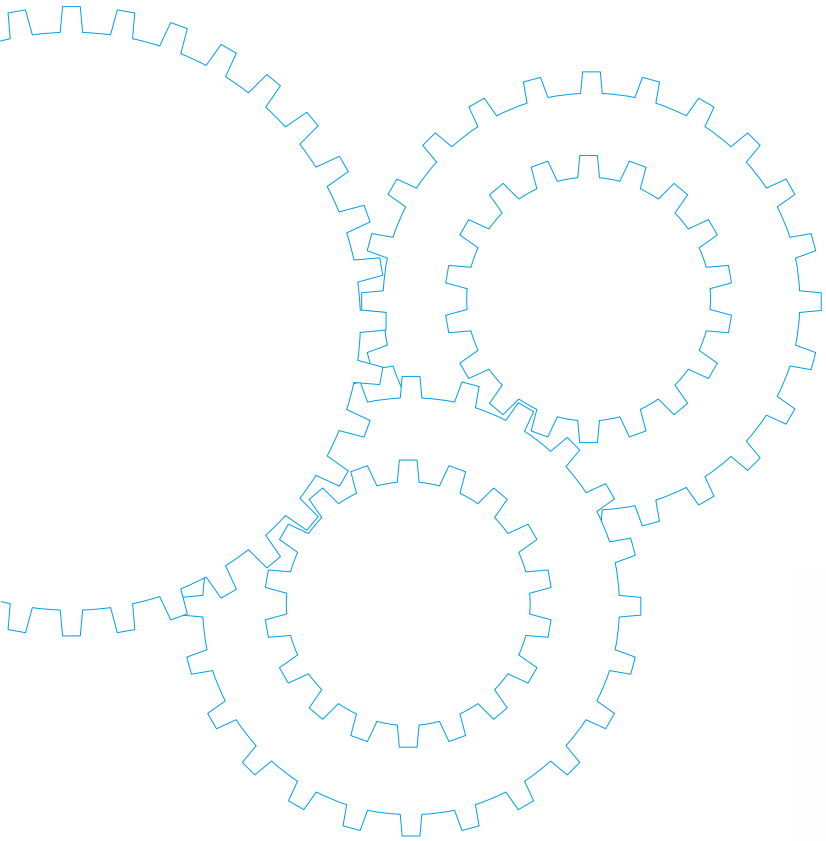
Variable Speed Induction Motor



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Outline of variable speed induction motor

Features

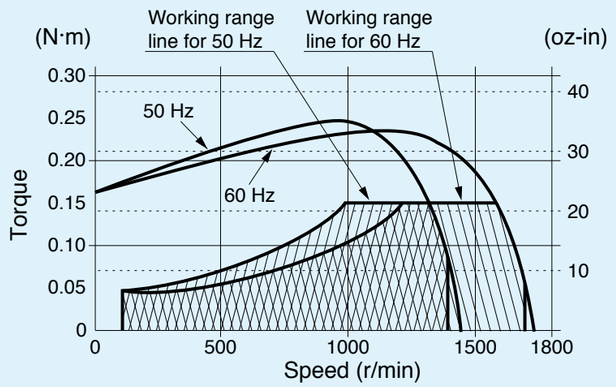
- By using it together with a speed controller, you can vary the speed over a wider range (90 r/min to 1400 r/min for 50 Hz and 90 r/min to 1700 r/min for 60 Hz).
- Various functions such as variable speed, braking, normal/reverse run and soft-start/soft-stop are available.
- Feedback control with the built-in tacho-generator gives a constant speed despite of frequency change.
- The motor output is 3 W to 90 W.

Note) Variable speed induction motor start-stop operation must not exceed 6-cycles per minute or damage may occur.

Working range

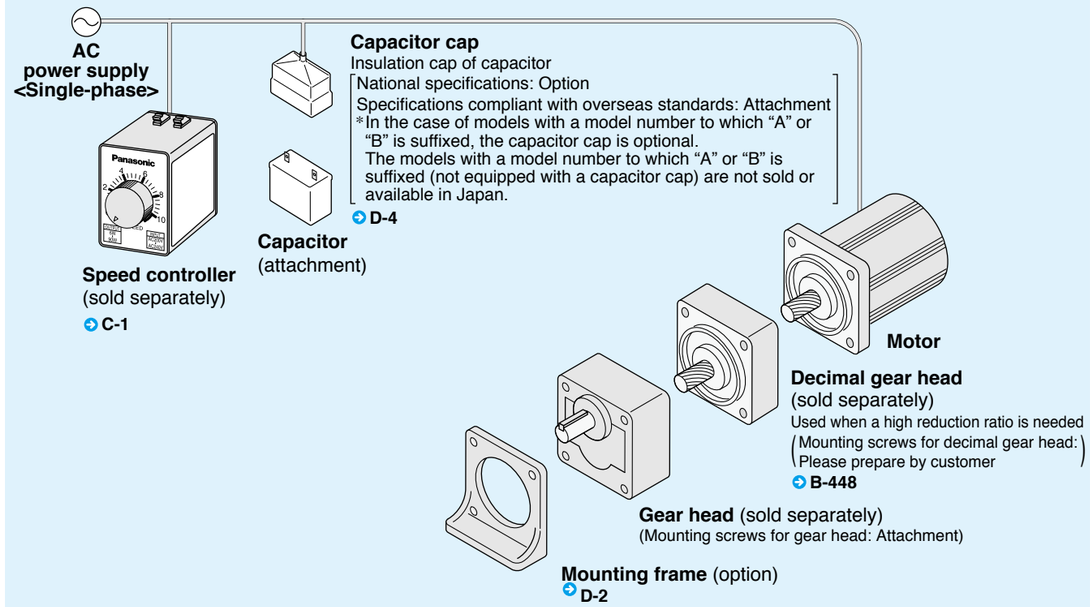
The working range line shows the working limit (at the constant rating) for the variable speed motor. The permissible torque should fall within the shaded portion.
If you use the motor with the permissible torque exceeding the working range line (falling within the portion not shaded), the motor may be burned out due to a high temperature rise or the gear tooth may be damaged.

• Working range line



Example : M81X25GV4L 4P 25 W

System configuration diagram



Coding system

M 9 1 Z 90 G V 4 G G C

Size · **Motor type** · **Output type** · **Output** · **Shape of shaft** · **Option** · **No. of poles** · **Voltage** · **Classification 1** · **Classification 2**

- 6 : 60 mm sq. (2.36 inch sq.)
  7 : 70 mm sq. (2.76 inch sq.)
  8 : 80 mm sq. (3.15 inch sq.)
  9 : 90 mm sq. (3.54 inch sq.)
- 1 : Induction motor <Single-phase motor>
- X : 40 W or smaller
  Z : 60 W or larger
- 3 : 3 W
  6 : 6 W
  10 : 10 W
  15 : 15 W
  25 : 25 W
  40 : 40 W
  60 : 60 W
  90 : 90 W
- G : Pinion shaft
  S : Round shaft
- V : Variable speed
- 4 : 4 poles
- L : Single-phase 100 V
  Y : Single-phase 200 V
  D : Single-phase 110 V/115 V
  G : Single-phase 220 V/230 V
- G : Specifications compliant with overseas standards
  S : Round shaft (S for round shaft with national specifications only)

Correspondingmodel number	Shape of shaft	Classification
Specifications compliant with overseas standards Pinion shaft	G	G
Specifications compliant with overseas standards Round shaft	S	G
National specifications Pinion shaft	G	–
National specifications Round shaft	S	S

- This symbol will be applied to the motor of overseas standards.

	Compliant with China efficiency standards	Capacitor cap
-	Models with Ⓔ mark are compliant products. Refer the table on page B-228, B-230, B-231	attachment
A	Models with Ⓔ mark are compliant products. Refer the table on page B-228, B-230, B-231	not equipped
B	Compliant	not equipped
C	Compliant	attachment

Fit tolerance

Fit tolerance symbol is used in the outside dimension diagram of motor and gear head. For further information, see "Fit tolerance" on page A-33.

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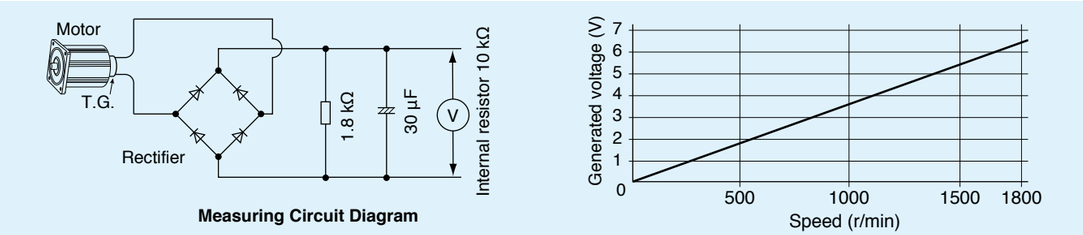
Outline of variable speed induction motor

Voltage generation of tacho-generator

The tacho-generator attached directly to the variable speed motor generate a voltage almost in proportion to the motor speed as shown in the figure below. (You can measure it with an AC tester simply.)

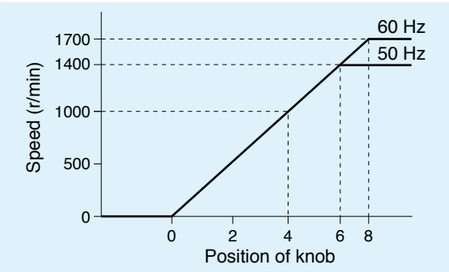
• **Voltage generation of tacho-generator**



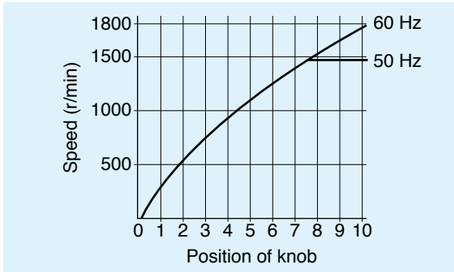
Setting of Speed

In the case of the MGSD type, the built-in speed reference is used to set the speed. In the case of the EX type, the external speed reference is used to set the speed. The figure below shows an example of the relation between the position of the speed setting knob and the speed of the motor. (Note that there is an approx. 10 % fluctuation due to variations in the voltage generation of the circuit and tacho-generator.)

• **MGSD type**



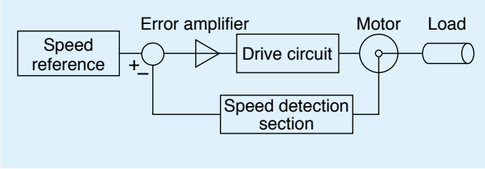
• **EX type**



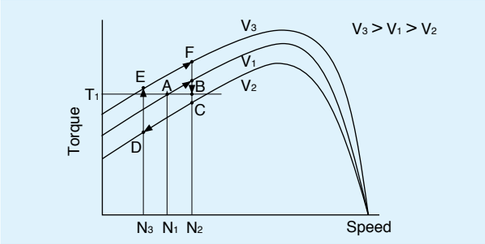
Principle of closed loop system speed control

The closed loop system speed control is described below according to Fig. 1. The motor speed is converted to a corresponding voltage in the speed detection section and compared with the voltage set in the speed setting section. The difference between them is called an error voltage. Based on the error voltage, the motor is driven through the error amplifier and drive circuit. Because the error voltage is controlled practically to zero, the speed is determined by the value set in the speed setting section. Therefore the speed scarcely changes even if the load changes, and the speed changes according to the speed setting when the setting is changed.
In the case of the closed loop system speed control, as described above, the motor speed is detected and the drive voltage is controlled so as to keep the speed constant.

• **Fig. 1**



• **Fig. 2**



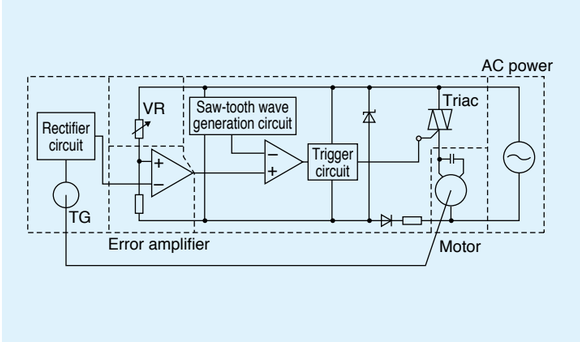
Primary voltage control through closed loop

Fig. 2 shows the relation between the motor torque and speed when the voltage (primary voltage) applied to the motor is changed. Assume that the voltage is V1, the load torque is T1 and the resulting speed is N1. If the motor is being accelerated at this point A, when the voltage is changed from V1 to V2 with the motor status at point B, the motor status moves to point C. Because load torque T1 is larger than the motor torque at point C, the speed is reduced from N2.
When the voltage is increased to V3 with the speed being N3, because the motor status moves to point E, the applied torque becomes larger than the load torque and the motor is accelerated again toward point F. By controlling the primary voltage so as to making this loop "C → D → E → F" sufficiently small and producing it continuously, a stable rotation can be obtained. In the case of the primary voltage control through closed loop, the motor speed is detected and the speed is kept constant by controlling the primary voltage according to the change of the speed.

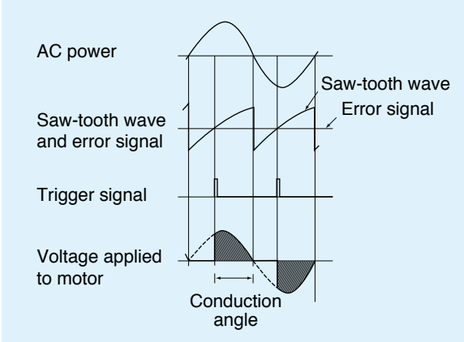
Operation of speed controller

The operation of our speed controller is described below using Fig. 3. The motor speed is detected by the tachometer generator TG and the feedback voltage is obtained through the rectifier circuit.
The difference between the voltage set with the VR and the feedback voltage is amplified by the error amplifier. Based on the saw-tooth wave obtained from the saw-tooth wave generation circuit and the error signal, the trigger signal of the triac is generated through the comparator and trigger circuit. The conduction angle of the triac is controlled with the trigger signal to adjust the voltage applied to the motor.
As a result, the motor is controlled so as to keep the speed constant. (Refer to Fig. 4.)

• **Fig. 3**



• **Fig. 4**



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Model list of variable speed induction motor

Pinion shaft motor

✪ Motor compliant with overseas standards ⓔ Motor compliant with China efficiency standards

Size	Output (W)	Leadwire type		
		Model number	Specifications	Page
60 mm sq. (2.36 inch sq.)	3	M61X3GV4L	100 V	B-232
	6	M61X6GV4L	100 V	B-234
		M61X6GV4Y	200 V	B-234
		M61X6GV4LG(A)	100 V ✪	B-236
		M61X6GV4DG(A)	110 V/115 V ✪	B-236
		M61X6GV4YG(A)	200 V ✪	B-236
		M61X6GV4GG(A)	220 V/230 V ✪	B-236
70 mm sq. (2.76 inch sq.)	10	M71X10GV4L	100 V	B-238
		M71X10GV4Y	200 V	B-238
	15	M71X15GV4L	100 V	B-240
		M71X15GV4Y	200 V	B-240
		M71X15GV4LG(A)	100 V ✪	B-242
		M71X15GV4DG(A)	110 V/115 V ✪	B-242
		M71X15GV4YG(A)	200 V ✪	B-242
		M71X15GV4GG(A)	220 V/230 V ✪ ⓔ	B-242
80 mm sq. (3.15 inch sq.)	15	M81X15GV4L	100 V	B-244
		M81X15GV4Y	200 V	B-244
	25	M81X25GV4L	100 V	B-246
		M81X25GV4Y	200 V	B-246
		M81X25GV4LG(A)	100 V ✪	B-248
		M81X25GV4DG(A)	110 V/115 V ✪	B-248
		M81X25GV4YG(A)	200 V ✪	B-248
		M81X25GV4GG(A)	220 V/230 V ✪ ⓔ	B-248
90 mm sq. (3.54 inch sq.)	40	M91X40GV4L	100 V	B-250
		M91X40GV4Y	200 V	B-250
		M91X40GV4LG(A)	100 V ✪	B-252
		M91X40GV4DG(A)	110 V/115 V ✪	B-252
		M91X40GV4YG(A)	200 V ✪	B-252
		M91X40GV4GG(A)	220 V/230 V ✪ ⓔ	B-252
	60	M91Z60GV4L	100 V	B-254
		M91Z60GV4Y	200 V	B-254
		M91Z60GV4LG(A)	100 V ✪	B-256
		M91Z60GV4DG(A)	110 V/115 V ✪	B-256
		M91Z60GV4YG(A)	200 V ✪	B-256
		M91Z60GV4GG(A)	220 V/230 V ✪	B-256
		M91Z60GV4GGB	220 V/230 V ✪ ⓔ	B-256
		M91Z60GV4GGC	220 V/230 V ✪ ⓔ	B-256
	90	M91Z90GV4L	100 V	B-258
		M91Z90GV4Y	200 V	B-258
		M91Z90GV4LG(A)	100 V ✪	B-260
		M91Z90GV4DG(A)	110 V/115 V ✪	B-260
		M91Z90GV4YG(A)	200 V ✪	B-260
		M91Z90GV4GG(A)	220 V/230 V ✪	B-260
		M91Z90GV4GGB	220 V/230 V ✪ ⓔ	B-260
		M91Z90GV4GGC	220 V/230 V ✪ ⓔ	B-260

* The models with a motor model number to which "A" or "B" is suffixed are not equipped with a capacitor cap.
The models with a motor model number to which "A" or "B" is suffixed are not sold or available in Japan.

Applicable gear head

Hinge attached

Standard gear head		High torque gear head	Right-angle gear head	Gear head -Inch (U.S.A.)	Decimal gear head
Ball bearing	metal bearing				
MX6G□BA MX6G□B	MX6G□MA MX6G□M	—	—	MX6G□BU	MX6G10XB
MX7G□BA MX7G□B	MX7G□MA MX7G□M	—	—	MX7G□BU	MX7G10XB
MX8G□B	MX8G□M	—	—	MX8G□BU	MX8G10XB
MX9G□B	MX9G□M	—	MX9G□R	MX9G□BU	MX9G10XB
MZ9G□B	—	MR9G□B	MZ9G R	MZ9G BU	MZ9G10XB
MY9G□B		MP9G□B			

* Refer to page B-444 for dimensions and permissible torque of high torque gear head.
Refer to page B-446 for dimensions and permissible torque of right-angle gear head.
Refer to page B-451 for dimensions and permissible torque of gear head -Inch (U.S.A.).
Refer to page B-448 for dimensions of decimal gear head.

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Model list of variable speed induction motor

Round shaft motor

✪ Motor compliant with overseas standards ⓔ Motor compliant with China efficiency standards

Size	Output (W)	Leadwire type	
		Model number	Specifications
60 mm sq. (2.36 inch sq.)	3	M61X3SV4LS	100 V
	6	M61X6SV4LS	100 V
		M61X6SV4YS	200 V
		M61X6SV4LG(A)	100 V ✪
		M61X6SV4DG(A)	110 V/115 V ✪
		M61X6SV4YG(A)	200 V ✪
		M61X6SV4GG(A)	220 V/230 V ✪
70 mm sq. (2.76 inch sq.)	10	M71X10SV4LS	100 V
		M71X10SV4YS	200 V
	15	M71X15SV4LS	100 V
		M71X15SV4YS	200 V
		M71X15SV4LG(A)	100 V ✪
		M71X15SV4DG(A)	110 V/115 V ✪
		M71X15SV4YG(A)	200 V ✪
		M71X15SV4GG(A)	220 V/230 V ✪ ⓔ
80 mm sq. (3.15 inch sq.)	15	M81X15SV4LS	100 V
		M81X15SV4YS	200 V
	25	M81X25SV4LS	100 V
		M81X25SV4YS	200 V
		M81X25SV4LG(A)	100 V ✪
		M81X25SV4DG(A)	110 V/115 V ✪
		M81X25SV4YG(A)	200 V ✪
		M81X25SV4GG(A)	220 V/230 V ✪ ⓔ
90 mm sq. (3.54 inch sq.)	40	M91X40SV4LS	100 V
		M91X40SV4YS	200 V
		M91X40SV4LG(A)	100 V ✪
		M91X40SV4DG(A)	110 V/115 V ✪
		M91X40SV4YG(A)	200 V ✪
		M91X40SV4GG(A)	220 V/230 V ✪ ⓔ
	60	M91Z60SV4LS	100 V
		M91Z60SV4YS	200 V
		M91Z60SV4LG(A)	100 V ✪
		M91Z60SV4DG(A)	110 V/115 V ✪
		M91Z60SV4YG(A)	200 V ✪
		M91Z60SV4GG(A)	220 V/230 V ✪
		M91Z60SV4GGB	220 V/230 V ✪ ⓔ
		M91Z60SV4GGC	220 V/230 V ✪ ⓔ
	90	M91Z90SV4LS	100 V
		M91Z90SV4YS	200 V
		M91Z90SV4LG(A)	100 V ✪
		M91Z90SV4DG(A)	110 V/115 V ✪
		M91Z90SV4YG(A)	200 V ✪
		M91Z90SV4GG(A)	220 V/230 V ✪
		M91Z90SV4GGB	220 V/230 V ✪ ⓔ
		M91Z90SV4GGC	220 V/230 V ✪ ⓔ

* The specifications and wire connections of the round shaft motor are the same as those of the pinion shaft motor.
  Dimensional outline drawing → Page B-264.
* The models with a motor model number to which "A" or "B" is suffixed are not equipped with a capacitor cap.
  The models with a motor model number to which "A" or "B" is suffixed are not sold or available in Japan.

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Possible combination of speed controller and motor

Size	Output (W)	Motor			Voltage (V)	Speed controller	
		Certified	Pinion shaft type	Round shaft type		MGSD type	EX type
60 mm sq. (2.36 inch sq.)	3	-----	M61X3GV4L	M61X3SV4LS	100	MGSDA1 ★	DV1131
	6	-----	M61X6GV4L	M61X6SV4LS	100	MGSDA1 ★	DV1131
		-----	M61X6GV4Y	M61X6SV4YS	200	MGSDB2 ★	DV1231
		✪	M61X6GV4LG(A)	M61X6SV4LG(A)	100	MGSDA1 ★	-----
		✪	M61X6GV4DG(A)	M61X6SV4DG(A)	110/115	MGSDA1 ★	-----
		✪	M61X6GV4YG(A)	M61X6SV4YG(A)	200	MGSDB2 ★	-----
		✪	M61X6GV4GG(A)	M61X6SV4GG(A)	220/230	MGSDB2 ★	-----
70 mm sq. (2.76 inch sq.)	10	-----	M71X10GV4L	M71X10SV4LS	100	MGSDA1 ★	DV1131
		-----	M71X10GV4Y	M71X10SV4YS	200	MGSDB2 ★	DV1231
	15	-----	M71X15GV4L	M71X15SV4LS	100	MGSDA1 ★	DV1132
		-----	M71X15GV4Y	M71X15SV4YS	200	MGSDB2 ★	DV1231
		✪	M71X15GV4LG(A)	M71X15SV4LG(A)	100	MGSDA1 ★	-----
		✪	M71X15GV4DG(A)	M71X15SV4DG(A)	110/115	MGSDA1 ★	-----
		✪	M71X15GV4YG(A)	M71X15SV4YG(A)	200	MGSDB2 ★	-----
		✪ ⓔ	M71X15GV4GG(A)	M71X15SV4GG(A)	220/230	MGSDB2 ★	-----
80 mm sq. (3.15 inch sq.)	15	-----	M81X15GV4L	M81X15SV4LS	100	MGSDA1 ★	DV1132
		-----	M81X15GV4Y	M81X15SV4YS	200	MGSDB2 ★	DV1231
	25	-----	M81X25GV4L	M81X25SV4LS	100	MGSDA1 ★	DV1132
		-----	M81X25GV4Y	M81X25SV4YS	200	MGSDB2 ★	DV1234
		✪	M81X25GV4LG(A)	M81X25SV4LG(A)	100	MGSDA1 ★	-----
		✪	M81X25GV4DG(A)	M81X25SV4DG(A)	110/115	MGSDA1 ★	-----
		✪	M81X25GV4YG(A)	M81X25SV4YG(A)	200	MGSDB2 ★	-----
		✪ ⓔ	M81X25GV4GG(A)	M81X25SV4GG(A)	220/230	MGSDB2 ★	-----
90 mm sq. (3.54 inch sq.)	40	-----	M91X40GV4L	M91X40SV4LS	100	MGSDA1 ★	DV1132
		-----	M91X40GV4Y	M91X40SV4YS	200	MGSDB2 ★	DV1234
		✪	M91X40GV4LG(A)	M91X40SV4LG(A)	100	MGSDA1 ★	-----
		✪	M91X40GV4DG(A)	M91X40SV4DG(A)	110/115	MGSDA1 ★	-----
		✪	M91X40GV4YG(A)	M91X40SV4YG(A)	200	MGSDB2 ★	-----
		✪ ⓔ	M91X40GV4GG(A)	M91X40SV4GG(A)	220/230	MGSDB2 ★	-----
	60	-----	M91Z60GV4L	M91Z60SV4LS	100	MGSDB1 ★	DV1134
		-----	M91Z60GV4Y	M91Z60SV4YS	200	MGSDB2 ★	DV1234
		✪	M91Z60GV4LG(A)	M91Z60SV4LG(A)	100	MGSDB1 ★	-----
		✪	M91Z60GV4DG(A)	M91Z60SV4DG(A)	110/115	MGSDB1 ★	-----
		✪	M91Z60GV4YG(A)	M91Z60SV4YG(A)	200	MGSDB2 ★	-----
		✪	M91Z60GV4GG(A)	M91Z60SV4GG(A)	220/230	MGSDB2 ★	-----
		✪ ⓔ	M91Z60GV4GGB	M91Z60SV4GGB	220/230	MGSDB2 ★	-----
		✪ ⓔ	M91Z60GV4GGC	M91Z60SV4GGC	220/230	MGSDB2 ★	-----
	90	-----	M91Z90GV4L	M91Z90SV4LS	100	MGSDB1 ★	DV1134
		-----	M91Z90GV4Y	M91Z90SV4YS	200	MGSDB2 ★	DV1234
		✪	M91Z90GV4LG(A)	M91Z90SV4LG(A)	100	MGSDB1 ★	-----
		✪	M91Z90GV4DG(A)	M91Z90SV4DG(A)	110/115	MGSDB1 ★	------
		✪	M91Z90GV4YG(A)	M91Z90SV4YG(A)	200	MGSDB2 ★	----
		✪	M91Z90GV4GG(A)	M91Z90SV4GG(A)	220/230	MGSDB2 ★	-----
		✪ ⓔ	M91Z90GV4GGB	M91Z90SV4GGB	220/230	MGSDB2 ★	-----
		✪ ⓔ	M91Z90GV4GGC	M91Z90SV4GGC	220/230	MGSDB2 ★	-----

* When using a speed controller operative under a wide range of supply voltage (MGSD), the mating motor should be selected according to the voltage of the power supply to be used.

✪ Motor compliant with overseas standards ⓔ Motor compliant with China efficiency standards:

★ MGSD speed controllers are compliant with and .

* The models with a motor model number to which "A" or "B" is suffixed are not equipped with a capacitor cap.
  The models with a motor model number to which "A" or "B" is suffixed are not sold or available in Japan.

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Variable speed induction motor (leadwire)

60 mm (2.36 inch) sq. 3 W

• Specifications

Size	Motor model No.	Number of pole (P)	Output (W)	Voltage (V)	Frequency (Hz)	Rating (min)	Variable speed range Speed (r/min)	Permissible Torque N·m (oz-in) at 1200 r/min	Permissible Torque N·m (oz-in) at 90 r/min	Starting current (A)	Starting torque N·m (oz-in)	Capacitor (μF) (rated voltage)
60 mm sq.	M61X3GV4L	4	3	100	50	Cont.	90 to 1400	0.018 (2.55)	0.018 (2.55)	0.21	0.026 (3.68)	2 (200 V)
					60		90 to 1700	0.018 (2.55)	0.018 (2.55)	0.21	0.026 (3.68)	

• The specifications and wire connections of the round shaft motor are the same as those of the pinion shaft type. For the dimensional outline drawing, refer to page B-264.

• Permissible torque at output shaft of gear head

* The part number of reduction gear ratio less than 1/25 is MX6G□BA (MA).

Unit of permissible torque: upper **(N·m)** / lower **(lb-in)**

Applicable gear head Bearing	Speed	Reduction Ratio	3	3.6	5	6	7.5	9	10	12.5	15	18	20	25	30	36	50	60	75	90	100	120	150	180
MX6G□BA (ball bearing) MX6G□B (ball bearing) MX6G□MA (metal bearing) MX6G□M (metal bearing)	1200 r/min	50 Hz	0.044 (0.39)	0.052 (0.46)	0.073 (0.65)	0.088 (0.78)	0.11 (0.97)	0.13 (1.15)	0.14 (1.24)	0.18 (1.59)	0.22 (1.95)	0.26 (2.30)	0.29 (2.57)	0.365 (3.23)	0.39 (3.45)	0.47 (4.16)	0.65 (5.75)	0.78 (6.90)	0.98 (8.67)	1.18 (10.4)	1.31 (11.6)	1.57 (13.9)	1.96 (17.3)	2.35 (20.8)
		60 Hz	0.044 (0.39)	0.052 (0.46)	0.073 (0.65)	0.088 (0.78)	0.11 (0.97)	0.13 (1.15)	0.14 (1.24)	0.18 (1.59)	0.22 (1.95)	0.26 (2.30)	0.29 (2.57)	0.365 (3.23)	0.39 (3.45)	0.47 (4.16)	0.65 (5.75)	0.78 (6.90)	0.98 (8.67)	1.18 (10.4)	1.38 (12.2)	1.57 (13.9)	1.96 (17.3)	2.35 (20.8)
	90 r/min		0.044 (0.39)	0.052 (0.46)	0.073 (0.65)	0.088 (0.78)	0.11 (0.97)	0.13 (1.15)	0.14 (1.24)	0.18 (1.59)	0.22 (1.95)	0.26 (2.30)	0.29 (2.57)	0.365 (3.23)	0.39 (3.45)	0.47 (4.16)	0.65 (5.75)	0.78 (6.90)	0.98 (8.67)	1.18 (10.4)	1.38 (12.2)	1.57 (13.9)	1.96 (17.3)	2.35 (20.8)
	Rotational direction		Same as motor rotational direction												Reverse to motor rotational direction									

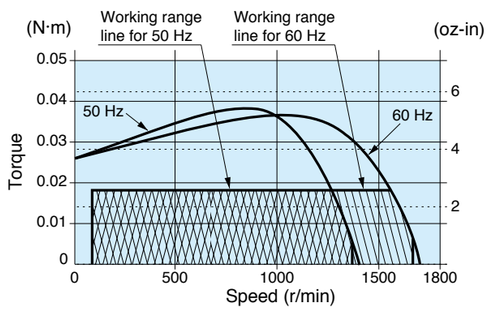
• Permissible torque at output shaft of gear head using decimal gear head

* For external dimensions of the decimal gear head, refer to page B-448.

Unit of permissible torque: upper **(N·m)** / lower **(lb-in)**

Applicable gear head Bearing	Decimal gear head	Speed	Reduction Ratio	200	250	300	360	500	600	750	900	1000	1200	1500	1800
MX6G□BA (ball bearing) MX6G□B (ball bearing) MX6G□MA (metal bearing) MX6G□M (metal bearing)	MX6G10XB	1200 r/min	50 Hz	2.34 (20.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)
			60 Hz	2.34 (20.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)
		90 r/min		2.34 (20.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)
		Rotational direction		Same as motor rotational direction		Reverse to motor rotational direction									

Speed-torque characteristics



Connection diagram

* For the connection diagram showing wiring with the speed controller, refer to pages C-6 to C-20.

* Working range line

The working range line shows the working limit for the variable speed motor. The permissible torque should fall within the shaded portion. If you use the motor with the permissible torque exceeding the working range line (falling within the portion not shaded), the motor may be burned out due to a high temperature rise or the gear tooth may be damaged.

* Please read your User's manual carefully so that you will understand the operation and safety precautions before attempting to operate the system.

Features B-224 | System configuration B-225 | Coding system B-225 | Model list B-228

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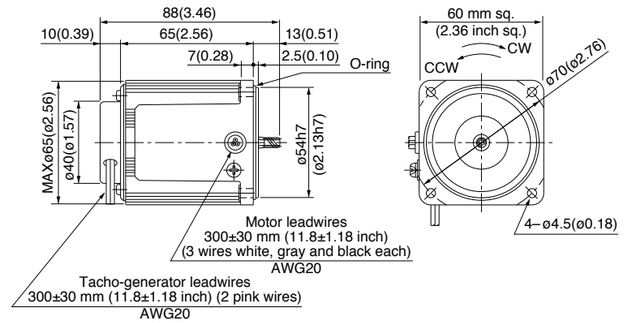
Motor (dimensions)

Scale: 1/3, Unit: mm (inch)

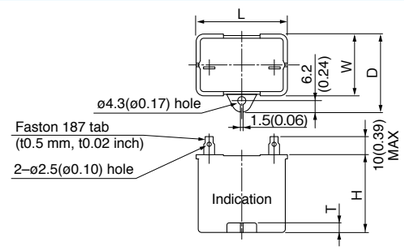
M61X3GV4L 4P 3 W 100 V

Mass	Helical gear	Module	Number of teeth
0.60 kg 1.32 lb		0.5	6



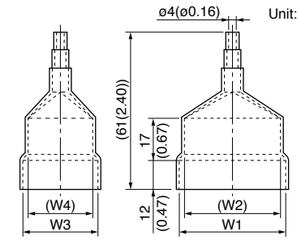
Capacitor (dimensions) [attachment]

Unit: mm (inch)



Capacitor cap (dimensions) [option]

Unit: mm (inch)



• Capacitor dimension list

Unit: upper (mm) / lower (inch)

Model number of motor	Model number of capacitor (attachment)	L	W	D	H	T	Capacitor cap (option)	W1	W2	W3	W4
M61X3GV4L	M0PC2M20	39.5 (1.56)	16 (0.63)	26.5 (1.04)	30.5 (1.20)	4 (0.16)	M0PC3917	39.5 (1.56)	37.5 (1.48)	17 (0.67)	15 (0.59)

* Capacitors (single item) can also be purchased.

Gear head (dimensions)

Scale: 1/3, Unit: mm (inch)

< □ is 25 or less >

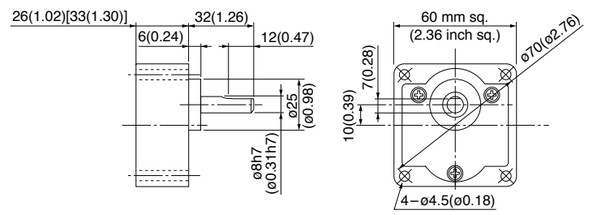
MX6G□BA (ball bearing) Mass 0.24 kg(0.53 lb): Output shaft D cut

MX6G□MA (metal bearing) Mass 0.24 kg(0.53 lb): Output shaft D cut

< □ is 30 or more >

MX6G□B (ball bearing) Mass 0.3 kg(0.66 lb): Output shaft D cut

MX6G□M (metal bearing) Mass 0.3 kg(0.66 lb): Output shaft D cut



* Figures in [ ] represent the dimensions of MX6G□B (M) (1/30 or larger reduction ratio).

(Note) Because the dimensions may be subject to change, also check the determinate dimensions if the gear head is to be used for design.

Gear head combination B-262 | Round shaft motor B-264 | Decimal gear head B-448 | Gear head -inch (U.S.A.) B-449 | Controls C-4 | Option D-2

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Variable speed induction motor (leadwire)

60 mm (2.36 inch) sq. 6 W

• Specifications

Size	Motor model No.	Number of pole (P)	Output (W)	Voltage (V)	Frequency (Hz)	Rating (min)	Variable speed range Speed (r/min)	Permissible Torque N·m (oz-in) at 1200 r/min	Permissible Torque N·m (oz-in) at 90 r/min	Starting current (A)	Starting torque N·m (oz-in)	Capacitor (μF) (rated voltage)
60 mm sq.	M61X6GV4L	4	6	100	50	Cont.	90 to 1400	0.032 (4.53)	0.025 (3.54)	0.30	0.037 (5.24)	2.5 (200 V)
					60		90 to 1700	0.032 (4.53)	0.025 (3.54)	0.30	0.037 (5.24)	
	M61X6GV4Y	4	6	200	50	Cont.	90 to 1400	0.032 (4.53)	0.025 (3.54)	0.15	0.037 (5.24)	0.6 (400 V)
					60		90 to 1700	0.032 (4.53)	0.025 (3.54)	0.15	0.037 (5.24)	

• The specifications and wire connections of the round shaft motor are the same as those of the pinion shaft type. For the dimensional outline drawing, refer to page B-264.

• Permissible torque at output shaft of gear head

* The part number of reduction gear ratio less than 1/25 is MX6G□BA (MA).

Unit of permissible torque: upper **(N·m)** / lower **(lb-in)**

Applicable gear head Bearing	Speed	Reduction Ratio	3	3.6	5	6	7.5	9	10	12.5	15	18	20	25	30	36	50	60	75	90	100	120	150	180
MX6G□BA (ball bearing) MX6G□B (ball bearing) MX6G□MA (metal bearing) MX6G□M (metal bearing)	1200 r/min	50 Hz	0.077 (0.68)	0.093 (0.82)	0.13 (1.15)	0.15 (1.33)	0.19 (1.68)	0.23 (2.04)	0.25 (2.21)	0.32 (2.83)	0.38 (3.36)	0.46 (4.07)	0.51 (4.51)	0.64 (5.66)	0.69 (6.11)	0.83 (7.35)	1.16 (10.3)	1.39 (12.3)	1.74 (15.4)	2.09 (18.5)	2.33 (20.6)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)
		60 Hz	0.077 (0.68)	0.093 (0.82)	0.13 (1.15)	0.15 (1.33)	0.19 (1.68)	0.23 (2.04)	0.25 (2.21)	0.32 (2.83)	0.38 (3.36)	0.46 (4.07)	0.51 (4.51)	0.64 (5.66)	0.69 (6.11)	0.83 (7.35)	1.16 (10.3)	1.39 (12.3)	1.74 (15.4)	2.09 (18.5)	2.33 (20.6)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)
	90 r/min		0.06 (0.53)	0.07 (0.62)	0.10 (0.89)	0.12 (1.06)	0.15 (1.33)	0.18 (1.59)	0.20 (1.77)	0.25 (2.21)	0.30 (2.66)	0.36 (3.19)	0.40 (3.54)	0.50 (4.43)	0.54 (4.78)	0.65 (5.75)	0.90 (7.97)	1.08 (9.56)	1.35 (11.9)	1.62 (14.3)	1.81 (16.0)	2.17 (19.2)	2.45 (21.7)	2.45 (21.7)
	Rotational direction		Same as motor rotational direction												Reverse to motor rotational direction									

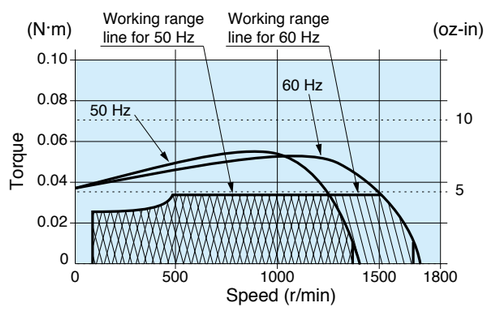
• Permissible torque at output shaft of gear head using decimal gear head

* For external dimensions of the decimal gear head, refer to page B-448.

Unit of permissible torque: upper **(N·m)** / lower **(lb-in)**

Applicable gear head Bearing	Decimal gear head	Speed	Reduction Ratio	200	250	300	360	500	600	750	900	1000	1200	1500	1800
MX6G□BA (ball bearing) MX6G□B (ball bearing) MX6G□MA (metal bearing) MX6G□M (metal bearing)	MX6G10XB	1200 r/min	50 Hz	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)
			60 Hz	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)
		90 r/min		2.45 (21.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)
		Rotational direction		Same as motor rotational direction		Reverse to motor rotational direction									

Speed-torque characteristics



Connection diagram

* For the connection diagram showing wiring with the speed controller, refer to pages C-6 to C-20.

* Working range line

The working range line shows the working limit for the variable speed motor. The permissible torque should fall within the shaded portion. If you use the motor with the permissible torque exceeding the working range line (falling within the portion not shaded), the motor may be burned out due to a high temperature rise or the gear tooth may be damaged.

* Please read your User's manual carefully so that you will understand the operation and safety precautions before attempting to operate the system.

Features B-224 | System configuration B-225 | Coding system B-225 | Model list B-228

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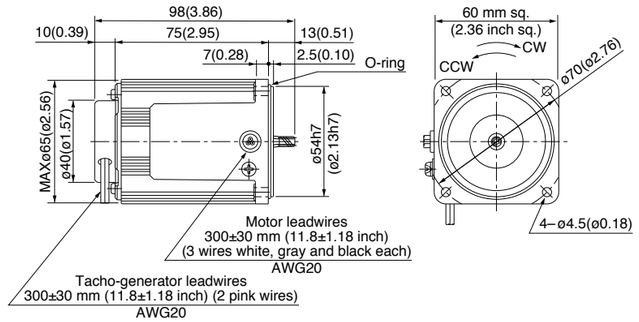
Motor (dimensions)

Scale: 1/3, Unit: mm (inch)

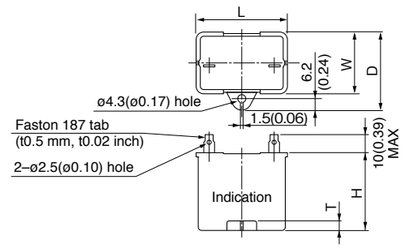
M61X6GV4L 4P 6 W 100 V
M61X6GV4Y 4P 6 W 200 V

Mass	Helical gear	Module	Number of teeth
0.71 kg 1.57 lb		0.5	6



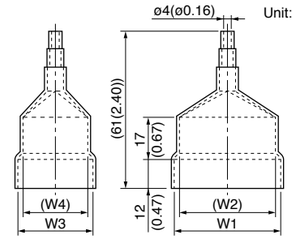
Capacitor (dimensions) [attachment]

Unit: mm (inch)



Capacitor cap (dimensions) [option]

Unit: mm (inch)



• Capacitor dimension list

Unit: upper (mm) / lower (inch)

Model number of motor	Model number of capacitor (attachment)	L	W	D	H	T	Capacitor cap (option)	W1	W2	W3	W4
M61X6GV4L	M0PC2.5M20	39.5 (1.56)	16 (0.63)	26.5 (1.04)	30.5 (1.20)	4 (0.16)	M0PC3917	39.5 (1.56)	37.5 (1.48)	17 (0.67)	15 (0.59)
M61X6GV4Y	M0PC0.6M40	39.5 (1.56)	16.2 (0.64)	27 (1.06)	27 (1.06)	4 (0.16)	M0PC3917	39.5 (1.56)	37.5 (1.48)	17 (0.67)	15 (0.59)

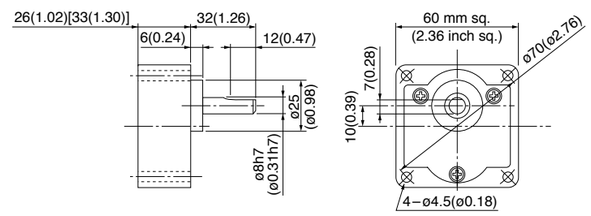
* Capacitors (single item) can also be purchased.

Gear head (dimensions)

Scale: 1/3, Unit: mm (inch)

< □ is 25 or less >
MX6G□BA (ball bearing) Mass 0.24 kg(0.53 lb): Output shaft D cut
MX6G□MA (metal bearing) Mass 0.24 kg(0.53 lb): Output shaft D cut

< □ is 30 or more >
MX6G□B (ball bearing) Mass 0.3 kg(0.66 lb): Output shaft D cut
MX6G□M (metal bearing) Mass 0.3 kg(0.66 lb): Output shaft D cut



* Figures in [ ] represent the dimensions of MX6G□B (M) (1/30 or larger reduction ratio).

(Note) Because the dimensions may be subject to change, also check the determinate dimensions if the gear head is to be used for design.

Gear head combination B-262 | Round shaft motor B-264 | Decimal gear head B-448 | Gear head -inch (U.S.A.) B-449 | Controls C-4 | Option D-2

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Variable speed induction motor (leadwire)

60 mm (2.36 inch) sq. | 6 W

• Specifications

Size	Motor model No.	Number of pole (P)	Output (W)	Voltage (V)	Frequency (Hz)	Rating (min)	Variable speed range Speed (r/min)	Permissible Torque N·m (oz-in) at 1200 r/min	Permissible Torque N·m (oz-in) at 90 r/min	Starting current (A)	Starting torque N·m (oz-in)	Capacitor (μF) (rated voltage)
60 mm sq.	M61X6GV4LG M61X6GV4LGA	4	6	100	50	Cont.	90 to 1400	0.044 (6.23)	0.034 (4.81)	0.32	0.049 (6.94)	3.5 (250 V)
					60		90 to 1700	0.034 (4.81)	0.034 (4.81)	0.33	0.049 (6.94)	
	M61X6GV4DG M61X6GV4DGA	4	6	110	60	Cont.	90 to 1700	0.034 (4.81)	0.034 (4.81)	0.33	0.044 (6.23)	2.5 (250 V)
				115	60		90 to 1700	0.034 (4.81)	0.034 (4.81)	0.34	0.049 (6.94)	
	M61X6GV4YG M61X6GV4YGA	4	6	200	50	Cont.	90 to 1400	0.044 (6.23)	0.034 (4.81)	0.14	0.049 (6.94)	0.8 (450 V)
					60		90 to 1700	0.034 (4.81)	0.034 (4.81)	0.14	0.049 (6.94)	
	M61X6GV4GG M61X6GV4GGA	4	6	220	50	Cont.	90 to 1400	0.044 (6.23)	0.034 (4.81)	0.14	0.042 (5.95)	0.6 (450 V)
					60		90 to 1700	0.034 (4.81)	0.034 (4.81)	0.14	0.042 (5.95)	
				230	50		90 to 1400	0.044 (6.23)	0.034 (4.81)	0.15	0.048 (6.80)	
					60		90 to 1700	0.034 (4.81)	0.034 (4.81)	0.15	0.049 (6.94)	

• The specifications and wire connections of the round shaft motor are the same as those of the pinion shaft type. For the dimensional outline drawing, refer to page B-264.
• The models with a motor model number to which "A" is suffixed are not equipped with a capacitor cap.
The models with a motor model number to which "A" is suffixed are not sold or available in Japan.

• Permissible torque at output shaft of gear head

* The part number of reduction gear ratio less than 1/25 is MX6G□BA (MA).

Unit of permissible torque: upper **(N·m)** / lower **(lb-in)**

Applicable gear head Bearing	Speed		Reduction Ratio 3	3.6	5	6	7.5	9	10	12.5	15	18	20	25	30	36	50	60	75	90	100	120	150	180
MX6G□BA (ball bearing) MX6G□B (ball bearing) MX6G□MA (metal bearing) MX6G□M (metal bearing)	1200 r/min	50 Hz	0.11 (0.97)	0.13 (1.15)	0.18 (1.59)	0.21 (1.86)	0.27 (2.39)	0.32 (2.83)	0.36 (3.19)	0.45 (3.98)	0.53 (4.69)	0.64 (5.66)	0.71 (6.28)	0.89 (7.88)	0.96 (8.50)	1.15 (10.2)	1.60 (14.2)	1.92 (17.0)	2.41 (21.3)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)
		60 Hz	0.083 (0.73)	0.10 (0.89)	0.14 (1.24)	0.17 (1.5)	0.21 (1.86)	0.25 (2.21)	0.28 (2.48)	0.34 (3.01)	0.41 (3.63)	0.50 (4.43)	0.55 (4.87)	0.69 (6.11)	0.74 (6.55)	0.89 (7.88)	1.24 (11.0)	1.49 (13.2)	1.86 (16.5)	2.23 (19.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)
	90 r/min	50 Hz	0.08 (0.71)	0.10 (0.89)	0.14 (1.24)	0.17 (1.5)	0.21 (1.86)	0.25 (2.21)	0.28 (2.48)	0.34 (3.01)	0.41 (3.63)	0.50 (4.43)	0.55 (4.87)	0.69 (6.11)	0.74 (6.55)	0.89 (7.88)	1.24 (11.0)	1.49 (13.2)	1.86 (16.5)	2.23 (19.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)
		60 Hz	0.083 (0.73)	0.10 (0.89)	0.14 (1.24)	0.17 (1.5)	0.21 (1.86)	0.25 (2.21)	0.28 (2.48)	0.34 (3.01)	0.41 (3.63)	0.50 (4.43)	0.55 (4.87)	0.69 (6.11)	0.74 (6.55)	0.89 (7.88)	1.24 (11.0)	1.49 (13.2)	1.86 (16.5)	2.23 (19.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)
	Rotational direction		Same as motor rotational direction												Reverse to motor rotational direction									

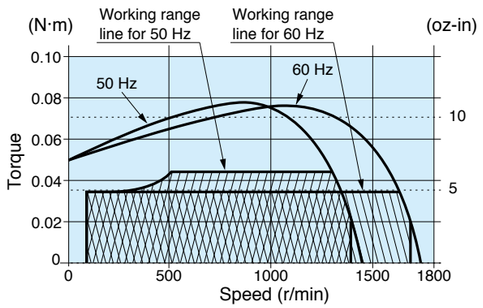
• Permissible torque at output shaft of gear head using decimal gear head

* For external dimensions of the decimal gear head, refer to page B-448.

Unit of permissible torque: upper **(N·m)** / lower **(lb-in)**

Applicable gear head Bearing	Decimal gear head	Speed		Reduction Ratio 200	250	300	360	500	600	750	900	1000	1200	1500	1800
MX6G□BA (ball bearing) MX6G□B (ball bearing) MX6G□MA (metal bearing) MX6G□M (metal bearing)	MX6G10XB	1200 r/min	50 Hz	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)
			60 Hz	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)
		90 r/min	50 Hz	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)
			60 Hz	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)	2.45 (21.7)
		Rotational direction		Same as motor rotational direction		Reverse to motor rotational direction									

Speed-torque characteristics



Connection diagram

* For the connection diagram showing wiring with the speed controller, refer to pages C-6 to C-20.

* Working range line

The working range line shows the working limit for the variable speed motor. The permissible torque should fall within the shaded portion. If you use the motor with the permissible torque exceeding the working range line (falling within the portion not shaded), the motor may be burned out due to a high temperature rise or the gear tooth may be damaged.

* Please read your User's manual carefully so that you will understand the operation and safety precautions before attempting to operate the system.

Features B-224 | System configuration B-225 | Coding system B-225 | Model list B-228

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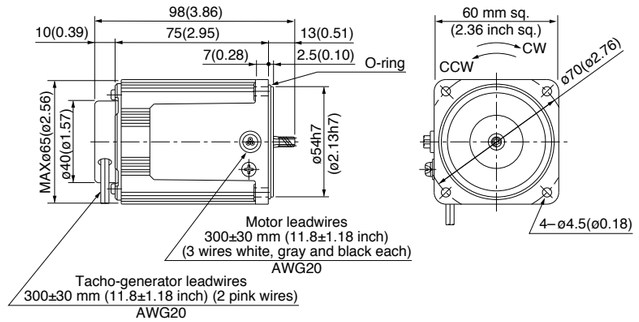
Motor (dimensions)

Scale: 1/3, Unit: mm (inch)

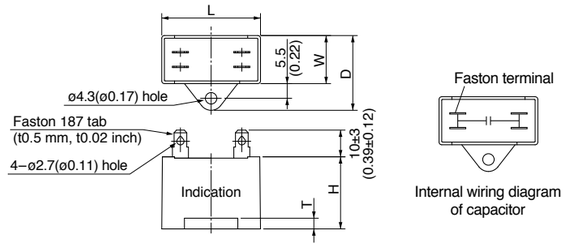
M61X6GV4LG(A) 4P 6 W 100 V
M61X6GV4DG(A) 4P 6 W 110 V / 115 V
M61X6GV4YG(A) 4P 6 W 200 V
M61X6GV4GG(A) 4P 6 W 220 V / 230 V

Mass	Helical gear	Module	Number of teeth
0.71 kg 1.57 lb		0.5	6



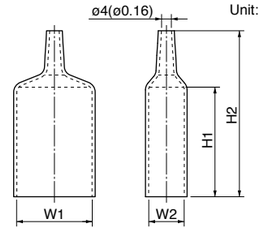
Capacitor (dimensions) [attachment]

Unit: mm (inch)



Capacitor cap (dimensions) [attachment]

Unit: mm (inch)



• Capacitor dimension list

Unit: upper (mm) / lower (inch)

Model number of motor	Model number of capacitor (attachment)	L	W	D	H	T	Capacitor cap (attachment)	W1	W2	H1	H2
M61X6GV4LG(A)	M0PC3.5M25G	31 (1.22)	17 (0.67)	27 (1.06)	27 (1.06)	4 (0.16)	M0PC3117G	31 (1.22)	17 (0.67)	50 (1.97)	73 (2.87)
M61X6GV4DG(A)	M0PC2.5M25G	31 (1.22)	17 (0.67)	27 (1.06)	27 (1.06)	4 (0.16)	M0PC3117G	31 (1.22)	17 (0.67)	50 (1.97)	73 (2.87)
M61X6GV4YG(A)	M0PC0.8M45G	31 (1.22)	17 (0.67)	27 (1.06)	27 (1.06)	4 (0.16)	M0PC3117G	31 (1.22)	17 (0.67)	50 (1.97)	73 (2.87)
M61X6GV4GG(A)	M0PC0.6M45G	31 (1.22)	14.5 (0.57)	24.5 (0.96)	23.5 (0.93)	4 (0.16)	M0PC3114G	31 (1.22)	14.5 (0.57)	45 (1.77)	68 (2.68)

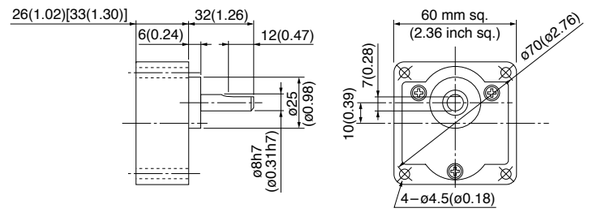
• The models with a motor model number to which "A" is suffixed are not equipped with a capacitor cap.
* Capacitors (single item), capacitors cap (single item) can also be purchased.

Gear head (dimensions)

Scale: 1/3, Unit: mm (inch)

< □ is 25 or less >
MX6G□BA (ball bearing) Mass 0.24 kg(0.53 lb): Output shaft D cut
MX6G□MA (metal bearing) Mass 0.24 kg(0.53 lb): Output shaft D cut

< □ is 30 or more >
MX6G□B (ball bearing) Mass 0.3 kg(0.66 lb): Output shaft D cut
MX6G□M (metal bearing) Mass 0.3 kg(0.66 lb): Output shaft D cut



* Figures in [ ] represent the dimensions of MX6G□B (M) (1/30 or larger reduction ratio).

(Note) Because the dimensions may be subject to change, also check the determinate dimensions if the gear head is to be used for design.

Gear head combination B-262 | Round shaft motor B-264 | Decimal gear head B-448 | Gear head -inch (U.S.A.) B-449 | Controls C-4 | Option D-2

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Variable speed induction motor (leadwire)

70 mm (2.76 inch) sq. 10 W

• Specifications

Size	Motor model No.	Number of pole (P)	Output (W)	Voltage (V)	Frequency (Hz)	Rating (min)	Variable speed range Speed (r/min)	Permissible Torque N·m (oz-in) at 1200 r/min	Permissible Torque N·m (oz-in) at 90 r/min	Starting current (A)	Starting torque N·m (oz-in)	Capacitor (μF) (rated voltage)
70 mm sq.	M71X10GV4L	4	10	100	50	Cont.	90 to 1400	0.059 (8.36)	0.027 (3.82)	0.40	0.064 (9.06)	4 (200 V)
					60		90 to 1700	0.059 (8.36)	0.027 (3.82)	0.40	0.066 (9.35)	
	M71X10GV4Y	4	10	200	50	Cont.	90 to 1400	0.059 (8.36)	0.027 (3.82)	0.20	0.064 (9.06)	1 (400 V)
					60		90 to 1700	0.059 (8.36)	0.027 (3.82)	0.20	0.066 (9.35)	

• The specifications and wire connections of the round shaft motor are the same as those of the pinion shaft type. For the dimensional outline drawing, refer to page B-264.

• Permissible torque at output shaft of gear head

* The part number of reduction gear ratio less than 1/25 is MX7G□BA (MA).

Unit of permissible torque: upper **(N·m)** / lower **(lb-in)**

Applicable gear head / Bearing	Speed	Reduction Ratio	3	3.6	5	6	7.5	9	10	12.5	15	18	20	25	30	36	50	60	75	90	100	120	150	180
MX7G□BA (ball bearing) MX7G□B (ball bearing) MX7G□MA (metal bearing) MX7G□M (metal bearing)	1200 r/min	50 Hz	0.14 (1.24)	0.17 (1.50)	0.23 (2.04)	0.28 (2.48)	0.35 (3.10)	0.43 (3.81)	0.47 (4.16)	0.59 (5.22)	0.71 (6.28)	0.86 (7.61)	0.95 (8.41)	1.19 (10.5)	1.29 (11.4)	1.54 (13.6)	2.15 (19.0)	2.58 (22.8)	3.22 (28.5)	3.87 (34.3)	4.30 (38.1)	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)
		60 Hz	0.14 (1.24)	0.17 (1.50)	0.23 (2.04)	0.28 (2.48)	0.35 (3.10)	0.43 (3.81)	0.47 (4.16)	0.59 (5.22)	0.71 (6.28)	0.86 (7.61)	0.95 (8.41)	1.19 (10.5)	1.29 (11.4)	1.54 (13.6)	2.15 (19.0)	2.58 (22.8)	3.22 (28.5)	3.87 (34.3)	4.30 (38.1)	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)
	90 r/min		0.065 (0.58)	0.078 (0.69)	0.11 (0.97)	0.31 (2.74)	0.16 (1.42)	0.19 (1.68)	0.21 (1.86)	0.27 (2.39)	0.32 (2.83)	0.39 (3.45)	0.43 (3.81)	0.54 (4.78)	0.59 (5.22)	0.70 (6.20)	0.98 (8.67)	1.18 (10.4)	1.47 (13.0)	1.77 (15.7)	1.97 (17.4)	2.36 (20.9)	2.95 (26.1)	3.54 (31.3)
	Rotational direction		Same as motor rotational direction												Reverse to motor rotational direction									

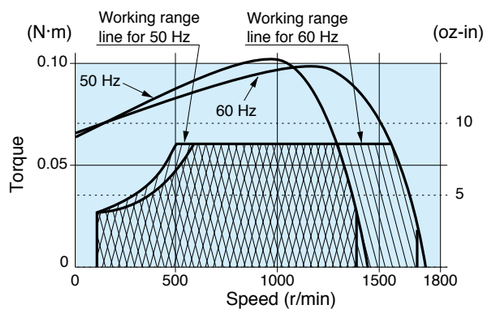
• Permissible torque at output shaft of gear head using decimal gear head

* For external dimensions of the decimal gear head, refer to page B-448.

Unit of permissible torque: upper **(N·m)** / lower **(lb-in)**

Applicable gear head / Bearing	Decimal gear head	Speed	Reduction Ratio	200	250	300	360	500	600	750	900	1000	1200	1500	1800
MX7G□BA (ball bearing) MX7G□B (ball bearing) MX7G□MA (metal bearing) MX7G□M (metal bearing)	MX7G10XB	1200 r/min	50 Hz	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)
			60 Hz	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)
		90 r/min		3.51 (31.1)	4.39 (38.8)	4.78 (42.3)	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)
		Rotational direction		Same as motor rotational direction		Reverse to motor rotational direction									

Speed-torque characteristics



Connection diagram

* For the connection diagram showing wiring with the speed controller, refer to pages C-6 to C-20.

* Working range line

The working range line shows the working limit for the variable speed motor. The permissible torque should fall within the shaded portion. If you use the motor with the permissible torque exceeding the working range line (falling within the portion not shaded), the motor may be burned out due to a high temperature rise or the gear tooth may be damaged.

* Please read your User's manual carefully so that you will understand the operation and safety precautions before attempting to operate the system.

Features B-224 | System configuration B-225 | Coding system B-225 | Model list B-228

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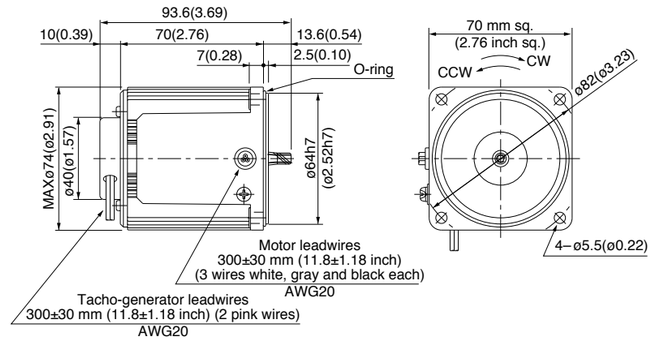
Motor (dimensions)

Scale: 1/3, Unit: mm (inch)

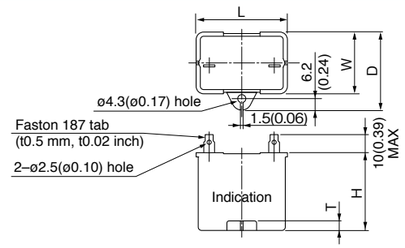
M71X10GV4L 4P 10 W 100 V
M71X10GV4Y 4P 10 W 200 V

Mass	Helical gear	Module	Number of teeth
0.88 kg 1.94 lb		0.5	7



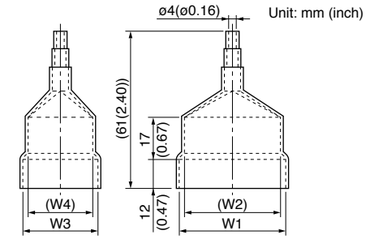
Capacitor (dimensions) [attachment]

Unit: mm (inch)



Capacitor cap (dimensions) [option]

Unit: mm (inch)



• Capacitor dimension list

Unit: upper (mm) / lower (inch)

Model number of motor	Model number of capacitor (attachment)	L	W	D	H	T	Capacitor cap (option)	W1	W2	W3	W4
M71X10GV4L	M0PC4M20	39.5 (1.56)	16 (0.63)	26.5 (1.04)	30.5 (1.20)	4 (0.16)	M0PC3917	39.5 (1.56)	37.5 (1.48)	17 (0.67)	15 (0.59)
M71X10GV4Y	M0PC1M40	39.5 (1.56)	16.2 (0.64)	27 (1.06)	27 (1.06)	4 (0.16)	M0PC3917	39.5 (1.56)	37.5 (1.48)	17 (0.67)	15 (0.59)

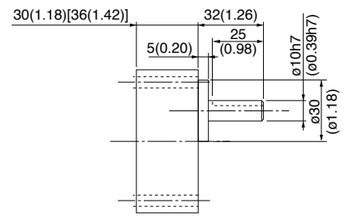
* Capacitors (single item) can also be purchased.

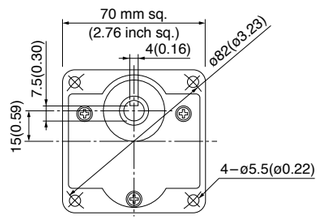
Gear head (dimensions)

Scale: 1/3, Unit: mm (inch)

< □ is 25 or less >
MX7G□BA (ball bearing) Mass 0.38 kg(0.84 lb)
MX7G□MA (metal bearing) Mass 0.38 kg(0.84 lb)

< □ is 30 or more >
MX7G□B (ball bearing) Mass 0.45 kg(0.99 lb)
MX7G□M (metal bearing) Mass 0.45 kg(0.99 lb)

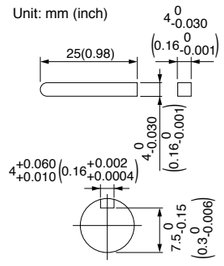




Key and keyway (dimensions) [attachment]

MX7G□BA(B)
MX7G□MA(M)

Unit: mm (inch)



* Figures in [ ] represent the dimensions of MX7G□B (M) (1/30 or larger reduction ratio).

(Note) Because the dimensions may be subject to change, also check the determinate dimensions if the gear head is to be used for design.

Gear head combination B-262 | Round shaft motor B-264 | Decimal gear head B-448 | Gear head -inch (U.S.A.) B-449 | Controls C-4 | Option D-2

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Variable speed induction motor (leadwire)

70 mm (2.76 inch) sq. 15 W

• Specifications

Size	Motor model No.	Number of pole (P)	Output (W)	Voltage (V)	Frequency (Hz)	Rating (min)	Variable speed range Speed (r/min)	Permissible Torque N·m (oz-in) at 1200 r/min	Permissible Torque N·m (oz-in) at 90 r/min	Starting current (A)	Starting torque N·m (oz-in)	Capacitor (μF) (rated voltage)
70 mm sq.	M71X15GV4L	4	15	100	50	Cont.	90 to 1400	0.089 (12.6)	0.029 (4.11)	0.60	0.068 (9.63)	5 (200 V)
					60		90 to 1700	0.089 (12.6)	0.029 (4.11)	0.56	0.068 (9.63)	
	M71X15GV4Y	4	15	200	50	Cont.	90 to 1400	0.089 (12.6)	0.029 (4.11)	0.30	0.068 (9.63)	1.3 (400 V)
					60		90 to 1700	0.089 (12.6)	0.029 (4.11)	0.28	0.068 (9.63)	

• The specifications and wire connections of the round shaft motor are the same as those of the pinion shaft type. For the dimensional outline drawing, refer to page B-264.

• Permissible torque at output shaft of gear head

* The part number of reduction gear ratio less than 1/25 is MX7G□BA (MA).

Unit of permissible torque: upper **(N·m)** / lower **(lb-in)**

Applicable gear head / Bearing	Speed		Reduction Ratio 3	3.6	5	6	7.5	9	10	12.5	15	18	20	25	30	36	50	60	75	90	100	120	150	180
MX7G□BA (ball bearing) MX7G□B (ball bearing) MX7G□MA (metal bearing) MX7G□M (metal bearing)	1200 r/min	50 Hz	0.21 (1.86)	0.25 (2.21)	0.36 (3.19)	0.43 (3.81)	0.54 (4.78)	0.64 (5.66)	0.72 (6.37)	0.86 (7.61)	1.08 (9.56)	1.29 (11.4)	1.44 (12.8)	1.80 (15.9)	1.92 (17.0)	2.30 (20.4)	3.20 (28.3)	3.84 (34.0)	4.80 (42.5)	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)
		60 Hz	0.21 (1.86)	0.25 (2.21)	0.36 (3.19)	0.43 (3.81)	0.54 (4.78)	0.64 (5.66)	0.72 (6.37)	0.86 (7.61)	1.08 (9.56)	1.29 (11.4)	1.44 (12.8)	1.80 (15.9)	1.92 (17.0)	2.30 (20.4)	3.20 (28.3)	3.84 (34.0)	4.80 (42.5)	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)
	90 r/min		0.070 (0.62)	0.084 (0.74)	0.11 (0.97)	0.14 (1.24)	0.17 (1.50)	0.21 (1.86)	0.23 (2.04)	0.28 (2.48)	0.35 (3.10)	0.42 (3.72)	0.47 (4.16)	0.58 (5.13)	0.63 (5.58)	0.75 (6.64)	1.05 (9.29)	1.26 (11.2)	1.58 (14.0)	1.89 (16.7)	2.11 (18.7)	2.53 (22.4)	3.16 (28.0)	3.79 (33.5)
	Rotational direction		Same as motor rotational direction												Reverse to motor rotational direction									

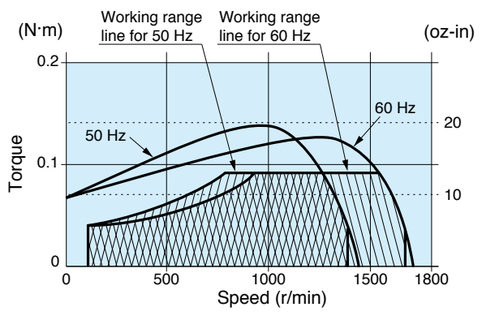
• Permissible torque at output shaft of gear head using decimal gear head

* For external dimensions of the decimal gear head, refer to page B-448.

Unit of permissible torque: upper **(N·m)** / lower **(lb-in)**

Applicable gear head / Bearing	Decimal gear head	Speed		Reduction Ratio 200	250	300	360	500	600	750	900	1000	1200	1500	1800
MX7G□BA (ball bearing) MX7G□B (ball bearing) MX7G□MA (metal bearing) MX7G□M (metal bearing)	MX7G10XB	1200 r/min	50 Hz	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)
			60 Hz	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)
		90 r/min		3.77 (33.4)	4.71 (41.7)	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)
		Rotational direction		Same as motor rotational direction		Reverse to motor rotational direction									

Speed-torque characteristics



Connection diagram

* For the connection diagram showing wiring with the speed controller, refer to pages C-6 to C-20.

* Working range line

The working range line shows the working limit for the variable speed motor. The permissible torque should fall within the shaded portion. If you use the motor with the permissible torque exceeding the working range line (falling within the portion not shaded), the motor may be burned out due to a high temperature rise or the gear tooth may be damaged.

* Please read your User's manual carefully so that you will understand the operation and safety precautions before attempting to operate the system.

Features B-224 | System configuration B-225 | Coding system B-225 | Model list B-228

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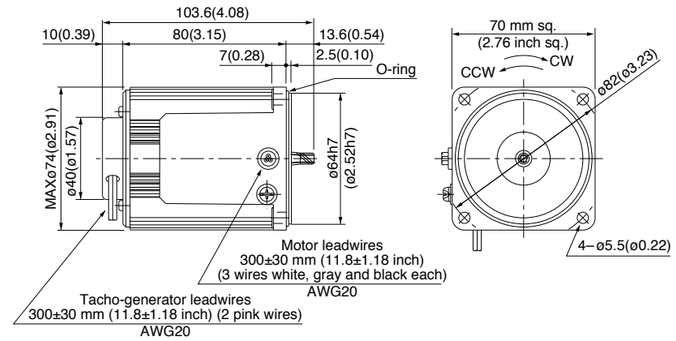
Motor (dimensions)

Scale: 1/3, Unit: mm (inch)

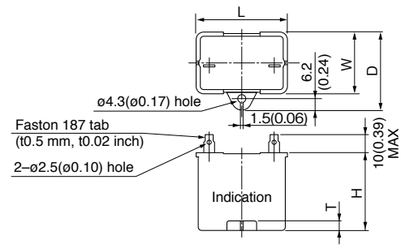
M71X15GV4L 4P 15 W 100 V
M71X15GV4Y 4P 15 W 200 V

Mass	Helical gear	Module	Number of teeth
1.1 kg 2.43 lb		0.5	7



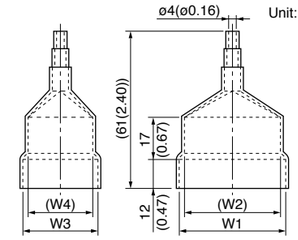
Capacitor (dimensions) [attachment]

Unit: mm (inch)



Capacitor cap (dimensions) [option]

Unit: mm (inch)



• Capacitor dimension list

Unit: upper (mm) / lower (inch)

Model number of motor	Model number of capacitor (attachment)	L	W	D	H	T	Capacitor cap (option)	W1	W2	W3	W4
M71X15GV4L	M0PC5M20	39.5 (1.56)	16 (0.63)	26.5 (1.04)	30.5 (1.20)	4 (0.16)	M0PC3917	39.5 (1.56)	37.5 (1.48)	17 (0.67)	15 (0.59)
M71X15GV4Y	M0PC1.3M40	39.5 (1.56)	18.3 (0.72)	29 (1.14)	29 (1.14)	4 (0.16)	M0PC3922	39.5 (1.56)	37.5 (1.48)	22 (0.87)	20 (0.79)

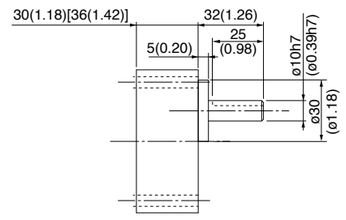
* Capacitors (single item) can also be purchased.

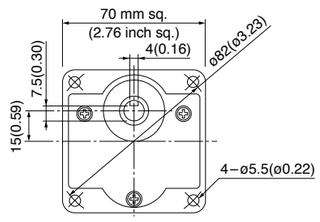
Gear head (dimensions)

Scale: 1/3, Unit: mm (inch)

< □ is 25 or less >
MX7G□BA (ball bearing) Mass 0.38 kg(0.84 lb)
MX7G□MA (metal bearing) Mass 0.38 kg(0.84 lb)

< □ is 30 or more >
MX7G□B (ball bearing) Mass 0.45 kg(0.99 lb)
MX7G□M (metal bearing) Mass 0.45 kg(0.99 lb)

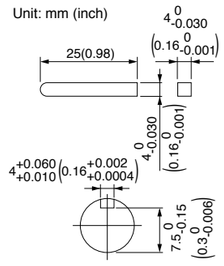




Key and keyway (dimensions) [attachment]

MX7G□BA(B)
MX7G□MA(M)

Unit: mm (inch)



* Figures in [ ] represent the dimensions of MX7G□B (M) (1/30 or larger reduction ratio).

(Note) Because the dimensions may be subject to change, also check the determinate dimensions if the gear head is to be used for design.

Gear head combination B-262 | Round shaft motor B-264 | Decimal gear head B-448 | Gear head -inch (U.S.A.) B-449 | Controls C-4 | Option D-2

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Variable speed induction motor (leadwire)

70 mm (2.76 inch) sq. 15 W

• Specifications

Size	Motor model No.	Number of pole (P)	Output (W)	Voltage (V)	Frequency (Hz)	Rating (min)	Variable speed range Speed (r/min)	Permissible Torque N·m (oz-in) at 1200 r/min	Permissible Torque N·m (oz-in) at 90 r/min	Starting current (A)	Starting torque N·m (oz-in)	Capacitor (μF) (rated voltage)
70 mm sq.	M71X15GV4LG M71X15GV4LGA	4	15	100	50	Cont.	90 to 1400	0.11 (15.6)	0.049 (6.94)	0.57	0.080 (11.3)	5.5 (250 V)
					60		90 to 1700	0.088 (12.5)	0.049 (6.94)	0.56	0.080 (11.3)	
	M71X15GV4DG M71X15GV4DGA	4	15	110	60	Cont.	90 to 1700	0.088 (12.5)	0.049 (6.94)	0.58	0.080 (11.3)	4.5 (250 V)
				115	60		90 to 1700	0.088 (12.5)	0.049 (6.94)	0.61	0.088 (12.5)	
	M71X15GV4YG M71X15GV4YGA	4	15	200	50	Cont.	90 to 1400	0.11 (15.6)	0.049 (6.94)	0.24	0.080 (11.3)	1.3 (450 V)
					60		90 to 1700	0.088 (12.5)	0.049 (6.94)	0.24	0.080 (11.3)	
	M71X15GV4GG M71X15GV4GGA	4	15	220	50	Cont.	90 to 1400	0.11 (15.6)	0.049 (6.94)	0.27	0.080 (11.3)	1.2 (450 V)
					60		90 to 1700	0.088 (12.5)	0.049 (6.94)	0.26	0.080 (11.3)	
				230	50		90 to 1400	0.11 (15.6)	0.049 (6.94)	0.28	0.10 (14.2)	
					60		90 to 1700	0.088 (12.5)	0.049 (6.94)	0.27	0.10 (14.2)	

• The specifications and wire connections of the round shaft motor are the same as those of the pinion shaft type. For the dimensional outline drawing, refer to page B-264.
• The models with a motor model number to which "A" is suffixed are not equipped with a capacitor cap.
The models with a motor model number to which "A" is suffixed are not sold or available in Japan.

• Permissible torque at output shaft of gear head

* The part number of reduction gear ratio less than 1/25 is MX7G□BA (MA).

Unit of permissible torque: upper **(N·m)** / lower **(lb-in)**

Applicable gear head Bearing	Speed	Reduction Ratio 3	3.6	5	6	7.5	9	10	12.5	15	18	20	25	30	36	50	60	75	90	100	120	150	180
MX7G□BA (ball bearing) MX7G□B (ball bearing) MX7G□MA (metal bearing) MX7G□M (metal bearing)	1200 r/min 50 Hz	0.27 (2.39)	0.32 (2.83)	0.45 (3.98)	0.53 (4.69)	0.67 (5.93)	0.80 (7.08)	0.89 (7.88)	1.11 (9.82)	1.34 (11.9)	1.60 (14.2)	1.78 (15.8)	2.23 (19.7)	2.41 (21.3)	2.89 (25.6)	4.01 (35.5)	4.81 (42.6)	4.9 (43.4)	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)
	1200 r/min 60 Hz	0.21 (1.86)	0.26 (2.30)	0.36 (3.19)	0.43 (3.81)	0.53 (4.69)	0.64 (5.66)	0.71 (6.28)	0.89 (7.88)	1.07 (9.47)	1.28 (11.3)	1.43 (12.7)	1.78 (15.8)	1.92 (17.0)	2.31 (20.4)	3.21 (28.4)	3.85 (34.1)	4.81 (42.6)	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)
	90 r/min	0.12 (1.06)	0.14 (1.24)	0.20 (1.77)	0.24 (2.12)	0.30 (2.66)	0.36 (3.19)	0.40 (3.54)	0.50 (4.43)	0.60 (5.31)	0.71 (6.28)	0.79 (6.99)	0.99 (8.76)	1.07 (9.47)	1.29 (11.4)	1.79 (15.8)	2.14 (18.9)	2.68 (23.7)	3.21 (28.4)	3.57 (31.6)	4.29 (38.0)	4.90 (43.4)	4.90 (43.4)
	Rotational direction	Same as motor rotational direction												Reverse to motor rotational direction									

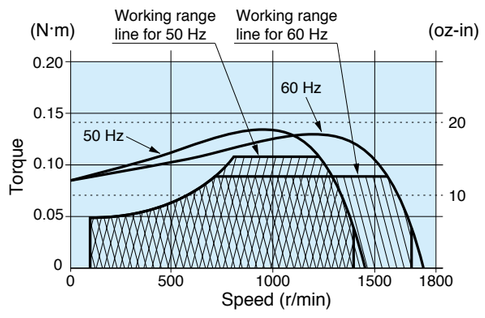
• Permissible torque at output shaft of gear head using decimal gear head

* For external dimensions of the decimal gear head, refer to page B-448.

Unit of permissible torque: upper **(N·m)** / lower **(lb-in)**

Applicable gear head Bearing	Decimal gear head	Speed	Reduction Ratio 200	250	300	360	500	600	750	900	1000	1200	1500	1800
MX7G□BA (ball bearing) MX7G□B (ball bearing) MX7G□MA (metal bearing) MX7G□M (metal bearing)	MX7G10XB	1200 r/min 50 Hz	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)
		1200 r/min 60 Hz	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)
		90 r/min	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)	4.90 (43.4)
		Rotational direction	Same as motor rotational direction		Reverse to motor rotational direction									

Speed-torque characteristics



Connection diagram

* For the connection diagram showing wiring with the speed controller, refer to pages C-6 to C-20.

* Working range line

The working range line shows the working limit for the variable speed motor. The permissible torque should fall within the shaded portion. If you use the motor with the permissible torque exceeding the working range line (falling within the portion not shaded), the motor may be burned out due to a high temperature rise or the gear tooth may be damaged.

* Please read your User's manual carefully so that you will understand the operation and safety precautions before attempting to operate the system.

Features B-224 System configuration B-225 Coding system B-225 Model list B-228

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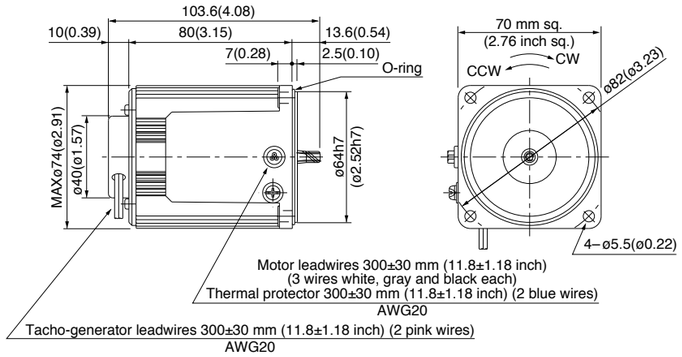
Motor (dimensions)

Scale: 1/3, Unit: mm (inch)

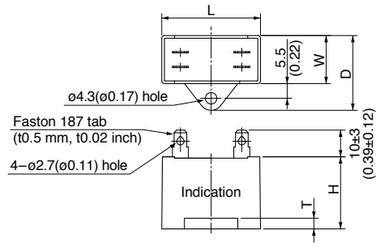
M71X15GV4LG(A) 4P 15 W 100 V
M71X15GV4DG(A) 4P 15 W 110 V / 115 V
M71X15GV4YG(A) 4P 15 W 200 V
M71X15GV4GG(A) 4P 15 W 220 V / 230 V

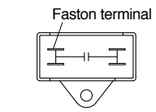
Mass	Helical gear	Module	Number of teeth
1.1 kg 2.43 lb		0.5	7



Capacitor (dimensions) [attachment]

Unit: mm (inch)

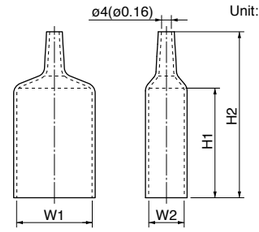




Internal wiring diagram of capacitor

Capacitor cap (dimensions) [attachment]

Unit: mm (inch)



• Capacitor dimension list

Unit: upper (mm) / lower (inch)

Model number of motor	Model number of capacitor (attachment)	L	W	D	H	T	Capacitor cap (attachment)	W1	W2	H1	H2
M71X15GV4LG(A)	M0PC5.5M25G	38 (1.50)	21 (0.83)	31 (1.22)	31 (1.22)	4 (0.16)	M0PC3821G	38 (1.50)	21 (0.83)	55 (2.17)	78 (3.07)
M71X15GV4DG(A)	M0PC4.5M25G	37 (1.46)	18 (0.71)	28 (1.10)	27 (1.06)	4 (0.16)	M0PC3718G	37 (1.46)	18 (0.71)	50 (1.97)	73 (2.87)
M71X15GV4YG(A)	M0PC1.3M45G	38 (1.50)	19 (0.75)	29 (1.14)	29 (1.14)	4 (0.16)	M0PC3819G	38 (1.50)	19 (0.75)	50 (1.97)	73 (2.87)
M71X15GV4GG(A)	M0PC1.2M45G	37 (1.46)	18 (0.71)	28 (1.10)	27 (1.06)	4 (0.16)	M0PC3718G	37 (1.46)	18 (0.71)	50 (1.97)	73 (2.87)

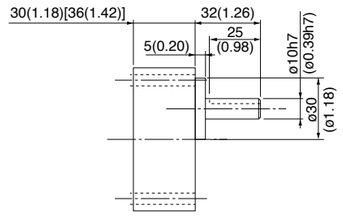
• The models with a motor model number to which "A" is suffixed are not equipped with a capacitor cap.
* Capacitors (single item), capacitors cap (single item) can also be purchased.

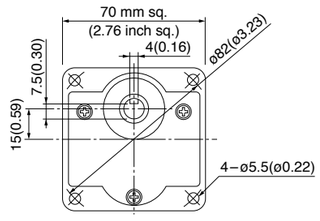
Gear head (dimensions)

Scale: 1/3, Unit: mm (inch)

< □ is 25 or less >
MX7G□BA (ball bearing) Mass 0.38 kg(0.84 lb)
MX7G□MA (metal bearing) Mass 0.38 kg(0.84 lb)

< □ is 30 or more >
MX7G□B (ball bearing) Mass 0.45 kg(0.99 lb)
MX7G□M (metal bearing) Mass 0.45 kg(0.99 lb)

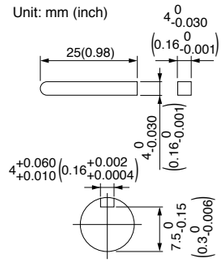




Key and keyway (dimensions) [attachment]

MX7G□BA(B)
MX7G□MA(M)

Unit: mm (inch)



* Figures in [ ] represent the dimensions of MX7G□B (M) (1/30 or larger reduction ratio).

(Note) Because the dimensions may be subject to change, also check the determinate dimensions if the gear head is to be used for design.

Gear head combination B-262 Round shaft motor B-264 Decimal gear head B-448 Gear head -inch (U.S.A.) B-449 Controls C-4 Option D-2

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Variable speed induction motor (leadwire)

80 mm (3.15 inch) sq. 15 W

• Specifications

Size	Motor model No.	Number of pole (P)	Output (W)	Voltage (V)	Frequency (Hz)	Rating (min)	Variable speed range Speed (r/min)	Permissible Torque N·m (oz-in) at 1200 r/min	Permissible Torque N·m (oz-in) at 90 r/min	Starting current (A)	Starting torque N·m (oz-in)	Capacitor (μF) (rated voltage)
80 mm sq.	M81X15GV4L	4	15	100	50	Cont.	90 to 1400	0.12 (17.0)	0.039 (5.52)	0.72	0.12 (17.0)	6 (200 V)
					60		90 to 1700	0.12 (17.0)	0.039 (5.52)	0.69	0.12 (17.0)	
	M81X15GV4Y	4	15	200	50	Cont.	90 to 1400	0.12 (17.0)	0.039 (5.52)	0.36	0.12 (17.0)	1.5 (400 V)
					60		90 to 1700	0.12 (17.0)	0.039 (5.52)	0.35	0.12 (17.0)	

• The specifications and wire connections of the round shaft motor are the same as those of the pinion shaft type. For the dimensional outline drawing, refer to page B-264.

• Permissible torque at output shaft of gear head

Unit of permissible torque: upper **(N·m)** / lower **(lb-in)**

Applicable gear head Bearing	Speed	Reduction Ratio	3	3.6	5	6	7.5	9	10	12.5	15	18	20	25	30	36	50	60	75	90	100	120	150	180
MX8G□B (ball bearing) MX8G□M (metal bearing)	1200 r/min	50 Hz	0.29 (2.57)	0.34 (3.01)	0.48 (4.25)	0.58 (5.13)	0.72 (6.37)	0.87 (7.70)	0.97 (8.59)	1.21 (10.7)	1.45 (12.8)	1.74 (15.4)	1.94 (17.2)	2.43 (21.5)	2.62 (23.2)	3.14 (27.8)	4.37 (38.7)	5.24 (46.4)	6.55 (58.0)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)
		60 Hz	0.29 (2.57)	0.34 (3.01)	0.48 (4.25)	0.58 (5.13)	0.72 (6.37)	0.87 (7.70)	0.97 (8.59)	1.21 (10.7)	1.45 (12.8)	1.74 (15.4)	1.94 (17.2)	2.43 (21.5)	2.62 (23.2)	3.14 (27.8)	4.37 (38.7)	5.24 (46.4)	6.55 (58.0)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)
	90 r/min		0.094 (0.83)	0.11 (0.97)	0.15 (1.33)	0.18 (1.59)	0.23 (2.04)	0.28 (2.48)	0.31 (2.74)	0.39 (3.45)	0.47 (4.16)	0.56 (4.96)	0.63 (5.58)	0.78 (6.90)	0.84 (7.43)	1.01 (8.94)	1.41 (12.5)	1.69 (15.0)	2.12 (18.8)	2.54 (22.5)	2.83 (25.0)	3.39 (30.0)	4.24 (37.5)	5.09 (45.1)
	Rotational direction		Same as motor rotational direction												Reverse to motor rotational direction									

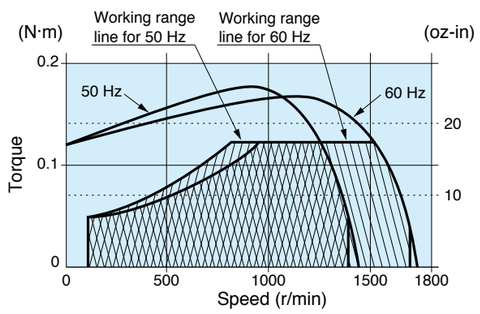
• Permissible torque at output shaft of gear head using decimal gear head

* For external dimensions of the decimal gear head, refer to page B-448.

Unit of permissible torque: upper **(N·m)** / lower **(lb-in)**

Applicable gear head Bearing	Decimal gear head	Speed	Reduction Ratio	200	250	300	360	500	600	750	900	1000	1200	1500	1800
MX8G□B (ball bearing) MX8G□M (metal bearing)	MX8G10XB	1200 r/min	50 Hz	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)
			60 Hz	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)
		90 r/min		5.07 (44.9)	6.34 (56.1)	6.90 61.1)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)
		Rotational direction		Same as motor rotational direction		Reverse to motor rotational direction									

Speed-torque characteristics



Connection diagram

* For the connection diagram showing wiring with the speed controller, refer to pages C-6 to C-20.

* Working range line

The working range line shows the working limit for the variable speed motor. The permissible torque should fall within the shaded portion. If you use the motor with the permissible torque exceeding the working range line (falling within the portion not shaded), the motor may be burned out due to a high temperature rise or the gear tooth may be damaged.

* Please read your User's manual carefully so that you will understand the operation and safety precautions before attempting to operate the system.

Features B-224 | System configuration B-225 | Coding system B-225 | Model list B-228

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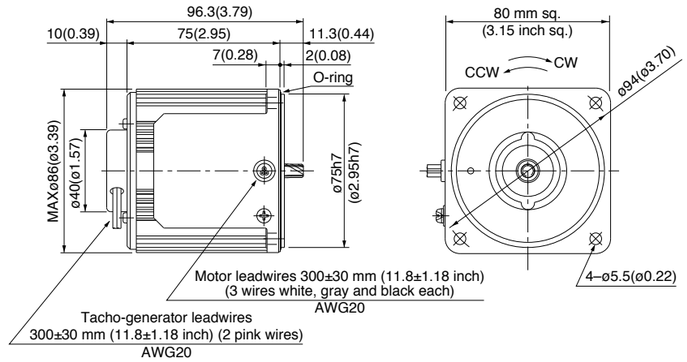
Motor (dimensions)

Scale: 1/3, Unit: mm (inch)

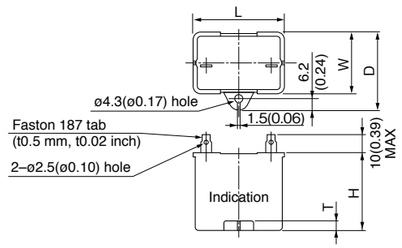
M81X15GV4L 4P 15 W 100 V
M81X15GV4Y 4P 15 W 200 V

Mass	Helical gear	Module	Number of teeth
1.2 kg 2.65 lb		0.5	9



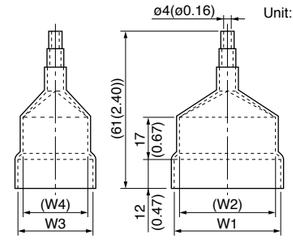
Capacitor (dimensions) [attachment]

Unit: mm (inch)



Capacitor cap (dimensions) [option]

Unit: mm (inch)



• Capacitor dimension list

Unit: upper (mm) / lower (inch)

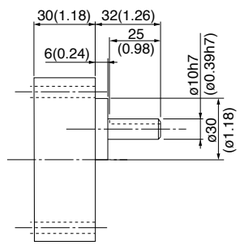
Model number of motor	Model number of capacitor (attachment)	L	W	D	H	T	Capacitor cap (option)	W1	W2	W3	W4
M81X15GV4L	M0PC6M20	39.5 (1.56)	17.5 (0.69)	28 (1.10)	30.5 (1.20)	4 (0.16)	M0PC3917	39.5 (1.56)	37.5 (1.48)	17 (0.67)	15 (0.59)
M81X15GV4Y	M0PC1.5M40	39.5 (1.56)	22 (0.87)	32.5 (1.28)	32.5 (1.28)	4 (0.16)	M0PC3922	39.5 (1.56)	37.5 (1.48)	22 (0.87)	20 (0.79)

* Capacitors (single item) can also be purchased.

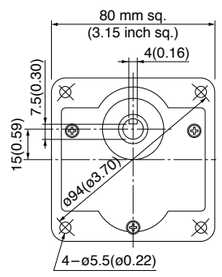
Gear head (dimensions)

Scale: 1/3, Unit: mm (inch)

MX8G□B (ball bearing) Mass 0.6 kg(1.32 lb)



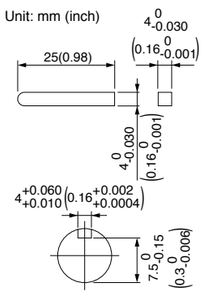
MX8G□M (metal bearing) Mass 0.6 kg(1.32 lb)



Key and keyway (dimensions) [attachment]

MX8G□B(M)

Unit: mm (inch)



(Note) Because the dimensions may be subject to change, also check the determinate dimensions if the gear head is to be used for design.

Gear head combination B-262 | Round shaft motor B-264 | Decimal gear head B-448 | Gear head -inch (U.S.A.) B-449 | Controls C-4 | Option D-2

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Variable speed induction motor (leadwire)

80 mm (3.15 inch) sq. 25 W

• Specifications

Size	Motor model No.	Number of pole (P)	Output (W)	Voltage (V)	Frequency (Hz)	Rating (min)	Variable speed range Speed (r/min)	Permissible Torque N·m (oz-in) at 1200 r/min	Permissible Torque N·m (oz-in) at 90 r/min	Starting current (A)	Starting torque N·m (oz-in)	Capacitor (μF) (rated voltage)
80 mm sq.	M81X25GV4L	4	25	100	50	Cont.	90 to 1400	0.14 (19.8)	0.039 (5.52)	1.0	0.16 (22.7)	8 (200 V)
					60		90 to 1700	0.14 (19.8)	0.039 (5.52)	1.0	0.16 (22.7)	
	M81X25GV4Y	4	25	200	50	Cont.	90 to 1400	0.14 (19.8)	0.039 (5.52)	0.5	0.16 (22.7)	2 (400 V)
					60		90 to 1700	0.14 (19.8)	0.039 (5.52)	0.5	0.16 (22.7)	

• The specifications and wire connections of the round shaft motor are the same as those of the pinion shaft type. For the dimensional outline drawing, refer to page B-264.

• Permissible torque at output shaft of gear head

Unit of permissible torque: upper **(N·m)** / lower **(lb-in)**

Applicable gear head / Bearing	Speed \ Reduction Ratio		3	3.6	5	6	7.5	9	10	12.5	15	18	20	25	30	36	50	60	75	90	100	120	150	180
MX8G□B (ball bearing) MX8G□M (metal bearing)	1200 r/min	50 Hz	0.34 (3.01)	0.40 (3.54)	0.56 (4.96)	0.68 (6.02)	0.85 (7.52)	1.02 (9.03)	1.13 (10.0)	1.41 (12.5)	1.70 (15.0)	2.04 (18.1)	2.26 (20.0)	2.83 (25.0)	3.06 (27.1)	3.67 (32.5)	5.10 (45.1)	6.12 (54.2)	7.65 (67.7)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)
		60 Hz	0.34 (3.01)	0.40 (3.54)	0.56 (4.96)	0.68 (6.02)	0.85 (7.52)	1.02 (9.03)	1.13 (10.0)	1.41 (12.5)	1.70 (15.0)	2.04 (18.1)	2.26 (20.0)	2.83 (25.0)	3.06 (27.1)	3.67 (32.5)	5.10 (45.1)	6.12 (54.2)	7.65 (67.7)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)
	90 r/min		0.094 (0.83)	0.11 (0.97)	0.15 (1.33)	0.18 (1.59)	0.23 (2.04)	0.28 (2.48)	0.31 (2.74)	0.39 (3.45)	0.47 (4.16)	0.56 (4.96)	0.63 (5.58)	0.78 (6.90)	0.84 (7.43)	1.01 (8.94)	1.41 (12.5)	1.69 (15.0)	2.12 (18.8)	2.54 (22.5)	2.83 (25.0)	3.39 (30.0)	4.24 (37.5)	5.09 (45.1)
	Rotational direction		Same as motor rotational direction												Reverse to motor rotational direction									

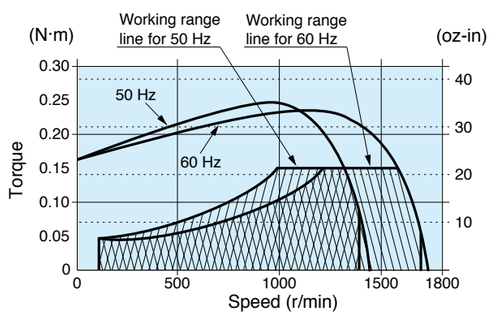
• Permissible torque at output shaft of gear head using decimal gear head

＊For external dimensions of the decimal gear head, refer to page B-448.

Unit of permissible torque: upper **(N·m)** / lower **(lb-in)**

Applicable gear head: Bearing	Applicable gear head: Decimal gear head	Speed \ Reduction Ratio		200	250	300	360	500	600	750	900	1000	1200	1500	1800
MX8G□B (ball bearing) MX8G□M (metal bearing)	MX8G10XB	1200 r/min	50 Hz	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)
			60 Hz	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)
		90 r/min		5.07 (44.9)	6.34 (56.1)	6.90 (61.1)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)
		Rotational direction		Same as motor rotational direction		Reverse to motor rotational direction									

Speed-torque characteristics



Connection diagram

＊For the connection diagram showing wiring with the speed controller, refer to pages C-6 to C-20.

＊Working range line

The working range line shows the working limit for the variable speed motor. The permissible torque should fall within the shaded portion. If you use the motor with the permissible torque exceeding the working range line (falling within the portion not shaded), the motor may be burned out due to a high temperature rise or the gear tooth may be damaged.

＊Please read your User's manual carefully so that you will understand the operation and safety precautions before attempting to operate the system.

Features B-224 | System configuration B-225 | Coding system B-225 | Model list B-228

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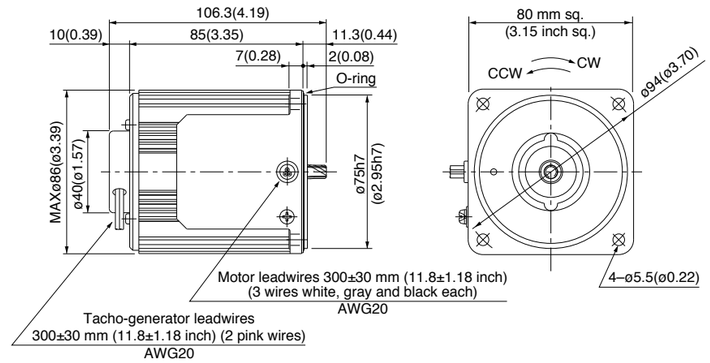
Motor (dimensions)

Scale: 1/3, Unit: mm (inch)

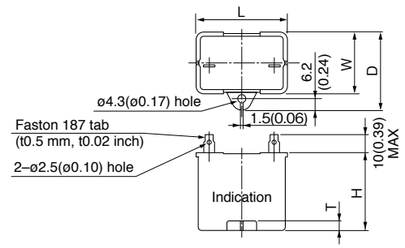
M81X25GV4L 4P 25 W 100 V
M81X25GV4Y 4P 25 W 200 V

Mass	Helical gear	Module	Number of teeth
1.5 kg 3.31 lb		0.5	9



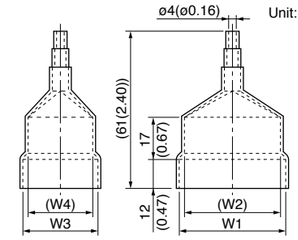
Capacitor (dimensions) [attachment]

Unit: mm (inch)



Capacitor cap (dimensions) [option]

Unit: mm (inch)



• Capacitor dimension list

Unit: upper (mm) / lower (inch)

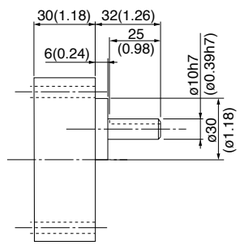
Model number of motor	Model number of capacitor (attachment)	L	W	D	H	T	Capacitor cap (option)	W1	W2	W3	W4
M81X25GV4L	M0PC8M20	39.5 (1.56)	22 (0.87)	32.5 (1.28)	30.5 (1.20)	4 (0.16)	M0PC3922	39.5 (1.56)	37.5 (1.48)	22 (0.87)	20 (0.79)
M81X25GV4Y	M0PC2M40	39.5 (1.56)	22 (0.87)	32.5 (1.28)	32.5 (1.28)	4 (0.16)	M0PC3922	39.5 (1.56)	37.5 (1.48)	22 (0.87)	20 (0.79)

＊Capacitors (single item) can also be purchased.

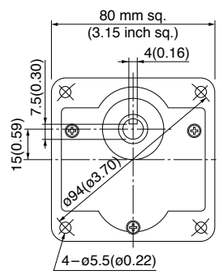
Gear head (dimensions)

Scale: 1/3, Unit: mm (inch)

MX8G□B (ball bearing) Mass 0.6 kg(1.32 lb)



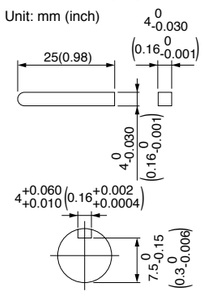
MX8G□M (metal bearing) Mass 0.6 kg(1.32 lb)



Key and keyway (dimensions) [attachment]

MX8G□B(M)

Unit: mm (inch)



(Note) Because the dimensions may be subject to change, also check the determinate dimensions if the gear head is to be used for design.

Gear head combination B-262 | Round shaft motor B-264 | Decimal gear head B-448 | Gear head -inch (U.S.A.) B-449 | Controls C-4 | Option D-2

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Variable speed induction motor (leadwire)

80 mm (3.15 inch) sq. 25 W

• Specifications

Size	Motor model No.	Number of pole (P)	Output (W)	Voltage (V)	Frequency (Hz)	Rating (min)	Variable speed range Speed (r/min)	Permissible Torque N·m (oz-in) at 1200 r/min	Permissible Torque N·m (oz-in) at 90 r/min	Starting current (A)	Starting torque N·m (oz-in)	Capacitor (μF) (rated voltage)
80 mm sq.	M81X25GV4LG M81X25GV4LGA	4	25	100	50	Cont.	90 to 1400	0.19 (26.9)	0.049 (6.94)	1.1	0.13 (18.4)	8 (250 V)
					60		90 to 1700	0.15 (21.2)	0.049 (6.94)	0.98	0.13 (18.4)	
	M81X25GV4DG M81X25GV4DGA	4	25	110	60	Cont.	90 to 1700	0.15 (21.2)	0.049 (6.94)	1.1	0.13 (18.4)	6 (250 V)
				115	60		90 to 1700	0.15 (21.2)	0.049 (6.94)	1.1	0.13 (18.4)	
	M81X25GV4YG M81X25GV4YGA	4	25	200	50	Cont.	90 to 1400	0.19 (26.9)	0.049 (6.94)	0.43	0.13 (18.4)	2.1 (450 V)
					60		90 to 1700	0.15 (21.2)	0.049 (6.94)	0.42	0.13 (18.4)	
	M81X25GV4GG M81X25GV4GGA	4	25	220	50	Cont.	90 to 1400	0.19 (26.9)	0.049 (6.94)	0.46	0.13 (18.4)	1.5 (450 V)
					60		90 to 1700	0.15 (21.2)	0.049 (6.94)	0.44	0.13 (18.4)	
				230	50		90 to 1400	0.19 (26.9)	0.049 (6.94)	0.48	0.13 (18.4)	
					60		90 to 1700	0.15 (21.2)	0.049 (6.94)	0.45	0.13 (18.4)	

• The specifications and wire connections of the round shaft motor are the same as those of the pinion shaft type. For the dimensional outline drawing, refer to page B-264.
• The models with a motor model number to which "A" is suffixed are not equipped with a capacitor cap.
The models with a motor model number to which "A" is suffixed are not sold or available in Japan.

• Permissible torque at output shaft of gear head

Unit of permissible torque: upper **(N·m)** / lower **(lb-in)**

Applicable gear head Bearing	Speed	Reduction Ratio	3	3.6	5	6	7.5	9	10	12.5	15	18	20	25	30	36	50	60	75	90	100	120	150	180
MX8G□B (ball bearing) MX8G□M (metal bearing)	1200 r/min	50 Hz	0.46 (4.07)	0.55 (4.87)	0.77 (6.82)	0.92 (8.14)	1.15 (10.2)	1.39 (12.3)	1.54 (13.6)	1.92 (17.0)	2.31 (20.4)	2.77 (24.5)	3.08 (27.3)	3.85 (34.1)	4.16 (36.8)	4.99 (44.2)	6.93 (61.3)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)
		60 Hz	0.36 (3.19)	0.44 (3.89)	0.61 (5.40)	0.73 (6.46)	0.91 (8.05)	1.09 (9.65)	1.22 (10.8)	1.52 (13.5)	1.82 (16.1)	2.19 (19.4)	2.43 (21.5)	3.04 (26.9)	3.28 (29.0)	3.94 (34.9)	5.47 (48.4)	6.56 (58.1)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)
	90 r/min		0.12 (1.06)	0.14 (1.24)	0.20 (1.77)	0.24 (2.12)	0.30 (2.66)	0.36 (3.19)	0.40 (3.54)	0.50 (4.43)	0.60 (5.31)	0.71 (6.28)	0.79 (7.00)	0.99 (8.76)	1.07 (9.47)	1.29 (11.4)	1.79 (15.8)	2.14 (18.9)	2.68 (23.7)	3.21 (28.4)	3.57 (31.6)	4.29 (38.0)	5.36 (47.4)	6.43 (56.9)
	Rotational direction		Same as motor rotational direction												Reverse to motor rotational direction									

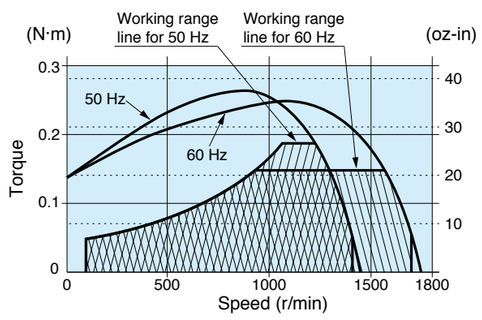
• Permissible torque at output shaft of gear head using decimal gear head

＊For external dimensions of the decimal gear head, refer to page B-448.

Unit of permissible torque: upper **(N·m)** / lower **(lb-in)**

Applicable gear head Bearing	Decimal gear head	Speed	Reduction Ratio	200	250	300	360	500	600	750	900	1000	1200	1500	1800
MX8G□B (ball bearing) MX8G□M (metal bearing)	MX8G10XB	1200 r/min	50 Hz	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)
			60 Hz	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)
		90 r/min		6.37 (56.4)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)	7.84 (69.4)
		Rotational direction		Same as motor rotational direction		Reverse to motor rotational direction									

Speed-torque characteristics



Connection diagram

＊For the connection diagram showing wiring with the speed controller, refer to pages C-6 to C-20.

＊Working range line

The working range line shows the working limit for the variable speed motor. The permissible torque should fall within the shaded portion. If you use the motor with the permissible torque exceeding the working range line (falling within the portion not shaded), the motor may be burned out due to a high temperature rise or the gear tooth may be damaged.

＊Please read your User's manual carefully so that you will understand the operation and safety precautions before attempting to operate the system.

Features B-224 System configuration B-225 Coding system B-225 Model list B-228

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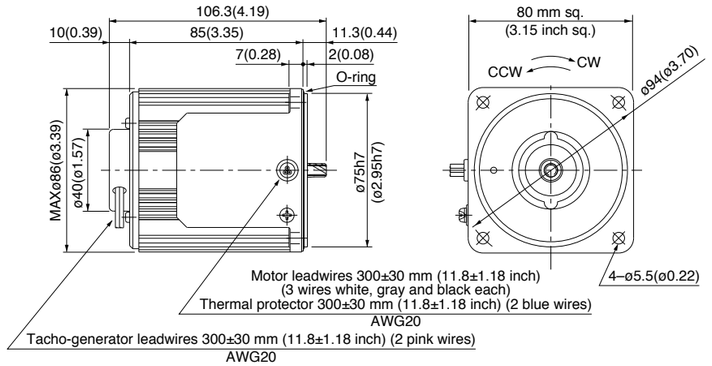
Motor (dimensions)

Scale: 1/3, Unit: mm (inch)

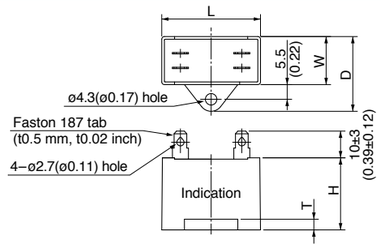
M81X25GV4LG(A) 4P 25 W 100 V
M81X25GV4DG(A) 4P 25 W 110 V / 115 V
M81X25GV4YG(A) 4P 25 W 200 V
M81X25GV4GG(A) 4P 25 W 220 V / 230 V

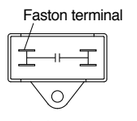
Mass	Helical gear	Module	Number of teeth
1.5 kg 3.31 lb		0.5	9



Capacitor (dimensions) [attachment]

Unit: mm (inch)

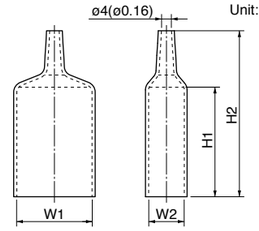




Internal wiring diagram of capacitor

Capacitor cap (dimensions) [attachment]

Unit: mm (inch)



• Capacitor dimension list

Unit: upper (mm) / lower (inch)

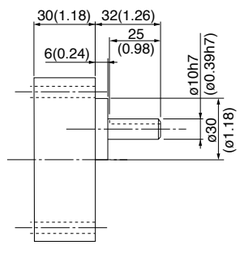
Model number of motor	Model number of capacitor (attachment)	L	W	D	H	T	Capacitor cap (attachment)	W1	W2	H1	H2
M81X25GV4LG(A)	M0PC8M25G	48 (1.89)	21 (0.83)	31 (1.22)	31 (1.22)	4 (0.16)	M0PC4821G	48 (1.89)	21 (0.83)	55 (2.17)	78 (3.07)
M81X25GV4DG(A)	M0PC6M25G	38 (1.50)	21 (0.83)	31 (1.22)	31 (1.22)	4 (0.16)	M0PC3821G	38 (1.50)	21 (0.83)	55 (2.17)	78 (3.07)
M81X25GV4YG(A)	M0PC2.1M45G	48 (1.89)	21 (0.83)	31 (1.22)	31 (1.22)	4 (0.16)	M0PC4821G	48 (1.89)	21 (0.83)	55 (2.17)	78 (3.07)
M81X25GV4GG(A)	M0PC1.5M45G	38 (1.50)	21 (0.83)	31 (1.22)	31 (1.22)	4 (0.16)	M0PC3821G	38 (1.50)	21 (0.83)	55 (2.17)	78 (3.07)

• The models with a motor model number to which "A" is suffixed are not equipped with a capacitor cap.
＊Capacitors (single item), capacitors cap (single item) can also be purchased.

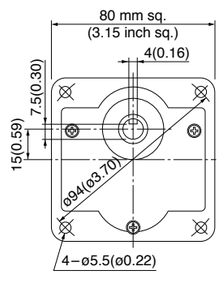
Gear head (dimensions)

Scale: 1/3, Unit: mm (inch)

MX8G□B (ball bearing) Mass 0.6 kg(1.32 lb)



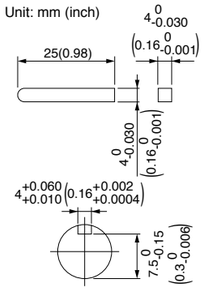
MX8G□M (metal metabearing) Mass 0.6 kg(1.32 lb)



Key and keyway (dimensions) [attachment]

MX8G□B(M)

Unit: mm (inch)



(Note) Because the dimensions may be subject to change, also check the determinate dimensions if the gear head is to be used for design.

Gear head combination B-262 Round shaft motor B-264 Decimal gear head B-448 Gear head -inch (U.S.A.) B-449 Controls C-4 Option D-2

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Variable speed induction motor (leadwire)

90 mm (3.54 inch) sq. 40 W

• Specifications

Size	Motor model No.	Number of pole (P)	Output (W)	Voltage (V)	Frequency (Hz)	Rating (min)	Variable speed range Speed (r/min)	Permissible Torque N·m (oz-in) at 1200 r/min	Permissible Torque N·m (oz-in) at 90 r/min	Starting current (A)	Starting torque N·m (oz-in)	Capacitor (μF) (rated voltage)
90 mm sq.	M91X40GV4L	4	40	100	50	Cont.	90 to 1400	0.30 (42.5)	0.049 (6.94)	1.6	0.25 (35.4)	12 (200 V)
					60		90 to 1700	0.24 (34.0)	0.049 (6.94)	1.6	0.25 (35.4)	
	M91X40GV4Y	4	40	200	50	Cont.	90 to 1400	0.30 (42.5)	0.049 (6.94)	0.8	0.25 (35.4)	3 (400 V)
					60		90 to 1700	0.24 (34.0)	0.049 (6.94)	0.8	0.25 (35.4)	

• The specifications and wire connections of the round shaft motor are the same as those of the pinion shaft type. For the dimensional outline drawing, refer to page B-265.

• Permissible torque at output shaft of gear head

Unit of permissible torque: upper **(N·m)** / lower **(lb-in)**

Applicable gear head / Bearing	Speed \ Reduction Ratio		3	3.6	5	6	7.5	9	10	12.5	15	18	20	25	30	36	50	60	75	90	100	120	150	180
MX9G□B (ball bearing) MX9G□M (metal bearing)	1200 r/min	50 Hz	0.72 (6.37)	0.87 (7.70)	1.21 (10.7)	1.45 (12.8)	1.82 (16.1)	2.18 (19.3)	2.43 (21.5)	3.03 (26.8)	3.64 (32.2)	4.37 (38.7)	4.86 (43.0)	6.07 (53.7)	6.54 (57.9)	7.84 (69.4)	9.80 (86.7)	9.80 (86.7)	9.80 (86.7)	9.80 (86.7)	9.80 (86.7)	9.80 (86.7)	9.80 (86.7)	9.80 (86.7)
		60 Hz	0.58 (5.13)	0.69 (6.11)	0.97 (8.59)	1.16 (10.3)	1.45 (12.8)	1.74 (15.4)	1.92 (17.0)	2.42 (21.4)	2.91 (25.8)	3.49 (30.9)	3.88 (34.3)	4.85 (42.9)	5.23 (46.3)	6.26 (55.4)	8.70 (77.0)	9.80 (86.7)	9.80 (86.7)	9.80 (86.7)	9.80 (86.7)	9.80 (86.7)	9.80 (86.7)	9.80 (86.7)
	90 r/min		0.11 (0.97)	0.14 (1.24)	0.19 (1.68)	0.23 (2.04)	0.29 (2.57)	0.35 (3.10)	0.39 (3.45)	0.49 (4.34)	0.59 (5.22)	0.71 (6.28)	0.79 (6.99)	0.99 (8.76)	1.06 (9.38)	1.28 (11.3)	1.78 (15.8)	2.13 (18.9)	2.67 (23.6)	3.20 (28.3)	3.56 (31.5)	4.27 (37.8)	5.34 (47.3)	6.40 (56.6)
	Rotational direction		Same as motor rotational direction												Reverse to motor rotational direction									

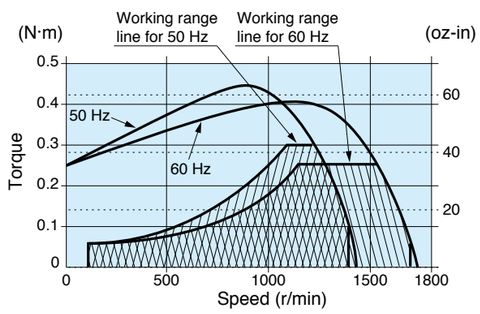
• Permissible torque at output shaft of gear head using decimal gear head

* For external dimensions of the decimal gear head, refer to page B-448.

Unit of permissible torque: upper **(N·m)** / lower **(lb-in)**

Applicable gear head: Bearing	Applicable gear head: Decimal gear head	Speed \ Reduction Ratio		200	250	300	360	500	600	750	900	1000	1200	1500	1800
MX9G□B (ball bearing) MX9G□M (metal bearing)	MX9G10XB	1200 r/min	50 Hz	9.80 (86.7)	9.80 (86.7)	9.80 (86.7)	9.80 (86.7)	9.80 (86.7)	9.80 (86.7)	9.80 (86.7)	9.80 (86.7)	9.80 (86.7)	9.80 (86.7)	9.80 (86.7)	9.80 (86.7)
			60 Hz	9.80 (86.7)	9.80 (86.7)	9.80 (86.7)	9.80 (86.7)	9.80 (86.7)	9.80 (86.7)	9.80 (86.7)	9.80 (86.7)	9.80 (86.7)	9.80 (86.7)	9.80 (86.7)	9.80 (86.7)
		90 r/min		6.37 (56.4)	7.96 (70.4)	8.67 (76.7)	9.80 (86.7)	9.80 (86.7)	9.80 (86.7)	9.80 (86.7)	9.80 (86.7)	9.80 (86.7)	9.80 (86.7)	9.80 (86.7)	9.80 (86.7)
		Rotational direction		Same as motor rotational direction		Reverse to motor rotational direction									

Speed-torque characteristics



Connection diagram

* For the connection diagram showing wiring with the speed controller, refer to pages C-6 to C-20.

* Working range line

The working range line shows the working limit for the variable speed motor. The permissible torque should fall within the shaded portion. If you use the motor with the permissible torque exceeding the working range line (falling within the portion not shaded), the motor may be burned out due to a high temperature rise or the gear tooth may be damaged.

* Please read your User's manual carefully so that you will understand the operation and safety precautions before attempting to operate the system.

Features B-224 | System configuration B-225 | Coding system B-225 | Model list B-228

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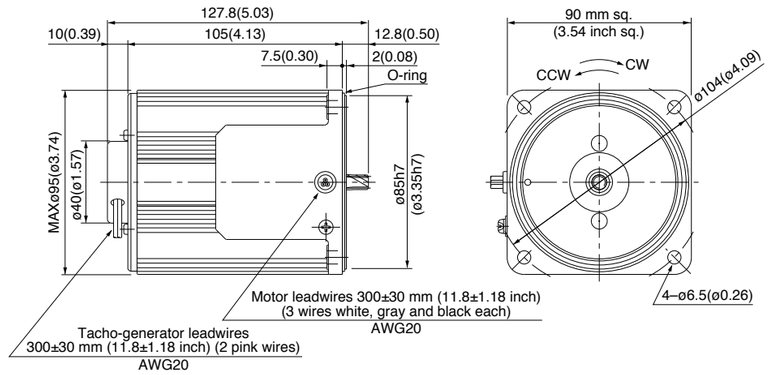
Motor (dimensions)

Scale: 1/3, Unit: mm (inch)

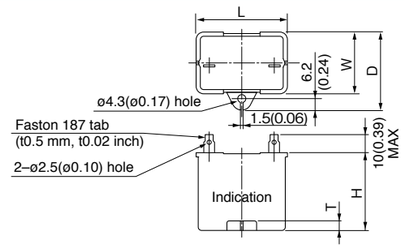
M91X40GV4L 4P 40 W 100 V
M91X40GV4Y 4P 40 W 200 V

Mass	Helical gear	Module	Number of teeth
2.4 kg 5.29 lb		0.55	9



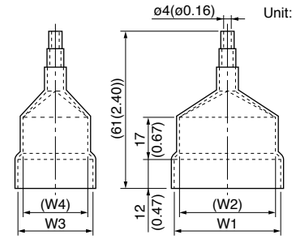
Capacitor (dimensions) [attachment]

Unit: mm (inch)



Capacitor cap (dimensions) [option]

Unit: mm (inch)



• Capacitor dimension list

Unit: upper (mm) / lower (inch)

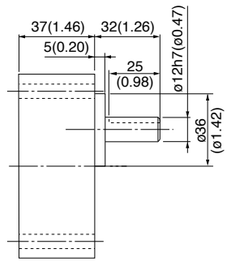
Model number of motor	Model number of capacitor (attachment)	L	W	D	H	T	Capacitor cap (option)	W1	W2	W3	W4
M91X40GV4L	M0PC12M20	39.5 (1.56)	26.7 (1.05)	37 (1.46)	32 (1.26)	4 (0.16)	M0PC3926	39.5 (1.56)	37.5 (1.48)	26 (1.02)	25 (0.98)
M91X40GV4Y	M0PC3M40	49.7 (1.96)	24 (0.94)	34.5 (1.36)	34.5 (1.36)	4 (0.16)	M0PC5026	50 (1.97)	48 (1.89)	26 (1.02)	22 (0.87)

* Capacitors (single item) can also be purchased.

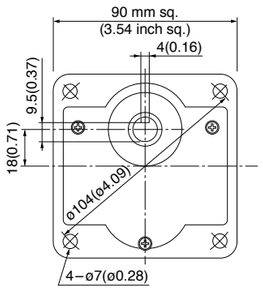
Gear head (dimensions)

Scale: 1/3, Unit: mm (inch)

MX9G□B (ball bearing) Mass 0.8 kg(1.76 lb)



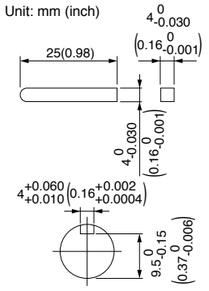
MX9G□M (metal bearing) Mass 0.8 kg(1.76 lb)



Key and keyway (dimensions) [attachment]

MX9G□B(M)

Unit: mm (inch)



(Note) Because the dimensions may be subject to change, also check the determinate dimensions if the gear head is to be used for design.

Gear head combination B-263 | Round shaft motor B-265 | Decimal gear head B-448 | Gear head -inch (U.S.A.) B-449 | Controls C-4 | Option D-2

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Variable speed induction motor (leadwire)

90 mm (3.54 inch) sq. 40 W

• Specifications

Size	Motor model No.	Number of pole (P)	Output (W)	Voltage (V)	Frequency (Hz)	Rating (min)	Variable speed range Speed (r/min)	Permissible Torque N·m (oz-in) at 1200 r/min	Permissible Torque N·m (oz-in) at 90 r/min	Starting current (A)	Starting torque N·m (oz-in)	Capacitor (μF) (rated voltage)
90 mm sq.	M91X40GV4LG M91X40GV4LGA	4	40	100	50	Cont.	90 to 1400	0.30 (42.5)	0.078 (11.0)	1.7	0.23 (32.6)	12 (250 V)
					60		90 to 1700	0.24 (34.0)	0.078 (11.0)	1.5	0.23 (32.6)	
	M91X40GV4DG M91X40GV4DGA	4	40	110	60	Cont.	90 to 1700	0.24 (34.0)	0.078 (11.0)	1.7	0.23 (32.6)	10 (250 V)
				115	60		90 to 1700	0.24 (34.0)	0.078 (11.0)	1.8	0.25 (35.4)	
	M91X40GV4YG M91X40GV4YGA	4	40	200	50	Cont.	90 to 1400	0.30 (42.5)	0.078 (11.0)	0.64	0.23 (32.6)	3 (450 V)
					60		90 to 1700	0.24 (34.0)	0.078 (11.0)	0.62	0.23 (32.6)	
	M91X40GV4GG M91X40GV4GGA	4	40	220	50	Cont.	90 to 1400	0.30 (42.5)	0.078 (11.0)	0.69	0.23 (32.6)	2.5 (450 V)
					60		90 to 1700	0.24 (34.0)	0.078 (11.0)	0.65	0.23 (32.6)	
				230	50		90 to 1400	0.30 (42.5)	0.078 (11.0)	0.72	0.25 (35.4)	
					60		90 to 1700	0.24 (34.0)	0.078 (11.0)	0.68	0.25 (35.4)	

• The specifications and wire connections of the round shaft motor are the same as those of the pinion shaft type. For the dimensional outline drawing, refer to page B-265.
• The models with a motor model number to which "A" is suffixed are not equipped with a capacitor cap.
The models with a motor model number to which "A" is suffixed are not sold or available in Japan.

• Permissible torque at output shaft of gear head

Unit of permissible torque: upper **(N·m)** / lower **(lb-in)**

Applicable gear head Bearing	Speed	Reduction Ratio	3	3.6	5	6	7.5	9	10	12.5	15	18	20	25	30	36	50	60	75	90	100	120	150	180
MX9G□B (ball bearing) MX9G□M (metal bearing)	1200 r/min	50 Hz	0.73 (6.46)	0.87 (7.70)	1.22 (10.8)	1.46 (12.9)	1.82 (16.1)	2.19 (19.4)	2.43 (21.5)	3.04 (26.9)	3.65 (32.3)	4.37 (38.7)	4.86 (43.0)	6.08 (53.8)	6.56 (58.1)	7.87 (69.7)	9.80 (86.7)	9.80 (86.7)	9.80 (86.7)	9.80 (86.7)	9.80 (86.7)	9.80 (86.7)	9.80 (86.7)	9.80 (86.7)
		60 Hz	0.58 (5.13)	0.70 (6.20)	0.97 (8.59)	1.17 (10.4)	1.46 (12.9)	1.75 (15.5)	1.94 (17.2)	2.43 (21.5)	2.92 (25.8)	3.50 (31.0)	3.89 (34.4)	4.86 (43.0)	5.25 (46.5)	6.30 (55.8)	8.75 (77.4)	9.80 (86.7)	9.80 (86.7)	9.80 (86.7)	9.80 (86.7)	9.80 (86.7)	9.80 (86.7)	9.80 (86.7)
	90 r/min		0.19 (1.68)	0.23 (2.04)	0.32 (2.83)	0.38 (3.36)	0.47 (4.16)	0.57 (5.04)	0.63 (5.58)	0.79 (6.99)	0.95 (8.41)	1.14 (10.1)	1.26 (11.2)	1.58 (14.0)	1.71 (15.1)	2.05 (18.1)	2.84 (25.1)	3.41 (30.2)	4.26 (37.7)	5.12 (45.3)	5.69 (50.4)	6.82 (60.4)	8.53 (75.5)	9.80 (86.7)
	Rotational direction		Same as motor rotational direction												Reverse to motor rotational direction									

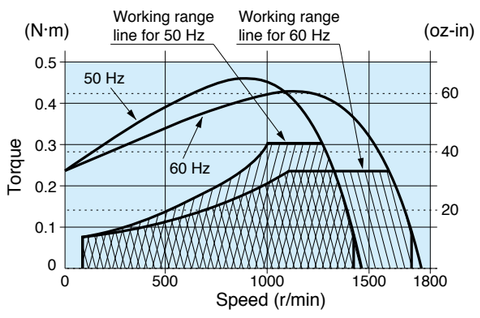
• Permissible torque at output shaft of gear head using decimal gear head

＊For external dimensions of the decimal gear head, refer to page B-448.

Unit of permissible torque: upper **(N·m)** / lower **(lb-in)**

Applicable gear head Bearing	Decimal gear head	Speed	Reduction Ratio	200	250	300	360	500	600	750	900	1000	1200	1500	1800
MX9G□B (ball bearing) MX9G□M (metal bearing)	MX9G10XB	1200 r/min	50 Hz	9.80 (86.7)	9.80 (86.7)	9.80 (86.7)	9.80 (86.7)	9.80 (86.7)	9.80 (86.7)	9.80 (86.7)	9.80 (86.7)	9.80 (86.7)	9.80 (86.7)	9.80 (86.7)	9.80 (86.7)
			60 Hz	9.80 (86.7)	9.80 (86.7)	9.80 (86.7)	9.80 (86.7)	9.80 (86.7)	9.80 (86.7)	9.80 (86.7)	9.80 (86.7)	9.80 (86.7)	9.80 (86.7)	9.80 (86.7)	9.80 (86.7)
		90 r/min		9.80 (86.7)	9.80 (86.7)	9.80 (86.7)	9.80 (86.7)	9.80 (86.7)	9.80 (86.7)	9.80 (86.7)	9.80 (86.7)	9.80 (86.7)	9.80 (86.7)	9.80 (86.7)	9.80 (86.7)
		Rotational direction		Same as motor rotational direction		Reverse to motor rotational direction									

Speed-torque characteristics



Connection diagram

＊For the connection diagram showing wiring with the speed controller, refer to pages C-6 to C-20.

＊Working range line

The working range line shows the working limit for the variable speed motor. The permissible torque should fall within the shaded portion. If you use the motor with the permissible torque exceeding the working range line (falling within the portion not shaded), the motor may be burned out due to a high temperature rise or the gear tooth may be damaged.

＊Please read your User's manual carefully so that you will understand the operation and safety precautions before attempting to operate the system.

Features B-224 System configuration B-225 Coding system B-225 Model list B-228

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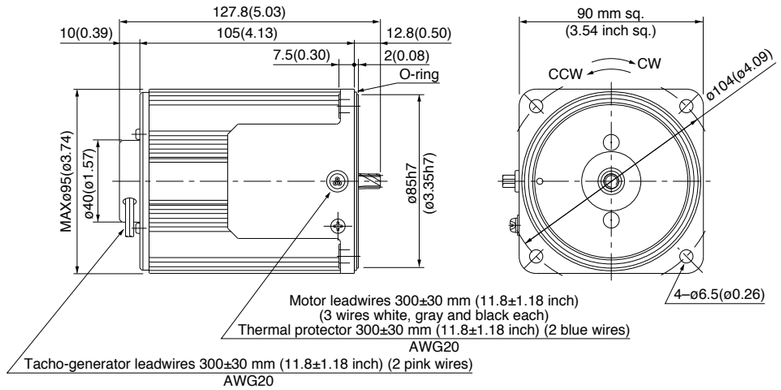
Motor (dimensions)

Scale: 1/3, Unit: mm (inch)

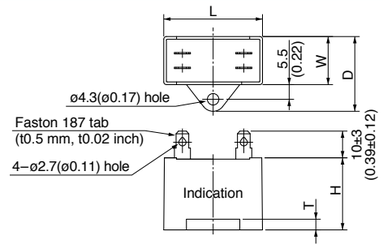
M91X40GV4LG(A) 4P 40 W 100 V
M91X40GV4DG(A) 4P 40 W 110 V / 115 V
M91X40GV4YG(A) 4P 40 W 200 V
M91X40GV4GG(A) 4P 40 W 220 V / 230 V

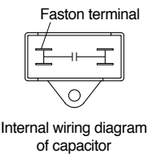
Mass	Helical gear	Module	Number of teeth
2.4 kg 5.29 lb		0.55	9



Capacitor (dimensions) [attachment]

Unit: mm (inch)

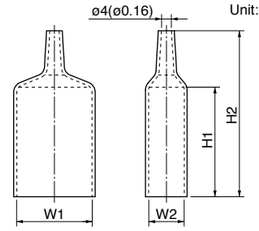




Internal wiring diagram of capacitor

Capacitor cap (dimensions) [attachment]

Unit: mm (inch)



• Capacitor dimension list

Unit: upper (mm) / lower (inch)

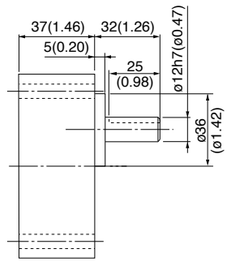
Model number of motor	Model number of capacitor (attachment)	L	W	D	H	T	Capacitor cap (attachment)	W1	W2	H1	H2
M91X40GV4LG(A)	M0PC12M25G	58 (2.28)	22 (0.87)	32 (1.26)	35 (1.38)	4 (0.16)	M0PC5822G	58 (2.28)	22 (0.87)	55 (2.17)	78 (3.07)
M91X40GV4DG(A)	M0PC10M25G	58 (2.28)	21 (0.83)	31 (1.22)	31 (1.22)	4 (0.16)	M0PC5821G	58 (2.28)	21 (0.83)	55 (2.17)	78 (3.07)
M91X40GV4YG(A)	M0PC3M45G	58 (2.28)	21 (0.83)	31 (1.22)	31 (1.22)	4 (0.16)	M0PC5821G	58 (2.28)	21 (0.83)	55 (2.17)	78 (3.07)
M91X40GV4GG(A)	M0PC2.5M45G	48 (1.89)	21 (0.83)	31 (1.22)	31 (1.22)	4 (0.16)	M0PC4821G	48 (1.89)	21 (0.83)	55 (2.17)	78 (3.07)

• The models with a motor model number to which "A" is suffixed are not equipped with a capacitor cap.
＊Capacitors (single item), capacitors cap (single item) can also be purchased.

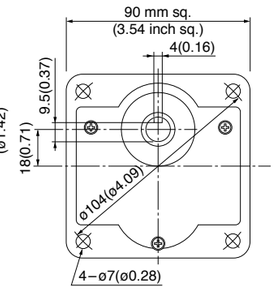
Gear head (dimensions)

Scale: 1/3, Unit: mm (inch)

MX9G□B (ball bearing) Mass 0.8 kg(1.76 lb)



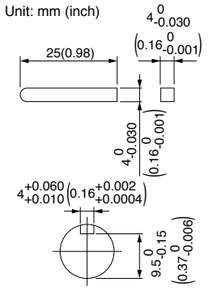
MX9G□M (metal bearing) Mass 0.8 kg(1.76 lb)



Key and keyway (dimensions) [attachment]

MX9G□B(M)

Unit: mm (inch)



(Note) Because the dimensions may be subject to change, also check the determinate dimensions if the gear head is to be used for design.

Gear head combination B-263 Round shaft motor B-265 Decimal gear head B-448 Gear head -inch (U.S.A.) B-449 Controls C-4 Option D-2

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Variable speed induction motor (leadwire)

90 mm (3.54 inch) sq. 60 W

• Specifications

Size	Motor model No.	Number of pole (P)	Output (W)	Voltage (V)	Frequency (Hz)	Rating (min)	Variable speed range Speed (r/min)	Permissible Torque N·m (oz-in) at 1200 r/min	Permissible Torque N·m (oz-in) at 90 r/min	Starting current (A)	Starting torque N·m (oz-in)	Capacitor (μF) (rated voltage)
90 mm sq.	M91Z60GV4L	4	60	100	50	Cont.	90 to 1400	0.43 (60.9)	0.078 (11.0)	2.3	0.46 (65.1)	20 (200 V)
					60		90 to 1700	0.36 (51.0)	0.078 (11.0)	2.4	0.46 (65.1)	
	M91Z60GV4Y	4	60	200	50	Cont.	90 to 1400	0.43 (60.9)	0.078 (11.0)	1.2	0.46 (65.1)	5 (400 V)
					60		90 to 1700	0.36 (51.0)	0.078 (11.0)	1.2	0.46 (65.1)	

• The specifications and wire connections of the round shaft motor are the same as those of the pinion shaft type. For the dimensional outline drawing, refer to page B-265.

• Permissible torque at output shaft of gear head

Unit of permissible torque: upper **(N·m)** / lower **(lb-in)**

Applicable gear head Bearing	Speed	Reduction Ratio	3	3.6	5	6	7.5	9	10	12.5	15	18	20	25	30	36	50	60	75	90	100	120	150	180	200
MZ9G□B (ball bearing / hinge not attached) MY9G□B (ball bearing / hinge attached)	1200 r/min	50 Hz	0.98 (8.67)	1.17 (10.4)	1.57 (13.9)	1.87 (16.6)	2.35 (20.8)	2.80 (24.8)	3.14 (27.8)	3.92 (34.7)	4.70 (41.6)	5.60 (49.6)	6.27 (55.5)	7.55 (66.8)	9.01 (79.8)	10.8 (95.6)	15.2 (135)	18.1 (160)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)
		60 Hz	0.82 (7.26)	0.98 (8.67)	1.31 (11.6)	1.57 (13.9)	1.96 (17.4)	2.35 (20.8)	2.62 (23.2)	3.28 (29.0)	3.92 (34.7)	4.70 (41.6)	5.29 (46.8)	6.32 (55.9)	7.55 (66.8)	9.11 (80.6)	12.7 (112)	15.2 (135)	19.0 (168)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)
	90 r/min		0.18 (1.59)	0.22 (1.95)	0.31 (2.74)	0.37 (3.27)	0.47 (4.16)	0.56 (4.96)	0.63 (5.58)	0.70 (6.20)	0.84 (7.43)	1.00 (8.85)	1.12 (9.91)	1.40 (12.4)	1.68 (14.9)	1.81 (16.0)	2.50 (22.1)	3.00 (26.6)	3.75 (33.2)	4.50 (39.8)	5.00 (44.3)	6.00 (53.1)	7.50 (66.4)	9.00 (79.7)	10.0 (88.5)
	Rotational direction		Same as motor rotational direction							Reverse to motor rotational direction						Same as motor rotational direction									

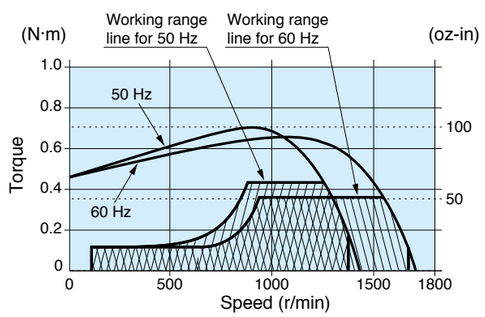
• Permissible torque at output shaft of gear head using decimal gear head

＊For external dimensions of the decimal gear head, refer to page B-448.

Unit of permissible torque: upper **(N·m)** / lower **(lb-in)**

Applicable gear head Bearing	Decimal gear head	Speed	Reduction Ratio	250	300	360	500	600	750	900	1000	1200	1500	1800	2000
MZ9G□B (ball bearing / hinge not attached) MY9G□B (ball bearing / hinge attached)	MZ9G10XB	1200 r/min	50 Hz	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)
			60 Hz	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)
		90 r/min		11.5 (102)	13.8 (122)	14.9 (132)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)
		Rotational direction		Same as motor rotational direction		Reverse to motor rotational direction									

Speed-torque characteristics



Connection diagram

＊For the connection diagram showing wiring with the speed controller, refer to pages C-6 to C-20.

＊Working range line

The working range line shows the working limit for the variable speed motor. The permissible torque should fall within the shaded portion. If you use the motor with the permissible torque exceeding the working range line (falling within the portion not shaded), the motor may be burned out due to a high temperature rise or the gear tooth may be damaged.

＊Please read your User's manual carefully so that you will understand the operation and safety precautions before attempting to operate the system.

Features B-224 System configuration B-225 Coding system B-225 Model list B-228

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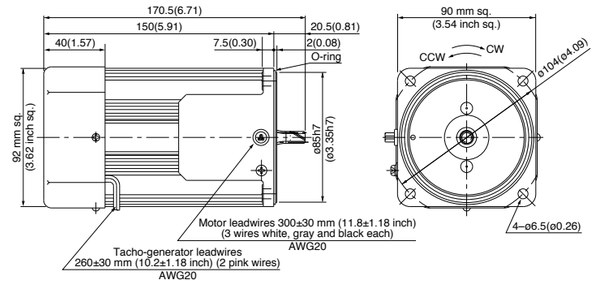
Motor (dimensions)

Scale: 1/4, Unit: mm (inch)

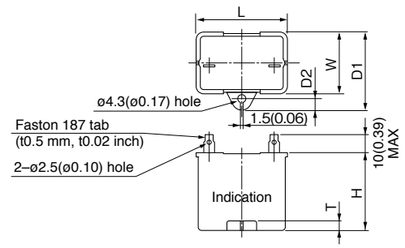
M91Z60GV4L 4P 60 W 100 V (with fan)
M91Z60GV4Y 4P 60 W 200 V (with fan)

Mass	Helical gear	Module	Number of teeth
3.2 kg 7.05 lb		0.6	9



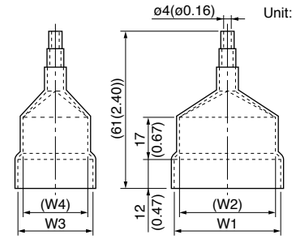
Capacitor (dimensions) [attachment]

Unit: mm (inch)



Capacitor cap (dimensions) [option]

Unit: mm (inch)



• Capacitor dimension list

Unit: upper (mm) / lower (inch)

Model number of motor	Model number of capacitor (attachment)	L	W	D1	D2	H	T	Capacitor cap (option)	W1	W2	W3	W4
M91Z60GV4L	M0PC20M20A	39.5 (1.56)	26.7 (1.05)	37 (1.46)	6 (0.24)	41 (1.61)	4 (0.16)	M0PC3926	39.5 (1.56)	37.5 (1.48)	26 (1.02)	25 (0.98)
M91Z60GV4Y	M0PC5M40	50 (1.97)	30.5 (1.20)	41 (1.61)	6.2 (0.24)	41.5 (1.63)	4 (0.16)	M0PC5032	50 (1.97)	48 (1.89)	32.5 (1.28)	29.5 (1.16)

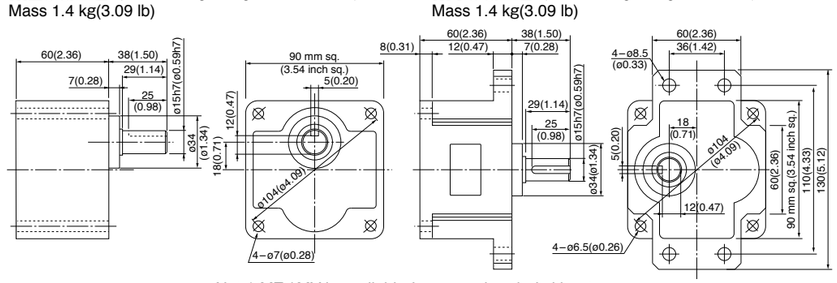
＊Capacitors (single item) can also be purchased.

Gear head (dimensions)

Scale: 1/4, Unit: mm (inch)

MZ9G□B (ball bearing / hinge not attached)
Mass 1.4 kg(3.09 lb)

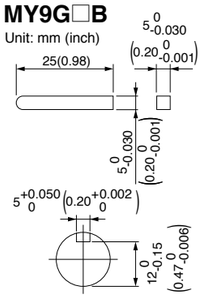
MY9G□B (ball bearing / hinge attached)
Mass 1.4 kg(3.09 lb)



Note) MZ / MY is available for a gear head of either type.

Key and keyway (dimensions) [attachment]

MZ9G□B
MY9G□B
Unit: mm (inch)



(Note) Because the dimensions may be subject to change, also check the determinate dimensions if the gear head is to be used for design.

Gear head combination B-263 Round shaft motor B-265 Decimal gear head B-448 Gear head -inch (U.S.A.) B-449 Controls C-4 Option D-2

© Panasonic Corporation 2018

Variable speed induction motor (leadwire)

90 mm (3.54 inch) sq. 60 W

• Specifications

Size	Motor model No.	Number of pole (P)	Output (W)	Voltage (V)	Frequency (Hz)	Rating (min)	Variable speed range Speed (r/min)	Permissible Torque N·m (oz-in) at 1200 r/min	Permissible Torque N·m (oz-in) at 90 r/min	Starting current (A)	Starting torque N·m (oz-in)	Capacitor (μF) (rated voltage)
90 mm sq.	M91Z60GV4LG M91Z60GV4LGA	4	60	100	50	Cont.	90 to 1400	0.44 (62.3)	0.10 (14.2)	3.0	0.37 (52.4)	20 (250 V)
					60		90 to 1700	0.35 (49.6)	0.10 (14.2)	2.7	0.37 (52.4)	
	M91Z60GV4DG M91Z60GV4DGA	4	60	110	60	Cont.	90 to 1700	0.35 (49.6)	0.10 (14.2)	3.0	0.40 (56.6)	18 (250 V)
				115	60		90 to 1700	0.35 (49.6)	0.10 (14.2)	3.1	0.43 (60.9)	
	M91Z60GV4YG M91Z60GV4YGA	4	60	200	50	Cont.	90 to 1400	0.44 (62.3)	0.10 (14.2)	1.3	0.37 (52.4)	5 (450 V)
					60		90 to 1700	0.35 (49.6)	0.10 (14.2)	1.2	0.37 (52.4)	
	M91Z60GV4GG M91Z60GV4GGA	4	60	220	50	Cont.	90 to 1400	0.44 (62.3)	0.10 (14.2)	1.5	0.40 (56.6)	5 (450 V)
					60		90 to 1700	0.35 (49.6)	0.10 (14.2)	1.3	0.40 (56.6)	
				230	50		90 to 1400	0.44 (62.3)	0.10 (14.2)	1.5	0.43 (60.9)	
					60		90 to 1700	0.35 (49.6)	0.10 (14.2)	1.4	0.43 (60.9)	
	M91Z60GV4GGB M91Z60GV4GGC	4	60	220	50	Cont.	90 to 1400	0.44 (62.3)	0.10 (14.2)	1.1	0.40 (56.6)	4 (450 V)
					60		90 to 1700	0.35 (49.6)	0.10 (14.2)	1.0	0.40 (56.6)	
				230	50		90 to 1400	0.44 (62.3)	0.10 (14.2)	1.1	0.43 (60.9)	
					60		90 to 1700	0.35 (49.6)	0.10 (14.2)	1.0	0.43 (60.9)	

• The specifications and wire connections of the round shaft motor are the same as those of the pinion shaft type. For the dimensional outline drawing, refer to page B-265.
• The models with a motor model number to which "A" or "B" is suffixed are not equipped with a capacitor cap.
The models with a motor model number to which "A" or "B" is suffixed are not sold or available in Japan.

• Permissible torque at output shaft of gear head

Unit of permissible torque: upper **(N·m)** / lower **(lb-in)**

Applicable gear head Bearing	Speed	Reduction Ratio	3	3.6	5	6	7.5	9	10	12.5	15	18	20	25	30	36	50	60	75	90	100	120	150	180	200
MZ9G□B (ball bearing / hinge not attached)	1200 r/min	50 Hz	1.07 (9.47)	1.28 (11.3)	1.78 (15.8)	2.14 (18.9)	2.67 (23.6)	3.21 (28.4)	3.56 (31.5)	4.01 (35.5)	4.81 (42.6)	5.77 (51.1)	6.42 (56.8)	8.02 (71.0)	9.62 (85.1)	10.4 (92.0)	14.4 (127)	17.3 (153)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)
		60 Hz	0.85 (7.52)	1.02 (9.03)	1.42 (12.6)	1.70 (15.0)	2.13 (18.9)	2.55 (22.6)	2.84 (25.1)	3.19 (28.2)	3.83 (33.9)	4.59 (40.6)	5.10 (45.1)	6.38 (56.5)	7.65 (67.7)	8.27 (73.2)	11.5 (102)	13.8 (122)	17.2 (152)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)
MY9G□B (ball bearing / hinge attached)	90 r/min		0.24 (2.12)	0.29 (2.57)	0.41 (3.63)	0.49 (4.34)	0.61 (5.40)	0.73 (6.46)	0.81 (7.17)	0.91 (8.05)	1.09 (9.65)	1.31 (11.6)	1.46 (12.9)	1.82 (16.1)	2.19 (19.4)	2.36 (20.9)	3.28 (29.0)	3.94 (34.9)	4.92 (43.5)	5.90 (52.2)	6.56 (58.1)	7.87 (69.7)	9.84 (87.1)	11.8 (104)	13.1 (116)
	Rotational direction		Same as motor rotational direction							Reverse to motor rotational direction						Same as motor rotational direction									

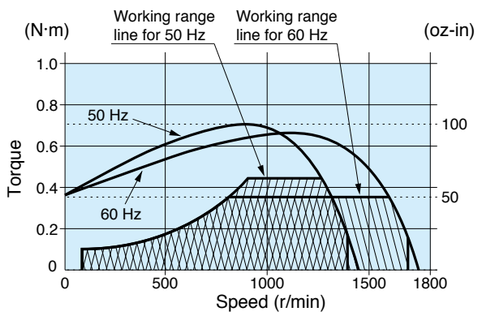
• Permissible torque at output shaft of gear head using decimal gear head

＊For external dimensions of the decimal gear head, refer to page B-448.

Unit of permissible torque: upper **(N·m)** / lower **(lb-in)**

Applicable gear head Bearing	Decimal gear head	Speed	Reduction Ratio	250	300	360	500	600	750	900	1000	1200	1500	1800	2000
MZ9G□B (ball bearing / hinge not attached) MY9G□B (ball bearing / hinge attached)	MZ9G10XB	1200 r/min	50 Hz	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)
			60 Hz	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)
		90 r/min		14.8 (131)	17.7 (157)	19.1 (169)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)
		Rotational direction		Same as motor rotational direction		Reverse to motor rotational direction									

Speed-torque characteristics



Connection diagram

＊For the connection diagram showing wiring with the speed controller, refer to pages C-6 to C-20.

＊Working range line

The working range line shows the working limit for the variable speed motor. The permissible torque should fall within the shaded portion. If you use the motor with the permissible torque exceeding the working range line (falling within the portion not shaded), the motor may be burned out due to a high temperature rise or the gear tooth may be damaged.

＊Please read your User's manual carefully so that you will understand the operation and safety precautions before attempting to operate the system.

Features B-224 | System configuration B-225 | Coding system B-225 | Model list B-228

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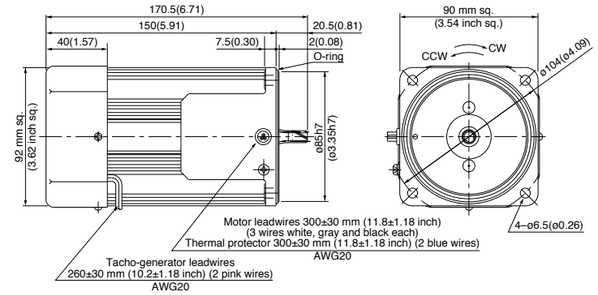
Motor (dimensions)

Scale: 1/4, Unit: mm (inch)

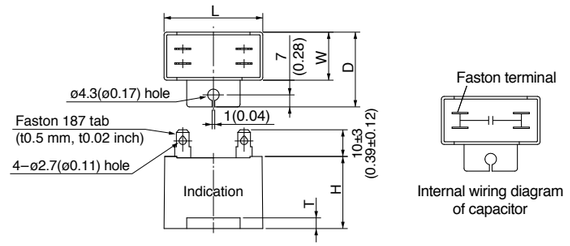
M91Z60GV4LG(A)	4P	60 W	100 V (with fan)	
M91Z60GV4DG(A)	4P	60 W	110 V / 115 V (with fan)	
M91Z60GV4YG(A)	4P	60 W	200 V (with fan)	
M91Z60GV4GG(A)	4P	60 W	220 V / 230 V (with fan)	
M91Z60GV4GGB	4P	60 W	220 V / 230 V (with fan)	
M91Z60GV4GGC	4P	60 W	220 V / 230 V (with fan)	

Mass	Helical gear	Module	Number of teeth
3.2 kg 7.05 lb		0.6	9



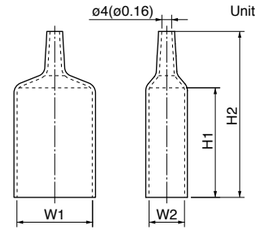
Capacitor (dimensions) [attachment]

Unit: mm (inch)



Capacitor cap (dimensions) [attachment]

Unit: mm (inch)



• Capacitor dimension list

Unit: upper (mm) / lower (inch)

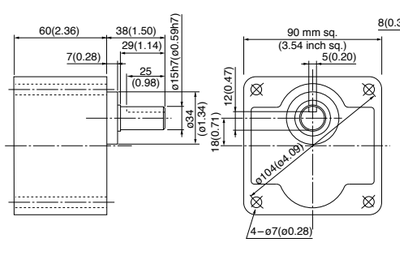
Model number of motor	Model number of capacitor (attachment)	L	W	D	H	T	Capacitor cap (attachment)	W1	W2	H1	H2
M91Z60GV4LG(A)	M0PC20M25G	58 (2.28)	29 (1.14)	44 (1.73)	41 (1.61)	4 (0.16)	M0PC5829G	58 (2.28)	29 (1.14)	55 (2.17)	78 (3.07)
M91Z60GV4DG(A)	M0PC18M25G	58 (2.28)	29 (1.14)	44 (1.73)	41 (1.61)	4 (0.16)	M0PC5829G	58 (2.28)	29 (1.14)	55 (2.17)	78 (3.07)
M91Z60GV4YG(A)	M0PC5M45G	58 (2.28)	29 (1.14)	44 (1.73)	41 (1.61)	4 (0.16)	M0PC5829G	58 (2.28)	29 (1.14)	55 (2.17)	78 (3.07)
M91Z60GV4GG(A)	M0PC5M45G	58 (2.28)	29 (1.14)	44 (1.73)	41 (1.61)	4 (0.16)	M0PC5829G	58 (2.28)	29 (1.14)	55 (2.17)	78 (3.07)
M91Z60GV4GGB	M0PC4M45G	58 (2.28)	23.5 (0.93)	38.5 (1.52)	37 (1.46)	4 (0.16)	M0PC5823G	58 (2.28)	23.5 (0.93)	55 (2.17)	78 (3.07)
M91Z60GV4GGC											

• The models with a motor model number to which "A" or "B" is suffixed are not equipped with a capacitor cap.
＊Capacitors (single item), capacitors cap (single item) can also be purchased.

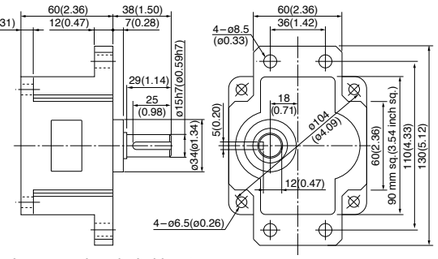
Gear head (dimensions)

Scale: 1/4, Unit: mm (inch)

MZ9G□B (ball bearing / hinge not attached)
Mass 1.4 kg(3.09 lb)



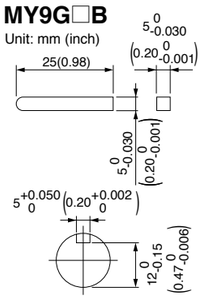
MY9G□B (ball bearing / hinge attached)
Mass 1.4 kg(3.09 lb)



Note) MZ / MY is available for a gear head of either type.

Key and keyway (dimensions) [attachment]

MZ9G□B
MY9G□B
Unit: mm (inch)



(Note) Because the dimensions may be subject to change, also check the determinate dimensions if the gear head is to be used for design.

Gear head combination B-263 | Round shaft motor B-265 | Decimal gear head B-448 | Gear head -inch (U.S.A.) B-449 | Controls C-4 | Option D-2

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Variable speed induction motor (leadwire)

90 mm (3.54 inch) sq. | 90 W

• Specifications

Size	Motor model No.	Number of pole (P)	Output (W)	Voltage (V)	Frequency (Hz)	Rating (min)	Variable speed range Speed (r/min)	Permissible Torque N·m (oz-in) at 1200 r/min	Permissible Torque N·m (oz-in) at 90 r/min	Starting current (A)	Starting torque N·m (oz-in)	Capacitor (μF) (rated voltage)
90 mm sq.	M91Z90GV4L	4	90	100	50	Cont.	90 to 1400	0.59 (83.6)	0.25 (35.4)	2.3	0.53 (75.1)	25 (200 V)
					60		90 to 1700	0.54 (76.5)	0.25 (35.4)	2.2	0.56 (79.3)	
	M91Z90GV4Y	4	90	200	50	Cont.	90 to 1400	0.59 (83.6)	0.25 (35.4)	1.1	0.57 (80.7)	6.2 (375 V)
					60		90 to 1700	0.54 (76.5)	0.25 (35.4)	1.1	0.59 (83.6)	

• The specifications and wire connections of the round shaft motor are the same as those of the pinion shaft type. For the dimensional outline drawing, refer to page B-265.

• Permissible torque at output shaft of gear head

Unit of permissible torque: upper **(N·m)** / lower **(lb-in)**

Applicable gear head Bearing	Speed	Reduction Ratio	3	3.6	5	6	7.5	9	10	12.5	15	18	20	25	30	36	50	60	75	90	100	120	150	180	200
MZ9G□B (ball bearing / hinge not attached) MY9G□B (ball bearing / hinge attached)	1200 r/min	50 Hz	1.43 (12.7)	1.71 (15.1)	2.38 (21.1)	2.86 (25.3)	3.57 (31.6)	4.29 (38.0)	4.77 (42.2)	5.36 (47.4)	6.43 (56.9)	7.72 (68.3)	8.58 (75.9)	10.97 (97.1)	12.8 (113)	13.7 (121)	19.2 (170)	19.6 (174)	19.6 (174)	19.6 (174)	19.6 (174)	19.6 (174)	19.6 (174)	19.6 (174)	19.6 (174)
		60 Hz	1.31 (11.6)	1.57 (13.9)	2.18 (19.3)	2.62 (23.2)	3.27 (28.9)	3.93 (34.8)	4.37 (38.7)	4.91 (43.5)	5.89 (52.1)	7.07 (62.6)	7.86 (69.6)	9.82 (86.9)	11.7 (104)	12.6 (112)	17.6 (156)	19.6 (174)	19.6 (174)	19.6 (174)	19.6 (174)	19.6 (174)	19.6 (174)	19.6 (174)	19.6 (174)
	90 r/min		0.60 (5.31)	0.72 (6.37)	1.01 (8.94)	1.21 (10.7)	1.51 (13.4)	1.81 (16.0)	2.02 (17.9)	2.26 (20.0)	2.71 (24.0)	3.25 (28.8)	3.62 (32.0)	4.52 (40.0)	5.43 (48.1)	5.83 (51.6)	8.10 (71.7)	9.72 (86.0)	12.1 (107)	14.5 (128)	16.2 (143)	19.4 (172)	19.6 (174)	19.6 (174)	19.6 (174)
	Rotational direction		Same as motor rotational direction							Reverse to motor rotational direction						Same as motor rotational direction									

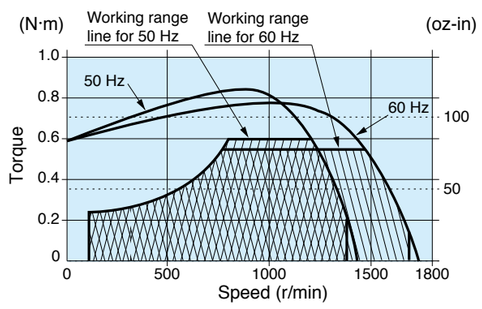
• Permissible torque at output shaft of gear head using decimal gear head

* For external dimensions of the decimal gear head, refer to page B-448.

Unit of permissible torque: upper **(N·m)** / lower **(lb-in)**

Applicable gear head Bearing	Decimal gear head	Speed	Reduction Ratio	250	300	360	500	600	750	900	1000	1200	1500	1800	2000
MZ9G□B (ball bearing / hinge not attached) MY9G□B (ball bearing / hinge attached)	MZ9G10XB	1200 r/min	50 Hz	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)
			60 Hz	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)
		90 r/min		19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)
		Rotational direction		Same as motor rotational direction		Reverse to motor rotational direction									

Speed-torque characteristics



Connection diagram

* For the connection diagram showing wiring with the speed controller, refer to pages C-6 to C-20.

* Working range line

The working range line shows the working limit for the variable speed motor. The permissible torque should fall within the shaded portion. If you use the motor with the permissible torque exceeding the working range line (falling within the portion not shaded), the motor may be burned out due to a high temperature rise or the gear tooth may be damaged.

* Please read your User's manual carefully so that you will understand the operation and safety precautions before attempting to operate the system.

Features B-224 | System configuration B-225 | Coding system B-225 | Model list B-228

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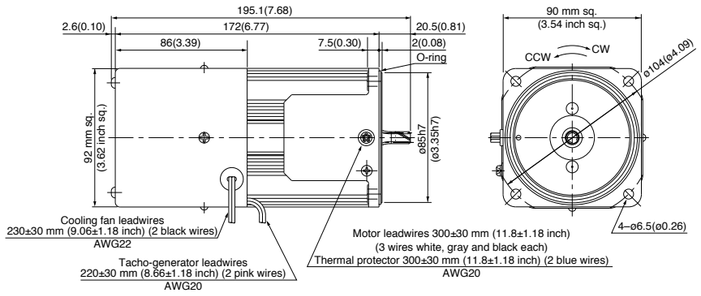
Motor (dimensions)

Scale: 1/4, Unit: mm (inch)

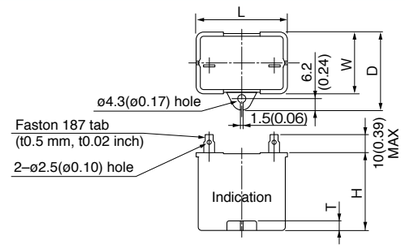
M91Z90GV4L 4P 90 W 100 V (Forced cooling fan)
M91Z90GV4Y 4P 90 W 200 V (Forced cooling fan)

Mass	Helical gear	Module	Number of teeth
3.5 kg 7.72 lb		0.6	9



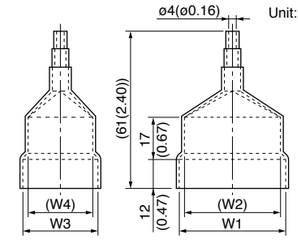
Capacitor (dimensions) [attachment]

Unit: mm (inch)



Capacitor cap (dimensions) [option]

Unit: mm (inch)



• Capacitor dimension list

Unit: upper (mm) / lower (inch)

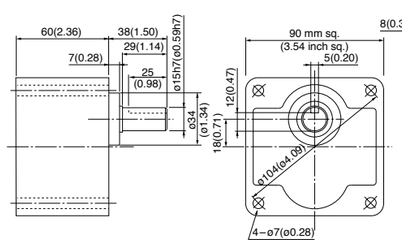
Model number of motor	Model number of capacitor (attachment)	L	W	D	H	T	Capacitor cap (option)	W1	W2	W3	W4
M91Z90GV4L	M0PC25M20	50.2 (1.98)	31 (1.22)	41 (1.61)	42 (1.65)	5 (0.20)	M0PC5032	50 (1.97)	48 (1.89)	32.5 (1.28)	29.5 (1.16)
M91Z90GV4Y	M0PC6.2M38	50 (1.97)	30.5 (1.20)	41 (1.61)	41.5 (1.63)	4 (0.16)	M0PC5032	50 (1.97)	48 (1.89)	32.5 (1.28)	29.5 (1.16)

* Capacitors (single item) can also be purchased.

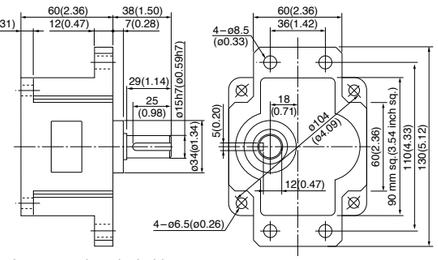
Gear head (dimensions)

Scale: 1/4, Unit: mm (inch)

MZ9G□B (ball bearing / hinge not attached)
Mass 1.4 kg(3.09 lb)



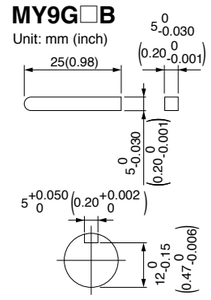
MY9G□B (ball bearing / hinge attached)
Mass 1.4 kg(3.09 lb)



Note) MZ / MY is available for a gear head of either type.

Key and keyway (dimensions) [attachment]

MZ9G□B
MY9G□B
Unit: mm (inch)



(Note) Because the dimensions may be subject to change, also check the determinate dimensions if the gear head is to be used for design.

Gear head combination B-263 | Round shaft motor B-265 | Decimal gear head B-448 | Gear head -inch (U.S.A.) B-449 | Controls C-4 | Option D-2

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Variable speed induction motor (leadwire)

90 mm (3.54 inch) sq. 90 W

• Specifications

Size	Motor model No.	Number of pole (P)	Output (W)	Voltage (V)	Frequency (Hz)	Rating (min)	Variable speed range Speed (r/min)	Permissible Torque N·m (oz-in) at 1200 r/min	Permissible Torque N·m (oz-in) at 90 r/min	Starting current (A)	Starting torque N·m (oz-in)	Capacitor (μF) (rated voltage)
90 mm sq.	M91Z90GV4LG M91Z90GV4LGA	4	90	100	50	Cont.	90 to 1400	0.69 (97.7)	0.29 (41.1)	3.0	0.61 (86.4)	30 (250 V)
					60		90 to 1700	0.54 (76.5)	0.29 (41.1)	2.8	0.61 (86.4)	
	M91Z90GV4DG M91Z90GV4DGA	4	90	110	60	Cont.	90 to 1700	0.54 (76.5)	0.29 (41.1)	3.0	0.61 (86.4)	25 (250 V)
				115	60		90 to 1700	0.54 (76.5)	0.29 (41.1)	3.1	0.65 (92.0)	
	M91Z90GV4YG M91Z90GV4YGA	4	90	200	50	Cont.	90 to 1400	0.69 (97.7)	0.29 (41.1)	1.4	0.61 (86.4)	7.5 (450 V)
					60		90 to 1700	0.54 (76.5)	0.29 (41.1)	1.4	0.61 (86.4)	
	M91Z90GV4GG M91Z90GV4GGA	4	90	220	50	Cont.	90 to 1400	0.69 (97.7)	0.29 (41.1)	1.5	0.60 (85.0)	6 (450 V)
					60		90 to 1700	0.54 (76.5)	0.29 (41.1)	1.4	0.60 (85.0)	
				230	50		90 to 1400	0.69 (97.7)	0.29 (41.1)	1.5	0.65 (92.0)	
					60		90 to 1700	0.54 (76.5)	0.29 (41.1)	1.5	0.65 (92.0)	
	M91Z90GV4GGB M91Z90GV4GGC	4	90	220	50	Cont.	90 to 1400	0.69 (97.7)	0.29 (41.1)	1.4	0.55 (77.9)	6 (450 V)
					60		90 to 1700	0.54 (76.5)	0.29 (41.1)	1.3	0.56 (79.3)	
				230	50		90 to 1400	0.69 (97.7)	0.29 (41.1)	1.5	0.61 (86.4)	
					60		90 to 1700	0.54 (76.5)	0.29 (41.1)	1.4	0.63 (89.2)	

• The specifications and wire connections of the round shaft motor are the same as those of the pinion shaft type. For the dimensional outline drawing, refer to page B-265.
• The models with a motor model number to which "A" or "B" is suffixed are not equipped with a capacitor cap.
The models with a motor model number to which "A" or "B" is suffixed are not sold or available in Japan.

• Permissible torque at output shaft of gear head

Unit of permissible torque: upper **(N·m)** / lower **(lb-in)**

Applicable gear head Bearing	Reduction Ratio / Speed		3	3.6	5	6	7.5	9	10	12.5	15	18	20	25	30	36	50	60	75	90	100	120	150	180	200
MZ9G□B (ball bearing / hinge not attached)	1200 r/min	50 Hz	1.68 (14.9)	2.01 (17.8)	2.79 (24.7)	3.35 (29.7)	4.19 (37.1)	5.03 (44.5)	5.59 (49.5)	6.29 (55.7)	7.55 (66.8)	9.05 (80.1)	10.1 (89.4)	12.6 (112)	15.1 (134)	16.3 (144)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)
		60 Hz	1.31 (11.6)	1.57 (13.9)	2.19 (19.4)	2.62 (23.2)	3.28 (29.0)	3.94 (34.9)	4.37 (38.7)	4.92 (43.5)	5.90 (52.2)	7.09 (62.8)	7.87 (69.7)	9.84 (87.1)	11.8 (104)	12.8 (113)	17.7 (157)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)
MY9G□B (ball bearing / hinge attached)	90 r/min		0.70 (6.20)	0.85 (7.52)	1.17 (10.4)	1.41 (12.5)	1.76 (15.6)	2.11 (18.7)	2.35 (20.8)	2.64 (23.4)	3.17 (28.1)	3.81 (33.7)	4.23 (37.4)	5.29 (46.9)	6.34 (56.1)	6.85 (60.6)	9.51 (84.2)	11.4 (101)	14.3 (127)	17.1 (151)	19.0 (168)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)
	Rotational direction		Same as motor rotational direction							Reverse to motor rotational direction						Same as motor rotational direction									

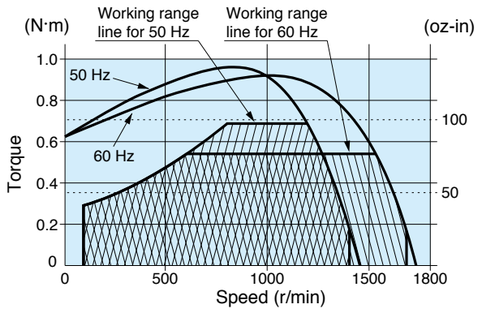
• Permissible torque at output shaft of gear head using decimal gear head

＊For external dimensions of the decimal gear head, refer to page B-448.

Unit of permissible torque: upper **(N·m)** / lower **(lb-in)**

Applicable gear head Bearing	Decimal gear head	Reduction Ratio / Speed		250	300	360	500	600	750	900	1000	1200	1500	1800	2000
MZ9G□B (ball bearing / hinge not attached) MY9G□B (ball bearing / hinge attached)	MZ9G10XB	1200 r/min	50 Hz	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)
			60 Hz	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)
		90 r/min		19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)	19.6 (173)
		Rotational direction		Same as motor rotational direction		Reverse to motor rotational direction									

Speed-torque characteristics



Connection diagram

＊For the connection diagram showing wiring with the speed controller, refer to pages C-6 to C-20.

＊Working range line

The working range line shows the working limit for the variable speed motor. The permissible torque should fall within the shaded portion. If you use the motor with the permissible torque exceeding the working range line (falling within the portion not shaded), the motor may be burned out due to a high temperature rise or the gear tooth may be damaged.

＊Please read your User's manual carefully so that you will understand the operation and safety precautions before attempting to operate the system.

Features B-224 | System configuration B-225 | Coding system B-225 | Model list B-228

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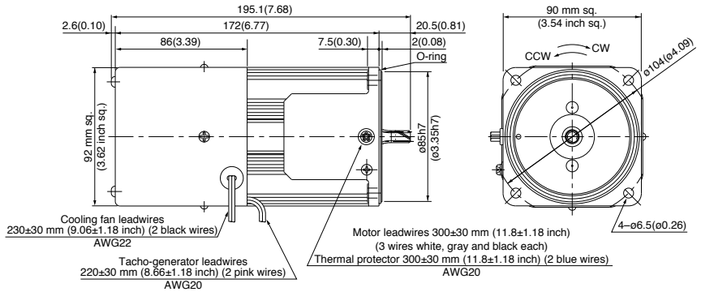
Motor (dimensions)

Scale: 1/4, Unit: mm (inch)

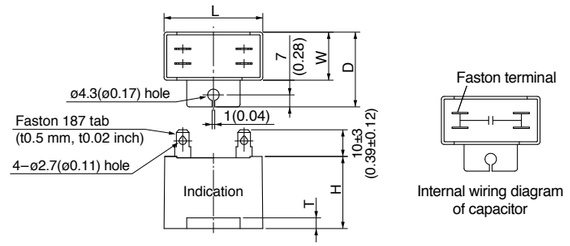
M91Z90GV4LG(A)	4P	90 W	100 V (Forced cooling fan)	
M91Z90GV4DG(A)	4P	90 W	110 V / 115 V (Forced cooling fan)	
M91Z90GV4YG(A)	4P	90 W	200 V (Forced cooling fan)	
M91Z90GV4GG(A)	4P	90 W	220 V / 230 V (Forced cooling fan)	
M91Z90GV4GGB	4P	90 W	220 V / 230 V (Forced cooling fan)	
M91Z90GV4GGC	4P	90 W	220 V / 230 V (Forced cooling fan)	

Mass	Helical gear	Module	Number of teeth
3.5 kg 7.72 lb		0.6	9



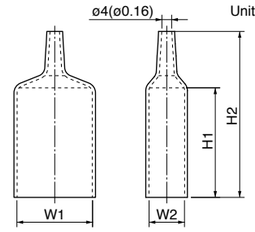
Capacitor (dimensions) [attachment]

Unit: mm (inch)



Capacitor cap (dimensions) [attachment]

Unit: mm (inch)



• Capacitor dimension list

Unit: upper (mm) / lower (inch)

Model number of motor	Model number of capacitor (attachment)	L	W	D	H	T	Capacitor cap (attachment)	W1	W2	H1	H2
M91Z90GV4LG(A)	M0PC30M25G	58 (2.28)	35 (1.38)	50 (1.97)	50 (1.97)	4 (0.16)	M0PC5835G	58 (2.28)	35 (1.38)	55 (2.17)	78 (3.07)
M91Z90GV4DG(A)	M0PC25M25G	58 (2.28)	35 (1.38)	50 (1.97)	50 (1.97)	4 (0.16)	M0PC5835G	58 (2.28)	35 (1.38)	55 (2.17)	78 (3.07)
M91Z90GV4YG(A)	M0PC7.5M45G	58 (2.28)	35 (1.38)	50 (1.97)	50 (1.97)	4 (0.16)	M0PC5835G	58 (2.28)	35 (1.38)	55 (2.17)	78 (3.07)
M91Z90GV4GG(A) M91Z90GV4GGB M91Z90GV4GGC	M0PC6M45G	58 (2.28)	29 (1.14)	44 (1.73)	41 (1.61)	4 (0.16)	M0PC5829G	58 (2.28)	29 (1.14)	55 (2.17)	78 (3.07)

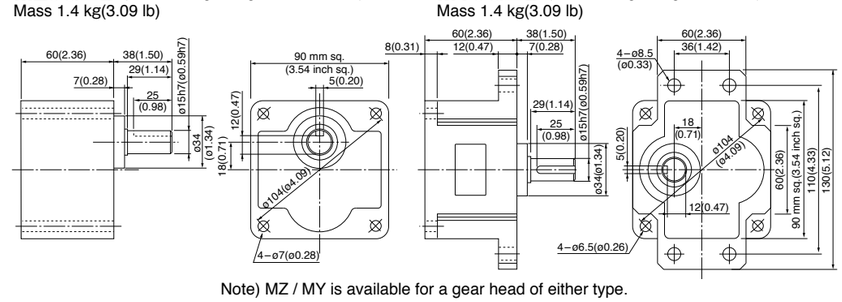
• The models with a motor model number to which "A" or "B" is suffixed are not equipped with a capacitor cap.
＊Capacitors (single item), capacitors cap (single item) can also be purchased.

Gear head (dimensions)

Scale: 1/4, Unit: mm (inch)

MZ9G□B (ball bearing / hinge not attached)
Mass 1.4 kg(3.09 lb)

MY9G□B (ball bearing / hinge attached)
Mass 1.4 kg(3.09 lb)

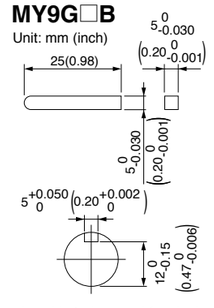


Note) MZ / MY is available for a gear head of either type.

Key and keyway (dimensions) [attachment]

MZ9G□B
MY9G□B

Unit: mm (inch)



(Note) Because the dimensions may be subject to change, also check the determinate dimensions if the gear head is to be used for design.

Gear head combination B-263 | Round shaft motor B-265 | Decimal gear head B-448 | Gear head -inch (U.S.A.) B-449 | Controls C-4 | Option D-2

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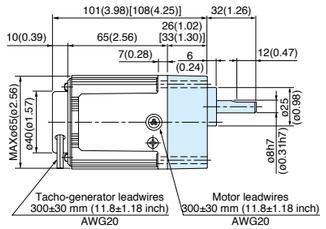
* Gear head is sold separately.

60 mm sq. (2.36 inch sq.) 3 W

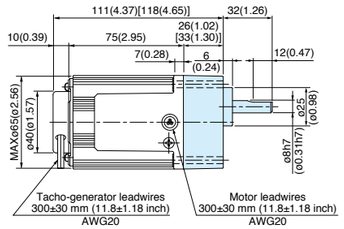
M61X3GV4L + MX6G□BA(MA) / MX6G□B(M)



* Figures in [ ] represent the dimensions of MX6G□B (M) (1/30 or larger reduction ratio).
The model number of the gear head with a reduction ratio of 1/25 or smaller is MX6G□BA (MA).

60 mm sq. (2.36 inch sq.) 6 W

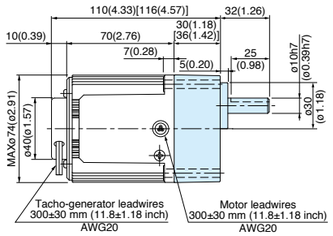
M61X6GV4L + MX6G□BA(MA) / MX6G□B(M)
M61X6GV4Y + MX6G□BA(MA) / MX6G□B(M)
M61X6GV4LG(A) + MX6G□BA(MA) / MX6G□B(M)
M61X6GV4DG(A) + MX6G□BA(MA) / MX6G□B(M)
M61X6GV4YG(A) + MX6G□BA(MA) / MX6G□B(M)
M61X6GV4GG(A) + MX6G□BA(MA) / MX6G□B(M)



* Figures in [ ] represent the dimensions of MX6G□B (M) (1/30 or larger reduction ratio).
The model number of the gear head with a reduction ratio of 1/25 or smaller is MX6G□BA (MA).

70 mm sq. (2.76 inch sq.) 10 W

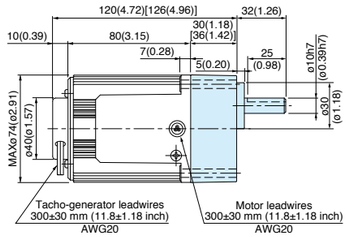
M71X10GV4L + MX7G□BA(MA) / MX7G□B(M)
M71X10GV4Y + MX7G□BA(MA) / MX7G□B(M)



* Figures in [ ] represent the dimensions of MX7G□B (M) (1/30 or larger reduction ratio).
The model number of the gear head with a reduction ratio of 1/25 or smaller is MX7G□BA (MA).

70 mm sq. (2.76 inch sq.) 15 W

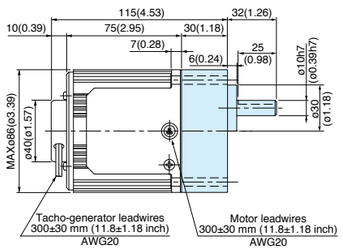
M71X15GV4L + MX7G□BA(MA) / MX7G□B(M)
M71X15GV4Y + MX7G□BA(MA) / MX7G□B(M)
M71X15GV4LG(A) + MX7G□BA(MA) / MX7G□B(M)
M71X15GV4DG(A) + MX7G□BA(MA) / MX7G□B(M)
M71X15GV4YG(A) + MX7G□BA(MA) / MX7G□B(M)
M71X15GV4GG(A) + MX7G□BA(MA) / MX7G□B(M)



* Figures in [ ] represent the dimensions of MX7G□B (M) (1/30 or larger reduction ratio).
The model number of the gear head with a reduction ratio of 1/25 or smaller is MX7G□BA (MA).

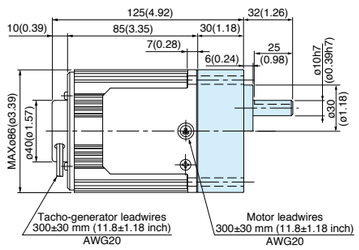
80 mm sq. (3.15 inch sq.) 15 W

M81X15GV4L + MX8G□B(M)
M81X15GV4Y + MX8G□B(M)



80 mm sq. (3.15 inch sq.) 25 W

M81X25GV4L + MX8G□B(M)
M81X25GV4Y + MX8G□B(M)
M81X25GV4LG(A) + MX8G□B(M)
M81X25GV4DG(A) + MX8G□B(M)
M81X25GV4YG(A) + MX8G□B(M)
M81X25GV4GG(A) + MX8G□B(M)



* Please read your User's manual carefully so that you will understand the operation and safety precautions before attempting to operate the system.

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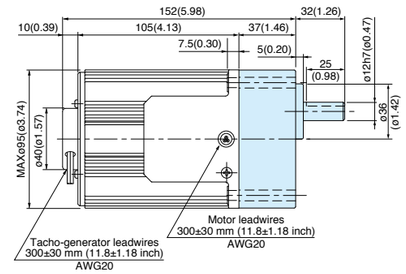
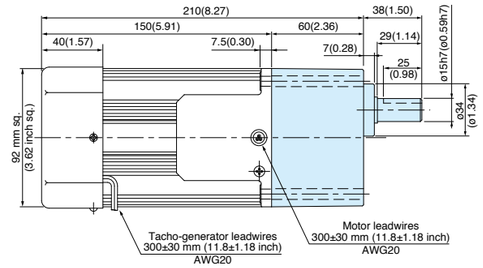
90 mm sq. (3.54 inch sq.) 40 W

M91X40GV4L + MX9G□B(M)
M91X40GV4Y + MX9G□B(M)
M91X40GV4LG(A) + MX9G□B(M)
M91X40GV4DG(A) + MX9G□B(M)
M91X40GV4YG(A) + MX9G□B(M)
M91X40GV4GG(A) + MX9G□B(M)



90 mm sq. (3.54 inch sq.) 60 W

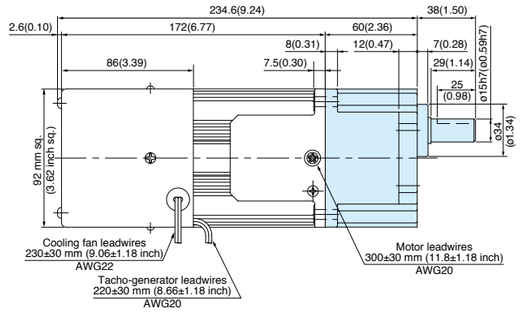
M91Z60GV4L + MZ9G□B (MY9G□B)
M91Z60GV4Y + MZ9G□B (MY9G□B)
M91Z60GV4LG(A) + MZ9G□B (MY9G□B)
M91Z60GV4DG(A) + MZ9G□B (MY9G□B)
M91Z60GV4YG(A) + MZ9G□B (MY9G□B)
M91Z60GV4GG(A) + MZ9G□B (MY9G□B)
M91Z60GV4GGB + MZ9G□B (MY9G□B)
M91Z60GV4GGC + MZ9G□B (MY9G□B)



* Refer to page B-444 for high torque gear head.

90 mm sq. (3.54 inch sq.) 90 W

M91Z90GV4L + MY9G□B (MZ9G□B)
M91Z90GV4Y + MY9G□B (MZ9G□B)
M91Z90GV4LG(A) + MY9G□B (MZ9G□B)
M91Z90GV4DG(A) + MY9G□B (MZ9G□B)
M91Z90GV4YG(A) + MY9G□B (MZ9G□B)
M91Z90GV4GG(A) + MY9G□B (MZ9G□B)
M91Z90GV4GGB + MY9G□B (MZ9G□B)
M91Z90GV4GGC + MY9G□B (MZ9G□B)



* Refer to page B-444 for high torque gear head.

*The models with a motor model number to which “A” or “B” is suffixed are not equipped with a capacitor cap.
*The models with a motor model number to which “A” or “B” is suffixed are not sold or available in Japan.

(Note) Because the dimensions may be subject to change, also check the determinate dimensions if the gear head is to be used for design.

Specifications B-232 to B-261 Controls C-4 Option D-2

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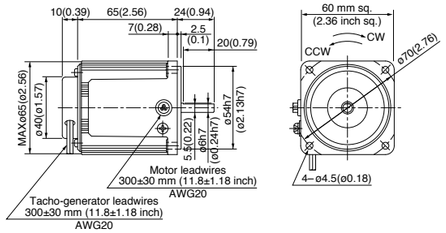
60 mm sq. (2.36 inch sq.) 3 W

Mass 0.6 kg (1.32 lb)

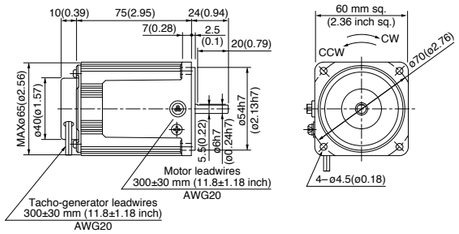
M61X3SV4LS



60 mm sq. (2.36 inch sq.) 6 W

Mass 0.71 kg (1.57 lb)

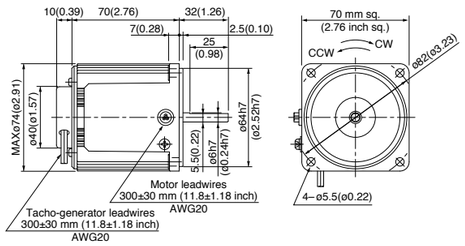
M61X6SV4LS
M61X6SV4YS
M61X6SV4LG(A)
M61X6SV4YG(A)
M61X6SV4DG(A)
M61X6SV4GG(A)



70 mm sq. (2.76 inch sq.) 10 W

Mass 0.88 kg (1.94 lb)

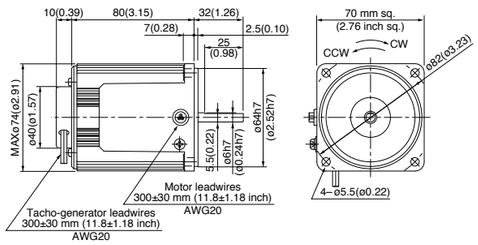
M71X10SV4LS
M71X10SV4YS



70 mm sq. (2.76 inch sq.) 15 W

Mass 1.1 kg (2.43 lb)

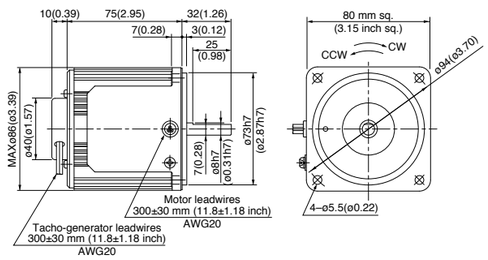
M71X15SV4LS
M71X15SV4YS
M71X15SV4LG(A)
M71X15SV4YG(A)
M71X15SV4DG(A)
M71X15SV4GG(A)



80 mm sq. (3.15 inch sq.) 15 W

Mass 1.2 kg (2.65 lb)

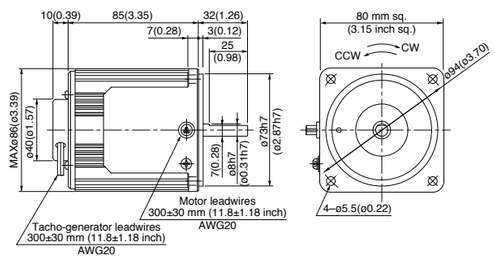
M81X15SV4LS
M81X15SV4YS



80 mm sq. (3.15 inch sq.) 25 W

Mass 1.5 kg (3.31 lb)

M81X25SV4LS
M81X25SV4YS
M81X25SV4LG(A)
M81X25SV4YG(A)
M81X25SV4DG(A)
M81X25SV4GG(A)



＊ Please refer to the pinion shaft motor for wiring and specifications of the motor.

＊ Please read your User's manual carefully so that you will understand the operation and safety precautions before attempting to operate the system.

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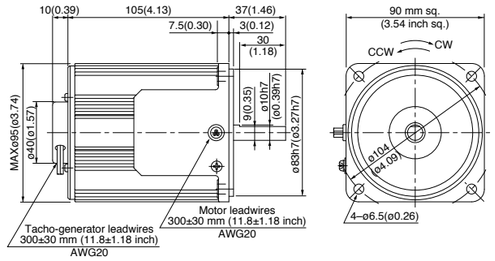
90 mm sq. (3.54 inch sq.) 40 W

Mass 2.4 kg (5.29 lb)

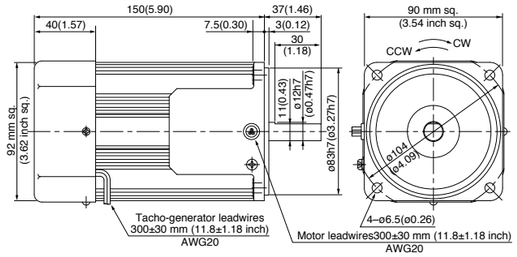
M91X40SV4LS
M91X40SV4YS
M91X40SV4LG(A)
M91X40SV4YG(A)
M91X40SV4DG(A)
M91X40SV4GG(A)



90 mm sq. (3.54 inch sq.) 60 W

Mass 3.2 kg (7.05 lb)

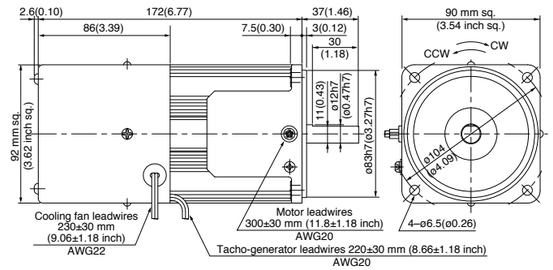
M91Z60SV4LS (with fan)
M91Z60SV4YS (with fan)
M91Z60SV4LG(A) (with fan)
M91Z60SV4DG(A) (with fan)
M91Z60SV4YG(A) (with fan)
M91Z60SV4GG(A) (with fan)
M91Z60SV4GGB (with fan)
M91Z60SV4GGC (with fan)



90 mm sq. (3.54 inch sq.) 90 W

Mass 3.5 kg (7.72 lb)

M91Z90SV4LS (Forced cooling fan)
M91Z90SV4YS (Forced cooling fan)
M91Z90SV4LG(A) (Forced cooling fan)
M91Z90SV4DG (A) (Forced cooling fan)
M91Z90SV4YG (A) (Forced cooling fan)
M91Z90SV4GG(A) (Forced cooling fan)
M91Z90SV4GGB (Forced cooling fan)
M91Z90SV4GGC (Forced cooling fan)



＊ Please refer to the pinion shaft motor for wiring and specifications of the motor.

＊The models with a motor model number to which “A” or “B” is suffixed are not equipped with a capacitor cap.
＊The models with a motor model number to which “A” or “B” is suffixed are not sold or available in Japan.

(Note) Because the dimensions may be subject to change, also check the determinate dimensions if the gear head is to be used for design.

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