S/SF/SL SERIES

HIGH EFFICIENCY BRUSHLESS MOTOR

OVERVIEW OF MICRO BRUSHLESS DC GEAR MOTOR

Brushless DC motors have a slim body and provide high power due to permanent magnets being used in the rotor. For example, the overall length is 75mm shorter and the output power is 1.3 times higher than that of three-phase induction motors with a frame size of 90mm. Using brushless DC motors can contribute to downsizing and space saving.

Main features

- Powerful performance and functionality

1、The speed control range is 80~4000r/min

2、ate of speed change ±0.2%

3、Controllable torque

4、Multi-speed section, maximum 16

5、Provides holding torque at stop (Up to 50% of rated torque)

6、Dustproof and waterproof (Protection class IP54)

7、Powder coating shell technology is adopted to ensure strong corrosion resistance

- Easy to use and cheap to buy

8、Equipped with monitoring and testing functions that can be used to test and avoid failure

9、Perform digital settings and operations through drive

10、Small, thin drives for tight mounting

11、 Can use computer and external signals to set speed

12、 When directly connected, the maximum distance between motor and driver is 10m

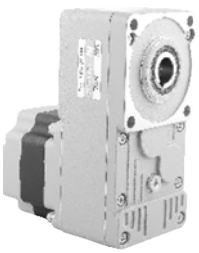
13、 Product category 30W~1100W

Three optional speed reducers

- **S** Series

- **SF** Series

- **SL** Series



Motor	Output power	Size	Ratio	Protection level	Driver
S Series	30W	60	5、10、15、20、30、50、100、200	IP54	C30
	60W	70	5、10、15、20、30、50、100、200、360		
	60W、120W	80	5、10、15、20、30、50、100、200		
	120W、200W	90			
	200W	100			
	400W	100	5、10、15、20、30、50		
	750W	120			
SF Series	30W	SF2-12	7.5、10、15、20、30、50	IP54	C30
	120W	SF2-15			
	200W	SF2-20			
	400W	SF2-25			
SL Series	100W	60	5、7.5、10、15、20、25、30、40、50	IP54	C30
	200W	80			
	400W	90			
	750W	100			
	1100W	120	5、10、15、20、25、30、40、50、100		

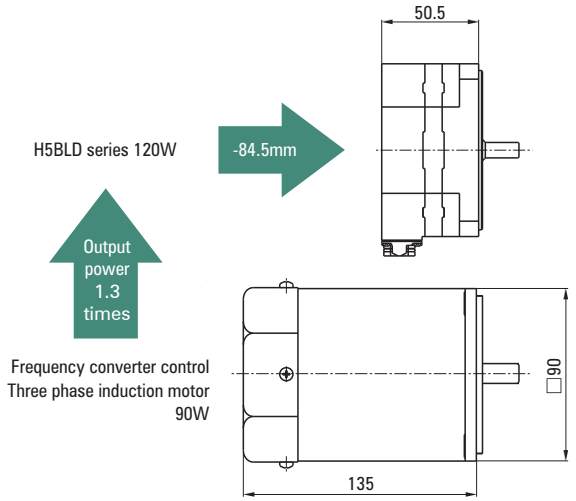
The structure of the motor is upgraded to realize high output power and high efficiency with a smaller body.

BASIC CHARACTERISTICS OF INDUCTION BRUSHLESS MOTORS

On brushless motor, it is unecessarily using brush ,commutator and any other mechanical contact. Brush motor need brush and commutato to running, so it need to regular maintain. However, brushless motor used Hall IC to detect the signal and used driving circuit of crystal catheter's ON/OFF. So it dispense with maintain.

Thin, lightweight, high power

Brushless motor rotor using permanent magnet steel, so that a thin, light and high-power. The utility model can meet the miniaturization requirement of the device.



Wide speed range

Product group	Speed control range*	Velocity ratio
Brushless motor BMU series	80~3000r/min	1:37.5
Three-phase induction motor controlled by frequency converter	200~2400r/min	1:12
AC motor	50HZ: 90~1400r/min 60HZ: 90~1600r/min	1:15

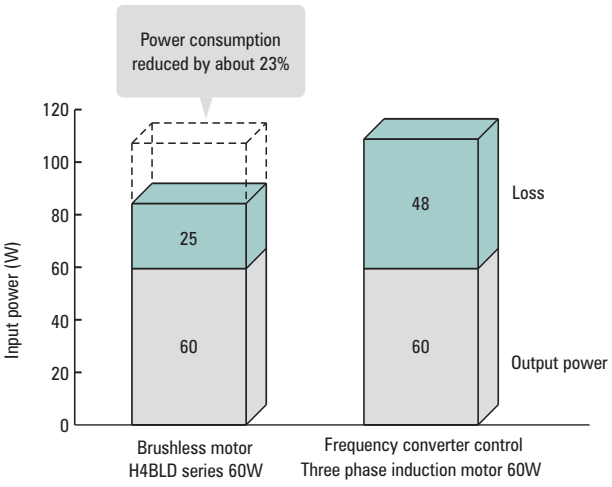
*Different products have different speed control range.

Stable speed control

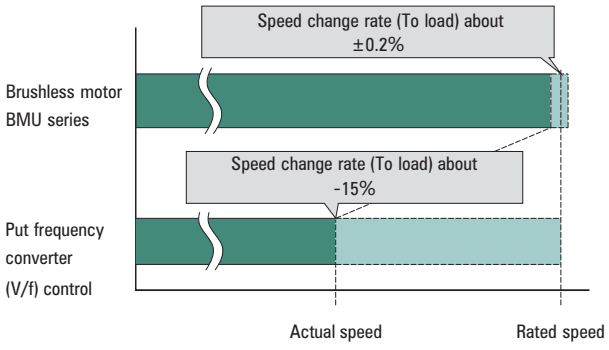
Brushless DC motors compare the setting speed with the speed feedback signals from the motor at all times and adjust the motor's applied voltageFor this reason, even if the load changes, stable rotation is performed from low speed to high speed.Common inverter-controller three-phase induction motors do not have this type of feedback control and when the load changes, the speed can be affected. Brushless DC motors are recommended for applications that require the speed to be maintained regardless of the load fluctuation.

Comparison with output of 60W (Reference value)

Rated output 50Hz (Representative value)



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



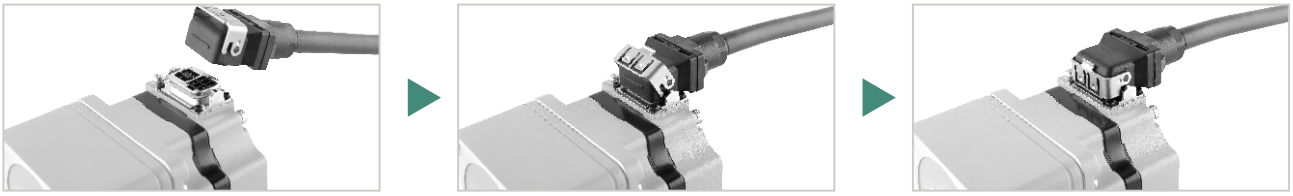
Using a new connector

Built-in type O ring seal ring, sealing gasket, a good promotion of protective performance. And the plug is in the form of pulling, no screw is needed to fix, and the operation is simple.

Helps save energy

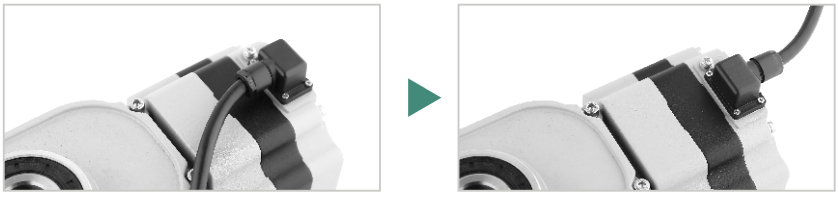
The permanent magnet steel is used in the rotor part of the brushless motor, which reduces the secondary loss of the rotor and greatly reduces the power consumption. To help save the energy of the device.

The installation is complete (Optional)



Insertion connector | Down the lock lever | The connection to complete

The installation is complete (Standard)

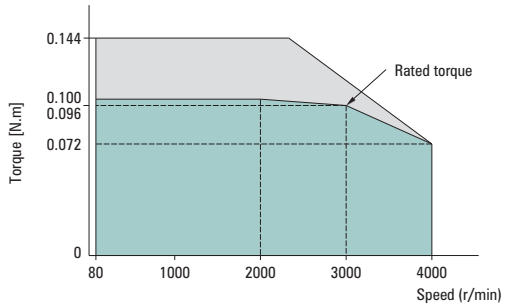


Cable outlet direction

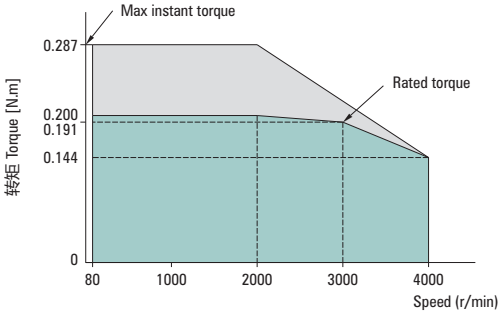
SPEED -- TORQUE CHARACTERISTICS

Continuous operation field: The field in which continuous operation can be done.
Short-term operation area: Mainly for use during acceleration.

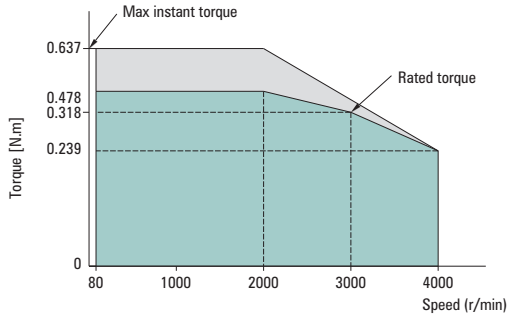
30W



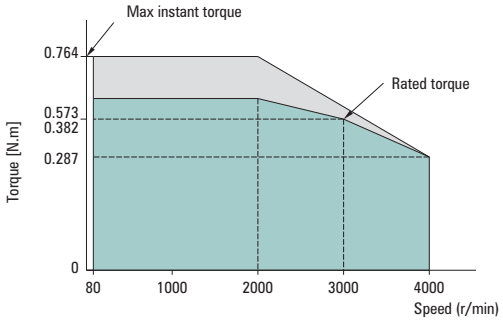
60W



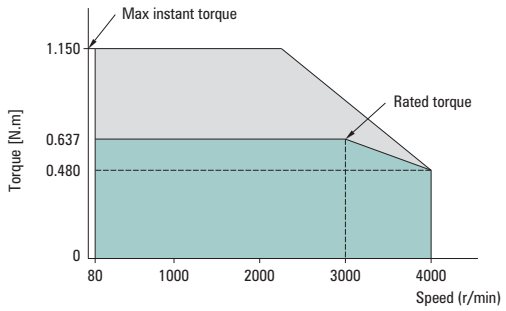
100W



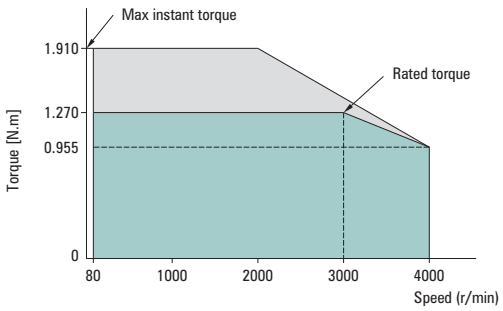
120W



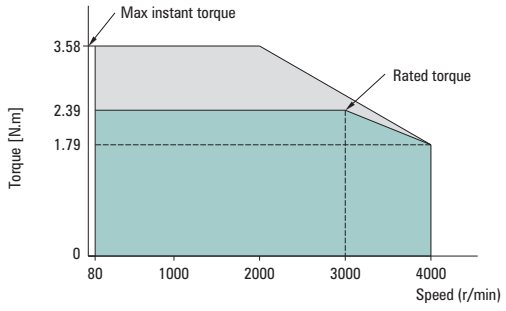
200W



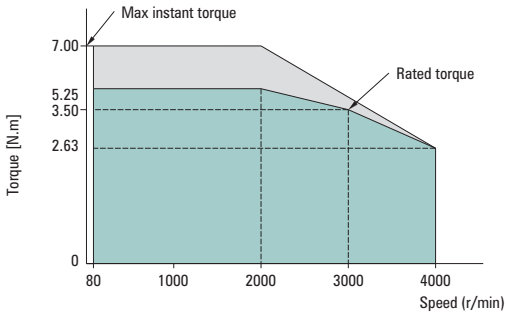
400W



750W



1100W



Max instant torque Short time area Continuous area Rated torque

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 100MΩ 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 under normal temperature and humidity, 50Hz and AC1.5kV are applied between the coil and shell for 1 minute without any abnormality.	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		After rated continuous operation at normal temperature and humidity, the temperature rise of the coil measured by thermocouple method is below 50℃ (400W is below 60℃) , and the temperature rise of the shell surface is below 40℃ (400W is below 50℃) *1.	After rated continuous operation at normal temperature and humidity, the temperature rise of heat dissipation plate measured by thermocouple method is below 50℃.
Service environment	Ambient temperature	0 ~ +40℃ (No icing)	0 ~ +40℃ (No icing) [0 ~ +35℃ (No icing) only when the driver of type 400W is installed front side up.]
	Ambient humidity	Less than 85% (No dew)	
	Elevation	Below 1,000m	
	Media environment	No corrosive gas and dust. Can Not contain radioactive material, magnetic field and vacuum and other special environment.	
	Vibration	Do not apply continuous vibration or excessive shock. According to JIS C 60068-2-6 sine wave vibration test method frequency range: 10-55Hz, single amplitude: 0.15mm, swing direction: 3 directions (X, Y, Z) , swing times: 20 times.	
Storage environment *2	Ambient temperature	20 ~ +70℃ (No icing)	-25 ~ +70℃ (No icing)
	Ambient humidity	Less than 85% (No dew)	
	Elevation	Below 3,000m	
Heat resistance grade		UL / CSA specification: 105 (A) , EN specification: 120 (E)	—
Protection level *3		Connecting cable: IP66 (Except for round shaft mounting surface)	IP20

GENERAL SPECIFICATION

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

30W type: 115×115mm thickness 5mm.　　60W type: 135×135mm thickness 5mm.

100W type: 115×115mm thickness 5mm.　　120W type: 165×165mm thickness 5mm.

200W type: 200×200mm thickness 5mm.　　400W type: 250×250mm thickness 6mm.

750W type: 300×300mm thickness 6mm.　　1100W type: 250×250mm thickness 6mm.

*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-stainless steel (Exposed part only, excluding protective ground terminal)][Surface treatment: Housing: Coating (Excluding mounting surface)]

Output speed of S series

Unit: r/min

Motor speed \ Ratio motor	5	10	15	20	30	50	100	200	360
80r/min	16	8	5.3	4	2.7	1.6	0.8	0.4	0.22
2000r/min	400	200	133	100	66.7	40	20	10	5.55
3000r/min	600	300	200	150	100	60	30	15	8.33
4000r/min	800	400	267	200	133	80	40	20	11.11

Output speed of SL series

Unit: r/min

Motor speed \ Ratio motor	5	7.5	10	15	20	25	30	40	50	100
80r/min	16	10.7	8	5.3	4	3.2	2.7	2	1.6	0.8
2000r/min	400	266.7	200	133	100	80	66.7	50	40	20
3000r/min	600	400	300	200	150	120	100	75	60	30
4000r/min	800	533.3	400	267	200	160	133	100	80	40

Permissible radial load permissible axial load

● Parallel shaft reducer

Unit: r/min

Output power	Deceleration ratio		Permissible radial load		Allowable axial load (N)
			10mm (N) from the front end of the output shaft	20mm (N) from the front end of the output shaft	
30W	5	80-3000r/min	100	150	40
		4000r/min	90	110	
	10、15、20	80-3000r/min	150	200	
		4000r/min	130	170	
	30、50、100、200	80-3000r/min	200	300	
		4000r/min	180	230	
60W	5	80-3000r/min	200	250	100
		4000r/min	180	220	
	10、15、20	80-3000r/min	300	350	
		4000r/min	270	330	
	30、50、100、200	80-3000r/min	450	550	
		4000r/min	420	500	
120W	5	80-3000r/min	300	400	100
		4000r/min	230	300	
	10、15、20	80-3000r/min	400	500	
		4000r/min	370	430	
	30、50、100、200	80-3000r/min	500	650	
		4000r/min	450	550	
200W 400W	5、10、15、20	80-3000r/min	550	800	200
		4000r/min	500	700	
	30、50	80-3000r/min	1000	1250	300
		4000r/min	900	1100	
	100、200	80-3000r/min	1400	1700	400
		4000r/min	1200	1400	

The admissible moment of inertia J of S series

● Parallel shaft reducer

Unit: r/min

Output power \ Ratio		5	10	15	20	30	50	100	200
30W		12	50	110	200	370	920	2500	5000
	*Transient stop or transient forward and backward run	1.55	6.2	14	24.8	55.8	155	155	155
60W		22	95	220	350	800	2200	6200	12000
	*Transient stop or transient forward and backward run	5.5	22	49.5	88	198	550	550	550
120W		45	190	420	700	1600	4500	12000	25000
	*Transient stop or transient forward and backward run	25	100	225	400	900	2500	2500	2500
200W		100	460	1000	1700	3900	9300	18000	37000
	*Transient stop or transient forward and backward run	50	200	450	800	1800	5000	5000	5000
400W		100	460	1000	1700	3900	9300	-	-
	*Transient stop or transient forward and backward run	50	200	450	800	1800	5000	-	-

* Also applies when the digital setting sets the deceleration time to less than 0.1 seconds.

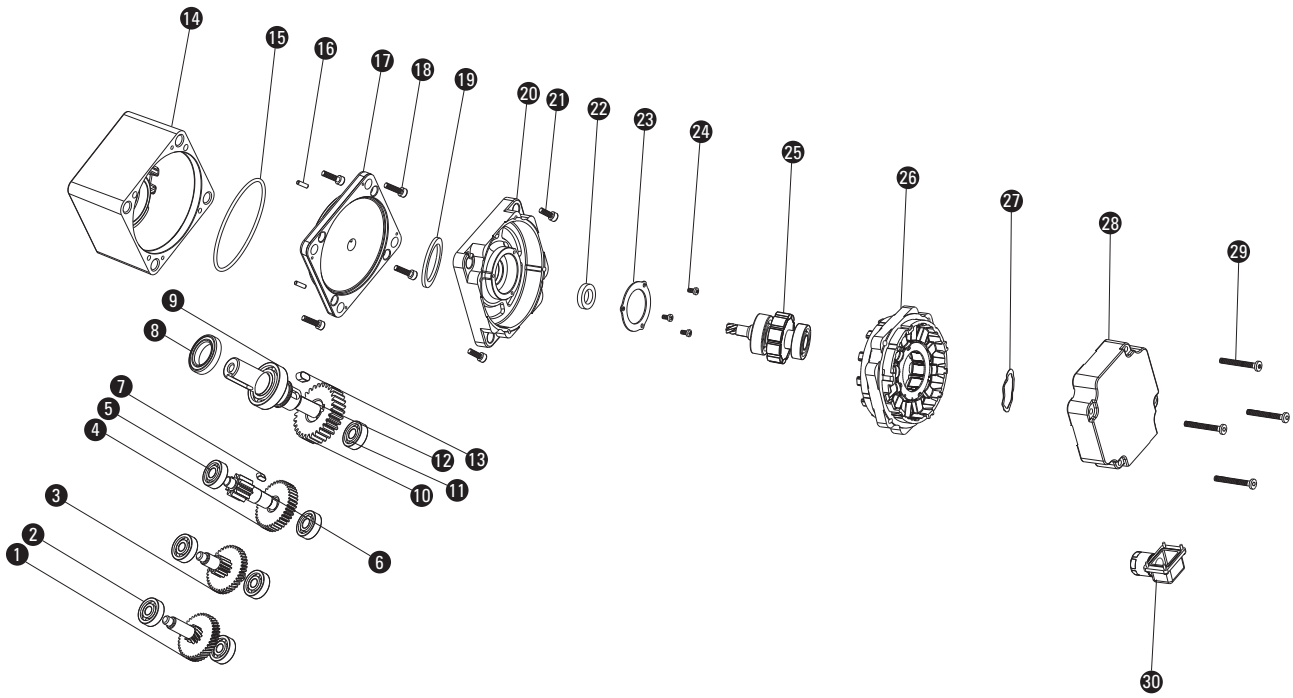
PRODUCT CODE

S-series

H5	BLD	120	-	220	GV	-	30S	/	5GU	200V
①	②	③		④	⑤		⑥		⑦	⑧

①	Size: 60×60 (H2-60×60/H3-70×70/H4-80×80/H5-90×90/ H6-100×100/H7-120×120)
②	Motor type: Brushless
③	Power: 120W
④	Voltage: 220VAC
⑤	Type of reducer: S-Series reducer
⑥	Speed: 3,000RPM
⑦	Reducer size: 60 (2GU-60×60/3GU-70×70/4GU-80×80/5GU-90×90/ 6GU-100×100/7GU-120×120)
⑧	Speed ratio: 200

Product explosion diagram



Parts list

1: 1st follower	7: Keys	14: Gearbox housing	21: Hexagon socket head screws	26: Stator core
	8: Axle sleeve	15: O-ring		27: Spring wave washer
2: Bearing	9: Bearing	16: Locating pin	22: Oil seal	
3: 2nd follower	10: 4th follower	17: Gearbox cover	23: Cover plate	28: Back cover
		18: Hexagon socket head screws	24: Crossrecessed PAN head screws	29: Hexagon socket stainless steel screws
4: 3rd follower	11: Bearing			
5: Bearing	12: Output shaft	19: Sealing washer		30: Outgoing retainer
6: Hird gear	13: Keys	20: Front end cover	25: Rotor	

S SERIES GEAR MOTOR (30W)

Name

- Parallel shaft reducer

Model number	Motor type	Type of reducer	Ratio	L
H2BLD30-220GV-30S/2GU□V	H2BLD30-220GV-30S	2GU□V	5 ~ 20	34
			30 ~ 100	38
			200	43

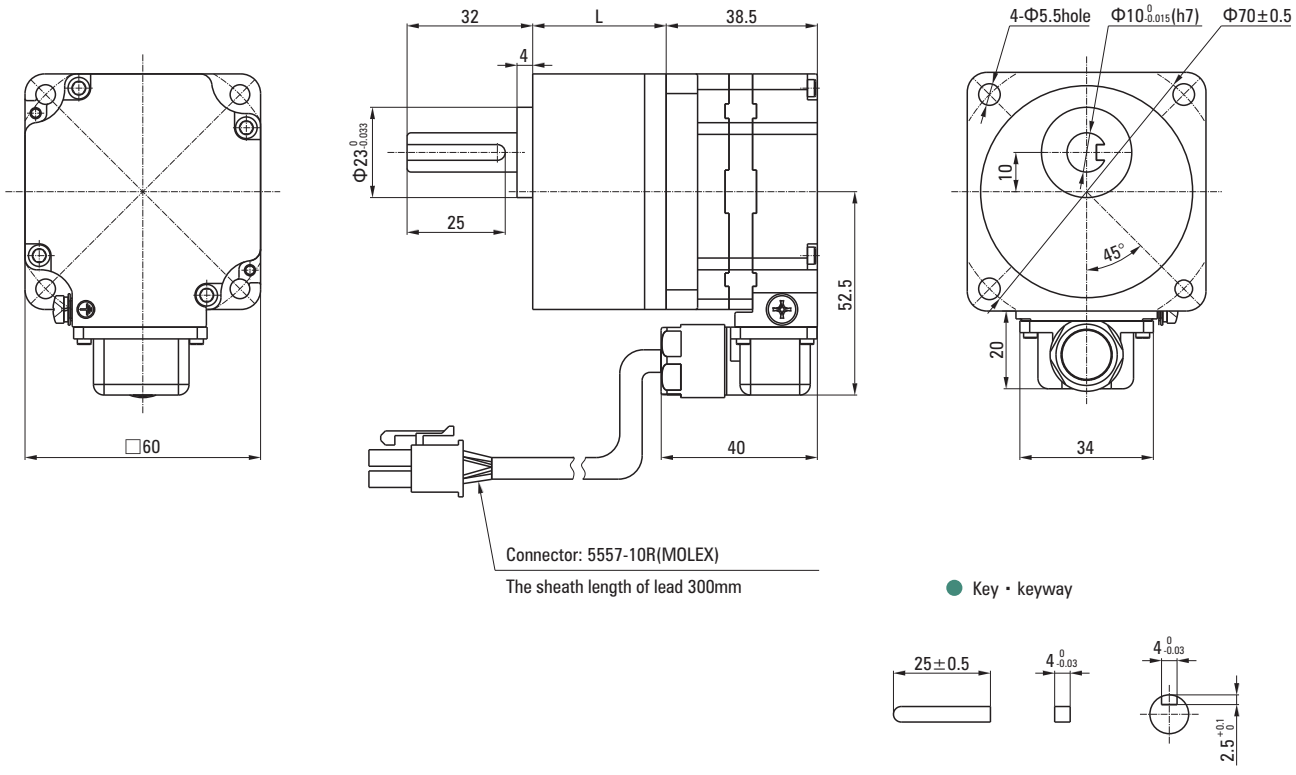
Allowable torque

Unit: N·m

Output power	Motor speed \ Ratio	5	10	15	20	30	50	100	200
30W	80 ~ 2000RPM	0.45	0.90	1.4	1.8	2.6	4.3	6.0	6.0
	3000RPM	0.43	0.86	1.3	1.7	2.6	4.1	6.0	6.0
	4000RPM	0.32	0.65	0.97	1.3	1.9	3.1	5.4	5.4

Note：The ▭ (gray) in the table indicates that the rotation direction is consistent with the motor.
（The torque under different speed and speed ratio is obtained under the HY standard）

Dimensional drawing



S SERIES GEAR MOTOR (60W)

Name

- Parallel shaft reducer

Model number	Motor type	Type of reducer	Ratio	L
H3BLD60-220GV-30S/3GU□V	H3BLD60-220GV-30S	3GU□V	5 ~ 20	38
			30 ~ 100	43
			200 ~ 360	48

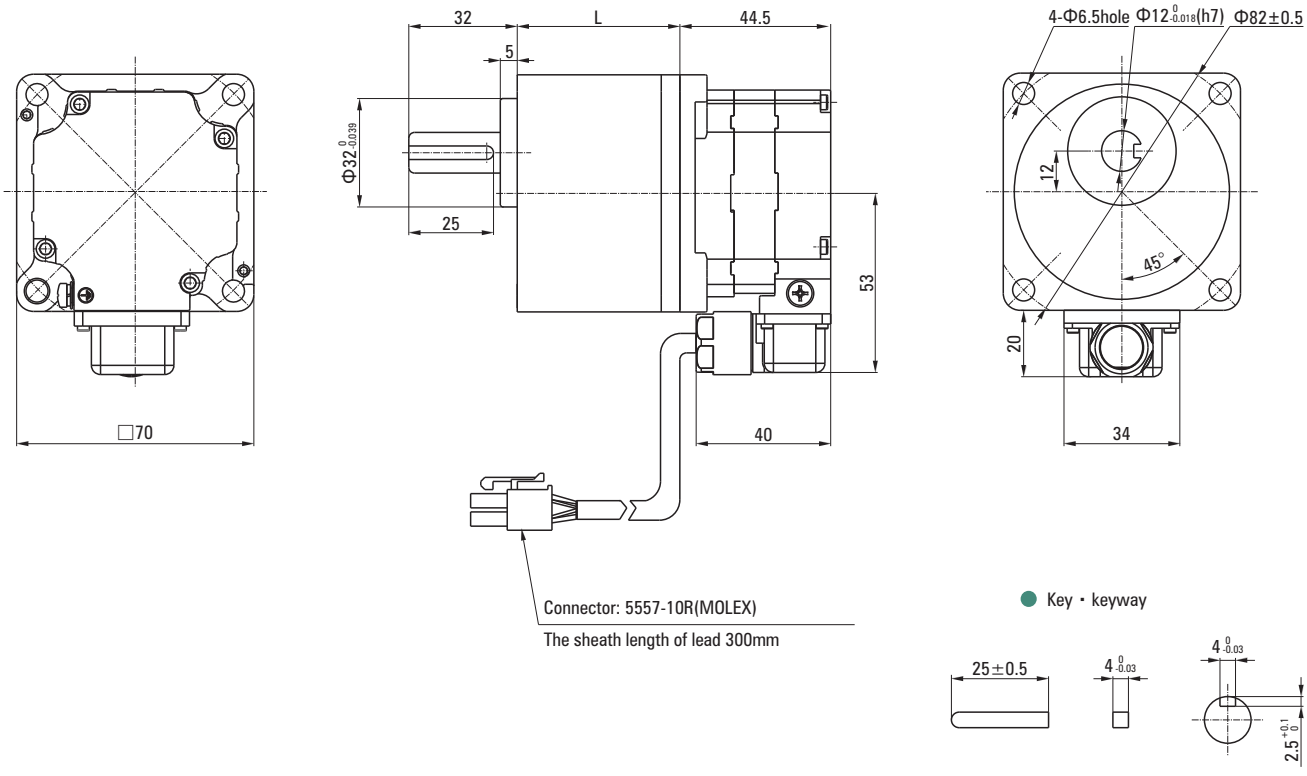
Allowable torque

Unit: N·m

Output power	Motor speed \ Ratio	5	10	15	20	30	50	100	200	360
60W	80 ~ 2000RPM	0.80	1.6	2.4	3.2	4.7	7.7	10.0	10.0	10.0
	3000RPM	0.77	1.5	2.3	3.0	4.4	7.4	10.0	10.0	10.0
	4000RPM	0.58	1.2	1.7	2.3	3.3	5.6	10.0	10.0	10.0

Note：The ▭ (gray) in the table indicates that the rotation direction is consistent with the motor.
(The torque under different speed and speed ratio is obtained under the HY standard)

Dimensional drawing



S SERIES GEAR MOTOR (60W/120W)

Name

- Parallel shaft reducer

Model number	Motor type	Type of reducer	Ratio	L	L1
H4BLD60-220GV-30S/4GU□V	H4BLD60-220GV-30S	4GU□V	5 ~ 20	41	50.5
			30 ~ 100	46	
			200	51	
H4BLD120-220GV-30S/4GU□V	H4BLD120-220GV-30S	4GU□V	5 ~ 20	41	54.0
			30 ~ 100	46	
			200	51	

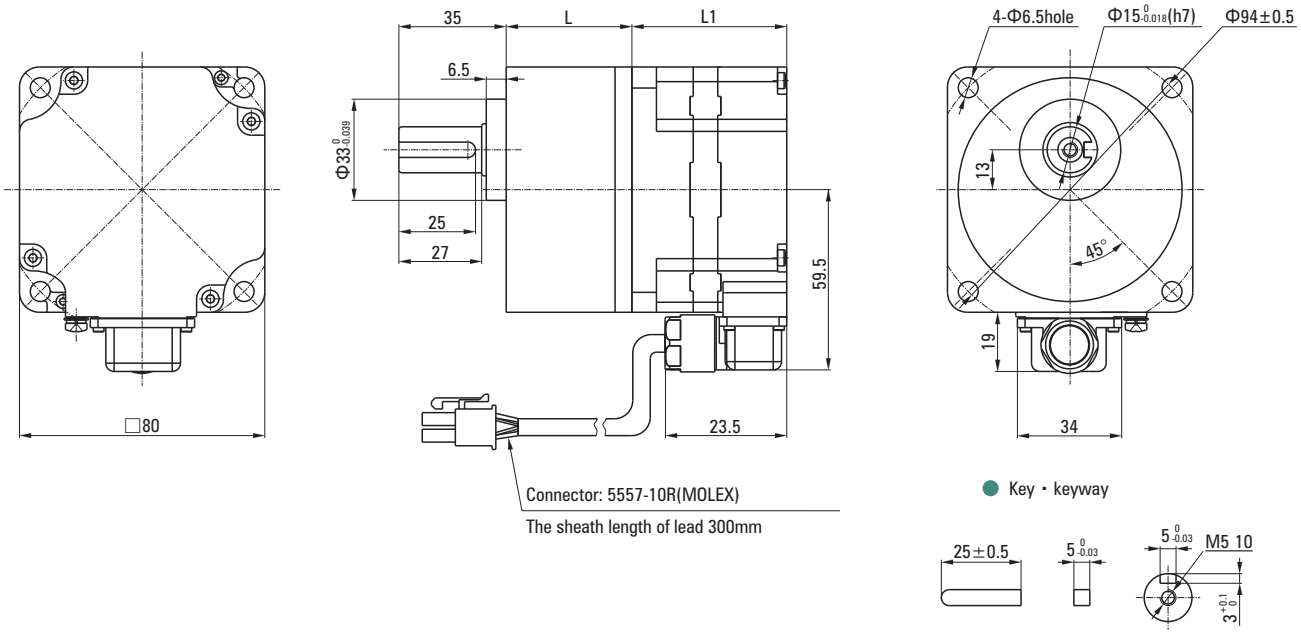
Allowable torque

Unit: N·m

Output power	Motor speed \ Ratio	5	10	15	20	30	50	100	200
60W	80 ~ 2000RPM	0.90	1.8	2.7	3.6	5.2	8.6	16.0	16.0
	3000RPM	0.86	1.7	2.6	3.4	4.9	8.2	16.0	16.0
	4000RPM	0.65	1.3	1.9	2.6	3.7	6.2	12.4	14.0
120W	80 ~ 2000RPM	2.0	4.1	6.1	8.1	11.6	-	-	-
	3000RPM	1.7	3.4	5.2	6.9	9.9	-	-	-
	4000RPM	1.3	2.6	3.9	5.2	7.4	12.3	-	-

Note : The (gray) in the table indicates that the rotation direction is consistent with the motor.
(The torque under different speed and speed ratio is obtained under the HY standard)

Dimensional drawing



S SERIES GEAR MOTOR (120W/200W)

Name

- Parallel shaft reducer

Model number	Motor type	Type of reducer	Ratio	L	L1
H5BLD120-220GV-30S/5GU□V	H5BLD120-220GV-30S	5GU□V	5 ~ 20	45	50.5
			30 ~ 100	58	
			200	64	
H5BLD200-220GV-30S/5GU□V	H5BLD200-220GV-30S	5GU□V	5 ~ 20	45	54.5
			30 ~ 100	58	
			200	64	

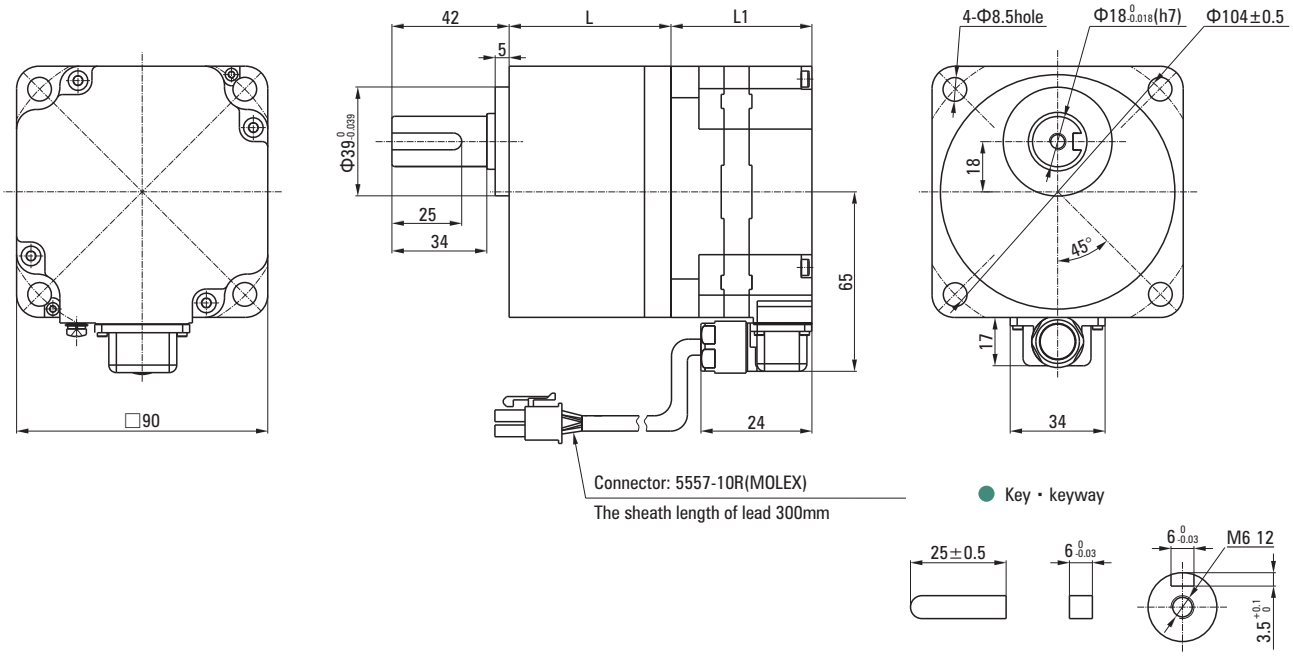
Allowable torque

Unit: N·m

Output power	Motor speed \ Ratio	5	10	15	20	30	50	100	200
120W	80 ~ 2000RPM	2.0	4.1	6.1	8.1	11.6	19.4	30.0	30.0
	3000RPM	1.7	3.4	5.2	6.9	9.9	16.4	30.0	30.0
	4000RPM	1.3	2.6	3.9	5.2	7.4	12.3	24.7	27.0
200W	80 ~ 2000RPM	2.9	5.7	8.6	11.5	16.4	27.4	-	-
	4000RPM	2.2	4.3	6.5	8.60	12.4	20.5	-	-

Note：The ▭ (gray) in the table indicates that the rotation direction is consistent with the motor.
(The torque under different speed and speed ratio is obtained under the HY standard)

Dimensional drawing



S SERIES GEAR MOTOR (200W/400W)

Name

- Parallel shaft reducer

Model number	Motor type	Type of reducer	Ratio	L	L1
H6BLD200-220GV-30S/6GU□V	H6BLD200-220GV-30S	6GU□V	5～20	60	61.5
			30～50	72	
			100～200	86	
H6BLD400-220GV-30S/6GU□V	H6BLD400-220GV-30S	6GU□V	5～20	60	73.5
			30～50	72	

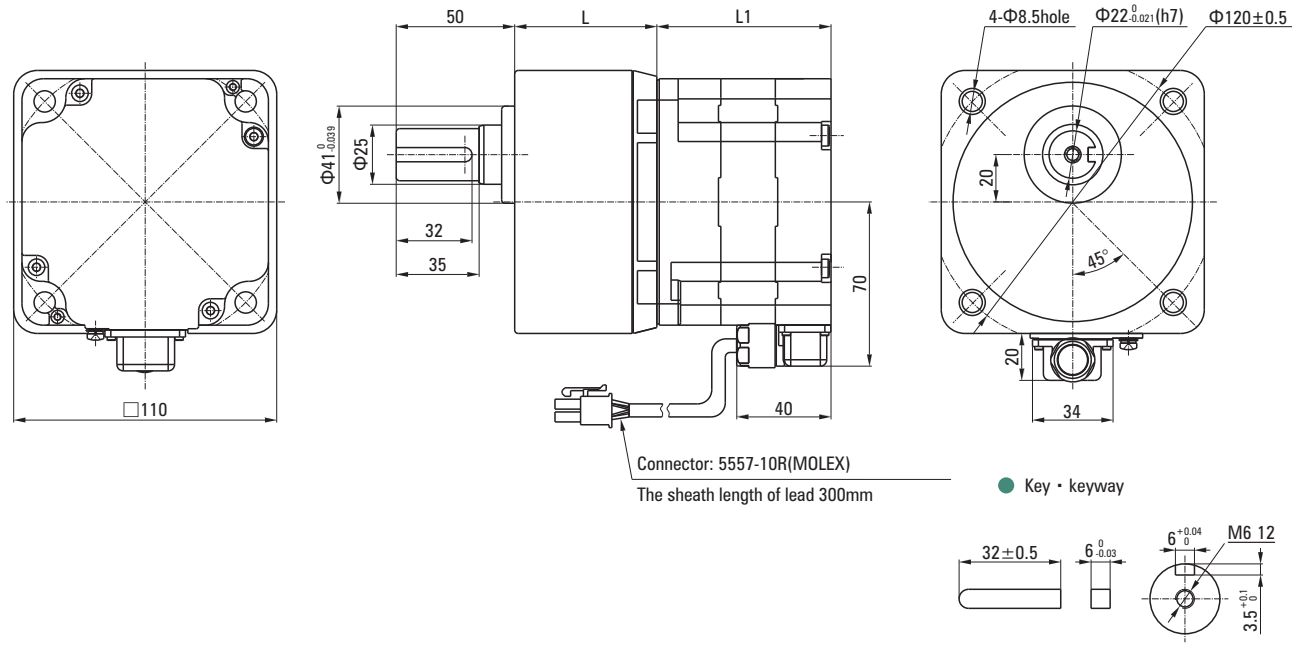
Allowable torque

Unit: N·m

Output power	Motor speed \ Ratio	5	10	15	20	30	50	100	200
200W	80～2000RPM	2.9	5.7	8.6	11.5	16.4	27.4	51.6	70.0
	4000RPM	2.2	4.3	6.5	8.60	12.4	20.5	38.9	63.0
400W	80～3000RPM	5.7	11.4	17.1	22.9	32.8	54.6	-	-
	4000RPM	4.3	8.60	12.9	17.2	24.6	41.1	-	-

Note：The ▭ (gray) in the table indicates that the rotation direction is consistent with the motor.
（The torque under different speed and speed ratio is obtained under the HY standard）

Dimensional drawing



S SERIES GEAR MOTOR (750W)

Name

- Parallel shaft reducer

Model number	Motor type	Type of reducer	Ratio	L
H7BLD750-220GV-30S/7GU□V	H7BLD750-220GV-30S	7GU□V	5 ~ 10	84
			15 ~ 50	

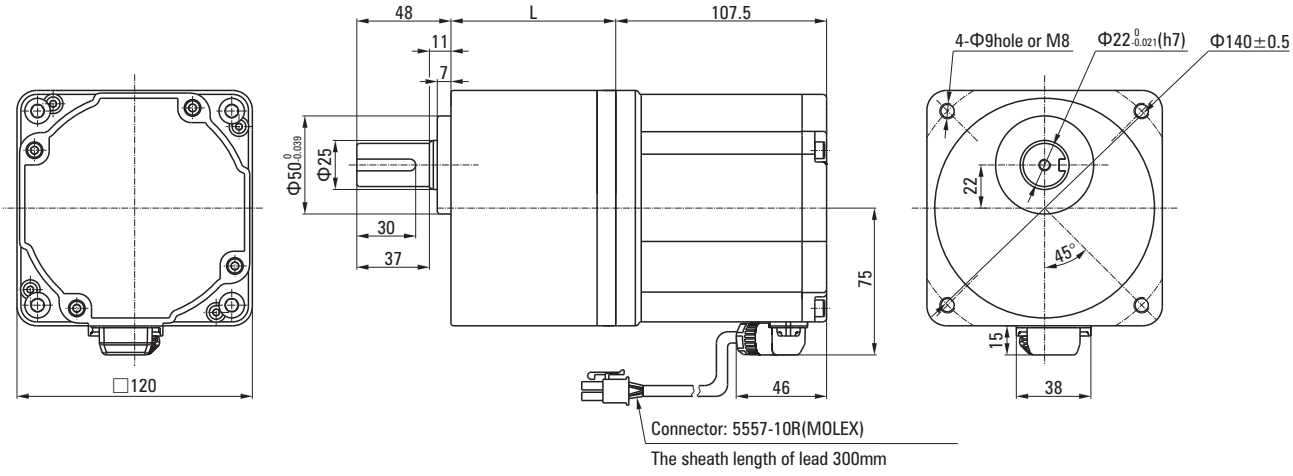
Allowable torque

Unit: N·m

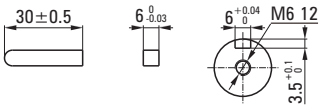
Output power	Ratio / Motor speed	5	10	15	20	30	50
750W	200 ~ 1500RPM	19.34	38.68	52.29	69.72	100.00	100.00
	2000RPM	14.50	29.01	39.21	52.29	78.43	100.00
	2500RPM	11.60	23.21	31.37	41.83	62.74	100.00
	4000RPM	9.67	19.34	26.14	34.86	52.29	87.14

Note：The ▭ (gray) in the table indicates that the rotation direction is consistent with the motor.
（The torque under different speed and speed ratio is obtained under the HY standard）

Dimensional drawing



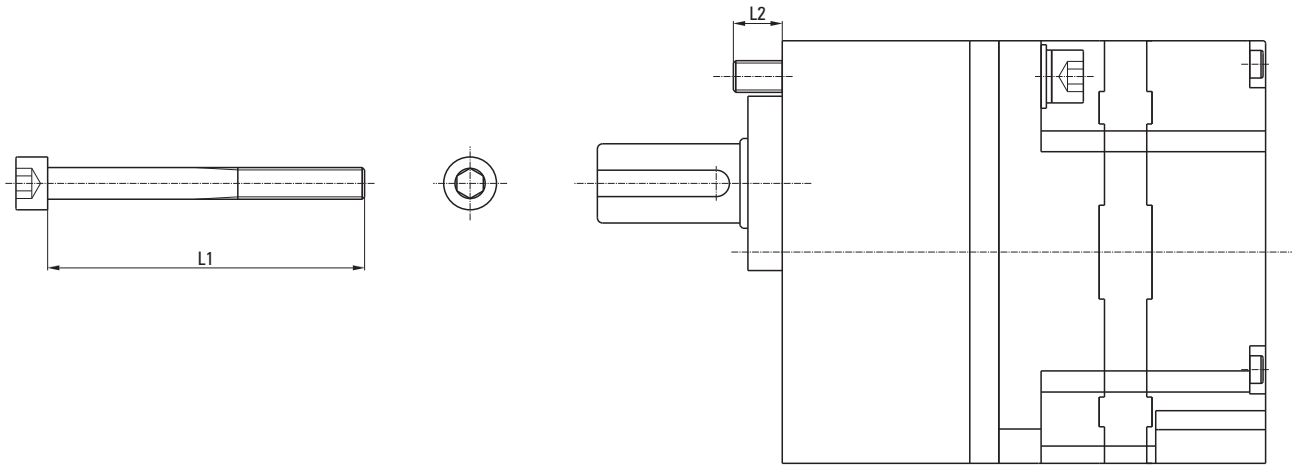
● Key・keyway



SCREW DIMENSIONS FOR MOUNTING

L2 is the size of the flat washer and spring washer installed on the screw head side.

S type reducer



Model	Reduction ratio	安Screw for mounting		L2 (mm)
		Screw specification	L1 (mm)	
2GU□V	5～20	M4	50	6
	3～100	M4	55	7
	200	M4	60	7
3GU□V	5～20	M6	55	7
	30～100	M6	60	7
	200～360	M6	65	7
4GU□V	5～20	M6	60	9
	30～100	M6	65	9
	200	M6	70	9
5GU□V	5～20	M8	70	13
	30～100	M8	85	15
	200	M8	90	14
6GU□V	5～20	M8	85	13
	30～50	M8	100	16
	100～200	M8	110	12
7GU□V	5～10	M8	110	12
	15～50	M8	110	12

Note：□ Indicates the value of deceleration ratio.

- Installation screws: With flat washers, spring washers with 4 each.
  The surface of the screw for installation is nickel-plated, the performance grade is ≥ 8.8, and it comes with the accessories of the whole machine.

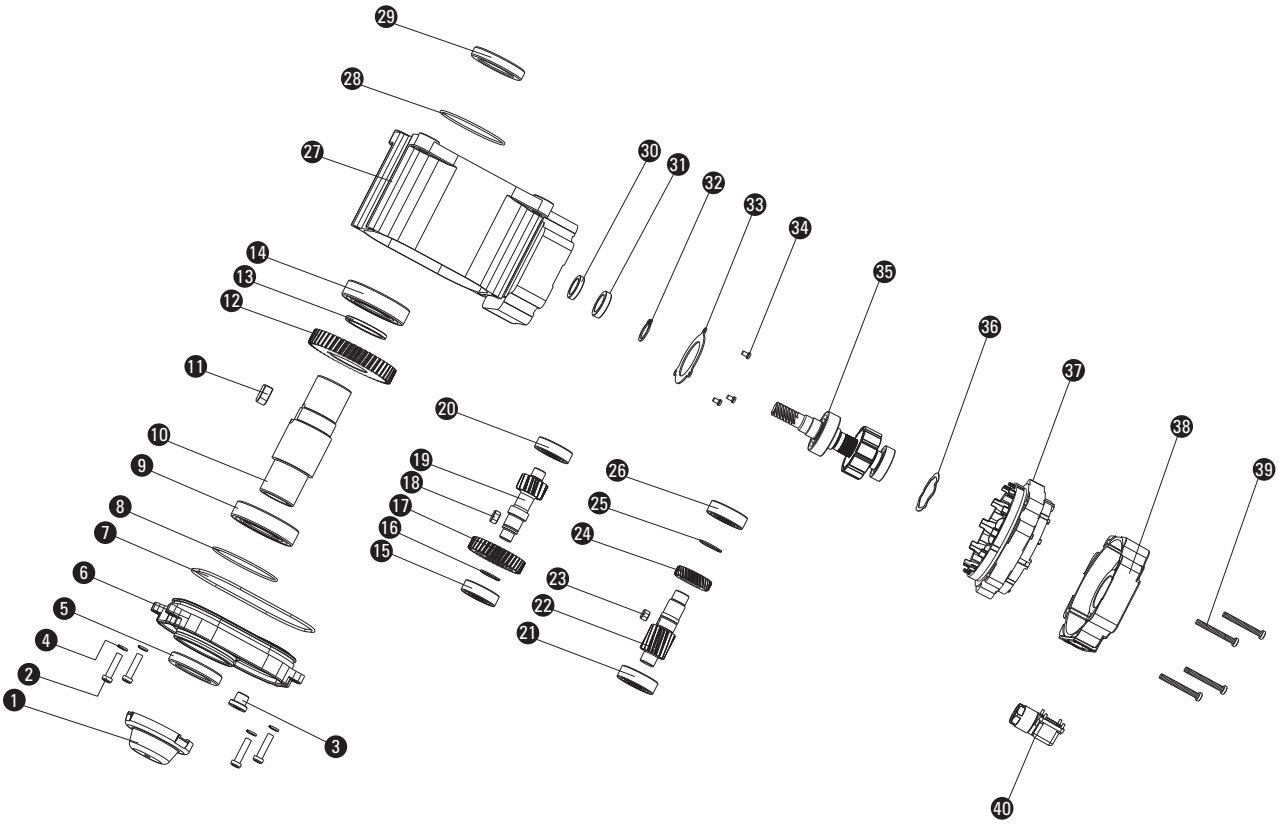
PRODUCT CODE

SF-series motor

H5	BLD	200	-	220	GS	-	30S	/	20H	30SF
①	②	③		④	⑤		⑥		⑦	⑧

①	Size: 60×60 (H2-60×60/H4-80×80/H5-90×90/H6-100×100)
②	Motor type: Brushless
③	Power: 200W
④	Voltage: 220VAC
⑤	Type of reducer: SF-Series reducer
⑥	Speed: 3,000RPM
⑦	Output shaft aperture: Φ20 (12H-12/15H-15/20H-20/25H-25)
⑧	Ratio: 30

Product explosion diagram



Parts list

1: Axle sleeve	10: Output shaft	19: 3rd tooth	28: O-ring	36: Spring wave washer
2: Hexagon socket head screws	11: Keys	20: Bearing	29: Oil seal	
	12: 3rd slave	21: Bearing	30: Oil seal	
3: Oil-filling screw	13: Adjusting washer	22: 2nd tooth	31: Oil seal	37: Rotor core
4: Spring washer	14: Bearing		32: Axle collar	38: Back cover
5: Axle sleeve	15: Bearing	23: Keys	33: Cover plate	39: Hexagon socket stainless steel screws
6: Gearbox cover	16: Axle collar	24: 1st slave	34: Cross recessed PAN head screws	
7: O-ring	17: 2nd slave	25: Axle collar		
8: O-ring		26: Bearing		40: Outgoing retainer
9: Bearing	18: Keys	27: Gearbox housing	35: Rotor	

SF SERIES GEAR MOTOR (60W)

Name

- Right angle gearbox

Model number	Motor type	Type of reducer	Ratio
H2BLD60-220GS-30S/12H□SF	H2BLD60-220GS-30S	12H□SF	7.5 ~ 50

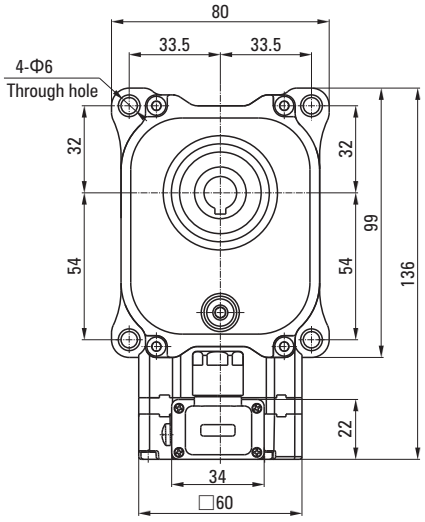
Allowable torque

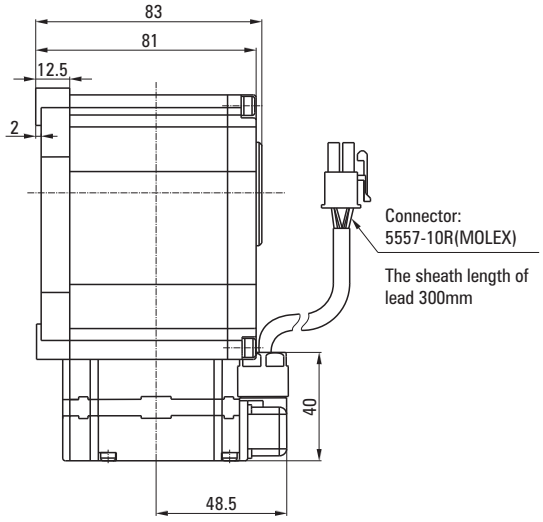
Unit: N·m

Output power	Motor speed \ Ratio	7.5	10	20	30	50
60W	80 ~ 2000RPM	0.90	1.8	3.6	5.2	8.6
	3000RPM	0.86	1.7	3.4	4.9	8.2
	4000RPM	0.65	1.3	2.6	3.7	6.2

Note：The ▭ (gray) in the table indicates that the rotation direction is consistent with the motor.
（The torque under different speed and speed ratio is obtained under the HY standard）

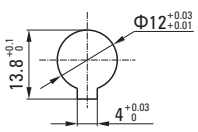
Dimensional drawing



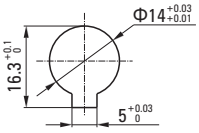


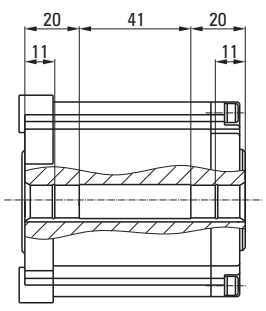
- The output shaft hole structure

Standard type



Specialized type





SF SERIES GEAR MOTOR (120W)

Name

- Right angle gearbox

Model number	Motor type	Type of reducer	Ratio
H4BLD120-220GS-30S/15H□SF	H4BLD120-220GS-30S	15H□SF	7.5 ~ 50

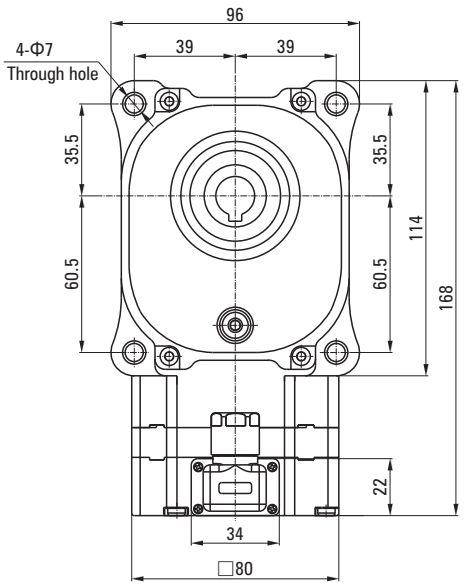
Allowable torque

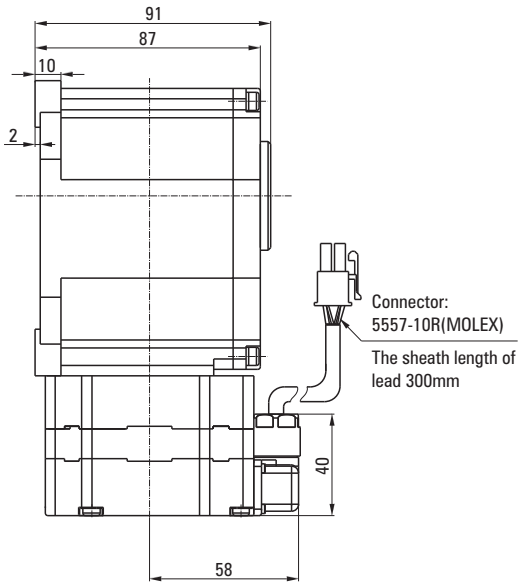
Unit: N·m

Output power	Motor speed \ Ratio	7.5	10	20	30	50
120W	80 ~ 2000RPM	2.7	3.6	7.2	10.3	17.2
	3000RPM	2.3	3.0	6.1	8.80	14.5
	4000RPM	1.7	2.3	4.6	6.60	10.9

Note：The ▭ (gray) in the table indicates that the rotation direction is consistent with the motor.
(The torque under different speed and speed ratio is obtained under the HY standard)

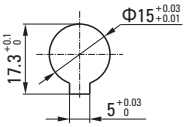
Dimensional drawing



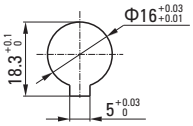


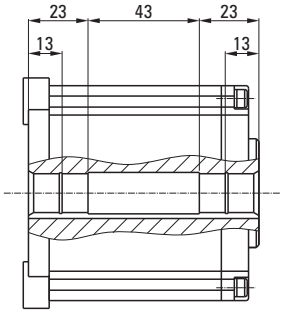
- The output shaft hole structure

Standard type



Specialized type





SF SERIES GEAR MOTOR (200W)

Name

- Right angle gearbox

Model number	Motor type	Type of reducer	Ratio
H5BLD200-220GS-30S/20H□SF	H5BLD200-220GS-30S	20H□SF	7.5 ~ 50

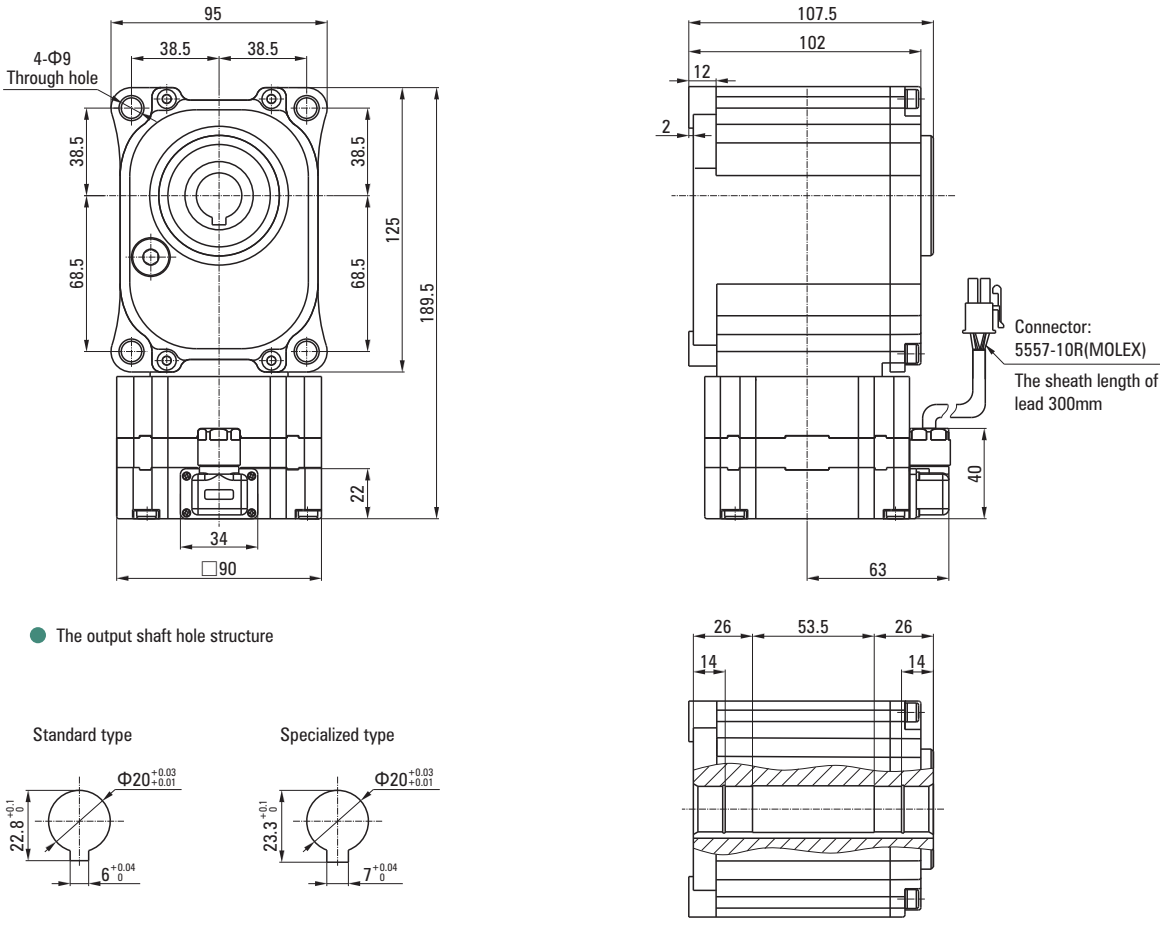
llowable torque

Unit: N·m

Output power	Motor speed \ Ratio	7.5	10	20	30	50
200W	80 ~ 2000RPM	3.8	5.0	10.2	14.5	24.3
	3000RPM	2.9	3.8	7.60	11.0	18.3

Note：The ▭ (gray) in the table indicates that the rotation direction is consistent with the motor.
（The torque under different speed and speed ratio is obtained under the HY standard）

imensional drawing



- The output shaft hole structure

Standard type

Specialized type

SF SERIES GEAR MOTOR (400W)

Name

- Right angle gearbox

Model number	Motor type	Type of reducer	Ratio
H6BLD400-220GS-30S/25H□SF	H6BLD400-220GS-30S	25H□SF	7.5 ~ 50

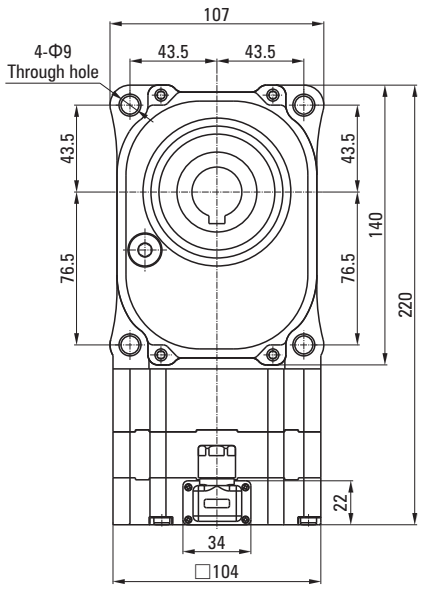
Allowable torque

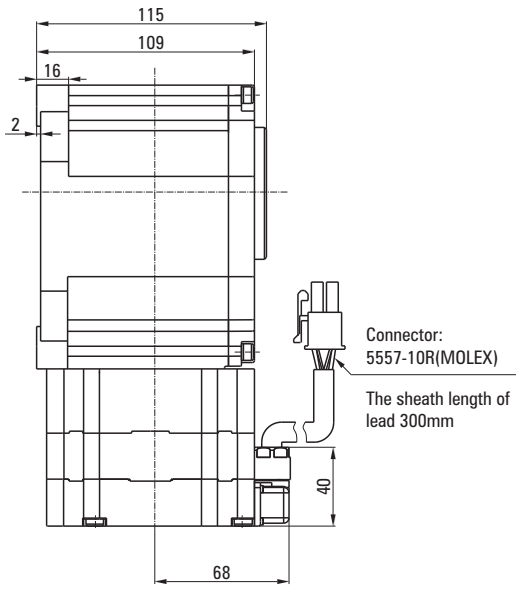
Unit: N·m

Output power	Ratio / Motor speed	7.5	10	20	30	50
400W	80 ~ 2000RPM	7.6	10.1	20.3	29.1	48.5
	3000RPM	5.7	7.60	15.2	21.8	36.5

Note：The ▭ (gray) in the table indicates that the rotation direction is consistent with the motor.
(The torque under different speed and speed ratio is obtained under the HY standard)

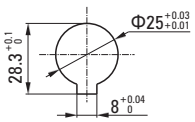
Dimensional drawing



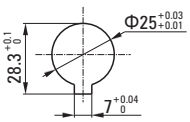


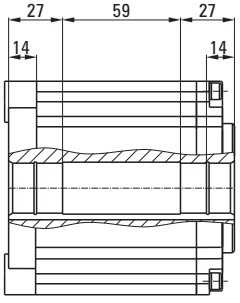
- The output shaft hole structure

Standard type



Specialized type





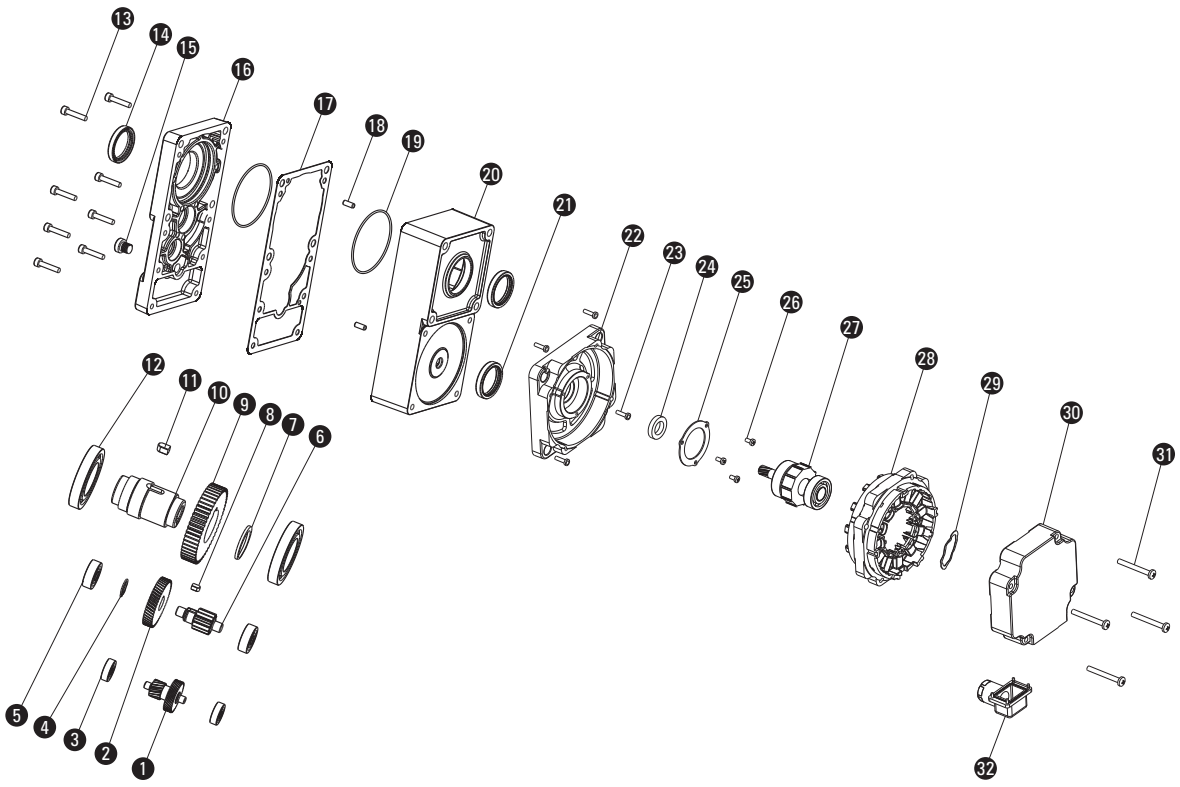
PRODUCT CODE

SL-series motor

H4	BLD	200	-	220	GSL	30S	/	4GU	50SL
①	②	③		④	⑤	⑥		⑦	⑧

①	Size: 80×80 (H2-60×60/H4-80×80/H5-90×90/ H6-104×104/H7-120×120)
②	Motor type: Brushless
③	Power: 200W
④	Voltage: 220VAC
⑤	Type of reducer: SL (SL-Series reducer)
⑥	Speed: 3,000RPM
⑦	Reducer base: 80 (2GU-60×60/4GU-80×80/5GU-90×90/ 6GU-104×104/H7-120×120)
⑧	Ratio: 50

Product explosion diagram



Parts list

1: 1st follower	8: Keys	15: Oil-filling screw	23: Hexagon socket head screws	28: Stator core
	9: 3rd slave	16: Gearbox cover		29: Spring wave washer
2: 2nd slave	10: Output shaft	17: Sealing washer	24: Oil seal	
3: Bearing	11: Keys	18: Locating pin	25: Cover plate	30: Back cover
4: C-Snap ring	12: Bearing	19: O-ring	26: Crossrecessed PAN head screws	31: Hexagon socket stainless steel screws
5: Bearing	13: Hexagon socket head screws	20: Gearbox housing		
6: 3rd gear		21: Sealing washer		32: Outgoing retainer
7: Adjusting washer	14: Oil seal	22: Front end cover	27: Rotor	

SL SERIES GEAR MOTOR (100W)

Name

- Parallel shaft reducer

Model number	Motor type	Type of reducer	Ratio	L
H2BLD100-220GSL-30S/2GU□SL	H2BLD100-220GSL-30S	2GU□SL	5 ~ 50	51

Note：□——Velocity ratio value

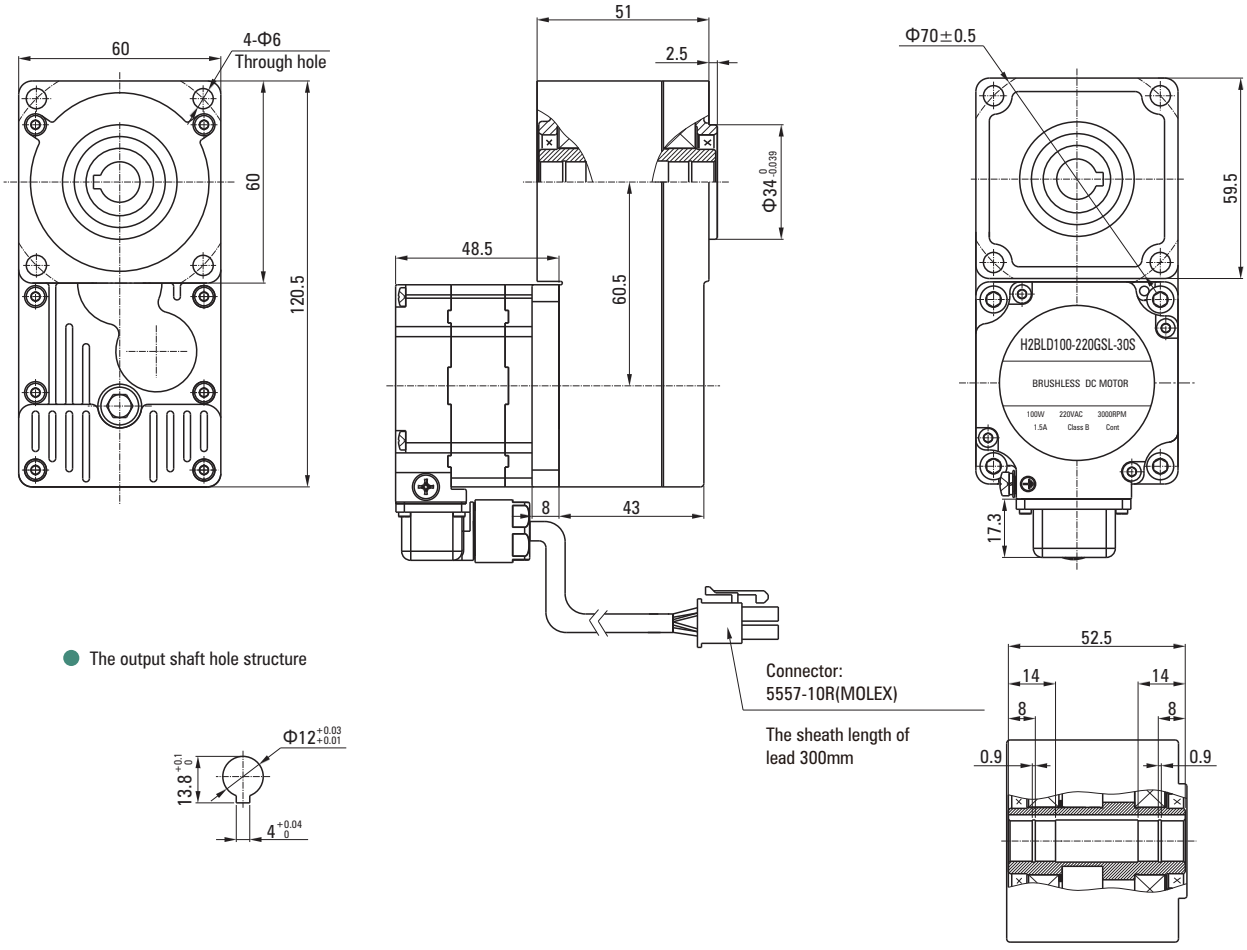
Allowable torque

Unit: N·m

Output power	Motor speed \ Ratio	5	7.5	10	15	20	25	30	40	50
100W	80 ~ 2000r/min	1.74	2.61	3.49	5.23	6.97	8.71	10.46	11.62	11.62
	3000r/min	1.16	1.74	2.32	3.49	4.65	5.81	6.97	9.30	11.62
	4000r/min	0.87	1.31	1.74	2.61	3.49	4.36	5.23	6.97	8.71

Note：All 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



- The output shaft hole structure

SL SERIES GEAR MOTOR (200W)

Name

- Parallel shaft reducer

Model number	Motor type	Type of reducer	Ratio	L
H4BLD200-220GSL-30S/4GU□SL	H4BLD200-220GSL-30S	4GU□SL	5 ~ 50	56.5

Note：□—— Velocity ratio value

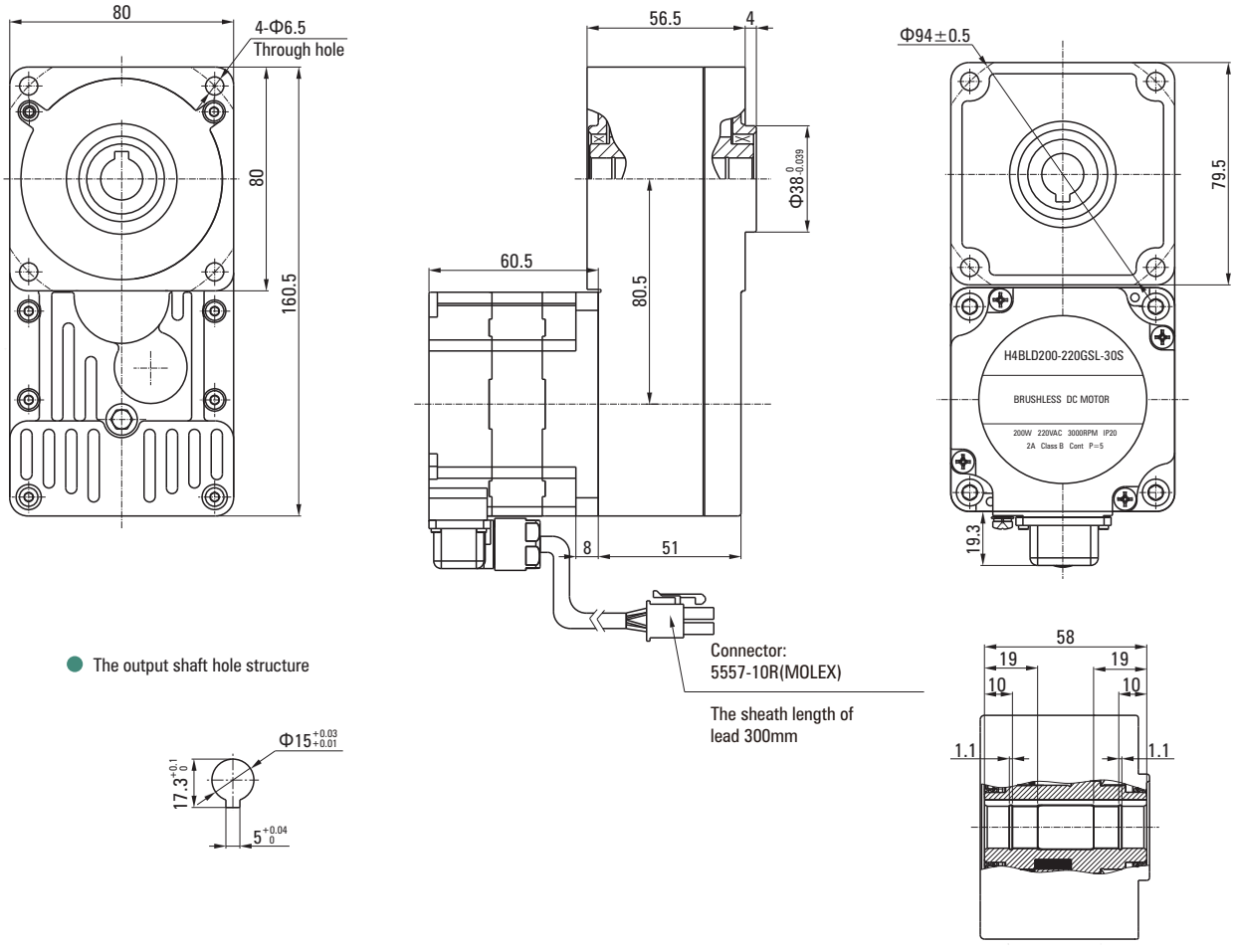
Allowable torque

Unit: N·m

Output power	Motor speed \ Ratio	5	7.5	10	15	20	25	30	40	50
200W	80 ~ 2000r/min	3.49	5.23	6.97	10.46	13.94	17.43	20.91	23.24	23.24
	3000r/min	2.32	3.49	4.65	6.97	9.30	11.62	13.94	18.59	23.24
	4000r/min	1.74	2.61	3.49	5.23	6.97	8.71	10.46	13.94	17.43

Note：All 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



- The output shaft hole structure

SL SERIES GEAR MOTOR (400W)

Name

- Parallel shaft reducer

Model number	Motor type	Type of reducer	Ratio	L
H5BLD400-220GSL-30S/5GU□SL	H5BLD400-220GSL-30S	5GU□SL	5 ~ 50	67.5

Note：□——Velocity ratio value

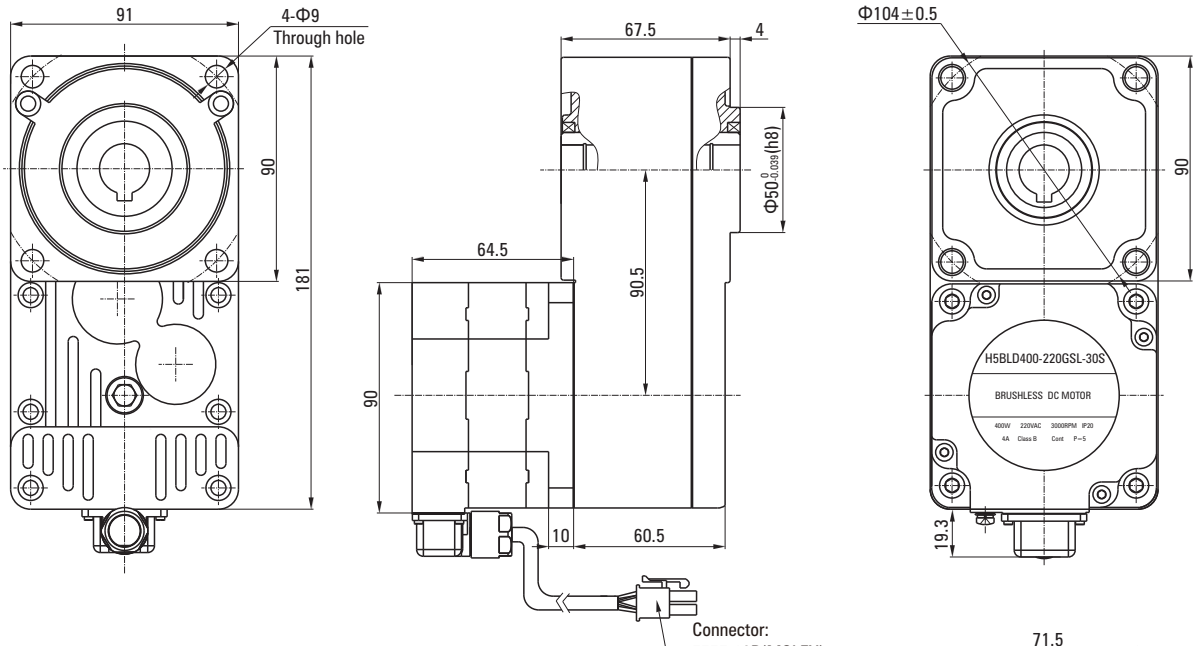
Allowable torque

Unit: N·m

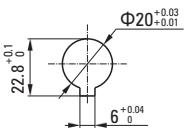
Output power	Motor speed \ Ratio	5	7.5	10	15	20	25	30	40	50
400W	80 ~ 2000r/min	6.97	10.46	13.94	20.91	27.89	34.86	41.83	46.48	46.48
	3000r/min	4.65	6.97	9.30	13.94	18.59	23.24	27.89	37.18	46.48
	4000r/min	3.49	5.23	6.97	10.46	13.94	17.43	20.91	27.89	34.86

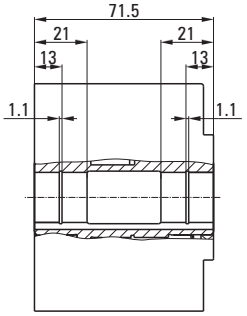
Note：All rotation directions in the table are opposite to motor steering.
(The torque under different speed and speed ratio is obtained under the HY standard)

Dimensional drawing



- The output shaft hole structure





SL SERIES GEAR MOTOR (750W)

Name

- Parallel shaft reducer

Model number	Motor type	Type of reducer	Ratio	L
H6BLD750-220GSL-30S/6GU□SL	H6BLD750-220GSL-30S	6GU□SL	5 ~ 50	85.8

Note：□——Velocity ratio value

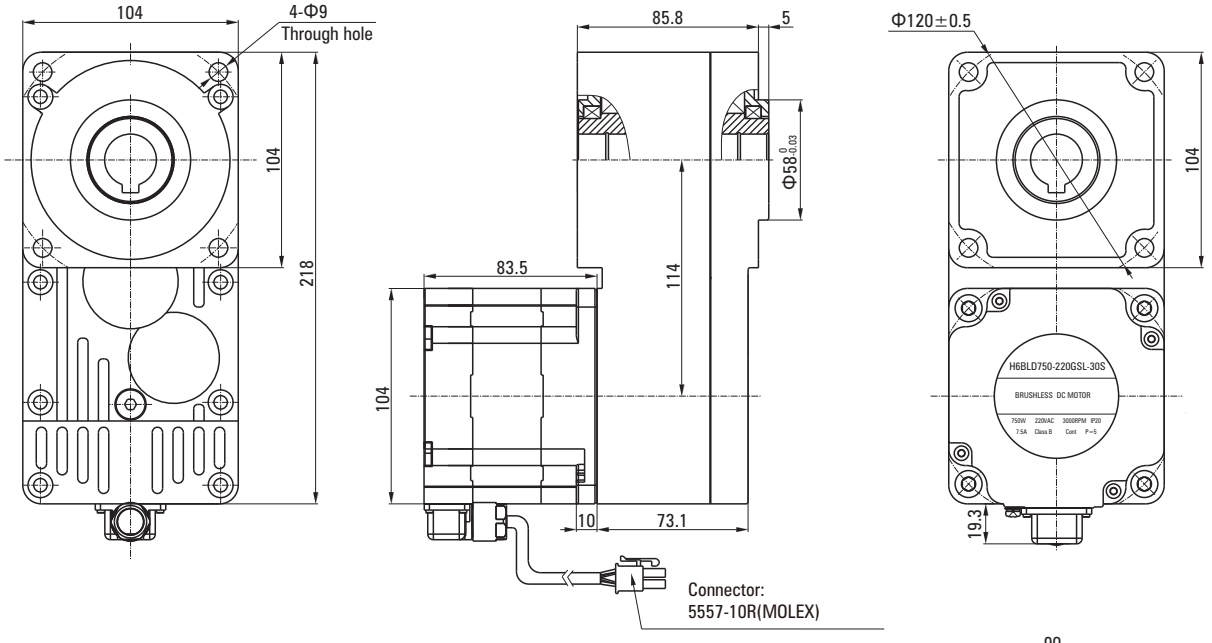
Allowable torque

Unit: N·m

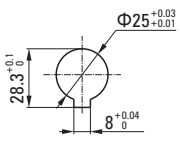
Output power	Motor speed \ Ratio	5	7.5	10	15	20	25	30	40	50
750W	80 ~ 2000r/min	13.07	19.61	26.14	39.21	52.29	65.36	78.43	87.14	87.14
	3000r/min	8.71	13.07	17.43	26.14	34.86	43.57	52.29	69.72	87.14
	4000r/min	6.54	9.80	13.07	19.61	26.14	32.68	39.21	52.29	65.36

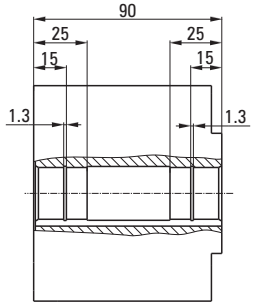
Note：All rotation directions in the table are opposite to motor steering.
（The torque under different speed and speed ratio is obtained under the HY standard）

Dimensional drawing



- The output shaft hole structure





SL SERIES GEAR MOTOR (1100W)

Name

- Parallel shaft reducer

Model number	Motor type	Type of reducer	Ratio	L
H7BLD1100-220GSL-30S/7GU□SL	H7BLD1100-220GSL-30S	7GU□SL	5 ~ 100	92.5

Note：□——Velocity ratio value

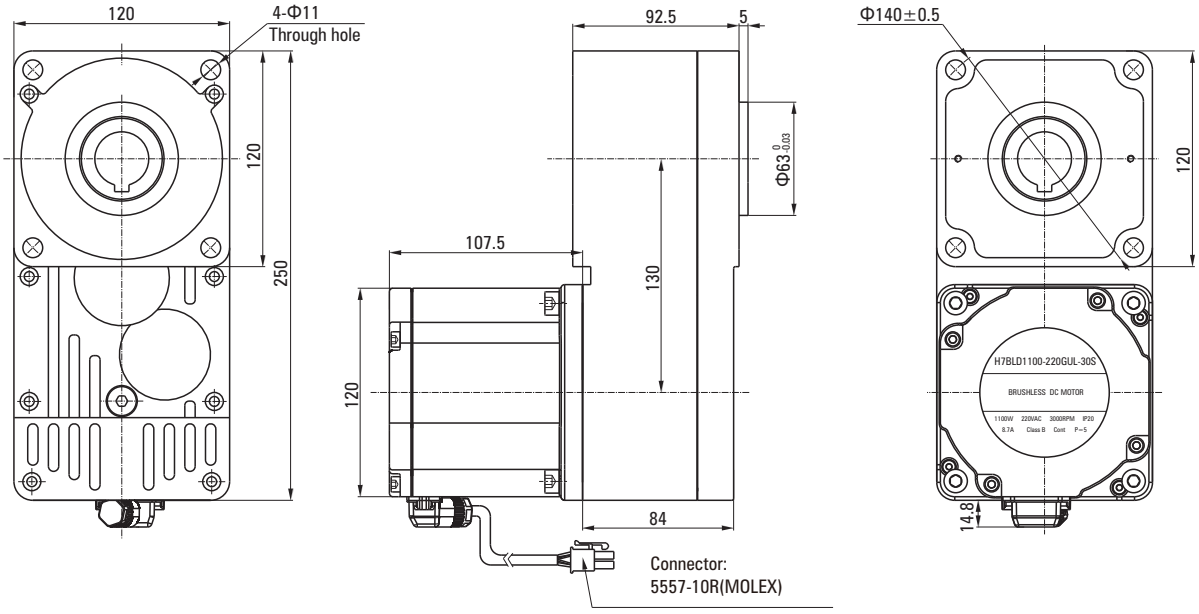
Allowable torque

Unit: N·m

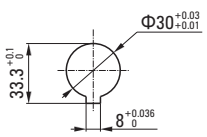
Output power	Motor speed \ Ratio	5	10	15	20	25	30	40	50	100
1100W	80 ~ 2000r/min	19.17	38.34	57.51	76.69	95.86	115.03	153.37	191.72	200.00
	3000r/min	12.78	25.56	38.34	51.12	63.91	76.69	102.25	127.81	200.00
	4000r/min	9.59	19.17	28.76	38.34	47.93	57.51	76.69	95.86	191.72

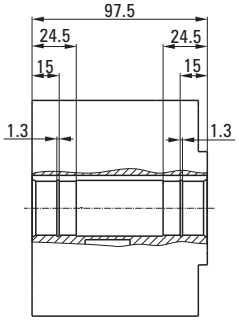
Note：All rotation directions in the table are opposite to motor steering.
（The torque under different speed and speed ratio is obtained under the HY standard）

Dimensional drawing



- The output shaft hole structure

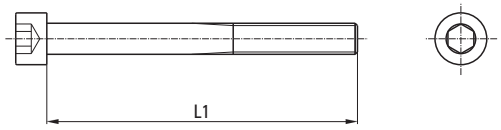


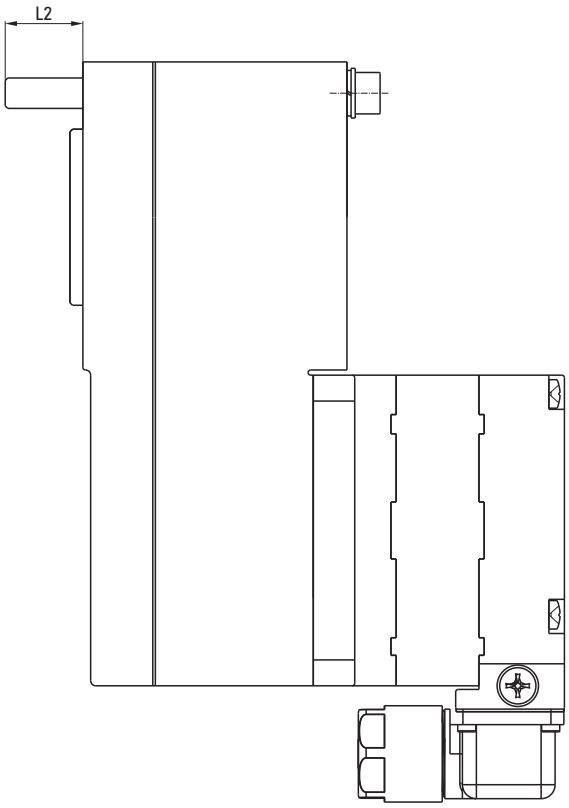


SCREW DIMENSIONS FOR MOUNTING

L2 is the size of the flat washer and spring washer installed on the screw head side.

SL type reducer





Model	Reduction ratio	Screw for mounting		L2 (mm)
		Screw specification	L1 (mm)	
2GU□SL	5～50	M5	70	16
4GU□SL	5～50	M6	80	20
5GU□SL	5～50	M8	100	28
6GU□SL	5～50	M8	110	20
7GU□SL	5～100	M10	120	23

Note : □ Indicates the value of deceleration ratio.

- **Installation screws:** With flat washers, spring washers with 4 each.
  The installation screw material is alloy steel with nickel plating treatment on the surface.

C30 SERIES PANEL HIGH VOLTAGE DC BRUSHLESS MOTOR DRIVER

Main features

1. Panel type digital dispaly,encoder knob adjustment;
2. Convenient setting of motor start and stop & speed regulation;
3. Speed control range: 80～3000r/min;
4. Open loop, close loop, vector control support;
5. Multi-function input & output connector, support external analog input;
6. Support modbus RTU protocol, RS485 communication control;
7. Equipped with overload, locked-rotor and other protection function, display output alarm code;
8. Protection class: IP20;
9. Maximum length between motor and driver is 5m, connect directly;
10. Power level: 120W/400W.

Product model

H ① DRV ② • C30 ③ - 120 ④ S2 ⑤ - DR ⑥

①	Manufacturer——HENGYAO
②	Product type——Driver and related product
③	Product series——C30 series bldc driver
④	Power level——120W
⑤	Power supply——AC200V～240V single phase
⑥	Feature code——D: With display; R: With RS485 communication

Driver

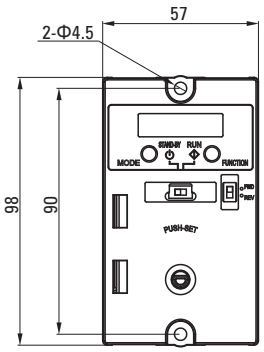
● 120W、400W

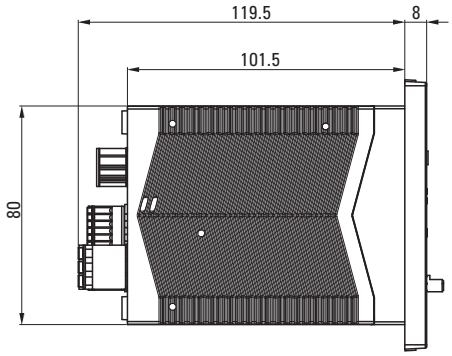
Unit: N·m

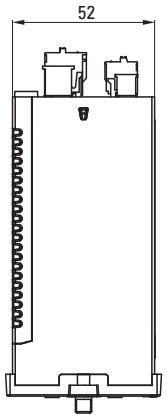
Model	Rated voltage	Rated current	Output power	Output power
HYRV.C30-120S2-DR	AC220V	0.8A	120W	Embedded installation
HYRV.C30-400S2-DR	AC220V	4.5A	400W	Embedded installation

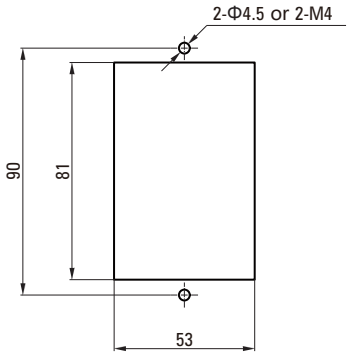
C30 SERIES PANEL HIGH VOLTAGE DC BRUSHLESS MOTOR DRIVER

HYRV.C30-120S2-DR Outline dimension



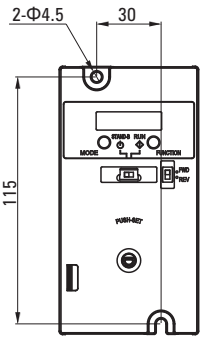


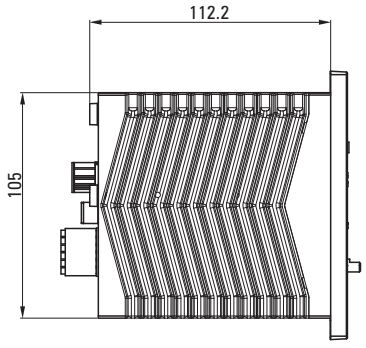


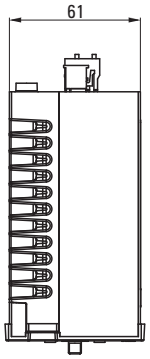


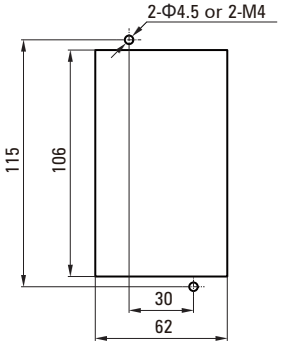
Schematic diagram of panel holes

HYRV.C30-400S2-DR Outline dimension









Schematic diagram of panel holes

C40 SERIES NON-INDUCTIVE VARIABLE FREQUENCY DRIVE

H	DRV	•	C40	—	400	L	—	R
①	②		③		④	⑤		⑥

①	Company name abbreviation	NINGBO HENGYAO TRADING CO.,LTD.	
②	Product type	DRV: Drivers and related products	
③	Product series	C40: Non-inductive driver series	
④	Power level	Low pressure: 200:200W 400:400W 800:800W	
		High pressure: 200:200W 400:400W 750:750W 1100:1100W 1500:1500W 2200:2200W	
⑤	Power supply type	S2: Single-phase AC220V/50Hz～60Hz	L: DC24V～DC48V
⑥	Function code	B: With braking function	
		C: With CanOpen communication function	
		R: With 485 communication function	

HYRV.C40-400L-R

HYRV.C40-400S2-BR-001

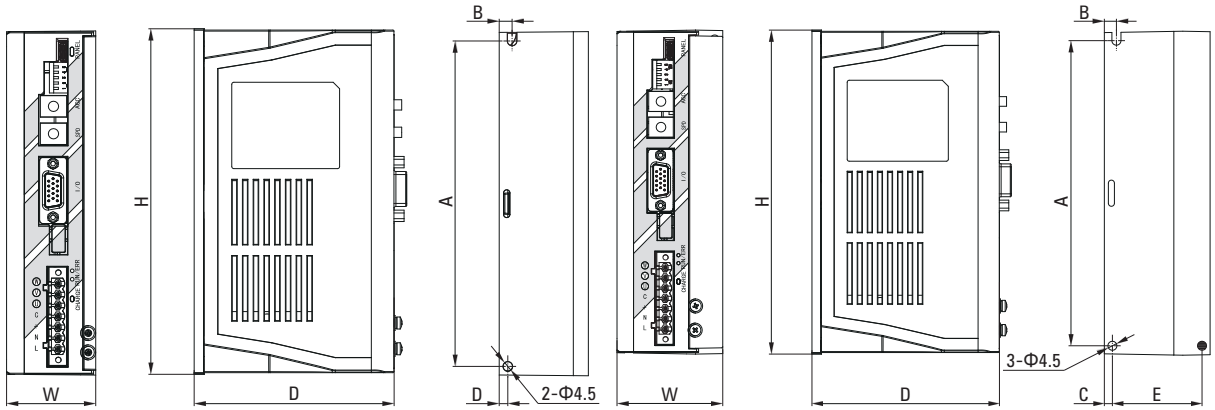
HYRV.C40-400S2-BR
HYRV.C40-200S2-BR

HYRV.C40-750S2-BR

Features of C40 series non-inductive variable frequency drive

- 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 up to 20rpm, 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 load 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 100 meters. 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 1%, 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 30000 rpm. If you need to support higher motor speeds, you can communicate with our company for customization.
- Strong applicability: With powerful automatic recognition function for motor parameters, this product can be compatible with various manufacturers of Hall free DC brushless motors and encoder free permanent magnet synchronous motors.
- Equipped with a braking circuit that can quickly start and stop.

Product dimension drawing

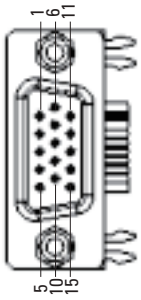


Model	Overall dimensions (mm)			Inatallation dimensions		
	W	H	D	A	B	C
HYRV.C40-400S2-BR	41.5	159.5	93	151.5	6	4

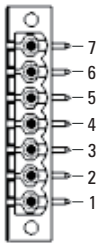
Model	Overall dimensions (mm)			Inatallation dimensions			
	W	H	D	A	B	D	E
HYRV.C40-750S2-BR	52.5	159.5	93	151.5	6	4	44.5

nput/output interface

- HYRV.C40-400S2-BR



Pin number	Pin name	Pin function
1	AIN+	Analog input positive
2	AIN-	Analog input negative, short circuited with 12 pin GND
3	DO1	Digital signal output
4	DI1	Digital signal input
5	DI2	
6	485+	485 signal positive
7	485-	485 signal negative
8	DO2	Digital signal output
9	COM+	Digital signal input common terminal
10	DI3	Digital signal input
11	+5V	5V power output positive
12	GND	5V power supply GND
13	COM-	Digital signal output common terminal
14	DI4	Digital signal input
15	DI5	



Pin number	Pin name	Pin function
7	W	Motor power supply output terminal
6	V	
5	U	
4	B	External braking resistor output
3	P	
2	N	Power input 220VAC
1	L	

Specifications

Model parameters		C40 non-inductive variable frequency drive			
		C40-400L-R	C40-200S2-BR-001	C40-400S2-BR-001	C40-750S2-BR
Rated input voltage		24V/48V	AC220V (±20%)		
Output current	(rms) Rated current	15A (Note 1)	1.4A	2.8A	4.3A
	(peak) Peak current	42Ap	4Ap	8Ap	12.2Ap
Encoder		No			
Energy consumption braking		External braking resistor, braking voltage set through software			
Overvoltage alarm voltage		DC65V Above	DC390V Above		
Under voltage alarm voltage		DC18V Below	DC200V Below		
Overload time		2 times overload, maximum duration of 10 seconds	2 times overload, maximum duration of 10 seconds		2 times overload, maximum duration of 15 seconds
Cooling method		Auxiliary heat dissipation, Free cooling	Free cooling		Forced air cooling
General functions	Digital input	5-way DI	4-way DI		
	Digital input function	120W: Two DI and one DO, DI1 enabled, DI2 reversed, DO fault output; 400W: forward and reverse rotation, forward and reverse jog, multi speed, self parking, fault reset, electronic brake, external fault input, forward and reverse rotation limit;			
	Analog input	External analog voltage (0～10V)	External analog voltage (0～10V)		
	Analog input function	Analog speed control	Analog speed control		
	Digital output	2-way DO	2-way DO		
	Protection function	Overcurrent, overload, short circuit, overtemperature, undervoltage, overvoltage, etc			
	Upper computer	Can use 485 communication to connect to computer upper computer software, set parameters, capture waveforms, and upgrade programs			
	Bluetooth	No			
Bus control	Modbus/RS485	Supports a maximum baud rate of 115.2K and can communicate with the controller using the Modbus RTU protocol	Supports a maximum baud rate of 115.2K and can communicate with the controller using the Modbus RTU protocol		
	CANopen	No			
Usage environment	Working temperature	-25～40℃；Derating usage above 40 degrees Celsius			
	Storage temperature	-10℃～70℃			
	Humidity	Below 90% RH, without condensation			
	Protection level	IP20			
	Installation method	Vertical or horizontal installation			
	Height	When the working altitude is above 1000 meters and below 1000 meters, a derating of 1.5% is required for every 100 meters increase. The maximum working altitude is 4000 meters			
	Pressure	86kpa～106kpa			

● Note 1: Without auxiliary heat dissipation, it can reach 12Arms

HIGH EFFICIENCY BRUSHLESS MOTOR CATALOGUE

Deputy Procurement Manager:Ming
Tel: +(86)18067150331
E-mail: info@hy-motor.com
Web: www.hy-motor.com

NINGBO HENGYAO TRADING CO.,LTD.
Add: No. 7, Qianzhai Road, Cixi City, Ningbo City, Zhejiang Province.