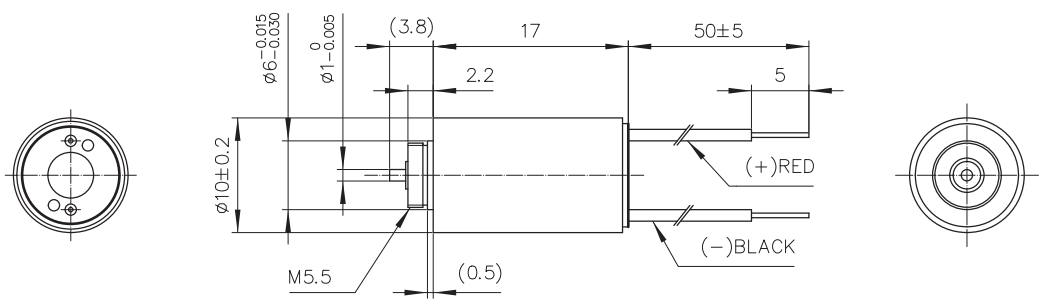
Gearbox
PG10C
Ø10mm 0.15 Nm 4:1-1024:1
Page 80

Encoder
RS10
Ø10mm 12 Lines 2 Channels
Page 96

Operating Range



Dimension



DCU10017Pxx−S001

DCU10025 Ø10mm Precious Metal Brushes 1.1/2.3W

Motor Data		Part Numbers		
		DCU10025P03	DCU10025P06	DCU10025P12
Nominal voltage	V	3	6	12
No load speed	rpm	13200	11900	13100
No load current	mA	19.2	10.4	4.6
Nominal speed	rpm	6790	5900	6500
Max. continuous torque	mNm	1.63	1.73	1.58
Max. continuous current	A	0.777	0.374	0.188
Stall torque	mNm	3.39	3.48	3.19
Stall current	A	1.58	0.73	0.37
Max. efficiency	%	79	78	79
Terminal Resistance	Ohm	1.9	8.2	32.4
Terminal Inductance	mH	0.026	0.128	0.432
Torque constant	mNm / A	2.15	4.75	8.60
Speed constant	rpm / V	4450	2010	1110
Speed/torque gradient	rpm / mNm	3940	3469	4180
Mechanical time constant	ms	4.46	4.07	4.25
Rotor inertia	gcm^2	0.108	0.112	0.097

Standard model

Specification		
Bearing		sleeve bearing
Max. speed	rpm	15000
Axial play	mm	≤0.3
Number of commutator segments		5
Ambient temperature	°C	-20...+65
Max. winding temperature	°C	100
Thermal resistance		
Housing − Ambient	°C / W	41.3
Winding − Housing	°C / W	10.8
Thermal time constant		
Motor	s	135
Winding	s	1.78
Number of pole pairs		1
Weight	g	10.7

Combination

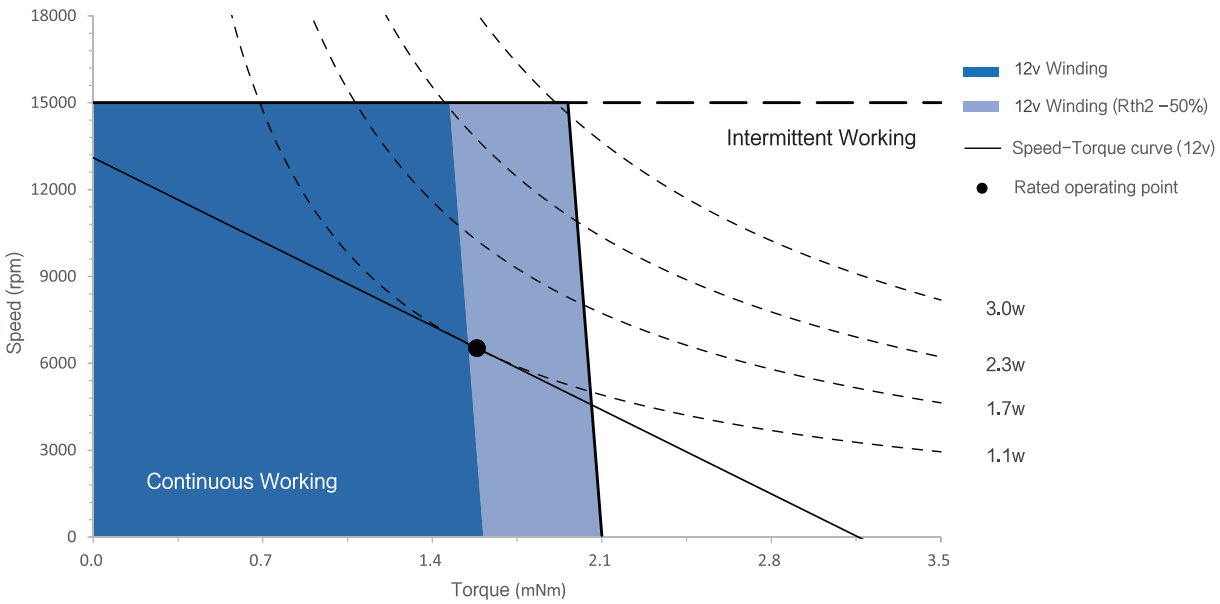
Gearbox

PG10C
Ø10mm 0.15 Nm 4:1-1024:1
Page 80

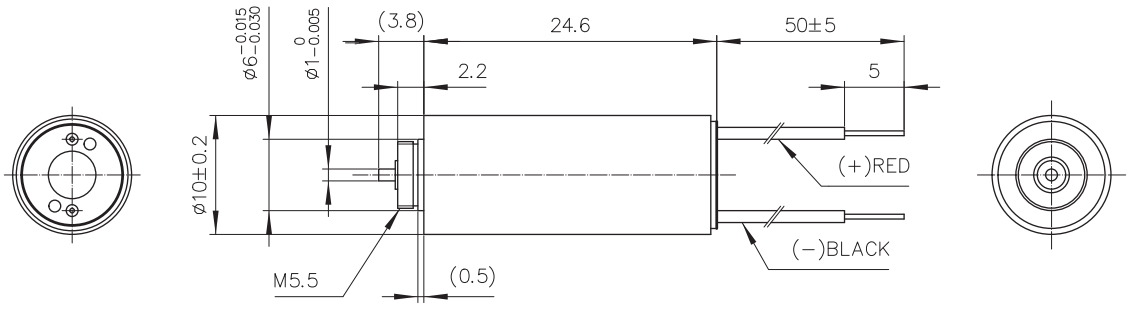
Encoder

RS10
Ø10mm 12 Lines 2 Channels
Page 96

Operating Range



Dimension



DCU10025Pxx−S001

DCU13020 Ø13mm Precious Metal Brushes 1.7/2.3W

Motor Data		Part Numbers				
		DCU13020P03	DCU13020P06	DCU13020P09	DCU13020P12	DCU13020P15
Nominal voltage	V	3	6	9	12	15
No load speed	rpm	9800	12100	12400	12900	12400
No load current	mA	23.3	23.0	11.7	8.0	7.1
Nominal speed	rpm	5030	8100	7940	8630	8110
Max. continuous torque	mNm	1.64	1.74	1.85	1.83	1.81
Max. continuous current	A	0.596	0.409	0.275	0.218	0.167
Stall torque	mNm	3.44	5.12	5.36	5.62	5.33
Stall current	A	1.20	1.13	0.77	0.65	0.47
Max. efficiency	%	74	73	79	78	77
Terminal Resistance	Ohm	2.5	5.3	11.7	18.6	32.0
Terminal Inductance	mH	0.041	0.099	0.246	0.402	0.688
Torque constant	mNm / A	2.87	4.53	6.97	8.76	11.37
Speed constant	rpm / V	3330	2110	1370	1090	840
Speed/torque gradient	rpm / mNm	2903	2471	2300	2327	2364
Mechanical time constant	ms	8.33	9.19	7.68	7.77	7.82
Rotor inertia	gcm^2	0.274	0.355	0.319	0.319	0.316

Standard model

Specification		
Bearing		sleeve bearing
Max. speed	rpm	13000
Axial play	mm	≤0.3
Number of commutator segments		5
Ambient temperature	°C	-20...+65
Max. winding temperature	°C	100
Thermal resistance		
Housing − Ambient	°C / W	50.6
Winding − Housing	°C / W	16.8
Thermal time constant		
Motor	s	76
Winding	s	4.14
Number of pole pairs		1
Weight	g	13.6

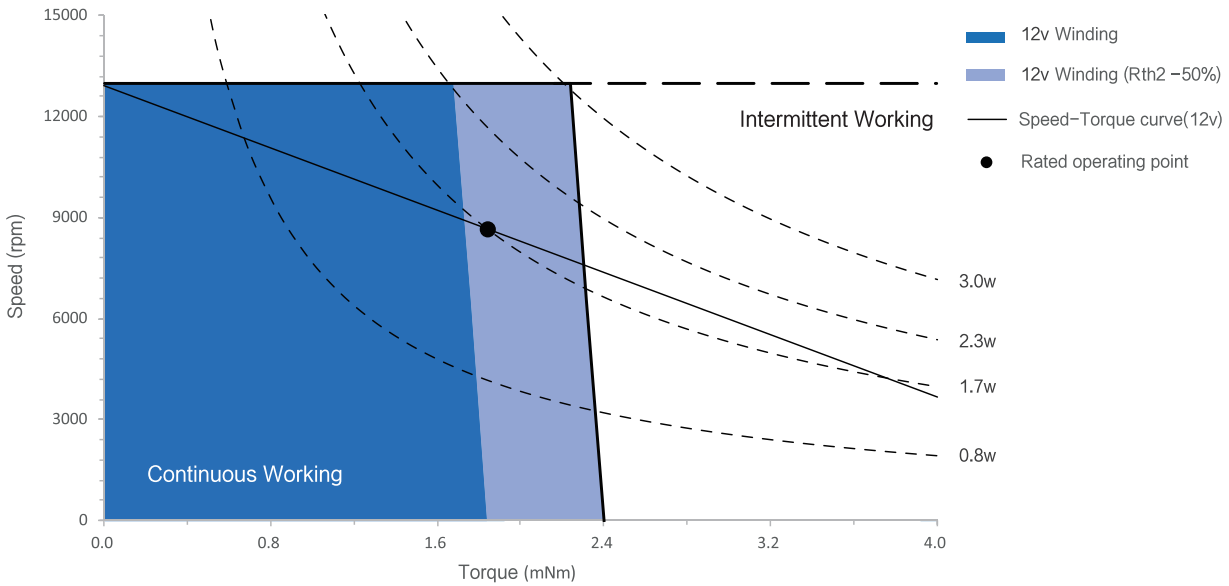
Combination

Gearbox
PG13C
Ø13mm 0.3 Nm 4.1:1-425:1
Page 82

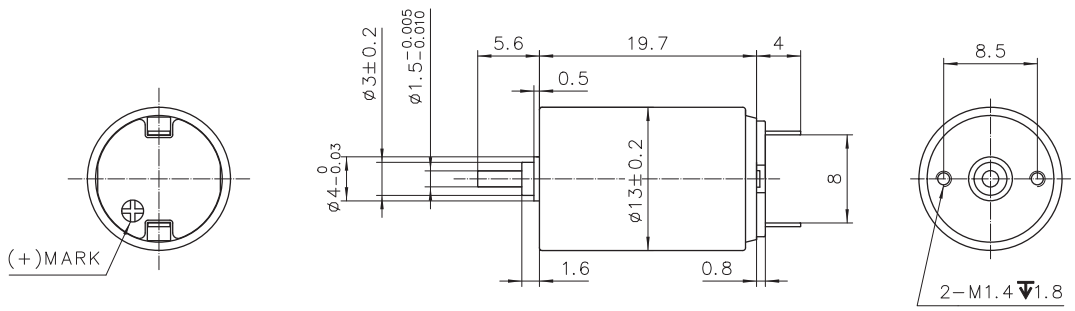
Encoder
R13
Ø13mm 256 Lines 3 Channels
Page 99
RS13
Ø13mm 16 Lines 2 Channels
Page 98

Option
Ball Bearing
Low temperature

Operating Range



Dimension



DCU13020Pxx−S001

DCU13028 Ø13mm Precious Metal Brushes 2.8/4.2W

Motor Data		Part Numbers				
		DCU13028P06	DCU13028P12	DCU13028P15	DCU13028P18	DCU13028P24
Nominal voltage	V	6	12	15	18	24
No load speed	rpm	9700	11800	12000	11400	11700
No load current	mA	16.7	16.8	10.0	10.5	7.5
Nominal speed	rpm	6110	7980	8430	7730	7980
Max. continuous torque	mNm	3.36	3.43	3.33	3.44	3.48
Max. continuous current	A	0.591	0.359	0.293	0.231	0.179
Stall torque	mNm	9.18	11.36	11.34	10.91	11.40
Stall current	A	1.57	1.15	0.96	0.72	0.57
Max. efficiency	%	80	82	81	85	84
Terminal Resistance	Ohm	3.8	10.4	15.6	25.0	41.9
Terminal Inductance	mH	0.090	0.244	0.372	0.574	0.977
Torque constant	mNm / A	5.86	9.84	11.79	15.16	19.89
Speed constant	rpm / V	1630	970	810	630	480
Speed/torque gradient	rpm / mNm	1066	1025	1072	1039	1011
Mechanical time constant	ms	4.72	4.5	4.73	4.58	4.44
Rotor inertia	gcm^2	0.423	0.419	0.421	0.421	0.419

Standard model

Specification		
Bearing		sleeve bearing
Max. speed	rpm	13000
Axial play	mm	≤0.3
Number of commutator segments		5
Ambient temperature	°C	-20...+65
Max. winding temperature	°C	100
Thermal resistance		
Housing − Ambient	°C / W	36.3
Winding − Housing	°C / W	8.4
Thermal time constant		
Motor	s	229
Winding	s	3.90
Number of pole pairs		1
Weight	g	20.4

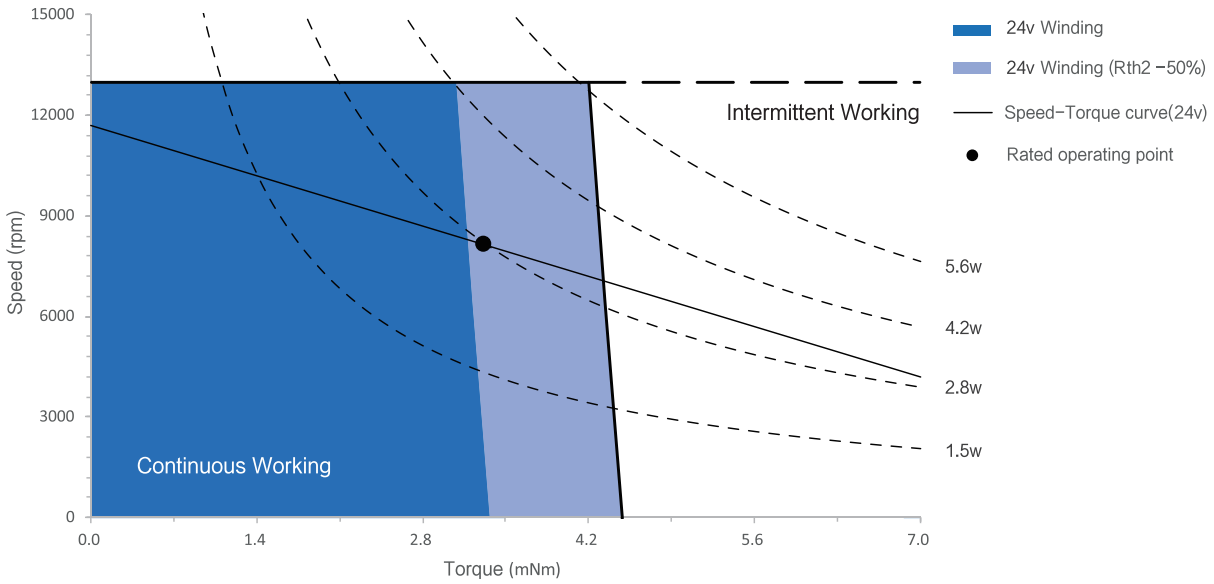
Combination

Gearbox
PG13C
Ø13mm 0.3 Nm 4.1:1-425:1
Page 82

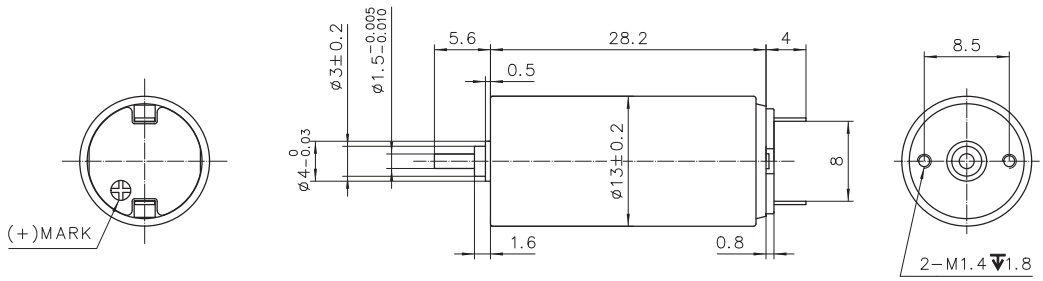
Encoder
R13
Ø13mm 256 Lines 3 Channels
Page 99
RS13
Ø13mm 16 Lines 2 Channels
Page 98

Option
Ball Bearing
Low temperature

Operating Range



Dimension



DCU13028Pxx−S001

DCU16025 Ø16mm Graphite Brushes 2/3W

Motor Data		Part Numbers		
		DCU16025G06	DCU16025G12	DCU16025G24
Nominal voltage	V	6	12	24
No load speed	rpm	10800	10600	12700
No load current	mA	22.3	7.7	6.8
Nominal speed	rpm	5490	5680	8180
Max. continuous torque	mNm	1.87	2.11	2.23
Max. continuous current	A	0.384	0.206	0.133
Stall torque	mNm	3.90	4.63	6.39
Stall current	A	0.76	0.44	0.36
Max. efficiency	%	69	75	74
Terminal Resistance	Ohm	7.9	27.5	66.4
Terminal Inductance	mH	0.027	0.144	0.419
Torque constant	mNm / A	5.16	10.61	17.68
Speed constant	rpm / V	1850	900	540
Speed/torque gradient	rpm / mNm	2846	2333	2028
Mechanical time constant	ms	6.65	6.06	5.71
Rotor inertia	gcm^2	0.223	0.248	0.269

Standard model

Specification		
Bearing		sleeve bearing
Max. speed	rpm	13000
Axial play	mm	≤0.3
Number of commutator segments		5
Ambient temperature	°C	-20...+85
Max. winding temperature	°C	100
Thermal resistance		
Housing − Ambient	°C / W	40.6
Winding − Housing	°C / W	10.5
Thermal time constant		
Motor	s	281
Winding	s	4.26
Number of pole pairs		1
Weight	g	24.3

Combination

Gearbox

PG16C
Ø16mm 0.5 Nm 4.4:1−850:1
Page 84
PG16M
Ø16mm 0.65Nm 3.9:1−406:1
Page 85

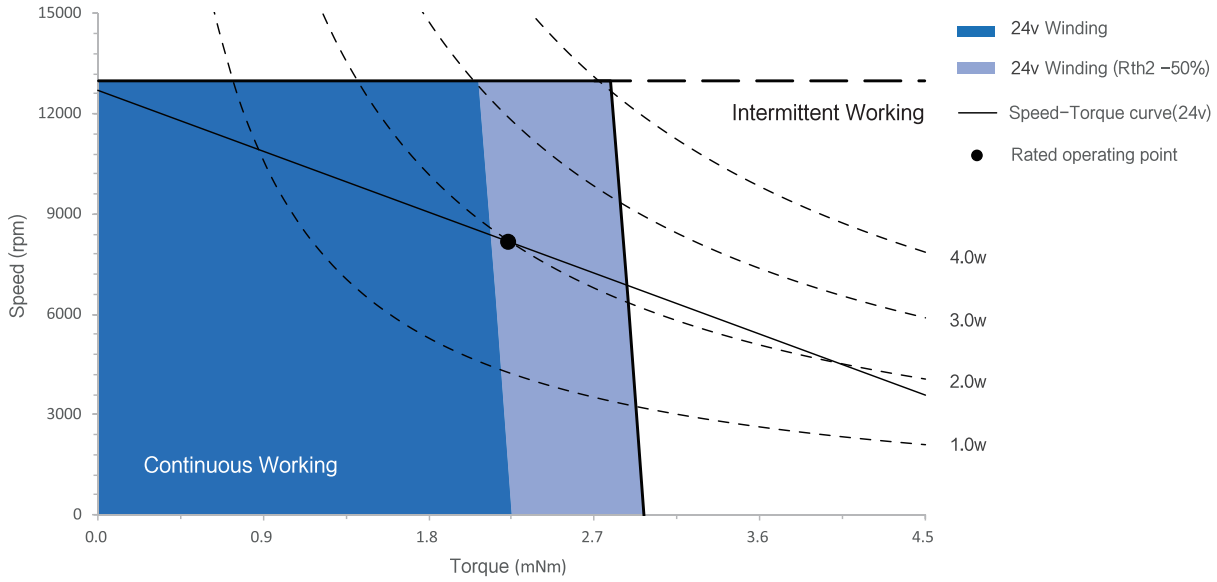
Encoder

R16
Ø16mm 512 Lines 3 Channels
Page 101
K16
Ø16mm 200 Lines 2 Channels
Page 102

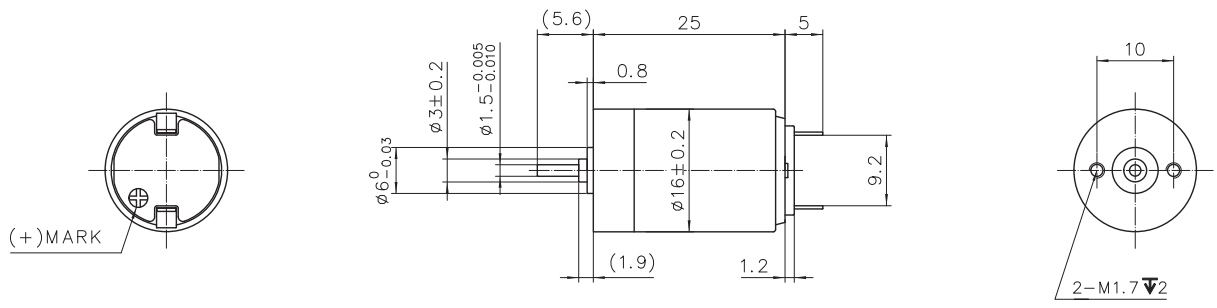
Option

Precious Metal Brushes/Graphite Brushes

Operating Range



Dimension



DCU16025Gxx−S001

DCU17025 Ø17mm Graphite Brushes 3.5/4.5W

Motor Data		Part Numbers			
		DCU17025G06	DCU17025G12	DCU17025G18	DCU17025G24
Nominal voltage	V	6	12	18	24
No load speed	rpm	10400	10400	10700	11400
No load current	mA	12.3	8.2	6.3	3.5
Nominal speed	rpm	7310	7520	7800	8260
Max. continuous torque	mNm	3.69	3.90	3.88	3.89
Max. continuous current	A	0.686	0.365	0.250	0.195
Stall torque	mNm	12.47	14.16	14.47	14.91
Stall current	A	2.27	1.29	0.91	0.73
Max. efficiency	%	86	83	84	87
Terminal Resistance	Ohm	2.6	9.3	19.8	32.7
Terminal Inductance	mH	0.068	0.272	0.600	0.900
Torque constant	mNm / A	5.49	10.98	15.92	20.32
Speed constant	rpm / V	1740	870	600	470
Speed/torque gradient	rpm / mNm	837	737	746	756
Mechanical time constant	ms	5.96	5.80	5.79	5.91
Rotor inertia	gcm^2	0.680	0.752	0.741	0.746

Standard model

Specification		
Bearing		sleeve bearing
Max. speed	rpm	12000
Axial play	mm	≤0.3
Number of commutator segments		5
Ambient temperature	°C	-20...+85
Max. winding temperature	°C	100
Thermal resistance		
Housing – Ambient	°C / W	35.0
Winding – Housing	°C / W	13.2
Thermal time constant		
Motor	s	360
Winding	s	6.20
Number of pole pairs		1
Weight	g	30

Combination

Gearbox

PG16C
Ø16mm 0.5 Nm 4.4:1–850:1
Page 84
PG16M
Ø16mm 0.65 Nm 3.9:1–406:1
Page 85

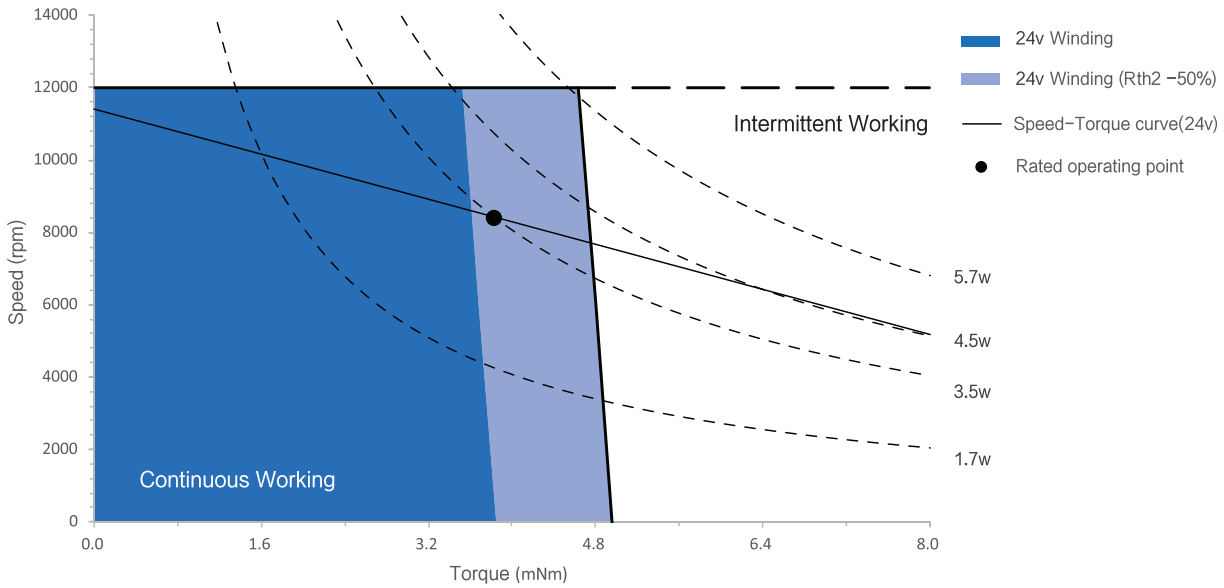
Encoder

R16
Ø16mm 512 Lines 3 Channels
Page 101
K16
Ø16mm 200 Lines 2 Channels
Page 102

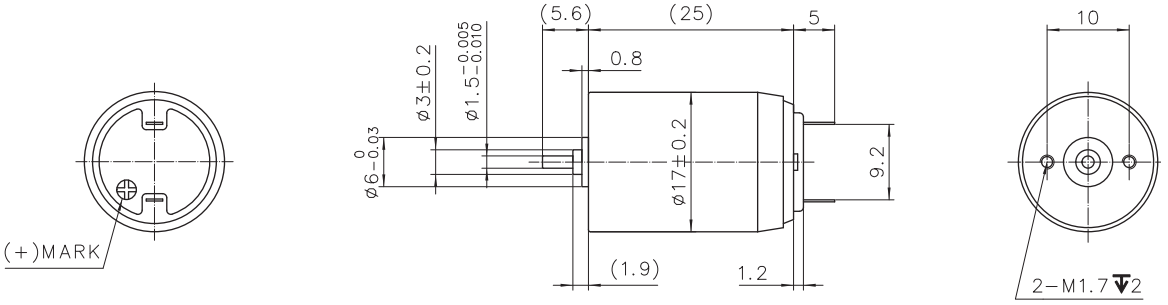
Option

Precious Metal Brushes/Graphite Brushes
Ball Bearing
Low temperature

Operating Range



Dimension



DCU17025Gxx−S001

DCU17035 Ø17mm Graphite Brushes 7.5/9W

Motor Data		Part Numbers			
		DCU17035G12	DCU17035G18	DCU17035G24	DCU17035G36
Nominal voltage	V	12	18	24	36
No load speed	rpm	9900	11000	11500	10500
No load current	mA	19.7	24.6	24.7	12.8
Nominal speed	rpm	7130	8320	9050	7990
Max. continuous torque	mNm	7.25	7.18	7.72	7.66
Max. continuous current	A	0.650	0.491	0.421	0.253
Stall torque	mNm	26.10	29.91	37.12	32.93
Stall current	A	2.27	1.94	1.90	1.03
Max. efficiency	%	83	79	79	79
Terminal Resistance	Ohm	5.3	9.3	12.6	34.8
Terminal Inductance	mH	0.166	0.285	0.453	1.340
Torque constant	mNm / A	11.51	15.40	19.49	31.83
Speed constant	rpm / V	830	620	490	300
Speed/torque gradient	rpm / mNm	382	373	317	328
Mechanical time constant	ms	4.36	4.34	3.78	3.92
Rotor inertia	gcm^2	1.09	1.11	1.14	1.14

Standard model

Specification		
Bearing		sleeve bearing
Max. speed	rpm	12000
Axial play	mm	≤0.3
Number of commutator segments		5
Ambient temperature	°C	-20...+85
Max. winding temperature	°C	125
Thermal resistance		
Housing − Ambient	°C / W	21.3
Winding − Housing	°C / W	11.6
Thermal time constant		
Motor	s	504
Winding	s	10.96
Number of pole pairs		1
Weight	g	41.4

Combination

Gearbox

PG16C
Ø16mm 0.5 Nm 4.4:1-850:1
Page 84
PG16M
Ø16mm 0.65 Nm 3.9:1−406:1
Page 85

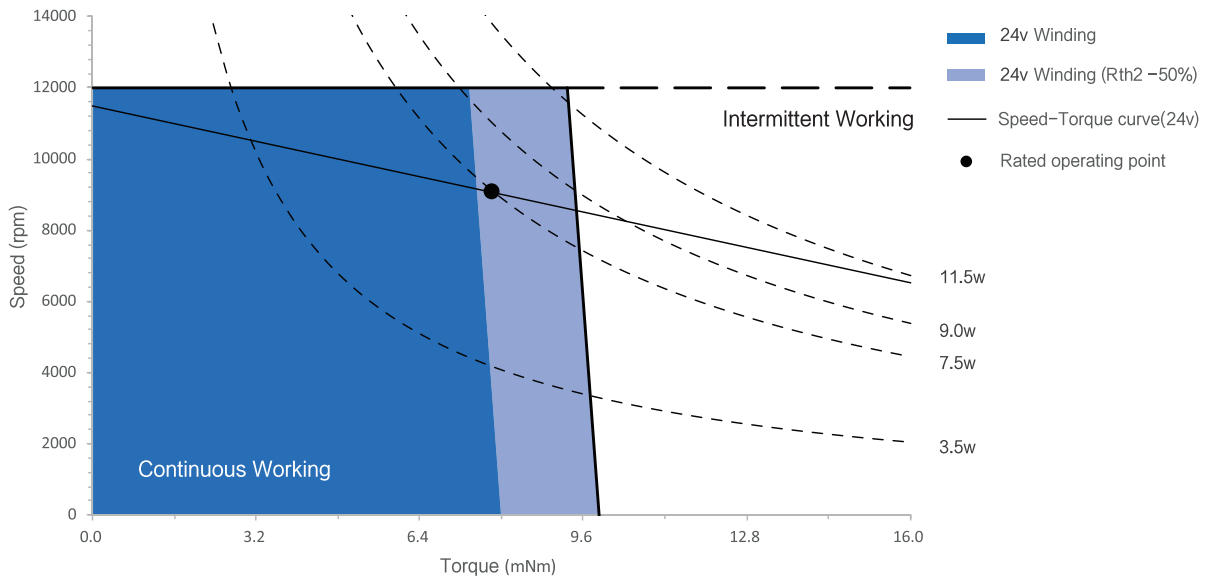
Encoder

R16
Ø16mm 512 Lines 3 Channels
Page 101
K16
Ø16mm 200 Lines 2 Channels
Page 102

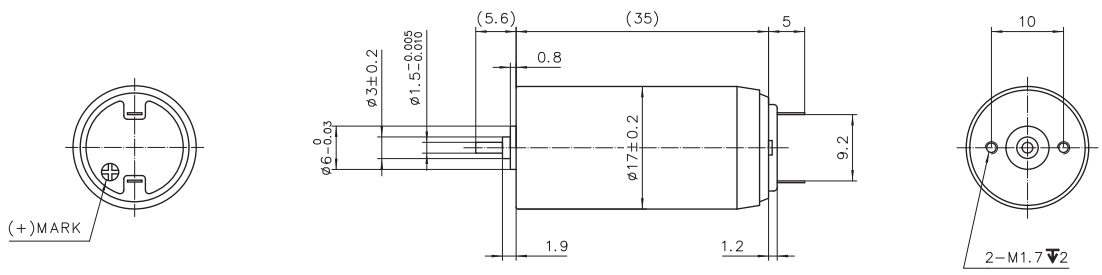
Option

Precious Metal Brushes/Graphite Brushes
Ball Bearing
Low temperature

Operating Range



Dimension



DCU17035Gxx−S001

DCU24032 Ø24mm Graphite Brushes 9.5/13.5W

Motor Data		Part Numbers			
		DCU24032G09	DCU24032G12	DCU24032G18	DCU24032G24
Nominal voltage	V	9	12	18	24
No load speed	rpm	9700	9700	10100	9600
No load current	mA	40.0	25.6	18.3	21.0
Nominal speed	rpm	7450	7550	8050	7560
Max. continuous torque	mNm	9.83	10.65	10.92	11.89
Max. continuous current	A	1.162	0.942	0.659	0.506
Stall torque	mNm	42.85	50.53	53.66	60.58
Stall current	A	4.89	4.29	3.15	2.47
Max. efficiency	%	83	82	85	83
Terminal Resistance	Ohm	1.8	2.8	5.7	9.7
Terminal Inductance	mH	0.386	0.068	0.143	0.284
Torque constant	mNm / A	8.76	11.79	17.05	24.49
Speed constant	rpm / V	1090	810	560	390
Speed/torque gradient	rpm / mNm	229	192	188	155
Mechanical time constant	ms	7.74	5.70	6.24	5.66
Rotor inertia	gcm^2	3.23	2.83	3.17	3.50

Standard model

Specification		
Bearing		Ball Bearing
Max. speed	rpm	11000
Axial play	mm	≤0.15
Number of commutator segments		5
Ambient temperature	°C	-40...+85
Max. winding temperature	°C	125
Thermal resistance		
Housing − Ambient	°C / W	24
Winding − Housing	°C / W	5.6
Thermal time constant		
Motor	s	669
Winding	s	6.66
Number of pole pairs		1
Weight	g	78.8

Combination

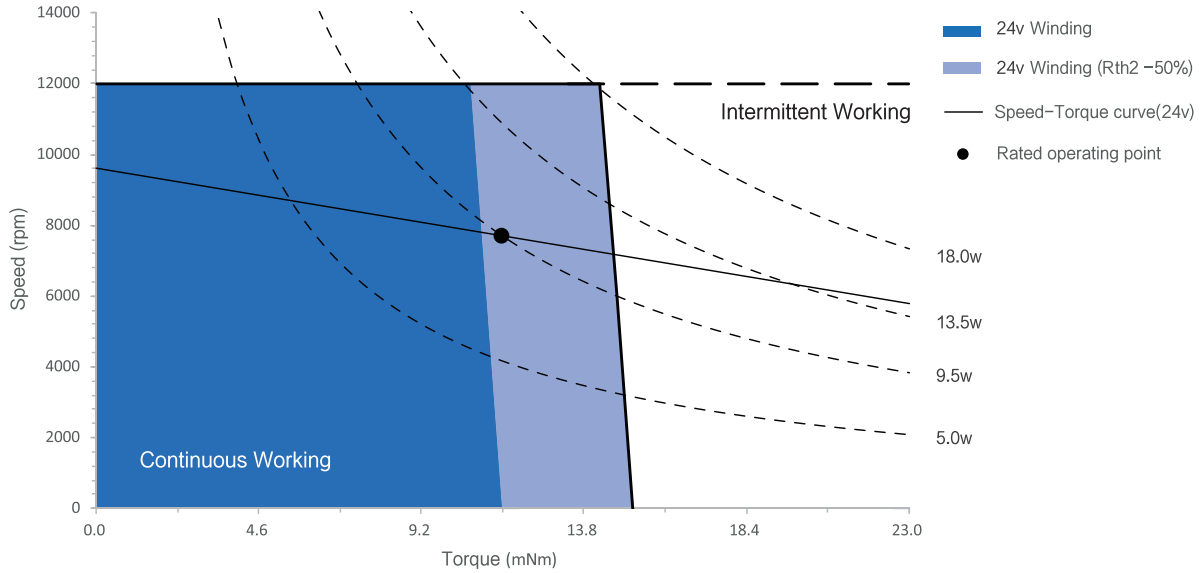
Gearbox

PG22C
Ø22mm 0.8 Nm 4:1-509:1
Page 89

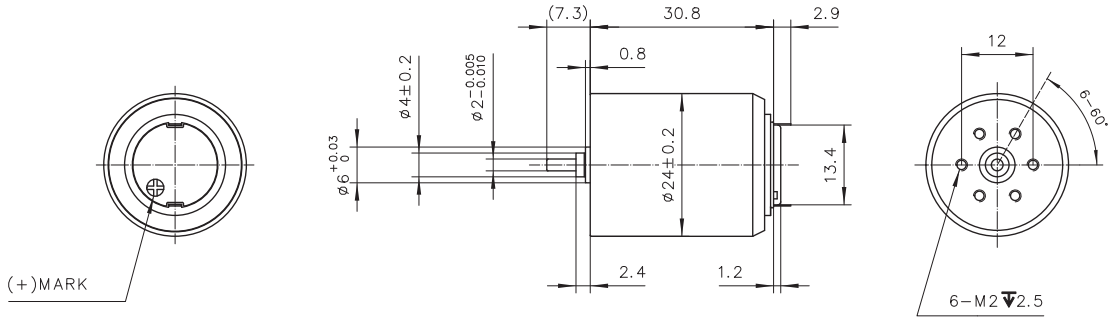
Encoder

K16
Ø16mm 200 Lines 2 Channels
Page 102

Operating Range



Dimension



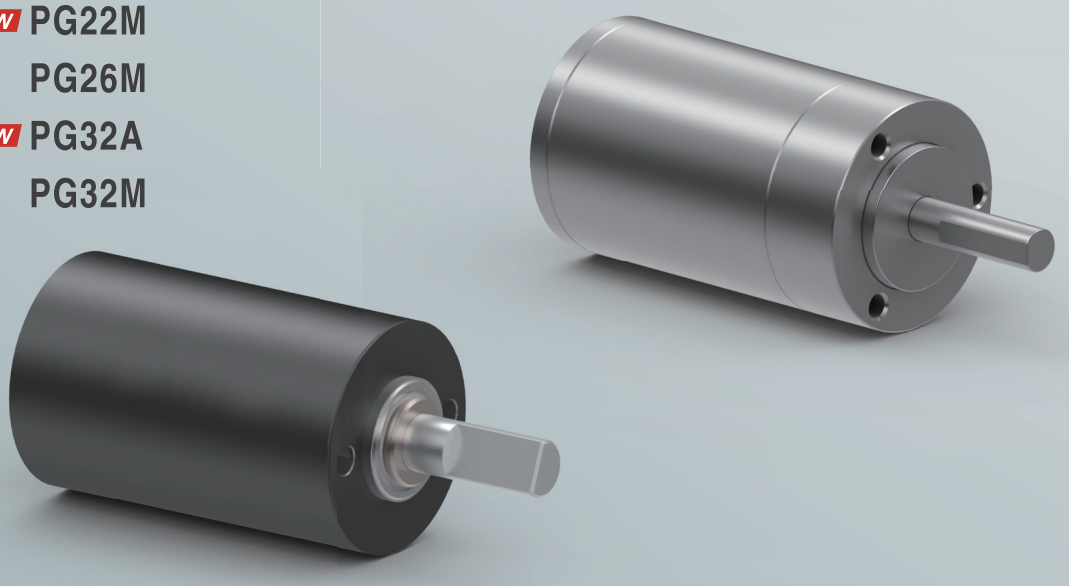
DCU24032Gxx−S101

Note

Planetary Gearbox

PG08C
PG10C
NEW PG10M
PG13C
PG13M
PG16C
PG16M
NEW PG16MN Low noise
NEW PG16MP High power

NEW PG19M
PG22C
NEW PG22M
PG26M
NEW PG32A
PG32M



PG08C Planetary Gearbox Ø8mm 0.1Nm

GearboxData

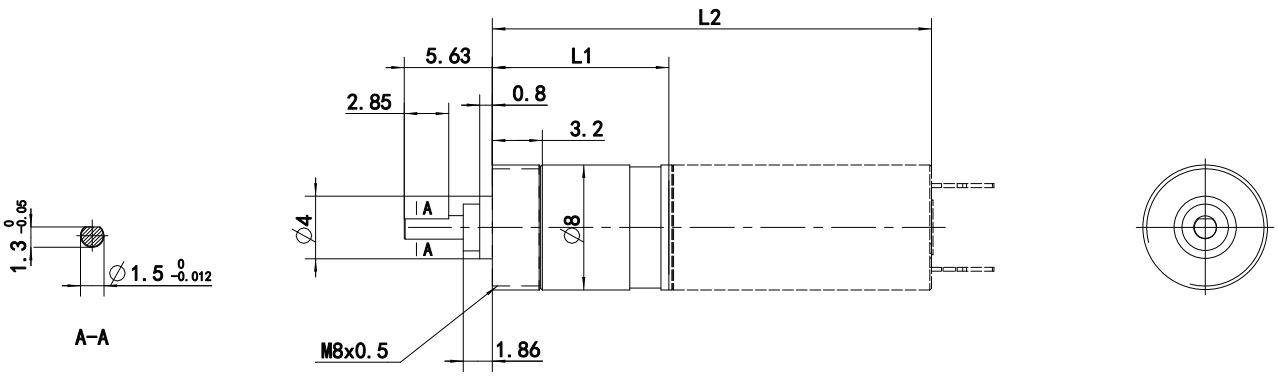
Reduction Ratio		4:1	16:1	64:1	256:1	1024:1
Number of stages		1	2	3	4	5
Max. continuous torque	Nm	0.01	0.02	0.06	0.08	0.10
Max. intermittent torque	Nm	0.02	0.03	0.09	0.12	0.15
Weight	g	2.6	3.2	3.9	4.6	5.3
Max. efficiency	%	87	76	66	57	50
Gearbox length L1	mm	8.8	11.3	13.9	16.4	19.0
Gearbox + Motor length L2						
└DCU08017	mm	25.6	28.1	30.7	33.2	35.8

Standard ratio

Specification

Planetary Gearbox		straight teeth
Output shaft		stainless steel, hardened
Bearing at output		sleeve bearing
Radial play	mm	⩽ 0.07
Axial play	mm	⩽ 0.15
Max. radial load	N	0.8(5mm from flange)
Max. axial load	N	1
Backlash	°	⩽ 3
Direction of rotation (drive to output)		=
Operating temperature	°C	-20...+65

Dimension



PG10C Planetary Gearbox Ø10mm 0.15Nm

GearboxData

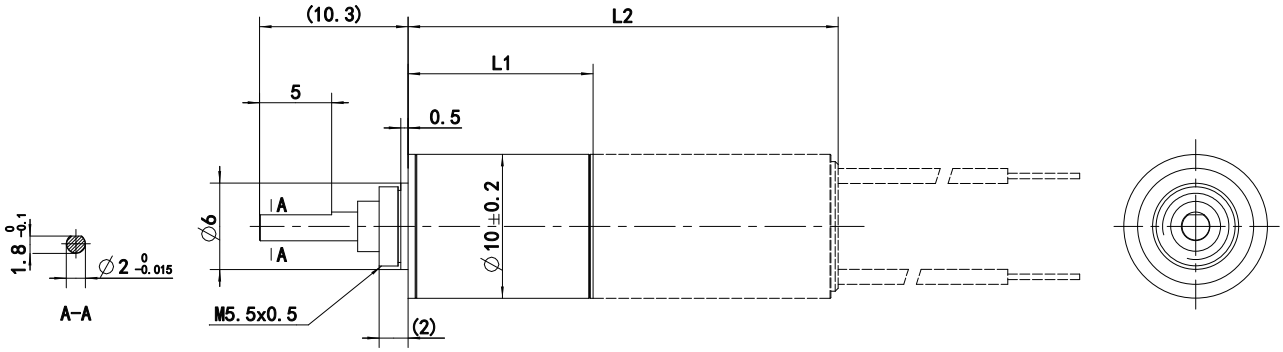
Reduction Ratio		4:1	16:1	64:1	256:1	1024:1
Number of stages		1	2	3	4	5
Max. continuous torque	Nm	0.01	0.03	0.10	0.15	0.15
Max. intermittent torque	Nm	0.02	0.05	0.15	0.23	0.23
Weight	g	5.5	6.9	8.3	9.7	11.1
Max. efficiency	%	87	76	66	57	50
Gearbox length L1	mm	12.9	12.9	15.8	18.7	21.6
Gearbox + Motor length L2	mm					
└DCU10017		29.9	29.9	32.8	35.7	38.6
└DCU10025		37.5	37.5	40.4	43.3	46.2

Standard ratio

Specification

Planetary Gearbox		straight teeth
Output shaft		stainless steel, hardened
Bearing at output		sleeve bearing
Radial play	mm	⩽ 0.07
Axial play	mm	⩽ 0.2
Max. radial load	N	1(5mm from flange)
Max. axial load	N	2
Backlash	°	⩽ 3
Direction of rotation (drive to output)		=
Operating temperature	°C	-20...+65

Dimension



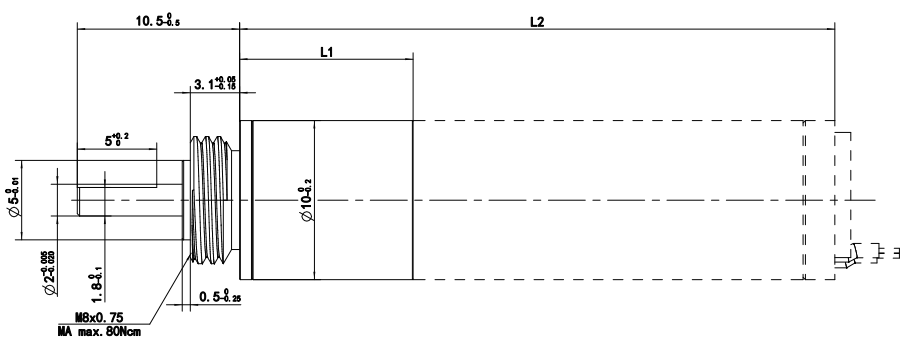
PG10M Planetary Gearbox Ø10mm 0.18Nm

GearboxData				
Reduction Ratio		3.8:1	16:1	62:1
Number of stages		1	2	3
Max. continuous torque	Nm	0.012	0.036	0.120
Max. intermittent torque	Nm	0.018	0.048	0.160
Weight	g	4.3	5.6	6.8
Max. efficiency	%	90	81	73
Gearbox length L1	mm	7.9	11.0	14.0
Gearbox + Motor length L2				
└ECH10032	mm	40.3	43.4	46.4

Standard ratio

Specification		
Planetary Gearbox		straight teeth
Output shaft		stainless steel, hardened
Bearing at output		Ball Bearing
Radial play	mm	⩽ 0.1
Axial play	mm	⩽ 0.1
Max. axial load	N	5 (5mm from flange)
Max. radial load	N	5
Max. force for press fits	N	11
Recommend input speed	rpm	⩽ 20000
Backlash	°	⩽ 1.8
Direction of rotation (drive to output)		=
Operating temperature	° C	−40...+100

Dimension



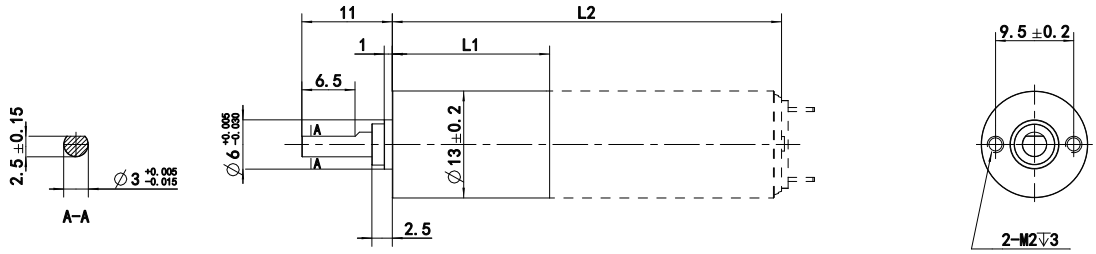
PG13C Planetary Gearbox Ø13mm 0.3Nm

GearboxData					
Reduction Ratio		4:1	16:1	66:1	271:1
				90:1	315:1
					425:1
Number of stages		1	2	3	4
Max. continuous torque	Nm	0.10	0.15	0.25	0.30
Max. intermittent torque	Nm	0.15	0.23	0.33	0.45
Weight	g	13.5	13.5	16.0	18.9
Max. efficiency	%	90	81	73	66
Gearbox length L1	mm	19.1	19.1	22.9	26.6
Gearbox + Motor length L2					
└DCU13020	mm	39.8	39.8	43.6	47.3
└DCU13028	mm	48.3	48.3	52.1	55.8

Standard ratio

Specification		
Planetary Gearbox		straight teeth
Output shaft		stainless steel, hardened
Bearing at output		sleeve bearing
Radial play	mm	⩽ 0.1
Axial play	mm	⩽ 0.25
Max. axial load	N	5 (5mm from flange)
Max. radial load	N	5
Max. force for press fits	N	15
Recommend input speed	rpm	⩽ 10000
Backlash	°	⩽ 3
Direction of rotation (drive to output)		=
Operating temperature	°C	-20...+65

Dimension



PG13M Planetary Gearbox Ø13mm 0.4Nm

GearboxData

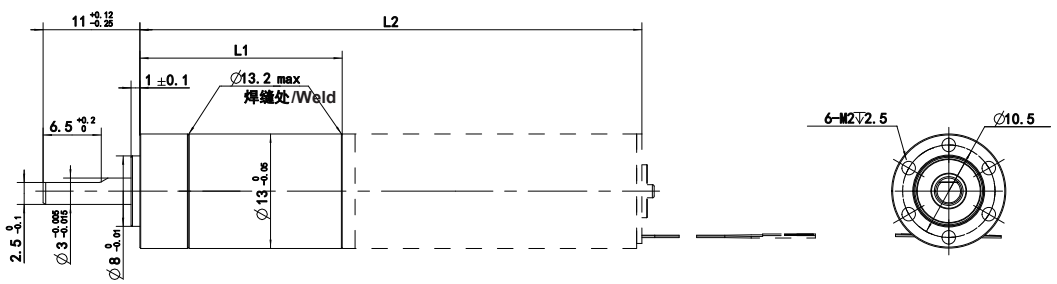
Reduction Ratio		3.8:1	19:1	54:1	276:1
			26:1	73:1	421:1
				94:1	664:1
				131:1	
Number of stages		1	2	3	4
Max. continuous torque	Nm	0.15	0.20	0.30	0.40
Max. intermittent torque	Nm	0.20	0.26	0.40	0.50
Weight	g	11	14	17	20
Max. efficiency	%	90	81	73	66
Gearbox length L1	mm	15.1	19.0	23.0	26.9
Gearbox + Motor length L2					
└ ECU13026	mm	37.0	40.9	44.9	48.8
└ ECU13038	mm	49.2	53.1	57.1	61.0

Standard ratio

Specification

Planetary Gearbox		straight teeth
Output shaft		stainless steel, hardened
Bearing at output		Ball Bearing
Radial play	mm	⩽ 0.1
Axial play	mm	⩽ 0.1
Max. axial load	N	40 (5mm from flange)
Max. radial load	N	20
Max. force for press fits	N	30
Recommend input speed	rpm	⩽ 18000
Backlash	°	⩽ 1.5
Direction of rotation (drive to output)		=
Operating temperature	° C	−40...+100

Dimension



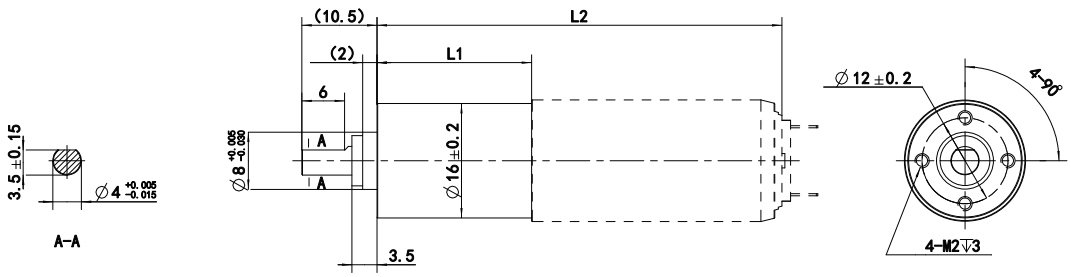
PG16C Planetary Gearbox Ø16mm 0.5Nm

GearboxData					
Reduction Ratio		4:1	19:1	84:1	369:1
			29:1	103:1	850:1
				157:1	
Number of stages		1	2	3	4
Max. continuous torque	Nm	0.20	0.30	0.40	0.50
Max. intermittent torque	Nm	0.30	0.45	0.60	0.75
Weight	g	15.5	19.0	22.5	26.0
Max. efficiency	%	81	66	53	43
Gearbox length L1	mm	18.0	18.0	21.6	25.2
Gearbox + Motor length L2					
└DCU16025	mm	44.4	44.4	48.0	51.6
└DCU17025	mm	44.4	44.4	48.0	51.6
└DCU17035	mm	54.4	54.4	58.0	61.6

Standard ratio

Specification		
Planetary Gearbox		straight teeth
Output shaft		stainless steel, hardened
Bearing at output		sleeve bearing
Radial play	mm	⩽ 0.1
Axial play	mm	⩽ 0.25
Max. axial load	N	8 (5mm from flange)
Max. radial load	N	10
Max. force for press fits	N	50
Recommend input speed	rpm	⩽ 10000
Backlash	°	⩽ 3
Direction of rotation (drive to output)		=
Operating temperature	°C	-20...+65

Dimension



PG16M Planetary Gearbox Ø16mm 0.65Nm

GearboxData

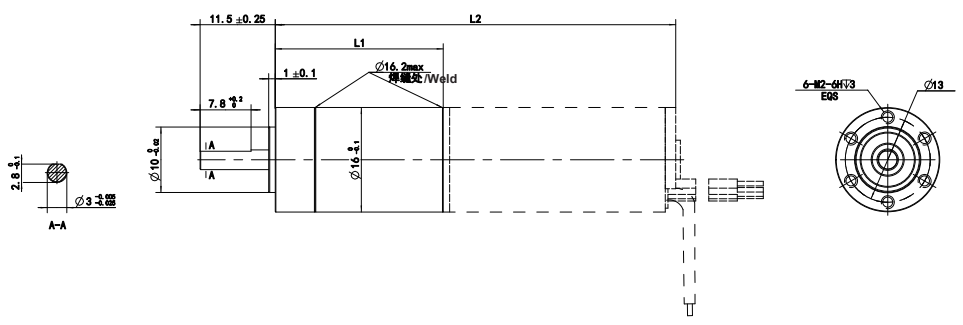
Reduction Ratio		3.9:1	16:1	62:1	406:1
		6.6:1	21:1	83:1	546:1
			35:1	103:1	1526:1
			44:1	111:1	
				138:1	
				172:1	
				231:1	
Number of stages		1	2	3	4
Max. continuous torque	Nm	0.26	0.39	0.52	0.65
Max. intermittent torque	Nm	0.36	0.54	0.72	0.90
Weight	g	17	25	30	34
Max. efficiency	%	93	86	80	75
Gearbox length L1	mm	15.5	21.1	25.7	30.6
Gearbox + Motor length L2					
└ DCU16025	mm	40.8	46.0	50.7	56.0
└ DCU17025	mm	40.8	46.0	50.7	56.0
└ DCU17035	mm	51.8	57.0	61.7	67.0
└ ECU16024	mm	39.5	45.1	49.7	54.6
└ ECU16036	mm	51.1	56.7	61.3	66.2
└ ECU16052	mm	67.6	73.2	77.8	82.7

Standard ratio

Specification

Planetary Gearbox		straight teeth
Output shaft		stainless steel, hardened
Bearing at output		Ball Bearing
Radial play	mm	≤ 0.1
Axial play	mm	≤ 0.1
Max. axial load	N	50 (5mm from flange)
Max. radial load	N	20
Max. force for press fits	N	40
Recommend input speed	rpm	≤ 16000
Backlash	°	≤ 1.5
Direction of rotation (drive to output)		=
Operating temperature	° C	-40...+100

Dimension



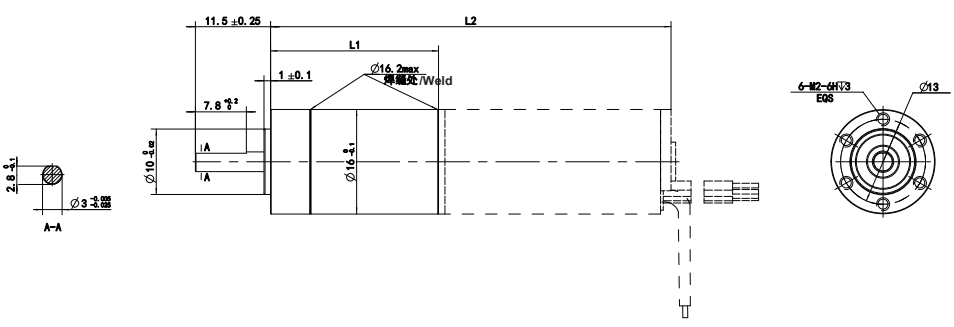
PG16MN Planetary Gearbox Ø16mm 0.45Nm Low noise

GearboxData					
Reduction Ratio		3.9:1	16:1	62:1	406:1
		5.3:1	21:1	83:1	546:1
			35:1	103:1	1526:1
				111:1	
				138:1	
				172:1	
				231:1	
Number of stages		1	2	3	4
Max. continuous torque	Nm	0.16	0.25	0.35	0.45
Max. intermittent torque	Nm	0.20	0.35	0.45	0.55
Weight	g	17	25	30	34
Max. efficiency	%	93	86	80	75
Gearbox length L1	mm	15.5	21.1	25.7	30.6
Gearbox + Motor length L2					
└ ECU16024	mm	39.5	45.1	49.7	54.6
└ ECU16036	mm	51.1	56.7	61.3	66.2
└ ECU16052	mm	67.6	73.2	77.8	82.7

Standard ratio

Specification		
Planetary Gearbox		straight teeth
Output shaft		stainless steel, hardened
Bearing at output		Ball Bearing
Radial play	mm	⩽ 0.1
Axial play	mm	⩽ 0.1
Max. axial load	N	50 (5mm from flange)
Max. radial load	N	20
Max. force for press fits	N	40
Recommend input speed	rpm	⩽ 16000
Backlash	°	⩽ 1.5
Direction of rotation (drive to output)		=
Operating temperature	° C	-40...+100

Dimension



PG16MP Planetary Gearbox Ø16mm 0.9Nm High power

GearboxData

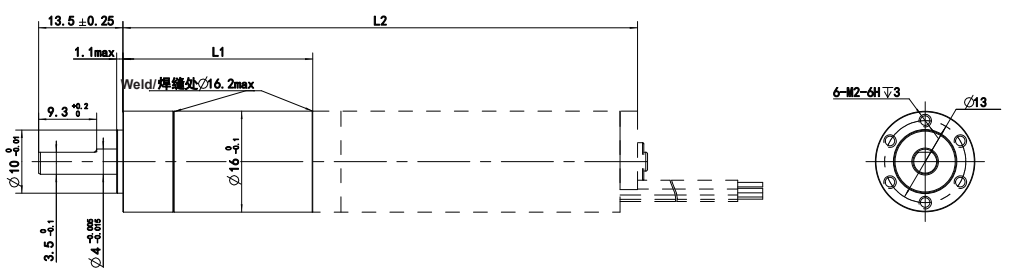
Reduction Ratio		16:1	62:1	406:1
		21:1	83:1	546:1
		35:1	103:1	1526:1
		44:1	111:1	
			138:1	
			172:1	
			231:1	
Number of stages		2	3	4
Max. continuous torque	Nm	0.55	0.80	0.90
Max. intermittent torque	Nm	0.70	1.00	1.10
Weight	g	31	36	40
Max. efficiency	%	86	80	75
Gearbox length L1	mm	25.9	30.5	35.4
Gearbox + Motor length L2				
∟ ECU16024	mm	50.0	54.5	59.4
∟ ECU16036	mm	62.0	66.5	71.4
∟ ECU16052	mm	78.0	82.5	87.4

Standard ratio

Specification

Planetary Gearbox		straight teeth
Output shaft		stainless steel, hardened
Bearing at output		Ball Bearing
Radial play	mm	⩽ 0.1
Axial play	mm	⩽ 0.1
Max. axial load	N	55 (5mm from flange)
Max. radial load	N	30
Max. force for press fits	N	50
Recommend input speed	rpm	⩽ 16000
Backlash	°	⩽ 1.5
Direction of rotation (drive to output)		=
Operating temperature	°C	-40...+100

Dimension



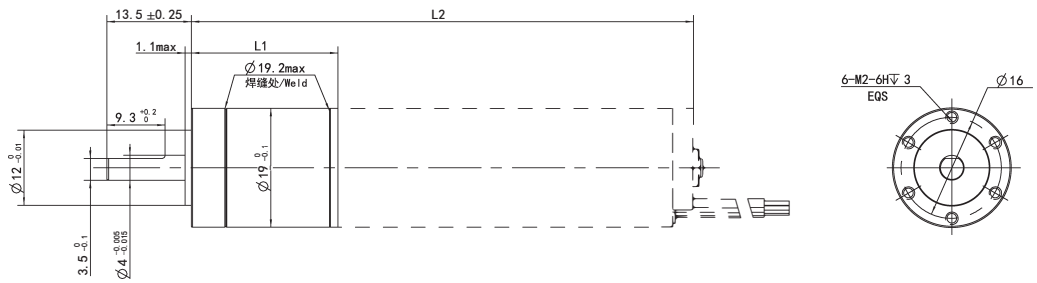
PG19M Planetary Gearbox Ø19mm 1Nm

GearboxData					
Reduction Ratio		3.9:1	16:1	62:1	406:1
		6.6:1	21:1	83:1	546:1
			35:1	103:1	1526:1
			44:1	111:1	
				138:1	
				172:1	
				231:1	
Number of stages		1	2	3	4
Max. continuous torque	Nm	0.42	0.55	0.80	1.00
Max. intermittent torque	Nm	0.55	0.65	1.00	1.20
Weight	g	30	39	48	57
Max. efficiency	%	92	87	78	71
Gearbox length L1	mm	16.9	22.2	27.6	33.0
Gearbox + Motor length L2					
└ ECU19058	mm	75.0	80.2	85.6	91.0

Standard ratio

Specification		
Planetary Gearbox		straight teeth
Output shaft		stainless steel, hardened
Bearing at output		Ball Bearing
Radial play	mm	⩽ 0.2
Axial play	mm	⩽ 0.2
Max. axial load	N	55 (5mm from flange)
Max. radial load	N	35
Max. force for press fits	N	69
Recommend input speed	rpm	⩽ 12000
Backlash	°	⩽ 1.4
Direction of rotation (drive to output)		=
Operating temperature	° C	−40...+100

Dimension



PG22C Planetary Gearbox Ø22mm 0.8Nm

GearboxData

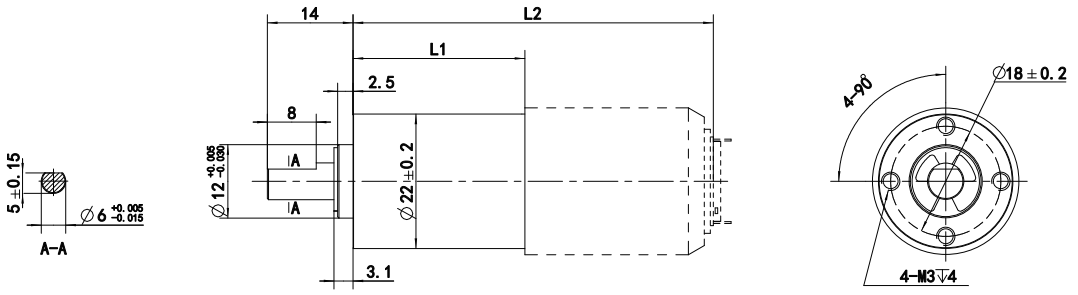
Reduction Ratio		4:1	16:1	64:1	256:1
			22:1	90:1	509:1
				107:1	
Number of stages		1	2	3	4
Max. continuous torque	Nm	0.20	0.40	0.60	0.80
Max. intermittent torque	Nm	0.30	0.60	0.90	1.20
Weight	g	34.3	34.6	54.4	64.0
Max. efficiency	%	81	66	53	43
Gearbox length L1	mm	17.7	22.9	28.1	33.3
Gearbox + Motor length L2					
└DCU24032	mm	49.9	55.1	60.3	65.5

Standard ratio

Specification

Planetary Gearbox		straight teeth
Output shaft		stainless steel, hardened
Bearing at output		sleeve bearing
Radial play	mm	⩽ 0.1
Axial play	mm	⩽ 0.35
Max. axial load	N	8 (5mm from flange)
Max. radial load	N	15
Max. force for press fits	N	100
Recommend input speed	rpm	⩽ 10000
Backlash	°	⩽ 3
Direction of rotation (drive to output)		=
Operating temperature	°C	−20...+65

Dimension



PG22M Planetary Gearbox Ø22mm 2Nm

GearboxData

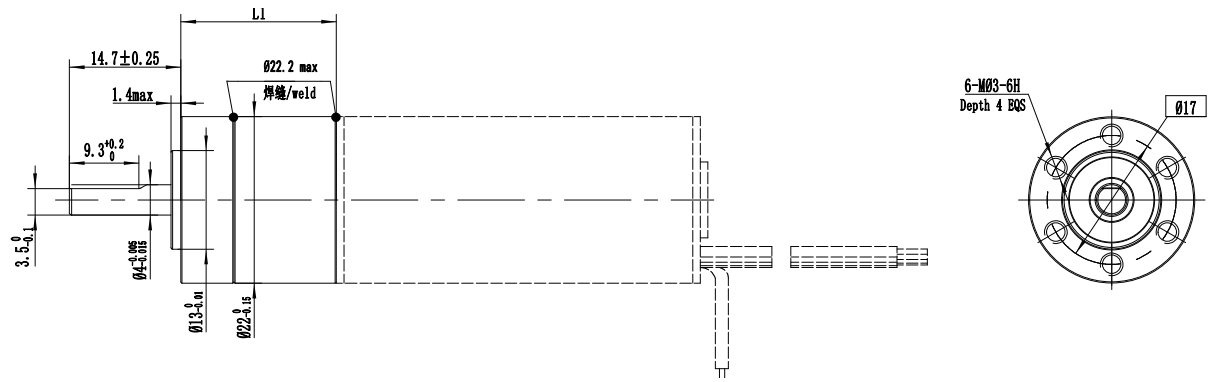
Reduction Ratio		3.9:1	16:1	62:1	406:1
		6.6:1	21:1	83:1	546:1
			35:1	103:1	1526:1
			44:1	111:1	
				138:1	
				172:1	
				231:1	
Number of stages		1	2	3	4
Max. continuous torque	Nm	0.70	0.90	1.60	2.00
Max. intermittent torque	Nm	0.80	1.20	2.00	2.50
Weight	g	45	58	69	89
Max. efficiency	%	93	86	80	75
Gearbox length L1	mm	19.9	26.4	32.2	43.0
Gearbox + Motor length L2					
└ DCU24032	mm	50.9	57.4	63.2	74.0
└ ECU22032	mm	52.0	58.5	64.3	75.1
└ ECU22048	mm	68.5	75.0	80.8	91.6

Standard ratio

Specification

Planetary Gearbox		straight teeth
Output shaft		stainless steel, hardened
Bearing at output		Ball Bearing
Radial play	mm	⩽ 0.2
Axial play	mm	⩽ 0.2
Max. axial load	N	120 (10mm from flange)
Max. radial load	N	40
Max. force for press fits	N	100
Recommend input speed	rpm	⩽ 12000
Backlash	°	⩽ 1.35
Direction of rotation (drive to output)		=
Operating temperature	°C	-40...+100

Dimension



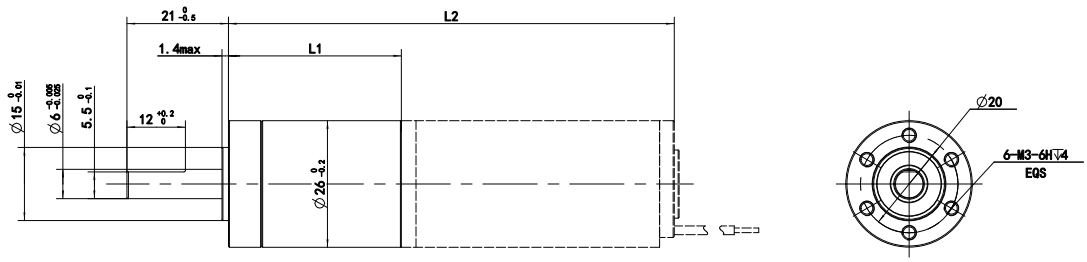
PG26M Planetary Gearbox Ø22mm 4.5Nm

GearboxData				
Reduction Ratio		3.9:1	16:1	62:1
		6.6:1	21:1	83:1
			35:1	103:1
			44:1	111:1
				138:1
				172:1
				231:1
Number of stages		1	2	3
Max. continuous torque	Nm	0.75	2.25	4.50
Max. intermittent torque	Nm	1.10	3.20	6.20
Weight	g	72	92	115
Max. efficiency	%	92	83	78
Gearbox length L1	mm	21.6	28.5	35.5
Gearbox + Motor length L2				
└ ECU26056	mm	77.6	84.5	91.5

Standard ratio

Specification		
Planetary Gearbox		straight teeth
Output shaft		stainless steel, hardened
Bearing at output		Ball Bearing
Radial play	mm	⩽ 0.2
Axial play	mm	⩽ 0.2
Max. axial load	N	70(10mm from flange)
Max. radial load	N	80
Max. force for press fits	N	130
Recommend input speed	rpm	⩽ 11000
Backlash	°	⩽ 1.1
Direction of rotation (drive to output)		=
Operating temperature	°C	−40...+100

Dimension



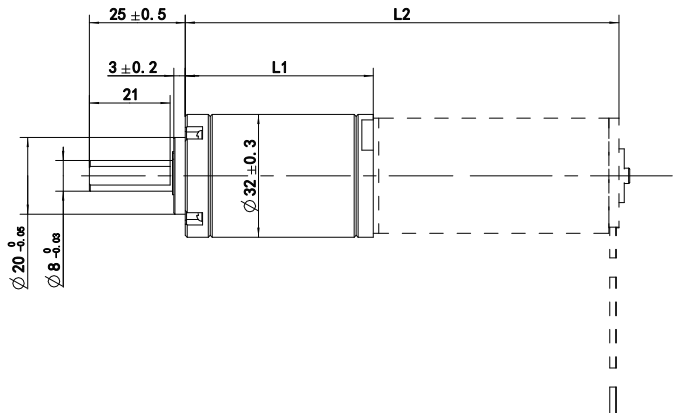
PG32A Planetary Gearbox Ø32mm 7Nm

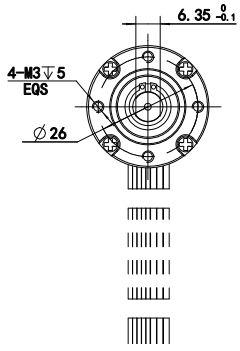
GearboxData					
Reduction Ratio		5.2:1	16:1	100:1	253:1
			35:1		
Number of stages		1	2	3	4
Max. continuous torque	Nm	1.25	2.90	5.00	7.00
Max. intermittent torque	Nm	1.60	3.60	6.25	8.60
Weight	g	107	153	187	232
Max. efficiency	%	85	72	61	52
Gearbox length L1	mm	30.2	39.5	49.0	58.5
Gearbox + Motor length L2					
└ ECU30042	mm	72.2	81.5	91.0	100.5
└ ECU30064	mm	94.2	103.5	113.0	122.5

Standard ratio

Specification		
		straight teeth
Output shaft		stainless steel, hardened
Bearing at output		Ball Bearing
Radial play	mm	⩽ 0.1
Axial play	mm	⩽ 0.3
Max. axial load	N	120 (12mm from flange)
Max. radial load	N	30
Max. force for press fits	N	30
Recommend input speed	rpm	⩽ 7000
Backlash	°	⩽ 2
Direction of rotation (drive to output)		=
Operating temperature	° C	−40...+80

Dimension





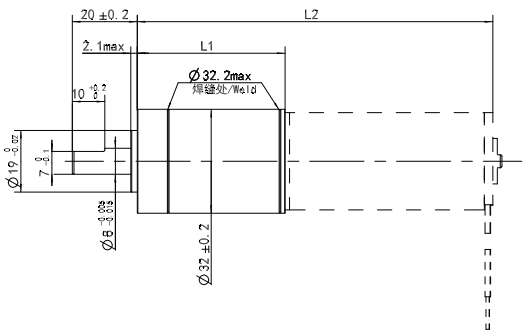
PG32M Planetary Gearbox Ø32mm 8Nm

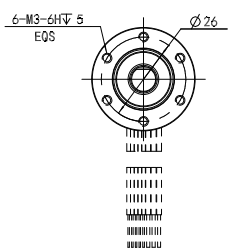
GearboxData					
Reduction Ratio		3.9:1	16:1	62:1	406:1
		6.6:1	21:1	83:1	
			35:1	103:1	
			44:1	111:1	
				138:1	
				172:1	
				231:1	
Number of stages		1	2	3	4
Max. continuous torque	Nm	1.60	3.80	6.60	8.00
Max. intermittent torque	Nm	2.00	4.50	8.00	9.60
Weight	g	140	178	213	251
Max. efficiency	%	90	86	75	70
Gearbox length L1	mm	27.5	35.7	44.0	52.5
Gearbox + Motor length L2					
└ECU30042	mm	69.5	77.7	86.0	94.5
└ECU30064	mm	91.5	99.7	108.0	116.5

Standard ratio

Specification		
Planetary Gearbox		straight teeth
Output shaft		stainless steel, hardened
Bearing at output		Ball Bearing
Radial play	mm	⩽ 0.2
Axial play	mm	⩽ 0.2
Max. axial load	N	100(10mm from flange)
Max. radial load	N	110
Max. force for press fits	N	180
Recommend input speed	rpm	⩽ 8000
Backlash	°	⩽ 0.9
Direction of rotation (drive to output)		=
Operating temperature	°C	-40...+100

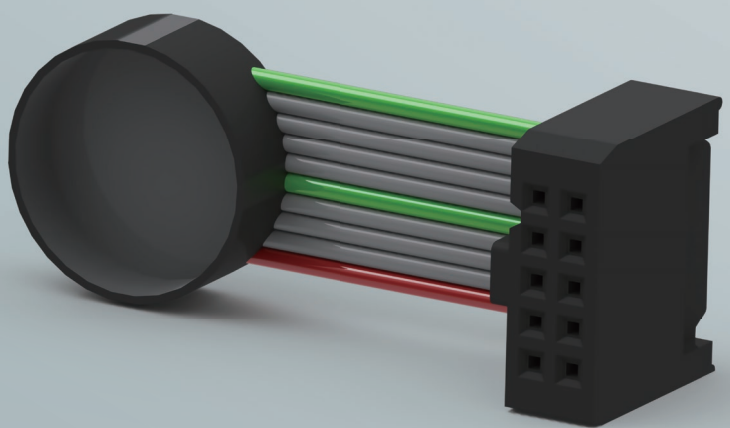
Dimension





Encoder

RS08
RS10
MS10
RS13
R13
NEW MH13
R16
K16
M16
MA16 Single-turn absolute
NEW MC16 High resolution
N18
NEW MH22
P22 Multi-turn absolute
M24



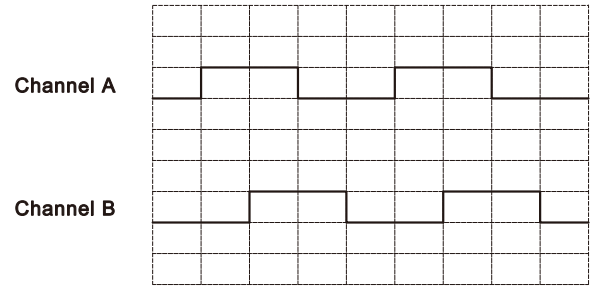
RS08 Magnetic Encoder Ø8mm 2 Channels

Encoder Data		
Pulses per revolution		12
Number of channels		2 (A,B)
Supply voltage	V	5
Supply current	mA	≤20
Max. output current/channel	mA	3
Max. frequency	kHz	20
Operating temperature	°C	-20...+65
Length		
└ DCU08017	mm	28.0

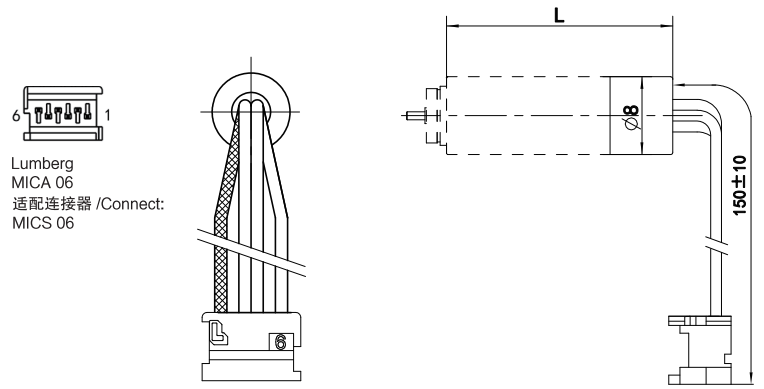
Connection

PIN No.	Function
1	Motor(+)
2	Vcc(5V)
3	Channel A
4	Channel B
5	GND
6	Motor(−)

Output Signal



Dimension



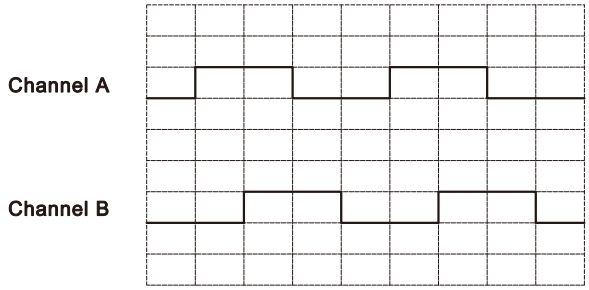
RS10 Magnetic Encoder Ø10mm 2 Channels

Encoder Data		
Pulses per revolution		12
Number of channels		2 (A,B)
Supply voltage	V	3...24
Supply current	mA	≤10
Max. output current/channel	mA	10
Max. frequency	kHz	20
Operating temperature	°C	-20...+65
Length L		
└DCU10017	mm	23.5
└DCU10025	mm	31.1

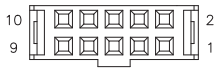
Connection

PIN No.	Function
1	Motor(+)
2	Vcc(5V)
3	Channel A
4	Channel B
5	GND
6	Motor(-)

Output Signal

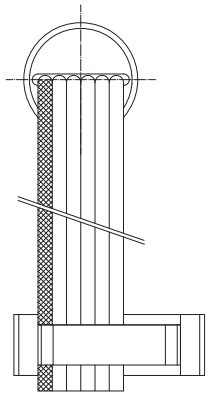


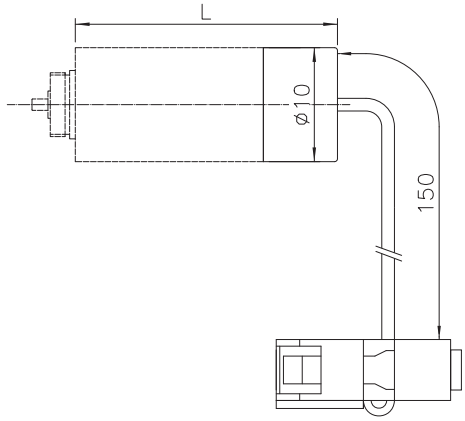
Dimension



HIROSE ELECTRIC
HIF3BA-10D-2.54R

适配连接器 /Connect:
HIF3FC-10PA-2.54DSA





MS10 Magnetic Encoder Ø10mm 3Channels

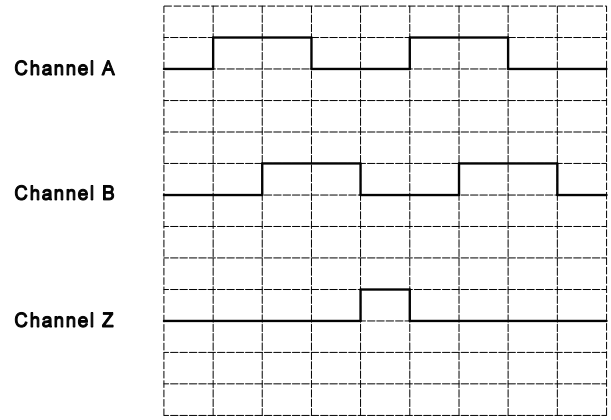
Encoder Data

Pulses per revolution		1-1024
Number of channels		3 (A,B)
Supply voltage	V	5
Supply current	mA	≤14
Max. output current/channel	mA	4
Operating temperature	°C	-40...+100
Length L		
└ECH10032	mm	32.0

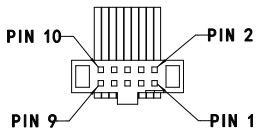
Connection

PIN No.	Function
1	N.C
2	Vcc(5V)
3	GND
4	MODE
5	N.C
6	Channel A
7	N.C
8	Channel B
9	N.C
10	Channel I

Output Signal

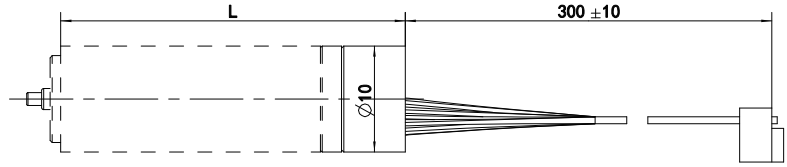


Dimension



FFSD-050S-01.00-01

适配连接器 /Connect:
EHF-113-01-L-D-RA



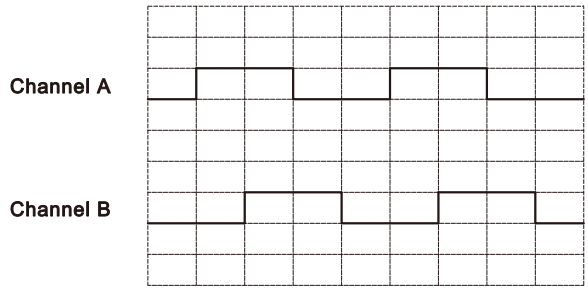
RS13 Magnetic Encoder Ø13mm 2 Channels

Encoder Data		
Pulses per revolution		16
Number of channels		2 (A,B)
Supply voltage	V	5
Supply current	mA	≤20
Max. output current/channel	mA	2
Max. frequency	kHz	20
Operating temperature	°C	-20...+65
Length		
└DCU13020	mm	26.2
└DCU13028	mm	34.7

Connection

PIN No.	Function
1	Motor(+)
2	Vcc(5V)
3	Channel A
4	Channel B
5	GND
6	Motor(−)

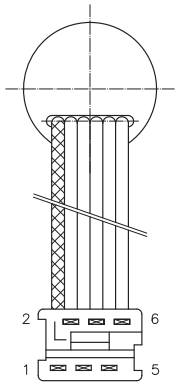
Output Signal

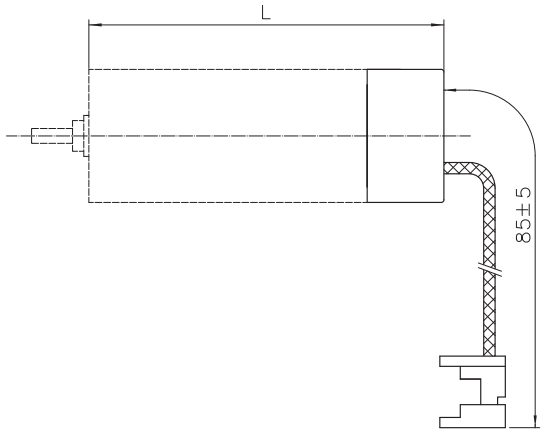


Dimension

Lumberg
MICA 06

适配连接器 /Connect:
MICS 06





R13 Magnetic Encoder Ø13mm 3 Channels

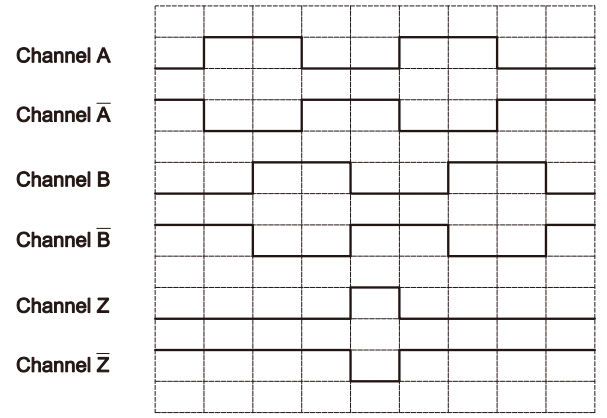
Encoder Data

Pulses per revolution		256
Number of channels		3 (A,B,Z)
Supply voltage	V	5
Supply current	mA	≤40
Max. output current/channel	mA	5
Max. frequency	kHz	80
Operating temperature	°C	-20...+65
Length L		
└ DCU13020	mm	25.4
└ DCU13028	mm	33.9

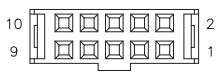
Connection

PIN No.	Function
1	Motor(+)
2	Vcc(5V)
3	GND
4	Motor(-)
5	Channel $\overline{A}$
6	Channel A
7	Channel $\overline{B}$
8	Channel B
9	Channel $\overline{Z}$
10	Channel Z

Output Signal

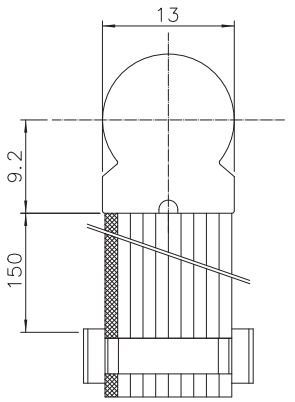


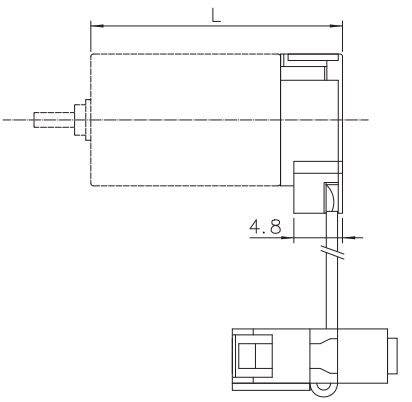
Dimension



HIROSE ELECTRIC
HIF3BA-10D-2.54R

适配连接器 /Connect:
HIF3FC-10PA-2.54DSA





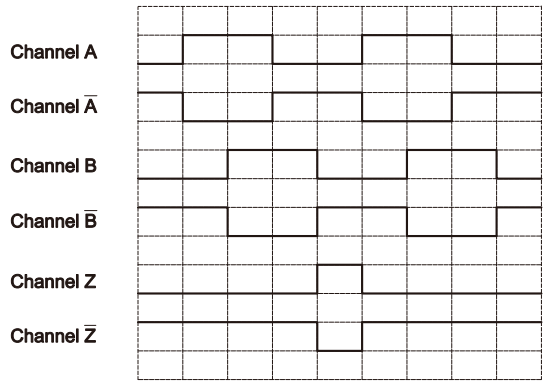
MH13 Magnetic Encoder Ø13mm 3 Channels

Encoder Data		
Pulses per revolution		1-1024
Number of channels		3 (A,B,Z)
Supply voltage	V	5
Supply current	mA	≤17
Max. output current/channel	mA	20
Max. frequency	kHz	1024
Operating temperature	°C	-40...+100
Length		
└ ECU13026	mm	28.5
└ ECU13038	mm	40.5

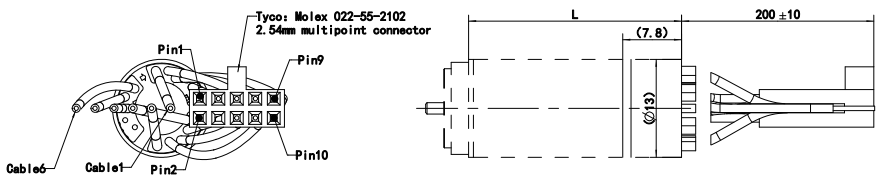
Connection

PIN No.	Function
1	N.C
2	Vcc(5V)
3	GND
4	N.C
5	Channel $\overline{A}$
6	Channel A
7	Channel $\overline{B}$
8	Channel B
9	Channel $\overline{Z}$
10	Channel Z

Output Signal



Dimension



适配连接器 /Connect:
70246-1001

R16 Magnetic Encoder Ø16mm 3 Channels

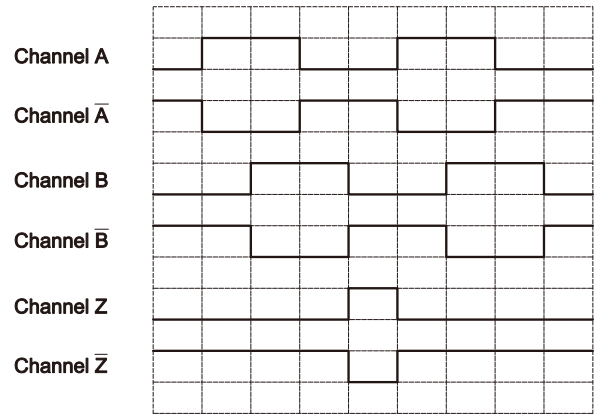
Encoder Data

Pulses per revolution		512
Number of channels		3 (A,B,Z)
Supply voltage	V	5
Supply current	mA	≤40
Max. output current/channel	mA	5
Max. frequency	kHz	160
Operating temperature	°C	-20...+65
Length L		
└DCU16025	mm	30.4
└DCU16035	mm	40.4
└DCU17025	mm	30.4
└DCU17035	mm	40.4

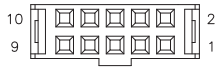
Connection

PIN No.	Function
1	Motor(+)
2	Vcc(5V)
3	GND
4	Motor(-)
5	Channel $\overline{A}$
6	Channel A
7	Channel $\overline{B}$
8	Channel B
9	Channel $\overline{Z}$
10	Channel Z

Output Signal

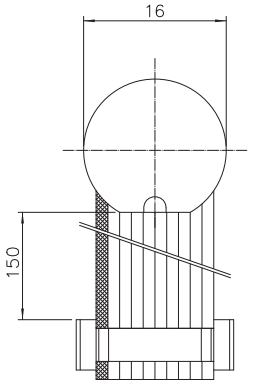


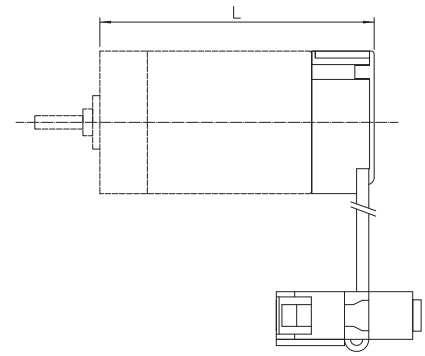
Dimension



HIROSE ELECTRIC
HIF3BA-10D-2.54R

适配连接器 /Connect:
HIF3FC-10PA-2.54DSA





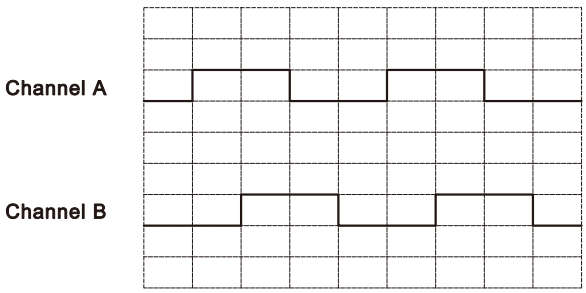
K16 Optical Encoder Ø16mm 2 Channels

Encoder Data		
Pulses per revolution		200
Number of channels		2 (A,B)
Supply voltage	V	5
Supply current	mA	≤20
Max. output current/channel	mA	3
Max. frequency	kHz	20
Operating temperature	°C	-20...+65
Length L		
└DCU16025	mm	37.5
└DCU16035	mm	47.5
└DCU17025	mm	37.5
└DCU17035	mm	47.5
└DCU24032	mm	43.3

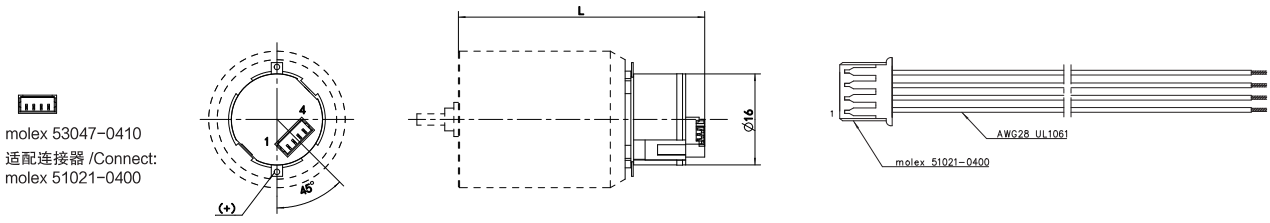
Connection

PIN No.	Function
1	Vcc
2	Channel B
3	GND
4	Channel A

Output Signal



Dimension



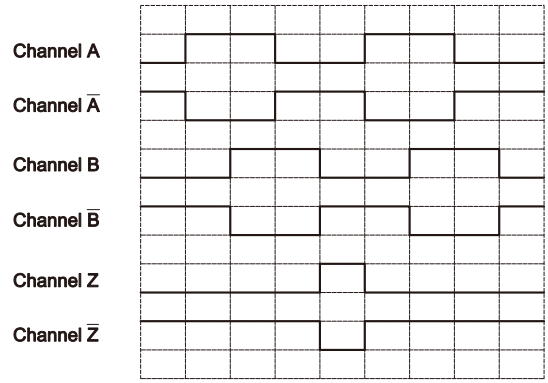
M16 Magnetic Encoder Ø16mm 3 Channels

Encoder Data		
Pulses per revolution		1-1024
Number of channels		3 (A,B,Z)
Supply voltage	V	5
Supply current	mA	≤22
Max. output current/channel	mA	20
Max. frequency	kHz	1024
Operating temperature	°C	-40...+100
Length		
└ ECU16024	mm	32.9
└ ECU16036	mm	44.5
└ ECU22032	mm	43.5
└ ECU22048	mm	60.0

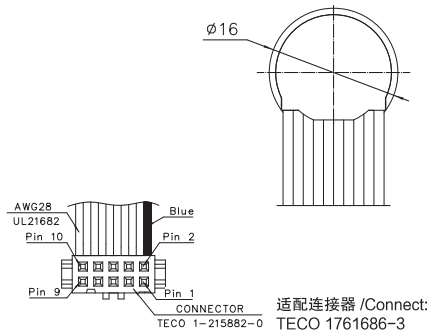
Connection

PIN No.	Function
1	N.C
2	Vcc(5V)
3	GND
4	N.C
5	Channel $\overline{A}$
6	Channel A
7	Channel $\overline{B}$
8	Channel B
9	Channel $\overline{Z}$
10	Channel Z

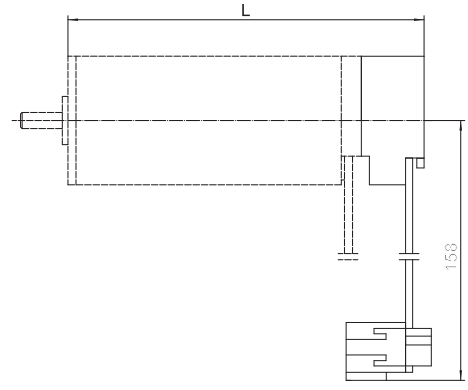
Output Signal



Dimension



适配连接器 /Connect:
TECO 1761686-3



MA16 Magnetic Encoder Ø16mm Single-turn absolute

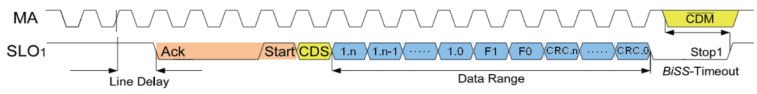
Encoder Data			Option
Steps per turn		4096	4096
Resolution (bit single turn)		12 Bits	12 Bits
Signal protocol		BiSS-C	SSI
Data encoding		Binary	Gray Symmetric
Min. clock frequency CLK (MHz)	MHz	0.6	0.04
Max. clock frequency CLK (MHz)	MHz	10	4
Timeout (ms)	µs	2	16
Supply voltage	V	5 ±10%	5 ±10%
Typical current	mA	17	17
Output current	mA	20	20
Setup time after Power On	ms	≤4	≤4
Operating temperature	°C	-40...+100	-40...+100
Length			
└ ECU16024	mm	32.9	32.9
└ ECU16036	mm	44.5	44.5
└ ECU22032	mm	43.5	43.5
└ ECU22048	mm	60.0	60.0

Connection

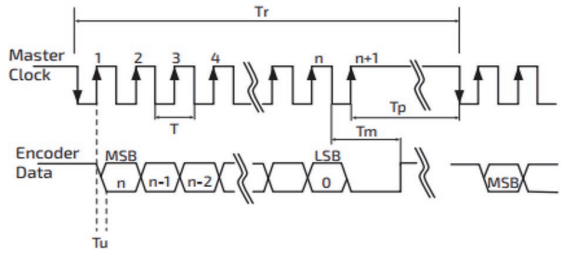
PIN No.	Function
1	Data
2	Vcc(5V)
3	GND
4	CLK
5	Do not connect $\overline{A}$ *
6	Do not connect A *
7	Do not connect $\overline{B}$ *
8	Do not connect B *
9	Do not connect $\overline{I}$ *
10	Do not connect I *

* Applying voltage to these pins will destory the encoder

Output Signal

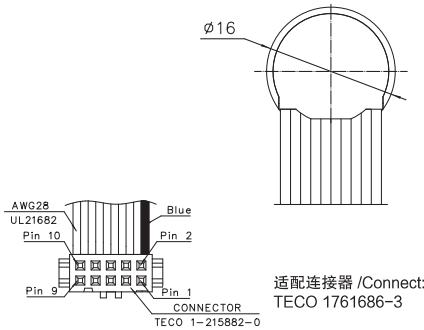


BiSS-C Protokoll

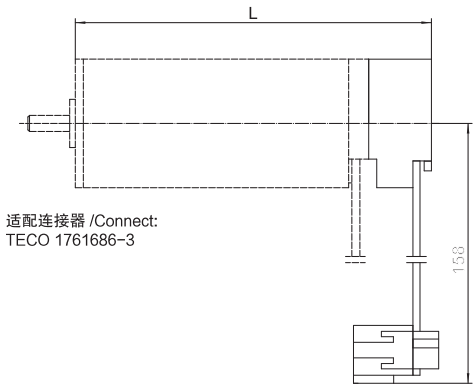


SSI Protokoll

Dimension



适配连接器 /Connect:
TECO 1761686-3



适配连接器 /Connect:
TECO 1761686-3

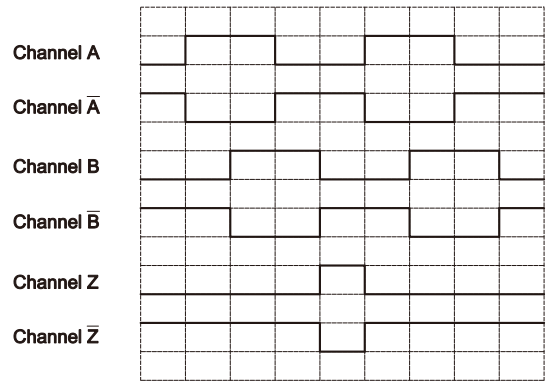
MC16 Magnetic Encoder Ø16mm 3 Channels

Encoder Data			Option
Pulses per revolution		8192	16384
Number of channels		3 (A,B,Z)	3 (A,B,Z)
Supply voltage	V	5	5
Supply current	mA	≤22	≤22
Max. output current/channel	mA	28	28
Max. frequency	kHz	8192	8192
Operating temperature	°C	-40...+100	-40...+100
Max. speed		20000	10000
Length			
└ ECU16024	mm	32.9	32.9
└ ECU16036	mm	44.5	44.5
└ ECU22032	mm	43.5	43.5
└ ECU22048	mm	60.0	60.0

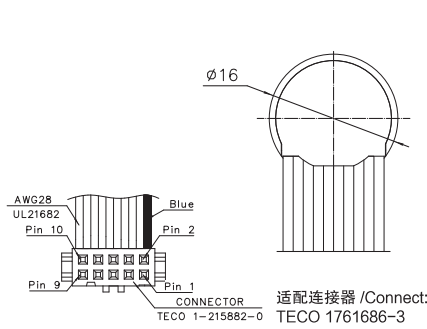
Connection

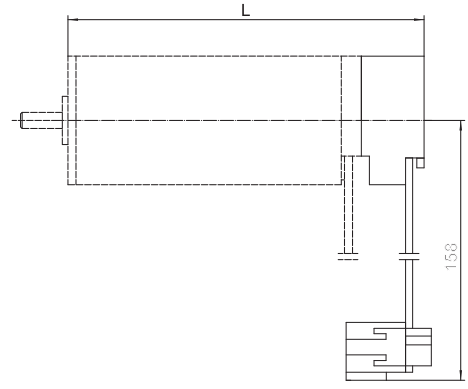
PIN No.	Function
1	N.C
2	Vcc(5V)
3	GND
4	N.C
5	Channel $\overline{A}$
6	Channel A
7	Channel $\overline{B}$
8	Channel B
9	Channel $\overline{Z}$
10	Channel Z

Output Signal



Dimension





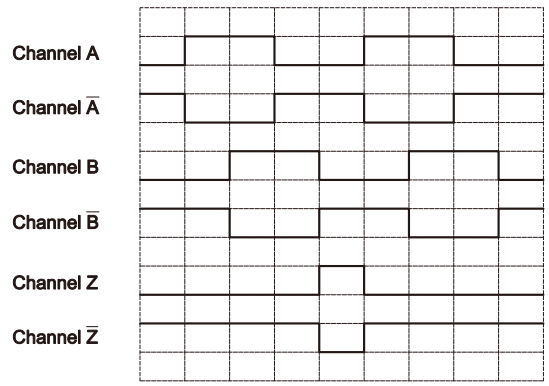
MH22 Magnetic Encoder Ø22mm 3 Channels

Encoder Data		
Pulses per revolution		1-1024
Number of channels		3 (A,B,Z)
Supply voltage	V	5
Supply current	mA	≤17
Max. output current/channel	mA	20
Max. frequency	kHz	1024
Operating temperature	°C	-40...+100
Length		
└ ECT22064	mm	64.0
└ ECT22035	mm	35.0
└ ECH22045	mm	45.0
└ ECT22064	mm	60.0

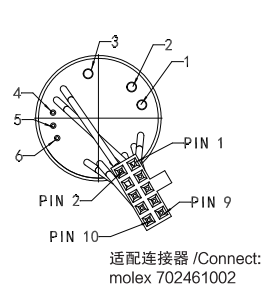
Connection

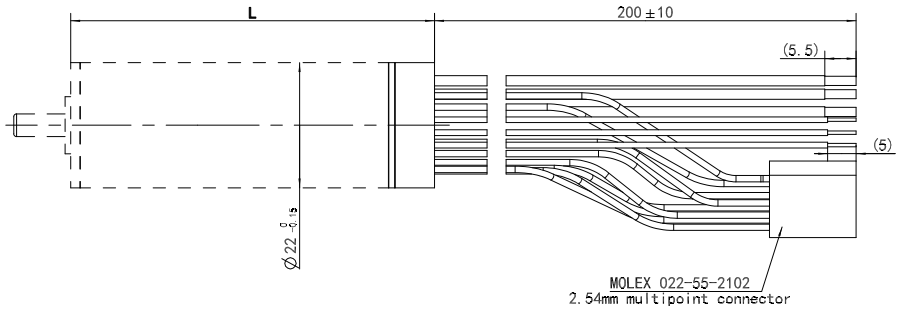
PIN No.	Function
1	N.C
2	Vcc(5V)
3	GND
4	N.C
5	Channel $\overline{A}$
6	Channel A
7	Channel $\overline{B}$
8	Channel B
9	Channel $\overline{Z}$
10	Channel Z

Output Signal



Dimension





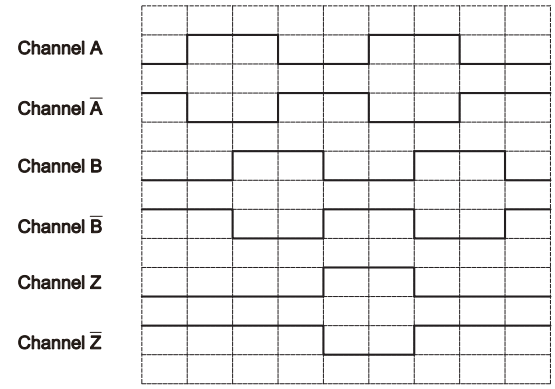
N18 Optical Encoder Ø18mm 3 Channels

Encoder Data		
Pulses per revolution		1000
Number of channels		3 (A,B,Z)
Supply voltage	V	5
Supply current	mA	≤30
Max. output current/channel	mA	20
Max. frequency	kHz	240
Operating temperature	°C	-10...+85
Length		
└ ECU22032	mm	48.5
└ ECU22048	mm	64.5

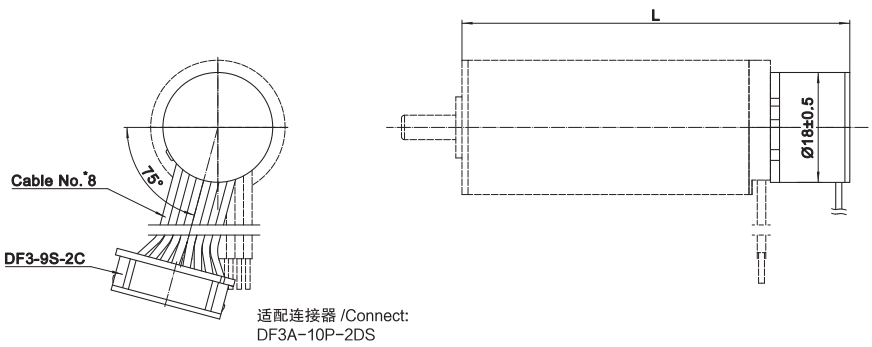
Connection

PIN No.	Function
1	Vcc(5V)
2	GND
3	Channel A
4	Channel $\overline{A}$
5	Channel B
6	Channel $\overline{B}$
7	Channel Z
8	Channel $\overline{Z}$

Output Signal



Dimension



P22 Magnetic Encoder Ø22mm Multi-turn absolute

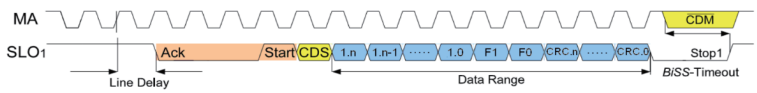
Encoder Data

Steps per turn		131072
Resolution (bit single turn)		17 Bits
Signal protocol		16 Bits (65536)
Data encoding		BiSS-C
Min. clock frequency CLK (MHz)		Binary
Max. clock frequency CLK (MHz)	MHz	0.08
Timeout (ms)	MHz	10
Supply voltage	µs	18
Typical current	V	5 ±10%
Output current	mA	90
Setup time after Power On	ms	≤100
Operating temperature	°C	-40...+100
Length		
└ ECU22032	mm	61.5
└ ECU22048	mm	77.5
└ ECU26056	mm	85.5
└ ECU30042	mm	71.5
└ ECU30064	mm	93.5

Connection

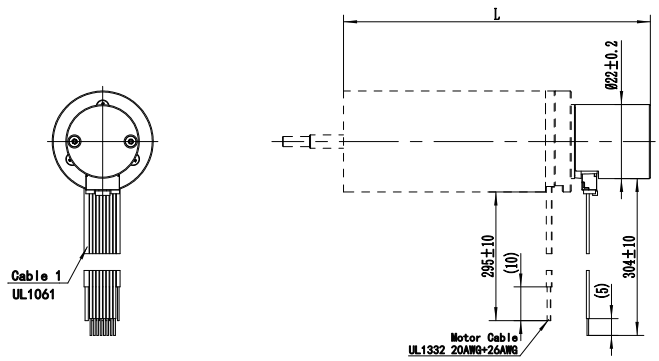
PIN No.	Function
1	GND
2	Preset(default 0 position value)
3	Config(UART)
4	Data + (SLO+)
5	Data − (SLO−)
6	CLOCK − (MA−)
7	CLOCK +(MA+)
8	VCC(4.5 − 5.5 Vdc)

Output Signal



BiSS-C Protokoll

Dimension



M24 Magnetic Encoder Ø24mm 3 Channels

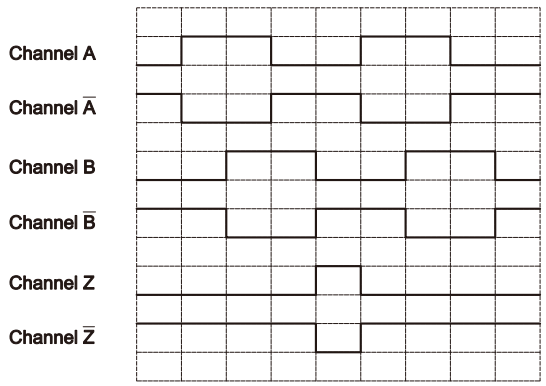
Encoder Data

Pulses per revolution		1-1024
Number of channels		3 (A,B,Z)
Supply voltage	V	5
Supply current	mA	≤22
Max. output current/channel	mA	20
Max. frequency	kHz	1024
Operating temperature	°C	-40...+100
Length		
└ ECU26056	mm	66.2
└ ECU30042	mm	52.2
└ ECU30064	mm	74.2

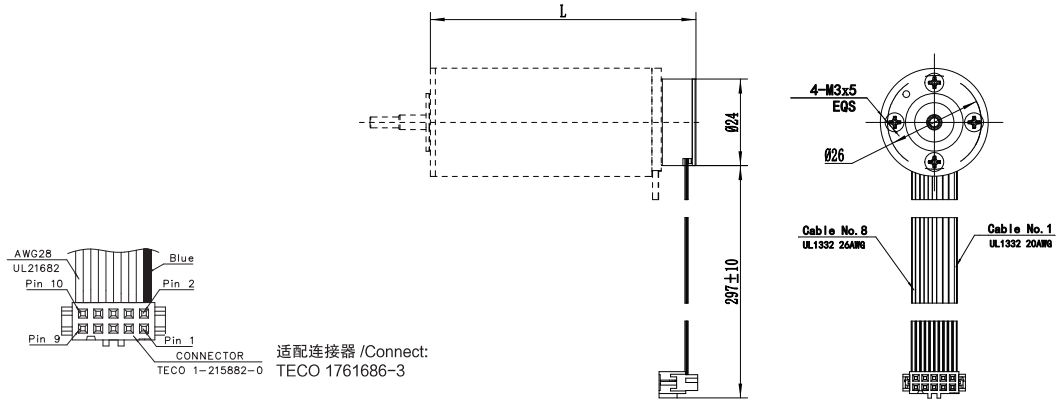
Connection

PIN No.	Function
1	N.C
2	Vcc(5V)
3	GND
4	N.C
5	Channel $\overline{A}$
6	Channel A
7	Channel $\overline{B}$
8	Channel B
9	Channel $\overline{Z}$
10	Channel Z

Output Signal



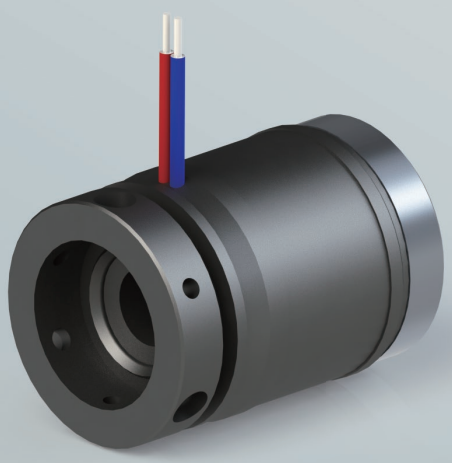
Dimension



适配连接器 /Connect:
TECO 1761686-3

Brake

NEW B20

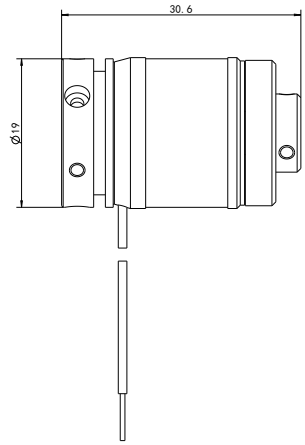


B20 Brake 24VDC 0.1Nm

Brake Data		
Maximum allowable static braking torque	Nm	0.1
Maximum speed	rpm	49000
Weight	g	29
Ambient temperature	°C	-60...+120
Nominal voltage	VDC	24 ±10%
Resistance	Ω	277
Response time − Suction	ms	≤12
Response time − Release	ms	≤25
Length		
└ ECU22032	mm	62.6
└ ECU22048	mm	78.6
└ ECU26056	mm	86.6
└ ECU30042	mm	72.6
└ ECU30064	mm	94.6

Connection	
PIN No.	Function
Red	+24 VDC
Blue	GND

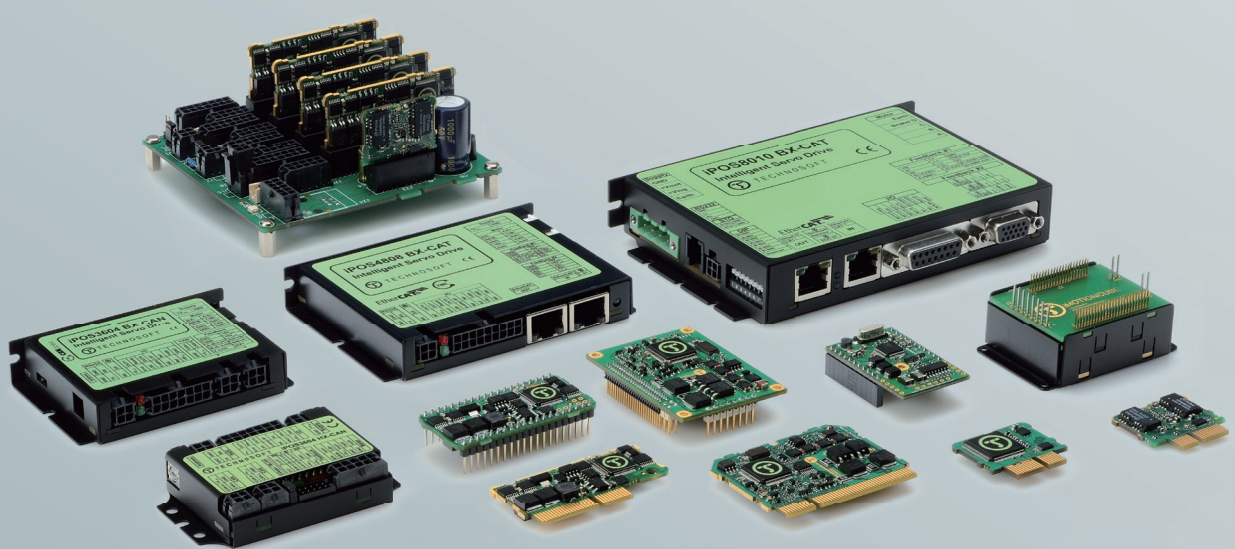
Dimension



Note

Controller

NEW MCSE5005
iPOS3602
iPOS3604
NEW iPOS4803
iPOS4808



MCSE5005 Micro Servo Drive

MCSE5005-CF-COM

Supported motor type		
		Brushless DC (slotless)
Sensors		
		Incremental encoder
		Digital Hall sensor
Control mode		
		Speed control
Electrical Data		
Motor supply voltage	VDC	12 – 50
Logical supply voltage	VDC	12 – 50
Output current (continuous)	A	5@12V / 1.25@48V
Output current (peak)	A	8@12V / 3@48V(<30 s)
PWM switching frequency	kHz	50
Operation ambient temperature	° C	-30...+45
Operation ambient humidity	%Rh	5...90
Storage ambient temperature	° C	-40...+85
Storage ambient humidity	%Rh	0...100
Dimensions (L x W x H)	mm	120 x 76 x 25
Weight	g	254
Mounting		closed-frames
Communication		
		UART

iPOS Intelligent Servo Drive

With Embedded Motion Controller

TECHNOSOFT

		iPOS3602 VX/MX	iPOS3604 VX/MX
Supported motor type			
		Brushed DC (coreless)	Brushed DC (coreless)
		Brushless DC (slotless)	Brushless DC (slotless)
		Stepper	Stepper
		Linear motor	Linear motor
Sensors			
		Incremental encoder	Incremental encoder
		Digital Hall sensor	Digital Hall sensor
		Linear Hall sensor	Linear Hall sensor
		Analog input (Tacho)	Analog input (Tacho)
Control mode			
		Torque control	Torque control
		Speed control	Speed control
		Position control	Position control
Electrical Data			
Motor supply voltage	VDC	12 – 36	12 – 36
Logical supply voltage	VDC	12 – 36	12 – 36
Output current (continuous)	A	2	4
Output current (peak)	A	3.2	10
PWM switching frequency	kHz	100	100
Operation ambient temperature	℃	0...+65	0...+65
Operation ambient humidity	%Rh	0...90	0...90
Storage ambient temperature	℃	−40...+85	−40...+85
Storage ambient humidity	%Rh	0...100	0...100
Dimensions (L x W x H)	mm	56 x 29 x 7(VX)	57 x 29 x 7(VX)
		55 x 26 x 13(MX)	56 x 26 x 13(MX)
Weight	g	10(VX) / 8(MX)	10(VX) / 9(MX)
Mounting		plug-in module	plug-in module
Communication			
		RS232	RS232
		CAN/CANopen/TMLCAN	CAN/CANopen/TMLCAN
		EtherCAT	EtherCAT

iPOS Intelligent Servo Drive

With Embedded Motion Controller

TECHNOSOFT

iPOS3602 HX/BX

iPOS3604 HX/BX

Supported motor type			
		Brushed DC (coreless)	Brushed DC (coreless)
		Brushless DC (slotless)	Brushless DC (slotless)
		Stepper	Stepper
		Linear motor	Linear motor
Sensors			
		Incremental encoder	Incremental encoder
		Digital Hall sensor	Digital Hall sensor
		Linear Hall sensor	Linear Hall sensor
		Analog input (Tacho)	Analog input (Tacho)
Control mode			
		Torque control	Torque control
		Speed control	Speed control
		Position control	Position control
Electrical Data			
Motor supply voltage	VDC	12 – 36	12 – 36
Logical supply voltage	VDC	12 – 36	12 – 36
Output current (continuous)	A	2	4
Output current (peak)	A	3.2	10
PWM switching frequency	kHz	100	100
Operation ambient temperature	℃	0...+65	0...+65
Operation ambient humidity	%Rh	0...90	0...90
Storage ambient temperature	℃	−40...+85	−40...+85
Storage ambient humidity	%Rh	0...100	0...100
Dimensions (L x W x H)	mm	73 x 45 x 16(HX)	74 x 45 x 16(HX)
		80 x 55 x 16(BX)	81 x 55 x 16(BX)
Weight	g	48(HX) / 70(BX)	48(HX) / 71(BX)
Mounting		closed-frames	closed-frames
Communication			
		RS232	RS232
		CAN/CANopen/TMLCAN	CAN/CANopen/TMLCAN

iPOS Intelligent Servo Drive

With Embedded Motion Controller

TECHNOSOFT

		iPOS4803 P	iPOS4803 Y
Supported motor type			
		Brushed DC (coreless)	Brushed DC (coreless)
		Brushless DC (slotless)	Brushless DC (slotless)
		Stepper	Stepper
		Linear motor	Linear motor
Sensors			
		Incremental encoder	Incremental encoder
		SSI, EnDAT, BiSS absolute encoder	SSI, EnDAT, BiSS absolute encoder
		Digital Hall sensor	Digital Hall sensor
		Linear Hall sensor	Linear Hall sensor
		Analog input (Tacho)	Analog input (Tacho)
Control mode			
		Torque control	Torque control
		Speed control	Speed control
		Position control	Position control
Electrical Data			
Motor supply voltage	VDC	7 – 48	7 – 48
Logical supply voltage	VDC	6 – 48	6 – 48
Output current (continuous)	A	3	3
Output current (peak)	A	14	14
PWM switching frequency	kHz	100	100
Operation ambient temperature	℃	0...+65	0...+65
Operation ambient humidity	%Rh	0...90	0...90
Storage ambient temperature	℃	−40...+85	−40...+85
Storage ambient humidity	%Rh	0...100	0...100
Dimensions (L x W x H)	mm	38.1 x 25 x 8.4	40.6 x 38.6 x 32.7
Weight	g	TBD	TBD
Mounting		plug-in module	closed-frames
Communication			
		RS232/USB	RS232/USB
		CAN/CANopen/TMLCAN	CAN/CANopen/TMLCAN
		EtherCAT	EtherCAT
		Analog / Pulse	Analog / Pulse

iPOS Intelligent Servo Drive

With Embedded Motion Controller

TECHNOSOFT

iPOS4808 VX

iPOS4808 MY

Supported motor type			
		Brushed DC (coreless)	Brushed DC (coreless)
		Brushless DC (slotless)	Brushless DC (slotless)
		Stepper	Stepper
		Linear motor	Linear motor
Sensors			
		Incremental encoder	Incremental encoder
		SSI, EnDAT, BiSS absolute encoder	SSI, EnDAT, BiSS absolute encoder
		Digital Hall sensor	Digital Hall sensor
		Linear Hall sensor	Linear Hall sensor
		Analog input (Tacho)	Analog input (Tacho)
Control mode			
		Torque control	Torque control
		Speed control	Speed control
		Position control	Position control
Electrical Data			
Motor supply voltage	VDC	12 – 48	12 – 48
Logical supply voltage	VDC	12 – 36	12 – 36
Output current (continuous)	A	8	8
Output current (peak)	A	20	20
PWM switching frequency	kHz	100	100
Operation ambient temperature	℃	0...+65	0...+65
Operation ambient humidity	%Rh	0...90	0...90
Storage ambient temperature	℃	−40...+85	−40...+85
Storage ambient humidity	%Rh	0...100	0...100
Dimensions (L x W x H)	mm	56 x 44 x 7	60 x 44 x 12
Weight	g	18	20
Mounting		plug-in	plug-in
Communication			
		RS232	RS232
		CAN/CANopen/TMLCAN	CAN/CANopen/TMLCAN
		EtherCAT	EtherCAT
		Analog / Pulse	Analog / Pulse

iPOS Intelligent Servo Drive

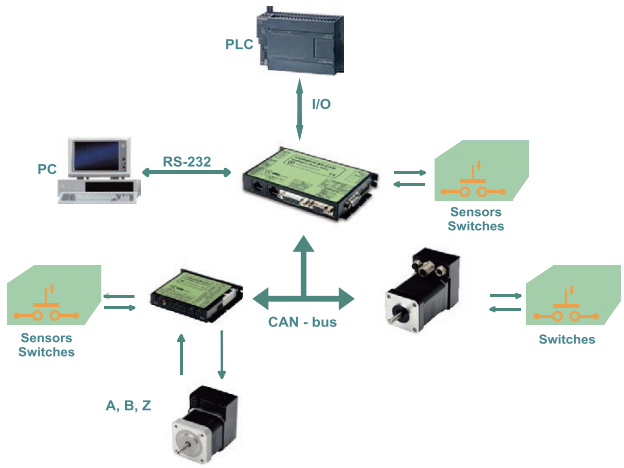
With Embedded Motion Controller

TECHNOSOFT

iPOS4808 MY CAN/CAT -STO COMBO

iPOS4808 BX

Supported motor type			
		Brushed DC (coreless)	Brushed DC (coreless)
		Brushless DC (slotless)	Brushless DC (slotless)
		Stepper	Stepper
		Linear motor	Linear motor
Sensors			
		Incremental encoder	Incremental encoder
		SSI, EnDAT, BiSS absolute encoder	SSI, EnDAT, BiSS absolute encoder
		Digital Hall sensor	Digital Hall sensor
		Linear Hall sensor	Linear Hall sensor
		Analog input (Tacho)	Analog input (Tacho)
Control mode			
		Torque control	Torque control
		Speed control	Speed control
		Position control	Position control
Electrical Data			
Motor supply voltage	VDC	12 – 48	12 – 48
Logical supply voltage	VDC	12 – 36	12 – 36
Output current (continuous)	A	8	8
Output current (peak)	A	20	20
PWM switching frequency	kHz	100	100
Operation ambient temperature	℃	0...+65	0...+65
Operation ambient humidity	%Rh	0...90	0...90
Storage ambient temperature	℃	−40...+85	−40...+85
Storage ambient humidity	%Rh	0...100	0...100
Dimensions (L x W x H)	mm	60 x 44 x 21(CAN)	89 x 77 x 17(CAN)
		64 x 44 x 21(CAT)	103 x 71 x 17(CAT)
Weight	g	43(CAN) / 45(CAT)	110(CAN) / 120(CAT)
Mounting		plug-in	closed-frames
Communication			
		RS232	RS232
			CAN/CANopen/TMLCAN
		EtherCAT	EtherCAT
		Analog / Pulse	Analog / Pulse



Your Benefits

Compact and cost effective intelligent drives

- **All in one** : controller and drive in one unit
- **One for all** : same drive for DC, step, brushless or linear motors
- **Distributed intelligence** with :

CANopen CANopen EtherCAT EtherCAT

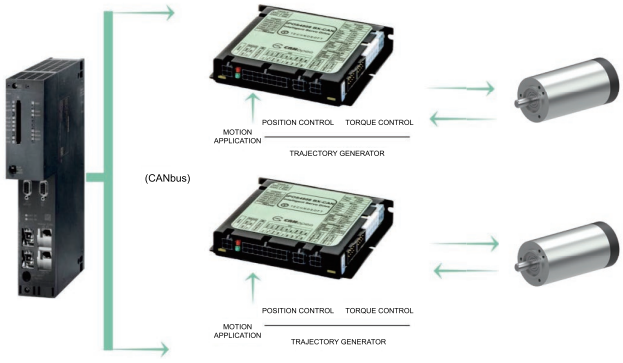
TMLCAN Ethernet ETHERNET

- **Advanced digital motion control** with MotionChip™ DSP technology :
  -PVT, S-curves, electronic camming, 3D motion commands
- **Easy implementation** with various motion libraries for PC / PLC
- **Graphical programming** with EasyMotion Studio

Intelligent Drives and Motors

Technosoft Intelligent Servo Drives belong to a new family of fully digital servo drives with embedded intelligence, based on the latest DSP controller technology. These state-of-the-art intelligent drives offer features usually found only in high-power servo-amplifiers:

- Software configurability to drive AC or DC brushless, DC brush or step motors
- Multi-mode motion operation: contouring, profiling, gearing, electronic camming
- Stand-alone or multi-axis configuration
- Typical feedback devices: tacho generators, incremental encoders, digital or linear Halls
- Distributed control over CAN, CANopen, EtherCAT, Ethernet



Technosoft Motion Language Examples

Through high level software programmability, Technosoft drives and motors offer extended flexibility and versatility resulting in easy-to-use solutions for a variety of motion control applications.

Single-Axis Servo, Stand Alone or Host Controlled

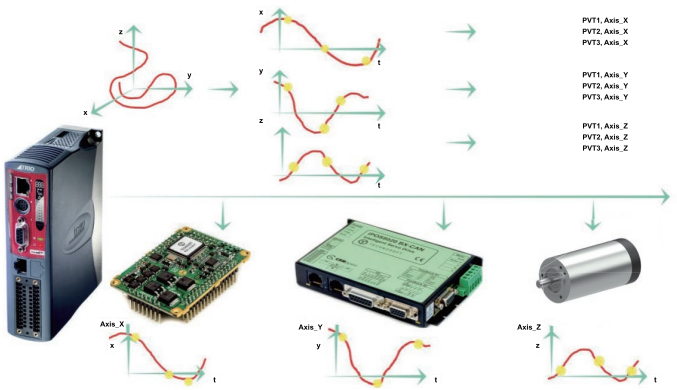
The drives can run a locally stored TML program, in stand-alone mode or they can be programmed and controlled from a host controller system, via a communication channel: RS-232, RS-485, EtherCAT or CAN-bus (with CAN / CANopen drive versions). 'Immediate' on-line commands and TML instructions (loading and running of programs, setup of parameters, queries on drive status) can be sent and executed.

Events and Interrupts Handling

Programmable events on Technosoft drives, combined with the TML specific interrupts structure, allow you to simultaneously handle different tasks as: protections, time intervals, I/O status or capture, control error or status variable values, besides the main program's TML motion sequences.

Multiple-Axis Coordination

In distributed multiple-axes structures, a host can provide data points to axes in the network (EtherCAT, CAN, CANopen or RS485). Also, locally stored motion profiles can be executed at the host's command, or coordinated via on-board I/Os. Moreover, any axis can request and receive information from other axes in the system, via specific TML commands.

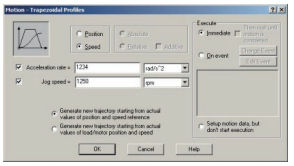


Multi-dimensional Paths (linear interpolation & vector mode)

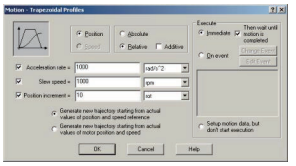
All Technosoft drives, together with the multi-axis controller TMC-3D, can execute 2D, $2^{1/2}$D or 3D coordinated moves. The trajectories are defined through a series of linear or circular segments. Optionally, for each segment a vector speed and acceleration can be specified. TMC-3D splits each segment into PVT points and sends these points to the slaves. On receiving the PVT points, the slaves rebuild their paths using 3rd order interpolation.

Multiple I/O Treatment / Multiple-Axis I/O Handshake

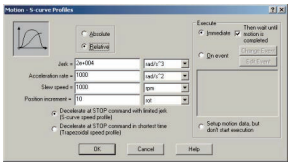
PLC-specific functionalities of Technosoft drives allow you to configure and use the I/O resources of the drive. Also the I/Os available on the drives allow you to create handshake structures between the axes, by appropriate TML programming. Activation of specific axes, completion of programmed tasks on axes, chaining of actions from one axis to another can easily be implemented, further increasing the flexibility of the motion system configuration.



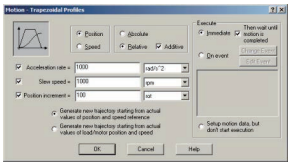
Trapezoidal Speed Profiles



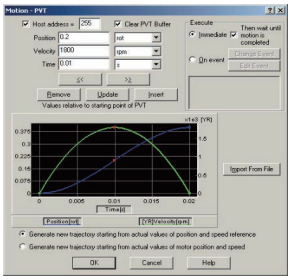
Trapezoidal Position Profiles



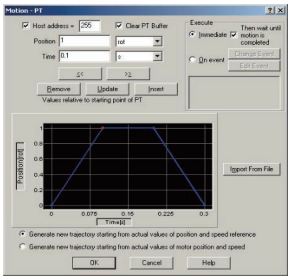
S-curve Profiles



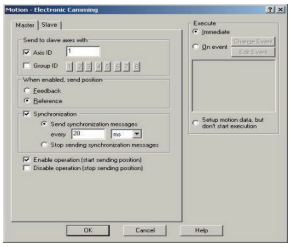
Additive Position Profile



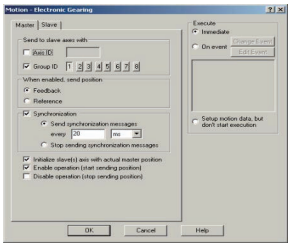
PVT Mode



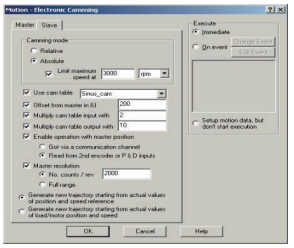
PT Mode



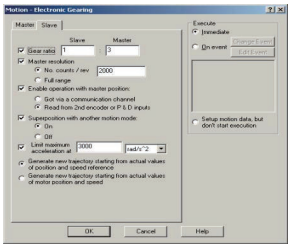
Electronic Camming - Master



Electronic Gearing - Master



Electronic Camming - Slave



Electronic Gearing - Slave

Technosoft Motion Modes

Technosoft drives and motors allow you to program their built-in motion controller in order to set different motion modes and trajectories — internal and external — depending on the way the motion reference is generated.

Trapezoidal Speed Profiles

Program a speed profile with a trapezoidal shape of the speed, due to a limited acceleration.

Trapezoidal Position Profiles

Program a position profile due to a limited acceleration. You must specify the position you want to reach, the acceleration / deceleration rate and the travel speed. The built-in reference generator computes the position trajectory, which results in a trapezoidal or triangular speed profile.

On-the-fly Change of Motion Parameters

Almost any motor mode can be switched to another mode on the fly. This feature is especially useful for position/speed control applications, where the target reference is provided by the internal trajectory generator using position / speed profile modes, position / speed contouring modes, electronic gearing, electronic cam and stop modes.

S-curve Profiles

Program a position profile with an S-curve shape of the speed. This shape is due to the jerk limitation, which leads to a trapezoidal or triangular profile of the acceleration, and to an S-curve speed profile.

PT Mode

Programs a positioning path described through a series of points where each point specifies the desired Position and Time (the PT data). Between points, the built-in reference generator performs a linear interpolation.

PVT Mode

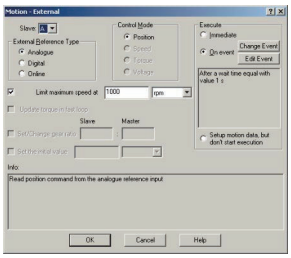
Programs a positioning path described through a series of points. Each point specifies the desired Position, Velocity and Time (the PVT data). Between points, the built-in reference generator performs a 3rd order interpolation.

Electronic Gearing

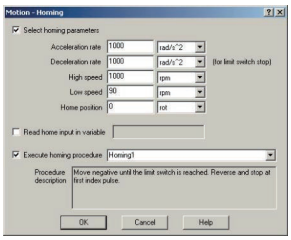
Sets the drive as a master or a slave for electronic gearing mode. When set as a master, the drive sends its position via a multi-axis communication channel, like the CANbus. The master sends either the load position or the position reference once, at each slow loop sampling time interval. When set as a slave, the drive follows the master's position with a programmable ratio. The slave can also superpose the electronic gearing movement with another mode.

Electronic Camming

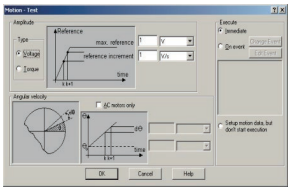
Similarly to the electronic gearing mode, the drives can be programmed to implement electronic camming. When set as master, the drive sends its position via a multi-axis communication channel. The master sends either the load position or the position reference once at each slow loop sampling time interval. When set as slave, a drive executes a cam profile function of the master position.



External Mode



Homing Mode



Test Mode

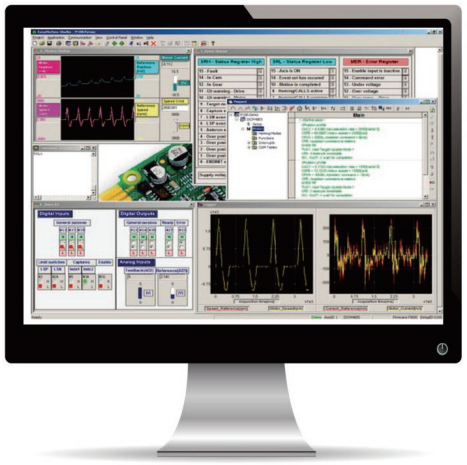
External Mode
Programs the drives to work with an external reference provided by another device. There are 3 types of external references: analogue, digital and online.

Additive Position Profile
On-the-fly end-point modification during drive's execution of the motion profile. While a motor is executes a position profile, a new target position can be specified by adding a new position increment to the 'old' target position.

Fast Position Capture
Lets you store motor/load positions based on the transition of a digital input, allowing close correlation of axis positions to external events.

Homing
Is a sequence of motions, usually executed after power-on, through which the load is positioned into a well-defined point.

Test Mode
Sets the drives in a special test configuration setup. This configuratio is supposed to be used during drive setup.



EasyMotion Studio

EasyMotion Studio gives you access to the performance of the Technosoft Motion Language (TML). The TML is a high-level set of instructions that can be used to configure and parameterize the MotionChip-based drives, and to execute advanced motion operations. EasyMotion Studio platform simplifies the setup and motion programming, as well as the development and graphical evaluation of your motion sequences.
With the EasyMotion Studio, you can:

- Define the system architecture
- Identify the parameters of the motor, sensor or load
- Tune and adjust digital control loops
- Define motion sequences, import G-code files (for TMC-3D)
- Build the application in TML for single or multi-axis
- Analyze and evaluate the dynamic behavior of your motion system through real time data acquisition

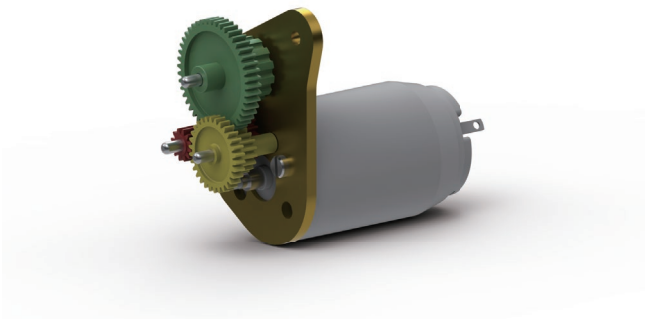
Motion Libraries for PCs and PLCs

Motion Libraries are collections of functions allowing you to implement motion control applications on a PC computer or PLC, in order to run Technosoft intelligent rives based on the MotionChip™ technology. They enable you to communicate with a drive, set up its parameters, interrogate about its status, send motion commands, define motion events, test input and set output port statuses.

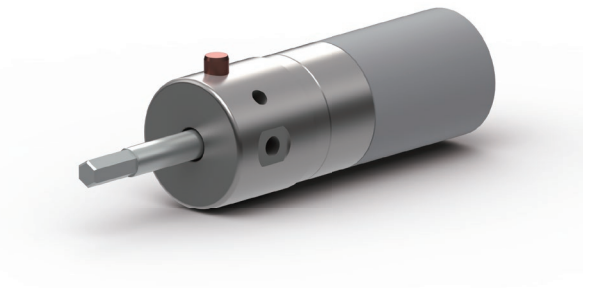
- **PC Motion Libraries running under Windows:** C/C++, C#, Visual Basic, Delphi Pascal and LabVIEW
- **PC Motion Libraries running under Linux:** C/C++
- **PLC Motion Libraries for Siemens, OMRON and B&R:** TML_LIB_S7, TML_LIB_ CJ1 and TML_LIB_x20

Technical

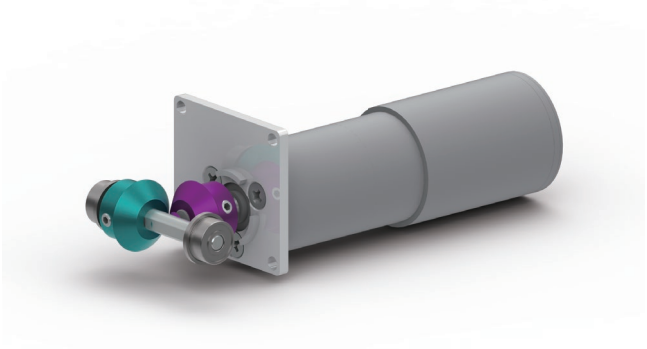
Customized Modules



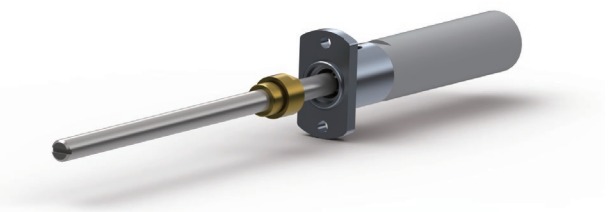
Gearbox



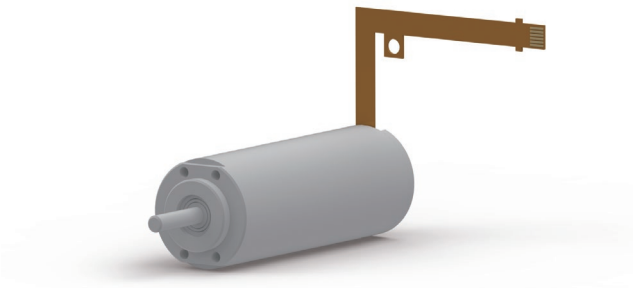
Shaft / Pin



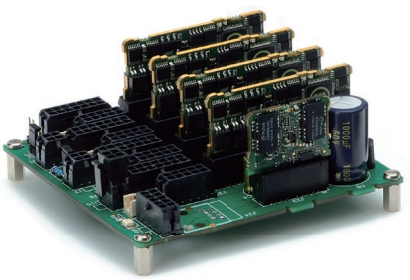
Gear



Screw

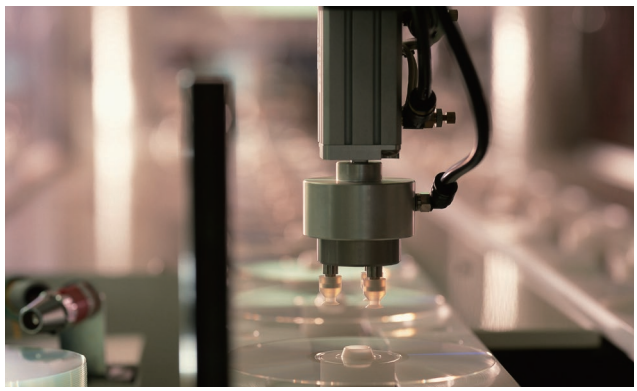


Cable / FPC

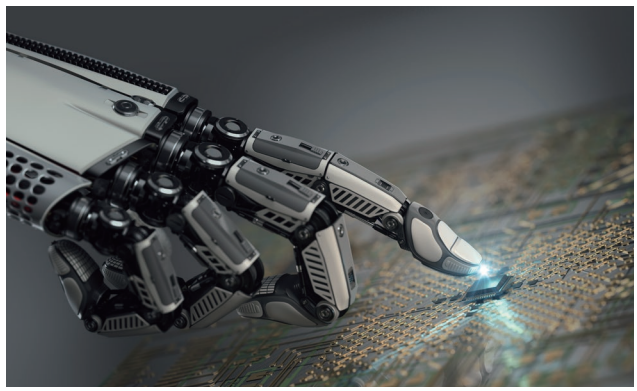


Drive

Application

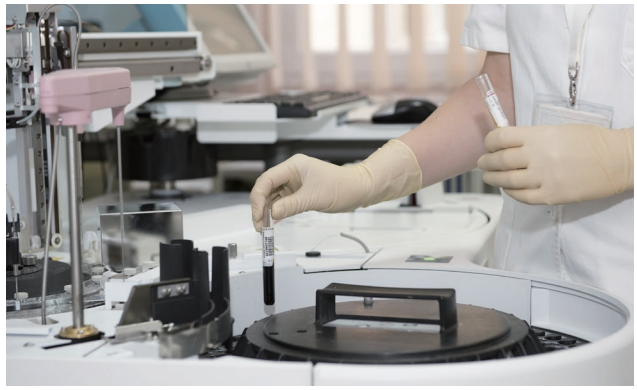


Factory Automation



Robotics

Medical Technology



Laboratory Automation

Aerospace

Measuring Technology

MOONS' Headquarter

Shanghai
168 Mingjia Road, Minhang District,
Shanghai 201107,P.R. China
Tel: +86 (0)21 52634688
Fax:+86 (0)21 52634098

MOONS' Taicang
No. 18 Yingang Rd, Fuqiao Town,
Taicang City
Jiangsu Province, 215434, P.R. China
Tel: +86 (0)512 80601118
Fax:+86 (0)512 80606808

Domestic Sales Offices

Shenzhen
Room 3901,39/F Building A,Zhongguan
Times Square,No 4168 Liuxian Avenue,
Nanshan District,
Shenzhen 518000 P.R. China
Tel: +86 (0)755 25472080
Fax:+86 (0)755 25472081

Beijing
Room 1206,Jing Liang Mansion, No.16
Middle Road of East 3rd Ring, Chaoyang
District, Beijing 100022, P.R. China
Tel: +86 (0)10 87661889
Fax:+86 (0)10 87661880

Nanjing
Room 1101-1102, Building 2, New Town
Development Center, No.126 Tianyuan
Middle Road, Jiangning District,
Nanjing 211106, P.R. China
Tel: +86 (0)25 52785841
Fax:+86 (0)25 52785485

Qingdao
Room1913,Scientific and Technological
Innovation Builing,Floor19,
No.171,ShanDong Road,Shibei District,
Qingdao 266033, P.R. China
Tel: +86 (0)532 80969935
Fax:+86 (0)532 80919938

Wuhan
Room 3001, World Trade Tower,
686 Jiefang Avenue, Jianghan District,
Wuhan 430022, P.R. China
Tel: +86 (0)27 85448742
Fax:+86 (0)27 85448355

Chengdu
Rm. 3907, Maoye Plaza, No.19,
Dongyu Street, Jinjiang Distrit,
Chengdu 610066, P.R. China
Tel: +86 (0)28 85268102
Fax:+86 (0)28 85268103

Xi' an
Room 1006, Tower D, Wangzuo
International City, 1 Tangyan Road,
Yanta District, Xi' an 710065, P.R. China
Tel: +86 (0)29 81870400
Fax:+86 (0)29 81870340

Ningbo
Room 309, Tower B, Taifu Plaza,
565 Jiangjia Road,Jiangdong District,
Ningbo 315040, P.R. China
Tel: +86 (0)574 87052739
Fax:+86 (0)574 87052365

Guangzhou
Room 4006, Tower B, China Shine Plaza,
No.9 Linhe Xi Road, Tianhe District,
Guangzhou 510610, P.R. China
Tel: +86 (0)20 38010153
Fax:+86 (0)20 38103661

Chongqing
Rm. 2108, South yuanzhu Buliding 20,
No.18 Fuquan Rd. , Jiangbei District,
Chongqing 400000, P.R. China.
Tel: +86 (0)23 67601782
Fax:+86 (0)23 67085997

Suzhou
Building 4, Huilin Square, 758 South Ring
East Road, Gusu District, Suzhou
Room 1103-1105, North Building,
Suzhou 215000 P.R. China.
Tel: 400-820-9661

MOONS' International Trading (Shanghai) Co., Ltd.

4/F, Building 30, No. 69 Guiqing Road,
Caohejin Hi-Tech Park, Xuhui District,
Shanghai 200233, P.R. China
Tel: +86 (0)21 64952755
Fax:+86 (0)21 64859949

Changzhou Yunkong Electronic Co., Ltd.

BLDC.2, Henglin Technology Innovation
Center No. 88 East Changhong Road Wujin
District, Changzhou 213100, P.R. China
Tel: +86 (0)519 88700355
Fax:+86 (0)519 88700229

Lin Engineering At Nanjing

No. 9 Science and Technology Innovation
Avenue, Jiangbei New Area, Nanjing
Intelligent F1- F3, Building C14,
Manufacturing Industrial Park,
Nanjing 210032, P.R. China
Tel: +86 (0)25 58844665

North America

MOONS' INDUSTRIES (AMERICA), INC.
Head Office
1113 North Prospect Avenue, Itasca,
IL 60143 USA
Tel: +1 630 8335940
Fax:+1 630 8335946

Boston Office
36 Cordage Park Circle, Suite 310
Plymouth, MA 02360 USA

APPLIED MOTION PRODUCTS, INC.
18645 Madrone Parkway.Morgan Hill,
CA 95037 USA
Tel: +1 831 7616555
+1 800 5251609

LIN ENGINEERING, INC.
16245 Vineyard Blvd., Morgan Hill, CA 95037
Tel: +1 408 9190200
Fax:+1 408 9190201

Europe

MOONS' INDUSTRIES (EUROPE) S.R.L.
Via Torri Bianche n.1 20871
Vimercate(MB) Italy
Tel: +39 (0)39 6260521
Fax:+39 (0)39 9631409

AMP & MOONS' AUTOMATION
(GERMANY) GMBH
Börsenstraße 15
60313 Frankfurt am Main Germany

TECHNOSOFT S.A.
Technosoft (Suisse) SA
Avenue des Alpes 20, 2000 Neuchâtel,
Switzerland.
Tel: +41 (0)32 7325500
Fax:+41 (0)32 7325504

TECHNOSOFT International
Strada Paduretu nr. 50, Sector 6 061992
Bucuresti ROMANIA
Tel: +40 (0)21 4259095
Fax:+40 (0)21 4259097

Singapore

MOONS' INDUSTRIES (SOUTH-EAST
ASIA) PTE. LTD.
33 Ubi Avenue 3 #08-23
Vertex Singapore 408868
Tel: +65 66341198
Fax:+65 66341138

Japan

MOONS' INDUSTRIES JAPAN CO., LTD.
Room 602, 6F, Shin Yokohama Koushin
Building, 2-12-1, Shin-Yokohama,
Kohoku-ku, Yokohama,Kanagawa,
222-0033, Japan
Tel: +81 (0)45 4755788
Fax:+81 (0)45 4755787

India

MOONS' INTELLIGENT MOTION SYSTEM
INDIA PVT. LTD.
Rm. 908, 9th Floor, Amar Business Park,
Tal. Haveli, Baner, Pune,India, 411045
Tel: +91 8698390002

Vietnam

MOONS' INDUSTRIES (VIETNAM) CO., LTD.
Addr: Factory C1&D1, Lot IN3-11*A, VSIP
Hai Phong Industrial Park in Dinh Vu – Cat
Hai Economic Zone, Lap Le Commune,
Thuy Nguyen District, Hai Phong City, Vietnam
Tel: +84 (0)225 3533 168

CHINA / 1ST PRINT / 1th / MAY / 2024

http:// www.moonsindustries.com
E-mail: info@moons.com.cn

MOONS'
moving in better ways

Chinese version Catalog

English version Catalog