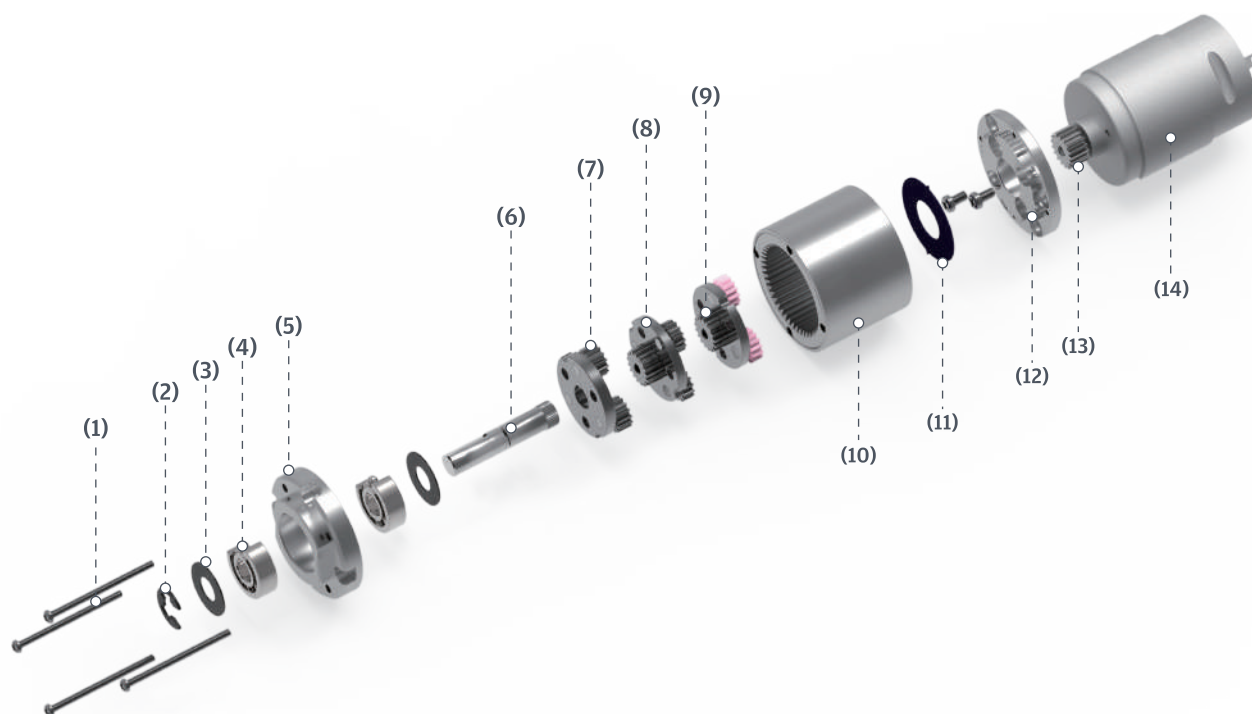


# Planetary Gearbox & Gear Motor

IG series

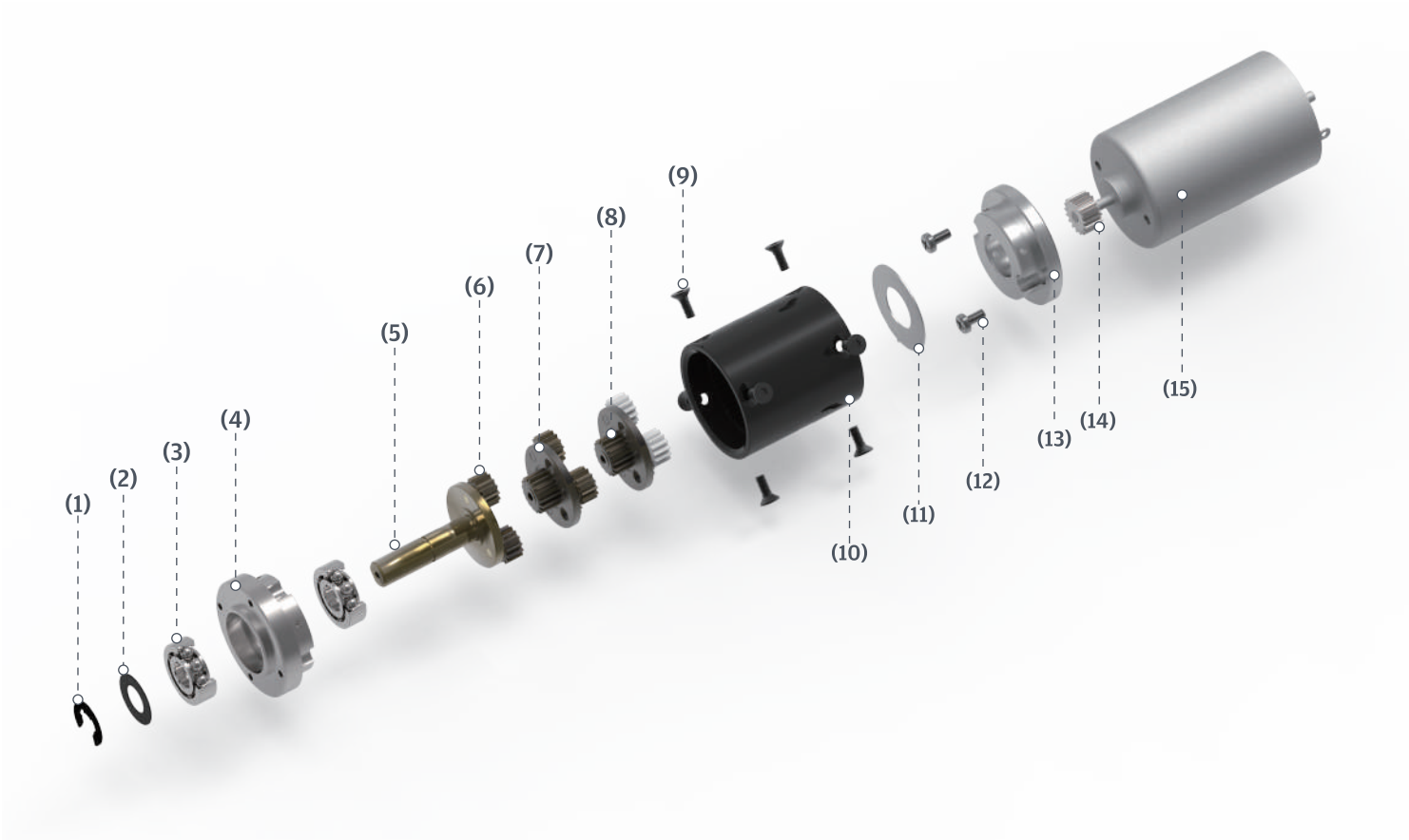
Right Angle series

# 行星式齒輪箱 PLANETARY GEARBOX



|   |      |                |    |        |                   |
|---|------|----------------|----|--------|-------------------|
| 1 | 螺絲   | Screw          | 8  | 傳動齒盤   | Satellite carrier |
| 2 | 扣環   | Circlip        | 9  | 中心齒輪   | Sun gear          |
| 3 | 墊片   | Washer         | 10 | 外殼/內齒輪 | Housing/ring gear |
| 4 | 滾珠軸承 | Ball bearing   | 11 | 墊片     | Washer            |
| 5 | 上蓋   | Front cover    | 12 | 下蓋     | Motor flange      |
| 6 | 主軸   | Output shaft   | 13 | 馬達齒    | Pinion            |
| 7 | 行星齒輪 | Satellite gear | 14 | 馬達     | Motor             |

# 行星式齒輪箱 PLANETARY GEARBOX

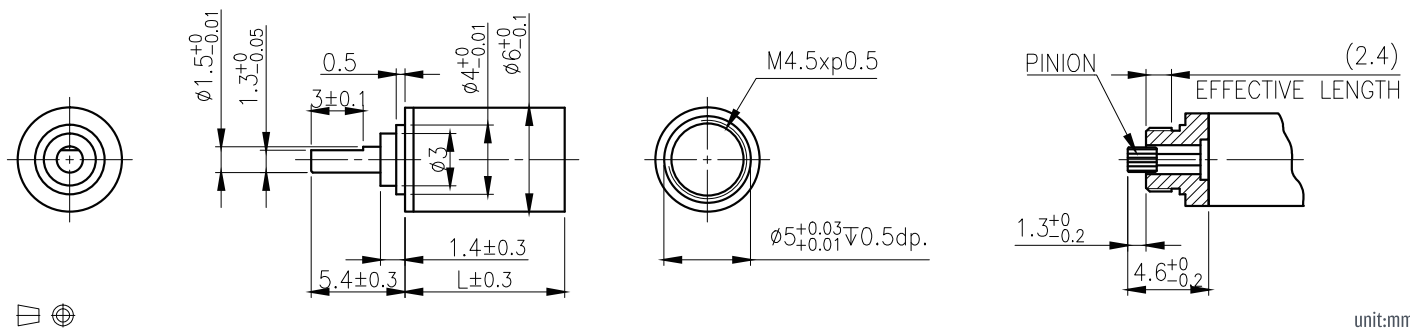


|   |      |                   |    |        |                   |
|---|------|-------------------|----|--------|-------------------|
| 1 | 扣環   | Circlip           | 9  | 螺絲     | Screw             |
| 2 | 墊片   | Washer            | 10 | 外殼/內齒輪 | Housing/ring gear |
| 3 | 滾珠軸承 | Ball bearing      | 11 | 墊片     | Washer            |
| 4 | 上蓋   | Front cover       | 12 | 螺絲     | Screw             |
| 5 | 主軸   | Output shaft      | 13 | 下蓋     | Motor flange      |
| 6 | 行星齒輪 | Satellite gear    | 14 | 馬達齒    | Pinion            |
| 7 | 傳動齒盤 | Satellite carrier | 15 | 馬達     | Motor             |
| 8 | 中心齒輪 | Sun gear          |    |        |                   |

# IG-06



## 外形尺寸 & 馬達齒鉤合尺寸 / Appearance Size & Pinion Assembly Dimension



unit:mm

## 產品規格 / Product Specifications

| 外殼材質<br>Housing material | 輸出軸承型式<br>Output shaft bearing | 徑向負荷<br>Radial load (5mm from flange) | 軸向負荷<br>Shaft axial load | 主軸承受壓入力<br>Shaft press fit force | 徑向間隙<br>Radial play of shaft | 軸向間隙<br>Thrust play of shaft | 背隙(無負荷時)<br>Backlash, at no-load |
|--------------------------|--------------------------------|---------------------------------------|--------------------------|----------------------------------|------------------------------|------------------------------|----------------------------------|
| 金屬<br>Metal              | 滾珠軸承<br>Ball bearings          | ≤ 80 gf                               | ≤ 100 gf                 | ≤ 500 gf                         | ≤ 0.05 mm                    | ≤ 0.15 mm                    | ≤ 2.5°                           |

## 馬達齒輪型式 / Pinion Specification

| 模數<br>Module | 齒數<br>No. of teeth | 壓力角<br>Pressure angle | 孔徑 (mm)<br>Hole diameter | 減速比<br>Reduction ratio |
|--------------|--------------------|-----------------------|--------------------------|------------------------|
| 0.12         | 12                 | 20°                   | ∅ 0.8                    | 全機種通用<br>Practicable   |

## 標準減速比型式 / Gearboxes Specifications

| 減速比<br>Reduction ratio                           | 1/4  | 1/16 | 1/64 | 1/256 |  |  |  |  |  |  |  |  |  |
|--|------|------|------|-------|--|--|--|--|--|--|--|--|--|
| 定格容許扭力 (gf-cm max.)<br>Rated tolerance torque    | 20   | 50   | 100  | 200   |  |  |  |  |  |  |  |  |  |
| 瞬間容許扭力 (gf-cm)<br>Max momentary tolerance torque | 50   | 100  | 200  | 400   |  |  |  |  |  |  |  |  |  |
| 效率<br>Efficiency                                 | 83%  | 72%  | 62%  | 53%   |  |  |  |  |  |  |  |  |  |
| 長度<br>Length (L)                                 | 9.2  | 11.9 | 14.6 | 17.3  |  |  |  |  |  |  |  |  |  |
| 重量 (滾珠軸承)<br>Weight (g)                          | 1.50 | 1.95 | 2.40 | 2.85  |  |  |  |  |  |  |  |  |  |

- 使用相對溼度：20%~85%RH  
Operating relative humidity
- 使用溫度範圍：-10 C~+60 C  
Operating temperature range



PG

# IG-08



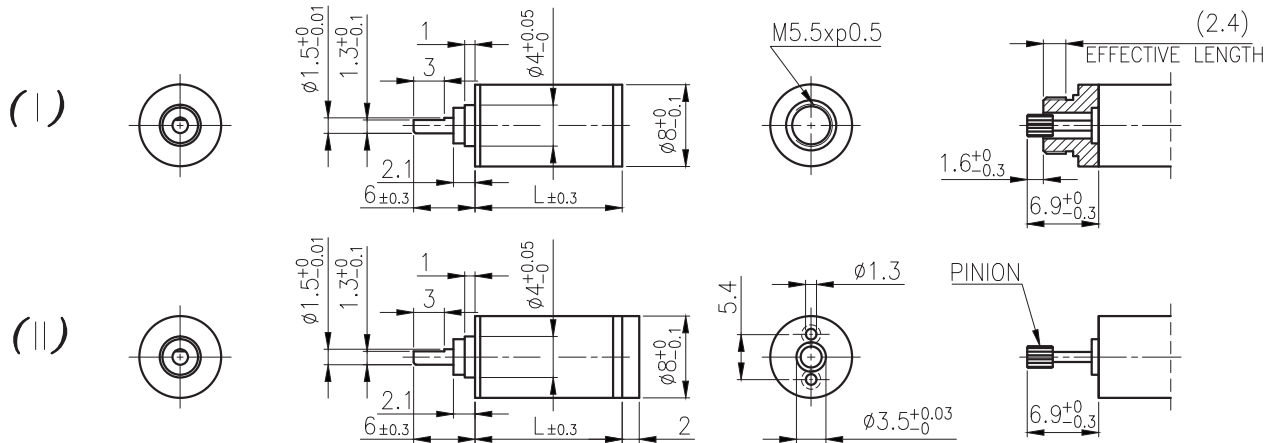
IG

## 外形尺寸 & 馬達齒鉚合尺寸 / Appearance Size & Pinion Assembly Dimension

Right Angle

RA

RB



unit:mm

## 產品規格/ Product Specifications

| 外殼材質<br>Housing material | 輸出軸承型式<br>Output shaft bearing | 徑向負荷<br>Radial load (5mm from flange) | 軸向負荷<br>Shaft axial load | 主軸承受壓力<br>Shaft press fit force | 徑向間隙<br>Radial play of shaft | 軸向間隙<br>Thrust play of shaft | 背隙 (無負荷時)<br>Backlash, at no-load |
|--------------------------|--------------------------------|---------------------------------------|--------------------------|---------------------------------|------------------------------|------------------------------|-----------------------------------|
| 金屬<br>Metal              | 含油軸承<br>Sleeve bearing         | $\leq 80$ gf                          | $\leq 100$ gf            | $\leq 500$ gf                   | $\leq 0.05$ mm               | $\leq 0.2$ mm                | $\leq 3^\circ$                    |

## 馬達齒輪型式/ Pinion Specification

| 模數<br>Module | 齒數<br>No. of teeth | 壓力角<br>Pressure angle | 孔徑 (mm)<br>Hole diameter | 減速比<br>Reduction ratio |
|--------------|--------------------|-----------------------|--------------------------|------------------------|
| 0.16         | 12                 | $20^\circ$            | $\phi 0.99$              | 全機種通用<br>Practicable   |

## 標準減速比型式/ Gearboxes Specifications

| 減速比<br>Reduction ratio                           | 1/4 | 1/16 | 1/64 | 1/256 | 1/1024 | 1/4096 |  |  |  |  |  |  |  |  |
|--|-----|------|------|-------|--------|--------|--|--|--|--|--|--|--|--|
| 定格容許扭力 (gf-cm max.)<br>Rated tolerance torque    | 50  | 100  | 200  | 300   | 350    | 400    |  |  |  |  |  |  |  |  |
| 瞬間容許扭力 (gf-cm)<br>Max momentary tolerance torque | 150 | 300  | 600  | 900   | 1050   | 1200   |  |  |  |  |  |  |  |  |
| 效率<br>Efficiency                                 | 85% | 75%  | 65%  | 55%   | 45%    | 40%    |  |  |  |  |  |  |  |  |
| 長度<br>Length (L)                                 | 9.6 | 12.3 | 15   | 17.7  | 20.4   | 23.1   |  |  |  |  |  |  |  |  |
| 重量 (I)<br>Weight (g)                             | 2.9 | 3.8  | 4.6  | 5.4   | 6.3    | 7.1    |  |  |  |  |  |  |  |  |
| 重量 (II)<br>Weight (g)                            | 3.7 | 4.6  | 5.4  | 6.2   | 7.1    | 7.9    |  |  |  |  |  |  |  |  |

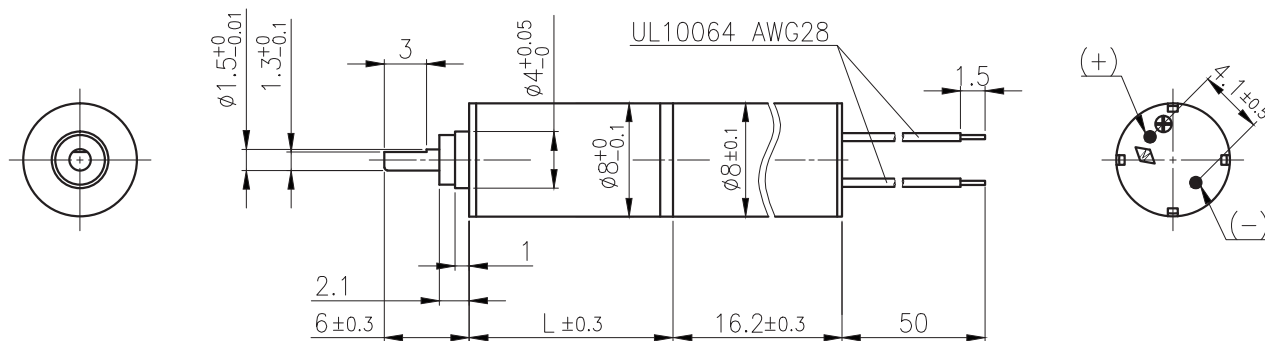
- 使用相對溼度：20%~85%RH  
Operating relative humidity
- 使用溫度範圍：-10°C~+60°C  
Operating temperature range

# IG-08GM

## 01 & 02 TYPE



外形尺寸 / Appearance Size



unit:mm

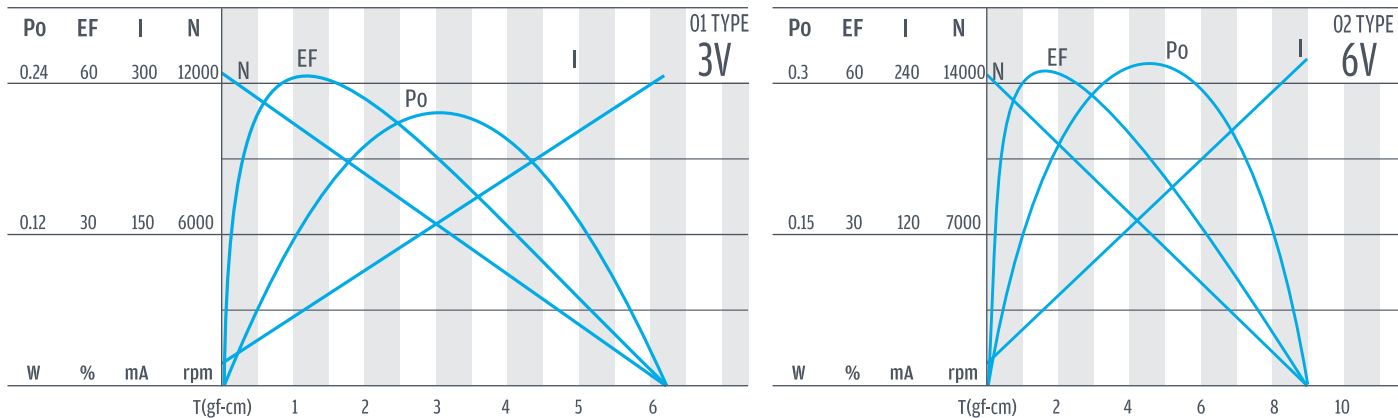
齒輪箱馬達轉矩 & 速度 / Gear Motor Torque & Speed

| 減速比<br>Reduction ratio             | 1/4  | 1/16 | 1/64 | 1/256 | 1/1024 | 1/4096 |  |  |  |  |  |  |  |  |
|------------------------------------|------|------|------|-------|--------|--------|--|--|--|--|--|--|--|--|
| 3V<br>定格扭力<br>Rated torque (gf-cm) | 6.8  | 24   | 83   | 281   | 350    | 400    |  |  |  |  |  |  |  |  |
| 3V<br>定格轉速<br>Rated speed (rpm)    | 2250 | 562  | 140  | 35    | 10     | 2.9    |  |  |  |  |  |  |  |  |
| 6V<br>定格扭力<br>Rated torque (gf-cm) | 6.8  | 24   | 83   | 281   | 350    | 400    |  |  |  |  |  |  |  |  |
| 6V<br>定格轉速<br>Rated speed (rpm)    | 2875 | 719  | 179  | 44    | 12.6   | 3.3    |  |  |  |  |  |  |  |  |
| 軸心迴轉方向<br>Rotation direction       | CW   |      |      |       |        |        |  |  |  |  |  |  |  |  |
| 長度<br>Length (L)                   | 9.6  | 12.3 | 15   | 17.7  | 20.4   | 23.1   |  |  |  |  |  |  |  |  |

馬達單體型式 / Motor Data

| 定格電壓<br>Rated volt (V) | 定格扭力<br>Rated torque (gf-cm) | 定格轉速<br>Rated speed (rpm) | 定格電流<br>Rated current (mA) | 無負荷轉速<br>No load speed (rpm) | 無負荷電流<br>No load current (mA) | 定格出力<br>Rated output (W) | 重量<br>Weight (g) |
|------------------------|------------------------------|---------------------------|----------------------------|------------------------------|-------------------------------|--------------------------|------------------|
| 3                      | 2                            | 9000                      | ≤150                       | 12500                        | ≤30                           | 0.18                     | 3.7              |
| 6                      | 2                            | 11500                     | ≤110                       | 14700                        | ≤20                           | 0.23                     | 7.2              |

馬達單體特性 / Motor Characteristics



- PG
- IG
- Right Angle
- RA
- RB
- WG
- SD
- BLDC
- Encoder
- Driver

PG

# IG-08GM

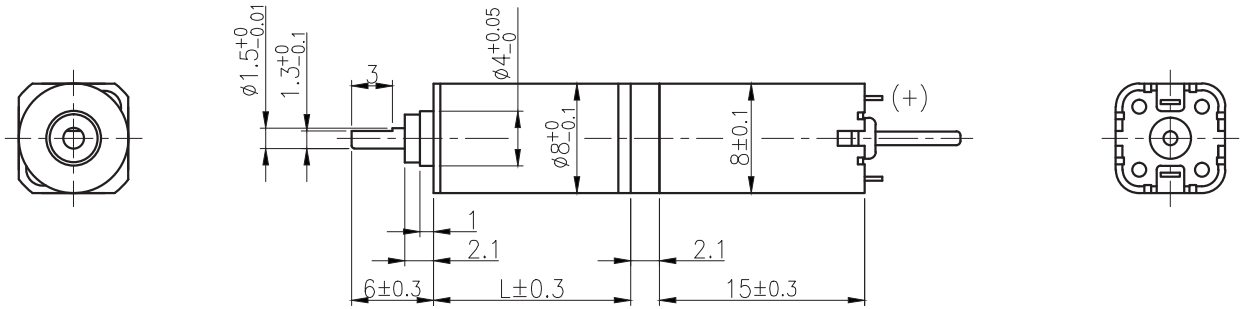
## 03 TYPE



IG

### 外形尺寸 / Appearance Size

Right Angle



unit:mm

RA

### 齒輪箱馬達轉矩 & 速度 / Gear Motor Torque & Speed

| 減速比<br>Reduction ratio             | 1/4  | 1/16 | 1/64 | 1/256 | 1/1024 | 1/4096 |  |  |  |  |  |  |  |  |
|------------------------------------|------|------|------|-------|--------|--------|--|--|--|--|--|--|--|--|
| 3V<br>定格扭力<br>Rated torque (gf-cm) | 5    | 175  | 62   | 210   | 350    | 400    |  |  |  |  |  |  |  |  |
| 3V<br>定格轉速<br>Rated speed (rpm)    | 1400 | 350  | 87   | 21.9  | 6.7    | 1.8    |  |  |  |  |  |  |  |  |
| 軸心迴轉方向<br>Rotation direction       | CW   |      |      |       |        |        |  |  |  |  |  |  |  |  |
| 長度<br>Length (L)                   | 9.6  | 12.3 | 15   | 17.7  | 20.4   | 23.1   |  |  |  |  |  |  |  |  |

RB

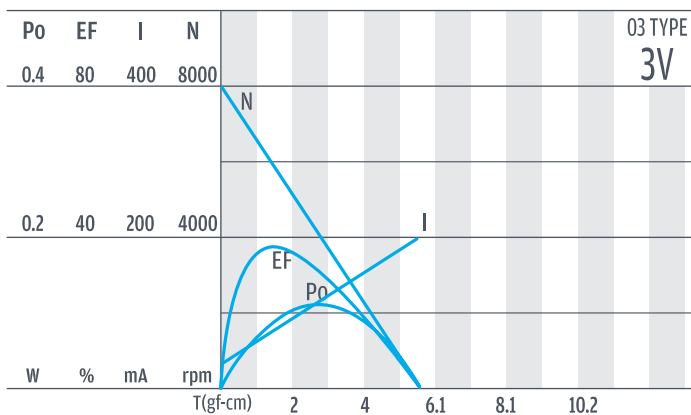
WG

### 馬達單體型式 / Motor Data

| 定格電壓<br>Rated volt (V) | 定格扭力<br>Rated torque (gf-cm) | 定格轉速<br>Rated speed (rpm) | 定格電流<br>Rated current (mA) | 無負荷轉速<br>No load speed (rpm) | 無負荷電流<br>No load current (mA) | 定格出力<br>Rated output (W) | 重量<br>Weight (g) |
|------------------------|------------------------------|---------------------------|----------------------------|------------------------------|-------------------------------|--------------------------|------------------|
| 3                      | 1.5                          | 5700                      | ≤ 130                      | 8000                         | ≤ 50                          | 0.09                     | 3.8              |

SD

### 馬達單體特性 / Motor Characteristics



BLDC

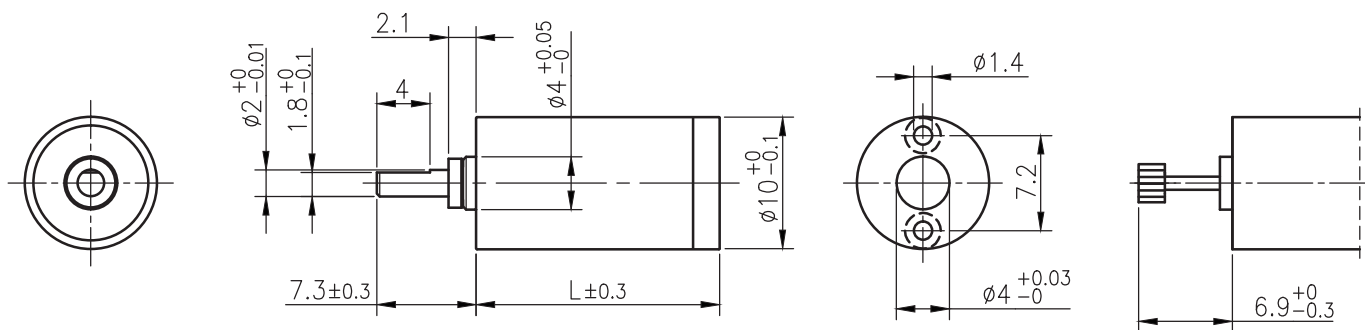
Encoder

Driver

# IG-10



## 外形尺寸 & 馬達齒鉚合尺寸 / Appearance Size & Pinion Assembly Dimension



unit:mm

## 產品規格/ Product Specifications

| 外殼材質<br>Housing material | 輸出軸承型式<br>Output shaft bearing | 徑向負荷<br>Radial load (5mm from flange) | 軸向負荷<br>Shaft axial load | 主軸承受壓入力<br>Shaft press fit force | 徑向間隙<br>Radial play of shaft | 軸向間隙<br>Thrust play of shaft | 背隙 (無負荷時)<br>Backlash, at no-load |
|--------------------------|--------------------------------|---------------------------------------|--------------------------|----------------------------------|------------------------------|------------------------------|-----------------------------------|
| 金屬<br>Metal              | 含油軸承<br>Sleeve bearing         | $\leq 100$ gf                         | $\leq 200$ gf            | $\leq 500$ gf                    | $\leq 0.05$ mm               | $\leq 0.2$ mm                | $\leq 3^\circ$                    |

## 馬達齒輪型式/ Pinion Specifications

| 模數<br>Module | 齒數<br>No. of teeth | 壓力角<br>Pressure angle | 孔徑 (mm)<br>Hole diameter | 減速比<br>Reduction ratio |
|--------------|--------------------|-----------------------|--------------------------|------------------------|
| 0.2          | 12                 | $20^\circ$            | $\phi 0.99$              | 全機種通用<br>Practicable   |

## 標準減速比型式/ Gearboxes Specifications

| 減速比<br>Reduction ratio                                | 1/4  | 1/16 | 1/64 | 1/256 | 1/1024 | 1/4096 |  |  |  |  |  |  |  |  |  |
|---|------|------|------|-------|--------|--------|--|--|--|--|--|--|--|--|--|
| 定格容許扭力 (gf-cm max.)<br>Rated tolerance torque         | 50   | 100  | 300  | 400   | 500    | 600    |  |  |  |  |  |  |  |  |  |
| 瞬間容許扭力 (gf-cm max.)<br>Max momentary tolerance torque | 150  | 300  | 900  | 1200  | 1500   | 1800   |  |  |  |  |  |  |  |  |  |
| 效率<br>Efficiency                                      | 85%  | 75%  | 65%  | 55%   | 45%    | 40%    |  |  |  |  |  |  |  |  |  |
| 長度<br>Length (L)                                      | 11.7 | 14.8 | 17.9 | 21    | 24.1   | 27.2   |  |  |  |  |  |  |  |  |  |
| 重量 (含油軸承)<br>Weight (g) / Sleeve bearing              | 6.2  | 7.2  | 8.2  | 10.2  | 11.2   | 13.2   |  |  |  |  |  |  |  |  |  |

- 使用相對溼度：20%~85%RH  
Operating relative humidity
- 使用溫度範圍：-10°C~+60°C  
Operating temperature range

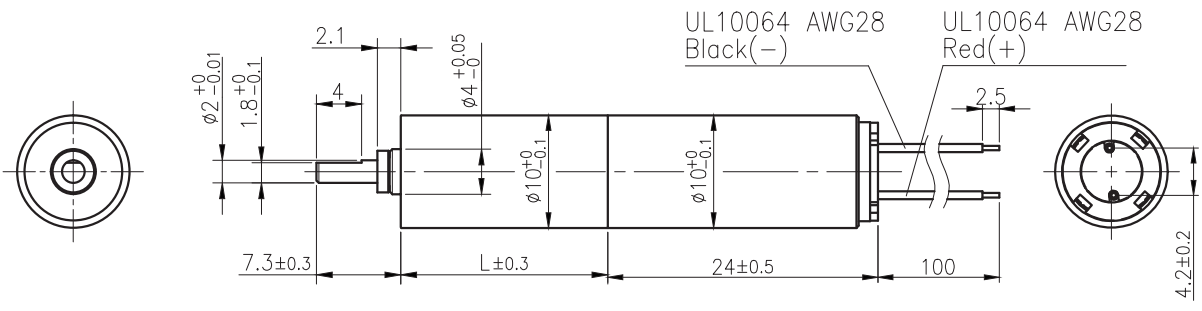


# IG-10GM

## 01 & 02 TYPE



外形尺寸 / Appearance Size



unit:mm

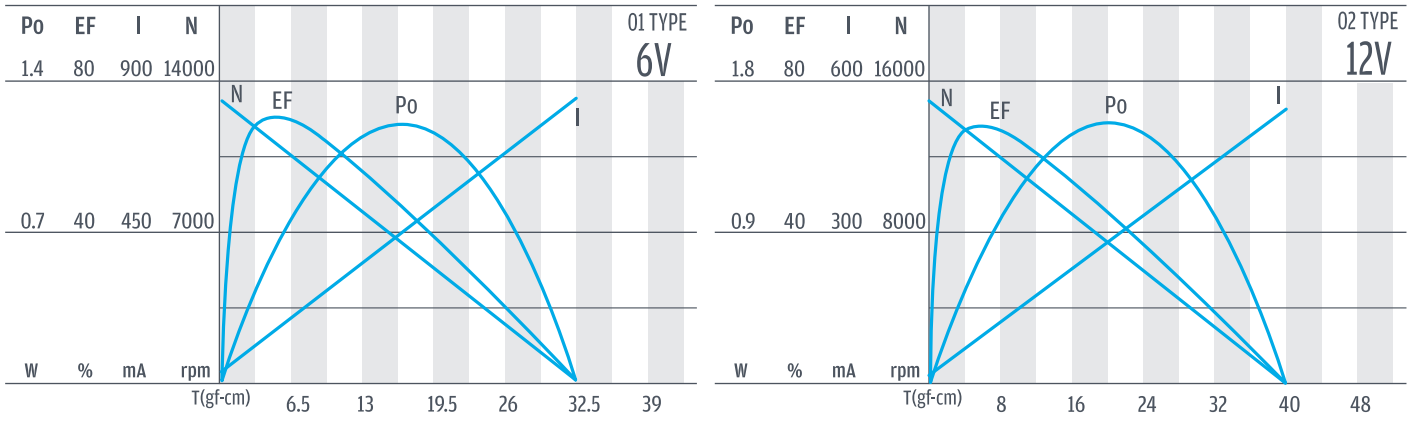
齒輪箱馬達轉矩 & 速度 / Gear Motor Torque & Speed

|                  |                              | 1/4  | 1/16 | 1/64 | 1/256 | 1/1024 | 1/4096 |
|------------------|------------------------------|------|------|------|-------|--------|--------|
| 6V               | 減速比<br>Reduction ratio       | 1/4  | 1/16 | 1/64 | 1/256 | 1/1024 | 1/4096 |
|                  | 定格扭力<br>Rated torque (gf-cm) | 10   | 36   | 124  | 400   | 500    | 600    |
| 12V              | 定格轉速<br>Rated speed (rpm)    | 3000 | 750  | 187  | 46    | 11     | 2.9    |
|                  | 定格扭力<br>Rated torque (gf-cm) | 10   | 36   | 124  | 400   | 500    | 600    |
| 12V              | 定格轉速<br>Rated speed (rpm)    | 3500 | 875  | 218  | 54    | 13     | 3.4    |
|                  | 軸心迴轉方向<br>Rotation direction | CW   |      |      |       |        |        |
| 長度<br>Length (L) |                              | 9.7  | 12.8 | 15.9 | 19    | 22.1   | 25.2   |

馬達單體型式 / Motor Data

| 定格電壓<br>Rated volt (V) | 定格扭力<br>Rated torque (gf-cm) | 定格轉速<br>Rated speed (rpm) | 定格電流<br>Rated current (mA) | 無負荷轉速<br>No load speed (rpm) | 無負荷電流<br>No load current (mA) | 定格出力<br>Rated output (W) | 重量<br>Weight (g) |
|------------------------|------------------------------|---------------------------|----------------------------|------------------------------|-------------------------------|--------------------------|------------------|
| 6                      | 3                            | 12000                     | ≤140                       | 13000                        | ≤ 45                          | 0.36                     | 79               |
| 12                     | 3                            | 14000                     | ≤ 70                       | 15000                        | ≤ 30                          | 0.43                     | 79               |

馬達單體特性 / Motor Characteristics

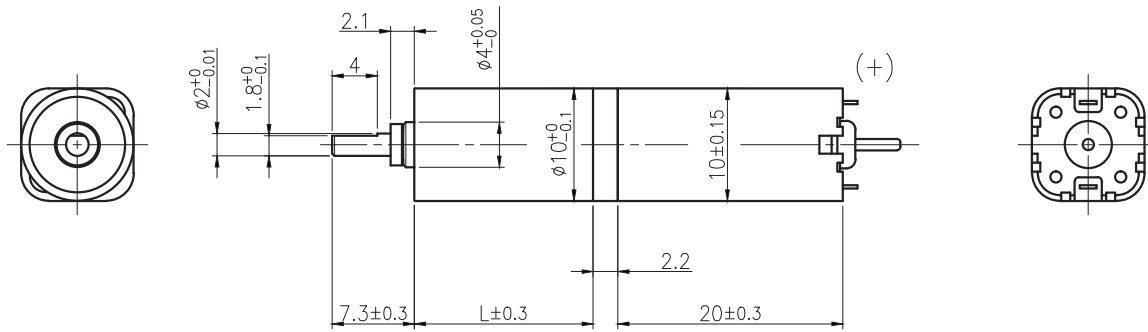


# IG-10GM

## 03 TYPE



外形尺寸 / Appearance Size



unit:mm

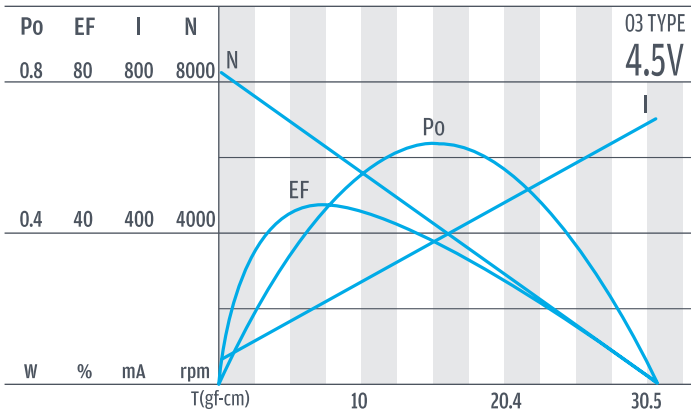
齒輪箱馬達轉矩 & 速度 / Gear Motor Torque & Speed

|                                   |      |      |      |       |        |        |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|------|------|------|-------|--------|--------|--|--|--|--|--|--|--|--|--|--|--|--|
| 減速比<br>Reduction ratio            | 1/4  | 1/16 | 1/64 | 1/256 | 1/1024 | 1/4096 |  |  |  |  |  |  |  |  |  |  |  |  |
| 4.5V 定格扭力<br>Rated torque (gf-cm) | 17   | 61   | 212  | 400   | 500    | 600    |  |  |  |  |  |  |  |  |  |  |  |  |
| 4.5V 定格轉速<br>Rated speed (rpm)    | 1690 | 420  | 105  | 29    | 7.7    | 1.9    |  |  |  |  |  |  |  |  |  |  |  |  |
| 軸心迴轉方向<br>Rotation direction      | CW   |      |      |       |        |        |  |  |  |  |  |  |  |  |  |  |  |  |
| 長度<br>Length (L)                  | 9.7  | 12.8 | 15.9 | 19    | 22.1   | 25.2   |  |  |  |  |  |  |  |  |  |  |  |  |

馬達單體型式 / Motor Data

|                        |                              |                           |                            |                              |                               |                          |                  |
|------------------------|------------------------------|---------------------------|----------------------------|------------------------------|-------------------------------|--------------------------|------------------|
| 定格電壓<br>Rated volt (V) | 定格扭力<br>Rated torque (gf-cm) | 定格轉速<br>Rated speed (rpm) | 定格電流<br>Rated current (mA) | 無負荷轉速<br>No load speed (rpm) | 無負荷電流<br>No load current (mA) | 定格出力<br>Rated output (W) | 重量<br>Weight (g) |
| 4.5                    | 5.1                          | 6800                      | ≤ 270                      | 8100                         | ≤ 125                         | 0.4                      | 8.2              |

馬達單體特性 / Motor Characteristics



# Planetary Gearbox

PG

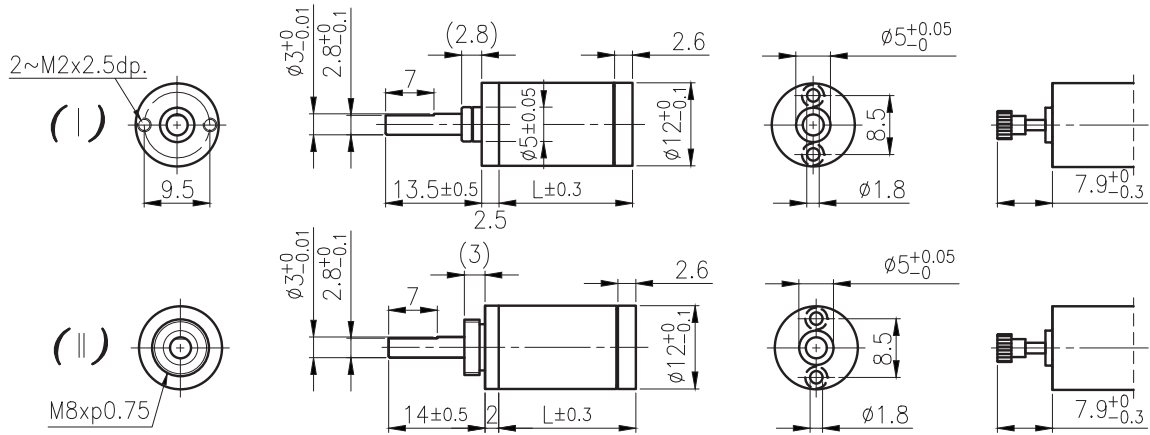
## IG-12



IG

### 外形尺寸 & 馬達齒鉚合尺寸 / Appearance Size & Pinion Assembly Dimension

Right Angle



unit:mm

### 產品規格 / Product Specifications

| 外殼材質<br>Housing material | 輸出軸承型式<br>Output shaft bearing | 徑向負荷<br>Radial load (5mm from flange) | 軸向負荷<br>Shaft axial load | 主軸承受壓入力<br>Shaft press fit force | 徑向間隙<br>Radial play of shaft | 軸向間隙<br>Thrust play of shaft | 背隙 (無負荷時)<br>Backlash, at no-load |
|--------------------------|--------------------------------|---------------------------------------|--------------------------|----------------------------------|------------------------------|------------------------------|-----------------------------------|
| 金屬<br>Metal              | 含油軸承<br>Sleeve bearing         | ≤ 0.5 kgf                             | ≤ 0.5 kgf                | ≤ 1.5 kgf                        | ≤ 0.08mm                     | ≤ 0.2 mm                     | ≤ 3°                              |

W/G

### 馬達齒輪型式 / Pinion Specification

| 模數<br>Module | 齒數<br>No. of teeth | 壓力角<br>Pressure angle | 孔徑 (mm)<br>Hole diameter | 減速比<br>Reduction ratio |
|--------------|--------------------|-----------------------|--------------------------|------------------------|
| 0.25         | 12                 | 20°                   | ø 1.49                   | 全機種通用<br>Practicable   |

SD

### 標準減速比型式 / Gearboxes Specifications

| 減速比<br>Reduction ratio                            | 1/4  | 1/16 | 1/64 | 1/256 | 1/1024 | 1/4096 |
|---|------|------|------|-------|--------|--------|
| 定格容許扭力 (kgf-cm max.)<br>Rated tolerance torque    | 0.8  | 1.2  | 1.6  | 1.8   | 2      | 2      |
| 瞬間容許扭力 (kgf-cm)<br>Max momentary tolerance torque | 2.4  | 3.6  | 4.8  | 5.4   | 6      | 6      |
| 效率<br>Efficiency                                  | 85%  | 75%  | 65%  | 55%   | 45%    | 40%    |
| 長度<br>Length (L)                                  | 12.9 | 16.2 | 19.5 | 22.8  | 26.1   | 29.4   |
| 重量 (I)<br>Weight (g)                              | 12.1 | 14.2 | 16.3 | 18.4  | 20.5   | 22.6   |
| 重量 (II)<br>Weight (g)                             | 12.6 | 14.7 | 16.8 | 18.9  | 21     | 23.1   |

BLDC

Encoder

Driver

- 使用相對溼度：20%~85%RH  
Operating relative humidity
- 使用溫度範圍：-10°C~+60°C  
Operating temperature range

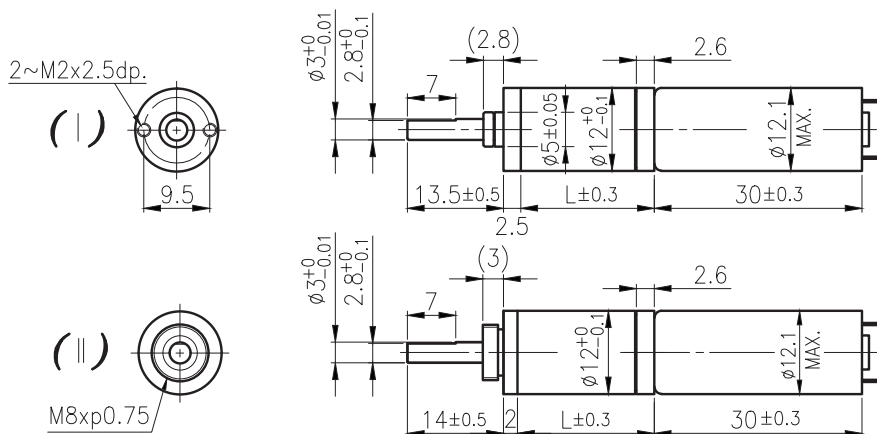
# IG-12GM

## 01 & 02 TYPE



### 外形尺寸 / Appearance Size

視圖方向僅供參考 / The position of the screw hole and motor terminal in the photo is only for reference.



unit:mm

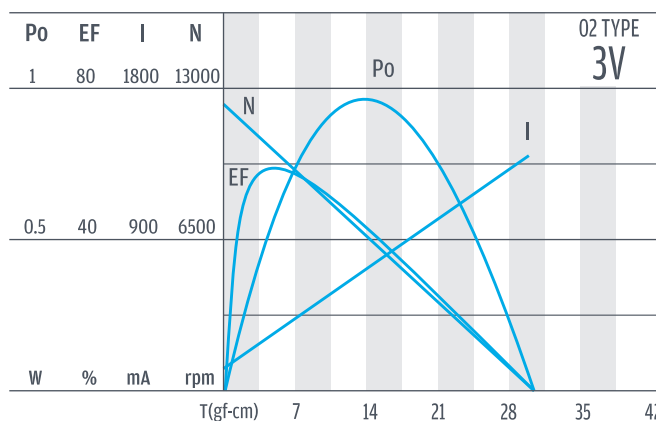
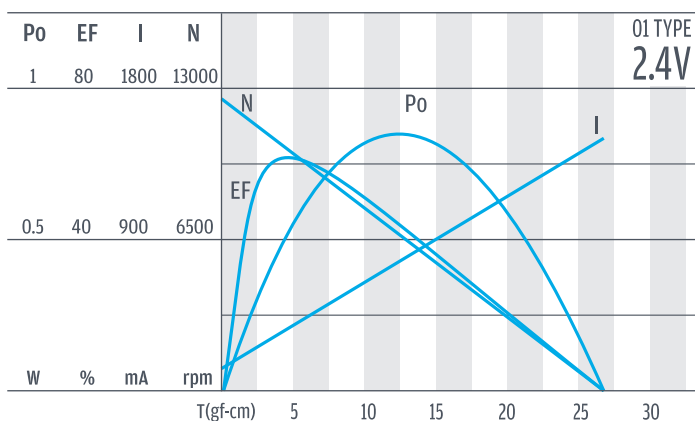
### 齒輪箱馬達轉矩 & 速度 / Gear Motor Torque & Speed

| 減速比<br>Reduction ratio               | 1/4  | 1/16 | 1/64 | 1/256 | 1/1024 | 1/4096 |  |  |  |  |  |  |  |
|--------------------------------------|------|------|------|-------|--------|--------|--|--|--|--|--|--|--|
| 2.4V<br>定格扭力<br>Rated torque (gf-cm) | 20   | 70   | 250  | 840   | 2000   | 2000   |  |  |  |  |  |  |  |
| 2.4V<br>定格轉速<br>Rated speed (rpm)    | 2400 | 600  | 150  | 38    | 10     | 2.8    |  |  |  |  |  |  |  |
| 3V<br>定格扭力<br>Rated torque (gf-cm)   | 19   | 65   | 230  | 780   | 2000   | 2000   |  |  |  |  |  |  |  |
| 3V<br>定格轉速<br>Rated speed (rpm)      | 2400 | 610  | 150  | 39    | 10     | 2.8    |  |  |  |  |  |  |  |
| 軸心迴轉方向<br>Rotation direction         | CW   |      |      |       |        |        |  |  |  |  |  |  |  |
| 長度<br>Length (L)                     | 12.9 | 16.2 | 19.5 | 22.8  | 26.1   | 29.4   |  |  |  |  |  |  |  |

### 馬達單體型式 / Motor Data

| 定格電壓<br>Rated volt (V) | 定格扭力<br>Rated torque (gf-cm) | 定格轉速<br>Rated speed (rpm) | 定格電流<br>Rated current (mA) | 無負荷轉速<br>No load speed (rpm) | 無負荷電流<br>No load current (mA) | 定格出力<br>Rated output (W) | 重量<br>Weight (g) |
|------------------------|------------------------------|---------------------------|----------------------------|------------------------------|-------------------------------|--------------------------|------------------|
| 2.4                    | 6                            | 10000                     | ≤ 450                      | 12500                        | ≤ 130                         | 0.62                     | 13               |
| 3                      | 5.6                          | 10000                     | ≤ 410                      | 12500                        | ≤ 120                         | 0.59                     | 13               |

### 馬達單體特性 / Motor Characteristics





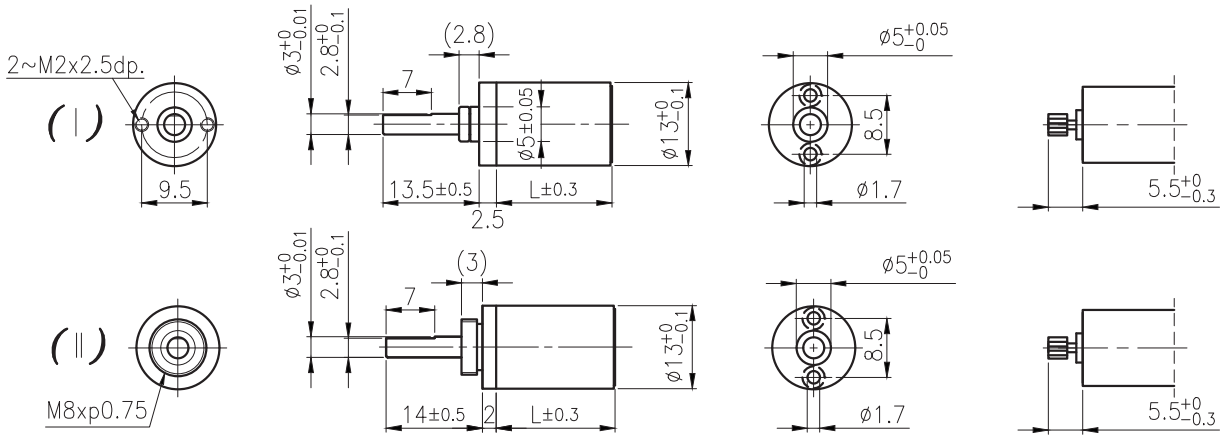
PG

# IG-13



IG

## 外形尺寸 & 馬達齒鉤合尺寸 / Appearance Size & Pinion Assembly Dimension



unit:mm

## 產品規格 / Product Specifications

| 外殼材質<br>Housing material | 輸出軸承型式<br>Output shaft bearing | 徑向負荷<br>Radial load (8mm from flange) | 軸向負荷<br>Shaft axial load | 主軸承受壓入力<br>Shaft press fit force | 徑向間隙<br>Radial play of shaft | 軸向間隙<br>Thrust play of shaft | 背隙 (無負荷時)<br>Backlash, at no-load |
|--------------------------|--------------------------------|---------------------------------------|--------------------------|----------------------------------|------------------------------|------------------------------|-----------------------------------|
| 金屬<br>Metal              | 含油軸承<br>Sleeve bearing         | ≤ 0.5 kgf                             | ≤ 0.5 kgf                | ≤ 1.5 kgf                        | ≤ 0.08 mm                    | ≤ 0.2 mm                     | ≤ 3°                              |

## 馬達齒輪型式 / Pinion Specification

| 模數<br>Module | 齒數<br>No. of teeth | 壓力角<br>Pressure angle | 孔徑 (mm)<br>Hole diameter | 減速比<br>Reduction ratio |
|--------------|--------------------|-----------------------|--------------------------|------------------------|
| 0.25         | 12                 | 20°                   | ∅ 1.49                   | 全機種通用<br>Practicable   |

## 標準減速比型式 / Gearboxes Specifications

| 減速比<br>Reduction ratio                            | 1/4  | 1/16 | 1/64 | 1/256 | 1/1024 | 1/4096 |
|---|------|------|------|-------|--------|--------|
| 定格容許扭力 (kgf-cm max.)<br>Rated tolerance torque    | 0.8  | 1.2  | 1.6  | 1.8   | 2      | 2      |
| 瞬間容許扭力 (kgf-cm)<br>Max momentary tolerance torque | 2.4  | 3.6  | 4.8  | 5.4   | 6      | 6      |
| 效率<br>Efficiency                                  | 85%  | 75%  | 65%  | 55%   | 45%    | 40%    |
| 長度<br>Length (L)                                  | 10.3 | 13.6 | 16.9 | 20.2  | 23.5   | 26.8   |
| 重量 (I)<br>Weight (g)                              | 10.7 | 12.8 | 14.9 | 17    | 19.1   | 21.2   |
| 重量 (II)<br>Weight (g)                             | 11.2 | 13.3 | 15.4 | 17.5  | 19.6   | 21.7   |

- 使用相對溼度：20%~85%RH  
Operating relative humidity
- 使用溫度範圍：-10℃~+60℃  
Operating temperature range

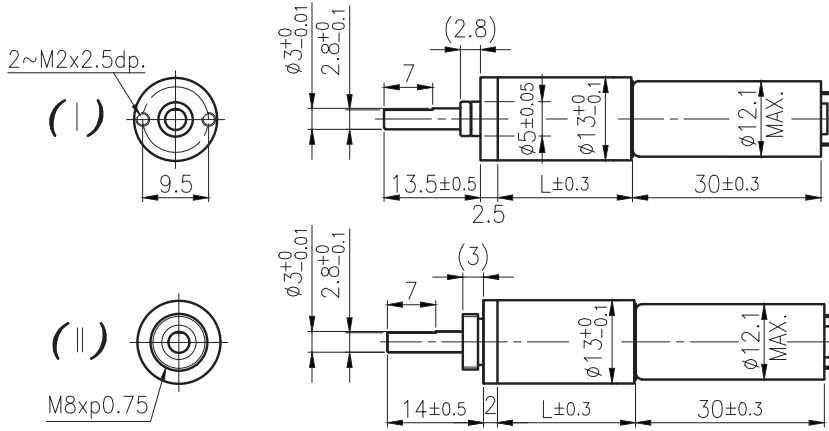
# IG-13GM

## 01 & 02 TYPE



外形尺寸 / Appearance Size

視圖方向僅供參考 / The position of the screw hole and motor terminal in the photo is only for reference.



unit:mm

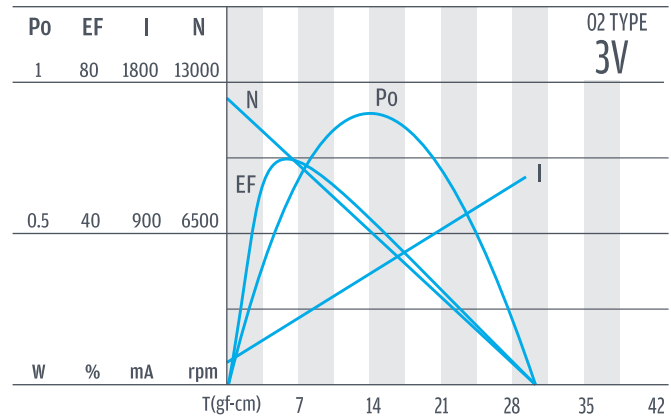
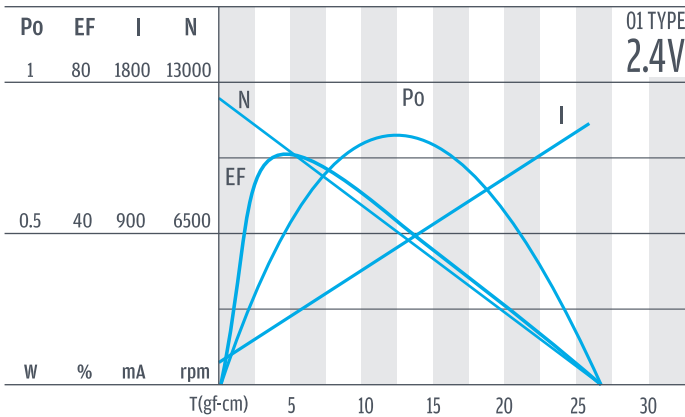
齒輪箱馬達轉矩 & 速度 / Gear Motor Torque & Speed

|                              |                              |      |      |       |        |        |      |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|------------------------------|------|------|-------|--------|--------|------|--|--|--|--|--|--|--|--|--|--|--|
| 減速比<br>Reduction ratio       | 1/4                          | 1/16 | 1/64 | 1/256 | 1/1024 | 1/4096 |      |  |  |  |  |  |  |  |  |  |  |  |
| 2.4V                         | 定格扭力<br>Rated torque (gf-cm) | 20   | 70   | 250   | 840    | 2000   | 2000 |  |  |  |  |  |  |  |  |  |  |  |
|                              | 定格轉速<br>Rated speed (rpm)    | 2400 | 600  | 150   | 38     | 10     | 2.8  |  |  |  |  |  |  |  |  |  |  |  |
| 3V                           | 定格扭力<br>Rated torque (gf-cm) | 19   | 65   | 230   | 780    | 2000   | 2000 |  |  |  |  |  |  |  |  |  |  |  |
|                              | 定格轉速<br>Rated speed (rpm)    | 2400 | 610  | 150   | 39     | 10     | 2.8  |  |  |  |  |  |  |  |  |  |  |  |
| 軸心迴轉方向<br>Rotation direction | CW                           |      |      |       |        |        |      |  |  |  |  |  |  |  |  |  |  |  |
| 長度<br>Length (L)             | 10.3                         | 13.6 | 16.9 | 20.2  | 23.5   | 26.8   |      |  |  |  |  |  |  |  |  |  |  |  |

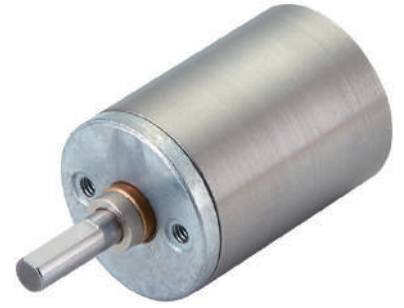
馬達單體型式 / Motor Data

| 定格電壓<br>Rated volt (V) | 定格扭力<br>Rated torque (gf-cm) | 定格轉速<br>Rated speed (rpm) | 定格電流<br>Rated current (mA) | 無負荷轉速<br>No load speed (rpm) | 無負荷電流<br>No load current (mA) | 定格出力<br>Rated output (W) | 重量<br>Weight (g) |
|------------------------|------------------------------|---------------------------|----------------------------|------------------------------|-------------------------------|--------------------------|------------------|
| 2.4                    | 6                            | 10000                     | ≤ 450                      | 12500                        | ≤ 130                         | 0.62                     | 13               |
| 3                      | 5.6                          | 10000                     | ≤ 410                      | 12500                        | ≤ 120                         | 0.59                     | 13               |

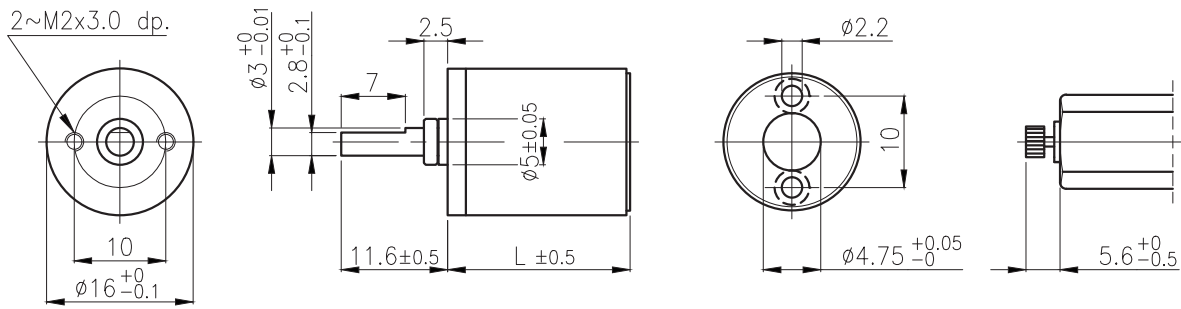
馬達單體特性 / Motor Characteristics



# IG-16



## 外形尺寸 & 馬達齒鉤合尺寸 / Appearance Size & Pinion Assembly Dimension



unit:mm

## 產品規格/ Product Specifications

| 外殼材質<br>Housing material | 輸出軸承型式<br>Output shaft bearing | 徑向負荷<br>Radial load (10mm from flange) | 軸向負荷<br>Shaft axial load | 主軸承受壓入力<br>Shaft press fit force | 徑向間隙<br>Radial play of shaft | 軸向間隙<br>Thrust play of shaft | 背隙 (無負荷時)<br>Backlash, at no-load |
|--------------------------|--------------------------------|--|--------------------------|----------------------------------|------------------------------|------------------------------|-----------------------------------|
| 金屬<br>Metal              | 含油軸承<br>Sleeve bearing         | ≤ 0.5 kgf                              | ≤ 0.5 kgf                | ≤ 1.5 kgf                        | ≤ 0.08 mm                    | ≤ 0.2 mm                     | ≤ 3°                              |

## 馬達齒輪型式/ Pinion Specification

| 模數<br>Module | 齒數<br>No. of teeth | 壓力角<br>Pressure angle | 孔徑 (mm)<br>Hole diameter | 減速比<br>Reduction ratio   |
|--------------|--------------------|-----------------------|--------------------------|--|
| 0.3          | 10                 | 20°                   | ∅ 1.49                   | 1/29, 1/104, 1/128, 1/157, 1/455, 1/561, 1/690, 1/1996, 1/3027         |
| 0.3          | 13                 | 20°                   | ∅ 1.49, ∅ 1.98           | 1/4, 1/16, 1/19, 1/62, 1/72, 1/84, 1/231, 1/316, 1/370, 1/1014, 1/1621 |
| 0.3          | 16                 | 20°                   | ∅ 1.49, ∅ 1.98           | 1/14, 1/53   |

## 標準減速比型式/ Gearboxes Specifications

| 減速比<br>Reduction ratio                            | 1/4   | 1/14  | 1/16  | 1/19  | 1/29  | 1/53  | 1/62  | 1/72  | 1/84  | 1/104 | 1/128 | 1/157 | 1/231 | 1/316 | 1/370 | 1/455 | 1/561 | 1/690 | 1/1014 | 1/1621 | 1/1996 | 1/3027 |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|--------|
| 定格容許扭力 (kgf-cm max.)<br>Rated tolerance torque    | 0.8   | 1.2   | 1.2   | 1.2   | 1.2   | 1.6   | 1.6   | 1.6   | 1.6   | 1.6   | 1.6   | 1.6   | 2     | 2     | 2     | 2     | 2     | 2     | 2.4    | 2.4    | 2.4    | 2.4    |
| 瞬間容許扭力 (kgf-cm)<br>Max momentary tolerance torque | 2.4   | 3.6   | 3.6   | 3.6   | 3.6   | 4.8   | 4.8   | 4.8   | 4.8   | 4.8   | 4.8   | 4.8   | 6     | 6     | 6     | 6     | 6     | 6     | 7.2    | 7.2    | 7.2    | 7.2    |
| 效率<br>Efficiency                                  | 80%   | 70%   | 70%   | 70%   | 70%   | 60%   | 60%   | 60%   | 60%   | 60%   | 60%   | 60%   | 50%   | 50%   | 50%   | 50%   | 50%   | 50%   | 40%    | 40%    | 40%    | 40%    |
| 長度<br>Length (L)                                  | 15.05 | 18.70 | 18.70 | 18.70 | 18.70 | 22.35 | 22.35 | 22.35 | 22.35 | 22.35 | 22.35 | 22.35 | 26    | 26    | 26    | 26    | 26    | 26    | 29.65  | 29.65  | 29.65  | 29.65  |
| 重量 (含油軸承)<br>Weight (g) / Sleeve bearing          | 19    | 23    | 23    | 23    | 23    | 27    | 27    | 27    | 27    | 27    | 27    | 27    | 31    | 31    | 31    | 31    | 31    | 31    | 35     | 35     | 35     | 35     |

- 使用相對溼度：20%~85%RH  
Operating relative humidity
- 使用溫度範圍：-10°C~+60°C  
Operating temperature range

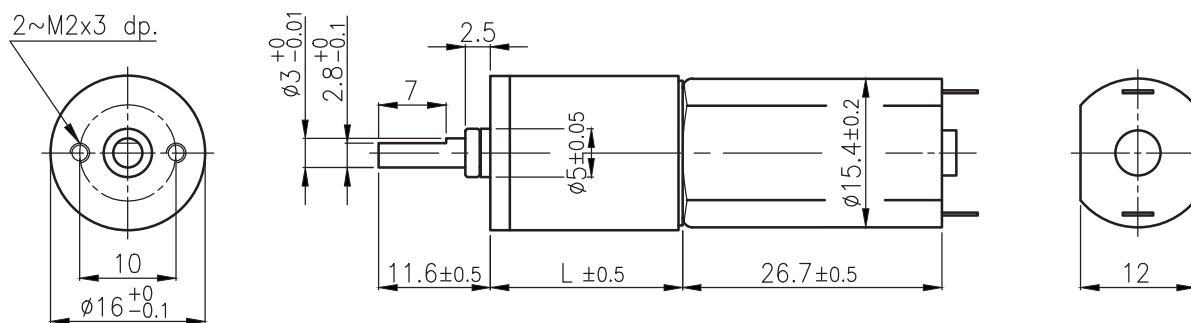
# IG-16GM

## 04 & 05 TYPE



外形尺寸 / Appearance Size

視圖方向僅供參考 / The position of the screw hole and motor terminal in the photo is only for reference.



unit:mm

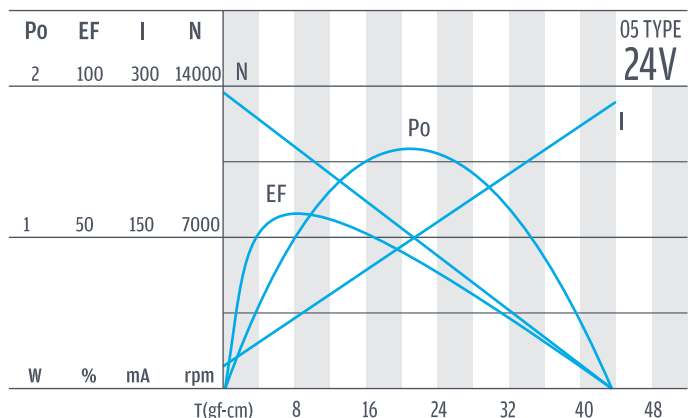
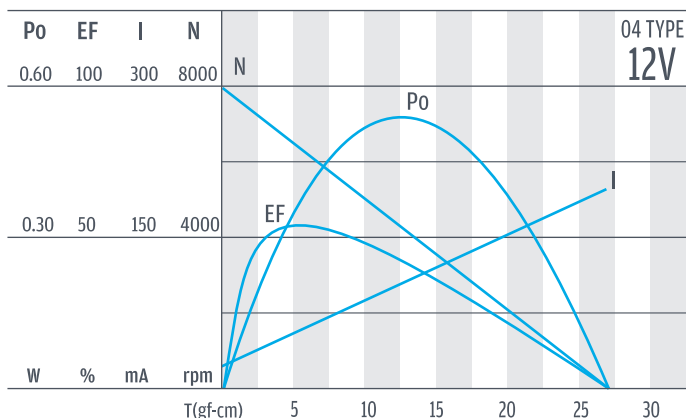
齒輪箱馬達轉矩 & 速度 / Gear Motor Torque & Speed

|                              | 減速比<br>Reduction ratio       | 1/4   | 1/14  | 1/16 | 1/19  | 1/29 | 1/53 | 1/62 | 1/72 | 1/84 | 1/104 | 1/128 | 1/157 | 1/231 | 1/316 | 1/370 | 1/455 | 1/561 | 1/690 | 1/1014 | 1/1621 | 1/1996 | 1/3027 |
|------------------------------|------------------------------|-------|-------|------|-------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|--------|
| 12V                          | 定格扭力<br>Rated torque (gf-cm) | 21    | 60    | 70   | 82    | 120  | 193  | 220  | 260  | 300  | 380   | 460   | 550   | 700   | 950   | 1100  | 1350  | 1700  | 2000  | 2400   | 2400   | 2400   | 2400   |
|                              | 定格轉速<br>Rated speed (rpm)    | 1330  | 430   | 377  | 315   | 205  | 117  | 100  | 85   | 73   | 59    | 48    | 39    | 26    | 19    | 16    | 13.5  | 11    | 8.9   | 6      | 3.8    | 3.2    | 2.3    |
| 24V                          | 定格扭力<br>Rated torque (gf-cm) | 31    | 85    | 103  | 120   | 180  | 284  | 330  | 380  | 450  | 560   | 690   | 850   | 1000  | 1400  | 1600  | 2000  | 2000  | 2000  | 2400   | 2400   | 2400   | 2400   |
|                              | 定格轉速<br>Rated speed (rpm)    | 2400  | 760   | 669  | 555   | 365  | 208  | 170  | 150  | 130  | 105   | 85    | 69    | 47    | 34    | 29    | 24    | 19.5  | 15.9  | 11     | 7.2    | 6.1    | 4.1    |
| 軸心迴轉方向<br>Rotation direction |                              | CW    |       |      |       |      |      |      |      |      |       |       |       |       |       |       |       |       |       |        |        |        |        |
| 長度<br>Length (L)             |                              | 15.05 | 18.70 |      | 22.35 |      |      |      | 26   |      |       |       | 29.65 |       |       |       |       |       |       |        |        |        |        |

馬達單體型式 / Motor Data

| 定格電壓<br>Rated volt (V) | 定格扭力<br>Rated torque (gf-cm) | 定格轉速<br>Rated speed (rpm) | 定格電流<br>Rated current (mA) | 無負荷轉速<br>No load speed (rpm) | 無負荷電流<br>No load current (mA) | 定格出力<br>Rated output (W) | 重量<br>Weight (g) |
|------------------------|------------------------------|---------------------------|----------------------------|------------------------------|-------------------------------|--------------------------|------------------|
| 12                     | 6.1                          | 6200                      | ≤ 85                       | 8000                         | ≤ 50                          | 0.394                    | 18               |
| 24                     | 9                            | 11000                     | ≤ 90                       | 13500                        | ≤ 50                          | 1.026                    | 18               |

馬達單體特性 / Motor Characteristics





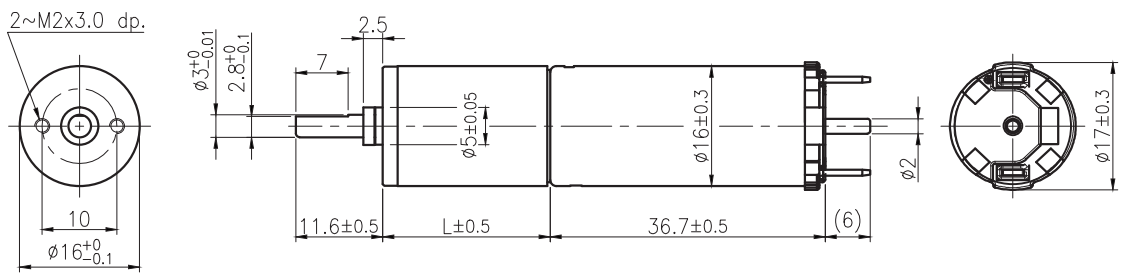
# IG-16GM

## 11 & 12 TYPE



外形尺寸 / Appearance Size

視圖方向僅供參考 / The position of the screw hole and motor terminal in the photo is only for reference.



unit:mm

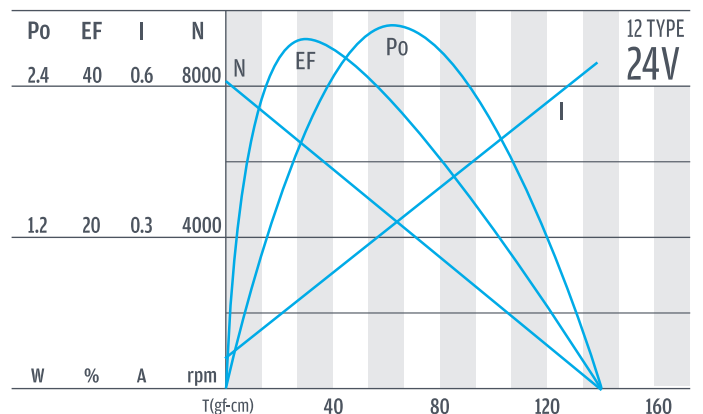
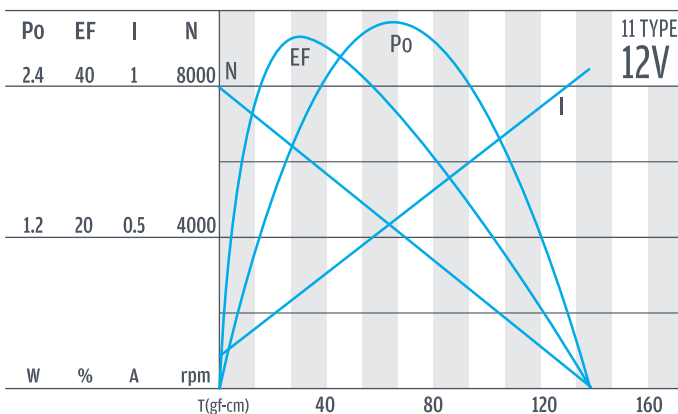
齒輪箱馬達轉矩 & 速度 / Gear Motor Torque & Speed

| 減速比<br>Reduction ratio              | 1/4   | 1/14  | 1/16 | 1/19 | 1/53 | 1/62  | 1/72 | 1/84 | 1/231 | 1/316 | 1/370 | 1/1014 | 1/1621 |
|-------------------------------------|-------|-------|------|------|------|-------|------|------|-------|-------|-------|--------|--------|
| 12V<br>定格扭力<br>Rated torque (gf-cm) | 140   | 390   | 460  | 535  | 1295 | 1475  | 1600 | 1600 | 2000  | 2000  | 2000  | 2400   | 2400   |
| 12V<br>定格轉速<br>Rated speed (rpm)    | 1310  | 410   | 350  | 300  | 105  | 93    | 82   | 74   | 30    | 23    | 20    | 7.5    | 4.8    |
| 24V<br>定格扭力<br>Rated torque (gf-cm) | 140   | 390   | 460  | 535  | 1295 | 1475  | 1600 | 1600 | 2000  | 2000  | 2000  | 2400   | 2400   |
| 24V<br>定格轉速<br>Rated speed (rpm)    | 1380  | 430   | 365  | 315  | 112  | 98    | 86   | 78   | 32    | 24    | 21    | 8      | 5      |
| 軸心迴轉方向<br>Rotation direction        | CCW   |       |      |      |      |       |      |      |       |       |       |        |        |
| 長度<br>Length (L)                    | 15.05 | 18.70 |      |      |      | 22.35 |      |      |       | 26    |       | 29.65  |        |

馬達單體型式 / Motor Data

| 定格電壓<br>Rated volt (V) | 定格扭力<br>Rated torque (gf-cm) | 定格轉速<br>Rated speed (rpm) | 定格電流<br>Rated current (mA) | 無負荷轉速<br>No load speed (rpm) | 無負荷電流<br>No load current (mA) | 定格出力<br>Rated output (W) | 重量<br>Weight (g) |
|------------------------|------------------------------|---------------------------|----------------------------|------------------------------|-------------------------------|--------------------------|------------------|
| 12                     | 40                           | 5780                      | ≤ 480                      | 8100                         | ≤ 160                         | 2.4                      | 32               |
| 24                     | 40                           | 6070                      | ≤ 250                      | 8500                         | ≤ 90                          | 2.5                      | 32               |

馬達單體特性 / Motor Characteristics



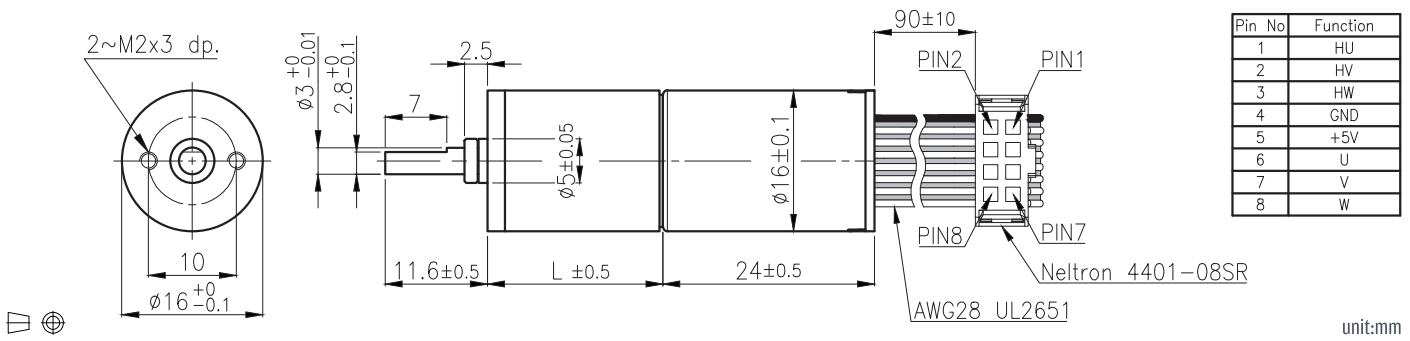
# IG-16GM

## 60 & 62 TYPE



外形尺寸/ Appearance Size

視圖方向僅供參考 / The position of the screw hole and motor terminal in the photo is only for reference.



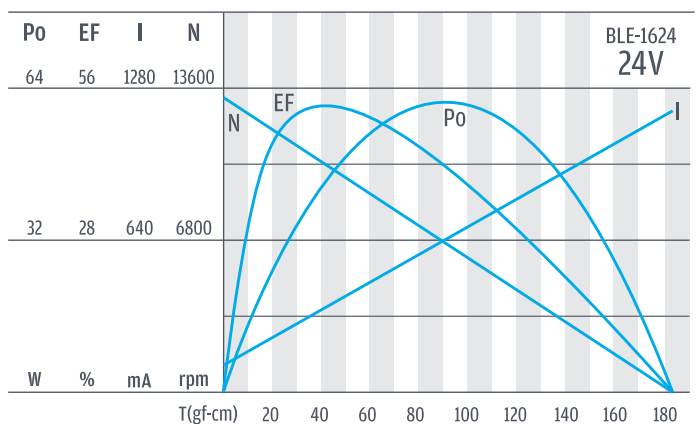
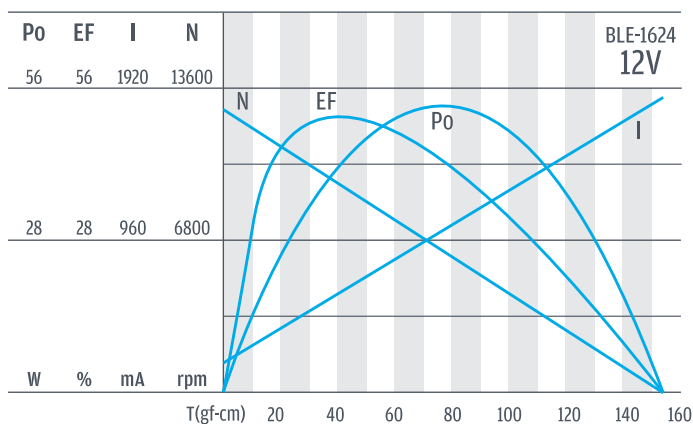
齒輪箱馬達轉矩 & 速度/ Gear Motor Torque & Speed

|     | 減速比<br>Reduction ratio       | 1/4 1/14 1/16 1/19 1/29 1/53 1/62 1/72 1/84 1/104 1/128 1/157 1/231 1/316 1/370 1/455 1/561 1/690 1/1014 1/1621 1/1996 1/3027 |       |     |     |     |     |      |       |      |      |      |      |      |      |      |      |      |      |      |      |       |      |
|-----|------------------------------|---|-------|-----|-----|-----|-----|------|-------|------|------|------|------|------|------|------|------|------|------|------|------|-------|------|
|     |                              | 12V   | 120   | 340 | 400 | 470 | 710 | 1130 | 1290  | 1510 | 1600 | 1600 | 1600 | 1600 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2400 | 2400  | 2400 |
| 12V | 定額轉速<br>Rated speed (rpm)    | 2210  | 685   | 585 | 500 | 330 | 175 | 155  | 130   | 120  | 100  | 85   | 70   | 45   | 35   | 30   | 25   | 20   | 17   | 12   | 7.5  | 6.3   | 4.2  |
| 24V | 定額轉速<br>Rated speed (rpm)    | 2280  | 710   | 605 | 520 | 340 | 185 | 160  | 145   | 125  | 105  | 90   | 74   | 50   | 38   | 33   | 27   | 22   | 18   | 12   | 8    | 6     | 4    |
|     | 軸心迴轉方向<br>Rotation direction | CW/CCW  |       |     |     |     |     |      |       |      |      |      |      |      |      |      |      |      |      |      |      |       |      |
|     | 長度<br>Length (L)             | 15.05   | 18.70 |     |     |     |     |      | 22.35 |      |      |      |      |      |      | 26   |      |      |      |      |      | 29.65 |      |

馬達單體型式/ Motor Data

| 定額電壓<br>Rated volt (V) | 定額扭力<br>Rated torque (gf-cm) | 定額轉速<br>Rated speed (rpm) | 定額電流<br>Rated current (mA) | 無負荷轉速<br>No load speed (rpm) | 無負荷電流<br>No load current (mA) | 定額出力<br>Rated output (W) | 重量<br>Weight (g) |
|------------------------|------------------------------|---------------------------|----------------------------|------------------------------|-------------------------------|--------------------------|------------------|
| 12                     | 35                           | 9700                      | ≤ 700                      | 12500                        | ≤ 220                         | 3.49                     | 20               |
| 24                     | 40                           | 10000                     | ≤ 450                      | 13300                        | ≤ 200                         | 4.11                     | 20               |

馬達單體特性/ Motor Characteristics



# Planetary Gearbox

PG

IG

Right Angle

RA

RB

WG

SD

BLDC

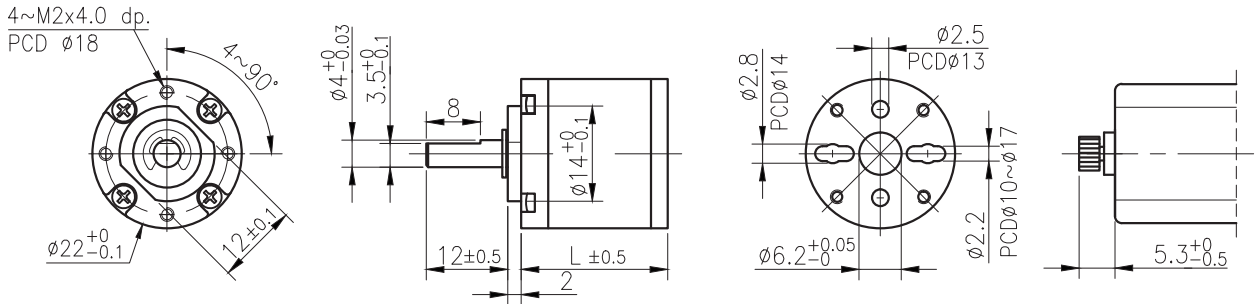
Encoder

Driver

## IG-22



### 外形尺寸 & 馬達齒鉤合尺寸 / Appearance Size & Pinion Assembly Dimension



unit:mm

### 產品規格 / Product Specifications

| 外殼材質<br>Housing material | 輸出軸承型式<br>Output shaft bearing | 徑向負荷<br>Radial load (10mm from flange) | 軸向負荷<br>Shaft axial load | 主軸承受壓力<br>Shaft press fit force | 徑向間隙<br>Radial play of shaft | 軸向間隙<br>Thrust play of shaft | 背隙 (無負荷時)<br>Backlash, at no-load |
|--------------------------|--------------------------------|--|--------------------------|---------------------------------|------------------------------|------------------------------|-----------------------------------|
| 金屬<br>Metal              | 含油軸承<br>Sleeve bearing         | $\leq 0.8$ kgf                         | $\leq 0.6$ kgf           | $\leq 5$ kgf                    | $\leq 0.08$ mm               | $\leq 0.2$ mm                | $\leq 3^\circ$                    |
| 金屬<br>Metal              | 滾珠軸承<br>Ball bearings          | $\leq 1$ kgf                           | $\leq 0.6$ kgf           | $\leq 5$ kgf                    | $\leq 0.05$ mm               | $\leq 0.2$ mm                | $\leq 3^\circ$                    |

### 馬達齒輪型式 / Pinion Specifications

| 模數<br>Module | 齒數<br>No. of teeth | 壓力角<br>Pressure angle | 孔径 (mm)<br>Hole diameter | 減速比<br>Reduction ratio  |
|--------------|--------------------|-----------------------|--------------------------|---|
| 0.3          | 13                 | $20^\circ$            | $\phi 1.98$              | 1/4, 1/16, 1/19, 1/62, 1/72, 1/84, 1/104, 1/231, 1/270<br>1/316, 1/370, 1/455, 1/1014, 1/1249, 1/1621, 1/1996 |
| 0.3          | 16                 | $20^\circ$            | $\phi 1.98$              | 1/14, 1/53, 1/198, 1/742  |

### 標準減速比型式 / Gearboxes Specifications

| 減速比<br>Reduction ratio                            | 1/4   | 1/14  | 1/16  | 1/19  | 1/53  | 1/62  | 1/72  | 1/84  | 1/104 | 1/198 | 1/231 | 1/270 | 1/316 | 1/370 | 1/455 | 1/742 | 1/1014 | 1/1249 | 1/1621 | 1/1996 |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|--------|
| 定格容許扭力 (kgf-cm max.)<br>Rated tolerance torque    | 1     | 1.5   | 1.5   | 1.5   | 2     | 2     | 2     | 2     | 2     | 2.5   | 2.5   | 2.5   | 2.5   | 2.5   | 2.5   | 3     | 3      | 3      | 3      | 3      |
| 瞬間容許扭力 (kgf-cm)<br>Max momentary tolerance torque | 3     | 4.5   | 4.5   | 4.5   | 6     | 6     | 6     | 6     | 6     | 7.5   | 7.5   | 7.5   | 7.5   | 7.5   | 7.5   | 9     | 9      | 9      | 9      | 9      |
| 效率<br>Efficiency                                  | 80%   | 70%   | 70%   | 70%   | 60%   | 60%   | 60%   | 60%   | 60%   | 50%   | 50%   | 50%   | 50%   | 50%   | 50%   | 40%   | 40%    | 40%    | 40%    | 40%    |
| 長度<br>Length (L)                                  | 14.40 | 18.05 | 18.05 | 18.05 | 21.70 | 21.70 | 21.70 | 21.70 | 21.70 | 25.35 | 25.35 | 25.35 | 25.35 | 25.35 | 25.35 | 29    | 29     | 29     | 29     | 29     |
| 重量 (含油軸承)<br>Weight (g) / Sleeve bearing          | 27    | 31    | 31    | 31    | 35    | 35    | 35    | 35    | 50    | 60    | 60    | 60    | 60    | 60    | 60    | 65    | 65     | 65     | 65     | 65     |
| 重量 (滾珠軸承)<br>Weight (g) / Ball bearings           | 26    | 30    | 30    | 30    | 34    | 34    | 34    | 34    | 49    | 59    | 59    | 59    | 59    | 59    | 59    | 64    | 64     | 64     | 64     | 64     |

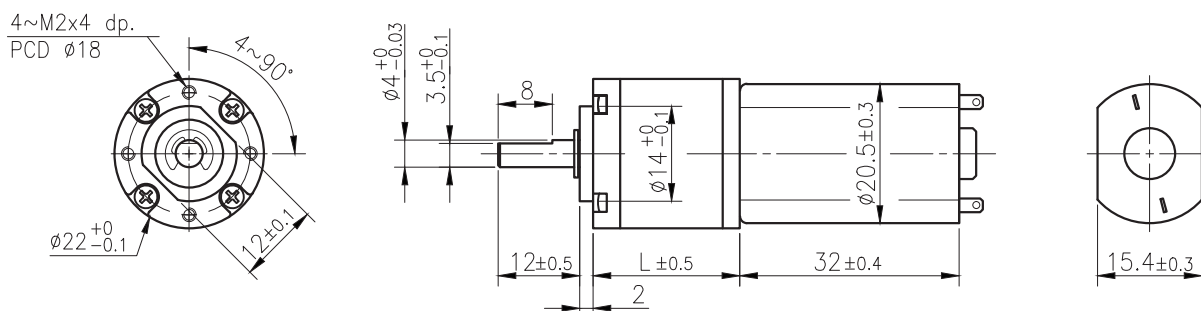
- 使用相對溼度：20%~85%RH  
Operating relative humidity
- 使用溫度範圍：-10°C~+60°C  
Operating temperature range

# IG-22GM

## 01 & 02 TYPE



### 外形尺寸 / Appearance Size



unit:mm

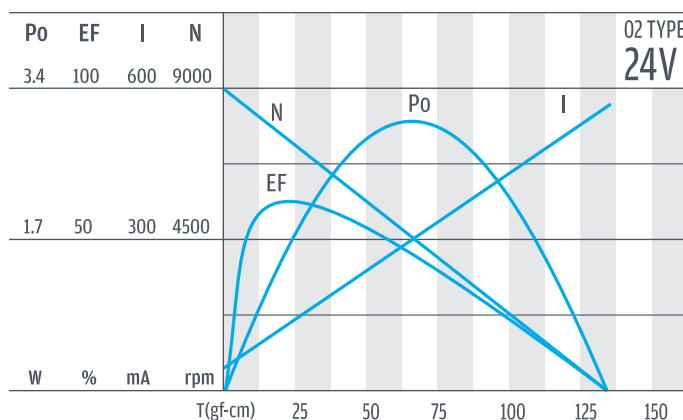
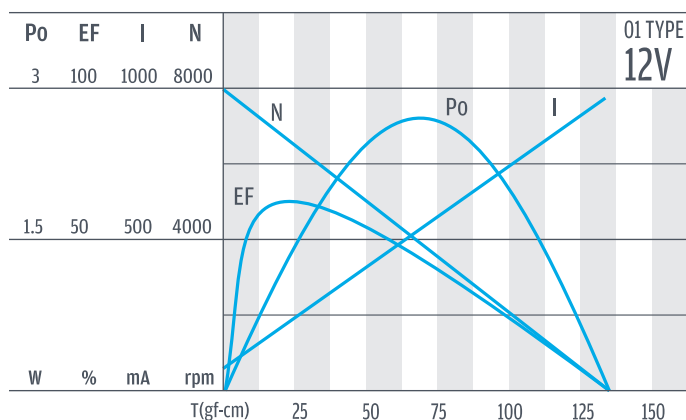
### 齒輪箱馬達轉矩 & 速度 / Gear Motor Torque & Speed

|                              |                              | 減速比<br>Reduction ratio | 1/4   | 1/14 | 1/16  | 1/19 | 1/53 | 1/62  | 1/72 | 1/84 | 1/104 | 1/198 | 1/231 | 1/270 | 1/316 | 1/370 | 1/455 | 1/742 | 1/1014 | 1/1249 | 1/1621 | 1/1996 |
|------------------------------|------------------------------|------------------------|-------|------|-------|------|------|-------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|--------|
| 12V                          | 定格扭力<br>Rated torque (gf-cm) | 77                     | 215   | 250  | 295   | 695  | 810  | 950   | 1100 | 1370 | 2100  | 2500  | 2500  | 2500  | 2500  | 3000  | 3000  | 3000  | 3000   | 3000   | 3000   | 3000   |
|                              | 定格轉速<br>Rated speed (rpm)    | 1450                   | 470   | 405  | 348   | 127  | 109  | 93    | 79   | 64   | 34    | 29    | 25    | 22    | 19    | 15.5  | 9.5   | 7.4   | 6      | 4.6    | 3.8    |        |
| 24V                          | 定格扭力<br>Rated torque (gf-cm) | 77                     | 215   | 250  | 295   | 695  | 810  | 950   | 1100 | 1370 | 2100  | 2500  | 2500  | 2500  | 2500  | 3000  | 3000  | 3000  | 3000   | 3000   | 3000   | 3000   |
|                              | 定格轉速<br>Rated speed (rpm)    | 1600                   | 515   | 450  | 384   | 140  | 120  | 103   | 88   | 71   | 37    | 32    | 28    | 23.5  | 21    | 17.5  | 10.5  | 8     | 6.6    | 5      | 4.2    |        |
| 軸心迴轉方向<br>Rotation direction |                              | CCW                    |       |      |       |      |      |       |      |      |       |       |       |       |       |       |       |       |        |        |        |        |
| 長度<br>Length (L)             |                              | 14.40                  | 18.05 |      | 21.70 |      |      | 25.35 |      |      |       | 29    |       |       |       |       |       |       |        |        |        |        |

### 馬達單體型式 / Motor Data

| 定格電壓<br>Rated volt (V) | 定格扭力<br>Rated torque (gf-cm) | 定格轉速<br>Rated speed (rpm) | 定格電流<br>Rated current (mA) | 無負荷轉速<br>No load speed (rpm) | 無負荷電流<br>No load current (mA) | 定格出力<br>Rated output (W) | 重量<br>Weight (g) |
|------------------------|------------------------------|---------------------------|----------------------------|------------------------------|-------------------------------|--------------------------|------------------|
| 12                     | 22                           | 6700                      | $\leq 200$                 | 8000                         | $\leq 70$                     | 1.5                      | 32               |
| 24                     | 22                           | 7400                      | $\leq 110$                 | 9000                         | $\leq 40$                     | 1.7                      | 32               |

### 馬達單體特性 / Motor Characteristics

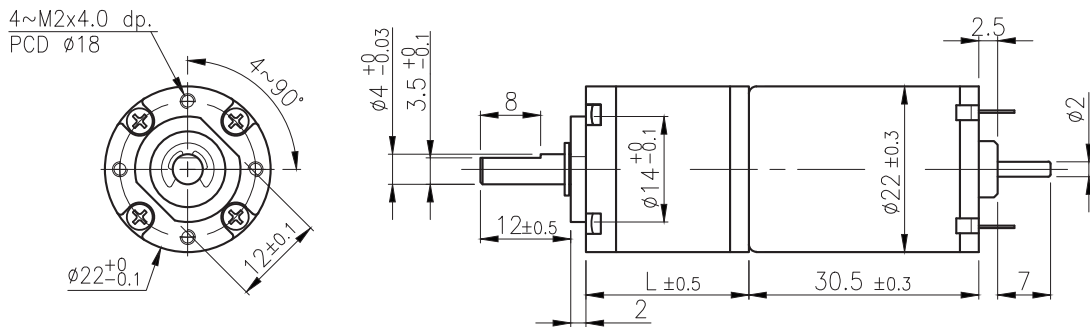


# IG-22GM

## 03 & 04 TYPE



外形尺寸/ Appearance Size



unit:mm

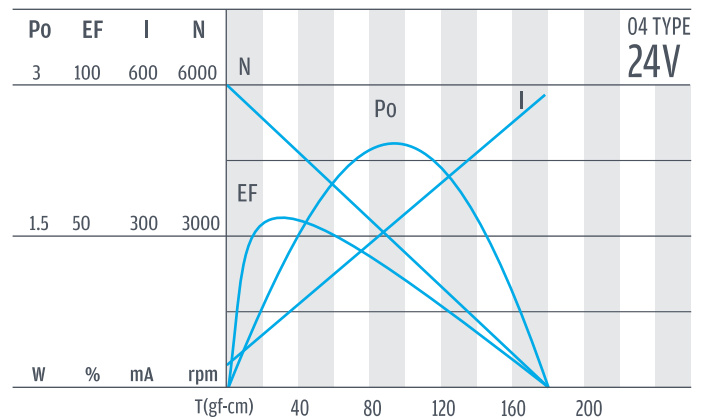
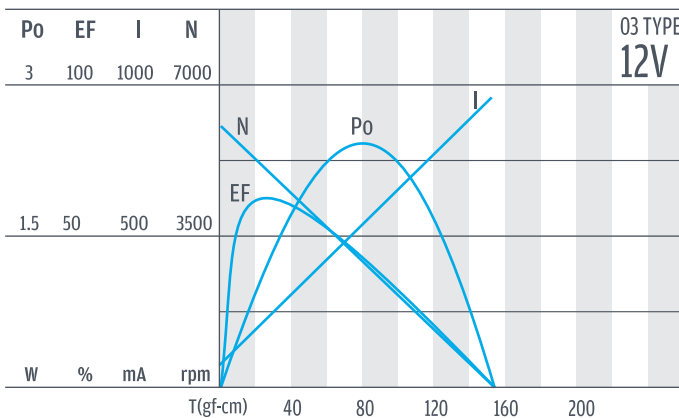
齒輪箱馬達轉矩 & 速度/ Gear Motor Torque & Speed

| 減速比<br>Reduction ratio       |                              | 1/4   | 1/14  | 1/16 | 1/19 | 1/53 | 1/62 | 1/72  | 1/84 | 1/104 | 1/198 | 1/231 | 1/270 | 1/316 | 1/370 | 1/455 | 1/742 | 1/1014 | 1/1249 | 1/1621 | 1/1996 |
|------------------------------|------------------------------|-------|-------|------|------|------|------|-------|------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|--------|
| 12V                          | 定格扭力<br>Rated torque (gf-cm) | 100   | 300   | 350  | 410  | 970  | 1100 | 1300  | 1500 | 1900  | 2500  | 2500  | 2500  | 2500  | 2500  | 2500  | 3000  | 3000   | 3000   | 3000   | 3000   |
|                              | 定格轉速<br>Rated speed (rpm)    | 1000  | 340   | 290  | 245  | 90   | 77   | 66    | 56   | 46    | 24    | 21    | 18    | 16    | 13.5  | 11    | 7.3   | 5      | 4.2    | 3.3    | 2.7    |
| 24V                          | 定格扭力<br>Rated torque (gf-cm) | 120   | 360   | 420  | 490  | 1150 | 1300 | 1500  | 1800 | 2000  | 2500  | 2500  | 2500  | 2500  | 2500  | 2500  | 3000  | 3000   | 3000   | 3000   | 3000   |
|                              | 定格轉速<br>Rated speed (rpm)    | 1000  | 330   | 280  | 240  | 89   | 76   | 65    | 55   | 46    | 24    | 21    | 18    | 16    | 13.5  | 11    | 7.3   | 5      | 4.2    | 3.3    | 2.7    |
| 軸心迴轉方向<br>Rotation direction |                              | CW    |       |      |      |      |      |       |      |       |       |       |       |       |       |       |       |        |        |        |        |
| 長度<br>Length (L)             |                              | 14.40 | 18.05 |      |      |      |      | 21.70 |      |       |       |       | 25.35 |       |       |       |       | 29     |        |        |        |

馬達單體型式/ Motor Data

| 定格電壓<br>Rated volt (V) | 定格扭力<br>Rated torque (gf-cm) | 定格轉速<br>Rated speed (rpm) | 定格電流<br>Rated current (mA) | 無負荷轉速<br>No load speed (rpm) | 無負荷電流<br>No load current (mA) | 定格出力<br>Rated output (W) | 重量<br>Weight (g) |
|------------------------|------------------------------|---------------------------|----------------------------|------------------------------|-------------------------------|--------------------------|------------------|
| 12                     | 31                           | 4790                      | $\leq 240$                 | 6000                         | $\leq 80$                     | 1.52                     | 43               |
| 24                     | 37                           | 4710                      | $\leq 145$                 | 6000                         | $\leq 55$                     | 1.79                     | 43               |

馬達單體特性/ Motor Characteristics

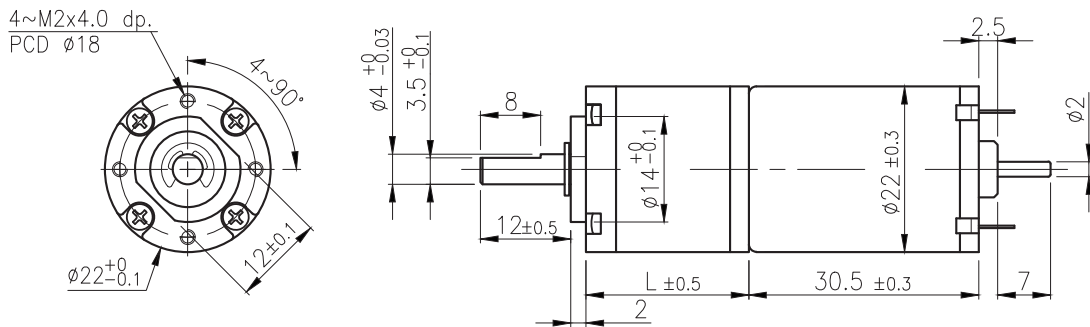


# IG-22GM

## 03 & 04 TYPE



外形尺寸/ Appearance Size



unit:mm

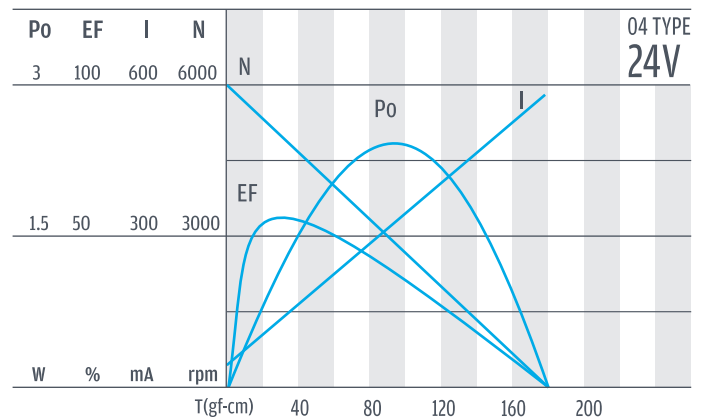
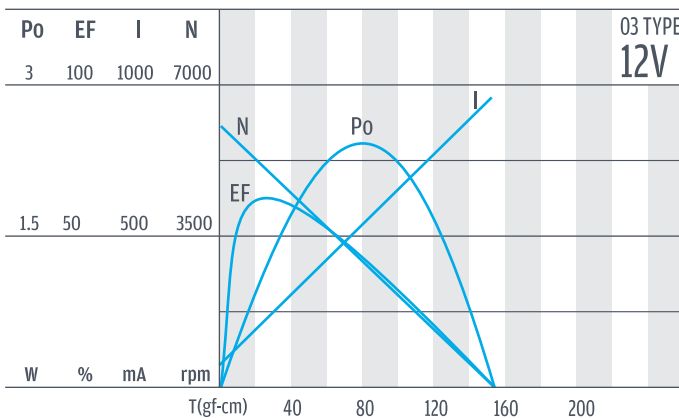
齒輪箱馬達轉矩 & 速度/ Gear Motor Torque & Speed

| 減速比<br>Reduction ratio       |                              | 1/4   | 1/14  | 1/16 | 1/19 | 1/53 | 1/62 | 1/72  | 1/84 | 1/104 | 1/198 | 1/231 | 1/270 | 1/316 | 1/370 | 1/455 | 1/742 | 1/1014 | 1/1249 | 1/1621 | 1/1996 |
|------------------------------|------------------------------|-------|-------|------|------|------|------|-------|------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|--------|
| 12V                          | 定格扭力<br>Rated torque (gf-cm) | 100   | 300   | 350  | 410  | 970  | 1100 | 1300  | 1500 | 1900  | 2500  | 2500  | 2500  | 2500  | 2500  | 2500  | 3000  | 3000   | 3000   | 3000   | 3000   |
|                              | 定格轉速<br>Rated speed (rpm)    | 1000  | 340   | 290  | 245  | 90   | 77   | 66    | 56   | 46    | 24    | 21    | 18    | 16    | 13.5  | 11    | 7.3   | 5      | 4.2    | 3.3    | 2.7    |
| 24V                          | 定格扭力<br>Rated torque (gf-cm) | 120   | 360   | 420  | 490  | 1150 | 1300 | 1500  | 1800 | 2000  | 2500  | 2500  | 2500  | 2500  | 2500  | 2500  | 3000  | 3000   | 3000   | 3000   | 3000   |
|                              | 定格轉速<br>Rated speed (rpm)    | 1000  | 330   | 280  | 240  | 89   | 76   | 65    | 55   | 46    | 24    | 21    | 18    | 16    | 13.5  | 11    | 7.3   | 5      | 4.2    | 3.3    | 2.7    |
| 軸心迴轉方向<br>Rotation direction |                              | CW    |       |      |      |      |      |       |      |       |       |       |       |       |       |       |       |        |        |        |        |
| 長度<br>Length (L)             |                              | 14.40 | 18.05 |      |      |      |      | 21.70 |      |       |       |       |       | 25.35 |       |       |       |        | 29     |        |        |

馬達單體型式/ Motor Data

| 定格電壓<br>Rated volt (V) | 定格扭力<br>Rated torque (gf-cm) | 定格轉速<br>Rated speed (rpm) | 定格電流<br>Rated current (mA) | 無負荷轉速<br>No load speed (rpm) | 無負荷電流<br>No load current (mA) | 定格出力<br>Rated output (W) | 重量<br>Weight (g) |
|------------------------|------------------------------|---------------------------|----------------------------|------------------------------|-------------------------------|--------------------------|------------------|
| 12                     | 31                           | 4790                      | ≤ 240                      | 6000                         | ≤ 80                          | 1.52                     | 43               |
| 24                     | 37                           | 4710                      | ≤ 145                      | 6000                         | ≤ 55                          | 1.79                     | 43               |

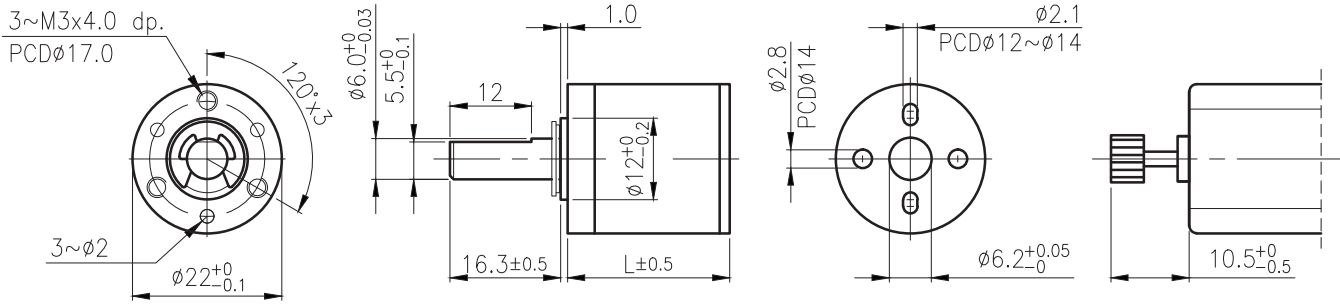
馬達單體特性/ Motor Characteristics



# IG-22C



## 外形尺寸 & 馬達齒鉤合尺寸 / Appearance Size & Pinion Assembly Dimension



unit:mm

## 產品規格 / Product Specifications

| 外殼材質<br>Housing material | 輸出軸承型式<br>Output shaft bearing | 徑向負荷<br>Radial load (10mm from flange) | 軸向負荷<br>Shaft axial load | 主軸承受壓力<br>Shaft press fit force | 徑向間隙<br>Radial play of shaft | 軸向間隙<br>Thrust play of shaft | 背隙(無負荷時)<br>Backlash, at no-load |
|--------------------------|--------------------------------|--|--------------------------|---------------------------------|------------------------------|------------------------------|----------------------------------|
| 金屬<br>Metal              | 含油軸承<br>Sleeve bearings        | ≤ 1 kgf                                | ≤ 0.7kgf                 | ≤ 6 kgf                         | ≤ 0.08 mm                    | ≤ 0.3 mm                     | ≤ 2.5 °                          |
| 金屬<br>Metal              | 滾珠軸承<br>Ball bearings          | ≤ 1.2 kgf                              | ≤ 0.7 kgf                | ≤ 6 kgf                         | ≤ 0.05 mm                    | ≤ 0.3 mm                     | ≤ 2.5 °                          |

## 馬達齒輪型式 / Pinion Specifications

| 模數<br>Module | 齒數<br>No. of teeth | 壓力角<br>Pressure angle | 孔徑 (mm)<br>Hole diameter | 減速比<br>Reduction ratio                                  |
|--------------|--------------------|-----------------------|--------------------------|---|
| 0.4          | 10                 | 20 °                  | ∅ 1.98, ∅ 2.28           | 1/25, 1/110, 1/136, 1/484, 1/597, 1/735, 1/2124, 1/3968 |
| 0.4          | 13                 | 20 °                  | ∅ 1.98, ∅ 2.28           | 1/20, 1/77, 1/90, 1/336, 1/393, 1/1079, 1/1475          |
| 0.4          | 16                 | 20 °                  | ∅ 1.98, ∅ 2.28           | 1/18, 1/66, 1/246                                       |
| 0.4          | 12                 | 20 °                  | ∅ 1.98, ∅ 2.28           | 1/5   |

## 標準減速比型式 / Gearboxes Specifications

| 減速比<br>Reduction ratio                            | 1/5  | 1/18 | 1/20 | 1/25 | 1/66 | 1/77 | 1/90 | 1/110 | 1/136 | 1/246 | 1/336 | 1/393 | 1/484 | 1/597 | 1/735 | 1/1079 | 1/1475 | 1/2124 | 1/3968 |
|---|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|--------|
| 定格容許扭力 (kgf-cm max.)<br>Rated tolerance torque    | 1    | 3    | 3    | 3    | 4    | 4    | 4    | 4     | 4     | 5     | 5     | 5     | 5     | 5     | 5     | 6      | 6      | 6      | 6      |
| 瞬間容許扭力 (kgf-cm)<br>Max momentary tolerance torque | 3    | 9    | 9    | 9    | 12   | 12   | 12   | 12    | 12    | 15    | 15    | 15    | 15    | 15    | 15    | 18     | 18     | 18     | 18     |
| 效率<br>Efficiency                                  | 80%  | 70%  | 70%  | 70%  | 60%  | 60%  | 60%  | 60%   | 60%   | 50%   | 50%   | 50%   | 50%   | 50%   | 50%   | 40%    | 40%    | 40%    | 40%    |
| 長度<br>Length (L)                                  | 23.3 | 29.5 | 29.5 | 29.5 | 35.7 | 35.7 | 35.7 | 35.7  | 35.7  | 41.9  | 41.9  | 41.9  | 41.9  | 41.9  | 41.9  | 48.1   | 48.1   | 48.1   | 48.1   |
| 重量 (含油軸承)<br>Weight (g) /Sleeve bearings          | 46   | 51   | 51   | 51   | 58   | 58   | 58   | 58    | 58    | 65    | 65    | 65    | 65    | 65    | 65    | 72     | 72     | 72     | 72     |
| 重量 (滾珠軸承)<br>Weight (g) /Ball bearings            | 46   | 51   | 51   | 51   | 58   | 58   | 58   | 58    | 58    | 65    | 65    | 65    | 65    | 65    | 65    | 72     | 72     | 72     | 72     |

- 使用相對溼度：20%~85%RH  
Operating relative humidity
- 使用溫度範圍：-10°C~+60°C  
Operating temperature range



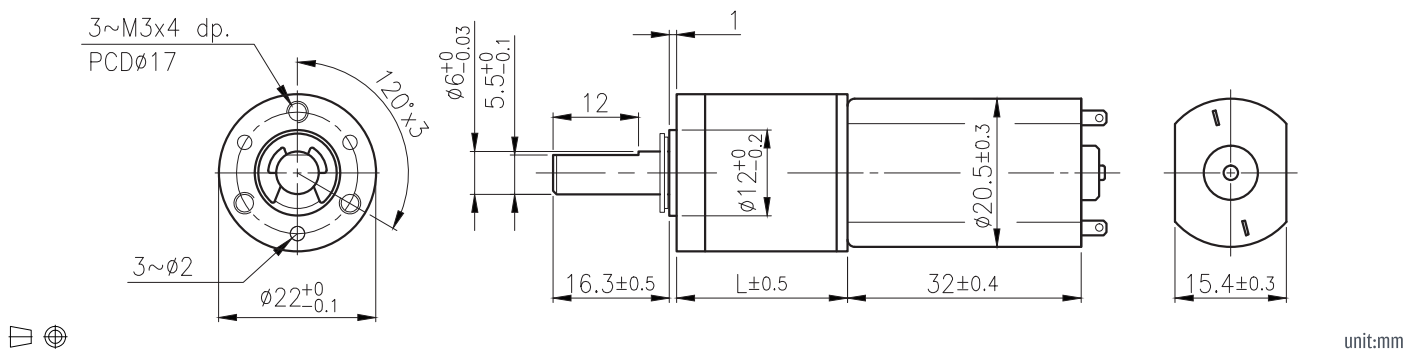
# IG-22CGM

## 01 & 02 TYPE



外形尺寸 / Appearance Size

視圖方向僅供參考 / The position of the screw hole and motor terminal in the photo is only for reference.



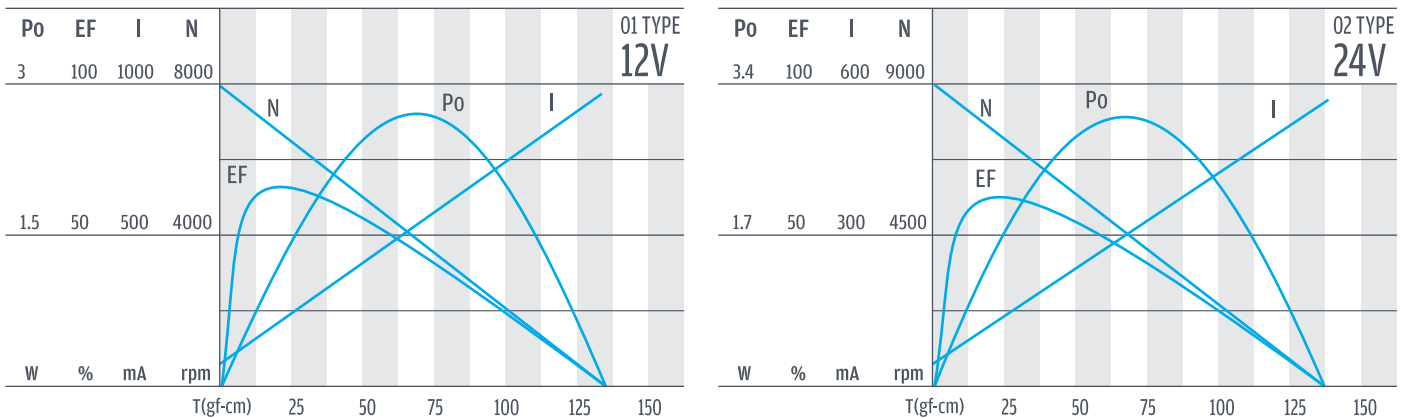
齒輪箱馬達轉矩 & 速度 / Gear Motor Torque & Speed

|     | 減速比<br>Reduction ratio       | 1/5  | 1/18 | 1/20 | 1/25 | 1/66 | 1/77 | 1/90 | 1/110 | 1/136 | 1/246 | 1/336 | 1/393 | 1/484 | 1/597 | 1/735 | 1/1079 | 1/1475 | 1/2124 | 1/3968 |
|-----|------------------------------|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|--------|
| 12V | 定格扭力<br>Rated torque (gf-cm) | 80   | 270  | 310  | 380  | 850  | 1000 | 1150 | 1400  | 1700  | 2600  | 3700  | 4200  | 5000  | 5000  | 5000  | 6000   | 6000   | 6000   | 6000   |
|     | 定格轉速<br>Rated speed (rpm)    | 1400 | 375  | 325  | 260  | 101  | 86   | 74   | 60    | 48    | 26    | 19    | 16    | 13.8  | 11.5  | 9.5   | 6.7    | 5      | 3.4    | 1.8    |
| 24V | 定格扭力<br>Rated torque (gf-cm) | 80   | 270  | 310  | 380  | 850  | 1000 | 1150 | 1400  | 1700  | 2600  | 3700  | 4200  | 5000  | 5000  | 5000  | 6000   | 6000   | 6000   | 6000   |
|     | 定格轉速<br>Rated speed (rpm)    | 1550 | 414  | 355  | 290  | 110  | 95   | 82   | 66    | 53    | 29    | 21    | 18    | 15.3  | 12.7  | 10.5  | 7.4    | 5.5    | 3.9    | 1.95   |
|     | 軸心迴轉方向<br>Rotation direction | CCW  |      |      |      |      |      |      |       |       |       |       |       |       |       |       |        |        |        |        |
|     | 長度<br>Length (L)             | 23.3 | 29.5 |      |      |      |      | 35.7 |       |       |       |       |       | 41.9  |       |       |        |        | 48.1   |        |

馬達單體型式 / Motor Data

| 定格電壓<br>Rated volt (V) | 定格扭力<br>Rated torque (gf-cm) | 定格轉速<br>Rated speed (rpm) | 定格電流<br>Rated current (mA) | 無負荷轉速<br>No load speed (rpm) | 無負荷電流<br>No load current (mA) | 定格出力<br>Rated output (W) | 重量<br>Weight (g) |
|------------------------|------------------------------|---------------------------|----------------------------|------------------------------|-------------------------------|--------------------------|------------------|
| 12                     | 22                           | 6700                      | ≤ 200                      | 8000                         | ≤ 70                          | 1.5                      | 32               |
| 24                     | 22                           | 7400                      | ≤ 110                      | 9000                         | ≤ 40                          | 1.7                      | 32               |

馬達單體特性 / Motor Characteristics



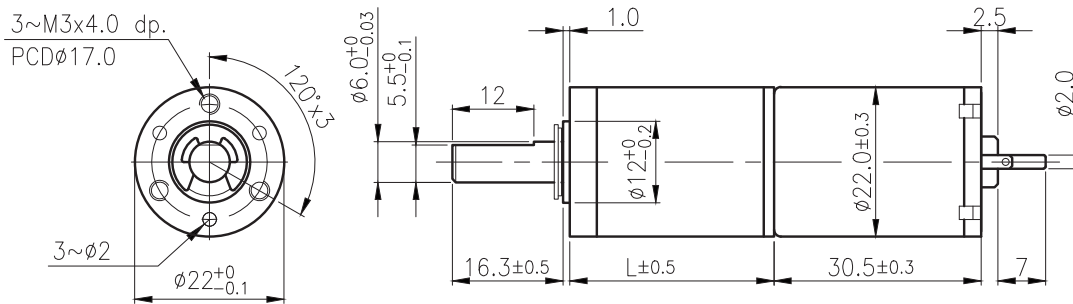
# IG-22CGM

## 03 & 04 TYPE



外形尺寸/ Appearance Size

視圖方向僅供參考 / The position of the screw hole and motor terminal in the photo is only for reference.



unit:mm

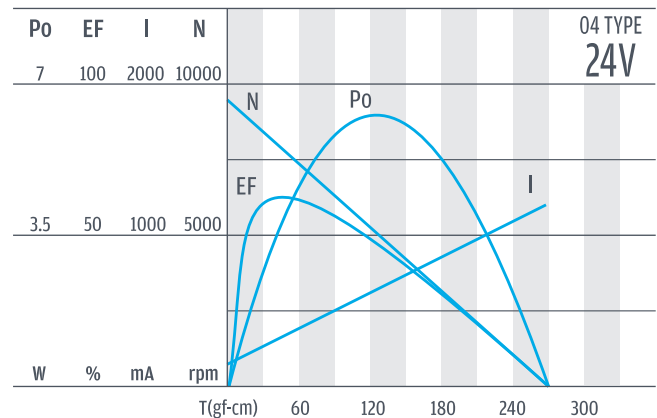
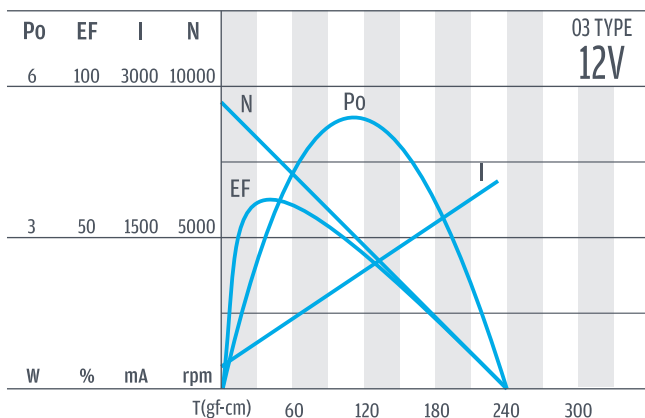
齒輪箱馬達轉矩 & 速度/ Gear Motor Torque & Speed

|                              | 減速比<br>Reduction ratio       | 1/5  | 1/18 | 1/20 | 1/25 | 1/66 | 1/77 | 1/90 | 1/110 | 1/136 | 1/246 | 1/336 | 1/393 | 1/484 | 1/597 | 1/735 | 1/1079 | 1/1475 | 1/2124 | 1/3968 |
|------------------------------|------------------------------|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|--------|
| 12V                          | 定格扭力<br>Rated torque (gf-cm) | 170  | 560  | 650  | 820  | 1800 | 2100 | 2450 | 3000  | 3700  | 5000  | 5000  | 5000  | 5000  | 5000  | 5000  | 6000   | 6000   | 6000   | 6000   |
|                              | 定格轉速<br>Rated speed (rpm)    | 1500 | 400  | 340  | 280  | 105  | 94   | 80   | 65    | 53    | 29    | 22    | 19    | 15.5  | 12.5  | 10    | 7.1    | 5.3    | 3.8    | 2      |
| 24V                          | 定格扭力<br>Rated torque (gf-cm) | 190  | 640  | 750  | 930  | 2000 | 2400 | 2800 | 3500  | 4000  | 5000  | 5000  | 5000  | 5000  | 5000  | 5000  | 6000   | 6000   | 6000   | 6000   |
|                              | 定格轉速<br>Rated speed (rpm)    | 1600 | 420  | 350  | 290  | 110  | 98   | 84   | 68    | 55    | 31    | 23    | 20    | 16    | 13    | 10.5  | 7.4    | 5.5    | 3.9    | 2      |
| 軸心迴轉方向<br>Rotation direction |                              | CW   |      |      |      |      |      |      |       |       |       |       |       |       |       |       |        |        |        |        |
| 長度<br>Length (L)             |                              | 23.3 | 29.5 | 35.7 |      |      |      | 41.9 |       |       |       | 48.1  |       |       |       |       |        |        |        |        |

馬達單體型式/ Motor Data

| 定格電壓<br>Rated volt (V) | 定格扭力<br>Rated torque (gf-cm) | 定格轉速<br>Rated speed (rpm) | 定格電流<br>Rated current (mA) | 無負荷轉速<br>No load speed (rpm) | 無負荷電流<br>No load current (mA) | 定格出力<br>Rated output (W) | 重量<br>Weight (g) |
|------------------------|------------------------------|---------------------------|----------------------------|------------------------------|-------------------------------|--------------------------|------------------|
| 12                     | 46                           | 7230                      | ≤ 500                      | 9000                         | ≤ 120                         | 3.41                     | 43               |
| 24                     | 53                           | 7550                      | ≤ 300                      | 9000                         | ≤ 80                          | 4.11                     | 43               |

馬達單體特性/ Motor Characteristics



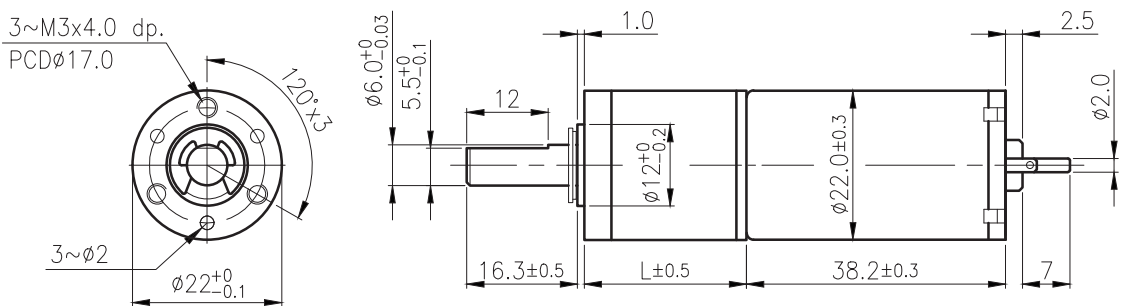
# IG-22CGM

## 05 & 06 TYPE



外形尺寸 / Appearance Size

視圖方向僅供參考 / The position of the screw hole and motor terminal in the photo is only for reference.



unit:mm

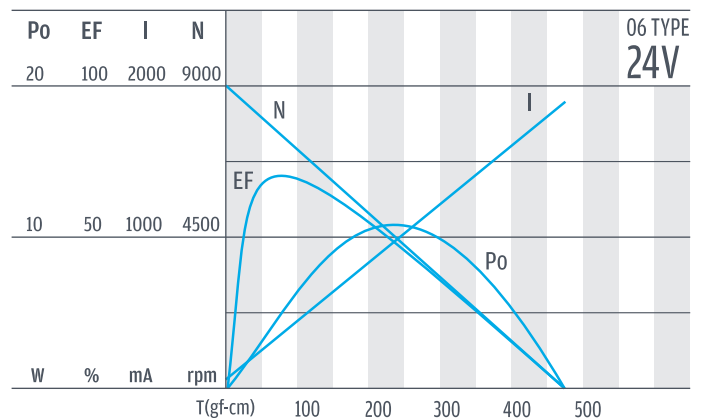
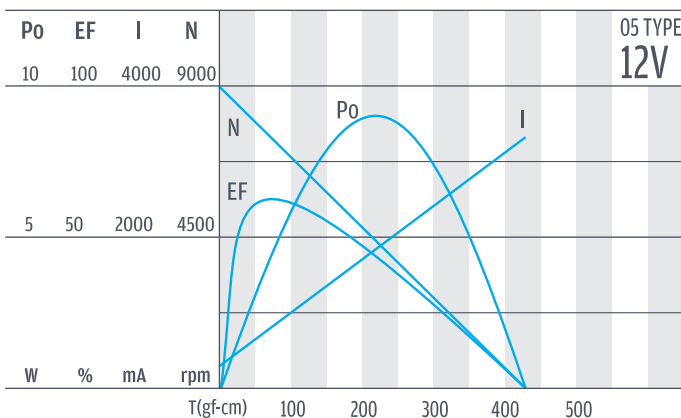
齒輪箱馬達轉矩 & 速度 / Gear Motor Torque & Speed

|                              |                              | 1/5  | 1/18 | 1/20 | 1/25 | 1/66 | 1/77 | 1/90 | 1/110 | 1/136 | 1/246 | 1/336 | 1/393 | 1/484 | 1/597 | 1/735 | 1/1079 | 1/1475 | 1/2124 | 1/3968 |  |
|------------------------------|------------------------------|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|--------|--|
| 12V                          | 減速比<br>Reduction ratio       | 1/5  | 1/18 | 1/20 | 1/25 | 1/66 | 1/77 | 1/90 | 1/110 | 1/136 | 1/246 | 1/336 | 1/393 | 1/484 | 1/597 | 1/735 | 1/1079 | 1/1475 | 1/2124 | 1/3968 |  |
|                              | 定格扭力<br>Rated torque (gf-cm) | 260  | 850  | 1000 | 1200 | 2700 | 3200 | 3700 | 4000  | 4000  | 5000  | 5000  | 5000  | 5000  | 5000  | 5000  | 6000   | 6000   | 6000   | 6000   |  |
| 24V                          | 定格轉速<br>Rated speed (rpm)    | 1500 | 400  | 340  | 280  | 105  | 92   | 79   | 64    | 52    | 29.4  | 22.4  | 19.6  | 16    | 12.9  | 10.5  | 7.4    | 5.5    | 4      | 2      |  |
|                              | 定格扭力<br>Rated torque (gf-cm) | 260  | 850  | 1000 | 1200 | 2700 | 3200 | 3700 | 4000  | 4000  | 5000  | 5000  | 5000  | 5000  | 5000  | 5000  | 6000   | 6000   | 6000   | 6000   |  |
| 軸心迴轉方向<br>Rotation direction |                              | CW   |      |      |      |      |      |      |       |       |       |       |       |       |       |       |        |        |        |        |  |
| 長度<br>Length (L)             |                              | 23.3 | 29.5 |      |      |      |      | 35.7 |       |       |       |       |       | 41.9  |       |       |        |        | 48.1   |        |  |

馬達單體型式 / Motor Data

| 定格電壓<br>Rated volt (V) | 定格扭力<br>Rated torque (gf-cm) | 定格轉速<br>Rated speed (rpm) | 定格電流<br>Rated current (mA) | 無負荷轉速<br>No load speed (rpm) | 無負荷電流<br>No load current (mA) | 定格出力<br>Rated output (W) | 重量<br>Weight (g) |
|------------------------|------------------------------|---------------------------|----------------------------|------------------------------|-------------------------------|--------------------------|------------------|
| 12                     | 70                           | 7100                      | ≤ 700                      | 9000                         | ≤ 190                         | 5.1                      | 51               |
| 24                     | 70                           | 7400                      | ≤ 360                      | 9000                         | ≤ 120                         | 5.3                      | 51               |

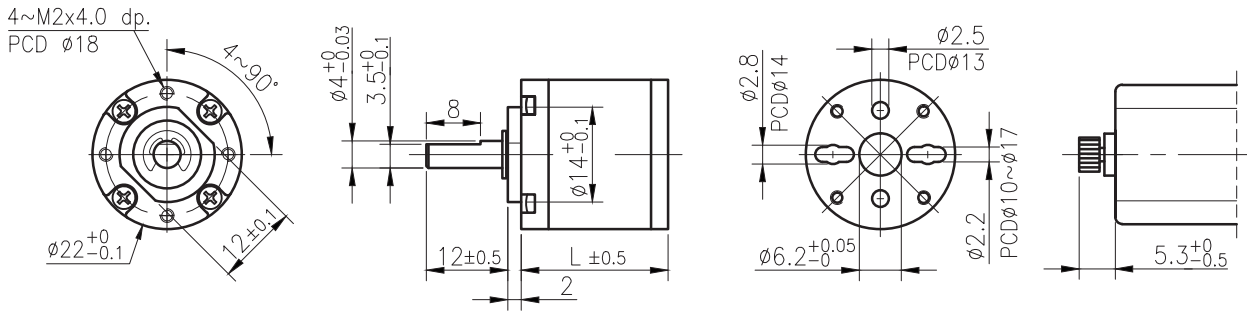
馬達單體特性 / Motor Characteristics



# IG-22P



## 外形尺寸 & 馬達齒鉚合尺寸 / Appearance Size & Pinion Assembly Dimension



unit:mm

## 產品規格/ Product Specifications

| 外殼材質<br>Housing material | 輸出軸承型式<br>Output shaft bearing | 徑向負荷<br>Radial load (10mm from flange) | 軸向負荷<br>Shaft axial load | 主軸承受壓入力<br>Shaft press fit force | 徑向間隙<br>Radial play of shaft | 軸向間隙<br>Thrust play of shaft | 背隙(無負荷時)<br>Backlash, at no-load |
|--------------------------|--------------------------------|--|--------------------------|----------------------------------|------------------------------|------------------------------|----------------------------------|
| 粉末金屬<br>Powder Metal     | 含油軸承<br>Sleeve bearing         | $\leq 0.8$ kgf                         | $\leq 0.6$ kgf           | $\leq 5$ kgf                     | $\leq 0.08$ mm               | $\leq 0.2$ mm                | $\leq 3^\circ$                   |
| 粉末金屬<br>Powder Metal     | 滾珠軸承<br>Ball bearings          | $\leq 1$ kgf                           | $\leq 0.6$ kgf           | $\leq 5$ kgf                     | $\leq 0.05$ mm               | $\leq 0.2$ mm                | $\leq 3^\circ$                   |

## 馬達齒輪型式/ Pinion Specifications

| 模數<br>Module | 齒數<br>No. of teeth | 壓力角<br>Pressure angle | 孔徑 (mm)<br>Hole diameter | 減速比<br>Reduction ratio  |
|--------------|--------------------|-----------------------|--------------------------|---|
| 0.3          | 13                 | $20^\circ$            | $\phi 1.98$              | 1/4, 1/16, 1/19, 1/62, 1/72, 1/84, 1/104, 1/231, 1/270<br>1/316, 1/370, 1/455, 1/1014, 1/1249, 1/1621, 1/1996 |
| 0.3          | 16                 | $20^\circ$            | $\phi 1.98$              | 1/14, 1/53, 1/198, 1/742  |

## 標準減速比型式/ Gearboxes Specifications

| 減速比<br>Reduction ratio                            | 1/4   | 1/14  | 1/16  | 1/19  | 1/53  | 1/62  | 1/72  | 1/84  | 1/104 | 1/198 | 1/231 | 1/270 | 1/316 | 1/370 | 1/455 | 1/742 | 1/1014 | 1/1249 | 1/1621 | 1/1996 |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|--------|
| 定格容許扭力 (kgf-cm max.)<br>Rated tolerance torque    | 0.8   | 1.3   | 1.3   | 1.3   | 1.7   | 1.7   | 1.7   | 1.7   | 1.7   | 2     | 2     | 2     | 2     | 2     | 2     | 2.5   | 2.5    | 2.5    | 2.5    | 2.5    |
| 瞬間容許扭力 (kgf-cm)<br>Max momentary tolerance torque | 2.4   | 3.9   | 3.9   | 3.9   | 5.1   | 5.1   | 5.1   | 5.1   | 5.1   | 6     | 6     | 6     | 6     | 6     | 6     | 7.5   | 7.5    | 7.5    | 7.5    | 7.5    |
| 效率<br>Efficiency                                  | 80%   | 70%   | 70%   | 70%   | 60%   | 60%   | 60%   | 60%   | 60%   | 50%   | 50%   | 50%   | 50%   | 50%   | 50%   | 40%   | 40%    | 40%    | 40%    | 40%    |
| 長度<br>Length (L)                                  | 14.40 | 18.05 | 18.05 | 18.05 | 21.70 | 21.70 | 21.70 | 21.70 | 21.70 | 25.35 | 25.35 | 25.35 | 25.35 | 25.35 | 25.35 | 29    | 29     | 29     | 29     | 29     |
| 重量 (含油軸承)<br>Weight (g) /Sleeve bearing           | 27    | 31    | 31    | 31    | 35    | 35    | 35    | 35    | 35    | 60    | 60    | 60    | 60    | 60    | 60    | 65    | 65     | 65     | 65     | 65     |
| 重量 (滾珠軸承)<br>Weight (g) /Ball bearings            | 26    | 30    | 30    | 30    | 34    | 34    | 34    | 34    | 34    | 59    | 59    | 59    | 59    | 59    | 59    | 64    | 64     | 64     | 64     | 64     |

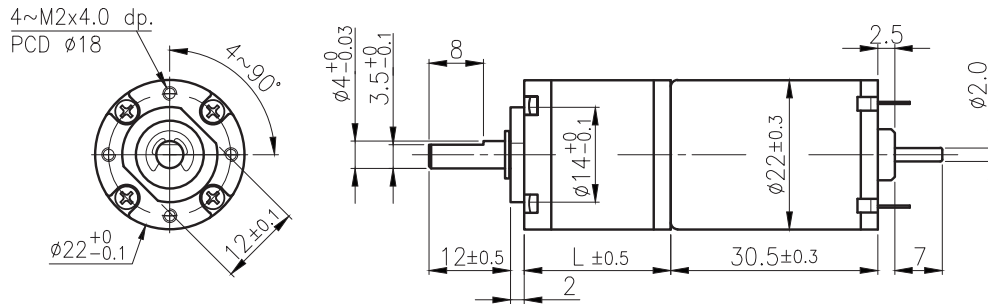
- 使用相對溼度：20%~85%RH  
Operating relative humidity
- 使用溫度範圍：-10°C~+60°C  
Operating temperature range

# IG-22PGM

## 03 & 04 TYPE



### 外形尺寸/ Appearance Size



unit:mm

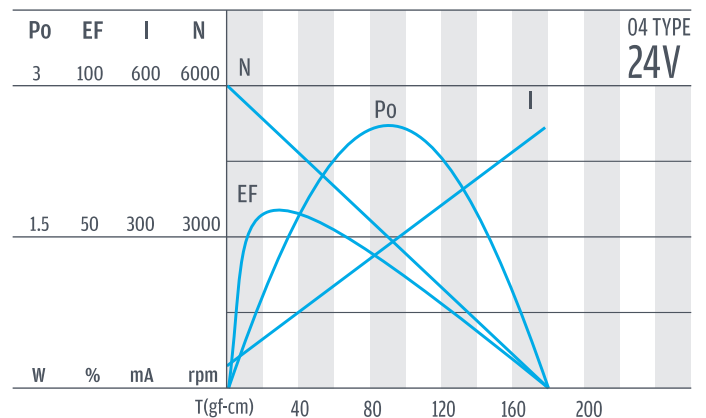
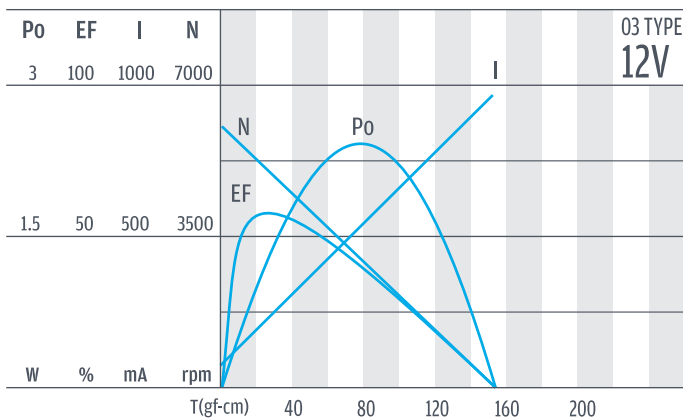
### 齒輪箱馬達轉矩 & 速度/ Gear Motor Torque & Speed

| 減速比<br>Reduction ratio       |                              | 1/4   | 1/14  | 1/16 | 1/19 | 1/53 | 1/62 | 1/72  | 1/84 | 1/104 | 1/198 | 1/231 | 1/270 | 1/316 | 1/370 | 1/455 | 1/742 | 1/1014 | 1/1249 | 1/1621 | 1/1996 |
|------------------------------|------------------------------|-------|-------|------|------|------|------|-------|------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|--------|
| 12V                          | 定格扭力<br>Rated torque (gf-cm) | 100   | 300   | 350  | 410  | 970  | 1100 | 1300  | 1500 | 1700  | 2000  | 2000  | 2000  | 2000  | 2000  | 2000  | 2500  | 2500   | 2500   | 2500   | 2500   |
|                              | 定格轉速<br>Rated speed (rpm)    | 1000  | 340   | 290  | 245  | 90   | 77   | 66    | 56   | 46    | 24    | 21    | 18    | 16    | 13.5  | 11    | 7.3   | 5      | 4.2    | 3.3    | 2.7    |
| 24V                          | 定格扭力<br>Rated torque (gf-cm) | 120   | 360   | 420  | 490  | 1150 | 1300 | 1500  | 1700 | 1700  | 2000  | 2000  | 2000  | 2000  | 2000  | 2000  | 2500  | 2500   | 2500   | 2500   | 2500   |
|                              | 定格轉速<br>Rated speed (rpm)    | 1000  | 330   | 280  | 240  | 89   | 76   | 65    | 55   | 46    | 24    | 21    | 18    | 16    | 13.5  | 11    | 7.3   | 5      | 4.2    | 3.3    | 2.7    |
| 軸心迴轉方向<br>Rotation direction |                              | CW    |       |      |      |      |      |       |      |       |       |       |       |       |       |       |       |        |        |        |        |
| 長度<br>Length (L)             |                              | 14.40 | 18.05 |      |      |      |      | 21.70 |      |       |       |       | 25.35 |       |       |       |       |        | 29     |        |        |

### 馬達單體型式/ Motor Data

| 定格電壓<br>Rated volt (V) | 定格扭力<br>Rated torque (gf-cm) | 定格轉速<br>Rated speed (rpm) | 定格電流<br>Rated current (mA) | 無負荷轉速<br>No load speed (rpm) | 無負荷電流<br>No load current (mA) | 定格出力<br>Rated output (W) | 重量<br>Weight (g) |
|------------------------|------------------------------|---------------------------|----------------------------|------------------------------|-------------------------------|--------------------------|------------------|
| 12                     | 31                           | 4790                      | $\leq 240$                 | 6000                         | $\leq 80$                     | 1.52                     | 43               |
| 24                     | 37                           | 4710                      | $\leq 145$                 | 6000                         | $\leq 55$                     | 1.79                     | 43               |

### 馬達單體特性/ Motor Characteristics

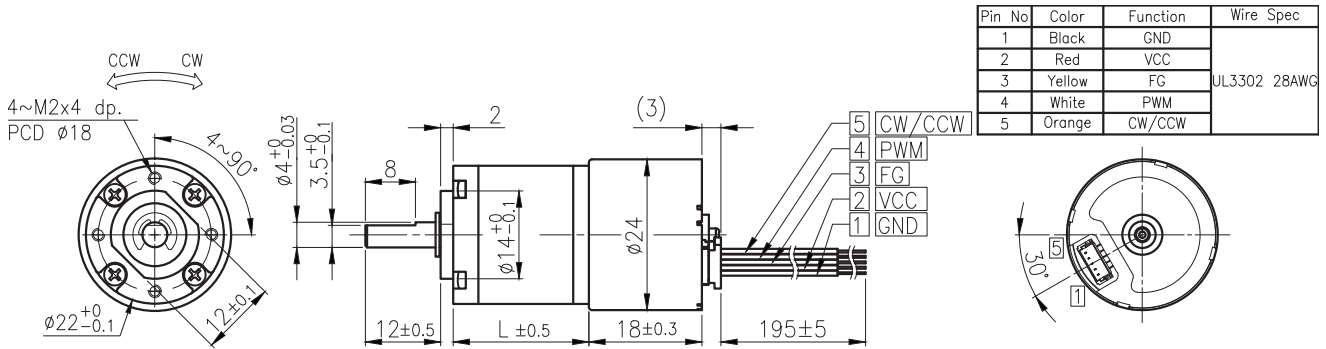


# IG-22PGM

## 41 & 42 TYPE



外形尺寸/ Appearance Size



unit:mm

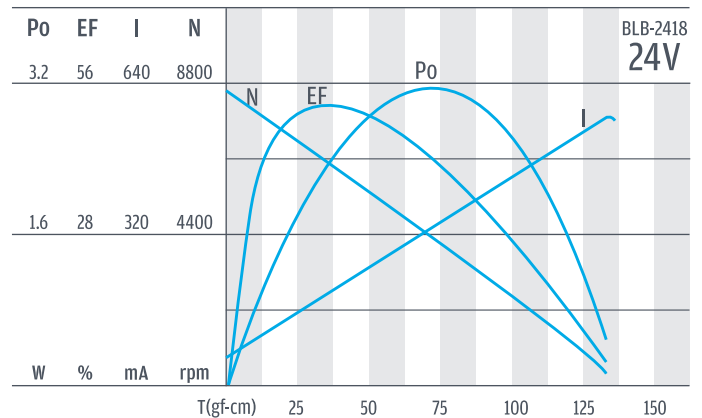
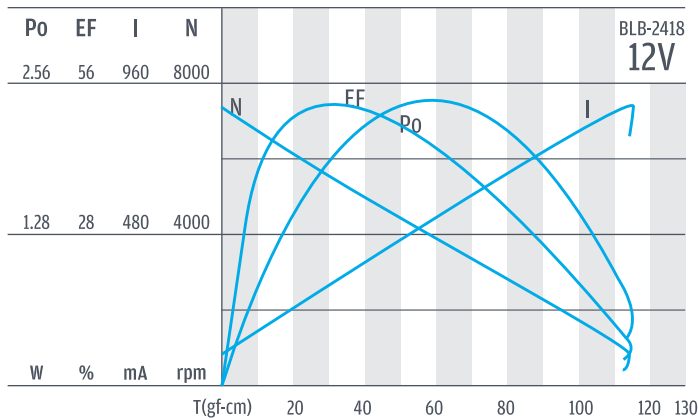
齒輪箱馬達轉矩 & 速度/ Gear Motor Torque & Speed

|                              | 減速比<br>Reduction ratio       | 1/4   | 1/14  | 1/16  | 1/19 | 1/53 | 1/62 | 1/72 | 1/84 | 1/104 | 1/198 | 1/231 | 1/270 | 1/316 | 1/370 | 1/455 | 1/742 | 1/1014 | 1/1249 | 1/1621 | 1/1996 |
|------------------------------|------------------------------|-------|-------|-------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|--------|
| 12V                          | 定格扭力<br>Rated torque (gf-cm) | 100   | 290   | 345   | 400  | 940  | 1100 | 1290 | 1500 | 1700  | 2000  | 2000  | 2000  | 2000  | 2000  | 2000  | 2500  | 2500   | 2500   | 2500   | 2500   |
|                              | 定格轉速<br>Rated speed (rpm)    | 1200  | 380   | 320   | 275  | 100  | 85   | 74   | 63   | 55    | 30    | 25    | 22    | 18    | 16    | 13    | 8     | 6.1    | 5.1    | 4      | 3.4    |
| 24V                          | 定格扭力<br>Rated torque (gf-cm) | 95    | 270   | 320   | 375  | 885  | 1030 | 1200 | 1400 | 1700  | 2000  | 2000  | 2000  | 2000  | 2000  | 2000  | 2500  | 2500   | 2500   | 2500   | 2500   |
|                              | 定格轉速<br>Rated speed (rpm)    | 1525  | 475   | 405   | 345  | 125  | 105  | 90   | 77   | 65    | 37    | 32    | 28    | 25    | 21    | 17.6  | 10.9  | 8      | 6.5    | 5.1    | 4.2    |
| 軸心迴轉方向<br>Rotation direction |                              | CW    |       |       |      |      |      |      |      |       |       |       |       |       |       |       |       |        |        |        |        |
| 長度<br>Length (L)             |                              | 14.40 | 18.05 | 21.70 |      |      |      |      |      | 25.35 |       |       |       |       |       | 29    |       |        |        |        |        |

馬達單體型式/ Motor Data

| 定格電壓<br>Rated volt (V) | 定格扭力<br>Rated torque (gf-cm) | 定格轉速<br>Rated speed (rpm) | 定格電流<br>Rated current (mA) | 無負荷轉速<br>No load speed (rpm) | 無負荷電流<br>No load current (mA) | 定格出力<br>Rated output (W) | 重量<br>Weight (g) |
|------------------------|------------------------------|---------------------------|----------------------------|------------------------------|-------------------------------|--------------------------|------------------|
| 12                     | 30                           | 5340                      | ≤350                       | 7400                         | ≤200                          | 1.65                     | 28               |
| 24                     | 28                           | 6700                      | ≤220                       | 8700                         | ≤180                          | 1.93                     | 28               |

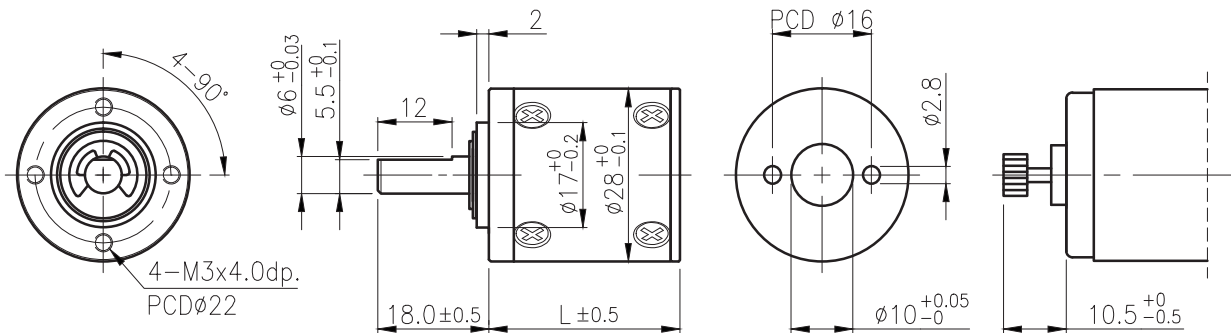
馬達單體特性/Motor Characteristics



# IG-28



## 外形尺寸 & 馬達齒鉚合尺寸 / Appearance Size & Pinion Assembly Dimension



unit:mm

## 產品規格 / Product Specifications

| 外殼材質<br>Housing material | 輸出軸承型式<br>Output shaft bearing | 徑向負荷<br>Radial load (10mm from flange) | 軸向負荷<br>Shaft axial load | 主軸承受壓力<br>Shaft press fit force | 徑向間隙<br>Radial play of shaft | 軸向間隙<br>Thrust play of shaft | 背隙 (無負荷時)<br>Backlash, at no-load |
|--------------------------|--------------------------------|--|--------------------------|---------------------------------|------------------------------|------------------------------|-----------------------------------|
| 金屬<br>Metal              | 含油軸承<br>Sleeve bearings        | ≤ 3 kgf                                | ≤ 2.5 kgf                | ≤ 10 kgf                        | ≤ 0.08 mm                    | ≤ 0.3 mm                     | ≤ 2.5°                            |
| 金屬<br>Metal              | 滾珠軸承<br>Ball bearings          | ≤ 3.5 kgf                              | ≤ 2.5 kgf                | ≤ 10 kgf                        | ≤ 0.05 mm                    | ≤ 0.3 mm                     | ≤ 2.5°                            |

## 馬達齒輪型式 / Pinion Specifications

| 模數<br>Module | 齒數<br>No. of teeth | 壓力角<br>Pressure angle | 孔徑 (mm)<br>Hole diameter | 減速比<br>Reduction ratio                                   |
|--------------|--------------------|-----------------------|--------------------------|--|
| 0.5          | 11                 | 20°                   | ø2.28                    | 1/5, 1/19, 1/27, 1/71, 1/100, 1/139, 1/264, 1/516, 1/721 |
| 0.5          | 17                 | 20°                   | ø2.28                    | 1/4, 1/14, 1/51, 1/189                                   |
| 0.5          | 8                  | 20°                   | ø2.28                    | 1/35, 1/939  |

## 標準減速比型式 / Gearboxes Specifications

| 減速比<br>Reduction ratio                            | 1/4  | 1/5  | 1/14 | 1/19 | 1/27 | 1/35 | 1/51 | 1/71 | 1/100 | 1/139 | 1/189 | 1/264 | 1/516 | 1/721 | 1/939 |
|---|------|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|
| 定格容許扭力 (kgf-cm max.)<br>Rated tolerance torque    | 2    | 2    | 3    | 3    | 4    | 4    | 6    | 6    | 8     | 8     | 10    | 10    | 10    | 10    | 10    |
| 瞬間容許扭力 (kgf-cm)<br>Max momentary tolerance torque | 6    | 6    | 9    | 9    | 12   | 12   | 18   | 18   | 24    | 24    | 30    | 30    | 30    | 30    | 30    |
| 效率<br>Efficiency                                  | 80%  | 80%  | 70%  | 70%  | 70%  | 70%  | 60%  | 60%  | 60%   | 60%   | 50%   | 50%   | 50%   | 50%   | 50%   |
| 長度 (L)<br>Length (L)                              | 24.5 | 24.5 | 30.9 | 30.9 | 30.9 | 30.9 | 37.3 | 37.3 | 37.3  | 37.3  | 43.7  | 43.7  | 43.7  | 43.7  | 43.7  |
| 重量 (含油軸承)<br>Weight (g) / Sleeve bearings         | 71   | 71   | 81   | 81   | 81   | 81   | 94   | 94   | 94    | 94    | 108   | 108   | 108   | 108   | 108   |
| 重量 (滾珠軸承)<br>Weight (g) / Ball bearings           | 70   | 70   | 80   | 80   | 80   | 80   | 93   | 93   | 93    | 93    | 107   | 107   | 107   | 107   | 107   |

- 使用相對溼度：20%~85%RH  
Operating relative humidity
- 使用溫度範圍：-10°C~+60°C  
Operating temperature range

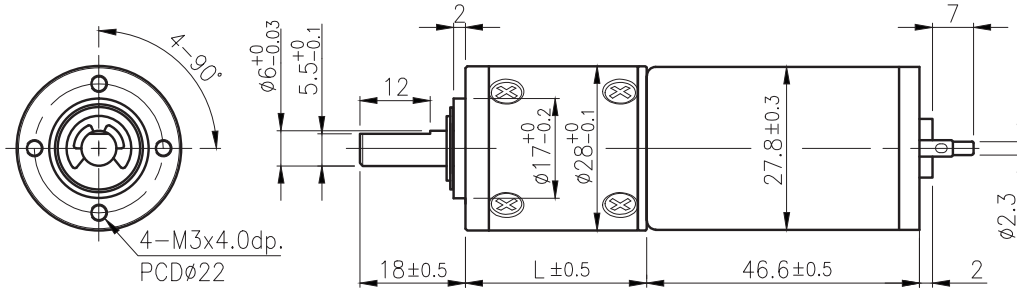


# IG-28GM

## 03 & 04 TYPE



外形尺寸 / Appearance Size



unit:mm

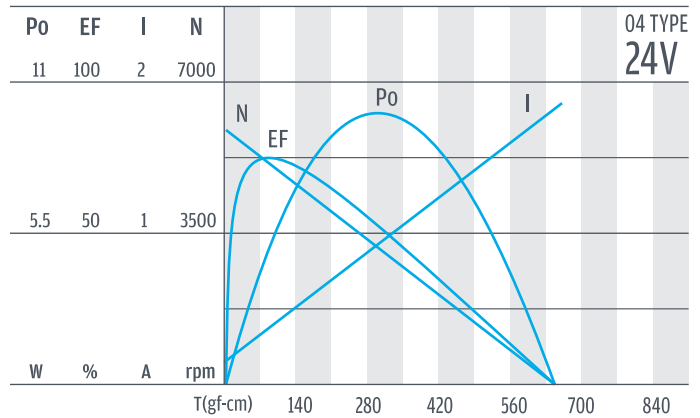
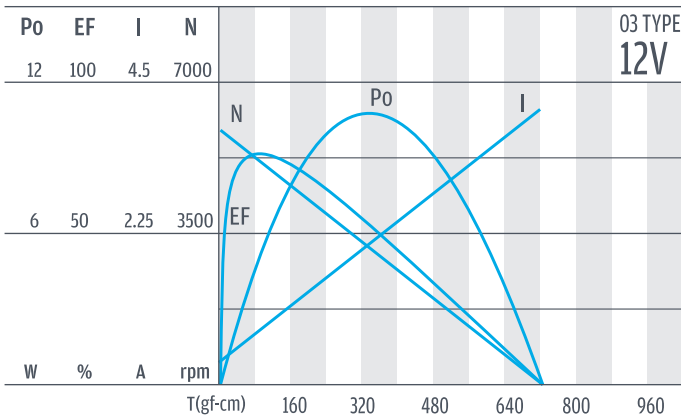
齒輪箱馬達轉矩 & 速度 / Gear Motor Torque & Speed

|                                      |      |      |      |      |      |      |      |       |       |       |       |       |       |       |
|--------------------------------------|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|
| 減速比<br>Reduction ratio               | 1/5  | 1/14 | 1/19 | 1/27 | 1/35 | 1/51 | 1/71 | 1/100 | 1/139 | 1/189 | 1/264 | 1/516 | 1/721 | 1/939 |
| 12V<br>定格扭力<br>Rated torque (kgf-cm) | 0.32 | 0.75 | 1    | 1.4  | 1.9  | 2.4  | 3.3  | 4.7   | 6.6   | 7.4   | 10    | 10    | 10    | 10    |
| 12V<br>定格轉速<br>Rated speed (rpm)     | 1000 | 375  | 270  | 193  | 148  | 102  | 73   | 52    | 37.3  | 27.5  | 19.7  | 10.5  | 7.5   | 5.7   |
| 24V<br>定格扭力<br>Rated torque (kgf-cm) | 0.38 | 0.9  | 1.2  | 1.7  | 2.3  | 2.8  | 4    | 5.6   | 7.8   | 8.8   | 10    | 10    | 10    | 10    |
| 24V<br>定格轉速<br>Rated speed (rpm)     | 990  | 370  | 265  | 191  | 147  | 101  | 72   | 51.5  | 36.9  | 27.2  | 19.3  | 10.4  | 7.4   | 5.7   |
| 軸心迴轉方向<br>Rotation direction         | CCW  |      |      |      |      |      |      |       |       |       |       |       |       |       |
| 長度<br>Length (L)                     | 24.5 |      | 30.9 |      |      |      | 37.3 |       |       |       |       | 43.7  |       |       |

馬達單體型式 / Motor Data

| 定格電壓<br>Rated volt (V) | 定格扭力<br>Rated torque (gf-cm) | 定格轉速<br>Rated speed (rpm) | 定格電流<br>Rated current (A) | 無負荷轉速<br>No load speed (rpm) | 無負荷電流<br>No load current (A) | 定格出力<br>Rated output (W) | 重量<br>Weight (g) |
|------------------------|------------------------------|---------------------------|---------------------------|------------------------------|------------------------------|--------------------------|------------------|
| 12                     | 79                           | 5200                      | ≤0.5                      | 6000                         | ≤0.13                        | 4.22                     | 93               |
| 24                     | 94                           | 5140                      | ≤0.3                      | 6000                         | ≤0.08                        | 4.96                     | 91               |

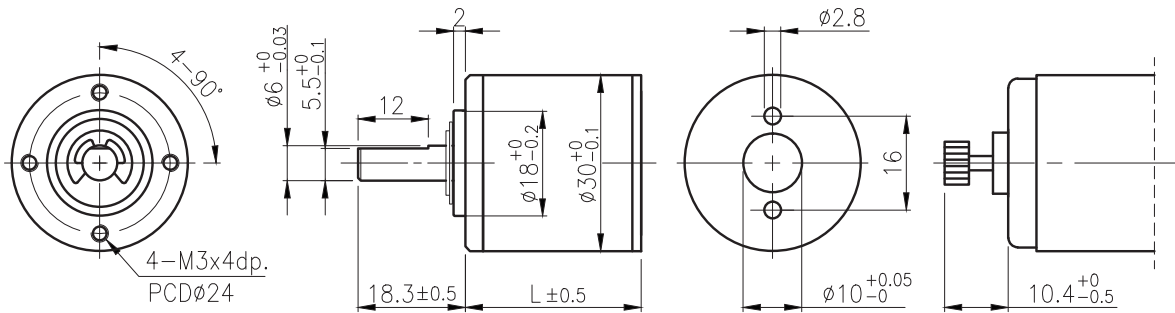
馬達單體特性 / Motor Characteristics



# IG-30



外形尺寸 & 馬達齒鉤合尺寸 / Appearance Size & Pinion Assembly Dimension



unit:mm

## 產品規格/ Product Specifications

| 外殼材質<br>Housing material | 輸出軸承型式<br>Output shaft bearing | 徑向負荷<br>Radial load (10mm from flange) | 軸向負荷<br>Shaft axial load | 主軸承受壓入力<br>Shaft press fit force | 徑向間隙<br>Radial play of shaft | 軸向間隙<br>Thrust play of shaft | 背隙 (無負荷時)<br>Backlash, at no-load |
|--------------------------|--------------------------------|--|--------------------------|----------------------------------|------------------------------|------------------------------|-----------------------------------|
| 金屬<br>Metal              | 含油軸承<br>Sleeve bearing         | ≤ 3 kgf                                | ≤ 2.5 kgf                | ≤ 10 kgf                         | ≤ 0.08 mm                    | ≤ 0.3 mm                     | ≤ 2.5°                            |
| 金屬<br>Metal              | 滾珠軸承<br>Ball bearings          | ≤ 3.5 kgf                              | ≤ 2.5 kgf                | ≤ 10 kgf                         | ≤ 0.05 mm                    | ≤ 0.3 mm                     | ≤ 2.5°                            |

## 馬達齒輪型式/ Pinion Specifications

| 模數<br>Module | 齒數<br>No. of teeth | 壓力角<br>Pressure angle | 孔徑 (mm)<br>Hole diameter          | 減速比<br>Reduction ratio                                   |
|--------------|--------------------|-----------------------|-----------------------------------|--|
| 0.5          | 11                 | 20°                   | $\phi 2.28, \phi 2.48, \phi 2.98$ | 1/5, 1/19, 1/27, 1/71, 1/100, 1/139, 1/264, 1/516, 1/721 |
| 0.5          | 17                 | 20°                   | $\phi 2.28, \phi 2.48, \phi 2.98$ | 1/4, 1/14, 1/51, 1/189                                   |
| 0.5          | 8                  | 20°                   | $\phi 2.28$                       | 1/35, 1/939  |

## 標準減速比型式/ Gearboxes Specifications

| 減速比<br>Reduction ratio                            | 1/4  | 1/5  | 1/14 | 1/19 | 1/27 | 1/35 | 1/51 | 1/71 | 1/100 | 1/139 | 1/189 | 1/264 | 1/516 | 1/721 | 1/939 |
|---|------|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|
| 定格容許扭力 (kgf-cm max.)<br>Rated tolerance torque    | 2    | 2    | 3    | 3    | 4    | 4    | 6    | 6    | 8     | 8     | 10    | 10    | 10    | 10    | 10    |
| 瞬間容許扭力 (kgf-cm)<br>Max momentary tolerance torque | 6    | 6    | 9    | 9    | 12   | 12   | 18   | 18   | 24    | 24    | 30    | 30    | 30    | 30    | 30    |
| 效率<br>Efficiency                                  | 80%  | 80%  | 70%  | 70%  | 70%  | 70%  | 60%  | 60%  | 60%   | 60%   | 50%   | 50%   | 50%   | 50%   | 50%   |
| 長度 (L)<br>Length (L)                              | 23.6 | 23.6 | 30   | 30   | 30   | 30   | 36.4 | 36.4 | 36.4  | 36.4  | 42.8  | 42.8  | 42.8  | 42.8  | 42.8  |
| 重量 (含油軸承)<br>Weight (g) / Sleeve bearing          | 79   | 79   | 92   | 92   | 92   | 92   | 107  | 107  | 107   | 107   | 122   | 122   | 122   | 122   | 122   |
| 重量 (滾珠軸承)<br>Weight (g) / Ball bearings           | 78   | 78   | 91   | 91   | 91   | 91   | 106  | 106  | 106   | 106   | 121   | 121   | 121   | 121   | 121   |

- 使用相對溼度: 20%~85%RH  
Operating relative humidity
- 使用溫度範圍: -10°C~+60°C  
Operating temperature range

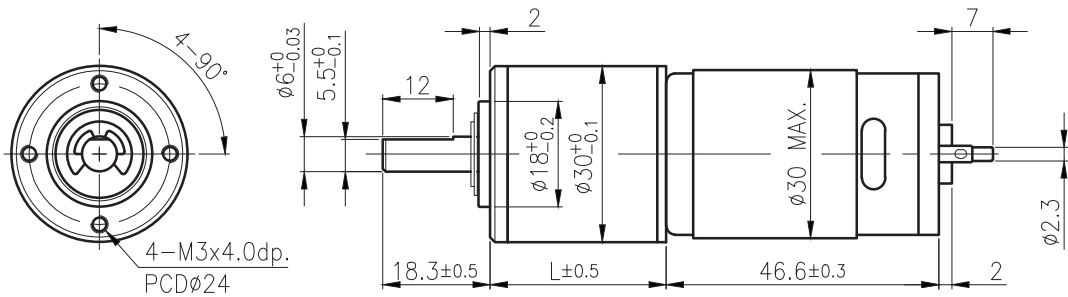
# IG-30GM

## 03 & 04 TYPE



外形尺寸/ Appearance Size

視圖方向僅供參考 / The position of the screw hole and motor terminal in the photo is only for reference.



unit:mm

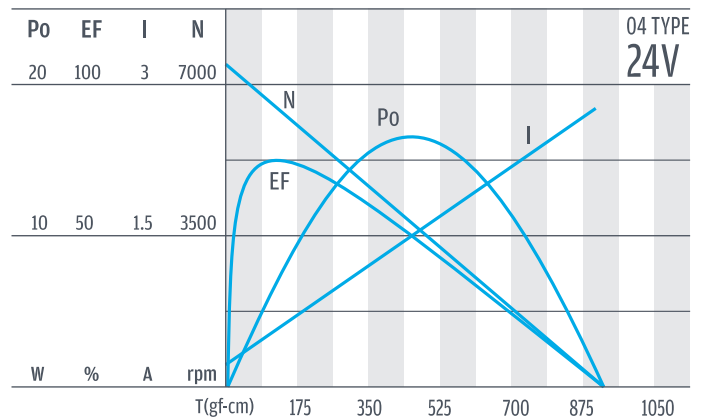
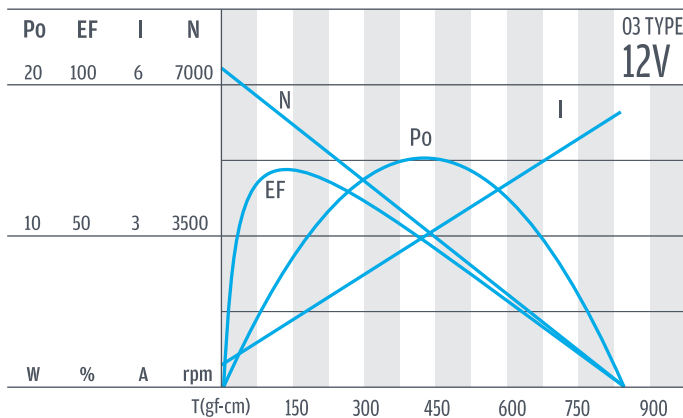
### 齒輪箱馬達轉矩 & 速度/ Gear Motor Torque & Speed

|                  |                               | 1/5  | 1/14 | 1/19 | 1/27 | 1/35 | 1/51 | 1/71 | 1/100 | 1/139 | 1/189 | 1/264 | 1/516 | 1/721 | 1/939 |  |  |  |
|------------------|-------------------------------|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|--|--|--|
| 12V              | 減速比<br>Reduction ratio        | 1/5  | 1/14 | 1/19 | 1/27 | 1/35 | 1/51 | 1/71 | 1/100 | 1/139 | 1/189 | 1/264 | 1/516 | 1/721 | 1/939 |  |  |  |
|                  | 定格扭力<br>Rated torque (kgf-cm) | 0.45 | 1.1  | 1.5  | 2.1  | 2.7  | 3.4  | 4.7  | 6.6   | 8     | 10    | 10    | 10    | 10    | 10    |  |  |  |
| 24V              | 定格轉速<br>Rated speed (rpm)     | 1120 | 430  | 310  | 221  | 170  | 117  | 83   | 60    | 45    | 32    | 25    | 13.2  | 9.6   | 7.3   |  |  |  |
|                  | 定格扭力<br>Rated torque (kgf-cm) | 0.54 | 1.2  | 1.7  | 2.4  | 3.1  | 4    | 5.5  | 7.8   | 8     | 10    | 10    | 10    | 10    | 10    |  |  |  |
| 24V              | 定格轉速<br>Rated speed (rpm)     | 1150 | 445  | 320  | 229  | 176  | 121  | 87   | 62    | 46    | 34.5  | 26    | 13.5  | 9.8   | 7.3   |  |  |  |
|                  | 軸心迴轉方向<br>Rotation direction  | CCW  |      |      |      |      |      |      |       |       |       |       |       |       |       |  |  |  |
| 長度<br>Length (L) |                               | 23.6 |      | 30   |      |      |      | 36.4 |       |       |       |       | 42.8  |       |       |  |  |  |

### 馬達單體型式/ Motor Data

| 定格電壓<br>Rated volt (V) | 定格扭力<br>Rated torque (gf-cm) | 定格轉速<br>Rated speed (rpm) | 定格電流<br>Rated current (A) | 無負荷轉速<br>No load speed (rpm) | 無負荷電流<br>No load current (A) | 定格出力<br>Rated output (W) | 重量<br>Weight (g) |
|------------------------|------------------------------|---------------------------|---------------------------|------------------------------|------------------------------|--------------------------|------------------|
| 12                     | 110                          | 5950                      | ≤0.9                      | 7200                         | ≤0.15                        | 7.0                      | 110              |
| 24                     | 130                          | 6160                      | ≤0.5                      | 7200                         | ≤0.08                        | 8.5                      | 110              |

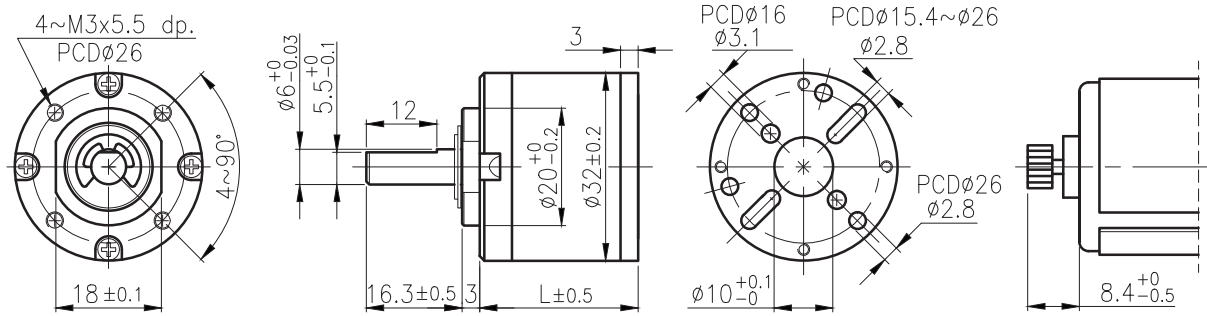
### 馬達單體特性/ Motor Characteristics



# IG-32



外形尺寸 & 馬達齒鉋合尺寸 / Appearance Size & Pinion Assembly Dimension



unit:mm

## 產品規格/ Product Specifications

| 外殼材質<br>Housing material | 輸出軸承型式<br>Output shaft bearing | 徑向負荷<br>Radial load (10mm from flange) | 軸向負荷<br>Shaft axial load | 主軸承受壓入力<br>Shaft press fit force | 徑向間隙<br>Radial play of shaft | 軸向間隙<br>Thrust play of shaft | 背隙 (無負荷時)<br>Backlash, at no-load |
|--------------------------|--------------------------------|--|--------------------------|----------------------------------|------------------------------|------------------------------|-----------------------------------|
| 金屬<br>Metal              | 含油軸承<br>Sleeve bearing         | $\leq 3$ kgf                           | $\leq 2.5$ kgf           | $\leq 10$ kgf                    | $\leq 0.08$ mm               | $\leq 0.3$ mm                | $\leq 2.5^\circ$                  |
| 金屬<br>Metal              | 滾珠軸承<br>Ball bearings          | $\leq 3.5$ kgf                         | $\leq 2.5$ kgf           | $\leq 10$ kgf                    | $\leq 0.05$ mm               | $\leq 0.3$ mm                | $\leq 2.5^\circ$                  |

## 馬達齒輪型式/ Pinion Specifications

| 模數<br>Module | 齒數<br>No. of teeth | 壓力角<br>Pressure angle | 孔徑 (mm)<br>Hole diameter                           | 減速比<br>Reduction ratio                                   |
|--------------|--------------------|-----------------------|--|--|
| 0.5          | 11                 | 20°                   | $\phi$ 2.28, $\phi$ 2.48, $\phi$ 2.98, $\phi$ 3.16 | 1/5, 1/19, 1/27, 1/71, 1/100, 1/139, 1/264, 1/516, 1/721 |
| 0.5          | 17                 | 20°                   | $\phi$ 2.28, $\phi$ 2.48, $\phi$ 2.98, $\phi$ 3.16 | 1/4, 1/14, 1/51, 1/189                                   |
| 0.5          | 8                  | 20°                   | $\phi$ 2.28  | 1/35, 1/939  |

## 標準減速比型式/ Gearboxes Specifications

| 減速比<br>Reduction ratio                            | 1/4  | 1/5  | 1/14 | 1/19 | 1/27 | 1/35 | 1/51 | 1/71 | 1/100 | 1/139 | 1/189 | 1/264 | 1/516 | 1/721 | 1/939 |
|---|------|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|
| 定格容許扭力 (kgf-cm max.)<br>Rated tolerance torque    | 2    | 2    | 4    | 4    | 6    | 6    | 8    | 8    | 10    | 10    | 12    | 12    | 12    | 12    | 12    |
| 瞬間容許扭力 (kgf-cm)<br>Max momentary tolerance torque | 6    | 6    | 12   | 12   | 18   | 18   | 24   | 24   | 30    | 30    | 36    | 36    | 36    | 36    | 36    |
| 效率<br>Efficiency                                  | 80%  | 80%  | 70%  | 70%  | 70%  | 70%  | 60%  | 60%  | 60%   | 60%   | 50%   | 50%   | 50%   | 50%   | 50%   |
| 長度<br>Length (L)                                  | 20.6 | 20.6 | 27   | 27   | 27   | 27   | 33.4 | 33.4 | 33.4  | 33.4  | 39.8  | 39.8  | 39.8  | 39.8  | 39.8  |
| 重量 (含油軸承)<br>Weight (g) /Sleeve bearing           | 102  | 102  | 122  | 122  | 122  | 122  | 147  | 147  | 147   | 147   | 173   | 173   | 173   | 173   | 173   |
| 重量 (滾珠軸承)<br>Weight (g) /Ball bearings            | 101  | 101  | 121  | 121  | 121  | 121  | 146  | 146  | 146   | 146   | 172   | 172   | 172   | 172   | 172   |

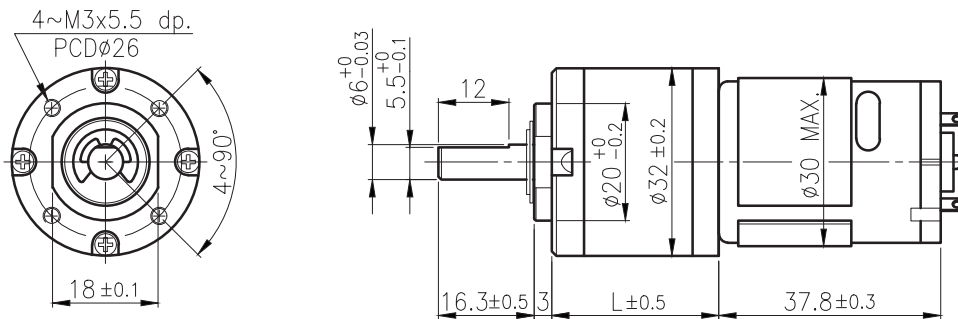
- 使用相對溼度：20%~85%RH  
Operating relative humidity
- 使用溫度範圍：-10°C~+60°C  
Operating temperature range

# IG-32GM

## 01 & 02 TYPE



### 外形尺寸 / Appearance Size



unit:mm

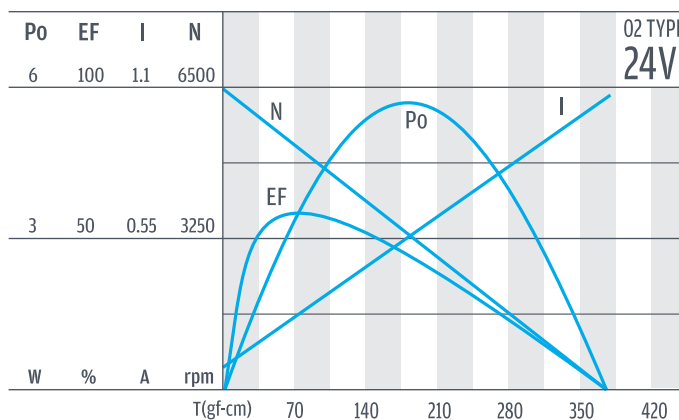
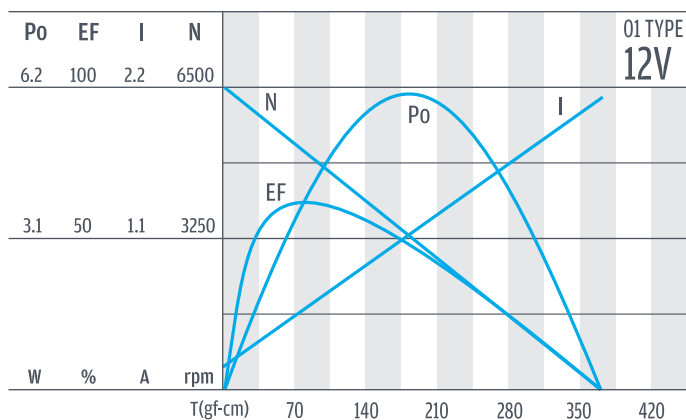
### 齒輪箱馬達轉矩 & 速度 / Gear Motor Torque & Speed

|     | 減速比<br>Reduction ratio       | 1/5  | 1/4  | 1/19 | 1/27 | 1/35 | 1/51 | 1/71 | 1/100 | 1/139 | 1/189 | 1/264 | 1/516 | 1/721 | 1/939 |  |  |
|-----|------------------------------|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|--|--|
| 12V | 定格扭力<br>Rated torque(kgf-cm) | 0.3  | 0.75 | 1    | 1.4  | 1.9  | 2.3  | 3.3  | 4.6   | 6.5   | 7.3   | 10    | 12    | 12    | 12    |  |  |
|     | 定格轉速<br>Rated speed (rpm)    | 995  | 373  | 270  | 195  | 150  | 104  | 74   | 53    | 38    | 28    | 20    | 11.2  | 8.3   | 6.3   |  |  |
| 24V | 定格扭力<br>Rated torque(kgf-cm) | 0.3  | 0.7  | 1.0  | 1.4  | 1.8  | 2.2  | 3.1  | 4.4   | 6.1   | 6.9   | 9.7   | 12    | 12    | 12    |  |  |
|     | 定格轉速<br>Rated speed (rpm)    | 990  | 370  | 265  | 191  | 150  | 103  | 74   | 53    | 38    | 28    | 20    | 11.2  | 8.3   | 6.3   |  |  |
|     | 軸心迴轉方向<br>Rotation direction | CCW  |      |      |      |      |      |      |       |       |       |       |       |       |       |  |  |
|     | 長度<br>Length (L)             | 20.6 |      | 27   |      |      | 33.4 |      |       |       |       | 39.8  |       |       |       |  |  |

### 馬達單體型式 / Motor Data

| 定格電壓<br>Rated volt (V) | 定格扭力<br>Rated torque (gf-cm) | 定格轉速<br>Rated speed (rpm) | 定格電流<br>Rated current (A) | 無負荷轉速<br>No load speed (rpm) | 無負荷電流<br>No load current (A) | 定格出力<br>Rated output (W) | 重量<br>Weight (g) |
|------------------------|------------------------------|---------------------------|---------------------------|------------------------------|------------------------------|--------------------------|------------------|
| 12                     | 78                           | 5290                      | $\leq$ 0.53               | 6500                         | $\leq$ 0.15                  | 4.22                     | 73.0             |
| 24                     | 74                           | 5250                      | $\leq$ 0.25               | 6500                         | $\leq$ 0.085                 | 3.97                     | 73.0             |

### 馬達單體特性 / Motor Characteristics

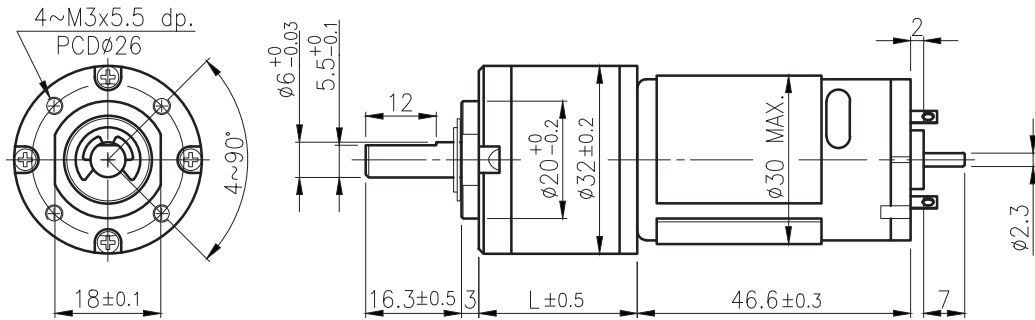


# IG-32GM

## 03 & 04 TYPE



外形尺寸/ Appearance Size



unit:mm

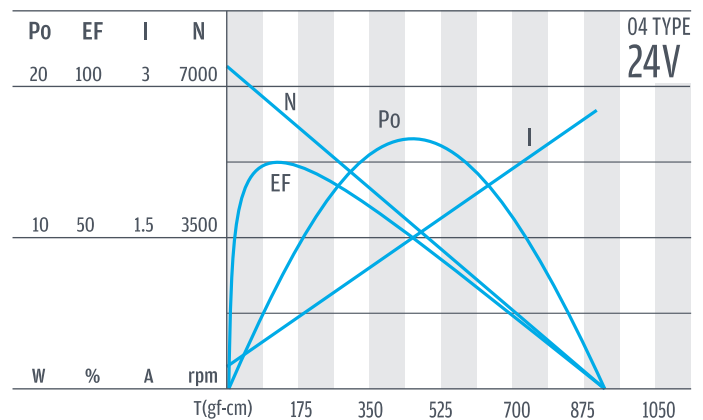
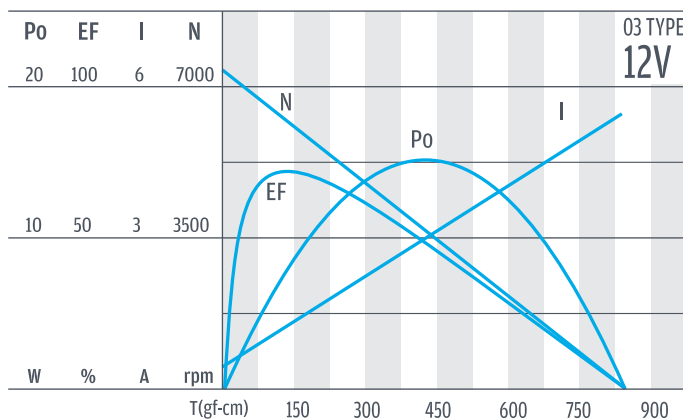
齒輪箱馬達轉矩 & 速度/ Gear Motor Torque & Speed

|     |                               |      |      |      |      |      |      |      |       |       |       |       |       |       |       |
|-----|-------------------------------|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|
|     | 減速比<br>Reduction ratio        | 1/5  | 1/14 | 1/19 | 1/27 | 1/35 | 1/51 | 1/71 | 1/100 | 1/139 | 1/189 | 1/264 | 1/516 | 1/721 | 1/939 |
| 12V | 定格扭力<br>Rated torque (kgf-cm) | 0.45 | 1.1  | 1.5  | 2.1  | 2.7  | 3.4  | 4.7  | 6.6   | 9.1   | 10    | 12    | 12    | 12    | 12    |
|     | 定格轉速<br>Rated speed (rpm)     | 1140 | 430  | 310  | 221  | 170  | 117  | 83   | 60    | 44    | 32    | 24    | 12.9  | 9.5   | 7.2   |
| 24V | 定格扭力<br>Rated torque (kgf-cm) | 0.54 | 1.2  | 1.7  | 2.4  | 3.1  | 4    | 5.5  | 7.8   | 10    | 12    | 12    | 12    | 12    | 12    |
|     | 定格轉速<br>Rated speed (rpm)     | 1170 | 445  | 320  | 229  | 176  | 121  | 87   | 62    | 45    | 34    | 25    | 13    | 9.6   | 7.2   |
|     | 軸心迴轉方向<br>Rotation direction  | CCW  |      |      |      |      |      |      |       |       |       |       |       |       |       |
|     | 長度<br>Length (L)              | 20.6 |      |      | 27   |      |      |      | 33.4  |       |       |       |       | 39.8  |       |

馬達單體型式/ Motor Data

| 定格電壓<br>Rated volt (V) | 定格扭力<br>Rated torque (gf-cm) | 定格轉速<br>Rated speed (rpm) | 定格電流<br>Rated current (A) | 無負荷轉速<br>No load speed (rpm) | 無負荷電流<br>No load current (A) | 定格輸出<br>Rated output (W) | 重量<br>Weight (g) |
|------------------------|------------------------------|---------------------------|---------------------------|------------------------------|------------------------------|--------------------------|------------------|
| 12                     | 110                          | 5950                      | ≤ 0.9                     | 7200                         | ≤ 0.15                       | 7.0                      | 110              |
| 24                     | 130                          | 6160                      | ≤ 0.5                     | 7200                         | ≤ 0.08                       | 8.5                      | 110              |

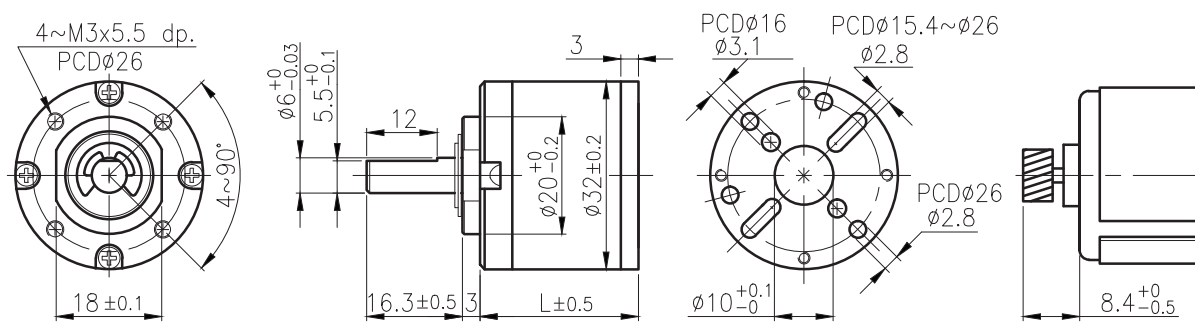
馬達單體特性/ Motor Characteristics



# IG-32H



外形尺寸 & 馬達齒鉚合尺寸 / Appearance Size & Pinion Assembly Dimension



unit:mm

## 產品規格 / Product Specifications

| 外殼材質<br>Housing material | 輸出軸承型式<br>Output shaft bearing | 徑向負荷<br>Radial load (10mm from flange) | 軸向負荷<br>Shaft axial load | 主軸承受壓力<br>Shaft press fit force | 徑向間隙<br>Radial play of shaft | 軸向間隙<br>Thrust play of shaft | 背隙 (無負荷時)<br>Backlash, at no-load |
|--------------------------|--------------------------------|--|--------------------------|---------------------------------|------------------------------|------------------------------|-----------------------------------|
| 金屬<br>Metal              | 含油軸承<br>Sleeve bearing         | ≤ 3 kgf                                | ≤ 2.5 kgf                | ≤ 10 kgf                        | ≤ 0.08 mm                    | ≤ 0.3 mm                     | ≤ 2.5°                            |
| 金屬<br>Metal              | 滾珠軸承<br>Ball bearings          | ≤ 3.5 kgf                              | ≤ 2.5 kgf                | ≤ 10 kgf                        | ≤ 0.05 mm                    | ≤ 0.3 mm                     | ≤ 2.5°                            |

## 馬達齒輪型式 / Pinion Specifications

| 模數<br>Module | 齒數<br>No. of teeth | 螺旋角<br>Helix angle | 壓力角<br>Pressure angle | 孔徑<br>Hole diameter        | 減速比<br>Reduction ratio                       |
|--------------|--------------------|--------------------|-----------------------|----------------------------|--|
| 0.5          | 11                 | 18° (左, left)      | 20°                   | ∅2.28, ∅2.48, ∅2.98, ∅3.16 | 1/18, 1/25, 1/94, 1/132, 1/250, 1/349, 1/683 |
| 0.5          | 17                 | 18° (左, left)      | 20°                   | ∅2.28, ∅2.48, ∅2.98, ∅3.16 | 1/13, 1/48, 1/68, 1/180, 1/491               |
| 0.5          | 8                  | 18° (左, left)      | 20°                   | ∅2.28                      | 1/33, 1/887                                  |

## 標準減速比型式 / Gearboxes Specifications

| 減速比<br>Reduction ratio                            | 1/13 | 1/18 | 1/25 | 1/33 | 1/48 | 1/68 | 1/94 | 1/132 | 1/180 | 1/250 | 1/349 | 1/491 | 1/683 | 1/887 |
|---|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|
| 定格容許扭力 (kgf-cm max.)<br>Rated tolerance torque    | 4    | 4    | 6    | 6    | 8    | 8    | 10   | 10    | 12    | 12    | 12    | 12    | 12    | 12    |
| 瞬間容許扭力 (kgf-cm)<br>Max momentary tolerance torque | 12   | 12   | 18   | 18   | 24   | 24   | 30   | 30    | 36    | 36    | 36    | 36    | 36    | 36    |
| 效率<br>Efficiency                                  | 70%  | 70%  | 70%  | 70%  | 60%  | 60%  | 60%  | 60%   | 50%   | 50%   | 50%   | 50%   | 50%   | 50%   |
| 長度 (L)<br>Length (L)                              | 27   | 27   | 27   | 27   | 33.4 | 33.4 | 33.4 | 33.4  | 39.8  | 39.8  | 39.8  | 39.8  | 39.8  | 39.8  |
| 重量 (含油軸承)<br>Weight (g) / Sleeve bearing          | 109  | 109  | 109  | 109  | 134  | 134  | 134  | 134   | 160   | 160   | 160   | 160   | 160   | 160   |
| 重量 (滾珠軸承)<br>Weight (g) / Ball bearings           | 108  | 108  | 108  | 108  | 133  | 133  | 133  | 133   | 159   | 159   | 159   | 159   | 159   | 159   |

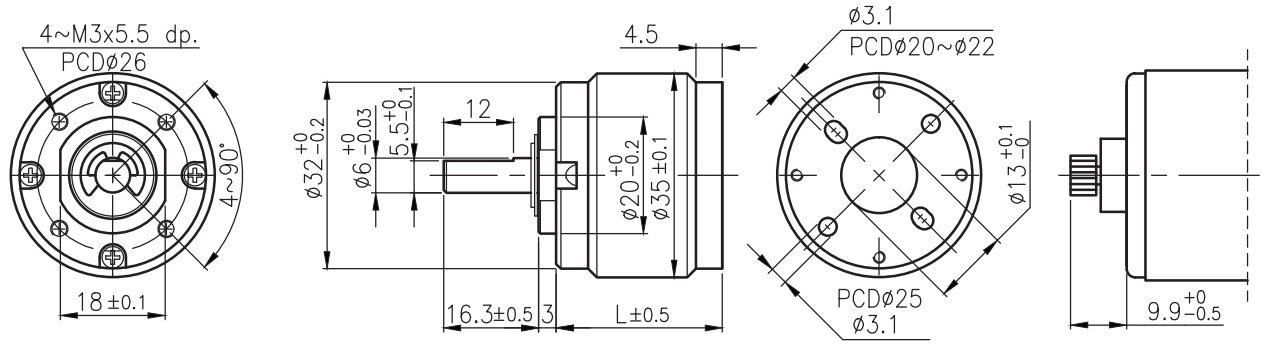
- 使用相對溼度：20%~85%RH  
Operating relative humidity
- 使用溫度範圍：-10°C~+60°C  
Operating temperature range



# IG-32P



外形尺寸 & 馬達齒鉚合尺寸 / Appearance Size & Pinion Assembly Dimension



unit:mm

## 產品規格 / Product Specifications

| 外殼材質<br>Housing material | 輸出軸承型式<br>Output shaft bearing | 徑向負荷<br>Radial load (10mm from flange) | 軸向負荷<br>Shaft axial load | 主軸承受壓入力<br>Shaft press fit force | 徑向間隙<br>Radial play of shaft | 軸向間隙<br>Thrust play of shaft | 背隙 (無負荷時)<br>Backlash, at no-load |
|--------------------------|--------------------------------|--|--------------------------|----------------------------------|------------------------------|------------------------------|-----------------------------------|
| 粉末金屬<br>Powder Metal     | 含油軸承<br>Sleeve bearing         | ≤ 3 kgf                                | ≤ 2.5 kgf                | ≤ 10 kgf                         | ≤ 0.08 mm                    | ≤ 0.3 mm                     | ≤ 2.5°                            |
| 粉末金屬<br>Powder Metal     | 滾珠軸承<br>Ball bearings          | ≤ 3.5 kgf                              | ≤ 2.5 kgf                | ≤ 10 kgf                         | ≤ 0.05 mm                    | ≤ 0.3 mm                     | ≤ 2.5°                            |

## 馬達齒輪型式 / Pinion Specifications

| 模數<br>Module | 齒數<br>No. of teeth | 壓力角<br>Pressure angle | 孔徑 (mm)<br>Hole diameter                           | 減速比<br>Reduction ratio                                   |
|--------------|--------------------|-----------------------|--|--|
| 0.5          | 11                 | 20°                   | $\phi$ 2.28, $\phi$ 2.48, $\phi$ 2.98, $\phi$ 3.16 | 1/5, 1/19, 1/27, 1/71, 1/100, 1/139, 1/264, 1/516, 1/721 |
| 0.5          | 17                 | 20°                   | $\phi$ 2.28, $\phi$ 2.48, $\phi$ 2.98, $\phi$ 3.16 | 1/4, 1/14, 1/51, 1/189                                   |

## 標準減速比型式 / Gearboxes Specifications

| 減速比<br>Reduction ratio                            | 1/4  | 1/5  | 1/14 | 1/19 | 1/27 | 1/51 | 1/71 | 1/100 | 1/139 | 1/189 | 1/264 | 1/516 | 1/721 |
|---|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|
| 定格容許扭力 (kgf-cm max.)<br>Rated tolerance torque    | 2    | 2    | 4    | 4    | 6    | 8    | 8    | 10    | 10    | 12    | 12    | 12    | 12    |
| 瞬間容許扭力 (kgf-cm)<br>Max momentary tolerance torque | 6    | 6    | 12   | 12   | 18   | 24   | 24   | 30    | 30    | 36    | 36    | 36    | 36    |
| 效率<br>Efficiency                                  | 80%  | 80%  | 70%  | 70%  | 70%  | 60%  | 60%  | 60%   | 60%   | 50%   | 50%   | 50%   | 50%   |
| 長度<br>Length (L)                                  | 22.1 | 22.1 | 28.5 | 28.5 | 28.5 | 34.9 | 34.9 | 34.9  | 34.9  | 41.3  | 41.3  | 41.3  | 41.3  |
| 重量 (含油軸承)<br>Weight (g) /Sleeve bearing           | 109  | 109  | 143  | 143  | 143  | 177  | 177  | 177   | 177   | 211   | 211   | 211   | 211   |
| 重量 (滾珠軸承)<br>Weight (g) /Ball bearings            | 108  | 108  | 142  | 142  | 142  | 176  | 176  | 176   | 176   | 210   | 210   | 210   | 210   |

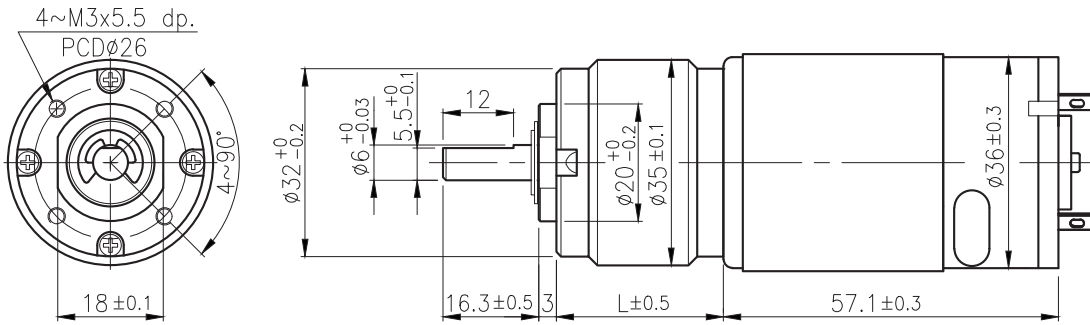
- 使用相對溼度：20%~85%RH  
Operating relative humidity
- 使用溫度範圍：-10°C~+60°C  
Operating temperature range

# IG-32PGM

## 01 & 02 TYPE



外形尺寸/ Appearance Size



unit:mm

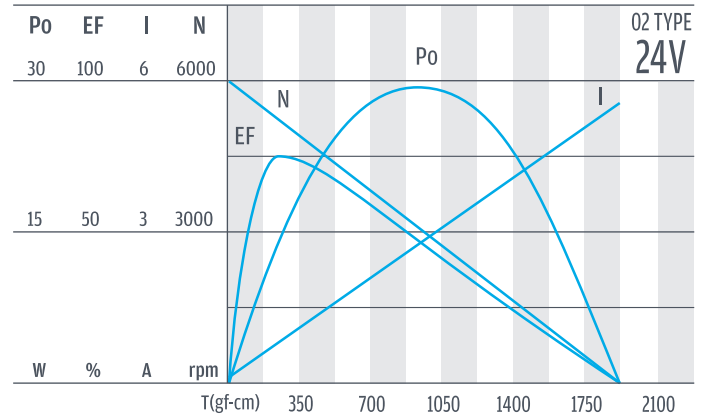
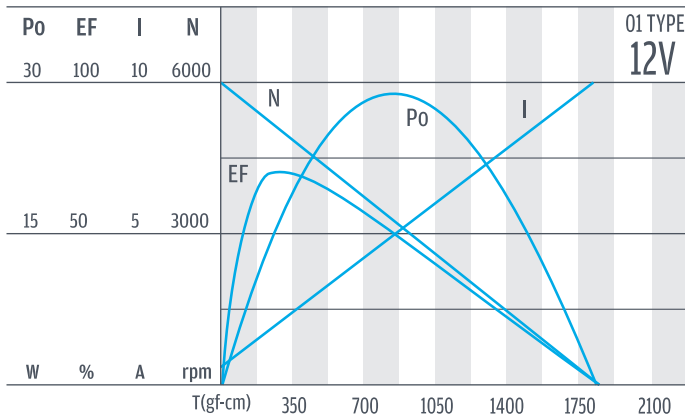
齒輪箱馬達轉矩 & 速度/ Gear Motor Torque & Speed

|                                      |      |      |      |      |      |      |       |       |       |       |       |       |  |  |  |  |  |  |
|--------------------------------------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|--|--|--|--|--|--|
| 減速比<br>Reduction ratio               | 1/5  | 1/14 | 1/19 | 1/27 | 1/51 | 1/71 | 1/100 | 1/139 | 1/189 | 1/264 | 1/516 | 1/721 |  |  |  |  |  |  |
| 12V<br>定格扭力<br>Rated torque (kgf-cm) | 1    | 2.4  | 3.3  | 4.7  | 7.6  | 8    | 10    | 10    | 12    | 12    | 12    | 12    |  |  |  |  |  |  |
| 12V<br>定格轉速<br>Rated speed (rpm)     | 950  | 359  | 257  | 183  | 97   | 71.5 | 52    | 39    | 29    | 21    | 11    | 8     |  |  |  |  |  |  |
| 24V<br>定格扭力<br>Rated torque (kgf-cm) | 1    | 2.3  | 3.2  | 4.5  | 7.3  | 8    | 10    | 10    | 12    | 12    | 12    | 12    |  |  |  |  |  |  |
| 24V<br>定格轉速<br>Rated speed (rpm)     | 990  | 375  | 268  | 192  | 101  | 74.5 | 54    | 40    | 29.5  | 22    | 11.5  | 8     |  |  |  |  |  |  |
| 軸心迴轉方向<br>Rotation direction         | CCW  |      |      |      |      |      |       |       |       |       |       |       |  |  |  |  |  |  |
| 長度<br>Length (L)                     | 22.1 |      | 28.5 |      |      |      | 34.9  |       |       |       | 41.3  |       |  |  |  |  |  |  |

馬達單體型式/ Motor Data

| 定格電壓<br>Rated volt (V) | 定格扭力<br>Rated torque (gf-cm) | 定格轉速<br>Rated speed (rpm) | 定格電流<br>Rated current (A) | 無負荷轉速<br>No load speed (rpm) | 無負荷電流<br>No load current (A) | 定格出力<br>Rated output (W) | 重量<br>Weight (g) |
|------------------------|------------------------------|---------------------------|---------------------------|------------------------------|------------------------------|--------------------------|------------------|
| 12                     | 250                          | 4930                      | ≤ 1.6                     | 6000                         | ≤ 0.25                       | 12.80                    | 220              |
| 24                     | 240                          | 5150                      | ≤ 0.75                    | 6000                         | ≤ 0.13                       | 12.70                    | 220              |

馬達單體特性/ Motor Characteristics

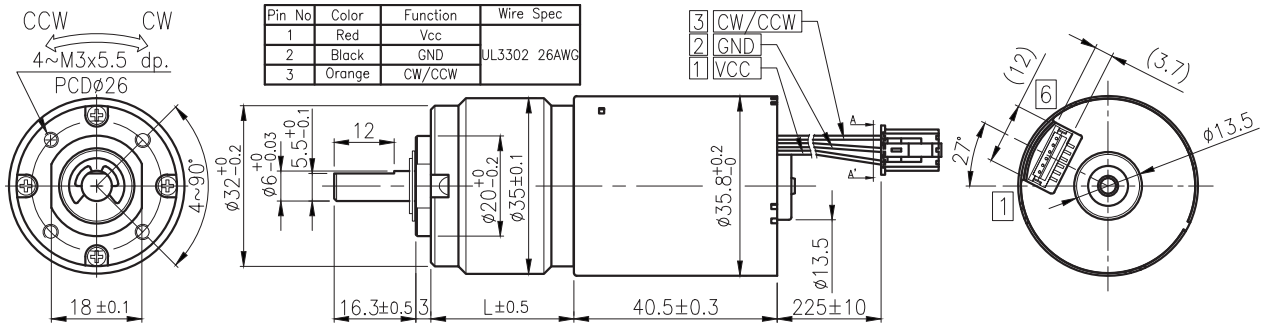


# IG-32PGM

## 41 & 42 TYPE



外形尺寸/ Appearance Size



unit:mm

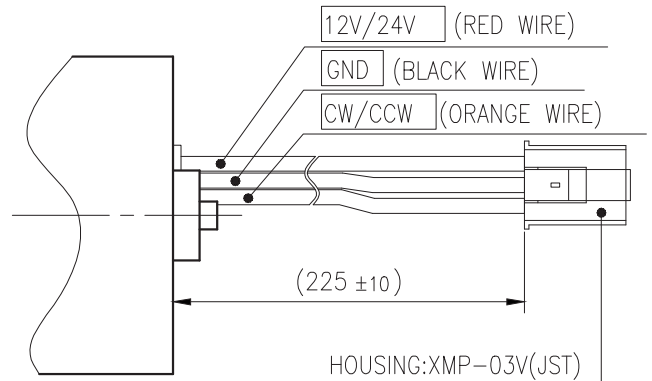
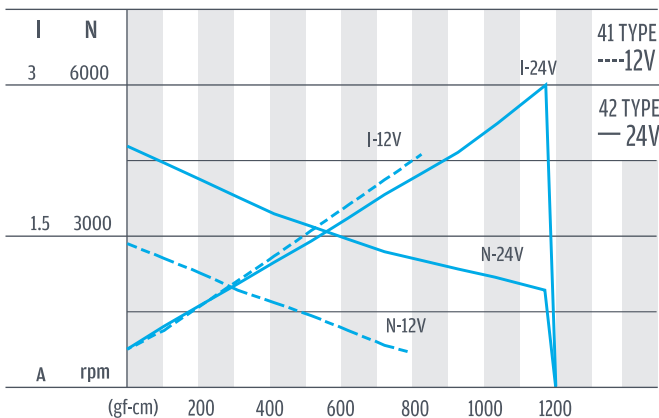
齒輪箱馬達轉矩 & 速度/ Gear Motor Torque & Speed

| 減速比<br>Reduction ratio               | 1/5  | 1/4  | 1/19 | 1/27 | 1/51 | 1/71 | 1/100 | 1/139 | 1/189 | 1/264 | 1/516 | 1/721 |
|--------------------------------------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|
| 12V<br>定格扭力<br>Rated torque (kgf-cm) | 0.8  | 1.9  | 2.6  | 3.7  | 6.1  | 8    | 10    | 10    | 12    | 12    | 12    | 12    |
| 12V<br>定格轉速<br>Rated speed (rpm)     | 380  | 140  | 100  | 73   | 38   | 28   | 20    | 15.5  | 11.5  | 8.5   | 4.5   | 3.4   |
| 24V<br>定格扭力<br>Rated torque (kgf-cm) | 1    | 2.4  | 3.3  | 4.7  | 7.6  | 8    | 10    | 10    | 12    | 12    | 12    | 12    |
| 24V<br>定格轉速<br>Rated speed (rpm)     | 750  | 280  | 200  | 145  | 76   | 54   | 40    | 30    | 23    | 17    | 8.5   | 6.2   |
| 軸心迴轉方向<br>Rotation direction         | CW   |      |      |      |      |      |       |       |       |       |       |       |
| 長度<br>Length (L)                     | 22.1 | 28.5 |      |      |      |      | 34.9  |       |       |       | 41.3  |       |

馬達單體型式/ Motor Data

| 定格電壓<br>Rated volt (V) | 定格扭力<br>Rated torque (gf-cm) | 定格轉速<br>Rated speed (rpm) | 定格電流<br>Rated current (A) | 無負荷轉速<br>No load speed (rpm) | 無負荷電流<br>No load current (A) | 定格出力<br>Rated output (W) | 重量<br>Weight (g) |
|------------------------|------------------------------|---------------------------|---------------------------|------------------------------|------------------------------|--------------------------|------------------|
| 12                     | 200                          | 2000                      | ≤1.0                      | 2800                         | ≤0.35                        | 4.1                      | 145              |
| 24                     | 250                          | 3900                      | ≤1.23                     | 5000                         | ≤0.4                         | 10                       | 145              |

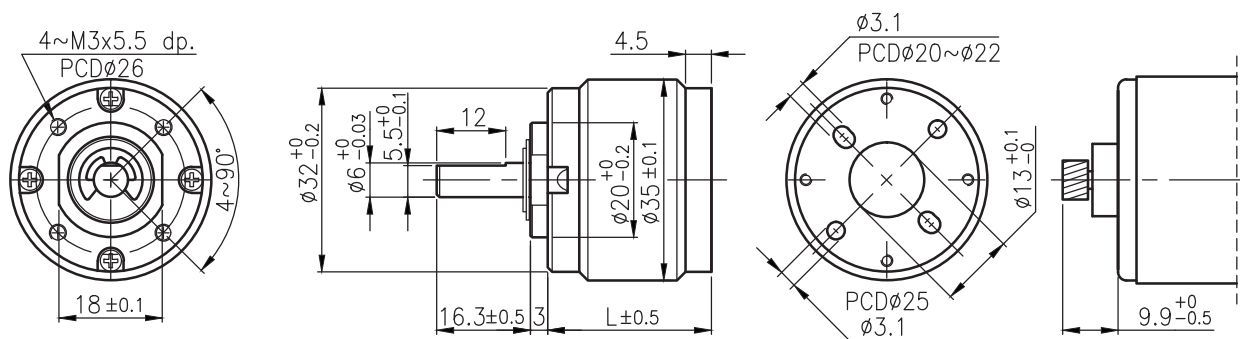
馬達單體特性/ Motor Characteristics



# IG-32PH



## 外形尺寸 & 馬達齒鉚合尺寸 / Appearance Size & Pinion Assembly Dimension



unit:mm

## 產品規格/ Product Specifications

| 外殼材質<br>Housing material | 輸出軸承型式<br>Output shaft bearing | 徑向負荷<br>Radial load (10mm from flange) | 軸向負荷<br>Shaft axial load | 主軸承受壓入力<br>Shaft press fit force | 徑向間隙<br>Radial play of shaft | 軸向間隙<br>Thrust play of shaft | 背隙 (無負荷時)<br>Backlash, at no-load |
|--------------------------|--------------------------------|--|--------------------------|----------------------------------|------------------------------|------------------------------|-----------------------------------|
| 粉末金屬<br>Powder Metal     | 含油軸承<br>Sleeve bearing         | ≤ 3 kgf                                | ≤ 2.5 kgf                | ≤ 10 kgf                         | ≤ 0.08 mm                    | ≤ 0.3 mm                     | ≤ 2.5°                            |
| 粉末金屬<br>Powder Metal     | 滾珠軸承<br>Ball bearings          | ≤ 3.5 kgf                              | ≤ 2.5 kgf                | ≤ 10 kgf                         | ≤ 0.05 mm                    | ≤ 0.3 mm                     | ≤ 2.5°                            |

## 馬達齒輪型式/ Pinion Specifications

| 模數<br>Module | 齒數<br>No. of teeth | 螺旋角<br>Helix angle | 壓力角<br>Pressure angle | 孔徑 (mm)<br>Hole diameter | 減速比<br>Reduction ratio                       |
|--------------|--------------------|--------------------|-----------------------|--------------------------|--|
| 0.5          | 11                 | 18° (左, left)      | 20°                   | ∅3.16                    | 1/18, 1/25, 1/94, 1/132, 1/250, 1/349, 1/683 |
| 0.5          | 17                 | 18° (左, left)      | 20°                   | ∅3.16                    | 1/13, 1/48, 1/68, 1/180, 1/491               |
| 0.5          | 8                  | 18° (左, left)      | 20°                   | ∅2.28                    | 1/33, 1/887                                  |

## 標準減速比型式/ Gearboxes Specifications

| 減速比<br>Reduction ratio                            | 1/13 | 1/18 | 1/25 | 1/33 | 1/48 | 1/68 | 1/94 | 1/132 | 1/180 | 1/250 | 1/349 | 1/491 | 1/683 | 1/887 |
|---|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|
| 定格容許扭力 (kgf-cm max.)<br>Rated tolerance torque    | 4    | 4    | 6    | 6    | 8    | 8    | 10   | 10    | 12    | 12    | 12    | 12    | 12    | 12    |
| 瞬間容許扭力 (kgf-cm)<br>Max momentary tolerance torque | 12   | 12   | 18   | 18   | 24   | 24   | 30   | 30    | 36    | 36    | 36    | 36    | 36    | 36    |
| 效率<br>Efficiency                                  | 70%  | 70%  | 70%  | 70%  | 60%  | 60%  | 60%  | 60%   | 50%   | 50%   | 50%   | 50%   | 50%   | 50%   |
| 長度<br>Length (L)                                  | 28.5 | 28.5 | 28.5 | 28.5 | 34.9 | 34.9 | 34.9 | 34.9  | 41.3  | 41.3  | 41.3  | 41.3  | 41.3  | 41.3  |
| 重量 (含油軸承)<br>Weight (g) /Sleeve bearing           | 143  | 143  | 143  | 143  | 177  | 177  | 177  | 177   | 211   | 211   | 211   | 211   | 211   | 211   |
| 重量 (滾珠軸承)<br>Weight (g) /Ball bearings            | 142  | 142  | 142  | 142  | 176  | 176  | 176  | 176   | 210   | 210   | 210   | 210   | 210   | 210   |

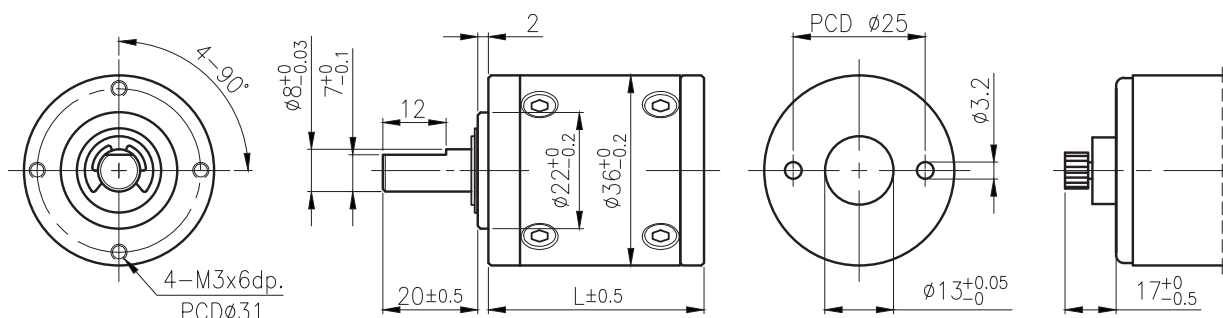
● 使用相對溼度：20%~85%RH  
Operating relative humidity

● 使用溫度範圍：-10°C~+60°C  
Operating temperature range

# IG-36P



外形尺寸 & 馬達齒鉤合尺寸 / Appearance Size & Pinion Assembly Dimension



unit:mm

## 產品規格 / Product Specifications

| 外殼材質<br>Housing material | 輸出軸承型式<br>Output shaft bearing | 徑向負荷<br>Radial load (10mm from flange) | 軸向負荷<br>Shaft axial load | 主軸承受壓入力<br>Shaft press fit force | 徑向間隙<br>Radial play of shaft | 軸向間隙<br>Thrust play of shaft | 背隙 (無負荷時)<br>Backlash, at no-load |
|--------------------------|--------------------------------|--|--------------------------|----------------------------------|------------------------------|------------------------------|-----------------------------------|
| 粉末金屬<br>Powder Metal     | 含油軸承<br>Sleeve bearing         | ≤ 5 kgf                                | ≤ 3 kgf                  | ≤ 15 kgf                         | ≤ 0.08 mm                    | ≤ 0.3 mm                     | ≤ 3°                              |
| 粉末金屬<br>Powder Metal     | 滾珠軸承<br>Ball bearings          | ≤ 8 kgf                                | ≤ 3 kgf                  | ≤ 15 kgf                         | ≤ 0.05 mm                    | ≤ 0.3 mm                     | ≤ 3°                              |

## 馬達齒輪型式 / Pinion Specifications

| 模數<br>Module | 齒數<br>No. of teeth | 壓力角<br>Pressure angle | 孔徑 (mm)<br>Hole diameter | 減速比<br>Reduction ratio                                   |
|--------------|--------------------|-----------------------|--------------------------|--|
| 0.6          | 11                 | 20°                   | $\phi$ 3.16              | 1/5, 1/19, 1/27, 1/71, 1/100, 1/139, 1/264, 1/516, 1/721 |
| 0.6          | 17                 | 20°                   | $\phi$ 3.16              | 1/4, 1/14, 1/51, 1/189                                   |

## 標準減速比型式 / Gearboxes Specifications

| 減速比<br>Reduction ratio                            | 1/4  | 1/5  | 1/14 | 1/19 | 1/27 | 1/51 | 1/71 | 1/100 | 1/139 | 1/189 | 1/264 | 1/516 | 1/721 |
|---|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|
| 定格容許扭力 (kgf-cm max.)<br>Rated tolerance torque    | 3    | 3    | 8    | 8    | 10   | 18   | 18   | 20    | 20    | 25    | 25    | 30    | 30    |
| 瞬間容許扭力 (kgf-cm)<br>Max momentary tolerance torque | 9    | 9    | 24   | 24   | 30   | 54   | 54   | 60    | 60    | 75    | 75    | 90    | 90    |
| 效率<br>Efficiency                                  | 80%  | 80%  | 70%  | 70%  | 70%  | 60%  | 60%  | 60%   | 60%   | 50%   | 50%   | 50%   | 50%   |
| 長度<br>Length (L)                                  | 33.1 | 33.1 | 41.8 | 41.8 | 41.8 | 50.5 | 50.5 | 50.5  | 50.5  | 59.2  | 59.2  | 59.2  | 59.2  |
| 重量 (含油軸承)<br>Weight (g) / Sleeve bearing          | 130  | 130  | 170  | 170  | 170  | 210  | 210  | 210   | 210   | 250   | 250   | 250   | 250   |
| 重量 (滾珠軸承)<br>Weight (g) / Ball bearings           | 132  | 132  | 172  | 172  | 172  | 212  | 212  | 212   | 212   | 252   | 252   | 252   | 252   |

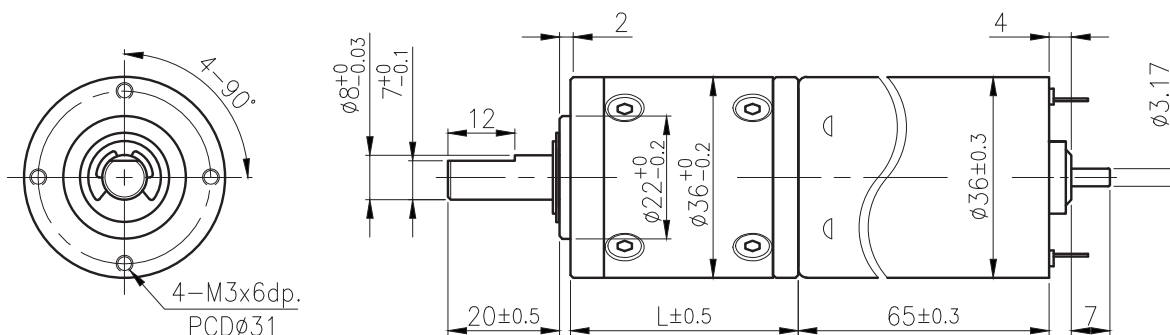
- 使用相對溼度：20%~85%RH  
Operating relative humidity
- 使用溫度範圍：-10°C~+60°C  
Operating temperature range

# IG-36PGM

## 01 & 02 TYPE



### 外形尺寸 / Appearance Size



unit:mm

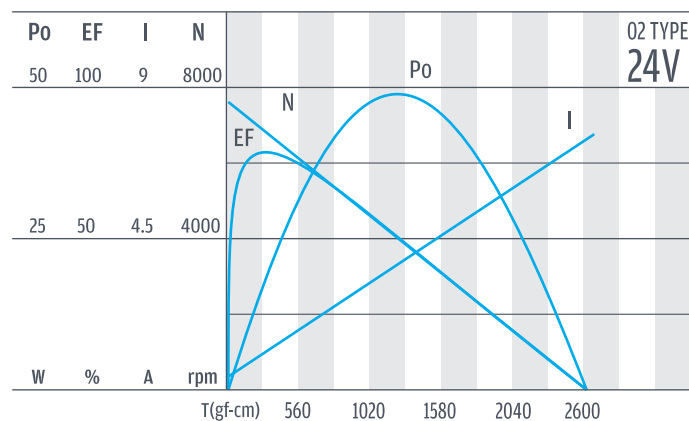
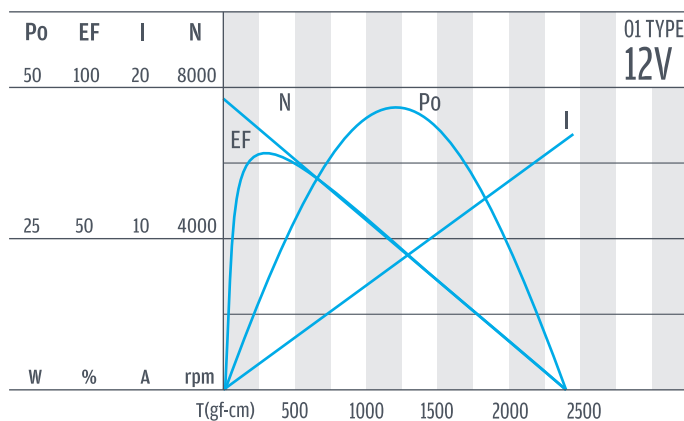
### 齒輪箱馬達轉矩 & 速度 / Gear Motor Torque & Speed

|     | 減速比<br>Reduction ratio        | 1/5  | 1/14 | 1/19 | 1/27 | 1/51 | 1/71 | 1/100 | 1/139 | 1/189 | 1/264 | 1/516 | 1/721 |  |  |  |  |
|-----|-------------------------------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|--|--|--|--|
| 12V | 定格扭力<br>Rated torque (kgf-cm) | 1.1  | 2.5  | 3.6  | 5    | 8.2  | 11.5 | 16    | 20    | 25    | 25    | 30    | 30    |  |  |  |  |
|     | 定格轉速<br>Rated speed (rpm)     | 1250 | 475  | 340  | 243  | 129  | 92   | 66    | 47.2  | 34.8  | 25.1  | 13.2  | 9.5   |  |  |  |  |
| 24V | 定格扭力<br>Rated torque (kgf-cm) | 1.1  | 2.7  | 3.8  | 5.3  | 8.7  | 12   | 17    | 20    | 25    | 25    | 30    | 30    |  |  |  |  |
|     | 定格轉速<br>Rated speed (rpm)     | 1240 | 470  | 335  | 240  | 127  | 91   | 65    | 46.5  | 34.3  | 24.8  | 13    | 9.4   |  |  |  |  |
|     | 軸心迴轉方向<br>Rotation direction  | CCW  |      |      |      |      |      |       |       |       |       |       |       |  |  |  |  |
|     | 長度<br>Length (L)              | 33.1 |      | 41.8 |      |      |      | 50.5  |       |       |       | 59.2  |       |  |  |  |  |

### 馬達單體型式 / Motor Data

| 定格電壓<br>Rated volt (V) | 定格扭力<br>Rated torque (gf-cm) | 定格轉速<br>Rated speed (rpm) | 定格電流<br>Rated current (A) | 無負荷轉速<br>No load speed (rpm) | 無負荷電流<br>No load current (A) | 定格出力<br>Rated output (W) | 重量<br>Weight (g) |
|------------------------|------------------------------|---------------------------|---------------------------|------------------------------|------------------------------|--------------------------|------------------|
| 12                     | 270                          | 6570                      | $\leq$ 2.05               | 7500                         | $\leq$ 0.3                   | 18.23                    | 222              |
| 24                     | 285                          | 6480                      | $\leq$ 1.05               | 7500                         | $\leq$ 0.21                  | 18.96                    | 224              |

### 馬達單體特性 / Motor Characteristics



PG

# IG-38P

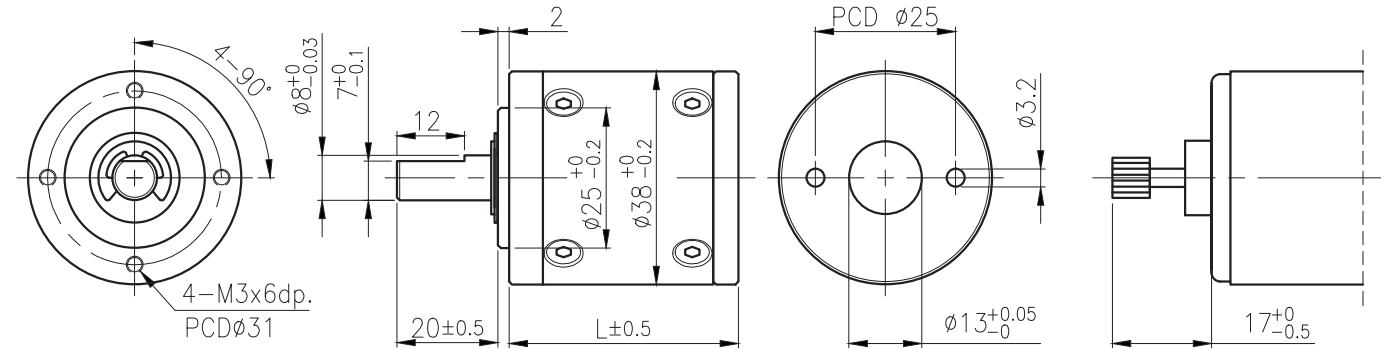


IG

## 外形尺寸 & 馬達齒鉚合尺寸 / Appearance Size & Pinion Assembly Dimension

Right Angle

RA



unit:mm

RB

## 產品規格 / Product Specifications

| 外殼材質<br>Housing material | 輸出軸承型式<br>Output shaft bearing | 徑向負荷<br>Radial load (10mm from flange) | 軸向負荷<br>Shaft axial load | 主軸承受壓入力<br>Shaft press fit force | 徑向間隙<br>Radial play of shaft | 軸向間隙<br>Thrust play of shaft | 背隙 (無負荷時)<br>Backlash, at no-load |
|--------------------------|--------------------------------|--|--------------------------|----------------------------------|------------------------------|------------------------------|-----------------------------------|
| 粉末金屬<br>Powder Metal     | 含油軸承<br>Sleeve bearing         | ≤ 5 kgf                                | ≤ 3 kgf                  | ≤ 15 kgf                         | ≤ 0.08 mm                    | ≤ 0.3 mm                     | ≤ 3°                              |
| 粉末金屬<br>Powder Metal     | 滾珠軸承<br>Ball bearings          | ≤ 8 kgf                                | ≤ 3 kgf                  | ≤ 15kgf                          | ≤ 0.05 mm                    | ≤ 0.3 mm                     | ≤ 3°                              |

WG

## 馬達齒輪型式 / Pinion Specifications

| 模數<br>Module | 齒數<br>No. of teeth | 壓力角<br>Pressure angle | 孔徑 (mm)<br>Hole diameter | 減速比<br>Reduction ratio                                   |
|--------------|--------------------|-----------------------|--------------------------|--|
| 0.6          | 11                 | 20°                   | ∅3.16                    | 1/5, 1/19, 1/27, 1/71, 1/100, 1/139, 1/264, 1/516, 1/721 |
| 0.6          | 17                 | 20°                   | ∅3.16                    | 1/4, 1/14, 1/51, 1/189                                   |

SD

## 標準減速比型式 / Gearboxes Specifications

| 減速比<br>Reduction ratio                            | 1/4  | 1/5  | 1/14 | 1/19 | 1/27 | 1/51 | 1/71 | 1/100 | 1/139 | 1/189 | 1/264 | 1/516 | 1/721 |
|---|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|
| 定格容許扭力 (kgf-cm max.)<br>Rated tolerance torque    | 3    | 3    | 8    | 8    | 10   | 18   | 18   | 20    | 20    | 25    | 25    | 30    | 30    |
| 瞬間容許扭力 (kgf-cm)<br>Max momentary tolerance torque | 9    | 9    | 24   | 24   | 30   | 54   | 54   | 60    | 60    | 75    | 75    | 90    | 90    |
| 效率<br>Efficiency                                  | 80%  | 80%  | 70%  | 70%  | 70%  | 60%  | 60%  | 60%   | 60%   | 50%   | 50%   | 50%   | 50%   |
| 長度<br>Length (L)                                  | 33.1 | 33.1 | 41.8 | 41.8 | 41.8 | 50.5 | 50.5 | 50.5  | 50.5  | 59.2  | 59.2  | 59.2  | 59.2  |
| 重量 (含油軸承)<br>Weight (g) /Sleeve bearing           | 147  | 147  | 195  | 195  | 195  | 243  | 243  | 243   | 243   | 291   | 291   | 291   | 291   |
| 重量 (滾珠軸承)<br>Weight (g) /Ball bearings            | 149  | 149  | 197  | 197  | 197  | 245  | 245  | 245   | 245   | 293   | 293   | 293   | 293   |

BLDC

Encoder

Driver

- 使用相對溼度：20%~85%RH  
Operating relative humidity
- 使用溫度範圍：-10°C~+60°C  
Operating temperature range

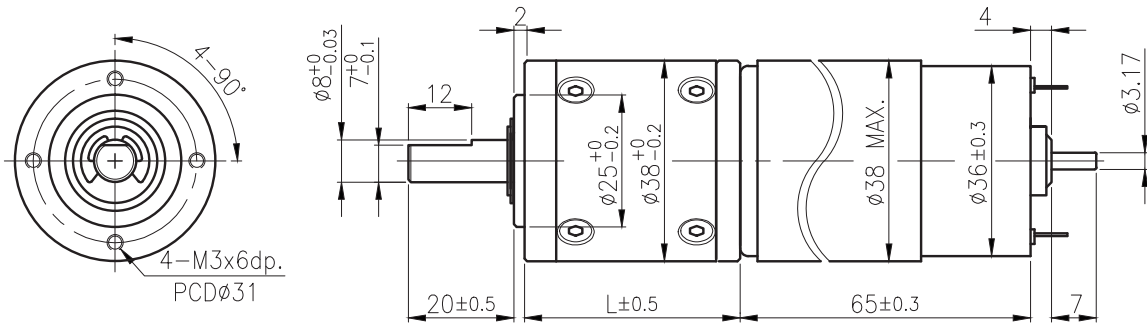


# IG-38PGM

## 01 & 02 TYPE



### 外形尺寸 / Appearance Size



unit:mm

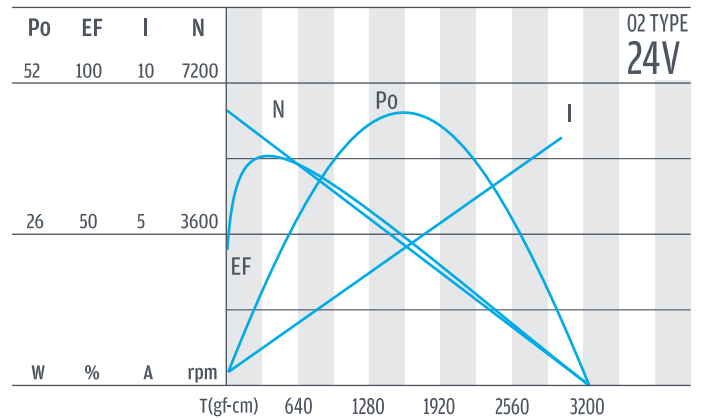
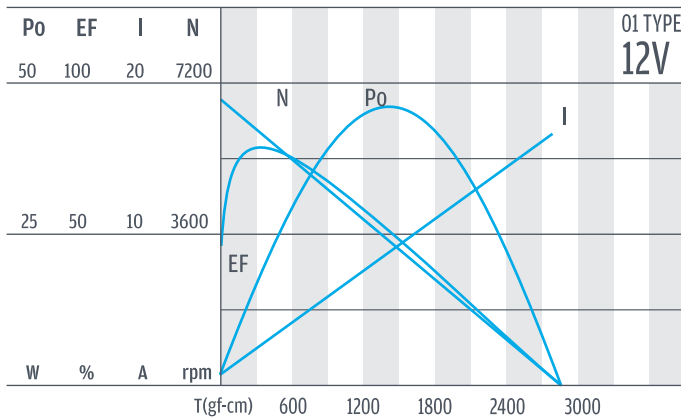
### 齒輪箱馬達轉矩 & 速度 / Gear Motor Torque & Speed

|     |                               | 1/5  | 1/4  | 1/19 | 1/27 | 1/51 | 1/71 | 1/100 | 1/139 | 1/189 | 1/264 | 1/516 | 1/721 |
|-----|-------------------------------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|
| 12V | 減速比<br>Reduction ratio        | 1/5  | 1/4  | 1/19 | 1/27 | 1/51 | 1/71 | 1/100 | 1/139 | 1/189 | 1/264 | 1/516 | 1/721 |
|     | 定格扭力<br>Rated torque (kgf-cm) | 1    | 2.4  | 3.3  | 4.7  | 7.6  | 10   | 15    | 20    | 23    | 25    | 30    | 30    |
| 24V | 定格轉速<br>Rated speed (rpm)     | 1100 | 420  | 300  | 210  | 110  | 81   | 58    | 41    | 30    | 22.5  | 11.6  | 8.4   |
|     | 定格扭力<br>Rated torque (kgf-cm) | 1.1  | 2.7  | 3.7  | 5.2  | 8.5  | 12   | 16    | 20    | 25    | 25    | 30    | 30    |
| 24V | 定格轉速<br>Rated speed (rpm)     | 1050 | 390  | 280  | 200  | 105  | 76   | 55    | 41    | 29    | 22.5  | 11.6  | 8.4   |
|     | 軸心迴轉方向<br>Rotation direction  | CCW  |      |      |      |      |      |       |       |       |       |       |       |
|     | 長度<br>Length (L)              | 33.1 | 41.8 |      |      |      | 50.5 |       |       |       | 59.2  |       |       |

### 馬達單體型式 / Motor Data

| 定格電壓<br>Rated volt (V) | 定格扭力<br>Rated torque (gf-cm) | 定格轉速<br>Rated speed (rpm) | 定格電流<br>Rated current (A) | 無負荷轉速<br>No load speed (rpm) | 無負荷電流<br>No load current (A) | 定格出力<br>Rated output (W) | 重量<br>Weight (g) |
|------------------------|------------------------------|---------------------------|---------------------------|------------------------------|------------------------------|--------------------------|------------------|
| 12                     | 250                          | 5800                      | ≤1.6                      | 6400                         | ≤0.3                         | 14.89                    | 264              |
| 24                     | 280                          | 5500                      | ≤0.9                      | 6400                         | ≤0.16                        | 15.81                    | 266              |

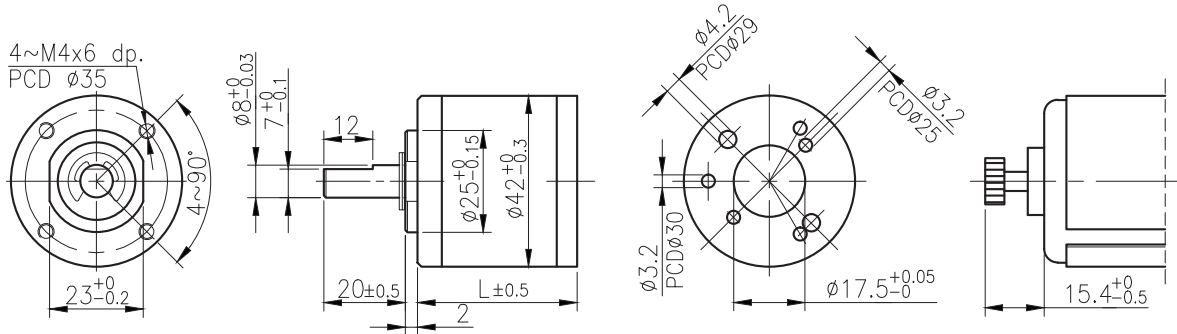
### 馬達單體特性 / Motor Characteristics



# IG-42



外形尺寸 & 馬達齒腳合尺寸 / Appearance Size & Pinion Assembly Dimension



unit:mm

## 產品規格 / Product Specifications

| 外殼材質<br>Housing material | 輸出軸承型式<br>Output shaft bearing | 徑向負荷<br>Radial load (10mm from flange) | 軸向負荷<br>Shaft axial load | 主軸承受壓入力<br>Shaft press fit force | 徑向間隙<br>Radial play of shaft | 軸向間隙<br>Thrust play of shaft | 背隙 (無負荷時)<br>Backlash, at no-load |
|--------------------------|--------------------------------|--|--------------------------|----------------------------------|------------------------------|------------------------------|-----------------------------------|
| 金屬<br>Metal              | 含油軸承<br>Sleeve bearing         | ≤ 5 kgf                                | ≤ 3 kgf                  | ≤ 15 kgf                         | ≤ 0.08 mm                    | ≤ 0.3 mm                     | ≤ 3°                              |
| 金屬<br>Metal              | 滾珠軸承<br>Ball bearings          | ≤ 8 kgf                                | ≤ 3 kgf                  | ≤ 15kgf                          | ≤ 0.05 mm                    | ≤ 0.3 mm                     | ≤ 3°                              |

## 馬達齒輪型式 / Pinion Specifications

| 模數<br>Module | 齒數<br>No. of teeth | 壓力角<br>Pressure angle | 孔徑 (mm)<br>Hole diameter | 減速比<br>Reduction ratio                        |
|--------------|--------------------|-----------------------|--------------------------|---|
| 0.6          | 12                 | 20°                   | $\phi 3.98$              | 1/24, 1/144, 1/864                            |
| 0.6          | 15                 | 20°                   | $\phi 4.98$              | 1/720, 1/1062, 1/1470, 1/2500, 1/3000, 1/3600 |
| 0.6          | 18                 | 20°                   | $\phi 4.98$              | 1/17, 1/61, 1/104, 1/212, 1/624               |
| 0.6          | 24                 | 20°                   | $\phi 4.98$              | 1/14, 1/49, 1/84, 1/294, 1/504                |
| 0.6          | 20                 | 20°                   | $\phi 4.98$              | 1/4   |

## 標準減速比型式 / Gearboxes Specifications

| 減速比<br>Reduction ratio                            | 1/4  | 1/14 | 1/17 | 1/24 | 1/49 | 1/61 | 1/84 | 1/104 | 1/144 | 1/212 | 1/294 | 1/504 | 1/624 | 1/720 | 1/864 | 1/1062 | 1/1470 | 1/2500 | 1/3000 | 1/3600 |
|---|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|--------|--------|
| 定格容許扭力 (kgf-cm max.)<br>Rated tolerance torque    | 3    | 8    | 8    | 8    | 18   | 18   | 18   | 20    | 20    | 25    | 25    | 30    | 30    | 30    | 30    | 30     | 30     | 30     | 30     | 30     |
| 瞬間容許扭力 (kgf-cm)<br>Max momentary tolerance torque | 9    | 24   | 24   | 24   | 54   | 54   | 54   | 60    | 60    | 75    | 75    | 90    | 90    | 90    | 90    | 90     | 90     | 90     | 90     | 90     |
| 效率<br>Efficiency                                  | 80%  | 70%  | 70%  | 70%  | 60%  | 60%  | 60%  | 60%   | 60%   | 50%   | 50%   | 50%   | 50%   | 50%   | 50%   | 40%    | 40%    | 40%    | 40%    | 40%    |
| 長度<br>Length (L)                                  | 32.5 | 39.2 | 39.2 | 39.2 | 45.9 | 45.9 | 45.9 | 45.9  | 45.9  | 52.6  | 52.6  | 52.6  | 52.6  | 52.6  | 52.6  | 59.6   | 59.6   | 59.6   | 59.6   | 59.6   |
| 重量 (含油軸承)<br>Weight (g) / Sleeve bearing          | 141  | 193  | 193  | 193  | 233  | 233  | 233  | 233   | 233   | 283   | 283   | 283   | 283   | 283   | 283   | 328    | 328    | 328    | 328    | 328    |
| 重量 (滾珠軸承)<br>Weight (g) / Ball bearings           | 139  | 191  | 191  | 191  | 231  | 231  | 231  | 231   | 231   | 281   | 281   | 281   | 281   | 281   | 281   | 326    | 326    | 326    | 326    | 326    |

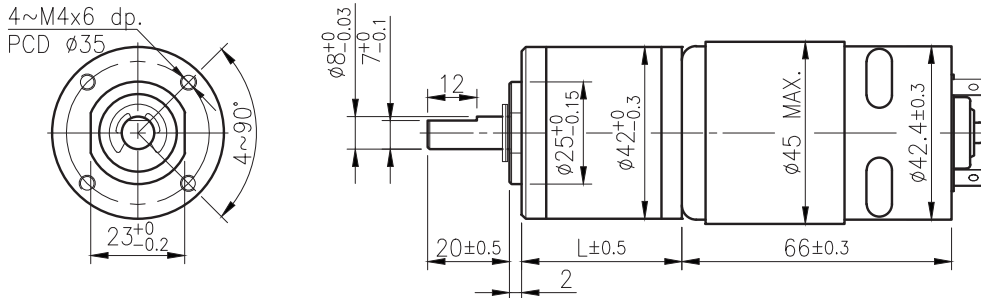
- 使用相對濕度：20%~85%RH  
Operating relative humidity
- 使用溫度範圍：-10°C~+60°C  
Operating temperature range

# IG-42GM

## 01 & 02 TYPE



外形尺寸/ Appearance Size



unit:mm

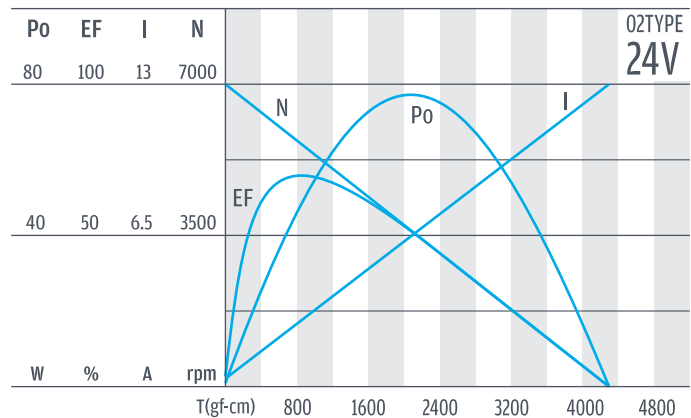
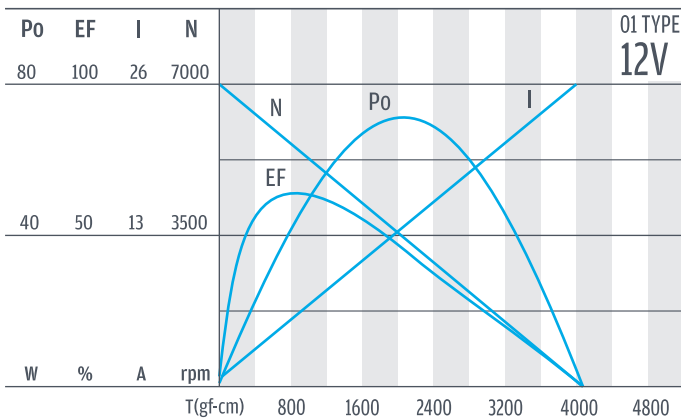
齒輪箱馬達轉矩 & 速度/ Gear Motor Torque & Speed

| 減速比<br>Reduction ratio       |                               | 1/4  | 1/14 | 1/17 | 1/24 | 1/49 | 1/61 | 1/84 | 1/104 | 1/144 | 1/212 | 1/294 | 1/504 | 1/624 | 1/720 | 1/864 | 1/1062 | 1/1470 | 1/2500 | 1/3000 | 1/3600 |
|------------------------------|-------------------------------|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|--------|--------|
| 12V                          | 定格扭力<br>Rated torque (kgf-cm) | 2.2  | 6.5  | 8    | 8    | 18   | 18   | 18   | 20    | 20    | 25    | 25    | 30    | 30    | 30    | 30    | 30     | 30     | 30     | 30     | 30     |
|                              | 定格轉速<br>Rated speed (rpm)     | 1400 | 405  | 325  | 248  | 120  | 98   | 76   | 63    | 45    | 31    | 22    | 13.5  | 10.9  | 9.5   | 8     | 6.5    | 4.6    | 2.7    | 2.3    | 1.9    |
| 24V                          | 定格扭力<br>Rated torque (kgf-cm) | 1.8  | 5.4  | 6.6  | 8    | 16   | 18   | 18   | 20    | 20    | 25    | 25    | 30    | 30    | 30    | 30    | 30     | 30     | 30     | 30     | 30     |
|                              | 定格轉速<br>Rated speed (rpm)     | 1445 | 420  | 340  | 246  | 122  | 102  | 77.5 | 63    | 47    | 31    | 21.8  | 13.5  | 10.9  | 9.5   | 8     | 6.5    | 4.6    | 2.7    | 2.3    | 1.9    |
| 軸心迴轉方向<br>Rotation direction |                               | CCW  |      |      |      |      |      |      |       |       |       |       |       |       |       |       |        |        |        |        |        |
| 長度<br>Length (L)             |                               | 32.5 | 39.2 |      | 45.9 |      |      |      | 52.6  |       |       |       | 59.6  |       |       |       |        |        |        |        |        |

馬達單體型式/ Motor Data

| 定格電壓<br>Rated volt (V) | 定格扭力<br>Rated torque (gf-cm) | 定格轉速<br>Rated speed (rpm) | 定格電流<br>Rated current (A) | 無負荷轉速<br>No load speed (rpm) | 無負荷電流<br>No load current (A) | 定格出力<br>Rated output (W) | 重量<br>Weight (g) |
|------------------------|------------------------------|---------------------------|---------------------------|------------------------------|------------------------------|--------------------------|------------------|
| 12                     | 700                          | 5700                      | ≤5.5                      | 7000                         | ≤0.9                         | 41.3                     | 360              |
| 24                     | 570                          | 5900                      | ≤2.1                      | 7000                         | ≤0.5                         | 34.7                     | 360              |

馬達單體特性/ Motor Characteristics



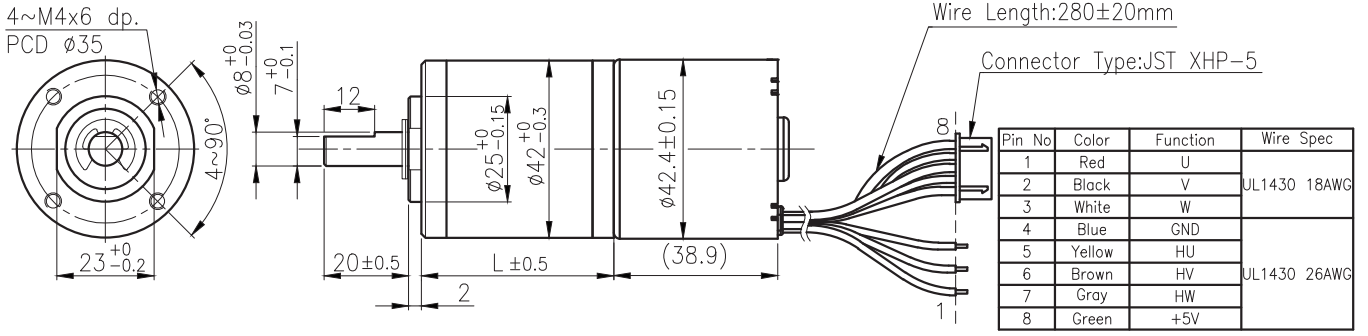
DC Brushless Motor

# IG-42GM

## 60 & 61 TYPE



外形尺寸/ Appearance Size



unit:mm

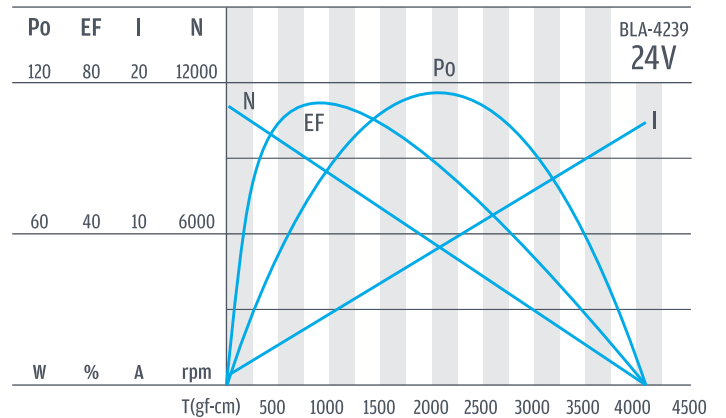
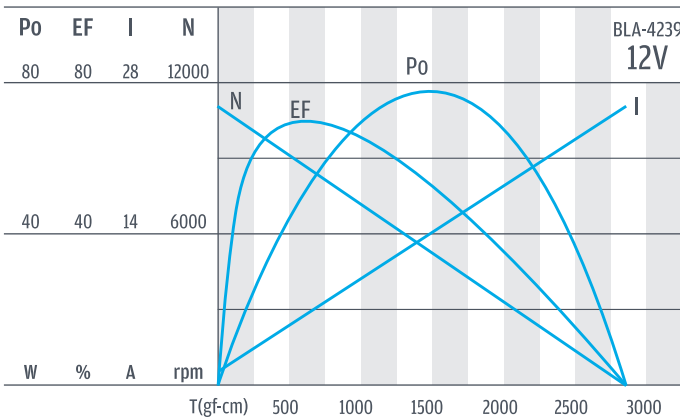
齒輪箱馬達轉矩 & 速度/ Gear Motor Torque & Speed

| 減速比<br>Reduction ratio               | 1/4    | 1/14 | 1/17 | 1/24 | 1/49 | 1/61 | 1/84 | 1/104 | 1/144 | 1/212 | 1/294 | 1/504 | 1/624 | 1/720 | 1/864 | 1/1062 | 1/1470 | 1/2500 | 1/3000 | 1/3600 |
|--------------------------------------|--------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|--------|--------|
| 12V<br>定格扭力<br>Rated torque (kgf-cm) | 1.4    | 4.4  | 5.4  | 7.5  | 13.0 | 16   | 18   | 20    | 20    | 25    | 25    | 30    | 30    | 30    | 30    | 30     | 30     | 30     | 30     | 30     |
| 12V<br>定格轉速<br>Rated speed (rpm)     | 2250   | 640  | 515  | 375  | 180  | 145  | 110  | 90    | 65    | 45    | 35    | 20    | 17    | 14    | 12    | 10     | 7.4    | 4.4    | 3.7    | 3.1    |
| 24V<br>定格扭力<br>Rated torque (kgf-cm) | 1.9    | 5.8  | 7.2  | 10   | 17.5 | 18   | 18   | 20    | 20    | 25    | 25    | 30    | 30    | 30    | 30    | 30     | 30     | 30     | 30     | 30     |
| 24V<br>定格轉速<br>Rated speed (rpm)     | 2250   | 640  | 515  | 375  | 180  | 150  | 115  | 95    | 70    | 45    | 35    | 20.5  | 17    | 14.5  | 12.5  | 10     | 7.4    | 4.3    | 3.5    | 3      |
| 軸心迴轉方向<br>Rotation direction         | CW/CCW |      |      |      |      |      |      |       |       |       |       |       |       |       |       |        |        |        |        |        |
| 長度<br>Length (L)                     | 32.5   | 39.2 |      |      |      |      | 45.9 |       |       |       |       |       | 52.6  |       |       |        |        | 59.6   |        |        |

馬達單體型式/ Motor Data

| 定格電壓<br>Rated volt (V) | 定格扭力<br>Rated torque (gf-cm) | 定格轉速<br>Rated speed (rpm) | 定格電流<br>Rated current (A) | 無負荷轉速<br>No load speed (rpm) | 無負荷電流<br>No load current (A) | 定格出力<br>Rated output (W) | 重量<br>Weight (g) |
|------------------------|------------------------------|---------------------------|---------------------------|------------------------------|------------------------------|--------------------------|------------------|
| 12                     | 450                          | 9000                      | ≤ 5.8                     | 11000                        | ≤ 1.6                        | 41.5                     | 196              |
| 24                     | 600                          | 9000                      | ≤ 3.65                    | 11000                        | ≤ 0.9                        | 55.4                     | 196              |

馬達單體特性/ Motor Characteristics

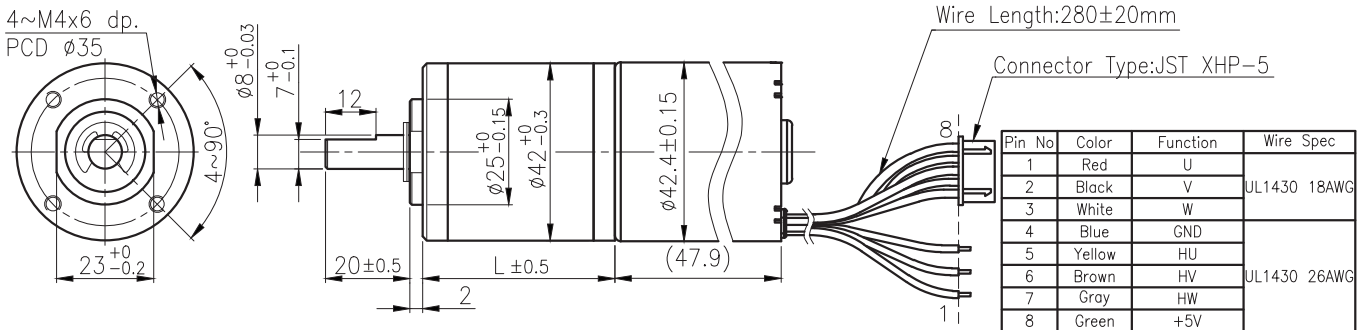


# IG-42GM

## 62 & 63 TYPE



### 外形尺寸/ Appearance Size



unit:mm

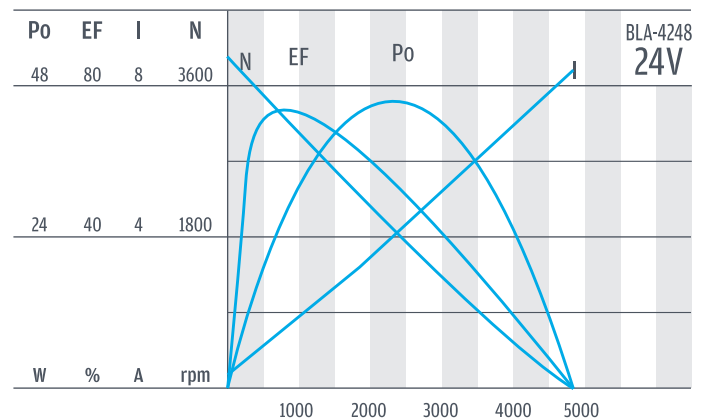
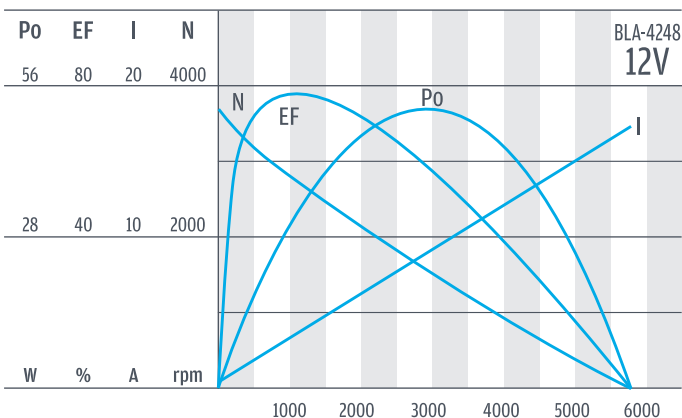
### 齒輪箱馬達轉矩 & 速度/ Gear Motor Torque & Speed

|                              | 減速比<br>Reduction ratio       | 1/4 1/14 1/17 1/24 1/49 1/61 1/84 1/104 1/144 1/212 1/294 1/504 1/624 1/720 1/864 1/1062 1/1470 1/2500 1/3000 1/3600 |      |      |      |      |      |      |       |       |       |       |       |       |       |       |        |        |        |        |        |
|------------------------------|------------------------------|--|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|--------|--------|
|                              |                              | 1/4  | 1/14 | 1/17 | 1/24 | 1/49 | 1/61 | 1/84 | 1/104 | 1/144 | 1/212 | 1/294 | 1/504 | 1/624 | 1/720 | 1/864 | 1/1062 | 1/1470 | 1/2500 | 1/3000 | 1/3600 |
| 12V                          | 定格扭力<br>Rated torque(kgf-cm) | 2.5  | 7.8  | 8    | 8    | 18   | 18   | 18   | 20    | 20    | 25    | 25    | 30    | 30    | 30    | 30    | 30     | 30     | 30     | 30     | 30     |
|                              | 定格轉速<br>Rated speed (rpm)    | 750  | 210  | 180  | 135  | 65   | 54   | 40   | 33    | 24    | 16.5  | 12.4  | 7.3   | 6     | 5.2   | 4.3   | 3.5    | 2.5    | 1.5    | 1.2    | 1.0    |
| 24V                          | 定格扭力<br>Rated torque(kgf-cm) | 2.5  | 7.8  | 8    | 8    | 18   | 18   | 18   | 20    | 20    | 25    | 25    | 30    | 30    | 30    | 30    | 30     | 30     | 30     | 30     | 30     |
|                              | 定格轉速<br>Rated speed (rpm)    | 750  | 210  | 180  | 135  | 65   | 54   | 40   | 33    | 24    | 16.5  | 12.4  | 7.3   | 6     | 5.2   | 4.3   | 3.5    | 2.5    | 1.5    | 1.2    | 1.0    |
| 軸心迴轉方向<br>Rotation direction |                              | cw/ccw   |      |      |      |      |      |      |       |       |       |       |       |       |       |       |        |        |        |        |        |
| 長度<br>Length (L)             |                              | 32.5   | 39.2 |      | 45.9 |      |      |      | 52.6  |       |       |       | 59.6  |       |       |       |        |        |        |        |        |

### 馬達單體型式/ Motor Data

| 定格電壓<br>Rated volt (V) | 定格扭力<br>Rated torque (kgf-cm) | 定格轉速<br>Rated speed (rpm) | 定格電流<br>Rated current (A) | 無負荷轉速<br>No load speed (rpm) | 無負荷電流<br>No load current (A) | 定格出力<br>Rated output (W) | 重量<br>Weight (g) |
|------------------------|-------------------------------|---------------------------|---------------------------|------------------------------|------------------------------|--------------------------|------------------|
| 12                     | 800                           | 3000                      | ≤ 3.15                    | 3800                         | ≤ 0.5                        | 24.6                     | 265              |
| 24                     | 800                           | 3000                      | ≤ 1.7                     | 3800                         | ≤ 0.32                       | 24.6                     | 265              |

### 馬達單體特性/ Motor Characteristics

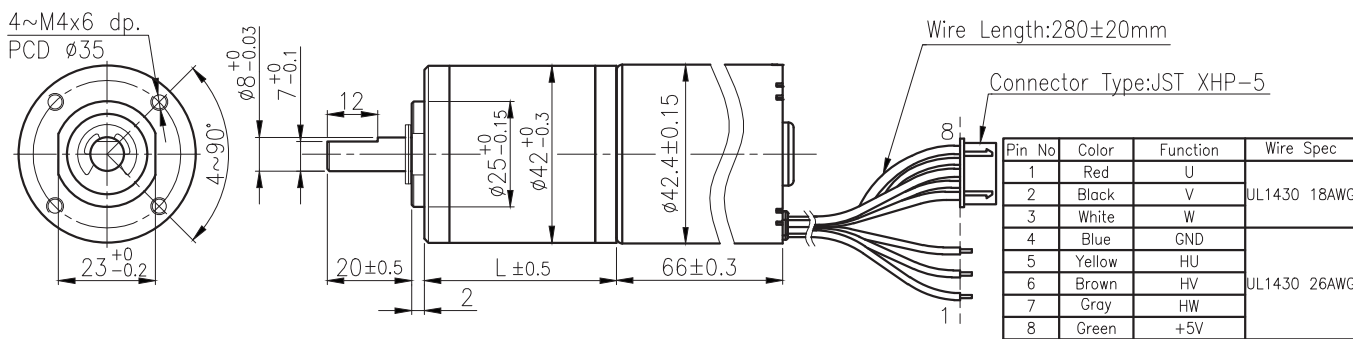


# IG-42GM

## 66 & 67 TYPE



外形尺寸/ Appearance Size



unit:mm

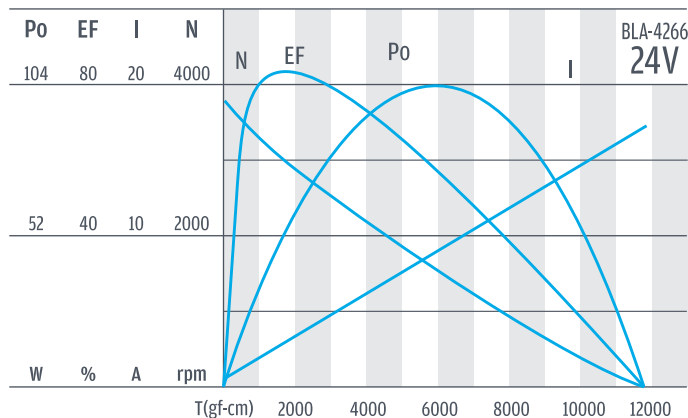
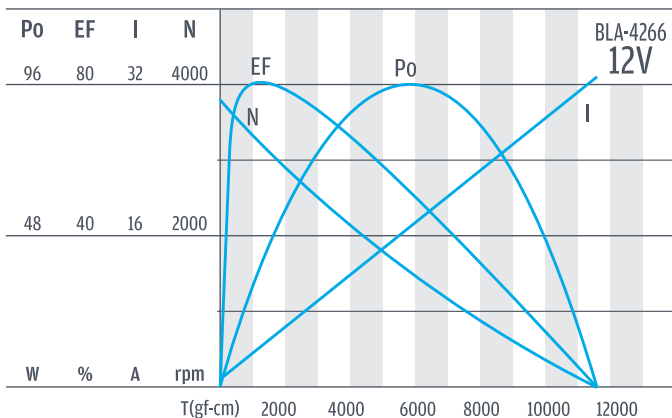
齒輪箱馬達轉矩 & 速度/ Gear Motor Torque & Speed

| 減速比<br>Reduction ratio              | 1/4    | 1/14 | 1/17 | 1/24 | 1/49 | 1/61 | 1/84 | 1/104 | 1/144 | 1/212 | 1/294 | 1/504 | 1/624 | 1/720 | 1/864 | 1/1062 | 1/1470 | 1/2500 | 1/3000 | 1/3600 |
|-------------------------------------|--------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|--------|--------|
| 12V<br>定格扭力<br>Rated torque(kgf-cm) | 3      | 8    | 8    | 8    | 18   | 18   | 18   | 20    | 20    | 25    | 25    | 30    | 30    | 30    | 30    | 30     | 30     | 30     | 30     | 30     |
| 12V<br>定格轉速<br>Rated speed (rpm)    | 825    | 240  | 195  | 145  | 70   | 55   | 40   | 34    | 25    | 17    | 12    | 7.5   | 6     | 5.2   | 4.4   | 3.5    | 2.5    | 1.5    | 1.2    | 1      |
| 24V<br>定格扭力<br>Rated torque(kgf-cm) | 3      | 8    | 8    | 8    | 18   | 18   | 18   | 20    | 20    | 25    | 25    | 30    | 30    | 30    | 30    | 30     | 30     | 30     | 30     | 30     |
| 24V<br>定格轉速<br>Rated speed (rpm)    | 825    | 240  | 195  | 145  | 70   | 55   | 40   | 34    | 25    | 17    | 12    | 7.5   | 6     | 5.2   | 4.4   | 3.5    | 2.5    | 1.5    | 1.2    | 1      |
| 軸心迴轉方向<br>Rotation direction        | CW/CCW |      |      |      |      |      |      |       |       |       |       |       |       |       |       |        |        |        |        |        |
| 長度<br>Length (L)                    | 32.5   | 39.2 |      |      |      |      | 45.9 |       |       |       |       |       | 52.6  |       |       |        |        |        | 59.6   |        |

馬達單體型式/ Motor Data

| 定格電壓<br>Rated volt (V) | 定格扭力<br>Rated torque (kgf-cm) | 定格轉速<br>Rated speed (rpm) | 定格電流<br>Rated current (A) | 無負荷轉速<br>No load speed (rpm) | 無負荷電流<br>No load current (A) | 定格出力<br>Rated output (W) | 重量<br>Weight (g) |
|------------------------|-------------------------------|---------------------------|---------------------------|------------------------------|------------------------------|--------------------------|------------------|
| 12                     | 1.6                           | 3000                      | ≤ 5.8                     | 3800                         | ≤ 0.7                        | 49.2                     | 425              |
| 24                     | 1.6                           | 3000                      | ≤ 3                       | 3800                         | ≤ 0.44                       | 49.2                     | 425              |

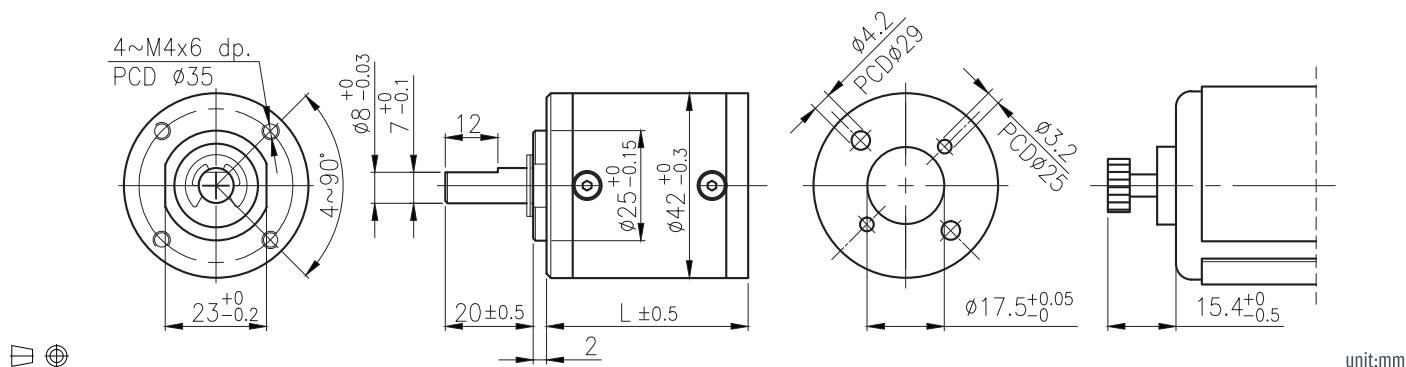
馬達單體特性/ Motor Characteristics



# IG-42C



## 外形尺寸 & 馬達齒鉚合尺寸 / Appearance Size & Pinion Assembly Dimension



unit:mm

## 產品規格 / Product Specifications

| 外殼材質<br>Housing material | 輸出軸承型式<br>Output shaft bearing | 徑向負荷<br>Radial load (10mm from flange) | 軸向負荷<br>Shaft axial load | 主軸承受壓力<br>Shaft press fit force | 徑向間隙<br>Radial play of shaft | 軸向間隙<br>Thrust play of shaft | 背隙 (無負荷時)<br>Backlash, at no-load |
|--------------------------|--------------------------------|--|--------------------------|---------------------------------|------------------------------|------------------------------|-----------------------------------|
| 金屬<br>Metal              | 含油軸承<br>Sleeve bearing         | ≤ 5 kgf                                | ≤ 3 kgf                  | ≤ 15 kgf                        | ≤ 0.08 mm                    | ≤ 0.3 mm                     | ≤ 3°                              |
| 金屬<br>Metal              | 滾珠軸承<br>Ball bearings          | ≤ 8 kgf                                | ≤ 3 kgf                  | ≤ 15kgf                         | ≤ 0.05 mm                    | ≤ 0.3 mm                     | ≤ 3°                              |

## 馬達齒輪型式 / Pinion Specifications

| 模數<br>Module | 齒數<br>No. of teeth | 壓力角<br>Pressure angle | 孔徑 (mm)<br>Hole diameter | 減速比<br>Reduction ratio                        |
|--------------|--------------------|-----------------------|--------------------------|---|
| 0.6          | 12                 | 20°                   | ø3.98                    | 1/24, 1/144, 1/864                            |
| 0.6          | 15                 | 20°                   | ø4.98                    | 1/720, 1/1062, 1/1470, 1/2500, 1/3000, 1/3600 |
| 0.6          | 18                 | 20°                   | ø4.98                    | 1/17, 1/61, 1/104, 1/212, 1/624               |
| 0.6          | 24                 | 20°                   | ø4.98                    | 1/14, 1/49, 1/84, 1/294, 1/504                |
| 0.6          | 20                 | 20°                   | ø4.98                    | 1/4   |

## 標準減速比型式 / Gearboxes Specifications

| 減速比<br>Reduction ratio                            | 1/4  | 1/14 | 1/17 | 1/24 | 1/49 | 1/61 | 1/84 | 1/104 | 1/144 | 1/212 | 1/294 | 1/504 | 1/624 | 1/720 | 1/864 | 1/1062 | 1/1470 | 1/2500 | 1/3000 | 1/3600 |
|---|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|--------|--------|
| 定格容許扭力 (kgf-cm max.)<br>Rated tolerance torque    | 3    | 8    | 8    | 8    | 18   | 18   | 18   | 20    | 20    | 25    | 25    | 30    | 30    | 30    | 30    | 30     | 30     | 30     | 30     | 30     |
| 瞬間容許扭力 (kgf-cm)<br>Max momentary tolerance torque | 9    | 24   | 24   | 24   | 54   | 54   | 54   | 60    | 60    | 75    | 75    | 90    | 90    | 90    | 90    | 90     | 90     | 90     | 90     | 90     |
| 效率<br>Efficiency                                  | 80%  | 70%  | 70%  | 70%  | 60%  | 60%  | 60%  | 60%   | 60%   | 50%   | 50%   | 50%   | 50%   | 50%   | 50%   | 40%    | 40%    | 40%    | 40%    | 40%    |
| 長度<br>Length (L)                                  | 32.5 | 39.2 | 39.2 | 39.2 | 45.9 | 45.9 | 45.9 | 45.9  | 45.9  | 52.6  | 52.6  | 52.6  | 52.6  | 52.6  | 52.6  | 59.6   | 59.6   | 59.6   | 59.6   | 59.6   |
| 重量 (含油軸承)<br>Weight (g) / Sleeve bearing          | 141  | 193  | 193  | 193  | 233  | 233  | 233  | 233   | 233   | 283   | 283   | 283   | 283   | 283   | 283   | 328    | 328    | 328    | 328    | 328    |
| 重量 (滾珠軸承)<br>Weight (g) / Ball bearings           | 139  | 191  | 191  | 191  | 231  | 231  | 231  | 231   | 231   | 281   | 281   | 281   | 281   | 281   | 281   | 326    | 326    | 326    | 326    | 326    |

- 使用相對溼度：20%~85%RH  
Operating relative humidity
- 使用溫度範圍：-10°C~+60°C  
Operating temperature range

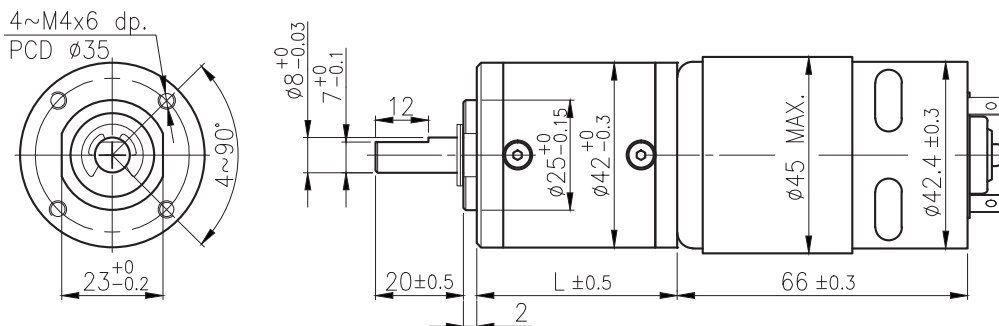


# IG-42CGM

## 01 & 02 TYPE



外形尺寸/ Appearance Size



unit:mm

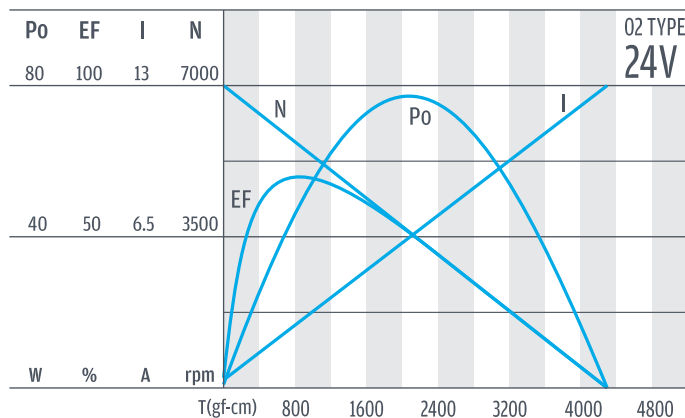
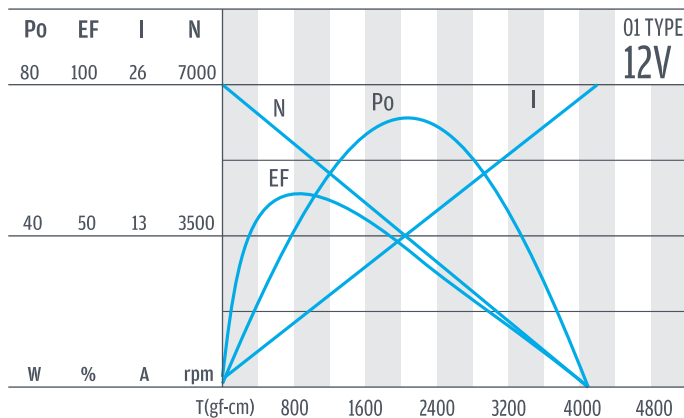
齒輪箱馬達轉矩 & 速度/ Gear Motor Torque & Speed

|                              |                               | 減速比<br>Reduction ratio | 1/4  | 1/14 | 1/17 | 1/24 | 1/49 | 1/61 | 1/84 | 1/104 | 1/144 | 1/212 | 1/294 | 1/504 | 1/624 | 1/720 | 1/864 | 1/1062 | 1/1470 | 1/2500 | 1/3000 | 1/3600 |
|------------------------------|-------------------------------|------------------------|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|--------|--------|
| 12V                          | 定格扭力<br>Rated torque (kgf-cm) | 2.2                    | 6.5  | 8    | 8    | 18   | 18   | 18   | 18   | 20    | 20    | 25    | 25    | 30    | 30    | 30    | 30    | 30     | 30     | 30     | 30     | 30     |
|                              | 定格轉速<br>Rated speed (rpm)     | 1400                   | 405  | 325  | 248  | 120  | 98   | 76   | 63   | 45    | 31    | 22    | 13.5  | 10.9  | 9.5   | 8     | 6.5   | 4.6    | 2.7    | 2.3    | 1.9    |        |
| 24V                          | 定格扭力<br>Rated torque (kgf-cm) | 1.8                    | 5.4  | 6.6  | 8    | 16   | 18   | 18   | 20   | 20    | 25    | 25    | 30    | 30    | 30    | 30    | 30    | 30     | 30     | 30     | 30     | 30     |
|                              | 定格轉速<br>Rated speed (rpm)     | 1445                   | 420  | 340  | 246  | 122  | 102  | 77.5 | 63   | 47    | 31    | 21.8  | 13.5  | 10.9  | 9.5   | 8     | 6.5   | 4.6    | 2.7    | 2.3    | 1.9    |        |
| 軸心迴轉方向<br>Rotation direction |                               | CCW                    |      |      |      |      |      |      |      |       |       |       |       |       |       |       |       |        |        |        |        |        |
| 長度<br>Length (L)             |                               | 32.5                   | 39.2 |      | 45.9 |      | 52.6 |      | 59.6 |       |       |       |       |       |       |       |       |        |        |        |        |        |

馬達單體型式/ Motor Data

| 定格電壓<br>Rated volt (V) | 定格扭力<br>Rated torque (gf-cm) | 定格轉速<br>Rated speed (rpm) | 定格電流<br>Rated current (A) | 無負荷轉速<br>No load speed (rpm) | 無負荷電流<br>No load current (A) | 定格出力<br>Rated output (W) | 重量<br>Weight (g) |
|------------------------|------------------------------|---------------------------|---------------------------|------------------------------|------------------------------|--------------------------|------------------|
| 12                     | 700                          | 5700                      | ≤5.5                      | 7000                         | ≤0.9                         | 41.3                     | 360              |
| 24                     | 570                          | 5900                      | ≤2.1                      | 7000                         | ≤0.5                         | 34.7                     | 360              |

馬達單體特性/ Motor Characteristics

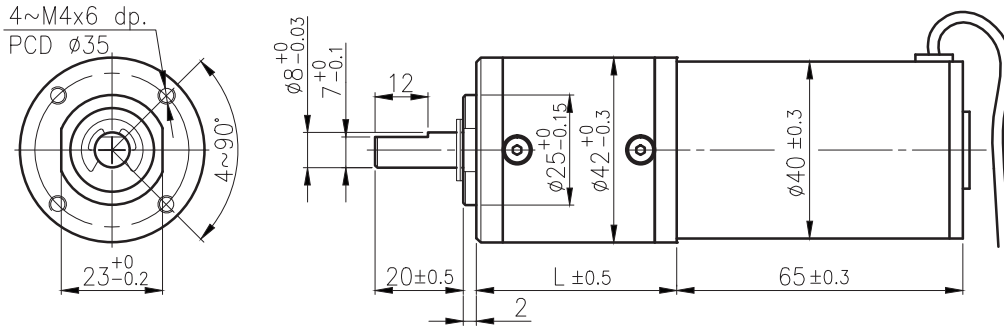


# IG-42CGM

## 03 & 04 TYPE



外形尺寸 / Appearance Size



unit:mm

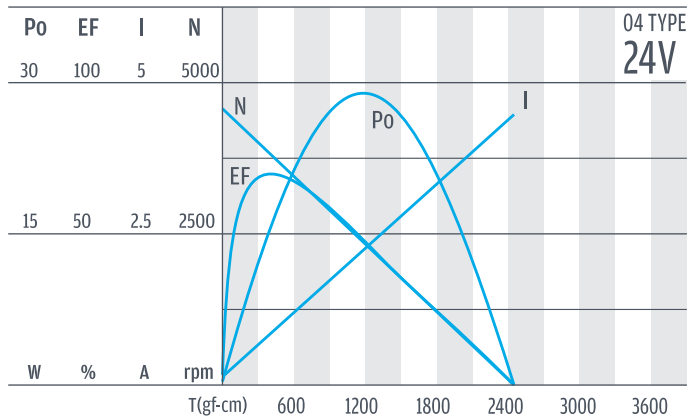
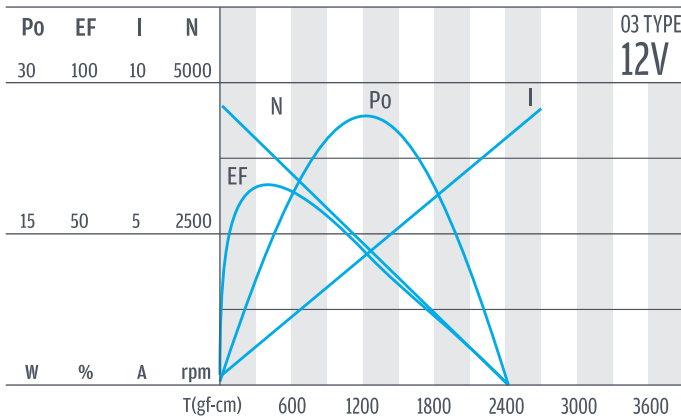
齒輪箱馬達轉矩 & 速度 / Gear Motor Torque & Speed

|                              | 減速比<br>Reduction ratio        | 1/4  | 1/14 | 1/17 | 1/24 | 1/49 | 1/61 | 1/84 | 1/104 | 1/144 | 1/212 | 1/294 | 1/504 | 1/624 | 1/720 | 1/864 | 1/1062 | 1/1470 | 1/2500 | 1/3000 | 1/3600 |
|------------------------------|-------------------------------|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|--------|--------|
| 12V                          | 定格扭力<br>Rated torque (kgf-cm) | 1.3  | 4    | 5    | 7    | 12   | 15   | 18   | 20    | 20    | 25    | 25    | 30    | 30    | 30    | 30    | 30     | 30     | 30     | 30     | 30     |
|                              | 定格轉速<br>Rated speed (rpm)     | 930  | 265  | 210  | 150  | 76   | 61   | 45   | 37    | 27    | 18.5  | 14    | 8.3   | 6.9   | 5.9   | 4.9   | 4      | 2.8    | 1.7    | 1.4    | 1.2    |
| 24V                          | 定格扭力<br>Rated torque (kgf-cm) | 1    | 3    | 4    | 5.5  | 10   | 12   | 17   | 20    | 20    | 25    | 25    | 30    | 30    | 30    | 30    | 30     | 30     | 30     | 30     | 30     |
|                              | 定格轉速<br>Rated speed (rpm)     | 945  | 270  | 215  | 155  | 76   | 62   | 45   | 36    | 27    | 18.5  | 14    | 8.3   | 6.9   | 5.9   | 4.9   | 4      | 2.8    | 1.7    | 1.4    | 1.2    |
| 軸心迴轉方向<br>Rotation direction |                               | CW   |      |      |      |      |      |      |       |       |       |       |       |       |       |       |        |        |        |        |        |
| 長度<br>Length (L)             |                               | 32.5 | 39.2 |      | 45.9 |      |      | 52.6 |       |       | 59.6  |       |       |       |       |       |        |        |        |        |        |

馬達單體型式 / Motor Data

| 定格電壓<br>Rated volt (V) | 定格扭力<br>Rated torque (gf-cm) | 定格轉速<br>Rated speed (rpm) | 定格電流<br>Rated current (A) | 無負荷轉速<br>No load speed (rpm) | 無負荷電流<br>No load current (A) | 定格出力<br>Rated output (W) | 重量<br>Weight (g) |
|------------------------|------------------------------|---------------------------|---------------------------|------------------------------|------------------------------|--------------------------|------------------|
| 12                     | 430                          | 3750                      | ≤2.0                      | 4500                         | ≤0.5                         | 16.56                    | 310              |
| 24                     | 350                          | 3800                      | ≤0.82                     | 4500                         | ≤0.22                        | 13.65                    | 310              |

馬達單體特性 / Motor Characteristics



PG

IG

Right Angle

RA

RB

WG

SD

BLDC

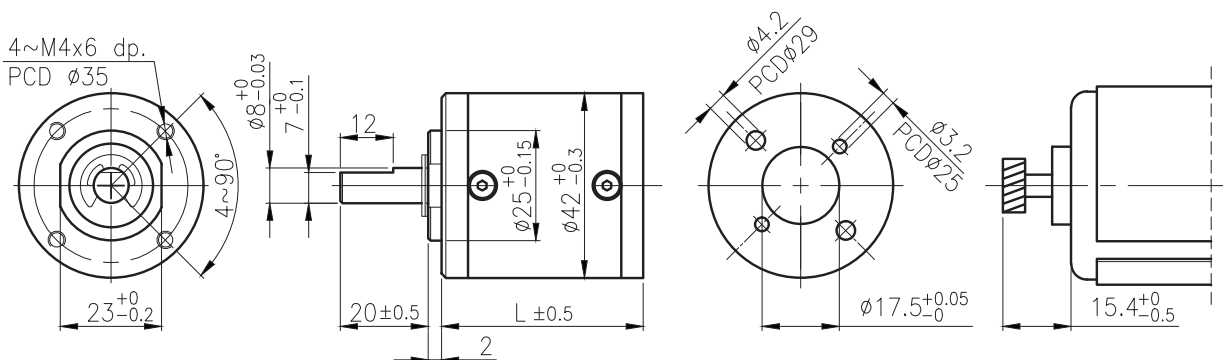
Encoder

Driver

# IG-42H



外形尺寸 & 馬達齒啮合尺寸 / Appearance Size & Pinion Assembly Dimension



unit:mm

## 產品規格/ Product Specifications

| 外殼材質<br>Housing material | 輸出軸承型式<br>Output shaft bearing | 徑向負荷<br>Radial load (10mm from flange) | 軸向負荷<br>Shaft axial load | 主軸承受壓力<br>Shaft press fit force | 徑向間隙<br>Radial play of shaft | 軸向間隙<br>Thrust play of shaft | 背隙 (無負荷時)<br>Backlash, at no-load |
|--------------------------|--------------------------------|--|--------------------------|---------------------------------|------------------------------|------------------------------|-----------------------------------|
| 金屬<br>Metal              | 含油軸承<br>Sleeve bearing         | $\leq 5$ kgf                           | $\leq 3$ kgf             | $\leq 15$ kgf                   | $\leq 0.08$ mm               | $\leq 0.3$ mm                | $\leq 3^\circ$                    |
| 金屬<br>Metal              | 滾珠軸承<br>Ball bearings          | $\leq 8$ kgf                           | $\leq 3$ kgf             | $\leq 15$ kgf                   | $\leq 0.05$ mm               | $\leq 0.3$ mm                | $\leq 3^\circ$                    |

## 馬達齒輪型式/ Pinion Specifications

| 模數<br>Module | 齒數<br>No. of teeth | 螺旋角<br>Helix angle | 壓力角<br>Pressure angle | 孔徑 (mm)<br>Hole diameter | 減速比<br>Reduction ratio  |
|--------------|--------------------|--------------------|-----------------------|--------------------------|---|
| 0.6          | 9                  | 18° (左, left)      | 20°                   | $\phi 3.15$              | 1/25  |
| 0.6          | 12                 | 18° (左, left)      | 20°                   | $\phi 3.98$              | 1/20, 1/100, 1/120, 1/500, 1/600, 1/720<br>1/1062, 1/2500, 1/3000, 1/3600 |
| 0.6          | 15                 | 18° (左, left)      | 20°                   | $\phi 4.98$              | 1/17, 1/84, 1/294, 1/1470   |
| 0.6          | 18                 | 18° (左, left)      | 20°                   | $\phi 4.98$              | 1/15, 1/51, 1/64, 1/180, 1/222  |

## 標準減速比型式/ Gearboxes Specifications

| 減速比<br>Reduction ratio                            | 1/15 | 1/17 | 1/20 | 1/25 | 1/51 | 1/64 | 1/84 | 1/100 | 1/120 | 1/180 | 1/222 | 1/294 | 1/500 | 1/600 | 1/720 | 1/1062 | 1/1470 | 1/2500 | 1/3000 | 1/3600 |
|---|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|--------|--------|
| 定格容許扭力 (kgf-cm max.)<br>Rated tolerance torque    | 8    | 8    | 8    | 8    | 18   | 18   | 18   | 20    | 20    | 25    | 25    | 25    | 30    | 30    | 30    | 30     | 30     | 30     | 30     | 30     |
| 瞬間容許扭力 (kgf-cm)<br>Max momentary tolerance torque | 24   | 24   | 24   | 24   | 54   | 54   | 54   | 60    | 60    | 75    | 75    | 75    | 90    | 90    | 90    | 90     | 90     | 90     | 90     | 90     |
| 效率<br>Efficiency                                  | 70%  | 70%  | 70%  | 70%  | 60%  | 60%  | 60%  | 60%   | 60%   | 50%   | 50%   | 50%   | 50%   | 50%   | 50%   | 40%    | 40%    | 40%    | 40%    | 40%    |
| 長度 (L)<br>Length (L)                              | 39.2 | 39.2 | 39.2 | 39.2 | 45.9 | 45.9 | 45.9 | 45.9  | 45.9  | 52.6  | 52.6  | 52.6  | 52.6  | 52.6  | 52.6  | 59.6   | 59.6   | 59.6   | 59.6   | 59.6   |
| 重量 (含油軸承)<br>Weight (g) /Sleeve bearing           | 193  | 193  | 193  | 193  | 233  | 233  | 233  | 233   | 233   | 283   | 283   | 283   | 283   | 283   | 283   | 328    | 328    | 328    | 328    | 328    |
| 重量 (滾珠軸承)<br>Weight (g) /Ball bearings            | 191  | 191  | 191  | 191  | 231  | 231  | 231  | 231   | 231   | 281   | 281   | 281   | 281   | 281   | 281   | 326    | 326    | 326    | 326    | 326    |

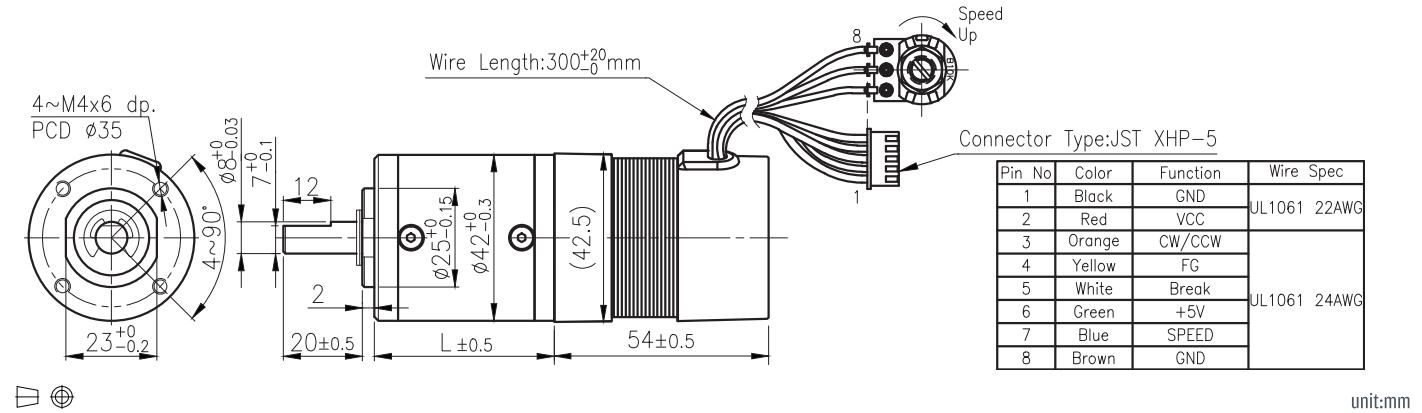
- 使用相對溼度：20%~85%RH  
Operating relative humidity
- 使用溫度範圍：-10°C~+60°C  
Operating temperature range

# IG-42HGM

## 41 & 42 TYPE



### 外形尺寸 / Appearance Size



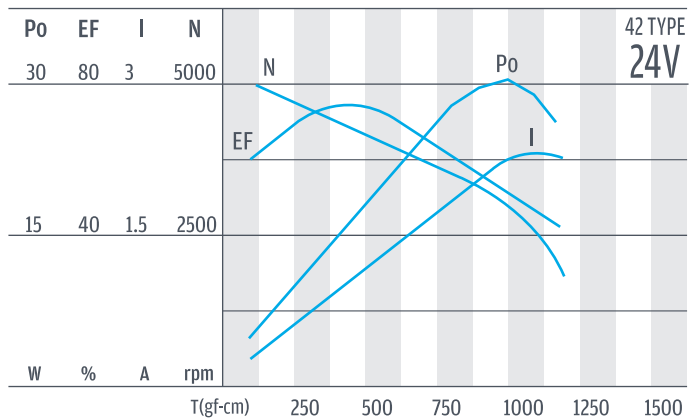
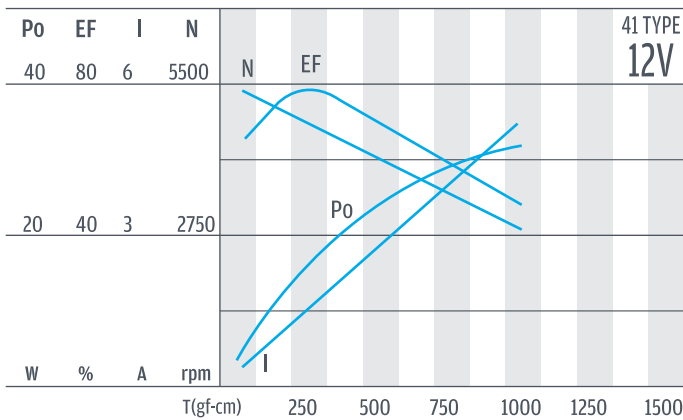
### 齒輪箱馬達轉矩 & 速度 / Gear Motor Torque & Speed

|                  | 減速比<br>Reduction ratio        | 1/15 | 1/17                          | 1/20 | 1/25 | 1/51 | 1/64 | 1/84 | 1/100 | 1/120 | 1/180 | 1/222 | 1/294 | 1/500 | 1/600 | 1/720 | 1/1062 | 1/1470 | 1/2500 | 1/3000 | 1/3600 |    |    |
|------------------|-------------------------------|------|-------------------------------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|--------|--------|----|----|
|                  |                               | 12V  | 定格扭力<br>Rated torque (kgf-cm) | 2.6  | 3.0  | 3.5  | 4.5  | 7.5  | 9.5   | 12.5  | 15    | 18    | 22.5  | 27.8  | 30    | 30    | 30     | 30     | 30     | 30     | 30     | 30 | 30 |
| 12V              | 定格轉速<br>Rated speed (rpm)     | 270  | 230                           | 200  | 155  | 80   | 65   | 50   | 40    | 33    | 22    | 18    | 14.5  | 9.1   | 7.8   | 6.6   | 4.5    | 3.3    | 2.0    | 1.6    | 1.4    |    |    |
| 24V              | 定格扭力<br>Rated torque (kgf-cm) | 3.9  | 4.5                           | 5.2  | 6.4  | 11.5 | 14.5 | 18.6 | 22    | 26.6  | 28    | 30    | 30    | 30    | 30    | 30    | 30     | 30     | 30     | 30     | 30     |    |    |
| 24V              | 定格轉速<br>Rated speed (rpm)     | 280  | 245                           | 210  | 170  | 80   | 65   | 50   | 42    | 35    | 24    | 20    | 15.5  | 9.6   | 8.0   | 6.8   | 4.6    | 3.4    | 2.0    | 1.7    | 1.4    |    |    |
| 長度<br>Length (L) |                               | 39.2 |                               |      | 45.9 |      |      | 52.6 |       |       | 59.6  |       |       |       |       |       |        |        |        |        |        |    |    |

### 馬達單體型式 / Motor Data

| 定格電壓<br>Rated volt (V) | 定格扭力<br>Rated torque (gf-cm) | 定格轉速<br>Rated speed (rpm) | 定格電流<br>Rated current (A) | 無負荷轉速<br>No load speed (rpm) | 無負荷電流<br>No load current (A) | 定格出力<br>Rated output (W) | 重量<br>Weight (g) |
|------------------------|------------------------------|---------------------------|---------------------------|------------------------------|------------------------------|--------------------------|------------------|
| 12                     | 250                          | 4000                      | ≤ 1.6                     | 5000                         | ≤ 0.3                        | 10.5                     | 250              |
| 24                     | 370                          | 4200                      | ≤ 1.1                     | 5000                         | ≤ 0.25                       | 16.2                     | 250              |

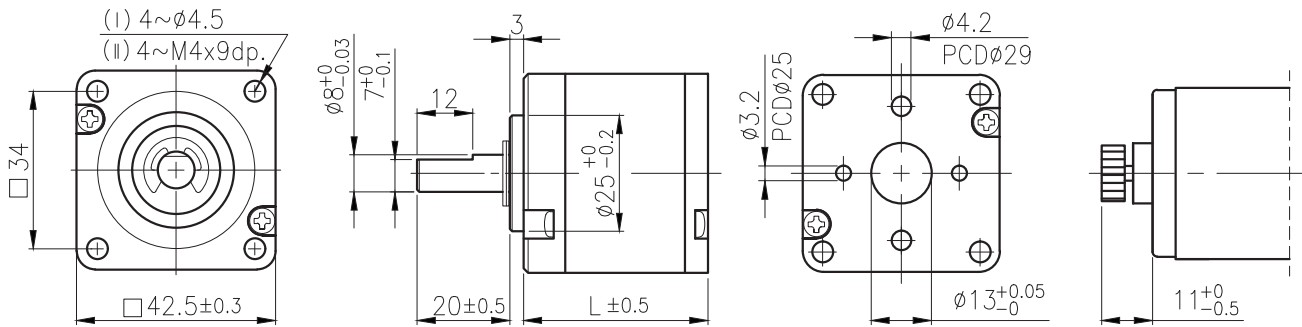
### 馬達單體特性 / Motor Characteristics



# IG-43



## 外形尺寸 & 馬達齒鉋合尺寸 / Appearance Size & Pinion Assembly Dimension



unit:mm

## 產品規格/ Product Specifications

| 外殼材質<br>Housing material | 輸出軸承型式<br>Output shaft bearing | 徑向負荷<br>Radial load (10mm from flange) | 軸向負荷<br>Shaft axial load | 主軸承受壓入力<br>Shaft press fit force | 徑向間隙<br>Radial play of shaft | 軸向間隙<br>Thrust play of shaft | 背隙(無負荷時)<br>Backlash, at no-load |
|--------------------------|--------------------------------|--|--------------------------|----------------------------------|------------------------------|------------------------------|----------------------------------|
| 粉末金屬<br>Powder Metal     | 滾珠軸承<br>Ball bearings          | ≤ 8 kgf                                | ≤ 3 kgf                  | ≤ 15kgf                          | ≤ 0.05 mm                    | ≤ 0.3 mm                     | ≤ 3°                             |

## 馬達齒輪型式/ Pinion Specifications

| 模數<br>Module | 齒數<br>No. of teeth | 壓力角<br>Pressure angle | 孔徑 (mm)<br>Hole diameter | 減速比<br>Reduction ratio                                      |
|--------------|--------------------|-----------------------|--------------------------|---|
| 0.6          | 12                 | 20°                   | ∅3.16, ∅3.98             | 1/24, 1/84, 1/104, 1/144, 1/294, 1/504, 1/624, 1/720, 1/864 |
| 0.6          | 18                 | 20°                   | ∅3.16, ∅3.98             | 1/17, 1/61, 1/212   |
| 0.6          | 24                 | 20°                   | ∅3.16, ∅3.98             | 1/14, 1/49  |
| 0.6          | 20                 | 20°                   | ∅3.16, ∅3.98             | 1/4   |

## 標準減速比型式/ Gearboxes Specifications

| 減速比<br>Reduction ratio                            | 1/4   | 1/14  | 1/17  | 1/24  | 1/49  | 1/61  | 1/84  | 1/104 | 1/144 | 1/212 | 1/294 | 1/504 | 1/624 | 1/720 | 1/864 |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 定格容許扭力 (kgf-cm max.)<br>Rated tolerance torque    | 4     | 8     | 8     | 8     | 15    | 15    | 15    | 20    | 20    | 25    | 25    | 30    | 30    | 30    | 30    |
| 瞬間容許扭力 (kgf-cm)<br>Max momentary tolerance torque | 12    | 24    | 24    | 24    | 45    | 45    | 45    | 60    | 60    | 75    | 75    | 90    | 90    | 90    | 90    |
| 效率<br>Efficiency                                  | 80%   | 70%   | 70%   | 70%   | 60%   | 60%   | 60%   | 60%   | 60%   | 50%   | 50%   | 50%   | 50%   | 50%   | 50%   |
| 長度<br>Length (L)                                  | 26.15 | 32.95 | 32.95 | 32.95 | 39.75 | 39.75 | 39.75 | 39.75 | 39.75 | 46.45 | 46.45 | 46.45 | 46.45 | 46.45 | 46.45 |
| 重量 (滾珠軸承)<br>Weight (g) /Ball bearings            | 190   | 250   | 250   | 250   | 305   | 305   | 305   | 305   | 305   | 360   | 360   | 360   | 360   | 360   | 360   |

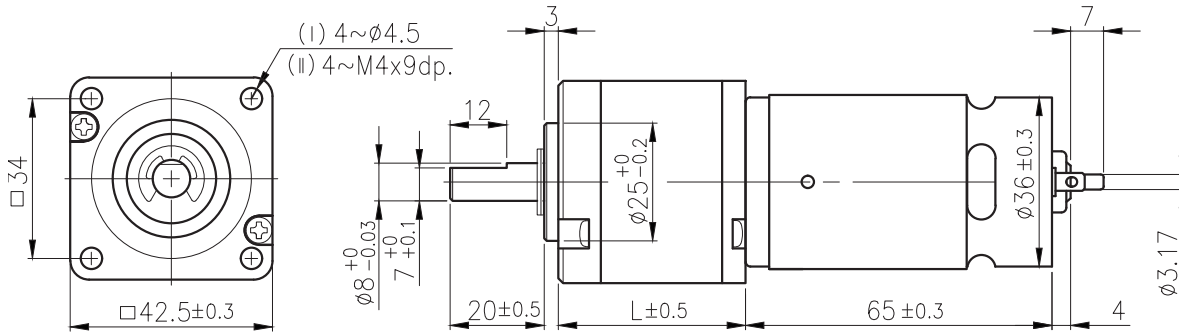
- 使用相對溼度：20%~85%RH  
Operating relative humidity
- 使用溫度範圍：-10°C~+60°C  
Operating temperature range

# IG-43GM

## 01 & 02 TYPE



外形尺寸/ Appearance Size



unit:mm

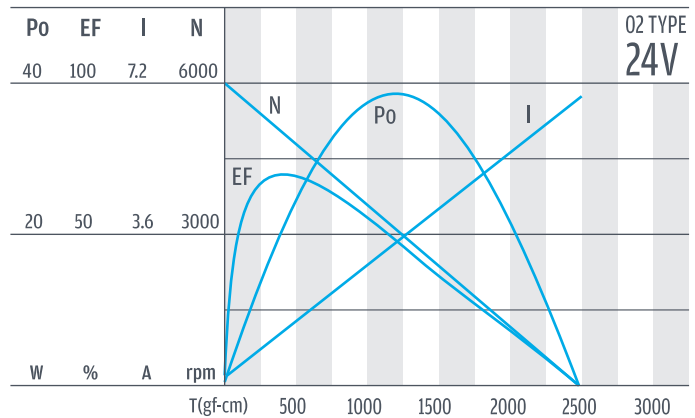
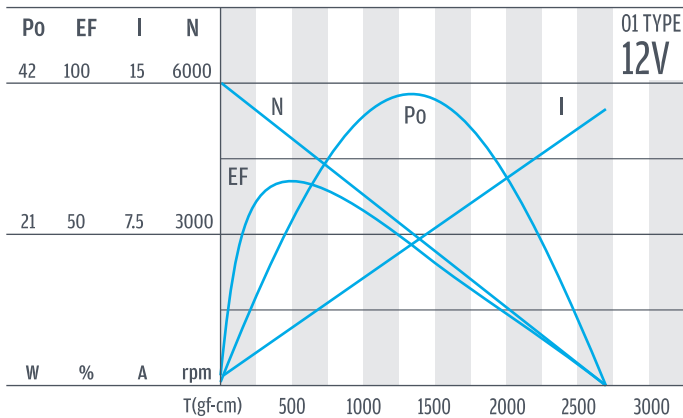
齒輪箱馬達轉矩 & 速度/ Gear Motor Torque & Speed

| 減速比<br>Reduction ratio               | 1/4   | 1/14  | 1/17 | 1/24 | 1/49 | 1/61 | 1/84  | 1/104 | 1/144 | 1/212 | 1/294 | 1/504 | 1/624 | 1/720 | 1/864 |
|--------------------------------------|-------|-------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 12V<br>定格扭力<br>Rated torque (kgf-cm) | 1     | 3     | 3.6  | 5.2  | 9.2  | 11   | 15    | 19    | 20    | 25    | 25    | 30    | 30    | 30    | 30    |
| 12V<br>定格轉速<br>Rated speed (rpm)     | 1250  | 363   | 293  | 212  | 103  | 83.5 | 60.5  | 49    | 38    | 25.4  | 18.9  | 11.2  | 8.8   | 8     | 6.5   |
| 24V<br>定格扭力<br>Rated torque (kgf-cm) | 0.9   | 2.6   | 3.1  | 4.5  | 8    | 10   | 14    | 17    | 20    | 25    | 25    | 30    | 30    | 30    | 30    |
| 24V<br>定格轉速<br>Rated speed (rpm)     | 1290  | 375   | 302  | 218  | 107  | 86.5 | 62.5  | 50.5  | 39    | 26.2  | 18.8  | 11.2  | 8.8   | 8     | 6.5   |
| 軸心迴轉方向<br>Rotation direction         | CCW   |       |      |      |      |      |       |       |       |       |       |       |       |       |       |
| 長度<br>Length (L)                     | 26.15 | 32.95 |      |      |      |      | 39.75 |       |       |       |       | 46.45 |       |       |       |

馬達單體型式/ Motor Data

| 定格電壓<br>Rated volt (V) | 定格扭力<br>Rated torque (gf-cm) | 定格轉速<br>Rated speed (rpm) | 定格電流<br>Rated current (A) | 無負荷轉速<br>No load speed (rpm) | 無負荷電流<br>No load current (A) | 定格出力<br>Rated output (W) | 重量<br>Weight (g) |
|------------------------|------------------------------|---------------------------|---------------------------|------------------------------|------------------------------|--------------------------|------------------|
| 12                     | 320                          | 5090                      | $\leq 2.1$                | 6000                         | $\leq 0.35$                  | 17.09                    | 266              |
| 24                     | 280                          | 5250                      | $\leq 0.9$                | 6000                         | $\leq 0.17$                  | 15.56                    | 266              |

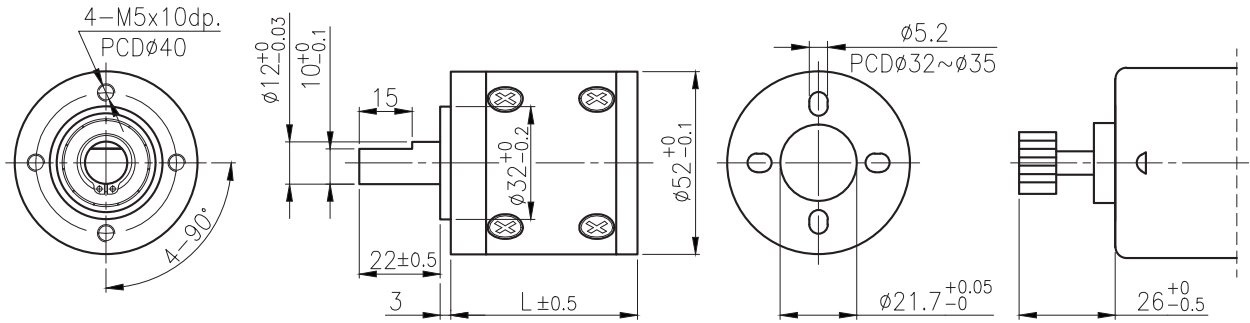
馬達單體特性/ Motor Characteristics



# IG-52



外形尺寸 & 馬達齒鉚合尺寸 / Appearance Size & Pinion Assembly Dimension



unit:mm

## 產品規格 / Product Specifications

| 外殼材質<br>Housing material | 輸出軸承型式<br>Output shaft bearing | 徑向負荷<br>Radial load (10mm from flange) | 軸向負荷<br>Shaft axial load | 主軸承受壓力<br>Shaft press fit force | 徑向間隙<br>Radial play of shaft | 軸向間隙<br>Thrust play of shaft | 背隙 (無負荷時)<br>Backlash, at no-load |
|--------------------------|--------------------------------|--|--------------------------|---------------------------------|------------------------------|------------------------------|-----------------------------------|
| 金屬<br>Metal              | 滾珠軸承<br>Ball bearings          | $\leq$ 20 kgf                          | $\leq$ 10 kgf            | $\leq$ 30 kgf                   | $\leq$ 0.04 mm               | $\leq$ 0.3 mm                | $\leq$ 3°                         |

## 馬達齒輪型式 / Pinion Specifications

| 模數<br>Module | 齒數<br>No. of teeth | 壓力角<br>Pressure angle | 孔徑 (mm)<br>Hole diameter | 減速比<br>Reduction ratio   |
|--------------|--------------------|-----------------------|--------------------------|--|
| 1.0          | 8                  | 20°                   | $\phi$ 3.98              | 1/21, 1/26, 1/126, 1/756, 1/936  |
| 1.0          | 12                 | 20°                   | $\phi$ 5.98, $\phi$ 6.34 | 1/4, 1/15, 1/19, 1/53, 1/66, 1/81, 1/113, 1/230, 1/285, 1/353, 1/488, 1/546, 1/676 |
| 1.0          | 16                 | 20°                   | $\phi$ 5.98, $\phi$ 6.34 | 1/3, 1/12, 1/43, 1/150   |
| 1.0          | 14                 | 20°                   | $\phi$ 5.98, $\phi$ 6.34 | 1/100  |

## 標準減速比型式 / Gearboxes Specifications

| 減速比<br>Reduction ratio                            | 1/3 | 1/4 | 1/12 | 1/15 | 1/19 | 1/21 | 1/26 | 1/43 | 1/53 | 1/66 | 1/81 | 1/100 | 1/113 | 1/126 | 1/150 | 1/230 | 1/285 | 1/353 | 1/488 | 1/546 | 1/676 | 1/756 | 1/936 |      |
|---|-----|-----|------|------|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|
| 定格容許扭力 (kgf-cm max.)<br>Rated tolerance torque    | 10  | 10  | 30   | 30   | 50   | 50   | 50   | 100  | 100  | 100  | 100  | 100   | 100   | 100   | 100   | 100   | 100   | 100   | 100   | 100   | 100   | 100   | 100   | 100  |
| 瞬間容許扭力 (kgf-cm)<br>Max momentary tolerance torque | 30  | 30  | 90   | 90   | 150  | 150  | 150  | 300  | 300  | 300  | 300  | 300   | 300   | 300   | 300   | 300   | 300   | 300   | 300   | 300   | 300   | 300   | 300   | 300  |
| 效率<br>Efficiency                                  | 80% | 80% | 70%  | 70%  | 70%  | 70%  | 70%  | 60%  | 60%  | 60%  | 60%  | 60%   | 60%   | 60%   | 50%   | 50%   | 50%   | 50%   | 50%   | 50%   | 50%   | 50%   | 50%   | 50%  |
| 長度<br>Length (L)                                  | 53  | 53  | 68.5 | 68.5 | 68.5 | 68.5 | 68.5 | 84   | 84   | 84   | 84   | 84    | 84    | 84    | 99.5  | 99.5  | 99.5  | 99.5  | 99.5  | 99.5  | 99.5  | 99.5  | 99.5  | 99.5 |
| 重量 (滾珠軸承)<br>Weight (g) / Ball bearings           | 475 | 475 | 660  | 660  | 660  | 660  | 660  | 850  | 850  | 850  | 850  | 850   | 850   | 850   | 1020  | 1020  | 1020  | 1020  | 1020  | 1020  | 1020  | 1020  | 1020  | 1020 |

- 使用相對溼度：20%~85%RH  
Operating relative humidity
- 使用溫度範圍：-10°C~+60°C  
Operating temperature range

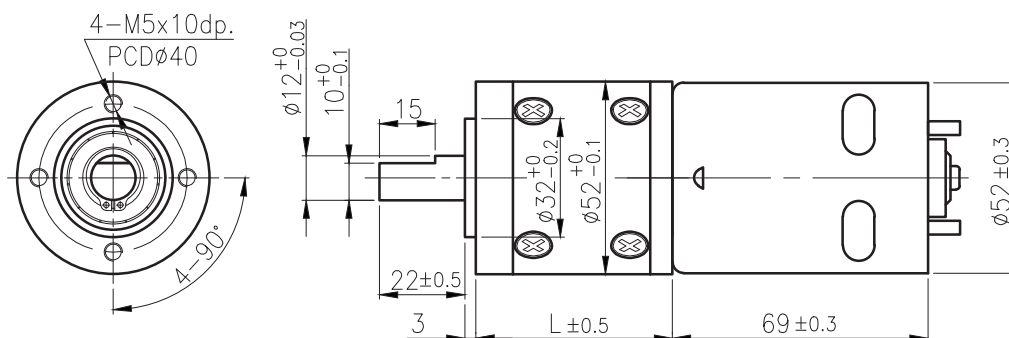


# IG-52GM

## 01 & 02 TYPE



### 外形尺寸 / Appearance Size



unit:mm

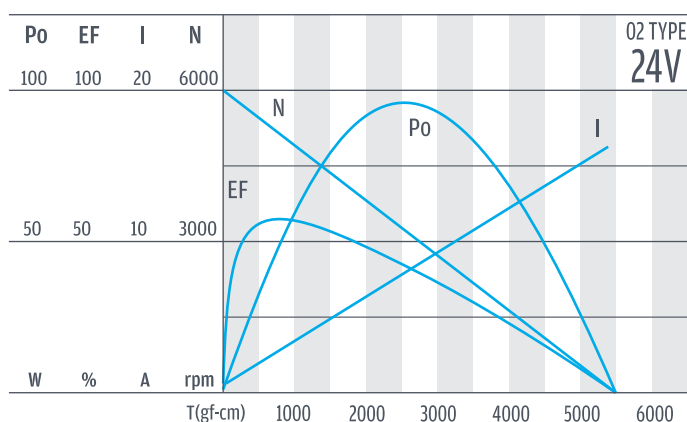
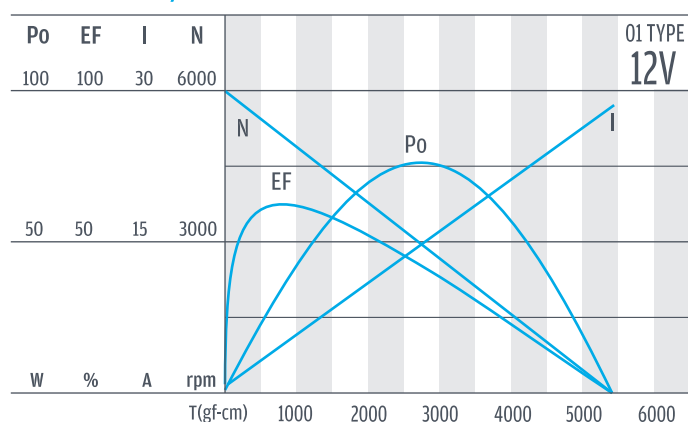
### 齒輪箱馬達轉矩 & 速度 / Gear Motor Torque & Speed

|                              | 減速比<br>Reduction ratio        | 1/3  | 1/4  | 1/12 | 1/15 | 1/19 | 1/43 | 1/53 | 1/66 | 1/81 | 1/100 | 1/113 | 1/150 | 1/230 | 1/285 | 1/353 | 1/488 | 1/546 | 1/676 |  |  |
|------------------------------|-------------------------------|------|------|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--|--|
| 12V                          | 定格扭力<br>Rated torque (kgf-cm) | 2.1  | 2.6  | 6.5  | 8.1  | 10   | 20.1 | 24.4 | 30.2 | 37.4 | 46.1  | 51.8  | 57.5  | 88.2  | 100   | 100   | 100   | 100   | 100   |  |  |
|                              | 定格轉速<br>Rated speed (rpm)     | 1445 | 1167 | 412  | 333  | 269  | 115  | 95   | 76   | 62   | 50    | 44    | 33    | 21    | 18    | 15    | 11.3  | 10    | 8.2   |  |  |
| 24V                          | 定格扭力<br>Rated torque (kgf-cm) | 2.2  | 2.8  | 6.9  | 8.6  | 10.7 | 21.4 | 25.9 | 32.1 | 39.7 | 49    | 55    | 61.1  | 93.7  | 100   | 100   | 100   | 100   | 100   |  |  |
|                              | 定格轉速<br>Rated speed (rpm)     | 1423 | 1149 | 406  | 328  | 265  | 113  | 93   | 75   | 61   | 49    | 44    | 33    | 21    | 17.9  | 14.7  | 10.9  | 9.8   | 8     |  |  |
| 軸心迴轉方向<br>Rotation direction |                               | CW   |      |      |      |      |      |      |      |      |       |       |       |       |       |       |       |       |       |  |  |
| 長度<br>Length (L)             |                               | 53   |      |      | 68.5 |      |      | 84   |      |      | 99.5  |       |       |       |       |       |       |       |       |  |  |

### 馬達單體型式 / Motor Data

| 定格電壓<br>Rated volt (V) | 定格扭力<br>Rated torque (gf-cm) | 定格轉速<br>Rated speed (rpm) | 定格電流<br>Rated current (A) | 無負荷轉速<br>No load speed (rpm) | 無負荷電流<br>No load current(A) | 定格出力<br>Rated output (W) | 重量<br>Weight (g) |
|------------------------|------------------------------|---------------------------|---------------------------|------------------------------|-----------------------------|--------------------------|------------------|
| 12                     | 767                          | 5058                      | ≤5.8                      | 6000                         | ≤1.55                       | 39.8                     | 480              |
| 24                     | 815                          | 4983                      | ≤3.6                      | 6000                         | ≤0.6                        | 41.7                     | 480              |

### 馬達單體特性 / Motor Characteristics

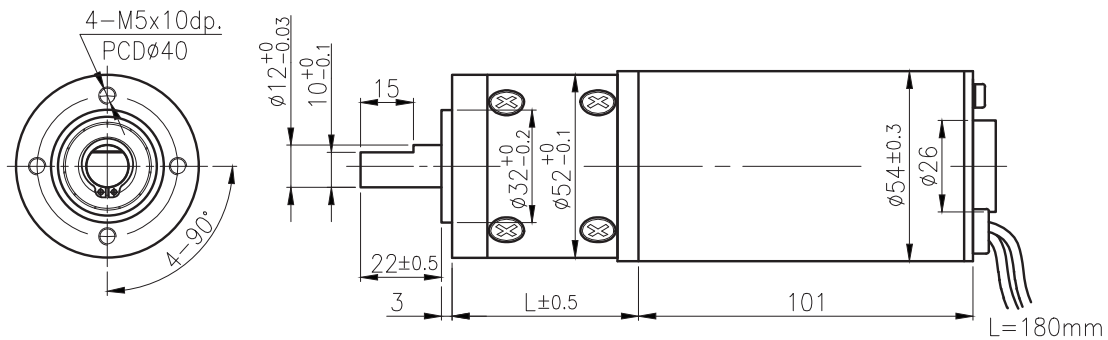


# IG-52GM

## 03 & 04 TYPE



### 外形尺寸/ Appearance Size



unit:mm

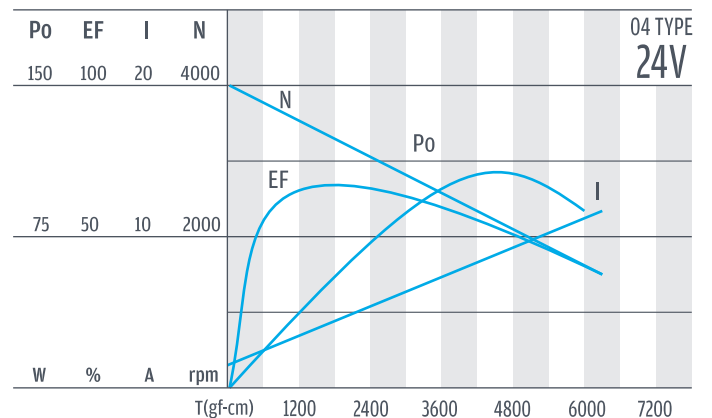
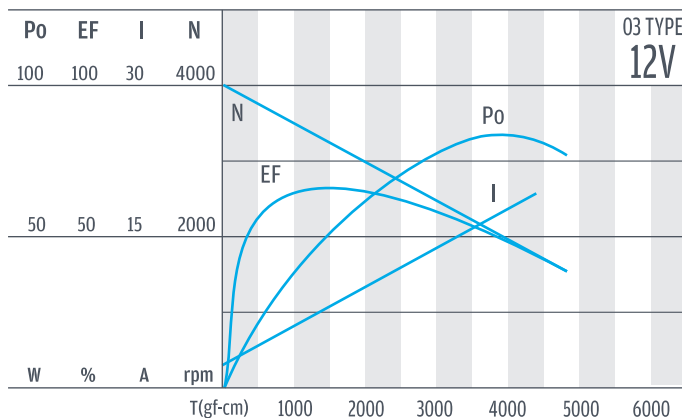
### 齒輪箱馬達轉矩 & 速度/ Gear Motor Torque & Speed

|     |                               |      |     |      |      |      |      |      |      |      |      |       |       |       |       |       |       |       |       |       |       |
|-----|-------------------------------|------|-----|------|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|     | 減速比<br>Reduction ratio        | 1/3  | 1/4 | 1/12 | 1/15 | 1/19 | 1/26 | 1/43 | 1/53 | 1/66 | 1/81 | 1/100 | 1/113 | 1/150 | 1/230 | 1/285 | 1/353 | 1/488 | 1/546 | 1/676 | 1/936 |
| 12V | 定格扭力<br>Rated torque (kgf-cm) | 2.5  | 3.1 | 7.7  | 9.5  | 11.8 | 16   | 23   | 28   | 35   | 44   | 54    | 60    | 67    | 100   | 100   | 100   | 100   | 100   | 100   | 100   |
|     | 定格轉速<br>Rated speed (rpm)     | 1030 | 835 | 295  | 238  | 192  | 139  | 84   | 68   | 55   | 44   | 36    | 32    | 24    | 15.5  | 12.8  | 10.4  | 7.6   | 6.7   | 5.6   | 4     |
| 24V | 定格扭力<br>Rated torque (kgf-cm) | 3.6  | 4.5 | 11   | 13.5 | 17   | 23   | 33   | 41   | 51   | 62   | 78    | 88    | 97    | 100   | 100   | 100   | 100   | 100   | 100   | 100   |
|     | 定格轉速<br>Rated speed (rpm)     | 1000 | 815 | 285  | 230  | 185  | 136  | 82   | 67   | 54   | 44   | 35    | 31    | 23.5  | 15.6  | 12.9  | 10.5  | 7.7   | 6.8   | 5.7   | 4.1   |
|     | 軸心迴轉方向<br>Rotation direction  | CW   |     |      |      |      |      |      |      |      |      |       |       |       |       |       |       |       |       |       |       |
|     | 長度<br>Length (L)              | 53   |     |      | 68.5 |      |      | 84   |      |      | 99.5 |       |       |       |       |       |       |       |       |       |       |

### 馬達單體型式/ Motor Data

| 定格電壓<br>Rated volt (V) | 定格扭力<br>Rated torque (gf-cm) | 定格轉速<br>Rated speed (rpm) | 定格電流<br>Rated current (A) | 無負荷轉速<br>No load speed (rpm) | 無負荷電流<br>No load current (A) | 定格出力<br>Rated output (W) | 重量<br>Weight (g) |
|------------------------|------------------------------|---------------------------|---------------------------|------------------------------|------------------------------|--------------------------|------------------|
| 12                     | 900                          | 3620                      | ≤4.1                      | 4000                         | ≤1.2                         | 33.5                     | 920              |
| 24                     | 1300                         | 3550                      | ≤2.85                     | 4000                         | ≤0.7                         | 48.6                     | 920              |

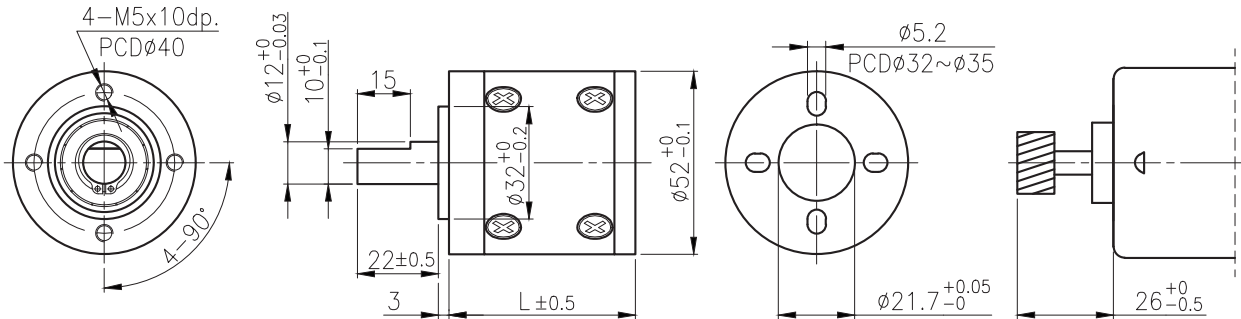
### 馬達單體特性/ Motor Characteristics



# IG-52H



## 外形尺寸 & 馬達齒鉚合尺寸 / Appearance Size & Pinion Assembly Dimension



unit:mm

## 產品規格/ Product Specifications

| 外殼材質<br>Housing material | 輸出軸承型式<br>Output shaft bearing | 徑向負荷<br>Radial load (10mm from flange) | 軸向負荷<br>Shaft axial load | 主軸承受壓力<br>Shaft press fit force | 徑向間隙<br>Radial play of shaft | 軸向間隙<br>Thrust play of shaft | 背隙(無負荷時)<br>Backlash, at no-load |
|--------------------------|--------------------------------|--|--------------------------|---------------------------------|------------------------------|------------------------------|----------------------------------|
| 金屬<br>Metal              | 滾珠軸承<br>Ball bearings          | $\leq 20$ kgf                          | $\leq 10$ kgf            | $\leq 30$ kgf                   | $\leq 0.04$ mm               | $\leq 0.3$ mm                | $\leq 3^\circ$                   |

## 馬達齒輪型式/ Pinion Specifications

| 模數<br>Module | 齒數<br>No. of teeth | 螺旋角<br>Helix angle | 壓力角<br>Pressure angle | 孔徑 (mm)<br>Hole diameter | 減速比<br>Reduction ratio   |
|--------------|--------------------|--------------------|-----------------------|--------------------------|--|
| 0.8          | 16                 | 18° (左, left)      | 20°                   | $\phi$ 6X4.5             | 1/4, 1/13, 1/46, 1/57, 1/98, 1/161   |
| 0.8          | 13                 | 18° (左, left)      | 20°                   | $\phi$ 6X4.5             | 1/5, 1/15, 1/19, 1/67, 1/82, 1/114, 1/207, 1/288, 1/357, 1/494, 1/552, 1/684 |

## 標準減速比型式/ Gearboxes Specifications

| 減速比<br>Reduction ratio                            | 1/4 | 1/5 | 1/13 | 1/15 | 1/19 | 1/46 | 1/57 | 1/67 | 1/82 | 1/98 | 1/114 | 1/161 | 1/207 | 1/288 | 1/357 | 1/494 | 1/552 | 1/684 |
|---|-----|-----|------|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|
| 定格容許扭力 (kgf-cm max.)<br>Rated tolerance torque    | 6   | 6   | 20   | 20   | 30   | 50   | 50   | 60   | 60   | 80   | 80    | 100   | 100   | 100   | 100   | 100   | 100   | 100   |
| 瞬間容許扭力 (kgf-cm)<br>Max momentary tolerance torque | 18  | 18  | 60   | 60   | 90   | 150  | 150  | 180  | 180  | 240  | 240   | 300   | 300   | 300   | 300   | 300   | 300   | 300   |
| 效率<br>Efficiency                                  | 80% | 80% | 70%  | 70%  | 70%  | 60%  | 60%  | 60%  | 60%  | 60%  | 60%   | 50%   | 50%   | 50%   | 50%   | 50%   | 50%   | 50%   |
| 長度<br>Length (L)                                  | 53  | 53  | 68.5 | 68.5 | 68.5 | 84   | 84   | 84   | 84   | 84   | 84    | 99.5  | 99.5  | 99.5  | 99.5  | 99.5  | 99.5  | 99.5  |
| 重量 (滾珠軸承)<br>Weight (g) /Ball bearings            | 445 | 445 | 630  | 630  | 630  | 820  | 820  | 820  | 820  | 820  | 820   | 990   | 990   | 990   | 990   | 990   | 990   | 990   |

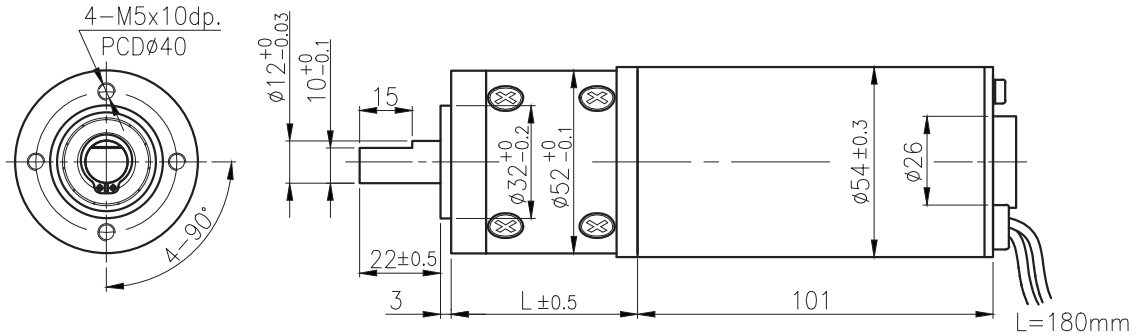
- 使用相對溼度 : 20%~85%RH  
Operating relative humidity
- 使用溫度範圍 : -10°C~+60°C  
Operating temperature range

# IG-52HGM

## 03 & 04 TYPE



### 外形尺寸/ Appearance Size



unit:mm

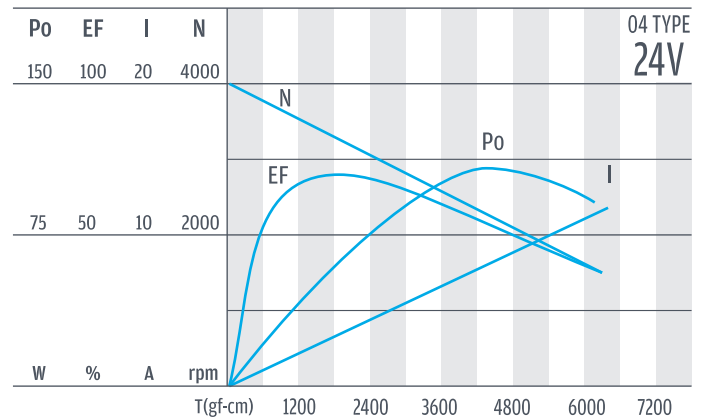
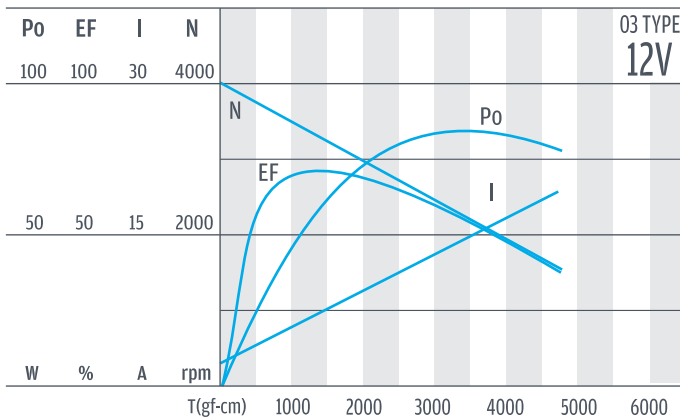
### 齒輪箱馬達轉矩 & 速度/ Gear Motor Torque & Speed

|                              |                           | 1/4  | 1/5 | 1/13 | 1/15 | 1/19 | 1/46 | 1/57 | 1/67 | 1/82 | 1/98 | 1/114 | 1/161 | 1/207 | 1/288 | 1/357 | 1/494 | 1/552 | 1/684 |
|------------------------------|---------------------------|------|-----|------|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|
| 12V                          | 減速比<br>Reduction ratio    | 1/4  | 1/5 | 1/13 | 1/15 | 1/19 | 1/46 | 1/57 | 1/67 | 1/82 | 1/98 | 1/114 | 1/161 | 1/207 | 1/288 | 1/357 | 1/494 | 1/552 | 1/684 |
|                              | 定額轉速<br>Rated speed (rpm) | 960  | 724 | 275  | 235  | 190  | 78   | 63   | 54   | 44   | 37   | 31.7  | 22.5  | 17.4  | 12.7  | 10.5  | 7.6   | 6.7   | 5.5   |
| 24V                          | 定額轉速<br>Rated speed (rpm) | 940  | 710 | 270  | 230  | 186  | 77   | 62   | 53   | 43   | 36   | 31.1  | 22    | 17.3  | 12.7  | 10.5  | 7.6   | 6.7   | 5.5   |
|                              | 定額轉速<br>Rated speed (rpm) | 940  | 710 | 270  | 230  | 186  | 77   | 62   | 53   | 43   | 36   | 31.1  | 22    | 17.3  | 12.7  | 10.5  | 7.6   | 6.7   | 5.5   |
| 軸心迴轉方向<br>Rotation direction |                           | CW   |     |      |      |      |      |      |      |      |      |       |       |       |       |       |       |       |       |
| 長度<br>Length (L)             |                           | 53.0 |     |      | 68.5 |      |      | 84.0 |      |      | 99.5 |       |       |       |       |       |       |       |       |

### 馬達單體型式/ Motor Data

| 定額電壓<br>Rated volt (V) | 定額轉速<br>Rated speed (rpm) | 定額電流<br>Rated current (A) | 無負荷轉速<br>No load speed (rpm) | 無負荷電流<br>No load current (A) | 定額出力<br>Rated output (W) | 重量<br>Weight (g) |
|------------------------|---------------------------|---------------------------|------------------------------|------------------------------|--------------------------|------------------|
| 12                     | 3620                      | ≤4.1                      | 4000                         | ≤1.2                         | 33.5                     | 920              |
| 24                     | 3550                      | ≤2.85                     | 4000                         | ≤0.7                         | 48.6                     | 920              |

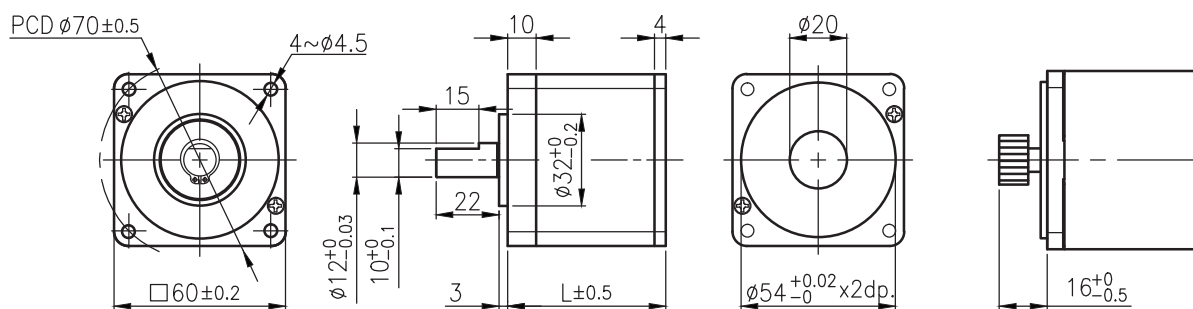
### 馬達單體特性/ Motor Characteristics



# IG-60W



外形尺寸 & 馬達齒鉚合尺寸 / Appearance Size & Pinion Assembly Dimension



unit:mm

## 產品規格/ Product Specifications

| 外殼材質<br>Housing material | 輸出軸承型式<br>Output shaft bearing | 徑向負荷<br>Radial load (10mm from flange) | 軸向負荷<br>Shaft axial load | 主軸承受壓入力<br>Shaft press fit force | 徑向間隙<br>Radial play of shaft | 軸向間隙<br>Thrust play of shaft | 背隙 (無負荷時)<br>Backlash, at no-load |
|--------------------------|--------------------------------|--|--------------------------|----------------------------------|------------------------------|------------------------------|-----------------------------------|
| 金屬<br>Metal              | 滾珠軸承<br>Ball bearings          | $\leq 20$ kgf                          | $\leq 10$ kgf            | $\leq 30$ kgf                    | $\leq 0.08$ mm               | $\leq 0.4$ mm                | $\leq 3^\circ$                    |

## 馬達齒輪型式/ Pinion Specifications

| 模數<br>Module | 齒數<br>No. of teeth | 壓力角<br>Pressure angle | 孔徑 (mm)<br>Hole diameter | 減速比<br>Reduction ratio   |
|--------------|--------------------|-----------------------|--------------------------|--|
| 1.0          | 12                 | $20^\circ$            | $\phi 6 \times 4.5$      | 1/4, 1/15, 1/19, 1/53, 1/66, 1/81, 1/113, 1/230<br>1/285, 1/353, 1/488, 1/546, 1/676 |
| 1.0          | 14                 | $20^\circ$            | $\phi 8 \times 6$        | 1/100  |
| 1.0          | 16                 | $20^\circ$            | $\phi 8 \times 6$        | 1/3, 1/12, 1/43, 1/150   |

## 標準減速比型式/ Gearboxes Specifications

| 減速比<br>Reduction ratio                            | 1/3  | 1/4  | 1/12 | 1/15 | 1/19 | 1/43 | 1/53 | 1/66 | 1/81 | 1/100 | 1/113 | 1/150 | 1/230 | 1/285 | 1/353 | 1/488 | 1/546 | 1/676 |
|---|------|------|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 定格容許扭力 (kgf-cm max.)<br>Rated tolerance torque    | 15   | 15   | 50   | 50   | 50   | 100  | 100  | 100  | 100  | 100   | 100   | 100   | 100   | 100   | 100   | 100   | 100   | 100   |
| 瞬間容許扭力 (kgf-cm)<br>Max momentary tolerance torque | 45   | 45   | 150  | 150  | 150  | 300  | 300  | 300  | 300  | 300   | 300   | 300   | 300   | 300   | 300   | 300   | 300   | 300   |
| 效率<br>Efficiency                                  | 80%  | 80%  | 70%  | 70%  | 70%  | 60%  | 60%  | 60%  | 60%  | 60%   | 60%   | 50%   | 50%   | 50%   | 50%   | 50%   | 50%   | 50%   |
| 長度<br>Length (L)                                  | 43.3 | 43.3 | 58.8 | 58.8 | 58.8 | 74.3 | 74.3 | 74.3 | 74.3 | 74.3  | 74.3  | 89.8  | 89.8  | 89.8  | 89.8  | 89.8  | 89.8  | 89.8  |
| 重量 (滾珠軸承)<br>Weight (g) / Ball bearings           | 510  | 510  | 730  | 730  | 730  | 980  | 980  | 980  | 980  | 980   | 980   | 1210  | 1210  | 1210  | 1210  | 1210  | 1210  | 1210  |

- 使用相對溼度：20%~85%RH  
Operating relative humidity
- 使用溫度範圍：-10°C~+60°C  
Operating temperature range

PG

# IG-60WGM

## 01 & 02 TYPE

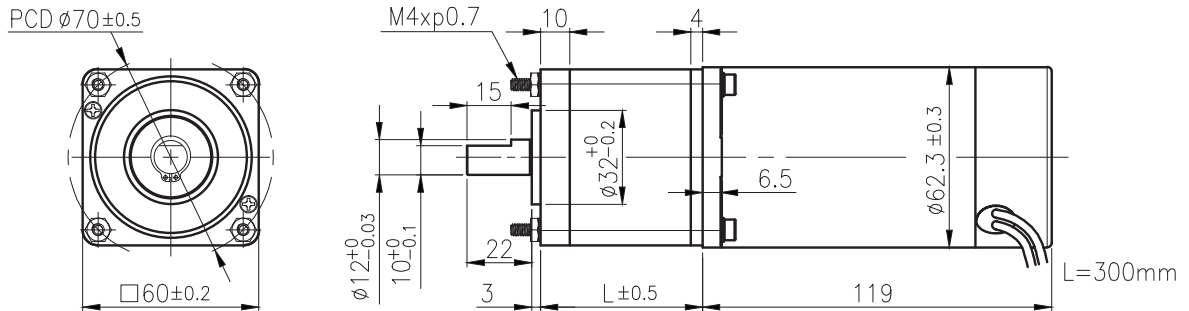


IG

### 外形尺寸/ Appearance Size

Right Angle

RA



unit:mm

RB

### 齒輪箱馬達轉矩 & 速度/ Gear Motor Torque & Speed

|                              |                               | 減速比<br>Reduction ratio | 1/3  | 1/4 | 1/12 | 1/15 | 1/19 | 1/43 | 1/53 | 1/66 | 1/81 | 1/100 | 1/113 | 1/150 | 1/230 | 1/285 | 1/353 | 1/488 | 1/546 | 1/676 |  |  |
|------------------------------|-------------------------------|------------------------|------|-----|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--|--|
| 12V                          | 定格扭力<br>Rated torque (kgf-cm) | 1.9                    | 2.4  | 6   | 7.4  | 9    | 18   | 22   | 27   | 34   | 42   | 47    | 52    | 80    | 99    | 100   | 100   | 100   | 100   | 100   |  |  |
|                              | 定格轉速<br>Rated speed (rpm)     | 1350                   | 1090 | 385 | 310  | 250  | 110  | 89   | 72   | 58   | 47   | 42    | 31.5  | 20.5  | 16.5  | 13.6  | 9.8   | 8.9   | 7.2   |       |  |  |
| 24V                          | 定格扭力<br>Rated torque (kgf-cm) | 2.7                    | 3.4  | 8.5 | 10.5 | 13   | 25   | 31   | 39   | 48   | 60   | 67    | 75    | 100   | 100   | 100   | 100   | 100   | 100   | 100   |  |  |
|                              | 定格轉速<br>Rated speed (rpm)     | 1380                   | 1100 | 390 | 310  | 255  | 110  | 90   | 73   | 59   | 48   | 42    | 32    | 21    | 17.1  | 13.8  | 10    | 9     | 7.3   |       |  |  |
| 軸心迴轉方向<br>Rotation direction |                               | CW                     |      |     |      |      |      |      |      |      |      |       |       |       |       |       |       |       |       |       |  |  |
| 長度<br>Length (L)             |                               | 43.3                   |      |     | 58.8 |      |      | 74.3 |      |      | 89.8 |       |       |       |       |       |       |       |       |       |  |  |

WG

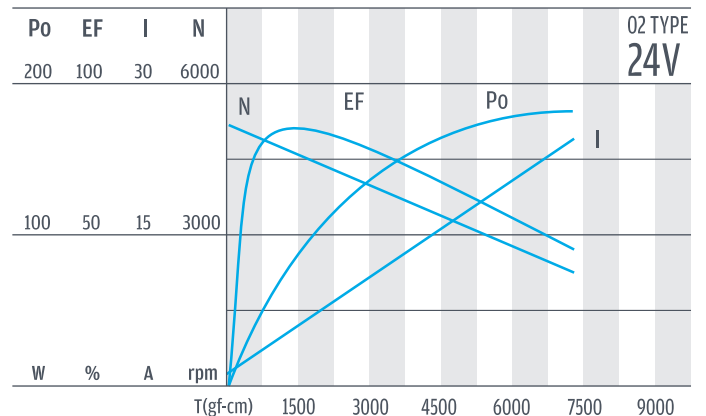
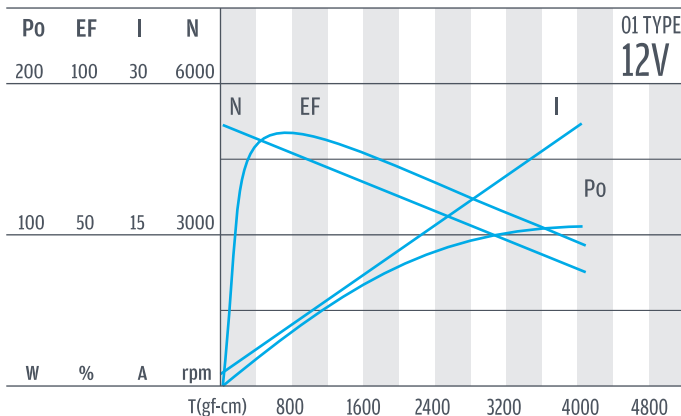
SD

### 馬達單體型式/ Motor Data

| 定格電壓<br>Rated volt (V) | 定格扭力<br>Rated torque (gf-cm) | 定格轉速<br>Rated speed (rpm) | 定格電流<br>Rated current (A) | 無負荷轉速<br>No load speed (rpm) | 無負荷電流<br>No load current (A) | 定格出力<br>Rated output (W) | 重量<br>Weight (g) |
|------------------------|------------------------------|---------------------------|---------------------------|------------------------------|------------------------------|--------------------------|------------------|
| 12                     | 700                          | 4760                      | $\leq 3.3$                | 5100                         | $\leq 1.5$                   | 34.2                     | 1150             |
| 24                     | 1000                         | 4830                      | $\leq 2.4$                | 5100                         | $\leq 0.8$                   | 49.6                     | 1150             |

BLDC

### 馬達單體特性/ Motor Characteristics



Encoder

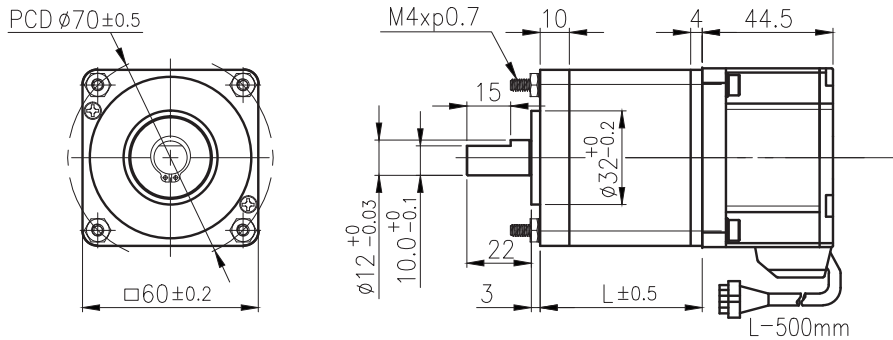
Driver

# IG-60WGM

## 41 TYPE



外形尺寸/ Appearance Size



unit:mm

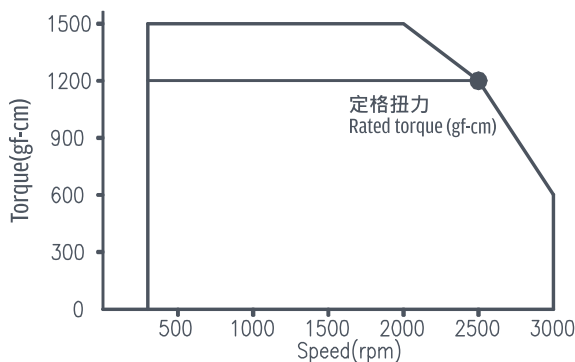
齒輪箱馬達轉矩 & 速度/ Gear Motor Torque & Speed

|                                   |      |     |      |      |      |      |      |      |      |       |       |       |       |       |       |       |       |       |  |  |
|-----------------------------------|------|-----|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--|--|
| 減速比<br>Reduction ratio            | 1/3  | 1/4 | 1/12 | 1/15 | 1/19 | 1/43 | 1/53 | 1/66 | 1/81 | 1/100 | 1/113 | 1/150 | 1/230 | 1/285 | 1/353 | 1/488 | 1/546 | 1/676 |  |  |
| 24V 定格扭力<br>Rated torque (kgf-cm) | 3.3  | 4.1 | 10   | 12.6 | 15.8 | 30.8 | 38   | 47.5 | 58   | 72    | 81    | 90    | 100   | 100   | 100   | 100   | 100   | 100   |  |  |
| 24V 定格轉速<br>Rated speed (rpm)     | 714  | 576 | 204  | 164  | 133  | 58   | 47   | 38   | 30.7 | 25    | 22.1  | 16.6  | 10.8  | 8.7   | 7.1   | 5.1   | 4.5   | 3.6   |  |  |
| 長度<br>Length (L)                  | 43.3 |     | 58.8 |      |      | 74.3 |      |      |      |       |       | 89.8  |       |       |       |       |       |       |  |  |

馬達單體型式/ Motor Data

|                              |      |                              |             |                               |                      |                           |                            |                                       |           |                                       |                    |                          |       |                  |     |
|------------------------------|------|------------------------------|-------------|-------------------------------|----------------------|---------------------------|----------------------------|---------------------------------------|-----------|---------------------------------------|--------------------|--------------------------|-------|------------------|-----|
| 定格電壓<br>Rated volt (V)       | 24   | 定格扭力<br>Rated torque (gf-cm) | 1200        | 定格轉速<br>Rated speed (rpm)     | 2500                 | 定格電流<br>Rated current (A) | $\leq 1.8$                 | 無負荷轉速<br>No load speed (rpm)          | 3000      | 無負荷電流<br>No load current (A)          | $\leq 0.4$         | 定格出力<br>Rated output (W) | 30.81 | 重量<br>Weight (g) | 500 |
| 啟動扭力<br>Start torque (gf-cm) | 1500 | 絕緣抗耐<br>Insulation voltage   | 60HZ AC500V | 絕緣阻抗<br>Insulation resistance | 100M $\Omega$ DC500V | 絕緣等級<br>Insulation class  | A class (105 $^{\circ}$ C) | 使用相對溼度<br>Operating relative humidity | 20%~85%RH | 使用溫度範圍<br>Operating temperature range | 0~+50 $^{\circ}$ C |                          |       |                  |     |

馬達單體特性/ Motor Characteristics



搭配之驅動器型式/ Connected With Motor Driver

|                               |  |
|-------------------------------|--|
| 型號<br>Type                    | DBMC30-3   |
| 輸入電壓<br>Input voltage         | DC 24V $\pm 10\%$  |
| 速度控制範圍<br>Speed control range | 300~3000 rpm   |
| 速度設定方式<br>Speed control way   | 1. 內部速度設定 Internal control<br>2. 外部速度設定 External speed control<br>3. 外部直流電壓控制 (DC 0~5V) External voltage control (DC 0~5V) |



PG

# IG-62

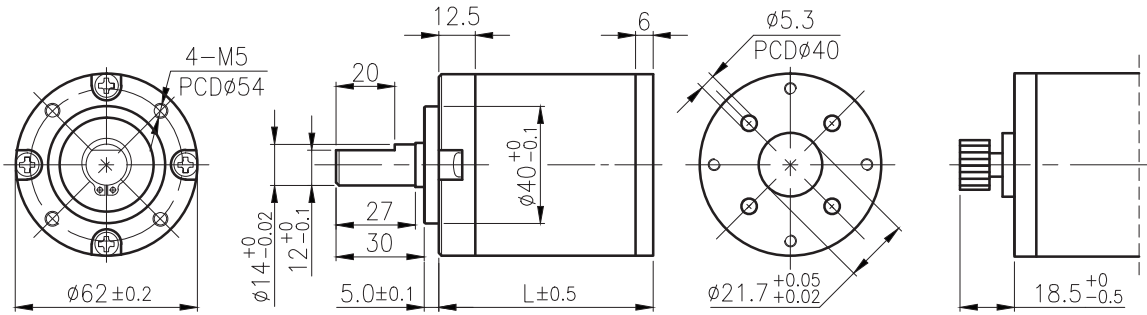


IG

## 外形尺寸 & 馬達齒鉚合尺寸 / Appearance Size & Pinion Assembly Dimension

Right Angle

RA



unit:mm

RB

## 產品規格/ Product Specifications

| 外殼材質<br>Housing material | 輸出軸承型式<br>Output shaft bearing | 徑向負荷<br>Radial load (10mm from flange) | 軸向負荷<br>Shaft axial load | 主軸承受壓入力<br>Shaft press fit force | 徑向間隙<br>Radial play of shaft | 軸向間隙<br>Thrust play of shaft | 背隙 (無負荷時)<br>Backlash, at no-load |
|--------------------------|--------------------------------|--|--------------------------|----------------------------------|------------------------------|------------------------------|-----------------------------------|
| 金屬<br>Metal              | 滾珠軸承<br>Ball bearings          | $\leq 25$ kgf                          | $\leq 10$ kgf            | $\leq 50$ kgf                    | $\leq 0.08$ mm               | $\leq 0.4$ mm                | $\leq 3^\circ$                    |

WG

## 馬達齒輪型式/ Pinion Specifications

| 模數<br>Module | 齒數<br>No. of teeth | 壓力角<br>Pressure angle | 孔徑 (mm)<br>Hole diameter | 減速比<br>Reduction ratio   |
|--------------|--------------------|-----------------------|--------------------------|--|
| 1.0          | 12                 | $20^\circ$            | $\phi 6 \times 4.5$      | 1/4, 1/15, 1/19, 1/53, 1/66, 1/81, 1/113, 1/230<br>1/285, 1/353, 1/488, 1/546, 1/676 |
| 1.0          | 14                 | $20^\circ$            | $\phi 8 \times 6$        | 1/100  |
| 1.0          | 16                 | $20^\circ$            | $\phi 8 \times 6$        | 1/3, 1/12, 1/43, 1/150   |

SD

## 標準減速比型式/ Gearboxes Specifications

| 減速比<br>Reduction ratio                            | 1/3  | 1/4  | 1/12 | 1/15 | 1/19 | 1/43 | 1/53 | 1/66 | 1/81 | 1/100 | 1/113 | 1/150 | 1/230 | 1/285 | 1/353 | 1/488 | 1/546 | 1/676 |
|---|------|------|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 定格容許扭力 (kgf-cm max.)<br>Rated tolerance torque    | 15   | 15   | 50   | 50   | 50   | 100  | 100  | 100  | 100  | 100   | 100   | 100   | 100   | 100   | 100   | 100   | 100   | 100   |
| 瞬間容許扭力 (kgf-cm)<br>Max momentary tolerance torque | 45   | 45   | 150  | 150  | 150  | 300  | 300  | 300  | 300  | 300   | 300   | 300   | 300   | 300   | 300   | 300   | 300   | 300   |
| 效率<br>Efficiency                                  | 80%  | 80%  | 70%  | 70%  | 70%  | 60%  | 60%  | 60%  | 60%  | 60%   | 60%   | 50%   | 50%   | 50%   | 50%   | 50%   | 50%   | 50%   |
| 長度<br>Length (L)                                  | 43.6 | 43.6 | 59.1 | 59.1 | 59.1 | 74.6 | 74.6 | 74.6 | 74.6 | 74.6  | 74.6  | 90.1  | 90.1  | 90.1  | 90.1  | 90.1  | 90.1  | 90.1  |
| 重量 (滾珠軸承)<br>Weight (g)/Ball bearings             | 670  | 670  | 940  | 940  | 940  | 1220 | 1220 | 1220 | 1220 | 1220  | 1220  | 1500  | 1500  | 1500  | 1500  | 1500  | 1500  | 1500  |

BLDC

Encoder

Driver

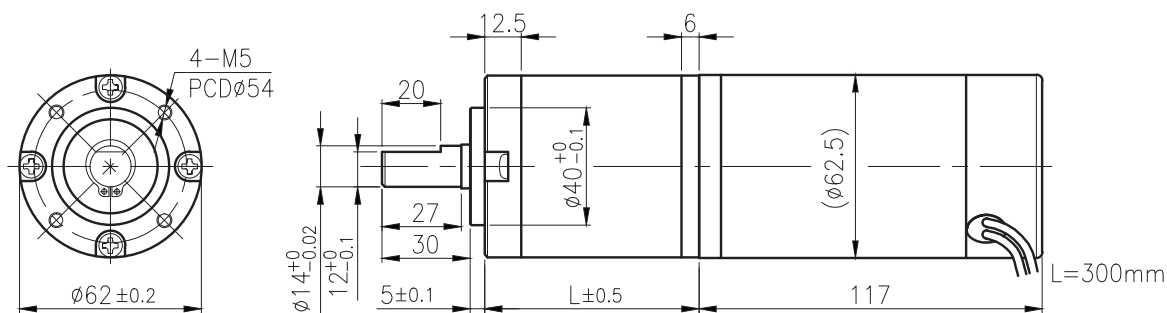
- 使用相對溼度：20%~85%RH  
Operating relative humidity
- 使用溫度範圍：-10°C~+60°C  
Operating temperature range

# IG-62GM

## 01 & 02 TYPE



### 外形尺寸 / Appearance Size



unit:mm

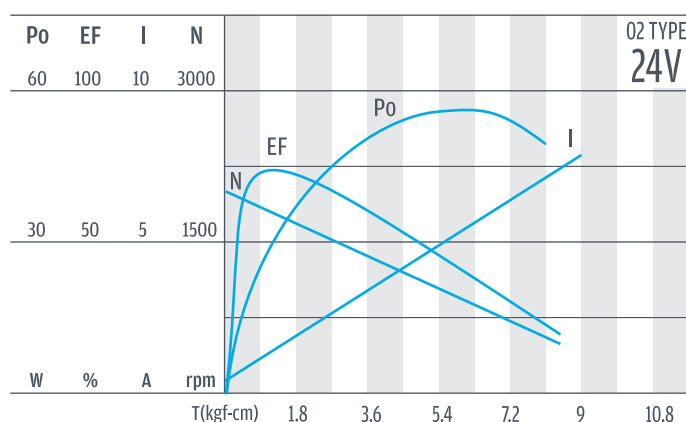
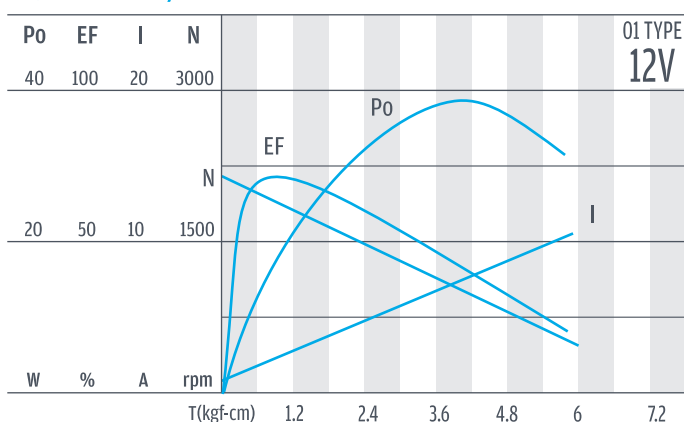
### 齒輪箱馬達轉矩 & 速度 / Gear Motor Torque & Speed

|                              |                               | 減速比<br>Reduction ratio | 1/3 | 1/4  | 1/12 | 1/15 | 1/19 | 1/43 | 1/53 | 1/66 | 1/81 | 1/100 | 1/113 | 1/150 | 1/230 | 1/285 | 1/353 | 1/488 | 1/546 | 1/676 |  |  |  |  |
|------------------------------|-------------------------------|------------------------|-----|------|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--|--|--|--|
| 12V                          | 定格扭力<br>Rated torque (kgf-cm) | 2.5                    | 3   | 7.5  | 9.4  | 11.8 | 23   | 28   | 35   | 43   | 54   | 61    | 67    | 100   | 100   | 100   | 100   | 100   | 100   | 100   |  |  |  |  |
|                              | 定格轉速<br>Rated speed (rpm)     | 480                    | 390 | 135  | 110  | 90   | 39.5 | 32   | 25.7 | 21   | 17   | 15    | 11    | 7.3   | 6     | 5     | 3.7   | 3.3   | 2.7   |       |  |  |  |  |
| 24V                          | 定格扭力<br>Rated torque (kgf-cm) | 4.2                    | 5.1 | 12.5 | 15.7 | 19.7 | 38   | 47   | 59   | 72   | 90   | 100   | 100   | 100   | 100   | 100   | 100   | 100   | 100   | 100   |  |  |  |  |
|                              | 定格轉速<br>Rated speed (rpm)     | 500                    | 400 | 140  | 115  | 93   | 40.5 | 33   | 26.5 | 21.5 | 17.5 | 15.4  | 11.7  | 7.8   | 6.3   | 5.3   | 3.8   | 3.4   | 2.8   |       |  |  |  |  |
| 軸心迴轉方向<br>Rotation direction |                               | CW                     |     |      |      |      |      |      |      |      |      |       |       |       |       |       |       |       |       |       |  |  |  |  |
| 長度<br>Length (L)             |                               | 43.6                   |     |      | 59.1 |      |      | 74.6 |      |      | 90.1 |       |       |       |       |       |       |       |       |       |  |  |  |  |

### 馬達單體型式 / Motor Data

| 定格電壓<br>Rated volt (V) | 定格扭力<br>Rated torque (gf-cm) | 定格轉速<br>Rated speed (rpm) | 定格電流<br>Rated current (A) | 無負荷轉速<br>No load speed (rpm) | 無負荷電流<br>No load current (A) | 定格出力<br>Rated output (W) | 重量<br>Weight (g) |
|------------------------|------------------------------|---------------------------|---------------------------|------------------------------|------------------------------|--------------------------|------------------|
| 12                     | 900                          | 1700                      | ≤1.8                      | 2000                         | ≤0.45                        | 15.7                     | 1650             |
| 24                     | 1500                         | 1750                      | ≤1.5                      | 2000                         | ≤0.3                         | 26.9                     | 1650             |

### 馬達單體特性 / Motor Characteristics



PG

# IG-70W

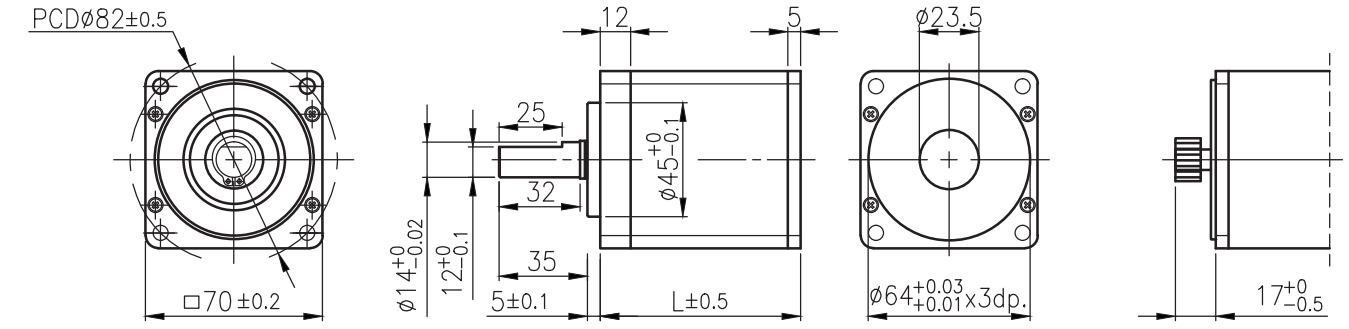


IG

## 外形尺寸 & 馬達齒鉚合尺寸 / Appearance Size & Pinion Assembly Dimension

Right Angle

RA



unit:mm

RB

## 產品規格 / Product Specifications

| 外殼材質<br>Housing material | 輸出軸承型式<br>Output shaft bearing | 徑向負荷<br>Radial load (10mm from flange) | 軸向負荷<br>Shaft axial load | 主軸承受壓入力<br>Shaft press fit force | 徑向間隙<br>Radial play of shaft | 軸向間隙<br>Thrust play of shaft | 背隙 (無負荷時)<br>Backlash, at no-load |
|--------------------------|--------------------------------|--|--------------------------|----------------------------------|------------------------------|------------------------------|-----------------------------------|
| 金屬<br>Metal              | 滾珠軸承<br>Ball bearings          | $\leq 25$ kgf                          | $\leq 10$ kgf            | $\leq 50$ kgf                    | $\leq 0.08$ mm               | $\leq 0.4$ mm                | $\leq 3^\circ$                    |

WG

## 馬達齒輪型式 / Pinion Specifications

| 模數<br>Module | 齒數<br>No. of teeth | 壓力角<br>Pressure angle | 孔徑 (mm)<br>Hole diameter | 減速比<br>Reduction ratio                          |
|--------------|--------------------|-----------------------|--------------------------|---|
| 1.0          | 13                 | $20^\circ$            | $\phi 6 \times 4.5$      | 1/102, 1/126, 1/242, 1/300, 1/363, 1/493, 1/611 |
| 1.0          | 14                 | $20^\circ$            | $\phi 8 \times 6$        | 1/16, 1/20, 1/60, 1/75, 1/91, 1/414, 1/543      |
| 1.0          | 18                 | $20^\circ$            | $\phi 8 \times 6$        | 1/13, 1/50, 1/189                               |
| 1.0          | 20                 | $20^\circ$            | $\phi 8 \times 6$        | 1/4   |

SD

## 標準減速比型式 / Gearboxes Specifications

| 減速比<br>Reduction ratio                            | 1/4  | 1/13 | 1/16 | 1/20 | 1/50 | 1/60 | 1/75 | 1/91 | 1/102 | 1/126 | 1/189 | 1/242 | 1/300 | 1/363 | 1/414 | 1/493 | 1/543 | 1/611 |
|---|------|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 定格容許扭力 (kgf-cm max.)<br>Rated tolerance torque    | 15   | 70   | 70   | 70   | 125  | 125  | 125  | 125  | 125   | 125   | 125   | 125   | 125   | 125   | 125   | 125   | 125   | 125   |
| 瞬間容許扭力 (kgf-cm)<br>Max momentary tolerance torque | 45   | 210  | 210  | 210  | 375  | 375  | 375  | 375  | 375   | 375   | 375   | 375   | 375   | 375   | 375   | 375   | 375   | 375   |
| 效率<br>Efficiency                                  | 80%  | 70%  | 70%  | 70%  | 60%  | 60%  | 60%  | 60%  | 60%   | 60%   | 50%   | 50%   | 50%   | 50%   | 50%   | 50%   | 50%   | 50%   |
| 長度 (L)<br>Length (L)                              | 47.3 | 63.8 | 63.8 | 63.8 | 80.3 | 80.3 | 80.3 | 80.3 | 80.3  | 80.3  | 96.8  | 96.8  | 96.8  | 96.8  | 96.8  | 96.8  | 96.8  | 96.8  |
| 重量 (滾珠軸承)<br>Weight (g) / Ball bearings           | 780  | 1110 | 1110 | 1110 | 1440 | 1440 | 1440 | 1440 | 1440  | 1440  | 1780  | 1780  | 1780  | 1780  | 1780  | 1780  | 1780  | 1780  |

BLDC

Encoder

Driver

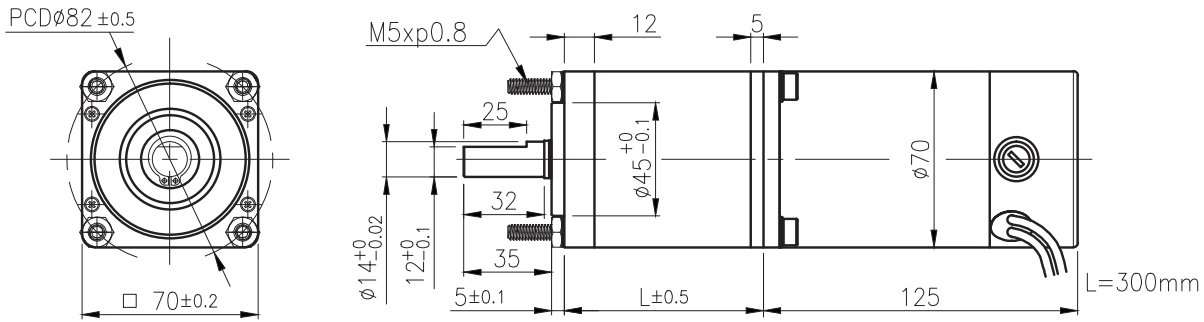
- 使用相對溼度：20%~85%RH  
Operating relative humidity
- 使用溫度範圍：-10°C~+60°C  
Operating temperature range

# IG-70WGM

## 01 & 02 TYPE



外形尺寸 / Appearance Size



unit:mm

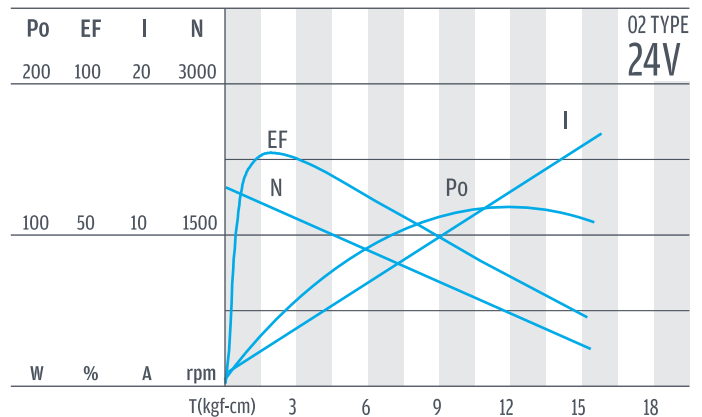
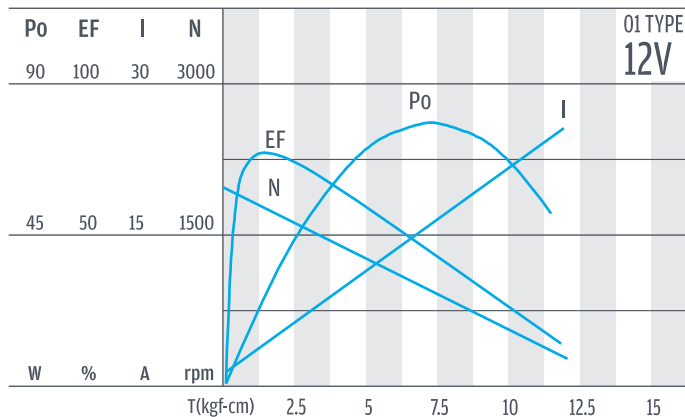
齒輪箱馬達轉矩 & 速度 / Gear Motor Torque & Speed

|     |                               |      |      |      |      |      |      |      |      |       |       |       |       |       |       |       |       |       |       |  |  |
|-----|-------------------------------|------|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--|--|
|     | 減速比<br>Reduction ratio        | 1/4  | 1/13 | 1/16 | 1/20 | 1/50 | 1/60 | 1/75 | 1/91 | 1/102 | 1/126 | 1/189 | 1/242 | 1/300 | 1/363 | 1/414 | 1/493 | 1/543 | 1/611 |  |  |
| 12V | 定格扭力<br>Rated torque (kgf-cm) | 4.2  | 13.8 | 16.8 | 20.4 | 44.9 | 54   | 67   | 81   | 91    | 113   | 125   | 125   | 125   | 125   | 125   | 125   | 125   | 125   |  |  |
|     | 定格轉速<br>Rated speed (rpm)     | 510  | 135  | 112  | 90.9 | 36   | 29.7 | 24   | 19.7 | 17.6  | 14.2  | 9.5   | 7.5   | 6.2   | 5.1   | 4.4   | 3.7   | 3.4   | 3     |  |  |
| 24V | 定格扭力<br>Rated torque (kgf-cm) | 7    | 23.1 | 28   | 34.6 | 74.9 | 90.6 | 112  | 125  | 125   | 125   | 125   | 125   | 125   | 125   | 125   | 125   | 125   | 125   |  |  |
|     | 定格轉速<br>Rated speed (rpm)     | 510  | 135  | 112  | 90.9 | 36   | 29.7 | 24   | 19.8 | 17.7  | 14.3  | 9.6   | 7.6   | 6.3   | 5.2   | 4.5   | 3.8   | 3.5   | 3.1   |  |  |
|     | 軸心迴轉方向<br>Rotation direction  | CW   |      |      |      |      |      |      |      |       |       |       |       |       |       |       |       |       |       |  |  |
|     | 長度<br>Length (L)              | 47.3 | 63.8 |      |      | 80.3 |      |      |      |       |       | 96.8  |       |       |       |       |       |       |       |  |  |

馬達單體型式 / Motor Data

| 定格電壓<br>Rated volt (V) | 定格扭力<br>Rated torque (gf-cm) | 定格轉速<br>Rated speed (rpm) | 定格電流<br>Rated current (A) | 無負荷轉速<br>No load speed (rpm) | 無負荷電流<br>No load current (A) | 定格出力<br>Rated output (W) | 重量<br>Weight (g) |
|------------------------|------------------------------|---------------------------|---------------------------|------------------------------|------------------------------|--------------------------|------------------|
| 12                     | 1500                         | 1800                      | ≤3.0                      | 2000                         | ≤0.8                         | 27.7                     | 1650             |
| 24                     | 2500                         | 1800                      | ≤2.5                      | 2000                         | ≤0.4                         | 46.2                     | 1650             |

馬達單體特性 / Motor Characteristics



PG

# IG-71

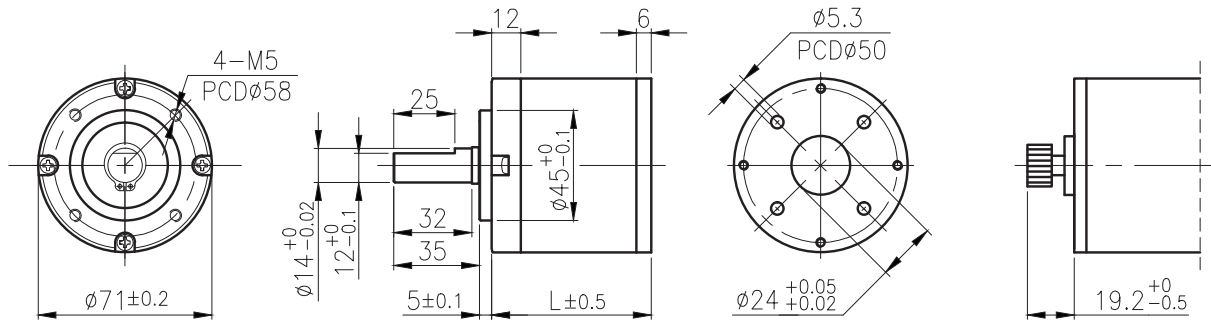


IG

## 外形尺寸 & 馬達齒鉚合尺寸 / Appearance Size & Pinion Assembly Dimension

Right Angle

RA



unit:mm

unit:mm

RB

## 產品規格/ Product Specifications

| 外殼材質<br>Housing material | 輸出軸承型式<br>Output shaft bearing | 徑向負荷<br>Radial load (10mm from flange) | 軸向負荷<br>Shaft axial load | 主軸承受壓力<br>Shaft press fit force | 徑向間隙<br>Radial play of shaft | 軸向間隙<br>Thrust play of shaft | 背隙 (無負荷時)<br>Backlash, at no-load |
|--------------------------|--------------------------------|--|--------------------------|---------------------------------|------------------------------|------------------------------|-----------------------------------|
| 金屬<br>Metal              | 滾珠軸承<br>Ball bearings          | ≤ 25 kgf                               | ≤ 10 kgf                 | ≤ 50 kgf                        | ≤ 0.08 mm                    | ≤ 0.4 mm                     | ≤ 3°                              |

WG

## 馬達齒輪型式/ Pinion Specifications

| 模數<br>Module | 齒數<br>No. of teeth | 壓力角<br>Pressure angle | 孔徑 (mm)<br>Hole diameter | 減速比<br>Reduction ratio                          |
|--------------|--------------------|-----------------------|--------------------------|---|
| 1.0          | 13                 | 20°                   | ○ $\phi 6 \times 4.5$    | 1/102, 1/126, 1/242, 1/300, 1/363, 1/493, 1/611 |
| 1.0          | 14                 | 20°                   | ○ $\phi 8 \times 6$      | 1/16, 1/20, 1/60, 1/75, 1/91, 1/414, 1/543      |
| 1.0          | 18                 | 20°                   | ○ $\phi 8 \times 6$      | 1/13, 1/50, 1/189                               |
| 1.0          | 20                 | 20°                   | ○ $\phi 8 \times 6$      | 1/4   |

SD

## 標準減速比型式/ Gearboxes Specifications

| 減速比<br>Reduction ratio                            | 1/4  | 1/13 | 1/16 | 1/20 | 1/50 | 1/60 | 1/75 | 1/91 | 1/102 | 1/126 | 1/189 | 1/242 | 1/300 | 1/363 | 1/414 | 1/493 | 1/543 | 1/611 |
|---|------|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 定格容許扭力 (kgf-cm max.)<br>Rated tolerance torque    | 15   | 70   | 70   | 70   | 125  | 125  | 125  | 125  | 125   | 125   | 125   | 125   | 125   | 125   | 125   | 125   | 125   | 125   |
| 瞬間容許扭力 (kgf-cm)<br>Max momentary tolerance torque | 45   | 210  | 210  | 210  | 375  | 375  | 375  | 375  | 375   | 375   | 375   | 375   | 375   | 375   | 375   | 375   | 375   | 375   |
| 效率<br>Efficiency                                  | 80%  | 70%  | 70%  | 70%  | 60%  | 60%  | 60%  | 60%  | 60%   | 60%   | 50%   | 50%   | 50%   | 50%   | 50%   | 50%   | 50%   | 50%   |
| 長度<br>Length (L)                                  | 49.3 | 65.8 | 65.8 | 65.8 | 82.3 | 82.3 | 82.3 | 82.3 | 82.3  | 82.3  | 98.8  | 98.8  | 98.8  | 98.8  | 98.8  | 98.8  | 98.8  | 98.8  |
| 重量 (滾珠軸承)<br>Weight (g) /Ball bearings            | 900  | 1230 | 1230 | 1230 | 1560 | 1560 | 1560 | 1560 | 1560  | 1560  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  |

BLDC

Encoder

Driver

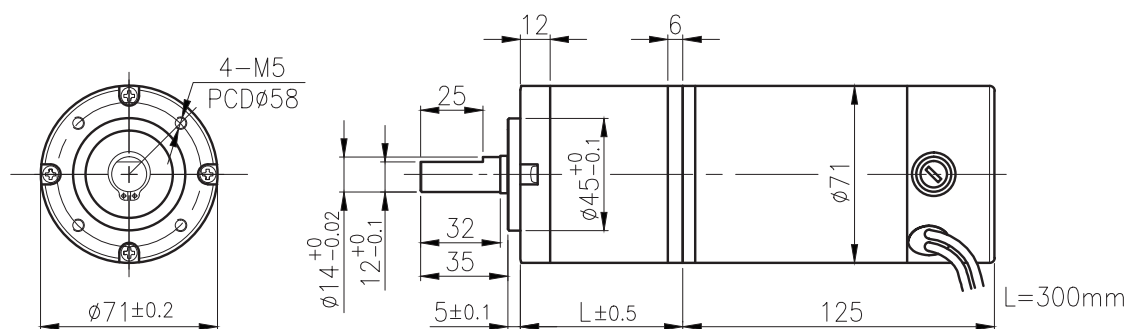
- 使用相對溼度：20%~85%RH  
Operating relative humidity
- 使用溫度範圍：-10°C~+60°C  
Operating temperature range

# IG-71GM

## 01 & 02 TYPE



外形尺寸 / Appearance Size



unit:mm

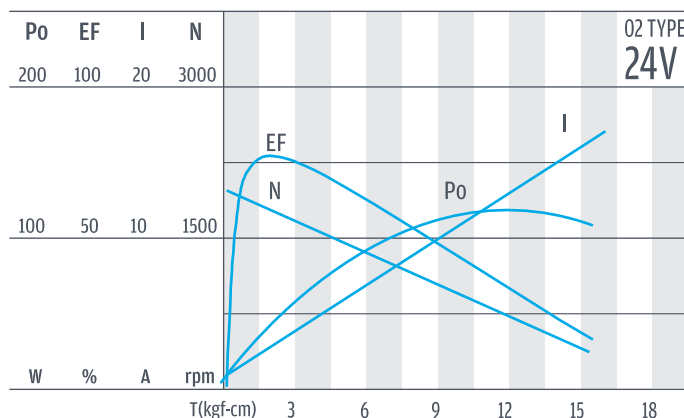
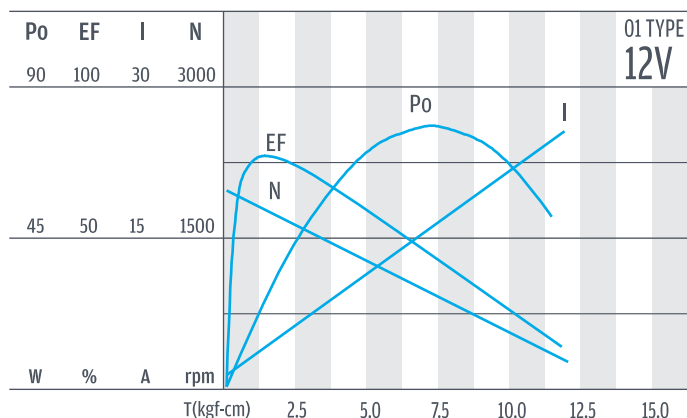
齒輪箱馬達轉矩 & 速度 / Gear Motor Torque & Speed

| 減速比<br>Reduction ratio               | 1/4  | 1/13 | 1/16 | 1/20 | 1/50 | 1/60 | 1/75 | 1/91 | 1/102 | 1/126 | 1/189 | 1/242 | 1/300 | 1/363 | 1/414 | 1/493 | 1/543 | 1/611 |  |  |
|--------------------------------------|------|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--|--|
| 12V<br>定格扭力<br>Rated torque (kgf-cm) | 4.2  | 13.8 | 16.8 | 20.4 | 44.9 | 54   | 67   | 81   | 91    | 113   | 125   | 125   | 125   | 125   | 125   | 125   | 125   | 125   |  |  |
| 12V<br>定格轉速<br>Rated speed (rpm)     | 510  | 135  | 112  | 90.9 | 36   | 29.7 | 24   | 19.7 | 17.6  | 14.2  | 9.5   | 7.5   | 6.2   | 5.1   | 4.4   | 3.7   | 3.4   | 3.0   |  |  |
| 24V<br>定格扭力<br>Rated torque (kgf-cm) | 7    | 23.1 | 28   | 34.6 | 74.9 | 90.6 | 112  | 125  | 125   | 125   | 125   | 125   | 125   | 125   | 125   | 125   | 125   | 125   |  |  |
| 24V<br>定格轉速<br>Rated speed (rpm)     | 510  | 135  | 112  | 90.9 | 36   | 29.7 | 24   | 19.8 | 17.7  | 14.3  | 9.6   | 7.6   | 6.3   | 5.2   | 4.5   | 3.8   | 3.5   | 3.1   |  |  |
| 軸心迴轉方向<br>Rotation direction         | CW   |      |      |      |      |      |      |      |       |       |       |       |       |       |       |       |       |       |  |  |
| 長度<br>Length (L)                     | 49.3 | 65.8 | 82.3 |      |      |      |      |      | 98.8  |       |       |       |       |       |       |       |       |       |  |  |

馬達單體型式 / Motor Data

| 定格電壓<br>Rated volt (V) | 定格扭力<br>Rated torque (gf-cm) | 定格轉速<br>Rated speed (rpm) | 定格電流<br>Rated current (A) | 無負荷轉速<br>No load speed (rpm) | 無負荷電流<br>No load current (A) | 定格出力<br>Rated output (W) | 重量<br>Weight (g) |
|------------------------|------------------------------|---------------------------|---------------------------|------------------------------|------------------------------|--------------------------|------------------|
| 12                     | 1500                         | 1800                      | ≤ 3                       | 2000                         | ≤ 0.8                        | 27.7                     | 1650             |
| 24                     | 2500                         | 1800                      | ≤ 2.5                     | 2000                         | ≤ 0.4                        | 46.2                     | 1650             |

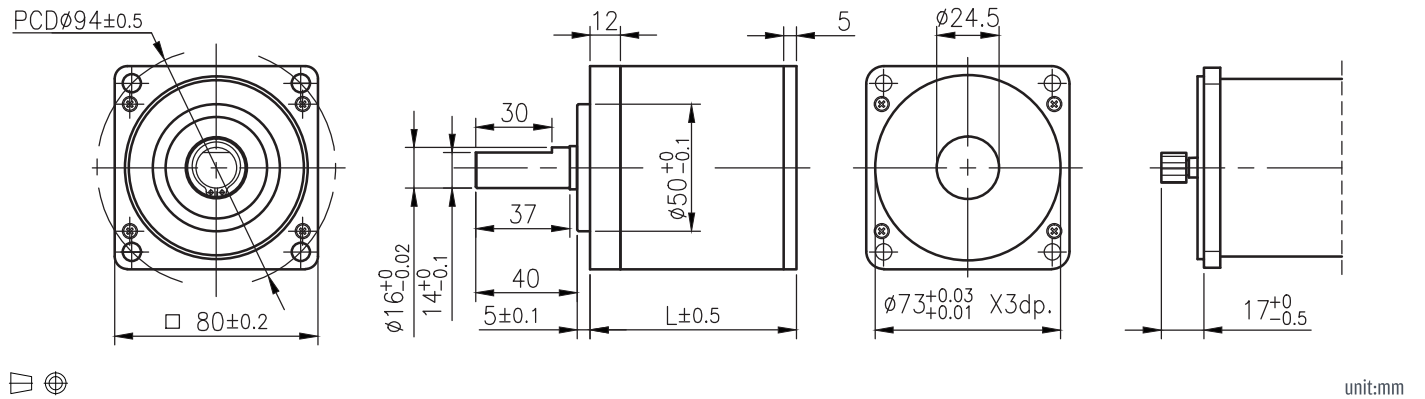
馬達單體特性 / Motor Characteristics



# IG-80W



外形尺寸 & 馬達齒鉚合尺寸 / Appearance Size & Pinion Assembly Dimension



## 產品規格 / Product Specifications

| 外殼材質<br>Housing material | 輸出軸承型式<br>Output shaft bearing | 徑向負荷<br>Radial load (10mm from flange) | 軸向負荷<br>Shaft axial load | 主軸承受壓入力<br>Shaft press fit force | 徑向間隙<br>Radial play of shaft | 軸向間隙<br>Thrust play of shaft | 背隙 (無負荷時)<br>Backlash, at no-load |
|--------------------------|--------------------------------|--|--------------------------|----------------------------------|------------------------------|------------------------------|-----------------------------------|
| 金屬<br>Metal              | 滾珠軸承<br>Ball bearings          | ≤ 30 kgf                               | ≤ 10 kgf                 | ≤ 75 kgf                         | ≤ 0.08 mm                    | ≤ 0.4 mm                     | ≤ 3°                              |

## 馬達齒輪型式 / Pinion Specifications

| 模數<br>Module | 齒數<br>No. of teeth | 壓力角<br>Pressure angle | 孔徑 (mm)<br>Hole diameter | 減速比<br>Reduction ratio  |
|--------------|--------------------|-----------------------|--------------------------|---|
| 1.0          | 13                 | 20°                   | ○ Ø6X4.5                 | 1/19, 1/21, 1/71, 1/80, 1/103, 1/117, 1/306<br>1/393, 1/445, 1/571, 1/647 |
| 1.0          | 21                 | 20°                   | ○ Ø8X6                   | 1/13, 1/15, 1/49, 1/55, 1/186, 1/210                                      |

## 標準減速比型式 / Gearboxes Specifications

| 減速比<br>Reduction ratio                            | 1/4  | 1/13 | 1/15 | 1/19 | 1/21 | 1/49 | 1/55 | 1/71 | 1/80 | 1/103 | 1/117 | 1/186 | 1/210 | 1/306 | 1/393 | 1/445 | 1/571 | 1/647 |
|---|------|------|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 定格容許扭力 (kgf-cm max.)<br>Rated tolerance torque    | 15   | 70   | 70   | 70   | 70   | 125  | 125  | 125  | 125  | 125   | 125   | 125   | 125   | 125   | 125   | 125   | 125   | 125   |
| 瞬間容許扭力 (kgf-cm)<br>Max momentary tolerance torque | 45   | 210  | 210  | 210  | 210  | 375  | 375  | 375  | 375  | 375   | 375   | 375   | 375   | 375   | 375   | 375   | 375   | 375   |
| 效率<br>Efficiency                                  | 80%  | 70%  | 70%  | 70%  | 70%  | 60%  | 60%  | 60%  | 60%  | 60%   | 60%   | 50%   | 50%   | 50%   | 50%   | 50%   | 50%   | 50%   |
| 長度 (L)<br>Length (L)                              | 49.3 | 65.8 | 65.8 | 65.8 | 65.8 | 82.3 | 82.3 | 82.3 | 82.3 | 82.3  | 82.3  | 98.8  | 98.8  | 98.8  | 98.8  | 98.8  | 98.8  | 98.8  |
| 重量 (滾珠軸承)<br>Weight (g) /Ball bearings            | 1100 | 1570 | 1570 | 1570 | 1570 | 2040 | 2040 | 2040 | 2040 | 2040  | 2040  | 2510  | 2510  | 2510  | 2510  | 2510  | 2510  | 2510  |

- 使用相對溼度 : 20%~85%RH  
Operating relative humidity
- 使用溫度範圍 : -10°C~+60°C  
Operating temperature range

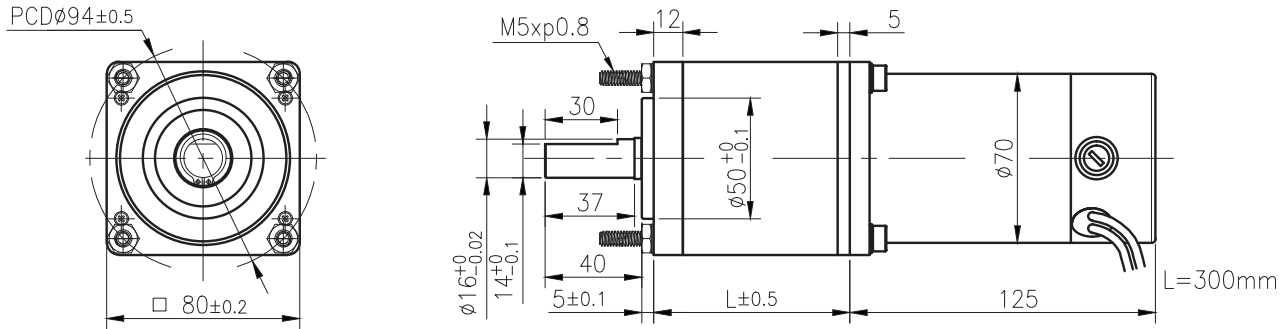


# IG-80WGM

## 01 & 02 TYPE



### 外形尺寸/ Appearance Size



unit:mm

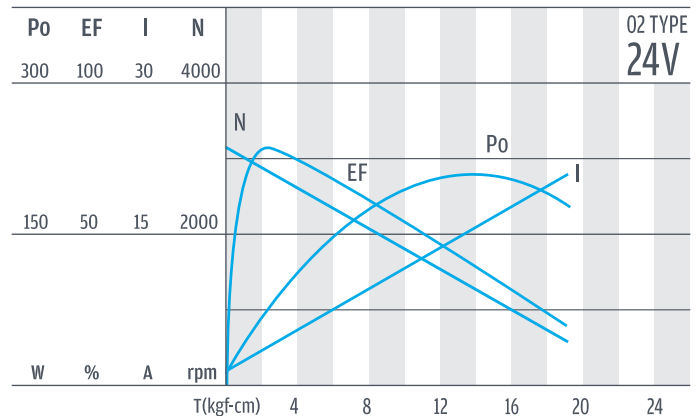
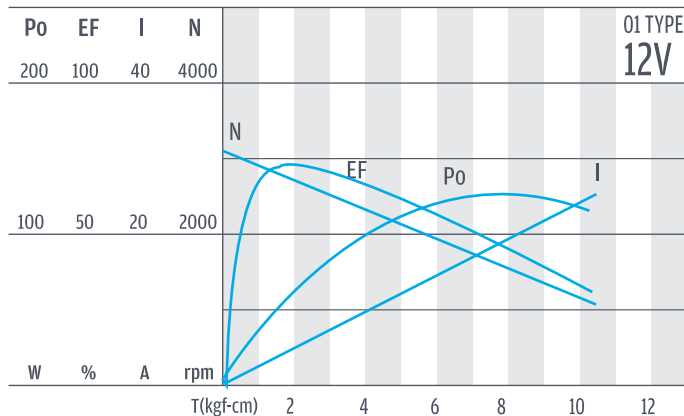
### 齒輪箱馬達轉矩 & 速度/ Gear Motor Torque & Speed

|                              |                           | 1/4  | 1/13 | 1/15 | 1/19 | 1/21 | 1/49 | 1/55 | 1/71 | 1/80 | 1/103 | 1/117 | 1/186 | 1/210 | 1/306 | 1/393 | 1/445 | 1/571 | 1/647 |
|------------------------------|---------------------------|------|------|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 12V                          | 減速比<br>Reduction ratio    | 1/4  | 1/13 | 1/15 | 1/19 | 1/21 | 1/49 | 1/55 | 1/71 | 1/80 | 1/103 | 1/117 | 1/186 | 1/210 | 1/306 | 1/393 | 1/445 | 1/571 | 1/647 |
|                              | 定額轉速<br>Rated speed (rpm) | 720  | 210  | 185  | 145  | 130  | 56   | 49   | 38   | 34   | 26.5  | 23.5  | 15    | 13.4  | 9.3   | 7.3   | 6.5   | 5.1   | 4.5   |
| 24V                          | 定額轉速<br>Rated speed (rpm) | 730  | 215  | 190  | 149  | 133  | 57   | 50   | 39   | 35   | 27.5  | 24    | 15.4  | 13.7  | 9.6   | 7.5   | 6.7   | 5.2   | 4.6   |
|                              | 定額轉速<br>Rated speed (rpm) | 730  | 215  | 190  | 149  | 133  | 57   | 50   | 39   | 35   | 27.5  | 24    | 15.4  | 13.7  | 9.6   | 7.5   | 6.7   | 5.2   | 4.6   |
| 軸心迴轉方向<br>Rotation direction |                           | CW   |      |      |      |      |      |      |      |      |       |       |       |       |       |       |       |       |       |
| 長度<br>Length (L)             |                           | 49.3 | 65.8 |      |      |      | 82.3 |      |      |      | 98.8  |       |       |       |       |       |       |       |       |

### 馬達單體型式/ Motor Data

| 定額電壓<br>Rated volt (V) | 定額轉速<br>Rated speed (rpm) | 定額電流<br>Rated current (A) | 無負荷轉速<br>No load speed (rpm) | 無負荷電流<br>No load current (A) | 定額出力<br>Rated output (W) | 重量<br>Weight (g) |
|------------------------|---------------------------|---------------------------|------------------------------|------------------------------|--------------------------|------------------|
| 12                     | 2750                      | $\leq$ 6.3                | 3200                         | $\leq$ 1.4                   | 56.5                     | 1650             |
| 24                     | 2800                      | $\leq$ 4.4                | 3200                         | $\leq$ 0.85                  | 83.4                     | 1650             |

### 馬達單體特性/ Motor Characteristics

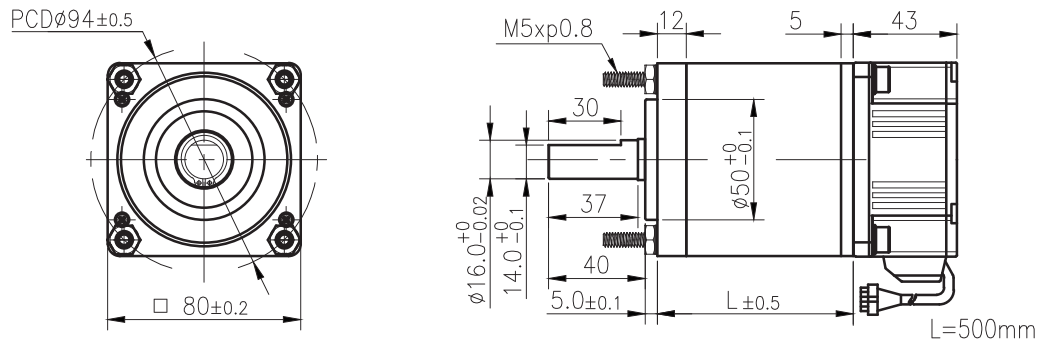


# IG-80WGM

## 41 TYPE



### 外形尺寸/ Appearance Size



unit:mm

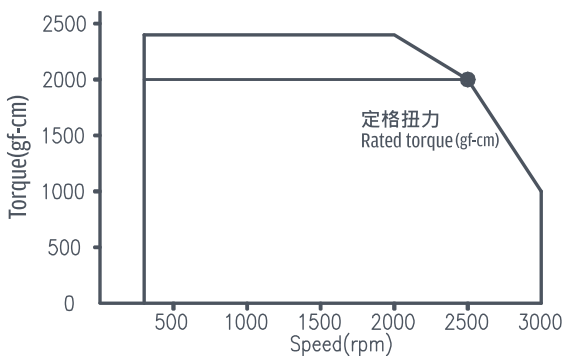
### 齒輪箱馬達轉矩 & 速度/ Gear Motor Torque & Speed

| 減速比<br>Reduction ratio            | 1/4  | 1/13 | 1/15 | 1/19 | 1/21 | 1/49 | 1/55 | 1/71 | 1/80 | 1/103 | 1/117 | 1/186 | 1/210 | 1/306 | 1/393 | 1/445 | 1/571 | 1/647 |
|-----------------------------------|------|------|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 24V 定格扭力<br>Rated torque (kgf-cm) | 6    | 17.9 | 20   | 26   | 29   | 58   | 66   | 85   | 96   | 123   | 125   | 125   | 125   | 125   | 125   | 125   | 125   | 125   |
| 24V 定格轉速<br>Rated speed (rpm)     | 657  | 195  | 172  | 134  | 119  | 51   | 45   | 35   | 31.2 | 24.2  | 21.3  | 13.4  | 11.9  | 8.1   | 6.3   | 5.6   | 4.3   | 3.8   |
| 長度 (L)<br>Length (L)              | 49.3 |      | 65.8 |      |      | 82.3 |      |      |      |       |       | 98.8  |       |       |       |       |       |       |

### 馬達單體型式/ Motor Data

|                                       |      |             |              |                 |           |         |       |     |
|---------------------------------------|------|-------------|--------------|-----------------|-----------|---------|-------|-----|
| 定格電壓<br>Rated volt (V)                | 24   | 2000        | 2500         | ≤3.2            | 3000      | ≤0.45   | 51.35 | 800 |
| 啓動扭力<br>Start torque (gf-cm)          | 2400 | 60HZ AC500V | 100MΩ DC500V | A class (105°C) | 20%-85%RH | 0~+50°C |       |     |
| 絕緣抗耐<br>Insulation voltage            |      |             |              |                 |           |         |       |     |
| 絕緣阻抗<br>Insulation resistance         |      |             |              |                 |           |         |       |     |
| 絕緣等級<br>Insulation class              |      |             |              |                 |           |         |       |     |
| 使用相對溼度<br>Operating relative humidity |      |             |              |                 |           |         |       |     |
| 使用溫度範圍<br>Operating temperature range |      |             |              |                 |           |         |       |     |

### 馬達單體特性/ Motor Characteristics



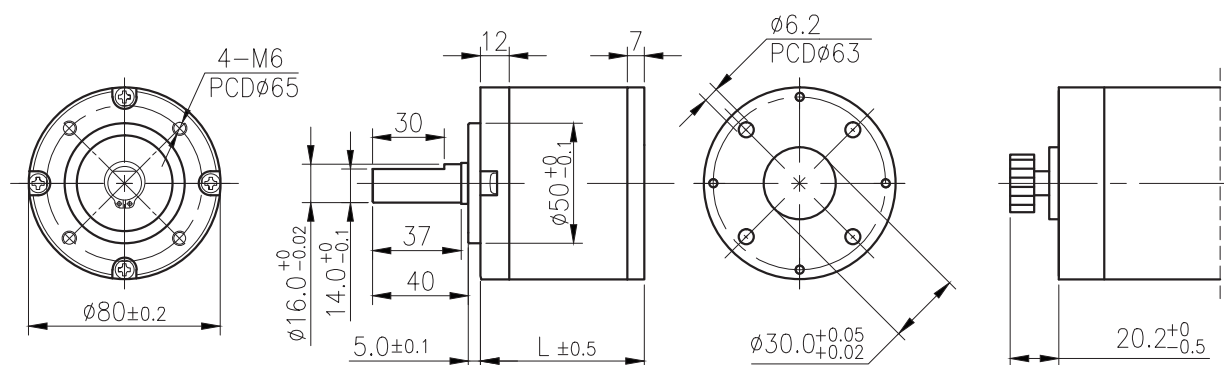
### 搭配之驅動器型式/ Connected With Motor Driver

|                               |   |
|-------------------------------|---|
| 型號<br>Type                    | DBMC50-3  |
| 輸入電壓<br>Input voltage         | DC 24V±10%  |
| 速度控制範圍<br>Speed control range | 300~3000 rpm  |
| 速度設定方式<br>Speed control way   | 1. 內部速度設定<br>Internal control<br>2. 外部速度設定<br>External speed control<br>3. 外部直流電壓控制 (DC 0~5V)<br>External voltage control (DC 0~5V) |

# IG-80



外形尺寸 & 馬達齒鉚合尺寸 / Appearance Size & Pinion Assembly Dimension



unit:mm

## 產品規格 / Product Specifications

| 外殼材質<br>Housing material | 輸出軸承型式<br>Output shaft bearing | 徑向負荷<br>Radial load (10mm from flange) | 軸向負荷<br>Shaft axial load | 主軸承受壓力<br>Shaft press fit force | 徑向間隙<br>Radial play of shaft | 軸向間隙<br>Thrust play of shaft | 背隙 (無負荷時)<br>Backlash, at no-load |
|--------------------------|--------------------------------|--|--------------------------|---------------------------------|------------------------------|------------------------------|-----------------------------------|
| 金屬<br>Metal              | 滾珠軸承<br>Ball bearings          | ≤ 30 kgf                               | ≤ 10 kgf                 | ≤ 75 kgf                        | ≤ 0.08 mm                    | ≤ 0.4 mm                     | ≤ 3°                              |

## 馬達齒輪型式 / Pinion Specifications

| 模數<br>Module | 齒數<br>No. of teeth | 壓力角<br>Pressure angle | 孔徑 (mm)<br>Hole diameter | 減速比<br>Reduction ratio  |
|--------------|--------------------|-----------------------|--------------------------|---|
| 1.0          | 13                 | 20°                   | ○ $\phi 6 \times 4.5$    | 1/19, 1/21, 1/71, 1/80, 1/103, 1/117, 1/306<br>1/393, 1/445, 1/571, 1/647 |
| 1.0          | 21                 | 20°                   | ○ $\phi 10 \times 8$     | 1/4, 1/13, 1/15, 1/49, 1/55, 1/186, 1/210                                 |

## 標準減速比型式 / Gearboxes Specifications

| 減速比<br>Reduction ratio                            | 1/4  | 1/13 | 1/15 | 1/19 | 1/21 | 1/49 | 1/55 | 1/71 | 1/80 | 1/103 | 1/117 | 1/186 | 1/210 | 1/306 | 1/393 | 1/445 | 1/571 | 1/647 |
|---|------|------|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 定格容許扭力 (kgf-cm max.)<br>Rated tolerance torque    | 15   | 70   | 70   | 70   | 70   | 125  | 125  | 125  | 125  | 125   | 125   | 125   | 125   | 125   | 125   | 125   | 125   | 125   |
| 瞬間容許扭力 (kgf-cm)<br>Max momentary tolerance torque | 45   | 210  | 210  | 210  | 210  | 375  | 375  | 375  | 375  | 375   | 375   | 375   | 375   | 375   | 375   | 375   | 375   | 375   |
| 效率<br>Efficiency                                  | 80%  | 70%  | 70%  | 70%  | 70%  | 60%  | 60%  | 60%  | 60%  | 60%   | 60%   | 50%   | 50%   | 50%   | 50%   | 50%   | 50%   | 50%   |
| 長度<br>Length (L)                                  | 52.3 | 68.8 | 68.8 | 68.8 | 68.8 | 85.3 | 85.3 | 85.3 | 85.3 | 85.3  | 85.3  | 101.8 | 101.8 | 101.8 | 101.8 | 101.8 | 101.8 | 101.8 |
| 重量 (滾珠軸承)<br>Weight (g) / Ball bearings           | 1200 | 1650 | 1650 | 1650 | 1650 | 2100 | 2100 | 2100 | 2100 | 2100  | 2100  | 2550  | 2550  | 2550  | 2550  | 2550  | 2550  | 2550  |

- 使用相對溼度：20%~85%RH  
Operating relative humidity
- 使用溫度範圍：-10°C~+60°C  
Operating temperature range

PG

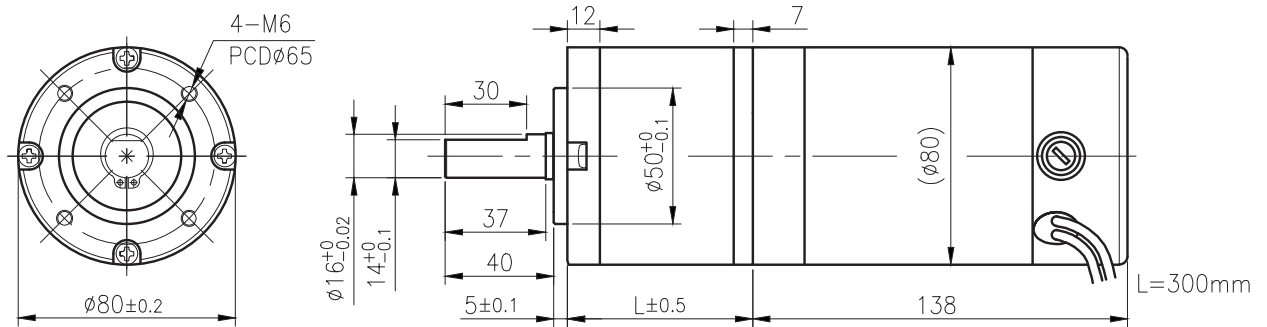
# IG-80GM

## 01 & 02 TYPE



IG

### 外形尺寸/ Appearance Size



unit:mm

Right Angle

RA

RB

### 齒輪箱馬達轉矩 & 速度/ Gear Motor Torque & Speed

|     | 減速比<br>Reduction ratio        | 1/4  | 1/13 | 1/15 | 1/19 | 1/21 | 1/49 | 1/55 | 1/71 | 1/80 | 1/103 | 1/117 | 1/186 | 1/210 | 1/306 | 1/393 | 1/445 | 1/571 | 1/647 |  |
|-----|-------------------------------|------|------|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--|
| 12V | 定格扭力<br>Rated torque (kgf-cm) | 7.6  | 22.4 | 25   | 32   | 36   | 73   | 82   | 105  | 120  | 125   | 125   | 125   | 125   | 125   | 125   | 125   | 125   | 125   |  |
|     | 定格轉速<br>Rated speed (rpm)     | 445  | 130  | 115  | 90   | 80   | 34   | 30   | 23.5 | 21   | 16.7  | 14.7  | 9.3   | 8.3   | 5.8   | 4.5   | 4     | 3.2   | 2.8   |  |
| 24V | 定格扭力<br>Rated torque (kgf-cm) | 9.7  | 28.6 | 32   | 41   | 47   | 93   | 99   | 125  | 125  | 125   | 125   | 125   | 125   | 125   | 125   | 125   | 125   | 125   |  |
|     | 定格轉速<br>Rated speed (rpm)     | 470  | 140  | 124  | 95   | 85   | 36   | 32   | 25.5 | 23   | 17.8  | 15.6  | 9.9   | 8.8   | 6     | 4.7   | 4.2   | 3.3   | 2.9   |  |
|     | 軸心迴轉方向<br>Rotation direction  | CW   |      |      |      |      |      |      |      |      |       |       |       |       |       |       |       |       |       |  |
|     | 長度<br>Length (L)              | 52.3 | 68.8 |      |      |      | 85.3 |      |      |      | 101.8 |       |       |       |       |       |       |       |       |  |

WG

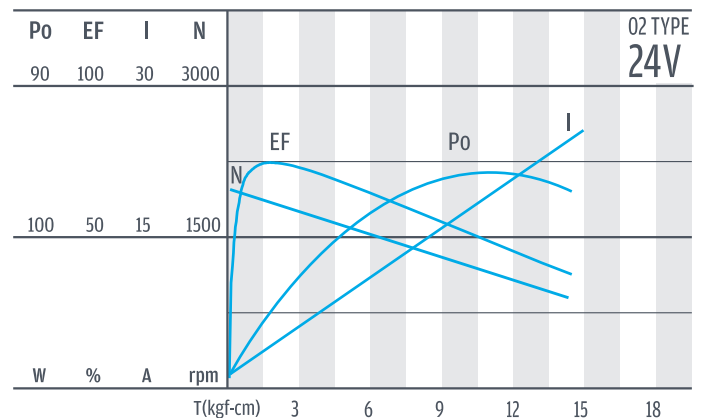
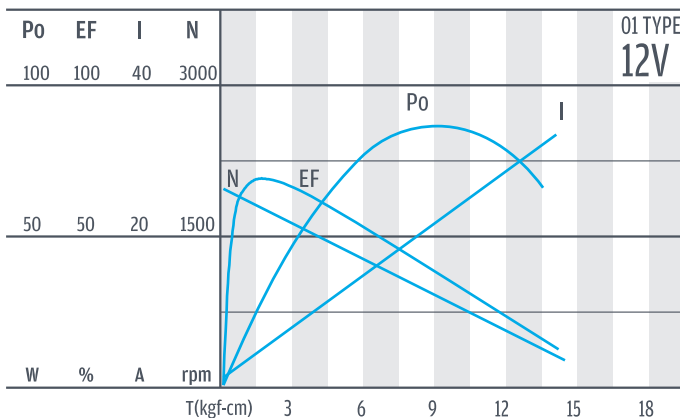
SD

### 馬達單體型式/ Motor Data

| 定格電壓<br>Rated volt (V) | 定格扭力<br>Rated torque (gf-cm) | 定格轉速<br>Rated speed (rpm) | 定格電流<br>Rated current (A) | 無負荷轉速<br>No load speed (rpm) | 無負荷電流<br>No load current (A) | 定格出力<br>Rated output (W) | 重量<br>Weight (g) |
|------------------------|------------------------------|---------------------------|---------------------------|------------------------------|------------------------------|--------------------------|------------------|
| 12                     | 2500                         | 1700                      | $\leq$ 5.3                | 2000                         | $\leq$ 1.1                   | 43.6                     | 1650             |
| 24                     | 3200                         | 1800                      | $\leq$ 3.4                | 2000                         | $\leq$ 0.6                   | 59                       | 1650             |

BLDC

### 馬達單體特性/ Motor Characteristics



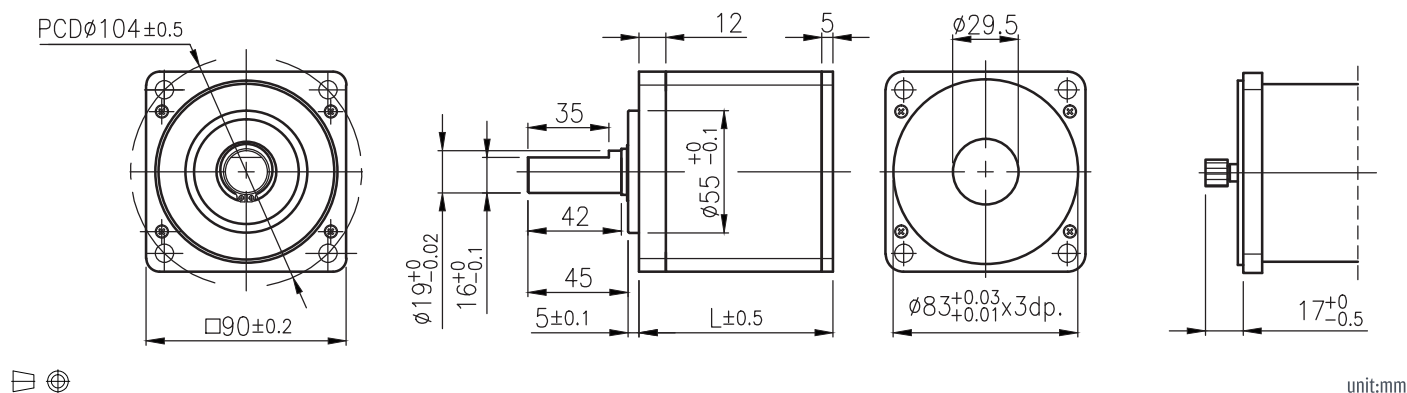
Encoder

Driver

# IG-90W



## 外形尺寸 & 馬達齒鉚合尺寸 / Appearance Size & Pinion Assembly Dimension



## 產品規格 / Product Specifications

| 外殼材質<br>Housing material | 輸出軸承型式<br>Output shaft bearing | 徑向負荷<br>Radial load (10mm from flange) | 軸向負荷<br>Shaft axial load | 主軸承受壓力<br>Shaft press fit force | 徑向間隙<br>Radial play of shaft | 軸向間隙<br>Thrust play of shaft | 背隙 (無負荷時)<br>Backlash, at no-load |
|--------------------------|--------------------------------|--|--------------------------|---------------------------------|------------------------------|------------------------------|-----------------------------------|
| 金屬<br>Metal              | 滾珠軸承<br>Ball bearings          | $\leq$ 40 kgf                          | $\leq$ 10 kgf            | $\leq$ 100 kgf                  | $\leq$ 0.08 mm               | $\leq$ 0.4 mm                | $\leq$ 4°                         |

## 馬達齒輪型式 / Pinion Specifications

| 模數<br>Module | 齒數<br>No. of teeth | 壓力角<br>Pressure angle | 孔徑 (mm)<br>Hole diameter | 減速比<br>Reduction ratio                |
|--------------|--------------------|-----------------------|--------------------------|---------------------------------------|
| 1.0          | 16                 | 20°                   | $\phi$ 10X8              | 1/19, 1/77, 1/98, 1/294, 1/403, 1/517 |
| 1.0          | 22                 | 20°                   | $\phi$ 10X8              | 1/15, 1/60                            |
| 1.0          | 24                 | 20°                   | $\phi$ 10X8              | 1/52, 1/201                           |
| 1.25         | 21                 | 20°                   | $\phi$ 10X8              | 1/4                                   |

## 標準減速比型式 / Gearboxes Specifications

| 減速比<br>Reduction ratio                            | 1/4  | 1/15 | 1/19 | 1/52 | 1/60 | 1/77 | 1/98 | 1/201 | 1/294 | 1/403 | 1/517 |
|---|------|------|------|------|------|------|------|-------|-------|-------|-------|
| 定格容許扭力 (kgf-cm max.)<br>Rated tolerance torque    | 20   | 80   | 80   | 150  | 150  | 150  | 150  | 180   | 180   | 180   | 180   |
| 瞬間容許扭力 (kgf-cm)<br>Max momentary tolerance torque | 60   | 240  | 240  | 450  | 450  | 450  | 450  | 540   | 540   | 540   | 540   |
| 效率<br>Efficiency                                  | 80%  | 70%  | 70%  | 60%  | 60%  | 60%  | 60%  | 50%   | 50%   | 50%   | 50%   |
| 長度<br>Length (L)                                  | 53.3 | 69.8 | 69.8 | 86.3 | 86.3 | 86.3 | 86.3 | 102.8 | 102.8 | 102.8 | 102.8 |
| 重量 (滾珠軸承)<br>Weight (g) /Ball bearings            | 1490 | 2120 | 2120 | 2750 | 2750 | 2750 | 2750 | 3380  | 3380  | 3380  | 3380  |

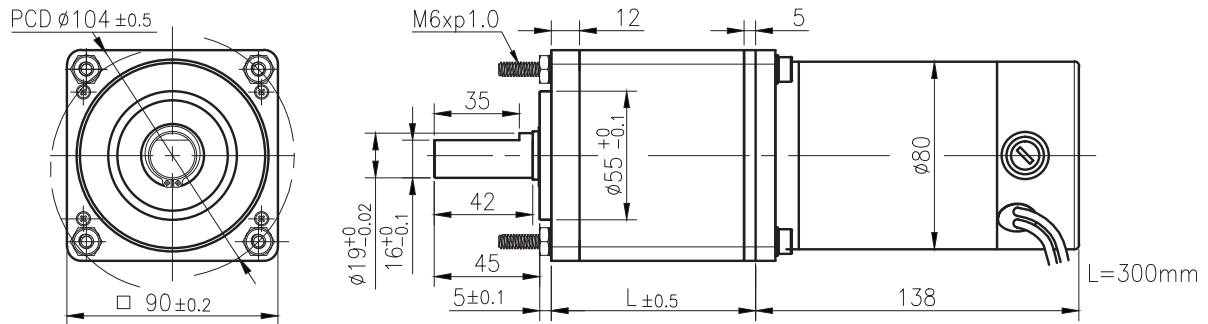
- 使用相對溼度：20%~85%RH  
Operating relative humidity
- 使用溫度範圍：-10°C~+60°C  
Operating temperature range

# IG-90WGM

## 01 & 02 TYPE



### 外形尺寸 / Appearance Size



unit:mm

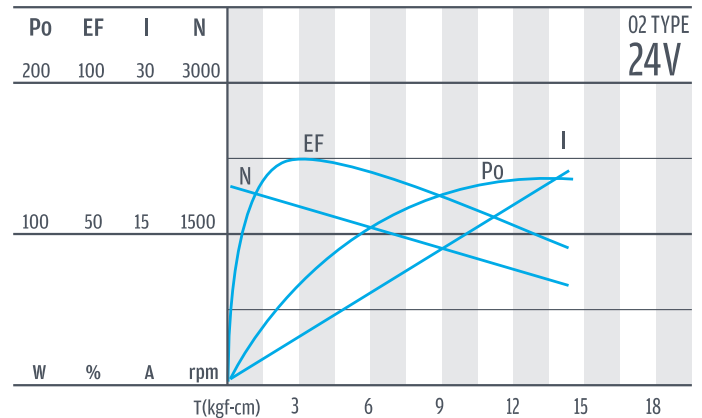
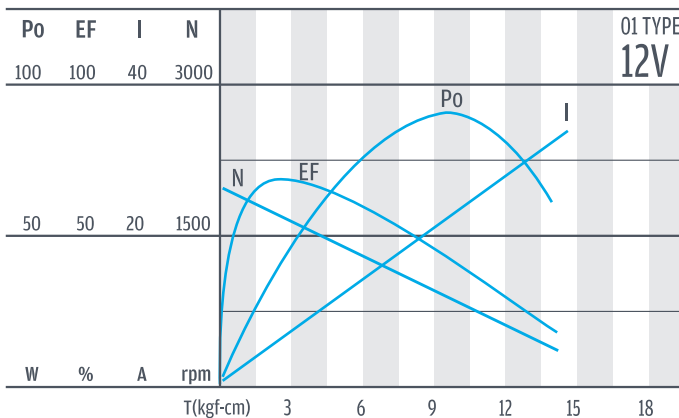
### 齒輪箱馬達轉矩 & 速度 / Gear Motor Torque & Speed

| 減速比<br>Reduction ratio            | 1/4  | 1/15 | 1/19 | 1/52 | 1/60 | 1/77 | 1/98 | 1/201 | 1/294 | 1/403 | 1/517 |
|-----------------------------------|------|------|------|------|------|------|------|-------|-------|-------|-------|
| 12V 定格扭力<br>Rated torque (kgf-cm) | 7    | 25   | 32   | 78   | 89   | 115  | 147  | 180   | 180   | 180   | 180   |
| 12V 定格轉速<br>Rated speed (rpm)     | 470  | 115  | 90   | 32   | 28   | 22   | 17   | 8.8   | 6     | 4.5   | 3.6   |
| 24V 定格扭力<br>Rated torque (kgf-cm) | 9    | 32   | 42   | 100  | 114  | 147  | 150  | 180   | 180   | 180   | 180   |
| 24V 定格轉速<br>Rated speed (rpm)     | 500  | 123  | 96   | 34   | 30   | 23   | 18.5 | 9.3   | 6.4   | 4.6   | 3.7   |
| 軸心迴轉方向<br>Rotation direction      | CW   |      |      |      |      |      |      |       |       |       |       |
| 長度<br>Length (L)                  | 53.3 | 69.8 |      |      |      | 86.3 |      |       |       | 102.8 |       |

### 馬達單體型式 / Motor Data

| 定格電壓<br>Rated volt (V) | 定格扭力<br>Rated torque (gf-cm) | 定格轉速<br>Rated speed (rpm) | 定格電流<br>Rated current (A) | 無負荷轉速<br>No load speed (rpm) | 無負荷電流<br>No load current (A) | 定格出力<br>Rated output (W) | 重量<br>Weight (g) |
|------------------------|------------------------------|---------------------------|---------------------------|------------------------------|------------------------------|--------------------------|------------------|
| 12                     | 2500                         | 1700                      | ≤ 5.3                     | 2000                         | ≤ 1.1                        | 43.6                     | 2150             |
| 24                     | 3200                         | 1800                      | ≤ 3.7                     | 2000                         | ≤ 0.6                        | 59                       | 2150             |

### 馬達單體特性 / Motor Characteristics

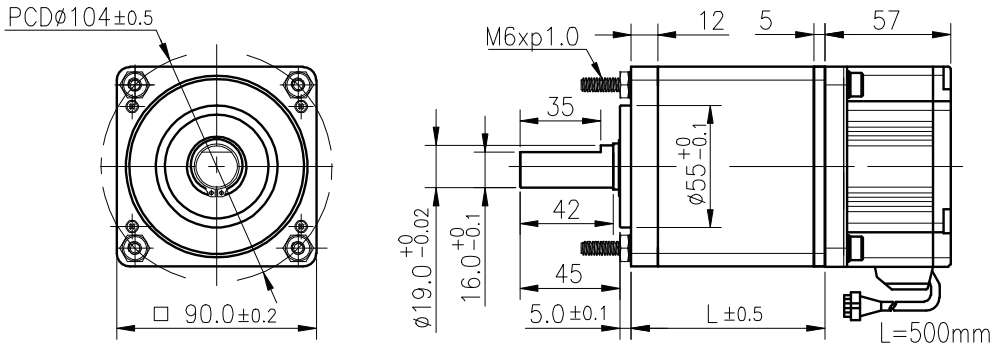


# IG-90WGM

## 41 TYPE



外形尺寸/ Appearance Size



unit:mm

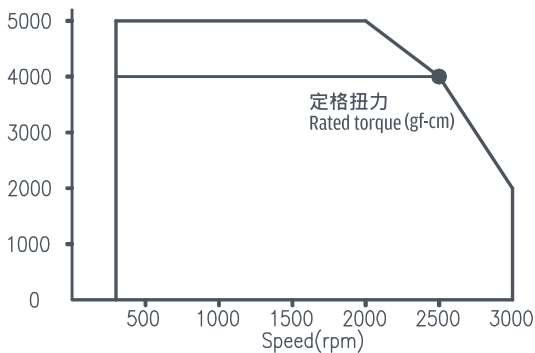
齒輪箱馬達轉矩 & 速度/ Gear Motor Torque & Speed

| 減速比<br>Reduction ratio            | 1/4  | 1/15 | 1/19 | 1/52 | 1/60 | 1/77 | 1/98 | 1/201 | 1/294 | 1/403 | 1/517 |  |  |  |  |
|-----------------------------------|------|------|------|------|------|------|------|-------|-------|-------|-------|--|--|--|--|
| 24V 定格扭力<br>Rated torque (kgf-cm) | 11   | 40   | 52   | 125  | 143  | 150  | 150  | 180   | 180   | 180   | 180   |  |  |  |  |
| 定格轉速<br>Rated speed (rpm)         | 700  | 171  | 133  | 47   | 41.8 | 32.5 | 25.4 | 12    | 8.5   | 6.2   | 4.8   |  |  |  |  |
| 長度<br>Length (L)                  | 53.3 | 69.8 |      |      |      | 86.3 |      |       |       |       | 102.8 |  |  |  |  |

馬達單體型式/ Motor Data

|                              |      |                              |             |                               |              |                           |                 |                                       |           |                                       |          |                          |       |                  |      |
|------------------------------|------|------------------------------|-------------|-------------------------------|--------------|---------------------------|-----------------|---------------------------------------|-----------|---------------------------------------|----------|--------------------------|-------|------------------|------|
| 定格電壓<br>Rated volt (V)       | 24   | 定格扭力<br>Rated torque (gf-cm) | 4000        | 定格轉速<br>Rated speed (rpm)     | 2500         | 定格電流<br>Rated current (A) | ≤ 6             | 無負荷轉速<br>No load speed (rpm)          | 3000      | 無負荷電流<br>No load current (A)          | ≤ 0.6    | 定格出力<br>Rated output (W) | 102.7 | 重量<br>Weight (g) | 1300 |
| 啟動扭力<br>Start torque (gf-cm) | 5000 | 絕緣抗耐<br>Insulation voltage   | 60HZ AC500V | 絕緣阻抗<br>Insulation resistance | 100MΩ DC500V | 絕緣等級<br>Insulation class  | A class (105°C) | 使用相對溼度<br>Operating relative humidity | 20%~85%RH | 使用溫度範圍<br>Operating temperature range | 0~+50 C° |                          |       |                  |      |

馬達單體特性/ Motor Characteristics



搭配之驅動器型式/ Connected With Motor Driver

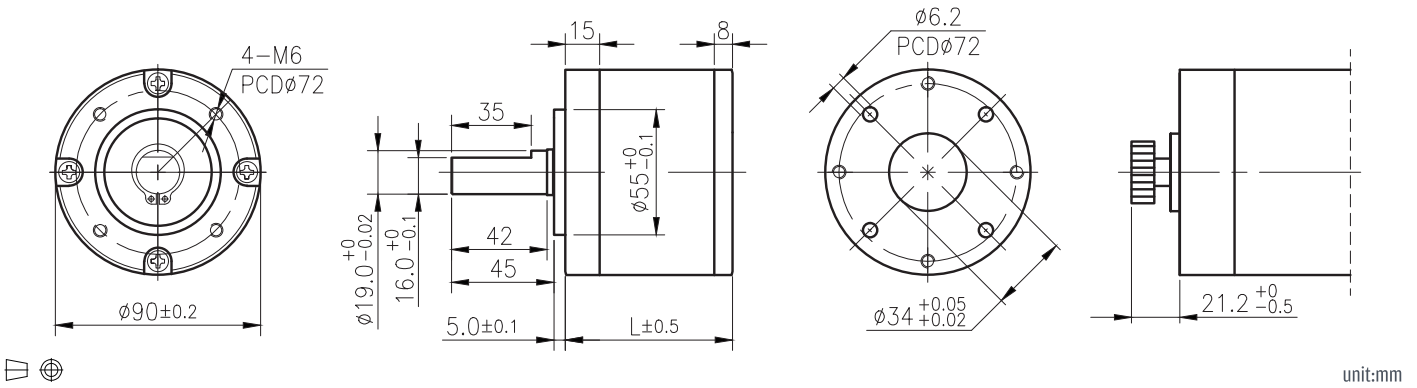
|                               |  |
|-------------------------------|--|
| 型號<br>Type                    | DBMC100-3  |
| 輸入電壓<br>Input voltage         | DC 24V±10%   |
| 速度控制範圍<br>Speed control range | 300~3000 rpm   |
| 速度設定方式<br>Speed control way   | 1. 內部速度設定 Internal control<br>2. 外部速度設定 External speed control<br>3. 外部直流電壓控制 (DC 0~5V) External voltage control (DC 0~5V) |



# IG-90



外形尺寸 & 馬達齒鉚合尺寸 / Appearance Size & Pinion Assembly Dimension



unit:mm

## 產品規格 / Product Specifications

| 外殼材質<br>Housing material | 輸出軸承型式<br>Output shaft bearing | 徑向負荷<br>Radial load (10mm from flange) | 軸向負荷<br>Shaft axial load | 主軸承受壓入力<br>Shaft press fit force | 徑向間隙<br>Radial play of shaft | 軸向間隙<br>Thrust play of shaft | 背隙 (無負荷時)<br>Backlash, at no-load |
|--------------------------|--------------------------------|--|--------------------------|----------------------------------|------------------------------|------------------------------|-----------------------------------|
| 金屬<br>Metal              | 滾珠軸承<br>Ball bearings          | ≤ 40 kgf                               | ≤ 10 kgf                 | ≤ 100 kgf                        | ≤ 0.08 mm                    | ≤ 0.4 mm                     | ≤ 4°                              |

## 馬達齒輪型式 / Pinion Specifications

| 模數<br>Module | 齒數<br>No. of teeth | 壓力角<br>Pressure angle | 孔徑 (mm)<br>Hole diameter | 減速比<br>Reduction ratio                |
|--------------|--------------------|-----------------------|--------------------------|---------------------------------------|
| 1.0          | 16                 | 20°                   | ○ $\phi 10 \times 8$     | 1/19, 1/77, 1/98, 1/294, 1/403, 1/517 |
| 1.0          | 22                 | 20°                   | ○ $\phi 12 \times 10$    | 1/15, 1/60                            |
| 1.0          | 24                 | 20°                   | ○ $\phi 12 \times 10$    | 1/52, 1/201                           |
| 1.25         | 21                 | 20°                   | ○ $\phi 12 \times 10$    | 1/4                                   |

## 標準減速比型式 / Gearboxes Specifications

| 減速比<br>Reduction ratio                            | 1/4  | 1/15 | 1/19 | 1/52 | 1/60 | 1/77 | 1/98 | 1/201 | 1/294 | 1/403 | 1/517 |
|---|------|------|------|------|------|------|------|-------|-------|-------|-------|
| 定格容許扭力 (kgf-cm max.)<br>Rated tolerance torque    | 20   | 80   | 80   | 150  | 150  | 150  | 150  | 180   | 180   | 180   | 180   |
| 瞬間容許扭力 (kgf-cm)<br>Max momentary tolerance torque | 60   | 240  | 240  | 450  | 450  | 450  | 450  | 540   | 540   | 540   | 540   |
| 效率<br>Efficiency                                  | 80%  | 70%  | 70%  | 60%  | 60%  | 60%  | 60%  | 50%   | 50%   | 50%   | 50%   |
| 長度<br>Length (L)                                  | 57.3 | 73.8 | 73.8 | 90.3 | 90.3 | 90.3 | 90.3 | 106.8 | 106.8 | 106.8 | 106.8 |
| 重量 (滾珠軸承)<br>Weight (g) /Ball bearings            | 1670 | 2230 | 2230 | 2800 | 2800 | 2800 | 2800 | 3370  | 3370  | 3370  | 3370  |

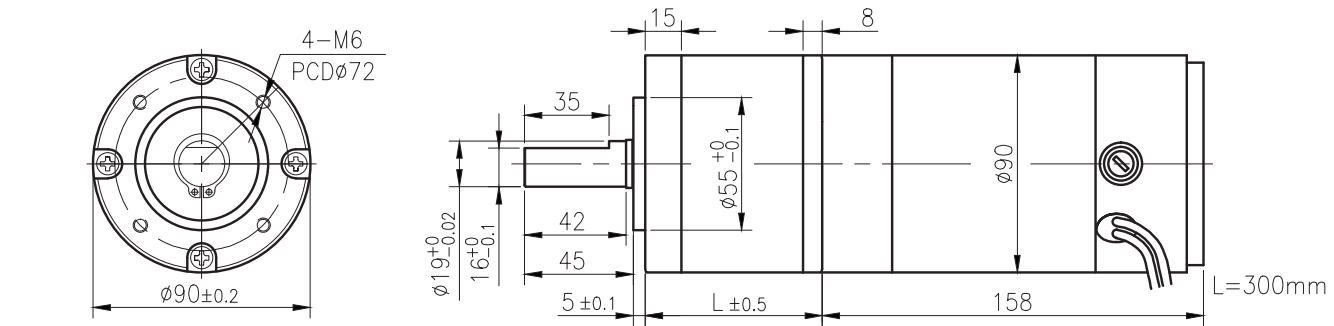
- 使用相對溼度：20%~85%RH  
Operating relative humidity
- 使用溫度範圍：-10°C~+60°C  
Operating temperature range

# IG-90GM

## 01 & 02 TYPE



外形尺寸/ Appearance Size



unit:mm

齒輪箱馬達轉矩 & 速度/ Gear Motor Torque & Speed

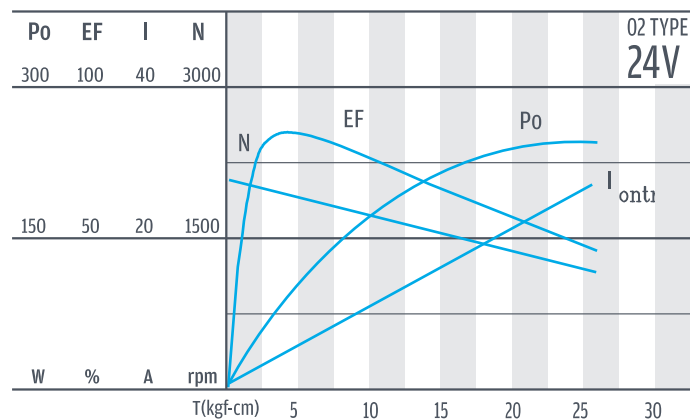
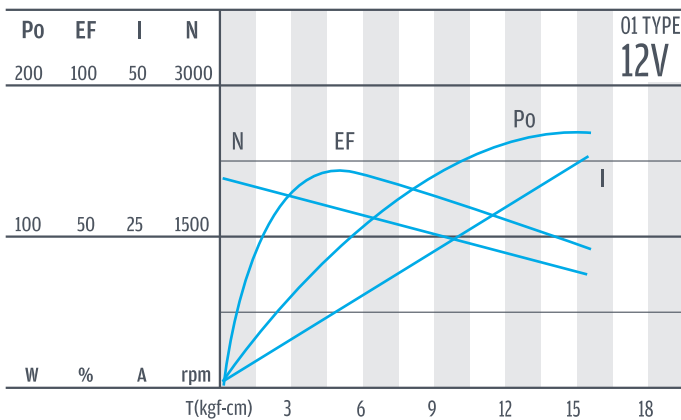
|                              |                               | 減速比<br>Reduction ratio | 1/4  | 1/15 | 1/19 | 1/52 | 1/60 | 1/77 | 1/98 | 1/201 | 1/294 | 1/403 | 1/517 |  |  |
|------------------------------|-------------------------------|------------------------|------|------|------|------|------|------|------|-------|-------|-------|-------|--|--|
| 12V                          | 定格扭力<br>Rated torque (kgf-cm) | 10                     | 37   | 48   | 115  | 132  | 150  | 150  | 180  | 180   | 180   | 180   | 180   |  |  |
|                              | 定格轉速<br>Rated speed (rpm)     | 500                    | 123  | 96   | 34   | 31   | 24   | 19   | 9.2  | 6.4   | 4.6   | 3.6   |       |  |  |
| 24V                          | 定格扭力<br>Rated torque (kgf-cm) | 12                     | 42   | 55   | 130  | 150  | 150  | 180  | 180  | 180   | 180   | 180   | 180   |  |  |
|                              | 定格轉速<br>Rated speed (rpm)     | 510                    | 127  | 99   | 35   | 31   | 25   | 20   | 9.4  | 6.5   | 4.7   | 3.7   |       |  |  |
| 軸心迴轉方向<br>Rotation direction |                               | CW                     |      |      |      |      |      |      |      |       |       |       |       |  |  |
| 長度<br>Length (L)             |                               | 57.3                   | 73.8 |      | 90.3 |      |      |      |      | 106.8 |       |       |       |  |  |

1300

馬達單體型式/ Motor Data

| 定格電壓<br>Rated volt (V) | 定格扭力<br>Rated torque (gf-cm) | 定格轉速<br>Rated speed (rpm) | 定格電流<br>Rated current (A) | 無負荷轉速<br>No load speed (rpm) | 無負荷電流<br>No load current (A) | 定格出力<br>Rated output (W) | 重量<br>Weight (g) |
|------------------------|------------------------------|---------------------------|---------------------------|------------------------------|------------------------------|--------------------------|------------------|
| 12                     | 3700                         | 1800                      | ≤8.3                      | 2000                         | ≤1.5                         | 68.4                     | 2150             |
| 24                     | 4200                         | 1860                      | ≤3.9                      | 2000                         | ≤0.95                        | 80                       | 2150             |

馬達單體特性/ Motor Characteristics

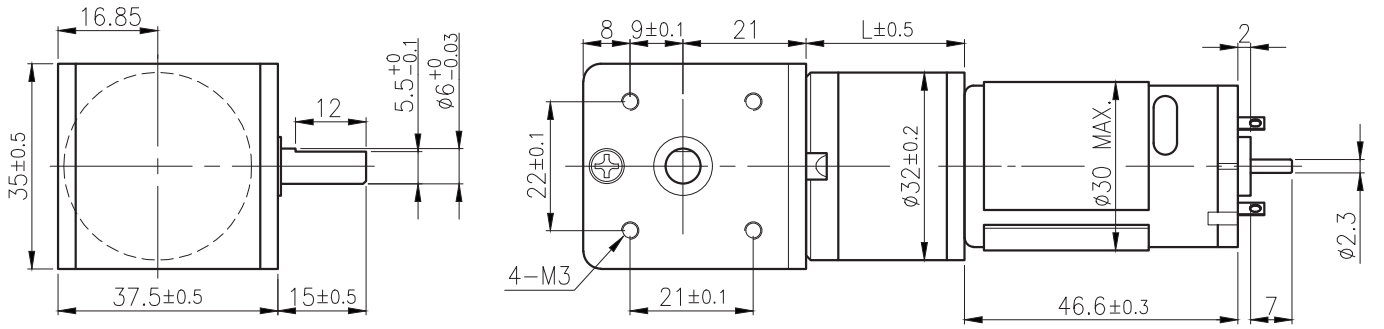


# IG-32RGM

## 03 & 04 TYPE



外形尺寸 / Appearance Size



unit:mm

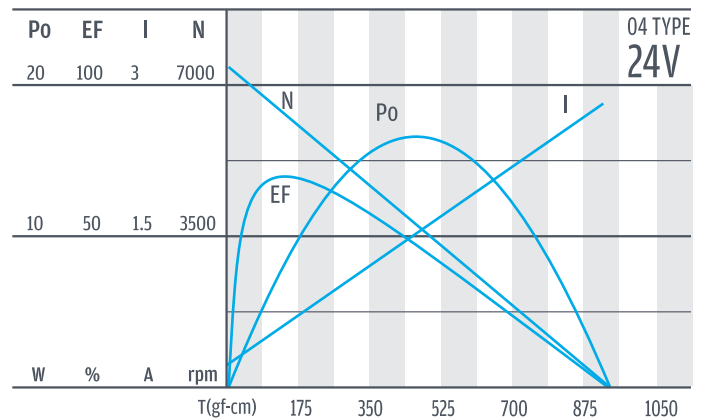
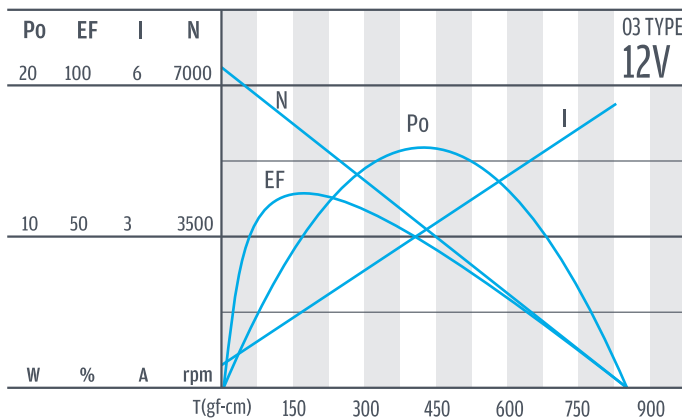
齒輪箱馬達轉矩 & 速度 / Gear Motor Torque & Speed

| 減速比<br>Reduction ratio       |                               | 1/5  | 1/14 | 1/19 | 1/27 | 1/35 | 1/51 | 1/71 | 1/100 | 1/139 | 1/189 | 1/264 | 1/516 | 1/721 | 1/939 |  |
|------------------------------|-------------------------------|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|--|
| 12V                          | 定格扭力<br>Rated torque (kgf-cm) | 0.4  | 0.9  | 1.2  | 1.7  | 2.3  | 2.8  | 3.9  | 5.4   | 7.6   | 8.3   | 11.6  | 12    | 12    | 12    |  |
|                              | 定格轉速<br>Rated speed (rpm)     | 1140 | 430  | 310  | 220  | 170  | 116  | 83   | 60    | 43    | 32    | 24    | 12.9  | 9.5   | 7.2   |  |
| 24V                          | 定格扭力<br>Rated torque (kgf-cm) | 0.47 | 1.1  | 1.5  | 2.1  | 2.7  | 3.3  | 4.6  | 6.4   | 9     | 9.8   | 12    | 12    | 12    | 12    |  |
|                              | 定格轉速<br>Rated speed (rpm)     | 1170 | 445  | 320  | 229  | 176  | 120  | 87   | 62    | 45    | 34    | 25    | 13    | 9.6   | 7.2   |  |
| 軸心迴轉方向<br>Rotation direction |                               | CCW  |      |      |      |      |      |      |       |       |       |       |       |       |       |  |
| 長度<br>Length (L)             |                               | 20.6 |      |      | 27   |      |      | 33.4 |       |       | 39.8  |       |       |       |       |  |

馬達單體型式 / Motor Data

| 定格電壓<br>Rated volt (V) | 定格扭力<br>Rated torque (gf-cm) | 定格轉速<br>Rated speed (rpm) | 定格電流<br>Rated current (A) | 無負荷轉速<br>No load speed (rpm) | 無負荷電流<br>No load current (A) | 定格出力<br>Rated output (W) | 重量<br>Weight (g) |
|------------------------|------------------------------|---------------------------|---------------------------|------------------------------|------------------------------|--------------------------|------------------|
| 12                     | 110                          | 5950                      | ≤0.9                      | 7300                         | ≤0.15                        | 7                        | 110              |
| 24                     | 130                          | 6160                      | ≤0.5                      | 7300                         | ≤0.08                        | 8.5                      | 110              |

馬達單體特性 / Motor Characteristics

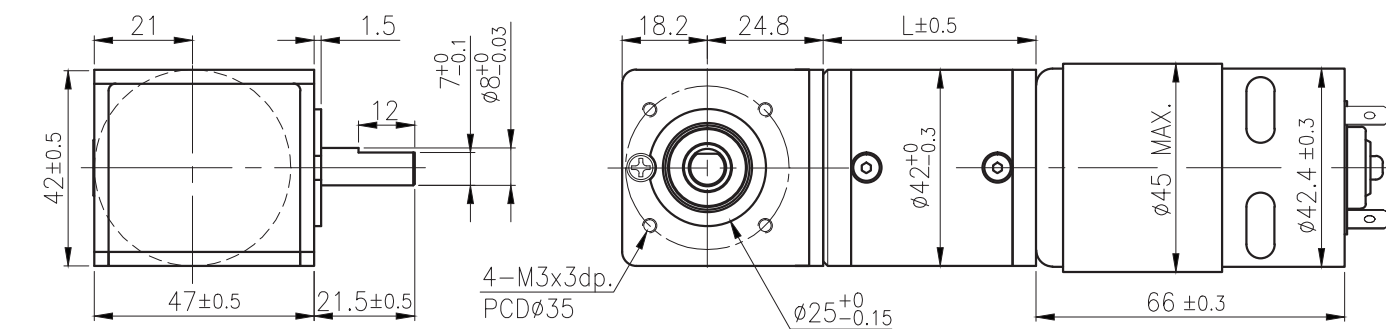


# IG-42CRGM

01 & 02 TYPE



## 外形尺寸 / Appearance Size



unit:mm

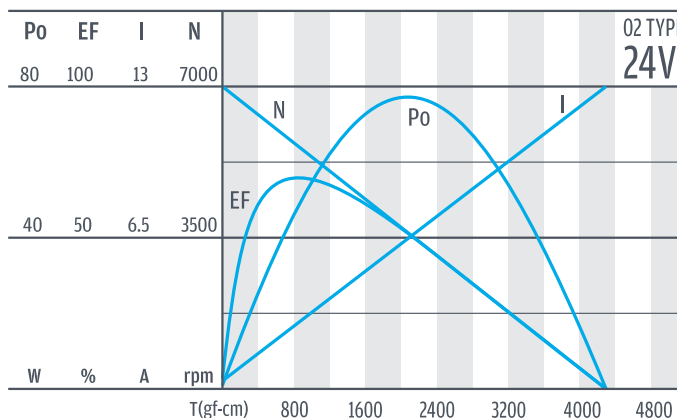
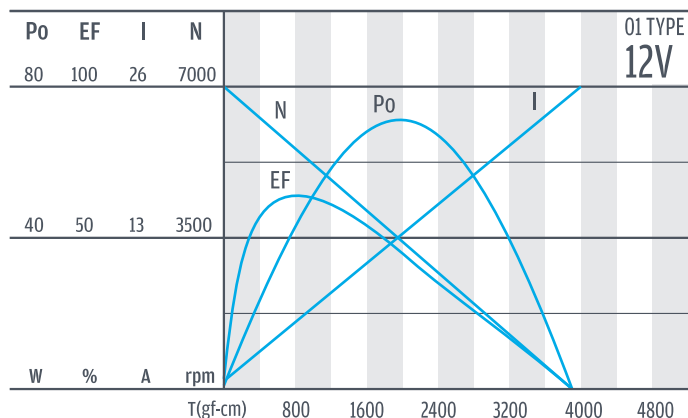
## 齒輪箱馬達轉矩 & 速度 / Gear Motor Torque & Speed

|                              | 減速比<br>Reduction ratio        | 1/4  | 1/14 | 1/17 | 1/24 | 1/49 | 1/61 | 1/84 | 1/104 | 1/144 | 1/212 | 1/294 | 1/504 | 1/624 | 1/720 | 1/864 | 1/1062 | 1/1470 | 1/2500 | 1/3000 | 1/3600 |
|------------------------------|-------------------------------|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|--------|--------|
| 12V                          | 定格扭力<br>Rated torque (kgf-cm) | 2    | 6.1  | 7.6  | 8    | 18   | 18   | 18   | 20    | 20    | 25    | 25    | 30    | 30    | 30    | 30    | 30     | 30     | 30     | 30     | 30     |
|                              | 定格轉速<br>Rated speed (rpm)     | 1400 | 405  | 325  | 248  | 120  | 98   | 76   | 63    | 45    | 31    | 24    | 13.5  | 10.9  | 9.5   | 8     | 6.5    | 4.6    | 2.7    | 2.3    | 1.9    |
| 24V                          | 定格扭力<br>Rated torque (kgf-cm) | 1.6  | 5    | 6.2  | 8    | 15   | 18   | 18   | 20    | 20    | 25    | 25    | 30    | 30    | 30    | 30    | 30     | 30     | 30     | 30     | 30     |
|                              | 定格轉速<br>Rated speed (rpm)     | 1445 | 420  | 340  | 240  | 122  | 102  | 77.5 | 63    | 47    | 31    | 23.8  | 13.5  | 10.9  | 9.5   | 8     | 6.5    | 4.6    | 2.7    | 2.3    | 1.9    |
| 軸心迴轉方向<br>Rotation direction |                               | CCW  |      |      |      |      |      |      |       |       |       |       |       |       |       |       |        |        |        |        |        |
| 長度<br>Length (L)             |                               | 32.5 | 39.2 |      | 45.9 |      |      |      | 52.6  |       |       |       | 59.6  |       |       |       |        |        |        |        |        |

## 馬達單體型式 / Motor Data

| 定格電壓<br>Rated volt (V) | 定格扭力<br>Rated torque (gf-cm) | 定格轉速<br>Rated speed (rpm) | 定格電流<br>Rated current (A) | 無負荷轉速<br>No load speed (rpm) | 無負荷電流<br>No load current (A) | 定格出力<br>Rated output (W) | 重量<br>Weight (g) |
|------------------------|------------------------------|---------------------------|---------------------------|------------------------------|------------------------------|--------------------------|------------------|
| 12                     | 700                          | 5700                      | ≤5.5                      | 7000                         | ≤0.9                         | 41.3                     | 360              |
| 24                     | 570                          | 5900                      | ≤2.1                      | 7000                         | ≤0.5                         | 34.7                     | 360              |

## 馬達單體特性 / Motor Characteristics

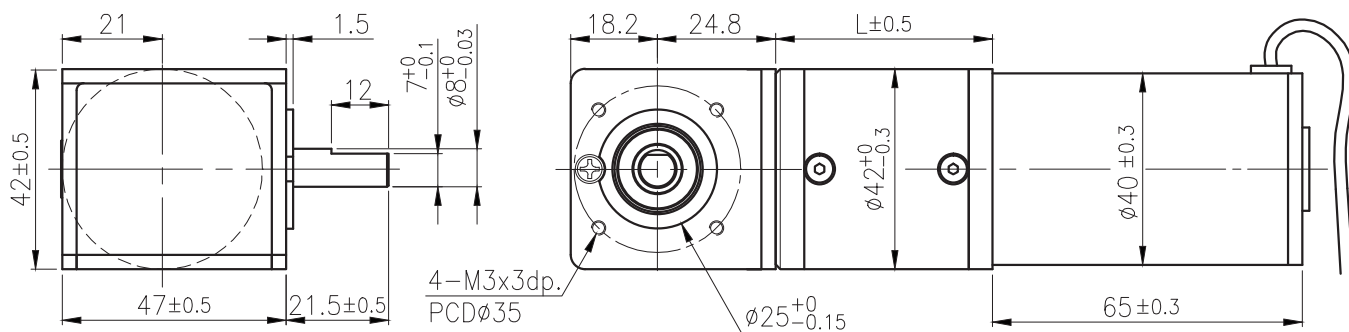


# IG-42CRGM

## 03 & 04 TYPE



外形尺寸 / Appearance Size



unit:mm

齒輪箱馬達轉矩 & 速度 / Gear Motor Torque & Speed

| 減速比<br>Reduction ratio               | 1/4  | 1/14 | 1/17 | 1/24 | 1/49 | 1/61 | 1/84 | 1/104 | 1/144 | 1/212 | 1/294 | 1/504 | 1/624 | 1/720 | 1/864 | 1/1062 | 1/1470 | 1/2500 | 1/3000 | 1/3600 |  |
|--------------------------------------|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|--------|--------|--|
| 12V<br>定格扭力<br>Rated torque (kgf-cm) | 1.2  | 3.8  | 4.7  | 6.5  | 11.3 | 14   | 18   | 20    | 20    | 25    | 25    | 30    | 30    | 30    | 30    | 30     | 30     | 30     | 30     | 30     |  |
| 12V<br>定格轉速<br>Rated speed (rpm)     | 930  | 265  | 210  | 150  | 76   | 61   | 45   | 37    | 27    | 18.5  | 14    | 8.3   | 6.9   | 5.9   | 4.9   | 4      | 2.8    | 1.7    | 1.4    | 1.2    |  |
| 24V<br>定格扭力<br>Rated torque (kgf-cm) | 1    | 3    | 3.8  | 5.2  | 9.2  | 11.4 | 16   | 20    | 20    | 25    | 25    | 30    | 30    | 30    | 30    | 30     | 30     | 30     | 30     | 30     |  |
| 24V<br>定格轉速<br>Rated speed (rpm)     | 945  | 270  | 215  | 155  | 76   | 62   | 45   | 36    | 27    | 18.5  | 14    | 8.3   | 6.9   | 5.9   | 4.9   | 4      | 2.8    | 1.7    | 1.4    | 1.2    |  |
| 軸心迴轉方向<br>Rotation direction         | CW   |      |      |      |      |      |      |       |       |       |       |       |       |       |       |        |        |        |        |        |  |
| 長度<br>Length (L)                     | 32.5 |      |      | 39.2 |      |      | 45.9 |       |       | 52.6  |       |       | 59.6  |       |       |        |        |        |        |        |  |

馬達單體型式 / Motor Data

| 定格電壓<br>Rated volt (V) | 定格扭力<br>Rated torque (gf-cm) | 定格轉速<br>Rated speed (rpm) | 定格電流<br>Rated current (A) | 無負荷轉速<br>No load speed (rpm) | 無負荷電流<br>No load current (A) | 定格出力<br>Rated output (W) | 重量<br>Weight (g) |
|------------------------|------------------------------|---------------------------|---------------------------|------------------------------|------------------------------|--------------------------|------------------|
| 12                     | 430                          | 3750                      | ≤ 2.0                     | 4500                         | ≤ 0.5                        | 16.56                    | 310              |
| 24                     | 350                          | 3800                      | ≤ 0.82                    | 4500                         | ≤ 0.22                       | 13.65                    | 310              |

馬達單體特性 / Motor Characteristics

