研发 领先的研发能力

品质 优越的品质保障能力

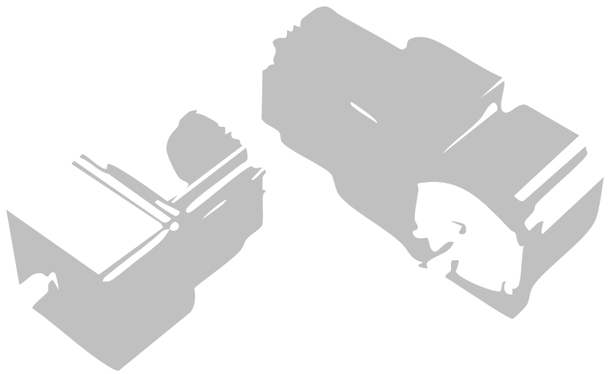
制造 先进的制造能力

服务 快速的服务能力

WANSHSIN®

COMPACT PM AC GEAR MOTOR CATALOG

CE CCC TX



WANSHSIN®

WANSHSIN SEIKOU (HUNAN) CO., LTD

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Committed To Building A World-class Intelligent Electromechanical Brand

WANSHSIN Seikou(Hunan)Co., Ltd

SPECIALIZED REDUCER / REDUCTION MOTOR / CONTROLLER MANUFACTURER
INTELLIGENT AUTOMATION SOLUTION PROVIDER

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COMPANY PROFILE

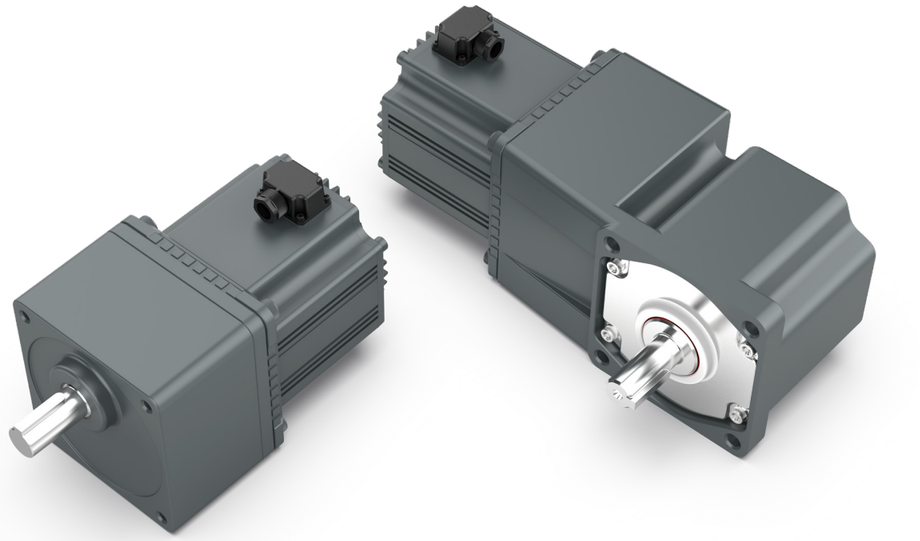
WANSHSIN SEIKOU (HUNAN) CO., LTD.

WANSHSIN was founded in 2009 in Dongguan, Guangdong, and moved its headquarters to Changsha Hunan in 2014.

WANSHSIN is a leading professional gearbox and gearmotor manufacturer and intelligent automation complete solution provider, integrating R&D, production, sales and service, products include gear reducer, gear motor and controller (servo driver, inverter, etc), which are widely used in lithium battery industry, automated production lines, robots, automobile manufacturing, engineering machinery, warehousing and logistics, metallurgy chemicals, ceramics, animal husbandry and other industries. WANSHSIN has gradually become a reliable long-term partner of those leading enterprises of relevant industries.

PRODUCT INTRODUCTION

The compact PM gear motor represents an upgrade from compact AC gear motors; by substituting permanent magnet synchronous motors for AC induction motors, the product demonstrates significant advantages in both electrical and mechanical performance.



Wide speed range

Speed adjustment range: 100-3000rpm;

High output torque

Low-speed constant torque, enhanced load-carrying capacity at low speeds;

Excellent energy efficiency

High energy efficiency with a broad efficient operating range; even at low speeds and light loads, the motor maintains efficient operation.

Stable operating speed

Operates without speed differential, maintaining constant speed regardless of load variation;

Low noise

Sine wave drive, speed smoother operation;

Low temperature rise

No excitation, no rotor losses;low motor heat generation.

Smaller body size

Thinner and lighter than motors of equivalent power;

High-reliability design

The stator employs an encapsulation process, enhancing the motor's insulation and thermal dissipation properties.

PRODUCT ADVANTAGES

Upgraded Permanent Magnet Synchronous Motor

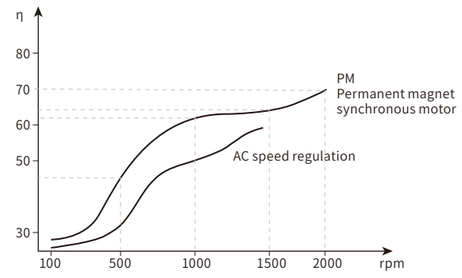
The newly upgraded permanent magnet synchronous motor features a standard sensorless PMSM design with sinusoidal air gap magnetic field. Compared to permanent magnet brushless motors, it delivers superior low-speed performance with reduced vibration and lower operational noise.

Basic Characteristics of Sensorless Permanent Magnet Synchronous Motor

Sensorless permanent magnet motors eliminate the Hall effect sensors found in sensor-based permanent magnet motors. This removes potential failure points associated with Hall sensor operation while enabling greater distance between the motor and its drive. With appropriate control methods, these motors offer more reliable operation and simpler control.

·Significant Improvement in Efficiency

From low speed to high speed, from light load to full load, the average efficiency is incomparably superior to that of AC motors.

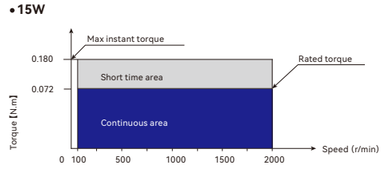


·Speed-Torque Characteristic

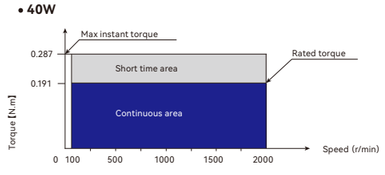
Continuous area: the area suitable for continuous operation

Short time area: the area mainly used for acceleration

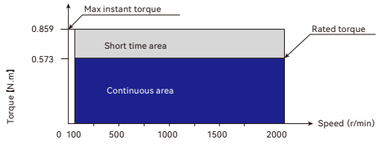
• 15W



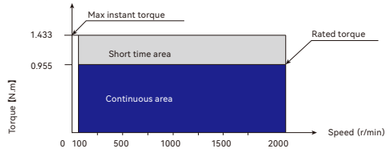
• 40W



• 120W



• 200W



At the same time, our permanent magnet synchronous motors can be equipped with magnetic encoders at the end of the motor to achieve servo control effects.

PRODUCT ADVANTAGES

Basic Characteristics of Servo Permanent Magnet Motor

1. Smoother low-speed operation 2.Higher control of operation accuracy.

1. Wide Speed Range

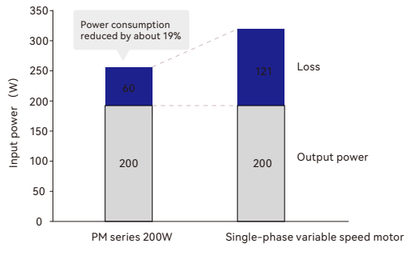
The newly upgraded permanent magnet synchronous motor features a standard sensorless PMSM design with sinusoidal air gap magnetic field. Compared to permanent magnet brushless motors, it delivers superior low-speed performance with reduced vibration and lower operational noise.

Product series	Speed control range
PM series	100~3000 r/min
Three-phase induction motors controllered by inverters	200~2400r/min
AC variable speed motor	50HZ: 90~1400r/min

2. Excellent energy-saving effect

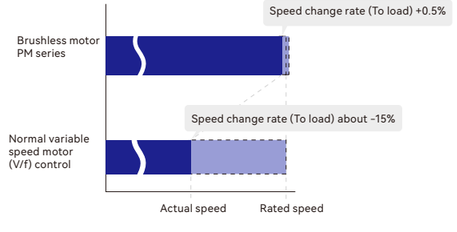
The rotor part of the permanent magnet motor uses permanent magnet steel, which reduces the secondary losses of the rotor and significantly decreases power consumption, contributing to the energy conservation of the device.

Compared with the output of 200W: at the rated output of 50Hz (representative value)



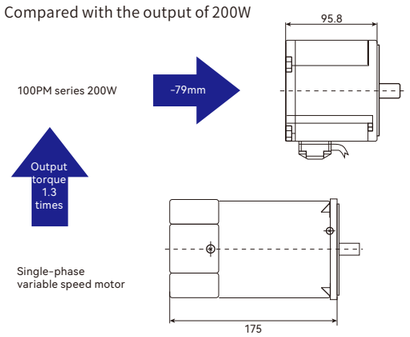
3. Superior speed stability

The load speed variation rate is within ±0.5%, achieving excellent speed stability. Even when the load changes, there is almost no speed change such as that caused by load changes in inverters or AC speed regulators.



4. Thin and Lightweight

The rotor of a permanent magnet motor uses permanent magnets, making it thin and lightweight, meeting the demand for miniaturization of devices.



Resource Integration, Driving Supporting

·Complete product range - expanded gear motor series

Independent development of dedicated permanent magnet vector inverters. Designed specifically for PMSM characteristics, pre-configured with industry-specific macros for user-friendly field application and plug-and-play operation. Rich functionality, compact structure, and powerful integrated capabilities. Supports multiple control methods and communication buses. Delivers excellent dynamic performance and superior overload capacity.

· Multiple control methods with excellent control algorithms

VF, FVC, and SVC are all supported, and advanced high-frequency injection algorithms are used to more accurately adjust the motor's initial position, quickly adjust motor parameters, and improve starting torque.

· Full-order observer sensorless algorithm with strong overload capability

The full-order observer algorithm accurately estimates speed across the entire speed range, resolving inconsistencies in performance at different speeds and ensuring consistent operation across all speed ranges. Lower current under rated load, faster dynamic response, and stable inverter operation at 1.5 times the rated current.

· High low-speed torque with low torque ripple

SVC: 0.3Hz/150%; FVC: 0Hz/180%;

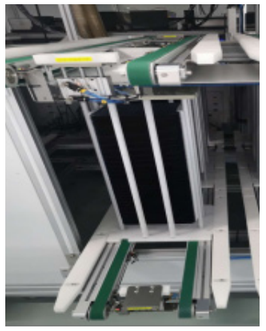
· Independent air duct design with high-speed cooling fan

Fully independent air duct, UV triple-protection coating for enhanced protection. Dual-ball high-speed, high-protection fan ensures continuous operation, providing three times the airflow and six times the lifespan of conventional fans.

APPLICATIONS

Conveying type

Shoe manufacturing automatic assembly line



Photovoltaic automatic feeding line

PCB Assembly Line

Pharmaceutical production line

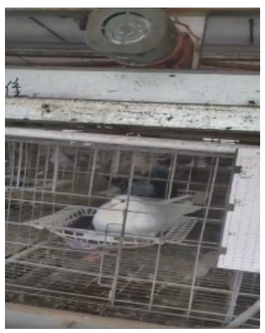
Conveying type

Mushroom conveying production line

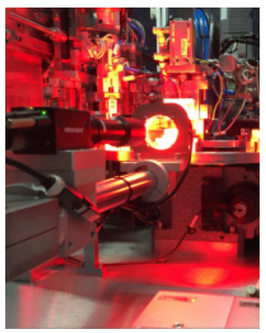
Large-scale workpiece fixture assembly line

Food processing production line

Textile winding production line



Other categories



It is mainly widely applied in the livestock breeding industries such as chicken farming, pigeon breeding, and pig feeding line transportation; in addition, it is also used in other mechanical industries such as divider machines, edge-sealing machinery, three-way valves, and tobacco roasting processing.

COMPACT PM AC GEAR MOTOR

MODEL SELECTION

COMPACT PM AC GEAR MOTOR

COMPACT PM AC GEAR MOTOR MODEL

80PM40WG/DV22□
1 2 3 4 5 6

1 Stand Code
70、80、90、100

2 Name Code
PM：STANDARD PERMANENT MAGNET MOTOR
PMB：PERMANENT MAGNET BRAKE MOTOR
PMS：SERVO PERMANENT MAGNET MOTOR

3 Power Code
15W、40W、120W、200W

4 Rotor Shaft Form Code
G: GEAR SHAFT
D: ROUND SHAFT

5 Voltage Code
V22: SINGLE PHASE 220V

6 Derived Code
X: LEAD (LINE LENGTH 300MM)
T: WITH THERMAL PROTECTOR

GEARBOX MODEL

60GK100H□
1 2 3 4 5

1 Stand Code
70、80、90、100、
L80、L90、L100

2 Model Code
GK：6-25GEARBOX
GF：40-200WGEARBOX
GM：（80.90）INTERMEDIATE GEARBOX

3 Reduction ratio Code
3、3.6…200

4 Structure Code
H：STANDARD
HE：EARED
RT：RIGHT ANGLE SOLID
RC：RIGHT ANGLE HOLLOW

5 Derived Code
K：HOLE

COMPACT PM AC GEAR MOTOR TECHNICAL STANDARDS

INSULATION RESISTANCE	After running at rated settings under normal temperature and humidity, the insulation resistance between the winding and the shell of the motor measured with a DC500V megger should be more than 100MΩ.
INSULATION VOLTAGE	After running at rated settings under normal temperature and humidity, apply 50Hz or 60Hz, 1.5kV between the winding and the shell for one minute, and the motor is normal.
TEMPERATURE RISE	When running at rated settings with gearbox or equivalent heat radiating plate installed, the temperature rise of the winding measured in resistance method is 75K or less.
INSULATION CLASS	F(155°C)
OVERHEATING PROTECTION DEVICE	With built-in thermal protection device (automatic reset type); operating temperature: 120+5°C; reset temperature: 82+15°C(this feature should be customized).
AMBIENT TEMPERATURE	-10°C~+40°C(no freezing)
AMBIENT HUMIDITY	Below 85%(no condensation)

15W

□70×70mm

MOTOR PERFORMANCE

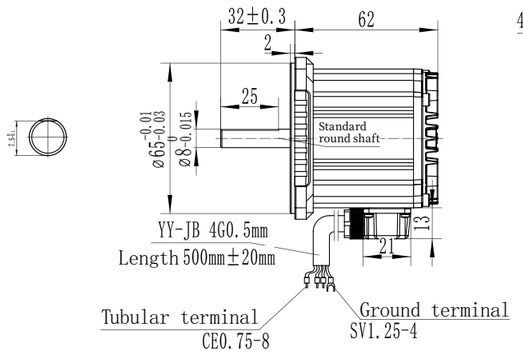
MODEL	MAXIMUM OUTPUT POWER（W）	VOLTAGE （V）	CURRENT （A）	MOTOR SPEED （r/min）	RATED TORQUE (mN·m)
70PM15WGY22	15	Inverter Single-phase 220V Input Three-phase 220V Output	0.2	100-2000	125

REDUCTION RATIO PERFORMANCE CHART

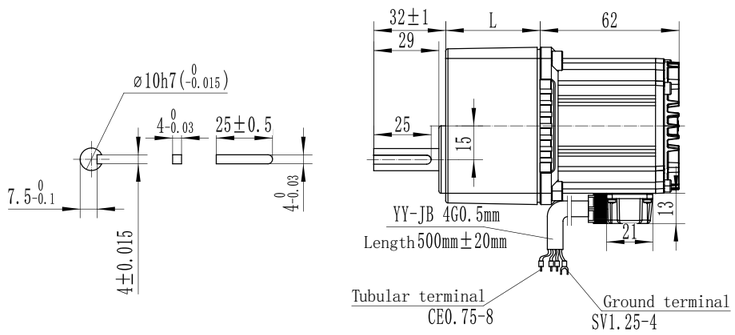
Reduction ratio	3	3.6	5	6	7.5	10	12.5	15	18	20	25	30
Max output speed r/min	667	556	400	333	267	200	160	133	111	100	80	67
Rated torque N·m	0.3	0.36	0.5	0.6	0.74	0.99	1.24	1.49	1.79	1.98	2.31	2.78
Reduction ratio	36	40	50	60	75	90	100	120	150	180	200	
Max output speed r/min	56	50	40	33	27	22	20	17	13	11	10	
Rated torque N·m	3.33	3.7	4.63	5	5	5	5	5	5	5	5	

(CAD) DIMENSIONS

Round-axis motor



Combination:motor+standard gearbox (reduction ratio:1:3~200),



reduction ratio	≤15	L_1=32
reduction ratio	>15	L_2=42

40W
□80×80mm

MOTOR PERFORMANCE

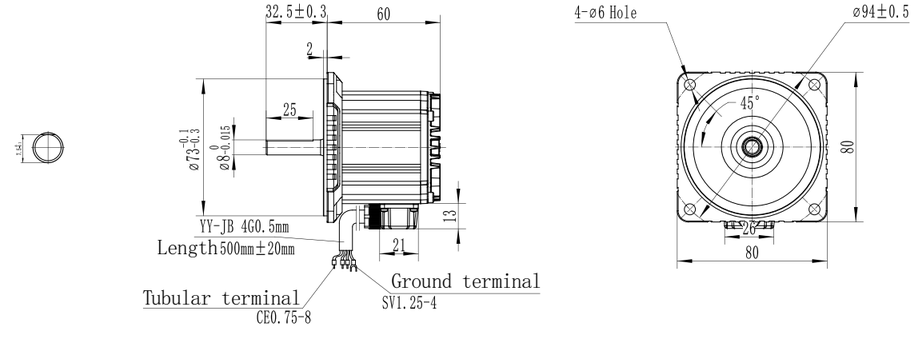
MODEL	MAXIMUM OUTPUT POWER（W）	VOLTAGE （V）	CURRENT （A）	MOTOR SPEED （r/min）	RATED TORQUE (mN·m)
80PM40WGY22	40	Inverter Single-phase 220V Input Three-phase 220V Output	0.3	100-2000	170

REDUCTION RATIO PERFORMANCE CHART

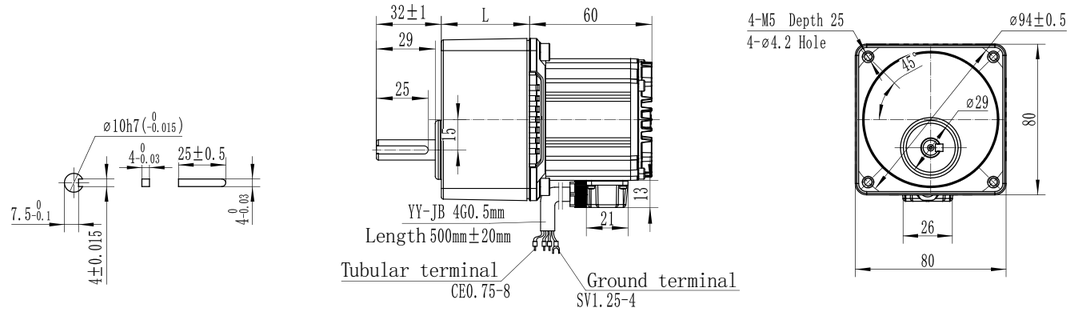
Reduction ratio	3	3.6	5	6	7.5	10	12.5	15	18	20	25	30
Max output speed r/min	667	556	400	333	267	200	160	133	111	100	80	67
Rated torque N·m	0.5	0.6	0.83	0.99	1.24	1.65	1.95	2.34	2.81	3.12	3.9	4.68
Reduction ratio	36	40	50	60	75	90	100	120	150	180	200	
Max output speed r/min	56	50	40	33	27	22	20	17	13	11	10	
Rated torque N·m	5.62	6.24	6.89	8	8	8	8	8	8	8	8	

(CAD) DIMENSIONS

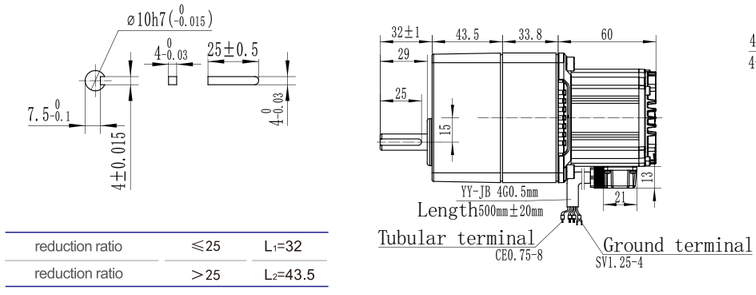
Round-axis motor



Combination:motor+standard gearbox (reduction ratio:1:3~200)



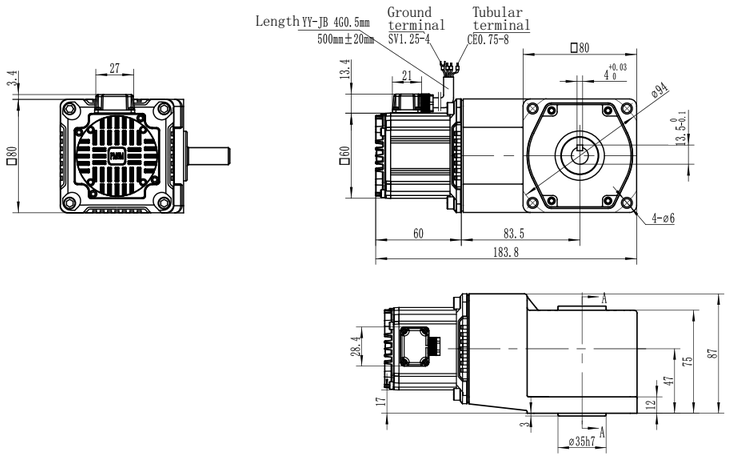
Combination:motor+Intermediate gearbox+standard gearbox (reduction ratio:1:200~1800)



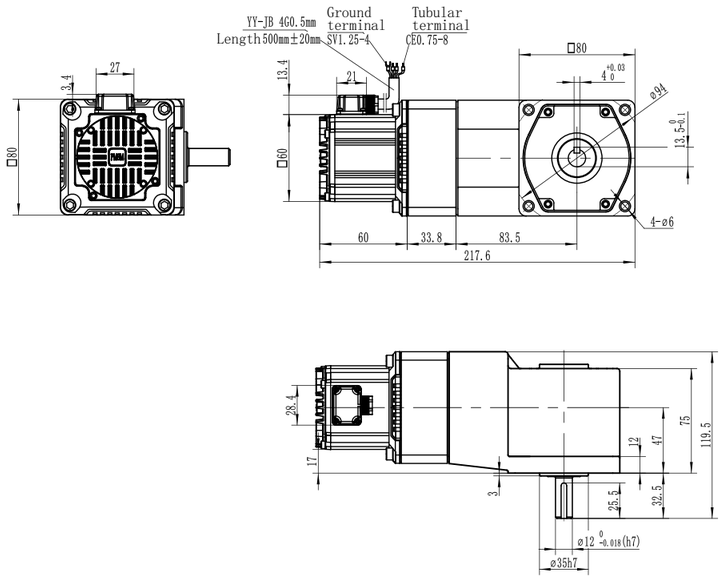
reduction ratio	≤25	L_1=32
reduction ratio	>25	L_2=43.5

(CAD) DIMENSIONS

Combination:motor+right angle solid gearbox (reduction ratio:1:3~200)

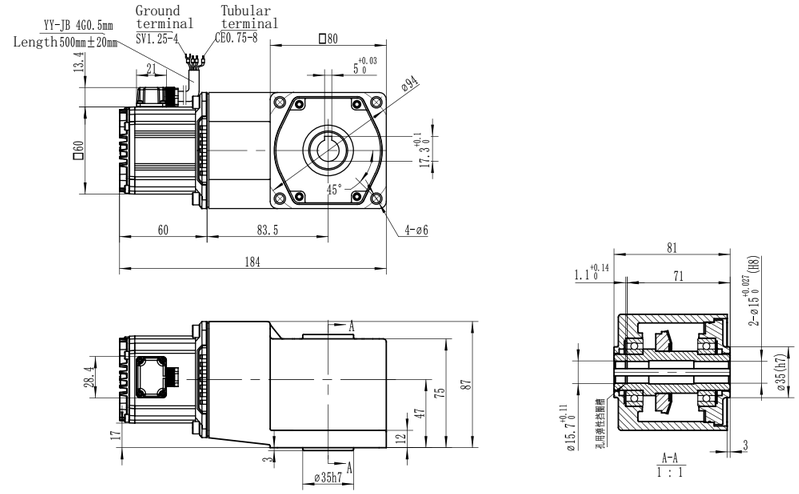


Combination:motor+intermediate gearbox+right angle solid gearbox (reduction ratio:1:200~1800)

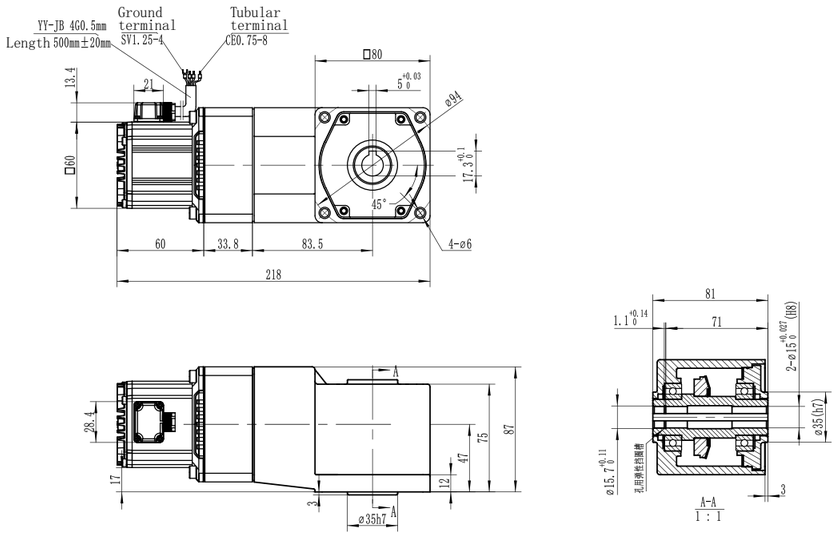


(CAD) DIMENSIONS

Combination:motor+right angle hollow gearbox (reduction ratio:1:3~200)



Combination:motor+intermediate gearbox+right angle hollow gearbox (reduction ratio:1:200~1800)



120W
□90×90mm

MOTOR PERFORMANCE

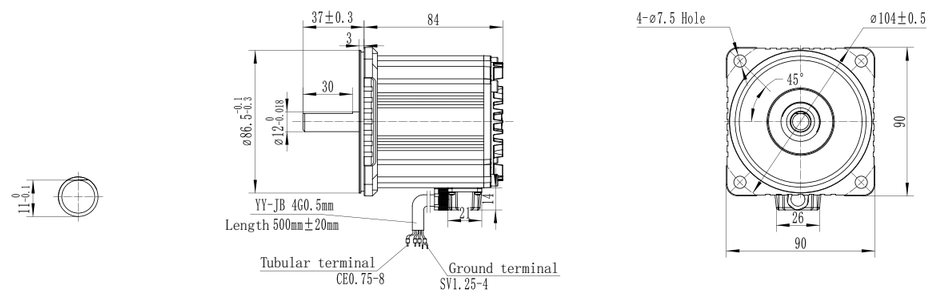
MODEL	MAXIMUM OUTPUT POWER（W）	VOLTAGE （V）	CURRENT （A）	MOTOR SPEED （r/min）	RATED TORQUE (mN·m)
90PM120WGY22	120	Inverter Single-phase 220V Input Three-phase 220V Output	1.2	100-2000	840

REDUCTION RATIO PERFORMANCE CHART

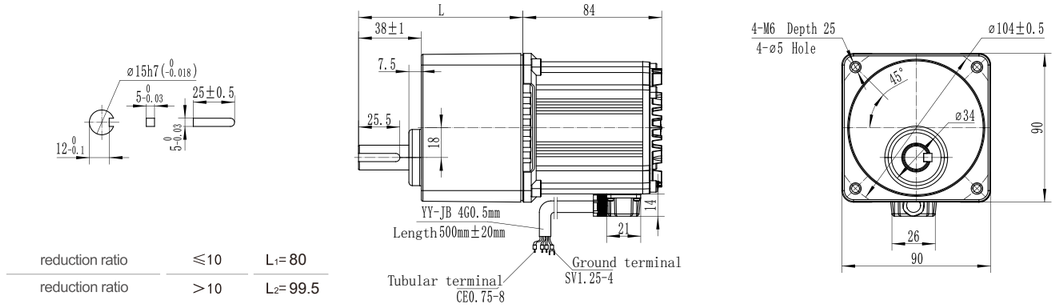
Reduction ratio	3	3.6	5	6	7.5	10	12.5	15	18	20	25	30
Max output speed r/min	667	556	400	333	267	200	160	133	111	100	80	67
Rated torque N·m	2.25	2.7	3.75	4.5	5.62	6.88	8.6	10.31	12.38	13.75	15.43	18.51
Reduction ratio	36	40	50	60	75	90	100	120	150	180	200	
Max output speed r/min	56	50	40	33	27	22	20	17	13	11	10	
Rated torque N·m	20	20	20	20	20	20	20	20	20	20	20	

(CAD) DIMENSIONS

Round-axis motor

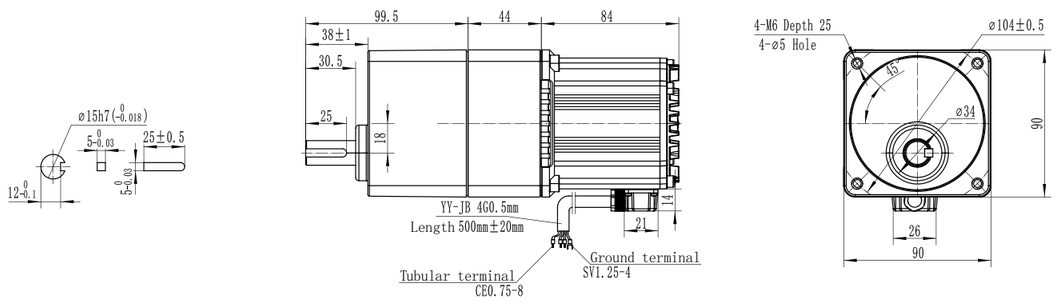


Combination:motor+standard gearbox (reduction ratio:1:3~200)



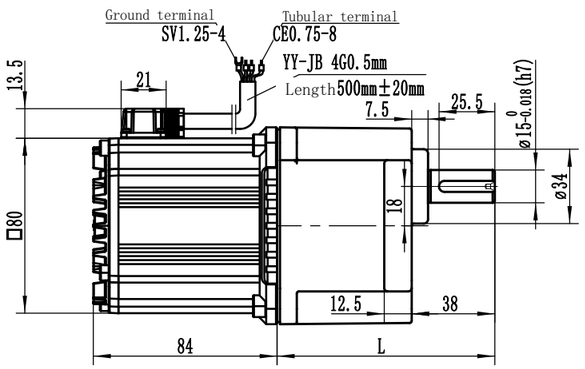
reduction ratio	≤10	L1= 80
reduction ratio	>10	L2= 99.5

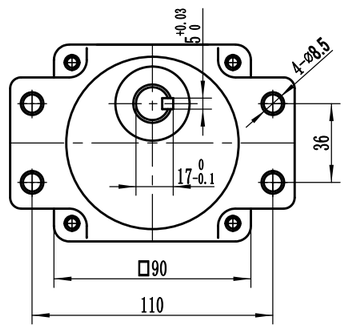
Combination:motor+Intermediate gearbox+standard gearbox (reduction ratio:1:200~1800)



(CAD) DIMENSIONS

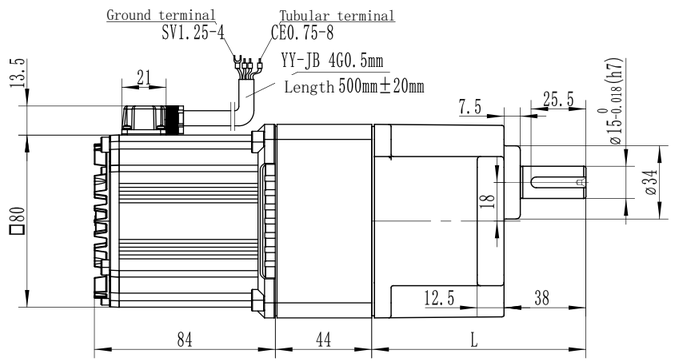
Combination:motor+eared gear (reduction ratio:1:3~200)

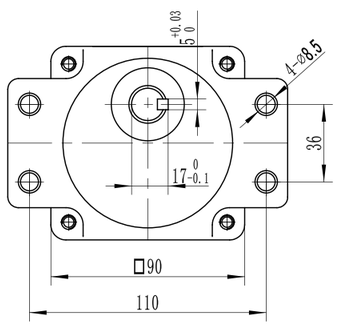




reduction ratio	≤10	L_1=75.5
reduction ratio	>10	L_2=99.5

Combination:motor+intermediate gearbox+eared gear (reduction ratio:1:200~1800)

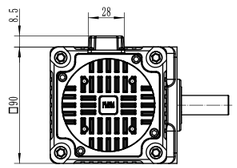


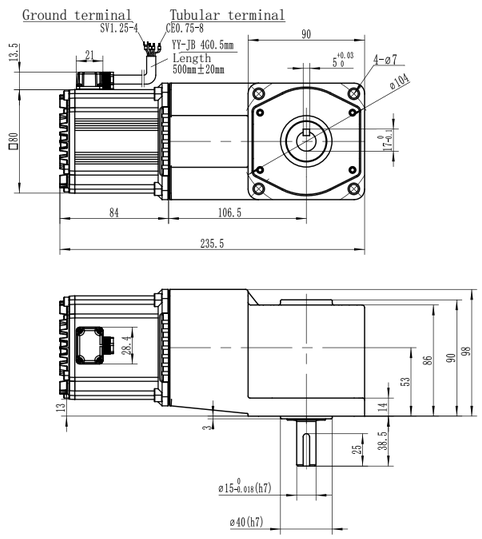


reduction ratio	≤10	L_1=75.5
reduction ratio	>10	L_2=99.5

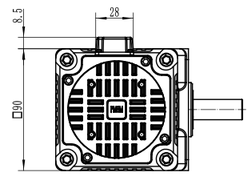
(CAD) DIMENSIONS

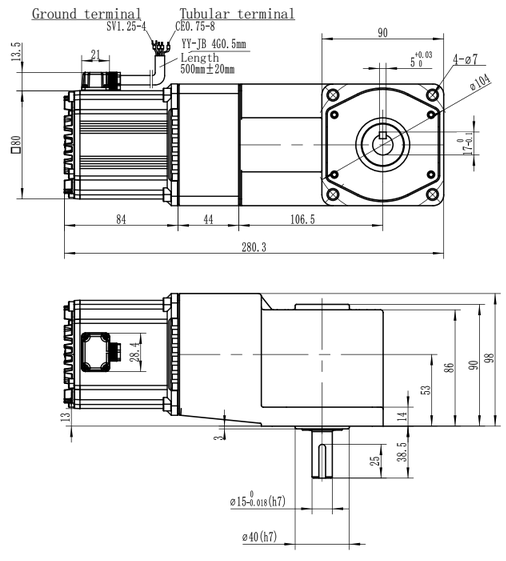
Combination:motor+right angle solid gearbox (reduction ratio:1:3~200)





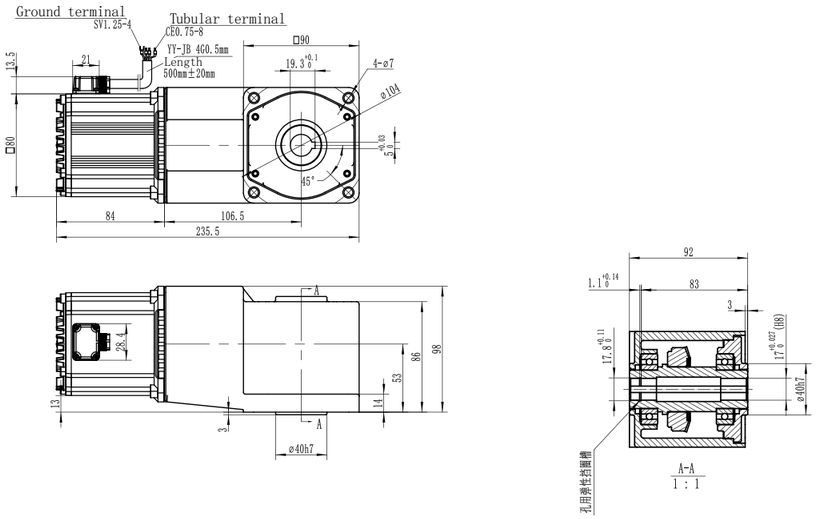
Combination:motor+intermediate gearbox+right angle solid gearbox (reduction ratio:1:200~1800)



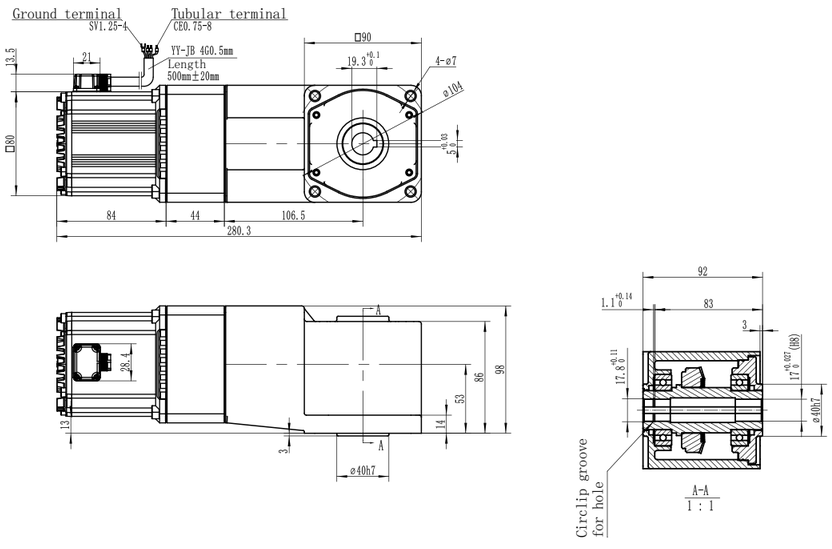


(CAD) DIMENSIONS

Combination:motor+right angle hollow gearbox (reduction ratio:1:3~200)



Combination:motor+intermediate gearbox+right angle hollow gearbox (reduction ratio:1:200~1800)



200W

□100×100mm

MOTOR PERFORMANCE

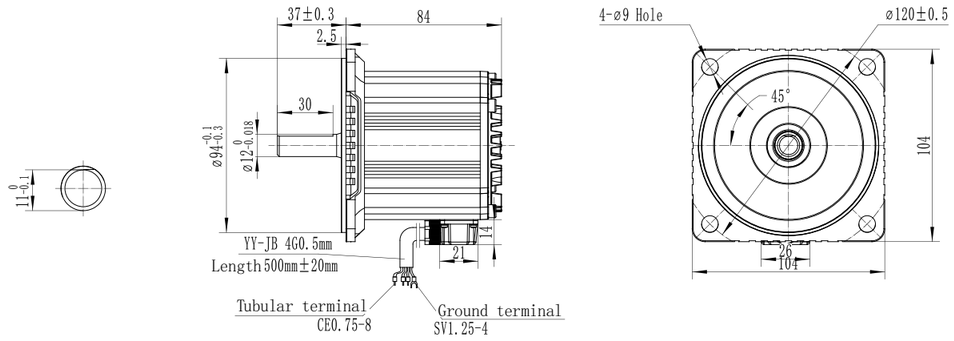
MODEL	MAXIMUM OUTPUT POWER（W)	VOLTAGE (V)	CURRENT (A)	MOTOR SPEED (r/min)	RATED TORQUE (mN·m)
100PM200WGY22	200	Inverter Single-phase 220V Input Three-phase 220V Output	1.7	100-2000	1450

REDUCTION RATIO PERFORMANCE CHART

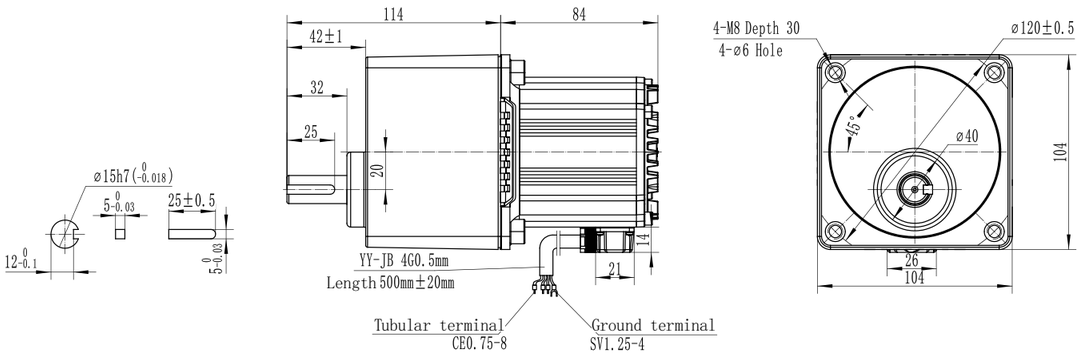
Reduction ratio	3	3.6	5	6	7.5	10	12.5	15	18	20	25	30
Max output speed r/min	667	556	400	333	267	200	160	133	111	100	80	67
Rated torque N·m	3.44	4.13	5.73	6.88	8.6	11.46	14.33	17.19	18.51	20.57	25.71	30.82
Reduction ratio	36	40	50	60	75	90	100	120	150	180	200	
Max output speed r/min	56	50	40	33	27	22	20	17	13	11	10	
Rated torque N·m	37.02	41.14	44	44	44	44	44	44	44	44	44	

(CAD) DIMENSIONS

Round-axis motor

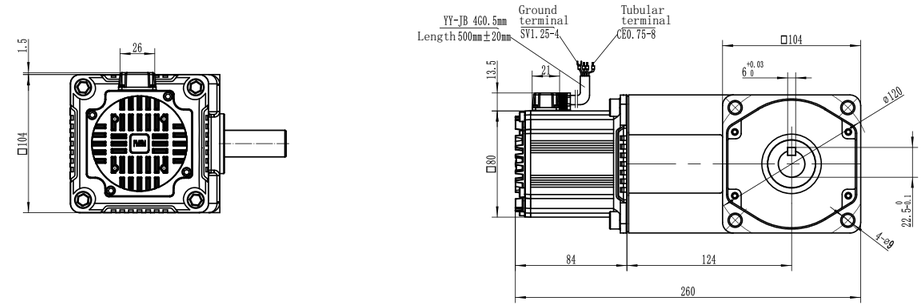


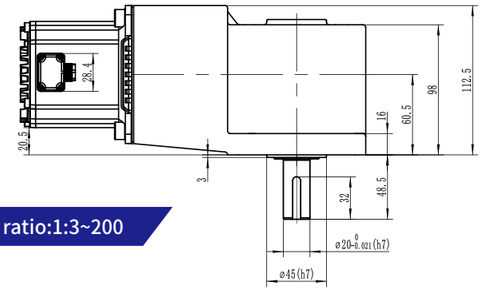
Combination:motor+standard gearbox (reduction ratio:1:3~200)



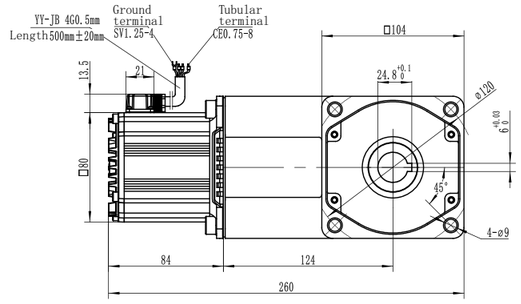
(CAD) DIMENSIONS

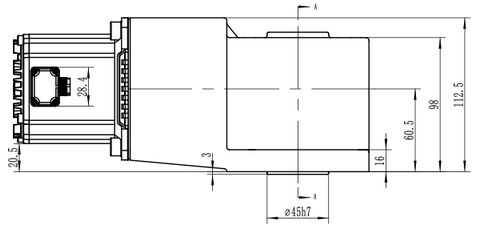
Combination:motor+right angle solid gearbox reduction ratio:1:3~200

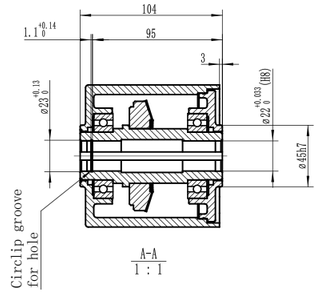




Combination:motor+right angle hollow gearbox reduction ratio:1:3~200





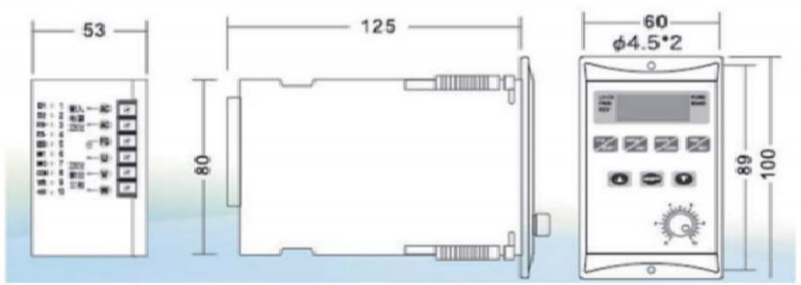


DIGITAL PANEL SPEED CONTROLLER

Features

- Model: XZLAC-21S
- High performance, multi-purpose, digital display, panel installation, small size, low noise and low torque ripple operation
- Support Hall-less brushless motor
- Optional RS485 communication supports standard MODEBUS-RTU protocol
- Optional BUS communication, support baud rate, address setting
- At rated speed, the speed error is ±2rpm
- Optional input anti-reverse circuit and overvoltage dynamic braking
- The lock screen function can be canceled by yourself

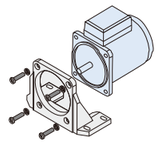
Digital panel speed controller

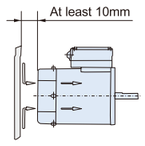


TECHNICAL APPLICATION

(Description and installation)

MOTOR





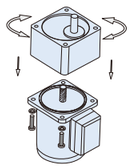
1 Features

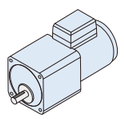
As a relatively independent part of this product series,the motor has six varieties and ten series for your option: by varieties: standard, damping, variable speed,electromagnetic brake, variable speed electromagnetic brake and DC motors; by power: 6W, 15W, 25W, 40W,60W,90W，120W，140W，200W，and 250W;by operating voltage: single phase 110V/220V, and three phase 220V/380V.The motor can match the terminal box of independence for easy electrical connection. Since the product line is precision small power machine and has sophisticated appearance and accurate size, it is strictly prohibited to impact excessively in the assembly to avoid causing damage to the internal structure; in the selection process,also pay attention to the axial and radial load of the output bearing. To ensure the life, please select carefully and use reasonably.

2 Installation

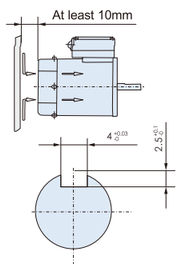
For an independent motor with circular output bearing,the tolerance of connecting hole size for bearing component installation are 6H7,8H7,10H7 and 12H7respectively depending on the models. Except for the reason of design structure,it is recommended to use fexible coupler of corresponding specifications for assembly.If it is difficult to install the end face,it is recommended to use right-angle mounting feet of corresponding specifications.In addition, do not to clog the suction opening in the rear side for the motors with cooling fans.It is recommended to leave a space not less than 10mm.

Combination of standard gearbox and motor





With intermediate gearbox



Reserved space for installation

1 Features

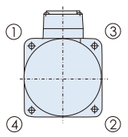
The motor positions accurately through end face retaining ring and standard gearbox, and can provide standard reduction ratio of 1/3~1/200; when this series of reduction ratio change, you can select motors of different functions to achieve practical combinations with richer changes.For example: variable speed, electromagnetic brake, and so on.

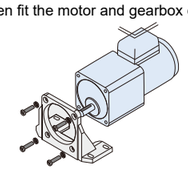
2 Installation

Standard gearbox and motor are precision machinery.During installation after design and selection,it is one of the factors that determine the life.

3 Connection of the motor and standard gearbox

For the assembly of precision machinery, the motor used together with the gearbox has flange spigot in its connecting end. The connecting end of gearbox has a mating spigot. The user can adjust the assembly position of the gearbox and motor according to the actual situation,that is, the motor and gearbox can be rotated freely as shown.Adjust to the desired position, and then secure the four screws on the motor flange. Note the order of the fastening screws,tighten diagonall in turn and then fit the motor and gearbox closely.





Combination with right-angle mounting feet

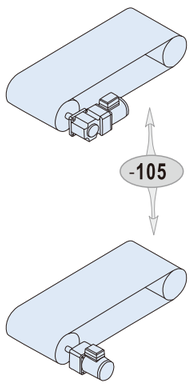
4 Connection with the equipment

The connecting surface of gearbox output bearing is flat, and the connecting holes on the surface are threaded. The surface is fine finished and can be directly connected to the processed connecting surface of the equipment. Note that it also should be tightened diagonally in tumn. f limited by equipment connection or design structure difference, it is recommended to install with specially configured right angle mounting feet, which is more reliable and easy to connect, easy to regulate speed, and high precision flexible couplers are available.

Similarly, do not to clog the suction opening in the rear side for the motors with cooling fans. it is recommended to leave a space not less than 10mm.

The motor, gearbox and intermediate gearbox of this product series are close transmission components, and it is prohibited to impact or twist violently when connecting to the load. To faciitate assembly, these problems have been considered in product design. The keyway width is 4mm,and the outer diameter tolerance of the bearing is h7.

Combination of right-angle gearbox and motor



Comparison of installation space

1 Features

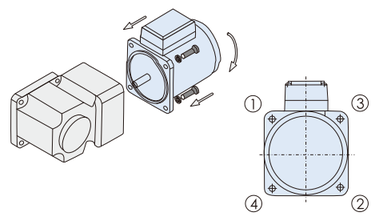
Different from traditional standard gearboxes (or parallel shaft gearboxes),in order to give designers greater choice and make the eauipment more compact,we also offer right angle gearboxes. In addition to all the features of standard gearboxes, i.e. wide range of speed ratio selectivity (i=3~600)and excellent transfer properties the right-angle gearboxes also have high strength casing and compact installation, which the standard gearboxes do not have.
Similarly, under the aforementioned conditions, you can achieve different combinations of features by selecting motors of different functions.
For example: variable speed,electromagnetic brake,reversible, and so on.

2 Installation

Right angle gearbox,intermediate gearbox and motor are precision machinery.The assembly quality after design and selection will directly affect the service life and performance.

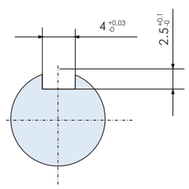
3 Connection of the motor and standard gearbox

For the assembly of precision machinery, in addition to independent connection terminal box, the motor used together with the right angle gearbox has flange spigot in its connecting end. The connecting end of the right angle gearbox has a mating spigot. The user can rotate the relative rotation of the motor and the right angle gearbox appropriately according to the actual situation. Adjust to the desired position, and then secure the four screws on the motor flange.
Note the order of screw tiahtening: tighten diagonally in turn.



4 Connection with the equipment

The end surface of right angle gearbox output bearing is finished plane. The four through holes distributed in the four corners can fit the processed connection surface of the equipment directly. The output of right angle gearbox includes solid axis and hollow axis forms. The user can select according to the load form. The bolts also should be fastened diagonally in turn.

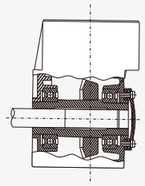


5 Connection with solid axis output of right angle gearbox

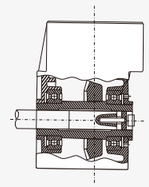
The solid axis output of right angle gearbox is in keyway structure.Corresponding to different specifications, the sizes of the output bearing mounting holes are 12H7,15H7 and 20H7 respectively.In connection with the load, do not knock or twist violently. Under the premise of ensuring the assembly quality, other assembly factors are also considered in product design and production.The figure shows 4mm key width dimensional tolerance.

6 Connection with hollow axis output of right angle gearbox

In the assembly of hollow series right angle gearboxes. it is also prohibited to knock or twist violently. The dimensional tolerance of the axis connected to the hollow axis is h8, including 15h8,17h8 and 22h8. To ensure reasonable and reliable axial positioning in load connection, the hollow series right angle gearboxes also integrate axially fixed structure.The recommended installation is shown in the figure:



Installation when the load shaft has axial positioning



Installation when the load shaft needs gearbox for axial positioning

·Special Note

1、For axial positioning with the right angle hollow gearbox,over-positioning isn't allowed for the load axis, or else it will easily damage the gearbox.
2、Technical requirements on axis length of rightangle hollow gearbox:
·If this axis is fully supported and fixed by hollow axis, the axial length should be equal to or slightly shorter than the hollow axis.
· If there is no supporting effect and only the torque is transferred, the axis only needs to be inserted 1/3 depth of the hollow axis.

·Steps of axial fixation

1.Remove the dust cover on the other side of the hollow axis of the right angle gearbox;
2. As shown in the figure, fix the load axis of different structures in the method shown;
3. Install the rear dust cover (Note: Bolt height shall not exceed 2mm of the rear cap);
4. If the dust cover can't be installed, you must block the screw holes of the dust cover with M4x5 screws,or else it will leak oil; the screws shouldn't be too long, or else it will damage the internal bearings.

7 Precautions for motor and gearbox assembly

Motor,gearbox and intermediate gearbox are precision machinery.In practice,damage and scrapping are often caused by improper assembly, so that the assembly is also one of the factors affecting the normal use.

·Shaft and key tolerance

To facilitate the assembly and ensure reliable connection and torque transmission, the related keyway tolerances are generally slightly larger than generic devices (see sample for specific tolerance),the tolerance of output bearings is H7,and the tolerance of holes is H8.

·Percussion problem

It is prohibited to transfer the pressure of load axis and sleeve in the assembly process, or else it will easily lead to damage to the bearings or gears in the motor or gearbox and ratcheting prints on the gear teeth. Also avoid violent knock and twist. Control the dimensional tolerance of the load axis and sleeve strictly,if necessary,pad soft liner material and knock softly.

· Concentricity problem

Since the output is in rotating form,concentricity is particularly important in variable speed and heavy-duty condition.It is recommended to use the fexible couplers of our company, which not only have small rotary inertia and compact structure,but also compensate concentricity and transmit torque.