



# K2/L2/RC2 BRUSHLESS DC GEAR MOTOR



# OVERVIEW OF MICRO BRUSHLESS DC GEAR MOTOR

The micro brushless DC gear motor is an upgrade of the micro AC gear motor, both in the electrical and mechanical properties have obvious advantages.

## Main features

- 100~2000r/min  
The speed control range is 100~2000r/min
- Speed adjustment rate  $\pm 0.5\%$
- Multi-speed section (Maximum 8)
- Vector can maintain torque (Up to 50% of rated torque)
- External parameter keyboard interface and 485 communication interface
- Equipped with monitoring and testing functions that can be used to test and avoid failure
- The motor is designed with no hall sensor, and the connecting wire between the motor and the driver is 50m long
- High efficiency and low energy consumption.
- Reasonable electromagnetic design, motor running more stable, lower noise
- Dustproof and waterproof (Protection class IP54)
- No protrusion at the output end for easy installation
- Reasonable gear parameters, reliable box structure, stronger bearing capacity
- High reliable sealing structure, low taper grease lubrication, longer life
- Small size, light weight, save more installation space

## Three optional speed reducers

● K2 Series



● L2 Series



● RC2 Series



Motor	Output power	Size	Ratio	Protection level	Driver
K2 Series	15W	60	5、10、15、20、30、50、100	IP54	C41 Series
	40W	80			
	120W	90			
	200W	90			
	200W	100			
	400W	100			
L2 Series	15W	60	5、10、15、20、30、50、100	IP54	C41 Series
	40W	80			
	120W	90			
	200W	90			
	200W	100			
	400W	100			
RC2 Series	40W	80	5、10、15、20、30、50、100	IP54	C41 Series
	120W	90			
	200W	90			
	200W	100			
	400W	100			

# BASIC CHARACTERISTICS OF INDUCTION BRUSHLESS MOTORS

The sensorless brushless motor removes the Hall sensing element of the sensorless brushless motor, reducing the sources of faults caused by the use of Hall. At the same time, it can make the distance between the motor and the drive longer. The application of reasonable control methods makes its operation more reliable and control more convenient.

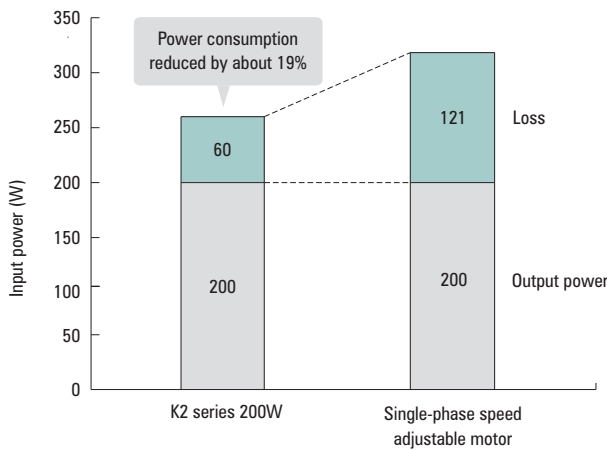
## Wide speed range

Product group	Speed control range*	Ratio
K2/L2 series	200~2000r/min	1:10
Three-phase induction motor controlled by frequency converter	200~2400r/min	1:12
AC speed adjustable motor	50HZ: 90~1400r/min	1:15

## Excellent energy-saving effect

The permanent magnet steel is used in the rotor part of the brushless motor, which reduces the secondary loss of the rotor and greatly reduces the power consumption. help save the energy of the device.

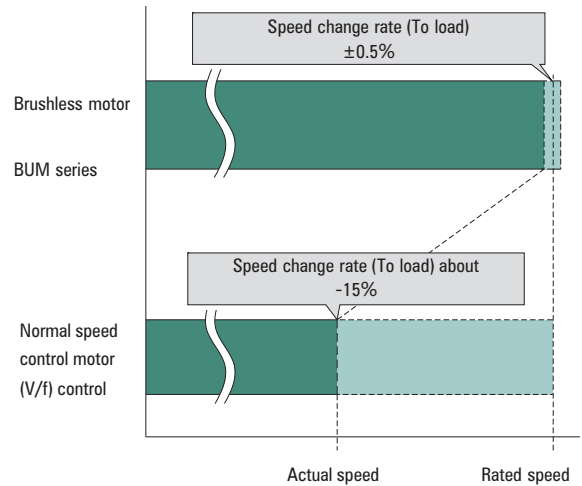
- Comparison with output of 200W  
Rated output 50Hz (Representative value)



## Superior speed stability

Achieve excellent speed stability within  $\pm 0.5\%$  of the load speed variation rate, and even when the load changes, there will be almost no speed changes caused by load changes such as frequency converters or AC speed governors.

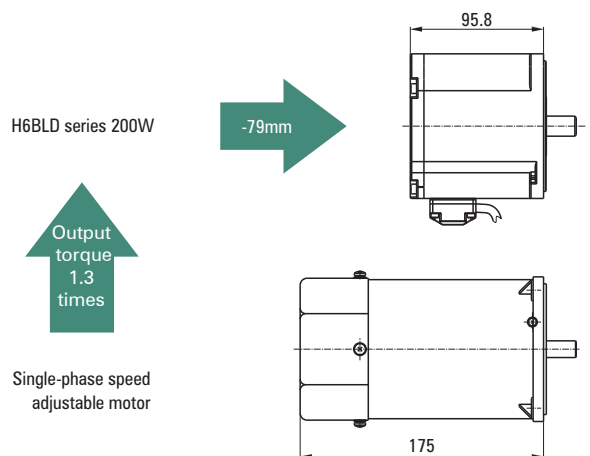
- Comparison of speed change at 80% loading rate (Reference value)



## Thin, lightweight

Brushless motor rotor using permanent magnet steel, so it's thin, light. Realize miniaturization of device.

- Comparison with output of 200W

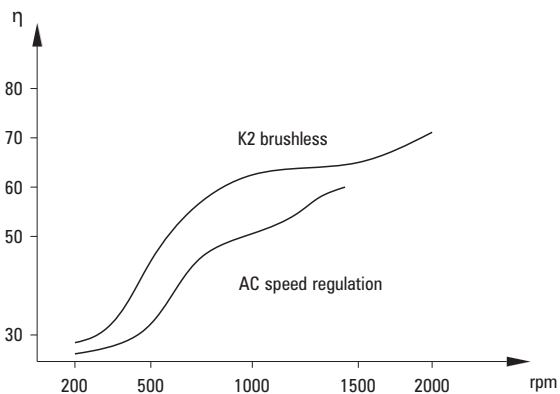


# BASIC CHARACTERISTICS OF INDUCTION BRUSHLESS MOTORS

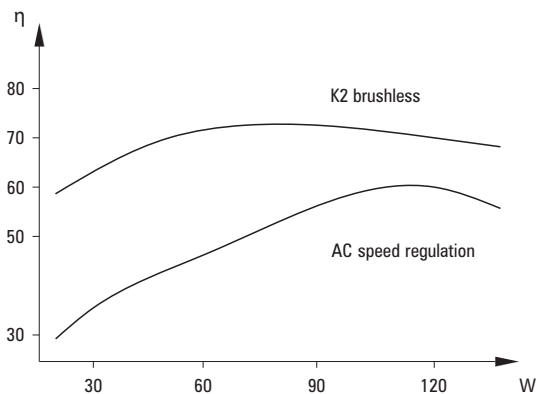
## Significant efficiency gains

From low speed to high speed, from light load to full load, the average efficiency of AC motor has incomparable advantages.

● Speed—Efficiency



● Power—Efficiency

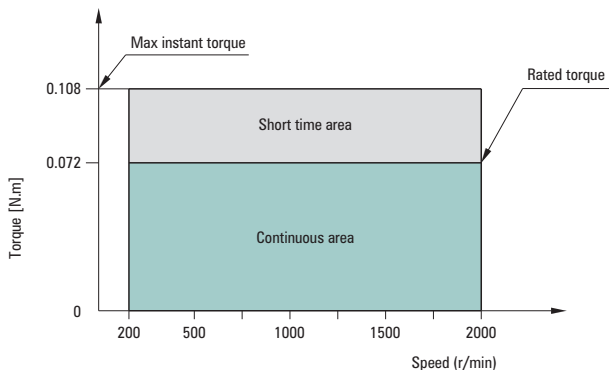


## SPEED — TORQUE CHARACTERISTICS

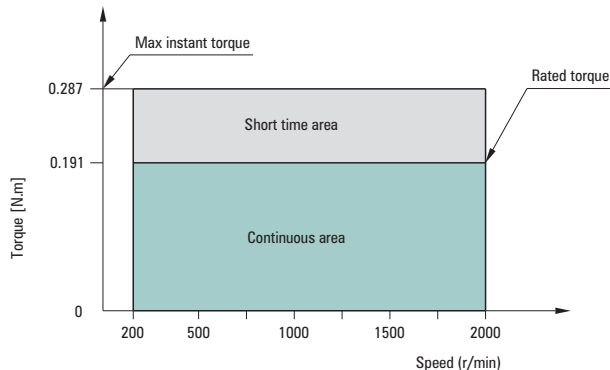
**Continuous operation field:**  The field in which continuous operation can be done.

**Short-term operation area:**  Mainly for use during acceleration.

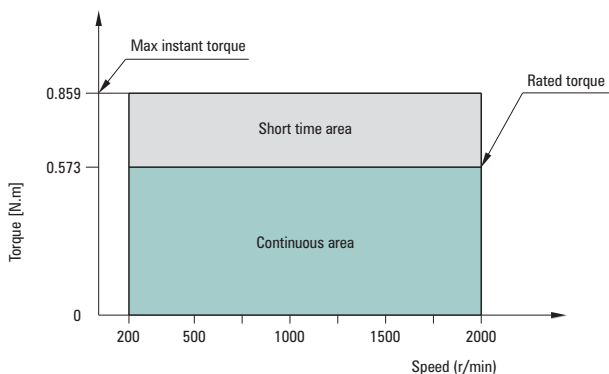
● 15W



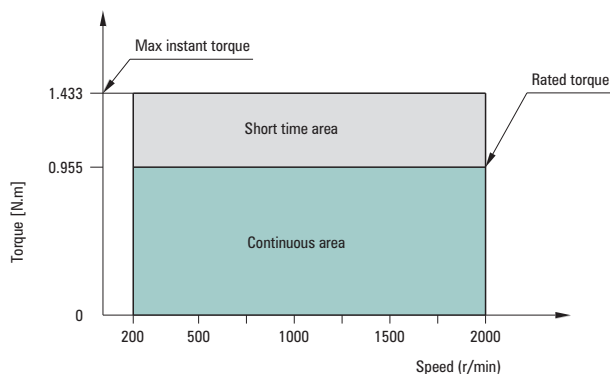
● 40W



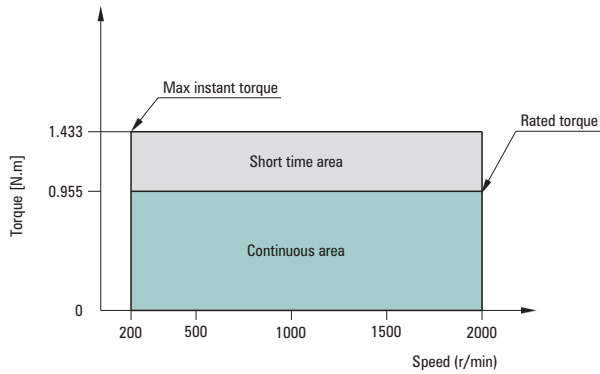
● 120W (90)



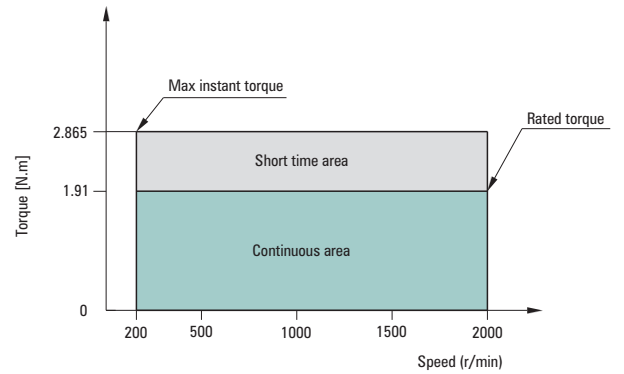
● 200W (90)



● 200W ( 104 )



● 400W ( 104 )



## GENERAL SPECIFICATION

Projects		Electric motor	Driver
Insulation resistance		After continuous operation in normal temperature and humidity, the measuring value between the coil and the casing of the motor is more than 20MΩ with DC500V high resistance meter.	After continuous operation at room temperature and humidity, the resistance between power supply terminal and protective grounding terminal, power supply terminal and input / output signal terminal is measured by DC500V high resistance meter over 100MΩ.
Insulation withstand voltage		After continuous operation at room temperature and constant humidity, there is no abnormality with a voltage of 50Hz and 60Hz, AC1.5kV between the coil and the shell.	After continuous operation under normal temperature and humidity, 50Hz, AC 1.5 kV are applied between power terminal and protective grounding terminal, 50Hz, AC 1.5 kV are applied between power terminal and input /output terminal for 1 minute without any abnormality.
Temperature rise		When installing a reducer or equivalent heat dissipation plate and conducting rated operation at room temperature and humidity, the temperature rise is of the winding is less than 80K measured by resistance method.	After rated continuous operation at normal temperature and humidity, the temperature rise of heat dissipation plate measured by thermocouple method is 40K.
Service environment	Ambient temperature	-10 ~ +40°C (No icing)	-10 ~ +40°C (No icing)
	Ambient humidity	Less than 85%(No dew)	
	Altitude	<b>Below 1000m</b>	
	Media environment	No corrosive gas and dust. Can Not contain radioactive material, magnetic field and vacuum and other special environment.	
Storage environment *2	Ambient temperature	-20 ~ +70°C (No icing)	-30 ~ +60°C (No icing)
	Ambient humidity	<b>Less than 90%(No dew)</b>	
	Altitude	Below 3000m	
Protection level *3		IP54	IP20

# GENERAL SPECIFICATION

\*1 In order to keep the surface temperature of the motor housing below 90°C, the round shaft motor shall be mounted on a heat sink plate (Material: Aluminum) of the following size.

15W type: 115×115mm thickness 5mm.      40W type: 135×135mm thickness 5mm.

120W type: 165×165mm thickness 5mm.      200W type: 200×200mm thickness 5mm.

\*2 Storage environment also includes short-term value in transit.

\*3 IP value indicating dustproof and waterproof performance is in accordance with IEC 60529 and IEC 60034-5 regulations.

Take notice of ・ Please do not conduct insulation resistance measurement and voltage withstand test when the motor is connected to the driver.

- ・ Material and surface treatment of motor.

[ Material: Housing-aluminum, output shaft-40Cr, screw-nickeling (Exposed part only, excluding protective ground terminal) ] [ Surface treatment: Housing: Powder coating (Excluding mounting surface) ]

## Reducer output shaft speed

Unit: r/min

Motor speed \ Ratio	5	10	15	20	30	50	100
100r/min	20	10	6.7	5	3.3	2	1
2000r/min	400	200	133	100	66.7	40	20

## K2/L2 Gearbox features

● Completely sealed	● Fully lubricated	● Higher strength (Comparison K/L)
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### ● Gearbox load torque

Model	Series	Load Torque (N.m)	Comparison Series	Load Torque (N.m)
2GN	K	3N.m	L	8N.m
	K2	5N.m	L2	10N.m
4GN	K	8N.m	L	16N.m
	K2	12N.m	L2	20N.m
5GN/5GU	K	20N.m	L	40N.m
	K2	30N.m	L2	50N.m
6GU	K	40N.m	L	108N.m
	K2	50N.m	L2	120N.m

L / L2 gearbox load torque comparison within the speed ratio range of 5~100

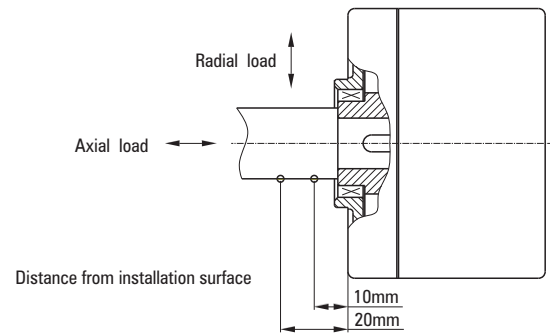
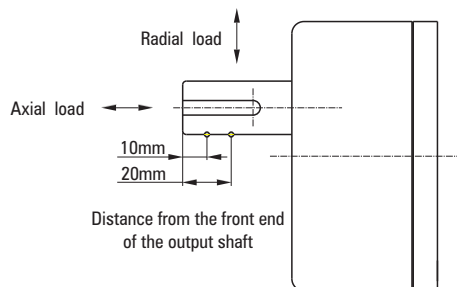
### ■ Permissible radial load permissible axial load

Reducer size	Ratio ( Motor 2000rpm )	Permissible radial load (N)		Allowable axial load (N)
		Distance from the front end of the output shaft		
		10mm	20mm	
60	5~15	100	160	30
	20~50	200	250	50
	100	300	450	80
80	5~20	200	250	110
	30~50	350	400	200
	100	500	600	250
90	5~10	300	350	100
	15	400	500	200
	20~100	500	600	250
100	5~10	500	600	150
	15	600	700	300
	20~100	700	800	450

### ■ Permissible radial load permissible axial load

Reducer size	Ratio ( Motor 2000rpm )	Permissible radial load (N)		Allowable axial load (N)
		Distance from installation surface		
		10mm	20mm	
60	5~10	450	370	200
	15~100	500	400	
80	5~10	800	660	400
	15~100	1200	1000	
90	5~10	900	770	500
	15~20	1300	1110	
	30~100	1500	1280	
100	5~10	1230	1070	800
	15~20	1680	1470	
	30~100	2040	1780	

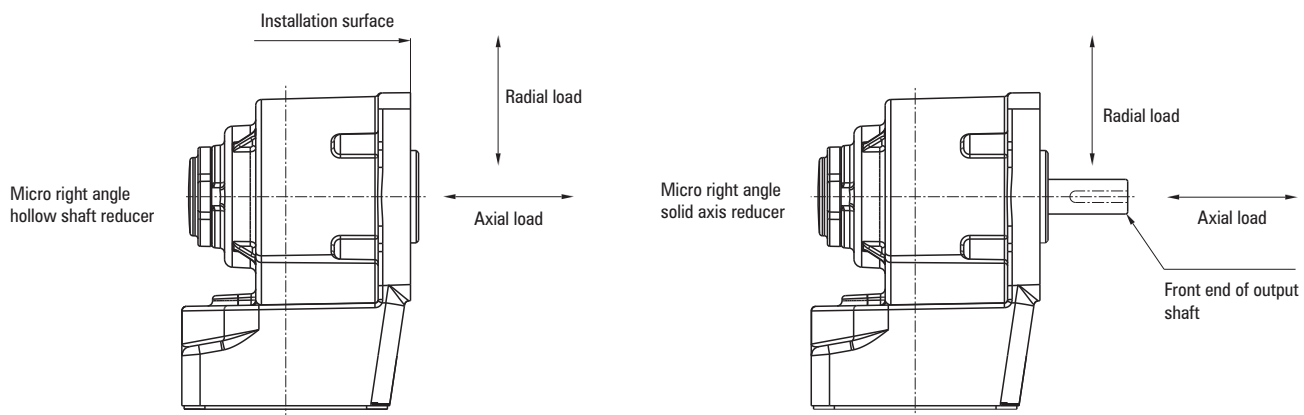
### ■ K2/L2 Axial and radial schematic diagram



■ Permissible radial load permissible axial load

Reducer size	Output shaft type	Permissible radial load (N)		Allowable axial load (N)
		Distance from the front section of the Zhongshi self output shaft and the distance from the hollow self installation surface		
		10mm	20mm	
80	Middle solid	950	1050	800
	Hollow	1200	1100	
90	Hollow	1200	1350	1100
	Hollow	1600	1450	
100	Hollow	1550	1450	1400
	Hollow	1650	1500	

■ RC2 Axial and radial schematic diagram



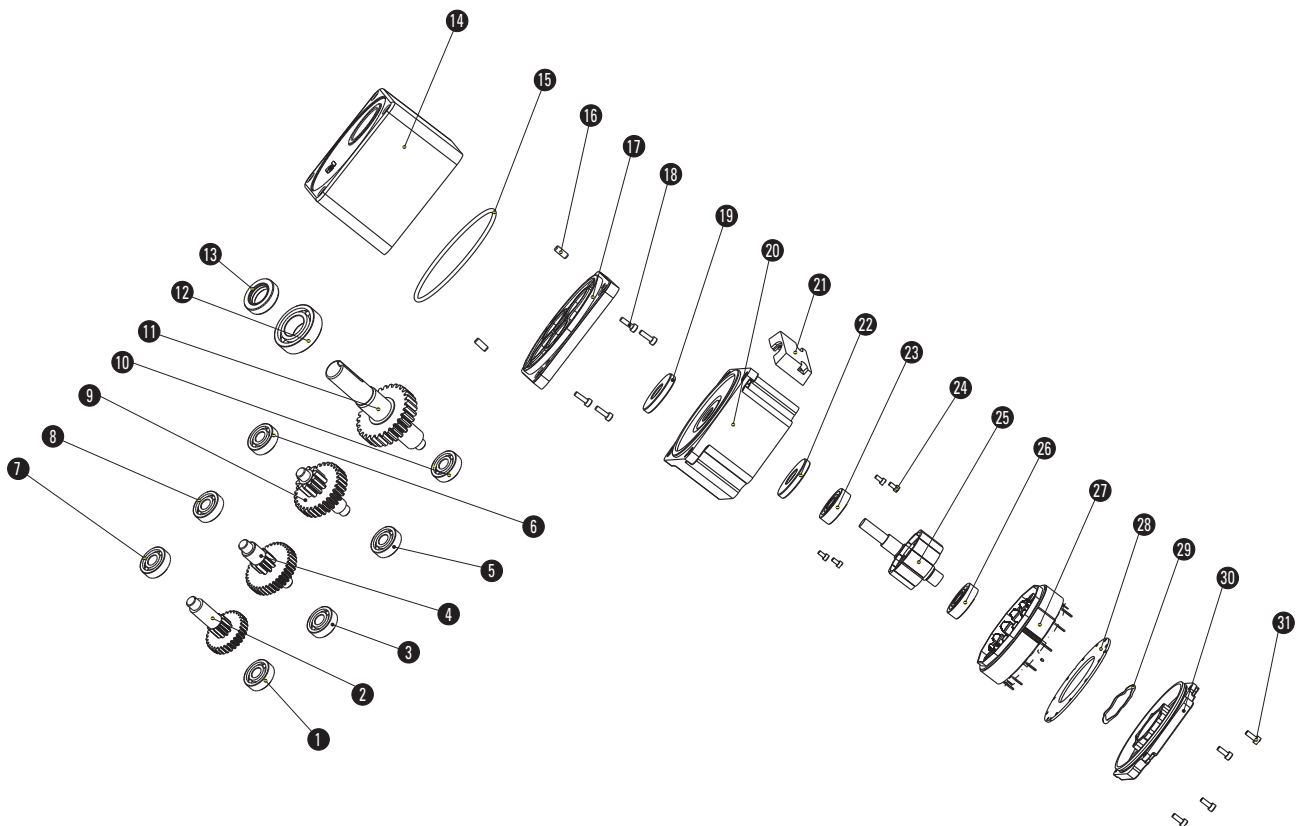
# PRODUCT CODE

## K2-series

H5   
 BLD   
 120   
 -   
 220   
 GK   
 -   
 20S   
 /   
 5GU   
 20K2

①	Size: 60×60 (H2-60×60/H4-80×80/H5-90×90/H6-104×104)
②	Motor type: Brushless
③	Power: 120W
④	Voltage: 220VAC
⑤	Type of reducer: GK (K2-series reducer)
⑥	Speed: 2000rpm
⑦	Reducer size: 60 (2GN-60×60/4GN-80×80/5GN/5GU-90×90/6GU-104×104)
⑧	Ratio: 20

## Product explosion diagram



## Parts list

1: Bearing	7: Bearing	14: Gearbox housing	21: Junction box	27: Stator core
2: 1st follower	8: Bearing	15: O-ring	22: Oil seal	28: Circuit board
3: Bearing	9: 3rd follower	16: Locating pin	23: Bearing	29: Spring wave washer
4: 2nd follower	10: Bearing	17: Gearbox cover	24: Hexagon cylindrical head	30: Back cover
5: Bearing	11: Output shaft	18: Hexagon socket head screws		31: Hexagon cylindrical head
6: Bearing	12: Bearing	19: Sealing washer	25: Rotor	
	13: Oil seal	20: Shell	26: Bearing	

# K2 SERIES GEAR MOTOR (15W)

## Name

- Parallel shaft reducer

Model number	Motor type	Type of reducer	Ratio
H2BLD15-220GK-20S/2GN□K2	H2BLD15-220GK-20S	2GN□K2	5 ~ 100

## Allowable torque

Unit: N·m

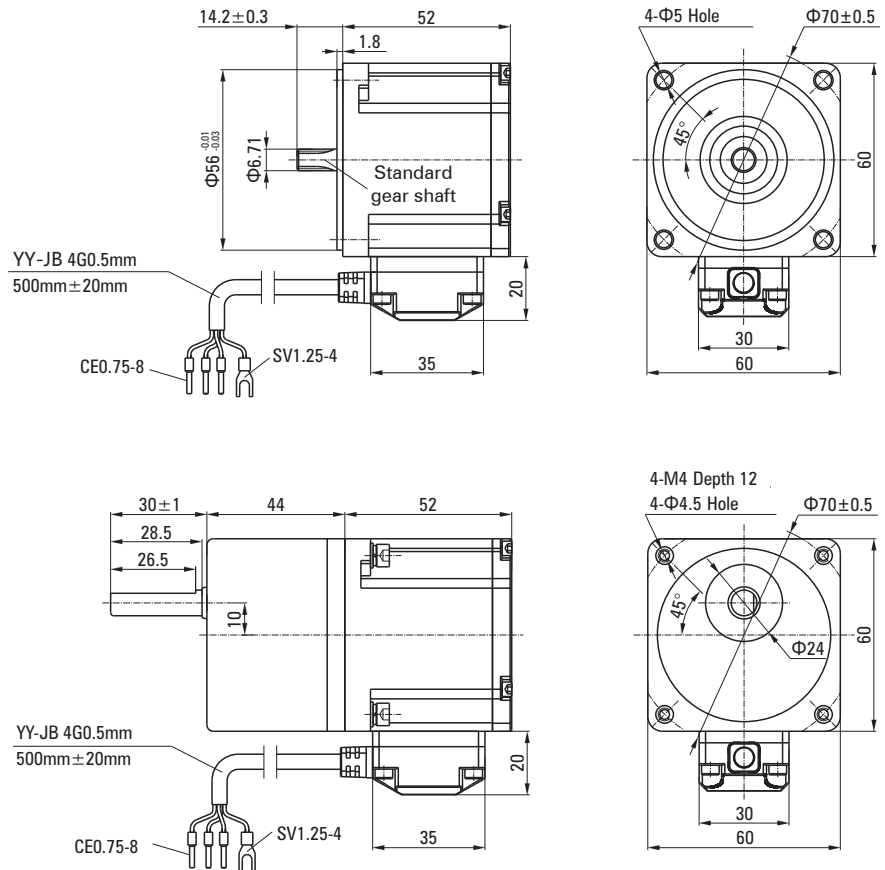
Output power	Motor speed	Ratio						
		5	10	15	20	30	50	100
15W	100 ~ 2000rpm	0.29	0.58	0.87	1.04	1.57	2.61	4.70

Note : The  (gray) indicates that the rotation direction of the gearbox shaft is opposite to the rotation direction of the motor. Others are in the same direction.

## Dimensional drawing

Phase line			Ground line
Yellow	Green	Blue	Yellow/Green
U	V	W	GND

The wiring diagram of the optical motor and the entire machine is the same



# K2 SERIES GEAR MOTOR (40W)

## Name

- Parallel shaft reducer

Model number	Motor type	Type of reducer	Ratio
H4BLD40-220GK-20S/4GN□K2	H4BLD40-220GK-20S	4GN□K2	5 ~ 100

## Allowable torque

Unit: N·m

Output power	Motor speed	Ratio						
		5	10	15	20	30	50	100
40W	100 ~ 2000rpm	0.77	1.55	2.32	3.09	4.18	6.96	12.00

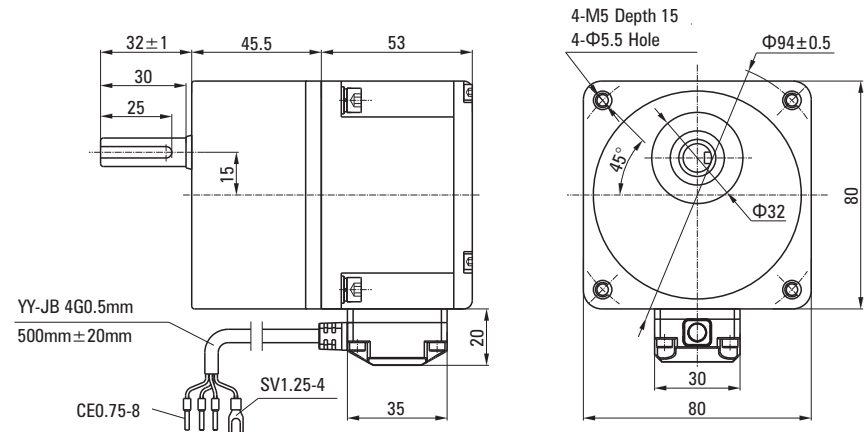
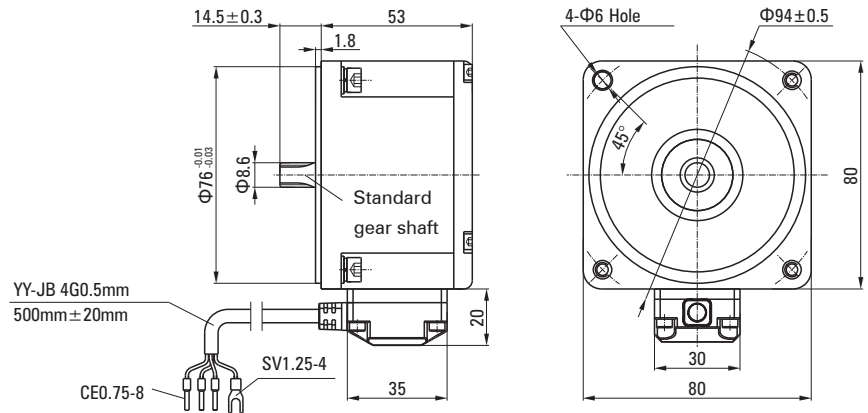
Note : The   (gray indicates that the rotation direction of the gearbox shaft is opposite to the rotation direction of the motor. Others are in the same direction.

## Dimensional drawing (Output shaft $\Phi 10$ )

Phase line			Ground line
Yellow	Green	Blue	Yellow/Green
U	V	W	GND

The wiring diagram of the optical motor and the entire machine is the same

- Key · keyway



# K2 SERIES GEAR MOTOR (40W)

## Name

- Parallel shaft reducer

Model number	Motor type	Type of reducer	Ratio
H4BLD40-220GK-20S/4GN□K2	H4BLD40-220GK-20S	4GN□K2	5 ~ 100

## Allowable torque

Unit: N·m

Output power	Motor speed	Ratio						
		5	10	15	20	30	50	100
40W	100 ~ 2000rpm	0.77	1.55	2.32	3.09	4.18	6.96	12.00

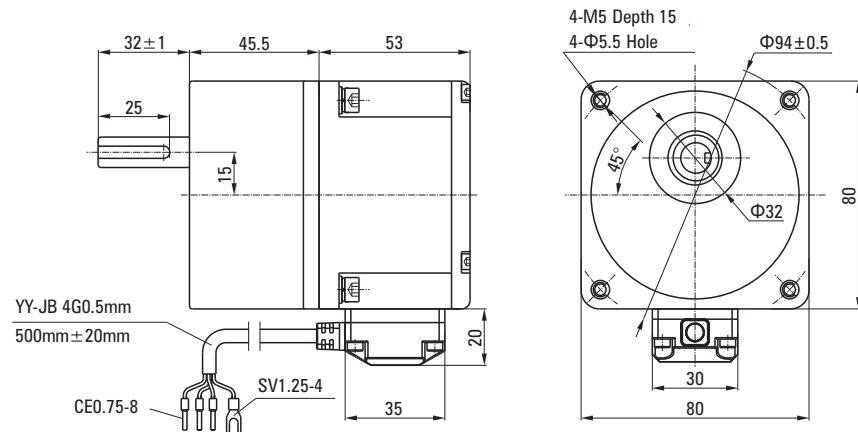
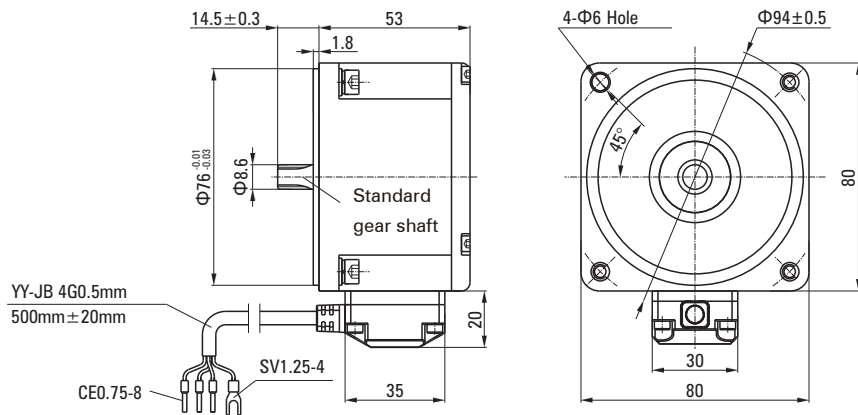
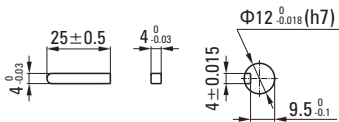
Note : The  (gray indicates that the rotation direction of the gearbox shaft is opposite to the rotation direction of the motor. Others are in the same direction.

## Dimensional drawing (Output shaft $\Phi 12$ )

Phase line			Ground line
Yellow	Green	Blue	Yellow/Green
U	V	W	GND

The wiring diagram of the optical motor and the entire machine is the same

## ● Key · keyway



# K2 SERIES GEAR MOTOR (120W)

## Name

- Parallel shaft reducer

Model number	Motor type	Type of reducer	Ratio
H5BLD120-220GK-20S/5GN□K2	H5BLD120-220GK-20S	5GN□K2	5 ~ 100

## Allowable torque

Unit: N·m

Output power	Motor speed	Ratio						
		5	10	15	20	30	50	100
120W	100 ~ 2000rpm	2.32	4.64	6.27	7.52	11.28	18.80	30.00

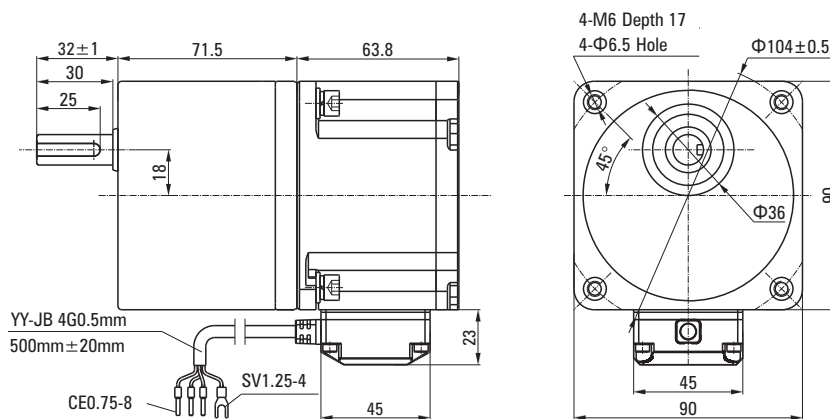
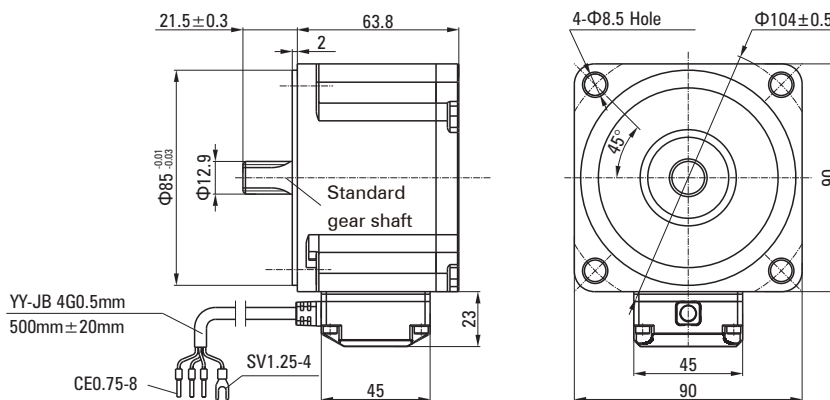
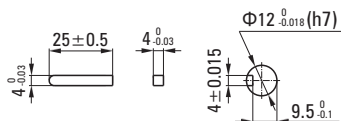
Note : The   (gray indicates that the rotation direction of the gearbox shaft is opposite to the rotation direction of the motor. Others are in the same direction.

## Dimensional drawing

Phase line			Ground line
Yellow	Green	Blue	Yellow/Green
U	V	W	GND

The wiring diagram of the optical motor and the entire machine is the same

## Key · keyway



# K2 SERIES GEAR MOTOR (120W/200W)

- Name
- Parallel shaft reducer

Model number	Motor type	Type of reducer	Ratio
H5BLD120-220GK-20S/5GU□K2	H5BLD120-220GK-20S	5GU□K2	5 ~ 100
H5BLD200-220GK-20S/5GU□K2	H5BLD200-220GK-20S		

## Allowable torque

Unit: N·m

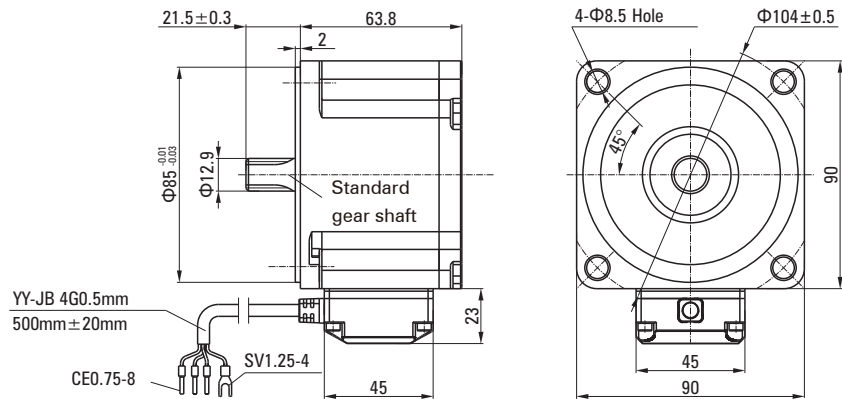
Output power	Motor speed	Ratio						
		5	10	15	20	30	50	100
120W	100 ~ 2000rpm	2.32	4.64	6.27	7.52	11.28	18.80	30.00
200W		3.87	7.74	10.46	12.61	18.91	30.00	30.00

Note : The  (gray indicates that the rotation direction of the gearbox shaft is opposite to the rotation direction of the motor. Others are in the same direction).

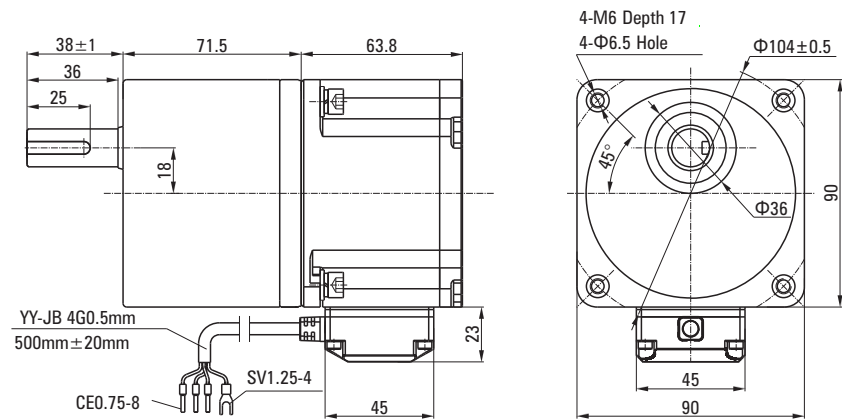
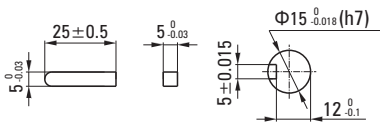
## Dimensional drawing

Phase line			Ground line
Yellow	Green	Blue	Yellow/Green
U	V	W	GND

The wiring diagram of the optical motor and the entire machine is the same



### Key · keyway



# K2 SERIES GEAR MOTOR (200W/400W)

## Name

- Parallel shaft reducer

Model number	Motor type	Type of reducer	Ratio
H6BLD200-220GK-20S/6GU□K2	H6BLD200-220GK-20S	6GU□K2	5 ~ 100
H6BLD400-220GK-20S/6GU□K2	H6BLD400-220GK-20S		

## Allowable torque

Unit: N·m

Output power	Ratio Motor speed	Ratio						
		5	10	15	20	30	50	100
200W	100 ~ 2000rpm	3.87	7.74	10.44	12.53	18.80	31.33	50.00
400W		7.74	15.47	20.91	25.21	37.82	50.00	50.00

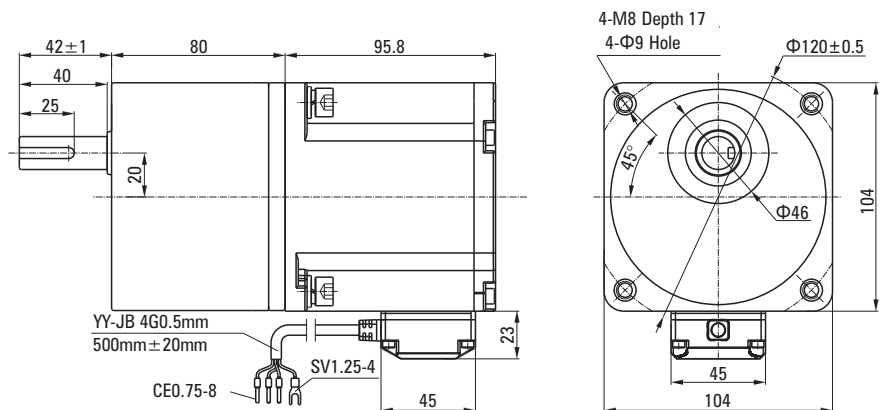
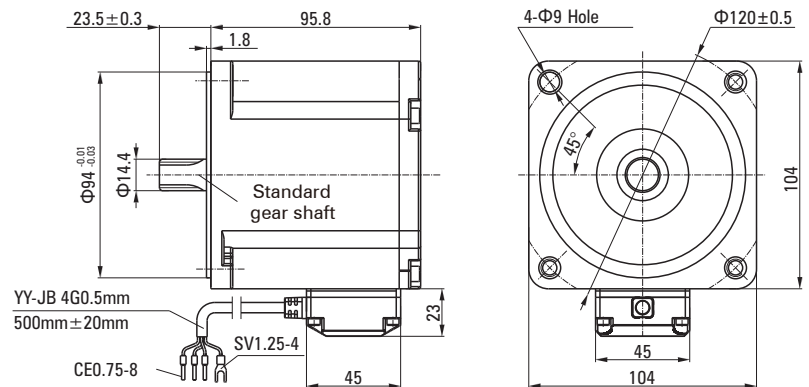
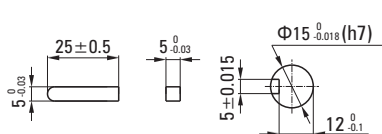
Note : The   (gray indicates that the rotation direction of the gearbox shaft is opposite to the rotation direction of the motor. Others are in the same direction.

## Dimensional drawing

Phase line			Ground line
Yellow	Green	Blue	Yellow/Green
U	V	W	GND

The wiring diagram of the optical motor and the entire machine is the same

### ● Key · keyway



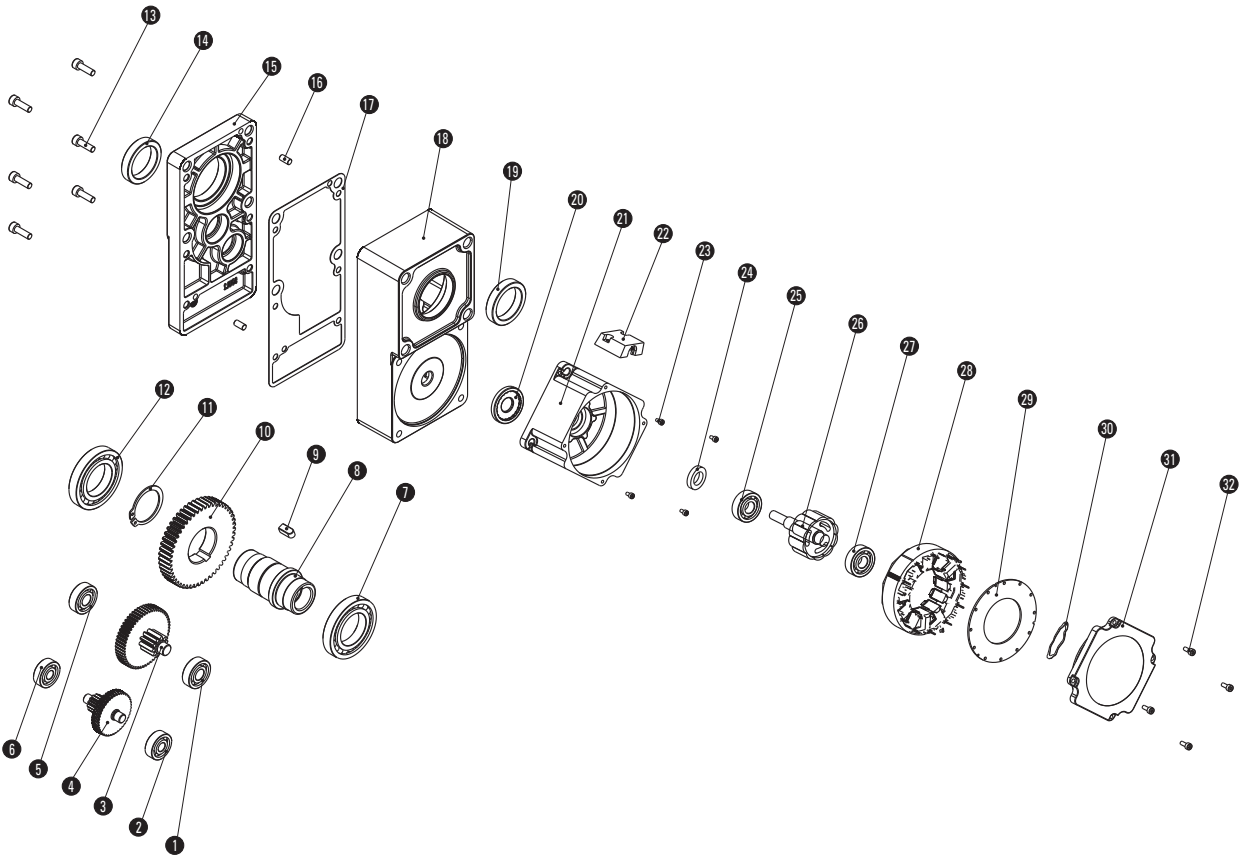
# PRODUCT CODE

## L2-series

**H5**    **BLD**    **120** - **220**    **GKL** - **20S** / **5GU**    **50L2**  
 ①        ②        ③        ④        ⑤        ⑥        ⑦        ⑧

①	Size: 60×60 (H2-60×60/H4-80×80/H5-90×90/H6-104×104)
②	Motor type: Brushless
③	Power: 120W
④	Voltage: 220VAC
⑤	Type of reducer: GK L(L2-Series reducer)
⑥	Speed: 2000rpm
⑦	Reducer size: 60 (2GN-60×60/4GN-80×80/5GU-90×90/6GU-104×104)
⑧	Ratio: 50

## Product explosion diagram



## Parts list

1: Bearing	7: Bearing	14: Oil seal	21: Shell	28: Stator core
2: Bearing	8: Output shaft	15: Gearbox cover	22: Junction box	29: Circuit board
3: 2nd follower	9: Keys	16: Locating pin	23: Hexagon socket head screws	30: Spring wave washer
	10: 1rd follower gear	17: Sealing washer		
4: 1st follower	11: Circlip	18: Gearbox housing	24: Oil seal	31: Back cover
	12: Bearing	19: Oil seal	25: Bearing	
5: Bearing	13: Hexagon socket head screws	20: Sealing washer	26: Rotor	32: Hexagon socket head screws
6: Bearing			27: Bearing	

# L2 SERIES GEAR MOTOR (15W)

## Name

- Parallel shaft reducer

Model number	Motor type	Type of reducer	Ratio
H2BLD15-220GKL-20S/2GN□L2	H2BLD15-220GKL-20S	2GN□L2	5 ~ 100

## Allowable torque

Unit: N·m

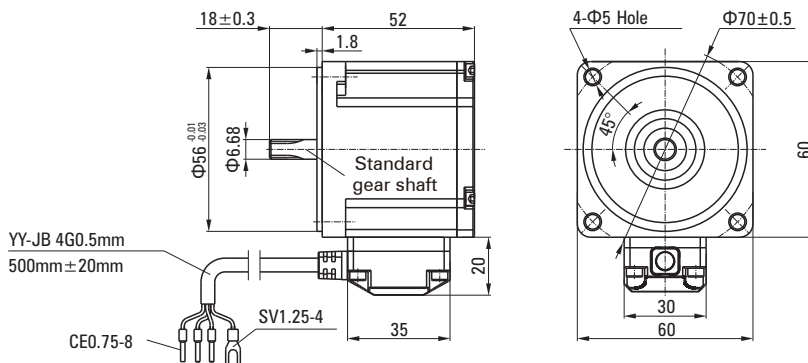
Output power	Motor speed	Ratio						
		5	10	15	20	30	50	100
15W	100 ~ 2000rpm	0.26	0.52	0.78	1.04	1.57	2.61	5.22

Note : All shaft rotation directions in the table are opposite to motor steering.  
(The torque under different speed and speed ratio is obtained under the HY standard)

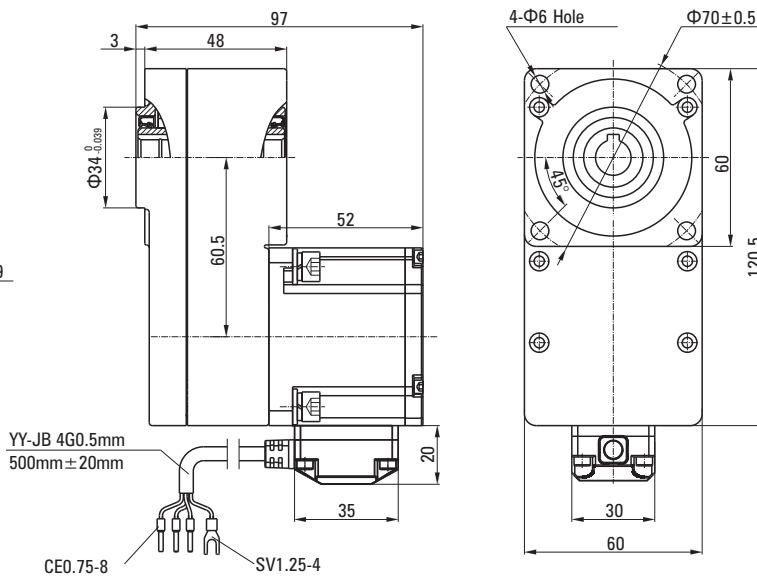
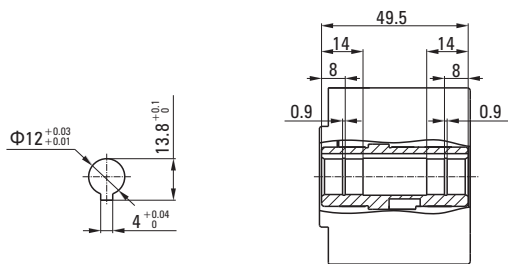
## Dimensional drawing

Phase line			Ground line
Yellow	Green	Blue	Yellow/Green
U	V	W	GND

The wiring diagram of the optical motor and the entire machine is the same



## The output shaft hole structure



# L2 SERIES GEAR MOTOR (40W)

## Name

- Parallel shaft reducer

Model number	Motor type	Type of reducer	Ratio
H4BLD40-220GKL-20S/4GN□L2	H4BLD40-220GKL-20S	4GN□L2	5 ~ 100

## Allowable torque

Unit: N·m

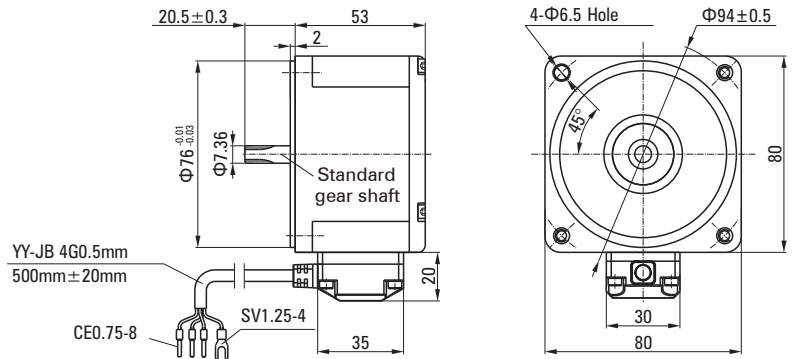
Output power	Motor speed	Ratio						
		5	10	15	20	30	50	100
40W	100 ~ 2000rpm	0.70	1.39	2.09	2.78	4.18	6.96	14.00

Note : All shaft rotation directions in the table are opposite to motor steering.  
(The torque under different speed and speed ratio is obtained under the HY standard)

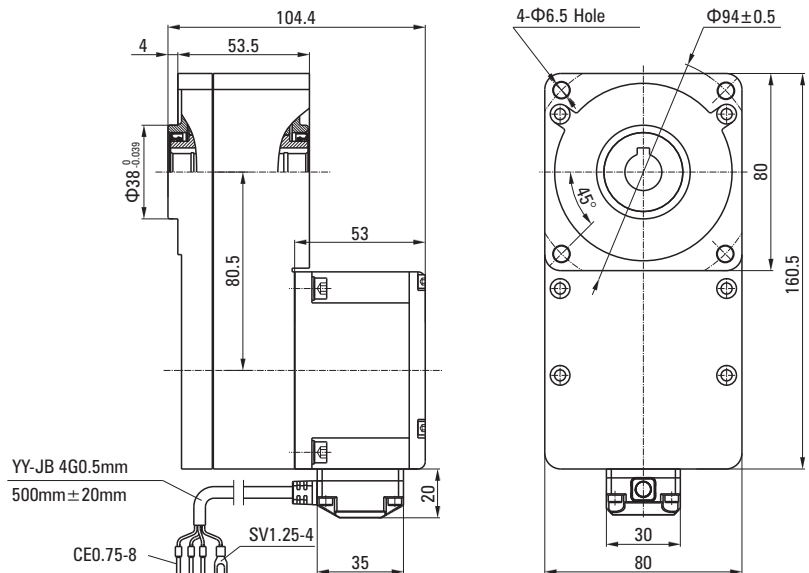
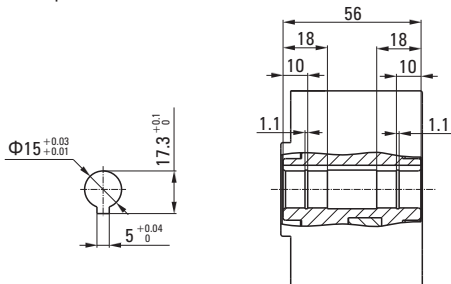
## Dimensional drawing

Phase line			Ground line
Yellow	Green	Blue	Yellow/Green
U	V	W	GND

The wiring diagram of the optical motor and the entire machine is the same



## The output shaft hole structure



# L2 SERIES GEAR MOTOR (120W/200W)

## Name

- Parallel shaft reducer

Model number	Motor type	Type of reducer	Ratio
H5BLD120-220GKL-20S/5GU□L2	H5BLD120-220GKL-20S	5GU□L2	5 ~ 100
H5BLD200-220GKL-20S/5GU□L2	H5BLD200-220GKL-20S		

## Allowable torque

Unit: N·m

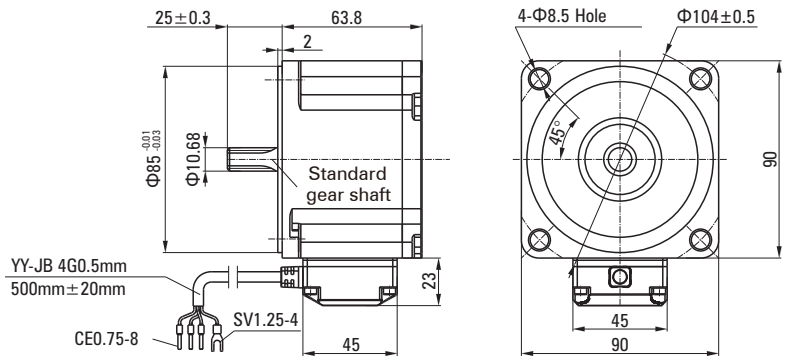
Output power	Motor speed	Ratio						
		5	10	15	20	30	50	100
120W	100 ~ 2000rpm	2.09	4.18	6.27	8.35	12.53	20.89	42.00
200W		3.49	6.97	10.46	13.94	20.91	34.86	50.00

Note : All shaft rotation directions in the table are opposite to motor steering.  
(The torque under different speed and speed ratio is obtained under the HY standard)

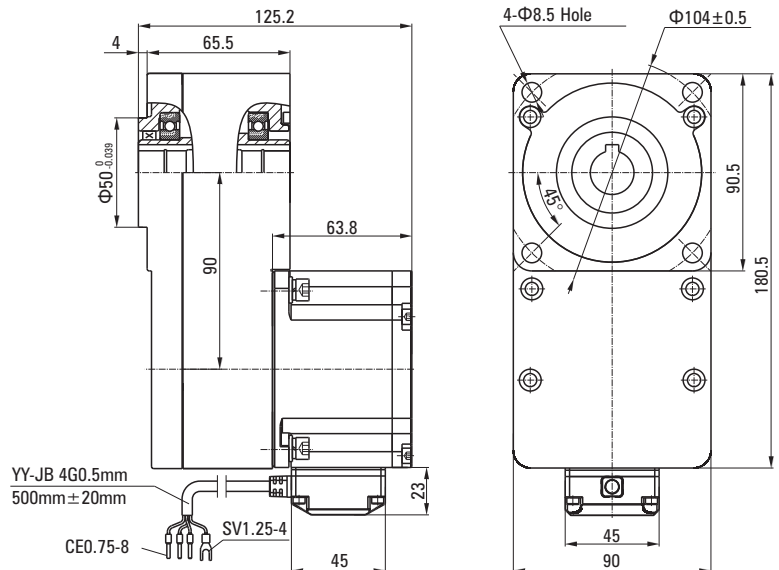
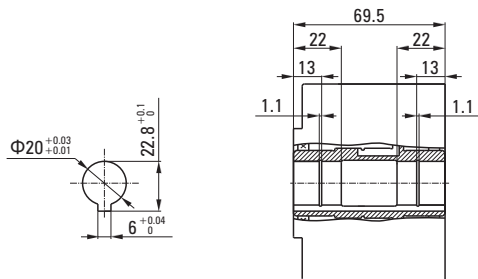
## Dimensional drawing

Phase line			Ground line
Yellow	Green	Blue	Yellow/Green
U	V	W	GND

The wiring diagram of the optical motor and the entire machine is the same



## The output shaft hole structure



# L2 SERIES GEAR MOTOR (200W/400W)

## Name

- Parallel shaft reducer

Model number	Motor type	Type of reducer	Ratio
H6BLD200-220GKL-20S/6GU□L2	H6BLD200-220GKL-20S	6GU□L2	5 ~ 100
H6BLD400-220GKL-20S/6GU□L2	H6BLD400-220GKL-20S		

## Allowable torque

Unit: N·m

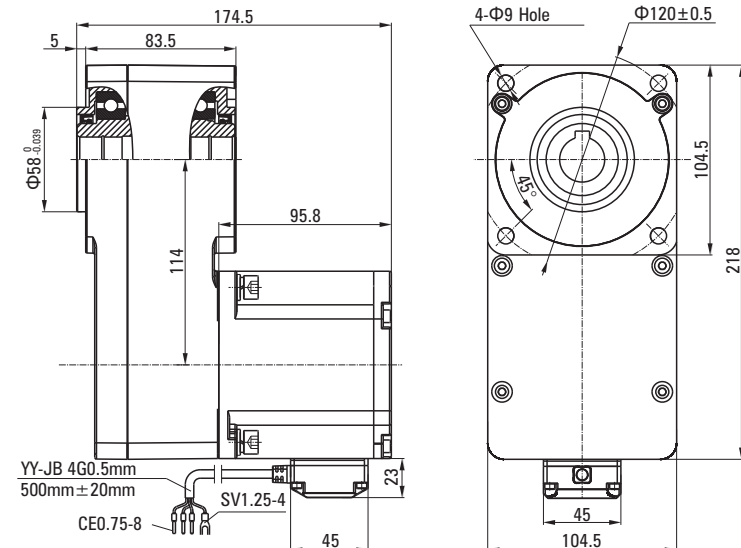
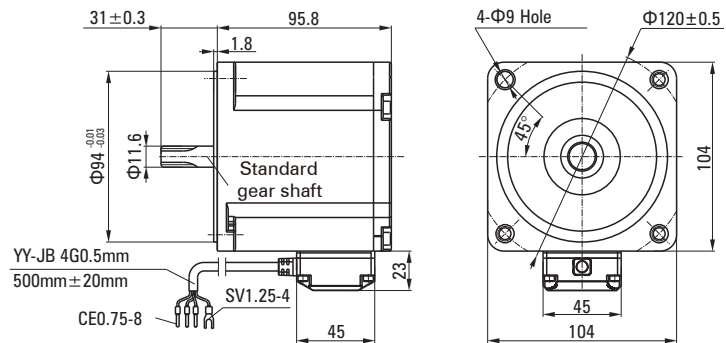
Output power	Motor speed	Ratio						
		5	10	15	20	30	50	100
200W	100 ~ 2000rpm	3.48	6.96	10.44	13.92	20.89	34.81	70.00
400W		6.97	13.94	20.91	27.89	41.83	69.72	120.00

Note : All shaft rotation directions in the table are opposite to motor steering.  
(The torque under different speed and speed ratio is obtained under the HY standard)

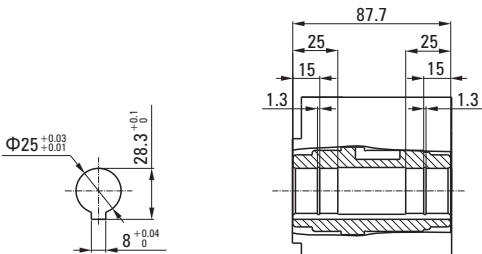
## Dimensional drawing

Phase line			Ground line
Yellow	Green	Blue	Yellow/Green
U	V	W	GND

The wiring diagram of the optical motor and the entire machine is the same



## The output shaft hole structure



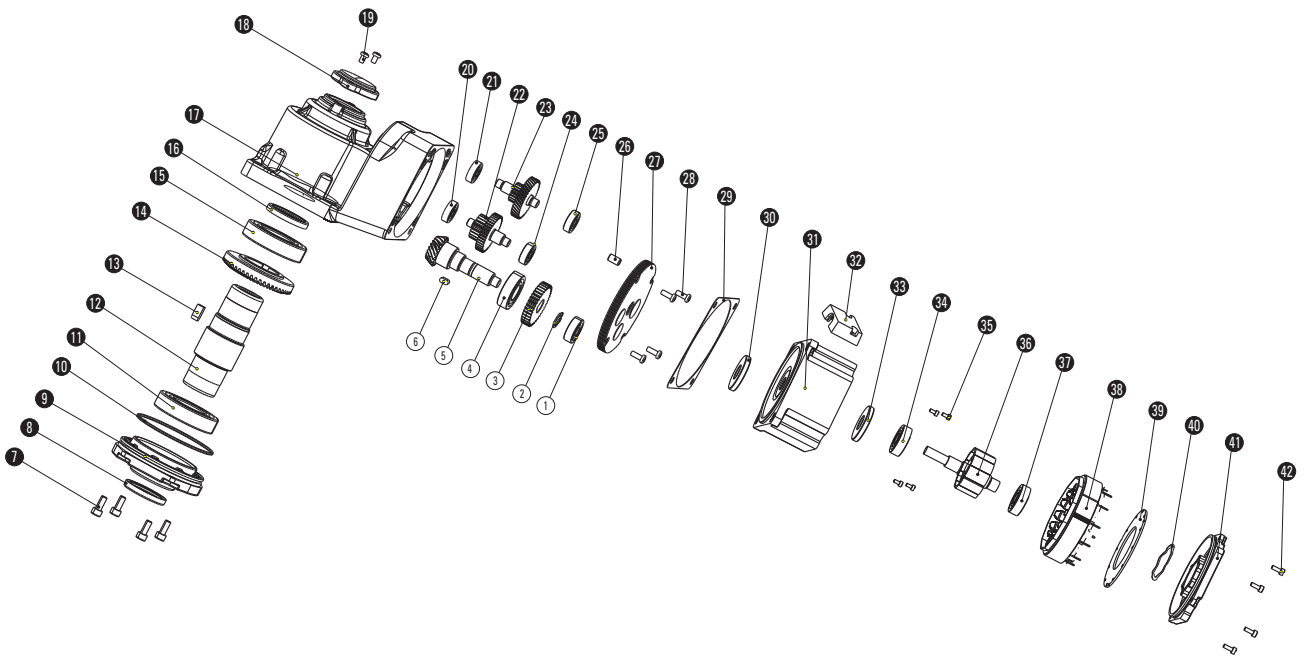
# PRODUCT CODE

## RC2-series

H5   
 BLD   
 120   
 -   
 220   
 GKR   
 -   
 20S   
 /   
 5GU   
 50RC2

①	Size: 80×80 (H4-80×80/H5-90×90/H6-104×104)
②	Motor type: Brushless
③	Power: 120W
④	Voltage: 220VAC
⑤	Type of reducer: GKR (RC2-series reducer)
⑥	Speed: 2000rpm
⑦	Reducer size: 80 (4GN-80×80/5GU-90×90/6GU-104×104)
⑧	Ratio: 50

## Product explosion diagram



## Parts list

1: Bearing	11: Bearing	20: Bearing	28: Pan head screws with ross recess	36: Rotating shaft
2: Circlip	12: Output shaft	21: Bearing		29: Sealing washer
3: Three-stage slave	13: Keys	22: Secondary transmission shaft	30: Sealing washer	38: Stator core
4: Bearing	14: Output bevel gear		23: Primary drive shaft	31: Shell
5: Input bevel gear	15: Bearing	24: Bearing	32: Junction box	40: Corrugated spring washer
6: Keys	16: Oil seal	25: Bearing	33: Oil seal	41: Back cover
7: Hexagon socket head screws	17: Box body	26: Locating pin	34: Bearing	
8: Oil seal	18: Box cover	27: Box cover	35: Hexagon cylindrical head	42: Hexagon cylindrical head
9: Box cover	19: Pan head screws with ross recess			
10: O-ring				

# RC2 SERIES GEAR MOTOR (40W)

## Name

- Arc cone right angle reduction motor

Model number	Motor type	Type of reducer	Ratio
H4BLD40-220GKR-20S/4GN□RC2	H4BLD40-220GKR-20S	4GN□RC2	5 ~ 100

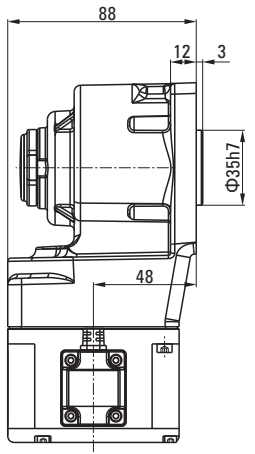
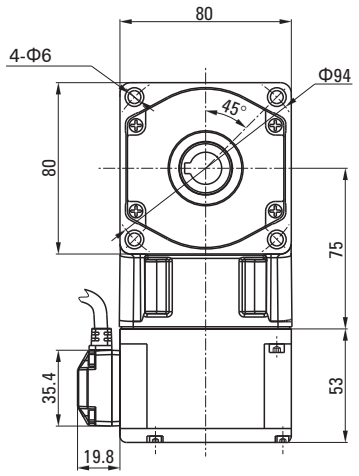
## Allowable torque

Unit: N·m

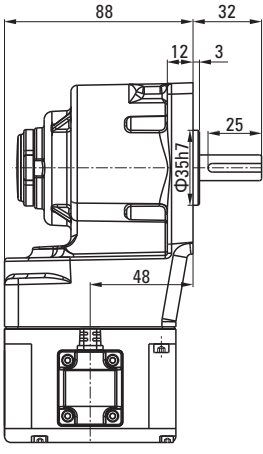
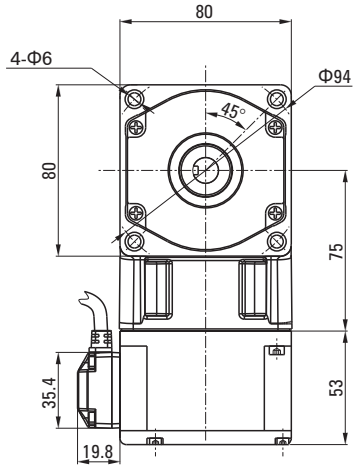
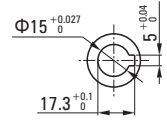
Output power	Motor speed	Ratio						
		5	10	15	20	30	50	100
40W	100 ~ 2000rpm	0.63	1.55	2.32	3.10	4.18	6.97	12.00

Note :  The color represents the same direction as the rotation direction of the motor. Others are in the opposite direction.

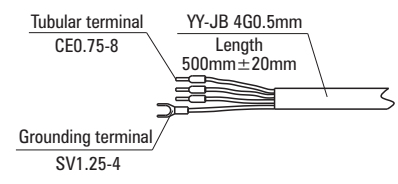
## Dimensional drawing



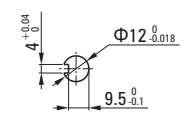
Output shaft structure



## Terminal diagram



Output shaft structure



Phase line			Ground line
Yellow	Green	Blue	Yellow/Green
U	V	W	GND

The wiring diagram of the optical motor and the entire machine is the same

# RC2 SERIES GEAR MOTOR (120W/200W)

## Name


- Arc cone right angle reduction motor

Model number	Motor type	Type of reducer	Ratio
H5BLD120-220GKR-20S/5GU□RC2	H5BLD120-220GKR-20S	5GU□RC2	5 ~ 100
H5BLD200-220GKR-20S/5GU□RC2	H5BLD200-220GKR-20S		

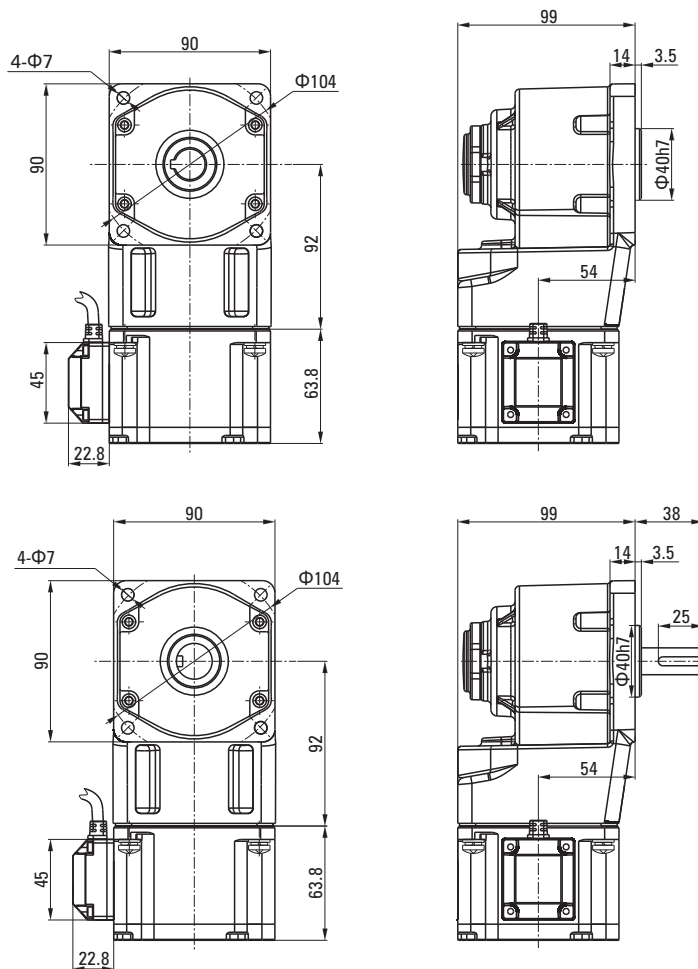
## Allowable torque

Unit: N·m

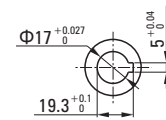
Output power	Motor speed	Ratio						
		5	10	15	20	30	50	100
120W	100 ~ 2000rpm	1.88	4.18	6.27	8.37	12.55	18.82	30.00
200W		3.13	6.97	10.45	13.94	20.8	30.00	30.00

Note :  The color represents the same direction as the rotation direction of the motor. Others are in the opposite direction.

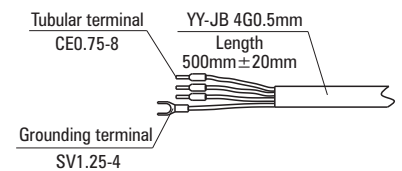
## Dimensional drawing



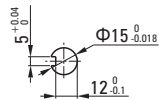
Output shaft structure



Terminal diagram



Output shaft structure



Phase line			Ground line
Yellow	Green	Blue	Yellow/Green
U	V	W	GND

The wiring diagram of the optical motor and the entire machine is the same

# RC2 SERIES GEAR MOTOR (200W/400W)

## Name

- Arc cone right angle reduction motor

Model number	Motor type	Type of reducer	Ratio
H6BLD200-220GKR-20S/6GU□RC2	H6BLD200-220GKR-20S	6GU□RC2	5 ~ 100
H6BLD400-220GKR-20S/6GU□RC2	H6BLD400-220GKR-20S		

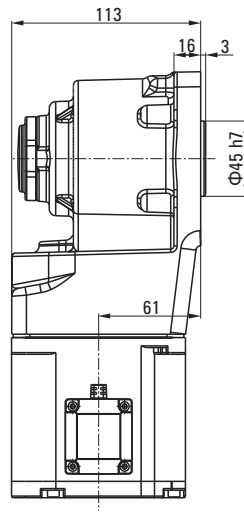
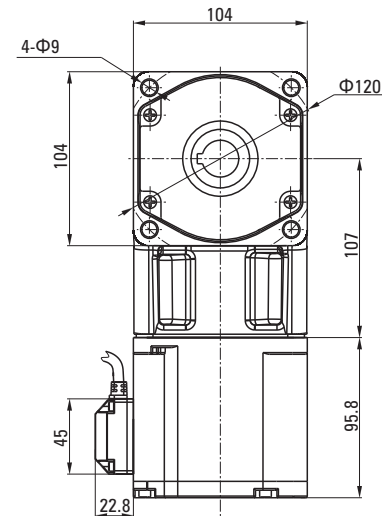
## Allowable torque

Unit: N·m

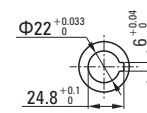
Output power	Motor speed	Ratio						
		5	10	15	20	30	50	100
200W	100 ~ 2000rpm	3.13	6.97	10.45	13.94	20.91	31.37	60.0
400W		6.26	13.94	20.9	27.88	41.82	60.0	60.0

Note :  The color represents the same direction as the rotation direction of the motor. Others are in the opposite direction.

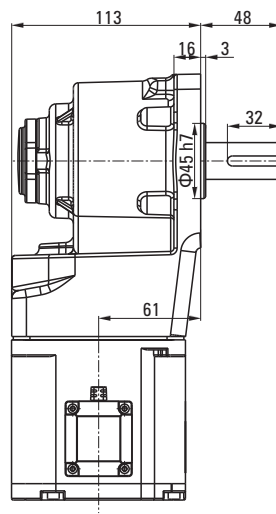
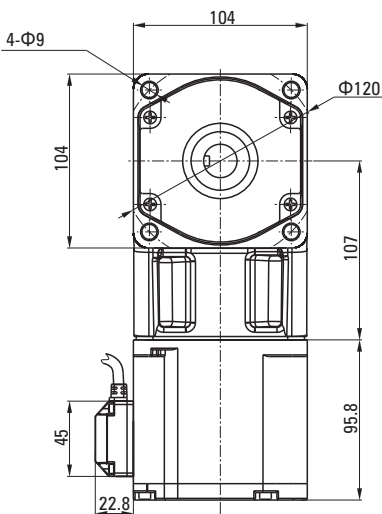
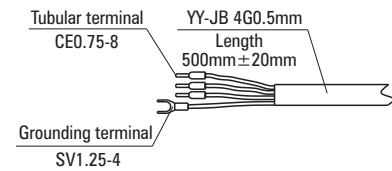
## Dimensional drawing



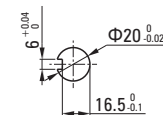
Output shaft structure



### Terminal diagram



Output shaft structure



Phase line			Ground line
Yellow	Green	Blue	Yellow/Green
U	V	W	GND

The wiring diagram of the optical motor and the entire machine is the same

# C41 SERIES SENSORLESS DRIVER

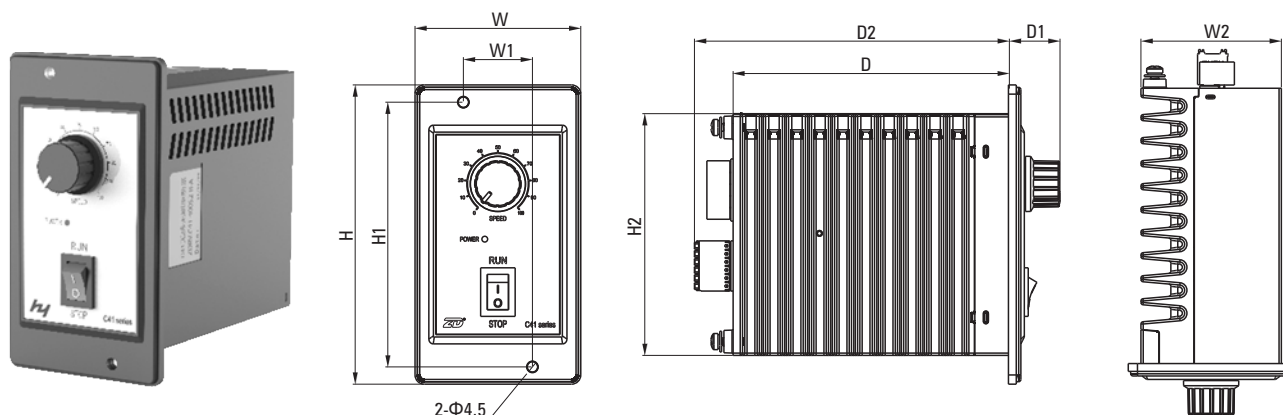
H
DRV
•
C41
—
200
S2
—
R
—
A

①	Company name abbreviation	H: HENGYAO
②	Product type	DRV: Drivers and related products
③	Product series	C41 Sensorless series
④	Power level	High voltage: 15:15W 40:40W 120:120W 200:200W 400:400W
⑤	Power supply type	S2: 1 phase AC220V/50Hz~60Hz
⑥	Function code	C: With CanOpen communication function
		R: With 485 communication function
⑦	Appearance structure	A: Panel type
		B: Built-in type

## ■ Features of C41 series sensorless drivers

- **Only three motor power lines are needed:** Fundamentally avoiding problems such as unreliable connection of motor encoder lines or Hall signal lines and signal interference, which can effectively improve the reliability of the system.
- **No need for motor encoder or Hall sensor:** Adopting a high-performance position sensorless solution, achieving sine wave FOC vector control of the motor, saving the wiring harness and terminals of the encoder or Hall, effectively reducing the overall cost of the system.
- **Good low-speed performance:** Excellent speed closed-loop control performance, with a minimum speed of down to 100rpm, and a speed ratio comparable to motor drives with encoders.
- **Support heavy load on-load starting:** Maximum allowable on-load starting at 150% of the rated torque of the motor; If you need to start with load under higher load torque conditions, you can communicate with our company about product customization matters.
- **Support for ultra long distance motor control:** The maximum allowable distance for the three-phase power line between this product and the motor is 50m. If you need to support a longer distance, you can communicate with our company about product customization matters.
- **Low speed fluctuation:** Under rated speed conditions, the speed fluctuation is about 0.5%, and the excellent speed stability performance can be comparable to motors with encoders, meeting the needs of the vast majority of applications.
- **Can support ultra high speed motors:** Supports a maximum motor speed of up to 20000rpm. If you need to support higher motor speeds, you can communicate with our company for customization.
- High cost-effectiveness.

## C41 series sensorless driver (Panel type)



Unit: mm

Model	Overall dimensions						Installation dimensions		
	H	W	D	H2	W2	D2	H1	W1	D1
HYRV.C41-15S2-A	100	60	123	80	51	141.4	90	-	20
HYRV.C41-40S2-A	100	60	123	80	51	141.4	90	-	20
HYRV.C41-120S2-A	100	60	123	80	51	141.4	90	-	20
HYRV.C41-200S2-A	100	60	123	80	51	141.4	90	-	20
HYRV.C41-400S2-R-A	130	72	120	105	61	136.8	115	30	22

## Input/output interface

● HYRV.C41-200S2-A / HYRV.C41-400S2-R-A

Pin number	Pin name	Pin function
2	V	
3	U	
4	N	Zero line
5	L	Live wire

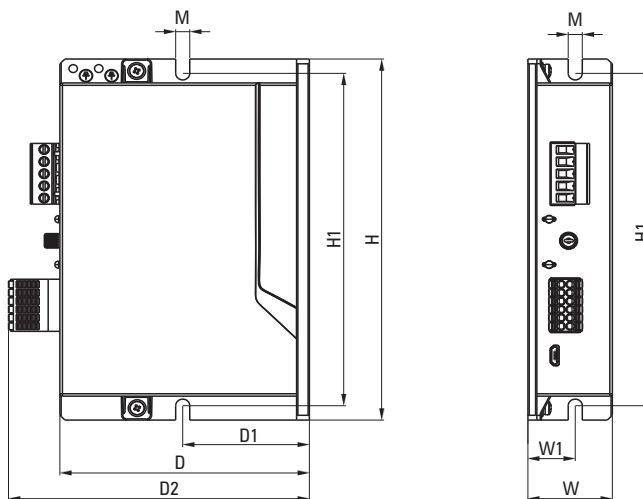
● HYRV.C41-200S2-R-A

Pin number	Pin name	Pin function
1	PW	Input common terminal
2	DI1/FWD	Preset function: Forward rotation
3	5V	5V power output positive
4	DI2/REV	Preset function: Reverse
5	AI2	Analog voltage (0~10V) / PWM (3~10KHz)
6	DI3/BRK	Preset function: Electronic brake
7	COM	5V power GND
8	DI4/CLR	Preset function: Fault reset
9	DO-	1 channel digital signal output terminal: Maximum output current: 50mA
10	DO+	

● HYRV.C41-400S2-R-A

Pin number	Pin name	Pin function
1	PW	Input common terminal
2	DI1/FWD	Preset function: Forward rotation
3	5V	5V power output positive
4	DI2/REV	Preset function: Reverse
5	AI2	Analog voltage (0~10V) / PWM (3~10KHz)
6	DI3/BRK	Preset function: Electronic brake
7	COM	5V power GND
8	DI4/CLR	Preset function: Fault reset
9	DO-	1 channel digital signal output terminal: Maximum output current: 50mA
10	DO+	
11	B	485 signal negative
12	A	85 signal positive

**C41 series sensorless driver (Built in)**

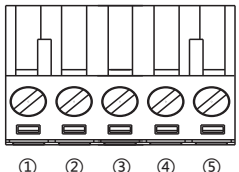


Unit: mm

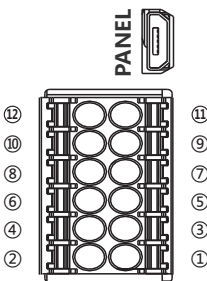
Model	Overall dimensions				Installation dimensions			
	H	W	D	D2	H1	W1	D1	M
HYRV.C41-200S2-R-B	151	33	97.5	117.5	139	18.5	49.5	5.5
HYRV.C41-400S2-R-B	151	33	97.5	117.5	139	18.5	49.5	5.5

**Input / output interface**

● HYRV.C41-200S2-R-B / HYRV.C41-400S2-R-B

	Pin number	Pin name	Pin function
	1	L	Live wire
2	N	Zero line	
3	U	Motor power supply output terminal	
4	V		
5	W		

● HYRV.C41-200S2-R-B / HYRV.C41-400S2-R-B

	Pin number	Pin name	Pin function
	1	PW	Input common terminal
2	DI1/FWD	Preset function: Forward rotation	
3	5V	5V power output positive	
4	DI2/REV	Preset function: Reverse	
5	AI2	Analog voltage (0~10V) / PWM (3~10KHz)	
6	DI3/BRK	Preset function: Electronic brake	
7	COM	5V power GND	
8	DI4/CLR	Preset function: Fault reset	
9	DO-	1 channel digital signal output terminal: Maximum output current: 50mA	
10	DO+		
11	B	485 signal negative	
12	A	485 signal positive	

## Specifications

Model parameters		C41Series sensorless driver			
		HYRV.C41-200S2-A	HYRVC41-400S2-R-A	HYRV.C41-200S2-R-B	HYRV.C41-400S2-R-B
Rated input voltage		AC220V/50HZ	AC220V/50HZ	AC220V/50HZ	AC220V/50HZ
Output current	(rms) Rated current	1.2A	2.5A	1.2A	2.5A
	(peak) Peak current	4.0A	8.0A	4.0A	8.0A
Installation method		Panel mounted		Built-in installation	
Overvoltage alarm voltage		125% rated voltage over voltage			
Under voltage alarm voltage		70% rated voltage under voltage			
Overload time		150% rated current for 30 seconds			
Cooling method		Free cooling, contact cooling			
General functions	Digital input	4-channel, supporting NPN/PNP, optocoupler input, high-level DC12V~DC30V, low-level DC0V~DC5V, input impedance 3KΩ			
	Digital input function	Forward running, reverse running, forward jogging, reverse jogging, free parking, fault reset, electronic braking, external fault input, forward limit, reverse limit, multi terminal speed selection, etc			
	Analog input	1 channel, DC0V~DC5V/10V, PWM (3KHZ~10KHZ)			
	Analog input function	Speed regulation			
	Digital output	1 channel, optocoupler output, compatible with NPN/PNP support, maximum working voltage 30VDC, maximum output current 100mA			
	Pulse control	No			
	Protection function	Undervoltage protection, overvoltage protection, overload protection, hardware overcurrent protection, software overcurrent protection, over temperature protection, phase loss protection, etc			
	Upper computer	Not support	Support		
	Operation panel	Can match to HY handle panel, setting parameters and reading data			
Bus control	Modbus/RS485	No	Supports a maximum baud rate of 115.2K and can communicate with the controller using the Modbus RTU protocol		
	CANopen	Custom development			
Usage environment	Working temperature	-10~40°C, derated for use above 40°C. For every 1°C increase, the rated current needs to be reduced by 2.5%. The maximum operating temperature can reach 50°C			
	Storage temperature	-30 °C~ +60 °C, with an air temperature change of less than 1°C/minute			
	Humidity	Below 85% RH, without condensation			
	Protection level	IP20			
	Energy consumption braking	No			
	Height	Used below 1000 meters; For use with a derating of over 1000 meters, a derating of 1.5% is required for each 100 meter increase; Please test and confirm if the altitude is above 2000 meters			
Pressure	86kpa~106kpa				



## **K2/L2/RC2 BRUSHLESS DC GEAR MOTOR CATALOGUE**

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**Deputy Procurement Manager:Ming**

Tel: +(86)18067150331

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Web: [www.hy-motor.com](http://www.hy-motor.com)

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