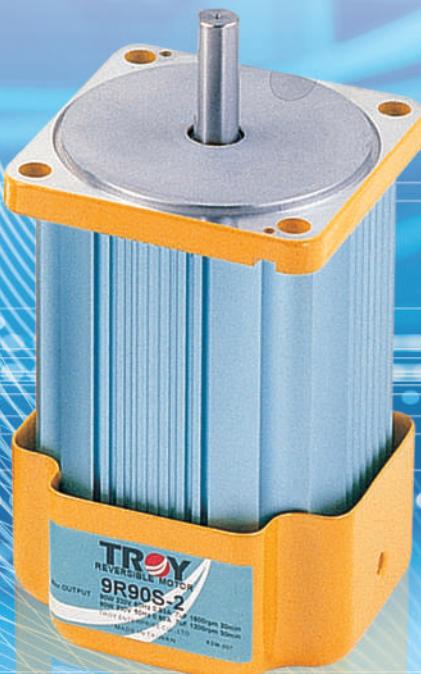


Company Profile



Quality, Technic, Service of TROY



TROY Enterprise Co., Ltd. specializes in the designing and manufacturing of Motors, Motor drivers, Motor controllers and Gearbox series.

ISO9001 and ISO14001 was introduced into the company to establish a **customer-oriented service system** to fulfill the quality policy " Providing the customers with good products and services ". In 1999, we passed the audit conducted by TÜV Germany and got certificates of ISO9001 and ISO14001. We got the certificate of ISO9001 of year 2015 version again in 2017.

TROY is a creativity and idea company which places importance on system development. Based on our capability , we will continue our commitment to innovate and support you in finding the proper products for your application. With our belief **Quality, Technic, and Service**, we can always meet your demand and be your best partner.

German patent



Taiwan patent

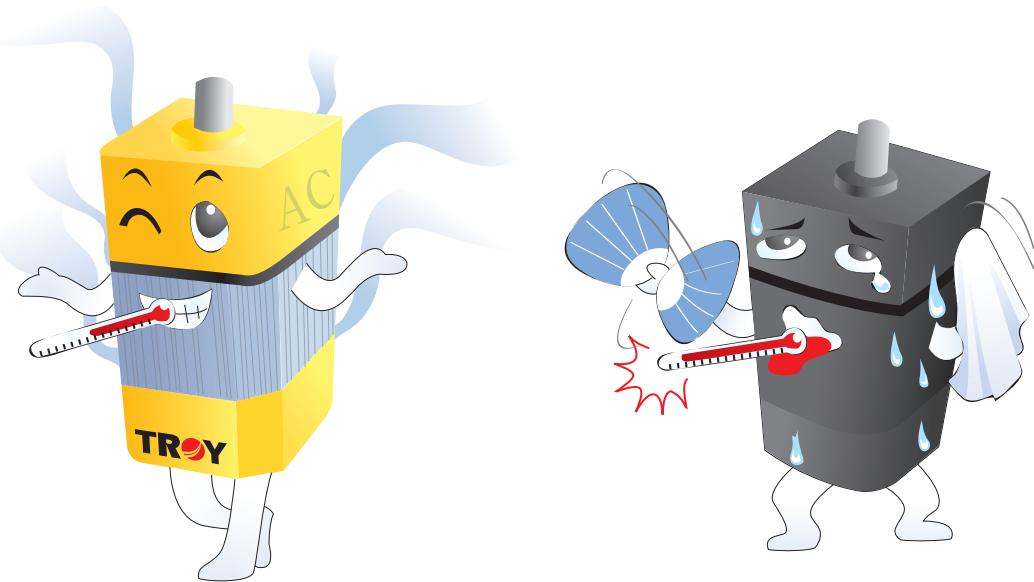


China patent



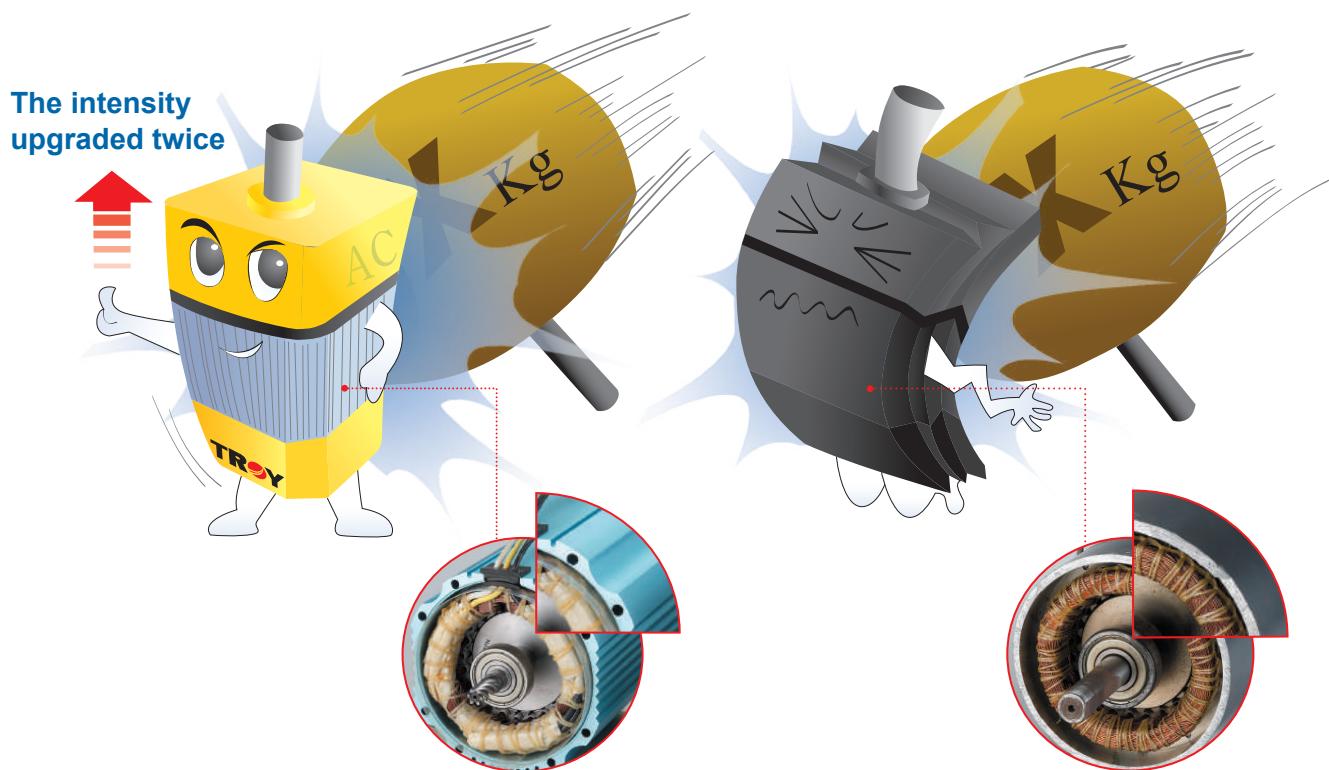
Certificate

Features 1 Excellent Heat Dissipation Effect



- Unique case design and special surface treatment to accelerate heat dissipation.

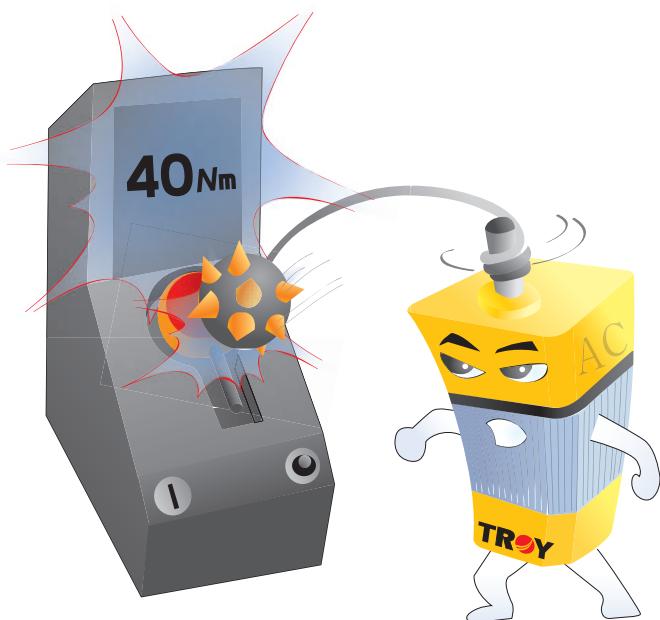
Features 2 The Intensity of Construction Upgraded Double



- Intensifying design of **TROY** motor and the intensity upgraded double.

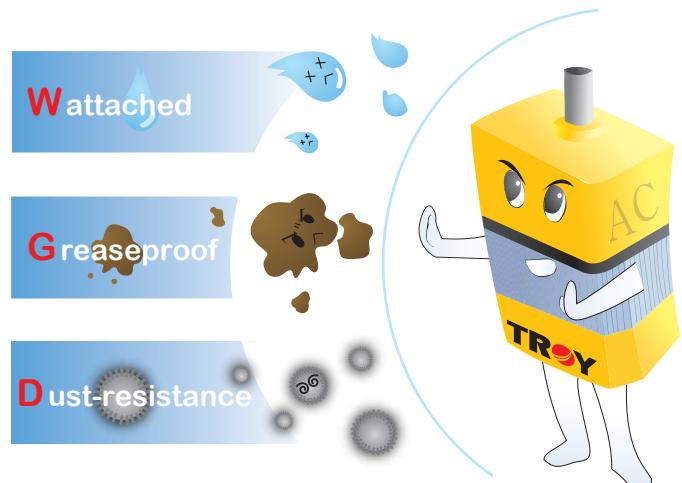
Features 3

The Maximum Permissible Torque Can Reach to 40 Nm



Features 4

Greaseproof, Watertight, Dust-Resistance

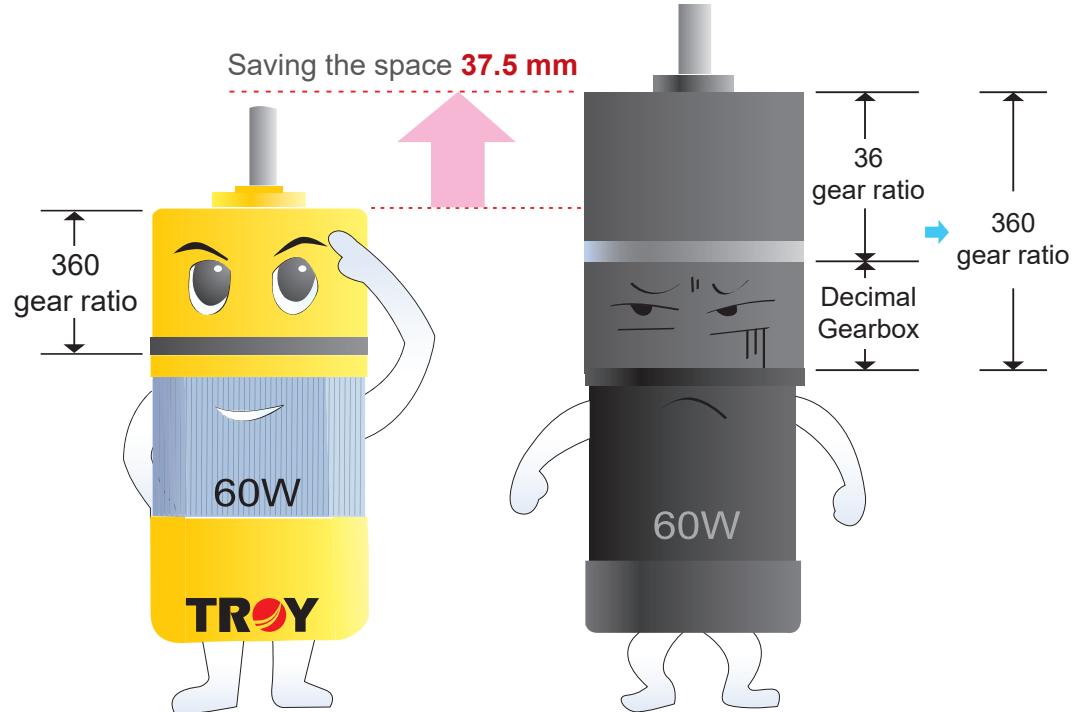


The maximum permissible 40Nm when 9A□ high intensity Gearbox is attached.

The AC Induction Motor conform to the IEC standard IP54. They are ideal for applications which need high performance with safty.

Features 5

Saving the Spaces

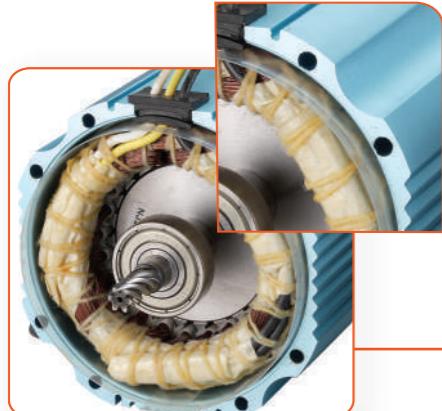


The innovative design of Gearbox with high gear ratio which can save the space that middle Gearbox attached.

Features of Construction

Innovation

We have professional experience in making brushless motor. At the same time we aimed at the shortcomings of AC induction motor in the market. What we want you to be surprised by the various purposes from AC induction motor is our reforming and designing with innovation.



Motor Construction of Intensifying Type

The motor case and the housing of motor rear made by aluminum which strengthened. The intensity of structure of the motor could be upgrade double. We can meet Your needs for high output torque and high intensity of construction.

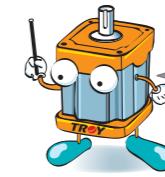
Low Temperature

- ◆ The motor case adopts all-wrapped wavy type with thermal solution key groove and anodizing which can help the thermal solution more quickly.
- ◆ The blades of motor 60W/90W designed specially. Not only increase the flow of air, but also decrease the noise and temperature.



New Color

Our color of motor is different from the common color-black and gray. We introduced the color of Europe products and we want to break through the traditional appearance and bring a colorful new vision to you.



Traditional Gearbox



The plate connected by rivet X 4pcs and the intensity of structure fragile.

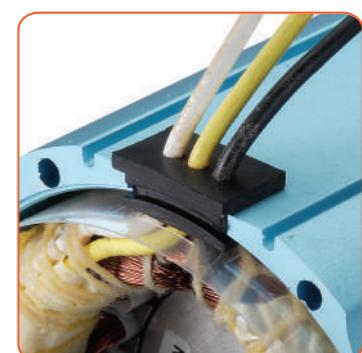
The Gearbox of High Intensity Type

All series of gearbox case and bearing are made by aluminum. The load structure of gear wheel was strengthened and attached with the powerful gear wheel. The max permissible torque can achieve to 40 Nm which can fit your needs – High output torque and high permissible intensity of the gearbox.



Excellent Design - Watertight, Greaseproof, Dust-Resistant

O-ring employed at joint of motor case / shaft. The motor lead wires part we used a clip to seal, which can prevent the grease and water permeate.



... Quality, Technic, Service



AC Induction Motor
Lead Wire Type · Terminal Box Type



Torque Motor



AC Reversible Motor
Lead Wire Type · Terminal Box Type



Electromagnetic Brake Motor



Speed Control Motor
Component Package Type



Speed Control Motor
Separated Type

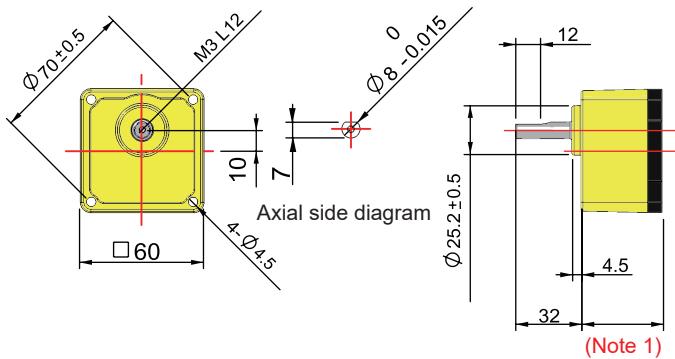


Gearbox's Specs of Universal Type

■ Dimension of Shaft Ø8, Ø10, Ø12, Ø15

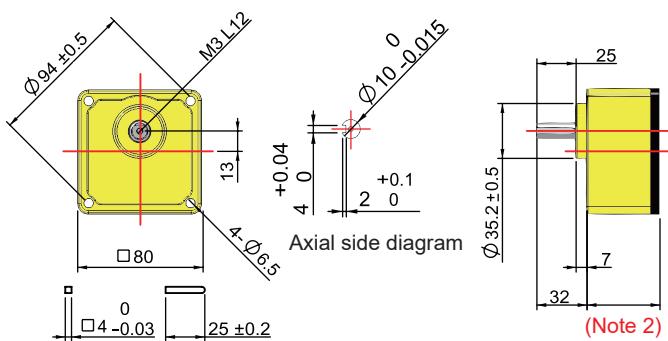
Model: 6A□N with Shaft NØ8

Unit : mm



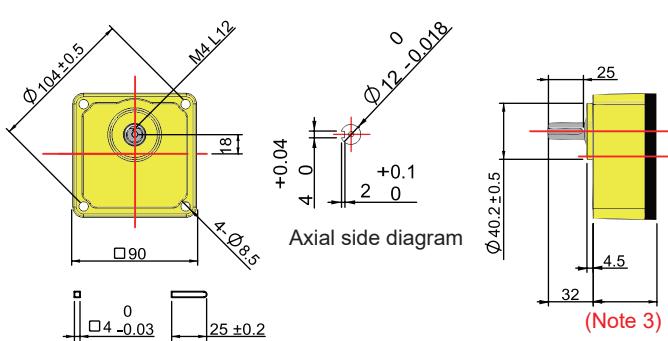
Model: 8A□N with Shaft NØ10

Unit : mm



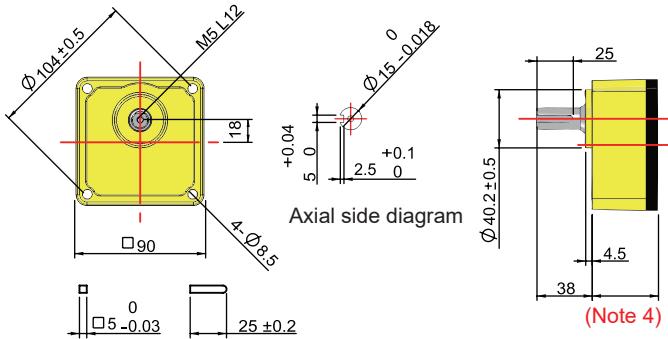
Model: 9A□N with Shaft NØ12

Unit : mm



Model: 9A□U with Shaft NØ15

Unit : mm



*(Note 1)

6A□N Gearbox Length/Weight

Gearbox's Model	Length (mm)	Weight (g)
6A3N~6A100N	39.5±0.5	400
6A120N~6A360N	43.5±0.5	440

*(Note 2)

8A□N Gearbox Length/Weight

Gearbox's Model	Length (mm)	Weight (g)
8A3N~8A100N	46.5±0.5	830
8A120N~8A360N	50.5±0.5	890

*(Note 3)

9A□N Gearbox Length/Weight

Gearbox's Model	Length (mm)	Weight (g)
9A3N~9A20N	45.5±0.5	1120
9A25N~9A100N	58.5±0.5	1470
9A120N~9A360N	64.5±0.5	1560

* (Note 4)

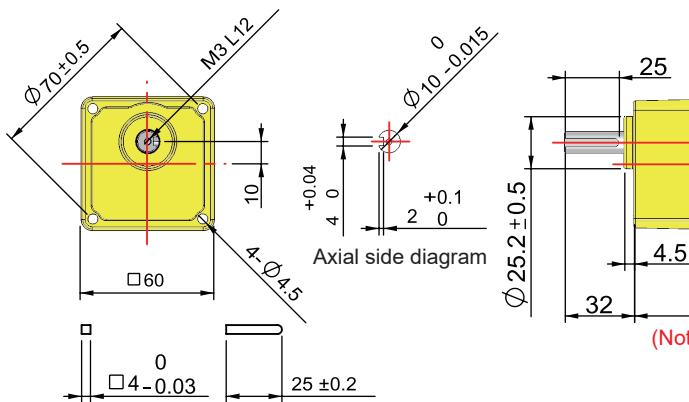
9A□U Gearbox Length/Weight

Gearbox's Model	Length (mm)	Weight (g)
9A3U~9A20U	45.5±0.5	1150
9A25U~9A100U	58.5±0.5	1500
9A120U~9A360U	64.5±0.5	1590

* The figure above dimension tolerance values are not labeled a general machining tolerances, the control mode, refer to P.8, others have marked tolerance values according to the drawing labeled based.

■ Dimension of Shaft Ø10, Ø15, Ø18

Model: 6A□ with Shaft Ø10

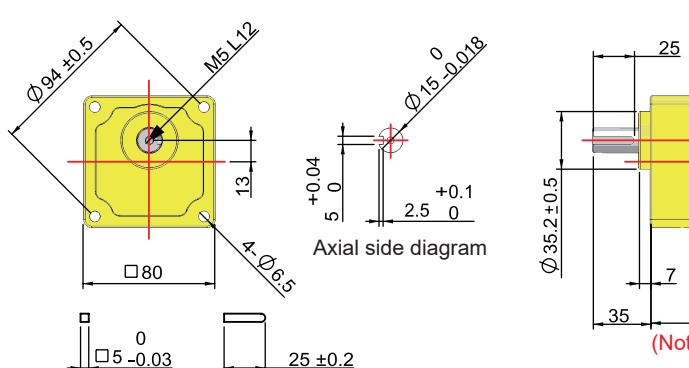


*(Note 1)

6A□ Gearbox Length/Weight

Gearbox's Model	Length (mm)	Weight (g)
6A3~6A100	39.5	400
6A120~6A360	43.5	440

Model: 8A□ with Shaft Ø15

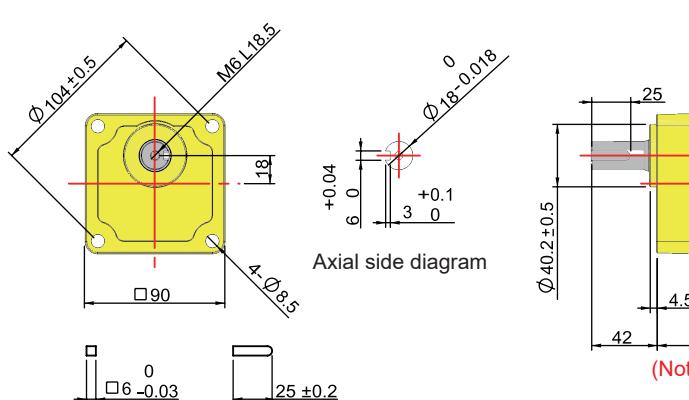


*(Note 2)

8A□ Gearbox Length/Weight

Gearbox's Model	Length (mm)	Weight (g)
8A3~8A100	46.5	880
8A120~8A360	50.5	940

Model: 9A□ with Shaft Ø18



*(Note 3)

9A□ Gearbox Length/Weight

Gearbox's Model	Length (mm)	Weight (g)
9A3~9A20	45.5	1170
9A25~9A100	58.5	1520
9A120~9A360	64.5	1610

* The figure above dimension tolerance values are not labeled a general machining tolerances, the control mode, refer to P.8, others have marked tolerance values according to the drawing labeled based.

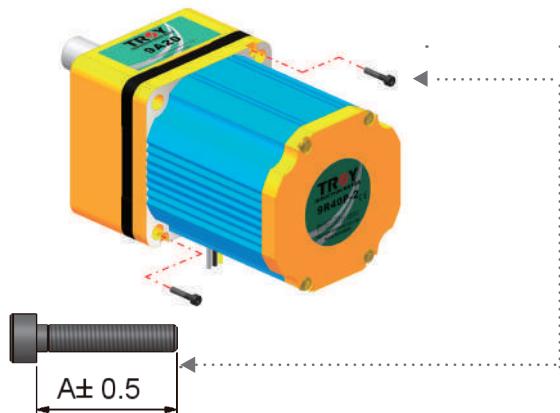
Connection of Motor and Gearbox

- Please install the Motor and Gearbox as the following diagram. When installing the Motor with Gearbox, please avoid the gear part of Motor shaft to collided the metal plate or gear.

(Step 1) The distance between the motor and Gearbox around 35mm, 45°included angle.



(Step 4) Using screws x 2 pcs(attachment) to secure the Motor and Gearbox.



(Step 2) Gearbox connected with Motor in clockwise direction, 35°included angle.



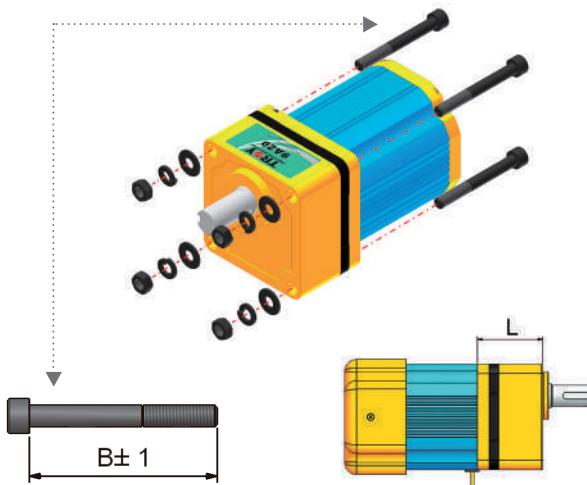
(Step 3) Gearbox face to the Motor flange and rotated in clockwise direction and make sure that Motor and Gearbox connected already.



Model	Screw Specs	Length (A) mm
6A□(N)	M2P0.4	8
8A□(N)	M3P0.5	8
9A□(N)	M3P0.5	12

◎ Mounting small screws are included with gearbox.

(Step 5) "Installation of mounting plate": Securing the Motor and Gearbox with screws x 4pcs.



Model	Screw Specs	Screw Length	Gearbox+ Motor Bracket
		(B)mm	(L)mm
6A3(N)~6A100(N)	M4P0.7	60	47.5
6A120(N)~6A360(N)		70	51.5
8A3(N)~8A100(N)	M6P1.0	70	54.5
8A120(N)~8A360(N)		75	58.5
9A3(N)~9A20(N)	M8P1.25	75	55.5
9A25(N)~9A100(N)		90	68.5
9A120(N)~9A360(N)		95	74.5

◎ Mounting screws are included with gearbox.

1. : Europe Safety Certification



The machine selling to the Europe must accordance with Europe safety standards and mark on the CE or TÜV.

2. : USA and Canadian Safety Certification



Regconized by cTÜVus Rheinland and indicated the product meets American & Canadian safety requirements. The product that can selling to the USA and CANADA .

3. : China Compulsory Certification System Certificated



All the products import / export to the China for selling or producing. They must accordance with CCC certificated and marked on CCC.

4. : Restriction of Hazardous Substances



RoHS, the European Union Directive 2002/95/EC, on the restriction of the use of certain hazardous substance apply to any equipment for use or import into an EU member state beginning July 2006. The restricted substance include: Lead(Pb), Mercury(Hg), Cadmium(Cd), hexavalent Chromium Cr(VI), Polybrominated biphenyls(PBBs) and Polybrominated diphenyl ethers(PB-DEs) must conform to the maximum concentration value.

(Request for the RoHS certification, please contact with the local seller.)

5. : IP(Ingress Protection) : ratings are defined as levels of sealing effectiveness of electrical enclosures against intrusion from foreign bodies (tools, dirt etc) and moisture.

IP5X : Protected against dust under normal condition that may harm equipment.

IPX4 : Describes the level of protection from liquids, distance of 300-500mm and the direction of the turn on the water speed of 10 liters / min for 10 minutes.

6. : Built-in Overheat Protection Device (Auto Return Type)

Overheat protection ON : $120^{\circ}\text{C} \pm 8^{\circ}\text{C}$

Overheat protection OFF : $71.5^{\circ}\text{C} \pm 4^{\circ}\text{C}$

When Motor because of some reason to caused the overheat. The protection device activated and Motor stop run. After the temperature drop, the protect device off and Motor return to run. Please turn off the power before inspection.



(1)



(2)



(3)



(4)



(5)

■ Precaution for Motor Use and Install

1. Motor: Ambient tempertaure -10~+50°C (Single phase and 3 phase 220V / 230V: -10~+40°C), ambient humidity 85% or less. Controller: Ambient temperature 0~+40°C, ambient humidity 85% or less.
2. Area not exposed to direct sun and free from excessive water, oil, dust.
3. Area not subject to continuous vibration or excessive shocks and free from excessive corrosive gas, flammable gas.
4. Installation: Motor can install at horizontal or vertical direction.
5. When connecting a load to the Motor, align the centers of the Motor's output shaft and load shaft. The improper align will cause the vibration and shorten the life time of both Motor and Gearbox. More further will cause the mechanical fatigue and damage.
6. When install the coupling, pulley, gear onto the shaft of Motor or Gearbox. Don't apply excessive force by using a hammer or similar tool.
7. Connection with Load

Motor shaft: Securing it with 2 screws through the mounting holes provided and become 90° then t secure the machinery on the shaft tightly.

Gearbox shaft: It tightened by key slot and designed by tolerance h7. When installing the machinery please reserve the "Parallel Key" for assemble and secure the machinery with screws on the shaft.
8. The dimensions which are not marked tolerance values belong to general tolerance. The reference guideline figure of processing general tolerance is as below :

Standard Tolerance Grades IT14

Dimension	Tolerance Value
>0	0.3
>6	0.5
>30	0.7
>80	0.9
>120	1.0
>180	1.2
>250	1.3
>315	1.4
>400	1.6
>1000	2.0

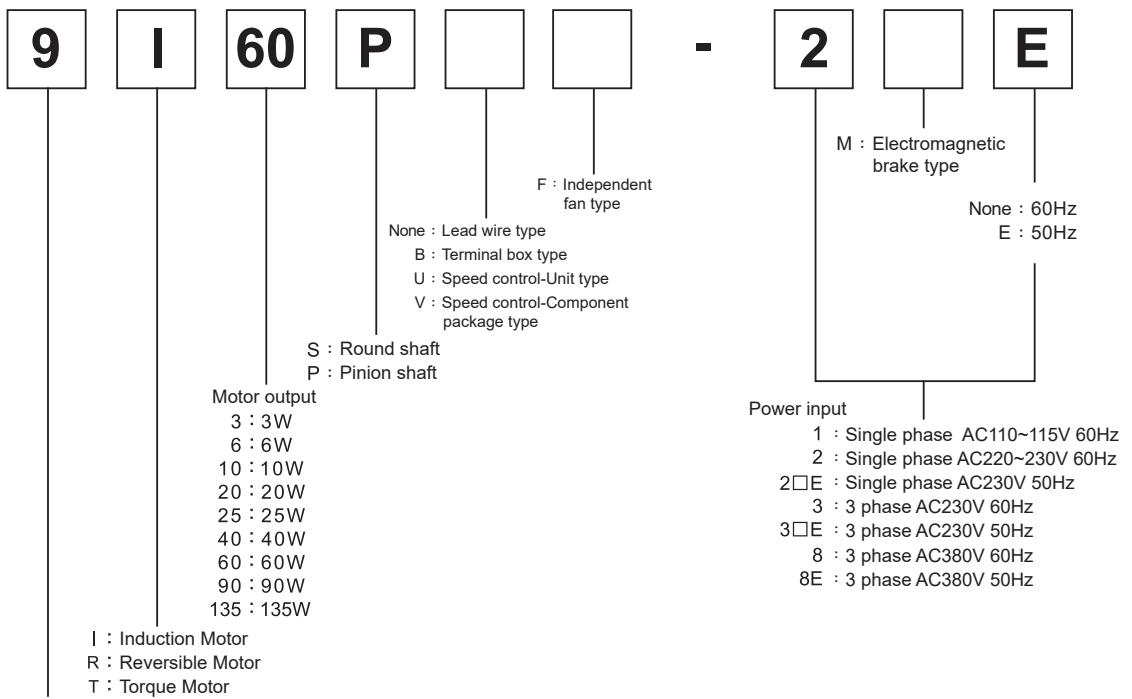
Unit : mm

*For more details please refer to the "Motor Dimension".

*The product is subject to design modification for performance improvement without prior notice.

For more details please contact with your local seller.

Motor



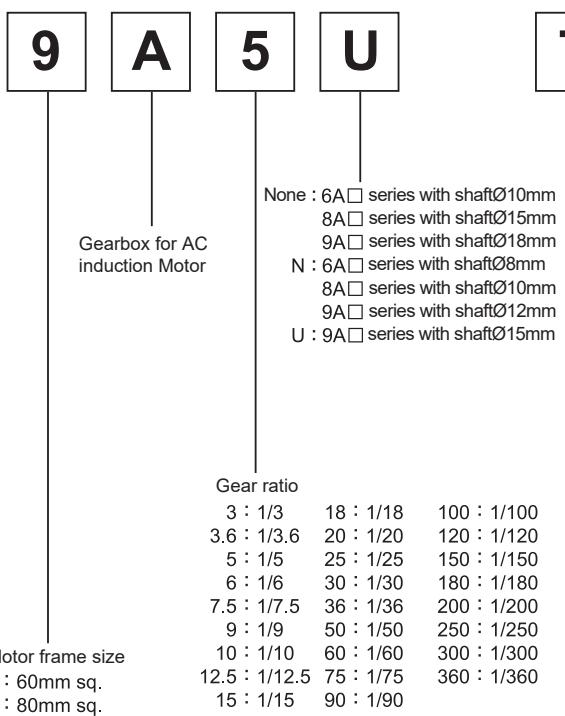
Motor frame size

6 : 60mm sq.

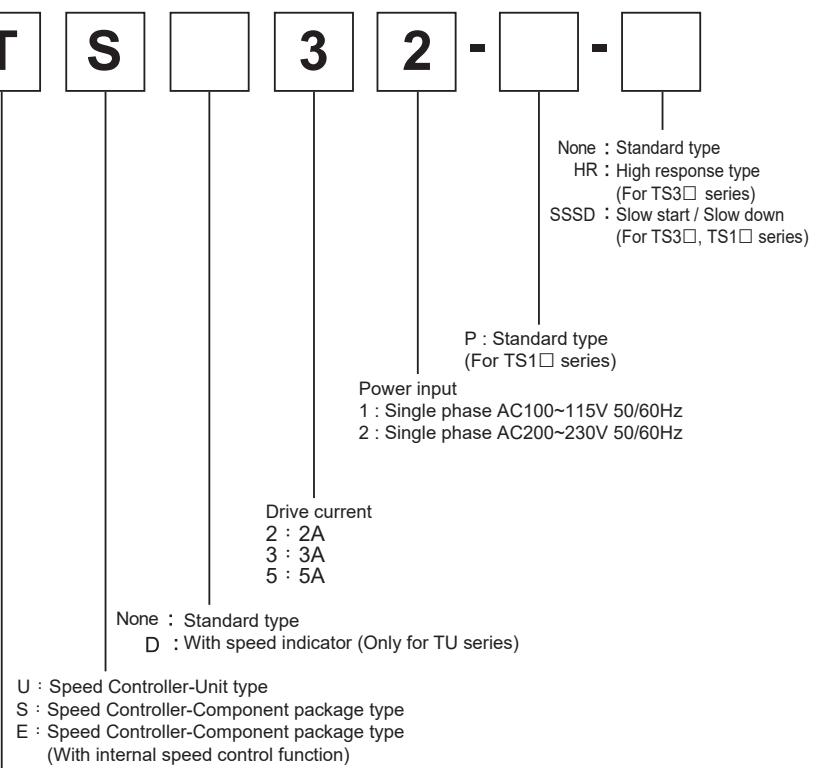
8 : 80mm sq.

9 : 90mm sq.

Gearbox



Controller



Speed Control Motor Unit Type Speed Controller TU / TUD Series

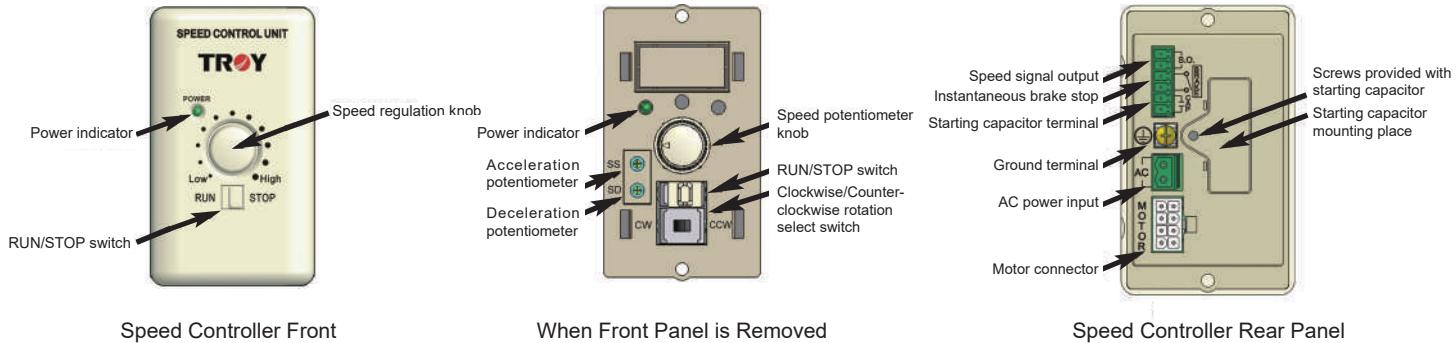


■ Specs

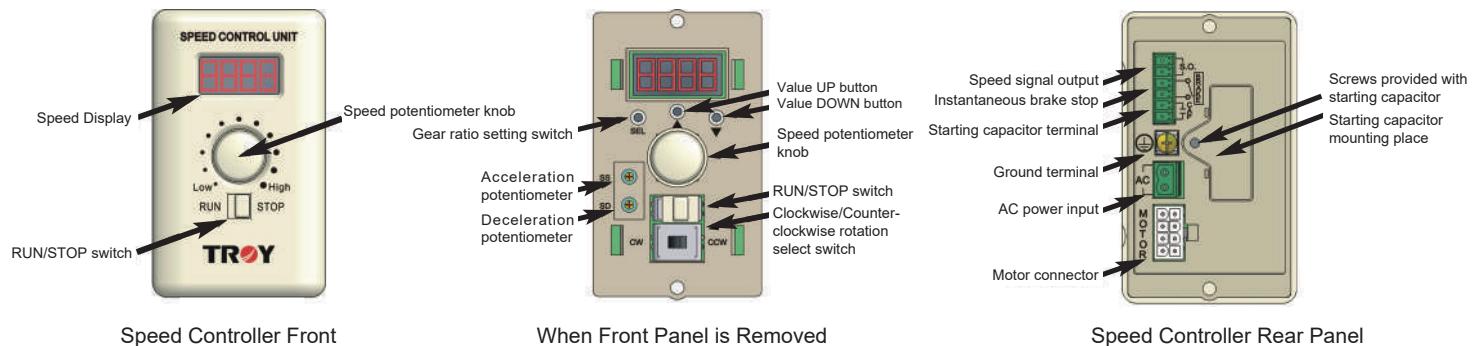
Type	Standard Type / Speed Display Type		Standard Type / Speed Display Type	
Model	TU31 / TUD31		TU32 / TUD32	
Specification Certification	—		TU32 : RoHS	
Power Input (V)	Single phase AC100~115		Single phase AC200~230	
Power Frequency (Hz)	50	60	50	60
Current (A)	3			
Drive Power	Max 90W			
Variable Speed Range(r/min)	90~1400	90~1700	90~1400	90~1700
Functions	Regular type : Speed control, Instantaneous brake stop, Slow start, Slow stop Speed indication type : Speed control, Instantaneous brake stop, Slow start, Slow stop, Speed display, Electro-gear ratio setting			
Ambient Temperature	0~+40°C			
Ambient Humidity	Max.85%RH			
Dimensions (mm)	100(L) × 60(W) × 99(H)			
Weight (g)	TU31 · TU32 : 180 / TUD31 · TUD32 : 192			

■ Functions of Panel

◆ TU31 · TU32

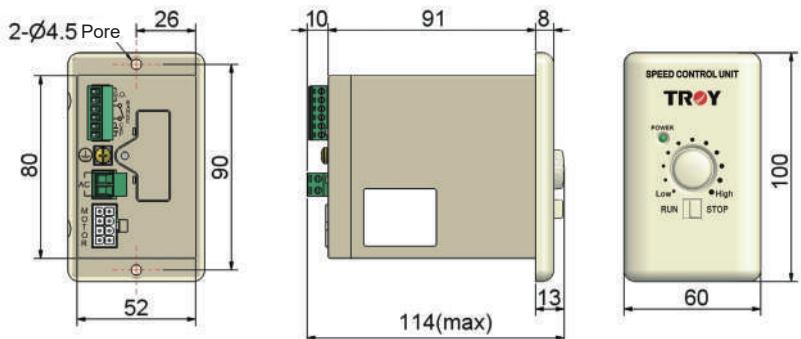


◆ TUD31 · TUD32



■ Dimensions

- ◆ TU31 · TU32 · TUD31 · TUD32

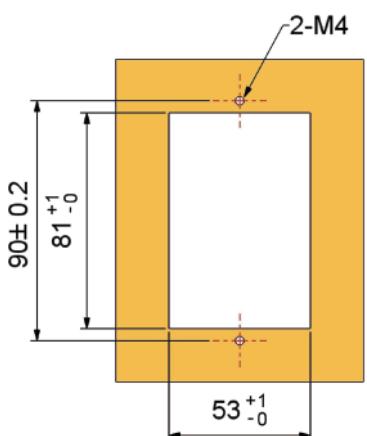


* The figure above dimension tolerance values are not labeled a general machining tolerances, the control mode, refer to P.8, others have marked tolerance values according to the drawing labeled based.

■ Mounting dimensions

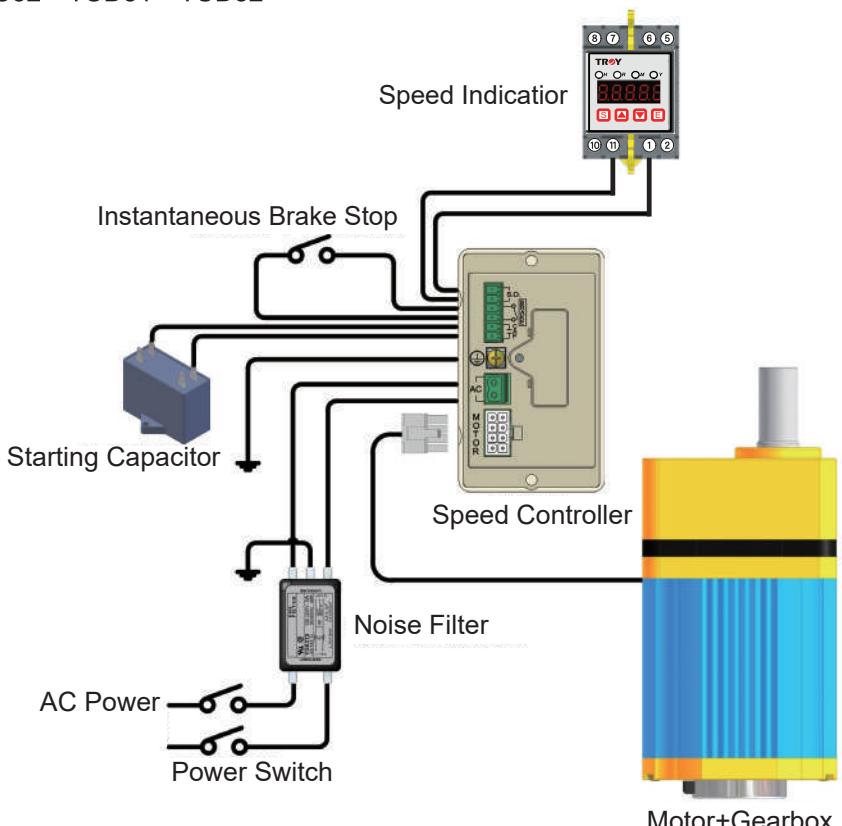
Unit : mm

- ◆ TU31 · TU32 · TUD31 · TUD32



■ Wiring Diagram

- ◆ TU31 · TU32 · TUD31 · TUD32



■ Extension Cables Specs

Model	CU-010	CU-020	CU-030	CU-050
Length (m)	1	2	3	5
Weight (g)	141	260	382	617

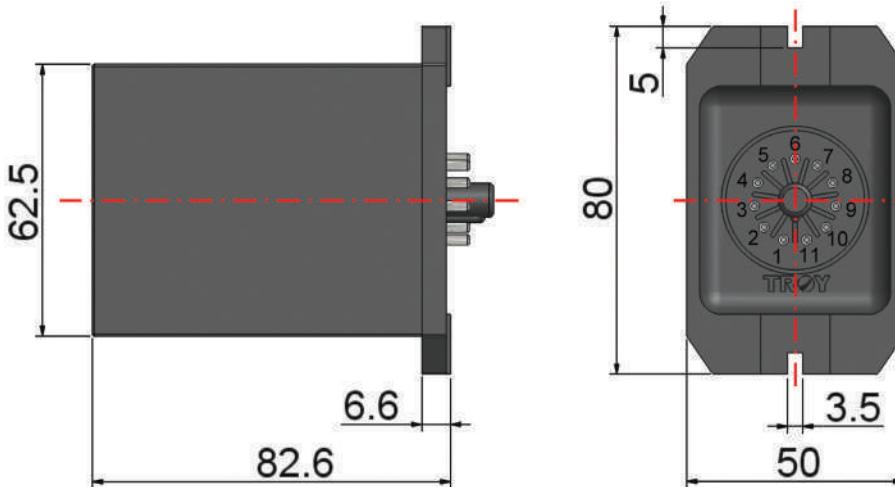


■ Specs

Type	Standard Type / High Response Type/ Slow Start, Slow Stop Type		Standard Type / High Response Type/ Slow Start, Slow Stop Type	
Model	TS31 / TS31-HR / TS31-SSSD		TS32 / TS32-HR / TS32-SSSD	
Specification Certification				
Power Input (V)	Single Phase AC100~115		Single Phase AC200~230	
Power Frequency (Hz)	50	60	50	60
Current (A)	3			
Drive Power	Max.90W			
Variable Speed Range(r/min)	90~1400	90~1700	90~1400	90~1700
Ambient Temperature	0~+40°C			
Ambient Humidity	Max.85%RH			
Dimensions (mm)	82.6(L) × 50(W) × 80(H)			
Weight (g)	152			

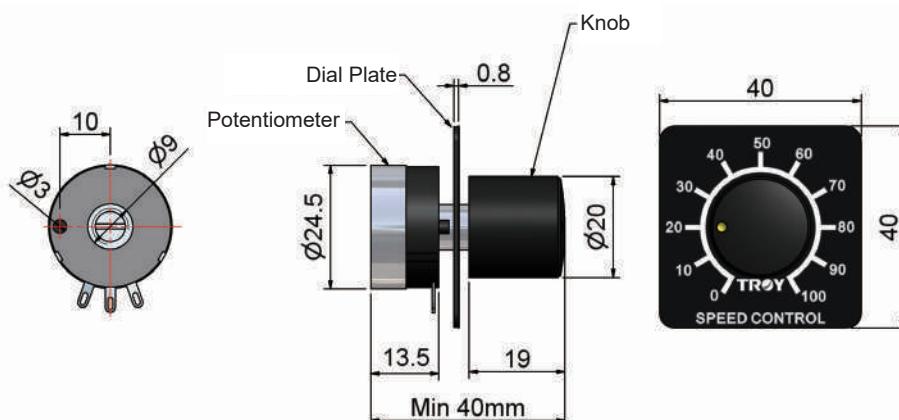
■ Dimensions

Unit : mm



※Flush mounting socket is sold separately.

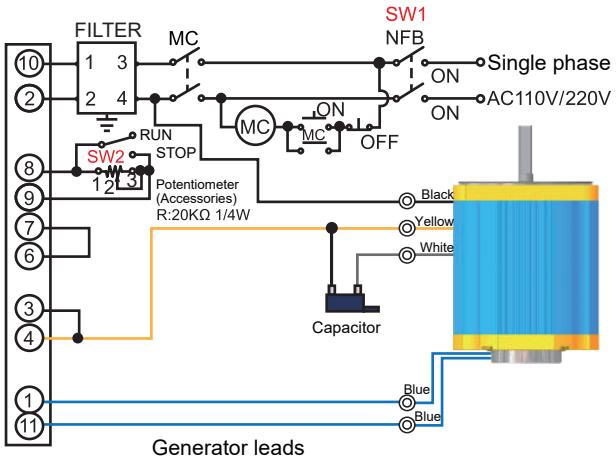
■ External Speed Potentiometer Dimensions



* The figure above dimension tolerance values are not labeled a general machining tolerances, the control mode, refer to P.8, others have marked tolerance values according to the drawing labeled based.

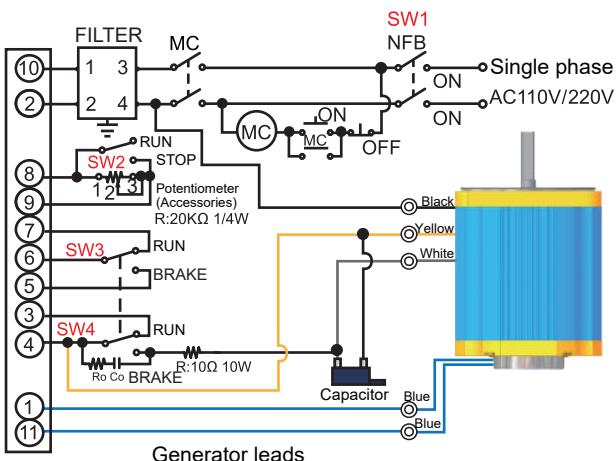
■ Wiring Diagram

◆ Applications : Uni-directional operation & Speed control
 Applicable models : All Series of Speed control Motor component package type - Induction / Reversible Motor



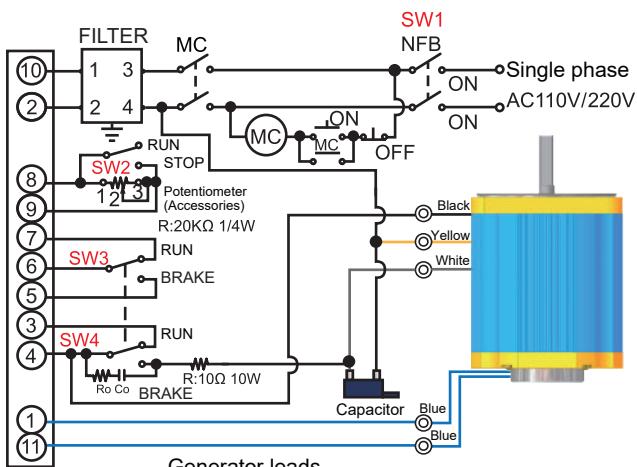
◆ Applications : Uni-directional operation & Speed control & Instantaneous stop

Applicable models : Speed control Motor component package type - Induction / Reversible Motor : 6~25W



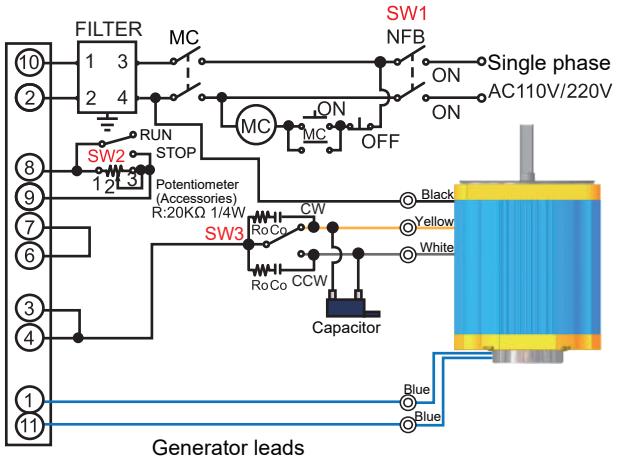
◆ Applications : Uni-directional operation & Speed control & Instantaneous stop

Applicable models : Speed control Motor component package type - Induction / Reversible Motor : 40~90W



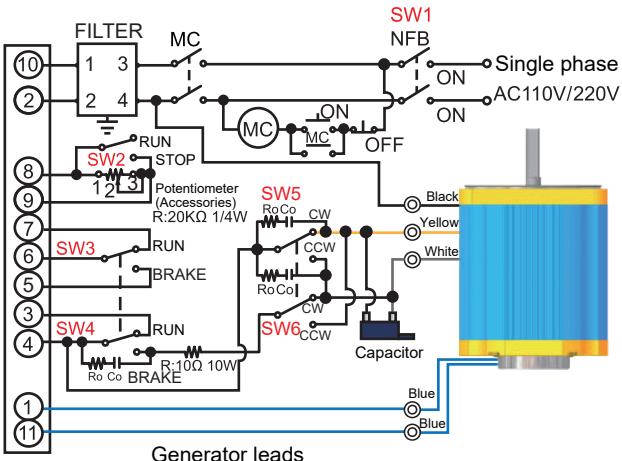
◆ Applications : Clockwise / Counterclockwise operation & Speed control

Applicable models : All Series of Speed control Motor component package type - Induction / Reversible Motor



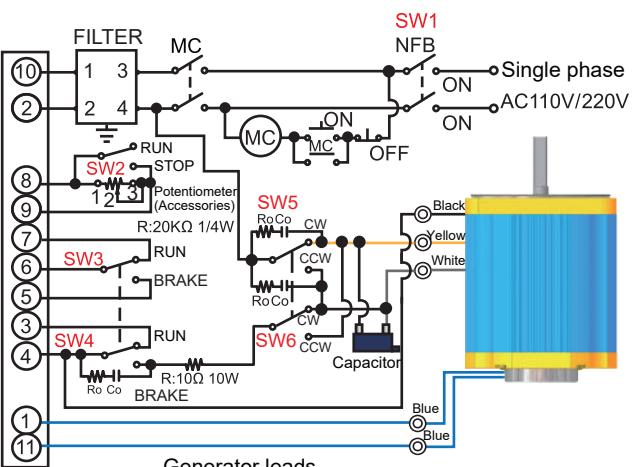
◆ Applications : Clockwise / Counterclockwise operation & Speed control & Instantaneous stop

Applicable models : Speed control Motor component package type - Induction / Reversible Motor : 6~25W



◆ Applications : Clockwise / Counterclockwise operation & Speed control & Instantaneous stop

Applicable models : Speed control Motor component package type - Induction / Reversible Motor : 40~90W



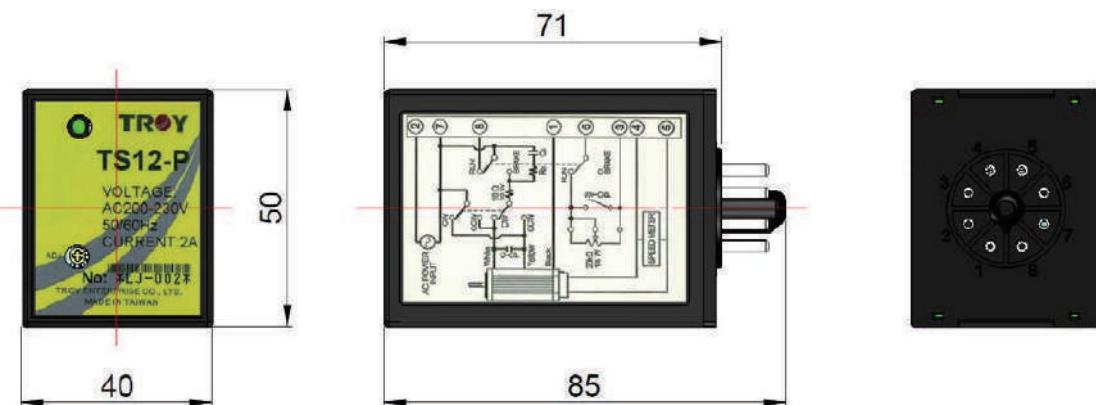


■ Specs

Type	Regular Type / Slow Start, Slow Stop Type		Regular Type / Slow Start, Slow Stop Type	
Model	TS11-P / TS11-P-SSSD		TS12-P / TS12-P-SSSD	
Specification Certification	—		—	
Power Input (V)	Single Phase AC100~115		Single Phase AC200~230	
Power Frequency (Hz)	50	60	50	60
Current (A)	2			
Drive Power	Max.60W			
Variable Speed Range(r/min)	90~1400	90~1700	90~1400	90~1700
Functions	Regular type : Speed control, Natural stop, Instantaneous brake stop Slow start / Slow stop type : Speed control, Natural stop, Instantaneous brake stop, Slow start, Slow stop Maximum speed limit : 1. ADJ could limit the maximum value of speed : adjusting ADJ could solve the vibration problem while being with motor at highest speed. 2. ADJ CW Rotating → raising the maximum speed : CCW Rotating → reducing the maximum speed.			
Ambient Temperature	0~+40°C			
Ambient Humidity	Max.85%RH			
Dimensions (mm)	50(L) × 40(W) × 85(H)			
Weight (g)	98			

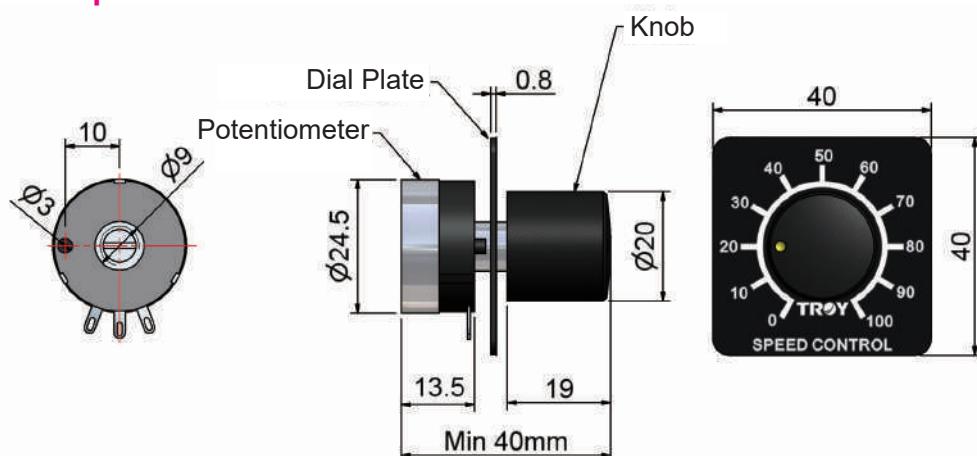
■ Dimensions

Unit : mm



※Flush mounting socket is sold separately.

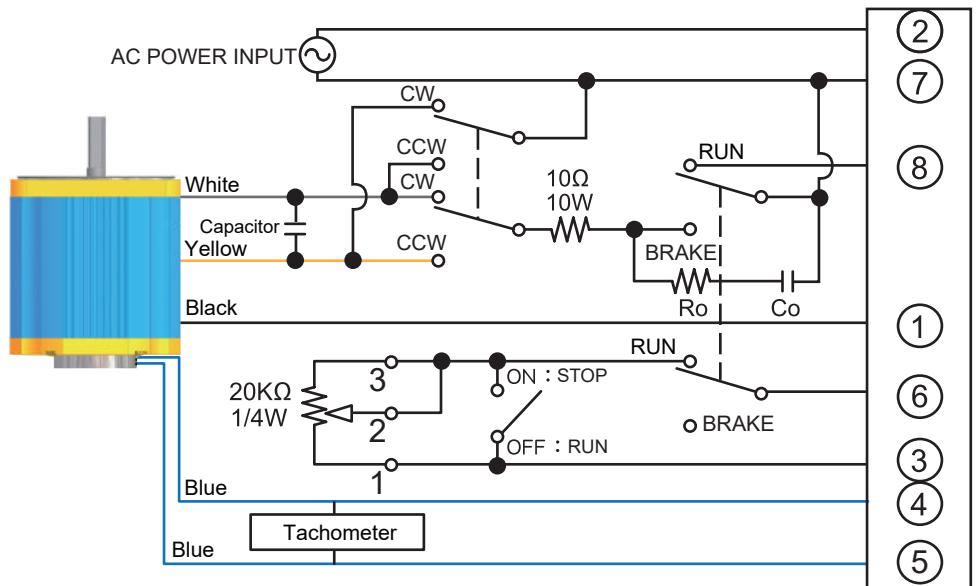
■ External Speed Potentiometer Dimensions



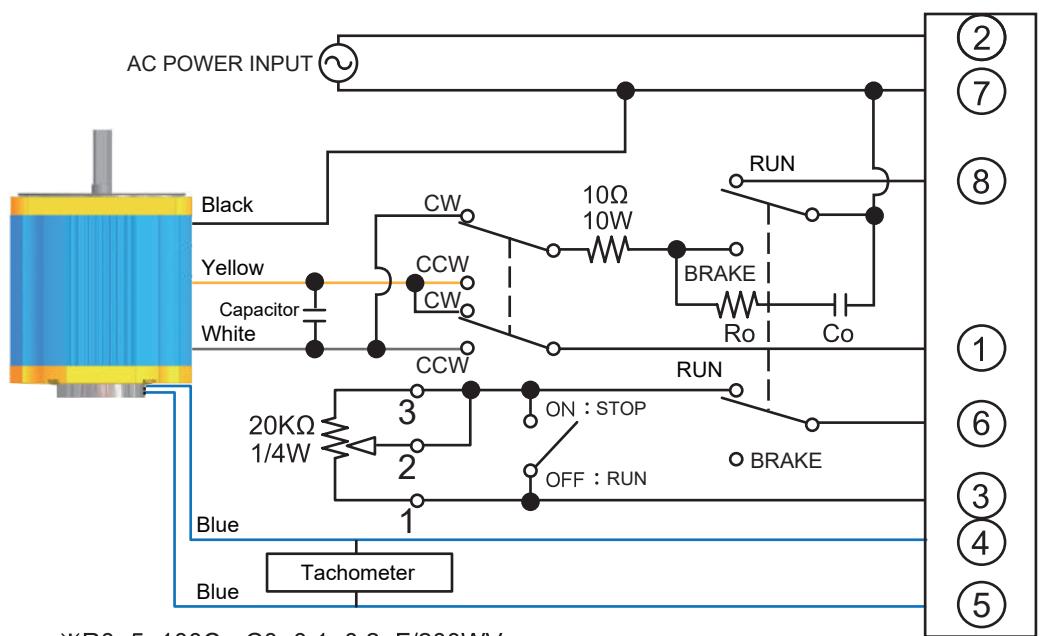
* The figure above dimension tolerance values are not labeled a general machining tolerances, the control mode, refer to P.8, others have marked tolerance values according to the drawing labeled based.

■ Wiring Diagram

◆ Applicable models : Speed control Motor component package type - Induction / Reversible Motor $\leq 20W$



◆ Applicable models : Speed control Motor component package type - Induction / Reversible Motor $\geq 25W$



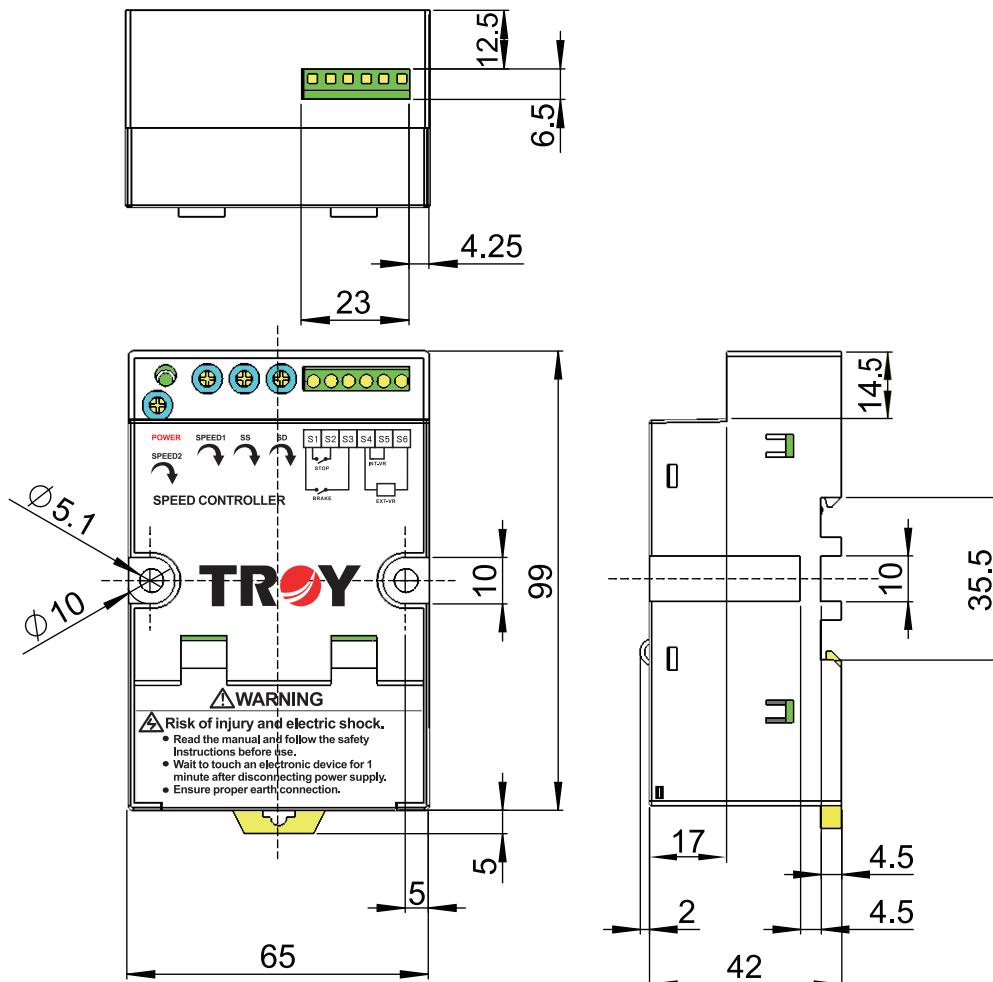


■ Specs

Model	TE31		TE32	
Specification Certification	—			—
Power Input (V)	Single Phase AC100~115			Single Phase AC200~230
Power Frequency (Hz)	50	60	50	60
Current (A)			3	
Drive Power	Max.135W			
Variable Speed Range(r/min)	90~1400	90~1700	90~1400	90~1700
Functions	<ul style="list-style-type: none"> Speed control : Two Kinds of speed control internally. Instantaneous brake stop : After 0.5 seconds Electric brake, no function for position holding. Slow start : During unload situation in 0~25 seconds, it will effect by inertia. Slow stop : During unload situation in 0~25 seconds, it will effect by inertia. 			
Ambient Temperature	0~+40°C			
Ambient Humidity	Max.85%RH			
Dimensions (mm)	104(L) × 65(W) × 44(H)			
Weight (g)	160			

■ Dimensions

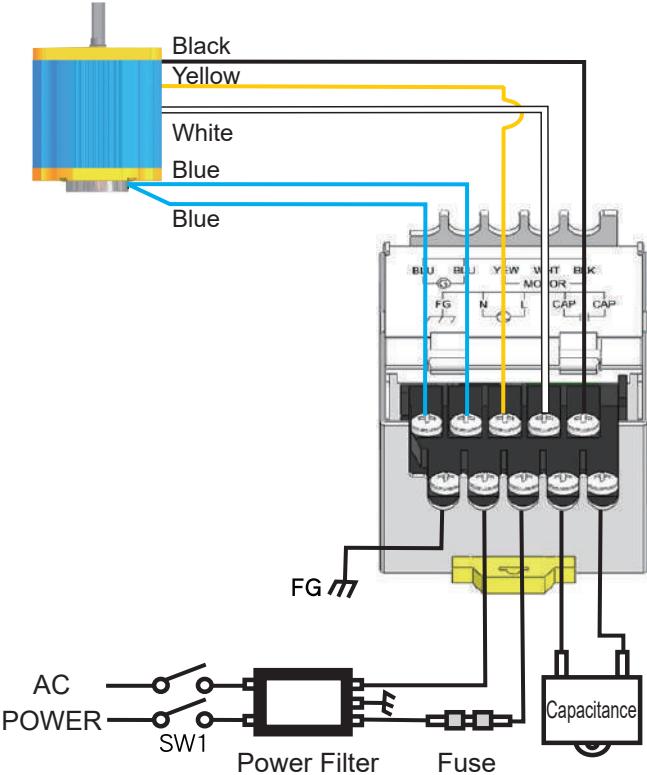
Unit : mm



* The figure above dimension tolerance values are not labeled a general machining tolerances, the control mode, refer to P.8, others have marked tolerance values according to the drawing labeled based.

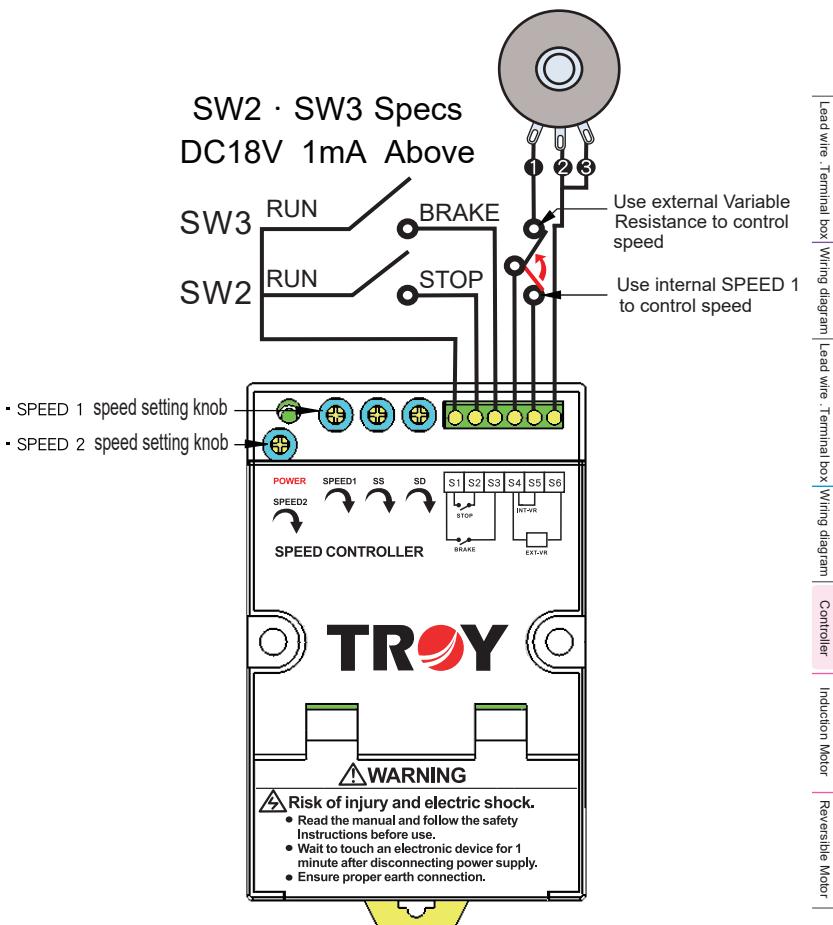
■ Wiring Diagram

◆ Speed control Motor and Controller · wiring diagram



※ The left wiring diagram is for one direction rotation, if you need the wiring diagram for Clockwise / Counter-clockwise, please refer to the detailed user manual.

◆ Speed control type · wiring diagram



※ The right wiring diagram is for speed control by external Variable Resistance or internal SPEED 1, if you need more wiring diagrams for multiple speed control, please refer to the detailed user manual.



■ Specs

Motor Output		6 W									
Type		Unit type/ Component package type		Unit type/ Component package type		Unit type/ Component package type					
Round Shaft Type		6I6SU-1 / 6I6SV-1		6I6SU-2 / 6I6SV-2		6I6SU-2E / 6I6SV-2E					
Pinion Shaft Type		6I6PU-1 / 6I6PV-1		6I6PU-2 / 6I6PV-2		6I6PU-2E / 6I6PV-2E					
Specification Certification		△ CCC RoHS IP54		CE CCC RoHS IP54		CE CCC RoHS IP54					
Capacity of Capacitor(μF)		2.5		0.6		0.5					
Power Input (V)		Single phase 110	Single phase 115	Single phase 220	Single phase 230	Single phase 230					
Power Frequency (Hz)		60				50					
Rated Current (A)		0.20	0.20	0.10	0.10	0.11					
Variable Speed Range(r/min)		90~1700				90~1400					
Permissible Torque(Nm)	1200r/min	0.05	0.05	0.05	0.05	0.05					
	90r/min	0.04	0.04	0.03	0.03	0.03					
Starting Torque (Nm)		0.04		0.04		0.04					
Rated Torque (Nm)		0.04		0.04		0.05					
Rated Speed (r/min)		1500		1500		1200					
Permissible Inertia (GD ²)		0.25 kgcm ²									
Ambient Temperature		Single phase 110V/115V : -10~+50°C ; Single phase 220V/230V: -10~+40°C									
Ambient Humidity		Max.85%RH									

※Controller TU3□ or TUD3□, please attached with the unit type 6I6SU-□/ 6I6PU-□.

Controller TS3□ or TS3□-HR/ TS3□-SSSD or TS1□-P/ TS1□-P-SSSD or TE3□ or TS2□, please attached with component package type 6I6SV-□ / 6I6PV-□.

※ 1 Nm = 10.19716 Kgcm

■ 6I6PU-□/ 6I6PV-□+6A□ Series Gearbox Specs & Permissible Torque / Permissible Inertial Load(GD²)When Gearbox Attached

Gear Ratio			3	3.6	5	6	7.5	9	10	12.5	15	18	20	25	30
60 Hz	Speed Range (r/min)	High Speed	566	472	340	283	226	188	170	136	113	94	85	68	56
		Low Speed	30	25	18	15	12	10	9	7.2	6	5	4.5	3.6	3
	Permissible Torque (Nm)	1200r/min	0.14	0.16	0.23	0.27	0.34	0.41	0.45	0.56	0.68	0.81	0.9	1.1	1.3
		90r/min	0.09	0.11	0.16	0.19	0.24	0.28	0.32	0.39	0.47	0.57	0.63	0.8	0.9
50 Hz	Speed Range (r/min)	High Speed	466	388	280	233	186	155	140	112	93	77	70	56	46
		Low Speed	30	25	18	15	12	10	9	7.2	6	5	4.5	3.6	3
	Permissible Torque (Nm)	1200r/min	0.14	0.16	0.23	0.27	0.34	0.41	0.45	0.56	0.68	0.81	0.9	1.1	1.3
		90r/min	0.09	0.1	0.14	0.17	0.22	0.26	0.29	0.36	0.43	0.52	0.58	0.7	0.8
Permissible Inertia Load GD ² (kgcm ²)			2.3	3.3	6.3	9	14	20.3	25	39	56.3	81	100	156	225
Gear Ratio			36	50	60	75	90	100	120	150	180	200	250	300	360
60 Hz	Speed Range (r/min)	High Speed	47	34	28	22	18	17	14	11	9.4	8.5	6.8	5.6	4.7
		Low Speed	2.5	1.8	1.5	1.2	1	0.9	0.75	0.6	0.5	0.45	0.36	0.3	0.25
	Permissible Torque (Nm)	1200r/min	1.5	2.2	2.6	3.2	3.9	4.3	4.9			6			
		90r/min	1.1	1.5	1.8	2.3	2.7	3	3.4	4.3	5.1	5.7		6	
50 Hz	Speed Range (r/min)	High Speed	38	28	23	18	15	14	11	9.3	7.7	7	5.6	4.6	3.8
		Low Speed	2.5	1.8	1.5	1.2	1	0.9	0.75	0.6	0.5	0.45	0.36	0.3	0.25
	Permissible Torque (Nm)	1200r/min	1.5	2.2	2.6	3.2	3.9	4.3	4.9			6			
		90r/min	1	1.4	1.7	2.1	2.5	2.8	3.1	3.9	4.7	5.2		6	
Permissible Inertia Load GD ² (kgcm ²)			324			625						625			

※1 : Gearbox 6A□ series, please enter the gear ratio 3~360 in the box□.

※2 : 60Hz: Speed control range is 90~1700r/min; 50Hz: Speed control range is 90~1400r/min.

※3 : "Permissible torque" It refers to the value of load torque driven by the Gearbox's output.

※4 : A colored █ background indicates gear shaft rotation in the opposite direction as the motor shaft. No marking indicates rotation in the same direction.

※5 : 1 Nm = 10.19716 Kgcm

※6 : The Gearboxes of all series have RoHS certification.

■ Permissible Overhung Load / Permissible Thrust Load

Round Shaft Type

Model	Permissible Overhung Load(Unit : kg f)		Permissible Thrust Load (Unit : kg f)
	10mm from shaft end	20mm from shaft end	
6I6SU-□	5	11	Permissible thrust load do not exceed the weight of Motor 1/2. If exceed the rated weight will decrease the service life of Motor. Please using indirect transmission machinery such as coupling, belt, chain. As the applications which will need the thrust load.
6I6SV-□			

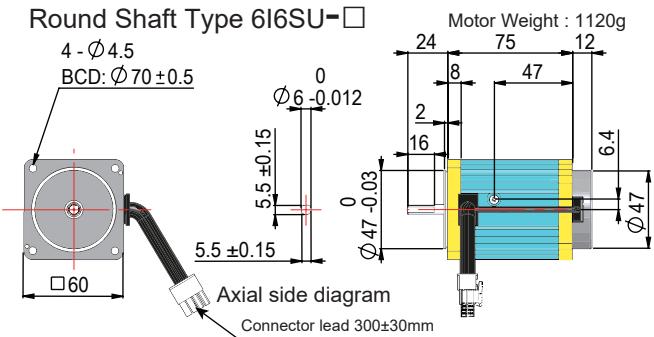
Pinion Shaft Type(Gearbox Attached)

Model	Gear Ratio	Permissible Overhung Load(Unit : kg f)		Permissible Thrust Load (Unit : kg f)
		10mm from shaft end	20mm from shaft end	
6I6PU-□	3, 3.6, 5	10	15	3
	6, 7.5, 9, 10, 12.5, 15, 18, 20	15	20	
6I6PV-□	25, 30, 36, 50, 60, 75, 90, 100, 120, 150, 180, 200, 250, 300, 360	20	30	

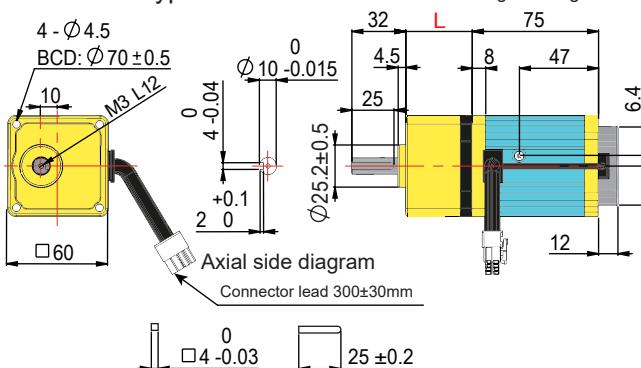
■ Dimensions

◆ Unit Type

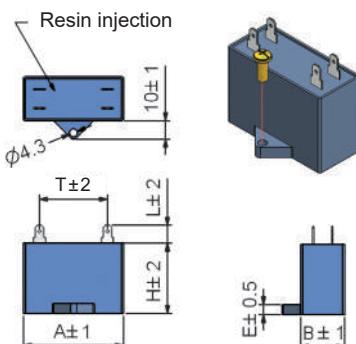
Round Shaft Type 6I6SU-□



Pinion Shaft Type 6I6PU-□+6A□ Motor Weight : 980g+W

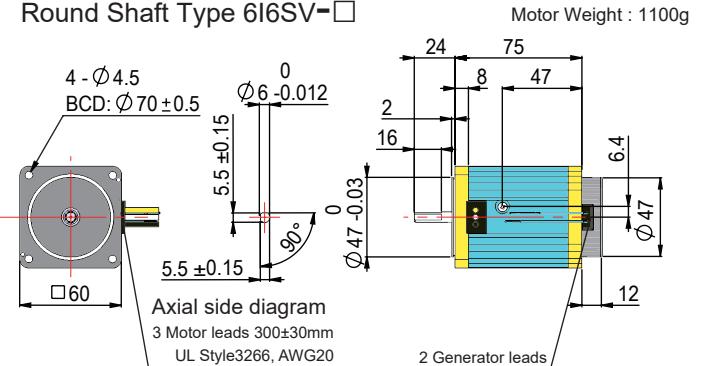


■ Capacitor Dimensions (Single phase motors only)

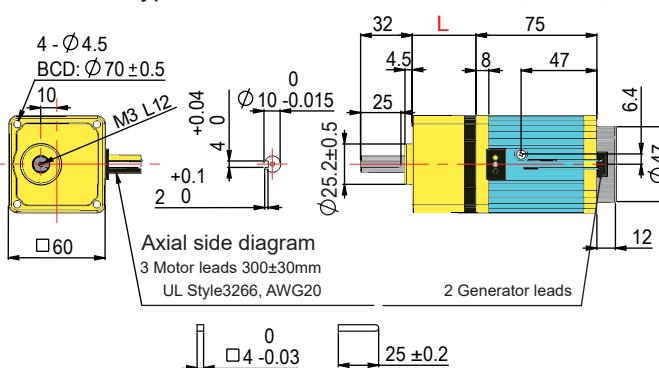


* The figure above dimension tolerance values are not labeled a general machining tolerances, the control mode, refer to P8, others have marked tolerance values according to the drawing labeled based.

◆ Component Package Type
Round Shaft Type 6I6SV-□



Pinion Shaft Type 6I6PV-□+6A□



* 6A pinion shaft type 6A3~360, the spec of Gearbox "L" length and weight "W" as following :

6A□Gearbox		Length/Weight
Model	Length (mm)	Weight (g)
6A3~6A100	39.5	400
6A120~6A360	43.5	440

※ We also have Gearbox 6A□N with shaft Ø 8. For details please refer to the P.4.

Capacity of capacitor (μ F/VAC)	A	B	H	L	T	E
2.5/250	37	12.5	22	8	28	5
0.6/450	37	14	23	7	24	4
0.5/450	37	12.5	22	9	24	5



■ Specs

Motor Output		25W									
Type		Unit type/ Component package type		Unit type/ Component package type		Unit type/ Component package type					
Round Shaft Type		8I25SU-1 / 8I25SV-1		8I25SU-2 / 8I25SV-2		8I25SU-2E / 8I25SV-2E					
Pinion Shaft Type		8I25PU-1 / 8I25PV-1		8I25PU-2 / 8I25PV-2		8I25PU-2E / 8I25PV-2E					
Specification Certification		UL CCC RoHS IP54		CE CCC RoHS IP54		CE CCC RoHS IP54					
Capacity of Capacitor(μF)		6.5		1.5		1.2					
Power Input (V)		Single phase 110	Single phase 115	Single phase 220	Single phase 230	Single phase 230					
Power Frequency (Hz)		60				50					
Rated Current (A)		0.43	0.43	0.26	0.26	0.35					
Variable Speed Range(r/min)		90~1700				90~1400					
Permissible Torque(Nm)	1200r/min	0.19	0.19	0.19	0.2	0.2					
	90r/min	0.05	0.05	0.05	0.05	0.05					
Starting Torque (Nm)		0.14		0.14		0.12					
Rated Torque (Nm)		0.17		0.17		0.21					
Rated Speed (r/min)		1500		1500		1200					
Permissible Inertia (GD ²)		1.2 kgcm ²									
Ambient Temperature		Single phase 110V/115V : -10~+50°C ; Single phase 220V/230V: -10~+40°C									
Ambient Humidity		Max.85%RH									

※ Controller TU3□ or TUD3□, please attached with the unit type 8I25SU-□/ 8I25PU-□.

Controller TS3□ or TS3□-HR/ TS3□-SSSD or TS1□-P/ TS1□-P-SSSD or TE3□ or TS2□, please attached with component package type 8I25SV-□ / 8I25PV-□.

※ 1 Nm = 10.19716 Kgcm

■ 8I25PU-□/8I25PV-□+8A□ Series Gearbox Specs & Permissible Torque / Permissible Inertial Load(GD²) When Gearbox Attached

Gear Ratio			3	3.6	5	6	7.5	9	10	12.5	15	18	20	25	30	
60 Hz	Speed Range (r/min)	High Speed	566	472	340	283	226	188	170	136	113	94	85	68	56	
		Low Speed	30	25	18	15	12	10	9	7.2	6	5	4.5	3.6	3	
	Permissible Torque (Nm)	1200r/min	0.54	0.65	0.9	1.08	1.35	1.62	1.8	2.25	2.7	3.24	3.6	4.3	5.2	
		90r/min	0.14	0.16	0.23	0.27	0.34	0.41	0.45	0.56	0.68	0.81	0.9	1.1	1.3	
50 Hz	Speed Range (r/min)	High Speed	466	388	280	233	186	155	140	112	93	77	70	56	46	
		Low Speed	30	25	18	15	12	10	9	7.2	6	5	4.5	3.6	3	
	Permissible Torque (Nm)	1200r/min	0.54	0.65	0.9	1.08	1.35	1.62	1.8	2.25	2.7	3.24	3.6	4.3	5.2	
		90r/min	0.14	0.16	0.23	0.27	0.34	0.41	0.45	0.56	0.68	0.81	0.9	1.1	1.3	
Permissible Inertia Load GD ² (kgcm ²)			10.8	15.6	30	43.2	67.5	97.2	120	187.5	270	389	480	750	1080	
Gear Ratio			36	50	60	75	90	100	120	150	180	200	250	300	360	
60 Hz	Speed Range (r/min)	High Speed	47	34	28	22	18	17	14	11	9.4	8.5	6.8	5.6	4.7	
		Low Speed	2.5	1.8	1.5	1.2	1	0.9	0.75	0.6	0.5	0.45	0.36	0.3	0.25	
	Permissible Torque (Nm)	1200r/min	6.2	8.6	10.3	12.9	15		15							
		90r/min	1.5	2.2	2.6	3.2	3.9	4.3	4.9	6.1	7.3	8.1	10.1	12.2	14.6	
50 Hz	Speed Range (r/min)	High Speed	38	28	23	18	15	14	11	9.3	7.7	7	5.6	4.6	3.8	
		Low Speed	2.5	1.8	1.5	1.2	1	0.9	0.75	0.6	0.5	0.45	0.36	0.3	0.25	
	Permissible Torque (Nm)	1200r/min	6.2	8.6	10.3	12.9	15		15							
		90r/min	1.5	2.2	2.6	3.2	3.9	4.3	4.9	6.1	7.3	8.1	10.1	12.2	14.6	
Permissible Inertia Load GD ² (kgcm ²)			1555	3000				3000								

※1 : Gearbox 8A□ series, please enter the gear ratio 3~360 in the box□.

※2 : 60Hz: Speed control range is 90~1700r/min; 50Hz: Speed control range is 90~1400r/min.

※3 : "Permissible torque" It refers to the value of load torque driven by the Gearbox's output.

※4 : A colored ■ background indicates gear shaft rotation in the opposite direction as the motor shaft. No marking indicates rotation in the same direction.

※5 : 1 Nm = 10.19716 Kgcm

※6 : The Gearboxes of all series have RoHS certification.



■ Specs

Motor Output		40W									
Type		Unit type/ Component package type		Unit type/ Component package type		Unit type/ Component package type					
Round Shaft Type		9I40SU-1 / 9I40SV-1		9I40SU-2 / 9I40SV-2		9I40SU-2E / 9I40SV-2E					
Pinion Shaft Type		9I40PU-1 / 9I40PV-1		9I40PU-2 / 9I40PV-2		9I40PU-2E / 9I40PV-2E					
Specification Certification		IP54		IP54		IP54					
Capacity of Capacitor(μF)		10		2.5		2					
Power Input (V)		Single phase 110	Single phase 115	Single phase 220	Single phase 230	Single phase 230					
Power Frequency (Hz)		60				50					
Rated Current (A)		0.75	0.77	0.38	0.39	0.39					
Variable Speed Range(r/min)		90~1700				90~1400					
Permissible Torque(Nm)	1200r/min	0.23	0.23	0.28	0.26	0.3					
	90r/min	0.07	0.07	0.08	0.07	0.07					
Starting Torque (Nm)		0.26		0.26		0.24					
Rated Torque (Nm)		0.27		0.27		0.32					
Rated Speed (r/min)		1550		1550		1300					
Permissible Inertia (GD ²)		3 kgcm ²									
Ambient Temperature		Single phase 110V/115V : -10~+50°C ; Single phase 220V/230V: -10~+40°C									
Ambient Humidity		Max.85%RH									

※Controller TU3□ or TUD3□, please attached with the unit type 9I40SU-□/ 9I40PU-□.

Controller TS3□ or TS3□-HR/ TS3□-SSSD or TS1□-P/ TS1□-P-SSSD or TE3□ or TS2□, please attached with component package type 9I40SV-□ / 9I40PV-□.

※1 Nm = 10.19716 Kgcm

■ 9I40PU-□/9I40PV-□+9A□ Series Gearbox Specs & Permissible Torque / Permissible Inertial Load(GD²) When Gearbox Attached

Gear Ratio			3	3.6	5	6	7.5	9	10	12.5	15	18	20	25	30	
60 Hz	Speed Range (r/min)	High Speed	566	472	340	283	226	188	170	136	113	94	85	68	56	
		Low Speed	30	25	18	15	12	10	9	7.2	6	5	4.5	3.6	3	
	Permissible Torque (Nm)	1200r/min	0.76	0.91	1.26	1.51	1.89	2.27	2.52	3.15	3.78	4.54	5.04	6	7.2	
		90r/min	0.2	0.24	0.34	0.41	0.51	0.61	0.68	0.84	1.01	1.22	1.35	1.6	1.9	
50 Hz	Speed Range (r/min)	High Speed	466	388	280	233	186	155	140	112	93	77	70	56	46	
		Low Speed	30	25	18	15	12	10	9	7.2	6	5	4.5	3.6	3	
	Permissible Torque (Nm)	1200r/min	0.86	1.04	1.44	1.73	2.16	2.59	2.88	3.6	4.32	5.18	5.76	6.9	8.3	
		90r/min	0.19	0.23	0.32	0.38	0.47	0.57	0.63	0.79	0.95	1.13	1.26	1.5	1.8	
Permissible Inertia Load GD ² (kgcm ²)			27	39	75	108	169	243	300	469	675	972	1200	1875	2700	
Gear Ratio			36	50	60	75	90	100	120	150	180	200	250	300	360	
60 Hz	Speed Range (r/min)	High Speed	47	34	28	22	18	17	14	11	9.4	8.5	6.8	5.6	4.7	
		Low Speed	2.5	1.8	1.5	1.2	1	0.9	0.75	0.6	0.5	0.45	0.36	0.3	0.25	
	Permissible Torque (Nm)	1200r/min	8.7	12	14.4	18.1	21.7	24.1	27.2	34	40					
		90r/min	2.3	3.2	3.9	4.8	5.8	6.5	7.3	9.1	10.9	12.2	15.2	18.2	21.9	
50 Hz	Speed Range (r/min)	High Speed	38	28	23	18	15	14	11	9.3	7.7	7	5.6	4.6	3.8	
		Low Speed	2.5	1.8	1.5	1.2	1	0.9	0.75	0.6	0.5	0.45	0.36	0.3	0.25	
	Permissible Torque (Nm)	1200r/min	9.9	13.8	16.5	20.6	24.8	27.5	31.1	38.9	40					
		90r/min	2.2	3	3.6	4.5	5.4	6	6.8	8.5	10.2	11.3	14.2	17	20.4	
Permissible Inertia Load GD ² (kgcm ²)			3888	7500				7500								

※1 : Gearbox 9A□series, please enter the gear ratio 3~360 in the box□.

※2 : 60Hz: Speed control range is 90~1700r/min; 50Hz: Speed control range is 90~1400r/min.

※3 : "Permissible torque" It refers to the value of load torque driven by the Gearbox's output.

※4 : A colored ■ background indicates gear shaft rotation in the opposite direction as the motor shaft. No marking indicates rotation in the same direction.

※5 : 1 Nm = 10.19716 Kgcm

※6 : The Gearboxes of all series have certification.



■ Specs

Motor Output		60W										
Type	Unit type/ Component package type	Unit type/ Component package type			Unit type/ Component package type							
Round Shaft Type	9I60SU(F)-1/9I60SV(F)-1	9I60SU(F)-2/9I60SV(F)-2			9I60SU(F)-2E/9I60SV(F)-2E							
Pinion Shaft Type	9I60PU(F)-1/9I60PV(F)-1	9I60PU(F)-2/9I60PV(F)-2			9I60PU(F)-2E/9I60PV(F)-2E							
Specification Certification	△ CCC RoHS IP54			CE CCC RoHS IP54			CE CCC RoHS IP54					
Capacity of Capacitor(μF)	18		4			3.5						
Power Input (V)	Single phase 110	Single phase 115	Single phase 220	Single phase 230	Single phase 230							
Power Frequency (Hz)	60					50						
Rated Current (A)	1.39	1.44	0.62	0.63	0.45							
Variable Speed Range(r/min)	90~1700					90~1400						
Permissible Torque(Nm)	1200r/min	0.49	0.49	0.49	0.49	0.49						
	90r/min	0.21	0.21	0.22	0.18	0.17						
Starting Torque (Nm)	0.34			0.34			0.34					
Rated Torque (Nm)	0.42			0.42			0.5					
Rated Speed (r/min)	1450		1500			1250						
Permissible Inertia (GD ²)	4.6 kgcm ²											
Ambient Temperature	Single phase 110V/115V : -10~+50°C ; Single phase 220V/230V: -10~+40°C											
Ambient Humidity	Max.85%RH											

※Controller TU3□ or TUD3□, please attached with the unit type 9I60SU(F)-□/ 9I60PU(F)-□.

Controller TS3□ or TS3□-HR/ TS3□-SSSD or TS1□-P/ TS1□-P-SSSD or TE3□, please attached with component package type 9I60SV(F)-□ / 9I60PV(F)-□.

※Independent fan type don't have IP54 standard certification.

※1 Nm = 10.19716 Kgcm

■ 9I60PU(F)-□/9I60PV(F)-□+9A□Series Gearbox Specs & Permissible Torque / Permissible Inertial Load(GD²)When Gearbox Attached

Gear Ratio		3	3.6	5	6	7.5	9	10	12.5	15	18	20	25	30
60 Hz	Speed Range (r/min)	High Speed	566	472	340	283	226	188	170	136	113	94	85	68
		Low Speed	30	25	18	15	12	10	9	7.2	6	5	4.5	3.6
	Permissible Torque (Nm)	1200r/min	1.32	1.59	2.21	2.65	3.31	3.97	4.41	5.51	6.62	7.94	8.82	10.5
		90r/min	0.58	0.7	0.97	1.16	1.45	1.74	1.94	2.42	2.9	3.48	3.87	4.6
50 Hz	Speed Range (r/min)	High Speed	466	388	280	233	186	155	140	112	93	77	70	56
		Low Speed	30	25	18	15	12	10	9	7.2	6	5	4.5	3.6
	Permissible Torque (Nm)	1200r/min	1.32	1.59	2.21	2.65	3.31	3.97	4.41	5.51	6.62	7.94	8.82	10.5
		90r/min	0.46	0.55	0.77	0.92	1.15	1.38	1.53	1.91	2.3	2.75	3.06	3.7
Permissible Inertia Load GD ² (kgcm ²)		41	60	115	166	259	373	460	719	1035	1490	1840	2875	4140
Gear Ratio		36	50	60	75	90	100	120	150	180	200	250	300	360
60 Hz	Speed Range (r/min)	High Speed	47	34	28	22	18	17	14	11	9.4	8.5	6.8	5.6
		Low Speed	2.5	1.8	1.5	1.2	1	0.9	0.75	0.6	0.5	0.45	0.36	0.3
	Permissible Torque (Nm)	1200r/min	15.2	21.1	25.3	31.6	37.9	40				40		
		90r/min	6.7	9.2	11.1	13.9	16.6	18.5	20.9	26.1	31.3	34.8		40
50 Hz	Speed Range (r/min)	High Speed	38	28	23	18	15	14	11	9.3	7.7	7	5.6	4.6
		Low Speed	2.5	1.8	1.5	1.2	1	0.9	0.75	0.6	0.5	0.45	0.36	0.3
	Permissible Torque (Nm)	1200r/min	15.2	21.1	25.3	31.6	37.9	40				40		
		90r/min	5.3	7.3	8.8	11	13.2	14.6	16.5	20.7	24.8	27.5	34.4	40
Permissible Inertia Load GD ² (kgcm ²)		5962			11500						11500			

※1 : Gearbox 9A□series, please enter the gear ratio 3~360 in the box□.

※2 : 60Hz: Speed control range is 90~1700r/min; 50Hz: Speed control range is 90~1400r/min.

※3 : "Permissible torque" It refers to the value of load torque driven by the Gearbox's output.

※4 : A colored ■ background indicates gear shaft rotation in the opposite direction as the motor shaft. No marking indicates rotation in the same direction.

※5 : 1 Nm = 10.19716 Kgcm

※6 : The Gearboxes of all series have RoHS certification.

■ Permissible Overhung Load / Permissible Thrust Load

Round Shaft Type

Model	Permissible Overhung Load(Unit : kg f)		Permissible Thrust Load (Unit : kg f)
	10mm from shaft end	20mm from shaft end	
9I60SU(F)-□	24	27	Permissible thrust load do not exceed the weight of Motor 1/2. If exceed the rated weight will decrease the service life of Motor. Please using indirect transmission machinery such as coupling, belt, chain. As the applications which will need the thrust load.
9I60SV(F)-□			

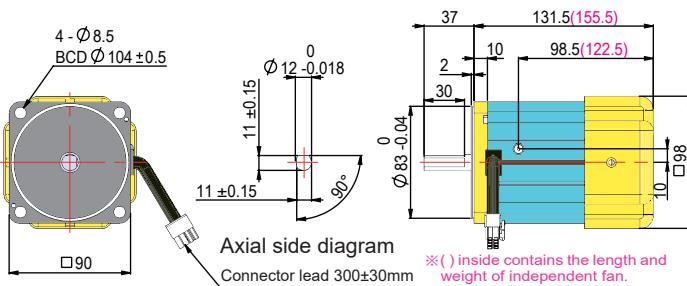
Pinion Shaft Type(Gearbox Attached)

Model	Gear Ratio	Permissible Overhung Load(Unit : kg f)		Permissible Thrust Load (Unit : kg f)
		10mm from shaft end	20mm from shaft end	
9I60PU(F)-□	3, 3.6, 5	50	60	15
	6, 7.5, 9, 10, 12.5, 15, 18, 20	60	70	
9I60PV(F)-□	25, 30, 36, 50, 60, 75, 90, 100, 120, 150, 180, 200, 250, 300, 360	70	80	

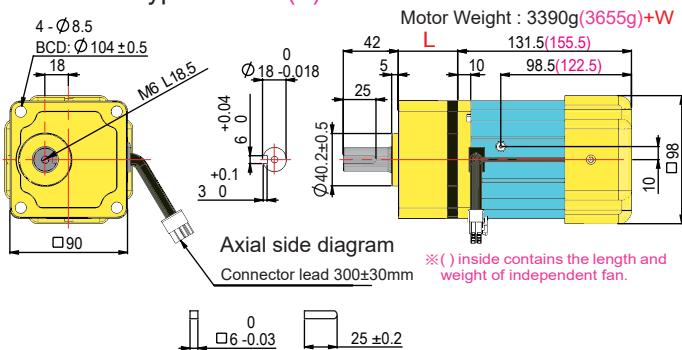
■ Dimensions

◆ Unit Type (Independent Fan Type)

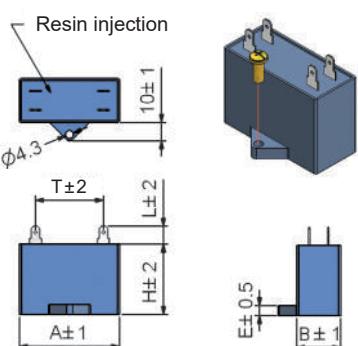
Round Shaft Type 9I60SU(F)-□ Motor Weight : 3420g(3685g)



Pinion Shaft Type 9I60PU(F)-□+9A□



■ Capacitor Dimensions (Single phase motors only)

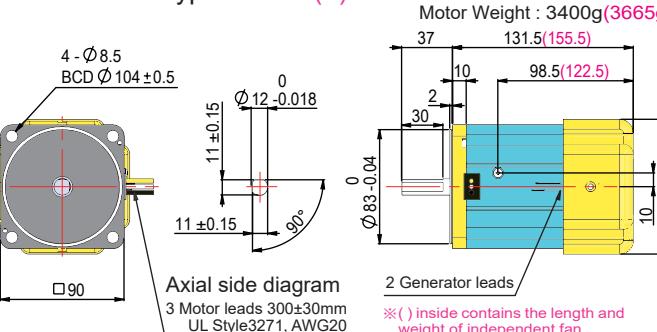


* The figure above dimension tolerance values are not labeled a general machining tolerances, the control mode, refer to P.8, others have marked tolerance values according to the drawing labeled based.

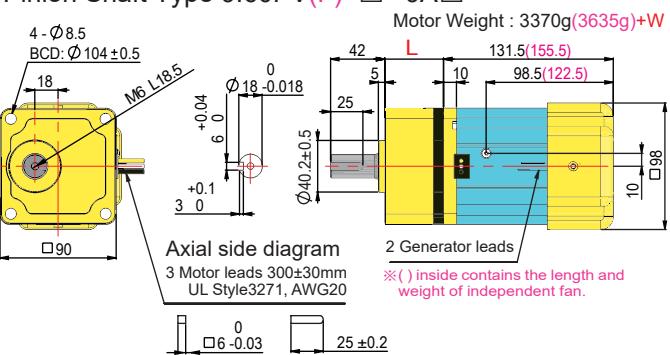
◆ Component Package Type (Independent Fan Type)

Round Shaft Type 9I60SV(F)-□

Unit : mm



Pinion Shaft Type 9I60PV(F)-□+9A□



* 9A pinion shaft type 9A3~360, the spec of Gearbox "L" length and weight "W" as following :

9A□ Gearbox	Length/Weight	
Model	Length (mm)	Weight (g)
9A3~9A20	45.5	1170
9A25~9A100	58.5	1520
9A120~9A360	64.5	1610

* We also have Gearbox 9A□U with shaft Ø 15. For details please refer to the P.4.

Capacity of capacitor (μ F/VAC)	A	B	H	L	T	E
18/250	59	23	35	7	48	4.2
4/450	49	21	31.5	9	34	5
3.5/450	49	21	31.5	8	34	5



■ Specs

Motor Output		90W									
Type		Unit type/ Component package type		Unit type/ Component package type		Unit type/ Component package type					
Round Shaft Type		9I90SU(F)-1/9I90SV(F)-1		9I90SU(F)-2/9I90SV(F)-2		9I90SU(F)-2E/9I90SV(F)-2E					
Pinion Shaft Type		9I90PU(F)-1/9I90PV(F)-1		9I90PU(F)-2/9I90PV(F)-2		9I90PU(F)-2E/9I90PV(F)-2E					
Specification Certification		IP54		IP54		IP54					
Capacity of Capacitor(μF)		20		6		5					
Power Input (V)		Single phase 110	Single phase 115	Single phase 220	Single phase 230	Single phase 230					
Power Frequency (Hz)		60				50					
Rated Current (A)		1.50	1.57	0.87	0.92	0.71					
Variable Speed Range(r/min)		90~1700				90~1400					
Permissible Torque(Nm)	1200r/min	0.73	0.73	0.73	0.73	0.73					
	90r/min	0.23	0.23	0.28	0.29	0.26					
Starting Torque (Nm)		0.45		0.45		0.45					
Rated Torque (Nm)		0.59		0.61		0.71					
Rated Speed (r/min)		1550		1550		1300					
Permissible Inertia (GD ²)		4.6 kgcm ²									
Ambient Temperature		Single phase 110V/115V : -10~+50°C ; Single phase 220V/230V: -10~+40°C									
Ambient Humidity		Max.85%RH									

※Controller TU3□ or TUD3□, please attached with the unit type 9I90SU(F)-□/ 9I90PU(F)-□.

Controller TS3□ or TS3□-HR / TS3□-SSSD or TE3□, please attached with component package type 9I90SV(F)-□ / 9I90PV(F)-□.

※Independent fan type don't have IP54 standard certification.

※1 Nm = 10.19716 Kgcm

■ 9I90PU(F)-□/9I90PV(F)-□+9A□Series Gearbox Specs & Permissible Torque /
Permissible Inertial Load(GD²)When Gearbox Attached

Gear Ratio			3	3.6	5	6	7.5	9	10	12.5	15	18	20	25	30	
60 Hz	Speed Range (r/min)	High Speed	566	472	340	283	226	188	170	136	113	94	85	68	56	
		Low Speed	30	25	18	15	12	10	9	7.2	6	5	4.5	3.6	3	
	Permissible Torque (Nm)	1200r/min	1.97	2.37	3.29	3.94	4.93	5.91	6.57	8.21	9.86	11.8	13.1	15.7	18.8	
		90r/min	0.78	0.94	1.31	1.57	1.96	2.35	2.61	3.26	3.92	4.7	5.22	6.2	7.5	
50 Hz	Speed Range (r/min)	High Speed	466	388	280	233	186	155	140	112	93	77	70	56	46	
		Low Speed	30	25	18	15	12	10	9	7.2	6	5	4.5	3.6	3	
	Permissible Torque (Nm)	1200r/min	1.97	2.37	3.29	3.94	4.93	5.91	6.57	8.21	9.86	11.8	13.1	15.7	18.8	
		90r/min	0.7	0.84	1.17	1.4	1.76	2.11	2.34	2.93	3.51	4.21	4.68	5.6	6.7	
Permissible Inertia Load GD ² (kgcm ²)			41	60	115	166	259	373	460	719	1035	1490	1840	2875	4140	
Gear Ratio			36	50	60	75	90	100	120	150	180	200	250	300	360	
60 Hz	Speed Range (r/min)	High Speed	47	34	28	22	18	17	14	11	9.4	8.5	6.8	5.6	4.7	
		Low Speed	2.5	1.8	1.5	1.2	1	0.9	0.75	0.6	0.5	0.45	0.36	0.3	0.25	
	Permissible Torque (Nm)	1200r/min	22.6	31.4	37.7		40				40					
		90r/min	9	12.5	15	18.7	22.4	24.9	28.2	35.2		40				
50 Hz	Speed Range (r/min)	High Speed	38	28	23	18	15	14	11	9.3	7.7	7	5.6	4.6	3.8	
		Low Speed	2.5	1.8	1.5	1.2	1	0.9	0.75	0.6	0.5	0.45	0.36	0.3	0.25	
	Permissible Torque (Nm)	1200r/min	22.6	31.4	37.7		40				40					
		90r/min	8	11.2	13.4	16.8	20.1	22.4	25.3	31.6	37.9		40			
Permissible Inertia Load GD ² (kgcm ²)			5962		11500						11500					

※1 : Gearbox 9A□series, please enter the gear ratio 3~360 in the box□.

※2 : 60Hz: Speed control range is 90~1700r/min; 50Hz: Speed control range is 90~1400r/min.

※3 : "Permissible torque" It refers to the value of load torque driven by the Gearbox's output.

※4 : A colored ■ background indicates gear shaft rotation in the opposite direction as the motor shaft. No marking indicates rotation in the same direction.

※5 : 1 Nm = 10.19716 Kgcm

※6 : The Gearboxes of all series have certification.



■ Specs

Motor Output		135W									
Type		Component package type			Component package type		Component package type				
Round Shaft Type		9I135SV(F)-1			9I135SV(F)-2		9I135SV(F)-2E				
Pinion Shaft Type		9I135PV(F)-1			9I135PV(F)-2		9I135PV(F)-2E				
Specification Certification		  			  		  				
Capacity of Capacitor(μF)		27		8		7					
Power Input (V)		Single phase 110	Single phase 115	Single phase 220	Single phase 230	Single phase 230					
Power Frequency (Hz)		60				50					
Rated Current (A)		2.10	2.15	1.20	1.25	1.00					
Variable Speed Range(r/min)		90~1700				90~1400					
Permissible Torque(Nm)	1200r/min	1.10	1.15	1.20	1.25	1.20					
	90r/min	0.50	0.55	0.60	0.65	0.60					
Starting Torque (Nm)		0.60		0.60		0.60					
Rated Torque (Nm)		0.85	0.90	0.85	0.90	0.90					
Rated Speed (r/min)		1550		1550		1250					
Permissible Inertia (GD ²)		4.6 kgcm ²									
Ambient Temperature		Single phase 110V/115V : -10~+50°C ; Single phase 220V/230V: -10~+40°C									
Ambient Humidity		Max.85%RH									

※Controller TE3□ , please attached with component package type 9I135SV(F)-□/ 9I135PV(F)-□.

※Independent fan type don't have IP54 standard certification.

※1 Nm = 10.19716 Kgcm

■ 9I135PV(F)-□+9A□Series Gearbox Specs & Permissible Torque / Permissible Inertial Load(GD²)When Gearbox Attached

Gear Ratio			3	3.6	5	6	7.5	9	10	12.5	15	18	20	25	30	
60 Hz	Speed Range (r/min)	High Speed	566	472	340	283	226	188	170	136	113	94	85	68	56	
		Low Speed	30	25	18	15	12	10	9	7.2	6	5	4.5	3.6	3	
	Permissible Torque (Nm)	1200r/min	3	3.6	5	6	7.4	8.9	9.9	12.4	14.9	17.9	19.9	23.6	28.3	
		90r/min	1.4	1.6	2.3	2.7	3.4	4.1	4.5	5.6	6.8	8.1	9	10.7	12.9	
50 Hz	Speed Range (r/min)	High Speed	466	388	280	233	186	155	140	112	93	77	70	56	46	
		Low Speed	30	25	18	15	12	10	9	7.2	6	5	4.5	3.6	3	
	Permissible Torque (Nm)	1200r/min	3.2	3.9	5.4	6.5	8.1	9.7	10.8	13.5	16.2	19.5	21.7	25.7	30.9	
		90r/min	1.6	1.9	2.7	3.2	4.1	4.9	5.4	6.8	8.1	9.7	10.8	12.9	15.4	
Permissible Inertia Load GD ² (kgcm ²)			41	60	115	166	259	373	460	719	1035	1490	1840	2875	4140	
Gear Ratio			36	50	60	75	90	100	120	150	180	200	250	300	360	
60 Hz	Speed Range (r/min)	High Speed	47	34	28	22	18	17	14	11	9.4	8.5	6.8	5.6	4.7	
		Low Speed	2.5	1.8	1.5	1.2	1	0.9	0.75	0.6	0.5	0.45	0.36	0.3	0.25	
	Permissible Torque (Nm)	1200r/min	34			40				40						
		90r/min	15.4	21.4	25.7	32.2	38.6	40			40					
50 Hz	Speed Range (r/min)	High Speed	38	28	23	18	15	14	11	9.3	7.7	7	5.6	4.6	3.8	
		Low Speed	2.5	1.8	1.5	1.2	1	0.9	0.75	0.6	0.5	0.45	0.36	0.3	0.25	
	Permissible Torque (Nm)	1200r/min	37			40				40						
		90r/min	18.5	25.7	30.9	38.6	40			40						
Permissible Inertia Load GD ² (kgcm ²)			5962			11500				11500						

※1 : Gearbox 9A□series, please enter the gear ratio 3~360 in the box□.

※2 : 60Hz: Speed control range is 90~1700r/min; 50Hz: Speed control range is 90~1400r/min.

※3 : "Permissible torque" It refers to the value of load torque driven by the Gearbox's output.

※4 : A colored █ background indicates gear shaft rotation in the opposite direction as the motor shaft. No marking indicates rotation in the same direction.

※5 : 1 Nm = 10.19716 Kgcm

※6 : The Gearboxes of all series have  certification.

■ Permissible Overhung Load / Permissible Thrust Load

Round Shaft Type

Model	Permissible Overhung Load(Unit : kg f)		Permissible Thrust Load (Unit : kg f)
	10mm from shaft end	20mm from shaft end	
9I135SV(F)-□	24	27	Permissible thrust load do not exceed the weight of Motor 1/2. If exceed the rated weight will decrease the service life of Motor. Please using indirect transmission machinery such as coupling, belt, chain. As the applications which will need the thrust load.

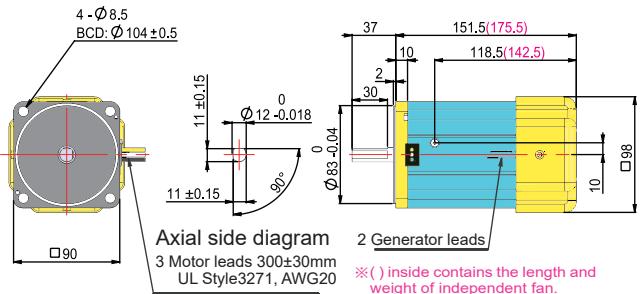
Pinion Shaft Type(Gearbox Attached)

Model	Gear Ratio	Permissible Overhung Load(Unit : kg f)		Permissible Thrust Load (Unit : kg f)
		10mm from shaft end	20mm from shaft end	
9I135PV(F)-□	3, 3.6, 5	50	60	15
	6, 7.5, 9, 10, 12.5, 15, 18, 20	60	70	
	25, 30, 36, 50, 60, 75, 90, 100, 120, 150, 180, 200, 250, 300, 360	70	80	

■ Dimensions

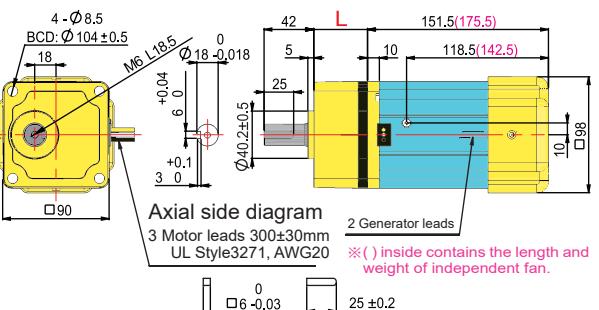
◆ Component Package Type (Independent Fan Type)

Round Shaft Type 9I135SV(F)-□ Motor Weight : 4000g(4265g)

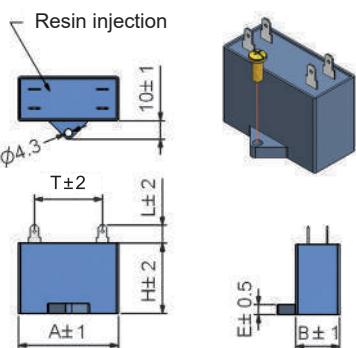


Pinion Shaft Type 9I135PV(F)-□+9A□ Unit : mm

Motor Weight : 3970g(4235g)+W



■ Capacitor Dimensions (Single phase motors only)



* The figure above dimension tolerance values are not labeled a general machining tolerances, the control mode, refer to P.8, others have marked tolerance values according to the drawing labeled based.

* 9A pinion shaft type 9A3~360, the spec of Gearbox "L" length and weight "W" as following :

9A□Gearbox		Length/Weight
Model	Length (mm)	Weight (g)
9A3~9A20	45.5	1170
9A25~9A100	58.5	1520
9A120~9A360	64.5	1610

※ We also have Gearbox 9A□U with shaft Ø 15. For details please refer to the P.4.

Capacity of capacitor (μ F/VAC)	A	B	H	L	T	E
27/250	59	23	35	10	48	4.2
8/450	57.5	25	39	8	44	4
7/450	57.5	25	39	8	44	4



■ Specs

Motor Output		6W									
Type	Unit type/ Component package type	Unit type/ Component package type		Unit type/ Component package type		Unit type/ Component package type					
Round Shaft Type	6R6SU-1 / 6R6SV-1		6R6SU-2 / 6R6SV-2		6R6SU-2E / 6R6SV-2E						
Pinion Shaft Type	6R6PU-1 / 6R6PV-1		6R6PU-2 / 6R6PV-2		6R6PU-2E / 6R6PV-2E						
Specification Certification	△ ccc RoHS IP54		CE ccc RoHS IP54		CE ccc RoHS IP54						
Capacity of Capacitor(μF)	3.5		0.8		0.6						
Power Input (V)	Single phase 110	Single phase 115	Single phase 220	Single phase 230	Single phase 230						
Power Frequency (Hz)	60				50						
Rated Current (A)	0.29	0.30	0.13	0.14	0.15						
Variable Speed Range(r/min)	90~1700				90~1400						
Permissible Torque(Nm)	1200r/min	0.05	0.05	0.05	0.05	0.05					
	90r/min	0.05	0.05	0.05	0.05	0.05					
Starting Torque (Nm)	Note1		0.04		0.04		0.05				
Rated Torque (Nm)			0.04		0.04		0.05				
Rated Speed (r/min)	1450		1550		1200						
Permissible Inertia (GD ²)	Note2						0.25 kgcm ²				
Ambient Temperature	Single phase 110V/115V : -10~+50°C ; Single phase 220V/230V: -10~+40°C										
Ambient Humidity	Max.85%RH										

※ Controller TU3□ or TUD3□, please attached with the unit type 6R6SU-□/ 6R6PU-□.

Controller TS3□ or TS3□-HR / TS3□-SSSD or TS1□-P / TS1□-P-SSSD or TE3□ or TS2□, please attached with component package type 6R6SV-□ / 6R6PV-□.

Note1 : That value shown for rated torque and starting torque of reversible Motors is reference data measured for operation without the brake applied.

Note2 : The brake attached with Motor which can shorten the time for starting/stopping and clockwise/counterclockwise rotation. The holding force provided by Motor is not the safety brake using.

※ 6R6□U-□ / 6R6□V-□ holding torque is 50gcm (But at initial holding torque may lower than 50gcm); over rotation around 4 rev/min (reference value).

※ 1 Nm = 10.19716 Kgcm

■ 6R6PU-□/6R6PV-□+6A□ Series Gearbox Specs & Permissible Torque / Permissible Inertial Load(GD²)When Gearbox Attached

Gear Ratio			3	3.6	5	6	7.5	9	10	12.5	15	18	20	25	30
60 Hz	Speed Range (r/min)	High Speed	566	472	340	283	226	188	170	136	113	94	85	68	56
		Low Speed	30	25	18	15	12	10	9	7.2	6	5	4.5	3.6	3
	Permissible Torque (Nm)	1200r/min	0.14	0.16	0.23	0.27	0.34	0.41	0.45	0.56	0.68	0.81	0.9	1.1	1.3
		90r/min	0.14	0.16	0.23	0.27	0.34	0.41	0.45	0.56	0.68	0.81	0.9	1.1	1.3
50 Hz	Speed Range (r/min)	High Speed	466	388	280	233	186	155	140	112	93	77	70	56	46
		Low Speed	30	25	18	15	12	10	9	7.2	6	5	4.5	3.6	3
	Permissible Torque (Nm)	1200r/min	0.14	0.16	0.23	0.27	0.34	0.41	0.45	0.56	0.68	0.81	0.9	1.1	1.3
		90r/min	0.14	0.16	0.23	0.27	0.34	0.41	0.45	0.56	0.68	0.81	0.9	1.1	1.3
Permissible Inertia Load GD ² (kgcm ²)			2.3	3.3	6.3	9	14	20.3	25	39	56.3	81	100	156	225
Gear Ratio			36	50	60	75	90	100	120	150	180	200	250	300	360
60 Hz	Speed Range (r/min)	High Speed	47	34	28	22	18	17	14	11	9.4	8.5	6.8	5.6	4.7
		Low Speed	2.5	1.8	1.5	1.2	1	0.9	0.75	0.6	0.5	0.45	0.36	0.3	0.25
	Permissible Torque (Nm)	1200r/min	1.5	2.2	2.6	3.2	3.9	4.3	4.9			6			
		90r/min	1.5	2.2	2.6	3.2	3.9	4.3	4.9			6			
50 Hz	Speed Range (r/min)	High Speed	38	28	23	18	15	14	11	9.3	7.7	7	5.6	4.6	3.8
		Low Speed	2.5	1.8	1.5	1.2	1	0.9	0.75	0.6	0.5	0.45	0.36	0.3	0.25
	Permissible Torque (Nm)	1200r/min	1.5	2.2	2.6	3.2	3.9	4.3	4.9			6			
		90r/min	1.5	2.2	2.6	3.2	3.9	4.3	4.9			6			
Permissible Inertia Load GD ² (kgcm ²)			324		625						625				

※1 : Gearbox 6A□ series, please enter the gear ratio 3~360 in the box□.

※2 : 60Hz: Speed control range is 90~1700r/min; 50Hz: Speed control range is 90~1400r/min.

※3 : "Permissible torque" It refers to the value of load torque driven by the Gearbox's output.

※4 : A colored ■ background indicates gear shaft rotation in the opposite direction as the motor shaft. No marking indicates rotation in the same direction.

※5 : 1 Nm = 10.19716 Kgcm

※6 : The Gearboxes of all series have RoHS certification.

■ Permissible Overhung Load / Permissible Thrust Load

Round Shaft Type

Model	Permissible Overhung Load(Unit : kg f)		Permissible Thrust Load (Unit : kg f)
	10mm from shaft end	20mm from shaft end	
6R6SU-□ 6R6SV-□	5	11	Permissible thrust load do not exceed the weight of Motor 1/2. If exceed the rated weight will decrease the service life of Motor. Please using indirect transmission machinery such as coupling, belt, chain. As the applications which will need the thrust load.

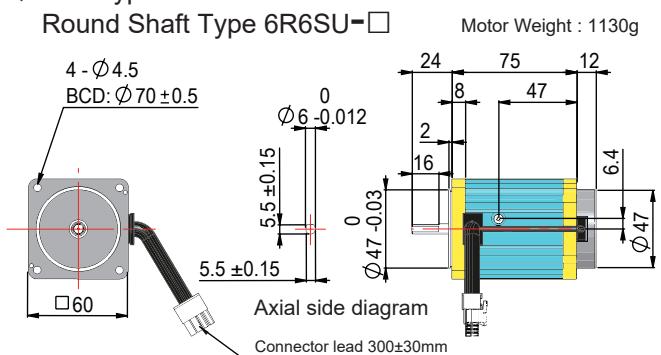
Pinion Shaft Type(Gearbox Attached)

Model	Gear Ratio	Permissible Overhung Load(Unit : kg f)		Permissible Thrust Load (Unit : kg f)
		10mm from shaft end	20mm from shaft end	
6R6PU-□	3, 3.6, 5	10	15	3
	6, 7.5, 9, 10, 12.5, 15, 18, 20	15	20	
6R6PV-□	25, 30, 36, 50, 60, 75, 90, 100, 120, 150, 180, 200, 250, 300, 360	20	30	

■ Dimensions

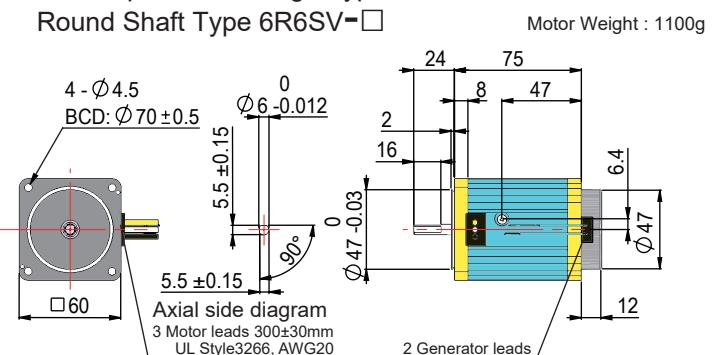
◆ Unit Type

Round Shaft Type 6R6SU-□

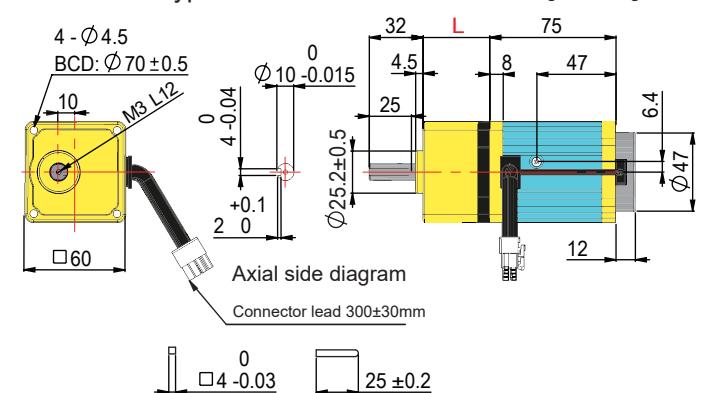


◆ Component Package Type

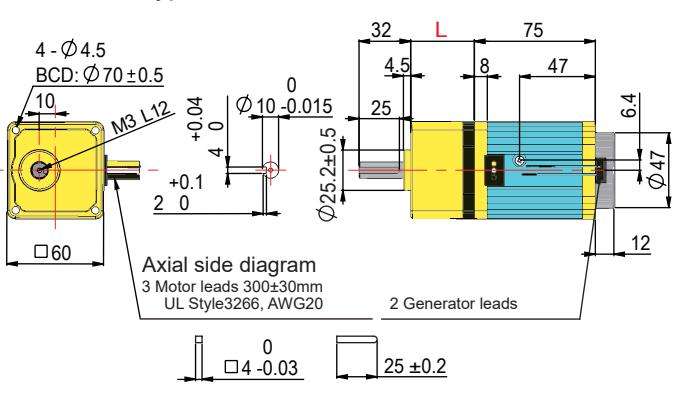
Round Shaft Type 6R6SV-□



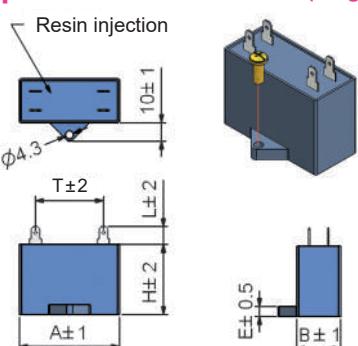
Pinion Shaft Type 6R6PU-□+6A□



Pinion Shaft Type 6R6PV-□+6A□



■ Capacitor Dimensions (Single phase motors only)



* 6A pinion shaft type 6A3~360, the spec of Gearbox " L" length and weight "W" as following :

6A□Gearbox		Length/Weight
Model	Length (mm)	Weight (g)
6A3~6A100	39.5	400
6A120~6A360	43.5	440

※ We also have Gearbox 6A□N with shaft Ø 8. For details please refer to the P.4.

Capacity of capacitor (μ F/VAC)	A	B	H	L	T	E
3.5/250	37	14	23	10	24	4
0.8/450	37	14	23	8	24	4
0.6/450	37	14	23	7	24	4

* The figure above dimension tolerance values are not labeled a general machining tolerances, the control mode, refer to P.8, others have marked tolerance values according to the drawing labeled based.



■ Specs

Motor Output		25W									
Type		Unit type/ Component package type		Unit type/ Component package type		Unit type/ Component package type					
Round Shaft Type		8R25SU-1 / 8R25SV-1		8R25SU-2 / 8R25SV-2		8R25SU-2E / 8R25SV-2E					
Pinion Shaft Type		8R25PU-1 / 8R25PV-1		8R25PU-2 / 8R25PV-2		8R25PU-2E / 8R25PV-2E					
Specification Certification		△ _{us} CCC RoHS IP54		CE CCC RoHS IP54		CE CCC RoHS IP54					
Capacity of Capacitor(μF)		8		2		1.5					
Power Input (V)		Single phase 110	Single phase 115	Single phase 220	Single phase 230	Single phase 230					
Power Frequency (Hz)		60				50					
Rated Current (A)		0.69	0.70	0.32	0.33	0.26					
Variable Speed Range(r/min)		90~1700				90~1400					
Permissible Torque(Nm)	1200r/min	0.21	0.21	0.21	0.21	0.21					
	90r/min	0.11	0.11	0.12	0.12	0.12					
Starting Torque (Nm)		0.14		0.14		0.16					
Rated Torque (Nm)		0.17		0.17		0.21					
Rated Speed (r/min)		1500		1500		1250					
Permissible Inertia (GD ²) _{Note2}		1.2 kgcm ²									
Ambient Temperature		Single phase 110V/115V : -10~+50°C ; Single phase 220V/230V: -10~+40°C									
Ambient Humidity		Max.85%RH									

※Controller TU3□ or TUD3□, please attached with the unit type 8R25SU-□/8R25PU-□.

Controller TS3□ or TS3□-HR / TS3□-SSSD or TS1□-P / TS1□-P-SSSD or TE3□ or TS2□, please attached with component package type 8R25SV-□ / 8R25PV-□.

Note1 : That value shown for rated torque and starting torque of reversible Motors is reference data measured for operation without the brake applied.

Note2 : The brake attached with Motor which can shorten the time for starting/stopping and clockwise/counterclockwise rotation. The holding force provided by Motor is not the safety brake using.

※8R25□U-□ / 8R25□V-□ holding torque is 150gcm (But at initial holding torque may lower than 150gcm); over rotation around 5 rev/min (reference value). ※1 Nm = 10.19716 Kgcm

■ 8R25PU-□/8R25PV-□+8A□ Series Gearbox Specs & Permissible Torque / Permissible Inertial Load(GD²) When Gearbox Attached

Gear Ratio			3	3.6	5	6	7.5	9	10	12.5	15	18	20	25	30
60 Hz	Speed Range (r/min)	High Speed	566	472	340	283	226	188	170	136	113	94	85	68	56
		Low Speed	30	25	18	15	12	10	9	7.2	6	5	4.5	3.6	3
50 Hz	Permissible Torque (Nm)	1200r/min	0.55	0.66	0.92	1.11	1.38	1.66	1.85	2.31	2.77	3.32	3.69	4.4	5.3
		90r/min	0.31	0.37	0.52	0.62	0.78	0.93	1.04	1.29	1.55	1.86	2.07	2.5	3
50 Hz	Speed Range (r/min)	High Speed	466	388	280	233	186	155	140	112	93	77	70	56	46
		Low Speed	30	25	18	15	12	10	9	7.2	6	5	4.5	3.6	3
50 Hz	Permissible Torque (Nm)	1200r/min	0.55	0.66	0.92	1.11	1.38	1.66	1.85	2.31	2.77	3.32	3.69	4.4	5.3
		90r/min	0.31	0.37	0.52	0.62	0.78	0.93	1.04	1.29	1.55	1.86	2.07	2.5	3
Permissible Inertia Load GD ² (kgcm ²)			10.8	15.6	30	43.2	67.5	97.2	120	187.5	270	389	480	750	1080
Gear Ratio			36	50	60	75	90	100	120	150	180	200	250	300	360
60 Hz	Speed Range (r/min)	High Speed	47	34	28	22	18	17	14	11	9.4	8.5	6.8	5.6	4.7
		Low Speed	2.5	1.8	1.5	1.2	1	0.9	0.75	0.6	0.5	0.45	0.36	0.3	0.25
50 Hz	Permissible Torque (Nm)	1200r/min	6.3	8.8	10.6	13.2	15		15						
		90r/min	3.6	4.9	5.9	7.4	8.9	9.9	11.2	14	15				
50 Hz	Speed Range (r/min)	High Speed	38	28	23	18	15	14	11	9.3	7.7	7	5.6	4.6	3.8
		Low Speed	2.5	1.8	1.5	1.2	1	0.9	0.75	0.6	0.5	0.45	0.36	0.3	0.25
50 Hz	Permissible Torque (Nm)	1200r/min	6.3	8.8	10.6	13.2	15		15						
		90r/min	3.6	4.9	5.9	7.4	8.9	9.9	11.2	14	15				
Permissible Inertia Load GD ² (kgcm ²)			1555	3000				3000							

※1 : Gearbox 8A□ series, please enter the gear ratio 3~360 in the box□.

※2 : 60Hz: Speed control range is 90~1700r/min; 50Hz: Speed control range is 90~1400r/min.

※3 : "Permissible torque" It refers to the value of load torque driven by the Gearbox's output.

※4 : A colored █ background indicates gear shaft rotation in the opposite direction as the motor shaft. No marking indicates rotation in the same direction.

※5 : 1 Nm = 10.19716 Kgcm

※6 : The Gearboxes of all series have RoHS certification.



■ Specs

Motor Output		40W												
Type	Unit type/ Component package type	Unit type/ Component package type		Unit type/ Component package type		Unit type/ Component package type								
Round Shaft Type	9R40SU-1 / 9R40SV-1		9R40SU-2 / 9R40SV-2		9R40SU-2E / 9R40SV-2E									
Pinion Shaft Type	9R40PU-1 / 9R40PV-1		9R40PU-2 / 9R40PV-2		9R40PU-2E / 9R40PV-2E									
Specification Certification	IP54		IP54		IP54									
Capacity of Capacitor(μF)	12		3.5		2.5									
Power Input (V)	Single phase 110	Single phase 115	Single phase 220	Single phase 230	Single phase 230									
Power Frequency (Hz)	60				50									
Rated Current (A)	0.97	1.00	0.59	0.61	0.38									
Variable Speed Range(r/min)	90~1700				90~1400									
Permissible Torque(Nm)	1200r/min	0.32	0.32	0.32	0.32	0.32								
	90r/min	0.16	0.16	0.17	0.17	0.17								
Starting Torque (Nm)	<small>Note1</small>	0.27		0.27		0.32								
Rated Torque (Nm)		0.28		0.28		0.33								
Rated Speed (r/min)	1450		1450		1250									
Permissible Inertia (GD ²) <small>Note2</small>	3 kgcm ²													
Ambient Temperature	Single phase 110V/115V : -10~+50°C ; Single phase 220V/230V: -10~+40°C													
Ambient Humidity	Max.85%RH													

※Controller TU3□ or TUD3□, please attached with the unit type 9R40SU-□/ 9R40PU-□.

Controller TS3□ or TS3□-HR / TS3□-SSSD or TS1□-P¹ / TS1□-P-SSSD or TE3□ or TS2□, please attached with component package type 9R40SV-□ / 9R40PV-□.

Note1 : That value shown for rated torque and starting torque of reversible Motors is reference data measured for operation without the brake applied.

Note2 : The brake attached with Motor which can shorten the time for starting/stopping and clockwise/counterclockwise rotation. The holding force provided by Motor is not the safety brake using.

※9R40□U-□/9R40□V-□holding torque is 400gcm (but at initial holding torque may lower than 400gcm); over rotation around 6 rev/min (reference value).

※1 Nm = 10.19716 Kgcm

■ 9R40PU-□/9R40PV-□+9A□ Series Gearbox Specs & Permissible Torque / Permissible Inertial Load(GD²)When Gearbox Attached

Gear Ratio		3	3.6	5	6	7.5	9	10	12.5	15	18	20	25	30
60 Hz	Speed Range (r/min)	High Speed	566	472	340	283	226	188	170	136	113	94	85	68
		Low Speed	30	25	18	15	12	10	9	7.2	6	5	4.5	3.6
50 Hz	Permissible Torque (Nm)	1200r/min	0.86	1.04	1.44	1.73	2.16	2.59	2.88	3.6	4.32	5.18	5.76	6.9
		90r/min	0.46	0.55	0.77	0.92	1.15	1.38	1.53	1.91	2.3	2.75	3.06	3.7
	Speed Range (r/min)	High Speed	466	388	280	233	186	155	140	112	93	77	70	56
		Low Speed	30	25	18	15	12	10	9	7.2	6	5	4.5	3.6
	Permissible Torque (Nm)	1200r/min	0.86	1.04	1.44	1.73	2.16	2.59	2.88	3.6	4.32	5.18	5.76	6.9
		90r/min	0.46	0.55	0.77	0.92	1.15	1.38	1.53	1.91	2.3	2.75	3.06	3.7
Permissible Inertia Load GD ² (kgcm ²)		27	39	75	108	169	243	300	469	675	972	1200	1875	2700

Gear Ratio		36	50	60	75	90	100	120	150	180	200	250	300	360
Speed Range (r/min)	High Speed	47	34	28	22	18	17	14	11	9.4	8.5	6.8	5.6	4.7
	Low Speed	2.5	1.8	1.5	1.2	1	0.9	0.75	0.6	0.5	0.45	0.36	0.3	0.25
Permissible Torque (Nm)	1200r/min	9.9	13.8	16.5	20.6	24.8	27.5	31.1	38.9			40		
	90r/min	5.3	7.3	8.8	11	13.2	14.6	16.5	20.7	24.8	27.5	34.4		40
Speed Range (r/min)	High Speed	38	28	23	18	15	14	11	9.3	7.7	7	5.6	4.6	3.8
	Low Speed	2.5	1.8	1.5	1.2	1	0.9	0.75	0.6	0.5	0.45	0.36	0.3	0.25
Permissible Torque (Nm)	1200r/min	9.9	13.8	16.5	20.6	24.8	27.5	31.1	38.9			40		
	90r/min	5.3	7.3	8.8	11	13.2	14.6	16.5	20.7	24.8	27.5	34.4		40
Permissible Inertia Load GD ² (kgcm ²)		3888			7500					7500				

※1 : Gearbox 9A□ series, please enter the gear ratio 3~360 in the box□.

※2 : 60Hz: Speed control range is 90~1700r/min; 50Hz: Speed control range is 90~1400r/min.

※3 : "Permissible torque" It refers to the value of load torque driven by the Gearbox's output.

※4 : A colored █ background indicates gear shaft rotation in the opposite direction as the motor shaft. No marking indicates rotation in the same direction.

※5 : 1 Nm = 10.19716 Kgcm

※6 : The Gearboxes of all series have certification.



■ Specs

Motor Output		60W												
Type	Unit type/ Component package type	Unit type/ Component package type		Unit type/ Component package type		Unit type/ Component package type								
Round Shaft Type	9R60SU(F)-1/9R60SV(F)-1	9R60SU(F)-2/9R60SV(F)-2		9R60SU(F)-2E/9R60SV(F)-2E										
Pinion Shaft Type	9R60PU(F)-1/9R60PV(F)-1	9R60PU(F)-2/9R60PV(F)-2		9R60PU(F)-2E/9R60PV(F)-2E										
Specification Certification	IP54		IP54		IP54									
Capacity of Capacitor(μF)	20		5		4									
Power Input (V)	Single phase 110	Single phase 115	Single phase 220	Single phase 230	Single phase 230									
Power Frequency (Hz)	60				50									
Rated Current (A)	1.49	1.53	0.75	0.78	0.83									
Variable Speed Range(r/min)	90~1700				90~1400									
Permissible Torque(Nm)	1200r/min	0.49	0.49	0.49	0.49	0.49								
	90r/min	0.27	0.27	0.28	0.28	0.28								
Starting Torque (Nm)	Note1	0.4		0.4		0.47								
Rated Torque (Nm)		0.42		0.42		0.51								
Rated Speed (r/min)	1500		1500		1200									
Permissible Inertia (GD ²) ^{Note2}	4.6 kgcm ²													
Ambient Temperature	Single phase 110V/115V : -10~+50°C ; Single phase 220V/230V: -10~+40°C													
Ambient Humidity	Max.85%RH													

※Controller TU3□ or TUD3□, please attached with the unit type 9R60SU(F)-□/ 9R60PU(F)-□.
Controller TS3□ or TS3□-HR / TS3□-SSSD or TS1□-P / TS1□-P-SSSD or TE3□, please attached with component package type 9R60SV(F)-□ / 9R60PV(F)-□.

Note1 : That value shown for rated torque and starting torque of reversible Motors is reference data measured for operation without the brake applied.

Note2 : The brake attached with Motor which can shorten the time for starting/stopping and clockwise/counterclockwise rotation. The holding force provided by Motor is not the safety brake using.

※9R60□U(F)-□/9R60□V(F)-□ holding torque is 400gcm(but at initial holding torque may lower than 400gcm); over rotation around 6 rev/min (reference value). ※Independent fan type don't have IP54 standard certification. ※ 1 Nm = 10.19716 Kgcm

■ 9R60PU(F)-□/9R60PV(F)-□+9A□ Series Gearbox Specs & Permissible Torque /
Permissible Inertial Load(GD²) When Gearbox Attached

Gear Ratio		3	3.6	5	6	7.5	9	10	12.5	15	18	20	25	30
60 Hz	Speed Range (r/min)	High Speed	566	472	340	283	226	188	170	136	113	94	85	68
		Low Speed	30	25	18	15	12	10	9	7.2	6	5	4.5	3.6
50 Hz	Permissible Torque (Nm)	1200r/min	1.32	1.59	2.21	2.65	3.31	3.97	4.41	5.51	6.62	7.94	8.82	10.5
		90r/min	0.76	0.91	1.26	1.51	1.89	2.27	2.52	3.15	3.78	4.54	5.04	6
	Speed Range (r/min)	High Speed	466	388	280	233	186	155	140	112	93	77	70	56
		Low Speed	30	25	18	15	12	10	9	7.2	6	5	4.5	3.6
	Permissible Torque (Nm)	1200r/min	1.32	1.59	2.21	2.65	3.31	3.97	4.41	5.51	6.62	7.94	8.82	10.5
		90r/min	0.76	0.91	1.26	1.51	1.89	2.27	2.52	3.15	3.78	4.54	5.04	6
Permissible Inertia Load GD ² (kgcm ²)		41	60	115	166	259	373	460	719	1035	1490	1840	2875	4140
Gear Ratio		36	50	60	75	90	100	120	150	180	200	250	300	360
60 Hz	Speed Range (r/min)	High Speed	47	34	28	22	18	17	14	11	9.4	8.5	6.8	5.6
		Low Speed	2.5	1.8	1.5	1.2	1	0.9	0.75	0.6	0.5	0.45	0.36	0.25
50 Hz	Permissible Torque (Nm)	1200r/min	15.2	21.1	25.3	31.6	37.9	40	40		40			
		90r/min	8.7	12	14.4	18.1	21.7	24.1	27.2	34	40			
Permissible Inertia Load GD ² (kgcm ²)		5962	11500				11500				11500			

※1 : Gearbox 9A□ series, please enter the gear ratio 3~360 in the box□.

※2 : 60Hz: Speed control range is 90~1700r/min; 50Hz: Speed control range is 90~1400r/min.

※3 : "Permissible torque" It refers to the value of load torque driven by the Gearbox's output.

※4 : A colored ■ background indicates gear shaft rotation in the opposite direction as the motor shaft. No marking indicates rotation in the same direction.

※5 : 1 Nm = 10.19716 Kgcm

※6 : The Gearboxes of all series have certification.



■ Specs

Motor Output		90W									
Type		Unit type/ Component package type		Unit type/ Component package type		Unit type/ Component package type					
Round Shaft Type		9R90SU(F)-1/9R90SV(F)-1		9R90SU(F)-2/9R90SV(F)-2		9R90SU(F)-2E/9R90SV(F)-2E					
Pinion Shaft Type		9R90PU(F)-1/9R90PV(F)-1		9R90PU(F)-2/9R90PV(F)-2		9R90PU(F)-2E/9R90PV(F)-2E					
Specification Certification		IP54		IP54		IP54					
Capacity of Capacitor(μF)		30		7		6					
Power Input (V)		Single phase 110	Single phase 115	Single phase 220	Single phase 230	Single phase 230					
Power Frequency (Hz)		60				50					
Rated Current (A)		2.13	2.35	1.00	1.03	1.00					
Variable Speed Range(r/min)		90~1700				90~1400					
Permissible Torque(Nm)	1200r/min	0.73	0.73	0.73	0.73	0.73					
	90r/min	0.3	0.29	0.26	0.26	0.26					
Starting Torque (Nm)		0.53		0.58		0.64					
Rated Torque (Nm)		0.61		0.61		0.74					
Rated Speed (r/min)		1500		1550		1250					
Permissible Inertia (GD ²) ^{Note2}		4.6 kgcm ²									
Ambient Temperature		Single phase 110V/115V : -10~+50°C ; Single phase 220V/230V: -10~+40°C									
Ambient Humidity		Max.85%RH									

※ Controller TU3□ or TUD3□, please attached with the unit type 9R90SU(F)-□/ 9R90PU(F)-□.

Controller TS3□ or TS3□-HR / TS3□-SSSD or TE3□, please attached with component package type 9R90SV(F)-□ / 9R90PV(F)-□.

Note1 : That value shown for rated torque and starting torque of reversible Motors is reference data measured for operation without the brake applied.

Note2 : The brake attached with Motor which can shorten the time for starting/stopping and clockwise/counterclockwise rotation. The holding force provided by Motor is not the safety brake using.

※ 9R90□U(F)-□/9R90□V(F)-□ holding torque is 400gcm(but at initial holding torque may lower than 400gcm); over rotation around 6 rev/min (reference value). ※ Independent fan type don't have IP54 standard certification.

※ 1 Nm = 10.19716 Kgcm

■ 9R90PU(F)-□/9R90PV(F)-□+9A□ Series Gearbox Specs & Permissible Torque /
Permissible Inertial Load(GD²) When Gearbox Attached

Gear Ratio			3	3.6	5	6	7.5	9	10	12.5	15	18	20	25	30
60 Hz	Speed Range (r/min)	High Speed	566	472	340	283	226	188	170	136	113	94	85	68	56
		Low Speed	30	25	18	15	12	10	9	7.2	6	5	4.5	3.6	3
50 Hz	Permissible Torque (Nm)	1200r/min	1.97	2.37	3.29	3.94	4.93	5.91	6.57	8.21	9.86	11.8	13.1	15.7	18.8
		90r/min	0.81	0.97	1.35	1.62	2.03	2.43	2.7	3.38	4.05	4.86	5.4	6.5	7.7
50 Hz	Speed Range (r/min)	High Speed	466	388	280	233	186	155	140	112	93	77	70	56	46
		Low Speed	30	25	18	15	12	10	9	7.2	6	5	4.5	3.6	3
50 Hz	Permissible Torque (Nm)	1200r/min	1.97	2.37	3.29	3.94	4.93	5.91	6.57	8.21	9.86	11.8	13.1	15.7	18.8
		90r/min	0.7	0.84	1.17	1.4	1.76	2.11	2.34	2.93	3.51	4.21	4.68	5.6	6.7
Permissible Inertia Load GD ² (kgcm ²)			41	60	115	166	259	373	460	719	1035	1490	1840	2875	4140
Gear Ratio			36	50	60	75	90	100	120	150	180	200	250	300	360
60 Hz	Speed Range (r/min)	High Speed	47	34	28	22	18	17	14	11	9.4	8.5	6.8	5.6	4.7
		Low Speed	2.5	1.8	1.5	1.2	1	0.9	0.75	0.6	0.5	0.45	0.36	0.3	0.25
50 Hz	Permissible Torque (Nm)	1200r/min	22.6	31.4	37.7		40				40				
		90r/min	9.3	12.9	15.5	19.4	23.2	25.8	29.2	36.5					
Permissible Inertia Load GD ² (kgcm ²)			5962		11500						11500				

※1 : Gearbox 9A□ series, please enter the gear ratio 3~360 in the box□.

※2 : 60Hz: Speed control range is 90~1700r/min; 50Hz: Speed control range is 90~1400r/min.

※3 : "Permissible torque" It refers to the value of load torque driven by the Gearbox's output.

※4 : A colored ■ background indicates gear shaft rotation in the opposite direction as the motor shaft. No marking indicates rotation in the same direction.

※5 : 1 Nm = 10.19716 Kgcm

※6 : The Gearboxes of all series have certification.

■ Permissible Overhung Load / Permissible Thrust Load

Round Shaft Type

Model	Permissible Overhung Load(Unit : kg f)		Permissible Thrust Load (Unit : kg f)
	10mm from shaft end	20mm from shaft end	
9R90SU(F)-□	24	27	Permissible thrust load do not exceed the weight of Motor 1/2. If exceed the rated weight will decrease the service life of Motor. Please using indirect transmission machinery such as coupling, belt, chain. As the applications which will need the thrust load.
9R90SV(F)-□			

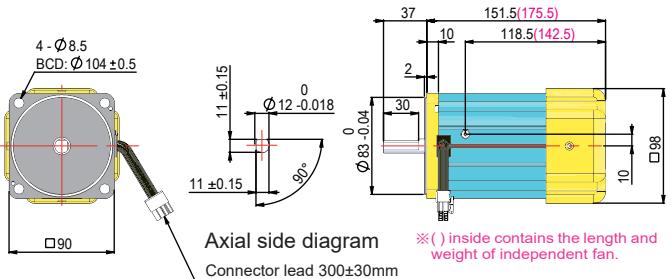
Pinion Shaft Type(Gearbox Attached)

Model	Gear Ratio	Permissible Overhung Load(Unit : kg f)		Permissible Thrust Load (Unit : kg f)
		10mm from shaft end	20mm from shaft end	
9R90PU(F)-□	3, 3.6, 5	50	60	15
	6, 7.5, 9, 10, 12.5, 15, 18, 20	60	70	
	25, 30, 36, 50, 60, 75, 90, 100, 120, 150, 180, 200, 250, 300, 360	70	80	

■ Dimensions

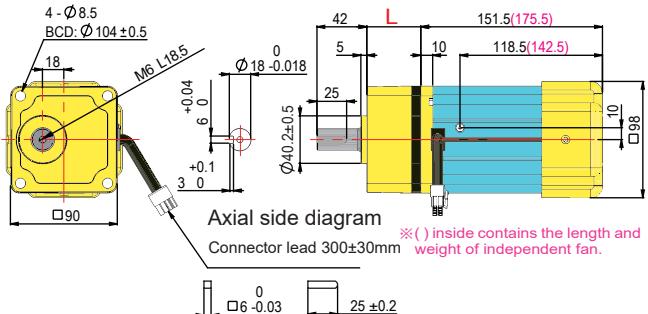
◆ Unit Type (Independent Fan Type)

Round Shaft Type 9R90SU(F)-□ Motor Weight : 4020g(4285g)



Pinion Shaft Type 9R90PU(F)-□+9A□

Motor Weight : 3990g(4255g)+W

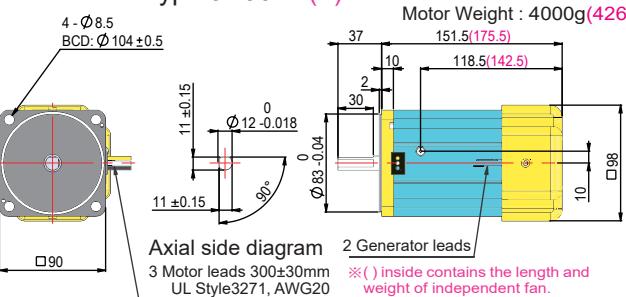


◆ Component Package Type (Independent Fan Type)

Round Shaft Type 9R90SV(F)-□

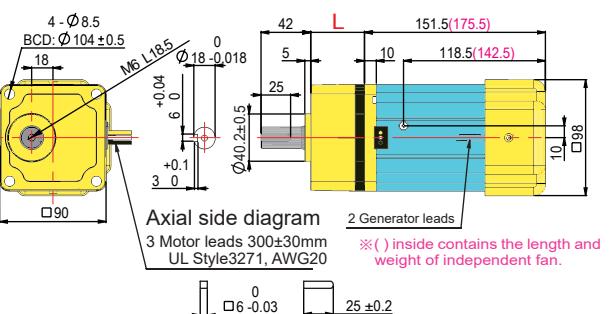
Unit : mm

Motor Weight : 4000g(4265g)



Pinion Shaft Type 9R90PV(F)-□+9A□

Motor Weight : 3970g(4235g)+W



* 9A pinion shaft type 9A3~360, the spec of Gearbox "L" length and weight "W" as following :

9A□Gearbox	Length/Weight	
Model	Length (mm)	Weight (g)
9A3~9A20	45.5	1170
9A25~9A100	58.5	1520
9A120~9A360	64.5	1610

* We also have Gearbox 9A□U with shaft Ø 15. For details please refer to the P.4.

Capacity of capacitor (μ F/VAC)	A	B	H	L	T	E
30/250	59	40	40	12	44	4
7/450	57.5	25	39	8	44	4
6/450	59	23	35	9	44	4.2

* The figure above dimension tolerance values are not labeled a general machining tolerances, the control mode, refer to P.8, others have marked tolerance values according to the drawing labeled based.



■ Specs

Motor Output		135W									
Type		Component package type		Component package type		Component package type					
Round Shaft Type		9R135SV(F)-1		9R135SV(F)-2		9R135SV(F)-2E					
Pinion Shaft Type		9R135PV(F)-1		9R135PV(F)-2		9R135PV(F)-2E					
Specification Certification											
Capacity of Capacitor(μF)		27		8		7					
Power Input (V)		Single phase 110	Single phase 115	Single phase 220	Single phase 230	Single phase 230					
Power Frequency (Hz)		60				50					
Rated Current (A)		2.30	2.35	1.30	1.35	1.20					
Variable Speed Range(r/min)		90~1700				90~1400					
Permissible Torque(Nm)	1200r/min	1.00	1.00	1.15	1.20	1.15					
	90r/min	0.50	0.50	0.55	0.60	0.55					
Starting Torque (Nm)		0.60		0.60		0.60					
Rated Torque (Nm)		0.85	0.90	0.85	0.90	0.90					
Rated Speed (r/min)		1500		1550		1250					
Permissible Inertia (GD ²) ^{Note2}		4.6 kgcm ²									
Ambient Temperature		Single phase 110V/115V : -10~+50°C ; Single phase 220V/230V: -10~+40°C									
Ambient Humidity		Max.85%RH									

※Controller TE3□, please attached with component package type 9R135SV(F)-□ / 9R135PV(F)-□.

Note1 : That value shown for rated torque and starting torque of reversible Motors is reference data measured for operation without the brake applied.

Note2 : The brake attached with Motor which can shorten the time for starting/stopping and clockwise/counterclockwise rotation. The holding force provided by Motor is not the safety brake using.

※9R135□(F)-□holding torque is 400gcm(but at initial holding torque may lower than 400gcm); over rotation around 6 rev/min (reference value).

※Independent fan type don't have IP54 standard certification.

※1 Nm = 10.19716 Kgcm

■ 9R135PV(F)-□+9A□ Series Gearbox Specs & Permissible Torque / Permissible Inertial Load(GD²)When Gearbox Attached

Gear Ratio			3	3.6	5	6	7.5	9	10	12.5	15	18	20	25	30
60 Hz	Speed Range (r/min)	High Speed	566	472	340	283	226	188	170	136	113	94	85	68	56
		Low Speed	30	25	18	15	12	10	9	7.2	6	5	4.5	3.6	3
50 Hz	Permissible Torque (Nm)	1200r/min	2.7	3.2	4.5	5.4	6.8	8.1	9	11.3	13.5	16.2	18.1	21.4	25.7
		90r/min	1.4	1.6	2.3	2.7	3.4	4.1	4.5	5.6	6.8	8.1	9	10.7	12.9
	Speed Range (r/min)	High Speed	466	388	280	233	186	155	140	112	93	77	70	56	46
		Low Speed	30	25	18	15	12	10	9	7.2	6	5	4.5	3.6	3
	Permissible Torque (Nm)	1200r/min	3.1	3.7	5.2	6.2	7.8	9.3	10.4	13	15.6	18.7	20.8	24.6	29.6
		90r/min	1.5	1.8	2.5	3	3.7	4.5	5	6.2	7.4	8.9	9.9	11.8	14.1
Permissible Inertia Load GD ² (kgcm ²)			41	60	115	166	259	373	460	719	1035	1490	1840	2875	4140
Gear Ratio			36	50	60	75	90	100	120	150	180	200	250	300	360
60 Hz	Speed Range (r/min)	High Speed	47	34	28	22	18	17	14	11	9.4	8.5	6.8	5.6	4.7
		Low Speed	2.5	1.8	1.5	1.2	1	0.9	0.75	0.6	0.5	0.45	0.36	0.3	0.25
50 Hz	Permissible Torque (Nm)	1200r/min	30.9		40					40					
		90r/min	15.4	21.4	25.7	32.2	38.6	40			40				
Permissible Inertia Load GD ² (kgcm ²)			5962		11500						11500				

※1 : Gearbox 9A□ series, please enter the gear ratio 3~360 in the box□.

※2 : 60Hz: Speed control range is 90~1700r/min; 50Hz: Speed control range is 90~1400r/min.

※3 : "Permissible torque" It refers to the value of load torque driven by the Gearbox's output.

※4 : A colored ■ background indicates gear shaft rotation in the opposite direction as the motor shaft. No marking indicates rotation in the same direction.

※5 : 1 Nm = 10.19716 Kgcm

※6 : The Gearboxes of all series have certification.

■ Permissible Overhung Load / Permissible Thrust Load

Round Shaft Type

Model	Permissible Overhung Load(Unit : kg f)		Permissible Thrust Load (Unit : kg f)
	10mm from shaft end	20mm from shaft end	
9R135SV(F)-□	24	27	Permissible thrust load do not exceed the weight of Motor 1/2. If exceed the rated weight will decrease the service life of Motor. Please using indirect transmission machinery such as coupling, belt, chain. As the applications which will need the thrust load.

Pinion Shaft Type(Gearbox Attached)

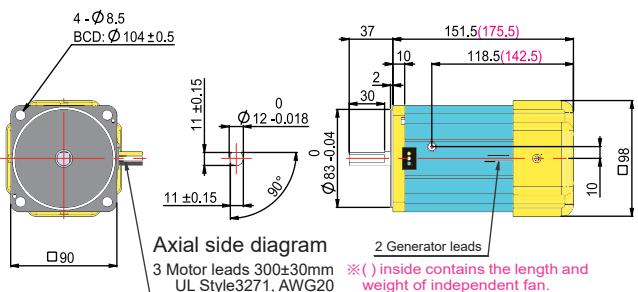
Model	Gear Ratio	Permissible Overhung Load(Unit : kg f)		Permissible Thrust Load (Unit : kg f)
		10mm from shaft end	20mm from shaft end	
9R135PV(F)-□	3, 3.6, 5	50	60	15
	6, 7.5, 9, 10, 12.5, 15, 18, 20	60	70	
	25, 30, 36, 50, 60, 75, 90, 100, 120, 150, 180, 200, 250, 300, 360	70	80	

■ Dimensions

◆ Component Package Type (Independent Fan Type)

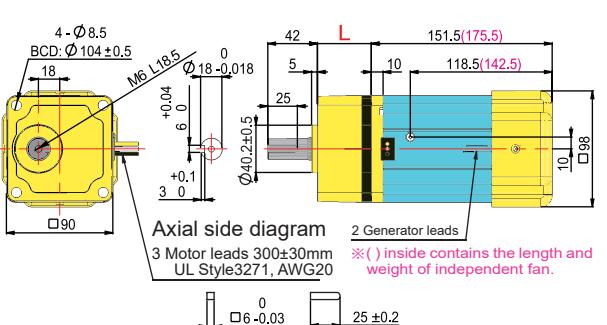
Round Shaft Type 9R135SV(F)-□

Motor Weight : 4000g(4265g)

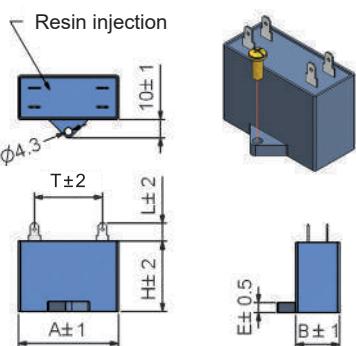


Pinion Shaft Type 9R135PV(F)-□+9A□

Motor Weight : 3970g(4235g)+W



■ Capacitor Dimensions (Single phase motors only)



* The figure above dimension tolerance values are not labeled a general machining tolerances, the control mode, refer to P.8, others have marked tolerance values according to the drawing labeled based.

* 9A pinion shaft type 9A3~360, the spec of Gearbox " L" length and weight "W" as following :

9A□Gearbox	Length/Weight	
Model	Length (mm)	Weight (g)
9A3~9A20	45.5	1170
9A25~9A100	58.5	1520
9A120~9A360	64.5	1610

* We also have Gearbox 9A□U with shaft Ø 15. For details please refer to the P.4.

Capacity of capacitor (μ F/VAC)	A	B	H	L	T	E
27/250	59	40	40	12	44	4
8/450	57.5	25	39	8	44	4
7/450	57.5	25	39	8	44	4

Product Recommendation Sheet

■ Mechanism: Operation of Large Index Table

Date dd / mm / yy

Name:	Contact Person:	Department / Title:
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TEL:	FAX:	Application:	Area:
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Power Input: <input type="checkbox"/> Single phase AC	V	<input type="checkbox"/> 3 phase AC	V	<input type="checkbox"/> DC	V	Frequency: Hz
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Activated mode:

Single direction operating continuously → Rated speed Regulated speed (Range: ____ rpm ~ ____ rpm)
 Single direction run, stop, run, stop → Activated time: ____ Second/Sequence, Stop time: ____ Second/Sequence; Run, stop total ____ Sequence/Minute
 Clockwise / counterclockwise repeated → CW: ____ Second/Sequence, Stop: ____ Second/Sequence; CCW: ____ Second/Sequence, Stop: ____ Sequence/Minute

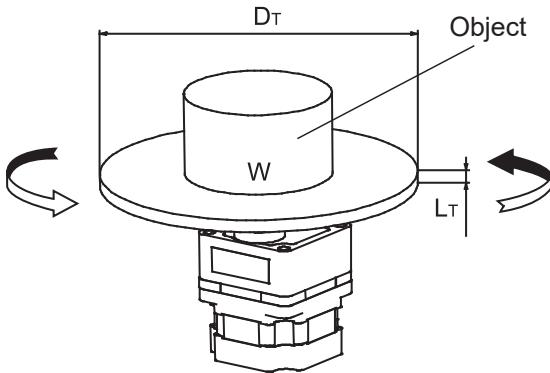
Required motor: AC induction motor: Induction Reversible Speed control Magnetic brake Torque

DC brushless motor: BMS Series BS Series SBS Series UBS Series DBS Series Magnetic brake Series

Stepper motor: 2 phase 3phase 5phase

【Mechanism reference】

【Please sketch your actual transmission part of mechanism】



【Drive mechanism and operating data】

Object mass	$W =$ _____ kg
Index table diameter	$D_T =$ _____ cm
Width	$L_T =$ _____ cm
Material	$\rho =$ _____
Positioning angle *(Note)	$\theta =$ _____ deg
Positioning time *(Note)	$T_0 =$ _____ sec
Stopping accuracy	± _____ mm

*(Note): Please enter the max speed.

Recommendation products (Selected specs) :

* Leave blank for any unclear items and send this form by fax, We will select the suitable products for you as soon as possible.

Product Recommendation Sheet

■ Mechanism: Lead Screw

Date dd / mm / yy

Name:	Contact Person:	Department / Title:
TEL:	FAX:	Application:
Power Input: <input type="checkbox"/> Single phase AC ____ V <input type="checkbox"/> 3 phase AC ____ V <input type="checkbox"/> DC ____ V		
Frequency: ____ Hz		

Activated mode:

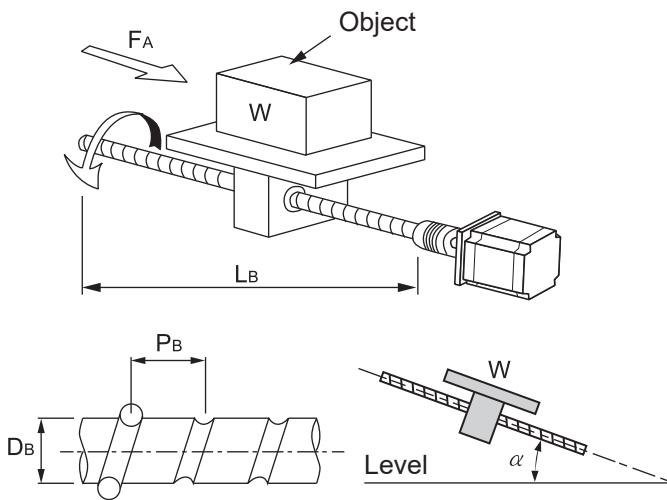
Single direction operating continuously → Rated speed Regulated speed (Range: ____ rpm ~ ____ rpm)
 Single direction run, stop, run, stop → Activated time: ____ Second/Sequence, Stop time: ____ Second/Sequence; Run, stop total ____ Sequence/Minute
 Clockwise / counterclockwise repeated → CW: ____ Second/Sequence, Stop: ____ Second/Sequence; CCW: ____ Second/Sequence, Stop: ____ Sequence/Minute

Required motor: AC induction motor: Induction Reversible Speed control Magnetic brake Torque

DC brushless motor: BMS Series BS Series SBS Series UBS Series DBS Series Magnetic brake Series

Stepper motor: 2 phase 3phase 5phase

【Mechanism reference】



【Please sketch your actual transmission part of mechanism】

【Drive mechanism and operating data】

Work + Table mass	W = _____ kg	Frictional coefficient of sliding surfaces μ = _____
Screw angle	α = _____ deg	Positioning distance * (Note) L = _____ cm
Screw shaft diameter	D_B = _____ cm	Positioning time * (Note) T_0 = _____ sec
Screw length	L_B = _____ cm	Push / Pull force F_A = _____ kg
Screw pitch	P_B = _____ cm	Stopping accuracy \pm _____ mm
Material	ρ = _____	
Screw efficiency	η = _____	
Internal frictional coefficient of pilot pressure nut	μ_0 = _____	* (Note): Please enter the max speed.

Recommendation products (Selected specs) :

* Leave blank for any unclear items and send this form by fax, We will select the suitable products for you as soon as possible.

Product Recommendation Sheet

■ Mechanism: Belt and Pulley

Date dd / mm / yy

Name:	Contact Person:	Department / Title:
TEL:	FAX:	Application:
Power Input: <input type="checkbox"/> Single phase AC ___ V <input type="checkbox"/> 3 phase AC ___ V <input type="checkbox"/> DC ___ V		
Frequency: ___ Hz		

Activated mode:

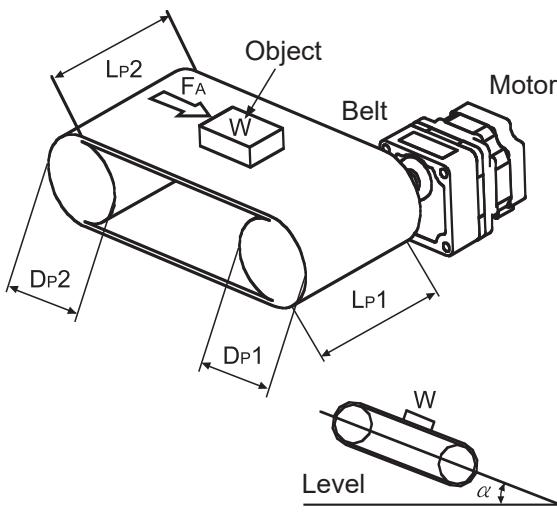
Single direction operating continuously → Rated speed Regulated speed (Range: ___ rpm~ ___ rpm)
 Single direction run, stop, run, stop → Activated time: ___ Second/Sequence, Stop time: ___ Second/Sequence; Run, stop total ___ Sequence/Minute
 Clockwise / counterclockwise repeated → CW: ___ Second/Sequence, Stop: ___ Second/Sequence; CCW: ___ Second/Sequence, Stop: ___ Sequence/Minute

Required motor: AC induction motor: Induction Reversible Speed control Magnetic brake Torque

DC brushless motor: BMS Series BS Series SBS Series UBS Series DBS Series Magnetic brake Series

Stepper motor: 2 phase 3phase 5phase

【Mechanism reference】



【Please sketch your actual transmission part of mechanism】

【Drive mechanism and operating data】

Work + Table + Pulley mass	W = _____ kg	Belt, pulley efficiency	η = _____
Screw angle	α = _____ deg	Frictional coefficient of sliding surfaces	μ = _____
(Connecting to the motor)		Positioning distance *(Note)	L = _____ cm
Pulley diameter	Dp1 = _____ cm	Positioning time *(Note)	T ₀ = _____ sec
Width	Lp1 = _____ cm	Push / Pull force	F _A = _____ kg
Material	ρ 1 = _____	Stopping accuracy	± _____ mm
Pulley diameter	Dp2 = _____ cm	*(Note): Please enter the max speed.	
Width	Lp2 = _____ cm		
Material	ρ 2 = _____		

Recommendation products (Selected specs) :

* Leave blank for any unclear items and send this form by fax, We will select the suitable products for you as soon as possible.

Product Recommendation Sheet

■ Mechanism: Others

Date dd / mm / yy

Name:	Contact Person:	Department / Title:	
TEL:	FAX:	Application:	Area:
Power Input: <input type="checkbox"/> Single phase AC ___ V <input type="checkbox"/> 3 phase AC ___ V <input type="checkbox"/> DC ___ V		Frequency: ___ Hz	

Activated mode:

Single direction operating continuously → Rated speed Regulated speed (Range: ___ rpm~ ___ rpm)
 Single direction run, stop, run, stop → Activated time: ___ Second/Sequence, Stop time: ___ Second/Sequence; Run, stop total ___ Sequence/Minute
 Clockwise / counterclockwise repeated → CW: ___ Second/Sequence, Stop: ___ Second/Sequence; CCW: ___ Second/Sequence, Stop: ___ Sequence/Minute

Required motor: AC induction motor: Induction Reversible Speed control Magnetic brake Torque

DC brushless motor: BMS Series BS Series SBS Series UBS Series DBS Series Magnetic brake Series

Stepper motor: 2 phase 3phase 5phase

【Drive mechanism and operating data】

Use the space below to draw the outline of your drive mechanism and fill in the operating conditions required.

Recommendation products (Selected specs) :

* Leave blank for any unclear items and send this form by fax, We will select the suitable products for you as soon as possible.